Rexroth Bosch Group

Rexroth IndraDrive MPx02, MPx03, MPx04, MPx05 and HMV

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Troubleshooting Guide

Title

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and HMV

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Troubleshooting Guide

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Purpose of Documentation

This documentation contains the descriptions of all diagnostic messages implemented in the firmware for drive controllers and supply units of the IndraDrive range.

It assists machine operators and installation programmers with trouble shooting.

Record of Revision

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DOK-INDRV*-GEN-**VRS-WA01-EN-P	2004-03-17	First edition
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Note

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1 Introduction

1.1 About This Documentation

Means of Representation in This Documentation

To make the reading of this documentation easier for you, the table below contains the means of representation and notations of recurring terms.

What?	How?	For example...
Important facts which are to be highlighted in continuous text	Boldface	**As of MPx05VRS:** In "P-0-4088, Master communication, configuration", you can configure the reaction to the failure of the cyclic communication as a warning or as an error.
Parameter names, diagnostic message names, function designations	Quotation marks	In parameter "S-0-0375, List of diagnostic numbers", the last 50 diagnostic message numbers are...

Fig. 1-1: Conventions of notation

All important notes are highlighted. A symbol tells you what kind of note is used in the text. The symbols have the following significances:

DANGER

...

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

...

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

...

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in injury or property damage.

This box contains important information which you should take into consideration.

This symbol highlights useful tips and tricks.

Your Feedback

Your experience is important for our improvement processes of products and documentations.

If you discover mistakes in this documentation or suggest changes, you can send your feedback to the following e-mail address:

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- The number indicated under "Internal File Reference".

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1.2 Reference Documentations

1.2.1 Drive Systems, System Components

Title Rexroth IndraDrive …	Kind of documentation	Document typecode[1)] DOK-INDRV*-…	Part no. R911…
Drive System	Project Planning Manual	SYSTEM*****-PRxx-EN-P	309636
Mi Drive Systems	Project Planning Manual	KCU+KSM****-PRxx-EN-P	320924
Supply Units and Power Sections	Project Planning Manual	HMV-S-D+HCS-PRxx-EN-P	318790
Drive Controllers Control Sections	Project Planning Manual	CSH********-PRxx-EN-P	295012
Additional Components	Project Planning Manual	ADDCOMP****-PRxx-EN-P	306140

1) In the document typecodes, "xx" is a wild card for the current edition of the documentation (example: PR01 is the first edition of a Project Planning Manual)

Fig.1-2: Documentations – drive systems, system components

1.2.2 Motors

Title Rexroth IndraDyn …	Kind of documentation	Document typecode[1)] DOK-MOTOR*-…	Part no. R911…
A Series Asynchronous Motors MAD/ MAF	Project Planning Manual	MAD/MAF****-PRxx-EN-P	295781
H Frameless Synchronous Spindle Motors	Project Planning Manual	MBS-H******-PRxx-EN-P	297895
L Synchronous Linear Motors	Project Planning Manual	MLF********-PRxx-EN-P	293635
S MSK Synchronous Motors	Project Planning Manual	MSK********-PRxx-EN-P	296289
T Synchronous Torque Motors	Project Planning Manual	MBT********-PRxx-EN-P	298798

1) In the document typecodes, "xx" is a wild card for the current edition of the documentation (example: PR01 is the first edition of a Project Planning Manual)

Fig.1-3: Documentations – motors

1.2.3 Cables

Title	Kind of documentation	Document typecode[1)] DOK-…	Part no. R911…
Rexroth Connection Cables	Selection Data	CONNEC-CABLE*STAND-AUxx-EN-P	282688

1) In the document typecodes, "xx" is a wild card for the current edition of the documentation (example: AU03 is the third edition of the documentation "Selection Data")

Fig.1-4: Documentations – cables

1.2.4 Firmware

Title Rexroth IndraDrive …	Kind of documentation	Document typecode[1)] DOK-INDRV*-…	Part no. R911…
Firmware for Drive Controllers	Functional Description	MP*-02VRS**-FKxx-EN-P	299223
Firmware for Drive Controllers	Functional Description	MP*-03VRS**-FKxx-EN-P	308329

Title Rexroth IndraDrive …	Kind of documentation	Document typecode[1)] DOK-INDRV*-…	Part no. R911…
Firmware for Drive Controllers	Functional Description	MP*-04VRS**-FKxx-EN-P	315485
Firmware for Drive Controllers	Parameter Description	GEN-**VRS**-PAxx-EN-P	297317
Firmware for Drive Controllers	Troubleshooting Guide	GEN-**VRS**-WAxx-EN-P	297319
Integrated Safety Technology	Functional and Application Description	SI*-**VRS**-FKxx-EN-P	297838
Rexroth IndraMotion MLD	Application Manual	MLD-**VRS**-AWxx-EN-P	306084
Rexroth IndraMotion MLD Library	Library Description	MLD-SYSLIB*-FKxx-EN-P	309224

1) In the document typecodes, "xx" is a wild card for the current edition of the documentation (example: PA02 is the second edition of a Parameter Description)

Fig. 1-5: Documentations – firmware

2 Important Directions for Use

2.1 Appropriate Use

2.1.1 Introduction

Rexroth products represent state-of-the-art developments and manufacturing. They are tested prior to delivery to ensure operating safety and reliability.

WARNING

Personal injury and property damage caused by incorrect use of the products!

The products have been designed for use in the industrial environment and may only be used in the appropriate way. If they are not used in the appropriate way, situations resulting in property damage and personal injury can occur.

☞ Rexroth as manufacturer is not liable for any damages resulting from inappropriate use. In such cases, the guarantee and the right to payment of damages resulting from inappropriate use are forfeited. The user alone carries all responsibility of the risks.

Before using Rexroth products, make sure that all the pre-requisites for an appropriate use of the products are satisfied:

- Personnel that in any way, shape or form uses our products must first read and understand the relevant safety instructions and be familiar with appropriate use.
- If the products take the form of hardware, then they must remain in their original state, in other words, no structural changes are permitted. It is not permitted to decompile software products or alter source codes.
- Do not mount damaged or faulty products or use them in operation.
- Make sure that the products have been installed in the manner described in the relevant documentation.

2.1.2 Areas of Use and Application

Drive controllers made by Rexroth are designed to control electrical motors and monitor their operation.

Control and monitoring of the Drive controllers may require additional sensors and actors.

☞ The drive controllers may only used with the accessories and parts specified in this documentation. If a component has not been specifically named, then it may neither be mounted nor connected. The same applies to cables and lines.

Operation is only permitted in the specified configurations and combinations of components using the software and firmware as specified in the relevant Functional Descriptions.

Drive controllers have to be programmed before commissioning, making it possible for the motor to execute the specific functions of an application.

Drive controllers of the Rexroth IndraDrive line have been developed for use in single- and multi-axis drive and control tasks.

To ensure application-specific use of Drive controllers, device types of different drive power and different interfaces are available.

Typical applications include:

- handling and mounting systems,
- packaging and food machines,
- printing and paper processing machines and
- machine tools.

Drive controllers may only be operated under the assembly and installation conditions described in this documentation, in the specified position of normal use and under the ambient conditions as described (temperature, degree of protection, humidity, EMC, etc.).

2.2 Inappropriate Use

Using the Drive controllers outside of the operating conditions described in this documentation and outside of the indicated technical data and specifications is defined as "inappropriate use".

Drive controllers must not be used, if …

- they are subject to operating conditions that do not meet the specified ambient conditions. This includes, for example, operation under water, under extreme temperature fluctuations or extremely high maximum temperatures.
- Furthermore, Drive controllers must not be used in applications which have not been expressly authorized by Rexroth. Please carefully follow the specifications outlined in the general Safety Instructions!

3 Safety Instructions for Electric Drives and Controls

3.1 Safety Instructions - General Information

3.1.1 Using the Safety Instructions and Passing them on to Others

Do not attempt to install or commission this device without first reading all documentation provided with the product. Read and understand these safety instructions and all user documentation prior to working with the device. If you do not have the user documentation for the device, contact your responsible Bosch Rexroth sales representative. Ask for these documents to be sent immediately to the person or persons responsible for the safe operation of the device.

If the device is resold, rented and/or passed on to others in any other form, these safety instructions must be delivered with the device in the official language of the user's country.

WARNING

Improper use of these devices, failure to follow the safety instructions in this document or tampering with the product, including disabling of safety devices, may result in material damage, bodily harm, electric shock or even death!

Observe the safety instructions!

3.1.2 How to Employ the Safety Instructions

Read these instructions before initial commissioning of the equipment in order to eliminate the risk of bodily harm and/or material damage. Follow these safety instructions at all times.

- Bosch Rexroth AG is not liable for damages resulting from failure to observe the warnings provided in this documentation.
- Read the operating, maintenance and safety instructions in your language before commissioning the machine. If you find that you cannot completely understand the documentation for your product, please ask your supplier to clarify.
- Proper and correct transport, storage, assembly and installation, as well as care in operation and maintenance, are prerequisites for optimal and safe operation of this device.
- Only assign trained and qualified persons to work with electrical installations:
  - Only persons who are trained and qualified for the use and operation of the device may work on this device or within its proximity. The persons are qualified if they have sufficient knowledge of the assembly, installation and operation of the product, as well as an understanding of all warnings and precautionary measures noted in these instructions.
  - Furthermore, they must be trained, instructed and qualified to switch electrical circuits and devices on and off in accordance with technical safety regulations, to ground them and to mark them according to the requirements of safe work practices. They must have adequate safety equipment and be trained in first aid.
- Only use spare parts and accessories approved by the manufacturer.

- Follow all safety regulations and requirements for the specific application as practiced in the country of use.
- The devices have been designed for installation in industrial machinery.
- The ambient conditions given in the product documentation must be observed.
- Only use safety-relevant applications that are clearly and explicitly approved in the Project Planning Manual. If this is not the case, they are excluded. Safety-relevant are all such applications which can cause danger to persons and material damage.
- The information given in the documentation of the product with regard to the use of the delivered components contains only examples of applications and suggestions.

  The machine and installation manufacturer must

  – make sure that the delivered components are suited for his individual application and check the information given in this documentation with regard to the use of the components,
  – make sure that his application complies with the applicable safety regulations and standards and carry out the required measures, modifications and complements.
- Commissioning of the delivered components is only permitted once it is sure that the machine or installation in which they are installed complies with the national regulations, safety specifications and standards of the application.
- Operation is only permitted if the national EMC regulations for the application are met.
- The instructions for installation in accordance with EMC requirements can be found in the section on EMC in the respective documentation (Project Planning Manuals of components and system).

  The machine or installation manufacturer is responsible for compliance with the limiting values as prescribed in the national regulations.
- Technical data, connection and installation conditions are specified in the product documentation and must be followed at all times.

National regulations which the user must take into account

- European countries: according to European EN standards
- United States of America (USA):
  – National Electrical Code (NEC)
  – National Electrical Manufacturers Association (NEMA), as well as local engineering regulations
  – regulations of the National Fire Protection Association (NFPA)
- Canada: Canadian Standards Association (CSA)
- Other countries:
  – International Organization for Standardization (ISO)
  – International Electrotechnical Commission (IEC)

3.1.3 Explanation of Warning Symbols and Degrees of Hazard Seriousness

The safety instructions describe the following degrees of hazard seriousness. The degree of hazard seriousness informs about the consequences resulting from non-compliance with the safety instructions:

Warning symbol	Signal word	Degree of hazard seriousness acc. to ANSI Z 535.4-2002
	Danger	Death or severe bodily harm will occur.
	Warning	Death or severe bodily harm may occur.
	Caution	Minor or moderate bodily harm or material damage may occur.

Fig.3-1: Hazard classification (according to ANSI Z 535)

3.1.4 Hazards by Improper Use

DANGER

High electric voltage and high working current! Risk of death or severe bodily injury by electric shock!

Observe the safety instructions!

DANGER

Dangerous movements! Danger to life, severe bodily harm or material damage by unintentional motor movements!

Observe the safety instructions!

WARNING

High electric voltage because of incorrect connection! Risk of death or bodily injury by electric shock!

Observe the safety instructions!

WARNING

Health hazard for persons with heart pacemakers, metal implants and hearing aids in proximity to electrical equipment!

Observe the safety instructions!

CAUTION

Hot surfaces on device housing! Danger of injury! Danger of burns!

Observe the safety instructions!

CAUTION

Risk of injury by improper handling! Risk of bodily injury by bruising, shearing, cutting, hitting or improper handling of pressurized lines!

Observe the safety instructions!

CAUTION

Risk of injury by improper handling of batteries!

Observe the safety instructions!

3.2 Instructions with Regard to Specific Dangers

3.2.1 Protection Against Contact with Electrical Parts and Housings

☞ This section concerns devices and drive components with voltages of **more than 50 Volt**.

Contact with parts conducting voltages above 50 Volts can cause personal danger and electric shock. When operating electrical equipment, it is unavoidable that some parts of the devices conduct dangerous voltage.

DANGER

High electrical voltage! Danger to life, electric shock and severe bodily injury!

- Only those trained and qualified to work with or on electrical equipment are permitted to operate, maintain and repair this equipment.
- Follow general construction and safety regulations when working on power installations.
- Before switching on the device, the equipment grounding conductor must have been non-detachably connected to all electrical equipment in accordance with the connection diagram.
- Do not operate electrical equipment at any time, even for brief measurements or tests, if the equipment grounding conductor is not permanently connected to the mounting points of the components provided for this purpose.
- Before working with electrical parts with voltage potentials higher than 50 V, the device must be disconnected from the mains voltage or power supply unit. Provide a safeguard to prevent reconnection.
- With electrical drive and filter components, observe the following:

  Wait **30 minutes** after switching off power to allow capacitors to discharge before beginning to work. Measure the electric voltage on the capacitors before beginning to work to make sure that the equipment is safe to touch.
- Never touch the electrical connection points of a component while power is turned on. Do not remove or plug in connectors when the component has been powered.
- Install the covers and guards provided with the equipment properly before switching the device on. Before switching the equipment on, cover and safeguard live parts safely to prevent contact with those parts.
- A residual-current-operated circuit-breaker or r.c.d. cannot be used for electric drives! Indirect contact must be prevented by other means, for example, by an overcurrent protective device according to the relevant standards.
- Secure built-in devices from direct touching of electrical parts by providing an external housing, for example a control cabinet.

For electrical drive and filter components with voltages of **more than 50 volts**, observe the following additional safety instructions.

DANGER

High housing voltage and high leakage current! Risk of death or bodily injury by electric shock!

- Before switching on, the housings of all electrical equipment and motors must be connected or grounded with the equipment grounding conductor to the grounding points. This is also applicable before short tests.
- The equipment grounding conductor of the electrical equipment and the devices must be non-detachably and permanently connected to the power supply unit at all times. The leakage current is greater than 3.5 mA.
- Over the total length, use copper wire of a cross section of a minimum of 10 mm^2 for this equipment grounding connection!
- Before commissioning, also in trial runs, always attach the equipment grounding conductor or connect to the ground wire. Otherwise, high voltages may occur at the housing causing electric shock.

3.2.2 Protection Against Electric Shock by Protective Extra-Low Voltage

Protective extra-low voltage is used to allow connecting devices with basic insulation to extra-low voltage circuits.

All connections and terminals with voltages between 5 and 50 volts at Rexroth products are PELV systems. [1] It is therefore allowed to connect devices equipped with basic insulation (such as programming devices, PCs, notebooks, display units) to these connections and terminals.

WARNING

High electric voltage by incorrect connection! Risk of death or bodily injury by electric shock!

If extra-low voltage circuits of devices containing voltages and circuits of more than 50 volts (e.g. the mains connection) are connected to Rexroth products, the connected extra-low voltage circuits must comply with the requirements for PELV. [2]

3.2.3 Protection Against Dangerous Movements

Dangerous movements can be caused by faulty control of connected motors. Some common examples are:

- improper or wrong wiring of cable connections
- incorrect operation of the equipment components
- wrong input of parameters before operation
- malfunction of sensors, encoders and monitoring devices
- defective components
- software or firmware errors

Dangerous movements can occur immediately after equipment is switched on or even after an unspecified time of trouble-free operation.

1) *"Protective Extra-Low Voltage"*

2) *"Protective Extra-Low Voltage"*

The monitoring in the drive components will normally be sufficient to avoid faulty operation in the connected drives. Regarding personal safety, especially the danger of bodily harm and material damage, this alone cannot be relied upon to ensure complete safety. Until the integrated monitoring functions become effective, it must be assumed in any case that faulty drive movements will occur. The extent of faulty drive movements depends upon the type of control and the state of operation.

DANGER

Dangerous movements! Danger to life, risk of injury, severe bodily harm or material damage!

- Ensure personal safety by means of qualified and tested higher-level monitoring devices or measures integrated in the installation.

  These measures have to be provided for by the user according to the specific conditions within the installation and a hazard and fault analysis. The safety regulations applicable for the installation have to be taken into consideration. Unintended machine motion or other malfunction is possible if safety devices are disabled, bypassed or not activated.

To avoid accidents, bodily harm and/or material damage:

- Keep free and clear of the machine's range of motion and moving parts. Possible measures to prevent people from accidentally entering the machine's range of motion:
  - use safety fences
  - use safety guards
  - use protective coverings
  - install light curtains or light barriers
- Fences and coverings must be strong enough to resist maximum possible momentum.
- Mount the emergency stop switch in the immediate reach of the operator. Verify that the emergency stop works before startup. Don't operate the device if the emergency stop is not working.
- Isolate the drive power connection by means of an emergency stop circuit or use a safety related starting lockout to prevent unintentional start.
- Make sure that the drives are brought to a safe standstill before accessing or entering the danger zone.
- Additionally secure vertical axes against falling or dropping after switching off the motor power by, for example:
  - mechanically securing the vertical axes,
  - adding an external braking/ arrester/ clamping mechanism or
  - ensuring sufficient equilibration of the vertical axes.
- The standard equipment motor brake or an external brake controlled directly by the drive controller are **not sufficient to guarantee personal safety**!
- Disconnect electrical power to the equipment using a master switch and secure the switch against reconnection for:
  - maintenance and repair work
  - cleaning of equipment
  - long periods of discontinued equipment use
- Prevent the operation of high-frequency, remote control and radio equipment near electronics circuits and supply leads. If the use of such devices cannot be avoided, verify the system and the installation for possible malfunctions in all possible positions of normal use before initial startup. If necessary, perform a special electromagnetic compatibility (EMC) test on the installation.

3.2.4 Protection Against Magnetic and Electromagnetic Fields During Operation and Mounting

Magnetic and electromagnetic fields generated by current-carrying conductors and permanent magnets in motors represent a serious personal danger to those with heart pacemakers, metal implants and hearing aids.

WARNING

Health hazard for persons with heart pacemakers, metal implants and hearing aids in proximity to electrical equipment!

- Persons with heart pacemakers and metal implants are not permitted to enter following areas:
  - Areas in which electrical equipment and parts are mounted, being operated or commissioned.
  - Areas in which parts of motors with permanent magnets are being stored, repaired or mounted.
- If it is necessary for somebody with a pacemaker to enter such an area, a doctor must be consulted prior to doing so. The noise immunity of present or future implanted heart pacemakers differs greatly so that no general rules can be given.
- Those with metal implants or metal pieces, as well as with hearing aids, must consult a doctor before they enter the areas described above. Otherwise health hazards may occur.

3.2.5 Protection Against Contact with Hot Parts

CAUTION

Hot surfaces at motor housings, on drive controllers or chokes! Danger of injury! Danger of burns!

- Do not touch surfaces of device housings and chokes in the proximity of heat sources! Danger of burns!
- Do not touch housing surfaces of motors! Danger of burns!
- According to the operating conditions, temperatures can be **higher than 60 °C**, 140°F during or after operation.
- Before accessing motors after having switched them off, let them cool down for a sufficiently long time. Cooling down can require **up to 140 minutes**! Roughly estimated, the time required for cooling down is five times the thermal time constant specified in the Technical Data.
- After switching drive controllers or chokes off, wait 15 minutes to allow them to cool down before touching them.
- Wear safety gloves or do not work at hot surfaces.
- For certain applications, the manufacturer of the end product, machine or installation, according to the respective safety regulations, has to take measures to avoid injuries caused by burns in the end application. These measures can be, for example: warnings, guards (shielding or barrier), technical documentation.

3.2.6 Protection During Handling and Mounting

In unfavorable conditions, handling and mounting certain parts and components in an improper way can cause injuries.

CAUTION

Risk of injury by improper handling! Bodily injury by bruising, shearing, cutting, hitting!

- Observe the general construction and safety regulations on handling and mounting.
- Use suitable devices for mounting and transport.
- Avoid jamming and bruising by appropriate measures.
- Always use suitable tools. Use special tools if specified.
- Use lifting equipment and tools in the correct manner.
- If necessary, use suitable protective equipment (for example safety goggles, safety shoes, safety gloves).
- Do not stand under hanging loads.
- Immediately clean up any spilled liquids because of the danger of skidding.

3.2.7 Battery Safety

Batteries consist of active chemicals enclosed in a solid housing. Therefore, improper handling can cause injury or material damage.

CAUTION

Risk of injury by improper handling!

- Do not attempt to reactivate low batteries by heating or other methods (risk of explosion and cauterization).
- Do not recharge the batteries as this may cause leakage or explosion.
- Do not throw batteries into open flames.
- Do not dismantle batteries.
- When replacing the battery/batteries do not damage electrical parts installed in the devices.
- Only use the battery types specified by the manufacturer.

☞ Environmental protection and disposal! The batteries contained in the product are considered dangerous goods during land, air, and sea transport (risk of explosion) in the sense of the legal regulations. Dispose of used batteries separate from other waste. Observe the local regulations in the country of assembly.

3.2.8 Protection Against Pressurized Systems

According to the information given in the Project Planning Manuals, motors cooled with liquid and compressed air, as well as drive controllers, can be partially supplied with externally fed, pressurized media, such as compressed air, hydraulics oil, cooling liquids and cooling lubricating agents. Improper handling of the connected supply systems, supply lines or connections can cause injuries or material damage.

Safety Instructions for Electric Drives and Controls

CAUTION

Risk of injury by improper handling of pressurized lines!

- Do not attempt to disconnect, open or cut pressurized lines (risk of explosion).
- Observe the respective manufacturer's operating instructions.
- Before dismounting lines, relieve pressure and empty medium.
- Use suitable protective equipment (for example safety goggles, safety shoes, safety gloves).
- Immediately clean up any spilled liquids from the floor.

☞ Environmental protection and disposal! The agents used to operate the product might not be economically friendly. Dispose of ecologically harmful agents separately from other waste. Observe the local regulations in the country of assembly.

4 Basics on Device Diagnosis

4.1 Diagnostic System

4.1.1 Coded Diagnostic Messages of the Drive

Brief Description

The drive provides a diagnostic system including different options that are basically divided into two groups:

- Recognizing and displaying the current drive status by means of drive-internal, priority-dependent generation of diagnostic messages
- Collective messages for diverse status messages

Additionally, there are parameters for all important operating data the values of which can be transmitted both via master communication (e.g. SERCOS) and a parameterization interface (RS-232/485 in the ASCII protocol or SIS protocol; see "Serial Communication").")

Pertinent Parameters

- S-0-0030, Manufacturer version
- S-0-0095, Diagnostic message
- S-0-0140, Controller type
- S-0-0142, Application type
- S-0-0375, List of diagnostic numbers
- S-0-0390, Diagnostic message number
- P-0-0007, Display text of diagnostic message
- P-0-0009, Error number
- P-0-0478, Logbook event
- P-0-0479, Logbook time stamp
- P-0-3219, Diagnostic safety technology message

For integrated safety technology, an extended diagnosis option is provided in the form of a safety technology error code. When certain safety technology errors occur, this error code can be read in parameter "P-0-3219, Diagnostic safety technology message" which allows quick error diagnosis.

Drive-Internal Generation of Diagnostic Messages

Operating states, activities and reactions of the drive controller are detected by drive-internal generation of diagnostic messages and appear in coded form on the display of the control panel. In addition, these diagnostic messages can be transmitted to the master (control unit or commissioning software, e.g. IndraWorks D).

We distinguish the following categories of diagnostic messages (kinds of diagnostic messages):

- Errors
- Warnings
- Commands/command errors
- Status displays/operating states

Generally, the current diagnostic message with the highest priority is displayed or stored at the following locations in the drive:

- **Display of the control panel and parameter "P-0-0007, Display text of diagnostic message"**

  → The diagnostic message number or, if applicable, text appears on the 8-digit display of the standard control panel. The current display is stored in parameter P-0-0007.

- **Parameter "S-0-0095, Diagnostic message"**

  → This parameter, in the form of plain text, contains the operating status of the drive at present relevant. Preceding the text is the respective content of parameter S-0-0390.

- **Parameter "S-0-0390, Diagnostic message number"**

  → The diagnostic message number shown on the display is stored in this parameter.

When a diagnostic message of the "error" category occurs, the corresponding diagnostic message number is stored in parameter "P-0-0009, Error number". When there isn't any error present, the value of parameter P-0-0009 equals zero.

In parameter "S-0-0375, List of diagnostic numbers", the last 50 diagnostic message numbers of parameter S-0-0390 are recorded in chronological order. When reading this list, the number of the diagnostic message that last occurred is displayed as parameter element 1.

Priorities of Display

The following priorities apply for displaying the current diagnostic message:

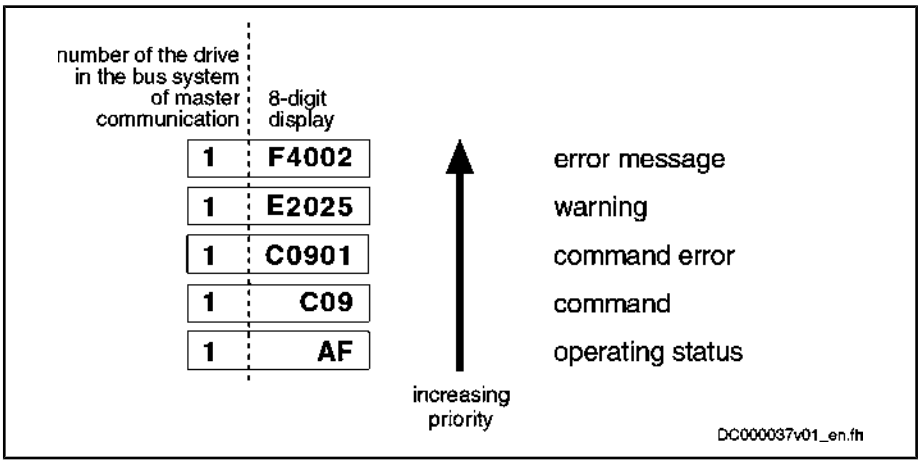


Fig.4-1: Priorities of displays (with example displays)

An overview of all diagnostic messages and their meanings is included in the documentation "Troubleshooting Guide (description of diagnostic messages)".

Structure of a Diagnostic Message

General Information

Every diagnostic message consists of

- diagnostic message number

  - and -

- diagnostic text.

The diagnostic message for the non-fatal error "Excessive deviation", for example, has the following structure:

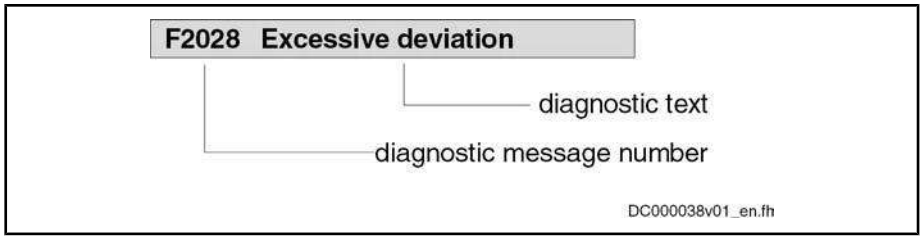


Fig.4-2: Structure of a diagnostic message

"F2028" flashes on the display of the control panel. The display "F2028" is output via parameter "P-0-0007, Display text of diagnostic message", too. The diagnostic message number is contained in parameter "S-0-0390, Diagnostic message number" in hexadecimal form (for this example: 0x00F2028). The diagnostic message number and the diagnostic text are contained as string "F2028 Excessive deviation" in parameter "S-0-0095, Diagnostic message". "2028" (dec) is written to parameter "P-0-0009, Error number", because it is an error diagnosis.

Diagnostic Message on the Control Panel Display

The diagnostic message number appears on the 8-digit display of the standard control panel. This allows recognizing the current operating status of the drive quickly and without using a communication interface.

As a matter of principle, the following applies:

- Status displays (P0, Ab, AF …) are displayed in right-aligned form
- Warnings, command errors and other error messages are flashing

Kind of diagnostic message	Diagnostic message number	Display
error	F2xxx	F2xxx
command	C0200	C02
command error	C02xx	C02xx
warning	E2xxx	E2xxx
communication phase e.g. communication phase 1	A0001	P1
drive ready for operation	A0012	Ab
operating mode e.g. velocity control	A0101	AF

Fig.4-3: Overview of diagnostic messages displayed

The current operating mode is not shown on the display. When the drive follows the preset operating mode and no command was activated, the display reads "AF".

Diagnostic Message in Plain Text

The diagnostic message in plain text contains the diagnostic message number followed by the diagnostic message text. It can be read via parameter "S-0-0095, Diagnostic message" and directly displayed on an operator interface as a language-dependent description of the drive status.

The diagnostic message in plain text is switched to the selected language via parameter "S-0-0265, Language selection".

Diagnostic Message Number

The diagnostic message number contains only the diagnostic number without the diagnostic text. It can be read via parameter "S-0-0390, Diagnostic message number" and is a language-independent possibility of determining and displaying the drive status on an operator interface.

Display Text of Diagnostic Message

The display text of a diagnostic message is the text appearing on the display of the control panel. It can be read via parameter "P-0-0007, Display text of diagnostic message" which allows an operator interface to determine the drive status and display it in a language-independent way.

Error Number

The error number contains only the error number without the diagnostic message text. It can be read via parameter "P-0-0009, Error number" and is a language-independent possibility of determining and displaying an error condition on an operator interface. This parameter only contains a value unequal zero when an error is present in the drive.

The error number is generated from the lowest 4 digits of the diagnostic message number. For example, the error "F2028 Excessive deviation" with the diagnostic message number "(0x)F2028" would produce the error number "2028."

List of Diagnostic Numbers

The last 50 diagnostic message numbers displayed are stored in chronological order in parameter "S-0-0375, List of diagnostic numbers". Every change in the content of "S-0-0390, Diagnostic message number" means that the old content is applied to S-0-0375. When reading the parameter S-0-0375 the last transferred diagnostic message number appears in the first element of the parameter, the diagnostic message number transferred before from S-0-0390 in the second element, etc.

Language Selection

Via parameter "S-0-0265, Language selection", it is possible to define or switch the language of diagnostic message texts.

 See also Parameter Description "S-0-0265, Language selection"

4.1.2 Status Classes, Status Displays, Control Parameters

General Information

In the drive there are many parameters with important status information (bit lists). Some of the bits contained in these lists can be used for configuring real-time status bits and additionally can be assigned to digital outputs or to the configurable signal status word.

See "Digital Inputs/Outputs"

See "Configurable Signal Status Word"

Status Classes

Brief Description

The drive differentiates between 3 states (error, warning and message) for which there is status information. To make the status information available, there are so-called class diagnostics parameters (S-0-0011, S-0-0012, S-0-0013) which contain the respective status bits.

In addition to these class diagnostics parameters, there are change bits contained in the status word of the field bus (e.g. S-0-0135 in the case of SERCOS) which display changes in one of the above-mentioned class diagnostics parameters (collective information).

Features

- Class diagnostics parameter for **errors** (cf. S-0-0011)
- Class diagnostics parameter for **warnings** (cf. S-0-0012)
- Class diagnostics parameter for **messages** (cf. S-0-0013)
- **Change bits in status word** of master communication (e.g. S-0-0135 in the case of SERCOS)
- Change bits of class 2 and 3 diagnostics (S-0-0097 and S-0-0098) **can be masked** in status word of master communication (e.g. S-0-0135 in the case of SERCOS) to suppress individual bits or status messages

Pertinent Parameters

- S-0-0011, Class 1 diagnostics
- S-0-0012, Class 2 diagnostics
- S-0-0013, Class 3 diagnostics
- S-0-0097, Mask class 2 diagnostics
- S-0-0098, Mask class 3 diagnostics
- S-0-0135, Drive status word

Functional Description

Status Class Parameters

- **S-0-0011, Class 1 diagnostics** (status parameter for drive errors)
  - In case a drive error occurs, the bit assigned to the error is set in parameter S-0-0011. A separate bit is assigned in S-0-0011 to errors defined according to SERCOS.

    Manufacturer-specific errors cause bit 15 to be set in parameter S-0-0011 (see also Parameter Description "S-0-0011, Class 1 diagnostics").
  - In case a drive error occurs, bit 13 (drive interlock; error in class 1 diagnostics) is simultaneously set in the status word of the field bus (S-0-0135 in the case of SERCOS).

All bits in class 1 diagnostics are cleared by executing the command C0500 (reset class 1 diagnostics).

See also Parameter Description "S-0-0099, C0500 Reset class 1 diagnostics"

- **S-0-0012, Class 2 diagnostics** (status parameter for drive warnings)
  - In case a drive warning occurs, the bit assigned to the warning is set in parameter S-0-0012. A separate bit is assigned in S-0-0012 to warnings defined according to SERCOS.

    Manufacturer-specific warnings cause bit 15 to be set in parameter S-0-0012 (see also Parameter Description "S-0-0012, Class 2 diagnostics").
  - In case a drive warning occurs, bit 12 (change bit class 2 diagnostics) is simultaneously set in the status word of the field bus (S-0-0135 in the case of SERCOS), when the content of S-0-0012 changes (i.e. at least one bit toggles).
  - The bits in parameter S-0-0012 are automatically cleared when the warning disappears. The change bit in the status word of the master communication (S-0-0135 in the case of SERCOS) remains set, however, until parameter S-0-0012 has been read once.

☞ Via parameter "S-0-0097, Mask class 2 diagnostics", warnings can be masked in terms of their effect on the change bit.

- **S-0-0013, Class 3 diagnostics** (status parameter for drive messages)
  - Messages of the drive are listed in parameter S-0-0013. A separate bit is assigned in S-0-0013 to messages defined according to SERCOS (see also Parameter Description "S-0-0013, Class 3 diagnostics").
  - In the case of a drive message, bit 11 (change bit class 3 diagnostics) is simultaneously set in the status word of the field bus (S-0-0135 in the case of SERCOS).
  - The bits in parameter S-0-0013 are automatically cleared when the message disappears. The change bit in the status word of the master communication (S-0-0135 in the case of SERCOS) remains set, however, until parameter S-0-0013 has at least been read once.

☞ Each of these messages is stored in a separate parameter (S-0-0330 to S-0-0342).

Change Bits in Drive Status Word

If the status of a bit in "S-0-0012, Class 2 diagnostics" or "S-0-0013, Class 3 diagnostics" changes, the change bit for class 2 or 3 diagnostics is set in the field bus status word (e.g. S-0-0135 in the case of SERCOS). A change bit in the status word (bit 11 or 12) is always set due to a change of the parameter content of S-0-0012 or S-0-0013. This enables the master to recognize very quickly whether a change occurred in S-0-0012 or S-0-0013.

A read access to one of the two parameters clears the respective change bit again.

Masking the Change Bit

By means of the parameters "S-0-0097, Mask class 2 diagnostics" and "S-0-0098, Mask class 3 diagnostics", it is possible to mask certain bits in terms of their effect on the change bit of the status word (bit 12 or bit 11).

The figure below illustrates the principle of masking by means of an example:

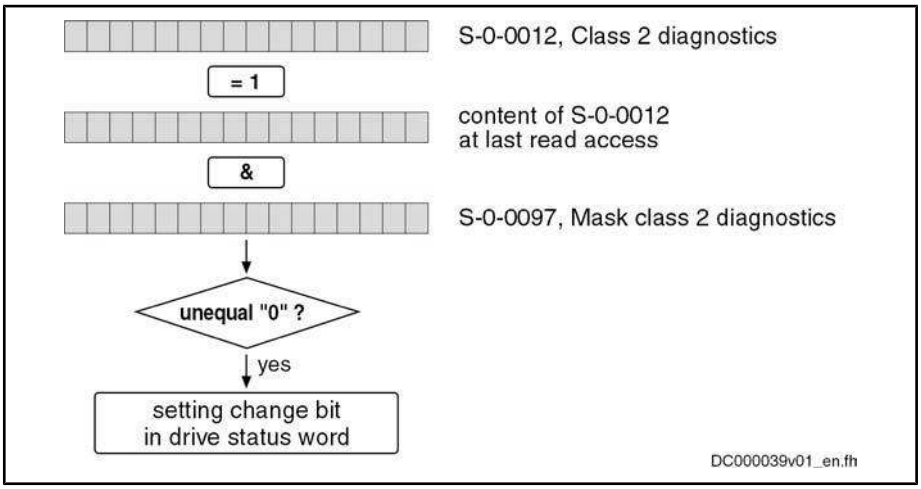


Fig.4-4: Generating the change bit of class 2 diagnostics

Notes on Commissioning

The figure below illustrates the handling of the change bits in the status word and of the status class parameters:

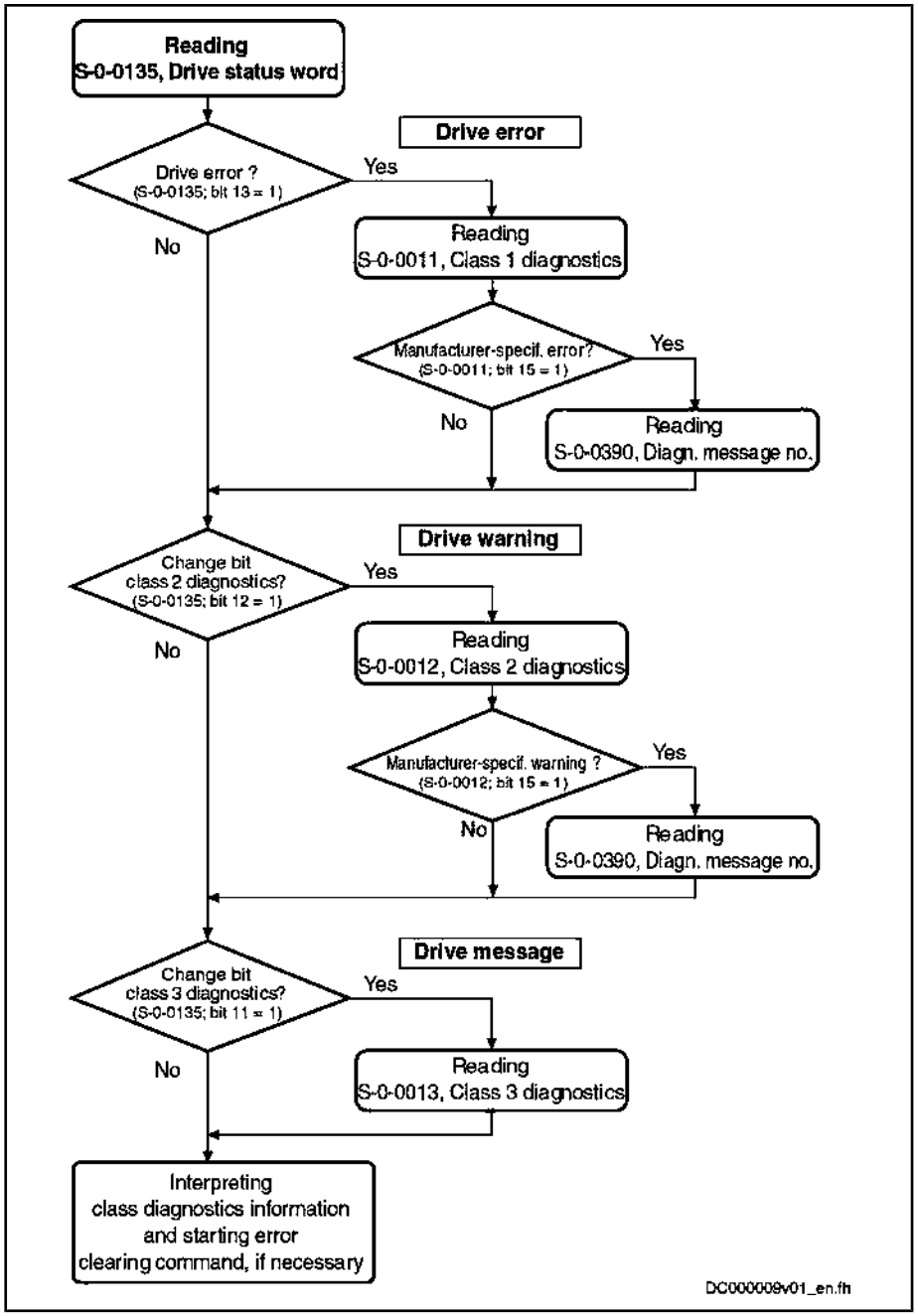


Fig.4-5: Handling the change bits and status class parameters

Fixed Status Displays

Function-Related Status Parameters

In the drive there are parameters the content of which has a direct relation to the status of the sequence of different drive functions. These parameters are used to display the current status information of the assigned function.

The following parameters are available for function-related status display:

- **S-0-0014, Interface status**

  This parameter displays the status of the communication phase transition and the cyclic communication.

- **S-0-0135, Drive status word**

This is the status word of the master communication (SERCOS) and contains all essential status information for the master.

- **S-0-0403, Position feedback value status**

  This parameter contains status bits for the position data reference of the individual measuring systems.

- **S-0-0419, Positioning command acknowledge**

  This status information is used for acknowledgment in the "drive-controlled positioning" mode.

- **P-0-0046, Status word of current controller**

  This parameter contains status bits of the internal motor control (e.g. overvoltage in DC bus).

- **P-0-0115, Device control: Status word**

  This parameter contains status bits of device control (see also "Device Control and State Machines").

- **P-0-0222, Travel range limit inputs**

  This parameter displays the status of the travel range limit switch inputs (see also "Limitations: Travel Range Limit Switches").").

- **P-0-0223, E-Stop input**

  This parameter displays the status of the E-Stop input (see also "E-Stop Function").

- **P-0-0445, Status word torque/current limit**

  This parameter contains status bits to display the activation of torque/current limitation (see also "Limitations: Current and Torque/Force Limitation").

- **P-0-0539, Holding brake status word**

  This parameter contains status bits for the status of the motor holding brake (see also "Motor Holding Brake").

- **P-0-0555, Status word of axis controller**

  This parameter displays messages with regard to velocity and limits that have been reached.

- **P-0-4029, Diagnostic report SCSB module**

  Parameter for reading master communication settings and states (with SERCOS interface).

- **P-0-4086, Master communication status**

  This parameter displays control information of the master communication for handling phase switch, drive enable etc., defined during initialization.

Status Parameters for Real-Time Status Bits

The following list contains status parameters that only contain one bit and can therefore be used for configuring real-time status bits (see "SERCOS interface")

- S-0-0330, Message 'n_actual = n_command'
- S-0-0331, Status 'n_feedback = 0'
- S-0-0332, Message 'nactual < nx'
- S-0-0333, Message 'T >= Tx'
- S-0-0334, Message 'T >= Tlimit'
- S-0-0335, Message 'n command > n limit'
- S-0-0336, Message In position

- S-0-0337, Message 'P >= Px'
- S-0-0341, In-Position coarse message
- S-0-0342, Status "Target position attained"
- S-0-0343, Status "Interpolator halted"
- S-0-0409, Probe 1 positive latched
- S-0-0410, Probe 1 negative latched
- S-0-0411, Probe 2 positive latched
- S-0-0412, Probe 2 negative latched

Control Parameters

Apart from the parameters for status display, there are parameters available in the drive that are used to control the drive functions (see also description of corresponding parameter):

- P-0-0045, Control word of current controller
- P-0-0427, Control parameter of analog output
- P-0-0522, Control word for commutation setting
- P-0-0556, Config word of axis controller
- P-0-0612, Control word for setting absolute measuring
- P-0-4028, Device control word

4.2 Control Panels of the IndraDrive Controllers

4.2.1 General Information on the Operation Options

Variants of the Control Panels

IndraDrive controllers are equipped with a control panel which consists of a display and keys located underneath it. The display shows operating states, command and error diagnoses, as well as present warnings. By means of the keys you can make settings, call information and trigger some commands.

The extent of possible displays and settings depends on the available control panel of the IndraDrive controller. It can be supplied in two variants which differ as regards their performance:

- **Standard control panel**
- **Comfort control panel**

Via the serial interface of the controller, it is additionally possible to connect an independent **VCP operator terminal** that can, for example, be integrated in the front of the control cabinet.

Basics on Device Diagnosis

Standard Control Panel

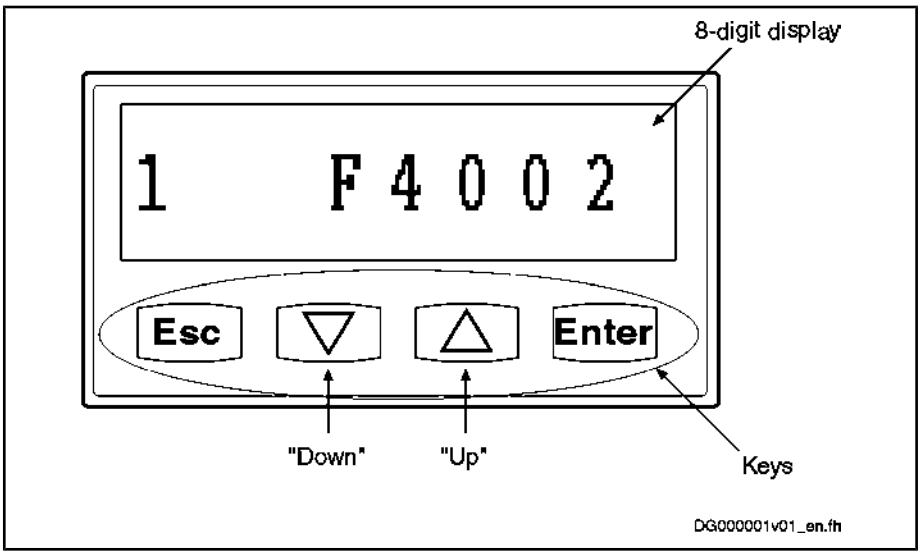


Fig.4-6: Standard control panel with display and control elements (example of display)

Possibilities of Display of Standard Control Panel

The standard control panel allows the following displays:

- Status of the master communication
- Operating status
- Activated commands and command diagnoses
- Warnings and diagnostic error messages
- Extended displays such as contents of error memories, diagnostic message memory, operating hours counter of control section, operating hours counter of power section, type designation of firmware active in the device, safety technology code (if safety technology option available)

Possible Settings with Standard Control Panel

The following settings can be made with the standard control panel:

- Set the drive address (drive number in the bus system of the master communication)
- Set the length of the fiber optic cable
- Activate the master communication mode "Easy Startup"

Command Activation with Standard Control Panel

The following commands can be activated with the standard control panel:

- Activate "S-0-0262, C07_x Load defaults procedure command" (load controller parameters or basic parameters)
- Activate other commands, such as:
  - C2200 Backup working memory procedure command
  - C2300 Load working memory procedure command
  - C2500 Copy IDN from optional memory to internal memory
  - C2600 Copy IDN from internal memory to optional memory
  - C2900 Firmware update from MMC

Comfort Control Panel

Compared to the standard control panel, the comfort control panel, due to the fact that it can be programmed, provides additional settings, as well as additional display and command functions.

Possibilities of Display of Comfort Control Panel

Additional possibilities of display of the comfort control panel (in addition to the possibilities of display of the standard control panel), for example:

- Cyclic parameter display
- Measured value of motor temperature sensor
- Message threshold or shutdown threshold for motor temperature
- Active switching frequency (PWM)

Possible Settings with Comfort Control Panel

Additional possibilities of setting of the comfort control panel (in addition to the possible settings of the standard control panel), for example:

- Language selection
- Set/change single parameters
- Input of motor data acc. to type plate data for asynchronous third-party motors

Command Activation with Comfort Control Panel

Activation of further commands with the comfort control panel (in addition to the command activation with the standard control panel), for example:

- C3200 Command Calculate motor data
- C3600 Command Motor data identification

The comfort control panel particularly supports the commissioning of asynchronous third-party motors; another commissioning tool is not required for this purpose. The required steps are given by the display, the corresponding input is made by means of the keys of the control panel.

Independent VCP Operator Terminals

VCP operator terminals are separate components (terminals) that can be used in addition to the standard or comfort control panel. They are connected to the serial interface of the controller via a separate line. This allows integrating a VCP operator terminal in the front of the control cabinet, for example.

By means of a configuration tool it is additionally possible to configure other application-dependent settings, displays and command functions.

4.2.2 Standard Control Panel

Brief Description

The standard control panel of an IndraDrive controller has an 8-digit display and four keys located underneath it.

The display shows operating states, command and error diagnoses, as well as present warnings.

Using the four keys, the commissioning engineer or service technician can opt to display extended diagnostic messages at the drive controller and to activate simple commands (in addition to master communication using the commissioning tool or NC control unit).

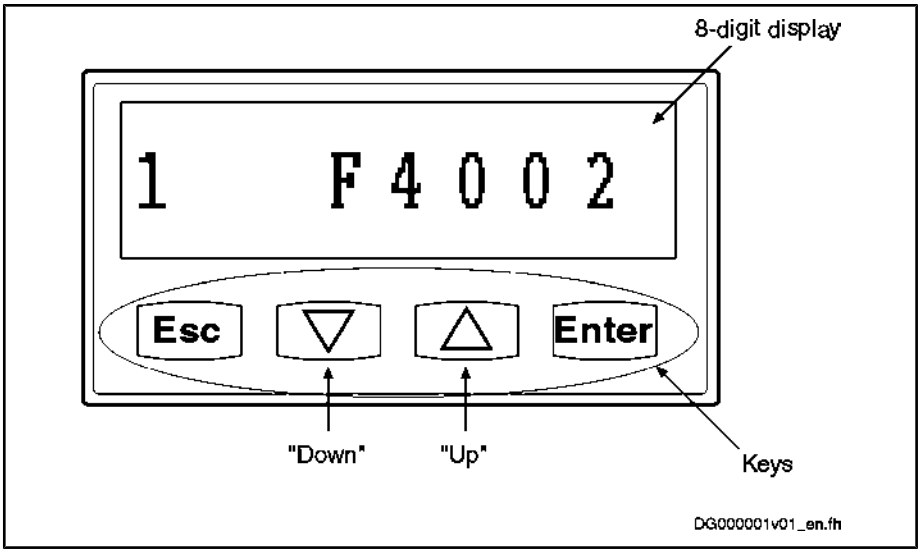


Fig.4-7: Standard control panel with display and control elements (example of display)

Functional Description

Standard Displays

The display of the IndraDrive controller automatically shows:

- Status of the master communication
- Operating status
- Activated commands and command diagnoses
- Warnings and diagnostic error messages

The displays have priorities because it is impossible to have various displays at the same time.

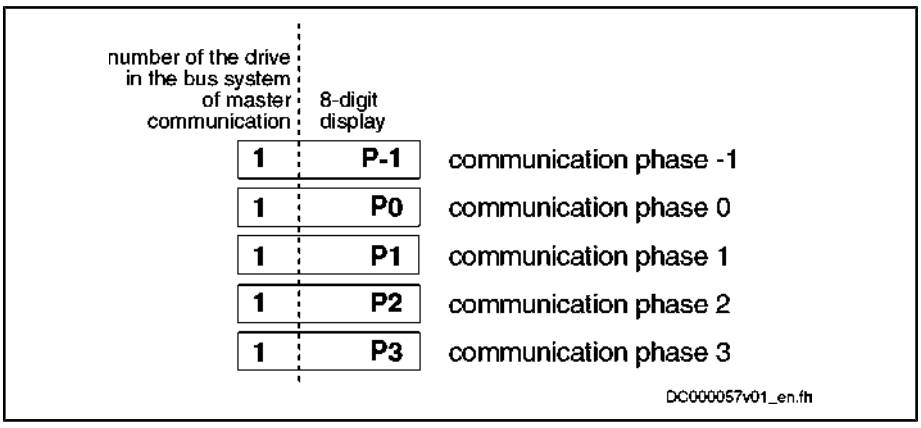


Fig.4-8: Displays during phase progression of the master communication

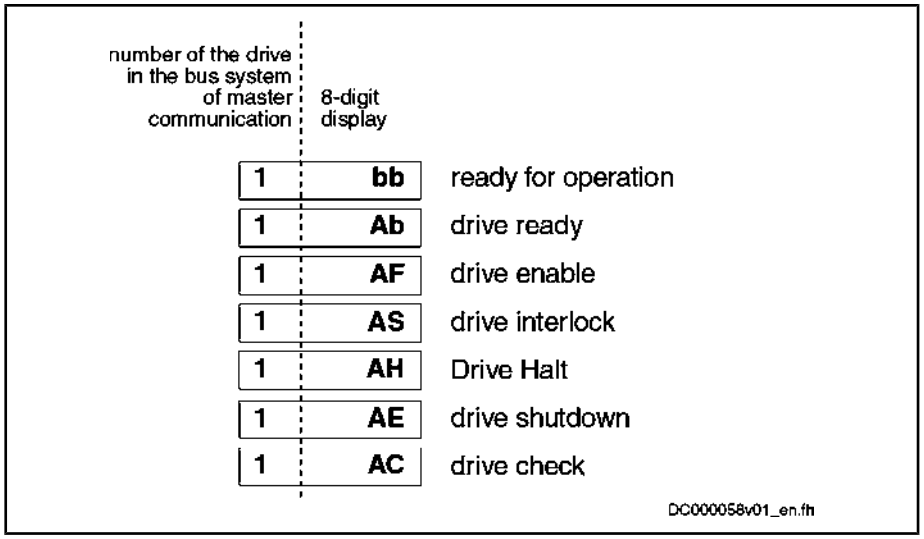


Fig.4-9: Operating status displays

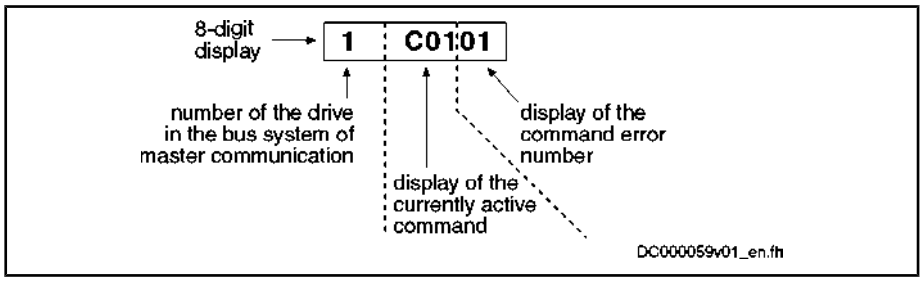


Fig.4-10: Explanation of command error displays

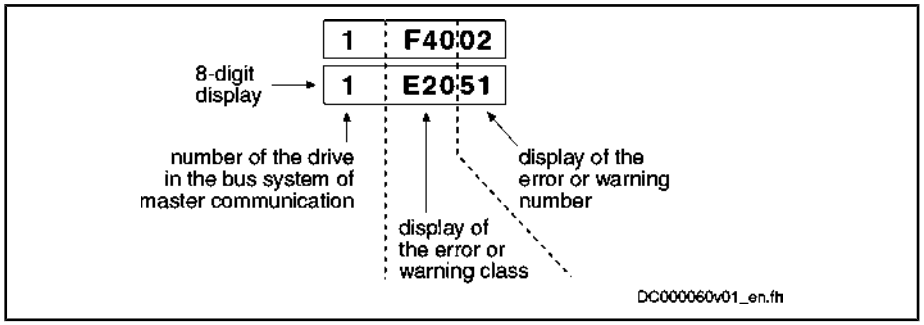


Fig.4-11: Explanation of error and warning displays

Priorities of Display

The current drive status is displayed with highest priority.

Basics on Device Diagnosis

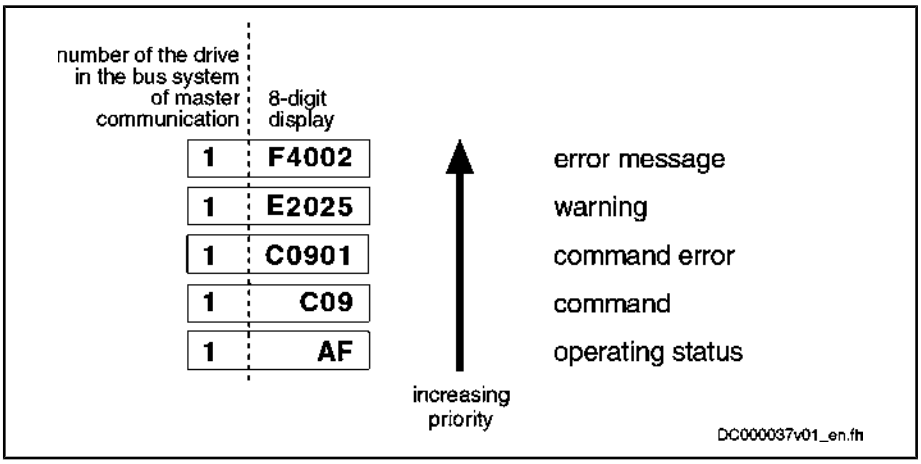


Fig.4-12: Priorities of displays (with example displays)

In the case of error messages, warnings and command errors, the diagnostic message text is displayed on the standard display in the form of a marquee text, in addition to the flashing diagnostic message number (see also Parameter Description "S-0-0095, Diagnostic message").

Activating Extended Display, Command Menu and Service Menu

The extended Display can always (without interlock release) be accessed by pressing the "Enter" key.

By simultaneously pressing the "Enter" and "Esc" keys (for 8 s) in the standard display, the command and the service menu can be called up in addition to the extended display.

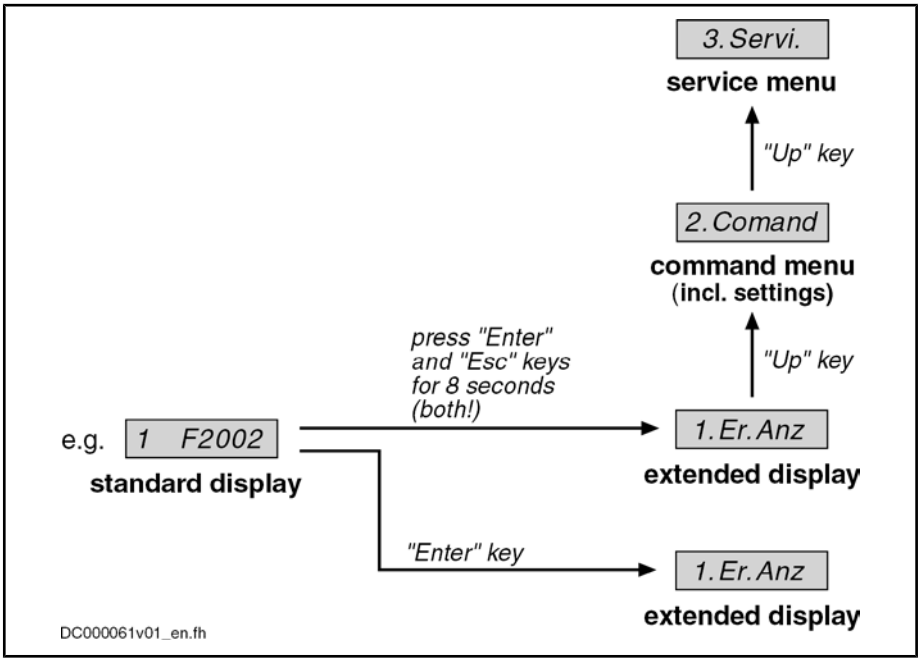


Fig.4-13: Activating the extended display, the command menu and the service menu

Extended Displays

By means of the extended displays it is possible to additionally call up the contents of certain parameters:

- Error memory
- Diagnostic message memory
- Operating hours counter control section
- Operating hours counter power section
- Type designation of the firmware active in the device

- Safety technology code, change counter of safety technology and operating hours counter since last change (if safety technology option available)
- MAC address (when using CCD option, SERCOS III master communication or control section CSH01.2)
- Diagnostic field bus message (P-0-4073)
- Active memory

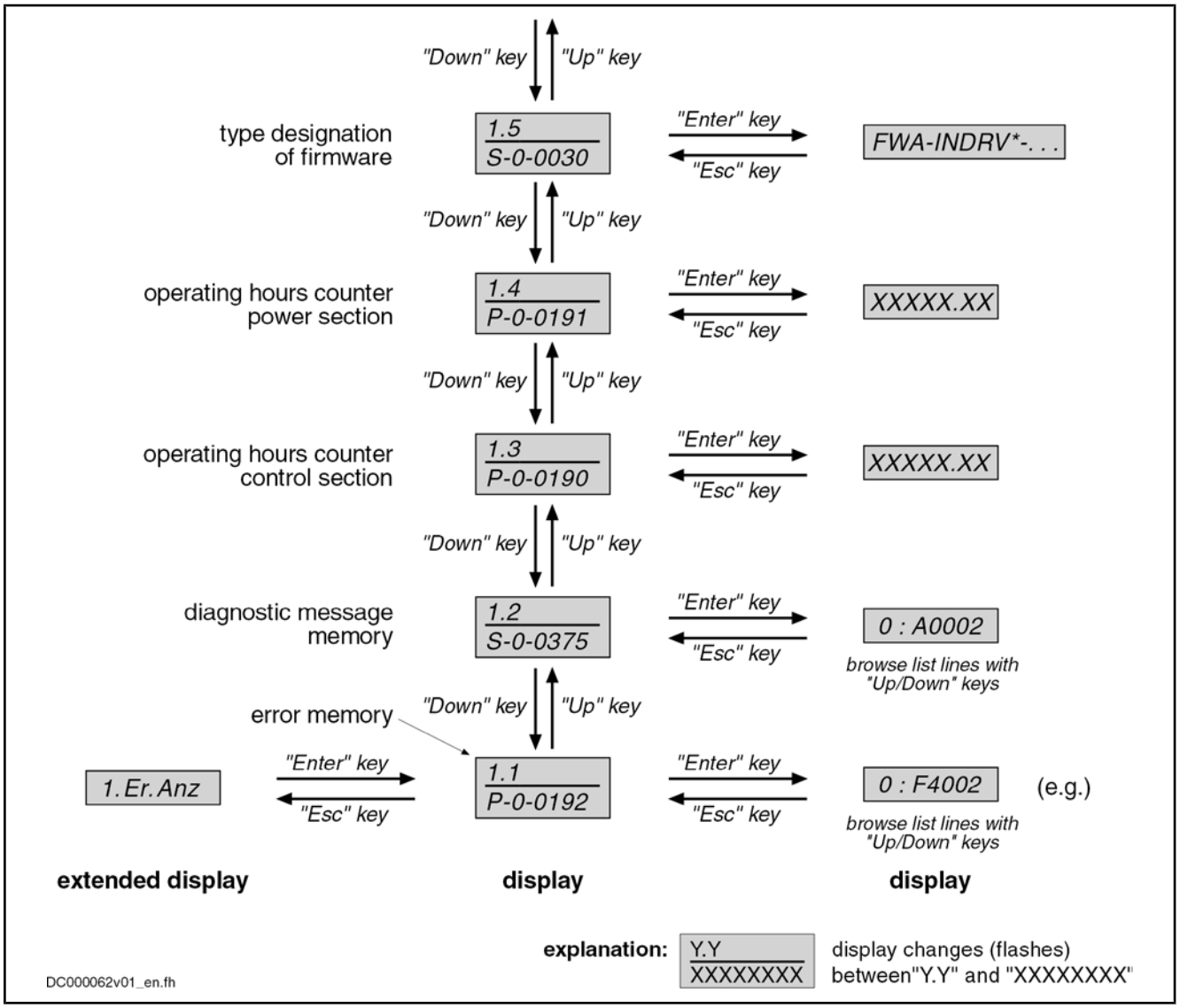


Fig.4-14: Activating the extended display

For more details on diagnostic messages, error messages and operating hours counters, see the respective sections of the present documentation.

Command Menu

Starting from the extended display, you can activate the command menu by pressing the "Up" key. In this menu, you can make several settings:

- Set the drive address (drive number in the bus system of the master communication)
- Set the length of the fiber optic cable
- Other communication settings (IP address, gateway address and subnet mask) for CCD option, SERCOS III master communication or control section CSH01.2

- Activate the easy master communication mode "Easy Startup"
- Activate "S-0-0262, C07_x Load defaults procedure command" (load controller parameters or basic parameters)
- Activate other commands, such as
  - C2200 Backup working memory procedure command
  - C2300 Load working memory procedure command
  - C2800 Analog input adjust command
  - C2000 Command Release motor holding brake
    (must be enabled by means of configuration)
- Switch the communication phases between operating mode (OM) and parameter mode (PM)
- Set the MMC storage mode (see P-0-4070)

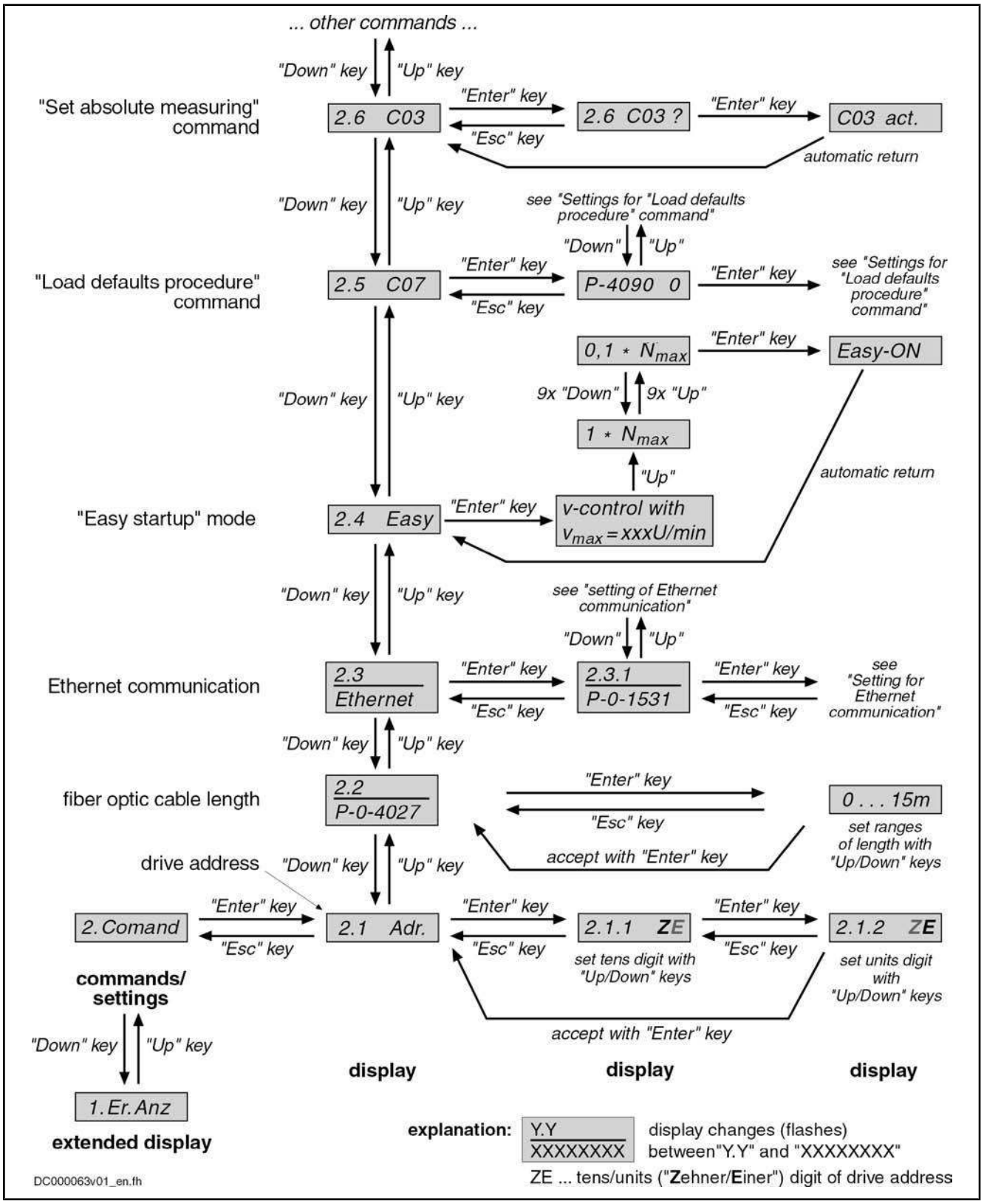


Fig.4-15: Activating commands/settings that can be accessed via the control panel

Settings for the "Load Defaults Procedure" Command

The parameter "S-0-0262, C07_x Load defaults procedure command" can be activated via the standard control panel, too. Depending on the configuration in parameter "P-0-4090, Configuration for loading default values", different basic parameter sets are loaded internally. The following configurations in pa-

Basics on Device Diagnosis

rameter P-0-4090 are possible via the standard control panel, the last two digits of the hexadecimal parameter value being displayed on the standard display:

- Loading motor-specific control loop parameter values → 0x0000
- Loading basic parameter values, without exception → 0x0001
- Loading basic parameter values, except for master communication parameters → 0x0011
- Loading basic parameter values, except for parameters of the drive-internal PLC (MLD) → 0x0021
- Loading basic parameter values, except for master communication and MLD parameters → 0x0031
- Loading default values to the MLD parameters → 0x0002

☞ After the command C07_x has been executed, the parameter P-0-4090 is automatically reset to its default value (0x0000)!

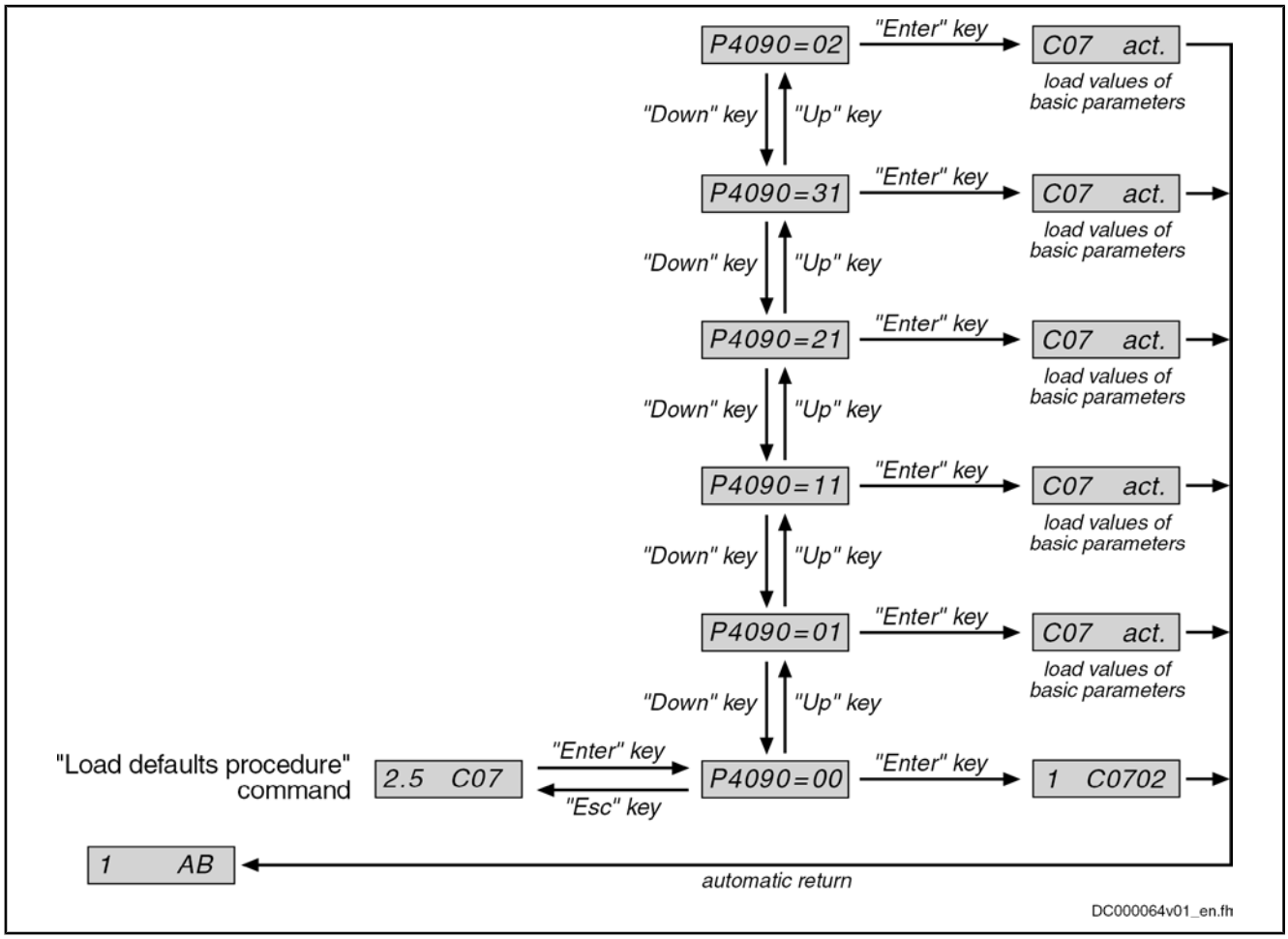


Fig.4-16: Setting the parameter P-0-4090 for "load defaults procedure" via the standard control panel

Setting the Ethernet Address

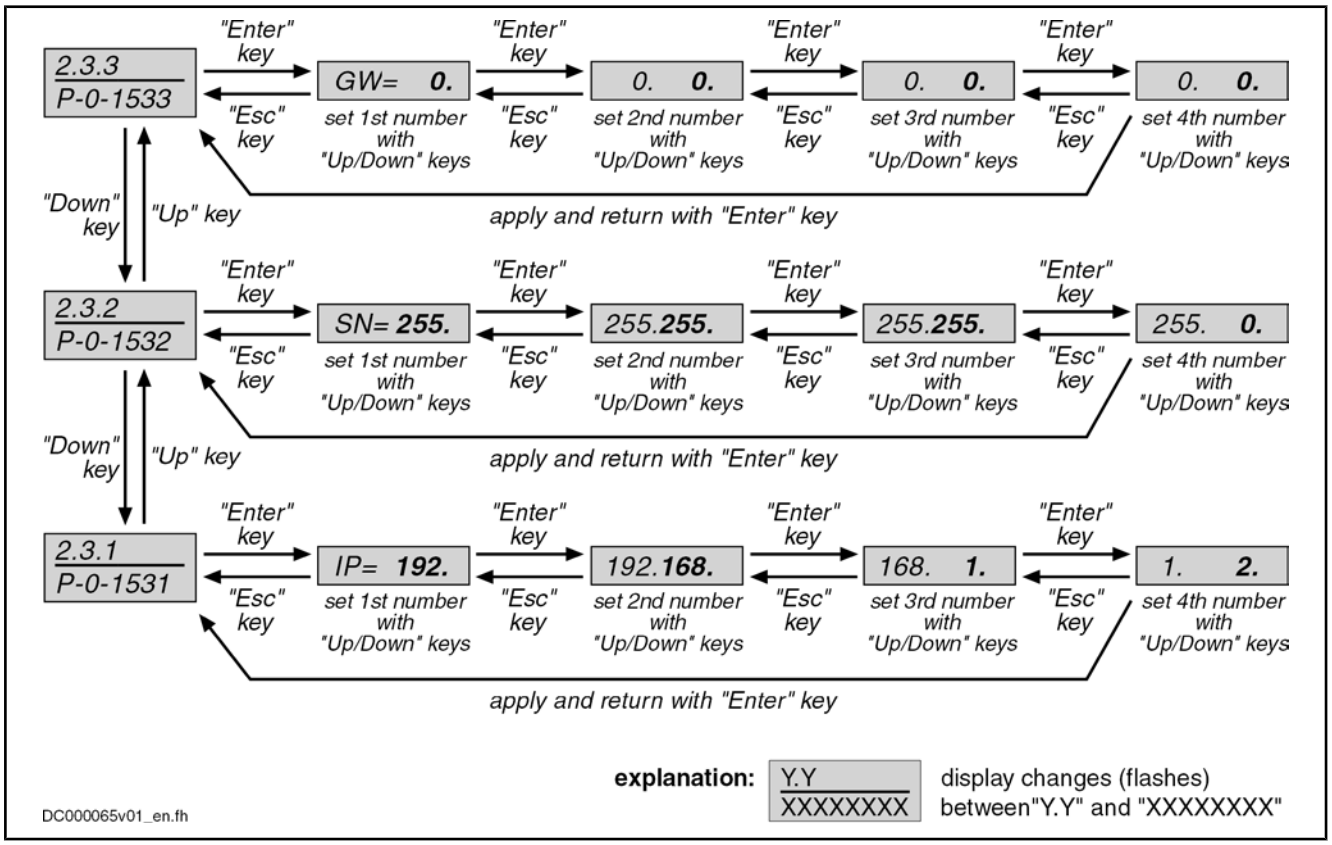
For communication in Ethernet networks, make the following settings for the relevant interfaces:

- IP address
- Subnet mask
- Default gateway

The following interfaces are Ethernet-based:

- Engineering Port of control section (P-0-1531, P-0-1532, P-0-1533)
- Master communication SERCOS III (S-0-1020, S-0-1021, S-0-1022)
- CCD interface (P-0-1641, P-0-1642, P-0-1643)

The settings can be made via the standard control panel and are basically the same for all Ethernet-based interfaces.



GW	gateway address, e.g. 0. 0. 0. 0
SN	subnet mask, e.g. 255.255.255. 0
IP	IP address, e.g. 192.168. 1. 2

Fig.4-17: Setting the Ethernet communication, as an example of the control section Engineering Port

Switching the Communication Phases

Switching the communication phases between operating mode (OM) and parameter mode (PM) via the control panel is possible with all master communications, except for SERCOS interface. With SERCOS interface, phase switch controlled via the control panel can only be carried out with active "easy startup" mode!

☞ In order to carry out "C07_1 Load defaults procedure com. (load basic parameters)", the parameter mode (PM) has to be activated.

Basics on Device Diagnosis

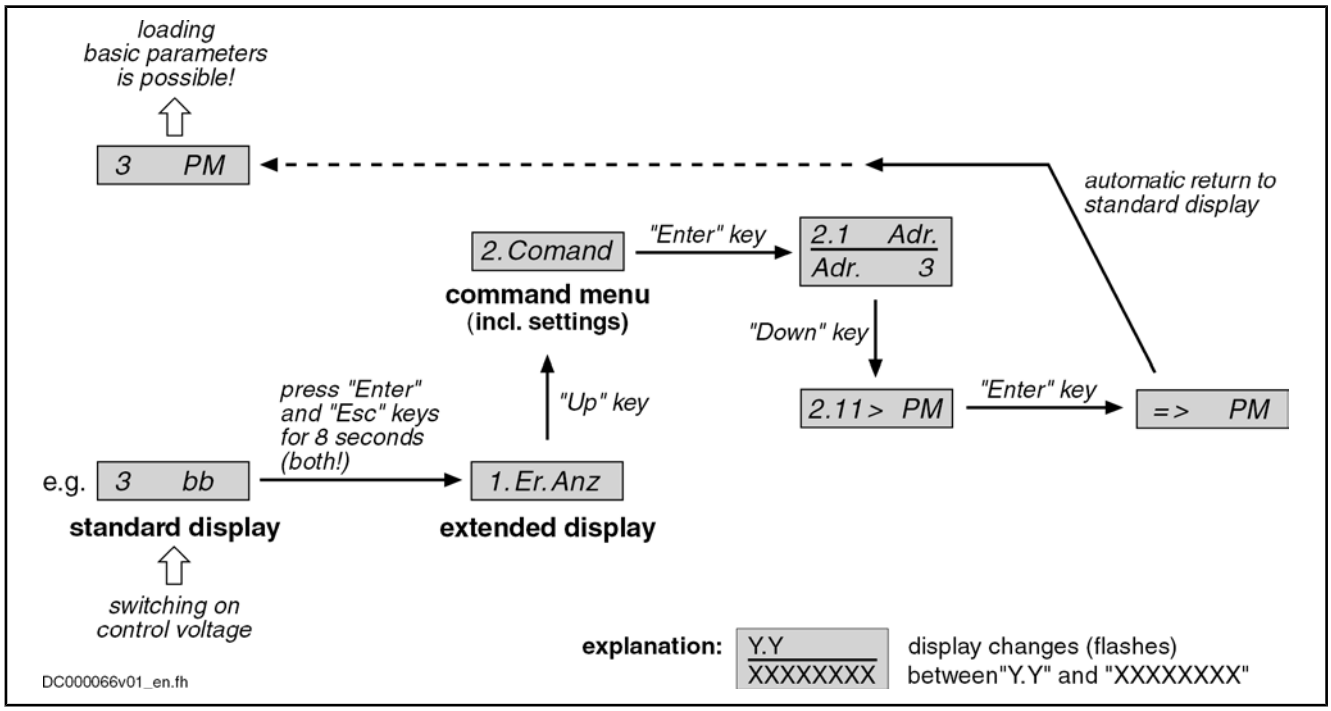


Fig.4-18: Activating the parameter mode via the control panel

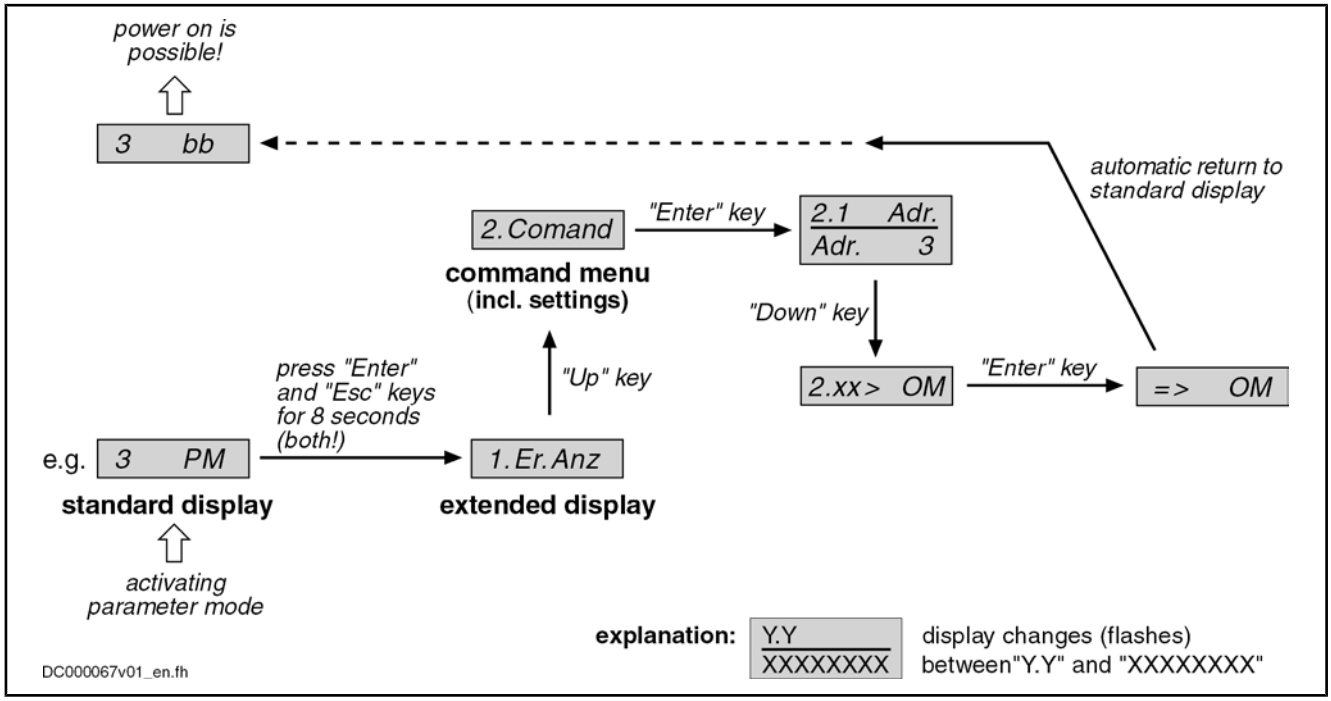


Fig.4-19: Switching back from parameter mode to operating mode via the control panel

Defining the MMC Storage Mode

The parameter "P-0-4070, Parameter storage configuration" defines how the controller handles the (optional) MMC memory card. This setting can be made directly via the command menu of the control panel (2.10). The following storage modes are possible for operating the MMC:

- MMC as programming module
- MMC as update medium
- MMC as backup medium

MMC as Programming Module

If the MMC has been defined as "programming module", all parameters are stored on the MMC. With active controller, the MMC must be permanently plugged in the control section. If the controller is switched on without MMC or the MMC is removed from the active controller, the controller signals an error.

MMC as Update Medium

When the MMC has been defined as "update medium", the control section checks during the booting process whether an MMC was plugged in or not. Via the display, you will be queried whether the parameters are to be loaded from the MMC. If there is a newer firmware on the MMC, you will also be queried whether this firmware is to be loaded. The parameters are not stored on the MMC, but in the onboard flash memory.

MMC as Backup Medium

When the MMC has been defined as "backup medium", it is used as a demand-depending storage location for parameter settings. The parameter values are stored via a command, via FTP server or file services (MLD).

When the MMC operation has been defined as "update medium" or as "backup medium", it is **not** necessary to have the MMC permanently plugged in the control section. The MMC can be plugged in or removed with the drive active. Loading and storing parameter sets, however, is only possible with the MMC plugged in!

The possibilities of use for the MMC in the IndraDrive controller are described in detail in the "MultiMediaCard (MMC)" section.

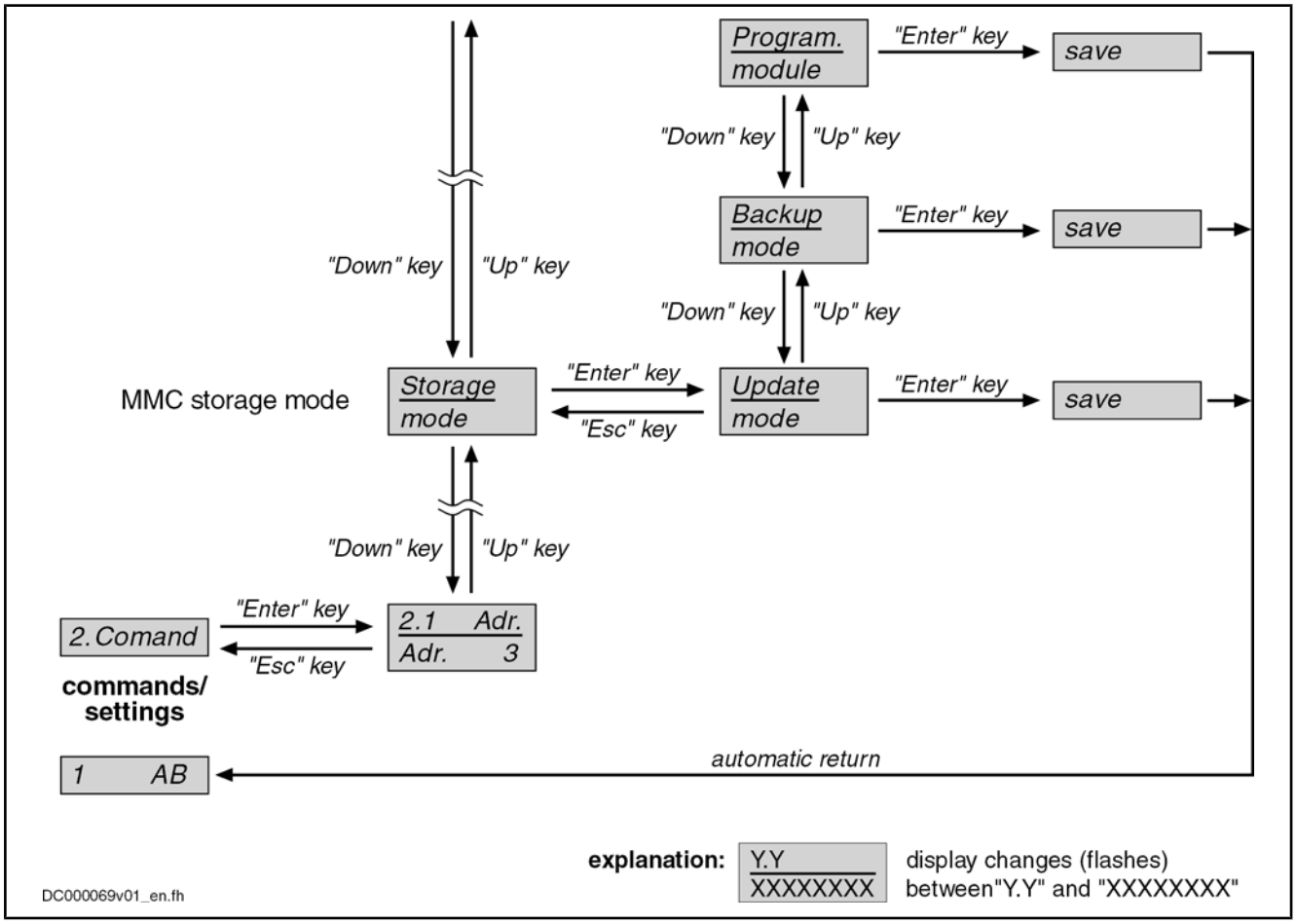


Fig.4-20: Setting the MMC storage mode with the control panel

Service Menu

Starting from the command menu, you can activate the service menu by pressing the "Up" key. It supports the following actions:

- Firmware update with previous saving of the parameter values on the internal memory (flash), if the optional memory (MMC) is the active memory (MMC as "programming module"). After the update, the parameter values can be loaded to the MMC again from the internal memory (flash).

  Note: If the internal memory (flash) is the active storage medium ("hot plug" of the MMC), the parameter values are already available in the device and do not need to be saved before the MMC-based firmware update. In this case, pressing the "Enter" key with the display "Save data" is without effect!

- Replacement of device with saving of parameter values on MMC, if the internal memory (flash) is the active memory. After the device has been replaced, firmware and values of the drive parameters, as well as PLC retain data, can be loaded from this MMC to the replacement controller.

  Note: If the control section has been equipped with the optional module "MDx", the retain data of the PLC are saved on the MMC in addition to the values of the drive parameters, when "Save data" is executed! When the MMC is the active memory, the drive parameters are not saved, because they have already been stored on the MMC, but the PLC data are stored on the MMC.

- Copy parameters:
  - Storing the parameter values and, if necessary, the PLC retain data from the device-internal, non-volatile memories (onboard flash and, if available, memory of optional module "MDx") on the MMC
  - Loading the parameter values stored on the MMC to the non-volatile memories of the controller

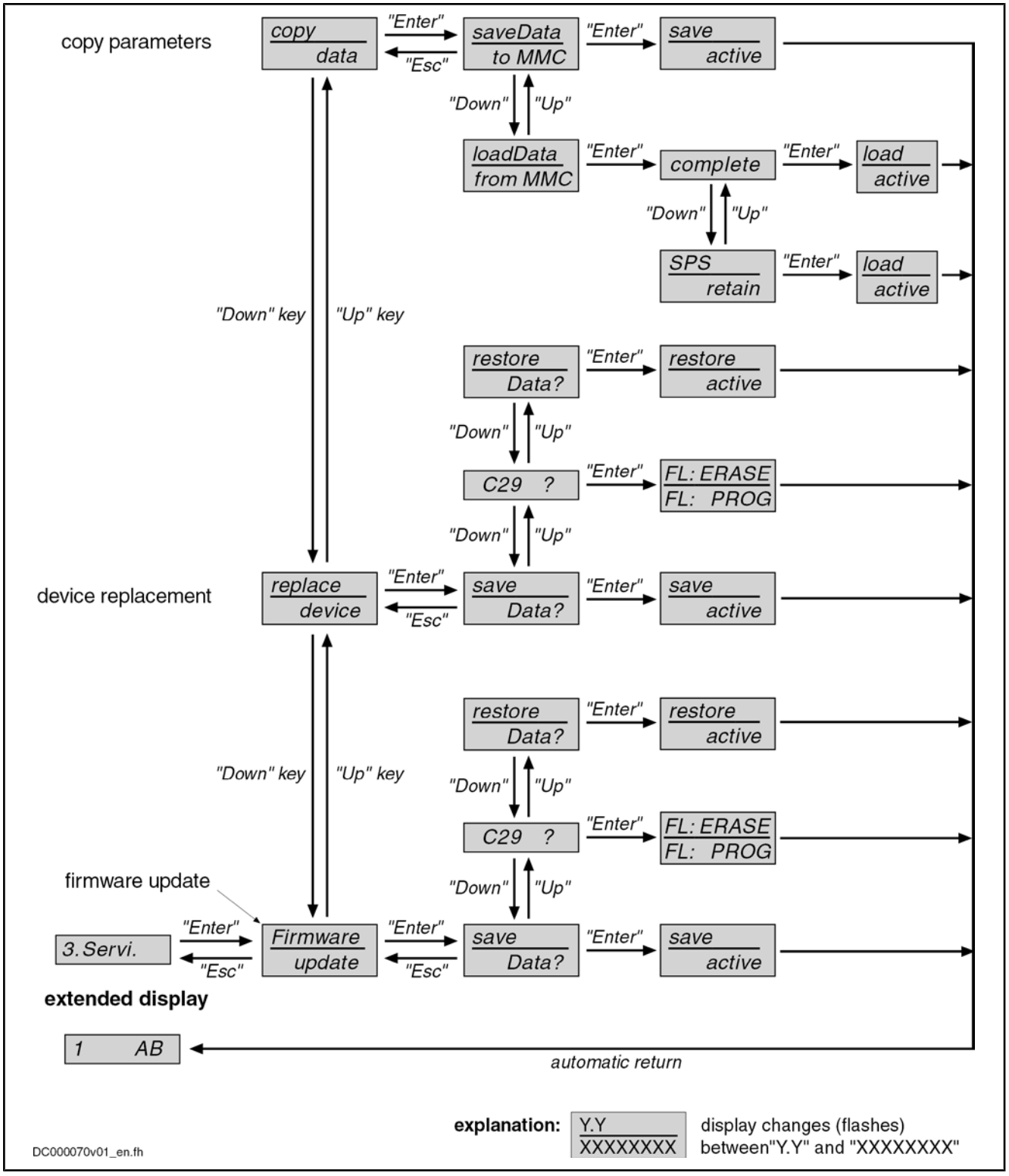


Fig.4-21: Activating the functions of the service menu

Notes on Commissioning

CAUTION

Property damage caused by command-dependent activation of motors and moving elements!

⇒ Bring axis resp. moving parts in safe initial position; limit travel range and drive power!

☞ By pressing the "Esc" key again the standard display will reappear.

☞ The input via the keys is polled in an 8 ms-cycle, the display is updated in an 8 ms-cycle, too!

4.3 Terms, Basic Principles

4.3.1 Parameters

Communication between master and drive takes place, with a few exceptions, by means of parameters.

Parameters are used for:

- Determining the configuration
- Parameterizing the control loop
- Triggering and controlling drive functions and commands
- Transmitting command values and actual values (according to requirements, cyclically or acyclically)

All operating data are mapped to parameters!

The operating data stored in parameters can be identified by means of the IDN. They can be read and transferred, if required. The user write access to parameters depends on the properties of the respective parameter and the current communication phase. Specific parameter values (operating data) are checked for validity by the drive firmware.

4.3.2 Data Storage and Parameter Handling

Data Memory

Several non-volatile data memories are available in an IndraDrive device:

- In the controller
- In the motor encoder (depending on motor type)
- As a MultiMediaCard (MMC), optional

In addition, a volatile data memory (working memory) is available in the controller.

Condition as Supplied

Condition as supplied of the Rexroth drive components:

- The controller memory contains the drive firmware and the controller-specific parameter values.
- The motor encoder memory contains the encoder-specific and, depending on the motor type, the motor-specific parameter values.
- The MMC contains the drive firmware and the basic parameter sets.

Storing the Application-Specific Parameter Values

The application-specific parameter values are stored in the controller. Due to the limited number of writing cycles of non-volatile storage media, application-specific parameter values can be stored in the working memory (volatile memory), too.

Storing of Parameter Values

Saving application-specific parameter values is required in the following cases:

- After initial commissioning of the machine axis or the motor
- Before replacing the controller for servicing (if possible)

Application-specific parameter values can be saved via:

- MMC → copying the parameter values by command
- "IndraWorks D" commissioning tool → saving the parameter values on external data carrier
- Control master → saving the parameter values on master-side data carrier

Parameter IDN Lists

The drive supports master-side saving of parameter values by listing parameter identification numbers (IDNs). Using these lists guarantees complete storage of the application-specific parameter values. It is also possible to determine IDN lists defined by the customer.

Loading of Parameter Values

Loading parameter values is required in the following cases:

- Initial commissioning of the motor (loading basic parameter values and motor-specific parameter values)
- Serial commissioning of machine axes at series machines (loading the values saved after initial commissioning)
- Restablishing a defined original status (repeated loading of the values saved after initial commissioning)
- Replacing the controller for servicing (loading the current parameter values saved before servicing)

Possibilities of loading parameter values to the controller:

- Motor encoder data memory → loading the parameter values by command or via the control panel during initial motor commissioning
- MMC → loading the parameter values by command
- "IndraWorks D" commissioning tool → loading the parameter values from external data carrier
- Control master → loading the parameter values from master-side data carrier

Checksum of Parameter Values

By means of checksum comparison, the control master can determine whether the values of the application-specific parameter values currently active in the drive correspond to the values saved on the master side.

4.3.3 Password

IndraDrive controllers provide the possibility to protect parameter values against accidental or unauthorized change by means of a password. With regard to write protection, there are 3 groups of parameters that can be written:

- Parameters that are write-protected as a standard, such as motor parameters, hardware code parameters, encoder parameters, error memory etc. ("administration parameters"). The values of these parameters guarantee correct function and performance of the drive.
- Parameters the customer can combine in groups and protect them with a so-called customer password. This allows protecting parameter values, that are used for adjusting the drive to the axis, after having determined them.
- All other parameters that can be written and are not contained in the above-mentioned groups. They are not write-protected.

Kinds of Passwords

The drive firmware allows activating and deactivating the write protection for parameter values by means of three hierarchically different passwords:

- **Customer password**

The parameter values of a parameter group combined by the customer can be protected.

- **Control password**

  Parameters protected by a customer password can be written; "administration parameters" remain read-only.

- **Master password**

  All parameters that can be written, including "administration parameters" and parameters protected by a customer password, can be changed.

4.3.4 Commands

Commands are used to activate and control complex functions or monitoring features in the drive. The higher-level master can start, interrupt or clear commands.

Each command is assigned to a parameter by means of which the execution of the command can be controlled. During the execution of the command the display of the control panel reads "Cx", "C" representing the diagnostic command message and "x" representing the number of the command.

☞ Each command that was started must be actively cleared again.

All commands available in the drive are stored in the parameter S-0-0025, IDN-list of all procedure commands.

Kinds of Commands

There are 3 different kinds of commands:

- **Drive control commands**
  - can cause automatic drive motion,
  - can be started only when drive enable has been set,
  - deactivate the active operating mode during its execution.
- **Monitor commands**
  - activate or deactivate monitors or functions in the drive.
- **Administration commands**
  - carry out administration tasks,
  - cannot be interrupted.

See also section "Command Processing"

4.3.5 Operating Modes

The selection of operating modes defines which command values will be processed in which way, in order to lead to the desired drive motion. The operating mode does not determine how these command values are transmitted from the master to the slave.

One of the four or eight (for SERCOS) operating modes that are defined in parameters is always active if the conditions below are fulfilled:

- Control section and power section are ready for operation
- Drive enable signal sees a positive edge
- Drive follows command value
- "Drive Halt" function has not been activated
- No drive control command is active
- No error reaction is carried out

The display of the control panel reads "AF" when an operating mode was activated.

☞ All implemented operating modes are stored in the "S-0-0292, List of all operating modes" parameter.

See also chapter "Operating Modes"

4.3.6 Warnings

Depending on the active operating mode and the parameter settings, many monitoring functions are carried out. If a status is detected that still allows correct operation but in case this status persists will cause an error to occur and therefore cause the drive to be automatically switched off, the drive firmware generates a warning message.

☞ Warnings do not cause automatic shutdown (exception: fatal warnings).

Classes of Warnings

Warnings are classified in different warning classes which determine whether the drive, when the warning is generated, carries out an automatic reaction or not.

☞ The warning class can be recognized by the diagnostic message.

The following classes of warnings are distinguished:

- **Without** drive reaction → diagnostic message number **E2**xxx, **E3**xxx, **E4**xxx
- **With** drive reaction → diagnostic message number **E8**xxx

☞ Warnings cannot be cleared. They persist until the condition that activated the warning is no longer fulfilled.

4.3.7 Errors

Depending on the active operating mode and the parameter settings, many monitoring functions are carried out. If a status is detected that affects or prevents correct operation the drive firmware generates an error message.

Error Classes

Errors are classified in different error classes. There are 6 error classes with different drive error reactions.

☞ The error class can be recognized by the diagnostic message number.

Diagnostic message number	Error class
F2xxx	non-fatal error
F3xxx	non-fatal safety technology error
F4xxx	interface error
F6xxx	travel range error
F7xxx	safety technology error
F8xxx	fatal error

Diagnostic message number	Error class
F9xxx	fatal system error
E-xxxx	fatal system error "processor exception"

Fig.4-22: Overview of error classes

Apart from the mentioned error classes that can occur during operation, errors can occur when the devices are booted and during firmware download. These errors are not displayed at the control panel with a diagnostic message number of the "Fxxxx" pattern, but with a short text. Booting and firmware download errors are described in the separate documentation "Troubleshooting Guide" (description of diagnostic messages).

Error Reactions of the Drive

If the drive controller is in control and an error status is detected, the execution of a drive error reaction is automatically started. The diagnostic message number "Fxxxx" flashes on the display of the control panel.

The drive reaction in the case of interface errors and non-fatal errors is determined in parameter "P-0-0119, Best possible deceleration". At the end of each error reaction, the drive goes torque-free.

See also "Error Reactions"

Clearing an Error Message

Error messages are not cleared automatically, but by the following action:

- Starting the command "S-0-0099, C0500 Reset class 1 diagnostics"

- or -

- Actuating the "Esc" key on the control panel

If the error status persists the error message is immediately generated again.

Clearing Error Messages when Drive Enable was set

If a drive error occurs while operating with drive enable having been set, the drive carries out an error reaction. The drive automatically deactivates itself at the end of each error reaction; in other words, the output stage is switched off and the drive switches from an energized to a de-energized state.

To reactivate the drive:

- Clear the error message and
- Input a positive edge for drive enable again.

Error Memory

The diagnostic message numbers of occurring errors are written to an error memory. This memory contains the diagnostic message numbers of the last 50 errors that occurred and the time when they occurred. Errors caused by a shutdown of the control voltage (e.g. "F8070 +24Volt DC error") are not stored in the error memory.

The diagnostic message numbers in the error memory are mapped to the "P-0-0192, Diagnostic numbers of error memory" parameter and can be displayed by means of the control panel. By means of the "IndraWorks D" commissioning tool it is possible to display the diagnostic message numbers and the respective times at which the errors occurred.

5 Operating States

5.1 General Information

The possible operating states are listed below in alphabetical order. The operating states are displayed on the control panel of the device:

5.2 Ab

"Drive ready" (Antrieb bereit)

See also: **A0012 Control and power sections ready for operation**

5.3 AC

See also: **A4000 Automatic drive check and adjustment**

5.4 AE

See also: **A4001 Drive deceleration to standstill**

5.5 AF

"Drive enable" (Antrieb Freigabe)

Depending on the operating mode used, you can find a detailed description of the "AF" display under the respective diagnostic status message.

5.6 AH

"Drive Halt" (Antrieb Halt)

See also: **A0010 Drive HALT**

5.7 AR

"Automatic drive reaction"

According to the drive function which is used, the drive can carry out an automatic drive reaction.

As of firmware MPx05, the function "quick stop via probe input" ("A0403 Quick stop with probe detection is active") activates the operating status "AR" (see also Functional Description of firmware "Quick Stop via Probe Input").

5.8 AS

See also: **A0011 Starting lockout active**

5.9 ASP

See also: **A0014 Drive interlock active**

5.10 AU

See also: **A4002 Drive in automatic mode**

5.11 bb

"Ready for operation" (betriebsbereit)

See also: **A0013 Ready for power on**

5.12 charg

See also: **A0503 DC bus charging active**

5.13 LB

See also: **A0500 Supply module in voltage control** or **A0502 Supply module in operation**

5.14 OM

See also: **A0051 Operating mode**

5.15 P0

"Phase 0" (only with SERCOS master communication)

See also: **A0000 Communication phase 0**

5.16 P-1

"Phase -1"

See also: **A0009 Automatic baud rate detection for SERCOS Interface**

5.17 P1

"Phase 1"

See also: **A0001 Communication phase 1**

5.18 P2

"Phase 2"

See also: **A0002 Communication phase 2**

5.19 P3

"Phase 3"

See also: **A0003 Communication phase 3**

5.20 PM

See also: **A0050 Parameterization level 1 active**

5.21 PL

"Parameter load with basic values"

See also: **F2009 PL Load parameter default values**

5.22 RL

See also: **F2008 RL The motor type has changed.**

5.23 SBB

See also: **A0017 Special mode motion active**

5.24 SBB1

See also: **A0018 Special mode motion 1 active**

5.25 SBB2

See also: **A0019 Special mode motion 2 active**

5.26 SBB3

See also: **A0020 Special mode motion 3 active**

5.27 SBB4

See also: **A0021 Special mode motion 4 active**

5.28 SBH

See also: **A0016 Safety related operational stop active**

5.29 SH

See also: **A0015 Safety related standstill active**

5.30 ZKS

See also: **A0520 DC bus quick discharge active**

6 Diagnostic Messages When Booting the Devices

6.1 Devices With Valid Firmware

When a valid firmware is available in the control section, the texts

```
BOOT 1.1
BOOT 1.2
BOOT 1.3
```

are displayed on the control section display after the control voltage is switched on ("booting"). The controller first goes through the boot phases in which the basic initialization of the processor takes place.

In the following boot phases, the basic initialization of the hardware configuration, the peripherals, the parameters, the master communication etc. takes place:

```
BOOT 2.1
BOOT 2.2
...
BOOT 2.9
```

Finally, the initialization results are controlled. If initialization errors occurred, they are output via the display. After initialization without errors the controller goes through the communication phases and, where required, switches to "ready for operation" ("bb"):

```
BOOT 3.0
BOOT 3.1
```

6.2 Devices Without Valid Firmware

In case the device does not detect valid firmware, neither in the non-volatile memory (flash) nor in the MultiMediaCard (MMC), the so-called "loader" is started. The "loader" is an auxiliary program used to load firmware to the flash memory. When the "loader" is activated, the controller goes through several initialization phases:

```
LOAD 1
LOAD 2
LOAD 3
LOAD 4
```

The LOADER display signals that the auxiliary program for loading ("download") firmware is ready for operation.

In this status, the drive controller is not ready for normal operation; it is first necessary to load a valid firmware.

When the display of the controller shows LOADER, the controller is not ready for normal operation; it is first necessary to load a valid firmware.

Replacing the firmware in this status is only possible with IndraWorks (menu item "Tools"-"Drive"-"Firmware Management") and via the serial interface.

6.3 Error Messages When Booting the Devices

6.3.1 PLC ?

Brief description: PLC start dialog

Before "Boot 2.9" was displayed on the control panel the buttons "ESC" and "ENTER" had been simultaneously pressed and kept pressed on the control panel.

As the functional package "Motion Logic" (drive PLC and technology functions) has been enabled, the display reads "PLC ?". The automatic start of a PLC boot project was prevented.

By pressing the arrow buttons (arrow down or arrow up) the display changes between "**Run PLC**" and "**Stop PLC**".

6.3.2 Stop PLC

Brief description: Do not start PLC after booting

Pressing the "ENTER" button on the control panel prevents the start of a PLC boot project.

6.3.3 Run PLC

Brief description: Start PLC after booting

When the "ENTER" button is pressed on the control panel, the drive PLC and a possibly available boot project are started after the booting process.

6.3.4 Load New Safety ?

Brief description: Query: Load safety technology parameters from MMC?

☞ MMC plugged or changed indicates that the control section was replaced. In this case it is possible to activate safety technology with the parameter file backed up during safety technology commissioning, but without repeated safety technology commissioning (see "Replacing the Control Section").

Cause	Remedy
Drive controller is equipped with optional safety technology module and active, non-volatile memory ("P-0-4065, Non-volatile memory active") has changed while controller was switched off, because • MMC was plugged (before switching off, device-internal memory was active) or • MultiMediaCard (MMC) was replaced (different MMC was active) or • MMC was removed (before switching off, MMC was active)	Confirm diagnostic message with "ENTER" in order to initiate loading of safety technology parameters from parameter file of MMC. **ATTENTION!**: Safety technology parameters already existing on control section will get lost. In parameter mode, parameters are first accepted in safety technology channel 1. They are only accepted by channel 2 when switching to operating mode, without restart in the meantime. If "P-0-3206, Safety technology password" in loaded parameter file is unequal default value "INDRASAVE", safety technology has been activated. For further steps see "Replacing the Control Section" **– or –** Confirm diagnostic message with "ESC" and safety technology parameters won't be accepted

6.3.5 No IDN on MMC !

Brief description: MMC was not formatted correctly

Cause	Remedy
Content of MMC is incorrect. Parameter (*.pbf) or retain file (*.rbf) is missing	Switch drive off and plug in MMC with correct content
MMC was not formatted correctly	Switch drive off and plug in appropriate MMC **– or –** Switch drive off and format MMC again on PC and plug it in again

6.3.6 Load Par from MMC

Brief description: MMC plugged, changed or removed => different parameter file

Cause	Remedy
Active, non-volatile memory ("P-0-4065, Non-volatile memory active") has changed while drive was switched off, because • an MMC was plugged (before switching drive off, device-internal memory had been active) or • MultiMediaCard (MMC) was replaced (other MMC was active) or • MMC was removed (before switching drive off, MMC was active)	Confirm diagnostic message with "ENTER" and start loading of new parameters **– or –** Switch drive off and insert active, non-volatile memory again that was used before drive was switched off, by either plugging in MMC / old MMC or removing MMC again (device-internal memory was active). Then switch drive on again

6.3.7 End C29

Brief description: Command C29 successfully completed

The command "C2900 Command Firmware update from MMC" was successfully completed. The firmware was copied from the MultiMediaCard (MMC) to the drive-internal memory.

6.3.8 New MMC activate

Brief description: MMC is active memory

"Programming module mode" was set in "P-0-4070, Parameter storage configuration". The MMC check during the booting process showed that this MMC had not been operated at the last switch-off [the CID (card IDN) of the MMC has changed].

Cause	Remedy
MMC was replaced with device switched off	To activate plugged MMC as programming module, press <Enter> on control panel **- or -** To ignore plugged MMC and load parameters from on-board memory, press <ESC> on control panel. As "programming module mode" was set in "P-0-4070, Parameter storage configuration", error message "F2120 MMC: defective or missing, replace" is displayed after booting process.

6.3.9 MMC not correct!

Brief description: MMC incorrectly formatted

Diagnostic Messages When Booting the Devices

Cause	Remedy
MMC was not formatted correctly	Switch drive off and plug in appropriate MMC **– or –** Switch drive off and format MMC again on PC and plug it in again
No IBF file or several IBF files on MMC	Switch drive off and plug in appropriate MMC
No appropriate parameter file and retain data file on MMC	Switch drive off and plug in appropriate MMC

6.3.10 IBF not correct!

Brief description: Content of IBF file not correct

Cause	Remedy
IBF file on MMC is not okay	Switch drive off and install MMC with appropriate IBF file in drive **– or –** On PC copy appropriate IBF file to MMC

6.3.11 Firmware update ?

Brief description: Different firmware in device and on MMC

During the booting process with the MMC plugged in, a check is run by means of the release version to find out whether the firmware (FW) on the flash is identical to the one on the MMC.

Cause	Remedy
Check showed that firmware on flash and on MMC are not identical	Switch drive off and install MMC in drive with the same release version as on flash **– or –** Confirm diagnostic message with "ENTER" and start firmware update

6.3.12 Update Error !

Brief description: Firmware update error during booting process

Cause	Remedy
Firmware update was not carried out correctly	Reboot device and start firmware update **– or –** Switch drive off, remove MMC and carry out firmware update on PC via auxiliary program "Dolfi"

7 Diagnostic Status Messages

7.1 A0000 Communication phase 0

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

The communication between master and slaves via SERCOS interface is established in four communication phases:

The communication phases 0 and 1 are used to recognize the bus nodes. In the communication phase 2 the time and data build-up of the protocols are prepared for the communication phases 3 and 4.

The phase progression takes place in ascending order. The communication phase is set by the master. Switching to communication phase 4 completes the initialization and allows power input.

If the phase progression is interrupted, the status display remains in the communication phase that has been reached.

When the "A0000 Communication phase 0" diagnostic message is active the drive is in phase 0 and waits for the master's phase switch from communication phase 0 to 1.

On the display of Rexroth IndraDrive supply units, the text "VM" ("**V**ersorgungs-**M**odul" = supply module) precedes the diagnostic message.

A0000 - Attributes

Display: P0
Ident N°: A0000

7.2 A0001 Communication phase 1

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

The communication between master and slaves via SERCOS interface is established in four communication phases:

The communication phases 0 and 1 are used to recognize the bus nodes. In the communication phase 2 the time and data build-up of the protocols are prepared for the communication phases 3 and 4.

The phase progression takes place in ascending order. The communication phase is set by the master. Switching to communication phase 4 completes the initialization and allows power input.

If the phase progression is interrupted, the status display remains in the communication phase that has been reached.

When the "A0001 Communication phase 1" diagnostic message is active the drive is in phase 1, the master has not yet activated the phase switch form phase 1 to 2.

☞ On the display of Rexroth IndraDrive supply units, the text "VM" ("**V**ersorgungs-**M**odul" = supply module) precedes the diagnostic message.

A0001 - Attributes

Display: P1
Ident N°: A0001

7.3 A0002 Communication phase 2

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

Communication phase 2 means that the drive is in the parameterization mode. In this mode many parameters can be written that cannot be written any more in communication phase 4 (operating mode).

In communication phase 2

- the communication parameters are usually transmitted from the master to the drive (in the case of field bus and SERCOS devices) and
- the "Load drive parameters" and "Save drive parameters" ("file service") functions are carried out, if required.

In order to get to communication phase 2 the master, in the case of drives with field bus and SERCOS interfaces, sets "communication phase 2" via the master communication interface. Another possibility to switch to communication phase 2 is to execute the "P-0-4023, C0400 Communication phase 2 transition" command.

Communication Phase 3

Before it is possible to switch to communication phase 3 it is necessary to execute the "S-0-0127, C0100 Communication phase 3 transition check" command. Among other things the drive, during the transition check, checks the parameters required for communication phase 3 for validity.

After successful execution of the transition check command the master switches the drive to communication phase 3 (in the case of field bus and SERCOS devices) or the drive automatically switches to phase 3 at the end of the transition check command.

☞ On the display of Rexroth IndraDrive supply units, the text "VM" ("**V**ersorgungs-**M**odul" = supply module) precedes the diagnostic message.

A0002 - Attributes

Display: P2
Ident N°: A0002

7.4 A0003 Communication phase 3

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

Communication phase 3 means that the drive is in the **restricted** parameterization mode. In this mode, as in the parameterization mode (phase 2), many parameters can still be written that cannot be written any more in communication phase 4 (operating mode). Communication parameters cannot be written in phase 3.

In order to get to communication phase 3 the master, in the case of drives with field bus and SERCOS interfaces, sets "communication phase 3" via the master communication interface. Another possibility to switch to communication phase 3 is to execute the "S-0-0127, C0100 Communication phase 3 transition check" command.

Communication Phase 4

Before it is possible to switch to communication phase 4 it is necessary to execute the "S-0-0128, C0200 Communication phase 4 transition check" command. Among other things the drive, during the transition check, checks the parameters required for communication phase 4 for validity.

After successful execution of the transition check command the master switches the drive to communication phase 4 (in the case of field bus and SERCOS devices) or the drive automatically switches to phase 4 at the end of the transition check command.

On the display of Rexroth IndraDrive supply units, the text "VM" ("**V**ersorgungs-**M**odul" = supply module) precedes the diagnostic message.

A0003 - Attributes

Display: P3
Ident N°: A0003

7.5 A0009 Automatic baud rate detection for SERCOS interface

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The communication between master and slaves via SERCOS interface is established in four communication phases:

The communication phases 0 and 1 are used to recognize the bus nodes. In the communication phase 2 the time and data build-up of the protocols are prepared for the communication phases 3 and 4.

The phase progression takes place in ascending order. The communication phase is set by the master. Switching to communication phase 4 completes the initialization and allows power input.

If the phase progression is interrupted, the status display remains in the communication phase that has been reached.

If the "A0009 Automatic baud rate detection for SERCOS interface" diagnostic message is active, the drive is in phase 0 - 1, the progression to phase 0 is carried out at the moment when the correct baud rate is detected.

A0009 - Attributes

Display: P -1
Ident N°: A0009

7.6 A0010 Drive HALT

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The Drive HALT function is activated by the master via the master communication interface by clearing the Drive HALT bit in the "S-0-0134, Master control word" parameter or by interrupting a drive control command (e.g. Drive controlled homing procedure).

The Drive HALT function is used to shut down an axis with defined acceleration and defined jerk.

In the case of **speed control** and **torque control** the drive is shut down by means of velocity command value reset with maximum torque.

See also Functional Description of firmware "Drive Halt"

A0010 - Attributes

Display: AH
Ident N°: A0010

7.7 A0011 Starting lockout active

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

As an option, certain digital drive controllers can be equipped with a drive interlock. The drive interlock prevents the unintended start of a servo axis. This is realized by separating the electronic control system of the power output stage from the power output stage by means of a relay contact.

See also Project Planning Manual Control Section, keyword "Drive interlock"

A0011 - Attributes

Display: AS
Ident N°: A0011

7.8 A0012 Control and power sections ready for operation

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

For HMS, HMD, HCS

The "A0012 Control and power sections ready for operation" diagnostic message signals that the drive is provided with control voltage and the power has been switched on. The drive is ready for power output.

☞ This status is displayed on the control panel of the drive with "Ab" ("**A**ntrieb **b**ereit" = Drive ready).

For HMV

The diagnostic message "A0012 Control and power sections ready for operation" signals that the supply unit is ready for switching in the mains contactor.

☞ This status is displayed on the control panel of the supply unit with "VM Bb".

A0012 - Attributes

Display: Ab
Ident N°: A0012

7.9 A0013 Ready for power on

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

The "A0013 Ready for power on" diagnostic message signals that the drive is provided with control voltage and that there isn't any error present in the drive.

The drive is ready for power on.

☞ This status is displayed on the control panel of the drive with "bb" ("**b**etriebs**b**ereit" = ready for operation).

On the display of Rexroth IndraDrive supply units, the text "VM" ("**V**ersorgungs-**M**odul" = supply module) precedes the diagnostic message.

A0013 - Attributes

Display: bb
Ident N°: A0013

7.10 A0014 Drive interlock active

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in the "special mode standstill". The active safety function is "safety related drive interlock".

☞ If the safety function "safety related drive interlock" is active, this is displayed on the control panel of the drive with "ASP" (**A**ntriebs**sp**erre = drive interlock).

Bit 1 is set in parameter "P-0-3213, Safety technology status".

The drive has come to standstill, the power supply has been interrupted via two channels (output stage locked).

DANGER

Dangerous movements! Danger to life, danger of injury, severe bodily injury or property damage!

⇒ After the output stage has been locked, standstill monitoring is not active. If external force influences are to be expected, e.g. in the case of a vertical axis, this motion has to be safely prevented by additional measures, e.g. a mechanical brake or weight compensation.

The safety function "safety related drive interlock" cannot be deselected by the enabling control but only by resetting the selection.

A0014 - Attributes

Display: ASP

Ident N°: A0014

7.11 A0015 Safety related standstill active

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is in the "special mode standstill". The active safety function is "safety related standstill".

☞ If the safety function "safety related standstill" is active, this is displayed on the control panel of the drive with "SH" (**S**icherer **H**alt = safety related standstill).

Bit 2 is set in parameter "P-0-3213, Safety technology status".

The drive has come to standstill, the power supply has been interrupted via two channels (output stage locked).

If the drive is still in motion when "safety related standstill" is selected, there first is a stopping process, then the power supply is interrupted via two channels (output stage locked).

DANGER

Dangerous movements! Danger to life, danger of injury, severe bodily injury or property damage!

⇒ After the output stage has been locked, standstill monitoring is not active. If external force influences are to be expected, e.g. in the case of a vertical axis, this motion has to be safely prevented by additional measures, e.g. a mechanical brake or weight compensation.

A0015 - Attributes

Display: SH

Ident N°: A0015

7.12 A0016 Safety related operational stop active

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is in the "special mode standstill". The active safety function is "safety related operational stop".

If the safety function "safety related operational stop" is active, this is displayed on the control panel of the drive with "SBH" (**S**icherer **B**etriebs**h**alt = safety related operational stop).

Bit 2 is set in parameter "P-0-3213, Safety technology status".

The drive has come to standstill, the power supply has not been interrupted, all control loops are active, the standstill monitors are active.

If the drive is still in motion when "safety related operational stop" is selected, there first is a stopping process, then the standstill monitors become active (axis/spindle cannot be moved). When the drive leaves the standstill position, the output stage is locked via two channels.

DANGER

Dangerous movements! Danger to life, danger of injury, severe bodily injury or property damage!

⇒ After the output stage has been locked, standstill monitoring is not active. If external force influences are to be expected, e.g. in the case of a vertical axis, this motion has to be safely prevented by additional measures, e.g. a mechanical brake or weight compensation.

A0016 - Attributes

Display: SBH

Ident N°: A0016

7.13 A0017 Special mode motion active

Validity

Contained in 02VRS:	«MPB»	«MPH»	«MPD»
Contained in 03VRS:	«MPB»	«MPH»	«MPD»
Contained in 04VRS:	«-»	«-»	«-»
Contained in 05VRS:	«-»	«-»	«-»

Supported by supply unit: «-»

The drive is in one of up to four special operating states "safety related motion" that can be differently configured and selected.

By means of the parameters

- "P-0-3240, Control word for safety related motion 1",
- "P-0-3250, Control word for safety related motion 2",
- "P-0-3260, Control word for safety related motion 3" and
- "P-0-3270, Control word for safety related motion 4"

it is possible to configure different characteristics of the special mode "safety related motion".

When a limit value of the configured and selected safety functions has been exceeded, the drive system is brought to standstill in a safety-related way, then the power supply is interrupted via two channels (output stage locked).

DANGER

Dangerous movements! Danger to life, risk of injury, severe bodily harm or material damage!

⇒ After the output stage has been locked, standstill monitoring is not active. If external force influences are to be expected, e.g. in the case of a vertical axis, this motion has to be safely prevented by additional measures, e.g. a mechanical brake or weight compensation.

☞ According to selection, bit 3, 4, 5 or 6 is set in parameter "P-0-3213, Safety technology status".

Safety related reduced speed	With the safety function "safety related reduced speed", the drive can only be moved with reduced speed. The speed monitors are active.
Safety related monitored acceleration/deceleration ramp	The safety function is in preparation for firmware version MP*06VRS.
Safety related direction of motion	With the safety function "safety related direction of motion" selected, the drive can only move in a determined direction with reduced speed. The speed monitors are active.
Safety related limited increment	With the safety function "safety related limited increment" selected, the drive may only travel a maximum of one fixed increment after the special mode was selected. The drive moves at reduced speed. The speed and position monitors are active.
Safety related limited absolute position	With the safety function "safety related limited absolute position", absolute position monitors are active. The drive may only move within the range limits. **NOTE:** Before the safety function "safety related limited absolute position" is selected, the "safety related homing procedure" has to be carried out.

A0017 - Attributes

Display: SBB
Ident N°: A0017

7.14 A0018 Special mode motion 1 active

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in the special mode "safety related motion 1" that can be configured and selected.

By means of the parameter "P-0-3240, Control word for safety related motion 1" it is possible to configure different characteristics of the special mode "safety related motion 1".

When a limit value of the configured and selected safety functions has been exceeded, the drive system is brought to standstill in a safety-related way, then the power supply is interrupted via two channels (output stage locked).

DANGER

Dangerous movements! Danger to life, risk of injury, severe bodily harm or material damage!

⇒ After the output stage has been locked, standstill monitoring is not active. If external force influences are to be expected, e.g. in the case of a vertical axis, this motion has to be safely prevented by additional measures, e.g. a mechanical brake or weight compensation.

☞ Bit 3 is set in parameter "P-0-3213, Safety technology status" (or "P-0-3213, Safety technology operating status").

Safety related reduced speed	With the safety function "safety related reduced speed", the drive can only be moved with reduced speed. The speed monitors are active.
Safety related monitored acceleration/deceleration ramp	The safety function is in preparation for firmware version MP*06VRS.
Safety related direction of motion	With the safety function "safety related direction of motion" selected, the drive can only move in a determined direction with reduced speed. The speed monitors are active.
Safety related limited increment	With the safety function "safety related limited increment" selected, the drive may only travel a maximum of one fixed increment after the special mode was selected. The drive moves at reduced speed. The speed and position monitors are active.
Safety related limited absolute position	With the safety function "safety related limited absolute position", absolute position monitors are active. The drive may only move within the range limits. **NOTE:** Before the safety function "safety related limited absolute position" is selected, the "safety related homing procedure" has to be carried out.

A0018 - Attributes

Display: SBB1
Ident N°: A0018

7.15 A0019 Special mode motion 2 active

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in the special mode "safety related motion 2" that can be configured and selected.

By means of the parameter "P-0-3250, Control word for safety related motion 2" it is possible to configure different characteristics of the special mode "safety related motion 2".

When a limit value of the configured and selected safety functions has been exceeded, the drive system is brought to standstill in a safety-related way, then the power supply is interrupted via two channels (output stage locked).

DANGER

Dangerous movements! Danger to life, risk of injury, severe bodily harm or material damage!

⇒ After the output stage has been locked, standstill monitoring is not active. If external force influences are to be expected, e.g. in the case of a vertical axis, this motion has to be safely prevented by additional measures, e.g. a mechanical brake or weight compensation.

☞ Bit 4 is set in parameter "P-0-3213, Safety technology status" (or "P-0-3213, Safety technology operating status").

Safety related reduced speed	With the safety function "safety related reduced speed", the drive can only be moved with reduced speed. The speed monitors are active.
Safety related monitored acceleration/deceleration ramp	The safety function is in preparation for firmware version MP*06VRS.
Safety related direction of motion	With the safety function "safety related direction of motion" selected, the drive can only move in a determined direction with reduced speed. The speed monitors are active.
Safety related limited increment	With the safety function "safety related limited increment" selected, the drive may only travel a maximum of one fixed increment after the special mode was selected. The drive moves at reduced speed. The speed and position monitors are active.
Safety related limited absolute position	With the safety function "safety related limited absolute position", absolute position monitors are active. The drive may only move within the range limits. **NOTE:** Before the safety function "safety related limited absolute position" is selected, the "safety related homing procedure" has to be carried out.

A0019 - Attributes

Display: SBB2
Ident N°: A0019

7.16 A0020 Special mode motion 3 active

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in the special mode "safety related motion 3" that can be configured and selected.

By means of the parameter "P-0-3260, Control word for safety related motion 3" it is possible to configure different characteristics of the special mode "safety related motion 3".

When a limit value of the configured and selected safety functions has been exceeded, the drive system is brought to standstill in a safety-related way, then the power supply is interrupted via two channels (output stage locked).

DANGER

Dangerous movements! Danger to life, risk of injury, severe bodily harm or material damage!

⇒ After the output stage has been locked, standstill monitoring is not active. If external force influences are to be expected, e.g. in the case of a vertical axis, this motion has to be safely prevented by additional measures, e.g. a mechanical brake or weight compensation.

☞ Bit 5 is set in parameter "P-0-3213, Safety technology status" (or "P-0-3213, Safety technology operating status").

Safety related reduced speed	With the safety function "safety related reduced speed", the drive can only be moved with reduced speed. The speed monitors are active.
Safety related monitored acceleration/deceleration ramp	The safety function is in preparation for firmware version MP*06VRS.
Safety related direction of motion	With the safety function "safety related direction of motion" selected, the drive can only move in a determined direction with reduced speed. The speed monitors are active.
Safety related limited increment	With the safety function "safety related limited increment" selected, the drive may only travel a maximum of one fixed increment after the special mode was selected. The drive moves at reduced speed. The speed and position monitors are active.
Safety related limited absolute position	With the safety function "safety related limited absolute position", absolute position monitors are active. The drive may only move within the range limits. **NOTE:** Before the safety function "safety related limited absolute position" is selected, the "safety related homing procedure" has to be carried out.

A0020 - Attributes

Display: SBB3
Ident N°: A0020

7.17 A0021 Special mode motion 4 active

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in the special mode "safety related motion 4" that can be configured and selected.

By means of the parameter "P-0-3270, Control word for safety related motion 4" it is possible to configure different characteristics of the special mode "safety related motion 4".

When a limit value of the configured and selected safety function has been exceeded, the drive system is brought to standstill in a safety-related way, then the power supply is interrupted via two channels (output stage locked).

DANGER

Dangerous movements! Danger to life, risk of injury, severe bodily harm or material damage!

⇒ After the output stage has been locked, standstill monitoring is not active. If external force influences are to be expected, e.g. in the case of a vertical axis, this motion has to be safely prevented by additional measures, e.g. a mechanical brake or weight compensation.

☞ Bit 6 is set in parameter "P-0-3213, Safety technology status" (or "P-0-3213, Safety technology operating status").

Safety related reduced speed	With the safety function "safety related reduced speed", the drive can only be moved with reduced speed. The speed monitors are active.
Safety related monitored acceleration/deceleration ramp	The safety function is in preparation for firmware version MP*06VRS.
Safety related direction of motion	With the safety function "safety related direction of motion" selected, the drive can only move in a determined direction with reduced speed. The speed monitors are active.
Safety related limited increment	With the safety function "safety related limited increment" selected, the drive may only travel a maximum of one fixed increment after the special mode was selected. The drive moves at reduced speed. The speed and position monitors are active.
Safety related limited absolute position	With the safety function "safety related limited absolute position", absolute position monitors are active. The drive may only move within the range limits. **NOTE:** Before the safety function "safety related limited absolute position" is selected, the "safety related homing procedure" has to be carried out.

A0021 - Attributes

Display: SBB4
Ident N°: A0021

7.18 A0050 Parameterization level 1 active

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in the "Parameterization level 1" mode. In this status, the monitoring functions of the position encoders and the motor temperature sensor are deactivated. Although the master communication is in communication phase 4, the drive can be parameterized as in communication phase 3.

☞ This status is displayed on the control panel of the drive with "PM".

See also Functional Description of firmware "Parking Axis"

See also Parameter Description "S-0-0420, C0400 Activate parameterization level 1 procedure command"

A0050 - Attributes

Display: PM
Ident N°: A0050

7.19 A0051 Operating mode

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The axis was switched to operating mode, but the master communication is not yet in cyclic data exchange. Axis control is not yet possible in this status.

A0051 - Attributes

Display: OM
Ident N°: A0051

7.20 A0100 Torque control

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in the "Torque control" mode. It follows the torque command value characteristic set by the master.

See also Functional Description of firmware "Torque/Force Control"

A0100 - Attributes

Display: AF
Ident N°: A0100

7.21 A0101 Velocity control

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in the "Velocity control" mode. It follows the speed command value characteristic set by the master. The speed control loop is closed in the drive.

See also Functional Description of firmware "Velocity Control"

A0101 - Attributes

Display: AF
Ident N°: A0101

7.22 A0102 Position mode, encoder 1

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in position control. The position control loop is closed by means of a position encoder in the drive. The master only specifies the position command value characteristic, the drive follows the command value with a lag error.

"Encoder 1" means that the encoder assigned by means of "P-0-0077, Assignment motor encoder->optional slot" is used as a control encoder.

See also Functional Description of firmware "Position Control with Cyclic Command Value Input"

A0102 - Attributes

Display: AF
Ident N°: A0102

7.23 A0103 Position mode, encoder 2

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in position control. The position control loop is closed by means of a position encoder in the drive. The master only specifies the position command value characteristic, the drive follows the command value with a lag error.

"Encoder 2" means that the encoder assigned by means of "P-0-0078, Assignment optional encoder->optional slot" is used as a control encoder.

See also Functional Description of firmware "Position Control with Cyclic Command Value Input"

A0103 - Attributes

Display: AF
Ident N°: A0103

7.24 A0104 Position mode lagless, encoder 1

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in position control. The position control loop is closed by means of a position encoder in the drive. The master only specifies the position command value characteristic, the drive follows the command value laglessly (prerequisite: "P-0-0040, Velocity feedforward evaluation"=100%).

"Encoder 1" means that the encoder assigned by means of "P-0-0077, Assignment motor encoder->optional slot" is used as a control encoder.

See also Functional Description of firmware "Position Control with Cyclic Command Value Input"

A0104 - Attributes

Display: AF
Ident N°: A0104

7.25 A0105 Position mode lagless, encoder 2

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in position control. The position control loop is closed by means of a position encoder in the drive. The master only specifies the position command

value characteristic, the drive follows the command value laglessly (prerequisite: "P-0-0040, Velocity feedforward evaluation"=100%).

"Encoder 2" means that the encoder assigned by means of "P-0-0078, Assignment optional encoder->optional slot" is used as a control encoder.

See also Functional Description of firmware "Position Control with Cyclic Command Value Input"

A0105 - Attributes

Display: AF

Ident N°: A0105

7.26 A0106 Drive controlled interpolation, encoder 1

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

From the control unit the drive receives a position command value identical to the target position of the distance to be traveled. The drive then generates (interpolates) an internal position command value characteristic that complies with the maximum values for the jerk, acceleration and velocity characteristic determined by the master.

With a lag error the drive moves to the target position.

"Encoder 1" means that the encoder assigned by means of "P-0-0077, Assignment motor encoder->optional slot" is used as a control encoder.

See also Functional Description of firmware "Drive Internal Interpolation"

A0106 - Attributes

Display: AF

Ident N°: A0106

7.27 A0107 Drive controlled interpolation, encoder 2

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

From the master the drive receives a position command value identical to the target position of the distance to be traveled. The drive then generates (interpolates) an internal position command value characteristic that complies with the maximum values for the jerk, acceleration and velocity characteristic determined by the master.

With a lag error the drive moves to the target position.

"Encoder 2" means that the encoder assigned by means of "P-0-0078, Assignment optional encoder->optional slot" is used as a control encoder.

See also Functional Description of firmware "Drive Internal Interpolation"

A0107 - Attributes

Display: AF

Ident N°: A0107

7.28 A0108 Drive controlled interpolation, lagless, encoder 1

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

From the master the drive receives a position command value identical to the target position of the distance to be traveled. The drive then generates (interpolates) an internal position command value characteristic that complies with the maximum values for the jerk, acceleration and velocity characteristic determined by the master.

The drive laglessly moves to the target position (prerequisite: "P-0-0040, Velocity feedforward evaluation"=100%).

"Encoder 1" means that the encoder assigned by means of "P-0-0077, Assignment motor encoder->optional slot" is used as a control encoder.

See also Functional Description of firmware "Drive Internal Interpolation"

A0108 - Attributes

Display: AF
Ident N°: A0108

7.29 A0109 Drive controlled interpolation, lagless, encoder 2

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

From the master the drive receives a position command value identical to the target position of the distance to be traveled. The drive then generates (interpolates) an internal position command value characteristic that complies with the maximum values for the jerk, acceleration and velocity characteristic determined by the master.

The drive laglessly moves to the target position (prerequisite: "P-0-0040, Velocity feedforward evaluation"=100%).

"Encoder 2" means that the encoder assigned by means of "P-0-0078, Assignment optional encoder->optional slot" is used as a control encoder.

See also Functional Description of firmware "Drive Internal Interpolation"

A0109 - Attributes

Display: AF
Ident N°: A0109

7.30 A0110 Velocity synchronization, virtual master axis

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in velocity control. Taking the gear ratio and the master axis position into account, the command velocity is determined in the drive.

"Virtual master axis" means that the master axis position is calculated by the control unit.

See also Functional Description of firmware "Velocity Synchronization with Real/Virtual Master Axis"

A0110 - Attributes

Display: AF

Ident N°: A0110

7.31 A0111 Velocity synchronization, real master axis

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is in velocity control. The velocitiy command value is derived from the master axis position. The master axis position is generated by the measuring encoder.

See also Functional Description of firmware "Velocity Synchronization with Real/Virtual Master Axis"

A0111 - Attributes

Display: AF

Ident N°: A0111

7.32 A0112 Phase synchronization, encoder 1, virtual master axis

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is in position control. The position control loop is closed by means of a position encoder in the drive. Taking the gear ratio and the master axis position into account, the position command value is determined in the drive.

The drive follows the command value with a lag distance.

"Encoder 1" means that the position encoder is mounted to the motor shaft (indirect measuring of the axis position). "Virtual master axis" means that the master axis position is calculated by the control unit.

See also Functional Description of firmware "Phase Synchronization with Real/Virtual Master Axis"

A0112 - Attributes

Display: AF

Ident N°: A0112

7.33 A0113 Phase synchronization, encoder 2, virtual master axis

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in position control. The position control loop is closed by means of a position encoder in the drive. Taking the gear ratio and the master axis position into account, the position command value is determined in the drive.

The drive follows the command value with a lag distance.

"Encoder 2" means that the position encoder is mounted to the machine axis (direct measuring of the axis position). "Virtual master axis" means that the master axis position is calculated by the control unit.

See also Functional Description of firmware "Phase Synchronization with Real/ Virtual Master Axis"

A0113 - Attributes

Display: AF
Ident N°: A0113

7.34 A0114 Phase synchronization, encoder 1, real master axis

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in position control. The position control loop is closed by means of a position encoder in the drive. Taking the gear ratio and the master axis position into account, the position command value is determined in the drive. The drive follows the command value with a lag distance.

"Encoder 1" means that the position encoder is mounted to the motor shaft (indirect measuring of the axis position). "Real master axis" means that the master axis position is derived from the incremental encoder signals.

See also Functional Description of firmware "Phase Synchronization with Real/ Virtual Master Axis"

A0114 - Attributes

Display: AF
Ident N°: A0114

7.35 A0115 Phase synchronization, encoder 2, real master axis

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in position control. The position control loop is closed by means of a position encoder in the drive. Taking the gear ratio and the master axis position into account, the position command value is determined in the drive. The drive follows the command value with a lag distance.

"Encoder 2" means that the position encoder is mounted to the machine axis (direct measuring of the axis position). "Real master axis" means that the master axis position is derived from the measuring encoder.

See also Functional Description of firmware "Phase Synchronization with Real/ Virtual Master Axis"

A0115 - Attributes

Display: AF

Ident N°: A0115

7.36 A0116 Phase synchr. lagless, encoder 1, virtual master axis

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is in position control. The position control loop is closed by means of a position encoder in the drive. Taking the gear ratio and the master axis position into account, the position command value is determined in the drive.

The drive follows the command value without any lag error.

"Encoder 1" means that the position encoder is mounted to the motor shaft (indirect measuring of the axis position). "Virtual master axis" means that the master axis position is calculated by the control unit.

See also Functional Description of firmware "Phase Synchronization with Real/ Virtual Master Axis"

A0116 - Attributes

Display: AF

Ident N°: A0116

7.37 A0117 Phase synchr. lagless, encoder 2, virtual master axis

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is in position control. The position control loop is closed by means of a position encoder in the drive. Taking the gear ratio and the master axis position into account, the position command value is determined in the drive.

The drive follows the command value without any lag error.

"Encoder 2" means that the position encoder is mounted to the machine axis (direct measuring of the axis position). "Virtual master axis" means that the master axis position is calculated by the control unit.

See also Functional Description of firmware "Phase Synchronization with Real/ Virtual Master Axis"

A0117 - Attributes

Display: AF

Ident N°: A0117

7.38 A0118 Phase synchr. lagless, encoder 1, real master axis

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in lagless position control. The position command value is calculated by the master axis position. The master axis position is derived from the measuring encoder.

See also Functional Description of firmware "Phase Synchronization with Real/ Virtual Master Axis"

A0118 - Attributes

Display: AF
Ident N°: A0118

7.39 A0119 Phase synchr. lagless, encoder 2, real master axis

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in lagless position control. The position command value is calculated by the master axis position. The master axis position is derived from the measuring encoder.

See also Functional Description of firmware "Phase Synchronization with Real/ Virtual Master Axis"

A0119 - Attributes

Display: AF
Ident N°: A0119

7.40 A0128 Cam shaft, encoder 1, virtual master axis

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in the "cam shaft" mode. The function has been derived from the principle of the mechanical cam shaft. There is a fixed position relation between master axis and slave axis. The position command values are taken from a table that is accessed by means of the master axis position.

The drive follows the command value with a lag distance.

"Encoder 1" means that the position encoder is mounted to the motor shaft (indirect measuring of the axis position). "Virtual master axis" means that the master axis position is calculated by the control unit.

See also Functional Description of firmware "Electronic Cam Shaft with Real/ Virtual Master Axis"

A0128 - Attributes

Display: AF
Ident N°: A0128

7.41 A0129 Cam shaft, encoder 2, virtual master axis

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in the "cam shaft" mode. The function has been derived from the principle of the mechanical cam shaft. There is a fixed position relation between master axis and slave axis. The position command values are taken from a table that is accessed by means of the master axis position.

The drive follows the command value with a lag distance.

"Encoder 2" means that the position encoder is mounted to the machine axis (direct measuring of the axis position). "Virtual master axis" means that the master axis position is calculated by the control unit.

See also Functional Description of firmware "Electronic Cam Shaft with Real/ Virtual Master Axis"

A0129 - Attributes

Display: AF
Ident N°: A0129

7.42 A0130 Cam shaft, encoder 1, real master axis

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in the "cam shaft" mode. The function has been derived from the principle of the mechanical cam shaft. There is a fixed position relation between master axis and slave axis. The position command values are taken from a table that is accessed by means of the master axis position.

The drive follows the command value with a lag distance.

"Encoder 1" means that the position encoder is mounted to the motor shaft (indirect measuring of the axis position). "Real master axis" means that the master axis position is derived from the measuring encoder.

See also Functional Description of firmware "Electronic Cam Shaft with Real/ Virtual Master Axis"

A0130 - Attributes

Display: AF
Ident N°: A0130

7.43 A0131 Cam shaft, encoder 2, real master axis

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in the "cam shaft" mode. The function has been derived from the principle of the mechanical cam shaft. There is a fixed position relation between master axis and slave axis. The position command values are taken from a table that is accessed by means of the master axis position.

The drive follows the command value with a lag distance.

"Encoder 2" means that the position encoder is mounted to the machine axis (direct measuring of the axis position). "Real master axis" means that the master axis position is derived from the measuring encoder.

See also Functional Description of firmware "Electronic Cam Shaft with Real/ Virtual Master Axis"

A0131 - Attributes

Display: AF

Ident N°: A0131

7.44 A0132 Cam shaft, lagless, encoder 1, virt. master axis

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is in the "cam shaft" mode. The function has been derived from the principle of the mechanical cam shaft. There is a fixed position relation between master axis and slave axis. The position command values are taken from a table that is accessed by means of the master axis position.

The drive follows the command value without any lag error.

"Encoder 1" means that the position encoder is mounted to the motor shaft (indirect measuring of the axis position). "Virtual master axis" means that the master axis position is calculated by the control unit.

See also Functional Description of firmware "Electronic Cam Shaft with Real/ Virtual Master Axis"

A0132 - Attributes

Display: AF

Ident N°: A0132

7.45 A0133 Cam shaft, lagless, encoder 2, virt. master axis

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is in the "cam shaft" mode. The function has been derived from the principle of the mechanical cam shaft. There is a fixed position relation between master axis and slave axis. The position command values are taken from a table that is accessed by means of the master axis position.

The drive follows the command value without any lag error.

"Encoder 2" means that the position encoder is mounted to the machine axis (direct measuring of the axis position). "Virtual master axis" means that the master axis position is calculated by the control unit.

See also Functional Description of firmware "Electronic Cam Shaft with Real/ Virtual Master Axis"

A0133 - Attributes

Display: AF

Ident N°: A0133

7.46 A0134 Cam shaft, lagless, encoder 1, real master axis

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is in the "cam shaft" mode. The function has been derived from the principle of the mechanical cam shaft. There is a fixed position relation between master axis and slave axis. The position command values are taken from a table that is accessed by means of the master axis position.

The drive follows the command value without any lag error.

"Encoder 1" means that the position encoder is mounted to the motor shaft (indirect measuring of the axis position). "Real master axis" means that the master axis position is derived from the incremental encoder signals.

See also Functional Description of firmware "Electronic Cam Shaft with Real/ Virtual Master Axis"

A0134 - Attributes

Display: AF

Ident N°: A0134

7.47 A0135 Cam shaft, lagless, encoder 2, real master axis

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is in the "cam shaft" mode. The function has been derived from the principle of the mechanical cam shaft. There is a fixed position relation between master axis and slave axis. The position command values are taken from a table that is accessed by means of the master axis position.

The drive follows the command value without any lag error.

"Encoder 2" means that the position encoder is mounted to the machine axis (direct measuring of the axis position). "Real master axis" means that the master axis position is derived from the measuring encoder.

See also Functional Description of firmware "Electronic Cam Shaft with Real/ Virtual Master Axis"

A0135 - Attributes

Display: AF

Ident N°: A0135

7.48 A0136 Motion profile, encoder 1, virtual master axis

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «MPH» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in the "motion profile" mode. The function has been derived from the principle of the mechanical cam shaft. There is a fixed position relation between master axis and slave axis. Depending on the master axis position, the position command values are generated from a given motion profile.

The drive follows the command value with a lag distance.

"Encoder 1" means that the position encoder is mounted to the motor shaft (indirect measuring of axis position). "Virtual master axis" means that the master axis position is calculated by the control unit.

See also Functional Description of firmware "Electronic Motion Profile with Real/Virtual Master Axis"

A0136 - Attributes

Display: AF
Ident N°: A0136

7.49 A0137 Motion profile, encoder 2, virtual master axis

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «MPH» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in the "motion profile" mode. The function has been derived from the principle of the mechanical cam shaft. There is a fixed position relation between master axis and slave axis. Depending on the master axis position, the position command values are generated from a given motion profile.

The drive follows the command value with a lag distance.

"Encoder 2" means that the position encoder is mounted to the machine axis (direct measuring of axis position). "Virtual master axis" means that the master axis position is calculated by the control unit.

See also Functional Description of firmware "Electronic Motion Profile with Real/Virtual Master Axis"

A0137 - Attributes

Display: AF
Ident N°: A0137

7.50 A0138 Motion profile, encoder 2, real master axis

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «MPH» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in the "motion profile" mode. The function has been derived from the principle of the mechanical cam shaft. There is a fixed position relation between master axis and slave axis. Depending on the master axis position, the position command values are generated from a given motion profile.

The drive follows the command value with a lag distance.

"Encoder 2" means that the position encoder is mounted to the machine axis (direct measuring of axis position). "Real master axis" means that the master axis position is derived from the measuring encoder.

See also Functional Description of firmware "Electronic Motion Profile with Real/Virtual Master Axis"

A0138 - Attributes

Display: AF

Ident N°: A0138

7.51 A0139 Motion profile, encoder 1, real master axis

Validity

Contained in 02VRS: «-» «-» «-»

Contained in 03VRS: «-» «MPH» «-»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is in the "motion profile" mode. The function has been derived from the principle of the mechanical cam shaft. There is a fixed position relation between master axis and slave axis. Depending on the master axis position, the position command values are generated from a given motion profile.

The drive follows the command value with a lag distance.

"Encoder 1" means that the position encoder is mounted to the motor shaft (indirect measuring of axis position). "Real master axis" means that the master axis position is derived from the measuring encoder.

See also Functional Description of firmware "Electronic Motion Profile with Real/Virtual Master Axis"

A0139 - Attributes

Display: AF

Ident N°: A0139

7.52 A0140 Motion profile lagless, encoder 1, virtual master axis

Validity

Contained in 02VRS: «-» «-» «-»

Contained in 03VRS: «-» «MPH» «-»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is in the "motion profile" mode. The function has been derived from the principle of the mechanical cam shaft. There is a fixed position relation between master axis and slave axis. Depending on the master axis position, the position command values are generated from a given motion profile.

The drive follows the command value without any lag error.

"Encoder 1" means that the position encoder is mounted to the motor shaft (indirect measuring of axis position). "Virtual master axis" means that the master axis position is calculated by the control unit.

See also Functional Description of firmware "Electronic Motion Profile with Real/Virtual Master Axis"

A0140 - Attributes

Display: AF

Ident N°: A0140

7.53 A0141 Motion profile lagless, encoder 2, virtual master axis

Validity

Contained in 02VRS: «-» «-» «-»

Contained in 03VRS: «-» «MPH» «-»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is in the "motion profile" mode. The function has been derived from the principle of the mechanical cam shaft. There is a fixed position relation between master axis and slave axis. Depending on the master axis position, the position command values are generated from a given motion profile.

The drive follows the command value without any lag error.

"Encoder 2" means that the position encoder is mounted to the machine axis (direct measuring of axis position). "Virtual master axis" means that the master axis position is calculated by the control unit.

See also Functional Description of firmware "Electronic Motion Profile with Real/Virtual Master Axis"

A0141 - Attributes

Display: AF

Ident N°: A0141

7.54 A0142 Motion profile lagless, encoder 1, real master axis

Validity

Contained in 02VRS: «-» «-» «-»

Contained in 03VRS: «-» «MPH» «-»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is in the "motion profile" mode. The function has been derived from the principle of the mechanical cam shaft. There is a fixed position relation between master axis and slave axis. Depending on the master axis position, the position command values are generated from a given motion profile.

The drive follows the command value without any lag error.

"Encoder 1" means that the position encoder is mounted to the motor shaft (indirect measuring of axis position). "Real master axis" means that the master axis position is derived from the incremental encoder signals.

See also Functional Description of firmware "Electronic Motion Profile with Real/Virtual Master Axis"

A0142 - Attributes

Display: AF

Ident N°: A0142

7.55 A0143 Motion profile lagless, encoder 2, real master axis

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «MPH» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in the "motion profile" mode. The function has been derived from the principle of the mechanical cam shaft. There is a fixed position relation between master axis and slave axis. Depending on the master axis position, the position command values are generated from a given motion profile.

The drive follows the command value without any lag error.

"Encoder 2" means that the position encoder is mounted to the machine axis (direct measuring of axis position). "Real master axis" means that the master axis position is derived from the measuring encoder.

See also Functional Description of firmware "Electronic Motion Profile with Real/Virtual Master Axis"

A0143 - Attributes

Display: AF
Ident N°: A0143

7.56 A0150 Drive-controlled positioning, encoder 1

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

From the master the drive receives a position command value in the "S-0-0282, Positioning command value" parameter. This position/distance, when the status of bit 0 of parameter "S-0-0346, Positioning command strobe" changes, is copied to "S-0-0258, Target position" or, in the case of a relative input, added to the value in "S-0-0430, Effective target position". The drive then generates (interpolates) an internal position command value characteristic in order to get from the current position to this target position. This is done considering the limit values for velocity, acceleration and jerk in the following parameters:

- "S-0-0193, Positioning Jerk",
- "S-0-0259, Positioning Velocity",
- "S-0-0260, Positioning Acceleration" and
- "S-0-0359, Positioning Deceleration".

With a lag error proportional to the velocity the drive moves to the target position.

"Encoder 1" means that the encoder assigned by means of "P-0-0077, Assignment motor encoder->optional slot" is used as a control encoder.

See also Functional Description of firmware "Drive Controlled Positioning"

A0150 - Attributes

Display: AF
Ident N°: A0150

7.57 A0151 Drive-controlled positioning, encoder 1, lagless

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

From the master the drive receives a position command value in the "S-0-0282, Positioning command value" parameter. This distance, when the status of bit 0 of parameter "S-0-0346, Positioning command strobe" changes, is copied to "S-0-0430, Effective target position" or, in the case of a relative input, added to the value in S-0-0430, Effective target position". The drive then generates (interpolates) an internal position command value characteristic in order to get from the current position to this target position. This is done considering the limit values for velocity, acceleration and jerk in the following parameters:

- "S-0-0259, Positioning Velocity",
- "S-0-0260, Positioning Acceleration",
- "S-0-0359, Positioning Deceleration" and
- "S-0-0193, Positioning Jerk".

The drive laglessly moves to the target position (prerequisite: "P-0-0040, Velocity feedforward evaluation"=100%).

"Encoder 1" means that the encoder assigned by means of "P-0-0077, Assignment motor encoder->optional slot" is used as a control encoder.

See also Functional Description of firmware "Drive Controlled Positioning"

A0151 - Attributes

Display: AF
Ident N°: A0151

7.58 A0152 Drive-controlled positioning, encoder 2

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

From the master the drive receives a position command value in the "S-0-0282, Positioning command value" parameter. This distance, when the status of bit 0 of parameter "S-0-0346, Positioning command strobe" changes, is copied to "S-0-0430, Effective target position" or, in the case of a relative input, added to the value in "S-0-0430, Effective target position". The drive then generates (interpolates) an internal position command value characteristic in order to get from the current position to this target position. This is done considering the limit values for velocity, acceleration and jerk in the following parameters:

- "S-0-0259, Positioning Velocity",
- "S-0-0260, Positioning Acceleration",
- "S-0-0359, Positioning Deceleration" and
- "S-0-0193, Positioning Jerk".

With a lag error proportional to the velocity the drive moves to the target position.

"Encoder 2" means that the encoder assigned by means of "P-0-0078, Assignment optional encoder->optional slot" is used as a control encoder.

See also Functional Description of firmware "Drive Controlled Positioning"

A0152 - Attributes

Display: AF

Ident N°: A0152

7.59 A0153 Drive-controlled positioning, encoder 2, lagless

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

From the master the drive receives a position command value in the "S-0-0282, Positioning command value" parameter. This distance, when the status of bit 0 of parameter "S-0-0346, Positioning command strobe" changes, is copied to "S-0-0430, Effective target position" or, in the case of a relative input, added to the value in "S-0-0430, Effective target position". The drive then generates (interpolates) an internal position command value characteristic in order to get from the current position to this target position. This is done considering the limit values for velocity, acceleration and jerk in the following parameters:

- "S-0-0259, Positioning Velocity",
- "S-0-0260, Positioning Acceleration",
- "S-0-0359, Positioning Deceleration" and
- "S-0-0193, Positioning Jerk".

The drive laglessly moves to the target position (prerequisite: "P-0-0040, Velocity feedforward evaluation"=100%).

"Encoder 2" means that the encoder assigned by means of "P-0-0078, Assignment optional encoder->optional slot" is used as a control encoder.

See also Functional Description of firmware "Drive Controlled Positioning"

A0153 - Attributes

Display: AF

Ident N°: A0153

7.60 A0154 Position mode drive controlled, encoder 1

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is in position control. The position control loop is closed by means of a position encoder in the drive. The drive presets the position command value characteristic internally and follows the command value with a lag distance.

"Encoder 1" means that the encoder assigned by means of "P-0-0077, Assignment motor encoder->optional slot" is used as a control encoder.

See also Functional Description of firmware:

- "Drive-Internal Interpolation" and

- "Drive-Controlled Positioning"

A0154 - Attributes

Display: AF
Ident N°: A0154

7.61 A0155 Position mode drive controlled, encoder 2

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in position control. The position control loop is closed by means of a position encoder in the drive. The drive presets the position command value characteristic internally and follows the command value with a lag distance.

"Encoder 2" means that the encoder assigned by means of "P-0-0078, Assignment optional encoder->optional slot" is used as a control encoder.

See also Functional Description of firmware:

- "Drive-Internal Interpolation" and
- "Drive-Controlled Positioning"

A0155 - Attributes

Display: AF
Ident N°: A0155

7.62 A0156 Position mode lagless, encoder 1 drive controlled

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is in position control. The position control loop is closed by means of a position encoder in the drive. The drive presets the position command value characteristic internally and follows the command value without any lag error. (Prerequisite: "P-0-0040, Velocity feedforward evaluation"=100%).

"Encoder 1" means that the encoder assigned by means of "P-0-0077, Assignment motor encoder->optional slot" is used as a control encoder.

See also Functional Description of firmware:

- "Drive-Internal Interpolation" and
- "Drive-Controlled Positioning"

A0156 - Attributes

Display: AF
Ident N°: A0156

7.63 A0157 Position mode lagless, encoder 2 drive controlled

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is in position control. The position control loop is closed by means of a position encoder in the drive. The drive presets the position command value characteristic internally and follows the command value without any lag error. (Prerequisite: "P-0-0040, Velocity feedforward evaluation"=100%).

"Encoder 2" means that the encoder assigned by means of "P-0-0078, Assignment motor encoder->optional slot" is used as a control encoder.

See also Functional Description of firmware:

- "Drive-Internal Interpolation" and
- "Drive-Controlled Positioning"

A0157 - Attributes

Display: AF

Ident N°: A0157

7.64 A0160 Position mode drive controlled

Validity

Contained in 02VRS: «-» «-» «-»

Contained in 03VRS: «-» «-» «-»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is in position control. The position control loop is closed by means of a position encoder in the drive. The master only presets the position command value characteristic.

When the operating mode is activated, any possible difference between current actual position value and transmitted position command value is traveled in a drive-controlled way.

According to the axis controller control word, the drive controls with encoder 1 or encoder 2, laglessly or with lag error, with regard to the target position to be approached (prerequisite: "P-0-0040, Velocity feedforward evaluation"=100%).

☞ Control with encoder 2 can only take place if encoder 2 is available.

See also Functional Description of firmware "Position Control with Cyclic Command Value Input"

A0160 - Attributes

Display: AF

Ident N°: A0160

7.65 A0161 Drive-controlled positioning

Validity

Contained in 02VRS: «-» «-» «-»

Contained in 03VRS: «-» «-» «-»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

From the master the drive receives a position command value in parameter "S-0-0282, Positioning command value". This distance, when the status of bit 0 of parameter "S-0-0346, Positioning command strobe" changes, is copied to

the value in "S-0-0430, Effective target position" or, in the case of relative input, added to this value. The drive then generates (interpolates) an internal position command value characteristic in order to get from the current position to this target position. This is done considering the parameterized values for velocity, acceleration and jerk in the parameters

- "S-0-0259, Positioning Velocity",
- "S-0-0260, Positioning Acceleration",
- "S-0-0359, Positioning Deceleration" and
- "S-0-0193, Positioning Jerk".

According to the axis controller control word, the drive controls with encoder 1 or encoder 2, laglessly or with lag error, with regard to the target position to be approached (prerequisite: "P-0-0040, Velocity feedforward evaluation"=100%).

☞ Control with encoder 2 can only take place if encoder 2 is available.

See also Functional Description of firmware "Drive-Controlled Positioning"

A0161 - Attributes

Display: AF
Ident N°: A0161

7.66 A0162 Positioning block mode

Validity

Contained in 02VRS:	«-»	«-»	«-»
Contained in 03VRS:	«-»	«-»	«-»
Contained in 04VRS:	«MPB»	«MPH»	«MPD»
Contained in 05VRS:	«MPB»	«MPH»	«MPD»

Supported by supply unit: «-»

The command value profile is generated in the drive. Target position, velocity, acceleration and jerk are determined by a programmed positioning block. According to the parameterization of "P-0-4019, Positioning block mode", the target position is understood as an absolute or relative distance.

According to the axis controller control word, the drive controls with encoder 1 or encoder 2, laglessly or with lag error, with regard to the target position to be approached (prerequisite: "P-0-0040, Velocity feedforward evaluation"=100%).

☞ **Note:** Control with encoder 2 can only take place if encoder 2 is available.

See also Functional Description of firmware "Positioning Block Mode"

A0162 - Attributes

Display: AF
Ident N°: A0162

7.67 A0163 Position synchronization

Validity

Contained in 02VRS:	«-»	«-»	«-»
Contained in 03VRS:	«-»	«-»	«-»
Contained in 04VRS:	«MPB»	«MPH»	«MPD»
Contained in 05VRS:	«MPB»	«MPH»	«MPD»

Supported by supply unit: «-»

The drive is in the "Position synchronization" mode. This means that the drive is in position control and the position command values are derived from master axis positions.

See also Functional Description of firmware "Synchronization Modes"

A0163 - Attributes

Display: AF

Ident N°: A0163

7.68 A0164 Velocity synchronization

Validity

Contained in 02VRS: «-» «-» «-»

Contained in 03VRS: «-» «-» «-»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is in the "Velocity synchronization" mode. This means that the drive is in velocity control and the velocity command values are derived from master axis positions.

See also Functional Description of firmware "Synchronization Modes"

A0164 - Attributes

Display: AF

Ident N°: A0164

7.69 A0206 Positioning block mode, encoder 1

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is in position control with systematic lag distance. Encoder 1 (motor encoder) provides the actual value. The command value profile is generated in the drive. Target position, velocity, acceleration and jerk are determined by a previously programmed positioning block According to the parameterization of "P-0-4019, Positioning block mode", the target position shall be understood as being absolute or as relative distance.

See also Functional Description of firmware "Positioning Block Mode"

A0206 - Attributes

Display: AF

Ident N°: A0206

7.70 A0207 Positioning block mode lagless, encoder 1

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is in position control without lag distance. Encoder 1 (motor encoder) provides the actual value. The command value profile is generated in the drive.

Target position, velocity, acceleration and jerk are determined by a previously programmed positioning block According to the parameterization of "P-0-4019, Positioning block mode", the target position shall be understood as being absolute or as relative distance.

See also Functional Description of firmware "Positioning Block Mode"

A0207 - Attributes

Display: AF

Ident N°: A0207

7.71 A0210 Positioning block mode, encoder 2

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is in position control with systematic lag distance. Encoder 2 provides the actual value. The command value profile is generated in the drive. Target position, velocity, acceleration and jerk are determined by a previously programmed positioning block According to the parameterization of "P-0-4019, Positioning block mode", the target position shall be understood as being absolute or as relative distance.

See also Functional Description of firmware "Positioning Block Mode"

A0210 - Attributes

Display: AF

Ident N°: A0210

7.72 A0211 Positioning block mode lagless, encoder 2

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is in position control without lag distance. Encoder 2 provides the actual value. The command value profile is generated in the drive. Target position, velocity, acceleration and jerk are determined by a previously programmed positioning block According to the parameterization of "P-0-4019, Positioning block mode", the target position shall be understood as being absolute or as relative distance.

See also Functional Description of firmware "Positioning Block Mode"

A0211 - Attributes

Display: AF

Ident N°: A0211

7.73 A0403 Quick stop with probe detection is active

Validity

Contained in 02VRS: «-» «-» «-»

Contained in 03VRS: «-» «-» «-»

Contained in 04VRS: «-» «-» «-»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The readiness for quick stop and the detection of the quick stop signal internally trigger the speed command value reset which causes the axis to be shut down. This happens taking the following values into account:

- the current torque/force limit value for drives in closed-loop operation
- the maximum stator frequency change (P-0-0569) for drives in open-loop operation

In the case of quick stop, the drive ignores the setting of command values by the control master, decelerates in a drive-controlled way and remains in a drive-internal operating mode until the readiness for quick stop is reset.

See also Functional Description of firmware "Quick Stop via Probe Input"

A0403 - Attributes

Display: AR

Ident N°: A0403

7.74 A0500 Supply module in voltage control

Validity

Contained in 02VRS: «-» «-» «-»

Contained in 03VRS: «-» «-» «-»

Contained in 04VRS: «-» «-» «-»

Contained in 05VRS: «-» «-» «-»

Supported by supply unit: «HMV»

The mains contactor has been switched in, the DC bus has been charged, the DC bus voltage is regulated to 750 V direct voltage.

☞ On the display of Rexroth IndraDrive supply units, the text "VM" ("**V**ersorgungs-**M**odul" = supply module) precedes the diagnostic message.

A0500 - Attributes

Display: Lb

Ident N°: A0500

7.75 A0502 Supply module in operation

Validity

Contained in 02VRS: «-» «-» «-»

Contained in 03VRS: «-» «-» «-»

Contained in 04VRS: «-» «-» «-»

Contained in 05VRS: «-» «-» «-»

Supported by supply unit: «HMV»

The mains contactor has been switched in, the DC bus has been charged and is ready for power output.

☞ On the display of Rexroth IndraDrive supply units, the text "VM" ("**V**ersorgungs-**M**odul" = supply module) precedes the diagnostic message.

A0502 - Attributes

Display: Lb

Ident N°: A0502

7.76 A0503 DC bus charging active

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

The DC bus is presently charged to the crest value of the mains voltage ("soft start"). When the voltage in the DC bus has reached the crest value of the mains voltage, the mains contactor is switched in.

☞ On the display of Rexroth IndraDrive supply units, the text "VM" ("**V**ersorgungs-**M**odul" = supply module) precedes the diagnostic message.

A0503 - Attributes

Display: charg
Ident N°: A0503

7.77 A0520 DC bus quick discharge active

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

The braking resistor is presently short-circuiting the DC bus in order to reduce the DC bus voltage as quickly as possible.

☞ The "DC bus short circuit" function (ZKS) was activated via the terminal strip X32 at the HMV.

☞ On the display of Rexroth IndraDrive supply units, the text "VM" ("**V**ersorgungs-**M**odul" = supply module) precedes the diagnostic message.

A0520 - Attributes

Display: ZKS
Ident N°: A0520

7.78 A0800 Unknown operating mode

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

There isn't any diagnostic message existing for the activated operating mode.

☞ On the display of Rexroth IndraDrive supply units, the text "VM" ("**V**ersorgungs-**M**odul" = supply module) precedes the diagnostic message.

A0800 - Attributes

Display: AF
Ident N°: A0800

7.79 A4000 Automatic drive check and adjustment

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The A4000 diagnostic message is a collective diagnostic message for different system states. It is used for drive check and adjustment. When enabling and disabling the drive enable this diagnosis is automatically activated. The following system states that are processed independent of the parameterization are counted among the drive checks and adjustments:

- the holding brake delay times ("S-0-0206, Drive on delay time", "S-0-0207, Drive off delay time")
- build-up of the air-gap field (in the case of asynchronous motors)
- automatic determination of the commutation offset (in the case of synchronous motors with incremental measuring system)

Depending on the parameterization the automatic brake check is displayed with the A4000 diagnostic message, too (see "P-0-0525, Holding brake control word").

A4000 - Attributes

Display: AC
Ident N°: A4000

7.80 A4001 Drive deceleration to standstill

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive

- is decelerated to standstill as set in the "P-0-0119, Best possible deceleration" parameter

- or -

- conducts a speed command value reset.

☞ This status is displayed on the control panel of the drive with "AE".

See also Functional Description of firmware "Error"

A4001 - Attributes

Display: AE
Ident N°: A4001

7.81 A4002 Drive in automatic mode

Validity

Contained in 02VRS: «-» «MPH» «-»
Contained in 03VRS: «MPB» «MPH» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

The drive-integrated PLC (MLD) has permanent (or temporary) control over the drive; this means that the drive is controlled by the drive-integrated PLC.

See also Application Manual "Rexroth IndraMotion MLD"

A4002 - Attributes

Display: AU
Ident N°: A4002

7.82 A4003 Setting-up mode is active

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

For manual control of the drive, the easy startup mode is available.

In this mode, every motion command triggering of the drive-internal PLC (IndraMotion MLD) or of master communication is ignored.

The drive is in velocity control; command value input takes place via "P-0-1460, PLC/setting-up mode, velocity command value".

A4003 - Attributes

Display: AF
Ident N°: A4003

8 Error Messages

8.1 Fatal System Errors (F9xxx and E-0000)

8.1.1 Behavior in the Case of Fatal System Errors

In the case of fatal system errors, there is a grave problem in the drive system (e.g. watchdog error, processor crash, ...) which does no longer allow regular operation of the drive. Due to a hardware or firmware error, the drive firmware is no longer operable; clearing an error is no longer possible.

In this case the drive reacts automatically as follows:

Drive Behavior

- All digital outputs are set to "0".

  Safety technology: safety related feedback is deactivated!
- The "ready for operation" relay opens, this also switches power off in case the wiring is correct.
- The output stage is locked, this disables the drive torque.
- The brake output is deactivated; if a self-holding brake is used, it is applied!
- One of the following diagnostic messages is output at the display:
  - F9xxx (fatal system errors)
  - E8xxx (exceptions)
  - or E-xxxx (processor error), e.g. E-0800 (detailed information in the English language is output via the serial interface)

Putting the Drive Into Operation

After a fatal system error has occurred, the drive can only be put into operation again when:

1. The 24V supply is completely switched off and on so that a restart of the drive is carried out (incl. booting process and initialization).
2. The drive is run up to the operating mode again.
3. Power is switched on again.

☞ In case fatal system errors are occurring repeatedly, contact our service department as operating the drive then is no longer possible.

8.1.2 E-0000 Processor exception error

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Cause:

A fatal processor error (processor exception) occurred. The drive was switched off by the firmware (torque-free).

"0000" is a wild card for hexadecimal error codes by means of which the Rexroth service department can recognize the exact cause of the occurrence of the error.

Example

"E-0220" means that an unauthorized (incorrect) interrupt call occurred.

E-0000	E-0220	E-0460	E-06C0
E-0020	E-0240	E-0480	E-0700
E-0040	E-0260	E-04A0	E-0720
E-0060	E-0280	E-04C0	E-0740
E-0080	E-02A0	E-04E0	E-0760
E-00A0	E-02C0	E-0500	E-0800
E-00C0	E-02E0	E-0520	E-0820
E-00E0	E-0300	E-0540	E-0A00
E-0100	E-0320	E-0560	E-0A20
E-0120	E-0340	E-0580	E-0A40
E-0140	E-0360	E-05A0	E-0A60
E-0160	E-0380	E-0600	E-0A80
E-0180	E-03A0	E-0620	E-0AA0
E-01A0	E-03C0	E-0640	E-0AC0
E-01C0	E-0400	E-0660	E-0AE0
E-01E0	E-0420	E-0680	E-0B00
E-0200	E-0440	E-06A0	E-0B80

Fig.8-1: Hexadecimal error codes of a processor error

Remedy:

Switch drive off and then on again. If the processor error is still displayed, please contact our service department.

E-0000 - Attributes

Display: E-XXXX
Ident N°: E-0000

8.1.3 F9001 Error internal function call

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

The device was switched off by the firmware.

Cause	Remedy
Undefined cause	Switch device off/on. If error persists, replace device
An error occurred in firmware (general software error)	Please contact our service department

F9001 - Attributes

Display: F9001
Ident N°: F9001

8.1.4 F9002 Error internal RTOS function call

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Cause	Remedy
An error occurred in the firmware (general software error). The drive was switched off by the firmware.	Please contact our service department.

F9002 - Attributes

Display: F9002
Ident N°: F9002

8.1.5 F9003 Watchdog

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

Cause	Remedy
Firmware-side watchdog timer was triggered (general firmware error). Drive was switched off by firmware.	Replace device, contact our service department

F9003 - Attributes

Display: F9003
Ident N°: F9003

8.1.6 F9004 Hardware trap

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

An internal firmware error has occurred. The device was switched off by the firmware.

Cause	Remedy
An error occurred in firmware	Please contact our service department

F9004 - Attributes

Display: F9004
Ident N°: F9004

8.2 Fatal Errors (F8xxx)

8.2.1 Behavior in the Case of Fatal Errors

Basically there are 2 kinds of fatal errors (F8 errors):

- fatal errors during initialization (initialization errors) (e.g. F8201 and F8203, F8118, F8120, ...)
- fatal errors during operation (e.g. F8060, F8022, ...)

☞ Fatal initialization errors cannot be cleared, they require the drive to be switched off completely.

In addition to completely switching off the drive, fatal errors associated with the safety technology (e.g. F8201 and F8203) require safety technology to be completely recommissioned.

Drive Behavior

In the case of fatal errors, closed-loop control (or open-loop U/f control) of the drive is no longer ensured; with these errors the drive, independent of the setting in "P-0-0119, Best possible deceleration" and "P-0-0117, Activation of NC reaction on error", therefore is immediately switched off, i.e. it goes torque-free (see also Functional Description "Error Reaction").

☞ In the case of fatal errors, the settings in "P-0-0118, Power supply, configuration" still are taken into account.

Putting the Drive Into Operation

After a fatal error has occurred, the drive can only be put into operation again when:

1. The error message was cleared by the error clearing command (cf. "S-0-0099, C0500 Reset class 1 diagnostics") [to do this it might possibly be necessary to switch to the parameter mode or switch the drive off completely].
2. The actual cause of the error was recognized and removed. This might possibly imply the replacement of an entire component (e.g. motor or drive controller).
3. The drive is in the operating mode again and power was switched on again ("Ab").
4. Drive enable was switched on again (0-1 edge).

☞ In case fatal errors are occurring repeatedly, contact our service department as operating the drive then is no longer possible.

8.2.2 F8000 Fatal hardware error

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Cause

"F8000" is a collective diagnostic message for the following fatal hardware errors:

- "F8060 Overcurrent in power section" and
- "F8069 +/-15Volt DC error"

Normally you won't see "F8000" on the display of the drive controller, because "F8060 Overcurrent in power section" or "F8069 +/-15Volt DC error" will be displayed shortly afterwards.

Reading Exact Cause of Error at External Control Unit

An external control unit cannot recognize the exact cause of the error; the exact cause of the error, however, can be detected via the service channel by re-

peated reading of "S-0-0390, Diagnostic message number" and "S-0-0095, Diagnostic message".

Remedy The respective cause is displayed in the diagnostic message which follows the error F8000 ("F8060 Overcurrent in power section" or "F8069 +/-15Volt DC error").

Error Reaction The error reaction defined for fatal errors (F8xxx) is immediately carried out (see "Behavior in the Case of Fatal Error").

F8000 - Attributes

Display: F8000

Ident N°: F8000

8.2.3 F8010 Autom. commutation: max. motion range when moving back

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The axis moved away from its initial position during the commutation setting process.

With the **saturation method**, this error is generated when the maximum motion range was exceeded and "moving back to start position" had been set.

With the **sine-wave method**, this error is generated independent of the setting "moving back to start position".

Cause	Remedy
Positive feedback of motor; commutation offset determination generated incorrect value for "P-0-0521, Effective commutation offset".	Check motor encoder signals. To do this, move motor knowing manufacturer-side setting for sense of rotation or velocity polarity and check actual position values with regard to polarity and validation. If necessary, invert polarity of motor encoder or invert two motor phases. Carry out commutation setting again.
Positive feedback of motor after motor replacement (servicing) due to connection error.	Check whether direction of motion (sense of rotation) of motor complies with that of motor encoder. If not, invert direction of motion of motor (invert phases) or of motor encoder.
During commutation setting process, axis got into resonance.	Set "search direction for sine-wave method" to "increase of amplitude with priority" in "P-0-0522, Control word for commutation setting" **- or -** Reduce value in "P-0-0507, Test frequency for angle acquisition" in order modify excitation frequency for sine-wave method compared to resonance frequency of axis.
Due to low friction of mechanical system, axis moved away from its initial position at start of commutation offset setting.	With saturation method, switch off "moving back to start position", if possible on axis-side! With sine-wave method, determine new start values for P-0-0506 and P-0-0507! To do this, set P-0-0506 to "0" and start command C1200!

F8010 - Attributes

Display: F8010

Ident N°: F8010

8.2.4 F8011 Commutation offset could not be determined

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The sine-wave method for commutation setting could not determine any value for the commutation offset.

Cause	Remedy
Axis could not carry out required motion	Check axis for stiffness or blocking; if necessary, reduce friction (lubrication, guiding device of trailing cable installation) or remove blocking **- or -** Set "search direction for sine-wave method" to "increase of amplitude with priority" in "P-0-0522, Control word for commutation setting" **- or -** Increase value in "P-0-0506, Amplitude for angle acquisition" in order to increase excitation amplitude for sine-wave method compared to frictional force of axis.
During commutation setting process, axis got into resonance	Set "search direction for sine-wave method" to "increase of frequency with priority" in "P-0-0522, Control word for commutation setting" **- or -** Reduce value in "P-0-0507, Test frequency for angle acquisition" in order modify excitation frequency for sine-wave method compared to resonance frequency of axis
Motor has not been supplied with current	Check motor connection
Sine-wave method without success, although axis has required freedom of motion and doesn't show any resonance phenomena	Try with manually input values if automatic search for motor-specific values for "P-0-0506, Amplitude for angle acquisition" and "P-0-0507, Test frequency for angle acquisition" doesn't provide any result in spite of several repetitions.
Signals of motor encoder do not reflect motion process of axis; encoder cables of 2 drives possibly mixed up **- or -** Incorrect polarity of encoder signals	Check motor encoder signals. To do this move motor knowing manufacturer-side setting for sense of rotation or velocity polarity and check actual position values with regard to polarity and validation.

F8011 - Attributes

Display: F8011
Ident N°: F8011

8.2.5 F8012 Autom. commutation: max. motion range

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During commutation setting (sine-wave method) the axis left the allowed actual position value range.

Cause	Remedy
Heavy axis motion due to too high drive torque or force generation during commutation setting	Reduce value contained in "P-0-0506, Amplitude for angle acquisition" **- and / or -** Increase value contained in "P-0-0507, Test frequency for angle acquisition"
External forces or torques cause axis to move out of allowed actual position value range	Check mechanical axis system for occurrence of external forces, e.g. due to trailing cable installation, vertical load etc.
Detent force or torque causes axis to move out of allowed actual position value range	Make sure that, during commutation setting by means of sine-wave method, detent forces of motor do not cause position limits to be exceeded near limits of actual position value range

F8012 - Attributes

Display: F8012
Ident N°: F8012

8.2.6 F8013 Automatic commutation: current too low

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The actual current value amplitude resulting from commutation setting with the saturation method is monitored. When it does not exceed a minimum threshold, the error F8013 is generated.

Cause	Remedy
Actual current value amplitude is not sufficient for exact determination of commutation offset	Increase signal voltage ("P-0-0506, Amplitude for angle acquisition" or reduce signal frequency ("P-0-0507, Test frequency for angle acquisition" and restart commutation setting process. **- or -** Enter value "0" in "P-0-0506, Amplitude for angle acquisition" Appropriate value for P-0-0506 is thereby automatically determined during commutation setting process. **- or -** Reduce value of "P-0-0517, Commutation: required harmonics component", if approx. 30 similar values are determined for "P-0-0521, Effective commutation offset" with repeated commutation setting for different motor positions (drive remains in "Ab"). Reduce "P-0-0517, Commutation: required harmonics component" until command error F8013 no longer occurs; finally check function several times!

If error occurs repeatedly, please contact our service department.

Error Messages

F8013 - Attributes

Display: F8013
Ident N°: F8013

8.2.7 F8014 Automatic commutation: overcurrent

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The actual current value amplitude resulting from automatic commutation offset determination is monitored. When a maximum value is exceeded, the error F8014 is generated.

Cause	Remedy
Amplitude of actual current value is higher than allowed maximum current	Reduce signal voltage ("P-0-0506, Voltage amplitude for angle acquisition") or increase signal frequency ("P-0-0507, Test frequency for angle acquisition"). **- or -** With "P-0-0506, Voltage amplitude for angle acquisition"=0 start automatic determination of appropriate values.

If error occurs repeatedly, please contact our service department.

F8014 - Attributes

Display: F8014
Ident N°: F8014

8.2.8 F8015 Automatic commutation: timeout

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Saturation Method

During the execution of the automatic commutation offset determination (after drive enable) an error was detected.

Cause	Remedy
An error occurred in internal signal generator used for determining commutation offset.	Switch drive off and on again. If error continues to be signaled, contact our service department.

Sine-Wave Method

The commutation setting with motion by means of the sine-wave method is completed when the axis, after commutation offset determination, has been moved back to the initial position at which it was before the start. If this is impossible, the error F8015 is generated.

Cause	Remedy
Axis cannot be moved back to position at which it was at beginning of commutation determination.	Check mechanical axis system, remove blocking or stiffness.

F8015 - Attributes

Display: F8015
Ident N°: F8015

8.2.9 F8016 Automatic commutation: iteration without result

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the automatic commutation offset determination (after drive enable) it has been impossible to find appropriate values for "P-0-0506, Voltage amplitude for angle acquisition" and "P-0-0507, Test frequency for angle acquisition" with which it would be possible to determine a useful commutation offset of the connected motor.

Cause	Remedy
Current generated during automatic commutation offset determination could not produce any saturation effect in motor. Required maximum current is approx. 1.5-fold continuous current at standstill ("S-0-0111, Motor current at standstill").	Check whether controller can supply motor with sufficiently high current (cf. "S-0-0111, Motor current at standstill" and "S-0-0110, Amplifier peak current"). If maximum controller current is too low, drive controller has to be replaced by a bigger one. **- or -** Change position of movable part of motor with regard to its rigid part restart command "P-0-0524, C1200 Commutation offset setting command". **- or -** Contact our service department and, if necessary, use an absolute measuring system, because motor characteristics do not allow automatic commutation.

See also Functional Description of firmware "Commutation Setting"

F8016 - Attributes

Display: F8016
Ident N°: F8016

8.2.10 F8017 Automatic commutation: incorrect commutation adjust

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

This error only occurs during sensorless positioning of synchronous motors.

An error occurred during commutation adjust of the carrier-signal-based rotor position detection. It was impossible to determine the alignment of the rotor.

Error Messages

Cause	Remedy
It was impossible to determine initial position of rotor.	Check whether parameter values of sensorless positioning of synchronous motors correspond to specification.
Rotor was moving during transient oscillation of rotor position estimation.	Make sure that rotor does not turn during commutation process.
An error occurred when rotor angles determined before and after commutation adjust were compared.	Make sure that rotor does not turn during commutation process. **- and/or -** Adjust parameter values of "P-0-0506, Amplitude for angle acquisition", "P-0-0507, Test frequency for angle acquisition" and "P-0-0517, Commutation: required harmonics component" or start search mode. **- and/or -** Check whether parameter values of sensorless positioning of synchronous motors correspond to specification.
Determined commutation offset is wrong. **- and/or -** Rotor was moving during saturation method.	Adjust parameter values of "P-0-0506, Amplitude for angle acquisition", "P-0-0507, Test frequency for angle acquisition" and "P-0-0517, Commutation: required harmonics component" or start search mode.

☞ If error occurs repeatedly, please contact our service department.

F8017 - Attributes

Display: F8017
Ident N°: F8017

8.2.11 F8022 Enc. 1: enc. signals incorr. (can be cleared in ph. 2)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The signals of the measuring system (encoder 1) are monitored with regard to their amplitudes and signal shape. If a signal (e.g. sin or cos) leaves the thresholds monitored by the hardware or if the signals are disturbed in such a way that a position error occurs, the error F8022 is generated.

☞ As the position of the measuring system is no longer generated correctly when the error F8022 is detected, it is necessary to initialize the encoder again.

The error can only be cleared in communication phase 2 (parameter mode).

Cause	Remedy
Defective encoder cable or cable shielding.	Check cable to measuring system and replace it, if necessary.
Measuring system defective.	Check measuring system and replace it, if necessary
Faulty mounting of measuring head in the case of linear measuring systems.	Check mounting of measuring head and correct it, if necessary.

Cause	Remedy
Measuring system dirty	Clean or replace measuring system
Hardware defect on control section of drive.	Replace control section or entire drive controller.

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also "E2074 Encoder 1: encoder signals disturbed".

F8022 - Attributes

Display: F8022
Ident N°: F8022

8.2.12 F8023 Error mechanical link of encoder or motor connection

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The controller is monitoring the motor, among other things, by means of a model calculation. The input values required for the model calculation are checked for validity. If the check is negative, this error message is generated.

Cause	Remedy
Mechanical connection between rotor of motor and motor encoder is loose or broken.	Check connection and fix or repair it.
Phase break in motor feed wire.	• Check motor feed wire for continuity. Take possible "loose contacts"into account. • Check connection of motor feed wire at controller. • Check connection of motor feed wire at motor. • Line break in motor. Replace motor. • Line break in controller. Replace controller.
Monitoring signal for encoder validation (P-0-0620) is not within limits of P-0-0621 and P-0-0622 (upper or lower monitoring threshold of encoder validation monitoring), because commutation offset has been incorrectly set.	Determine commutation offset again (see Functional Description of firmware " Commutation Setting ".
Although commutation offset has been correctly set, monitoring signal for encoder validation (P-0-0620) is not within limits of P-0-0621 and P-0-0622 (upper or lower monitoring threshold of encoder validation monitoring).	Via P-0-0520, parameterize limit values for encoder validation monitoring in such a way that monitoring range in working point of motor is not left (if necessary, make oscilloscope measurement).

F8023 - Attributes

Display: F8023
Ident N°: F8023

8.2.13 F8025 Overvoltage in power section

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»

Error Messages

Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

☞ Beschreibungstext in Vorbereitung; aktuelle Informationen sind der Technical Note "TN_411_3_Feldorientierte_Stromregelung" zu entnehmen.

F8025 - Attributes

Display: F8025
Ident N°: F8025

8.2.14 F8027 Safety related standstill while drive enabled

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

☞ When the error occurs, the drive immediately becomes torque-free!

Optional Module "Starting Lockout" (HSI01)

Cause	Remedy
Starting lockout was set with active control or drive enable was set with active starting lockout	Check control and connection of starting lockout input

Optional Module "Safety Technology I/O" (HSI11)

Cause	Remedy
Drive enable was set while "drive interlock" or "safety related standstill" was active **- or -** Drive enable was set while drive was in error status "quasi safety related standstill" due to internal safety technology error.	Do not set drive enable while drive is in described states.

F8027 - Attributes

Display: F8027
Ident N°: F8027

8.2.15 F8028 Overcurrent in power section

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

☞ The text of the description is in preparation; for up-to-date information, see Technical Note "TN_411_3_Field-Oriented_CurrentControl".

F8028 - Attributes

Display: 8028
Ident N°: F8028

8.2.16 F8042 Encoder 2 error: signal amplitude incorrect

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The signals of the measuring system (encoder 2) are monitored on hardware and software level with regard to their amplitudes and signal shape. If a signal (sin or cos) leaves the allowed range or if the signals are disturbed in such a way that a position error occurs, this error is generated. The error only occurs in conjunction with the function "redundant motor encoder"!

☞ As the position is no longer generated correctly when this error is detected, it is necessary to initialize the encoder again.

☞ When using an incremental encoder with square-wave signals, monitoring is carried out with regard to an inadmissible edge.

On the software level, the signals of a resolver are monitored for their levels.

Cause	Remedy
Defective encoder cable or cable shielding	Check cable to measuring system and replace it, if necessary.
Encoder defective	Check measuring system and replace it, if necessary.
Faulty mounting of measuring head in the case of linear measuring systems	Check mounting of measuring head and correct it, if necessary.
Measuring system dirty	Replace measuring system
Hardware defect on control section of drive	Replace control section or entire drive controller.

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

F8042 - Attributes

Display: F8042
Ident N°: F8042

8.2.17 F8057 Device overload shutdown

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

The device was switched off due to overload.

Error Messages

Cause	Remedy
Power demanded by drives is too high	Use drives with lower peak current
Power demanded by drives is too high	Reduce allowed acceleration of axis or reduce final velocity to which acceleration takes place

F8057 - Attributes

Display: F8057
Ident N°: F8057

8.2.18 F8060 Overcurrent in power section

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The current in the power transistors has exceeded the maximum allowed device peak current (cf. "S-0-0110, Amplifier peak current").

☞ In the case of an internal signal voltage error (15 V) in the power section, this error message is generated, even without power, directly when the device is switched on, before power is demanded from the power section.

Cause	Remedy
External 24 V supply is not sufficiently overload-proof	Check overload withstand capability of external 24 V power supply unit and replace it, if necessary
Short circuit in motor or motor cable	Check motor cable and motor for short circuit
Power section of drive controller is defective	Replace drive controller
Current loop parameterized differently	Check current loop parameterization (cf. motor data sheet) and correct it if necessary after having contacted our service department
Voltage fluctuations in DC bus too high because system impedance too high	Reduce system impedance, e.g. increase feed wire cross sections

F8060 - Attributes

Display: F8060
Ident N°: F8060

8.2.19 F8064 Interruption of motor phase

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During voltage-controlled U/f operation for asynchronous motors, the drive monitors the motor current in the individual line phases.

The drive has detected that the current is "0" in at least one phase

DANGER

Lethal injury caused by coasting axis (torque disable)!

⇒ Additional measures are possibly required to stop the axis.

Restrictions of Correct Monitoring Function

- Safe monitoring of individual phases is only possible as of a speed command value >10 rpm.
- The monitor is also triggered in the case of totally incorrect parameterization of the motor (e.g. the setting in "P-0-4004, Magnetizing current" is by far higher than the actually available magnetizing current).

DANGER

Lethal electric shock caused by live parts with more than 50 V!

⇒ Observe the safety regulations when working at/ checking the drive controller/ motor.

Cause	Remedy
At least one line phase of motor has not been connected to drive controller or line break occurred	Check motor cable connection (assignment <-> axis). Check individual motor phases from connection at drive controller for line break and high ohmic resistance.
For a double-axis device, the two motor power connections were interchanged or generally incorrect axis assignment was made between motor and controller	Check whether assignment of motor connections is correct for the axes.
Motor winding (U, V, W) has burned out	Check motor winding by means of ohmmeter and replace motor, if necessary.
Motor incorrectly parameterized	Compare motor data in drive to actual motor data (see also Functional Description of firmware " Rexroth Motors" and " Determining the Parameter Values of Third-Party Motors").
Power section defective	Replace drive controller

☞ The sequence of the replacement of drive controllers is described in the documentation " Project Planning Manual for Power Section".

F8064 - Attributes

Display: F8064
Ident N°: F8064

8.2.20 F8067 Synchronization PWM-Timer wrong

Validity

Contained in 02VRS: «MPB» «-» «-»
Contained in 03VRS: «MPB» «-» «-»
Contained in 04VRS: «MPB» «-» «-»
Contained in 05VRS: «MPB» «-» «-»
Supported by supply unit: «-»

Digital drive control requires absolutely synchronous data processing (e.g. sampling of actual current values); if this is not guaranteed, controlled operation is impossible and the error F8067 is generated.

Error Messages

Cause	Remedy
Synchronization clock of bus master oscillates very much due to software or hardware error [e.g. jitter of MST with SERCOS (F2067 and F8067)].	Check external bus master and make sure synchronization clock is error-free and constant.
Control section defective	Replace control section or entire drive controller.
Internal timing problem in drive firmware	Contact our service department for firmware update.

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware " Master Communication".

F8067 - Attributes

Display: F8067
Ident N°: F8067

8.2.21 F8069 +/-15Volt DC error

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

An error has occurred in the internal +/-15 V supply of the device.

Cause	Remedy
Error in external DC 24V power supply	Check external power supply
Power section defective	Replace device

F8069 - Attributes

Display: F8069
Ident N°: F8069

8.2.22 F8070 +24Volt DC error

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

The operation of IndraDrive devices requires an external 24 V control voltage supply. This voltage is monitored with regard to the allowed tolerance.

☞ When the error F8070 occurs, the motors within the drive system are immediately go torque-free. Apply possibly existing self-holding motor holding brakes.

Cause	Remedy
Supply cable for control voltages defective	Check and, if necessary, replace supply cable for control voltages and connector
Overload of 24 V power supply unit	Check 24 V supply voltage at power supply unit
Power supply unit defective	Check and, if necessary, replace power supply unit
Short circuit in 24 V supply wiring	Check 24 V supply wiring for short circuit

F8070 - Attributes

Display: F8070
Ident N°: F8070

8.2.23 F8076 Error in error angle loop

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

☞ The text of the description is in preparation; for up-to-date information, see Technical Note "TN_411_3_Field-Oriented_CurrentControl".

F8076 - Attributes

Display: F8076
Ident N°: F8076

8.2.24 F8078 Speed loop error

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The speed loop monitor is activated if the following conditions occur simultaneously:

- "P-0-0049, Effective torque/force command value" is at the torque/force limit.
- "P-0-0049, Effective torque/force command value" and actual velocity have different signs.
- The actual velocity at the **motor shaft** is higher than 20 rpm (or 20 mm/min for linear motors).
- Actual acceleration and control deviation have different signs.

Cause	Remedy
Motor phases (U, V, W) interchanged so that commutation of motor is incorrect.	Check motor cable connection and correct phase assignment, if necessary.
Incorrect encoder arrangement	Correct encoder arrangement (inverting rotational direction of encoder can possibly resolve problem).
Speed loop setting incorrect	Check speed loop setting according to Application Manual.

Error Messages

Cause	Remedy
Commutation offset incorrect	Replace motor (in the case of MHD, MKD, MKE motors); in the case of kit motors, make commutation settings.
Motor encoder defective	Replace motor encoder (or motor)

F8078 - Attributes

Display: F8078
Ident N°: F8078

8.2.25 F8079 Velocity limit value exceeded

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Cause	Remedy
"S-0-0040, Velocity feedback value" has exceeded the 1.125-fold value of one of parameterized velocity limit values.	Check and, if necessary, correct parameterization of "S-0-0091, Bipolar velocity limit value", "S-0-0038, Positive velocity limit value" and "S-0-0039, Negative velocity limit value".
Velocity control loop unstable or too heavily oscillating due to incorrect parameterization.	Check and, if necessary, correct parameterization of velocity loop.
Preset velocity command value too high (cf. P-0-0048 = "S-0-0036, Velocity command value" + "S-0-0037, Additive velocity command value").	Reduce "P-0-0048, Effective velocity command value" by adjusting "S-0-0036, Velocity command value" or "S-0-0037, Additive velocity command value".

See also Functional Description of firmware " Control Loop Structure".

F8079 - Attributes

Display: F8079
Ident N°: F8079

8.2.26 F8091 Power section defective

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the initialization of the power section, the drive tries to access the power section parameters.

These are the following parameters:

- S-0-0140, Controller type
- P-0-0809, Properties of charging circuit
- P-0-0859, Data of internal braking resistor
- P-0-1510, Circuit board code power section
- P-0-1519, Module code of power section
- P-0-3902, Command values for power section adjust
- P-0-3903, Adjust values of power section

- P-0-4058, Amplifier type data
- P-0-4059, Electric type data of power section

Cause	Remedy
One of power section parameters is invalid (e.g. checksum error) or contains inadmissible value.	Check content of list "S-0-0021, IDN list of invalid operating data for communication phase 2", write down IDNs it contains (IDNs/parameters) and then please contact Rexroth service department.
As of MPx04VRS: Incorrect parameter setting when using device "HAC01" (SERCOS analog converter).	Check/correct settings in "P-0-0860, Converter configuration" (bit 15); reboot device "HAC01" after having changed parameter setting.
Control section and/or power section defective.	Replace drive controller

☞ The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

F8091 - Attributes

Display: F8091
Ident N°: F8091

8.2.27 F8100 Error when initializing the parameter handling

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the initialization of the drive the control section is checked for correct function. An error was detected during this check.

Cause	Remedy
Control section configuration not allowed because an optional module (e.g. optional module 1...4, master communication,...) is not supported by firmware.	Switch drive off and on again. If error occurs again, replace control section (e.g. CSH01.1 or CDB01.1) by different control section with appropriate configuration. If necessary, contact our service department.
Firmware used is not suitable (e.g. MPH02VRS for double-axis control section), i.e. hardware and software do not match.	Select suitable firmware by means of Functional Description or Version Notes/Release Notes (see "supported control section configurations").
Hardware defect on control section	Switch drive off and on again. If error still occurs, contact our service department and, if necessary, replace control section or entire drive controller.

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware "System Overview".

See also Project Planning Manual for control section, keyword "Type Code".

Error Messages

F8100 - Attributes

Display: F8100
Ident N°: F8100

8.2.28 F8102 Error when initializing power section

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the initialization of the drive the power section is checked for correct function. An error was detected during this check.

Cause	Remedy
Hardware and firmware do not match	Check Firmware Release Notes or Firmware Version Notes and, if necessary, use latest firmware release.
Parameter "P-0-1510, Circuit board code power section" stored on power section is invalid or was incorrectly written.	Switch drive off and on again. If error occurs again, check content of "P-0-1510, Circuit board code power section" and contact our service department! Maybe you have to replace power section or entire drive controller.
Hardware defect on power section	Replace power section or entire drive controller.

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

F8102 - Attributes

Display: F8102
Ident N°: F8102

8.2.29 F8118 Invalid power section/firmware combination

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The power section is incompatible with the firmware used.

Cause	Remedy
Inappropriate firmware	Use firmware that matches power section
Inappropriate power section	Use power section that matches firmware
Operation without power section has been set, but firmware recognizes a power section	Check bit 15 in P-0-0860

F8118 - Attributes

Display: F8118
Ident N°: F8118

8.2.30 F8120 Invalid control section/firmware combination

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The control section is incompatible with the firmware used.

Cause	Remedy
During firmware replacement, there is an attempt to copy firmware to controller which does not match	Use firmware that matches control section
Inappropriate control section	Use control section that matches firmware
Safety technology incorrectly configured for double-axis device	Check control section configuration

F8120 - Attributes

Display: F8120
Ident N°: F8120

8.2.31 F8122 Control section defective

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the initialization of the control section an error occurred.

Cause	Remedy
Hardware of control section is defective	Replace control section or entire drive controller; use hardware configuration of same type

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

F8122 - Attributes

Display: F8122
Ident N°: F8122

8.2.32 F8129 Incorrect optional module firmware

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The firmware of an optional module is defective.

Error Messages

Cause	Remedy
Firmware of an optional module programmed in invalid form **– or -** An error occurred during firmware update	Carry out firmware update (again). If error occurs repeatedly, it is necessary to replace control section or drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

F8129 - Attributes

Display: F8129
Ident N°: F8129

8.2.33 F8130 Firmware of option 2 of safety technology defective

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

The firmware of the optional safety technology module is defective.

Cause	Remedy
Programming of firmware for optional safety technology module is invalid	Make firmware update
An error occurred during firmware update	Restart firmware update. If error message is displayed again, replace control section with control section of same type, if you are authorized to do this! Otherwise entire drive controller has to be replaced.

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

F8130 - Attributes

Display: F8130
Ident N°: F8130

8.2.34 F8133 Error when checking interrupting circuits

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In order to lock the output stage in a safety related way when the safety technology has detected an error, the correct functioning of the interrupting circuit is cyclically checked. This is done on the one hand during the actions "release output stage" and "lock output stage", on the other hand statically while the

output stage is being released or locked. The corresponding hardware realization ensures that this is possible without repercussion on the PWM control signals.

The drive torque is immediately disabled. The drive automatically switches to "safety related standstill" and the output stage is switched off via one channel. All poles of the mains contactor are switched off.

☞ Safety is not acknowledged; i.e. "safety technology status output controller" was cleared/reset in "P-0-3214, Safety technology signal status word, channel 1" / "P-0-3214, Safety technology status word, channel 1" or the diagnosis input/output EA10n (channel 2) was set depending on the parameterization in "P-0-3210, Safety technology control word" / "P-0-3210, Safety technology configuration".

Cause	Remedy
An error was detected during check of interrupting circuit	Switch power supply off and on again. If error occurs repeatedly, replace control section or entire drive controller.

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

F8133 - Attributes

Display: F8133
Ident N°: F8133

8.2.35 F8134 Safety related holding system: fatal error

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

A check detected that the motor holding brake or the redundant holding brake, with the drive torque-free, has not been controlled for the purpose of applying it or has not been applied.

Cause	Remedy
Error in wiring between control section, control module and redundant holding brake	Check wiring
Hardware error of control module or error in mechanical system of redundant holding brake	Replace hardware
Error in parameterization	Check parameterization

F8134 - Attributes

Display: F8134
Ident N°: F8134

8.2.36 F8135 Velocity exceeded with trend monitoring

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the stopping process, the drive is not able to come to standstill within the parameterized limits.

Cause	Remedy
In the case of drive-controlled transition to standstill from normal operation, special mode motion or in the case of error, drive is not able to reach standstill with deceleration parameterized in "P-0-3282, Safety related monitored deceleration".	Select useful value for parameter "P-0-3282, Safety related monitored deceleration".

F8135 - Attributes

Display: F8135
Ident N°: F8135

8.2.37 F8140 Fatal CCD error

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «MPH» «-»
Contained in 05VRS: «-» «MPH» «-»
Supported by supply unit: «-»

Cause	Remedy
"Error reaction active" has been set in "P-0-1600, CCD: configuration" and an F8 error occurred in a slave.	Localize faulty slave and remove cause of error for this slave.

The CCD master reacts with torque disable.

See also Functional Description of firmware "Cross Communication (CCD)".

F8140 - Attributes

Display: F8140
Ident N°: F8140

8.2.38 F8201 Safety command for basic initialization incorrect

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In the booting phase of the drive a basic initialization is carried out on both safety technology channels. The initialization sequence on channel 2 is started via an internal command.

Cause	Remedy
Basic initialization on channel 2 is incorrect or internal command was aborted with timeout.	Carry out load defaults procedure for safety technology ("S-0-0262, C07_x Load defaults procedure command" with "P-0-4090, Index for C07 Load defaults procedure" = 165) and reset optional safety technology module (switch control voltage off and on again). **Note:** If necessary, repeat procedure if "P-0-3207, Safety technology password level" is unequal 1.
There are incompatible firmware versions on channel 1 and channel 2, firmware on channel 2 therefore wasn't started (to be noticed by the fact that parameter "P-0-3200, Safety technology firmware code" is without content).	Establish compatible firmware versions on channel 1 and channel 2 by reloading firmware and paying attention to complete installation and possible error messages during loading process.
Channel 2 signals a checksum error and therefore wasn't started (to be noticed by the fact that parameter "P-0-3200, Safety technology firmware code" is without content).	Reload firmware and pay attention to complete installation and possible error messages during loading process.
Error in safety memory (e.g. incorrect version for firmware upgrade).	Carry out load defaults procedure for safety technology ("S-0-0262, C07_x Load defaults procedure command" with "P-0-4090, Index for C07 Load defaults procedure" = 165) and reset optional safety technology module (switch control voltage off and on again).
Error in parameterization, i.e. double assignment of inputs at channel 2 (e.g. operating mode switch parameterized twice).	Check assignment of inputs in "P-0-3211, Safety technology I/O control word, channel 2".
Hardware error	Replace hardware

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

Only Rexroth service engineers are allowed to replace optional modules of the control section.

F8201 - Attributes

Display: F8201
Ident N°: F8201

8.2.39 F8203 Safety technology configuration parameter invalid

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

All safety technology parameters are protected against incorrect input – which is similar to the use of a password – because they have to be input twice.

The time and control word parameters required for initialization are read from their parameter memory after the drive has been switched on and the two double elements are compared.

- "P-0-3210, Safety technology control word" or "P-0-3210, Safety technology configuration"

- "P-0-3211, Safety technology I/O control word, channel 2" or "P-0-3211, Safety technology I/O configuration list, channel 2"
- P-0-3220, Tolerance time transition from normal operation
- P-0-3221, Max. tolerance time for different channel states
- P-0-3222, Max. activation time of enabling control
- P-0-3223, Time interval for dynamization of safety function selection
- P-0-3224, Duration of dynamization pulse of safety function selection
- P-0-3225, Tolerance time transition from safety rel. oper.
- "P-0-3240, Control word of safety related motion 1" or "P-0-3240, Configuration of safety related motion 1"
- "P-0-3250, Control word of safety related motion 2" or "P-0-3250, Configuration of safety related motion 2"
- "P-0-3260, Control word of safety related motion 3" or "P-0-3260, Configuration of safety related motion 3"
- "P-0-3270, Control word of safety related motion 4" or "P-0-3270, Configuration of safety related motion 4"
- "P-0-3290, PROFIsafe: F_Destination_Address"(not MPx02VRS!)
- "P-0-3291, PROFIsafe: F_Source_Address" (not MPx02VRS!)

The comparison showed that not all of the double elements are identical.

☞ Switching to the operating mode is impossible.

Cause	Remedy
A memory cell was overwritten by mistake.	Reset command "C07_2 Load def. proc. com. (load def. pr. for safety techn.)" and optional safety technology module (switch control voltage off and then on again). **Note:** The command "C07_2 Load def. proc. com. (load def. pr. for safety techn.)" overwrites user-defined safety technology settings! Only use this command if you want to commission safety technology again.
Firmware defect on optional safety technology module.	If command error occurs repeatedly, safety technology firmware has to be replaced.
Hardware defect on optional safety technology module.	If command error occurs repeatedly, optional safety technology module has to be replaced.

☞ The command "C07_2 Load def. proc. com. (load def. pr. for safety techn.)" is started by parameter "S-0-0262, C07_x Load defaults procedure command" with the respective setting in "P-0-4090, Index for C07 Load defaults procedure".

F8203 - Attributes

Display: F8203
Ident N°: F8203

8.2.40 F8813 Connection error mains choke

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»

Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

After the power supply had been switched on, a wiring error of the mains choke (e.g. incorrect phase sequence of the mains phases) was detected.

Cause	Remedy
Mains choke was incorrectly connected	Check and correct connection of mains choke; connections to mains choke must be as short as possible and twisted → see also documentation "Drive System, Project Planning Manual", chapter "Connection to Mains Choke and Mains Filter" (for an overview of reference documentations on the drive system and the system components see: "[External link could not be resolved.]")

F8813 - Attributes

Display: F8813
Ident N°: F8813

8.2.41 F8838 Overcurrent external braking resistor

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The error F8838 is generated when the current in the braking resistor circuit is rising in an inadmissible way.

Cause	Remedy
Resistance value of connected braking resistor is too low.	Connect braking resistor unit with higher resistance value (take specification into account!).
Short circuit at braking resistor connection.	Remove short circuit

See also Functional Description of firmware " Power Supply".

F8838 - Attributes

Display: F8838
Ident N°: F8838

8.3 Safety Technology Errors (F7xxx)

8.3.1 Behavior in the Case of Safety Technology Errors

In the case of safety technology errors (F7xxx), the drive, independent of the setting in "P-0-0119, Best possible deceleration" and "P-0-0117, Activation of NC reaction on error", is shut down as fast as possible; the drive is stopped by velocity command value reset (see also Functional Description "Error Reaction").

NC-controlled shutdown is no longer possible in the case of safety technology errors (F7xxx).

At the end of the error reaction, the drive goes torque-free and the output stage is locked via two channels after the time entered in "P-0-3220, Tolerance time

transition from normal operation" or "P-0-3225, Tolerance time transition from safety rel. oper." is over.

As of firmware MP*-03V20, the error reaction can be parameterized via the configuration bit "reaction to F7 error" in "P-0-3210, Safety technology configuration"; the error reaction "velocity command value reset" has been activated as a standard, but can be deactivated so that the drive immediately goes torque-free when an F7 error occurs.

☞ The F7 error reaction "torque disable" should only be used when forced deceleration by velocity command value reset generally causes problems, e.g. in the case of mechanically coupled axes.

The machine manufacturer is responsible for the F7 error reaction "torque disable" and his risk analysis has to show his responsibility.

Putting the Drive Into Operation

The drive can only be put into operation again when:

After a fatal system error has occurred, the drive can only be put into operation again when:

1. The error message was cleared by the error clearing command (cf. "S-0-0099, C0500 Reset class 1 diagnostics").
2. The actual cause of the error was recognized and removed (e.g. incorrect parameterization of velocity thresholds or time windows).
3. The drive is in the operating mode again and power was switched on again ("Ab").
4. Drive enable was switched on again (0-1 edge).

☞ In case safety technology errors are occurring repeatedly, contact our service department as operating the drive then is no longer allowed.

8.3.2 F7010 Safety related limited increment exceeded

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In the special mode "safety related motion" with configured safety function "safety related limited increment", the monitoring makes sure that the values do not leave the parameterized position window (increment).

The bipolar position window is activated with the start of the special mode. For the duration of the special mode the drive can freely move within the limits of the position window.

Cause	Remedy
At least one of the position windows relevant for special mode "safety related motion" has been incorrectly parameterized	Check parameterization of position windows and adjust it to desired travel targets. Position windows: • "P-0-3243, Safety related limited increment 1" or • "P-0-3253, Safety related limited increment 2" or • "P-0-3263, Safety related limited increment 3" or • "P-0-3273, Safety related limited increment 4" After trouble shooting start command "S-0-0099, C0500 Reset class 1" diagnostics in order to clear error an then set drive enable again.
Command value input is incorrect; i.e. drive moves to invalid target positions	Check command value input in control unit and adjust target positions according to travel range or required target positions. After trouble shooting start command "S-0-0099, C0500 Reset class 1 diagnostics" in order to clear error an then set drive enable again.

See also documentation "Integrated Safety Technology".

F7010 - Attributes

Display: F7010
Ident N°: F7010

8.3.3 F7011 Safety rel. position limit val., exc. in pos. dir.

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In the special mode "safety related motion" with configured safety function "safety related limited absolute position", the parameterized position limit value was exceeded in positive direction.

Cause	Remedy
In safety function "special mode motion", value parameterized in parameter • "P-0-3241, Safety related limited absolute position 1, positive" or • "P-0-3251, Safety related limited absolute position 2, positive was exceeded"	Check command value input and adjust it according to parameterized position limit values **– or –** Check parameter setting and change it, if necessary. Then start command "S-0-0099, C0500 Reset class 1 diagnostics" in order to clear error and then set drive enable again.

F7011 - Attributes

Display: F7011
Ident N°: F7011

8.3.4 F7012 Safety rel. position limit val., exc. in neg. dir.

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Error Messages

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

In the special mode "safety related motion" with configured safety function "safety related limited absolute position", the parameterized position limit value was exceeded in negative direction.

Cause	Remedy
In special mode "safety related motion", value parameterized in • "P-0-3242, Safety related limited absolute position 1, negative" or • "P-0-3252, Safety related limited absolute position 2, negative" was exceeded	Check command value input and adjust it according to parameterized position limit values **– or –** Check parameter setting and change it, if necessary. Then start command "S-0-0099, C0500 Reset class 1 diagnostics" in order to clear error and then set drive enable again.

F7012 - Attributes

Display: F7012

Ident N°: F7012

8.3.5 F7013 Velocity threshold exceeded

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

In the special mode "safety related motion" a parameterized velocity threshold was exceeded.

Cause	Remedy
In special mode "safety related motion", velocity threshold parameterized in • "P-0-3244, Safety related reduced speed 1" or • "P-0-3254, Safety related reduced speed 2" or • "P-0-3264, Safety related reduced speed 3" or • "P-0-3274, Safety related reduced speed 4" was exceeded	Check command value input and adjust it according to parameter setting **– or –** Check parameter setting and change it, if necessary. Then start command "S-0-0099, C0500 Reset class 1 diagnostics" in order to clear error and then set drive enable again.

F7013 - Attributes

Display: F7013

Ident N°: F7013

8.3.6 F7014 Acceleration threshold exceeded

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

Cause	Remedy
In special mode "safety related motion", velocity threshold parameterized in • "P-0-3245, Safety related deceleration/acceleration ramp 1" or • "P-0-3255, Safetyrelated deceleration/acceleration ramp 2" or • "P-0-3265, Safety related deceleration/acceleration ramp 3" or • "P-0-3275, Safety related deceleration/acceleration ramp 4" was exceeded.	Check command value input and adjust it according to parameter setting **– or –** Check parameter setting and change it, if necessary. Then start command "S-0-0099, C0500 Reset class 1 diagnostics" in order to clear error and then set drive enable again.

F7014 - Attributes

Display: F7014
Ident N°: F7014

8.3.7 F7020 Safety related maximum speed exceeded

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When monitoring of the safety related maximum speed has been configured (see "P-0-3239, Configuration of global safety technology functions"), the drive in normal operation and in special mode monitors the current actual velocity.

When the velocity threshold parameterized in "P-0-3234, Safety related maximum" speed is exceeded, the error F7020 is generated.

Cause	Remedy
Velocity threshold was incorrectly parameterized	Check and, if necessary, increase parameter setting of "P-0-3234, Safety related maximum speed".
Incorrect command value input; i.e. velocity command value too high	Check command value input in control unit or, for drive-internal interpolation, check parameterized positioning data (cf. "S-0-0259, Positioning velocity" or "P-0-4007, Positioning block velocity")

Description of error reaction: "Behavior in the Case of Safety Technology Errors".

See also documentation " Integrated Safety Technology".

F7020 - Attributes

Display: F7020
Ident N°: F7020

8.3.8 F7021 Safety related end position exceeded

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Error Messages

Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

With active safety technology, the drive in normal operation and in special mode monitors the current position in safety related form, when the safety function "safety related limited absolute end position" has been parameterized.

Cause	Remedy
Position parameterized in "P-0-3235, Safety related end position, positive" or "P-0-3236, Safety related end position, negative" has been exceeded.	Start command "S-0-0099, C0500 Reset class 1 diagnostics" to clear error. Then set drive enable again and move axis to allowed position range.

F7021 - Attributes
Display: F7021
Ident N°: F7021

8.3.9 F7030 Pos. window for safety rel. operational stop exceeded

Validity
Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In the safety function "safety related operational stop" the axis is monitored for standstill. The bipolar position window used for this purpose is activated with the start of the "safety related operational stop".

Cause	Remedy
"P-0-3230, Monitoring window for safety related operational stop" was incorrectly parameterized.	Change parameterization of "P-0-3230, Monitoring window for safety related operational stop" in useful way.
"P-0-3233, Velocity threshold for safety related halt" was incorrectly parameterized.	Change parameterization of "P-0-3233, Velocity threshold for safety related halt" in useful way
Incorrect command values are preset by drive or external control unit.	Check command value input and adjust it according to parameter setting.

See also documentation " Integrated Safety Technology".

F7030 - Attributes
Display: F7030
Ident N°: F7030

8.3.10 F7031 Incorrect direction of motion

Validity
Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In the special mode "safety related motion" with safety function "safety related direction of motion" configured, the drive is monitored with regard to whether it inadmissibly moves against the parameterized direction of motion by more than the distance parameterized in "P-0-3232, Monitoring window for safety related direction of motion" or "P-0-3232, Standstill window safety related direction of motion". If yes, the error F7031 is generated.

Cause	Remedy
Incorrect command value input	Adjust command value input according to parameterized direction of motion and monitoring window "P-0-3232, Monitoring window for safety related direction of motion" **- or -** "P-0-3232, Standstill window safety related direction of motion".
Incorrect parameterization of directions of motion in corresponding control words for safety related motion	Check parameterization of direction of motion in • "P-0-3240, Control word of safety related motion 1" / "P-0-3240, Configuration of safety related motion 1" or • "P-0-3250, Control word of safety related motion 2" / "P-0-3250, Configuration of safety related motion 2" or • "P-0-3260, Control word of safety related motion 3" / "P-0-3260, Configuration of safety related motion 3" or • "P-0-3270, Control word of safety related motion 4" / "P-0-3270, Configuration of safety related motion 4" and change it, if necessary
Incorrect parameterization of "P-0-3232, Monitoring window for safety related direction of motion" or "P-0-3232, Standstill window safety related direction of motion".	Check parameterization of "P-0-3232, Monitoring window for safety related direction of motion" or "P-0-3232, Standstill window safety related direction of motion" and change it, if necessary.

F7031 - Attributes

Display: F7031
Ident N°: F7031

8.3.11 F7040 Validation error parameterized - effective threshold

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

A cyclic check is run in order to find out whether the thresholds in the internal monitoring functions comply with the values parameterized in the safety memory. The check detects errors that can occur due to subsequent change of scaling or accidental overwriting. The values are required for all safety monitoring functions and are of fundamental importance for the functioning of safety technology.

Error Messages

Cause	Remedy
Safety parameters were changed without afterwards having been synchronized	Execute "P-0-3204, C3000 Synchronize and store safety technology IDN command" (channel 2 applies parameters of channel 1; internal values are recalculated and loaded). **Note:** Executing the command "C3000 Synchronize and store safety technology IDN" increases the change counter of the safety technology memory (P-0-3201). It is therefore necessary to carry out the acceptance test again. Start command "S-0-0099, C0500 Reset class 1 diagnostics" in order to clear error an then set drive enable again.
Hardware defect causes incorrect parameter contents	Replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

F7040 - Attributes

Display: F7040
Ident N°: F7040

8.3.12 F7041 Actual position value validation error

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

Cause	Remedy
Actual position values determined on channel 1 and channel 2 are differing	Start command "S-0-0099, C0500 Reset class 1 diagnostics" in order to clear error and then set drive enable again. If error occurs repeatedly, replace control section or entire drive controller.

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

F7041 - Attributes

Display: F7041
Ident N°: F7041

8.3.13 F7042 Validation error of safety related operating mode

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The active safety technology operating states of channel 1 and channel 2 are cyclically and via two channels checked for validity.

If the two channels differ for more than 5 seconds, the error F7042 is generated.

Cause	Remedy
Criteria for transition to new safety technology operating status selected have not been fulfilled in one channel; this channel remains in old status - the other channel already went to new safety technology operating status.	Check time, velocity or position thresholds relevant for respective transition and adjust them, if necessary.
Control section is defective	Replace control section or entire drive controller.

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

F7042 - Attributes

Display: F7042
Ident N°: F7042

8.3.14 F7043 Error of output stage interlock

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When the output stage is activated, the correct functioning of the output stage incl. control is checked. If an error is detected during the function check, the error F7043 is generated.

Cause	Remedy
Faulty output stage	Replace control section or entire drive controller
Incorrect control of output stage or error in feedback	Replace power section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section or the power section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

F7043 - Attributes

Display: F7043
Ident N°: F7043

8.3.15 F7050 Time for stopping process exceeded

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Error Messages

Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the transition of the drive from normal operation to a special mode "safety related stopping process" (or to "drive interlock") the following check is run:

After the duration entered in

- "P-0-3220, Tolerance time transition from normal operation", or
- "P-0-3225, Tolerance time transition from safety rel. oper"

is over, the actual velocity is checked with regard to the velocity threshold entered in "P-0-3233, Velocity threshold for safety related stopping process".

☞ The drive can also be shut down in an NC-controlled way (cf. "P-0-3210, Safety technology control word").

Cause	Remedy
Parameter setting in P-0-3220 or "P-0-3225 for NC-controlled transition is Incorrect"	Check parameter setting of "P-0-3220, Tolerance time transition from normal operation" **- or -** "P-0-3225, Tolerance time transition from safety rel. oper" and correct it accordingly
Drive enable is still set	Make sure that drive enable is removed
"NC-controlled shutdown" was activated by mistake.	Check parameter setting of "P-0-3210, Safety technology control word" and correct it accordingly; i.e. activate "drive-controlled shutdown".
Parameterized deceleration is too low or not adjusted to parameterized tolerance time.	For **drive-controlled transition**, shutdown takes place via "P-0-0119, Best possible deceleration" so that error reaction parameterized in drive has to be checked.For NC-controlled transition, check deceleration parameterized in control unit.

See also documentation "Integrated Safety Technology".

F7050 - Attributes

Display: F7050
Ident N°: F7050

8.3.16 F7051 Safety related deceleration exceeded

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

With the configuration "NC-controlled transitions" and "safety related monitored deceleration" ("P-0-3210, Safety technology control word" or "P-0-3210, Safety technology configuration", bit 4 and 13), the drive monitors whether it can reach standstill within the remaining tolerance time for transition.

☞ As of **firmware MPx04VRS**, additional monitoring takes place to find out whether the drive can reach the selected velocity threshold of the special mode "safety related motion" within the remaining tolerance time for transition.

The monitor is active for NC-controlled safety technology operating mode transitions from normal operation or special mode "safety related motion" to special mode "safety related stopping process" (safety related standstill / safety related operational stop) or drive interlock.

☞ As of **firmware MPx04VRS**, the monitor, for NC-controlled safety technology operating mode transitions, is also active from normal operation to special mode "safety related stopping process" and for transitions within the special modes "safety related motion (1-4)".

Cause	Remedy
Only Firmware MPx04VRS: In the case of "NC-controlled safety technology operating mode transitions" from "normal operation" to a special mode "safety related motion" or in the case of transitions within special modes "safety related motion (1-4)", drive is not able to reach corresponding velocity threshold of special mode "safety related motion" with deceleration parameterized in "P-0-3282, Safety related monitored deceleration" within respective transition time ("P-0-3220, Tolerance time transition from normal operation" / "P-0-3225, Tolerance time transition from safety rel. oper".)	Adjust command value input to parameterized values
In the case of "NC-controlled safety technology operating mode transitions" from "normal operation" or special mode "safety related motion" to special mode "safety related stopping process" or drive interlock, drive is not able to reach standstill with deceleration parameterized in "P-0-3282, Safety related monitored deceleration" with in respective transition time ("P-0-3220, Tolerance time transition from normal operation" / "P-0-3225, Tolerance time transition from safety rel. oper")	Adjust command value input to parameterized values
Values of parameters: • "P-0-3282, Safety related monitored deceleration", • "P-0-3220, Tolerance time transition from normal operation" or • "P-0-3225, Tolerance time transition from safety rel. oper" are not useful.	Check parameter settings and change them, if necessary

F7051 - Attributes **Display:** F7051
Ident N°: F7051

8.4 Travel Range Errors (F6xxx)

8.4.1 Behavior in the Case of Travel Range Errors

Travel range errors are errors associated with the exceeding of a travel range previously defined via hardware or software switches; independent of the settings in "P-0-0119, Best possible deceleration" and "P-0-0117, Activation of NC reaction on error", the drive therefore is stopped as fast as can.

The kind of deceleration depends on the control mode:

- **closed-loop:** velocity command value reset

- **open-loop:** under compliance with "P-0-0569, Maximum stator frequency slope"

See also Functional Description of firmware "Error Reaction"

☞ In the case of travel range errors, the settings in "P-0-0118, Power supply, configuration" still are taken into account.

At the end of each error reaction, the drive goes torque-free.

Putting the Drive Into Operation

The drive can only be put into operation again when:

1. The error reaction has been completed, i.e. the drive has stopped (v=0!).
2. The error message was cleared by the error clearing command (cf. "S-0-0099, C0500 Reset class 1 diagnostics").
3. The cause of the error was removed.
4. The drive is in the operating mode again and power was switched on ("Ab").
5. Drive enable was switched on again (0-1 edge).

8.4.2 F6010 PLC Runtime Error

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

The PLC integrated in the drive (Rexroth IndraMotion MLD) triggers the error F6010 in the case of runtime errors or task watchdog.

Error Reaction

All tasks of the PLC are stopped. The drive is always shut down with velocity command value reset; i.e. the error reaction cannot be parameterized by the user.

Cause	Remedy (*1)
Runtime error in PLC program Runtime monitor (watchdog) for a task has been activated. In this task, processing was not completed in the preset time.	Remove error by modifying program (correct a possibly existing infinite loop) The following actions according to application: • increase task cycle time or • increase watchdog time or reduce watchdog sensitivity (higher number) • optimize program structure • deactivate compilation option "Debugging" (increases processing velocity of PLC program)
Division by "0"	Modify PLC program: remove division by "0"
Array limits exceeded	Modify PLC program: check and correct array access
A subrange type has been exceeded	Modify PLC program: eliminate incorrect assignment
Invalid access with a pointer. As of MPx05, every access with pointer is monitored. Access outside of PLC data ranges cause this error	Modify PLC program: eliminate incorrect assignmen
Error in system event	Modify PLC program: modify incorrect use or programming – on this topic, see notes in task configuration

(*1) Additional Notes on Trouble Shooting

We distinguish the following cases for trouble shooting:

- For removing the error in a **freely programmed application** it is necessary to modify the PLC program or the task configuration with the programming system IndraLogic.

☞ When connecting the programming system IndraLogic to the drive-internal PLC or when starting the simulation (IndraLogic: "Online"-"Login"), the message window appears; it displays messages from the last compilation, check or comparison process.

- For a **technology function** made available by Bosch Rexroth please see the corresponding documentation for instructions on troubleshooting.
- An extended diagnosis for determining the cause of the error is displayed in parameter "P-0-1365, PLC error message".

See also IndraLogic online help.

See also documentation " Rexroth IndraMotion MLD".

F6010 - Attributes

Display: F6010
Ident N°: F6010

8.4.3 F6024 Maximum braking time exceeded

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive checks automatically whether the motor, after drive enable has been switched off or when an error occurs, was shut down within the delay time parameterized in "S-0-0273, Maximum drive off delay time". If not, the error F6024 is generated.

Cause	Remedy
Incorrect parameterization of "S-0-0273, Maximum drive off delay time" or "S-0-0372, Drive Halt acceleration bipolar".	Adjust delay time ("S-0-0273, Maximum drive off delay time") or acceleration (S-0-0372, Drive Halt acceleration bipolar) to acceleration capacity of drive.
Torque/force limitation incorrectly parameterized or current limitation active due to thermal overload.	Check torque/force limitation and current limitation (see also Functional Description of firmware " Current and Torque/ Force Limitation").
Incorrect motor connection	Check and, if necessary, correct motor connection
Hardware defect on power section	Replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware " Motor Holding Brake".

F6024 - Attributes

Display: F6024
Ident N°: F6024

8.4.4 F6028 Position limit value exceeded (overflow)

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive provides a function for monitoring an allowed travel range by means of software limit switches that can be parameterized.

☞ The travel range monitor has to be activated and parameterized via "S-0-0049, Positive position limit value", "S-0-0050,Negative position limit value" and "S-0-0055, Position polarities".

The drive reaction (fatal warning or error) in case the travel range is exceeded has to be parameterized in "P-0-0090, Travel range limit parameter".

Cause	Remedy
Command value set for drive causes axis position outside of positive travel range/position limit value ("S-0-0049, Positive position limit value" or "S-0-0050, Negative position limit value").	1. Clear error and switch power on. 2. Set drive enable and input a command value leading back to allowed travel range. Contact machine manufacturer in order to find out cause of incorrect command value.
"S-0-0049, Positive position limit value" or "S-0-0050, Negative position limit value" incorrectly parameterized	Check and, if necessary, correct parameter setting of "S-0-0049, Positive position limit value" or "S-0-0050, Negative position limit value".
When the position limit values are at the end of possible travel range (+/- "S-0-0278, Maximum travel range"), exceeding of travel range can no longer be unequivocally detected by means of actual position values. Therefore, overflow monitoring is carried out which generates error	Increase "S-0-0278, Maximum travel range" **- or -** Reduce position limit values so that defined deceleration is still possible within defined travel range.

☞ The parameter "S-0-0057, Position window" is used to realize a hysteresis function for evaluating the position limit values.

See also Functional Description of firmware " Position Limitation/Travel Range Limit Switch".

F6028 - Attributes

Display: F6028
Ident N°: F6028

8.4.5 F6029 Positive travel limit exceeded

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive provides a function for monitoring an allowed travel range by means of software limit switches that can be parameterized.

The travel range monitor has to be activated and parameterized via "S-0-0049, Positive position limit value", "S-0-0050, Negative position limit value" and "S-0-0055, Position polarities".

The drive reaction (fatal warning or error) in case the travel range is exceeded has to be parameterized in "P-0-0090, Travel range limit parameter".

Cause	Remedy
Command value set for drive causes axis position outside of positive travel range/position limit value ("S-0-0049, Positive position limit value").	1. Clear error and switch power on. 2. Set drive enable and preset command value that leads back to the allowed travel range. Contact machine manufacturer in order to clarify cause of incorrect command value.
"S-0-0049, Positive position limit value" incorrectly parameterized.	Check and, if necessary, correct parameterization of "S-0-0049, Positive position limit value".

The "S-0-0057, Position window" parameter is used to realize a hysteresis function for evaluating the position limit values.

See also Functional Description of firmware " Position Limitation/Travel Range Limit Switch".

F6029 - Attributes

Display: F6029
Ident N°: F6029

8.4.6 F6030 Negative travel limit exceeded

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive provides a function for monitoring an allowed travel range by means of software limit switches that can be parameterized.

The travel range monitor has to be activated and parameterized via "S-0-0049, Positive position limit value", "S-0-0050, Negative position limit value" and "S-0-0055, Position polarities".

The drive reaction (fatal warning or error) in case the travel range is exceeded has to be parameterized in "P-0-0090, Travel range limit parameter".

Error Messages

Cause	Remedy
Command value set for drive causes axis position outside of negative travel range/position limit value ("S-0-0050, Negative position limit value").	1. Clear error and switch power on 2. Set drive enable and preset command value that leads back to the allowed travel range. Contact machine manufacturer in order to clarify cause of incorrect command value.
"S-0-0050, Negative position limit value" incorrectly parameterized	Check and, if necessary, correct parameterization of "S-0-0050, Negative position limit value".

☞ The "S-0-0057, Position window" parameter is used to realize a hysteresis function for evaluating the position limit values.

See also Functional Description of firmware " Position Limitation/Travel Range Limit Switch".

F6030 - Attributes

Display: F6030
Ident N°: F6030

8.4.7 F6034 Emergency-Stop

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive provides a function for monitoring an E-Stop input (connection of an external hardware switch).

☞ This monitor has to be activated and parameterized via "P-0-0008, Activation E-Stop function".

When the error F6034 occurs, the axis is shut down as fast as can with velocity command value reset.

Cause	Remedy
E-Stop input was controlled (0 V at digital input)	Remove failure that caused E-Stop to be triggered and clarify cause of triggering.
Incorrect parameterization of digital inputs and outputs on control section.	Correct configuration of digital inputs/outputs and correct it, if necessary.
E-Stop switch or cable connection defective or incorrectly wired.	Check function and wiring of E-Stop switch.
Control section or digital inputs on control section defective.	Replace control section or entire drive controller.

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware:

- " E-Stop Function"

- " Digital Inputs/Outputs"
- " Velocity Command Value Reset"

F6034 - Attributes

Display: F6034
Ident N°: F6034

8.4.8 F6042 Both travel range limit switches activated

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The compliance with the allowed travel range of linear axes is monitored on the hardware side via two travel range limit switches. When the travel range has been exceeded, one of the two limit switches is activated, if the limit switches were correctly mounted.

The error F6042 is generated, if

- the controller detects that both travel range limit switches have been simultaneously activated and
- exceeding the travel range is handled as an error (setting in "P-0-0090, Travel range limit parameter").

Cause	Remedy
Due to incorrect mounting, axis activates both travel range limit switches simultaneously.	Mount travel range limit switches in such a way that they are activated shortly before axis end position is reached. Make sure the braking distance is sufficient.
Travel range limit switches were incorrectly connected.	Connect travel range limit switches correctly; check compliance with switching logic set in "P-0-0090, Travel range limit parameter".
Switching logic of travel range limit switches does not correspond to realized wiring.	Check switching logic with regard to realized wiring, adjust it in "P-0-0090, Travel range limit parameter" if necessary.

F6042 - Attributes

Display: F6042
Ident N°: F6042

8.4.9 F6043 Positive travel range limit switch activated

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive provides a function for monitoring travel range limit switches (external hardware limit switches).

This monitor has to be activated and parameterized via "P-0-0090, Travel range limit parameter".

When the error F6043 occurs, the axis is shut down with velocity command value reset.

Error Messages

Cause	Remedy
Travel range limit switch situated in positive direction (see Project Planning Manual for motor) was activated because axis is outside of travel range that was defined by means of travel range limit switches.	1. Clear error (reset button or error clearing command) and switch power on. 2. Set drive enable and preset command value that leads back to the allowed travel range.
Incorrect parameterization of digital inputs and outputs on control section	Correct configuration of digital inputs/outputs and correct it, if necessary.
Travel range limit switch or cable is defective or incorrectly wired	Check function and wiring of travel range limit switch.
Control section or digital inputs on control section defective	Replace control section or entire drive controller.

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also "E8043 Positive travel range limit switch activated".

See also Functional Description of firmware:

- " Position Limitation/Travel Range Limit Switch"
- " Digital Inputs/Outputs".

F6043 - Attributes

Display: F6043
Ident N°: F6043

8.4.10 F6044 Negative travel range limit switch activated

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive provides a function for monitoring travel range limit switches (external hardware limit switches).

☞ This monitor has to be activated and parameterized via "P-0-0090, Travel range limit parameter".

When the error F6044 occurs, the axis is shut down with velocity command value reset.

Cause	Remedy
Travel range limit switch situated in negative direction (see Project Planning Manual for motor) was activated because axis is outside of travel range that was defined by means of travel range limit switches.	1. Clear error (reset button or error clearing command) and switch power on. 2. Set drive enable and preset command value that leads back to the allowed travel range.
Incorrect parameterization of digital inputs and outputs on control section.	Correct configuration of digital inputs/outputs and correct it, if necessary.

Cause	Remedy
Travel range limit switch or cable is defective or incorrectly wired.	Check function and wiring of travel range limit switch.
Control section or digital inputs on control section defective.	Replace control section or entire drive controller.

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware:

- " Position Limitation/Travel Range Limit Switch"
- " Digital Inputs/Outputs".

F6044 - Attributes

Display: F6044
Ident N°: F6044

8.4.11 F6140 CCD slave error (emergency halt)

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «MPH» «-»
Contained in 05VRS: «-» «MPH» «-»
Supported by supply unit: «-»

Cause	Remedy
"Error reaction active" has been set in" P-0-1600, CCD: configuration" and an F6 or F7 error occurred in a slave; CCD master reacts with emergency halt (velocity command value reset).	Localize faulty slave and remove cause of error for this slave.

See also Functional Description of firmware " Cross Communication (CCD)".

F6140 - Attributes

Display: F6140
Ident N°: F6140

8.5 Interface Errors (F4xxx)

8.5.1 Behavior in the Case of Interface Errors

The user can influence the behavior of the drive in the case of interface errors via the parameterization of "P-0-0119, Best possible deceleration" (see Functional Description "Error Reaction").

In the case of an interface error, activating the NC reaction via "P-0-0117, Activation of NC reaction on error" is no longer possible!

At the end of each error reaction, the drive goes torque-free.

Putting the Drive Into Operation

The drive can only be put into operation again when:

1. The error reaction has been completed, i.e. the drive has stopped (v=0!).
2. The error message was cleared by the error clearing command (cf. "S-0-0099, C0500 Reset class 1 diagnostics").

3. The cause of the error was removed.
4. The drive is in the operating mode again and power was switched on ("Ab").
5. Drive enable was switched on again (0-1 edge).

8.5.2 F4001 Sync telegram failure

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

☞ In the firmware versions 02VRS, 03VRS, 04VRS and up to the firmware version 05V06, the name of the error is "F4001 Double MST failure shutdown".

Master Communication SERCOS

The **m**aster **s**ynchronization **t**elegram (MST) was not received in the drive in two successive SERCOS cycles.

Cause	Remedy
Disturbance in fiber optic transmission line	Check all optic fiber connections in the SERCOS ring and replace them, if necessary
Attenuation of light signals too high	Measure attenuation of fiber optic cable again (if necessary, increase transmission power via P-0-4027). The maximum attenuation between T_X and R_X mustn't exceed 12.5 dB!
Different SERCOS cycle times in master and slave	Check SERCOS cycle times in master and slave and adjust them, if necessary
Disturbance in SERCOS interface (general)	Replace control section or entire drive

Master Communication CANopen

The synchronization telegram was not received in the drive in two successive cycles.

Cause	Remedy
Sync master does not transmit Sync telegram	Check whether a bus node was configured as Sync master. Check Sync master to see whether it is in an error state.
CAN bus interrupted	Check bus line
Disturbance in CANopen interface (general)	Replace control section or entire drive

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware "Interface Errors and Diagnostic Possibilities"

F4001 - Attributes

Display: F4001
Ident N°: F4001

8.5.3 F4002 RTD telegram failure

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

☞ In the firmware versions 02VRS, 03VRS, 04VRS and up to the firmware version 05V06, the name of the error is "F4002 Double MDT failure shutdown".

Master Communication SERCOS

The master data telegram (MDT) was not received in the drive in two successive SERCOS or field bus cycles. The drive falls back to communication phase 0.

Cause	Remedy
Bus master does not send any more cyclic telegrams to the drive. These, however, are expected in communication phase 4.	Switch master on and start cyclic communication; see manual for control unit
Fiber optic cable bus: disturbance in fiber optic transmission line	Check all fiber optic cable connections in SERCOS ring
Fiber optic cable bus: Input power of light signals too low. Light power to be measured at receiver (with test mode: continuous light) must be between -20dBm (10µW) and -5dBm (320µW)	Adjust transmission power or check attenuation of fiber optic cable. The maximum attenuation between T_X and R_X mustn't exceed 12.5 dB.
Different transmission times of master data telegrams in master and slave	Synchronize transmission times of master data telegrams in master and slave
Disturbance in SERCOS interface (general)	Replace control section or entire drive controller

Master Communication CANopen

The real-time data telegram (RDT) was not received in the drive in two successive field bus cycles.

Cause	Remedy
PDO master does not send any more cyclic telegrams to the drive	Switch master on and start cyclic communication; see manual for control unit
Bus line disturbed	Check bus line and connector
Disturbance in CANopen interface (general)	Replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware "Interface Errors and Diagnostic Possibilities"

F4002 - Attributes

Display: F4002
Ident N°: F4002

Error Messages

8.5.4 F4003 Invalid communication phase shutdown

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

An invalid communication phase (phase > 4) was set by the SERCOS master module.

Cause	Remedy
Error in SERCOS master module of control unit	Error can only be corrected after consultation with control unit manufacturer

See also Functional Description of firmware " Interface Errors and Diagnostic Possibilities".

F4003 - Attributes

Display: F4003
Ident N°: F4003

8.5.5 F4004 Error during phase progression

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The compulsory order was not followed during the phase progression.

Cause	Remedy
Error in SERCOS master module of control unit	Error can only be corrected after consultation with control unit manufacturer.

See also Functional Description of firmware "Interface Errors and Diagnostic Possibilities".

F4004 - Attributes

Display: F4004
Ident N°: F4004

8.5.6 F4005 Error during phase regression

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When regressing from a communication phase the drive wasn't switched to communication phase 0.

Cause	Remedy
Error in SERCOS master module of control unit	Error can only be corrected after consultation with control unit manufacturer.

See also Functional Description of firmware " Interface Errors and Diagnostic Possibilities".

F4005 - Attributes

Display: F4005
Ident N°: F4005

8.5.7 F4006 Phase switching without ready signal

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The SERCOS master tried to carry out a phase switch without waiting for the ready signal from the drive.

Cause	Remedy
Error in SERCOS master module of control unit	Error can only be corrected after consultation with control unit manufacturer.

See also Functional Description of firmware "Interface Errors and Diagnostic Possibilities".

F4006 - Attributes

Display: F4006
Ident N°: F4006

8.5.8 F4009 Bus failure

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Communication via the master communication interface has failed. After the master communication interface was initialized and commissioned, there hasn't any telegram been received within the monitoring time set in "P-0-4075, Field bus: watchdog".

DANGER

Automatic restart after bus failure!

In the case of bus failure (message "F4009" or "E4005"), an error reaction must be carried out in the control unit, too, to prevent automatic restart after the bus has been reestablished. This means that the bits "Drive Halt", "drive enable" and "drive ON" (e.g. bits 13, 14 and 15 in parameter "P-0-4077, Field bus: control word") should be reset in the control unit in the case of bus failure.

Ethernet/IP

Only Class1 connections are monitored which means that, within the watchdog time, there haven't any new output data been received from the master.

Cause	Remedy
Master does not exchange any cyclic output data	Check master status
Ethernet connection aborted	Check Ethernet cable and, if necessary, switch

Error Messages

Cause	Remedy
EMC problems at transmission line	Check shielding and routing
Network load too high	Switch off unnecessary Ethernet communication; if necessary, establish separate network for Ethernet/IP

DeviceNet Only the "Implicite Message" is monitored which means that, within the watchdog time, there haven't any new output data been received from the master.

Cause	Remedy
Master does not exchange any cyclic output data	Check master status
Bus connection interrupted	Check cable and interface
EMC problems at transmission line	Check shielding and routing
Bus load too high	Check communication settings (or communication load) ["Interscan Delay" setting at DeviceNet master].
Faulty bus terminator	Check whether bus terminating resistors have been installed at most distant bus nodes.

CANopen According to the kind of node monitoring which has been set, the "Node Guarding request" (cyclic node monitoring) or the "heartbeat telegram" is monitored.

Cause	Remedy
Master does not transmit any node monitoring telegram	Check master status
Bus connection interrupted	Check cable and interface
EMC problems at transmission line	Check shielding and routing
Bus load too high	Check communication settings (or communication load)
Faulty bus terminator	Check whether bus terminating resistors have been installed at most distant bus nodes

PROFIBUS The master must address the slave within the monitoring time.

Cause	Remedy
Master does not exchange any cyclic output data	Check master status
Bus connection interrupted	Check cable and interface
EMC problems at transmission line	Check shielding and routing
Faulty bus terminator	Check whether bus terminating resistors have been installed at most distant bus nodes. At all other nodes, bus terminating resistors must not have been installed

SERCOS

Cause	Remedy
Communication phase 0 was set, although drive enable had been set.	First remove drive enable and then set communication phase 0.

F4009 - Attributes

Display: F4009
Ident N°: F4009

8.5.9 F4012 Incorrect I/O length

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The master tries to establish communication with an I/O length that does not correspond to the I/O length parameterized in the drive.

Cause	Remedy
Different length for input data or output data than drive expects in "P-0-4071, Field bus: length of cyclic command value data channel" and "P-0-4082, Field bus: length of cyclic actual value data channel" was configured in master.	• Check parameter set in drive • Adjust master configuration

F4012 - Attributes

Display: F4012
Ident N°: F4012

8.5.10 F4016 PLC double real-time channel failure

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

Writing of the "RtcW" variable of the integrated PLC to the corresponding parameters failed twice in succession / didn't take place in time.

Cause	Remedy
Function block "MX_SynchronControl" is used: Interval time of RTC task (task that uses real-time channel) is too short. Processing task code takes more time than one interval time.	Increase interval time of RTC task
Function block "MX_SynchronControl" is **not** used: At time of controlled transmission of "RtcW" variable, program code of RTC task hadn't yet been processed.	Increase interval time of RTC task **- or -** increase value at input "CmdDelay" of function block "MX_SynchronControl".

See also:

- Rexroth IndraMotion MLD, Application Manual "Real-Time Channel"
- Rexroth IndraMotion MLD, Library Description "MX_SynchronControl"

F4016 - Attributes

Display: F4016
Ident N°: F4016

8.5.11 F4017 S-III: incorrect sequence during phase switch

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»

Error Messages

Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Error in SERCOS-III master module of the control unit; the SERCOS-III master tried to make a phase switch, the drive detected that the sequence of this phase switch was incorrect.

Cause	Remedy
Timeout occurred in drive during phase switch (individual switching periods took too long) - or - Master changed phase without prior notice (new phase in MST without CPS bit set) - or - Drive was switched on while SERCOS III already was in higher phase	Error can only be corrected after consultation with control unit manufacturer

F4017 - Attributes
Display: F4017
Ident N°: F4017

8.5.12 F4034 Emergency-Stop

Validity
Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive provides a function for monitoring an E-Stop input (connection of an external hardware switch).

☞ This monitor has to be activated and parameterized via "P-0-0008, Activation E-Stop function".

The axis is shut down as parameterized in "P-0-0119, Best possible deceleration".

Cause	Remedy
E-Stop input was controlled (0 V at digital input)	Remove failure that caused E-Stop to be triggered and clear error (reset button or error clearing command). Then switch power on again and clarify cause of E-Stop triggering.
Incorrect parameterization of digital inputs and outputs on control section.	Correct configuration of digital inputs/outputs on control section and correct it, if necessary.
E-Stop switch or cable connection defective or incorrectly wired.	Check function and wiring of E-Stop switch.
Control section or digital inputs on control section defective.	Replace control section or entire drive controller.

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware:

- " E-Stop Function"
- " Digital Inputs/Outputs"
- " Best Possible Deceleration"

F4034 - Attributes

Display: F4034
Ident N°: F4034

8.5.13 F4140 CCD communication error

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «MPH» «-»
Contained in 05VRS: «-» «MPH» «-»
Supported by supply unit: «-»

Cause	Remedy
CCD master detected double telegram failure of cyclic telegrams –or– "Error reaction active" has been set in "P-0-1600, CCD: configuration" and slave has signaled communication error.	Remove error in transmission line.

☞ The CCD master is decelerated as set in "P-0-0119, Best possible deceleration".

See also Functional Description of firmware " Cross Communication (CCD)".

F4140 - Attributes

Display: F4140
Ident N°: F4140

8.6 Non-Fatal Safety Technology Errors (F3xxx)

8.6.1 Behavior in the Case of Non-Fatal Safety Technology Errors

Non-fatal safety technology errors are errors that still allow a freely definable, variable error reaction.

Drive Behavior

The user can define the drive behavior for the case of non-fatal safety technology errors occurring via the setting in "P-0-0119, Best possible deceleration".

The drive automatically switches to safety related standstill and the output stage is switched off via two channels.

As soon as the axis has stopped, the axis signals safety; i.e. "safety technology status output of controller" was set in "P-0-3214, Safety technology status word, channel 1" or the diagnosis input/output E/A10n (channel 2) was set depending on the parameterization in "P-0-3210, Safety technology configuration".

☞ NC-controlled shutdown activated via "P-0-0117, Activation of NC reaction on error" or an error reaction set via "P-0-0119, Best possible deceleration" is only possible for the duration entered in "P-0-3220, Tolerance time transition from normal operation" or "P-0-3225, Tolerance time transition from safety rel. oper."! In case the time is exceeded, the error "F7050 Time for stopping process exceeded" is generated.

Error Messages

At the end of each error reaction, the drive goes torque-free.

Putting the Drive Into Operation

The drive therefore can only be put into operation again when:

1. The error reaction has been completed, i.e. the drive has stopped (v=0!).
2. The error message was cleared by the error clearing command (cf. "S-0-0099, C0500 Reset class 1 diagnostics").
3. The cause of the error was removed.
4. The drive is in the operating mode again and power was switched on ("Ab").
5. Drive enable was switched on again (0-1 edge).

☞ In case non-fatal safety technology errors are occurring repeatedly, contact our service department as operating the drive then is no longer allowed.

8.6.2 F3111 Refer. missing when selecting safety related end pos.

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

The drive is shut down according to the setting in "P-0-0119, Best possible deceleration".

The drive automatically switches to safety related standstill and the output stage is switched off via two channels.

As soon as the axis has stopped the safety door can be opened.

Cause	Remedy
Acceleration threshold parameterized in "P-0-3245, Safety related deceleration/acceleration ramp 1" has been exceeded.	Start command "S-0-0099, C0500 Reset class 1 diagnostics" in order to clear error an then set drive enable again. If necessary, increase value for parameter "P-0-3245, Safety related deceleration/acceleration ramp 1".

F3111 - Attributes

Display: F3111
Ident N°: F3111

8.6.3 F3112 Safety related reference missing

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

It was impossible to carry out the safety function "safety related limited absolute position" / "safety related limited absolute end position".

Cause	Remedy
Monitoring of safety related limited absolute end position has been configured ("P-0-3239, Configuration of global safety technology functions"); prerequisite of channel 2 having been homed is missing and drive is in **special mode**. **- or -** Monitoring of safety related limited absolute end position has been configured ("P-0-3239, Configuration of global safety technology functions"); prerequisite of channel 2 having been homed is missing and warning E3107 had been present for 15 minutes in **normal operation**. **- or -** Safety function "safety related limited absolute position" was selected and prerequisite of channel 2 having been homed is missing **Note**: Status of safety related reference can be seen in "P-0-3238, Extended safety technology status".	1. Undo selection. 2. Start command "S-0-0099, C0500 Reset class 1 diagnostics", in order to clear error. 3. Set drive enable. 4. a: For absolute measuring systems: Execute "P-0-3228, C4000 Homing procedure command channel 2" in order to establish "safety related reference" on channel 2. b: For all other measuring systems: Execute "S-0-0148, C0600 Drive-controlled homing procedure command" (C4000 for establishing safety related reference of channel 2 is integrated).

When using the optional module "safety technology I/O", you can, in addition to the error message, obtain detailed information with regard to the cause of the error or the error location. For this purpose, evaluate the parameter "P-0-3219, Diagnostic safety technology message".

Description of error reaction: [External link could not be resolved.]

See documentation "Integrated Safety Technology", chapter " Safety related homing procedure".

F3112 - Attributes

Display: F3112
Ident N°: F3112

8.6.4 F3115 Error, brake check time interval exceeded

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When "time interval of holding brake check" was activated in "P-0-0525, Holding brake control word" or the function "safety related braking and holding system" is used, the drive monitors the time which has passed since the last holding brake check.

The space of time determined in "P-0-0550, Time interval brake check" or "P-0-3302, Safety related holding system: time interval brake check", within which the holding brake check has to be carried out again, was exceeded.

Error Reaction

The drive reacts with the error reaction that has been set. The "status of holding brake check" is set to "0" in "P-0-0539, Holding brake status word".

Error Messages

Cause	Remedy
Drive had been put into operation and drive enable was set; after 15 minutes, drive generates error F3115.	Brake check ("P-0-0541, C2100 Brake check command") must be carried out within 15 minutes after drive was put into operation and drive enable was set.
Time set in "P-0-0550, Time interval brake check" or "P-0-3302, Safety related holding system: time interval brake check" has elapsed since last brake check.	Clear error; drive is operational again. Brake check must be carried out within 15 minutes (with drive enable) ("P-0-0541, C2100 Brake check command").
Repeated brake check is required due to defined errors in "safety related braking and holding system". • Signal "HAT-Diagnose" is zero (control module "HAT" signals error or connection to control module has been interrupted) - or - • Signal "HAT-Diagnose" does not correspond to expectations from control status of redundant holding brake - or - • In case of error, redundant holding brake had to be applied given Vact > standstill • "C3000 Synchronize and store safety technology IDN" was executed.	Clear error; drive is operational again. Brake check must be carried out within 15 minutes (with drive enable) ("P-0-0541, C2100 Brake check command").

When using the optional module "safety technology I/O", you can, in addition to the error message, obtain detailed information with regard to the cause of the error or the error location. For this purpose, evaluate the parameter "P-0-3219, Diagnostic safety technology message".

See also Functional Description of firmware " Motor Holding Brake".

See also documentation " ntegrated Safety Technology".

F3115 - Attributes

Display: F3115

Ident N°: F3115

8.6.5 F3117 Actual position values validation error

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

When both safety technology channels have been homed (cf. "S-0-0403, Position feedback value status" for channel 1 and "P-0-3213, Safety technology status" for channel 2), their actual position values are cyclically checked for validity; the difference of the actual position values mustn't exceed an internal threshold that depends on the measuring system.

For the configuration "homing procedure channel 2 via static signal", the signal at the homing input of channel 2 may only be 24 V when the axis is within "P-0-3231, Safety related reference position channel 2" or "P-0-3231, Reference position for safety related reference" +/- "P-0-3229, Tolerance window for safety related homing procedure".

Error Reaction

The drive is shut down according to the setting in "P-0-0119, Best possible deceleration".

In "P-0-3213, Safety technology status" or "P-0-3213, Safety technology operating status" the status "safely homed" is removed.

The drive automatically switches to "safety related standstill" and the output stage is switched off via two channels.

Cause	Remedy
Short circuit of home switch input of channel 2 with 24 V	Check connection of home switch input at optional module "safety technology I/O".
Tolerance window around "safety related reference position channel 2" (P-0-3231) incorrectly parameterized.	Check parameter setting of "P-0-3229, Tolerance window for safety related homing procedure" and adjust it accordingly.
Control section is defective	Replace control section or entire drive controller.

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

After trouble shooting start command "S-0-0099, C0500 Reset class 1 diagnostics" in order to clear error an then set drive enable again.

Then establish safety related reference again by executing command "C4000 Homing procedure command channel 2".

When using the optional module "safety technology I/O", you can, in addition to the error message, obtain detailed information with regard to the cause of the error or the error location. For this purpose, evaluate the parameter "P-0-3219, Diagnostic safety technology message".

F3117 - Attributes

Display: F3117
Ident N°: F3117

8.6.6 F3122 Safety related holding system: system error

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Monitoring functions of the safety related deceleration and holding system have detected errors in the control or feedback circuit of the redundant holding brake.

Error Messages

Cause	Remedy
Brake server for controlling redundant holding brake is no longer active. Lifecounter brake server has not been incremented.	Replace hardware Replace firmware
No acknowledgment when releasing/applying redundant holding brake. Check takes place by means of feedback signal of control module.	Check wiring
Error during static check of control and feedback signal of control module.	Check wiring Check control module
Requirements for releasing redundant holding brake have not been complied with. Output stage is not. active	Replace hardware

When using the optional module "safety technology I/O", you can, in addition to the error message, obtain detailed information with regard to the cause of the error or the error location. For this purpose, evaluate the parameter "P-0-3219, Diagnostic safety technology message".

F3122 - Attributes

Display: F3122
Ident N°: F3122

8.6.7 F3123 Safety related holding system: brake check missing

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Cause	Remedy
At selection of a safety technology operating status, a check has detected that states of holding brake monitoring of motor holding brake (P-0-0539) and/or redundant holding brake (P-0-3301) have not been set to "carried out successfully".	Deselect safety related operating status and execute "C2100 Brake check command".

When using the optional module "safety technology I/O", you can, in addition to the error message, obtain detailed information with regard to the cause of the error or the error location. For this purpose, evaluate the parameter "P-0-3219, Diagnostic safety technology message".

F3123 - Attributes

Display: F3123
Ident N°: F3123

8.6.8 F3130 Error when checking input signals

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

A validity check is run for the inputs for channel 1 and channel 2 of the safety technology so that several errors can be detected.

Optional Module "Starting Lockout"

For the optional module "starting lockout" the selection signals "AS_A" or "AS_B" and "ASn" are monitored for states that are not allowed.

Optional Module "Safety Technology I/O"

For the optional module "safety technology I/O" a check is run during dynamization to find out whether all input signals of safety function selection are zero.

Error Reaction

The drive is decelerated according to the setting in "P-0-0119, Best possible deceleration".

The drive automatically switches to safety related standstill and the output stage is switched off via two channels.

Cause	Remedy
Error in wiring of input signals or contact error resp. cable break.	Remove cause of error in wiring of inputs or replace switch. Then start command "S-0-0099, C0500 Reset class 1 diagnostics" in order to clear error and then set drive enable again.

In addition to the error message, it is possible to obtain detailed information with regard to the cause of the error or the error location. For this purpose evaluate parameter "P-0-3219, Diagnostic safety technology message".

When using the optional module "safety technology I/O", you can, in addition to the error message, obtain detailed information with regard to the cause of the error or the error location. For this purpose, evaluate the parameter "P-0-3219, Diagnostic safety technology message".

See also Documentation "Integrated Safety Technology", chapter " Diagnostic and Services".

F3130 - Attributes

Display: F3130

Ident N°: F3130

8.6.9 F3131 Error when checking acknowledgment signal

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive is decelerated according to the setting in "P-0-0119, Best possible deceleration".

The drive automatically switches to safety related standstill and the output stage is switched off via two channels.

As soon as the axis has stopped the safety door can be opened.

Error Messages

Cause	Remedy
When using optional module **starting lockout**: Channel 1 monitors status of acknowledgment relay. If normal condition of relay is detected in spite of activated starting lockout function or if operated condition of the relay is detected with starting lockout not active, error message F3131 is generated. Error in wiring of acknowledgment signal (contact error or cable break).	Remove cause of error in wiring of acknowledgment signal. Then start command "S-0-0099, C0500 Reset class 1 diagnostics" in order to clear error an then set drive enable again.
When using optional module **safety technology I/O**: During check of acknowledgment signal EA20 a static high level (short circuit with V+) or a static low level (cable break resp. loose or missing connection) was detected.	Remove cause of error in wiring of acknowledgment signal EA20. Then start command "S-0-0099, C0500 Reset class 1 diagnostics" in order to clear error and then set drive enable again. **Note:** If only diagnostic safety technology slave signals F3131, this is a sign of missing connection of signal EA20 between master and slave.
Within defined time window there wasn't any dynamization signal detected, because SERCOS ring (or field bus circuit) in which safety technology master has been included goes to operating mode more slowly than ring (or circuit) in which axis with error message has been included.	Safety technology master always has to be included in SERCOS ring (or field bus circuit) which is last to switch to operating mode.

When using the optional module "safety technology I/O", you can, in addition to the error message, obtain detailed information with regard to the cause of the error or the error location. For this purpose, evaluate the parameter "P-0-3219, Diagnostic safety technology message".

F3131 - Attributes

Display: F3131
Ident N°: F3131

8.6.10 F3132 Error when checking diagnostic output signal

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

With control of a safety door configured ("P-0-3210, Safety technology control word" or "P-0-3210, Safety technology configuration", bit 1=1), the safety technology master for diagnostic message and acknowledgment ("P-0-3210, Safety technology control word" or "P-0-3210, Safety technology configuration", bit 2=1) checks whether...:

- ...a feedback is present at the diagnostic input of channel 1 (E10) ("P-0-3212, Safety technology signal control word, channel 1 " or "P-0-3212, Safety technology control word, channel 1" bit 9) after transition to a safety function.
- ...a feedback is present at the diagnostic input of channel 1 (E10) ("P-0-3212, Safety technology signal control word, channel 1" or

"P-0-3212, Safety technology control word, channel 1" bit 9) after transition to normal operation.

Error Reaction

The drive is decelerated according to the setting in "P-0-0119, Best possible deceleration". The drive automatically switches to safety related standstill and the output stage is switched off via two channels.

Cause	Remedy
Error in wiring of diagnostic output / check input (A10, E10 or EA10n)	Remove error in wiring of diagnostic output / check input.
Error in parameterization of diagnostic output / check input	Check bit 1=1 (control of a safety door) and bit 2=1 (safety technology master for diagnostic message and acknowledgment) in parameter "P-0-3210, Safety technology control word" or "P-0-3210, Safety technology configuration". Check parameterization of A10 ("P-0-3214, Safety technology signal status word, channel 1" or "P-0-3214, Safety technology status word, channel 1", bit 0) and E10 ("P-0-3212, Safety technology signal control word, channel 1" or "P-0-3212, Safety technology control word, channel 1", bit 9) for the corresponding digital inputs/outputs.
Internal relay on channel 2 defective	Replace control section or entire drive controller.

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

When using the optional module "safety technology I/O", you can, in addition to the error message, obtain detailed information with regard to the cause of the error or the error location. For this purpose, evaluate the parameter "P-0-3219, Diagnostic safety technology message".

F3132 - Attributes

Display: F3132
Ident N°: F3132

8.6.11 F3133 Error when checking interrupting circuits

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In order to lock the output stage in a safety related way when the safety technology has detected an error, the correct functioning of the interrupting circuit is cyclically checked. This is done on the one hand during the actions "release output stage" and "lock output stage", on the other hand statically while the output stage is being released or locked. The corresponding hardware realization ensures that this is possible without repercussion on the PWM control signals.

When the safety technology has been activated, the error F3133 only occurs in normal operation. When a safety function is selected, the cause of the error causes the error "F8133 Error when checking interrupting circuit" to be triggered.

The drive is decelerated according to the setting in "P-0-0119, Best possible deceleration".

The drive automatically switches to "safety related standstill" and the output stage is switched off via one channel.

Safety is not acknowledged; i.e. "safety technology status output controller" was cleared/reset in "P-0-3214, Safety technology signal status word, channel 1" or "P-0-3214, Safety technology status word, channel 1" or the diagnosis input/output EA10n (channel 2) was set depending on the parameterization in "P-0-3210, Safety technology control word" / "P-0-3210, Safety technology configuration".

Cause	Remedy
An error was detected during check of interrupting circuit	Start command "S-0-0099, C0500 Reset class 1 diagnostics" in order to clear error and then set drive enable again. If error occurs repeatedly, replace control section or entire drive controller.

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

When using the optional module "safety technology I/O", you can, in addition to the error message, obtain detailed information with regard to the cause of the error or the error location. For this purpose, evaluate the parameter "P-0-3219, Diagnostic safety technology message".

F3133 - Attributes

Display: F3133
Ident N°: F3133

8.6.12 F3134 Dynamization time interval incorrect

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The signal shape of the "dynamization signal of safety function selection" is monitored.

Monitoring normally refers to the signals at the dynamization input EA30. If "separate dynamization" has been set in "P-0-3210, Safety technology control word" or "P-0-3210, Safety technology configuration", the dynamization input for channel 1 is additionally monitored (see also "P-0-3212, Safety technology signal control word, channel 1" or "P-0-3212, Safety technology control word, channel 1").

Error Reaction

The drive is decelerated according to the setting in "P-0-0119, Best possible deceleration".

When the drive is in a safety function, it is automatically switched to safety related standstill and the output stage is switched off via two channels.

Cause	Remedy
Error in wiring of dynamization signal (e.g. short circuit with V +).	Check wiring of dynamization signal and remove error.
Error in signal shape of dynamization signal in the case of external dynamization (see also "F3135 Dynamization pulse width incorrect").	Check dynamization signal and correct it, if necessary. Relevant parameters: "P-0-3223, Time interval for dynamization of safety function selection" (+20 % tolerance) mustn't be exceeded "P-0-3224, Duration of dynamization pulse of safety function selection".
Parameterization of "P-0-3210, Safety technology control word" or "P-0-3210, Safety technology configuration" not useful.	In the case of internal dynamization, per safety zone configure one axis as master for dynamization (set bit 3 in "P-0-3210, Safety technology control word" or "P-0-3210, Safety technology configuration").

After having removed the error start command "S-0-0099, C0500 Reset class 1 diagnostics" in order to clear error and then set drive enable again.

If error message occurs repeatedly, safety technology firmware has to be replaced.

- or -

Control section (only by Rexroth service engineers or especially trained users) or entire drive controller has to be replaced. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

When using the optional module "safety technology I/O", you can, in addition to the error message, obtain detailed information with regard to the cause of the error or the error location. For this purpose, evaluate the parameter "P-0-3219, Diagnostic safety technology message".

F3134 - Attributes

Display: F3134
Ident N°: F3134

8.6.13 F3135 Dynamization pulse width incorrect

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Error Messages

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

For "dynamization of safety function selection" a dynamic signal is applied to the selection elements, in order to detect errors in the wiring of the input signal / input signals. The signal shape of the dynamic signal / dynamic signals is monitored, too.

The monitoring refers to the signal at the input EA30 and in the case of separate dynamization ("P-0-3210, Safety technology control word" or "P-0-3210, Safety technology configuration", bit 7=1) additionally to the "dynamization signal channel 1" ("P-0-3212, Safety technology signal control word, channel 1" or "P-0-3212, Safety technology control word, channel 1", bit 10).

The pulse width of the dynamization signal was detected to be too short or too long; the minimum pulse width is 30 ms, the maximum pulse width is determined via "P-0-3224, Duration of dynamization pulse of safety function selection" (plus a tolerance of 20 percent).

Error Reaction The drive is decelerated according to the setting in "P-0-0119, Best possible deceleration". When the drive is in a safety function, it is automatically switched to safety related standstill and the output stage is switched off via two channels.

Cause	Remedy
Error in wiring of dynamization signal EA30	Remove error in wiring of dynamization signal EA30 [e.g. short circuit with 0 V (GND), cable break, missing connection to master of dynamization].
In the case of separate dynamization ("P-0-3210, Safety technology control word" or "P-0-3210, Safety technology configuration", bit 7=1): error in wiring of "dynamization input channel 1" ("P-0-3212, Safety technology signal control word, channel 1" or "P-0-3212, Safety technology control word, channel 1", bit10).	Remove error in wiring of dynamization signal [e.g. short circuit with 0 V (GND), cable break, missing connection to master of dynamization] **- or -** Missing or incorrect settings for transmission via master communication.
In the case of internal dynamization ("P-0-3210, Safety technology control word" or "P-0-3210, Safety technology configuration", bit 7=0): error in signal shape of dynamization signal	Check parameterization of • "P-0-3210, Safety technology control word" or "P-0-3210, Safety technology configuration" (only one drive may be selected as master for dynamization, all other drives must be declared slaves). • "P-0-3223, Time interval for dynamization of safety function selection" and "P-0-3224, Duration of dynamization pulse of safety function selection" in involved slave axes have to be greater than or equal to values in master axis.

Cause	Remedy
In the case of external dynamization: error in signal shape of dynamization signal	In the case of external dynamization, **all** drives that are to be dynamized have to be parameterized as "slave for dynamization of safety function selection" via "P-0-3210, Safety technology control word" or "P-0-3210, Safety technology configuration". EA30 of respective drives have to be interconnected and connected to signal source. Dynamization signal is generated by external source and this source has to be connected to selection elements and dynamization signal EA30. Signal shape mustn't exceed parameter values • "P-0-3223, Time interval for dynamization of safety function selection" and • "P-0-3224, Duration of dynamization pulse of safety function selection". Signal monitoring takes place with retriggerable timers; i.e. dynamization may also take place in shorter intervals and with shorter pulse width (minimum 30 ms).
In the case of separate dynamization for channel 1 and channel 2 ("P-0-3210, Safety technology control word" or "P-0-3210, Safety technology configuration", bit 7=1): error in signal shape of dynamization signal EA30	**Channel 2**: Interconnect EA30 of respective drives. Dynamize N/C contacts of selection elements with dynamization signal EA30. **Channel 1**: Dynamization signal for channel 1 is generated by external source. "Dynamization input channel 1" ("P-0-3212, Safety technology signal control word, channel 1", bit 10) of respective drives has to be interconnected and connected to signal source. Dynamize N/O contacts of selection elements with externally generated "dynamization signal channel 1". Signal shape mustn't exceed parameter values • "P-0-3223, Time interval for dynamization of safety function selection" and • "P-0-3224, Duration of dynamization pulse of safety function selection". Signal monitoring takes place with retriggerable timers; i.e. dynamization may also take place in shorter intervals and with shorter pulse width (minimum 30 ms).

After having removed the cause start command "S-0-0099, C0500 Reset class 1 diagnostics" in order to clear error and then set drive enable again.

☞ If error message occurs repeatedly, safety technology firmware has to be replaced.

- or -

Control section (only by Rexroth service engineers or especially trained users) or entire drive controller has to be replaced. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

When using the optional module "safety technology I/O", you can, in addition to the error message, obtain detailed information with regard to the cause of the error or the error location. For this purpose, evaluate the parameter "P-0-3219, Diagnostic safety technology message".

F3135 - Attributes

Display: F3135
Ident N°: F3135

8.6.14 F3140 Safety parameters validation error

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In the operating mode, a validation check is cyclically carried out for the safety parameters of channel 1 and channel 2.

Error Reaction

The drive is shut down according to the setting in "P-0-0119, Best possible deceleration".

When the drive is in a safety function, it is automatically switched to safety related standstill and the output stage is switched off via two channels.

Cause	Remedy
Change in safety parameters without subsequent synchronization of safety parameters in special mode	Execute command "P-0-3204, C3000 Synchronize and store safety technology IDN command"; channel 2 thereby applies parameters of channel 1 and internal values are recalculated and loaded **Note:** Executing the command "C3000 Synchronize and store safety technology IDN" increases the change counter of the safety technology memory (P-0-3201). It is therefore necessary to carry out the acceptance test again.

Bei Verwendung des Optionsmoduls "Sicherheitstechnik E/A" besteht zusätzlich zur Fehlermeldung die Möglichkeit, eine detaillierte Information bzgl. der Fehlerursache bzw. des Fehlerortes zu erhalten. Hierzu ist der Parameter "P-0-3219, Sicherheitstechnik Diagnose" auszuwerten (siehe auch "[External link could not be resolved.]").

Afterwards, start the command "S-0-0099, C0500 Reset class 1 diagnostics" in order to clear the error and then set drive enable again.

F3140 - Attributes

Display: F3140
Ident N°: F3140

8.6.15 F3141 Selection validation error

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The check carried out when selecting/deselecting safety functions has shown that the selection signals of channel 1 and channel 2 differed for a longer time than the tolerated duration preset by "P-0-3221, Max. tolerance time for different channel states".

The drive is decelerated according to the setting in "P-0-0119, Best possible deceleration".

The drive automatically switches to safety related standstill and the output stage is switched off via two channels.

As soon as the axis has stopped the safety door can be opened.

Cause	Remedy
Error in wiring of input signals or switch defective	Check switch elements and wiring of input signals
Different safety functions assigned to inputs of channel 1 and channel 2	Check configuration of inputs of channel 1 and channel 2
"P-0-3221, Max. tolerance time for different channel states" incorrectly parameterized	Change parameterization of "P-0-3221, Max. tolerance time for different channel states" (increase value)

After having removed the cause start command "S-0-0099, C0500 Reset class 1 diagnostics" in order to clear error and then set drive enable again.

When using the optional module "safety technology I/O", you can, in addition to the error message, obtain detailed information with regard to the cause of the error or the error location. For this purpose, evaluate the parameter "P-0-3219, Diagnostic safety technology message".

F3141 - Attributes

Display: F3141

Ident N°: F3141

8.6.16 F3142 Activation time of enabling control exceeded

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The parameterized maximum time for the activation of the enabling control ("P-0-3222, Max. activation time of enabling control") has been exceeded.

Error Reaction

The drive is decelerated according to the setting in "P-0-0119, Best possible deceleration".

The drive automatically switches to safety related standstill and the output stage is switched off via two channels.

Error Messages

Cause	Remedy
Enabling control was activated too long	Remove enabling signal before time parameterized in "P-0-3222, Max. activation time of enabling control" is over
Parameterization of "P-0-3222, Max. activation time of enabling control" does not make sense	Check and, if necessary, change parameterization of "P-0-3222, Max. activation time of enabling control"
Enabling control is defective or incorrectly wired	Check and, if necessary, replace/correct enabling control and wiring

After having removed the cause start command "S-0-0099, C0500 Reset class 1 diagnostics" in order to clear error and then set drive enable again.

When using the optional module "safety technology I/O", you can, in addition to the error message, obtain detailed information with regard to the cause of the error or the error location. For this purpose, evaluate the parameter "P-0-3219, Diagnostic safety technology message".

F3142 - Attributes

Display: F3142
Ident N°: F3142

8.6.17 F3143 Safety command for clearing errors incorrect

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Via an internal command embedded in the call of "S-0-0099, C0500 Reset class 1 diagnostics" all errors of channel 2 are cleared. If a problem is detected during this procedure, the drive generates the error F3143.

Error Reaction

Axis is in "safety related standstill". The output stage has been switched off via two channels.

Cause	Remedy
If error message coincides with a firmware update, this indicates that firmware on channel 2 was not started; in this case, "P-0-3200, Safety technology firmware code" is without content. (This can be due to following reasons: firmware of channel 2 incompatible with channel 1, checksum or hardware error on channel 2..)	Carry out firmware update again
Execution of internal command was aborted with timeout.	Reset module by switching control voltage off and on. If error occurs repeatedly, replace control section or entire drive controller.

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

When using the optional module "safety technology I/O", you can, in addition to the error message, obtain detailed information with regard to the cause of the error or the error location. For this purpose, evaluate the parameter "P-0-3219, Diagnostic safety technology message".

See also Functional Description of firmware " Firmware Release Update".

F3143 - Attributes

Display: F3143
Ident N°: F3143

8.6.18 F3144 Incorrect safety configuration

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

An error was detected in the configuration of safety technology.

Error Reaction

The drive is decelerated according to the setting in "P-0-0119, Best possible deceleration".

The drive automatically switches to safety related standstill and the output stage is switched off via two channels.

Cause	Remedy
Safety technology control signals (selection signals) were configured in "P-0-3211, Safety technology I/O control word, channel 2" or "P-0-3211, Safety technology I/O configuration list, channel 2", but safety technology with PROFIsafe hasn't been configured or hardware requirements therefor are missing	For configuration "safety technology with PROFIsafe", only assignment of home switch and safety technology inputs 1 to 4 is allowed; for the other safety technology control signals it is not allowed to establish any functional connection; change parameter setting of "P-0-3211, Safety technology I/O control word, channel 2" or "P-0-3211, Safety technology I/O configuration list, channel 2" accordingly.
Safety technology control signals (selection signals) were assigned several times in "P-0-3211, Safety technology I/O control word, channel 2" or "P-0-3211, Safety technology I/O configuration list, channel 2".	Only assign safety technology control signals (selection signals) once in "P-0-3211, Safety technology I/O control word, channel 2" or "P-0-3211, Safety technology I/O configuration list, channel 2".
Safety technology inputs 1 to 4 were configured in "P-0-3211, Safety technology I/O control word, channel 2" or "P-0-3211, Safety technology I/O configuration list, channel 2", but safety technology with PROFIsafe hasn't been configured or hardware requirements therefor are missing.	Safety technology inputs 1 to 4 are only allowed in conjunction with the configuration "safety technology with PROFIsafe"; change parameterization of "P-0-3211, Safety technology I/O control word, channel 2" or "P-0-3211, Safety technology I/O configuration list, channel 2" accordingly.
Two configurations were inadmissibly made at the same time for the axis: master for diagnosis and acknowledgment ("P-0-3210, Safety technology control word" or "P-0-3210, Safety technology configuration", bit 2) **- and-** "deactivation of acknowledgment support at EA20", i.e. drive does not work in acknowledgment group ("P-0-3210, Safety technology control word" or "P-0-3210, Safety technology configuration", bit 8).	One of both configurations must be undone.

After trouble shooting start command "S-0-0099, C0500 Reset class 1 diagnostics" in order to clear error an then set drive enable again.

When using the optional module "safety technology I/O", you can, in addition to the error message, obtain detailed information with regard to the cause of the error or the error location. For this purpose, evaluate the parameter "P-0-3219, Diagnostic safety technology message".

F3144 - Attributes

Display: F3144
Ident N°: F3144

8.6.19 F3145 Error when unlocking the safety door

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When the special mode is deselected, a check is run to find out whether the control of the door locking device is inactive and the door is closed and locked.

Error Reaction

The drive is decelerated according to the setting in "P-0-0119, Best possible deceleration"

- or -

the axis already is in "safety related standstill".

The output stage is switched off via two channels.

Cause	Remedy
Error in mechanical system of safety door	Check mechanical system of safety door
Error in wiring of safety door or short circuit between EA10n, A10, E10 and 24 V	Check wiring of safety door
Hardware defect on control section or on optional safety technology module	Replace control section or entire drive controller

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

When using the optional module "safety technology I/O", you can, in addition to the error message, obtain detailed information with regard to the cause of the error or the error location. For this purpose, evaluate the parameter "P-0-3219, Diagnostic safety technology message".

F3145 - Attributes

Display: F3145
Ident N°: F3145

8.6.20 F3146 System error channel 2

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is decelerated according to the setting in "P-0-0119, Best possible deceleration".

The drive automatically switches to safety related standstill and the output stage is switched off via two channels.

In the case of a measuring system error, the safety door can only be opened via the command "P-0-3218, C3700 Manually unlocking the safety door".

Cause	Remedy
System error on channel 2	Reset module by switching control voltage off and on.Start command "S-0-0099, C0500 Reset class 1 diagnostics" in order to clear error and then set drive enable again.If error occurs repeatedly, replace control section or entire drive controller
Failure of encoder signal	• check cable to measuring system • check shield connection • check connection (ribbon cable) between optional safety technology module and encoder interface
No encoder signals	• connection (ribbon cable) between optional safety technology module and encoder interface missing • check measuring system

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

When using the optional module "safety technology I/O", you can, in addition to the error message, obtain detailed information with regard to the cause of the error or the error location. For this purpose, evaluate the parameter "P-0-3219, Diagnostic safety technology message".

F3146 - Attributes

Display: F3146
Ident N°: F3146

8.6.21 F3147 System error channel 1

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The operatability of safety monitoring functions is cyclically checked in normal operation.

A system error occurred in channel 1. The drive is decelerated according to the setting in "P-0-0119, Best possible deceleration".

The drive automatically switches to safety related standstill and the output stage is switched off via two channels.

As soon as the axis has stopped the safety door can be opened.

Cause	Remedy
Cyclic test of monitoring functions of safety technology channel 1 is faulty	Reset module by switching control voltage off and on. If error occurs repeatedly, replace firmware and/or hardware.
You use a test firmware (to be recognized, among other things, by "P-0-3213, Safety technology operating status" or "P-0-3213, Safety technology status", bit 14). Test firmware was provided as an exception for applications without active safety technology; safety technology firmware test was not carried out for this firmware!	Replace firmware by **test firmware with safety technology firmware test** or **official firmware** (V-release) with which safety technology can always be used without restrictions.

Only Rexroth service engineers are allowed to replace optional modules of the control section.

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

When using the optional module "safety technology I/O", you can, in addition to the error message, obtain detailed information with regard to the cause of the error or the error location. For this purpose, evaluate the parameter "P-0-3219, Diagnostic safety technology message".

F3147 - Attributes

Display: F3147
Ident N°: F3147

8.6.22 F3150 Safety command for system start incorrect

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Channel 2 of the safety technology is switched from parameter mode to operating mode via an internal command. During the command channel 2 carries out the necessary initialization steps.

Error Reaction

The drive is decelerated according to the setting in "P-0-0119, Best possible deceleration".

The drive automatically switches to safety related standstill and the output stage is switched off via two channels.

Cause	Remedy
Time in command processing exceeded	Start command "S-0-0099, C0500 Reset class 1 diagnostics" to clear error. ⇒ Reset optional safety technology module (switch control voltage off and on). After control voltage was switched off and on, error occurs again: ⇒ Reload firmware. Error occurs in spite of switching control voltage off and on and reloading firmware: ⇒ Hardware is defective; replace control section.

To load the firmware please read the description "Firmware Update (or Replacement)" in the Firmware Release Notes.

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

When using the optional module "safety technology I/O", you can, in addition to the error message, obtain detailed information with regard to the cause of the error or the error location. For this purpose, evaluate the parameter "P-0-3219, Diagnostic safety technology message".

F3150 - Attributes

Display: F3150
Ident N°: F3150

8.6.23 F3151 Safety command for system halt incorrect

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Channel 2 of the safety technology is switched from operating mode to parameter mode via an internal command. During the command the necessary initialization steps are carried out in channel 2.

Error Reaction

The drive is decelerated according to the setting in "P-0-0119, Best possible deceleration". The drive automatically switches to safety related standstill and the output stage is switched off via two channels.

Cause	Remedy
Time exceeded in command processing because other command is active (e.g. C3000).	Start command "S-0-0099, C0500 Reset class 1 diagnostics" in order to clear error and then switch from operating mode to parameter mode. If necessary, reset module by switching control voltage on and off.

When using the optional module "safety technology I/O", you can, in addition to the error message, obtain detailed information with regard to the cause of the error or the error location. For this purpose, evaluate the parameter "P-0-3219, Diagnostic safety technology message".

F3151 - Attributes

Display: F3151
Ident N°: F3151

8.6.24 F3152 Incorrect backup of safety technology data

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In order to use the same safety technology configuration, after the control section was replaced, without having to carry out safety technology commissioning again, the monitoring of the correct backup or acceptance of the safety technology data is contained in the drive. An error occurred during data backup.

Error Reaction

The drive is decelerated according to the setting in "P-0-0119, Best possible deceleration". The drive automatically switches to safety related standstill and the output stage is switched off via two channels. As soon as the axis has stopped the safety door can be opened.

Cause	Remedy
Error in hardware or in internal sequence during data backup.	Repeat data backup. If error occurs again, execute command "load defaults procedure for safety technology". If error occurs again, optional safety technology module or entire drive controller has to be replaced. If error occurs, content of parameter "P-0-3208, Backup of safety techn. data channel 2" is incorrect
Content of parameter "P-0-3208, Backup of safety techn. data channel 2" is incorrect.	Check whether correct parameter set, compatible firmware version ("S-0-0030, Manufacturer version"). If error-free "P-0-3208, Backup of safety techn. data channel 2" is not available, safety technology commissioning has to be carried out again.

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

Only Rexroth service engineers are allowed to replace optional modules of the control section.

When using the optional module "safety technology I/O", you can, in addition to the error message, obtain detailed information with regard to the cause of the error or the error location. For this purpose, evaluate the parameter "P-0-3219, Diagnostic safety technology message".

F3152 - Attributes

Display: F3152
Ident N°: F3152

8.6.25 F3160 Safety bus communication error

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

A cyclic check of the drive has shown that the drive cannot communicate with the master via the safety bus.

Error Reaction

The drive is decelerated according to the setting in "P-0-0119, Best possible deceleration". The drive automatically switches to "drive interlock" and the output stage is switched off via two channels.

Cause	Remedy
Missing or incorrect connection	Check connection, remove cause of error
Failure of bus master	Remove error of master

When using the optional module "safety technology I/O", you can, in addition to the error message, obtain detailed information with regard to the cause of the error or the error location. For this purpose, evaluate the parameter "P-0-3219, Diagnostic safety technology message".

F3160 - Attributes

Display: F3160
Ident N°: F3160

8.7 Non-Fatal Errors (F2xxx)

8.7.1 Behavior in the Case of Non-Fatal Errors

Non-fatal errors are errors that still allow a freely definable, variable error reaction.

Drive Behavior

The user can define the drive behavior for the case of non-fatal errors occurring via the setting of the parameters "P-0-0117, Activation of NC reaction on error" and "P-0-0119, Best possible deceleration".

Putting the Drive Into Operation

The drive can only be put into operation again when:

1. The error reaction has been completed, i.e. the drive has stopped (v=0!).
2. The error message was cleared by the error clearing command (cf. "S-0-0099, C0500 Reset class 1 diagnostics").
3. The cause of the error was removed.
4. Drive enable was switched on again (0-1 edge).

8.7.2 F2003 Motion step skipped

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»

Error Messages

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

When the operating mode "electronic motion profile" is active, a check is run during the transition from one motion step to the next to find out whether a motion step was skipped.

Except for the transition from the last to the first motion step (or vice versa), the motion step number may only change by 1.

Cause	Remedy
Master axis velocity ("P-0-0777, Effective master axis velocity") is so high that master axis distance ("P-0-0227, Cam shaft profile, access angle") covered in one position loop clock is greater than width of one motion step	Reduce master axis velocity **- or -** Increase width of motion step (distance of two master axis initial positions in "P-0-0705, List of master axis initial positions, set 0" or "P-0-0712, List of master axis initial positions, set 1") **- or -** Reduce position loop clock (see Functional Description of firmware " Performance Data").

F2003 - Attributes

Display: F2003

Ident N°: F2003

8.7.3 F2004 Error in motion profile

Validity

Contained in 02VRS: «-» «-» «-»

Contained in 03VRS: «-» «MPH» «-»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

In the operating mode with electronic motion profile, the drive monitors whether the defined motion profile (max. 8 individual motion steps) is verisimilar. The error is generated if a motion profile that has not passed the validation checks is activated with the drive having been enabled. Depending on whether set 0 or set 1 had been selected, a number is displayed in parameter "P-0-0702, Motion profile, diagnosis, set 0" or "P-0-0709, Motion profile, diagnosis, set 1".

Cause	Remedy
1: Master axis initial positions of motion steps used are not increasing	Check list "P-0-0705, List of master axis initial positions, set 0" or "P-0-0712, List of master axis initial positions, set 1"
2: In the case of absolute motion profile, sum of individual distances is not "0" or a multiple of "S-0-0103, Modulo value"	Check list "P-0-0707, List of distances, set 0" or "P-0-0714, List of distances, set 1"
3: In the case of relative motion profile, number of motion steps is smaller than "2"	Check parameter "P-0-0703, Number of motion steps, set 0" or "P-0-0710, Number of motion steps, set 1"
21…28: Checked motion step is "rest in velocity" or "velocity in velocity". Following step consists of profile which is not "velocity in rest" or "velocity in velocity". Number of checked motion step can be taken from second digit of diagnostic message number	Check list "P-0-0706, List of motion step modes, set 0" or "P-0-0713, List of motion step modes, set 1"

Cause	Remedy
31…38: Checked motion step is "rest in velocity" or "velocity in velocity". Following step consists of profile which is either "velocity in rest" or "velocity in velocity". Velocities of step that was checked and following step do not match. Number of checked motion step can be taken from second digit of diagnostic message number	Check list "P-0-0708, List of slave axis velocities, set 0" or "P-0-0715, List of slave axis velocities, set 1"
41…48: Checked motion step is "velocity in rest" or "velocity in velocity". Previous step consists of profile which is not "rest in velocity" or "velocity in velocity". Number of checked motion step can be taken from second digit of diagnostic message number	Check list "P-0-0706, List of motion step modes, set 0" or "P-0-0713, List of motion step modes, set 1"
51…58: Checked motion step is "velocity in rest" or "velocity in velocity". Previous step consists of profile which is either "rest in velocity" or "velocity in velocity". Velocities of step that was checked and previous step do not match. Number of checked motion step can be taken from second digit of diagnostic message number	Check list "P-0-0708, List of slave axis velocities, set 0" or "P-0-0715, List of slave axis velocities, set 1"
61…68: 1st profile element of a cam shaft profile used is unequal "0" or cam shaft profile is invalid. Number of rejected cam shaft profile can be taken from second digit of diagnostic message number	Check list "P-0-0706, List of motion step modes, set 0" or "P-0-0713, List of motion step modes, set 1"
71...78: Checked motion step is "velocity in rest", "velocity in velocity" or "rest in velocity". Distance of motion step inadmissibly is "0" Number of checked motion step can be taken from second digit of diagnostic message number	Check list "P-0-0707, List of distances, set 0" or "P-0-0714, List of distances, set 1"
As of MPx05: **81...88:** Checked motion step is "rest in rest with limited velocity". Indicated maximum slave axis velocity would be exceeded and segmentation into the three partial steps "rest in velocity", "constant velocity" and "velocity in rest" is impossible. Number of checked motion step can be taken from second digit of diagnostic message number	• Reduce distance of step (P-0-0707 or P-0-0714) • Increase maximum slave axis velocity (P-0-0708 or P-0-0715) • Reduce master axis velocity (P-0-0704 or P-0-0711)

See also Functional Description of firmware "Electronic Motion Profile With Real/Virtual Master Axis"

F2004 - Attributes

Display: F2004
Ident N°: F2004

8.7.4 F2005 Cam shaft invalid

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Error Messages

When the cam shaft mode is active, the drive monitors whether one of the cam shaft profiles contains invalid elements or is incomplete.

Cause	Remedy
One of cam shaft profiles is invalid	Check cam shaft profiles and, if necessary, reload them ("P-0-0072, Cam shaft profile1" "P-0-0092, Cam shaft profile 2", "P-0-0780, Cam shaft profile3" or "P-0-0781, Cam shaft profile4". In case of doubt contact installation programmer or machine manufacturer

See also Functional Description of firmware "Electronic Cam Shaft with Real/ Virtual Master Axis"

F2005 - Attributes

Display: F2005
Ident N°: F2005

8.7.5 F2006 MMC was removed

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive monitors whether the MMC is available when it is used as an active memory, i.e. when the parameters are stored in the MMC.

Cause	Remedy
MMC is used as active memory and was removed from drive controller under voltage	Put MMC in its slot at the drive controller again and then start command "S-0-0099, C0500 Reset class 1 diagnostics" in order to clear error
Loose contact in MMC slot or MMC incorrectly plugged	Check fixing of MMC and, if necessary, plug it in correctly
MMC defective	Replace MMC
MMC slot defective	Replace control section or entire drive controller

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

F2006 - Attributes

Display: F2006
Ident N°: F2006

8.7.6 F2007 Switching to non-initialized operating mode

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When switching the active operating mode the drive was switched to a non-initialized operating mode.

For the operating modes that can be selected please see Parameter Description for the operating mode parameters:

- S-0-0032, Primary mode of operation
- S-0-0033, Secondary operating mode 1
- S-0-0034, Secondary operating mode 2
- S-0-0035, Secondary operating mode 3

Cause	Remedy
Via "S-0-0134, Master control word" (for SERCOS) or "P-0-4077, Field bus: control word" (for field bus) an operating mode was selected that had not been initialized (e.g. S-0-0032="0")	Enter desired operating mode in selected operating mode parameter.

See also Functional Description of firmware " Operating Mode Selection"

F2007 - Attributes

Display: F2007

Ident N°: F2007

8.7.7 F2008 RL The motor type has changed.

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

In the initialization phase (after the drive has been switched on) the controller checks whether the connected motor type corresponds to the type designation in "S-0-0141, Motor type". If this is not the case, the error F2008 is generated and the controller demands loading the motor-specific control loop parameter values from the encoder memory of the motor (the display of the control panel reads "RL").

Cause	Remedy
Motor was replaced by different motor type **- or -** A parameter file was loaded to drive controller in which parameter "S-0-0141, Motor type" differs from connected motor type **- or -** Drive controller was switched on for the first time. Motor type stored in "S-0-0141, Motor type" differs from connected motor type.	Clear error by means of "S-0-0099, C0500 Reset class 1 diagnostics"" **- or -** Press <ESC> button at control panel of controller **Note:** If the error is cleared, command "S-0-0262, C07_x Load defaults procedure command" is then automatically executed, unless this was deactivated in "P-0-0556, Control word of axis controller". **Attention:** By command execution, previous control loop settings are overwritten with default control loop settings from encoder memory!

See also Functional Description of firmware " Control Panel"

Error Messages

F2008 - Attributes

Display: RL
Ident N°: F2008

8.7.8 F2009 PL Load parameter default values

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

When the firmware is replaced (firmware update) the non-volatile memory (internal memory or MMC) is automatically analyzed; during the analysis an error was detected.

☞ When the "S-0-0262, C07_x Load defaults procedure command" is started directly with the "Load basic parameters" option the F2009 error is automatically cleared.

During the transition checks for the communication phases 3 and 4 the operating data (parameter values) are verified; parameters with invalid operating data (normally only all new parameters) are output in the "S-0-0021, IDN list of invalid operating data for communication phase 2" or "S-0-0022, IDN list of invalid operating data for communication phase 3" parameters.

CAUTION

Material damage caused by unintended overwriting of parameters and positioning blocks!

⇒ Before executing the command for loading the parameter default values by "clear errors" you should save the current parameter set.

Cause	Remedy
Drive was started with new firmware for the first time or a version update was carried out due to which number of non-volatile parameters has changed.	By clearing error via control panel all parameter values are cleared and set to original values (default values) **- or -** Error is cleared by starting command "S-0-0099, C0500 Reset class 1 diagnostics". Parameters that can be read from memory remain with their last stored value, all parameters that cannot be read from the memory (new parameters) are set to default values and marked as being invalid.
Parameter memory (MMC or internal memory) is defective so that error F2009 keeps reappearing.	Check MMC and replace it, if necessary, or replace control section or entire drive controller.

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware " Control Panel"

F2009 - Attributes

Display: PL
Ident N°: F2009

8.7.9 F2010 Error when initializing digital I/O (-> S-0-0423)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

☞ Up to firmware version 04VRS, the name of the error is "F2010 Error when initializing digital inputs/outputs".

An error occurred during the first initialization of the drive (initialization of digital inputs/outputs).

Cause	Remedy
Conflict with last stored parameters of digital inputs/outputs	Check following parameter contents and correct them, if necessary: • P-0-0300, Digital I/Os, assignment list • P-0-0301, Digital I/Os, bit numbers • P-0-0302, Digital I/Os, direction **With master communication PL available:** • S-0-0026, Configuration list signal status word • S-0-0328, Assign list signal status word • S-0-0027, Configuration list signal control word • S-0-0329, Assign list signal control word **With optional module MD1 or MD2 available:** • P-0-0681, Assignment IDN -> parallel output 1 • P-0-0682, Assignment parallel input 1 -> IDN **As of firmware version MPx05:** You might possibly find some information on incorrectly configured parameters in "S-0-0423, IDN-list of invalid op. data for parameterization level"

F2010 - Attributes

Display: F2010
Ident N°: F2010

8.7.10 F2011 PLC - Error nr. 1

Validity

Contained in 02VRS: «-» «MPH» «-»
Contained in 03VRS: «MPB» «MPH» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

In conjunction with technology functions the PLC integrated in the drive (optional expansion package "drive PLC") allows the user generating error messages (F2011...F2014) within the PLC program.

The causes of the error are depending on the respective PLC project (or the active technology function). If the error message is generated by a technology

function made available by Bosch Rexroth, the causes and remedies are contained in the description of the technology function.

See also documentation " Rexroth IndraMotion MLD".

F2011 - Attributes

Display: F2011

Ident N°: F2011

8.7.11 F2012 PLC - Error nr. 2

Validity

Contained in 02VRS: «-» «MPH» «-»

Contained in 03VRS: «MPB» «MPH» «-»

Contained in 04VRS: «MPB» «MPH» «-»

Contained in 05VRS: «MPB» «MPH» «-»

Supported by supply unit: «-»

In conjunction with technology functions the PLC integrated in the drive (optional expansion package "drive PLC") allows the user generating error messages (F2011...F2014) within the PLC program.

The causes of the error are depending on the respective PLC project (or the active technology function). If the error message is generated by a technology function made available by Bosch Rexroth, the causes and remedies are contained in the description of the technology function.

See also documentation " Rexroth IndraMotion MLD".

F2012 - Attributes

Display: F2012

Ident N°: F2012

8.7.12 F2013 PLC - Error nr. 3

Validity

Contained in 02VRS: «-» «MPH» «-»

Contained in 03VRS: «MPB» «MPH» «-»

Contained in 04VRS: «MPB» «MPH» «-»

Contained in 05VRS: «MPB» «MPH» «-»

Supported by supply unit: «-»

In conjunction with technology functions the PLC integrated in the drive (optional expansion package "drive PLC") allows the user generating error messages (F2011...F2014) within the PLC program.

The causes of the error are depending on the respective PLC project (or the active technology function). If the error message is generated by a technology function made available by Bosch Rexroth, the causes and remedies are contained in the description of the technology function.

See also documentation " Rexroth IndraMotion MLD".

F2013 - Attributes

Display: F2013

Ident N°: F2013

8.7.13 F2014 PLC - Error nr. 4

Validity

Contained in 02VRS: «-» «MPH» «-»

Contained in 03VRS: «MPB» «MPH» «-»

Contained in 04VRS: «MPB» «MPH» «-»

Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

In conjunction with technology functions the PLC integrated in the drive (optional expansion package "drive PLC") allows the user generating error messages (F2011...F2014) within the PLC program.

The causes of the error are depending on the respective PLC project (or the active technology function). If the error message is generated by a technology function made available by Bosch Rexroth, the causes and remedies are contained in the description of the technology function.

See also documentation "Rexroth IndraMotion MLD".

F2014 - Attributes

Display: F2014
Ident N°: F2014

8.7.14 F2018 Device overtemperature shutdown

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

The heat sink temperature of the device is monitored by a temperature sensor and a temperature model. When the heat sink temperature has reached the maximum value, the device is switched off in order to protect it against destruction.

☞ Before the error F2018 is triggered, the warning "E2050 Device overtemp. prewarning" is output for 30 seconds.

Cause	Remedy
Overtemperature (heat sink) due to overload of device.	Switch drive off and let it cool down. Check mechanical system and drive dimensioning (working power mustn't exceed, on average, continuous power of drive).
Ambient temperature too high. Specified performance data are valid up to an ambient temperature of 40 C.	Reduce ambient temperature, e.g. by cooling the control cabinet.
Heat sink of device is dirty.	Clean heat sink
Convection is prevented by other components or mounting position of control cabinet.	Mount device vertically and provide sufficient space for ventilating heat sink.
Failure of internal blower.	If blower fails, replace device or power section.
Failure of air conditioning for control cabinet.	Check air conditioning of control cabinet.
Incorrect dimensioning of control cabinet with regard to heat discharge.	Check dimensioning of control cabinet.

See also Functional Description of firmware " Current Limitation".

F2018 - Attributes

Display: F2018
Ident N°: F2018

8.7.15 F2019 Motor overtemperature shutdown

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The motor temperature measured by the temperature sensor has reached the limit value in "S-0-0204, Motor shutdown temperature". The drive is immediately decelerated according to the selected error reaction ("P-0-0119, Best possible deceleration") and shut down. The controller outputs F2019.

☞ For MHD, MKD, MKE and LSF motors, "S-0-0204, Motor shutdown temperature" is permanently set and cannot be changed.

Cause	Remedy
Motor shutdown temperature incorrectly parameterized.	Check and correct parameterization of "S-0-0204, Motor shutdown temperature" by means of motor or temperature sensor data sheet.
The motor is overloaded. Effective torque demanded from motor has been above allowed torque for too long.	Check dimensioning of motor. In the case of installations that have been operated for a long time, check whether drive conditions have changed (with regard to dirt accumulation, friction, moved masses etc.).
Line interruption, ground fault or short circuit in line for motor temperature monitoring.	Check line for motor temperature monitoring for line interruption, ground fault or short circuit.
Instability in speed control loop.	Check parameterization of speed control loop.

See also Functional Description of firmware " Motor Temperature Monitoring".

F2019 - Attributes

Display: F2019
Ident N°: F2019

8.7.16 F2021 Motor temperature monitor defective

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The function of the temperature sensor used for motor temperature monitoring is cyclically monitored by the drive, as soon as the drive is ready for power output ("Ab").

Motors MSK, MAD, MAF

When the voltage level of the temperature sensor is outside of the allowed range of values, the error F2021 is output for Rexroth motors of the MSK, MAD or MAF lines.

Motors MHD, MKD, MLF, LSF

When a voltage suggesting a temperature sensor defect or a contact error has been detected at the temperature sensor input for 30 seconds, the error F2021 is output for Rexroth motors of the MHD, MKD, MLF or LSF lines.

Motors 2AD, ADF, 1MB

When a voltage suggesting too low motor temperature, a temperature sensor defect or a contact error has been detected at the temperature sensor input for

30 seconds, the error F2021 is output for Rexroth motors of the 2AD, ADF or 1MB lines.

The drive reacts to F2021 with the error reaction which has been set or it refuses drive enable.

Cause	Remedy
Interruption or short circuit in line for motor temperature monitoring	Check motor connection and cable for interruption and short circuit
Temperature sensor in motor is defective	Use replacement temperature sensor (if available) or replace motor
Only for Rexroth motors of lines 2AD, ADF or 1MB: Motor temperature stays below allowed ambient temperature range	Observe minimum allowed ambient temperature (see documentation of respective motor line)
Drive controller is defective	Replace drive controller or power section

See also Functional Description of firmware " Motor Temperature Monitoring".

F2021 - Attributes

Display: F2021
Ident N°: F2021

8.7.17 F2022 Device temperature monitor defective

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

The function of the temperature sensor used for device temperature monitoring is cyclically monitored.

When a temperature equal to or less than -20 °C has been measured for 30 seconds, a defect is supposed to have occurred and the F2022 error is output.

Cause	Remedy
Sensor in drive controller is defective	Replace drive controller or power section

F2022 - Attributes

Display: F2022
Ident N°: F2022

8.7.18 F2025 Drive not ready for Control

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When drive enable is set, the drive must be ready; i.e. it must signal the drive status "Ab".

If the drive only signals bb (**b**etriebs**b**ereit = ready for operation), i.e. the DC bus voltage is too low or the drive is in parameter mode, the drive generates this error message.

Error Messages

Cause	Remedy
Drive enable (AF) was set before power supply had been switched on **- or -** Drive enable (AF) was set although drive is still in parameter mode	Check logic for activating drive in connected control unit.

F2025 - Attributes

Display: F2025
Ident N°: F2025

8.7.19 F2026 Undervoltage in power section

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

The DC bus voltage value is monitored by the drive controller and the supply unit.

Drive Controllers HMS, HMD, HCS

If the DC bus voltage falls below the minimum value determined for the drive (see value of "P-0-0114, Undervoltage threshold") or it reacts to "DC bus not ok" of the module bus, the drive generates the error message F2026 if "non-fatal error" has been set with regard to the reaction to undervoltage in "P-0-0118, Power supply, configuration".

Supply Unit HMV01.1

If the DC bus voltage falls below 75% of the mains voltage crest value that was detected when the mains contactor had been switched on, "error in supply" is signaled via the module bus and F2026 is displayed at the device. Power is switched off!

Cause	Remedy
Power is switched off without previous drive deactivation by means of drive enable ("AF").	Check logic for activating drive in connected control unit.
Failure in power supply or overload of power supply.	Check power supply; for HCS02, particularly check wiring of mains supply to connection X3.
Mains failure	Check cause of mains failure, switch mains voltage on again.
Temporary supply unit overload.	Reduce processing cycle of machine.

See also Functional Description of firmware " Power Supply".

F2026 - Attributes

Display: F2026
Ident N°: F2026

8.7.20 F2027 Excessive oscillation in DC bus

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Excessive oscillation occurs in the DC bus. The DC bus voltage fluctuates very much over a longer period.

Cause	Remedy
Drive oscillates. Oscillation might possibly not be mechanically visible, therefore check command torque.	Check command torque of drive to know whether it corresponds to the expected load cycle. Check settings of velocity control loop and position control loop.
Drive loads the DC bus impulsively	Check application

F2027 - Attributes

Display: F2027
Ident N°: F2027

8.7.21 F2028 Excessive deviation

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When the position control loop is closed the drive monitors whether it can follow the preset position command value. To do this a actual model position value is calculated in the drive and compared with the real actual position value. If the difference of calculated and real actual position value exceeds the value entered in parameter "S-0-0159, Monitoring window" it is obvious that the drive cannot follow the preset command value and the error F2028 is generated.

The maximum deviation between calculated and real actual position value can be read from "P-0-0098, Max. model deviation".

Cause	Remedy
Parameterized monitoring window too small	Check and, if necessary, correct content of "S-0-0159, Monitoring window".
Too high command acceleration due to incorrect command value set by control unit	Reduce acceleration value set by the control unit (see control unit manual)
Numeric value in "S-0-0092, Bipolar torque/force limit value" too low	Check content of parameter "S-0-0092, Bipolar torque/force limit value" and set it to maximum value allowed for application.
Axis is blocked or sluggish	Check mechanical system and remove axis blocking.
Incorrect or non-optimized control loop parameters	Check control loop setting (e. g. "S-0-0104, Position loop Kv-factor", "S-0-0100, Velocity loop proportional gain", "P-0-0556, Control word of axis controller").
Acceleration capacity of drive was exceeded	Check drive dimensioning

F2028 - Attributes

Display: F2028
Ident N°: F2028

8.7.22 F2031 Encoder 1 error: signal amplitude incorrect

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»

Error Messages

Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The signals of the measuring system (encoder 1) are monitored on hardware and software level with regard to their amplitudes and signal shape. If a signal (e.g. sin or cos) leaves the thresholds monitored by the hardware or if the signals are disturbed in such a way that a position error occurs, the error F2031 is generated in conjunction with the function "redundant motor encoder".

☞ As the position of the measuring system is no longer generated correctly when the error F2031 is detected, it is necessary to initialize the encoder again.

The error can only be cleared in communication phase 2 (parameter mode).

Cause	Remedy
Defective encoder cable or cable shielding	Check cable to measuring system and replace it, if necessary
Measuring system defective	Check measuring system and replace it, if necessary
Faulty mounting of measuring head in the case of linear measuring systems	Check mounting of measuring head and correct it, if necessary
Measuring system dirty	Clean or replace measuring system
Hardware defect on control section of drive	Replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

F2031 - Attributes

Display: F2031
Ident N°: F2031

8.7.23 F2032 Validation error during commutation fine adjust

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When a synchronous motor with incremental measuring system is homed, the value of "P-0-0521, Effective commutation offset" is converted to the home point reference and compared to the optimized commutation offset in P-0-0508, Commutation offset. If the deviation determined due to this comparison is too great, the error F2032 is generated and the drive is shut down.

☞ If the deviation is too great, the operational safety of the motor is no longer guaranteed because a "runaway effect" of the motor can occur.

Cause	Remedy
Initial commissioning was not or incompletely carried out.	Carry out initial commissioning
Motor encoder was replaced	Carry out initial commissioning
Motor connections (U, V, W) were mixed up.	Check and if necessary correct motor connection.
Values in "P-0-0508, Commutation offset" and/or "P-0-3008, Commutation offset, encoder memory" were manipulated.	Check value stored in "P-0-0508, Commutation offset"; carry out initial commissioning again, if required.

See also Functional Description of firmware " Establishing the Position Data Reference (Drive-Controlled Homing)".

F2032 - Attributes

Display: F2032
Ident N°: F2032

8.7.24 F2033 External power supply X10 error

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

If the X10 interface at the IndraDrive M controller has been equipped with a digital I/O extension, this requires an external 24 V power supply.

Cause	Remedy
Voltage externally applied is outside of allowed range [and temporary failures (voltage peaks) are detected].	Supply interface with controlled power supply unit.
At least one of the inputs was connected with reversed polarity.	Check wiring
At least one of the outputs has short circuit.	Check wiring
At least one of the outputs is overloaded.	Supply motor brake and interface with different power supply units, especially in the case of long motor cables.

F2033 - Attributes

Display: F2033
Ident N°: F2033

8.7.25 F2036 Excessive position feedback difference

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In cyclic operation the difference between actual position value 1 and position value 2 (see also "P-0-0391, Actual position value difference encoder1 - encoder2") is compared to "S-0-0391, Monitoring window feedback 2". If the absolute value of the difference is greater than the monitoring window and both encoders have been homed, the error F2036 is generated.

The drive carries out the error reaction parameterized in "P-0-0119, Best possible deceleration" and the reference bits of both encoders are cleared ("S-0-0403, Position feedback value status").

☞ The monitoring function is inactive if the value "0" was entered in the "S-0-0391, Monitoring window feedback 2" parameter.

Cause	Remedy
Parameters for encoder 2 incorrect	Check "S-0-0115, Position feedback 2 type" and "S-0-0117, Feedback 2 Resolution"
Mechanical system between motor shaft and encoder 2 incorrectly parameterized.	Check "S-0-0121, Input revolutions of load gear", "S-0-0122, Output revolutions of load gear", and "S-0-0123, Feed constant".
Mechanical system between motor shaft and encoder 2 is not rigid (e.g. gear play, slip) and monitoring window is too small.	Increase "S-0-0391, Monitoring window feedback 2", switch off in the case of gear with slip.
Encoder cable defective	Replace encoder cable
Maximum input frequency of encoder interface exceeded.	Reduce velocity
Encoder 2 was not mounted to driven axis	Set "S-0-0391, Monitoring window feedback 2" to "0" (switch monitoring function off)
Incorrect encoder gear settings	Check relevant encoder parameters and correct them, if necessary: • "P-0-0121, Gear 1 motor-side (motor encoder)" / "P-0-0122, Gear 1 encoder-side (motor encoder)" • "P-0-0124, Gear 2 load-side (optional encoder)" / "P-0-0125, Gear 2 encoder-side (optional encoder)" • "S-0-0121, Input revolutions of load gear"/ "S-0-0122, Output revolutions of load gear"
Position data reference of an absolute encoder incorrect	Execute "P-0-0012, C0300 Command Set absolute measuring"

See also Functional Description of firmware " Velocity Control with Cyclic Command Value Input".

F2036 - Attributes

Display: F2036

Ident N°: F2036

8.7.26 F2037 Excessive position command difference

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

When the drive is running in the operating mode "position control with cyclic command value input", the incoming position command values (cf. "S-0-0047, Position command value") are monitored. If the position difference between two successive position command values is greater than or equal to the value in "S-0-0091, Bipolar velocity limit value", the position command value monitor is activated and the error F2037 is generated.

The excessive position command value is stored in parameter "P-0-0010, Excessive position command value".

The last valid position command value is stored in parameter "P-0-0011, Last valid position command value".

Cause	Remedy
Value in "S-0-0091, Bipolar velocity limit value" too low.	Check and, if necessary, correct parameterization of "S-0-0091, Bipolar velocity limit value".
Incorrect command value set by control unit.	Contact control unit manufacturer or programmer.

See also Functional Description of firmware " Velocity Control with Cyclic Command Value Input".

F2037 - Attributes

Display: F2037
Ident N°: F2037

8.7.27 F2039 Maximum acceleration exceeded

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In cyclic position control the allowed acceleration limit value was exceeded.

The acceleration monitor can be switched off by means of "P-0-0556, Control word of axis controller".

Cause	Remedy
Value in "S-0-0138, Bipolar acceleration limit value" too low.	Check and, if necessary, correct parameterization of "S-0-0138, Bipolar acceleration limit value".
Incorrect command values set by control unit (position command values).	Contact control unit manufacturer or programmer.
Preset acceleration value was greater than value parameterized in "S-0-0138, Bipolar acceleration limit value".	Reduce acceleration value used • S-0-0042, Homing acceleration • S-0-0260, Positioning acceleration • P-0-0057, Return acceleration

F2039 - Attributes

Display: F2039
Ident N°: F2039

8.7.28 F2040 Device overtemperature 2 shutdown

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

A switch-off value for the second temperature sensor is stored in element 3 of parameter "P-0-4059, Electric type data of power section".

If parameter "P-0-0816, Amplifier temperature 2" exceeds the switch-off value, the error F2040 is generated and the device is switched off.

Error Messages

Cause	Remedy
Ambient temperature too high. Specified performance data are valid up to an ambient temperature of 40 C.	Reduce ambient temperature, e.g. by cooling the control cabinet.
Heat sink of device is dirty.	Clean heat sink
Convection is prevented by other components or mounting position in control cabinet.	Mount device vertically and provide sufficient space for ventilating heat sink.
Blower of device is defective.	Replace device

F2040 - Attributes

Display: F2040
Ident N°: F2040

8.7.29 F2042 Encoder 2: encoder signals incorrect

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The signals of the measuring system (encoder 2) are monitored with regard to their amplitudes and signal shape. If a signal (sin or cos) leaves the allowed range or if the signals are disturbed in such a way that a position error occurs, this error is generated.

☞ As the position is no longer generated correctly when this error is detected, it is necessary to initialize the encoder again.

Cause	Remedy
Defective encoder cable or cable shielding.	Check cable to measuring system and replace it, if necessary.
Encoder defective	Check measuring system and replace it, if necessary.
Faulty mounting of measuring head in the case of linear measuring systems.	Check mounting of measuring head and correct it, if necessary.
Measuring system dirty	Replace measuring system.
Hardware defect on control section of drive.	Replace control section or entire drive controller.

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

☞ When using an incremental encoder with square-wave signals, monitoring is carried out with regard to an unallowed edge.

With regard to the software the signals of a resolver are monitored for their level.

See also "E2075 Encoder 2: encoder signals disturbed".

F2042 - Attributes

Display: F2042
Ident N°: F2042

8.7.30 F2043 Measuring encoder: encoder signals incorrect

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The signals of the measuring system (measuring encoder) are monitored with regard to their amplitudes and signal shape. If a signal (e.g. sin or cos) leaves the allowed range or if the signals are disturbed in such a way that a position error occurs, this error is generated.

☞ As the position is no longer generated correctly when this error is detected, it is necessary to initialize the encoder again.

Cause	Remedy
Defective encoder cable or cable shielding	Check cable to measuring system and replace it, if necessary.
Encoder defective	Check measuring system and replace it, if necessary.
Faulty mounting of measuring head in the case of linear measuring systems.	Check mounting of measuring head and correct it, if necessary.
Measuring system dirty	Replace measuring system.
Hardware defect on control section of drive.	Replace control section or entire drive controller.

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

☞ When using an incremental encoder with square-wave signals, monitoring is carried out with regard to an unallowed edge.

See also "E2076 Measuring encoder: encoder signals disturbed".

F2043 - Attributes

Display: F2043
Ident N°: F2043

8.7.31 F2044 External power supply X15 error

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The external 24 V power supply for the digital I/Os at the optional module (HCC01) is monitored by the drive.

If the 24 V power supply is outside of the range of 19 V to 30 V, the error F2044 is generated.

Error Messages

Cause	Remedy
Temporary failures (voltage peaks) or voltage drops.	Use controlled power supply unit.
At least one of the inputs was connected with reversed polarity.	Check wiring incl. cable and correct it, if necessary.
At least one of the outputs has short circuit or is overloaded.	Check wiring incl. cable and remove short circuit, if necessary.
Voltage drops because motor brake applied.	Supply motor brake and interface with different power supply units, especially with long motor cables.

F2044 - Attributes

Display: F2044
Ident N°: F2044

8.7.32 F2048 Low battery voltage

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

☞ The battery was designed for a service life of 10 years in its installed state.

In the case of Rexroth motors of the MKD/MKE line, the absolute position information is maintained, by means of battery-buffered electronics in the motor feedback, even when the drive controller has been switched off. The battery voltage is checked in the transition command from parameter to operating mode during the initialization of the drive.

☞ As long as the drive is locked with a customer password, the error F2048 cannot be cleared!

CAUTION

Error when controlling motors and moving parts!

When the error occurs for the first time, the absolute encoder function is only guaranteed for approx. another **2 weeks**!

Replace battery immediately!

Cause	Remedy
Battery voltage has fallen below 3.1 V	Clear error and immediately arrange for and prepare replacement of battery (see instructions in Project Planning Manual for respective motor). **For replacement of battery observe warning notice below!**
Battery voltage has fallen below 2.8 V	Error cannot be cleared any longer. Battery must be replaced immediately (see instructions in Project Planning Manual for respective motor). **For replacement of battery observe warning notice below!**

DANGER

Lethal electric shock caused by live parts with more than 50 V!

⇒ The battery must be replaced with the control voltage switched on. The replacement of the battery may only be carried out by a qualified electrician.

If the control voltage is switched off after the battery was removed, the absolute position data reference gets lost. The position data reference then has to be reestablished.

See also Functional Description of firmware " Establishing the Position Data Reference".

F2048 - Attributes

Display: F2048
Ident N°: F2048

8.7.33 F2050 Overflow of target position preset memory

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In the case of drive-controlled positioning it is possible to preset a new positioning command value x(k+1) while the drive is moving to the target position of the last positioning command value x(k). The new positioning command value is stored in an input buffer (target position preset memory) and is not cleared until it has been accepted.

Cause	Remedy
There was an attempt to preset a new positioning command value x(k+2) while drive was moving to target position of positioning command value x(k)	Check command value in control unit and make sure that new positioning command value x(k+2) is only preset when positioning command value x(k+1) was accepted and drive moves to corresponding target position
Incorrect command value acceptance (toggling of "S-0-0346, Positioning control word") in control unit causes positioning command value to be accepted several times	Check control program and only toggle bit 0 of "S-0-0346, Positioning control word" once for each new positioning command value, because every change of the bit causes current positioning command value to be accepted.
Incorrect positioning mode for "approaching target" was set in "S-0-0346, Positioning control word".	Set positioning mode "immediately moving to new target" for "approaching target" in "S-0-0346, Positioning control word".

See also Functional Description of firmware " Drive-Controlled Positioning".

F2050 - Attributes

Display: F2050
Ident N°: F2050

8.7.34 F2051 No sequential block in target position preset memory

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In the case of the positioning block mode "sequential block without intermediate stop" the drive is monitoring whether a new positioning block is available in the target position preset memory when the target position has been reached.

Error Messages

Cause	Remedy
When target position of a sequential block has been reached, there is no new positioning block in target position preset memory	Preset sequential block in time (before target position has been reached)
Positioning block mode by mistake set to "sequential block without intermediate stop".	Check positioning block mode and switch off sequential block processing, if necessary ("S-0-0346, Positioning control word").

See also Functional Description of firmware " Drive-Controlled Positioning".

See also Functional Description of firmware " Positioning Block Mode".

F2051 - Attributes

Display: F2051

Ident N°: F2051

8.7.35 F2053 Incr. encoder emulator: pulse frequency too high

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The number of increments or lines output within the position loop cycle (Basic: TA = 500 µs, Advanced: TA = 250 µs) is monitored in the drive in order to make sure that the maximum allowed frequency of the incremental encoder signals of 1024 kHz is not exceeded; otherwise a position offset would be produced due to "lost increments".

☞ The maximum allowed frequency of the incremental encoder signals also has to be taken into account for dimensioning the subsequent evaluation electronics in the control unit!

Cause	Remedy
Resolution set in "P-0-0903, Encoder emulation resolution" is too high for existing travel velocity.	Reduce number of increments of incremental encoder emulator in "P-0-0903, Encoder emulation resolution" **- or -** Reduce travel velocity.

See also Functional Description of firmware " Incremental Encoder Emulation".

F2053 - Attributes

Display: F2053

Ident N°: F2053

8.7.36 F2054 Incr. encoder emulator: hardware fault

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

In the case of incremental encoder emulation, a check is run at the end of each output interval (= position loop clock) to find out whether all increments to be

output have been output before the next increment output is started. Exceeding the run time or hardware errors can cause overlapping that is detected during the check and signaled by the error message F2054.

Cause	Remedy
Run time internally exceeded	Switch off all functions not required (e.g. analog output). If this does not remove error, replace control section or entire drive controller and contact our service department.
Hardware error	Replace control section or entire drive controller and contact our service department.

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware Incremental Encoder Emulation.

F2054 - Attributes

Display: F2054
Ident N°: F2054

8.7.37 F2055 External power supply X31/X32 error

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In the case of "High" control of one or several digital outputs of the interfaces X31/X32 at the drive controller (assigned in "P-0-0300, Digital I/Os, assignment list"), there is no "High" signal (+DC24 V) output.

Cause	Remedy
Output or outputs are overloaded **Only IndraDrive Mi as of firmware MPB05V06:** Overloaded outputs are switched off to avoid hardware defect	Reduce load of output
24V supply of interface X31/X32 has not been connected	Connect 24V supply
Short-circuited output or outputs	Remove short circuit/short circuits

See also Functional Description of firmware "Digital Inputs/Outputs"

F2055 - Attributes

Display: F2055
Ident N°: F2055

8.7.38 F2057 Target position out of travel range

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In operating modes with internal position command value generation a check is run, before a movement is carried out, in order to find out whether the preset target position ("S-0-0258, Target position", "S-0-0282, Positioning command value" or "P-0-4006, Positioning block target position"[i]) is within the allowed travel range of the drive. The error F2057 was generated because the preset target position is outside of the allowed travel range.

The allowed travel range of the drive is defined by

- S-0-0049, Positive position limit value
- S-0-0050, Negative position limit value

The position limit value monitor and thus the monitoring of the allowed travel range is activated/deactivated in "S-0-0055, Position polarities".

The reaction to a travel range error can be set in "P-0-0090, Travel range limit parameter".

Cause	Remedy
Position limit values ("S-0-0049, Positive position limit value", "S-0-0050, Negative position limit value") incorrectly parameterized.	Check parameterization of position limit values and adjust it according to desired travel range ("S-0-0049, Positive position limit value" has to be greater than "S-0-0050, Negative position limit value").
Position limit value monitor has been activated although it is not needed.	Deactivate position limit value monitor if it is not needed (e.g. in modulo operation).
In the case of relative interpolation, value for travel range was set too high or several travel ranges that are added cause effective target position (cf. "P-0-0050, Effective target position") to be outside of position limits.	Check travel range (cf. "S-0-0258, Target position") and, if necessary, adjust it in control unit program.
In the case of absolute interpolation, preset target position is incorrect.	Check preset target position (cf. "S-0-0258, Target position" or "S-0-0282, Positioning command value") and, if necessary, adjust it in control unit program (only enter "S-0-0258, Target position" within position limit values).
In "positioning block mode" one or more target positions have been incorrectly parameterized or incorrect positioning block is selected	Check parameterized target positions in "P-0-4006, Positioning block target position" and block selection ("P-0-4026, Positioning block selection"). In addition, check block selection via respective master communication (e.g. field bus or digital I/Os).

See also Functional Description of firmware " Position Limitation/Travel Range Limit Switch".

For "relative interpolation" see Functional Description of firmware "Drive-Controlled Positioning".

For "absolute interpolation" see Functional Description of firmware "Drive-Internal Interpolation".

F2057 - Attributes

Display: F2057

Ident N°: F2057

8.7.39 F2058 Internal overflow by positioning input

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

In operating modes that are using the internal path generator (interpolation, positioning, positioning block mode and spindle positioning), the residual path to be traveled and the braking distance are monitored to find out whether the numeric range is exceeded.

Cause	Remedy
Due to command value input a residual path was generated that is greater than 2^31. **Note:** As the internal position resolution is determined by the travel range (from -travel range to +travel range the resulting max. distance is less than 2^31), this can only occur with axes with modulo scaling. In this case only if relative distances are stringed together several times without the axis being able to follow.	Check command value input, positioning velocity or potentiometer value
Calculated braking distance is greater than 2^31	Increase "S-0-0278, Maximum travel range" **– or -** Increase deceleration in "S-0-0359, Positioning deceleration", "S-0-0372, Drive Halt acceleration bipolar" or "P-0-4063, Positioning block deceleration".

F2058 - Attributes

Display: F2058

Ident N°: F2058

8.7.40 F2059 Incorrect command value direction when positioning

Validity

Contained in 02VRS: «-» «-» «-»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

In the operating modes "drive-controlled positioning" and "positioning block mode" it is possible to jog the axis in both directions and preset relative distances in both directions.

If "S-0-0076, Position data scaling type" was set in such a way that the position data of the axis are to be processed in modulo format and positive or negative rotational direction was selected in "S-0-0393, Command value mode", a command value in the wrong direction causes error F2059 to be generated.

Cause	Remedy
In operating mode "drive-controlled positioning", target position points to wrong direction.	Check relative positioning input ("S-0-0282, Positioning command value")
Rotational direction of "modulo axis" incorrectly parameterized for drive-controlled positioning procedures	Check command value mode that was set ("S-0-0393, Command value mode")
In operating mode "positioning block mode", target position points to wrong direction.	Check relative positioning input ("P-0-4006, Positioning block target position").
You are trying to jog in wrong direction.	Jogging only in allowed rotational direction ("S-0-0346, Positioning control word")

See also Functional Description of firmware:

- " Drive-Controlled Positioning"
- " Positioning Block Mode"

F2059 - Attributes

Display: F2059
Ident N°: F2059

8.7.41 F2063 Internal overflow master axis generator

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The residual path to be traveled and the braking distance are monitored to find out whether the numeric range is exceeded.

Cause	Remedy
Braking distance of axis is greater than position value range that can be displayed. Deceleration value that was set ("P-0-0771, Virtual master axis, positioning acceleration") is too low.	Increase "P-0-0771, Virtual master axis, positioning acceleration"
Braking distance of axis is greater than position value range that can be displayed. Velocity value that was set ("P-0-0770, Virtual master axis, positioning velocity") is too high.	Reduce "P-0-0770, Virtual master axis, positioning velocity"

F2063 - Attributes

Display: F2063
Ident N°: F2063

8.7.42 F2064 Incorrect cmd value direction master axis generator

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

With the internal master axis generator it is possible to jog the virtual master axis in both directions and preset relative distances in both directions.

Cause	Remedy
Due to setting in "P-0-0756, Virtual master axis, scaling type", position data of virtual master axis are to be processed in modulo format and positive or negative rotational direction was selected in "P-0-0769, Virtual master axis, command value mode". Input command value leads to wrong direction.	Input command value direction according to parameter setting in "P-0-0769, Virtual master axis, command value mode".

F2064 - Attributes

Display: F2064
Ident N°: F2064

8.7.43 F2067 Synchronization to master communication incorrect

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive control is synchronized to the bus interface (SERCOS, Profibus, Interbus, ...) via two phase control loops (**P**hase **L**ocked **L**oop - PLL). The correct function of the synchronization is monitored by monitoring the respective control deviation of the two PLLs for an allowed threshold. When the threshold is exceeded this error message is generated.

Cause	Remedy
Interference injection due to incorrect connection of master communication cause synchronization problems.	Check connection of master communication (incl. shield connection) and correct it, if necessary.
Synchronization clock of master oscillates very much due to software or hardware error in master (e.g. jitter of MST with SERCOS).	Check field bus master and make sure synchronization clock is good and constant.
Master communication hardware of drive controller is defective (e.g. optional SERCOS card).	Replace control section or entire drive controller.

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware " Master Communication".

F2067 - Attributes

Display: F2067
Ident N°: F2067

8.7.44 F2069 Error when releasing the motor holding brake

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the automatic check of the holding brake ("P-0-0525, Holding brake control word"), after drive enable or after the start of the "P-0-0541, C2100 Brake check command" the motor did not move, although half the holding torque was produced.

The result of the brake check is displayed in "P-0-0539, Holding brake status word".

Cause	Remedy
Motor brake (servo brake) was not or incorrectly connected.	Connect brake or correct connection
Axis is mechanically blocked	Check mechanical system and remove blocking

Error Messages

Cause	Remedy
Brake is defective	Check and, if necessary, replace brake
Brake supply error	Check voltage
Friction torque of axis is greater than test torque of drive.	Deactivate brake check ("P-0-0525, Holding brake control word") because it cannot be used due to mechanical properties.

F2069 - Attributes

Display: F2069
Ident N°: F2069

8.7.45 F2074 Actual pos. value 1 outside absolute encoder window

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When turning off a drive with an encoder that can be evaluated in absolute form, the current actual position will be stored in the drive. When switching the drive on again the current position is compared with the position stored when the drive was switched off the last time. If the deviation is greater than the value in "P-0-0095, Absolute encoder monitoring window for motor encoder" the F2074 error message is generated.

The monitoring function can be switched off by "P-0-0095, Absolute encoder monitoring window for motor encoder" = "0".

Cause	Remedy
While turned off, axis was moved further than distance contained in "P-0-0095, Absolute encoder monitoring window for motor encoder".	Make sure displayed position is correct in relation to machine zero point Then clear error and, if necessary, reestablish position data reference.
Value entered in "P-0-0095, Absolute encoder monitoring window for motor encoder" is too low for existing encoder resolution so that normal encoder jitter will already cause monitor to be triggered.	Check parameterization of "P-0-0095, Absolute encoder monitoring window for motor encoder" and increase monitoring window.
Switching on without reference (in the case of initial commissioning or caused, for example, by changing parameters that characterize mechanical system or influence position evaluation).	Clear error and establish position data reference
Switching on without reference(after replacing motor or motor encoder).	Clear error and establish position data reference
Amplifier replaced without parameter update	Clear error and establish position data reference
Parameters of mechanical system changed (gear, feed constant, ...)	Clear error and establish position data reference
Motor encoder defective	Replace motor or motor encoder

WARNING

Danger of accident by unintended axis motion!

⇒ Check position data reference. The encoder is defective if the position data reference is incorrect! Replace the motor and send it to the manufacturer's service department for inspection.

F2074 - Attributes

Display: F2074
Ident N°: F2074

8.7.46 F2075 Actual pos. value 2 outside absolute encoder window

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When turning off a drive with an external encoder that can be evaluated in absolute form, the current actual position will be stored in the drive. When switching the drive on again the current position is compared with the position stored when the drive was switched off the last time. If the deviation is greater than the value in "P-0-0096, Absolute encoder monitoring window for opt. encoder" the F2075 error message is generated.

The monitoring function can be swithced off by "P-0-0096, Absolute encoder monitoring window for opt. encoder".

Cause	Remedy
While turned off, axis was moved further than distance contained in "P-0-0096, Absolute encoder monitoring window for opt. encoder".	Make sure displayed position is correct in relation to machine zero point Then clear error and, if necessary, reestablish position data reference.
Value entered in "P-0-0096, Absolute encoder monitoring window for opt. encoder" is too low for existing encoder resolution so that normal encoder jitter will already cause monitor to be triggered.	Check parameterization of "P-0-0096, Absolute encoder monitoring window for opt. encoder" and increase monitoring window.
Switching on without reference (in the case of initial commissioning or caused, for example, by changing parameters that characterize mechanical system or influence position evaluation).	Clear error and establish position data reference.
Encoder defective or encoder replacemen.	Replace encoder, clear error and establish position data reference.
Amplifier replaced without parameter update.	Clear error and establish position data reference.
Parameters of mechanical system changed (gear, feed constant, ...).	Clear error and establish position data reference.

WARNING

Danger of accident by unintended axis motion!

⇒ Check position data reference. The encoder is defective if the position data reference is incorrect! Replace the encoder and send it to the manufacturer's service department for inspection.

F2075 - Attributes

Display: F2075
Ident N°: F2075

8.7.47 F2076 Actual pos. value 3 outside absolute encoder window

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When turning off a drive with a measuring encoder that can be evaluated in absolute form, the current actual position will be stored in the drive. When switching the drive on again the current position is compared with the position stored when the drive was switched off the last time. If the deviation is greater than the value in "P-0-0097, Absolute encoder monitoring window for measuring encoder" the F2076 error message is generated.

The monitoring function can be switched off by "P-0-0097, Absolute encoder monitoring window for measuring encoder" = "0".

Cause	Remedy
While turned off, axis was moved further than distance contained in "P-0-0097, Absolute encoder monitoring window for measuring encoder".	Make sure displayed position is correct in relation to machine zero point Then clear error and, if necessary, reestablish position data reference.
Value entered in "P-0-0097, Absolute encoder monitoring window for measuring encoder" is too low for existing encoder resolution so that normal encoder jitter will already cause monitor to be triggered.	Check parameterization of "P-0-0097, Absolute encoder monitoring window for measuring encoder" and increase monitoring window.
Switching on without reference(in the case of initial commissioning or caused, for example, by changing parameters that characterize mechanical system or influence position evaluation).	Clear error and establish position data reference.
Encoder defective or encoder replacement.	Replace encoder, clear error and establish position data reference.
Amplifier replaced without parameter update.	Clear error and establish position data reference.
Parameters of mechanical system changed (gear, feed constant, ...)	Clear error and establish position data reference.

WARNING

Danger of accident by unintended axis motion!

⇒ Check position data reference. The encoder is defective if the position data reference is incorrect! Replace the encoder and send it to the manufacturer's service department for inspection.

F2076 - Attributes

Display: F2076
Ident N°: F2076

8.7.48 F2077 Current measurement trim wrong

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

The current measurement in the drive controller is adjusted in operation. The adjust values are checked for compliance with the allowed tolerance. If the values are higher the error message F2077 is generated.

Cause	Remedy
Hardware of control section or power section defective.	Replace power section or control section resp. entire drive controller.

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section or the power section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

F2077 - Attributes

Display: F2077
Ident N°: F2077

8.7.49 F2086 Error supply module

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

This error is signaled by the supply to the drives via the module bus. It has high priority and...

- causes error reaction in the drives in operation. The error message is displayed at these drives.
- causes power of the supply unit to be switched off or the Bb contact of converters to open (requires assignment of respective bit "P-0-0861, Status word of power section" to digital output!) and possibly causes DC bus short circuit (requires corresponding wiring!).

This error can also have been caused by a fatal drive error that was signaled to the supply via the module bus. The respective settings must be made in "P-0-0118, Power supply, configuration".

Cause	Remedy
Failure in power supply or overload of power supply.	Check power supply
Fatal error message of one or several drives of a drive system and message signaled to supply (configuration P-0-0118).	Identify drive or drives signaling a fatal error. Remove cause of error at respective drive or drives.

See also Functional Description of firmware " Power Supply".

F2086 - Attributes

Display: F2086
Ident N°: F2086

8.7.50 F2087 Module group communication error

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Error Messages

Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

Cause	Remedy
Failure of control voltage supply of a module bus node while the "drive system" is ready for power output or in operation.	Supply all devices of "drive system" with control voltage.
Disturbance on module bus	Identify and remove sources of disturbance
Incorrect signal timing on module bus	Identify and replace faulty device.
Module bus cable defective	Identify and replace defective module bus cable, replace device, if necessary.

See also Functional Description of firmware " Power Supply".

F2087 - Attributes

Display: F2087
Ident N°: F2087

8.7.51 F2100 Incorrect access to command value memory

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

An error occurred when accessing the flash/internal memory.

Cause	Remedy
Failure occurs sporadically (firmware error)	Clear error and contact our service department for firmware update.
Hardware in control section is defective	Should error occur repeatedly, control section or entire drive has to be replaced.

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

F2100 - Attributes

Display: F2100
Ident N°: F2100

8.7.52 F2101 It was impossible to address MMC

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When accessing the Multi Media Card (MMC) an error occurred.

Cause	Remedy
Failure occurs sporadically (firmware error)	Clear error and contact our service department in order to get a firmware update
MMC has not been plugged in correctly or is defective	Clear error and check MMC or plug it in correctly. If error occurs again when MMC is accessed, MMC has to be replaced.
MMC slot in control section is defective	Clear error and check MMC slot. If error occurs again when MMC is accessed, control section or entire drive controller has to be replaced.

See also Functional Description of firmware "MultiMediaCard (MMC)"

F2101 - Attributes

Display: F2101
Ident N°: F2101

8.7.53 F2102 It was impossible to address I2C memory

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When addressing a memory via the I^2C bus an error occurred.

Cause	Remedy
Failure occurs sporadically (firmware error)	Clear error and contact our service department in order to get a firmware update.
Encoder cable defective or bad shielding	Clear error. Replace defective encoder cable or improve shielding.
Encoder memory or encoder electronics is defective.	Clear error. Replace encoder or motor
Hardware defect on control section	Replace control section or entire drive controller

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware "Measuring Systems"

F2102 - Attributes

Display: F2102
Ident N°: F2102

8.7.54 F2103 It was impossible to address EnDat memory

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When addressing a memory via the EnDat bus an error occurred.

Error Messages

Cause	Remedy
Failure occurs sporadically (firmware error)	Clear error and contact our service department in order to get a firmware update.
Encoder cable defective or bad shielding	Clear error. Replace defective encoder cable or improve shielding.
Encoder memory or encoder electronics is defective	Clear error. Replace encoder or motor.
Hardware defect on control section	Replace control section or entire drive controller.

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware " Measuring Systems".

F2103 - Attributes

Display: F2103
Ident N°: F2103

8.7.55 F2104 Commutation offset invalid

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The commutation offset value stored in the motor encoder memory was detected to be invalid.

☞ The motor mustn't be operated without valid commutation offset!

Cause	Remedy
Failure occurs sporadically (firmware error)	Clear error. Then execute command "P-0-0524, C1200 Commutation offset setting command"; if error occurs again contact our service department in order to get a firmware update.
Encoder memory or encoder electronics is defective	Clear error. Replace encoder or motor. Then execute command "P-0-0524, C1200 Commutation offset setting command".

See also Functional Description of firmware " Commutation Setting".

F2104 - Attributes

Display: F2104
Ident N°: F2104

8.7.56 F2105 It was impossible to address Hiperface memory

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When addressing a memory via the HIPERFACE bus an error occurred.

Cause	Remedy
Failure occurs sporadically (firmware error)	Clear error and contact our service department in order to get a firmware update.
Encoder cable defective or bad shielding	Clear error. Replace defective encoder cable or improve shielding.
Encoder memory or encoder electronics is defective	Clear error. Replace encoder or motor.
Hardware defect on control section	Replace control section or entire drive controller.

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual of the power section, the saving and loading of the parameters is explained in the Functional Description of the firmware.

See also Functional Description of firmware " Measuring Systems".

F2105 - Attributes

Display: F2105
Ident N°: F2105

8.7.57 F2110 Error in non-cyclical data communic. of power section

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

An error occurred in the communication between control section and power section.

Cause	Remedy
Failure occurs sporadically (firmware error)	Clear error and contact our service department for firmware update
Hardware defective	Should error occur repeatedly, control section or entire device has to be replaced

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

F2110 - Attributes

Display: F2110
Ident N°: F2110

8.7.58 F2120 MMC: defective or missing, replace

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»

Error Messages

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

Due to the setting in "P-0-4070, Parameter storage configuration" or due to the drive (a distributed servo drive KSM[1)] is used), it is necessary to have an MMC. The MMC is checked during the initialization phase; an error occurred during the check.

The drive only runs up to communication phase 2 and refuses further phase progression.

Communication via the SERCOS interface, however, and thereby the reading of the error message are ensured.

Cause	Remedy
It was impossible to address MMC	Check whether MMC was plugged in and that it has been correctly inserted **- or -** MMC might possibly be defective, replace it by another one
"Programming module mode" was set via P-0-4070, but MMC hasn't been plugged	Change parameter storage configuration to "init/update medium" (P-0-4070=0)

F2120 - Attributes

Display: F2120

Ident N°: F2120

8.7.59 F2121 MMC: incorrect data or file, create correctly

Validity

Contained in 02VRS: «-» «-» «-»

Contained in 03VRS: «-» «-» «-»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The distributed servo drive KSM (component of the drive system Rexroth IndraDrive Mi) is only ready for operation with the MMC having been plugged. The MMC is checked during the initialization phase; an error occurred during the check.

The drive only runs up to communication phase 2 and refuses further phase progression.

Communication via the SERCOS interface, however, and thereby the reading of the error message are ensured.

Cause	Remedy
MMC itself is alright, but directories, files or data on the MMC are faulty or missing. Particularly firmware, parameters and retain data must be available.	Copy contents of previously made backup copy to MMC (see also "Project Planning Manual", "Rexroth IndraDrive Mi": "MMC")

F2121 - Attributes

Display: F2121

Ident N°: F2121

1) Component of the drive system Rexroth IndraDrive Mi

8.7.60 F2122 MMC: incorrect IBF file, correct it

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The distributed servo drive KSM (component of the drive system Rexroth IndraDrive Mi) is only ready for operation with the MMC having been plugged. The MMC is checked during the initialization phase; an error occurred during the check.

The drive only runs up to communication phase 2 and refuses further phase progression.

Communication via the SERCOS interface, however, and thereby the reading of the error message are ensured.

Cause	Remedy
In "Firmware" folder, operation firmware (file with extension ".ibf") is missing or more than on file with extension ".ibf" was found	Check and correct MMC and "Firmware" folder with appropriate reader
Operation firmware is defective **Note:** Writing the MMC takes a relatively long time. If you do not wait until end of writing process, file with operation firmware on MMC is not complete and it will be detected as being defective. **Tip:** For firmware update, it is necessary to replace file with extension ".ibf" (operation firmware); it is strongly recommended that you do not delete operation firmware, but rename file extension, e.g. from ".ibf" to ".ibx". In any case, you should make a backup copy of current operation firmware.	Order firmware again; transmission error might possibly have occurred. Afterwards, copy firmware to MMC again. **- or -** Copy functioning operation firmware either from backup copy or from another MMC to defective MMC

F2122 - Attributes

Display: F2122
Ident N°: F2122

8.7.61 F2123 Retain data backup impossible

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The distributed servo drive KSM (component of the drive system Rexroth IndraDrive Mi) is only ready for operation with the MMC having been plugged. The MMC is checked during the initialization phase.

In addition, important operating data, such as the current position, operating time, travel block etc., are stored when the controller is switched off. If this storing process is faulty, it is impossible to continue operation after the next switch-on in such a way as if there hadn't been any interruption; for example, the motor loses its reference in the case of faulty retain data backup. To make sure that the retain data backup works faultlessly, such a data backup is carried out for test purposes during the initialization phase.

The drive only runs up to communication phase 2 and refuses further phase progression.

Communication via the SERCOS interface, however, and thereby the reading of the error message are ensured.

Cause	Remedy
Backup of retain data for test purposes was terminated with an error	Hardware specifications of MMC used might possibly be so near to limits that this (quick) write access did not work. Replace MMC by original factory-provided one.
Temporary failure might possibly have occurred	Switch off and on again
Hardware or software defect	Read logbook and forward entry to service department

F2123 - Attributes

Display: F2123
Ident N°: F2123

8.7.62 F2124 MMC: saving too slowly, replace

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In the booting phase of the drive, a backup of the retain data on the MMC is tested. The error F2124 is generated, because the storage process takes more than 50 ms.

Cause	Remedy
Storage process of MMC is too slow (e.g. slowed storage for reasons of aging)	Replace MMC

F2124 - Attributes

Display: F2124
Ident N°: F2124

8.7.63 F2130 Error comfort control panel

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

An error occurred in the communication with the comfort control panel (VCP01):

- "reset" couldn't be carried out
- error during download of application or firmware
- communication to control panel disturbed

Cause	Remedy
Communication disturbed	Remove EMC problems; check shielding of controller
Firmware / application problem	Replace firmware and / or application on control panel; replace drive firmware

Cause	Remedy
Control panel defective	Replace control panel
Control section defective	Should error occur repeatedly, control section or entire drive has to be replaced

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

F2130 - Attributes

Display: F2130
Ident N°: F2130

8.7.64 F2140 CCD slave error

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «MPH» «-»
Contained in 05VRS: «-» «MPH» «-»
Supported by supply unit: «-»

An error occurred in a CCD slave.

Cause	Remedy
An F2 or F3 error occurred in a CCD slave and "error reaction active" has been set in "P-0-1600, CCD: configuration".	Locate faulty slave and remove cause of error for this slave.
An F8 error occurred in a CCD slave and "best possible deceleration" has been set in "P-0-1600, CCD: configuration" as reaction to an F8 error.	Locate faulty slave and remove cause of error for this slave.
Faulty command triggering of a remote axis (Axis2) in MLD-M master. (For example, motion function block "MC_MoveRelative" with "Acceleration"=0).	Locate faulty function block and remove error by means of function block error outputs.

See also Functional Description of firmware " Cross Communication (CCD)".

F2140 - Attributes

Display: F2140
Ident N°: F2140

8.7.65 F2150 MLD motion function block error

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

During command triggering with a motion function block an error occurred.

☞ The reaction to errors can be configured.

☞ The error message F2150 is available as of firmware MPx04V10.

Error Messages

Cause	Remedy
Faulty command triggering in MLD-S (single-axis application) **- or -** Faulty command triggering of local axis (axis1) in MLD-M master. (For example, motion function block such as "MC_MoveRelative" with "Acceleration"=0).	Locate faulty function block and remove error by means of function block error outputs.

See also Application Manual Rexroth IndraMotion MLD " Error Handling of IndraMotion MLD".

F2150 - Attributes

Display: F2150
Ident N°: F2150

8.7.66 F2174 Loss of motor encoder reference

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In the case of absolute encoder evaluation, the validity of the initialized absolute position is checked during position initialization. If the controller detects that the position data reference of the encoder cannot be established any more due to changes of the mechanical system parameters or due to replacement of encoder or device, the actual position value status ("S-0-0403, Position feedback value status") goes to "relative" and the error F2174 is generated.

Cause	Remedy
Switching on without reference (in the case of initial commissioning or caused, for example, by changing parameters that characterize mechanical system or influence position evaluation).	Clear error and reestablish position data reference.
Switching on without reference (after replacing motor or motor encoder)	Clear error and establish position data reference.
Motor encoder defective	Replace motor or motor encoder, clear error and establish position data reference.
Parameters of mechanical system changed (gear, feed constant, ...)	Clear error and establish position data reference.
Amplifier replaced without parameter update	Clear error and establish position data reference
Switching on without reference after replacement of device with loaded axis-specific parameter values (according to list from "S-0-0192, IDN-list of backup operation data").	Clear error and establish position data reference **- or -** Clear error, then load parameter values of "P-0-0195, IDN list of retain data (replacement of devices)", if it was possible to save them immediately before device was replaced. Check reestablished position data reference for correctness.

F2174 - Attributes

Display: F2174
Ident N°: F2174

8.7.67 F2175 Loss of optional encoder reference

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In the case of absolute encoder evaluation, the validity of the initialized absolute position is checked during position initialization. If the controller detects that the position data reference of the encoder cannot be established any more due to changes of the mechanical system parameters or due to replacement of encoder or device, the actual position value status ("S-0-0403, Position feedback value status") goes to "relative" and the error F2175 is generated.

Cause	Remedy
Switching on without reference (in the case of initial commissioning or caused, for example, by changing parameters that characterize mechanical system or influence position evaluation).	Clear error and reestablish position data reference.
Switching on without reference (after replacement of encoder).	Clear error and establish position data reference.
Optional encoder defective.	Replace encoder, clear error and establish position data reference.
Parameters of mechanical system changed (gear, feed constant, ...).	Clear error and establish position data reference.
Amplifier replaced without parameter update.	Clear error and establish position data reference.
Switching on without reference after replacement of device with loaded axis-specific parameter values (according to list from "S-0-0192, IDN-list of backup operation data").	Clear error and establish position data reference **- or -** Clear error, then load parameter values of "P-0-0195, IDN list of retain data (replacement of devices)", if it was possible to save them immediately before device was replaced. Check reestablished position data reference for correctness.

F2175 - Attributes

Display: F2175
Ident N°: F2175

8.7.68 F2176 Loss of measuring encoder reference

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When the controller is switched on, it determines, in the case of absolute encoder evaluation, the initial position of the measuring system (position initialization) and checks its validity. If the controller detects that the position data reference of the encoder cannot be established any more due to changes of the mechanical system parameters or due to replacement of encoder or device, the actual position value status ("S-0-0403, Position feedback value status") goes to "relative" and this diagnostic message is generated.

Error Messages

Cause	Remedy
Switching on without reference (in the case of initial commissioning or caused, for example, by changing parameters that characterize mechanical system or influence position evaluation).	Clear error and establish position data reference.
Encoder defective	Replace measuring encoder, clear error and establish position data reference.
Switching on without reference (after replacement of measuring encoder).	Clear error and establish position data reference.
Controller replaced without parameter update.	Clear error and establish position data reference.

F2176 - Attributes

Display: F2176
Ident N°: F2176

8.7.69 F2177 Modulo limitation error of motor encoder

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

With active modulo scaling the drive limits its actual position values to the values parameterized in "S-0-0103, Modulo value", otherwise to the value parameterized in "S-0-0278, Maximum travel range". As these values possibly cannot be exactly displayed, the corresponding recalculation of the systematic errors in the case of position overflow takes place in the drive.

In the ideal case "S-0-0278, Maximum travel range" is set in such a way that the drive always is within the defined travel range and there is no overflow.

Cause	Remedy
"S-0-0103, Modulo value" or "S-0-0278, Maximum travel range" have been incorrectly parameterized and not adjusted to the application.	Check and, if necessary, correct "S-0-0103, Modulo value" or "S-0-0278, Maximum travel range".
Drive was moved as rapidly that recalculation no longer works correctly.	Reduce drive velocity at position overflow.

F2177 - Attributes

Display: F2177
Ident N°: F2177

8.7.70 F2178 Modulo limitation error of optional encoder

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

According to scaling, the drive limits the actual position values to the maximum travel range or to the modulo value. As these values possibly cannot be exactly displayed the corresponding recalculation of the errors takes place in the drive.

Cause	Remedy
Encoder speed was so high that recalculation no longer works correctly.	Reduce encoder speed **- or –** change "S-0-0103, Modulo value"

F2178 - Attributes

Display: F2178
Ident N°: F2178

8.7.71 F2179 Modulo limitation error of measuring encoder

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

With active modulo scaling the drive limits its actual position values to the values parameterized in "S-0-0103, Modulo value", otherwise to the value parameterized in "S-0-0278, Maximum travel range". As these values possibly cannot be exactly displayed, the corresponding recalculation of the systematic errors in the case of position overflow takes place in the drive.

In the ideal case "S-0-0278, Maximum travel range" is set in such a way that the drive always is within the defined travel range and there is no overflow.

Cause	Remedy
"S-0-0103, Modulo value" or "S-0-0278, Maximum travel range" have been incorrectly parameterized and not adjusted to the application.	Check and, if necessary, correct "S-0-0103, Modulo value" or "S-0-0278, Maximum travel range"
Drive was moved as rapidly that recalculation no longer works correctly.	Reduce drive velocity at position overflow.

F2179 - Attributes

Display: F2179
Ident N°: F2179

8.7.72 F2190 Incorrect Ethernet configuration

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the initialization of the drive, the parameterization of the interfaces for Ethernet communication is checked. An error was detected during this check.

Error Messages

Cause	Remedy
Configuration of parameters for Ethernet communication (TCP/IP) is not allowed; IP address and gateway address are not in the same IP network	Set parameters for Ethernet communication (TCP/IP) to valid values: • P-0-1531, Control section IP address • P-0-1532, Control section network mask • P-0-1533, Control section gateway address Additionally as of MPx05VRS: • P-0-1641, CCD: IP address • P-0-1642, CCD: network mask • P-0-1643, CCD: gateway address • S-0-1020, Master communication: IP address • S-0-1021, Master communication: network mask • S-0-1022, Master communication: gateway address
Due to storage problems, internal configuration of IP stack was inadmissibly terminated	Due to a hardware problem, it is necessary to replace control section

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

F2190 - Attributes

Display: F2190
Ident N°: F2190

8.7.73 F2260 Command current limit shutoff

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

The drive first reacts with the warning "E8260 Torque/force command value limit active" to the triggering of the current command value limitation.

If the current limitation is active for more than 1.5 seconds, the drive reacts with a drive error, when this has been parameterized in "P-0-0556, Config word of axis controller".

Cause	Remedy
Error reaction to current limitation active	Check whether error reaction to current limitation is desired and, if necessary, deactivate error reaction to current limitation in "P-0-0556, Config word of axis controller"
Current limitation active	Remove cause of current limitation (see "E8260 Torque/force command value limit active")

F2260 - Attributes

Display: F2260
Ident N°: F2260

8.7.74 F2270 Analog input 1 or 2, wire break

Validity

Contained in 02VRS: «MPB» «-» «-»
Contained in 03VRS: «MPB» «-» «-»
Contained in 04VRS: «MPB» «-» «-»
Contained in 05VRS: «MPB» «-» «-»
Supported by supply unit: «-»

Conditions under which this error is triggered:

- The wire break monitor was activated in "P-0-0218, Analog input, control parameter" (by the setting for the measuring range of the analog inputs) and
- a setting in "P-0-0218, Analog input, control parameter" causes an error to be generated when the input value has fallen below the input value at analog input 1 or 2 and
- the current/voltage value at analog input 1 or 2 is lower than the minimum value of the measuring range.

☞ The value range of the voltage or current source that is connected to the analog input should be limited to the allowed value range of the analog input.

Cause	Remedy
Input value at analog input 1 or 2 is lower than minimum value of voltage measuring range (setting "voltage signals" in "P-0-0218, Analog input, control parameter"").	Check wiring of analog input, reestablish contact to voltage source, if necessary **- or –** Check value range of voltage source.
Input value at analog input 1 or 2 is lower than minimum value of current measuring range (setting "current signals" in "P-0-0218, Analog input, control parameter").	Check wiring of analog input, reestablish contact to current source, if necessary **- or –** Check value range of current source.

☞ This error message can only be displayed at a controller containing a CSB01.1N-FC-... (BASIC OPENLOOP) control section.

F2270 - Attributes

Display: F2270
Ident N°: F2270

8.7.75 F2802 PLL is not synchronized

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

Synchronization to the mains voltage is impossible.

Error Messages

Cause	Remedy
At least one phase is missing	Check and, if necessary, replace mains circuit breakers.
Mains voltage is too low	Measure mains voltage and compare it to allowed value range.
Mains frequency is outside of specified range	Measure mains frequency and compare it to allowed value range.

F2802 - Attributes

Display: F2802
Ident N°: F2802

8.7.76 F2814 Undervoltage in mains

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

The crest value of the mains voltage has fallen below the allowed minimum value (connection voltage range see documentation for HMV01.1).

Cause	Remedy
Mains voltage below minimum value	Use matching transformer

See also Functional Description of firmware " Power Supply".

F2814 - Attributes

Display: F2814
Ident N°: F2814

8.7.77 F2815 Overvoltage in mains

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

Cause	Remedy
Mains voltage is greater than maximum specified value (500 V +10%)	Check mains voltage. If necessary, use matching transformer.

F2815 - Attributes

Display: F2815
Ident N°: F2815

8.7.78 F2816 Softstart fault power supply unit

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

During the soft start process (charging of DC bus capacitance) the DC bus voltage curve is monitored. Great deviations suggest a defect in the power section and are diagnosed with the error F2816.

Cause	Remedy
Short circuit in DC bus	Check DC bus wiring, remove if there is a short circuit.
Load on DC bus	Check DC bus wiring; if an external braking resistor has been incorrectly connected, connect it correctly.
Insulation error in DC bus	Check DC bus wiring; if wiring is alright, there can be an insulation error within device or other devices connected to DC bus. To find defective device take connected devices out of drive system step by step (remove wiring).
Final value of DC bus voltage is not reached within a maximum time.	Check whether there is defect at load externally connected to DC bus.
Inadmissible voltage fluctuations in supply mains. Mains voltage has inadmissibly dropped during soft start process.	Check mains voltage
HMV01, HMV02: thermal overload of soft start circuit.	Check number of ON-OFF cycles.
Device is defective	Replace device

F2816 - Attributes

Display: F2816
Ident N°: F2816

8.7.79 F2817 Overvoltage in power section

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

When the warning E8025 is present for devices of the "HMV" type, the error "F2817 Overvoltage in power section" is generated after a certain length of time which depends on the hardware index of the device.

From the **hardware indices** listed below **upwards**, the error F2817 is generated **100 milliseconds** after the warning E8025 has been present:

- HMV02.1R-W0015: from hardware index A09 upwards
- HMV01.1R-W0018: from hardware index A43 upwards
- HMV01.1R-W0045: from hardware index A43 upwards
- HMV01.1R-W0065: from hardware index A43 upwards
- HMV01.1R-W0120: from hardware index A02 upwards
- HMV01.1E-W0030: from hardware index A33 upwards
- HMV01.1E-W0075: from hardware index A34 upwards
- HMV01.1E-W0120: from hardware index A36 upwards

For devices of the "HMV" type with **smaller hardware indices**, the error F2817 is generated **2 seconds** after the warning E8025 has occurred.

For supply units of the "HCS" type this error message does not exist.

☞ From the mentioned hardware indices upwards, the error can only be reset by switching the device off, in order to call attention to possible application errors [e.g. "coasting" of a synchronous motor at high speed (field weakening range) with a DC bus braking resistor value inadmissibly high for the motor].

Cause	Remedy
See "E8025 Overvoltage in power section"	See "E8025 Overvoltage in power section"

F2817 - Attributes

Display: F2817
Ident N°: F2817

8.7.80 F2818 Phase failure

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

A single-phase mains failure, which lasted for a longer time than the tolerated phase failure time, was detected for a supply unit of the HMV type.

Supply unit	Tolerated phase failure time
HMV01.1E	approx. 2 s
HMV01.1R, HMV02.1R	approx. 2 s

Fig.8-2: Tolerated phase failure times

Cause	Remedy
No mains voltage available	Check mains voltage and mains connection
Mains circuit breaker defective	Replace mains circuit breaker
Incorrect wiring	Check and correct wiring

F2818 - Attributes

Display: F2818
Ident N°: F2818

8.7.81 F2819 Mains failure

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

The mains has failed and the DC bus voltage has fallen below a threshold value.

HMV Supply Units

A mains failure, which lasted for a longer time than the tolerated mains failure time, was detected for a supply unit of the HMV type.

Supply unit	Tolerated mains failure time
HMV01.1E	approx. 750 ms
HMV01.1R	approx. 1000 ms
HMV02.1R	approx. 1000 ms

Fig.8-3: Tolerated mains failure times

☞ If the mains failure occurs at regenerative supply units during a regeneration process to the supply mains, the supply unit switches off immediately.

Cause	Remedy
Mains failure (permanent or temporary)	Search and remove cause of mains failure
Mains circuit breakers defective	Replace mains circuit breakers

See also Functional Description of firmware Power Supply.

F2819 - Attributes

Display: F2819
Ident N°: F2819

8.7.82 F2820 Braking resistor overload

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

Power was switched off due to possible overload of the braking resistor.

A load of 100% is displayed in "P-0-0844, Braking resistor load". If the braking resistor is defective or has not been connected, the DC bus voltage ("S-0-0380, DC bus voltage"), with regenerative operation (e.g. when decelerating), is increased beyond the switch-on threshold of the braking resistor (element No. 4 of "P-0-0858, Data of external braking resistor").

☞ If there hasn't any braking resistor been connected or the connected braking resistor has been deactivated (possible for HCS03, for example), this is displayed by the error F2820, too. A value of 100% is displayed in "P-0-0844, Braking resistor load", although in reality there isn't any load present or possible!

☞ After having eliminated the cause of the error, check the braking resistor for operatability!

Cause	Remedy
Allowed deceleration of connected drives too high.	Reduce deceleration of connected drives.
Energy absorption capacity of braking resistor is exhausted.	Switch power supply off with a delay in the case of drive OFF or E-STOP (for regenerative supply units) or reduce velocity.
Regenerated energy in machining cycle is too high.	Increase cycle time or reduce maximum velocity.

Error Messages

Cause	Remedy
Continuous regenerative power and/or rotary drive energy is too high.	Reduce maximum velocity or check dimensioning of braking resistor and, if necessary, increase dimensioning.
Braking resistor is defective or has not been connected.	For external braking resistor, visual check of wiring and resistor component. If necessary, correct wiring or replace braking resistor. If internal braking resistor is defective, replace device.

See also Functional Description of firmware " Power Supply".

F2820 - Attributes

Display: F2820
Ident N°: F2820

8.7.83 F2821 Error in control of braking resistor

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

☞ The error can occur for devices of both the HCS and the HMV type. There are different causes and remedies for both device types!

Devices of the HCS type

An error has occurred in the control of the **external** braking resistor.

Cause	Remedy
Control of braking resistor has detected inadmissibly high current.	Check braking resistor for correct resistance value. If necessary, use braking resistor with higher resistance value.
Terminal connectors for external braking resistor have been short-circuited.	Remove short circuit, connect braking resistor correctly, if necessary.

Devices of the HMV type

An error has occurred in the control of the **internal** braking resistor.

Cause	Remedy
Device is defective	Replace device

F2821 - Attributes

Display: F2821
Ident N°: F2821

8.7.84 F2825 Switch-on threshold braking resistor too low

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

For devices of the HCS type this error message is generated when the parameterized braking resistor reference switch-on voltage is too low. The braking resistor would already be active with correct DC bus voltage.

Cause	Remedy
This error message is generated for devices of type HCS when the value of the braking resistor reference switch-on voltage (list element 4 of "P-0-0858, Data of external braking resistor") activated via "P-0-0860, Control word of power section" is too low.	Increase value of 4th list element in "P-0-0858, Data of external braking resistor" **- or -** Select different reference value for ON-OFF switching voltage of braking resistor in "P-0-0860, Control word of power section".

F2825 - Attributes

Display: F2825
Ident N°: F2825

8.7.85 F2833 Ground fault in motor line

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

During the loading process of the DC bus a ground fault was detected in the motor line of one of the connected converters/inverters.

Cause	Remedy
Ground fault in a motor line within drive system **- or –** Ground fault in a controller of drive system	Take controllers of drive system successively out of device group on control voltage and power voltage side, until error no longer occurs. By doing this identify faulty drive. Check insulation of motor cable with measuring device. If motor cable is not defective, there is a device or connection error.

F2833 - Attributes

Display: F2833
Ident N°: F2833

8.7.86 F2834 Contactor control error

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

The mains contactor couldn't be switched on or dropped out during operation.

Cause	Remedy
Due to wiring or control error, contact "ZKS" ["DC bus short circuit"] (X32.8) or contact "Netz AUS" ["mains OFF"] (X32.6/ X32.7) was opened while contact "Netz EIN" ["mains ON"] (X32.4/X32.5) still had been close.	Check control. "Netz EIN" ("mains ON") has to be opened simultaneously with or before "ZKS" ("DC bus short circuit") and N"etz AUS" ("mains OFF").
Mains contactor could not be switched	Check wiring of interface. Check voltages at interfaces X32, X14 (HMV0x.xR) or at L1, L2 and L3 (HMV0x.xE).
Contactor control has detected an error	Replace device

Error Messages

F2834 - Attributes

Display: F2834
Ident N°: F2834

8.7.87 F2835 Mains contactor wiring error

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

For supply units of the HMV01 line which do not have an internal mains contactor you have to connect an external mains contactor with external switching voltage.

Cause	Remedy
No external mains contactor connected	Connect mains contactor
No external switching voltage for mains contactor connected	Check mains contactor wiring
External mains contactor defective	Replace mains contactor

See also documentation " Rexroth IndraDrive Supply Units".

F2835 - Attributes

Display: F2835
Ident N°: F2835

8.7.88 F2836 DC bus balancing monitor error

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

Unbalance was detected for supply unit HMV01.1 / converter HCS03 during the loading of the DC bus capacitances.

Cause	Remedy
F2836 is signaled during loading of DC bus ("soft start")	Replace device

F2836 - Attributes

Display: F2836
Ident N°: F2836

8.7.89 F2837 Contactor monitoring error

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

The contactor monitor in the contactor control has detected an error.

When the diagnostic message occurs at a supply unit with external mains contactor (e.g. HMV01.1R-W0120), it is impossible to reset the error via the control panel, if the cause of the message is a sticking contact of the mains contactor or the conversion relay. In this case, you have to switch the 24V supply off and on again after the cause of the error was removed.

Cause	Remedy
Mains contactor could not be switched	Check voltages • at interface X32, • at X14 (HMV01.1R, HMV02.1R) or at L1-L3 (HMV01.1E)
Contactor monitor has detected an error	Replace device

F2837 - Attributes

Display: F2837
Ident N°: F2837

8.7.90 F2840 Error supply shutdown

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

A component in the drive system demands the shutdown of power supply. The supply unit switches power off and signals F2840.

The supply units (as of listed HWIs) generate this diagnostic message in the status "bb", too, in order to, for example, activate the DC bus via the Bb1 contact (see "Control Circuits for the Mains Connection" in the Project Planning Manual of the drive system and "connection point X31" in the Project Planning Manual of HMV supply units).

Supply unit	Hardware index (HWI) (as per prototype phase MPx05)
HMV01.1E-W0030	A36
HMV01.1E-W0075	A37
HMV01.1E-W0120	A40
HMV01.1R-W0018	A48
HMV01.1R-W0045	A49
HMV01.1R-W0065	A50
HMV01.1R-W0120	A09
HMV02.1R-W0015	A14

Cause	Remedy
A second supply unit connected in parallel, a DC bus resistor unit or an inverter/converter signals an error in supply.	Remove cause of error at respective supply unit, DC bus resistor unit or inverter/converter; then clear error.

F2840 - Attributes

Display: F2840
Ident N°: F2840

8.7.91 F2860 Overcurrent in mains-side power section

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

For HMV01.1R The current in the mains-side power bridge has exceeded the maximum allowed value. The power supply is switched off.

Cause	Remedy
Mains choke incorrectly connected	Check mains choke
Mains choke missing or incorrectly projected	Check mains choke
Mains filter missing or incorrectly projected	Check mains filter
Device defective	Replace device

F2860 - Attributes

Display: F2860
Ident N°: F2860

8.7.92 F2890 Invalid device code

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

Cause	Remedy
Device defective	Replace device

F2890 - Attributes

Display: F2890
Ident N°: F2890

8.7.93 F2891 Incorrect interrupt timing

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

Cause	Remedy
Device defective	Replace device

F2891 - Attributes

Display: F2891
Ident N°: F2891

8.7.94 F2892 Hardware variant not supported

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

Cause	Remedy
Device defective	Replace device

F2892 - Attributes

Display: F2892
Ident N°: F2892

8.8 SERCOS Error Codes / Error Messages of Serial Communication

For some errors concerning serial communication, the error codes defined in the SERCOS interface specification are used (see "SERCOS interface Specification", chapter 4.3.2.3 "Service channel error messages"). These codes are also used in the case of incorrect access to control and system parameters.

Error code	Explanation
0x1001	No IDN
0x1009	Invalid access to element 1
0x2001	No name
0x2002	Name transmission too short
0x2003	Name transmission too long
0x2004	Name cannot be changed (read only)
0x2005	Name is write-protected at this time
0x3002	Attribute transmission too short
0x3003	Attribute transmission too long
0x3004	Attribute cannot be changed (read only)
0x3005	Attribute is write-protected at this time
0x4001	No units
0x4002	Unit transmission too short
0x4003	Unit transmission too long
0x4004	Unit cannot be changed (read only)
0x4005	Unit is write-protected at this time
0x5001	No minimum input value
0x5002	Minimum input value transmission too short
0x5003	Minimum input value transmission too long
0x5004	Minimum input value cannot be changed (read only)

Error Messages

Error code	Explanation
0x5005	Minimum input value is write-protected at this time
0x6001	No maximum input value
0x6002	Maximum input value transmission too short
0x6003	Maximum input value transmission too long
0x6004	Maximum input value cannot be changed (read only)
0x6005	Maximum input value is write-protected at this time
0x7002	Operation data transmission too short
0x7003	Operation data transmission too long
0x7004	Operation data cannot be changed (read only)
0x7005	Operation data is write-protected at this time (e.g. Communication phase)
0x7006	Operation data is smaller than the minimum input value
0x7007	Operation data is greater than the maximum input value
0x7008	Invalid operation data
0x7009	Operation data write protected by a password
0x700A	Operation data is write protected, it is configured cyclically (IDN is configured in the MDT or AT. Therefore writing via the service channel is not allowed).
0x700B	Invalid indirect addressing (e.g., data container, list handling)
0x700C	Operation data is write protected, due to other settings (e.g., parameter, operation mode, drive enable, drive on etc.)
0x7010	Procedure command already active
0x7011	Procedure command not interruptible
0x7012	Procedure command at this time not executable (e.g., in this phase the procedure command can not be activated).
0x7013	Procedure command not executable (invalid or false parameters)

Fig.8-4: Error specification according to SERCOS

9 Warnings (Exxxx)

9.1 Fatal Warnings (E8xxx)

9.1.1 E8025 Overvoltage in power section

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

The DC bus voltage is monitored. When the allowed maximum value is exceeded, the fatal warning E8025 is generated.

☞ The controller switches the motor to torque-free state in the case of overvoltage. If the DC bus voltage falls below the allowed maximum value again, the motor is switched on again.

☞ Only for HMV: If the warning E8025 persists for more than 2 seconds, the error "F2817 Overvoltage in power section" is generated.

Cause	Remedy
Energy regenerated to DC bus by mechanical machine system during braking process was so high that supply unit couldn't dissipate it during regeneration time. This caused DC bus voltage to rise to inadmissible value	Reduce regenerative power by lower acceleration values **– or –** Correct drive dimensioning **– or –** Dimension supply unit sufficiently with regard to braking energy requirements; if dimensioning of available braking resistor is insufficient, use additional braking resistor, if necessary
Mains supply voltage (alternating input voltage) too high	Check mains supply voltage (alternating voltage/3-phase)
No braking resistor connected or connection or cable defective	Connect braking resistor or check connection

E8025 - Attributes

Display: E8025
Ident N°: E8025

9.1.2 E8026 Undervoltage in power section

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The DC bus voltage value is monitored by the drive controller and the supply unit.

Drive Controllers HMS, HMD, HCS

If the DC bus voltage falls below the minimum value determined for the drive (see value of "P-0-0114, Undervoltage threshold") or it reacts to "DC bus not

Warnings (Exxxx)

ok" of the module bus, the device generates the warning E8026 if "fatal warning" has been set in "P-0-0118, Power supply, configuration" with regard to the reaction to undervoltage.

Supply Unit HMV01.1R

If the DC bus voltage falls by 80 V below the command value of 750 V direct voltage (DC670 V), the warning E8026 is displayed at the device and "DC bus not ok" is signaled via the module bus. The circuit is not interrupted yet!

☞ In the case of fatal warning E8026, the motive torque is locked. The control unit still can actively decelerate the drive, but no longer accelerate it.

Cause	Remedy
Power is switched off without previous drive deactivation by means of drive enable ("AF")	Check logic for activating drive in connected control unit
Malfunction or overload of power supply	Check power supply
Mains failure	Check cause of mains failure, switch mains voltage on again

See also Functional Description of firmware "Power Supply"

E8026 - Attributes

Display: E8026
Ident N°: E8026

9.1.3 E8027 Safety related standstill while drive enabled

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

☞ This diagnostic message is available as of firmwares MPx03V24 and MPx04V14.

DANGER

Bodily harm and property damage caused by uncontrolled axis motion!

⇒ When the warning E8027 occurs, the drive immediately goes torque-free.

Cause	Remedy
Starting lockout was set with active drive enable and diagnostic message has been set to fatal warning via parameter P-0-0101	Remove drive enable

E8027 - Attributes

Display: E8027
Ident N°: E8027

9.1.4 E8028 Overcurrent in power section

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The controller monitors the motor current (= controller output current) supplied by the power section.

- If the controller output current is higher than the 1.2-fold of "S-0-0110, Amplifier peak current"

- or -

- if the controller output current is higher than the product of "P-0-4013, Current limit value of demagnetization" and "S-0-0109, Motor peak current",

the output stage of the power section is locked until the controller output current has fallen to allowed values again; during this time the warning E8028 is output.

Cause	Remedy
Current loop incorrectly parameterized	Check current loop setting ("S-0-0106, Current loop proportional gain 1", "S-0-0107, Current loop integral action time 1") and, if necessary, correct it after having contacted our service department
In the case of Bosch Rexroth motors with encoder data memory (MHD, MKD, MKE), values for current loop parameterization do not correspond to values in encoder data memory	Check whether values in "S-0-0106, Current loop proportional gain 1" and "S-0-0107, Current loop integral action time 1" correspond to values in encoder data memory ("P-0-2106, Current loop proportional gain 1, encoder memory" and "P-0-2107, Current loop integral-action time 1, encoder memory") **Note**: Calculation of "S-0-0106, Current loop proportional gain 1" depends on "P-0-0001, Switching frequency of the power output stage" and "P-0-0556, Control word of axis controller"!
In the case of Rexroth motors without encoder data memory, values for current loop parameterization do not correspond to manufacturer-side specifications	Check whether values in "S-0-0106, Current loop proportional gain 1" and "S-0-0107, Current loop integral action time 1" correspond to manufacturer-side specifications (see DriveTop)
In the case of third-party motors, output data for calculating parameter values are not correct	Check whether output data for calculating parameter values are correct

E8028 - Attributes

Display: E8028

Ident N°: E8028

9.1.5 E8029 Positive position limit exceeded

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive provides a function for monitoring an allowed travel range by means of software limit switches that can be parameterized.

The travel range monitor has to be activated and parameterized via "S-0-0049, Positive position limit value", "S-0-0050, Negative position limit value" and "S-0-0055, Position polarities".

The drive reaction (fatal warning or error) in case the travel range is exceeded has to be parameterized in "P-0-0090, Travel range limit parameter".

Cause	Remedy
A command value was set for the drive that causes an axis position outside the positive travel range/position limit value	Set command value that leads back to the allowed travel range. Contact machine manufacturer in order to find out cause of incorrect command value
Positive travel range/position limit value incorrectly parameterized	Check and, if necessary, correct parameterization of "S-0-0049, Positive position limit value"

The "S-0-0057, Position window" parameter is used to realize a hysteresis function for evaluating the position limit values.

See also Functional Description of firmware "Position Limitation/Travel Range Limit Switch"

E8029 - Attributes

Display: E8029
Ident N°: E8029

9.1.6 E8030 Negative position limit exceeded

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive provides a function for monitoring an allowed travel range by means of software limit switches that can be parameterized.

The travel range monitor has to be activated and parameterized via "S-0-0049, Positive position limit value", "S-0-0050, Negative position limit value" and "S-0-0055, Position polarities".

The drive reaction (fatal warning or error) in case the travel range is exceeded has to be parameterized in "P-0-0090, Travel range limit parameter".

Cause	Remedy
A command value was set for the drive that causes an axis position outside the negative travel range/position limit value	Set command value that leads back to the allowed travel range.Contact machine manufacturer in order to find out cause of incorrect command value
Positive travel range/position limit value incorrectly parameterized	Check and, if necessary, correct parameterization of "S-0-0050, Negative position limit value"

The "S-0-0057, Position window" parameter is used to realize a hysteresis function for evaluating the position limit values.

See also Functional Description of firmware "Position Limitation/Travel Range Limit Switch"

E8030 - Attributes

Display: E8030
Ident N°: E8030

9.1.7 E8034 Emergency-Stop

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive provides a function for monitoring an E-Stop input (connection of an external hardware switch). This monitor has to be activated and parameterized via "P-0-0008, Activation E-Stop function".

☞ When the warning E8034 occurs, the axis is shut down as fast as can with velocity command value reset.

There isn't any message transmitted to the control unit.

Cause	Remedy
E-Stop input was controlled (0 V at digital input)	Remove failure that caused E-Stop to be triggered and clarify cause of triggering
Incorrect parameterization of digital inputs and outputs on control section	Correct configuration of digital inputs/outputs on control section and correct it, if necessary
E-Stop switch or cable connection defective or incorrectly wired	Check function and wiring of E-Stop switch
Control section or digital inputs on control section defective	Replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware "E-Stop Function"

See also Functional Description of firmware "Digital Inputs/Outputs"

See also Functional Description of firmware "Velocity Command Value Reset"

E8034 - Attributes

Display: E8034
Ident N°: E8034

9.1.8 E8035 Quick stop with probe detection is active

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Warnings (Exxxx)

Cause	Remedy
Quick stop in the case of positive edge at probe 1 has been activated. Positive edge was detected at probe 1; drive is shut down with velocity command value reset	Quick stop is deactivated by locking probe enable ("S-0-0405, Probe 1 enable" = "0") or by deactivating probe function ("S-0-0170, Probing cycle procedure command" = "0" or "P-0-0226, Probe, extended control word", bit 9 equal "0")

E8035 - Attributes

Display: E8035
Ident N°: E8035

9.1.9 E8040 Torque/force actual value limit active

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The warning E8040 is generated when the "stall protection loop" takes effect and changes the working point of the machine for its relief.

Cause	Remedy
Load torque is too high	Reduce load torque
Torque limit values incorrectly parameterized	Check parameters "S-0-0082, Torque/force limit value positive"; "S-0-0083, Torque/force limit value negative"; "S-0-0092, Bipolar torque/force limit value" and "P-0-0109, Torque/force peak limit" and increase limits, if necessary

See also Functional Description of firmware "Voltage-Controlled Operation"

E8040 - Attributes

Display: E8040
Ident N°: E8040

9.1.10 E8041 Current limit active

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The warning E8041 is generated when the current limitation loop takes effect and reduces the output voltage due to overvoltage.

Cause	Remedy
"S-0-0109, Motor peak current" incorrectly parameterized	Check content of "S-0-0109, Motor peak current" and increase it, if necessary
Short circuit at output of power output stage (e.g. in motor cable or in motor)	Check motor connection and motor for short circuit and replace cable or motor, if necessary
Power output stage in drive controller defective	Replace drive controller

The replacement of the drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware "Voltage-Controlled Operation"

E8041 - Attributes

Display: E8041
Ident N°: E8041

9.1.11 E8042 Both travel range limit switches activated

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The compliance with the allowed travel range of linear axes is monitored on the hardware side via two travel range limit switches. When the travel range has been exceeded, one of the two limit switches is activated, if the limit switches were correctly mounted.

The warning E8042 is generated, if

- the controller detects that both travel range limit switches have been simultaneously activated and
- exceeding the travel range is handled as a fatal warning (setting in "P-0-0090, Travel range limit parameter").

☞ As long as the cause of E8042 has not been removed, the controller does not accept any command value!

Cause	Remedy
Due to incorrect mounting, axis activates both travel range limit switches simultaneously	Mount travel range limit switches in such a way that they are activated shortly before axis end position is reached. Make sure the braking distance is sufficient
Travel range limit switches were incorrectly connected	Connect travel range limit switches correctly; check compliance with switching logic set in "P-0-0090, Travel range limit parameter"
Switching logic of travel range limit switches does not correspond to realized wiring	Check switching logic with regard to realized wiring, adjust it in "P-0-0090, Travel range limit parameter", if necessary

E8042 - Attributes

Display: E8042
Ident N°: E8042

9.1.12 E8043 Positive travel range limit switch activated

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive provides a function for monitoring travel range limit switches (external hardware limit switches). This monitor has to be activated and parameterized via "P-0-0090, Travel range limit parameter".

☞ When the warning E8043 occurs, the axis is shut down with velocity command value reset.

Warnings (Exxxx)

Cause	Remedy
Travel range limit switch situated in positive direction (see Project Planning Manual for motor) was activated because axis is outside of travel range that was defined by means of travel range limit switches	Set drive enable and input a command value leading back to allowed travel range
Incorrect parameterization of digital inputs and outputs on control section	Correct configuration of digital inputs/outputs on control section and correct it, if necessary
Travel range limit switch or cable is defective or incorrectly wired	Check function and wiring of travel range limit switch
Control section or digital inputs on control section defective	Replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware "Travel Range Limits"

See also Functional Description of firmware"Digital Inputs/Outputs"

E8043 - Attributes

Display: E8043
Ident N°: E8043

9.1.13 E8044 Negative travel range limit switch activated

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive provides a function for monitoring travel range limit switches (external hardware limit switches). This monitor has to be activated and parameterized via "P-0-0090, Travel range limit parameter".

☞ When the warning E8044 occurs, the axis is shut down with velocity command value reset.

Cause	Remedy
Travel range limit switch situated in negative direction (see Project Planning Manual for motor) was activated because axis is outside of travel range that was defined by means of travel range limit switches	Set drive enable and input a command value leading back to allowed travel range
Incorrect parameterization of digital inputs and outputs on control section	Correct configuration of digital inputs/outputs on control section and correct it, if necessary
Travel range limit switch or cable is defective or incorrectly wired	Check function and wiring of travel range limit switch
Control section or digital inputs on control section defective	Replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware "Travel Range Limits"

See also Functional Description of firmware "Digital Inputs/Outputs"

E8044 - Attributes

Display: E8044
Ident N°: E8044

9.1.14 E8055 Motor overload, current limit active

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In order to protect the motors against thermal destruction in the case of peak loads occurring for a very short time, the thermal work load of the motor is continuously calculated in the controller by means of a motor temperature model.

If the maximum possible motor current is reduced, due to the current thermal motor load, compared to the content of "S-0-0109, Motor peak current", the drive generated the warning E8055. As a consequence thereof the drive can no longer follow the command values preset by a control unit.

☞ When the E8055 warning is active, bit 0 (overload warning) is additionally set in "S-0-0012, Class 2 diagnostics".

Cause	Remedy
Too high acceleration torque/too high acceleration force demanded	Reduce acceleration by adjusted command value profile
Overload of drive by too high continuous load	Reduce overload in the case of long machining phases
Too high process or machining force (e.g. infeed)	Reduce process or machining force
Mechanical changes in axis (e.g. friction, load conditions,...)	Check mechanical system and, if necessary, optimize load conditions and/or friction conditions

See also Functional Description of firmware "Current Limitation

E8055 - Attributes

Display: E8055
Ident N°: E8055

9.1.15 E8057 Device overload, current limit active

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

In order to protect the devices against thermal destruction, the thermal load of the output stage in devices with digital current control is continuously calculated by a temperature model, depending on the measured current.

For HCS, HMS, HMD

If the thermal load exceeds 97% (displayed in "P-0-0141, Thermal drive load"), the continuous current limitation is activated and the warning E8057 is generated. As a consequence thereof the drive can no longer follow the command values preset by a control unit.

☞ When the E8057 warning is active, bit 0 (overload warning) is additionally set in "S-0-0012, Class 2 diagnostics".

For HMV01.1R

When the thermal load has reached 100%, the continuous current limitation is activated and the warning E8057 is generated. As a consequence thereof the available DC bus power is reduced and especially drives that require high power can no longer follow the preset command values.

Cause	Remedy
Device is not adjusted to requirements of application or motor	Check dimensioning of drive and, if necessary, use more powerful device
Too high acceleration torque/too high acceleration force demanded	Reduce acceleration by adjusted command value profile
Overload of drive by too high continuous load	Reduce overload in the case of long machining phases
Too high process or machining force (e.g. infeed)	Reduce process or machining force
Mechanical changes in axis (e.g. friction, load conditions,...)	Check mechanical system and, if necessary, optimize load conditions and/or friction conditions

See also Functional Description of firmware "Current Limitation"

E8057 - Attributes

Display: E8057

Ident N°: E8057

9.1.16 E8058 Drive system not ready for operation

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

This fatal warning can occur for drive controllers in operation that are interconnected via the module bus. If one of these drive controllers in operation signals an error via the module bus, the drives that are to react to signaled errors ("package reaction") react with shutdown. The reacting drives display the warning E8058, the supply unit displays "E2810 Drive system not ready for operation".

The settings for error messages and error reactions for devices that are interconnected via the DC bus and module bus are made in "P-0-0118, Power supply, configuration".

Cause	Remedy
Error message of one or several drives of a drive system	Identify drive or drives signaling an error. Remove cause of error at respective drive or drives

See also Functional Description of firmware "Power Supply"

E8058 - Attributes

Display: E8058
Ident N°: E8058

9.1.17 E8260 Torque/force command value limit active

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Apart from the dynamic actual torque/force value limitation by means of a motor or amplifier temperature model, there are voltage-dependent (velocity-dependent), as well as parameterizable limitations of the torque/force command value. At least one of these limits has been reached.

☞ As regards the occurrence of the warning E8260, there are different causes and remedies for "closed-loop operation" / "controlled motor operation" (FOC, FOCsl, FXC) and sensorless, voltage-controlled motor operation ("U/f-controlled motor operation" / "open-loop operation")!

Cause	Remedy
"Controlled motor operation" / "closed-loop operation" Acceleration capacity of drive has been exceeded. In operating modes "position control" and "velocity control", this means that there is an ever-increasing position deviation (lag error) between command value and actual value	Reduce preset maximum acceleration value to allow drive to follow position or velocity command value characteristic
"Controlled motor operation" / "closed-loop operation" Velocity command value is higher than maximum velocity of drive. Drive limits output value of velocity loop (torque command value) so that output voltage of controller, depending on load, does not exceed value of "P-0-0535, Motor voltage at no load" or "P-0-0536, Maximum motor voltage"	Reduce maximum velocity command value in such a way that values of P-0-0535 or P-0-0536 are not reached when accelerating or at maximum velocity. If possible, use controlled supply unit (HMV-R); with uncontrolled supply unit increase supply voltage, if necessary
"Controlled motor operation" / "closed-loop operation" Torque/force limit values incorrectly set	Increase values of "S-0-0082, Torque/force limit value positive", "S-0-0083, Torque/force limit value negative", "S-0-0092, Bipolar torque/force limit value" and "P-0-0109, Torque/force peak limit", if necessary
"Controlled motor operation" / "closed-loop operation" Current loop incorrectly parameterized for motors without feedback data memory (e.g. kit motors or third-party motors)	Check contents of "S-0-0106, Current loop proportional gain 1" and "S-0-0107, Current loop integral action time 1" and correct them, if necessary. See also Functional Description of firmware "Automatic Setting of Motor Control "

Warnings (Exxxx)

Cause	Remedy
"Controlled motor operation (FXC)" Controller cannot permanently provide required current at standstill of asynchronous motor	Reduce current at standstill ("P-0-0532, Premagnetization factor" * "P-0-4004, Magnetizing current") by lower value of P-0-0532 **- or -** Use controller with higher continuous current (type current)
"Open-loop operation" / "U/f-controlled motor operation" Acceleration capacity of controlled drive has been exceeded (velocity command value ramp too steep)	Maximum change of velocity with which drive can follow command values is determined by motor. This possibly requires adjustment of "P-0-0569, Maximum stator frequency change"

E8260 - Attributes

Display: E8260
Ident N°: E8260

9.1.18 E8819 Mains failure

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

A mains failure was detected. To maintain the DC bus, regenerative operation of the motor is still possible, motive operation of the motor is disabled. The function depends on "P-0-0118, Power supply, configuration" (behavior in the case of undervoltage in DC bus).

Cause	Remedy
Power is switched off without previous drive deactivation by means of drive enable ("AF")	Check logic for activating drive in connected control unit
Malfunction or overload of power supply	Check power supply
Mains failure	Check cause of mains failure, switch mains voltage on again

See also Functional Description of firmware "Power Supply"

E8819 - Attributes

Display: E8819
Ident N°: E8819

9.2 Warnings of Category E4xxx

9.2.1 E4001 Double MST failure shutdown

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The **m**aster **s**ynchronization **t**elegram (MST) was not received in the drive in two successive SERCOS cycles.

☞ **As of MPx05VRS:** In "P-0-4088, Master communication, configuration", you can configure the reaction to the failure of the cyclic communication as a warning or as an error.

Cause	Remedy
Disturbance in fiber optic transmission line	Check all optic fiber connections in the SERCOS ring and replace them, if necessary
Attenuation of light signals too high	Measure attenuation of optic fiber cables again.Maximum attenuation between T_X and R_X mustn't exceed 12.5 dB!
Disturbance in SERCOS interface (general)	Replace control section or entire drive

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware "Interface Errors and Diagnostic Possibilities"

E4001 - Attributes

Display: E4001
Ident N°: E4001

9.2.2 E4002 Double MDT failure shutdown

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The **m**aster **d**ata **t**elegram (MDT) was not received in the drive in two successive SERCOS or field bus cycles.

☞ **As of MPx05VRS:** In "P-0-4088, Master communication, configuration", you can configure the reaction to the failure of the cyclic communication as a warning or as an error.

Cause	Remedy
Bus master does not send any more cyclic telegrams to the drive. These, however, are expected in communication phase 4.	Switch master on and start cyclic communication; see manual for control unit
Fiber optic cable bus: Disturbance in fiber optic transmission line	Check all fiber optic cable connections in SERCOS ring
Fiber optic cable bus: Input power of light signals too low Light power to be measured at receiver (with test mode: continuous light) must be between –20 dBm (10 µW) and –5 dBm (320 µW)	Adjust transmitting power or check attenuation of fiber optic cable Maximum attenuation between T_X and R_X mustn't exceed 12.5 dB!
Different transmission times of master data telegrams in master and slave	Synchronize transmission times of master data telegrams in master and slave
Disturbance in SERCOS interface (general)	Replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware "Interface Errors and Diagnostic Possibilities"

E4002 - Attributes

Display: E4002
Ident N°: E4002

9.2.3 E4005 Command value input impossible via master communication

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

☞ In firmware version 04VRS, the name of the warning is "E4005 No data exchange possible via the field bus".

Command value input via the master communication interface is impossible.

DANGER

Automatic restart after bus failure!

In the case of bus failure (message "F4009" or "E4005"), an error reaction must be carried out in the control unit, too, to prevent automatic restart after the bus has been reestablished. This means that the bits "Drive Halt", "drive enable" and "drive ON" (e.g. bits 13, 14 and 15 in parameter "P-0-4077, Field bus: control word") should be reset in the control unit in the case of bus failure.

SERCOS

The setting in parameter "P-0-4088, Master communication, configuration" is such that there won't be any drive error reaction initiated in case communication fails, but this warning will be displayed.

Cause	Remedy
See F4009	See F4009

Other Field Buses (CANopen, PROFIBUS, ...)

Failure of master communication (double MDT failure or double MST failure) was detected.

The setting in parameter "P-0-4088, Master communication, configuration" is such that there won't be any drive error reaction initiated in case communication fails, but this warning will be displayed; the drive continues running with the last valid command value input.

Cause	Remedy
See F4001 or F4002	See F4001 or F4002

E4005 - Attributes

Display: E4005
Ident N°: E4005

9.2.4 E4008 Invalid addressing command value data container A

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the index check in the multiplex channel an error occurred. During the cyclic data exchange the index for access to the lists **Data container A: configuration list command value-x** is monitored to find out whether it is pointing to a non-initialized position in the list.

Cause	Remedy
?	Check Data container A: configuration list command value-x
?	Check low byte of "S-0-0368, Data container A: addressing"

See also Functional Description of firmware "Multiplex Channel"

E4008 - Attributes

Display: E4008
Ident N°: E4008

9.2.5 E4009 Invalid addressing actual value data container A

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the index check in the multiplex channel an error occurred. During the cyclic data exchange the index for access to the lists **Data container A: configuration list actual value-x** is monitored to find out whether it is pointing to a non-initialized position in the list.

Cause	Remedy
?	Check Data container A: configuration list actual value-x
?	Check high byte of "S-0-0368, Data container A: addressing"

See also Functional Description of firmware "Multiplex Channel"

E4009 - Attributes

Display: E4009
Ident N°: E4009

9.2.6 E4010 Slave not scanned or address 0

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the initialization of the SERCOS ring in communication phase 1, the SERCOS master must address each slave which is to participate in the progression to higher phases. Slaves which are not addressed or for which drive

address 0 has been set diagnose this by the warning E4010. Communication with these slaves in higher communication phases is impossible; they only work in repeater mode.

Cause	Remedy
Slave was not scanned in phase 1 or address 0 has been set	Set correct slave address
Slave deactivated by control unit	Check SERCOS master configuration

See also Functional Description of firmware "SERCOS interface"

E4010 - Attributes

Display: E4010
Ident N°: E4010

9.2.7 E4012 Maximum number of CCD slaves exceeded

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «MPH» «-»
Contained in 05VRS: «-» «MPH» «-»
Supported by supply unit: «-»

When switching to communication phase 2, too many CCD slaves (→ **CCD**: Cross Communication Drives) were detected to have been connected to the cross communication interface of the CCD master.

☞ This warning is always reset in phase 0.

Cause	Remedy
More CCD slaves than allowed have been connected to CCD master	Reduce number of connected CCD slaves **Note:** Maximum number of axes depends on CCD cycle time and data length

See also Functional Description of firmware "Cross Communication (CCD) "

E4012 - Attributes

Display: E4012
Ident N°: E4012

9.2.8 E4013 Incorrect CCD addressing

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «MPH» «-»
Contained in 05VRS: «-» «MPH» «-»
Supported by supply unit: «-»

When switching to communication phase 1, a projected CCD slave (→ **CCD**: Cross Communication Drives) could not be found.

Cause	Remedy
A CCD slave address has been used several times; actual topology (P-0-1603) and command topology (P-0-1636) do not match. Addresses must be unequivocal	Correct slave address in slave(s) ("P-0-4025, Drive address of master communication")
In "P-0-1601, CCD: Addresses of projected drives" **- or -** in "P-0-1604, CCD: addresses of projected I/Os" (only MPx05), a CCD slave was projected which does not exist in CCD group	Correct "P-0-1601, CCD: addresses of projected drives" according to connected CCD slaves **Only MPx05:** Correct "P-0-1604, CCD: addresses of projected I/Os" according to connected slaves **- or -** Assign addresses to slaves with P-0-1635
In "P-0-1601, CCD: Addresses of projected drives" **- or -** in "P-0-1604, CCD: addresses of projected I/Os" (only MPx05), a CCD slave was projected which has not been correctly connected	Connect all projected CCD slaves correctly

See also "P-0-1630, CCD: diagnosis"

See also Functional Description of firmware "Cross Communication (CCD) "

E4013 - Attributes

Display: E4013
Ident N°: E4013

9.2.9 E4014 Incorrect phase switch of CCD slaves

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «MPH» «-»
Contained in 05VRS: «-» «MPH» «-»
Supported by supply unit: «-»

During the run-up of the CCD group to phase 0, 1 or 2, the correct reaction of the CCD slaves is monitored. If one or several slaves do not behave correctly, the warning E4014 is generated. There are the following possible error symptoms:

- CCD slave ignores phase switch and does not stop transmitting
- CCD slave dose not transmit again after phase switch
- list of scanned CCD slaves is not stable (list must be 100% identical for phase 0)
- no communication on port1 or port2
- no CCD slave scanned (only if "P-0-1601, CCD: addresses of projected drives" is empty, otherwise E4013)
- transmitted MST is not received correctly
- a CCD slave not supported by the CCD master has been connected

Cause	Remedy
SERCOS III plug-in connections are loose or defective	Check SERCOS III plug-in connections and replace them, if necessary
One of CCD slaves is defective	Replace CCD slave

See also Functional Description of firmware "Cross Communication (CCD) "

E4014 - Attributes

Display: E4014

Ident N°: E4014

9.3 Possible Warnings When Operating Safety Technology (E3xxx)

9.3.1 Behavior in Case a Safety Technology Warning Occurs

☞ With activated safety technology, warnings of category E31xx only occur in normal operation. When a safety related operation is selected, the cause of the warning results in an error being triggered.

The user can define the drive behavior for the case of non-fatal safety technology errors occurring via the setting in "P-0-0119, Best possible deceleration".

The drive automatically switches to safety related standstill and the output stage is switched off via two channels.

As soon as the axis has stopped, the axis signals safety; i.e. "safety technology status output of controller" was set in "P-0-3214, Safety technology status word, channel 1" or the diagnosis input/output E/A10n (channel 2) was set depending on the parameterization in "P-0-3210, Safety technology configuration".

9.3.2 E3100 Error when checking input signals

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

When the safety technology has been activated, this warning only occurs in normal operation. When a safety related operation status is selected, the cause of the error causes the error "F3130 Error when checking input signals" or "F3141 Selection validation error" to be triggered.

Cause	Remedy
During "dynamization of safety function selection" not all input signals are zero. Cause can be error in wiring of input signals or short circuit of switch contacts with positive supply voltage	Remove wiring error of input signals or replace switch. **Note**: Cause of error can be localized, for example, by means of internal oscilloscope function and one of the following parameters: • "P-0-3216, Active safety technology signals" or • "P-0-3212, Safety technology signal control word, channel 1" or • "P-0-3217, I/O status channel 2 (optional safety technology module)"
There are unequal channel states between channel 1 and 2. Cause can be error in wiring of input signals or defective switch	Remove wiring error of input signals or replace switch. **Note**: Cause of error can be localized by means of parameter "P-0-3216, Active safety technology signals" (of channel 1 and channel 2).
"P-0-3221, Max. tolerance time for different channel states" incorrectly parameterized	Change parameterization of "P-0-3221, Max. tolerance time for different channel states"

E3100 - Attributes

Display: E3100
Ident N°: E3100

9.3.3 E3101 Error when checking acknowledgment signal

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

All drives of a safety related protective zone have to be interconnected via the acknowledgment signal EA20. One of the drives of the safety related protective zone has to be declared as master, the other ones as slaves (declaration in "P-0-3210, Safety technology control word"). The master uses the acknowledgment signal to evaluate the axis status of the connected slaves and to control a safety door via the diagnostic outputs A10, EA10n. In order to detect errors in the connection, the acknowledgment signal is dynamized.

When the safety technology has been activated, this warning only occurs in normal operation. When a safety related operating status is selected, the cause of the error causes the error "F3131 Error when checking acknowledgment signal" to be triggered.

Cause	Remedy
There is an error in wiring of acknowledgment signals (contact error, cable break, short circuit with 0 V, missing connection to master)	Remove error in wiring of acknowledgment signals

E3101 - Attributes

Display: E3101
Ident N°: E3101

9.3.4 E3102 Actual position values validation error

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When both safety technology channels have been homed (confer "S-0-0403, Position feedback value status" for channel 1 and "P-0-3213, Safety technology operating status" for channel 2), a validation check is cyclically carried out for their actual position values. The difference of the actual position values mustn't exceed an internally defined threshold.

When the safety technology has been activated, this warning only occurs in normal operation. When a safety function is selected, the cause of the error causes the error "F3117 Actual position values validation error" to be triggered.

Cause	Remedy
Implausible values on channel 1 and 2 resulted from cyclic comparison of actual position values. An internally calculated tolerance threshold is used for this comparison	Reestablish safety related reference

Warnings (Exxxx)

E3102 - Attributes

Display: E3102
Ident N°: E3102

9.3.5 E3103 Dynamization failed

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

For dynamization of safety function selection a dynamic signal is applied to the selection elements, in order to detect errors in the wiring of the input signals. The signal shape of the dynamic signal is monitored, too.

The monitoring refers to the signal at the dynamization input EA30 and, in the case of separate dynamization (to be set via "P-0-3210, Safety technology configuration"), additionally to the dynamization input for channel 1 ("P-0-3212, Safety technology control word, channel 1").

When the safety technology has been activated, this warning only occurs in normal operation. When a safety function is selected, the cause of the error causes the error "F3134 Dynamization time interval incorrect" to be triggered.

Cause	Remedy
Within time "P-0-3223, Time interval for dynamization of safety function selection" there hasn't any dynamization pulse (low level) occurred at dynamization input EA30 or "dynamization input channel 1"	Remove cause of error in wiring of dynamization input **- or -** In the case of internal dynamization, make sure that only one of involved axes has been configured as master for dynamization of safety function selection ("P-0-3210, Safety technology configuration") **- or -** In the case of external dynamization, use appropriate signal source **- or -** Make sure that in involved slave axes values for "P-0-3223, Time interval for dynamization of safety function selection" and "P-0-3224, Duration of dynamization pulse of safety function selection" are greater than or equal to values in master axis

E3103 - Attributes

Display: E3103
Ident N°: E3103

9.3.6 E3104 Safety parameters validation error

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In the operating mode, a validation check is cyclically carried out for the safety parameters of channel 1 and channel 2.

When the safety technology has been activated, this warning only occurs in normal operation. When a safety function is selected, the cause of the error causes the error "F3140 Safety parameters validation error" or "F7040 Validation error parameterized - effective threshold" to be triggered.

Cause	Remedy
A comparison has shown that channel 1 and channel 2 are not working with the same safety parameters	Execute command "P-0-3204, C3000 Synchronize and store safety technology IDN command"; channel 2 thereby accepts parameters of channel 1

E3104 - Attributes

Display: E3104
Ident N°: E3104

9.3.7 E3105 Validation error of safety related operating mode

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The active safety technology operating states ("safety related operating modes") of channel 1 and channel 2 are cyclically and via two channels checked for validity; they may differ for a maximum of 5 seconds.

The criteria for transition to a new safety technology operating status selected have not been fulfilled in one channel. This channel remains in old the status - the other channel already went to the new status.

When the safety technology has been activated, this warning only occurs in normal operation. When a safety function is selected, the cause of the error causes the error "F7042 Validation error safety related operating mode" to be triggered.

Cause	Remedy
Time, velocity or position thresholds were incorrectly parameterized	Check time, velocity or position thresholds relevant for respective transition and adjust them, if necessary

E3105 - Attributes

Display: E3105
Ident N°: E3105

9.3.8 E3106 System error safety technology

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In the firmware versions 02VRS, 03VRS and 04VRS, the name of the warning is "E3106 System error channel 2".

When the safety technology has been activated, this warning only occurs in normal operation. When a safety function is selected, the cause of the error

causes the error "F3146 System error channel 2" or "F3147 System error channel 1" to be triggered (as of firmware versions 05VRS).

Cause	Remedy
System error	Via parameter mode switch to operating mode **- or -** Reset optional safety technology module by switching control voltage off and on If error occurs repeatedly, replace control section or entire drive controller; use hardware configuration of same type

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

Only Rexroth service engineers are allowed to replace optional modules of the control section (e.g. optional encoder module).

E3106 - Attributes

Display: E3106
Ident N°: E3106

9.3.9 E3107 Safety related reference missing

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

A check showed that, when the special mode "safety related motion" with configured safety function "safety related limited absolute position" was selected, there is no "safety related reference" existing.

Cause	Remedy
Monitoring of safety related end positions has been configured; requirement that channel 2 has been homed is missing (can also be recognized in "P-0-3238, Extended safety technology status"). No safety function has been selected (i.e. drive is in normal operation)	1. Set drive enable 2. **For absolute measuring systems:** Execute "P-0-3228, C4000 Homing procedure command channel 2" in order to establish "safety related reference" on channel 2 **- or -** **For all other measuring systems:** Execute "S-0-0148, C0600 Drive-controlled homing procedure command" (C4000 for establishing safety related reference of channel 2 is integrated)

Description of error reaction: "Behavior in Case a Safety Technology Warning Occurs"

See documentation "Integrated Safety Technology", index entry "safety related homing procedure"

E3107 - Attributes

Display: E3107
Ident N°: E3107

9.3.10 E3110 Time interval of forced dynamization exceeded

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In parameter "P-0-0103, Time interval of forced dynamization" it is possible to set a time interval within which the starting lockout has to be activated. This time interval has been exceeded.

Cause	Remedy
Setting of time interval in parameter "P-0-0103, Time interval of forced dynamization" does not comply with requirements	Set time interval in parameter "P-0-0103, Time interval of forced dynamization" according to requirements
Starting lockout has not been activated within time interval that was set	Activate starting lockout with drive controller being active

E3110 - Attributes

Display: E3110
Ident N°: E3110

9.3.11 E3115 Prewarning, end of brake check time interval

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When "time interval of holding brake check" was activated in "P-0-0525, Holding brake control word" **or** the function "safety related braking and holding system" is used, the drive monitors the time which has passed since the last holding brake check.

Cause	Remedy
Drive had been put into operation and drive enable was set; after 5 minutes, drive generates warning E3115	Brake check ("P-0-0541, C2100 Brake check command") must be carried out within 15 minutes after drive was put into operation and drive enable was set
Space of time since last holding brake check has approached time interval parameterized in "P-0-0550, Time interval brake check" or "P-0-3302, Safety related holding system: time interval brake check" by 15 minutes or less	Start brake check within 15 minutes after occurrence of E3115 ("P-0-0541, C2100 Brake check command")

See also Functional Description of firmware "Motor Holding Brake"

See also documentation "Integrated Safety Technology"

E3115 - Attributes

Display: E3115
Ident N°: E3115

9.4 Non-Fatal Warnings (E2xxx)

9.4.1 E2010 Position control with encoder 2 not possible

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

For operating modes using parameter "S-0-0520, Control word of axis controller" it is possible to switch the control encoder during operation.

If no second encoder has been defined as control encoder, this warning is generated when you try to switch to encoder 2.

E2010 - Attributes

Display: E2010
Ident N°: E2010

9.4.2 E2011 PLC - Warning no. 1

Validity

Contained in 02VRS: «-» «MPH» «-»
Contained in 03VRS: «MPB» «MPH» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

In conjunction with technology functions the drive-integrated PLC allows the user generating warnings (E2011 .. E2014) within the PLC program.

Cause and remedy of a PLC warning depend on the respective PLC project (or the active Rexroth technology function) and are contained in the respective description of the technology function.

E2011 - Attributes

Display: E2011
Ident N°: E2011

9.4.3 E2012 PLC - Warning no. 2

Validity

Contained in 02VRS: «-» «MPH» «-»
Contained in 03VRS: «MPB» «MPH» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

In conjunction with technology functions the drive-integrated PLC allows the user generating warnings (E2011 .. E2014) within the PLC program.

Cause and remedy of a PLC warning depend on the respective PLC project (or the active Rexroth technology function) and are contained in the respective description of the technology function.

E2012 - Attributes

Display: E2012
Ident N°: E2012

9.4.4 E2013 PLC - Warning no. 3

Validity

Contained in 02VRS: «-» «MPH» «-»
Contained in 03VRS: «MPB» «MPH» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

In conjunction with technology functions the drive-integrated PLC allows the user generating warnings (E2011 .. E2014) within the PLC program.

Cause and remedy of a PLC warning depend on the respective PLC project (or the active Rexroth technology function) and are contained in the respective description of the technology function.

E2013 - Attributes

Display: E2013
Ident N°: E2013

9.4.5 E2014 PLC - Warning no. 4

Validity

Contained in 02VRS: «-» «MPH» «-»
Contained in 03VRS: «MPB» «MPH» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

In conjunction with technology functions the drive-integrated PLC allows the user generating warnings (E2011 .. E2014) within the PLC program.

Cause and remedy of a PLC warning depend on the respective PLC project (or the active Rexroth technology function) and are contained in the respective description of the technology function.

E2014 - Attributes

Display: E2014
Ident N°: E2014

9.4.6 E2021 Motor temperature outside of measuring range

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The lower limit of the allowed ambient temperature range of Rexroth motors is 0°C. In the case of very low temperatures (below –20°C), motor encoders risk failing, shaft bearings and housings risk getting damaged.

Motors MSK, MAD, MAF

The temperature sensors installed in the motor windings of Rexroth motors of the MSK, MAD and MAF lines allow measuring temperatures below the allowed temperature range. When the motor temperature has fallen below –20°C, the warning E2021 is output.

Motors MHD, MKD, 2AD, ADF, 1MB, MLF, LSF

The temperature sensors installed in the motor windings of Rexroth motors of the MHD, MKD, 2AD, ADF, 1MB, MLF and LSF lines **cannot** measure temperatures below the allowed temperature range. Therefore, the warning cannot be generated in this case!

Warnings (Exxxx)

Cause	Remedy
Motor temperature measured by temperature sensor is below –20°C	Warning disappears automatically when motor is heated up to more than –20°C by load or higher ambient temperature
Sensor defective **- or -** Cable break **- or -** Electronic monitoring system in controller defective	Check wiring and hardware, above all for loose contact and, if necessary, for malfunction

See also Functional Description of firmware "Motor Temperature Monitoring"

E2021 - Attributes

Display: E2021
Ident N°: E2021

9.4.7 E2026 Undervoltage in power section

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

The DC bus voltage value is monitored by the drive controller and the supply unit.

Drive Controllers HMS, HMD, HCS

If the DC bus voltage falls below the minimum value determined for the drive (see value of "P-0-0114, Undervoltage threshold") or it reacts to "DC bus not ok" of the module bus, the device generates the warning E2026 if "non-fatal warning" has been set with regard to the reaction to undervoltage in "P-0-0118, Power supply, configuration".

When drive enable is set without DC bus voltage (drive signals "bb"), the error message F2026 is generated in spite of warning having been parameterized.

Supply Unit HMV01.1R / HMV02.1R

If the DC bus voltage falls below the threshold value determined for the respective supply unit (see table below), the warning E2026 is displayed at the device and "DC bus not ok" is signaled via the module bus. The circuit is not interrupted yet!

Supply unit	Hardware index (see type plate)	Threshold value
HMV01.1R-W0018	up to A38	DC 670 V
	from A39 upwards	DC 600 V
HMV01.1R-W0045	up to A39	DC 670 V
	from A40 upwards	DC 600 V
HMV01.1R-W0060	up to A39	DC 670 V
	from A40 upwards	DC 600 V
HMV01.1R-W0120	from A00 upwards	DC 600 V

Fig.9-1: Threshold values for undervoltage in DC bus

Cause	Remedy
Power is switched off without previous drive deactivation by means of drive enable ("AF")	Check logic for activating drive in connected control unit
Malfunction or overload of power supply	Check power supply
Mains failure	Check cause of mains failure, switch mains voltage on again

See also Functional Description of firmware "Power Supply"

E2026 - Attributes

Display: E2026
Ident N°: E2026

9.4.8 E2040 Device overtemperature 2 prewarning

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

A switch-off value for the second temperature sensor is stored in element 3 of parameter "P-0-4059, Electric type data of power section".

If the parameter "P-0-0816, Amplifier temperature 2" exceeds the switch-off threshold, the warning E2040 is output for 30 seconds. Afterwards, the controller is switched off with the non-fatal error F2040.

Before the controller is switched off, it is possible to stop the axis via the control unit in accordance with the process (e.g. terminate processing, leave collision area etc.) or to reduce the load of the drive controller.

Cause	Remedy
Ambient temperature too high. Specified performance data are valid up to an ambient temperature of 40 C.	Reduce ambient temperature, e.g. by cooling the control cabinet
Heat sink of device is dirty	Clean heat sink
Convection is prevented by other components or mounting position in control cabinet	Mount device vertically and provide sufficient space for ventilating heat sink
Blower of device is defective	Replace device

E2040 - Attributes

Display: E2040
Ident N°: E2040

9.4.9 E2047 Interpolation velocity = 0

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

In operating states/ operating modes in which the drive-internal position command value interpolator is active, the preset velocity effective in the drive is monitored with regard to the value "0"; i.e. the monitor is active in the following operating modes or operating states:

Warnings (Exxxx)

Operating Modes
- drive-internal interpolation
- drive-controlled positioning
- positioning block mode
- Drive Halt

Commands
- position spindle
- drive-controlled homing
- automatic control loop setting
- ...

Cause	Remedy
Incorrect velocity is preset (value = "0") (cf. "S-0-0259, Positioning velocity", "S-0-0041, Homing velocity", "P-0-4007, Positioning block velocity"[i], "S-0-0222, Spindle positioning speed", "S-0-0091, Bipolar velocity limit value", "P-0-0143, Synchronization velocity", "P-0-0686, Additive position command value, positioning velocity")	Check parameterization or cyclic command value of control unit and set value for preset velocity unequal zero
Analog input to which preset velocity was assigned is defective or not connected	Check wiring and function of analog input and, if necessary, replace cable or control section, or the entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

E2047 - Attributes

Display: E2047
Ident N°: E2047

9.4.10 E2048 Interpolation acceleration = 0

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

In operating states/ operating modes in which the drive-internal position command value interpolator is active, the preset acceleration effective in the drive is monitored with regard to the value "0" [without acceleration (deceleration) a preset velocity can never be reached; slowing down with a deceleration "0" isn't possible either].

☞ The input values of the parameters are converted to a drive-internal format. This is why input values > "0" can, internally, also cause an acceleration = "0". The parameter values which drive-internally still cause an acceleration > "0" can be calculated.

The monitor is active in the following operating modes or operating states:

Operating Modes
- drive-internal interpolation
- drive-controlled positioning
- positioning block mode

Commands

- Drive Halt
- position spindle
- drive-controlled homing
- automatic control loop setting
- ...

Cause	Remedy
Incorrect acceleration is preset (value = "0") (vgl. "S-0-0260, Positioning acceleration", "S-0-0042, Homing acceleration", "S-0-0138, Bipolar acceleration limit value", "S-0-0359, Positioning deceleration", "P-0-0142, Synchronization acceleration", "P-0-0687, Additive position command value, positioning acceleration")	Check parameterization or cyclic command value of control unit and set value for preset acceleration > "0"

E2048 - Attributes

Display: E2048
Ident N°: E2048

9.4.11 E2049 Positioning velocity >= limit value

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In the operating modes in which the drive-internal position command value interpolator is active, the velocity command value (positioning velocity) effective in the drive is limited to the smallest value parameterized velocity limit value.

This means that the monitor is active in the following operating modes or operating states:

Operating Modes

- drive-internal interpolation
- drive-controlled positioning
- positioning block mode
- Drive Halt

Commands

- position spindle
- drive-controlled homing
- automatic control loop setting
- ...

Warnings (Exxxx)

Cause	Remedy
Incorrect velocity has been preset (parameterized or cyclically preset value is too high) (cf. "S-0-0259, Positioning velocity", "S-0-0041, Homing velocity", "P-0-4007, Positioning block velocity" [i], "S-0-0222, Spindle positioning speed", "S-0-0091, Bipolar velocity limit value", "S-0-0038, Positive velocity limit value", "S-0-0039, Negative velocity limit value")	Check parameterization or cyclic command value of control unit and set value for used preset velocity smaller than value from "S-0-0091, Bipolar velocity limit value", "S-0-0038, Positive velocity limit value" or "S-0-0039, Negative velocity limit value"
"S-0-0091, Bipolar velocity limit value", "S-0-0038, Positive velocity limit value" or "S-0-0039, Negative velocity limit value" incorrectly parameterized	Check parameter contents of "S-0-0091, Bipolar velocity limit value", "S-0-0038, Positive velocity limit value" and "S-0-0039, Negative velocity limit value". Check whether parameter possibly has been assigned to an analog input or is contained in cyclic data
Analog input to which "S-0-0091, Bipolar velocity limit value", "S-0-0038, Positive velocity limit value" or "S-0-0039, Negative velocity limit value" was assigned is defective or not connected	Check wiring and function of analog input and, if necessary, replace cable or control section, or the entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware "Velocity Limitation"

E2049 - Attributes

Display: E2049
Ident N°: E2049

9.4.12 E2050 Device overtemp. Prewarning

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

The heat sink temperature of the device is monitored by a temperature sensor and a temperature model. When the heat sink has become too hot, the device is switched off in order to protect it against destruction. Before the error "F2018 Device overtemperature shutdown" is triggered, the warning "E2050 Device overtemp. Prewarning" is output.

☞ When the warning E2050 appears, it is possible to stop the axis via the control unit in accordance with the process (e.g. terminate processing, leave collision area etc.) or to reduce the load of the drive controller.

Cause	Remedy
Amplifier overtemperature (heat sink) due to overload of drive (overcurrent)	Switch drive off and let it cool down, check mechanical system as well as drive dimensioning (working power mustn't exceed, on average, continuous power of drive)
Ambient temperature too high. Specified performance data are valid up to an ambient temperature of 40 C	Reduce ambient temperature, e. g. by cooling the control cabinet

Cause	Remedy
Heat sink of device is dirty	Clean heat sink
Convection is prevented by other components or mounting position of control cabinet	Mount device vertically and provide sufficient space for ventilating heat sink
Failure of internal blower	If blower fails, replace device or power section
Failure of air conditioning for control cabinet	Check air conditioning of control cabinet
Incorrect dimensioning of control cabinet with regard to heat discharge	Check dimensioning of control cabinet

See also Functional Description of firmware "Current Limitation"

E2050 - Attributes

Display: E2050
Ident N°: E2050

9.4.13 E2051 Motor overtemp. prewarning

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The motor temperature measured by the temperature sensor approaches the limit value and has reached "S-0-0201, Motor warning temperature". The controller outputs the warning E2051. The drive is only switched off (F2019) when the motor temperature has reached the limit value in "S-0-0204, Motor shutdown temperature".

Cause	Remedy
"S-0-0201, Motor warning temperature" incorrectly parameterized	Check and correct parameterization of "S-0-0201, Motor warning temperature" by means of motor or temperature sensor data sheet
The motor is overloaded. The effective torque demanded from the motor has been above the allowed continuous torque for a too long time.	Check motor dimensioning and reduce motor load, e.g. by reduced infeed velocity in the case of metal-cutting machining. In the case of installations that have been operated for a long time, check whether drive conditions have changed (with regard to dirt accumulation, friction, moved masses etc.)
Line interruption, ground fault or short circuit in the line for motor temperature monitoring	Check line for motor temperature monitoring for line interruption, ground fault or short circuit
Instability in speed control loop	Check parameterization of speed control loop
Blower / cooling system defective	Check blower / cooling system

See also Functional Description of firmware "Motor Temperature Monitoring"

E2051 - Attributes

Display: E2051
Ident N°: E2051

9.4.14 E2053 Target position out of travel range

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Warnings (Exxxx)

Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In operating modes with internal position command value generation a check is run, before a movement is carried out, in order to find out whether the preset target position ("S-0-0258, Target position", "S-0-0282, Positioning command value" or "P-0-4006, Positioning block target position" [i]) is within the allowed travel range of the drive.

The allowed travel range of the drive is defined by

- S-0-0049, Positive position limit value
- S-0-0050, Negative position limit value

The position limit value monitor and thus the monitoring of the allowed travel range is activated in "S-0-0055, Position polarities".

The reaction to a travel range error can be set in "P-0-0090, Travel range limit parameter".

☞ When the position limit value monitor has been activated and the target position is outside of the allowed travel range, a warning bit is set in "S-0-0012, Class 2 diagnostics". In addition, the message "S-0-0323, Target position outside of travel range" is set. The positioning procedure is started.

Cause	Remedy
Position limit values ("S-0-0049, Positive position limit value", "S-0-0050, Negative position limit value") incorrectly parameterized	Check parameterization of position limit values and adjust it according to desired travel range ("S-0-0049, Positive position limit value" has to be greater than "S-0-0050, Negative position limit value")
Position limit value monitor has been activated although it is not needed	Deactivate position limit value monitor if it is not needed (e.g. in modulo operation)
In the case of relative interpolation, value for travel range was set too high or several travel ranges that are added cause effective target position (cf. "P-0-0050, Effective target position") to be outside of position limits	Check preset travel range (cf. "S-0-0258, Target position") and, if necessary, adjust it in control unit program
In the case of absolute interpolation, preset target position is incorrect	Check preset target position (cf. "S-0-0258, Target position" or "S-0-0282, Positioning command value") and, if necessary, adjust it in control unit program (only enter "S-0-0258, Target position" within position limit values)
In "positioning block mode" one or more target positions have been incorrectly parameterized or incorrect positioning block is selected	Check parameterized target positions in "P-0-4006, Positioning block target position" and block selection ("P-0-4006, Positioning block selection"). In addition, check block selection via respective master communication (e.g. field bus or digital I/Os).

See also Functional Description of firmware "Position Limitation/Travel Range Limit Switch"

For "relative interpolation" see Functional Description of firmware "Drive-Controlled Positioning"

For "absolute interpolation" see Functional Description of firmware "Drive-Internal Interpolation"

E2053 - Attributes

Display: E2053
Ident N°: E2053

9.4.15 E2054 Not homed

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Before a motion is carried out a check is run in the case of operating modes with drive-internal position command value generation (drive-internal interpolation, drive-controlled positioning and positioning block mode) to find out whether, with absolute target position preset ("S-0-0258, Target position" or "S-0-0282, Positioning command value", or "P-0-4006, Positioning block target position"), the measuring system used for positioning (cf. operating mode selection) has been homed.

☞ When the warning E2054 appears, the drive stops or does not accept the target position or the positioning block. In parameter "S-0-0012, Class 2 diagnostics" a warning bit is set.

Cause	Remedy
Absolute positioning was started although position data reference of drive had not yet been established [drive has not been homed (cf. "S-0-0403, Position feedback value status")]	Establish absolute position data reference by starting command "S-0-0148, C0600 Drive-controlled homing procedure command" or "P-0-0012, C0300 Command Set absolute measuring"

See also Functional Description of firmware "Establishing the Position Data Reference"

E2054 - Attributes

Display: E2054
Ident N°: E2054

9.4.16 E2055 Feedrate override S-0-0108 = 0

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

By means of the "S-0-0108, Feedrate override" it is possible to make a proportional scaling for the travel velocity of drive-controlled travel commands (0..100 %).

A feedrate override of 0 % causes the effective travel velocity to become "0". In spite of velocity command value being present (e. g. "S-0-0259, Positioning velocity"), the drive remains stopped at the current position or brakes down until reaching standstill.

☞ The function of the feedrate override can be switched off by setting S-0-0108 = 100 %.

If S-0-0108 has been cyclically configured or assigned to an analog input, this configuration has to be changed.

Warnings (Exxxx)

Cause	Remedy
Parameter "S-0-0108, Feedrate override" was set to "0"	Set feedrate override > "0" so that drive moves. Full velocity is reached with 100%.
For devices with analog inputs: feedrate override via analog input has been activated and voltage at analog input is "0"	Apply voltage > "0" proportionally to desired velocity (+10 V corresponds to 100% of velocity) alternative: deactivate feedrate override
Infeed potentiometer of connected control unit was set to "0" or is incorrectly evaluated	Carefully actuate infeed potentiometer, check analog signal and evaluation
Analog input used for feedrate override or connecting cable is defective	Check and if necessary replace cable and control section

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

E2055 - Attributes

Display: E2055
Ident N°: E2055

9.4.17 E2056 Torque limit = 0

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

To protect the drive or the connected mechanical system against mechanical overload the maximum torque or the maximum force can be limited to allowed values.

Cause	Remedy
One of the torque-/force-limiting parameters has the value "0"	Check parameters "S-0-0082, Torque/force limit value positive"; "S-0-0083, Torque/force limit value negative"; "S-0-0092, Bipolar torque/force limit value" and "P-0-0109, Torque/force peak limit" and enter "correct" limit value (unequal "0")
One of the torque-/force-limiting parameters has been assigned to analog input and voltage at analog input is "0"	Apply voltage > 0 proportionally to desired torque/force limit value **Note:** Scaling of analog input defines scaling of analog input voltage (see also Functional Description of firmware "Analog Inputs")
Potentiometer of connected control unit was set to "0" or is incorrectly evaluated	Carefully actuate potentiometer, check analog signal and evaluation
Cable connected at analog input for torque/force limitation is defective	Check and, if necessary, replace cable

Cause	Remedy
Analog input used for torque/force limitation is defective	Replace control section or entire drive controller
You are using motor without encoder memory; its motor data haven't yet been set and max. allowed currents (S-0-0109, S-0-0111,...) therefore are still "0"	Load motor parameters via motor data base stored in IndraWorks D

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware "Torque/Force Control"

E2056 - Attributes

Display: E2056
Ident N°: E2056

9.4.18 E2058 Selected process block is not programmed.

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In the "positioning block mode" the selected positioning block is checked so that only complete positioning blocks can be started.

☞ When the warning E2058 appears, the drive stops or does not accept the selected positioning block. In parameter "S-0-0012, Class 2 diagnostics" a warning bit is set.

Cause	Remedy
Positioning block data of currently selected block are not available	Check positioning block data ("P-0-4006, Positioning block target position", "P-0-4007, Positioning block velocity", "P-0-4008, Positioning block acceleration", "P-0-4009, Positioning block jerk", and "P-0-4019, Positioning block mode") and correct respective parameters
Incorrect positioning block selection via field bus or digital inputs	Check "P-0-4026, Positioning block selection" and control. If necessary, also check wiring and connection of digital I/Os
Incorrect configuration of digital inputs causes unwanted positioning block selection	Check configuration of digital inputs and correct it accordingly

See also Functional Description of firmware "Digital Inputs/Outputs"

See also Functional Description of firmware "Positioning Block Mode"

E2058 - Attributes

Display: E2058
Ident N°: E2058

9.4.19 E2059 Velocity command value limit active

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»

Warnings (Exxxx)

Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The drive is constantly monitoring the effective velocity command value (sum of velocity command values at controller input) and is limiting it.

If the effective velocity command value exceeds "S-0-0091, Bipolar velocity limit value", the warning E2059 is output because for positioning tasks the lag error can be increased.

Cause	Remedy
Cyclic command value preset by control unit is incorrect or too high	Control cyclic command value and, if necessary, adjust control program
Velocity limit value parameterized too low	Check and correct parameterization of "S-0-0091, Bipolar velocity limit value"

See also Functional Description of firmware "Velocity Control"

E2059 - Attributes

Display: E2059
Ident N°: E2059

9.4.20 E2061 Device overload prewarning

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

The work load of the device has exceeded a threshold. A warning is generated which warns against imminent overload, unless the load is reduced.

Devices with digital control are monitored by means of a permanently processed temperature model. If the thermal work load approaches 100 % the continuous current limit is activated shortly after and the warning "E8057 Device overload, current limit active" appears.

When the current is limited the torque/force is reduced which is not wanted for machines and installations and can cause problems. A warning is therefore output before this situation occurs.

For HCS, HMS, HMD

The threshold value for the overload prewarning can be set in "P-0-0441, Overload warning". If the thermal work load exceeds this value, the E2061 warning is output. Useful values for "P-0-0441, Overload warning" are at 80-90% so that there still is a little reserve capacity until the actual thermal work load is reached (100%).

The warning can be deactivated by the value "100%" in "P-0-0441, Overload warning", because in this case the fatal warning "E8057 Device overload, current limit active" warning is immediately generated!

As of MPx05: When the function "PWM frequency switching depending on load" has been selected (P-0-0556, bit 8=1), the device is switched to the lower switching frequency in case the prewarning threshold is exceeded.

The device is switched to the higher frequency, when the load in P-0-0141 falls below an internally calculated threshold. The value of this threshold is lower than the value in parameter "P-0-0441, Overload warning".

As long as the controller is operated with the lower switching frequency, the warning "E2061 Device overload prewarning" is displayed.

For HMV01.1R The threshold value for the overload prewarning is fixed to 90%. If the thermal work load exceeds this value, the E2061 warning is output. This threshold cannot be set and therefore the warning cannot be deactivated!

Cause	Remedy
Incorrect value of "P-0-0441, Overload warning"	Increase value of "P-0-0441, Overload warning", if necessary
Overload of drive (e.g. due to too high infeed during machining or too high acceleration to high speed)	Switch drive off and let it cool down. Check drive dimensioning and command value profile
Changes in mechanical system with regard to friction and moved masses	In the case of installations that have been run for a long time, check drive conditions for changes in mechanical system

See also Functional Description of firmware "Current Limitation"

E2061 - Attributes

Display: E2061

Ident N°: E2061

9.4.21 E2063 Velocity command value > limit value

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The drive continuously monitors the "S-0-0036, Velocity command value".

If the velocity command value exceeds the smallest parameterized velocity limit value, the lag error can be increased for positioning tasks.

Cause	Remedy
Cyclic command value preset by control unit is incorrect or too high	Control cyclic command value and, if necessary, adjust control program
Velocity limit value parameterized too low	Check and correct parameterization of "S-0-0091, Bipolar velocity limit value", "S-0-0038, Positive velocity limit value" and "S-0-0039, Negative velocity limit value"

See also Functional Description of firmware "Velocity Control"

E2063 - Attributes

Display: E2063

Ident N°: E2063

9.4.22 E2064 Target position out of num. range

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

The operating mode "drive-internal interpolation" or "drive-controlled positioning" was selected and the preset target position cannot be displayed in the internal position format.

Cause	Remedy
Incorrect target position or positioning command value was preset	Check target position ("S-0-0258, Target position") or positioning command value ("S-0-0282, Positioning command value") preset by control unit (master) and, if necessary, correct control unit program
An "infinitely turning axis" is not operated in modulo format	Check content of "S-0-0076, Position data scaling type" and change to "modulo format"
Selected "S-0-0278, Maximum travel range" too small	Increase value of "S-0-0278, Maximum travel range" in order to increase position that can be displayed internally in absolute form

See also Functional Description of firmware "Drive-Controlled Positioning"

See also Functional Description of firmware "Drive-Internal Interpolation"

E2064 - Attributes

Display: E2064
Ident N°: E2064

9.4.23 E2069 Brake torque too low

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When the drive enable was switched off the motor moved during the automatic brake torque check (can be activated via "P-0-0525, Holding brake control word"). The motor holding brake therefore no longer provides the required holding torque (see also "P-0-0547, Test torque with holding brake applied").

The result of the brake check is displayed in "P-0-0539, Holding brake status word".

Cause	Remedy
Due to storage, brake is covered with oxide layer **- or -** Brake is wetted with oil or grease	If warning occurs when drive enable is switched off, start "brake check" command in order to abrade brake, if this setting was made in "P-0-0525, Holding brake control word". Afterwards brake should be able to provide full torque again
Brake is worn (see service life of brake in Project Planning Manual for motor)	If holding torque still isn't reached after repeated start of "brake check" command (abrasion cleaning processes of brake), motor holding brake or entire motor needs to be replaced
Wiring or control error of brake (hardware defect on control section)	Check wiring and connection of brake (incl. brake relay). If brake control in controller (e.g. relay) is defective, entire drive controller or control section has to be replaced

See also Functional Description "Motor Holding Brake"

E2069 - Attributes

Display: E2069
Ident N°: E2069

9.4.24 E2070 Acceleration limit active

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The acceleration in the velocity loop is limited to the value of "S-0-0138, Bipolar acceleration limit value".

☞ **As of MPx05:** The acceleration monitoring can be switched off by inputting "0" in "S-0-0138, Bipolar acceleration limit value".

Cause	Remedy
Value in "S-0-0138, Bipolar acceleration limit value" too low	Check and, if necessary, correct parameterization of "S-0-0138, Bipolar acceleration limit value"
Incorrect command value set by control unit	Contact control unit manufacturer or programmer
Preset acceleration value was greater than value parameterized in "S-0-0138, Bipolar acceleration limit value"	Reduce acceleration value used • S-0-0042, Homing acceleration • S-0-0260, Positioning acceleration • P-0-0057, Return acceleration • P-0-1201, Ramp 1 pitch • P-0-1203, Ramp 2 pitch • P-0-1211, Deceleration ramp 1 • P-0-1213, Deceleration ramp 2

E2070 - Attributes

Display: E2070
Ident N°: E2070

9.4.25 E2074 Encoder 1: encoder signals disturbed

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The hardware checks the signals of the measuring system (encoder 1) for inadmissible signal dips. If a signal (e.g. sin or cos) leaves the thresholds monitored by the hardware, the warning E2074 is generated.

In the case of major failures or several signal dips in series, the error "F8022 Enc. 1: enc. signals incorr." is generated and the drive is shut down. The warning E2074 therefore points at disturbed encoder signals before a breakdown occurs.

☞ The warning E2074 is only cleared by reinitialization of the encoder position; i. e. it is necessary to switch to communication phase 2.

Cause	Remedy
Defective encoder cable or cable shielding	Check cable to measuring system and replace it, if necessary
Measuring system defective	Check measuring system and replace it, if necessary
Faulty mounting of measuring head in the case of linear measuring systems	Check mounting of measuring head and correct it, if necessary
Measuring system dirty	Clean or replace measuring system
Hardware defect on control section of drive	Replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

E2074 - Attributes

Display: E2074
Ident N°: E2074

9.4.26 E2075 Encoder 2: encoder signals disturbed

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The hardware checks the signals of the measuring system (encoder 2) for inadmissible signal dips. If a signal (e.g. sin or cos) leaves the thresholds monitored by the hardware, the warning E2075 is generated.

In the case of major failures or several signal dips in series, the error "F2042 Encoder 2: encoder signals incorrect" is generated and the drive is shut down. The warning E2075 therefore points at disturbed encoder signals before a breakdown occurs.

☞ The warning E2075 is only cleared by reinitialization of the encoder position; i. e. it is necessary to switch to communication phase 2.

Cause	Remedy
Defective encoder cable or cable shielding	Check cable to measuring system and replace it, if necessary
Measuring system defective	Check measuring system and replace it, if necessary
Faulty mounting of measuring head in the case of linear measuring systems	Check mounting of measuring head and correct it, if necessary
Measuring system dirty	Clean or replace measuring system
Hardware defect on control section of drive	Replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

E2075 - Attributes

Display: E2075
Ident N°: E2075

9.4.27 E2076 Measuring encoder: encoder signals disturbed

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The hardware checks the signals of the measuring encoder for inadmissible signal dips. If a signal (e. g. sin or cos) leaves the thresholds monitored by the hardware, the warning E2076 is generated.

In the case of major failures or several signal dips in series, the error "F2043 Measuring encoder: encoder signals incorrect" is generated and the drive is shut down. The warning E2076 therefore points at disturbed encoder signals before a breakdown occurs.

☞ The warning E2076 is only cleared by reinitialization of the encoder position; i. e. it is necessary to switch to communication phase 2.

Cause	Remedy
Defective encoder cable or cable shielding	Check cable to measuring system and replace it, if necessary
Measuring system defective	Check measuring system and replace it, if necessary
Faulty mounting of measuring head in the case of linear measuring systems	Check mounting of measuring head and correct it, if necessary
Measuring system dirty	Clean or replace measuring system
Hardware defect on control section of drive	Replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

E2076 - Attributes

Display: E2076
Ident N°: E2076

9.4.28 E2077 Absolute encoder monitoring, motor encoder (encoder alarm)

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The signals of an absolute measuring system (EnDat2.x) are monitored in the encoder.

In the drive controller, cyclic transmission of the absolute position is carried out. The error bit of the encoder is transmitted, too. The drive controller cyclically checks this error bit and outputs the warning E2077 when an error of the absolute position occurs.

☞ The warning E2077 is only cleared by reinitialization of the encoder position; i.e. it is necessary to switch to communication phase 2.

Cause	Remedy
Measuring system defective	Check measuring system and replace it, if necessary
Faulty mounting of measuring head in the case of linear measuring systems	Check mounting of measuring head and correct it, if necessary
Measuring system dirty	Clean or replace measuring system

E2077 - Attributes

Display: E2077
Ident N°: E2077

9.4.29 E2078 Absolute encoder monitoring, opt. encoder (encoder alarm)

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The signals of an absolute measuring system (EnDat2.x) are monitored in the encoder.

In the drive controller, cyclic transmission of the absolute position is carried out. The error bit of the encoder is transmitted, too. The drive controller cyclically checks this error bit and outputs the warning E2078 when an error of the absolute position occurs.

☞ The warning E2078 is only cleared by reinitialization of the encoder position; i.e. it is necessary to switch to communication phase 2.

Cause	Remedy
Measuring system defective	Check measuring system and replace it, if necessary
Faulty mounting of measuring head in the case of linear measuring systems	Check mounting of measuring head and correct it, if necessary
Measuring system dirty	Clean or replace measuring system

E2078 - Attributes

Display: E2078
Ident N°: E2078

9.4.30 E2079 Absolute enc. monitoring, measuring encoder (encoder alarm)

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The acceleration in the velocity loop is limited to the value of "S-0-0138, Bipolar acceleration limit value".

☞ The acceleration monitor can be switched off by means of "P-0-0556, Configuration of axis controller".

Cause	Remedy
Value in "S-0-0138, Bipolar acceleration limit value" too low	Check and, if necessary, correct parameterization of "S-0-0138, Bipolar acceleration limit value"
Incorrect command value set by control unit	Contact control unit manufacturer or programmer
Preset acceleration value was greater than value parameterized in "S-0-0138, Bipolar acceleration limit value"	Reduce acceleration value which is used • S-0-0042, Homing acceleration • S-0-0260, Positioning acceleration • P-0-0057, Return acceleration • P-0-1201, Ramp 1 pitch • P-0-1203, Ramp 2 pitch • P-0-1211, Deceleration ramp 1 • P-0-1213, Deceleration ramp 2

E2079 - Attributes

Display: E2079
Ident N°: E2079

9.4.31 E2086 Prewarning supply module overload

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The supply signals a warning regarding imminent overload via the module bus. The warning is displayed at the drive controllers and can be evaluated by the

control master via the master communication. If there is no relief, the module bus message "error supply module" and power off (F2086) can occur.

Cause	Remedy
Imminent overload of power supply	Reduce required power by lower infeed velocity of tools. Check dimensioning of supply
Max. energy absorption capacity of braking resistor almost reached	Check dimensioning of braking resistor and, if necessary, increase dimensioning

See also Functional Description of firmware "Power Supply"

E2086 - Attributes

Display: E2086
Ident N°: E2086

9.4.32 E2092 Internal synchronization defective

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

☞ The warning E2092 is used for internal purposes of diagnosis!

Cause: The command value input cycle for command value processing has not been synchronized; i.e. the command value processing cycle is smaller than the command value input cycle.

E2092 - Attributes

Display: E2092
Ident N°: E2092

9.4.33 E2100 Positioning velocity of master axis generator too high

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Cause	Remedy
Positioning velocity of master axis generator has reached maximum allowed limit value ("P-0-0770, Virtual master axis, positioning velocity")	Maximum velocity parameterized in "P-0-0770, Virtual master axis, positioning velocity", with which master axis generator moves to new target position, has to be adjusted: • In the case of **modulo scaling** of master axis generator: half the modulo value ("P-0-0757, Virtual master axis, modulo value") per 2 ms • In the case of **absolute scaling** of master axis generator: half the feed travel ("P-0-0918, Feed travel internal virtual master axis") per 2 ms

E2100 - Attributes

Display: E2100
Ident N°: E2100

9.4.34 E2101 Acceleration of master axis generator is zero

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

Cause	Remedy
Preset positioning acceleration of master axis generator is "0"	Set positioning acceleration of master axis generator unequal "0" in "P-0-0771, Virtual master axis, positioning acceleration"

E2101 - Attributes

Display: E2101
Ident N°: E2101

9.4.35 E2140 CCD error at node

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «MPH» «-»
Contained in 05VRS: «-» «MPH» «-»
Supported by supply unit: «-»

The warning is generated,

1. when the CCD group is in phase 4,
2. at least the simple error reaction has been activated via P-0-1600 and
3. at least one CCD node signals an error of class 1 diagnostics.

Cause	Remedy
In a CCD slave or in CCD master, an error of class 1 diagnostics has occurred	Remove error in CCD slave or CCD master
In a CCD slave or in CCD master, a motion function block with faulty parameters was called in drive-integrated PLC (IndraMotion MLD-M) [see also "P-0-1367, PLC configuration", bit7]	Remove error in PLC program

See also Functional Description of firmware "Cross Communication (CCD)"

E2140 - Attributes

Display: E2140
Ident N°: E2140

9.4.36 E2270 Analog input 1 or 2, wire break

Validity

Contained in 02VRS: «MPB» «-» «-»
Contained in 03VRS: «MPB» «-» «-»
Contained in 04VRS: «MPB» «-» «-»
Contained in 05VRS: «MPB» «-» «-»
Supported by supply unit: «-»

Conditions under which this warning is triggered:

- The wire break monitor was activated in "P-0-0218, Analog input, control parameter" (by the setting for the measuring range of the analog inputs) and

- a setting in "P-0-0218, Analog input, control parameter" causes a warning to be generated when the input value has fallen below the input value at analog input 1 or 2 and
- the current/voltage value at analog input 1 or 2 is lower than the minimum value of the measuring range.

The warning persists until the condition has been fulfilled.

☞ The value range of the voltage or current source that is connected to the analog input should be limited to the allowed value range of the analog input.

Cause	Remedy
Input value at analog input 1 or 2 is lower than minimum value of voltage measuring range (setting "voltage signals" in "P-0-0218, Analog input, control parameter")	Check wiring of analog input, reestablish contact to voltage source, if necessary **- or –** Check value range of voltage source
Input value at analog input 1 or 2 is lower than minimum value of current measuring range (setting "current signals" in "P-0-0218, Analog input, control parameter")	Check wiring of analog input, reestablish contact to current source, if necessary **- or –** Check value range of current source

☞ This warning can only be displayed at a controller containing a CSB01.1N-FC-... (BASIC OPENLOOP) control section.

E2270 - Attributes

Display: E2270
Ident N°: E2270

9.4.37 E2802 HW control of braking resistor

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the braking process the increasing DC bus voltage is reduced by switching on the braking resistor. But when the regenerated braking power is too high the DC bus voltage keeps increasing. The warning E2802 is generated when the protective hardware circuit switches on the braking resistor in the case of high voltages (>900 V).

Cause	Remedy
DC bus voltage >900 V due to increased regenerated braking energy	Check drive dimensioning and, if necessary, use additional capacitance
Braking resistor defective or not correctly connected	Check function of braking resistor (incl. cabling and connection)
Hardware defect in brake control	Replace power section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the power section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware "Power Supply"

E2802 - Attributes

Display: E2802
Ident N°: E2802

9.4.38 E2810 Drive system not ready for operation

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

One or several components of a "drive system" (devices interconnected via direct voltage DC bus and module bus)

- signal an error to the module bus (Fxxxx) with the supply unit not yet ready for power output

- or -

- are left in communication phase P0 by the master ("passive axis" or "deactivated axis") while other drives are in P4 ("bb").

Power on is impossible in these cases, the supply unit or the converter signal E2810 on the display.

Cause	Remedy
Error message of one or several components of a drive system	Identify component/components which signals/signal an error. Remove cause of error at component/components
One or several drives still are in communication phase P2	Switch drives to communication phase P4 ["ready for operation" (bb)]
"Passive axes" (communication phase P0) signal their "faulty" status to drive system via module bus. Supply unit refuses power on	For passive axes ("P0"), set bit 1=0 [no signaling, no triggering of "package reaction" in case of error ("passive axis")] in "P-0-0118, Power supply, configuration"

See also Functional Description of firmware "Power Supply"

E2810 - Attributes

Display: E2810
Ident N°: E2810

9.4.39 E2814 Undervoltage in mains

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The crest value of the mains voltage during operation has fallen below the parameterized threshold value. The threshold value can be individually set by the user via "P-0-0810, Minimum mains crest value".

Warnings (Exxxx)

Cause	Remedy
Mains voltage falls under load	Check dimensioning of mains connection, increase feed wire cross section or use matching transformer, if necessary
Mains voltage too low at power on	Use matching transformer

See also Functional Description of firmware "Power Supply"

E2814 - Attributes

Display: E2814
Ident N°: E2814

9.4.40 E2816 Undervoltage in power section

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The warning E2816 is generated with the respective setting in "P-0-0118, Power supply, configuration" when the DC bus voltage in operation falls below the values parameterized in "P-0-0114, Undervoltage threshold".

☞ The parameter "P-0-0114, Undervoltage threshold" is preset with a default value and, if required, can be changed by the user.

Cause	Remedy
DC bus voltage drops due to temporary overload	Check drive dimensioning incl. devices connected at DC bus
Required acceleration currents are too high	Reduce command acceleration by adjusting travel profile
Faulty mains connection (e.g. loose contact)	Check mains connection
"P-0-0114, Undervoltage threshold" has not been adjusted to conditions in mains	Check and, if necessary, correct content of "P-0-0114, Undervoltage threshold"

See also Functional Description of firmware "Power Supply"

E2816 - Attributes

Display: E2816
Ident N°: E2816

9.4.41 E2818 Phase failure

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

A **single-phase** mains failure was detected. Power is not switched off unless undervoltage occurs in the DC bus (F2026).

☞ When the phase failure lasts for a longer time, the error "F2818 Phase failure" is generated.

Cause	Remedy
No mains voltage available	Check mains voltage and mains connection
Mains circuit breaker defective	Replace mains circuit breaker
Incorrect wiring	Check and correct wiring

E2818 - Attributes

Display: E2818
Ident N°: E2818

9.4.42 E2819 Mains failure

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

A two-phase or three-phase mains failure was detected. Power is not switched off unless undervoltage occurs in the DC bus (F2026).

☞ When the mains failure lasts for a longer time, the error "F2819 Mains failure" is generated.

Cause	Remedy
No mains voltage available	Check mains voltage and mains connection
Mains circuit breaker defective	Replace mains circuit breaker
Incorrect wiring	Check and correct wiring

E2819 - Attributes

Display: E2819
Ident N°: E2819

9.4.43 E2820 Braking resistor overload prewarning

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

90% of the energy absorption capacity of the braking resistor have been reached.

Cause	Remedy
Allowed deceleration of connected drives too high	Reduce deceleration of connected drives
Energy absorption capacity of braking resistor is almost exhausted	Switch power off with a delay in the case of OFF or E-STOP (for regenerative supplies)
Regenerated energy in machining cycle is too high	Increase cycle time or reduce maximum drive speed of application

Warnings (Exxxx)

Cause	Remedy
Braking resistor connection is interrupted	Check wiring of external braking resistor
Continuous regenerative power and/or rotary drive energy is too high	Check dimensioning of braking resistor and, if necessary, increase dimensioning

E2820 - Attributes

Display: E2820
Ident N°: E2820

9.4.44 E2829 Not ready for power on

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The mains voltage for power supply cannot yet be switched on for the HCS03 converter; the device is not yet ready for loading the DC bus capacitances.

Cause	Remedy
Resistors for loading DC bus capacitances still are thermally loaded due to last loading process	Wait until converter clears warning E2829

E2829 - Attributes

Display: E2829
Ident N°: E2829

10 Diagnostic Command Messages

10.1 Commands

10.1.1 C0100 Communication phase 3 transition check

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

The "S-0-0127, C0100 Communication phase 3 transition check" command was activated.

C0100 - Attributes

Display: C01
Ident N°: C0100

10.1.2 C0200 Exit parameterization level procedure command

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

In the firmware versions 02VRS and 03VRS, the name of the command is "C0200 Communication phase 4 transition check".

02VRS / 03VRS

The command "S-0-0128, C0200 Communication phase 4 transition check" has been activated.

As of 04VRS

The command "S-0-0422, C0200 Exit parameterization level procedure command" has been activated.

C0200 - Attributes

Display: C02
Ident N°: C0200

10.1.3 C0300 Command Set absolute measuring

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command for setting the absolute measuring ("P-0-0012, C0300 Command Set absolute measuring") was activated.

See also Functional Description of firmware "Set Absolute Measuring"

C0300 - Attributes

Display: C03
Ident N°: C0300

10.1.4 C0400 Activate parameterization level 1 procedure command

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

02VRS / 03VRS

The command for switching to the parameter mode was started via parameter "P-0-4023, C0400 Communication phase 2 transition".

This command has to be carried out before editing parameters that can only be written in the parameter mode.

As of 04VRS

The command for switching to the parameter mode was started via parameter "S-0-0420, C0400 Activate parameterization level 1 procedure command".

C0400 - Attributes

Display: C04
Ident N°: C0400

10.1.5 C0500 Reset class 1 diagnostics, error reset

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

The command for clearing errors, "S-0-0099, C0500 Reset class 1 diagnostics", was activated. All drive-internal errors are cleared.

Only those errors can be cleared that were removed! Errors that are still present after clearing will cause the error message to be generated again.

CAUTION

Damage to the internal memory (flash) caused by too many write accesses!

⇒ During the execution of this command, data are written to the internal memory (flash). As each flash only allows a limited number of write accesses before its memory locations are destroyed, you should make sure that such write accesses won't be carried out too often.

C0500 - Attributes

Display: C05
Ident N°: C0500

10.1.6 C0600 Drive-controlled homing procedure command

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command for drive-controlled homing, "S-0-0148, C0600 Drive-controlled homing procedure command", was activated.

See also Functional Description of firmware "Drive-Controlled Homing"

C0600 - Attributes

Display: C06

Ident N°: C0600

10.1.7 C0700 Load defaults procedure com. (load controller param.)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The message C07_0 on the display of the drive controller shows that the command "C07_0 Load defaults procedure command (load controller parameters)" was activated.

The command can be started as follows:

- via the parameter "S-0-0262, C07_x Load defaults procedure command" or
- via the control panel of the drive controller or
- by starting the command "S-0-0099, C0500 Reset class 1 diagnostics" when the drive controller displays "RL" (occurs if parameters "S-0-0141, Motor type" and "P-0-2141, Motor type, encoder memory" are different).

With parameter S-0-0262 it is possible to start another command, the "C07_1 Load defaults procedure command (load basic parameters)" command. In parameter "P-0-4090, Index for C07 Load defaults procedure" it is possible to set which of both commands is started.

The C07_0 Load defaults procedure command (load controller parameters) can only be carried out in the case of motors of the MHD, MKD and MKE lines. In the case of these motors, the controller parameters are loaded from the motor encoder data memory to the drive controller and some controller parameters are set to their default values.

CAUTION

The command "C07_0 Load defaults procedure command (load controller parameters)" overwrites user-defined controller settings!

⇒ Only use this command if you want to load standard controller parameter values. For saving and then loading user-defined parameter values there are specific commands available.

See also Functional Description of firmware "Loading, Storing and Saving Parameters"

See also Functional Description of firmware "Control Panel of the IndraDrive Controllers"

CAUTION

Damage to the internal memory (flash) caused by too many write accesses!

⇒ During the execution of this command, data are written to the internal memory (flash). As each flash only allows a limited number of write accesses before its memory locations are destroyed, you should make sure that such write accesses won't be carried out too often.

C0700 - Attributes

Display: C07_0
Ident N°: C0700

10.1.8 C0720 Load def. proc. com. (load def. pr. for safety techn.)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The message C07_2 on the display of the drive controller shows that the command "C07_2 Load def. proc. com. (load def. pr. for safety techn.)" was activated.

The command can be started as follows:

1. Enter value "165" for "load defaults procedure for safety technology" in parameter "P-0-4090, Index for C07 Load defaults procedure".
2. Start "S-0-0262, C07_x Load defaults procedure command".

☞ It is possible to start further commands with parameter S-0-0262. In parameter "P-0-4090, Index for C07 Load defaults procedure" it is possible to set which command is started.

The command "C07_2 Load def. proc. com. (load def. pr. for safety techn.)" deactivates the safety technology and sets all safety technology parameters to their default value.

CAUTION

The command "C07_2 Load def. proc. com. (load def. pr. for safety techn.)" overwrites user-defined safety technology settings!

⇒ Only use this command if you want to commission safety technology again.

C0720 - Attributes

Display: C07_2
Ident N°: C0720

10.1.9 C0730 Load def. proc. com. (load defaults procedure for PLC)

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

The message C07_3 on the display of the drive controller shows that the command "C07_3 Load def. proc. com. (load defaults procedure for PLC)" was activated.

The command can be started as follows:

1. Enter value 2 for "load defaults procedure for PLC" in parameter "P-0-4090, Index for C07 Load defaults procedure".
2. Start "S-0-0262, C07_x Load defaults procedure command.

☞ It is possible to start further commands with parameter S-0-0262. In parameter "P-0-4090, Index for C07 Load defaults procedure" it is possible to set which command is started.

The command "C07_3 Load def. proc. com. (load defaults procedure for PLC)" deactivates the drive PLC and sets all PLC parameters to their default value.

CAUTION

The command "C07_3 Load def. proc. com. (load defaults procedure for PLC)" overwrites user-defined PLC settings!

⇒ Only use this command if you want to delete the complete PLC program and its parameters without programming system.

C0730 - Attributes

Display: C07_3
Ident N°: C0730

10.1.10 C0750 Load defaults procedure com. (load basic parameters)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The basic parameter set (firmware-specific default values for all parameters) stored in the firmware is loaded. All previous parameter values are overwritten.

CAUTION

Damage to the internal memory (flash) caused by too many write accesses!

⇒ During the execution of this command, data are written to the internal memory (flash). As each flash only allows a limited number of write accesses before its memory locations are destroyed, you should make sure that such write accesses won't be carried out too often.

C0750 - Attributes

Display: C07_1
Ident N°: C0750

10.1.11 C0800 Load basic parameters command

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

☞ This command is only available for manufacturer-side testing and developing purposes!

C0800 - Attributes

Display: C08
Ident N°: C0800

10.1.12 C0900 Position spindle command

Validity

Contained in 02VRS: «MPB» «MPH» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Via the control unit the "S-0-0152, C0900 Position spindle command" parameter was activated.

See also Functional Description of firmware "Spindle Positioning"

C0900 - Attributes

Display: C09
Ident N°: C0900

10.1.13 C1200 Commutation offset setting command

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command for setting the commutation offset, "P-0-0524, C1200 Commutation offset setting command", was activated.

Which one of the two methods with current (saturation or sine-wave method) is to be active has to be set in "P-0-0522, Control word for commutation setting" before.

☞ Correctly set commutation offset is obligatory for operating synchronous kit motors and synchronous third-party motors!

See also Functional Description of firmware "Commutation Setting"

C1200 - Attributes

Display: C12
Ident N°: C1200

10.1.14 C1300 Positive stop drive procedure command

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command "S-0-0149, C1300 Positive stop drive procedure command" was activated.

See also Functional Description of firmware "Positive Stop Drive Procedure"

C1300 - Attributes

Display: C13
Ident N°: C1300

10.1.15 C1400 Command Get marker position

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The "P-0-0014, C1400 Command Get marker position command" was started.

The "C14" display signals that the command is executed.

In the case of incremental measuring systems, the reference mark is checked for correct detection.

See also Functional Description of firmware "Detect marker position"

C1400 - Attributes

Display: C14
Ident N°: C1400

10.1.16 C1500 Cancel reference point procedure command

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command "S-0-0191, C1500 Cancel reference point procedure command" was started.

The "C15" display signals that the command is executed.

The reference of the encoder selected via "S-0-0147, Homing parameter" is cleared.

See also Functional Description of firmware "Drive-Controlled Homing"

C1500 - Attributes

Display: C15
Ident N°: C1500

10.1.17 C1600 Parking axis command

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command "S-0-0139, C1600 Parking axis command" has been activated.

See also Functional Description of firmware "Parking Axis"

C1600 - Attributes

Display: PA
Ident N°: C1600

10.1.18 C1700 Command measuring wheel mode

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

The "P-0-0240, C1700 Command measuring wheel mode" was started.

C1700 - Attributes

Display: C17
Ident N°: C1700

10.1.19 C1800 Command automatic control loop setting

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

By starting the command "P-0-0162, C1800 Command Automatic control loop adjust" automatic control loop setting is carried out in the drive, if the drive is in control at the start of the command (i.e. drive enable must have been set).

WARNING

⇒ Starting the command C1800 can immediately trigger a motion, if **drive enable and drive start** are set at the drive.

⇒ The drive **automatically** (i.e. without external command value input) carries out **motions** within the travel range defined before with the two limits ("P-0-0166, Lower limit for autom. control loop adjust" and "P-0-0167, Upper limit for autom. control loop adjust").

Check and make sure that the E-Stop circuit and the travel range limit switches are working.

See also Functional Description of firmware "Automatic Setting of Axis Control"

C1800 - Attributes

Display: C18
Ident N°: C1800

10.1.20 C2000 Command Release motor holding brake

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The "P-0-0542, C2000 Command Release motor holding brake" command was started.

While the command is executed the motor holding brake is released.

The "C2" display signals that the command is executed.

See also Functional Description of firmware "Motor Holding Brake"

C2000 - Attributes

Display: C20
Ident N°: C2000

10.1.21 C2100 Brake check command

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command "P-0-0541, C2100 Brake check command" was activated.

See also Functional Description of firmware "Motor Holding Brake"

C2100 - Attributes

Display: C21
Ident N°: C2100

10.1.22 C2200 Backup working memory procedure command

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command "S-0-0264, C2200 Backup working memory procedure command" was activated.

CAUTION

Damage to the internal memory (flash) caused by too many write accesses!

⇒ During the execution of this command, data are written to the internal memory (flash). As each flash only allows a limited number of write accesses before its memory locations are destroyed, you should make sure that such write accesses won't be carried out too often.

C2200 - Attributes

Display: C22
Ident N°: C2200

10.1.23 C2300 Load working memory command

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command "S-0-0263, C2300 Load working memory procedure command" was activated.

CAUTION

Damage to the internal memory (flash) caused by too many write accesses!

⇒ During the execution of this command, data are written to the internal memory (flash). As each flash only allows a limited number of write accesses before its memory locations are destroyed, you should make sure that such write accesses won't be carried out too often.

C2300 - Attributes

Display: C23
Ident N°: C2300

10.1.24 C2400 Selectively backup working memory procedure command

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The "S-0-0293, C2400 Selectively backup working memory procedure command" was activated.

C2400 - Attributes

Display: C24
Ident N°: C2400

10.1.25 C2500 Copy IDN from optional memory to internal memory

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command "P-0-4091, C2500 Copy IDN from optional memory to internal memory" was started.

All parameters are copied from the optional memory (MMC) to the internal memory (flash).

The display "C25" signals that the command is executed and the parameters are loaded from the MMC to the drive.

☞ The MMC can only be used as an optional memory for control sections with MMC slot.

CAUTION

Damage to the internal memory (flash) caused by too many write accesses!

⇒ During the execution of this command, data are written to the internal memory (flash). As each flash only allows a limited number of write accesses before its memory locations are destroyed, you should make sure that such write accesses won't be carried out too often.

See also Functional Description of firmware "Loading, Storing and Saving Parameters"

C2500 - Attributes

Display: C25
Ident N°: C2500

10.1.26 C2600 Copy IDN from internal memory to optional memory

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The command "P-0-4092, C2600 Copy IDN from internal memory to optional memory" was **started.**

All parameters are copied from the internal memory (flash) to the optional memory (MMC).

The display "C26" signals that the command is executed and the parameters are written from the drive to the MMC.

☞ The MMC can only be used as an optional memory for control sections with MMC slot.

CAUTION

Damage to the internal memory (flash) caused by too many write accesses!

⇒ During the execution of this command, data are written to the internal memory (flash). As each flash only allows a limited number of write accesses before its memory locations are destroyed, you should make sure that such write accesses won't be carried out too often.

See also Functional Description of firmware "Loading, Storing and Saving Parameters"

C2600 - Attributes

Display: C26

Ident N°: C2600

10.1.27 C2800 Analog input adjust command

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

By executing the command "P-0-0220, C2800 Analog input adjust command" it is possible to carry out an automatic adjust (zero point and gain) of the analog input.

☞ The command is controlled by the settings in "P-0-0218, Analog input, control parameter".

Execution of the command takes some time; the status of the command is shown in "S-0-0135, Drive status word" or can be polled by a write command to parameter element 1 of the command parameter.

See also Functional Description of firmware

- "Command Processing"
- "Analog Inputs"

C2800 - Attributes

Display: C28

Ident N°: C2800

10.1.28 C2900 Command Firmware update from MMC

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command "P-0-4072, C2900 Command Firmware update from MMC" was started.

The firmware is copied from the MultiMediaCard (MMC) to the drive-internal memory.

☞ The MMC can only be used as an optional memory for control sections with MMC slot.

☞ Upon successful firmware update the drive has to be rebooted by switching it off and on again so that the firmware copied before becomes active. If you try to switch to the operating mode without the drive having been rebooted, there will either occur a switching command error or a system error (F8xxx) entered before the firmware update will be displayed again.

See also Functional Description of firmware "Firmware Release Update"

C2900 - Attributes

Display: C29
Ident N°: C2900

10.1.29 C3000 Synchronize and store safety technology IDN

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

By the execution of command "P-0-3204, C3000 Synchronize and store safety technology IDN command", channel 2 applies the safety parameters of channel 1 and stores them in the safety memory.

☞ Executing the command "C3000 Synchronize and store safety technology IDN" increases the change counter of the safety technology memory (P-0-3201). It is therefore necessary to carry out the acceptance test again.

C3000 - Attributes

Display: C30
Ident N°: C3000

10.1.30 C3100 Recalculate actual value cycle

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

When the command "P-0-0071, C3100 Recalculate actual value cycle" is executed, the modulo value for the actual value cycle is recalculated.

C3100 - Attributes

Display: C31

Ident N°: C3100

10.1.31 C3200 Command Calculate motor data

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The command is started via the command parameter "P-0-4033, C3200 Command Calculate motor data".

While the command is executed, the values in "P-0-4032, Motor type plate data" are checked for validity and completeness. Then the motor parameters are calculated according to type plate data.

☞ To calculate the controller parameters the current settings is "P-0-0001, Switching frequency of the power output stage" and "P-0-0556, Control word of axis controller" (with regard to controller performance) are taken as basis. If one of these parameters is changed after the command has been started, the controller settings may not be correct any more.

C3200 - Attributes

Display: C32

Ident N°: C3200

10.1.32 C3300 Set coordinate system procedure command

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The command for setting the coordinate system ("S-0-0197, C3300 Set coordinate system procedure command") was activated.

See also Functional Description of firmware "Shifting the Position Data Reference for Relative and Absolute Measuring Systems"

C3300 - Attributes

Display: C33

Ident N°: C3300

10.1.33 C3400 Shift coordinate system procedure command

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Diagnostic Command Messages

Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command for shifting the coordinate system ("S-0-0199, C3400 Shift coordinate system procedure command") was activated.

See also Functional Description of firmware "Shifting the Position Data Reference for Relative and Absolute Measuring Systems"

C3400 - Attributes

Display: C34
Ident N°: C3400

10.1.34 C3500 Command Determine encoder correction values

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

By executing the command "P-0-0340, C3500 Command Determine encoder correction values" signal shape errors of a measuring system with sinusoidal signals are determined and correction values are stored in "P-0-0342, Correction value table for encoder correction".

The encoder the signal shape error of which is to be compensated has to be selected in "P-0-0341, Control word for encoder correction".

C3500 - Attributes

Display: C35
Ident N°: C3500

10.1.35 C3600 Command Motor data identification

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command "P-0-0565, C3600 Command Motor data identification" has been activated.

See also Functional Description of firmware "Automatic Setting of Motor Control"

C3600 - Attributes

Display: C36
Ident N°: C3600

10.1.36 C3700 Manually unlocking the safety door

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In the case of an encoder error the safety technology can no longer guarantee dual-channel safety. It would then be impossible, for example, to detect a coasting spindle.

Executing command C3700 is only allowed when there is a safety technology error in the drive.

DANGER

Lethal injury caused by moving parts in the safety zone!

⇒ The locking device of the safety door may only be unlocked by command C3700 after an additional visual check.

Behavior

After the execution of command C3700 ("P-0-3218, C3700 Manually unlocking the safety door"), the drive signals safety via EA20 in spite of the encoder error. In the special mode "safety related stopping process" (selected via operating mode switch), the safety technology master can unlock the locking device of the safety door although an axis in the safety zone has an encoder error.

C3700 - Attributes

Display: C37
Ident N°: C3700

10.1.37 C3800 Command Apply motor holding brake

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command "P-0-0543, C3800 Command Apply motor holding brake" was started.

While the command is executed the motor holding brake is applied.

See also Functional Description of firmware "Motor Holding Brake"

C3800 - Attributes

Display: C38
Ident N°: C3800

10.1.38 C3900 Command Abrasion of brake

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command "P-0-0544, C3900 Command Brake resurfacing" was activated.

See also Functional Description of firmware "Motor Holding Brake"

C3900 - Attributes

Display: C39
Ident N°: C3900

10.1.39 C4000 Homing procedure command channel 2

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Diagnostic Command Messages

Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command "P-0-3228, C4000 Homing procedure command Channel 2" was started.

See also documentation "Integrated Safety Technology", keyword "Safety Related Homing Procedure"

C4000 - Attributes

Display: C40
Ident N°: C4000

10.1.40 C4100 Switch parameter set command

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

The command "S-0-0216, C4100 Switch parameter set command" was started.

See also Functional Description of firmware "Parameter Set Switching"

C4100 - Attributes

Display: C41
Ident N°: C4100

10.1.41 C4200 Drive-controlled oscillation command

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

The command "S-0-0190, C4200 Drive-controlled oscillation command" was started.

See also Functional Description of firmware "Drive-Controlled Oscillation"

C4200 - Attributes

Display: C42
Ident N°: C4200

10.1.42 C4300 NC-controlled homing procedure command

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command for NC-controlled homing ("S-0-0146, C4300 NC-controlled homing procedure command") was activated. The master inputs the command values for moving the axis to the reference point and controls the homing procedure via commands and the respective parameters.

The control information for homing has to be defined in "S-0-0147, Homing parameter".

See also Functional Description of firmware "Establishing Position Data Reference for Relative Measuring Systems"

C4300 - Attributes

Display: C43

Ident N°: C4300

10.1.43 C4400 Calculate displacement procedure command

Validity

Contained in 02VRS: «-» «-» «-»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The command for calculating the displacement values ("S-0-0171, Calculate displacement procedure command") was activated.

See also "S-0-0175, Offset parameter 1" and "S-0-0176, Offset parameter 2"

See also Functional Description of firmware "Establishing Position Data Reference for Relative Measuring Systems"

C4400 - Attributes

Display: C44

Ident N°: C4400

10.1.44 C4500 Displacement to referenced system procedure command

Validity

Contained in 02VRS: «-» «-» «-»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The command "S-0-0172, C4500 Displacement to referenced system procedure command" was activated.

See also Functional Description of firmware "Establishing Position Data Reference for Relative Measuring Systems"

C4500 - Attributes

Display: C45

Ident N°: C4500

10.1.45 C4600 Command Calculate motor control parameters

Validity

Contained in 02VRS: «-» «-» «-»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The command "P-0-0566, C4600 Command Calculate motor control parameters" has been activated.

See also Functional Description of firmware "Automatic Setting of Motor Control"

C4600 - Attributes

Display: C46

Ident N°: C4600

10.1.46 C4700 Command Activate easy startup mode

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

The command for starting the "easy startup" mode (commissioning mode for SERCOS and field bus devices; "P-0-4085, C4700 Command Activate easy startup mode") was activated.

See also Functional Description of firmware "Initial Start in Easy Startup Mode"

C4700 - Attributes

Display: C47
Ident N°: C4700

10.1.47 C4900 PLC command

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

The command "P-0-1449, C4900 PLC command" for controlling a PLC program was started.

See also Application Manual "Rexroth IndraMotion MLD"

C4900 - Attributes

Display: C49
Ident N°: C4900

10.1.48 C5200 Communication phase 4 transition check

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command "S-0-0128, C5200 Communication phase 4 transition check" has been activated.

☞ This status is displayed on the control panel of the drive with "C52".

C5200 - Attributes

Display: C52
Ident N°: C5200

10.1.49 C5400 Command Save PLC retain data on MMC

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «MPH» «-»

Contained in 05VRS: «MPB» «MPH» «-»

Supported by supply unit: «-»

To execute the command "P-0-4054, C5400 Command Save PLC retain data on MMC",

- a PLC program must have been loaded and
- the PLC must be in status "STOP".
- In addition, a control section with MMC slot and plugged MMC (MulitMediaCard) must be used.

When the command is executed, the PLC retain data ("P-0-1359, PLC retain data") are copied from the internal memory (flash/memory on interface option "MD1" or "MD2") to the optional memory [MulitMediaCard (MMC)]. The data are stored in the folder "PLC" in the file "SPS-Retain.pbf".

See also Functional Description of firmware "Loading, Storing and Saving Parameters"

C5400 - Attributes

Display: C54

Ident N°: C5400

10.1.50 C5500 Command Load PLC retain data from MMC

Validity

Contained in 02VRS: «-» «-» «-»

Contained in 03VRS: «-» «-» «-»

Contained in 04VRS: «-» «MPH» «-»

Contained in 05VRS: «MPB» «MPH» «-»

Supported by supply unit: «-»

To execute the command "P-0-4055, C5500 Command Load PLC retain data from MMC",

- the PLC program appropriate to the retain data must have been loaded and
- the PLC must be in status "STOP".
- In addition, a control section with MMC slot and plugged MMC (MulitMediaCard) must be used.

The PLC retain data ("P-0-1359, PLC retain data") are loaded from the optional memory [MulitMediaCard (MMC)] to the internal memory (flash/memory on interface option "MD1" or "MD2").

See also Functional Description of firmware "Loading, Storing and Saving Parameters"

C5500 - Attributes

Display: C55

Ident N°: C5500

10.1.51 C5600 Command subsequent optimization of commutation offset

Validity

Contained in 02VRS: «-» «-» «-»

Contained in 03VRS: «-» «-» «-»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The command for subsequent optimization of the commutation offset setting, "P-0-0518, C5600 Command subsequent optimization of commutation offset", was activated.

The "C56" display signals that the command is executed.

See also Functional Description of firmware "Commutation Setting"

C5600 - Attributes

Display: C56
Ident N°: C5600

10.1.52 C6000 Command Set absolute measuring

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command for setting the absolute measuring ("S-0-0447, C6000 Command Set absolute measuring") was activated.

See also Functional Description of firmware "Set Absolute Measuring"

C6000 - Attributes

Display: C60
Ident N°: C6000

10.1.53 C6100 Command Activate IP settings

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command "P-0-1534, C6100 Command Activate IP settings" was started.

The settings of all existing parameters for IP communication are first checked in the drive for verisimilar and change values.

Interface	IP address	Network mask	Gateway address
SERCOS III master	P-0-1641	P-0-1642	P-0-1643
Industrial Ethernet slave	S-0-1020	S-0-1021	S-0-1022
Ethernet engineering	P-0-1531	P-0-1532	P-0-1533

Fig.10-1: Parameters for IP communication

If changes were made, the IP communication is aborted via the corresponding interface. The new settings are activated and communication with the new settings is started.

The IP communication via the interfaces for which the settings were not changed is not affected by the command and can continue without restrictions.

Before the command is executed, IP communication with the interfaces should be terminated by the IP client. Otherwise, error messages can occur in the corresponding clients due to missing communication.

C6100 - Attributes

Display: C61
Ident N°: C6100

10.1.54 C7000 CCD: command adjust slave addresses

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «MPH» «-»
Supported by supply unit: «-»

The command for adjusting the slave addresses ("P-0-1635, CCD: command adjust slave addresses") was activated.

See also Functional Description of firmware "Cross Communication (CCD)"

C7000 - Attributes

Display: C70
Ident N°: C7000

10.2 Command Errors

10.2.1 Clearing Command Errors

A command error cannot be removed by "clearing errors", but only by completing the corresponding command.

10.2.2 C0101 Invalid parameters (-> S-0-0021)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

While the command "S-0-0127, C0100 Communication phase 3 transition check" is executed, internal variables are initialized and the available parameters are checked (e. g. for validity). An error was detected during the execution of the command.

Cause	Remedy
Data block elements required in communication phase 3 are missing or invalid	Write allowed operating data to respective parameters(these parameters can be taken from list "S-0-0021, IDN list of invalid operating data for communication phase 2")
A change was made in "P-0-2003, Selection of functional packages". Then you failed to reboot before trying to switch to operating mode.	Check content of "P-0-2003, Selection of functional packages" and reboot (i. e. switch device off and on again)

Diagnostic Command Messages

Cause	Remedy
A change of functional packages was made in "P-0-2003, Selection of functional packages" which has an effect on customer- and application-specific parameter lists (i. e. S-0-0279)	Correct respective list parameters (these parameters can be taken from the list S-0-0021, IDN list of invalid operating data for communication phase 2"). Problem can also be remedied by loading basic parameters ("S-0-0262, C07_x Load defaults procedure command" with respective setting in "P-0-4090, Index for C07 Load defaults procedure").
Internal data memory defective	Contact our service department

For removing command errors see "Command Errors"

C0101 - Attributes

Display: C0101
Ident N°: C0101

10.2.3 C0102 Limit error in parameter (-> S-0-0021)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

While the command "S-0-0127, C0100 Communication phase 3 transition check" is executed, the limit values (minimum/maximum value) are checked for some parameters. An error was detected during the execution of the command.

Cause	Remedy
Parameter values required in communication phase 3 are outside their allowed range of values (minimum or maximum value)	Write allowed values to parameters (cf. minimum/maximum value) (these parameters can be taken from list "S-0-0021, IDN list of invalid operating data for communication phase 2")

For removing command errors see "Command Errors"

C0102 - Attributes

Display: C0102
Ident N°: C0102

10.2.4 C0103 Parameter conversion error (->S-0-0021)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

While the command "S-0-0127, C0100 Communication phase 3 transition check" is executed, the internal parameter formats are checked in order to ensure the internal processing. An error was detected during the execution of the command.

Cause	Remedy
Parameter values required in communication phase 3 cannot be processed	Write allowed values to parameters (these parameters can be taken from list "S-0-0021, IDN list of invalid operating data for communication phase 2")

For removing command errors see "Command Errors"

C0103 - Attributes

Display: C0103
Ident N°: C0103

10.2.5 C0104 Config. IDN for MDT not configurable

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the transition check from communication phase 2 to communication phase 3 (C0100) an error with regard to the telegram configuration of the master communication was detected.

Cause	Remedy
In "S-0-0015, Telegram type parameter", telegram type 7 (configured telegram) was set	Set priority telegram (telegram type = 0..6) in "S-0-0015, Telegram type parameter"
In "S-0-0024, Config. list of the master data telegram" there were some parameters entered that are not contained in "S-0-0188, List of configurable data in the MDT"	In "S-0-0024, Config. list of the master data telegram" those parameters have to be entered that are contained in "S-0-0188, List of configurable data in the MDT"

☞ List parameters are only allowed in the multiplex channel.

C0104 - Attributes

Display: C0104
Ident N°: C0104

10.2.6 C0105 Maximum length for MDT exceeded

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check" an error with regard to the telegram configuration of the master communication was detected.

Cause	Remedy
In "S-0-0015, Telegram type parameter", telegram type 7 (configured telegram) was set	Set priority telegram (telegram type = 0..6) in "S-0-0015, Telegram type parameter"
Length of configured data record in MDT that is determined by "S-0-0024, Config. list of the master data telegram" exceeds the maximum allowed value entered in "S-0-0186, Length of the configurable data record in the MDT"	Reduce number of configured parameters in MDT ("S-0-0024, Config. list of the master data telegram")

☞ List parameters are only allowed in the multiplex channel.

For removing command errors see "Command Errors"

Diagnostic Command Messages

C0105 - Attributes

Display: C0105
Ident N°: C0105

10.2.7 C0106 Config. IDNs for AT not configurable

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the transition check from communication phase 2 to communication phase 3 (C0100) an error with regard to the telegram configuration of the master communication was detected.

Cause	Remedy
In "S-0-0015, Telegram type parameter", telegram type 7 (configured telegram) was set	Set priority telegram (telegram type = 0..6) in "S-0-0015, Telegram type parameter"
In "S-0-0016, Custom amplifier telegram configuration list" there were some parameters entered that are not contained in "S-0-0187, List of configurable data in the AT"	In "S-0-0016, Custom amplifier telegram configuration list" those parameters have to be entered that are contained in "S-0-0187, List of configurable data in the AT"

☞ List parameters are only allowed in the multiplex channel.

C0106 - Attributes

Display: C0106
Ident N°: C0106

10.2.8 C0107 Maximum length for AT exceeded

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the transition check from communication phase 2 to communication phase 3 (C0100) an error with regard to the telegram configuration of the master communication was detected.

Cause	Remedy
In "S-0-0015, Telegram type parameter", telegram type 7 (configured telegram) was set	Set priority telegram (telegram type = 0..6) in "S-0-0015, Telegram type parameter"
Length of configured data record in AT that is determined by "S-0-0016, Custom amplifier telegram configuration list", exceeds maximum allowed value entered in "S-0-0185, Length of the configurable data record in the AT"	Reduce number of configured parameters in AT in "S-0-0016, Custom amplifier telegram configuration list"

C0107 - Attributes

Display: C0107
Ident N°: C0107

10.2.9 C0108 Time slot parameter > Sercos cycle time

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

While the command "S-0-0127, C0100 Communication phase 3 transition check" is executed, the timing settings for SERCOS communication are checked. An error was detected during the execution of the command.

Cause	Remedy
At least one of the following time slot parameters exceeds SERCOS cycle time ["S-0-0002, SERCOS Cycle time (Tscyc)"]: • S-0-0006, AT Transmission starting time (T1) • S-0-0007, Feedb. acquisition starting time (T4) • S-0-0008, Command value valid time (T3) • S-0-0089, MDT Transmit starting time (T2)	Correct respective time slot parameter(s). Contact machine manufacturer or installation programmer

☞ The definition of the times for the time slot parameters is the responsibility of the control unit manufacturer and is specified by SERCOS interface.

For removing command errors see "Command Errors"

C0108 - Attributes

Display: C0108
Ident N°: C0108

10.2.10 C0109 Position of data record in MDT (S-0-0009) even

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check" an error was detected.

Cause	Remedy
Parameter "S-0-0009, Position of data record in MDT" contains an even value. This is not allowed.	Parameter "S-0-0009, Position of data record in MDT" must be parameterized with an odd value

☞ The definition of the S-0-0009 parameter is the responsibility of the control unit manufacturer and is specified by SERCOS.

For removing command errors see "Command Errors"

C0109 - Attributes

Display: C0109
Ident N°: C0109

10.2.11 C0110 Length of MDT (S-0-0010) odd

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check" an error was detected.

Cause	Remedy
Parameter "S-0-0010, Length of master data telegram" contains an odd value. This is not allowed.	Parameter "S-0-0010, Length of master data telegram" has to be parameterized with an even value

☞ The definition of the S-0-0010 parameter is the responsibility of the control unit manufacturer and is specified by SERCOS.

For removing command errors see "Command Errors"

C0110 - Attributes

Display: C0110
Ident N°: C0110

10.2.12 C0111 ID9 + Record length - 1 > length MDT (S-0-0010)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check" an error was detected.

The position of the data record in the master data telegram (MDT) (S-0-0009) plus the length of the data record in the MDT for the drive is greater than the total length of the MDT (S-0-0010).

Cause	Remedy
Parameterization of "S-0-0009, Position of data record in MDT" and "S-0-0010, Length of master data telegram" is incorrect	Correct parameterization of "S-0-0009, Position of data record in MDT" and "S-0-0010, Length of master data telegram"

☞ The definition of the S-0-0009 and S-0-0010 parameters is the responsibility of the control unit manufacturer and is specified by SERCOS.

C0111 - Attributes

Display: C0111
Ident N°: C0111

10.2.13 C0112 TNcyc (S-0-0001) or TScyc (S-0-0002) error

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check" an error with regard to the SERCOS timing settings was detected.

Cause	Remedy
Setting of parameters "S-0-0001, NC Cycle time (TNcyc)" or "S-0-0002, SERCOS Cycle time (TScyc)" is incorrect	Correct parameters "S-0-0001, NC Cycle time (TNcyc)" and "S-0-0002, SERCOS Cycle time (TScyc)". There are settings of 500 µs for control section ADVANCED (or 1 ms for control section BASIC) or integral multiples of 1 ms allowed.

☞ The definition of the S-0-0001 and S-0-0002 parameters is the responsibility of the control unit manufacturer and is specified by SERCOS.

For removing command errors see "Command Errors"

C0112 - Attributes

Display: C0112
Ident N°: C0112

10.2.14 C0113 Relation TNcyc (S-0-0001) to TScyc (S-0-0002) error

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check" an error with regard to the SERCOS timing settings was detected.

Cause	Remedy
Setting of parameters "S-0-0001, NC Cycle time (TNcyc)" or "S-0-0002, SERCOS Cycle time (TScyc)" is incorrect	Value of "S-0-0001, NC Cycle time (TNcyc)" can only be equal to or a multiple of "S-0-0002, SERCOS Cycle time (TScyc)". Correct parameters "S-0-0001, NC Cycle time (TNcyc)" and "S-0-0002, SERCOS Cycle time (TScyc)".

☞ The definition of the S-0-0001 and S-0-0002 parameters is the responsibility of the control unit manufacturer and is specified by SERCOS.

For removing command errors see "Command Errors"

C0113 - Attributes

Display: C0113
Ident N°: C0113

10.2.15 C0114 T4 > TScyc (S-0-0002) - T4min (S-0-0005)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check" an error with regard to the SERCOS timing settings was detected.

Cause	Remedy
Value for "S-0-0007, Feedback acquisition starting time (T4)" is incorrect	Correct "S-0-0007, Feedback acquisition starting time (T4)". Maximum allowed value for "S-0-0007, Feedback acquisition starting time (T4)" is calculated from "S-0-0002, SERCOS cycle time (TScyc)" and "S-0-0005, Minimum feedback acquisition time (T4min)" as follows: S-0-0007 > S-0-0002 – S-0-0005

☞ The definition of the S-0-0007 parameter is the responsibility of the control unit manufacturer and is specified by SERCOS.

For removing command errors see "Command Errors"

C0114 - Attributes

Display: C0114
Ident N°: C0114

10.2.16 C0115 T2 too small

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check" an error with regard to the SERCOS timing settings was detected.

Cause	Remedy
Value set for "S-0-0089, MDT Transmit starting time (T2)" is incorrect. Drive cannot run with this value	Correct "S-0-0089, MDT Transmit starting time (T2)"

☞ The definition of the S-0-0089 parameter is the responsibility of the control unit manufacturer and is specified by SERCOS.

For removing command errors see "Command Errors"

C0115 - Attributes

Display: C0115
Ident N°: C0115

10.2.17 C0116 T3 (S-0-0008) within MDT (S-0-0089 + S-0-0010)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check" an error with regard to the SERCOS timing settings was detected.

Cause	Remedy
Value for "S-0-0008, Command valid time (T3)" is within value for "S-0-0089, MDT Transmit starting time (T2)". This could cause access problems in SERCOS communication	Check and if necessary correct setting of "S-0-0089, MDT Transmit starting time (T2)" and "S-0-0008, Command valid time (T3)"

☞ The definition of the SERCOS parameters is the responsibility of the control unit manufacturer and is specified by SERCOS.

For removing command errors see "Command Errors"

C0116 - Attributes

Display: C0116
Ident N°: C0116

10.2.18 C0118 Order of cyclic command value configuration incorrect

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

The chronology of the processing of cyclical command value data in the drive has the order in which the configured IDNs have been entered in parameter "S-0-0024, Config. list of the master data telegram". The following parameters are available for using the multiplex mode in the cyclic command value telegram:

- "S-0-0360, Data container A: command value 1",
- "S-0-0362, Data container A: list index command values" and
- "S-0-0368, Data container A: addressing"

If more than one of these parameters has been configured in the cyclic command value telegram, their correct order is checked in the command "S-0-0127, C0100 Communication phase 3 transition check".

Cause	Remedy
Incorrect order of relevant parameters in cyclic command value telegram	Observe correct order of parameters in cyclic command value telegram: Parameters S-0-0362, S-0-0366 and S-0-0368 in cyclic command value telegram have to be located before parameters S-0-0360 and S-0-0450 to S-0-0456

See also Functional Description of firmware "Multiplex Channel"

C0118 - Attributes

Display: C0118
Ident N°: C0118

10.2.19 C0119 Max. travel range too large

Validity

Contained in 02VRS:	«MPB»	«MPH»	«MPD»
Contained in 03VRS:	«-»	«-»	«-»
Contained in 04VRS:	«-»	«-»	«-»
Contained in 05VRS:	«-»	«-»	«-»

Supported by supply unit: «-»

During the transition check from communication phase 2 to communication phase 3 (C0100) an error with regard to the scaling of the drive was detected.

Cause	Remedy
"S-0-0278, Maximum travel range" incorrectly parameterized. Defined travel range is too large	Check and, if necessary, reduce parameterization of S-0-0278. The value of "S-0-0278, Maximum travel range" is to be selected in such a way that the resulting internal position resolution guarantees a correct commutation of the motor.
Inappropriate measuring system (resolution) for maximum travel range to be displayed	Check resolution of measuring system and, if necessary, use a different measuring system

For removing command errors see "Command Errors"

See also Functional Description of firmware "Scaling"

C0119 - Attributes

Display: C0119
Ident N°: C0119

10.2.20 C0120 Error when reading encoder data => motor encoder

Validity

Contained in 02VRS:	«MPB»	«MPH»	«MPD»
Contained in 03VRS:	«-»	«-»	«-»
Contained in 04VRS:	«-»	«-»	«-»
Contained in 05VRS:	«-»	«-»	«-»

Supported by supply unit: «-»

During the transition check from communication phase 2 to communication phase 3 (C0100) an error during the reading of the encoder data from the data memory of the motor encoder was detected.

☞ Measuring systems with their own data memory are DSF/HSF and resolvers, as well as measuring systems with EnDat interface (Heidenhain company) and HIPERFACE® interface (Stegmann company).

Cause	Remedy
Measuring system cable defective	Check measuring system cable
Measuring system defective	Replace measuring system
Encoder interface card defective	Replace encoder interface card

C0120 - Attributes

Display: C0120
Ident N°: C0120

10.2.21 C0121 Incorrect parameterization of motor encoder (hardware)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the transition check from communication phase 2 to communication phase 3 (C0100) an error with regard to the parameterization of the motor encoder hardware was detected.

Cause	Remedy
Parameterization "P-0-0074, Encoder type 1 (motor encoder)" does not match encoder interface (e.g. EN1 with EnDat encoder)	Check whether parameterized encoder type matches encoder interface
In the case of "current control with motor encoder" (see "P-0-0045, Control word of current controller"), "operation without encoder" was detected to have been set in "P-0-0074, Encoder type 1 (motor encoder)"	Enter value appropriate for motor encoder in "P-0-0074, Encoder type 1 (motor encoder)"
Parameterization in "P-0-0077, Assignment motor encoder->optional slot" is incorrect	Correct assignment of motor encoder and optional slot in parameter "P-0-0077, Assignment motor encoder->optional slot"

C0121 - Attributes

Display: C0121
Ident N°: C0121

10.2.22 C0122 Incorr. parameteriz. of motor enc. (mechanical system)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the transition check from communication phase 2 to communication phase 3 (C0100) an error was detected with regard to scaling that was set and the selected motor encoder type (e.g. rotary scaling with linear motor).

Cause	Remedy
Incorrect encoder type ("S-0-0277, Position feedback 1 type")	Check and, if necessary, correct "S-0-0277, Position feedback 1 type"
Parameterized scaling ("S-0-0076, Position data scaling type") is incorrect	Check and, if necessary, correct "S-0-0076, Position data scaling type"

For removing command errors see "Command Errors"

C0122 - Attributes

Display: C0122
Ident N°: C0122

10.2.23 C0123 Modulo value for motor encoder cannot be displayed

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»

Diagnostic Command Messages

Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the transition check from communication phase 2 to communication phase 3 (C0100) an error with regard to the modulo value for the motor encoder was detected.

Cause	Remedy
Parameterized value for "S-0-0103, Modulo value" is greater than maximum travel range (cf. "S-0-0278, Maximum travel range")	Correct content of "S-0-0103, Modulo value" or value of "S-0-0278, Maximum travel range"
Parameterized value for "S-0-0103, Modulo value" cannot be internally displayed with gear ratios that have been set (S-0-0121/S-0-0122, P-0-0121/P-0-0122)	Correct content of "S-0-0103, Modulo value" or gear ratios that have been set ["S-0-0121, Input revolutions of load gear"/"S-0-0122, Output revolutions of load gear"; "P-0-0121, Gear 1 motor-side (motor encoder)"/"P-0-0122, Gear 1 encoder-side (motor encoder)"]

For removing command errors see "Command Errors"

C0123 - Attributes

Display: C0123
Ident N°: C0123

10.2.24 C0124 Motor encoder unknown

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the transition check from communication phase 2 to communication phase 3 (C0100) an error with regard to the motor encoder was detected. The content of "P-0-1000, Kind of encoder 1, encoder memory" is invalid and therefore the parameterized motor encoder is not allowed (e.g. rotary scaling with linear encoder).

Cause	Remedy
Encoder memory (feedback) is defective	Encoder (or motor) must be replaced
Kind of motor encoder ("P-0-1000, Kind of encoder 1, encoder memory") is not supported by firmware	Check content of "P-0-1000, Kind of encoder 1, encoder memory" and contact our service department
Detected kind of encoder does not match parameterized type of encoder	Check control section configuration and, if necessary, replace control section by a correctly configured control section or replace complete drive controller

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

For removing command errors see "Command Errors"

C0124 - Attributes

Display: C0124
Ident N°: C0124

10.2.25 C0125 Error when reading encoder data => optional encoder

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the transition check from communication phase 2 to communication phase 3 (C0100) an error during the reading of the encoder data from the data memory of the optional encoder was detected.

☞ Measuring systems with their own data memory are DSF/HSF and resolvers, as well as measuring systems with EnDat interface (Heidenhain company) and HIPERFACE® interface (Stegmann company).

Cause	Remedy
Measuring system cable defective	Check measuring system cable
Measuring system defective	Replace measuring system
Encoder interface defective	Replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

C0125 - Attributes

Display: C0125
Ident N°: C0125

10.2.26 C0126 Incorrect parameterization of optional enc. (hardware)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the transition check from communication phase 2 to communication phase 3 (C0100) an error with regard to the parameterization of the hardware of the optional encoder was detected.

Cause	Remedy
Parameterization "P-0-0075, Encoder type 2 (optional encoder)" does not match interface card (e.g. EN1 with EnDat encoder)	Correct parameterization of "P-0-0075, Encoder type 2 (optional encoder"
"P-0-0078, Assignment optional encoder->optional slot" incorrect	Correct parameterization of "P-0-0078, Assignment optional encoder->optional slot"

See also Functional Description of firmware "Measurement Systems"

Diagnostic Command Messages

C0126 - Attributes

Display: C0126
Ident N°: C0126

10.2.27 C0127 Incorr. parameteriz. of opt. enc. (mechanical system)

Validity

Contained in 02VRS:	«MPB»	«MPH»	«MPD»
Contained in 03VRS:	«-»	«-»	«-»
Contained in 04VRS:	«-»	«-»	«-»
Contained in 05VRS:	«-»	«-»	«-»

Supported by supply unit: «-»

During the transition check from communication phase 2 to communication phase 3 (C0100) an error was detected with regard to scaling that was set and the selected motor encoder type (e.g. rotary scaling with linear optional encoder).

Cause	Remedy
Incorrect encoder type ("S-0-0115, Position feedback 2 type")	Check and, if necessary, correct "S-0-0115, Position feedback 2 type"
Parameterized scaling ("S-0-0076, Position data scaling type") is incorrect	Check and, if necessary, correct "S-0-0076, Position data scaling type"

For removing command errors see "Command Errors"

C0127 - Attributes

Display: C0127
Ident N°: C0127

10.2.28 C0128 Modulo value for optional encoder cannot be displayed

Validity

Contained in 02VRS:	«MPB»	«MPH»	«MPD»
Contained in 03VRS:	«-»	«-»	«-»
Contained in 04VRS:	«-»	«-»	«-»
Contained in 05VRS:	«-»	«-»	«-»

Supported by supply unit: «-»

During the transition check from communication phase 2 to communication phase 3 (C0100) an error with regard to the modulo value for the optional encoder was detected.

Cause	Remedy
Parameterized value for "S-0-0103, Modulo value" is greater than maximum travel range (cf. "S-0-0278, Maximum travel range")	Correct content of "S-0-0103, Modulo value" or value of "S-0-0278, Maximum travel range"
Parameterized value for "S-0-0103, Modulo value" cannot be internally displayed with the gear ratios that have been set (S-0-0121/S-0-0122, P-0-0121/P-0-0122)	Correct content of "S-0-0103, Modulo value" or gear ratios that have been set ["S-0-0121, Input revolutions of load gear"/"S-0-0122, Output revolutions of load gear"; "P-0-0121, Gear 1 motor-side (motor encoder)"/"P-0-0122, Gear 1 encoder-side (motor encoder)"]
Encoder resolution ("S-0-0117, Feedback 2 Resolution") incorrectly parameterized	Check and, if necessary, correct parameterization of "S-0-0117, Feedback 2 Resolution"
Resolution of encoder does not match required modulo range	Replace encoder

For removing command errors see "Command Errors"

See also Functional Description of firmware "Scaling"

C0128 - Attributes

Display: C0128
Ident N°: C0128

10.2.29 C0129 Optional encoder unknown

Validity

Contained in 02VRS:	«MPB»	«MPH»	«MPD»
Contained in 03VRS:	«-»	«-»	«-»
Contained in 04VRS:	«-»	«-»	«-»
Contained in 05VRS:	«-»	«-»	«-»
Supported by supply unit:	«-»		

During the transition check from communication phase 2 to communication phase 3 (C0100) an error with regard to the optional encoder was detected. The content of "P-0-1010, Kind of encoder 2, encoder memory" is invalid and therefore the parameterized optional encoder is not allowed (e.g. rotary scaling with linear encoder).

Cause	Remedy
Encoder memory (feedback) is defective	Encoder must be replaced
Kind of motor encoder ("P-0-1010, Kind of encoder 2, encoder memory") is not supported by the firmware	Check content of "P-0-1010, Kind of encoder 2, encoder memory" and contact our service department
Detected kind of encoder does not match parameterized type of encoder	Check control section configuration and, if necessary, replace control section by a correctly configured control section or replace complete drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

For removing command errors see "Command Errors"

C0129 - Attributes

Display: C0129
Ident N°: C0129

10.2.30 C0130 Maximum travel range cannot be displayed internally

Validity

Contained in 02VRS:	«MPB»	«MPH»	«MPD»
Contained in 03VRS:	«-»	«-»	«-»
Contained in 04VRS:	«-»	«-»	«-»
Contained in 05VRS:	«-»	«-»	«-»
Supported by supply unit:	«-»		

In the case of absolute scaling, the maximum travel range represents the overflow limit of the actual position values. If this travel range cannot be displayed correctly internally so that position generation without error is impossible, this error is generated.

Diagnostic Command Messages

Cause	Remedy
"S-0-0278, Maximum travel range" incorrectly parameterized	Check and if necessary reduce "S-0-0278, Maximum travel range"
S-0-0116 / S-0-0117 incorrectly set (e.g. value "0")	Check and if necessary correct "S-0-0116, Feedback 1 Resolution" / "S-0-0117, Feedback 2 Resolution"
Value for "S-0-0278, Maximum travel range" is invalid although it might be within the respective absolute encoder range	Check "S-0-0278, Maximum travel range" and if necessary change value (take respective absolute encoder range into account!)
Position resolution of a pole pair or of pole pair distance is too low. Commutation offset value internally cannot be displayed precisely enough	"P-0-0018, Number of pole pairs/pole pair distance" has value "0" or a too small value (maybe incorrect unit). Check and if necessary correct "P-0-0018, Number of pole pairs/pole pair distance"

See also Functional Description of firmware "Scaling"

For removing command errors see "Command Errors"

C0130 - Attributes

Display: C0130
Ident N°: C0130

10.2.31 C0131 Switching to phase 3 impossible

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the transition check from communication phase 2 to communication phase 3 (C0100) a forbidden attempt to switch to phase 3 was detected.

Cause	Remedy
Dduring a firmware download there was an attempt to switch from communication phase 2 to communication phase 3	Wait until the firmware download is completed before switching to another communication phase
After a boot error (F81xx error) there was an attempt to switch from communication phase 2 to communication phase 3	Clear error, remove its cause and then boot up drive again

C0131 - Attributes

Display: C0131
Ident N°: C0131

10.2.32 C0132 Invalid settings for controller cycle times

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check" an error in the parameterization of controller cycle times or PWM switching frequencies was detected.

P-0-0556, Control word of axis controller, bit 2	P-0-0001, Switching frequency of the power output stage	TA position loop	TA velocity loop	TA current loop
0 (Basic)	16 kHz	500 µs	250 µs	62.5 µs
0 (Basic)	12 kHz	500 µs	250 µs	83.3 µs
0 (Basic)	8 kHz	500 µs	250 µs	125.0 µs
0 (Basic)	4 kHz	500 µs	250 µs	125.0 µs
0 (Basic)	2kHz	500 µs	250 µs	250,0 µs
1 (Advanced)	**16 kHz**	**250 µs**	**125 µs**	**62.5 µs**
1 (Advanced)	**8 kHz**	**250 µs**	**125 µs**	**62.5 µs**
1 (Advanced)	**4 kHz**	**250 µs**	**125 µs**	**125.0 µs**

TA sampling time

Fig. 10-2: Possible controller cycle times depending on controller performance and switching frequency that have been set

Cause	Remedy
Parameterization of "P-0-0556, Control word of axis controller" does not comply with switching frequency of 12 kHz set in "P-0-0001, Switching frequency of the power output stage"	Select setting "Basic performance" (cf. bit 2) in "P-0-0556, Control word of axis controller"
Incorrect parameterization of selected switching frequency in "P-0-0001, Switching frequency of the power output stage" with given controller performance (= sampling rate/time)	In "P-0-0001, Switching frequency of the power output stage" select allowed switching frequency (see table)

See also Functional Description of firmware "Features of the Control Loops"

For removing command errors see "Command Errors"

C0132 - Attributes

Display: C0132
Ident N°: C0132

10.2.33 C0134 Invalid motor data in encoder memory (->S-0-0021)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «-» «MPH» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the transition check from communication phase 2 to communication phase 3 (C0100) an error during the reading of the motor data from the data memory of the motor encoder was detected.

The respective parameters are entered in the "S-0-0021, IDN list of invalid operating data for communication phase 2" parameter.

Cause	Remedy
Measuring system cable defective	Check measuring system cable
Measuring system defective	Replace measuring system
Encoder interface defective	Replace control section or complete drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

For removing command errors see "Command Errors"

C0134 - Attributes

Display: C0134
Ident N°: C0134

10.2.34 C0135 Type of construction of motor P-0-4014 incorrect

Validity

Contained in 02VRS:	«MPB»	«MPH»	«MPD»
Contained in 03VRS:	«-»	«-»	«-»
Contained in 04VRS:	«-»	«-»	«-»
Contained in 05VRS:	«-»	«-»	«-»

Supported by supply unit: «-»

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check" an error in the parameterization of the kind of motor was detected.

In "P-0-4014, Kind of motor" a motor with encoder data memory was parameterized but there wasn't any known motor type designation recognized in the encoder.

Cause	Remedy
A motor without encoder data memory was connected	Parameterize "P-0-4014, Kind of motor" correctly or connect a motor with encoder data memory
Encoder defective	Replace encoder

For removing command errors see "Command Errors"

C0135 - Attributes

Display: C0135
Ident N°: C0135

10.2.35 C0136 Several motor encoders connected

Validity

Contained in 02VRS:	«MPB»	«MPH»	«MPD»
Contained in 03VRS:	«-»	«-»	«-»
Contained in 04VRS:	«-»	«-»	«-»
Contained in 05VRS:	«-»	«-»	«-»

Supported by supply unit: «-»

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check" two motor encoders were detected during the encoder configuration check.

Cause	Remedy
Two encoders were detected; in their data memories a valid and known motor type string is contained in "P-0-2141, Motor type, encoder memory"	Replace one of encoders by encoder without valid motor type string
Encoder connectors of neighboring axes were interchanged	Check axis assignment of encoder connectors and assign to correct axis

For removing command errors see "Command Errors"

C0136 - Attributes

Display: C0136
Ident N°: C0136

10.2.36 C0137 Error during initialization of motor data (->S-0-0021)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check" an error during the initialization of motor data was detected. The respective parameters are entered in the list "S-0-0021, IDN list of invalid operating data for communication phase 2".

Cause	Remedy
Invalid motor data stored in motor data memory	Replace motor or contact service department for correction of motor data
Encoder cable defective or bad shielding	Check encoder cable and shielding
Encoder memory or encoder electronics defective	Replace encoder
Hardware defect on control section	Replace control section or entire drive controller

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

For removing command errors see "Command Errors"

C0137 - Attributes

Display: C0137
Ident N°: C0137

10.2.37 C0138 Invalid control section data (->S-0-0021)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the transition check from communication phase 2 to communication phase 3 (C0100) an error during the initialization of the control section data was detected. The respective parameters are entered in the list "S-0-0021, IDN list of invalid operating data for communication phase 2".

Cause	Remedy
Reading error from I^2C-Prom due to hardware defect	For detailed error diagnosis contact our service department

For removing command errors see "Command Errors"

C0138 - Attributes

Display: C0138
Ident N°: C0138

10.2.38 C0139 T2 (S-0-0089)+length MDT (S-0-0010)>TScyc (S-0-0002)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check" an error with regard to the timing setting of the SERCOS interface was detected. The phase switch to communication phase 3 is prevented.

Cause	Remedy
Sum of transmit starting time of master data telegram set by master ["S-0-0089, MDT Transmit starting time (T2)"] and length of data record of master data telegram ("S-0-0010, Length of master data telegram") exceeds SERCOS cycle time ["S-0-0002, SERCOS Cycle time (TScyc)"]. This means that master data telegram overlaps the master synchronization telegram (MST)	Parameterize smaller value for transmit starting time of master data telegram ["S-0-0089, MDT Transmit starting time (T2)"]

For removing command errors see "Command Errors"

C0139 - Attributes

Display: C0139
Ident N°: C0139

10.2.39 C0140 Rotary scaling not allowed

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the transition check from communication phase 2 to communication phase 3 (C0100) an error was detected with regard to scaling that was set and the selected motor type (e.g. rotary scaling although a linear motor is used). The phase switch to communication phase 3 is prevented.

Cause	Remedy
Although a linear motor is used, rotary scaling was selected in at least one of the following parameters: • S-0-0044, Velocity data scaling type • S-0-0076, Position data scaling type • S-0-0086, Torque/force data scaling type • S-0-0160, Acceleration data scaling type	Check and correct respective scaling parameter(s) or use a linear encoder

For removing command errors see "Command Errors"

C0140 - Attributes

Display: C0140
Ident N°: C0140

10.2.40 C0151 IDN for command value data container not allowed

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check" an error with regard to the command value configuration list was detected. The phase switch to communication phase 3 is prevented.

Cause	Remedy
A command value configuration list (S-0-0370 and S-0-0490 to S-0-0496) contains one or several IDNs that aren't existing or not contained in "S-0-0188, List of configurable data in the MDT"	Check parameters "S-0-0370, Data container A: configuration list command value-1" and "S-0-0490, Data container A: configuration list command value 2" to "S-0-0496, Data container A: configuration list command value 8" for incorrect IDNs and correct them

For removing command errors see "Command Errors"

See also Functional Description of firmware "Multiplex Channel"

C0151 - Attributes

Display: C0151
Ident N°: C0151

10.2.41 C0152 IDN for actual value data container not allowed

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check" an error with regard to the actual value configuration list was detected. The phase switch to communication phase 3 is prevented.

Cause	Remedy
An actual value configuration list (S-0-0371 and S-0-0500 to S-0-0506) contains one or several IDNs that aren't existing or not contained in "S-0-0187, List of configurable data in the AT"	Check parameters "S-0-0371, Data container A: configuration list feedback value-1" and "S-0-0500, Data container A: configuration list feedback value 2" to "S-0-0506, Data container A: configuration list feedback value 8" for incorrect IDNs and correct them

For removing command errors see "Command Errors"

See also Functional Description of firmware "Multiplex Channel"

C0152 - Attributes

Display: C0152
Ident N°: C0152

10.2.42 C0153 Error at init. of synchr. motor with reluctance torque

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check" a validation error was detected during the initialization of a synchronous motor with reluctance torque.

The initialization of a synchronous motor with reluctance torque is only run when this has been set in parameter "P-0-4014, Type of construction of motor".

The initialization of a synchronous motor implies the following parameters:

- S-0-0109, Motor peak current
- S-0-0110, Amplifier peak current
- S-0-0111, Motor current at standstill
- P-0-0018, Number of pole pairs/pole pair distance
- P-0-0051, Torque/force constant
- P-0-4002, Charact. of quadrature-axis induct. of motor, inductances
- P-0-4003, Charact. of quadrature-axis inductance of motor, currents
- P-0-4016, Direct-axis inductance of motor
- P-0-4017, Quadrature-axis inductance of motor

Cause	Remedy
Incomplete or invalid entries in parameters for initialization of synchronous motor	Check parameter contents and enter data supplied by motor manufacturer in above parameters. If error is generated in spite of correct data, please contact our service department
Initialization for synchronous motor **with** reluctance torque was run although synchronous motor **without** reluctance torque is used	Correct setting in "P-0-4014, Type of construction of motor

See also Functional Description of firmware "Third-Party Motors at IndraDrive Controllers"

For removing command errors see "Command Errors"

C0153 - Attributes

Display: C0153
Ident N°: C0153

10.2.43 C0154 Field bus: IDN for cycl. command val. not configurable

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check" an error with regard to the telegram configuration of the master communication was detected.

Cause	Remedy
In operating data of "P-0-4081, Field bus: config. list of cyclic command value data ch." there is an IDN that is not contained in "S-0-0188, List of configurable data in the MDT"	In "P-0-4081, Field bus: config. list of cyclic command value data ch." enter allowed IDN (cf. "S-0-0188, List of configurable data in the MDT")

For removing command errors see "Command Errors"

C0154 - Attributes

Display: C0154
Ident N°: C0154

10.2.44 C0155 Field bus: max. length for cycl. command val. exceeded

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the transition check from communication phase 2 to communication phase 3 (C0100) an error with regard to the telegram configuration of the master communication was detected.

Cause	Remedy
Sum of data widths of all IDNs entered in "P-0-4081, Field bus: config. list of cyclic command value data ch." is exceeding max. value of "P-0-4071, Field bus: length of cyclic command value data channel"	Reduce number of IDNs entered in "P-0-4081, Field bus: config. list of cyclic command value data ch."

C0155 - Attributes

Display: C0155
Ident N°: C0155

10.2.45 C0156 Field bus: IDN for cycl. actual val. not configurable

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check" an error with regard to the telegram configuration of the master communication was detected.

Cause	Remedy
In operating data of "P-0-4080, Field bus: config. list of cyclic command value data ch." there is an IDN that is not contained in "S-0-0187, List of configurable data in the AT"	In "P-0-4080, Field bus: config. list of cyclic command value data ch." enter allowed IDNs (cf. "S-0-0187, List of configurable data in the AT")

☞ List parameters are only allowed in the multiplex channel.

For removing command errors see "Command Errors"

C0156 - Attributes

Display: C0156
Ident N°: C0156

10.2.46 C0157 Field bus: length for cycl. actual values exceeded

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the transition check from communication phase 2 to communication phase 3 (C0100) an error with regard to the telegram configuration of the master communication was detected.

Cause	Remedy
Sum of data widths of all IDNs entered in "P-0-4080, Field bus: config. list of cyclic actual value data ch." is exceeding max. value of "P-0-4082, Field bus: length of cyclic actual value data channel"	Reduce number of IDNs entered in "P-0-4080, Field bus: config. list of cyclic actual value data ch."

C0157 - Attributes

Display: C0157
Ident N°: C0157

10.2.47 C0158 Field bus: Tcyc (P-0-4076) incorrect

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check" an error with regard to the timing settings of the master communication was detected.

Cause	Remedy
"P-0-4076, Field bus: cycle time (Tcyc)" is not an integral multiple of the position loop clock	Adjust "P-0-4076, Field bus: cycle time (Tcyc)" to position loop clock (control section ADVANCED: 500 µs or 250 µs, control section BASIC: 500 µs)

☞ The minimum field bus cycle time ["P-0-4076, Field bus: cycle time (Tcyc)"] is 500 µs for control section ADVANCED and 1000 µs for control section BASIC.

For removing command errors see "Command Errors"

C0158 - Attributes

Display: C0158
Ident N°: C0158

10.2.48 C0159 Field bus: P-0-4077 missing for cycl. command values

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check" an error with regard to the telegram configuration of the master communication was detected.

Cause	Remedy
Operating data of "P-0-4081, Field bus: config. list of cyclic command value data ch." contains neither "P-0-4077, Field bus: control word" nor "P-0-4068, Field bus: control word IO". At least one control word has to be contained.	According to profile type configure one of both control words in "P-0-4081, Field bus: config. list of cyclic command value data ch."

For removing command errors see "Command Errors"

C0159 - Attributes

Display: C0159
Ident N°: C0159

10.2.49 C0160 Error when reading encoder data => measuring encoder

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

It was impossible to read the encoder data ("P-0-1020, Kind of encoder 3, encoder memory"; "P-0-1021, Encoder 3 resolution, encoder memory"; "P-0-1022, Absolute encoder offset 3, encoder memory") correctly from the encoder memory during the initialization of the control section.

Cause	Remedy
Interference caused by incorrect shielding or defective encoder cable	Check encoder cable (incl. shielding) and, if necessary, replace or run it correctly
Encoder defective	Check encoder function and, if necessary, replace encoder
Measuring encoder option on control section is defective	Replace control section or entire drive controller
Incorrect parameterization of "P-0-0076, Encoder type 3 (measuring encoder)"	Check content of "P-0-0076, Encoder type 3 (measuring encoder)" and correct it in such a way that measuring encoder is correctly assigned to optional slot

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware "Measuring Systems"

C0160 - Attributes

Display: C0160
Ident N°: C0160

10.2.50 C0161 Incorr. prarmeterization of measuring enc. (hardware)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «-» «-» «-»

Diagnostic Command Messages

Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the transition check from communication phase 2 to communication phase 3 (C0100) an error with regard to the parameterization of the hardware of the measuring encoder was detected.

Cause	Remedy
Parameterization of "P-0-0076, Encoder type 3 (measuring encoder)" does not match encoder interface (e.g. EN1 with EnDat encoder)	Correct parameterization of "P-0-0076, Encoder type 3 (measuring encoder)"
"P-0-0079, Assignment measuring encoder ->optional slot" incorrectly parameterized	Correct parameterization of "P-0-0079, Assignment measuring encoder ->optional slot" or change control section configuration (replacement of control section or drive controller)
In the case of double-axis device (CDB control section) "P-0-0076, Encoder type 3 (measuring encoder)" was parameterized unequal "0" for both axes	Only one measuring encoder can be connected per double-axis device (CDB control section). "P-0-0076, Encoder type 3 (measuring encoder)" may only be unequal "0" for one axis

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware "Measuring Systems"

C0161 - Attributes

Display: C0161
Ident N°: C0161

10.2.51 C0162 Measuring encoder unknown

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the transition check from communication phase 2 to communication phase 3 (C0100) an error with regard to the measuring encoder was detected. The content of "P-0-1020, Kind of encoder 3, encoder memory" is invalid and the measuring encoder therefore is not allowed.

Cause	Remedy
Encoder memory (feedback) is defective	Encoder must be replaced
Kind of motor encoder ("P-0-1020, Kind of encoder 3, encoder memory") is not supported by software	Check content of "P-0-1020, Kind of encoder 3, encoder memory" and contact our service department
Detected kind of encoder does not match parameterized type of encoder ("P-0-0079, Assignment measuring encoder ->optional slot")	Check "P-0-0079, Assignment measuring encoder ->optional slot" and, if necessary, replace control section by correctly configured control section or replace complete drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

C0162 - Attributes

Display: C0162
Ident N°: C0162

10.2.52 C0163 Modulo value for measuring encoder cannot be displayed

Validity

Contained in 02VRS:	«MPB»	«MPH»	«MPD»
Contained in 03VRS:	«-»	«-»	«-»
Contained in 04VRS:	«-»	«-»	«-»
Contained in 05VRS:	«-»	«-»	«-»
Supported by supply unit:	«-»		

During the transition check from communication phase 2 to communication phase 3 (C0100) an error was detected.

Cause	Remedy
Value parameterized for "P-0-0765, Modulo factor measuring encoder" cannot be displayed internally with gear that was set	Correct content of "S-0-0103, Modulo value" or measuring gear settings ("P-0-0127, Input revolutions of measuring gear" and "P-0-0128, Output revolutions of measuring gear")
"P-0-0327, Encoder resolution of measuring encoder" incorrectly parameterized	Check and, if necessary, correct content of "P-0-0327, Encoder resolution of measuring encoder"

See also Functional Description of firmware "Scaling"

C0163 - Attributes

Display: C0163
Ident N°: C0163

10.2.53 C0164 Incorrect measuring encoder configuration

Validity

Contained in 02VRS:	«MPB»	«MPH»	«MPD»
Contained in 03VRS:	«-»	«-»	«-»
Contained in 04VRS:	«-»	«-»	«-»
Contained in 05VRS:	«-»	«-»	«-»
Supported by supply unit:	«-»		

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check" an error with regard to the measuring encoder configuration was detected.

Cause	Remedy
At least one of selected operating modes is synchronization mode (velocity synchronization, phase synchronization or electronic cam shaft) and control encoder of synchronization mode has simultaneously been configured as measuring encoder. This configuration is not useful.	Check and, if necessary, correct parameterization of operating mode parameters ("S-0-0032, Primary mode of operation"; "S-0-0033, Secondary operation mode 1"; "S-0-0034, Secondary operation mode 2";...) if synchronization mode is not required. If synchronization mode is required, deactivate measuring encoder **or** use additional encoder as measuring encoder.

For removing command errors see "Command Errors"

C0164 - Attributes

Display: C0164
Ident N°: C0164

10.2.54 C0170 Config. IDNs for CC not configurable

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

☞ The text of the description is in preparation; for up-to-date information, see Technical Note "TN_331_CC_Connection_SERCOS3".

C0170 - Attributes

Display: C0170
Ident N°: C0170

10.2.55 C0171 Maximum length for CC exceeded

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

☞ The text of the description is in preparation; for up-to-date information, see Technical Note "TN_331_CC_Connection_SERCOS3".

C0171 - Attributes

Display: C0171
Ident N°: C0171

10.2.56 C0199 Functional package selection changed. Restart

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

During the execution of the command "S-0-0127, C0100 Communication phase 3 transition check", the drive detected that the functional package selection was changed in communication phase 2 but the drive was not rebooted.

Cause	Remedy
Parameter "P-0-2003, Selection of functional packages" contains functional package selection not corresponding to active functional package selection (cf. "P-0-2004, Active functional packages")	Switch drive off and on again in order to accept functional package selection of "P-0-2003, Selection of functional packages" in "P-0-2004, Active functional packages"
Incorrect functional package selection in "P-0-2003, Selection of functional packages"	Set value in "P-0-2003, Selection of functional packages" to value in "P-0-2004, Active functional packages"

See also Functional Description of firmware "Enabling of Functional Packages"

For removing command errors see "Command Errors"

C0199 - Attributes

Display: C0199
Ident N°: C0199

10.2.57 C0201 Invalid parameters (->S-0-0423)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

☞ In the firmware versions 02VRS and 03VRS, the name of the command error is "C0201 Invalid parameters (->S-0-0022)".

02VRS / 03VRS

While the command "S-0-0128, C0200 Communication phase 4 transition check" is executed, internal variables are initialized and the available parameters are checked (e.g. for validity). An error was detected during the execution of the command.

Cause	Remedy
Data block elements required in communication phase 4 are missing or invalid	Write allowed operating data to respective parameters. (Respective parameters can be taken from list "S-0-0022, IDN list of invalid operating data for communication phase 3")

As of 04VRS

While the command "S-0-0422, C0200 Exit parameterization level procedure command" is executed, internal variables are initialized and the available parameters are checked (e.g. for validity). An error was detected during the execution of the command.

Cause	Remedy
Data block elements required in operating mode are missing or invalid	Write allowed operating data to respective parameters. (Respective parameters can be taken from list "S-0-0423, IDN-list of invalid op. data for parameterization level")

For removing command errors see "Command Errors"

C0201 - Attributes

Display: C0201
Ident N°: C0201

10.2.58 C0202 Parameter limit error (->S-0-0423)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

☞ In the firmware versions 02VRS and 03VRS, the name of the command error is "C0202 Parameter limit error (->S-0-0022)".

Diagnostic Command Messages

02VRS / 03VRS While the command "S-0-0128, C0200 Communication phase 4 transition check" is executed, the limit values (minimum/maximum value) are checked for some parameters. An error was detected during the execution of the command.

Cause	Remedy
Parameter values required in communication phase 4 are outside of their allowed range of values (minimum or maximum value)	Write allowed values to parameters (cf. min./max. value). (Respective parameters can be taken from list "S-0-0022, IDN list of invalid operating data for communication phase 3")

As of 04VRS While the command "S-0-0422, C0200 Exit parameterization level procedure command" is executed, the limit values (minimum/maximum value) are checked for some parameters. An error was detected during the execution of the command.

Cause	Remedy
Parameter values required in operating mode are outside of their allowed range of values (minimum or maximum value)	Write allowed values to parameters (cf. min./max. value). (Respective parameters can be taken from list "S-0-0423, IDN-list of invalid op. data for parameterization level")

For removing command errors see "Command Errors"

C0202 - Attributes

Display: C0202
Ident N°: C0202

10.2.59 C0203 Parameter calculation error (->S-0-0423)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

☞ In the firmware versions 02VRS and 03VRS, the name of the command error is "C0203 Parameter calculation error (->S-0-0022)".

02VRS / 03VRS While the command "S-0-0128, C0200 Communication phase 4 transition check" is executed, the internal parameter formats are checked in order to ensure the internal processing. An error was detected during the execution of the command.

Cause	Remedy
Parameter values required in communication phase 4 cannot be processed	Write allowed values to parameters. (Respective parameters can be taken from list "S-0-0022, IDN list of invalid operating data for communication phase 3")

As of 04VRS While the command "S-0-0422, C0200 Exit parameterization level procedure command" is executed, the internal parameter formats are checked in order to ensure the internal processing. An error was detected during the execution of the command.

Cause	Remedy
Parameter values required in operating mode cannot be processed	Write allowed values to parameters. (Respective parameters can be taken from list "S-0-0423, IDN-list of invalid op. data for parameterization level")

For removing command errors see "Command Errors"

C0203 - Attributes

Display: C0203
Ident N°: C0203

10.2.60 C0210 Feedback 2 required (->S-0-0423)

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Incorrect parameter setting was detected during the execution of command "S-0-0422, C0200 Exit parameterization level procedure command".

☞ "S-0-0423, IDN-list of invalid op. data for parameterization level" contains the data which were detected to be invalid during the execution of command "S-0-0422, C0200 Exit parameterization level procedure command".

Cause	Remedy
Bit for measuring wheel mode has been set in "P-0-0185, Control word of encoder 2 (optional encoder)". Measuring wheel mode requires second encoder which has not been parameterized	Parameterize encoder 2 in "P-0-0075, Encoder type 2 (optional encoder)" **- or -** Deselect function "measuring wheel mode" in "P-0-0185, Control word of encoder 2 (optional encoder)"
Bit for redundant motor encoder has been set in "P-0-0185, Control word of encoder 2 (optional encoder)". Second encoder, however, has not been parameterized	Parameterize encoder 2 in "P-0-0075, Encoder type 2 (optional encoder)" **- or -** Deselect redundant motor encoder in "P-0-0185, Control word of encoder 2 (optional encoder)"

C0210 - Attributes

Display: C0210
Ident N°: C0210

10.2.61 C0212 Invalid control section data (->S-0-0423)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

☞ In the firmware versions 02VRS and 03VRS, the name of the command error is "C0212 Invalid control section data (->S-0-0022)".

02VRS / 03VRS:

For HMS, HMD, HCS

During the execution of the command "S-0-0128, C0200 Communication phase 4 transition check" an error during the initialization of the control section data was detected. The respective parameters are entered in the list "S-0-0022, IDN list of invalid operating data for communication phase 3".

Diagnostic Command Messages

For HMV During the initialization of the device data an error was detected.

Cause	Remedy
Reading error from I2C-Prom due to hardware defect	If possible, replace hardware; otherwise contact our service department

As of 04VRS:

For HMS, HMD, HCS During the execution of the command "S-0-0422, C0200 Exit parameterization level procedure command" an error was detected during the initialization of the amplifier data. The respective parameters are entered in the list "S-0-0423, IDN-list of invalid op. data for parameterization level".

For HMV During the initialization of the device data an error was detected.

Cause	Remedy
Reading error from I2C-Prom due to hardware defect	If possible, replace hardware; otherwise contact our service department

For removing command errors see "Command Errors"

C0212 - Attributes

Display: C0212
Ident N°: C0212

10.2.62 C0218 Double signal selection master axis format converter

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «MPD»
Contained in 05VRS: «-» «-» «MPD»
Supported by supply unit: «-»

During the execution of the command "S-0-0422, C0200 Exit parameterization level procedure command" an error occurred.

Cause	Remedy
In the case of a double-axis device, a parameter was selected in both axes in parameter "P-0-0916, Master axis format converter signal selection" the value of which is to be converted to master axis format; however, there is only one master axis format converter available for a double axis device	Set parameter "P-0-0916, Master axis format converter signal selection" of one axis of double-axis device to "S-0-0000"

C0218 - Attributes

Display: C0218
Ident N°: C0218

10.2.63 C0219 Max. travel range too large

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

While the command "C0200" is executed an error with regard to the scaling of the drive was detected.

Cause	Remedy
"S-0-0278, Maximum travel range" incorrectly parameterized. Defined travel range is too large	Check and, if necessary, reduce parameterization of S-0-0278. Value of "S-0-0278, Maximum travel range" is to be selected in such a way that resulting internal position resolution guarantees correct commutation of motor.
Inappropriate measuring system (resolution) for maximum travel range to be displayed	Check resolution of measuring system and, if necessary, use a different measuring system

For removing command errors see "Command Errors"

See also Functional Description of firmware "Scaling"

C0219 - Attributes

Display: C0219
Ident N°: C0219

10.2.64 C0220 Error when initializing position of encoder 1

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

While the command "C0200" is executed, the following checks are carried out for initializing encoder 1 (motor encoder):

- offset between high-resolution and low-resolution track
- communication with encoder
- generation of position of an initialization track
- reading of analog signals of an initialization track

If the motor encoder is an HSF encoder, the following checks are additionally carried out:

- access of angle correction data
- pointer length of analog signals of an initialization track

If one of the above checks fails, the command error C0220 is generated.

Cause	Remedy
Motor encoder cable defective	Check and if necessary replace motor encoder cable
Motor encoder defective or error in micro controller of measuring system	Replace motor
Measuring system interface defective	Have measuring system interface replaced by service department

For removing command errors see "Command Errors"

C0220 - Attributes

Display: C0220
Ident N°: C0220

10.2.65 C0221 Initialization velocity encoder 1 too high

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error in the initialization velocity of encoder 1 (motor encoder) was detected.

Cause	Remedy
Velocity for initialization of encoder 1 was too high	Reduce velocity for encoder initialization

For removing command errors see "Command Errors"

C0221 - Attributes

Display: C0221
Ident N°: C0221

10.2.66 C0223 Invalid settings for controller cycle times

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error in the parameterization of controller cycle times or PWM switching frequencies was detected.

For cause and remedy see "C0132 Invalid settings for controller cycle times".

C0223 - Attributes

Display: C0223
Ident N°: C0223

10.2.67 C0224 Error when initializing position of encoder 2

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

While the command "C0200" is executed, the following checks are carried out for initializing encoder 2 (optional encoder):

- offset between high-resolution and low-resolution track
- communication with encoder
- generation of position of an initialization track
- reading of analog signals of an initialization track

If the optional encoder is an HSF encoder, the following checks are additionally carried out:

- access of angle correction data
- pointer length of analog signals of an initialization track

If one of the above checks fails, the command error C0224 is generated.

Cause	Remedy
Encoder cable defective	Check and if necessary replace encoder cable
Encoder defective or error in micro controller of measuring system	Replace encoder
Measuring system interface defective	Have measuring system interface replaced by service department

For removing command errors see "Command Errors"

C0224 - Attributes

Display: C0224
Ident N°: C0224

10.2.68 C0225 Initialization velocity encoder 2 too high

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error in the initialization velocity of encoder 2 (optional encoder) was detected.

Cause	Remedy
Velocity for initialization of encoder 2 was too high	Reduce velocity for encoder initialization

For removing command errors see "Command Errors"

C0225 - Attributes

Display: C0225
Ident N°: C0225

10.2.69 C0227 Error when initializing position of measuring encoder

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

While the command "C0200" is executed, the following checks are carried out for initializing the measuring encoder:

- offset between high-resolution and low-resolution track
- communication with encoder
- generation of position of an initialization track
- reading of analog signals of an initialization track

If the measuring encoder is an HSF encoder, the following checks are additionally carried out:

- access of angle correction data
- pointer length of analog signals of an initialization track

If one of the above checks fails, the command error C0227 is generated.

Diagnostic Command Messages

Cause	Remedy
Encoder cable defective	Check and if necessary replace encoder cable
Interference caused by incorrect shielding	Check and if necessary correct cable shielding
Encoder defective or error in micro controller of measuring system	Replace encoder
Measuring system interface defective	Have measuring system interface replaced by service department

For removing command errors see "Command Errors"

C0227 - Attributes

Display: C0227
Ident N°: C0227

10.2.70 C0228 Initialization velocity measuring encoder too high

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error in the initialization velocity of the measuring encoder was detected.

Cause	Remedy
Velocity for initialization of measuring encoder was too high	Reduce velocity for encoder initialization

For removing command errors see "Command Errors"

C0228 - Attributes

Display: C0228
Ident N°: C0228

10.2.71 C0229 Field bus: IDN for cycl. command val. not configurable

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error with regard to the telegram configuration of master communication was detected.

Cause	Remedy
In operating data of "P-0-4081, Field bus: config. list of cyclic command value data ch." there is an IDN that is not contained in "S-0-0188, List of configurable data in the MDT"	In "P-0-4081, Field bus: config. list of cyclic command value data ch." enter allowed IDN (cf. "S-0-0188, List of configurable data in the MDT")

For removing command errors see "Command Errors"

C0229 - Attributes

Display: C0229
Ident N°: C0229

10.2.72 C0230 Field bus: max. length for cycl. command val. Exceeded

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command " C0200" an error with regard to the telegram configuration of master communication was detected.

Cause	Remedy
Sum of data widths of all IDNs entered in "P-0-4081, Field bus: config. list of cyclic command value data ch." exceeds max. value of "P-0-4071, Field bus: length of cyclic command value data channel"	Reduce number of IDNs entered in "P-0-4081, Field bus: config. list of cyclic command value data ch."

C0230 - Attributes

Display: C0230
Ident N°: C0230

10.2.73 C0231 Field bus: IDN for cycl. actual val. not configurable

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error with regard to the telegram configuration of master communication was detected.

Cause	Remedy
In operating data of "P-0-4080, Field bus: config. list of cyclic command value data ch." there is an IDN that is not contained in "S-0-0187, List of configurable data in the AT"	In "P-0-4080, Field bus: config. list of cyclic command value data ch." enter allowed IDNs (cf. "S-0-0187, List of configurable data in the AT")

☞ List parameters are only allowed in the multiplex channel.

For removing command errors see "Command Errors"

C0231 - Attributes

Display: C0231
Ident N°: C0231

10.2.74 C0232 Field bus: length for cycl. actual values exceeded

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error with regard to the telegram configuration of master communication was detected.

Cause	Remedy
Sum of data widths of all IDNs entered in "P-0-4080, Field bus: config. list of cyclic actual value data ch." exceeds max. value of "P-0-4082, Field bus: length of cyclic actual value data channel"	Reduce number of IDNs entered in "P-0-4080, Field bus: config. list of cyclic actual value data ch."

C0232 - Attributes

Display: C0232
Ident N°: C0232

10.2.75 C0233 Field bus: Tcyc (P-0-4076) incorrect

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "S-0-0422, C0200 Exit parameterization level procedure command" an error with regard to the telegram configuration of master communication was detected.

Cause	Remedy
"P-0-4076, Field bus: cycle time (Tcyc)" is not an integral multiple of position loop clock	Adjust "P-0-4076, Field bus: cycle time (Tcyc)" to position loop clock (control section ADVANCED: 500 µs or 250 µs, control section BASIC: 500 µs)

☞ The minimum field bus cycle time ("P-0-4076, Field bus: cycle time (Tcyc)") is 500 µs for control section ADVANCED and 1000 µs for control section BASIC.

For removing command errors see "Command Errors"

C0233 - Attributes

Display: C0233
Ident N°: C0233

10.2.76 C0234 Field bus: P-0-4077 missing for cycl. command values

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error with regard to the telegram configuration of master communication was detected.

Cause	Remedy
Operating data of "P-0-4081, Field bus: config. list of cyclic command value data ch." contains neither "P-0-4077, Field bus: control word" nor "P-0-4068, Field bus: control word IO". At least one control word has to be contained	According to profile type configure one of both control words in "P-0-4081, Field bus: config. list of cyclic command value data ch."

For removing command errors see "Command Errors"

C0234 - Attributes

Display: C0234
Ident N°: C0234

10.2.77 C0238 Order of cyclic command value configuration incorrect

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The chronology of the processing of cyclic command value data in the drive has the order in which the configured IDNs have been entered in parameter "S-0-0024, Config. list of the master data telegram". The following parameters are available for using the multiplex mode in the cyclic command value telegram:

- S-0-0360, Data container A: command value 1,
- S-0-0362, Data container A: list index command values and
- S-0-0368, Data container A: addressing

If more than one of these parameters has been configured in the cyclic command value telegram, their correct order is checked in the command "S-0-0128, C0200 Communication phase 4 transition check" (02VRS / 03VRS) or "S-0-0422, C0200 Exit parameterization level procedure command" (as of 04VRS).

Cause	Remedy
Incorrect order of relevant parameters in cyclic command value telegram	Observe correct order of parameters in cyclic command value telegram: Parameters S-0-0362, S-0-0366 and S-0-0368 in cyclic command value telegram have to be located before parameters S-0-0360 and S-0-0450 to S-0-0456

See also Functional Description of firmware "Multiplex Channel"

C0238 - Attributes

Display: C0238
Ident N°: C0238

10.2.78 C0239 IDN for command value data container not allowed

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of command "S-0-0128, C0200 Communication phase 4 transition check" (02VRS / 03VRS) or "S-0-0422, C0200 Exit parameterization level procedure command" (as of 04VRS), an error with regard to the command value configuration list was detected.

Cause	Remedy
A command value configuration list (S-0-0370 and S-0-0490 to S-0-0496) contains one or several IDNs that aren't existing or not contained in "S-0-0188, List of configurable data in the MDT"	Check parameters "S-0-0370, Data container A: configuration list command value-1" and "S-0-0490, Data container A: configuration list command value 2" to "S-0-0496, Data container A: configuration list command value 8" for incorrect IDNs and correct them

For removing command errors see "Command Errors"

See also Functional Description of firmware "Multiplex Channel"

C0239 - Attributes

Display: C0239
Ident N°: C0239

10.2.79 C0240 IDN for actual value data container not allowed

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of command "S-0-0128, C0200 Communication phase 4 transition check" (02VRS / 03VRS) or "S-0-0422, C0200 Exit parameterization level procedure command" (as of 04VRS), an error with regard to the actual value configuration list was detected.

Cause	Remedy
An actual value configuration list (S-0-0371 and S-0-0500 to S-0-0506) contains one or several IDNs that aren't existing or not contained in "S-0-0187, List of configurable data in the AT"	Check parameters "S-0-0371, Data container A: configuration list feedback value-1" and "S-0-0500, Data container A: configuration list feedback value 2" to "S-0-0506, Data container A: configuration list feedback value 8" for incorrect IDNs and correct them

For removing command errors see "Command Errors"

See also Functional Description of firmware "Multiplex Channel"

C0240 - Attributes

Display: C0240
Ident N°: C0240

10.2.80 C0241 Incorrect motion task parameterization

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

A motion task is of the type "externally event-controlled".

Two of these motion tasks are available as of firmware version MP05VRS.

- Motion task which is synchronous to master communication (via the system event**FKM_SYNCHRONIZED_TASK**)
- Motion task which is synchronous to CCD group (via the system event**CCD_SYNCHRONIZED_TASK**)

When switching from parameter mode to operating mode takes place, checks are run for a loaded boot project, with a motion task synchronous to master communication or CCD group, to find out whether the motion task can be operated with the settings made; an error was detected during this check. (See also Application Manual "Rexroth IndraMotion MLD", chapter "Basic Functions of Rexroth IndraMotion MLD", "Task System".)

Cause	Remedy
A motion task which is synchronous to master communication cannot be operated with NC cycle time (S-0-0001 or S-0-1001 for master communication SERCOS III) which was set	**Advanced and Basic performance:** Minimum allowed NC cycle time is 1000µs. Other values in steps of 1000µs are allowed. **Economy performance:** Minimum allowed NC cycle time is 2000µs. Other values in steps of 2000µs are allowed.
A motion task which is synchronous to CCD group is not operated in MLD-M system mode	Activate MLD-M system mode **- or -** Change your PLC project for MLD in such a way that no CCD-synchronous motion task is configured

For removing command errors see "Command Errors"

C0241 - Attributes

Display: C0241
Ident N°: C0241

10.2.81 C0242 Multiple configuration of a parameter (->S-0-0423)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In the firmware versions 02VRS and 03VRS, the name of the command error is "C0242 Multiple configuration of a parameter (->S-0-0022)".

02VRS / 03VRS

During the execution of the command "S-0-0128, C0200 Communication phase 4 transition check" an error was detected.

Cause	Remedy
For a double-axis device, a device-specific function has been activated in both axes (e.g. position switch activated in both axes or encoder emulation activated in both axes)	Read IDNs entered in "S-0-0022, IDN list of invalid operating data for communication phase 3" to find out function activated in both axes. Then deactivate function in one of both axes
For cyclic parameter write, a parameter was simultaneously configured in different interfaces. It is impossible, however, to simultaneously write data to same parameter from different interfaces. **Note:** "Interfaces" means as well analog and digital inputs as complete bus systems.	Read IDNs entered in "S-0-0022, IDN list of invalid operating data for communication phase 3" to detect and remove multiple configuration.

Diagnostic Command Messages

Each multiple configuration/each conflict is listed in parameter "S-0-0022, IDN list of invalid operating data for communication phase 3" and displayed in the following form:

- The 1st entry contains the IDN of the parameter that was configured in a multiple way.
- The subsequent entries contain the IDNs of the parameters in which the multiple-configuration parameter was configured for cyclic parameter write.
- Up to 5 entries are displayed.
- In the IDN list, each conflict is concluded by the IDN S-0-0000. If several conflicts occur at the same time, they are displayed one after the other in "S-0-0022, IDN list of invalid operating data for communication phase 3", being separated by the IDN **S-0-0000**.

For each conflict, the configurations of the involved interfaces have to be modified in such a way that only one interface writes data to a parameter.

As of 04VRS

During the execution of the command "S-0-0422, C0200 Exit parameterization level procedure command" an error was detected.

Cause	Remedy
For a double-axis device, a device-specific function has been activated in both axes (e.g. position switch activated in both axes or encoder emulation activated in both axes)	Read IDNs entered in "S-0-0423, IDN-list of invalid op. data for parameterization level" to find out function activated in both axes. Then deactivate function in one of both axes
For cyclic parameter write, a parameter was simultaneously configured in different interfaces. It is impossible, however, to simultaneously write data to same parameter from different interfaces. **Note:** "Interfaces" means as well analog and digital inputs as complete bus systems.	Read IDNs entered in "S-0-0423, IDN-list of invalid op. data for parameterization level" to detect and remove multiple configuration.

Each multiple configuration/each conflict is listed in parameter "S-0-0423, IDN-list of invalid op. data for parameterization level" and displayed in the following form:

- The 1st entry contains the IDN of the parameter that was configured in a multiple way.
- The subsequent entries contain the IDNs of the parameters in which the multiple-configuration parameter was configured for cyclic parameter write.
- Up to 5 entries are displayed.
- In the IDN list, each conflict is concluded by the IDN S-0-0000. If several conflicts occur at the same time, they are displayed one after the other in "S-0-0423, IDN-list of invalid op. data for parameterization level", being separated by the IDN S-0-0000.

For each conflict, the configurations of the involved interfaces have to be modified in such a way that only one interface writes data to a parameter.

For removing command errors see "Command Errors"

C0242 - Attributes

Display: C0242
Ident N°: C0242

10.2.82 C0243 Brake check function not possible

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In the "P-0-0525, Holding brake control word" parameter the automatic brake check was selected/activated. When initializing the function an error occurred.

Cause	Remedy
Holding brake is not controlled	Activate control of holding brake in "P-0-0525, Holding brake control word"
"P-0-0540, Torque of motor holding brake" is "0"	Parameterize "P-0-0540, Torque of motor holding brake" correctly by means of data sheet for brake or motor

For removing command errors see "Command Errors"

C0243 - Attributes

Display: C0243
Ident N°: C0243

10.2.83 C0244 Act. modulo value cycle greater than max. travel range

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error was detected.

Cause	Remedy
Calculated modulo value for actual value cycle is greater than value parameterized in "S-0-0278, Maximum travel range"	Check parameterization of "S-0-0278, Maximum travel range" and if necessary adjust it to modulo value for actual value cycle – **or** – **C**heck parameterization of modulo value for actual value cycle and adjust it to "S-0-0278, Maximum travel range"

For removing command errors see "Command Errors"

C0244 - Attributes

Display: C0244
Ident N°: C0244

10.2.84 C0245 Operating mode configuration (->S-0-0423) not allowed

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Diagnostic Command Messages

☞ In the firmware versions 02VRS and 03VRS, the name of the command error is "C0245 Operating mode configuration (->S-0-0022) not allowed".

02VRS / 03VRS

During the execution of the command "S-0-0128, C0200 Communication phase 4 transition check" an invalid operating mode configuration was detected.

In the operating mode parameters, it is not allowed to parameterize synchronization modes with outer position control loop (phase synchronization or electronic cam shaft) with different control encoders.

Operating mode parameters:

- S-0-0032, Primary mode of operation,
- S-0-0033, Secondary operation mode 1,
- S-0-0034, Secondary operation mode 2,
- S-0-0035, Secondary operation mode 3,
- etc.

Cause	Remedy
Operating mode configuration is invalid (phase synchronization or electronic cam shaft with different control encoders)	Parameter contents of operating mode parameters have to be changed is such a way that invalid operating mode configuration no longer occurs (respective operating mode parameters are listed in "S-0-0022, IDN list of invalid operating data for communication phase 3")
An operating mode was configured for control with encoder 2; but encoder 2 does not exist or interface has not been assigned	Select control with encoder 1 (motor encoder) or connect encoder 2 and assign interface ("P-0-0078, Assignment optional encoder ->optional slot")

☞ If several operating modes are invalid, only the first operating mode found is entered in "S-0-0022, IDN list of invalid operating data for communication phase 3".

As of 04VRS

During the execution of the command "S-0-0422, C0200 Exit parameterization level procedure command" an invalid operating mode configuration was detected.

In the operating mode parameters, it is not allowed to parameterize synchronization modes with outer position control loop (phase synchronization or electronic cam shaft) with different control encoders.

Operating mode parameters:

- S-0-0032, Primary mode of operation,
- S-0-0033, Secondary operation mode 1,
- S-0-0034, Secondary operation mode 2,
- S-0-0035, Secondary operation mode 3,
- etc.

Cause	Remedy
Operating mode configuration is invalid (phase synchronization or electronic cam shaft with different control encoders)	Parameter contents of operating mode parameters have to be changed is such a way that invalid operating mode configuration no longer occurs (respective operating mode parameters are listed in "S-0-0423, IDN-list of invalid op. data for parameterization level")
An operating mode was configured for control with encoder 2; but encoder 2 does not exist or interface has not been assigned	Select control with encoder 1 (motor encoder) or connect encoder 2 and assign interface ("P-0-0078, Assignment optional encoder ->optional slot")

☞ If several operating modes are invalid, only the first operating mode found is entered in "S-0-0423, IDN-list of invalid op. data for parameterization level".

See also Functional Description of firmware "Measuring Systems"

For removing command errors see "Command Errors"

C0245 - Attributes

Display: C0245
Ident N°: C0245

10.2.85 C0246 Trav. range lim. switch not ass. to dig. input

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" the configuration of the digital inputs with activated travel range limit switches is checked in order to ensure the function of the travel range limit switches that are relevant for machine safety.

Cause	Remedy
Travel range limit switches +/- have been activated in "P-0-0090, Travel range limit parameter" but not assigned to any digital input	Assign travel range limit switches to digital inputs via "P-0-0300, Digital I/Os, assignment list"
Travel range limit switches +/- have been unintentionally activated in "P-0-0090, Travel range limit parameter"	Deactivate travel range limit switches +/- in "P-0-0090, Travel range limit parameter"

For removing command errors see "Command Errors"

See also Functional Description of firmware "Digital Inputs/Outputs"

See also Functional Description of firmware "Position Limitation/Travel Range Limit Switch"

C0246 - Attributes

Display: C0246
Ident N°: C0246

10.2.86 C0247 Dig. output already assigned to other axis

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Diagnostic Command Messages

Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" digital outputs were detected to have been configured more than once.

Cause	Remedy
In the case of a double-axis device (HMD01.1), a digital output is used by both axes	Check parameterization of "P-0-0300, Digital I/Os, assignment list" in both axes and change it in at least one axis

For removing command errors see "Command Errors"

See also Functional Description of firmware "Digital Inputs/Outputs"

C0247 - Attributes

Display: C0247
Ident N°: C0247

10.2.87 C0248 Dig. input assigned differently to axes

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200", the configuration of the available digital inputs is checked with regard to inconsistent double assignment.

Cause	Remedy
In the case of a double-axis device (HMD01.1), a digital input was parameterized by both axes with different IDN ("P-0-0300, Digital I/Os, assignment list") or bit number ("P-0-0301, Digital I/Os, bit numbers")	Check parameterization of "P-0-0300, Digital I/Os, assignment list" or "P-0-0301, Digital I/Os, bit numbers" in both axes of double-axis device and change it in at least one axis

For removing command errors see "Command Errors"

See also Functional Description of firmware "Digital Inputs/Outputs"

C0248 - Attributes

Display: C0248
Ident N°: C0248

10.2.88 C0249 Dig. I/Os: bit number too large

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200", the configuration of the digital I/Os is checked with regard to the configured bit numbers.

Cause	Remedy
Bit number ("P-0-0301, Digital I/Os, bit numbers") for an assigned IDN ("P-0-0300, Digital I/Os, assignment list") is not available (e.g. bit number 25 but IDN only 2 bytes long)	Check parameterization of "P-0-0300, Digital I/Os, assignment list" and "P-0-0301, Digital I/Os, bit numbers" and adjust "P-0-0301, Digital I/Os, bit numbers" to data format of corresponding IDN

For removing command errors see "Command Errors"

C0249 - Attributes

Display: C0249
Ident N°: C0249

10.2.89 C0250 Probe inputs incorrectly configured

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error was detected.

Cause	Remedy
At least one of both probes was activated in "S-0-0169, Probe control parameter" but not assigned to any digital input	Assign probes to digital inputs via "P-0-0300, Digital I/Os, assignment list", "P-0-0301, Digital I/Os, bit numbers" and "P-0-0302, Digital I/Os, direction"
Probes were accidentally activated	Deactivate probes in "S-0-0169, Probe control parameter"

See also Functional Description of firmware "Digital Inputs/Outputs"

See also Functional Description of firmware "Probe Function"

C0250 - Attributes

Display: C0250
Ident N°: C0250

10.2.90 C0251 Error during synchronization to master communication

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" the drive checks whether the drive control is synchronized to the bus interface (SERCOS, Profibus, Interbus, …) via two phase control loops. The synchronization process must have been completed until the end of the command. If not, this error message is generated.

Cause	Remedy
Hardware defect on control section	Replace control section or entire drive controller

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

For removing command errors see "Command Errors"

See also Functional Description of firmware "Master Communication"

C0251 - Attributes

Display: C0251
Ident N°: C0251

10.2.91 C0252 Incorrect MLD initialization (write access->S-0-0423)

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

Due to incorrect MLD write access, switching from parameter mode to operating mode was prevented.

Parameter S-0-0423 displays the parameter for which write access has failed.

Cause	Remedy
Internal error or control section defective	Please contact our service department

For removing command errors see "Command Errors"

C0252 - Attributes

Display: C0252
Ident N°: C0252

10.2.92 C0253 Error in combination operating mode - encoder (->S-0-0423)

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the check of operating mode and encoder an error occurred.

"S-0-0423, IDN-list of invalid op. data for parameterization level" contains the faulty parameter.

Cause	Remedy
Operating modes were parameterized which obligatorily require an optional encoder or operating modes were parameterized for which a certain encoder mustn't be set	Correct settings for primary mode of operation and secondary oper. modes (S-0-0032 to S-0-0035 and S-0-0284 to S-0-0287) **- or -** "P-0-0077, Assignment motor encoder->optional slot" and "P-0-0078, Assignment optional encoder ->optional slot" **- and -** check motor control which was set (U/f, FXC, FOC) (see Functional Description of firmware "Motor Control")

C0253 - Attributes

Display: C0253
Ident N°: C0253

10.2.93 C0254 Configuration error PROFIsafe

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When PROFIsafe was configured, a check is run during the execution of the command "C0200" to find out whether the conditions for successful operation have been fulfilled.

Cause	Remedy
PROFIsafe was accidentally activated	Deactivate PROFIsafe (write zero to "P-0-3290, PROFIsafe: F_Destination_Address")
Control section doesn't have Profibus master communication	Replace control section; use correct hardware configuration
Due to hardware error, Profibus master communication wasn't recognized during initialization of control section	Replace control section or entire drive controller; use hardware configuration of same type

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

Only Rexroth service engineers are allowed to replace optional modules of the control section (e.g. optional encoder module).

For removing command errors see "Command Errors"

C0254 - Attributes

Display: C0254
Ident N°: C0254

10.2.94 C0255 Safety command for system init. incorrect

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" the optional safety technology module is initialized and a timeout check is run for the module.

Cause	Remedy
Sporadic timeout error	Reset optional safety technology module and contact our service department
Firmware defect on optional safety technology module	If command error occurs repeatedly, safety technology firmware has to be replaced
Hardware defect on optional safety technology module	If command error occurs repeatedly, optional safety technology module has to be replaced

Diagnostic Command Messages

☞ Only Rexroth service engineers are allowed to replace optional modules of the control section.

For removing command errors see "Command Errors"

See also documentation "Integrated Safety Technology", keyword "Firmware Update"

C0255 - Attributes

Display: C0255
Ident N°: C0255

10.2.95 C0256 Safety technology configuration error

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error was detected during checks of the safety technology configuration.

Cause	Remedy
For the cause, please see parameter "P-0-3219, Diagnostic safety technology message".	Remove cause of error

For removing command errors see "Command Errors"

C0256 - Attributes

Display: C0256
Ident N°: C0256

10.2.96 C0257 Error in safety technology encoder initialization

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

☞ In the firmware versions 02VRS, 03VRS and 04VRS, the name of the command error is "C0257 No encoder assigned to slot 1".

During the transition check from communication phase 3 to communication phase 4 (C0200) a check is run in closed-loop operation in order to find out whether an optional encoder module is available in optional slot 1.

Cause	Remedy
Command error occurs sporadically	Restart transition command and contact our service department
No optional encoder module available in control section	Replace control section with control section configuration containing optional encoder module
Optional encoder module with incorrect hardware code or defective hardware	Replace optional encoder module and contact our service department

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

Only Rexroth service engineers are allowed to replace optional modules of the control section (e.g. optional encoder module).

For removing command errors see "Command Errors"

C0257 - Attributes

Display: C0257
Ident N°: C0257

10.2.97 C0258 Error in relation TNcyc (S-0-0001) to fine interpol.

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" a check is run, when the cubic fine interpolator or the interpolator according to contour ("P-0-0187, Position command processing mode" = 1 or 2) is used, to find out whether the selected NC cycle time is supported by the respective fine interpolator.

Cause	Remedy
"S-0-0001, NC cycle time (TNcyc)" incorrectly parameterized	Select appropriate "S-0-0001, NC cycle time (TNcyc)". Allowed NC cycle times, when using cubic fine interpolator or fine interpolator according to contour, are: • 1, 2, 3, 4, 5, 6, 7, 8 ms for S-0-0001 <= 8 ms • 10, 12, 14, 16 ms for S-0-0001 <= 16 ms • 20, 24, 28, 32 ms for S-0-0001 <= 32 ms
Cubic fine interpolation or fine interpolation according to contour cannot be used with present NC cycle time ("S-0-0001, NC cycle time (TNcyc)")	Use linear fine interpolator ("P-0-0187, Position command processing mode" = 0)

For removing command errors see "Command Errors"

C0258 - Attributes

Display: C0258
Ident N°: C0258

10.2.98 C0259 MLD configuration error (->S-0-0423)

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

The execution of the command "C0200" (switching from parameter mode to operating mode) was prevented by incorrect MLD configuration.

☞ The incorrectly configured parameters are listed in S-0-0423.

Cause	Remedy
Permanent control was set in "P-0-1367, PLC configuration", but profile "operating mode neutral" (P-0-4084=FFFD) was not set in "P-0-4084, Field bus: profile type"	(Local) axis can either be controlled via field bus (P-0-4084=FFFE) **or** MLD (P-0-1367, bit 4=1); it is impossible to have both settings at the same time

For removing command errors see "Command Errors"

C0259 - Attributes

Display: C0259
Ident N°: C0259

10.2.99 C0260 Incremental enc. emulator resol. cannot be displayed

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In the case of incremental encoder emulation, inadmissible overflow can occur for increment output. In order to avoid this overflow, "P-0-0903, Encoder emulation resolution" has to be parameterized accordingly.

In the case of modulo processing, the overflow takes place at the modulo value entered in "S-0-0103, Modulo value":

$$P\text{-}0\text{-}0903 = \frac{S\text{-}0\text{-}0079}{S\text{-}0\text{-}0103} * 2^{29}$$

S-0-0103 "S-0-0103, Modulo value"
P-0-0903 "P-0-0903, Encoder emulation resolution"
S-0-0079 "S-0-0079, Rotational position resolution"
Fig.10-3: Overflow in the case of modulo processing

Otherwise the overflow takes place at the value entered in "S-0-0278, Maximum travel range":

$$P\text{-}0\text{-}0903 = \frac{S\text{-}0\text{-}0079}{S\text{-}0\text{-}0278} * 2^{29}$$

P-0-0903 "P-0-0903, Encoder emulation resolution"
S-0-0079 "S-0-0079, Rotational position resolution"
S-0-0278 "S-0-0278, Maximum travel range"
Fig.10-4: Overflow in case of maximum travel range

Cause	Remedy
Resolution of emulated signal is not correct for modulo range / travel range	Reduce resolution entered in "P-0-0903, Encoder emulation resolution" **- or -** Reduce "S-0-0278, Maximum travel range"

See also Functional Description of firmware "Incremental Encoder Emulation"

C0260 - Attributes

Display: C0260
Ident N°: C0260

10.2.100 C0261 Emulator (P-0-0902) activated for both axes

Validity

Contained in 02VRS: «-» «-» «MPD»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

Cause	Remedy
For double axis devices encoder emulation can only be activated in one axis. Encoder emulation was activated in both axes	Deactivate encoder emulation in one of both axes ("P-0-0902, Encoder emulation control parameter")

See also Functional Description of firmware "Incremental Encoder Emulation"

C0261 - Attributes

Display: C0261
Ident N°: C0261

10.2.101 C0265 Incorrect CCD address configuration

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «MPH» «-»
Contained in 05VRS: «-» «MPH» «-»
Supported by supply unit: «-»

During the execution of the command "S-0-0422, C0200 Exit parameterization level procedure command" an error with regard to the drive cross communication [CCD (**C**ross **C**ommunication **D**rives)] was detected.

Cause	Remedy
"P-0-1601, CCD: addresses of projected drives" or "P-0-1604, CCD: addresses of projected I/Os" (only MPx05) of CCD master lists address of a SERCOS-III slave which is not contained in "P-0-4031, Overview of device addresses"	Check "P-0-1601, CCD: addresses of projected drives" or "P-0-1604, CCD: addresses of projected I/Os" (only MPx05) and check addresses of connected slaves. **Note:** When address of a slave has been changed, a new SERCOS-III phase progression via phase 0 has to be carried out. Connected slaves are scanned in phase 0.

See also Functional Description of firmware "Cross Communication (CCD)"

C0265 - Attributes

Display: C0265
Ident N°: C0265

10.2.102 C0266 Incorrect CCD phase switch

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «MPH» «-»
Contained in 05VRS: «-» «MPH» «-»
Supported by supply unit: «-»

Diagnostic Command Messages

During the execution of the command "S-0-0422, C0200 Exit parameterization level procedure command" an error with regard to the drive cross communication [CCD (**C**ross **C**ommunication **D**rives)] was detected.

Cause	Remedy
After command "C0200 Exit parameterization level procedure command" has been started, CCD master tries to bring SERCOS-III slaves to phase 4; while this happens all required parameters of slaves are written (S-0-0015, S-0-0016, S-0-0024, S-0-1001, S-0-1002 etc.). In addition, switching processes from communication phase 2 to 3 and from communication phase 3 to 4 are started. An error has occurred with one of these actions	Look at "P-0-1630, CCD: diagnosis" and, if necessary, correct rejected parameter. **- or -** Check configuration of CCD process data: • "P-0-1621, CCD: configuration list master communication cmd values" • "P-0-1622, CCD: configuration list master communication actual values" • "P-0-1623, CCD: configuration list master cmd values" • "P-0-1624, CCD: configuration list actual master values" • "P-0-1625, CCD: configuration list slave cmd values" • "P-0-1626, CCD: configuration list actual slave values"

See also Functional Description of firmware "Cross Communication (CCD)"

C0266 - Attributes

Display: C0266
Ident N°: C0266

10.2.103 C0267 CCD timeout phase switch

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «MPH» «-»
Contained in 05VRS: «-» «MPH» «-»
Supported by supply unit: «-»

The command "S-0-0422, C0200 Exit parameterization level procedure command" was executed without error in the SERCOS-III master. The master did not generate any error during phase switch (C0266).

The maximum delay of 60 seconds for switching the SERCOS-III slaves to phase 4 is over, but one or several slaves are not yet in phase 4.

Cause	Remedy
One or several SERCOS-III slaves from "P-0-1601, CCD: addresses of projected drives" or "P-0-1604, CCD: addresses of projected I/Os" (only MPx05) do not react to service channel communication	Locate defective SERCOS-III slave(s) and remove cause of error for this (these) slave(s)
Transition command "S-0-0127, C0100 Communication phase 3 transition check" or "S-0-0128, C5200 Communication phase 4 transition check" is not completed or terminated with error for one or several SERCOS-III slaves	Locate defective SERCOS-III slave(s) and remove cause of error for this (these) slave(s)

See also Functional Description of firmware "Cross Communication (CCD)"

C0267 - Attributes

Display: C0267
Ident N°: C0267

10.2.104 C0270 Error when reading encoder data => motor encoder

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error during the reading of the encoder data from the data memory of the motor encoder was detected.

☞ Measuring systems with their own data memory are DSF/HSF and resolvers, as well as measuring systems with EnDat interface (Heidenhain company) and HIPERFACE® interface (Stegmann company).

Cause	Remedy
Measuring system cable defective	Check measuring system cable
Measuring system defective	Replace measuring system
Encoder interface defective	Replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

C0270 - Attributes

Display: C0270
Ident N°: C0270

10.2.105 C0271 Incorrect parameterization of motor encoder (hardware)

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error with regard to the parameterization of the motor encoder hardware was detected.

Diagnostic Command Messages

Cause	Remedy
Parameterization "P-0-0074, Encoder type 1 (motor encoder)" does not match interface card (e.g. EN1 with EnDat encoder)	Check whether parameterized encoder type matches interface card that has been plugged in
In the case of "current control with motor encoder" (see "P-0-0045, Control word of current controller"), "operation without encoder" was detected to have been set in "P-0-0074, Encoder type 1 (motor encoder)"	Enter value appropriate for motor encoder in "P-0-0074, Encoder type 1 (motor encoder)"
Parameterization in "P-0-0077, Assignment motor encoder->optional slot" is incorrect	Correct assignment of motor encoder and optional slot in parameter "P-0-0077, Assignment motor encoder->optional slot"

C0271 - Attributes

Display: C0271
Ident N°: C0271

10.2.106 C0272 Incorr. parameteriz. of motor enc. (mechanical system)

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error was detected with regard to the scaling that has been set and the selected motor encoder type (e.g. rotary scaling with linear motor).

Cause	Remedy
Incorrect encoder type ("S-0-0277, Position feedback 1 type")	Check and, if necessary, correct "S-0-0277, Position feedback 1 type"
Parameterized scaling ("S-0-0076, Position data scaling type") is incorrect	Check and, if necessary, correct "S-0-0076, Position data scaling type"
Parameterized type of construction of motor ("P-0-4014, Type of construction of motor") is not correct	Correct "P-0-4014, Type of construction of motor"
Maximum travel range ("S-0-0278, Maximum travel range") was incorrectly input	Make input greater than "0" for "S-0-0278, Maximum travel range"

For removing command errors see "Command Errors"

C0272 - Attributes

Display: C0272
Ident N°: C0272

10.2.107 C0273 Modulo value for motor encoder cannot be displayed

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error with regard to the modulo value for the motor encoder was detected.

Cause	Remedy
Parameterized value for "S-0-0103, Modulo value" is greater than maximum travel range (cf. "S-0-0278, Maximum travel range")	Correct content of "S-0-0103, Modulo value" or value of "S-0-0278, Maximum travel range"
Parameterized value for "S-0-0103, Modulo value" cannot be internally displayed with gear ratios that have been set (S-0-0121/S-0-0122, P-0-0121/P-0-0122)	Correct content of "S-0-0103, Modulo value" or gear ratios that have been set ["S-0-0121, Input revolutions of load gear"/"S-0-0122, Output revolutions of load gear"; "P-0-0121, Gear 1 motor-side (motor encoder)"/"P-0-0122, Gear 1 encoder-side (motor encoder)"]

For removing command errors see "Command Errors"

C0273 - Attributes

Display: C0273
Ident N°: C0273

10.2.108 C0274 Motor encoder unknown

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error with regard to the motor encoder was detected. The content of "P-0-1000, Kind of encoder 1, encoder memory" is invalid and therefore the parameterized motor encoder is not allowed (e.g. rotary scaling with linear encoder).

Cause	Remedy
Encoder memory (feedback) is defective	Encoder (or motor) must be replaced
Kind of motor encoder ("P-0-1000, Kind of encoder 1, encoder memory") is not supported by the firmware	Check content of "P-0-1000, Kind of encoder 1, encoder memory" and contact our service department
Detected kind of encoder does not match parameterized type of encoder	Check control section configuration and, if necessary, replace control section by a correctly configured control section or replace complete drive controller

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

For removing command errors see "Command Errors"

C0274 - Attributes

Display: C0274
Ident N°: C0274

10.2.109 C0275 Error when reading encoder data => optional encoder

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Diagnostic Command Messages

Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error during the reading of the encoder data from the data memory of the optional encoder was detected.

☞ Measuring systems with their own data memory are DSF/HSF and resolvers, as well as measuring systems with EnDat interface (Heidenhain company) and HIPERFACE® interface (Stegmann company).

Cause	Remedy
Measuring system cable defective	Check measuring system cable
Measuring system defective	Replace measuring system
Encoder interface defective	Replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

C0275 - Attributes

Display: C0275
Ident N°: C0275

10.2.110 C0276 Incorrect parameterization of optional enc. (hardware)

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error with regard to the parameterization of the hardware of the optional encoder was detected.

Cause	Remedy
Parameterization "P-0-0075, Encoder type 2 (optional encoder)" does not match encoder interface (e.g. EN1 with EnDat encoder)	Correct parameterization of "P-0-0075, Encoder type 2 (optional encoder)"
"P-0-0078, Assignment optional encoder->optional slot" incorrect	Correct parameterization of "P-0-0078, Assignment optional encoder->optional slot"

See also Functional Description of firmware "Measurement Systems"

C0276 - Attributes

Display: C0276
Ident N°: C0276

10.2.111 C0277 Incorr. parameteriz. of opt. enc. (mechanical system)

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error was detected with regard to scaling that was set and the selected motor encoder type (e.g. rotary scaling with linear optional encoder).

Cause	Remedy
Incorrect encoder type ("S-0-0115, Position feedback 2 type")	Check and, if necessary, correct "S-0-0115, Position feedback 2 type"
Parameterized scaling ("S-0-0076, Position data scaling type") is incorrect	Check and, if necessary, correct "S-0-0076, Position data scaling type"

For removing command errors see "Command Errors"

C0277 - Attributes

Display: C0277
Ident N°: C0277

10.2.112 C0278 Modulo value for optional encoder cannot be displayed

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error with regard to the modulo value for the optional encoder was detected.

Cause	Remedy
Parameterized value for "S-0-0103, Modulo value" is greater than maximum travel range (cf. "S-0-0278, Maximum travel range")	Correct content of "S-0-0103, Modulo value" or value of S-0-0278, Maximum travel range"
Parameterized value for "S-0-0103, Modulo value" cannot be internally displayed with gear ratios that have been set (S-0-0121/S-0-0122, P-0-0121/P-0-0122)	Correct content of "S-0-0103, Modulo value" or gear ratios that have been set ["S-0-0121, Input revolutions of load gear"/"S-0-0122, Output revolutions of load gear"; "P-0-0121, Gear 1 motor-side (motor encoder)"/"P-0-0122, Gear 1 encoder-side (motor encoder)"]
Encoder resolution ("S-0-0117, Feedback 2 Resolution") incorrectly parameterized	Check and, if necessary, correct parameterization of "S-0-0117, Feedback 2 Resolution"
Resolution of encoder does not match required modulo range	Replace encoder

For removing command errors see "Command Errors"

See also Functional Description of firmware "Scaling"

C0278 - Attributes

Display: C0278
Ident N°: C0278

Diagnostic Command Messages

10.2.113 C0279 Optional encoder unknown

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error with regard to the optional encoder was detected. The content of "P-0-1010, Kind of encoder 2, encoder memory" is invalid and therefore the parameterized optional encoder is not allowed (e.g. rotary scaling with linear encoder).

Cause	Remedy
Encoder memory (feedback) is defective	Encoder must be replaced
Kind of motor encoder ("P-0-1010, Kind of encoder 2, encoder memory") is not supported by firmware	Check content of "P-0-1010, Kind of encoder 2, encoder memory" and contact our service department
Detected kind of encoder does not match parameterized type of encoder	Check control section configuration and, if necessary, replace control section by a correctly configured control section or replace complete drive controller

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

For removing command errors see "Command Errors"

C0279 - Attributes

Display: C0279
Ident N°: C0279

10.2.114 C0280 Maximum travel range cannot be displayed internally

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In the case of absolute scaling, the maximum travel range represents the overflow limit of the actual position values. If this travel range cannot be displayed correctly internally so that position generation without error is impossible, this error is generated.

Cause	Remedy
"S-0-0278, Maximum travel range" incorrectly parameterized	Check and if necessary reduce "S-0-0278, Maximum travel range"
S-0-0116 / S-0-0117 incorrectly set (e.g. value "0")	Check and if necessary correct "S-0-0116, Feedback 1 Resolution" / "S-0-0117, Feedback 2 Resolution"

Cause	Remedy
Value for "S-0-0278, Maximum travel range" is invalid although it might be within the respective absolute encoder range	Check "S-0-0278, Maximum travel range" and if necessary change value (take respective absolute encoder range into account!)
Position resolution of a pole pair or of pole pair distance is too low. Commutation offset value internally cannot be displayed precisely enough	"P-0-0018, Number of pole pairs/pole pair distance" has value "0" or a too small value (maybe incorrect unit). Check and if necessary correct "P-0-0018, Number of pole pairs/pole pair distance"

See also Functional Description of firmware "Scaling"

For removing command errors see "Command Errors"

C0280 - Attributes

Display: C0280
Ident N°: C0280

10.2.115 C0281 Commutation via encoder-2 impossible

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Commutation or commutation initialization via encoder 2 is impossible.

Cause	Remedy
Parameterized mechanical system does not allow unequivocal commutation via optional measuring system	• Reduce maximum travel range ("S-0-0278, Maximum travel range") • Adjust gear ("S-0-0121, Input revolutions of load gear"; "S-0-0122, Output revolutions of load gear"; ...) • Use appropriate encoder (e.g. multi-turn)

C0281 - Attributes

Display: C0281
Ident N°: C0281

10.2.116 C0282 Sensorless posit. of synchr. motors, invalid ctrl parameters

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

☞ The text of the description is in preparation; for up-to-date information, see Technical Note "TN_411_3_Field-Oriented_CurrentControl".

C0282 - Attributes

Display: C0282
Ident N°: C0282

10.2.117 C0283 Error during initialization of motor control (->S-0-0423)

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "S-0-0422, C0200 Exit parameterization level procedure command" or "S-0-0128, C5200 Communication phase 4 transition check" an error was detected.

During the command, the following parameters are checked for consistency:

- P-0-0045, Control word of current controller
- P-0-0074, Encoder type 1 (motor encoder)
- P-0-4014, Type of construction of motor
- P-0-3980, FOCsl: configuration word
- P-0-2003, Selection of functional packages

☞ If inconsistencies in the parameter setting are detected, the parameters are entered in parameter "S-0-0423, IDN-list of invalid op. data for parameterization level".

Cause	Remedy
An error was detected during adjust of type of construction of motor, encoder type, kind of current control	Check and correct parameters in "S-0-0423, IDN-list of invalid op. data for parameterization level"
An error was detected in enabling of functional packages	There was an attempt to activate sensorless positioning of synchronous motors in functional package open-loop. Check and correct parameters in "S-0-0423, IDN-list of invalid op. data for parameterization level"

For removing command errors see "Command Errors"

C0283 - Attributes

Display: C0283
Ident N°: C0283

10.2.118 C0284 Invalid motor data in encoder memory (->S-0-0423)

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

☞ In the firmware versions 02VRS and 03VRS, the name of the command error is "C0284 Invalid motor data in encoder memory (->S-0-0022)".

02VRS / 03VRS

During the transition check from communication phase 3 to communication phase 4 (C0200) an error during the reading of the motor data from the data memory of the motor encoder was detected.

The respective parameters are entered in "S-0-0022, IDN list of invalid operating data for communication phase 3".

Cause	Remedy
Measuring system cable defective	Replace measuring system cable
Measuring system defective	Replace measuring system
Encoder interface defective	Replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

As of 04VRS

During the execution of the command "C0200" an error during the reading of the motor data from the data memory of the motor encoder was detected

The respective parameters are entered in parameter "S-0-0423, IDN-list of invalid op. data for parameterization level".

Cause	Remedy
Measuring system cable defective	Replace measuring system cable
Measuring system defective	Replace measuring system
Encoder interface defective	Replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

For removing command errors see "Command Errors"

C0284 - Attributes

Display: C0284
Ident N°: C0284

10.2.119 C0285 Type of construction of motor P-0-4014 incorrect

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

02VRS / 03VRS

During the execution of the command "S-0-0128, C0200 Communication phase 4 transition check" an error was detected in "P-0-4014, Type of construction of motor".

☞ The respective parameter is entered in "S-0-0022, IDN list of invalid operating data for communication phase 3".

Diagnostic Command Messages

Cause	Remedy
A motor **without** encoder data memory was connected	Parameterize "P-x-4014, Type of construction of motor" correctly or connect a motor with encoder data memory. **Note**: "x" in parameter number is a wild card for parameter set; e.g. "P-0-4014" for first parameter set.
A motor **with** encoder data memory was connected, but data stored in memory are incomplete or encoder line resp. encoder is defective	Check whether "P-0-2141, Motor type, encoder memory" contains correct type designation of connected motor. If not, contact our service department. If "P-0-2141, Motor type, encoder memory" cannot be read, replace encoder line or motor encoder

As of 04VRS During the execution of the command "S-0-0422, C0200 Exit parameterization level procedure command" or "S-0-0128, C5200 Communication phase 4 transition check" an error in the parameterization of the type of construction of the motor was detected.

☞ The respective parameter is entered in "S-0-0423, IDN-list of invalid op. data for parameterization level".

Cause	Remedy
A motor **without** encoder data memory was connected	Parameterize "P-x-4014, Type of construction of motor" correctly or connect a motor with encoder data memory. **Note**: "x" in parameter number is a wild card for parameter set; e.g. "P-0-4014" for first parameter set.
A motor **with** encoder data memory was connected, but data stored in memory are incomplete or encoder line resp. encoder is defective	Check whether "P-0-2141, Motor type, encoder memory" contains correct type designation of connected motor. If not, contact our service department. If "P-0-2141, Motor type, encoder memory" cannot be read, replace encoder line or motor encoder

For removing command errors see "Command Errors"

C0285 - Attributes

Display: C0285
Ident N°: C0285

10.2.120 C0286 Several motor encoders connected

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" two motor encoders were detected during the encoder configuration check.

Cause	Remedy
Two encoders were detected; in their data memories a valid and known motor type string is contained in "P-0-2141, Motor type, encoder memory"	Replace one of encoders by encoder without valid motor type string
Encoder connectors of neighboring axes were interchanged	Check axis assignment of encoder connectors and assign to correct axis

For removing command errors see "Command Errors"

C0286 - Attributes

Display: C0286
Ident N°: C0286

10.2.121 C0287 Error during initialization of motor data (->S-0-0423)

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

☞ In the firmware versions 02VRS and 03VRS, the name of the command error is "C0287 Error during initialization of motor data (->S-0-0022)".

02VRS / 03VRS

During the execution of the command "S-0-0128, C0200 Communication phase 4 transition check" an error during the initialization of the motor data was detected. The respective parameters are entered in the list "S-0-0022, IDN list of invalid operating data for communication phase 3".

Cause	Remedy
Invalid motor data stored in motor data memory	Replace motor or contact service department for correction of motor data
Synchronous motor with motor encoder data memory (MSK, MHD, MKD, MKE) was connected to controller which so far had controlled motor in open-loop operation	Check whether closed-loop operation required for synchronous motors was set in "P-0-0045, Control word of current controller"; set closed-loop operation, if necessary
Encoder cable defective or bad shielding	Check encoder cable and shielding
Encoder memory or encoder electronics defective	Replace encoder
Hardware defect on control section	Replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

04VRS

During the execution of the command "S-0-0422, C0200 Exit parameterization level procedure command" an error was detected during the initialization of the motor data. The respective parameters are entered in the list "S-0-0423, IDN-list of invalid op. data for parameterization level".

Diagnostic Command Messages

Cause	Remedy
Invalid motor data stored in motor data memory	Replace motor or contact service department for correction of motor data
Synchronous motor with motor encoder data memory (MSK, MHD, MKD, MKE) was connected to controller which so far had controlled motor in open-loop operation	Check whether closed-loop operation required for synchronous motors was set in "P-0-0045, Control word of current controller"; set closed-loop operation, if necessary
Encoder cable defective or bad shielding	Check encoder cable and shielding
Encoder memory or encoder electronics defective	Replace encoder
Hardware defect on control section	Replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

As of 05VRS

During the execution of the command "S-0-0422, C0200 Exit parameterization level procedure command" an error was detected during the initialization of the motor data. The respective parameters are entered in the list "S-0-0423, IDN-list of invalid op. data for parameterization level".

Cause	Remedy
Invalid motor data stored in motor data memory	Replace motor or contact service department for correction of motor data
Encoder cable defective or bad shielding	Check encoder cable and shielding
Encoder memory or encoder electronics defective	Replace encoder
Hardware defect on control section	Replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

For removing command errors see "Command Errors"

C0287 - Attributes

Display: C0287
Ident N°: C0287

10.2.122 C0288 Rotary scaling not allowed

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error was detected with regard to scaling that was set and the selected motor type (e.g. rotary scaling although a linear motor is used). The phase switch to communication phase 4 is prevented.

Cause	Remedy
Although a linear motor is used, rotary scaling was selected in at least one of the following parameters: • S-0-0044, Velocity data scaling type • S-0-0076, Position data scaling type • S-0-0086, Torque/force data scaling type • S-0-0160, Acceleration data scaling type	Check and correct respective scaling parameter(s) or use a linear encoder

For removing command errors see "Command Errors"

C0288 - Attributes

Display: C0288
Ident N°: C0288

10.2.123 C0289 Error at init. of synchr. motor with reluctance torque

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" a validation error was detected during the initialization of a synchronous motor with reluctance torque.

☞ The initialization of a synchronous motor with reluctance torque is only run when this has been set in parameter "P-0-4014, Type of construction of motor".

The initialization of a synchronous motor implies the following parameters:

- S-0-0109, Motor peak current
- S-0-0110, Amplifier peak current
- S-0-0111, Motor current at standstill
- P-0-0018, Number of pole pairs/pole pair distance
- P-0-0051, Torque/force constant
- P-0-4002, Charact. of quadrature-axis induct. of motor, inductances
- P-0-4003, Charact. of quadrature-axis inductance of motor, currents
- P-0-4016, Direct-axis inductance of motor
- P-0-4017, Quadrature-axis inductance of motor

Cause	Remedy
Incomplete or invalid entries in parameters for initialization of synchronous motor	Check parameter contents and enter data supplied by motor manufacturer in above parameters. If error is generated in spite of correct data, please contact our service department
Initialization for synchronous motor **with** reluctance torque was run although synchronous motor **without** reluctance torque is used	Correct setting in "P-0-4014, Type of construction of motor"

See also Functional Description of firmware "Third-Party Motors at IndraDrive Controllers"

For removing command errors see "Command Errors"

C0289 - Attributes

Display: C0289
Ident N°: C0289

10.2.124 C0290 Error when reading encoder data => measuring encoder

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

It was impossible to read the encoder data (P-0-1020, Kind of encoder 3, encoder memory"; "P-0-1021, Encoder 3 resolution, encoder memory"; "P-0-1022, Absolute encoder offset 3, encoder memory") correctly from the encoder memory during the initialization of the control section.

Cause	Remedy
Interference caused by incorrect shielding or defective encoder cable	Check encoder cable (incl. shielding) and, if necessary, replace or run it correctly
Encoder defective	Check encoder function and, if necessary, replace encoder
Measuring encoder option on control section is defective	Replace control section or entire drive controller
Incorrect parameterization of "P-0-0076, Encoder type 3 (measuring encoder)"	Check content of "P-0-0076, Encoder type 3 (measuring encoder)" and correct it in such a way that measuring encoder is correctly assigned to optional slot

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

See also Functional Description of firmware "Measuring Systems"

C0290 - Attributes

Display: C0290
Ident N°: C0290

10.2.125 C0291 Incorr. prarmeterization of measuring enc. (hardware)

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error with regard to the parameterization of the hardware of the measuring encoder was detected.

Cause	Remedy
Parameterization of "P-0-0076, Encoder type 3 (measuring encoder)" does not match interface card (e.g. EN1 with EnDat encoder)	Correct parameterization of "P-0-0076, Encoder type 3 (measuring encoder)"
"P-0-0079, Assignment measuring encoder->optional slot" incorrectly parameterized	Correct parameterization of "P-0-0079, Assignment measuring encoder->optional slot" or change control section configuration (replacement of control section or drive controller)
In the case of double-axis device (CDB control section), "P-0-0076, Encoder type 3 (measuring encoder)" was parameterized unequal "0" for both axes	Only one measuring encoder can be connected per double-axis device (CDB control section). "P-0-0076, Encoder type 3 (measuring encoder)" may only be unequal "0" for one axis
Clock frequency selected in "P-0-0910, SSI control parameter" cannot be supported	Reduce performance (P-0-0556) or increase clock frequency (P-0-0910)

See also Functional Description of firmware "Measuring Systems"

C0291 - Attributes

Display: C0291
Ident N°: C0291

10.2.126 C0292 Measuring encoder unknown

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error with regard to the measuring encoder was detected. The content of "P-0-1020, Kind of encoder 3, encoder memory" is invalid and the measuring encoder therefore is not allowed.

Cause	Remedy
Encoder memory (feedback) is defective	Encoder must be replaced
Kind of motor encoder ("P-0-1020, Kind of encoder 3, encoder memory") is not supported by the software	Check content of "P-0-1020, Kind of encoder 3, encoder memory" and contact our service department
Detected kind of encoder does not match parameterized type of encoder ("P-0-0079, Assignment measuring encoder ->optional slot")	Check "P-0-0079, Assignment measuring encoder ->optional slot" and, if necessary, replace control section by correctly configured control section or replace complete drive controller

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

C0292 - Attributes

Display: C0292
Ident N°: C0292

10.2.127 C0293 Modulo value for measuring encoder cannot be displayed

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error was detected.

Cause	Remedy
Value parameterized for "P-0-0765, Modulo factor measuring encoder" cannot be displayed internally with gear that was set	Correct content of "S-0-0103, Modulo value" or measuring gear settings ("P-0-0127, Input revolutions of measuring gear" and "P-0-0128, Output revolutions of measuring gear")
"P-0-0327, Encoder resolution of measuring encoder" incorrectly parameterized	Check and, if necessary, correct content of "P-0-0327, Encoder resolution of measuring encoder"

See also Functional Description of firmware "Scaling"

C0293 - Attributes

Display: C0293
Ident N°: C0293

10.2.128 C0294 Incorrect measuring encoder configuration

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0200" an error with regard to the measuring encoder configuration was detected.

Cause	Remedy
At least one of selected operating modes is synchronization mode (velocity synchronization, phase synchronization or electronic cam shaft) and control encoder of synchronization mode has simultaneously been configured as measuring encoder. This configuration is not useful.	Check and, if necessary, correct parameterization of operating mode parameters ("S-0-0032, Primary mode of operation"; "S-0-0033, Secondary operation mode 1"; "S-0-0034, Secondary operation mode 2";...) if synchronization mode is not required. If synchronization mode is required, deactivate measuring encoder **or** use additional encoder as measuring encoder.

For removing command errors see "Command Errors"

C0294 - Attributes

Display: C0294
Ident N°: C0294

10.2.129 C0298 Impossible to exit parameterization level

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»

Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

The command "S-0-0422, C0200 Exit parameterization level procedure command" was started but cannot be executed.

Cause	Remedy
During firmware download there was an attempt to switch to operating mode	Wait until firmware download has been completed before switching to operating mode
Command "S-0-0422, C0200 Exit parameterization level procedure command" was started although command "S-0-0420, C0400 Activate parameterization level 1 procedure command" had still been active	Terminate command C0200 and wait until command C0400 has been terminated, too. Then you can restart command C0200
After a boot error (F81xx error) there was an attempt to switch to operating mode	1. Complete command 2. Clear boot error (F81xx error) 3. Remove cause 4. Reboot drive

C0298 - Attributes

Display: C0298
Ident N°: C0298

10.2.130 C0299 Configuration changed. Restart

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of command "S-0-0422, C0200 Exit parameterization level procedure command", the configuration was detected to have been changed without the drive having been rebooted.

Cause	Remedy
Parameter "P-0-2003, Selection of functional packages" contains functional package selection not corresponding to active functional package selection (cf. "P-0-2004, Active functional packages")	Switch drive off and on again in order to apply functional package selection of P-0-2003 to P-0-2004
Incorrect functional package selection in "P-0-2003, Selection of functional packages"	Set value in "P-0-2003, Selection of functional packages" to value in "P-0-2004, Active functional packages"
Bit 4 or bit 15 was changed in "P-0-4088, Master communication, configuration"	Switch drive off and on again to apply change in "P-0-4088, Master communication, configuration"

See also Functional Description of firmware "Enabling of Functional Packages"

For removing command errors see "Command Errors"

C0299 - Attributes

Display: C0299
Ident N°: C0299

Diagnostic Command Messages

10.2.131 C0301 Measuring system unavailable

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the "Set absolute measuring" command (C0300) the measuring system selected by parameter "P-0-0612, Control word for setting absolute measuring" was detected to be unavailable.

Cause	Remedy
Command was activated by mistake	Prevent command from being activated
Measuring system has not been parameterized	Parameterize measuring system

See also Functional Description of firmware "Establishing the Position Data Reference"

C0301 - Attributes

Display: C0301
Ident N°: C0301

10.2.132 C0302 Absolute evaluation of measuring system impossible

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the "Set absolute measuring" command (C0300) it was detected that absolute evaluation of the selected measuring system is impossible.

The "Set absolute measuring" command can only be executed if there is an absolute measuring system available (see "S-0-0277, Position feedback 1 type" respectively "S-0-0115, Position feedback 2 type").

Cause	Remedy
Command was activated by mistake	Prevent command from being activated
Motor encoder or optional measuring system have not been designed as absolute encoders	Equip motor or optional measuring system with an absolute encoder function

See also Functional Description of firmware "Establishing the Position Data Reference"

C0302 - Attributes

Display: C0302
Ident N°: C0302

10.2.133 C0303 Absolute encoder offset cannot be saved

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When executing the command for setting absolute measuring (C0300) the offset of the encoder zero point with regard to the machine zero point is determined and stored in the data memory of the encoder. It was impossible to store the offset correctly.

Cause	Remedy
Communication between encoder and drive is disturbed	Check encoder cable and repair it, if necessary **- or -** Replace encoder

C0303 - Attributes

Display: C0303
Ident N°: C0303

10.2.134 C0401 Switching not allowed

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «HMV»

In the firmware versions 02VRS and 03VRS, the name of the command error is "C0401 Drive active, switching not allowed".

02VRS / 03VRS

When switching to communication phase 2 (C0400) an error was detected.

Cause	Remedy
Command for switching to parameter mode was started by means of parameter "P-0-4023, C0400 Communication phase 2 transition" although drive enable had been activated	Terminate command and switch drive enable off, then command can be started again

As of 04VRS

When switching to parameterization level 1 (C0400) an error was detected.

Diagnostic Command Messages

Cause	Remedy
Command "S-0-0420, C0400 Activate parameterization level 1 procedure command" was started although command "S-0-0422, C0200 Exit parameterization level procedure command" had still been active	Terminate command C0400 and wait until command C0200 has been completed. Then you can restart command C0400
Command for switching to parameterization level 1 was started by means of parameter "S-0-0420, C0400 Activate parameterization level 1 procedure command" although drive enable had been activated	Terminate command and switch drive enable off, then command can be started again

C0401 - Attributes

Display: C0401
Ident N°: C0401

10.2.135 C0403 Switching to CCD phase 2 impossible

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «MPH» «-»
Contained in 05VRS: «-» «MPH» «-»
Supported by supply unit: «-»

During the execution of the command "S-0-0420, C0400 Activate parameterization level 1 procedure command", an error with regard to the CCD slaves (CCD: **C**ross **C**ommunication **D**rives) occurred.

☞ Parameterization level 1 is activated in spite of incorrect execution of the command "S-0-0420, C0400 Activate parameterization level 1 procedure command".

Cause	Remedy
Attempt to bring CCD slaves to CCD phase 2, 30 seconds after start of command "S-0-0420, C0400 Activate parameterization level 1 procedure command", has failed due to communication problem with CCD slaves	Check communication with CCD slaves

See also Functional Description of firmware "Cross Communication (CCD)"

C0403 - Attributes

Display: C0403
Ident N°: C0403

10.2.136 C0501 Error clearing only in parameter mode

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the error clearing command (C0500) an error was detected.

Cause	Remedy
There was an attempt to clear error "F8022 Enc. 1 error: sign. amplitude (can be cleared in ph.2)" in communication phase 4 (operating mode). This is only possible in communication phase 2 (parameterization mode).	Switch drive to communication phase 2 by means of command "P-0-4023, C0400 Communication phase 2 transition" and start error clearing command again.

C0501 - Attributes

Display: C0501
Ident N°: C0501

10.2.137 C0601 Homing only possible with drive enable

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the "Drive-controlled homing procedure" command (C0600) an error was detected.

Cause	Remedy
Command was started without drive enable. This is not allowed.	Enable drive and start command again.

See also Functional Description of firmware "Drive-Controlled Homing"

C0601 - Attributes

Display: C0601
Ident N°: C0601

10.2.138 C0602 Distance home switch - reference mark erroneous

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command for drive-controlled homing (C0600) an error was detected.

Cause	Remedy
Evaluation of home switch has been switched on ("S-0-0147, Homing parameter"). Distance between selected home switch edge and reference mark to be evaluated is outside of allowed range.	Read value from parameter "S-0-0298, Reference cam shift" and apply it to parameter "S-0-0299, Home switch offset" **- or -** Shift reference cam

See also Functional Description of firmware "Establishing Position Data Reference for Relative Measuring Systems"

C0602 - Attributes

Display: C0602
Ident N°: C0602

10.2.139 C0603 Homing impossible with optional encoder

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "C0600 Drive-controlled homing procedure command" an error occurred.

Cause	Remedy
Optional encoder has been parameterized as homing encoder in "S-0-0147, Homing parameter" although optional encoder does not exist	Parameterize motor encoder as homing encoder in "S-0-0147, Homing parameter"
Optional encoder has not been activated	Activate optional encoder in "P-0-0075, Encoder type 2 (optional encoder)"

C0603 - Attributes

Display: C0603
Ident N°: C0603

10.2.140 C0604 Homing of absolute encoder not possible

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command for drive-controlled homing (C0600) an error was detected.

Cause	Remedy
By encoder selection in "S-0-0147, Homing parameter" an absolute measuring system was selected. Command for drive-controlled homing can only be executed if command "P-0-0012, C0300 Command Set absolute measuring" had been activated before.	First activate command "P-0-0012, C0300 Command Set absolute measuring" and then start command "S-0-0148, C0600 Drive-controlled homing procedure command"; by doing this, absolute position data reference is established.

C0604 - Attributes

Display: C0604
Ident N°: C0604

10.2.141 C0606 Reference mark not detected

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command for drive-controlled homing (C0600) an error with regard to the reference marks of the encoder was detected.

If the reference marks of the relative encoder to be homed (selected in "S-0-0147, Homing parameter") occur cyclically over the travel range, the position difference of the reference marks detected by the controller is monitored. This requires the correct setting for "P-0-0153, Optimum distance home switch-reference mark".

Cause	Remedy
Reference marks do not occur in expected position difference	Check measuring system to be homed and corresponding wiring **- or -** Check and, if necessary, correct setting of "P-0-0153, Optimum distance home switch-reference mark"
Value set in "P-0-0153, Optimum distance home switch-reference mark" does not match encoder that is used	Correct setting of "P-0-0153, Optimum distance home switch-reference mark"

See also Functional Description of firmware "Establishing Position Data Reference for Relative Measuring Systems"

C0606 - Attributes

Display: C0606
Ident N°: C0606

10.2.142 C0607 Home switch input not assigned

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the "Drive-controlled homing procedure" command (C0600) an error was detected.

Cause	Remedy
Home switch hasn't been assigned to any digital input	Assign home switch ("S-0-0400, Home switch") to a digital input via parameter "P-0-0300, Digital I/Os, assignment list"

C0607 - Attributes

Display: C0607
Ident N°: C0607

10.2.143 C0608 Pos. stop a. HW lim. switch not allowed f. modulo axes

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command for drive-controlled homing (C0600) an error was detected.

Cause	Remedy
Drive-controlled homing at positive stop or travel range limit switch with modulo axes isn't a useful combination and therefore not allowed!	Modify control information for homing in "S-0-0147, Homing parameter" in a useful way

C0608 - Attributes

Display: C0608
Ident N°: C0608

10.2.144 C0609 Different travel directions parameterized

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When, in the case of modulo scaling, the homing direction parameterized in "S-0-0147, Homing parameter" and the positioning direction set for spindle positioning in "S-0-0393, Command value mode" do not match, the command error C0609 is output during the execution of the command for drive-controlled homing (C0600).

Cause	Remedy
Travel directions for homing and positioning were differently parameterized	Parameterize travel directions in "S-0-0147, Homing parameter" and "S-0-0393, Command value mode" in such a way that they match

C0609 - Attributes

Display: C0609
Ident N°: C0609

10.2.145 C0610 Absolute encoder offset could not be saved

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command for drive-controlled homing (C0600) an error occurred: In the case of a measuring system with feedback data memory evaluated in absolute form, the determined absolute encoder offset could not be saved in the feedback data memory.

Cause	Remedy
Cable defective	Check connection between encoder and drive controller
Feedback data memory defective	Replace encoder

C0610 - Attributes

Display: C0610
Ident N°: C0610

10.2.146 C0702 Default parameters not available

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the "C07_0 Load defaults procedure com. (load controller param.)" command an error occurred.

Cause	Remedy
Control loops, in the case of motors of MHD, MKD and MKE lines, are adjusted to connected digital drive by activating controller parameters stored in motor encoder data memory. Message C0702 on display of drive controller signals that there isn't any data memory available at connected motor.	Data sheets of Rexroth Indramat motors are made available by the service department. Enter controller parameters.

See also Functional Description of firmware "Loading, Storing and Saving Parameters"

See also Functional Description of firmware "Rexroth Housing Motors with Encoder Data Memory"

C0702 - Attributes

Display: C0702
Ident N°: C0702

10.2.147 C0703 Default parameters invalid

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the "C07_0 Load defaults procedure com. (load controller param.)" command an error occurred.

Cause	Remedy
Default parameters are read from motor encoder data memory. At least one of these parameters is invalid.	Check connection to motor encoder. Replace motor, if necessary.

See also Functional Description of firmware "Loading, Storing and Saving Parameters"

See also Functional Description of firmware "Rexroth Housing Motors with Encoder Data Memory"

C0703 - Attributes

Display: C0703
Ident N°: C0703

10.2.148 C0704 Parameters not copyable

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

An error occurred during the execution of the command "S-0-0262, C07_x Load defaults procedure command" (load controller parameters; see also "P-0-4090, Index for C07 Load defaults procedure").

Cause	Remedy
It was impossible to load default values for motor-specific control loop parameters, available in encoder memory, to respective parameters. Firmware version incompatible with motor or motor encoder	Load appropriate firmware version to controller; observe motor type and motor encoder type
Performance and switching frequency setting do not match	Correct performance setting in "P-0-0556, Control word of axis controller" and switching frequency setting in "P-0-0001, Switching frequency of the power output stage"

See also Functional Description of firmware "Loading, Storing and Saving Parameters"

C0704 - Attributes

Display: C0704
Ident N°: C0704

10.2.149 C0706 Error when reading the controller parameters

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the "C07_0 Load defaults procedure com. (load controller param.)" command an error occurred when reading the controller parameters from the feedback.

Cause	Remedy
Feedback defective	Replace feedback

C0706 - Attributes

Display: C0706
Ident N°: C0706

10.2.150 C0722 Parameter default value incorrect (-> S-0-0423)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

☞ In the firmware versions 02VRS and 03VRS, the name of the command error is "C0722 Parameter default value incorrect (->S-0-0021)".

The command "S-0-0262, C07_x Load defaults procedure command" with the option "load defaults procedure for safety technology" was started. An error occurred when a default value was written.

☞ **02VRS / 03VRS:** The faulty parameter is recorded in parameter "S-0-0021, IDN list of invalid operating data for communication phase 2".

As of 04VRS: The faulty parameter is recorded in parameter "S-0-0423, IDN-list of invalid op. data for parameterization level".

C0722 - Attributes

Display: C0722
Ident N°: C0722

10.2.151 C0723 Safety command for load defaults procedure incorrect

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

With the command "C07_2 Load def. proc. com. (load def. pr. for safety techn.)" the safety parameters of channel 1 are set to default values and an internal command is started so that channel 2 accepts the default values. The safety technology is deactivated by the command because valid safety parameters are no longer available. The safety technology is in its condition as supplied.

Cause	Remedy
Internal command for channel 2 was incorrectly executed	Clear command "C07_2 Load def. proc. com. (load def. pr. for safety techn.)" and then restart it. If error is signaled again, reset optional safety technology module (switch control voltage off and then on again)
Channel 2 is executing another internal command that mustn't be interrupted	Complete internal command that is still running
Hardware defect on optional safety technology module	Restart "C07_2 Load def. proc. com. (load def. pr. for safety techn.)". If command error occurs repeatedly, replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

Diagnostic Command Messages

C0723 - Attributes

Display: C0723
Ident N°: C0723

10.2.152 C0724 Timeout of safety command for load defaults procedure

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Within the command "C07_2 Load def. proc. com. (load def. pr. for safety techn.)" an internal command for the safety technology channel 2 was started. The internal command was aborted with timeout.

☞ The command "C07_2 Load def. proc. com. (load def. pr. for safety techn.)" is started by parameter "S-0-0262, C07_x Load defaults procedure command" with the respective setting in "P-0-4090, Index for C07 Load defaults procedure".

Cause	Remedy
Sporadic timeout error	Reset optional safety technology module (switch control voltage off and then on again). Restart "C07_2 Load def. proc. com. (load def. pr. for safety techn.)". If the command error occurs repeatedly, contact our service department
Firmware defect on optional safety technology module	Restart "C07_2 Load def. proc. com. (load def. pr. for safety techn.)". If command error occurs repeatedly, safety technology firmware has to be replaced
Hardware defect on optional safety technology module	Restart "C07_2 Load def. proc. com. (load def. pr. for safety techn.)". If command error occurs repeatedly, replace control section or entire drive controller

☞ Only Rexroth service engineers are allowed to replace optional modules of the control section.

Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

C0724 - Attributes

Display: C0724
Ident N°: C0724

10.2.153 C0751 Parameter default value incorrect (-> S-0-0423)

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

☞ In the firmware versions 02VRS and 03VRS, the name of the command error is "C0751 Parameter default value incorrect (->S-0-0021)".

The command "S-0-0262, C07_x Load defaults procedure command" with the option "load basic parameters" was started. An error occurred when a default value was written.

☞ **02VRS / 03VRS:** The faulty parameter is recorded in parameter "S-0-0021, IDN list of invalid operating data for communication phase 2".

As of 04VRS: The faulty parameter is recorded in parameter "S-0-0423, IDN-list of invalid op. data for parameterization level".

C0751 - Attributes

Display: C0751
Ident N°: C0751

10.2.154 C0752 Locked with password

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the "C07_1 Load defaults procedure com. (load basic parameters)" command an error occurred.

Cause	Remedy
Drive parameters were write-protected by means of parameter "S-0-0267, Password". Diagnostic message C0752 signals that command "C07_1 Load defaults procedure com. (load basic parameters)" was started without first deactivating customer password.	Deactivate write protection by entering password. Start command again.

See also Functional Description of firmware "Using a Password"

C0752 - Attributes

Display: C0752
Ident N°: C0752

10.2.155 C0799 An invalid index was set

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

At the time the command "S-0-0262, C07_x Load defaults procedure command" was started no valid value had been entered in "P-0-4090, Index for C07 Load defaults procedure".

☞ The function of the command "S-0-0262, C07_x Load defaults procedure command" can be set via "P-0-4090, Index for C07 Load defaults procedure".

After the command was cleared the value in "P-0-4090, Index for C07 Load defaults procedure" is automatically set to "0" again.

C0799 - Attributes

Display: C0799
Ident N°: C0799

10.2.156 C0851 Parameter default value incorrect (-> S-0-0021)

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

☞ This command error can only occur as a result of the "C0800 Load basic parameters command" that can only be used by the manufacturer!

C0851 - Attributes

Display: C0851
Ident N°: C0851

10.2.157 C0852 Locked with password

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «HMV»

☞ This command error can only occur as a result of the "C0800 Load basic parameters command" that can only be used by the manufacturer!

C0852 - Attributes

Display: C0852
Ident N°: C0852

10.2.158 C0902 Spindle positioning requires drive enable

Validity

Contained in 02VRS: «MPB» «MPH» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

During the execution of the command for spindle positioning (C0900) an error was detected.

Cause	Remedy
At start of "S-0-0152, C0900 Position spindle command", drive was not yet in drive enable	Set drive enable before starting command

C0902 - Attributes

Display: C0902

Ident N°: C0902

10.2.159 C0903 Error during initialization

Validity

Contained in 02VRS: «MPB» «MPH» «-»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

During the execution of the command for spindle positioning (C0900) an error was detected.

Cause	Remedy
At start of "S-0-0152, C0900 Position spindle command", respective encoder had not yet been initialized (homed)	In the case of **incremental measuring systems**, check whether "S-0-0400, Home switch" was assigned to a digital input. Assignment, connection and function of home switch must have been realized (only when home switch is evaluated)! In the case of **absolute measuring systems**, check whether drive is in reference. If this is not the case, establish absolute position data reference, e.g. by "P-0-0012, C0300 Command Set absolute measuring"

C0903 - Attributes

Display: C0903

Ident N°: C0903

10.2.160 C0906 Error during search for zero pulse

Validity

Contained in 02VRS: «MPB» «MPH» «-»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

During the execution of the command for spindle positioning (C0900) an error was detected.

Diagnostic Command Messages

Cause	Remedy
Homing procedure integrated in spindle positioning was not executed successfully. Encoder zero mark was not found or it was impossible to assign it correctly.	Check parameterization of spindle positioning and of drive-controlled homing procedure, especially encoder and home switch combination used. **- or -** Check encoder parameterization. **- or -** Check distance zero pulse - home switch. **- or -** Carry out drive-controlled homing in order to check homing procedure.

C0906 - Attributes

Display: C0906
Ident N°: C0906

10.2.161 C1204 Error in offset calculation

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command for commutation offset determination (C1200) an error was detected.

Cause:

Due to incorrect measured values it was impossible to determine the commutation offset correctly.

C1204 - Attributes

Display: C1204
Ident N°: C1204

10.2.162 C1208 No adjustment with asynchronous motor

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command for commutation offset determination (C1200) an error was detected.

Cause:

There was an attempt to carry out a commutation offset determination with an asynchronous motor. For asynchronous motors it is impossible to carry out a commutation offset determination.

C1208 - Attributes

Display: C1208
Ident N°: C1208

10.2.163 C1209 Proceed to phase 4

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command for commutation offset determination (C1200) an error was detected.

Cause	Remedy
Drive controller is not in phase 4 (ready for operation, display: **bb**; with sine-wave and saturation method, display: **Ab**); the command "P-0-0524, C1200 Commutation offset setting command" can only be executed in phase 4.	Switch drive controller to phase 4 and then execute command "P-0-0524, C1200 Commutation offset setting command" again.

C1209 - Attributes

Display: C1209
Ident N°: C1209

10.2.164 C1211 Commutation offset could not be determined.

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

An error has occurred during the execution of the command "P-0-0524, C1200 Commutation offset setting command" (in this case: sine-wave method).

Simultaneously output Fxxxx error messages allow more precise diagnosis.

See also Functional Description of firmware "Commutation Setting"

C1211 - Attributes

Display: C1211
Ident N°: C1211

10.2.165 C1212 Motion range exceeded during commutation

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

A range of +/- 1 distance between pole centers has been defined in which the axis may move during the automatic commutation setting. This range was exceeded during the execution of the command "P-0-0524, C1200 Commutation offset setting command".

Diagnostic Command Messages

Cause	Remedy
Drive enable was set while the axis was still moving	Wait until axis has come to standstill and set drive enable again
Axis was moved by mechanical force	Exclude influence of mechanical force
Parameter values for "P-0-0506, Amplitude for angle acquisition" and "P-0-0507, Test frequency for angle acquisition" too high. Mechanical conditions of the axis, such as friction and load due to weight, have possibly changed	Reduce parameter values for "P-0-0506, Amplitude for angle acquisition" and "P-0-0507, Test frequency for angle acquisition". Parameter values can also be set to default values "P-0-0506, Amplitude for angle acquisition"=25 % and "P-0-0507, Test frequency for angle acquisition"=500 Hz

See also Functional Description of firmware "Commutation Setting"

C1212 - Attributes

Display: C1212
Ident N°: C1212

10.2.166 C1214 Command only possible with linear synchronous motor

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When executing the command for determining the commutation offset (C1200) with the currentless procedure (see "P-0-0522,Control word for commutation setting") the condition for the motor type was detected not to have been fulfilled.

Cause	Remedy
Connected motor is not a synchronous linear motor	-
Connected motor is a synchronous linear motor, but wrong type of construction of motor (P-0-4014) was selected or pole pair distance (P-0-0018) was set to "0"	If connected motor is a synchronous linear motor with absolute measuring system, check type of construction of motor that has been set (P-0-4014) and correct it, if necessary
Connected motor is a synchronous linear motor, type of construction of motor (P-0-4014) was correctly set, but there isn't any absolute encoder with EnDat interface available	If connected motor is a synchronous linear motor with incremental measuring system or a rotary synchronous motor, then use procedure with current to determine commutation offset (see "P-0-0522, Control word for commutation setting")

C1214 - Attributes

Display: C1214
Ident N°: C1214

10.2.167 C1215 Command only possible in 'bb'

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When executing the command for determining the commutation offset (C1200) with the currentless procedure (see "P-0-0522, Control word for commutation setting") the drive was detected not to be ready for operation ("bb").

Cause	Remedy
Drive is not yet ready for operation ("bb") **- or -** Drive is already in drive enable ("AF")	Bring drive to ready for operation status ("bb")

C1215 - Attributes

Display: C1215
Ident N°: C1215

10.2.168 C1216 Commutation determination not selected

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command for commutation offset determination (C1200) an error was detected.

Cause	Remedy
There wasn't any mode for commutation determination selected	Set a mode for commutation determination in parameter "P-0-0522, Commutation setting control word"

C1216 - Attributes

Display: C1216
Ident N°: C1216

10.2.169 C1217 Setting only possible in 'Ab'

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command for commutation offset determination (C1200) an error was detected.

Cause	Remedy
Drive was not ready at start of command, display did not read "Ab"	1. Switch drive to communication phase 4, if there isn't any error present, display reads "bb" ("betriebsbereit" = ready for operation) 2. Switch power on, drive goes to operating mode, display reads "Ab" ("Antrieb bereit" = drive ready) 3. Now start command C1200

C1217 - Attributes

Display: C1217
Ident N°: C1217

Diagnostic Command Messages

10.2.170 C1218 Automatic commutation: current too low

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The actual current value amplitude resulting from commutation setting with the saturation method is monitored. If it does not exceed a minimum threshold when the command "P-0-0524, C1200 Commutation offset setting command" is executed, the command error C1218 is generated.

Cause	Remedy
Actual current value amplitude is not sufficient for exact determination of commutation offset	Increase signal voltage ("P-0-0506, Amplitude for angle acquisition") or reduce signal frequency ("P-0-0507, Test frequency for angle acquisition") and restart commutation setting process **- or -** Enter value "0" in "P-0-0506, Amplitude for angle acquisition". Appropriate value for P-0-0506 is thereby automatically determined during commutation setting process **- or -** Reduce value of "P-0-0517, Commutation: required harmonics component", if approx. 30 similar values are determined for "P-0-0521, Effective commutation offset" with repeated commutation setting for different motor positions (drive remains in "Ab"). Reduce "P-0-0517, Commutation: required harmonics component" until command error C1218 no longer occurs; finally check function several times!

☞ If error occurs repeatedly, please contact our service department.

See also Functional Description of firmware "Commutation Setting"

C1218 - Attributes

Display: C1218
Ident N°: C1218

10.2.171 C1219 Automatic commutation: overcurrent

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command for commutation offset determination (C1200) an error was detected.

Cause	Remedy
The actual current is higher than the allowed maximum current.	Reduce the signal voltage ("P-0-0506, Voltage amplitude for angle acquisition") or increase the signal frequency ("P-0-0507, Test frequency for angle acquisition"). **- or -** With P-0-0506 = 0 start the automatic determination of appropriate values.

C1219 - Attributes

Display: C1219
Ident N°: C1219

10.2.172 C1220 Automatic commutation: timeout

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command for commutation offset determination (C1200) an error was detected.

Cause	Remedy
An error occurred in signal generator	Switch drive off and on again. If error continues to be signaled, contact our service department

C1220 - Attributes

Display: C1220
Ident N°: C1220

10.2.173 C1221 Automatic commutation: iteration without result

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The commutation offset determination ("P-0-0524, C1200 Commutation offset setting command") was unsuccessful. It was impossible to find appropriate values for "P-0-0506, Amplitude for angle acquisition" and "P-0-0507, Test frequency for angle acquisition" with which it would have been possible to obtain sufficient magnetic saturation effects in the motor. It was therefore impossible to determine a functioning value for the commutation offset.

Diagnostic Command Messages

Cause	Remedy
Type current of controller too low	Use controller that can supply motor with sufficiently high current (for Rexroth kit motors, required minimum current for magnetic saturation effects is approx. 2.0...2.5-fold continuous current at standstill). If without success, check whether sine-wave method can be used for commutation offset setting
Test current generated in motor is too low	Manually increase value of "P-0-0506, Amplitude for angle acquisition" or reduce value of "P-0-0507, Test frequency for angle acquisition" so that higher test current is generated. If without success, check whether sine-wave method can be used for commutation offset setting

See also Functional Description of firmware "Commutation Setting"

C1221 - Attributes

Display: C1221
Ident N°: C1221

10.2.174 C1222 Error when writing offset parameters

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When executing the command for determining the commutation offset (C1200) with the currentless procedure (see "P-0-0522, Commutation setting control word") the determined commutation offset value is written to the P-0-0508, P-0-0521 and P-0-3008 parameters. When writing data to these parameters an error or a disorder occurred.

Cause	Remedy
For at least one of parameters P-0-0508, P-0-0521 or P-0-3008 it was impossible to write determined commutation offset value to it	Execute command C1200 again **- or -** Check wiring for noise immunity **- or -** Replace sensor of encoder **- or -** Contact our service department, if necessary

C1222 - Attributes

Display: C1222
Ident N°: C1222

10.2.175 C1223 Command execution impossible

Validity

Contained in 02VRS:	«-»	«-»	«-»
Contained in 03VRS:	«-»	«-»	«-»
Contained in 04VRS:	«-»	«-»	«-»

Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Cause	Remedy
There was an attempt to start command "P-0-0524, C1200 Commutation offset setting command"	Command execution is impossible for sensorless positioning of synchronous motors

C1223 - Attributes

Display: C1223
Ident N°: C1223

10.2.176 C1301 Class 1 diagnostics error at command start

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command "S-0-0149, C1300 Positive stop drive procedure command" cannot be carried out as a class 1 diagnostics error has occurred.

See also Functional Description of firmware "Positive Stop Drive Procedure"

C1301 - Attributes

Display: C1301
Ident N°: C1301

10.2.177 C1402 Faulty reference mark signal

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of command "P-0-0014, C1400 Command Get marker position" the reference mark signal is checked for its allowed signal width and the assignment to the track signals. If the signal is outside of the allowed specification or disturbed, this error is generated.

Cause	Remedy
Encoder sensor not correctly mounted	Correct mounting of encoder sensor
Reference mark signal disturbed	Check / correct wiring and shielding of reference mark signal

For removing command errors see "Command Errors"

C1402 - Attributes

Display: C1402
Ident N°: C1402

10.2.178 C1701 Measuring wheel mode not possible

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»

Diagnostic Command Messages

Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

The "P-0-0240, C1700 Command measuring wheel mode" cannot be executed.

Cause	Remedy
There aren't two encoders available	Connect measuring wheel encoder

C1701 - Attributes

Display: C1701
Ident N°: C1701

10.2.179 C1801 Start requires drive enable

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In order to make sure that the drive is in control when the command "P-0-0162, C1800 Command Automatic control loop adjust" is started, this is queried at the start of the command.

Cause	Remedy
Drive enable not set at start of command	Set drive enable and restart command "P-0-0162, C1800 Command Automatic control loop adjust"

See also Functional Description of firmware "Automatic Setting of Axis Control"

C1801 - Attributes

Display: C1801
Ident N°: C1801

10.2.180 C1802 Motor feedback data not valid

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

At the beginning of the automatic control loop setting ("P-0-0162, C1800 Command Automatic control loop adjust"), the parameters

- "P-0-0051, Torque/force constant",
- "P-0-0018, Number of pole pairs/pole pair distance" and
- "S-0-0110, Amplifier peak current"

are read from the memory in motor encoder or power section.

Cause	Remedy
One of above-mentioned parameters has a value equal to or less than zero (<= 0) which would cause incorrect calculation of controller parameters	**For Rexroth motors with encoder data memory:** Service staff writes stored motor parameters or replacement of motor **For Rexroth motors without encoder data memory and third-party motors:** User writes correct values to motor parameters **When device type current is incorrect (S-0-0110):** Service staff writes parameter stored in power section or replacement of device

See also Functional Description of firmware "Automatic Setting of Axis Control"

C1802 - Attributes

Display: C1802
Ident N°: C1802

10.2.181 C1803 Inertia detection failed

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

At the beginning of the automatic control loop setting, the mass inertia is determined by a "pendulum test".

☞ As of firmware MPxV10, the mass inertia can also be entered manually in "P-0-4010, Load inertia". If the entered value does not make sense, this warning is output, too.

This means that the speed change and motor current during acceleration or deceleration have to exceed certain minimum values in order to guarantee useful and sufficiently exact calculation of the inertia.

Cause	Remedy
Drive acceleration too low	**Up to 04VRS:** increase "S-0-0260, Positioning acceleration" **As of 05VRS:** increase "P-0-0170, Drive optimization, acceleration"
Load inertia too high	Increase "S-0-0092, Bipolar torque/force limit value"
Motor speed too low	**Up to 04VRS:** increase "S-0-0259, Positioning Velocity" **As of 05VRS:** increase "P-0-0171, Drive optimization, velocity"
Not enough measured values for automatic control loop setting	Increase "S-0-0108, Feedrate override"

See also Functional Description of firmware "Automatic Setting of Axis Control"

C1803 - Attributes

Display: C1803
Ident N°: C1803

Diagnostic Command Messages

10.2.182 C1804 Automatic controller setting failed

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

In exceptional cases difficulties can occur during automatic control loop setting. This means that automatic setting is impossible and the default or standard values are loaded to the drive again.

Cause	Remedy
Oscillating mechanical systems (resonances) **- or -** highly noisy encoder signals	It is sometimes possible to achieve a satisfactory result by restarting the command "P-0-0162, C1800 Command Automatic control loop adjust" with a high "P-0-0163, Damping factor for autom. controller adjust", i.e. a low degree of dynamic response. This value then can still be reduced until the desired control loop behavior occurs.

See also Functional Description of firmware "Automatic Setting of Axis Control"

C1804 - Attributes

Display: C1804
Ident N°: C1804

10.2.183 C1805 Travel range invalid

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Before beginning the automatic control loop setting it is necessary to define both travel range limits (upper and lower).

When the command "P-0-0162, C1800 Command Automatic control loop adjust" is started, the numeric values are checked for validity. A check is run to find out whether the travel distance is big enough.

Cause	Remedy
Maximum travel distance ("P-0-0169, Travel distance for autom. controller adjust") defined with "P-0-0166, Lower position limit for autom. control loop adjust" and "P-0-0167, Upper position limit for autom. control loop adjust" is smaller than 6 motor revolutions and therefore too small in order to be able to start automatic control loop setting.	1. Clear command error by completing the command 2. Define limits again so that defined travel range is bigger 3. Restart command with useful travel range

See also Functional Description of firmware "Automatic Setting of Axis Control"

C1805 - Attributes

Display: C1805
Ident N°: C1805

10.2.184 C1806 Travel range exceeded

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the automatic control loop setting the travel range limits "P-0-0166, Lower limit for autom. control loop adjust" and "P-0-0167, Upper limit for autom. control loop adjust" are permanently monitored.

If one of these limits is exceeded, the command error C1806 is output and the drive is shut down in a speed-controlled way.

Cause	Remedy
Actual position is outside defined travel range **- or –** Limits were defined again after start of command	1. Clear command error by completing the command 2. Define limits again so that actual position is within defined travel range 3. Restart command with useful travel range

See also Functional Description of firmware "Automatic Setting of Axis Control"

C1806 - Attributes

Display: C1806
Ident N°: C1806

10.2.185 C1807 Determining travel range only via travel distance

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When parameterizing the travel range for the automatic control loop setting the modulo scaling was not taken into account.

Cause	Remedy
There was an attempt to parameterize travel range via "P-0-0166, Lower limit for autom. control loop adjust" / "P-0-0167, Upper limit for autom. control loop adjust". In this case travel range can only be parameterized directly	Define travel range by parameterizing "P-0-0169, Travel distance for autom. controller adjust"

C1807 - Attributes

Display: C1807
Ident N°: C1807

10.2.186 C1808 Drive not homed

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»

Diagnostic Command Messages

Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "P-0-0162, C1800 Command Drive optimization / command value box", an error occurred. It was impossible to record the tables for cogging torque compensation.

Cause	Remedy
Linear motor hasn't been homed	Establish reference; then record table for cogging torque compensation (see also Functional Description of firmware "Cogging Torque Compensation")

C1808 - Attributes

Display: C1808
Ident N°: C1808

10.2.187 C2001 Command not enabled

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The execution of the "Release motor holding brake" command (C2000) was aborted by an error.

Cause	Remedy
Command can only be executed, if it is allowed by bit 5 in parameter "P-0-0525, Holding brake control word"	Set bit 5 in parameter P-0-0525 to "1"

See also Functional Description of firmware "Motor Holding Brake"

C2001 - Attributes

Display: C2001
Ident N°: C2001

10.2.188 C2101 Brake check only possible with drive enable

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

It is impossible to execute the "brake check" command (C2100).

Cause	Remedy
Command "P-0-0541, C2100 Brake check command" was activated, but drive enable ("AF") had not been set.	Switch drive to "AF", then start command C2100

See also Functional Description of firmware "Motor Holding Brake"

C2101 - Attributes

Display: C2101
Ident N°: C2101

10.2.189 C2103 Brake torque too low

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When executing the "brake check" command (C2100) the holding torque of the brake was detected to be too low.

The command C2100 is aborted, if "resurfacing" of the brake was deactivated via bit 4 in "P-0-0525, Holding brake control word". Otherwise, the drive tries to reestablish the brake torque by automatically starting the resurfacing process and then checks the holding torque again.

Cause	Remedy
Due to storage brake is covered with an oxide layer. **- or -** Brake is wetted with oil or grease. **- or -** Brake is worn.	Start "brake check" command again in order to reestablish full brake torque by repeated resurfacing. If brake torque is still too low after several attempts to reestablish it, brake or motor must be replaced.

See also Functional Description of firmware "Motor Holding Brake"

C2103 - Attributes

Display: C2103
Ident N°: C2103

10.2.190 C2104 Command execution not possible

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

It was impossible to start the "Brake check" command (C2100).

Cause	Remedy
Brake control has not been activated in parameter "P-0-0525, Holding brake control word"	Activate brake control in parameter "P-0-0525, Holding brake control word"
Value in "P-0-0540, Torque of motor holding brake" is 0	Enter correct value for "P-0-0540, Torque of motor holding brake"
Drive is in a safety related operating status, cf. "P-0-3213, Safety technology operating status" or "P-0-3213, Safety technology status"	Deselect safety related operating status and execute "C2100 Brake check command" again

See also Functional Description of firmware "Motor Holding Brake"

See also documentation "Integrated Safety Technology"

Diagnostic Command Messages

C2104 - Attributes

Display: C2104
Ident N°: C2104

10.2.191 C2105 Load of holding system > test torque

Validity

Contained in 02VRS:	«-»	«-»	«-»
Contained in 03VRS:	«MPB»	«MPH»	«MPD»
Contained in 04VRS:	«MPB»	«MPH»	«MPD»
Contained in 05VRS:	«MPB»	«MPH»	«MPD»

Supported by supply unit: «-»

The execution of the command "P-0-0541, C2100 Brake check command" was aborted. The current load due to weight of the axis ("holding system") was detected to be greater than the force or the torque with which the blocking of the axis is checked on the drive side.

To block the axis in a reliable way the holding torque or the holding force must be greater than the load due to weight of the axis. Therefore, the test torque or the test force must be greater than the load due to weight, too.

The test lasts for one second with regard to the 1.3-fold value of

- "P-0-0547, Nominal load of holding system" (if P-0-0547 is unequal "0") or
- "P-0-0540, Torque of holding brake" (if P-0-0547 = "0").

Cause	Remedy
Load due to weight is greater than nominal load which was input (if "P-0-0547, Nominal load of holding system" is unequal "0")	Remedy during initial commissioning: Determine load due to weight of axis and compare it to value entered in "P-0-0547, Nominal load of holding system". Correct (increase) value, if necessary. Remedy during operation of axis drive:  DANGER **Load due to weight of axis was increased compared to initial commissioning! Check cause!** Reduce load due to weight **- or -** Determine load due to weight of axis and compare it to value entered in "P-0-0547, Nominal load of holding system". Increase value in "P-0-0547, Nominal load of holding system", if necessary. Check drive dimensioning!
Load due to weight is greater than holding torque or holding force of holding brake (if "P-0-0547, Nominal load of holding system" = "0")	Remedy during initial commissioning: Determine load due to weight of axis and compare it to value of "P-0-0540, Torque of holding brake". Mount stronger holding brake, if necessary. Remedy during operation of axis drive:  DANGER **Load due to weight of axis is higher than "P-0-0540, Torque of holding brake"! Check cause!** Reduce load due to weight **- or -** Determine load due to weight of axis and compare it to value of "P-0-0540, Torque of holding brake". Mount stronger holding brake, if necessary. Check drive dimensioning!

See also Functional Description of firmware "Motor Holding Brake"

C2105 - Attributes

Display: C2105
Ident N°: C2105

10.2.192 C2106 Test torque of holding system not reached

Validity

Contained in 02VRS:	«-»	«-»	«-»
Contained in 03VRS:	«MPB»	«MPH»	«MPD»
Contained in 04VRS:	«MPB»	«MPH»	«MPD»
Contained in 05VRS:	«MPB»	«MPH»	«MPD»

Supported by supply unit: «-»

The execution of the command "P-0-0541, C2100 Brake check command" was aborted. The brake check detected that it is impossible to generate the test torque required on the drive side with which the blocking of the axis is to be tested.

Diagnostic Command Messages

The test lasts for one second with regard to the 1.3-fold value of

- "P-0-0547, Nominal load of holding system" (if P-0-0547 is unequal "0") or
- "P-0-0540, Torque of holding brake" (if P-0-0547 = "0").

Cause	Remedy
A **static** limitation of drive torque or drive force is active	Check or increase static torque or force limit values so that 1.3-fold value of "P-0-0547, Nominal load of holding system" (if P-0-0547 is unequal "0") or "P-0-0540, Torque of holding brake" (if P-0-0547 = "0") is possible. By way of trial, set maximum values, if necessary: • "S-0-0092, Bipolar torque/force limit value" • "S-0-0082, Torque/force limit value positive" • "S-0-0083, Torque/force limit value negative" • "P-0-0109, Torque/force peak limit"
Dynamic limitation of drive torque or drive force is active and "P-0-0547, Nominal load of holding system" is unequal "0"	Check dynamic limitations (static limit values mustn't be effective!). If value displayed in "P-0-0444, Actual value peak torque limit" does not allow 1.3-fold of "P-0-0547, Nominal load of holding system", drive is underdimensioned! Check thermal load of motor and controller. Replace overloaded component(s) by appropriate component(s), if necessary.
Dynamic limitation of drive torque or drive force is active and "P-0-0547, Nominal load of holding system" = "0"	Check dynamic limitations (static limit values mustn't be effective!). If value displayed in "P-0-0444, Actual value peak torque limit" does not allow 1.3-fold of "P-0-0540, Torque of holding brake", check whether value depending on axis load can be input in "P-0-0547, Nominal load of holding system". If not, controller is underdimensioned! Replace controller by an appropriate one, if necessary.

Cause	Remedy
If value of "P-0-0547, Nominal load of holding system" is unequal "0": Input of nominal load of axis ("P-0-0547, Nominal load of holding system") is greater than actual load due to weight. This means that load current demanded from controller cannot be made available for test duration. Dynamic limitation of drive torque or drive force is active	Remedy during initial commissioning: Determine load due to weight of axis and compare it to value entered in "P-0-0547, Nominal load of holding system". If "P-0-0547, Nominal load of holding system" is greater and no check for "increased holding torque or holding force" is to be run, set (reduce) "P-0-0547, Nominal load of holding system" according to load due to weight. If check is to be run for entered value, controller is underdimensioned; see remedy for "**Dynamic** limitation of drive torque or drive force is active" Remedy during operation of axis drive: DANGER **Check is run for holding torque or holding force of holding brake! Controller is underdimensioned!** If possible, carry out remedy during initial commissioning (see above) **- or -** Mount controller with sufficiently high continuous current, see remedy for "**Dynamic** limitation of drive torque or drive force is active"
If "P-0-0547, Nominal load of holding system" = "0": Holding torque or holding force of holding brake is greater than actual load due to weight of axis. This means that load current demanded from controller cannot be made available for test duration. Dynamic limitation of drive torque or drive force is active	Remedy during initial commissioning: **Determine load** due to weight of axis and compare it to value of "P-0-0540, Torque of holding brake". If load due to weight requires less holding torque than "P-0-0540, Torque of holding brake" displays and no check for "increased holding torque or holding force" is to be run, enter actual load due to weight in "P-0-0547, Nominal load of holding system". In this way, actual axis load is checked in the future. Otherwise, controller is underdimensioned, see remedy for "**Dynamic** limitation of drive torque or drive force is active" Remedy during operation of axis drive: DANGER **Check is run for holding torque or holding force of holding brake! Controller is underdimensioned!** If possible, carry out remedy during initial commissioning (see above) **- or -** Mount controller with sufficiently high continuous current, see remedy for "**Dynamic** limitation of drive torque or drive force is active"

See also Functional Description of firmware "Motor Holding Brake"

C2106 - Attributes

Display: C2106
Ident N°: C2106

10.2.193 C2108 Error when releasing the holding system

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The execution of the command "P-0-0541, C2100 Brake check command" was aborted. An error was detected when the redundant holding brake was released.

Cause	Remedy
Incorrect control of holding system, holding system does not release	Check wiring **- or -** If third-party brake was connected: Check parameter setting
Test torque for releasing holding system set too low	Increase value in parameter "P-0-0545, Test torque for releasing motor holding brake"
Increased breakaway torque of axis due to increased friction within installation, etc.	Remove malfunction in installation

See also Functional Description of firmware "Motor Holding Brake"

C2108 - Attributes

Display: C2108
Ident N°: C2108

10.2.194 C2109 Safety related holding system: test torque invalid

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The execution of the command "P-0-0541, C2100 Command Holding system check" was aborted. The value of the applied test torque is not verisimilar, i.e. the measured torque does not comply with the calculated torque of the safety technology channels.

Cause	Remedy
Incorrect parameterization "P-0-3304, Safety related holding system: torque/force constant" ≠ "P-0-0051, Torque/force constant"	Check parameter setting
Torque/force constant (P-0-0051) was changed due to replacement of motor by motor which is not of the same type of construction	Mount appropriate motor according to safety technology acceptance test protocol **- or -** Carry out safety technology acceptance test again

See also Functional Description of firmware "Motor Holding Brake"

C2109 - Attributes

Display: C2109
Ident N°: C2109

10.2.195 C2202 Error when writing data to non-volatile memory

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the "S-0-0264, C2200 Backup working memory procedure command" an error occurred.

Cause	Remedy
It was impossible to address active, non-volatile memory (internal flash memory or MMC, if plugged in) without error.	First start command "S-0-0264, C2200 Backup working memory procedure command" again. If error occurs again, then replace MMC (if plugged in) if necessary, then start command again. If error occurs again, contact our service department.

C2202 - Attributes

Display: C2202
Ident N°: C2202

10.2.196 C2301 Error when reading non-volatile memory

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the "S-0-0263, C2300 Load working memory procedure command" an error occurred.

Cause	Remedy
It was impossible to read active, non-volatile memory [internal flash memory or MMC (if plugged in)] without error.	Restart command. If error occurs again, contact our service department. Have control section checked for functional safety.

C2301 - Attributes

Display: C2301
Ident N°: C2301

10.2.197 C2302 Error when converting parameters

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the "S-0-0263, C2300 Load working memory procedure command" an error occurred.

Cause	Remedy
When reading parameters from active, non-volatile memory, an error occurred.	Enter faulty parameter values correctly by hand and save them again in non-volatile memory.

C2302 - Attributes

Display: C2302
Ident N°: C2302

10.2.198 C2402 Error when saving parameters

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the "S-0-0293, C2400 Selectively backup working memory procedure command" an error occurred.

Cause	Remedy
It was impossible to address active, non-volatile memory (internal flash memory or MMC, if plugged in) without error.	Start "S-0-0293, C2400 Selectively backup working memory procedure command" again. If error occurs again, then replace MMC (if plugged in) if necessary, then start command again. If error occurs again, contact our service department.

C2402 - Attributes

Display: C2402
Ident N°: C2402

10.2.199 C2502 Error when accessing the MMC

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of "P-0-4091, C2500 Copy IDN from optional memory to internal memory" an error occurred.

☞ The MMC can only be used as an optional memory for control sections with MMC slot.

Cause	Remedy
MMC had not been active before, there haven't been any valid parameter contents stored on it	Write parameter contents of internal memory to MMC by executing command "P-0-4092, C2600 Copy IDN from internal memory to optional memory"
MMC has not (or not completely) been plugged in the MMC slot provided for this purpose	Put MMC into controller. Then restart command "P-0-4091, C2500 Copy IDN from optional memory to internal memory"

Cause	Remedy
Error occurs sporadically due to voltage fluctuations in device	Check power supply and then restart command "P-0-4091, C2500 Copy IDN from optional memory to internal memory". If error occurs repeatedly, you should contact our service department
MMC was not or not correctly formatted	Format MMC or contact our service department. Then restart command "P-0-4091, C2500 Copy IDN from optional memory to internal memory"
MMC is defective	Check MMC and restart command "P-0-4091, C2500 Copy IDN from optional memory to internal memory". If diagnostic message appears repeatedly: replace MMC
MMC slot in control section is defective	Check MMC slot and, if necessary, replace control section or complete drive controller

☞ If the MMC must be replaced, the values stored on it are lost.

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

For removing command errors see "Command Errors"

See also Functional Description of firmware "MultiMediaCard (MMC)"

C2502 - Attributes

Display: C2502
Ident N°: C2502

10.2.200 C2504 Error when writing data to internal memory

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the "P-0-4091, C2500 Copy IDN from optional memory to internal memory" an error occurred.

Cause	Remedy
Error when writing to internal, non-volatile flash memory	Restart "P-0-4091, C2500 Copy IDN from optional memory to internal memory". If diagnostic message is displayed repeatedly: contact our service department

C2504 - Attributes

Display: C2504
Ident N°: C2504

10.2.201 C2602 Error when accessing the MMC

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "P-0-4092, C2600 Copy IDN from internal memory to optional memory" a check is run in order to find out whether a functioning MMC (MultiMediaCard) is available.

☞ The MMC can only be used as an optional memory for control sections with MMC slot.

Cause	Remedy
MMC has not (or not completely) been plugged in MMC slot provided for this purpose	Put MMC into controller. Then restart command "P-0-4092, C2600 Copy IDN from internal memory to optional memory"
MMC was not or not correctly formatted	Format MMC or contact our service department. Then restart command "P-0-4092, C2600 Copy IDN from internal memory to optional memory"
At least one of required files is missing in "Parameters" folder on MMC	Check whether files with extension "....#1.pbf" or "....#1.rbf" are contained in "Parameters" folder on MMC. For double-axis devices, files with extension "....#2.pbf" or "....#2.rbf" have to be available! If diagnostic message appears repeatedly: replace MMC
MMC is defective	Check MMC and restart command "P-0-4092, C2600 Copy IDN from internal memory to optional memory". If diagnostic message appears repeatedly: replace MMC
MMC slot in control section is defective	Check MMC slot and, if necessary, replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

☞ If the MMC must be replaced, the values stored on it are lost.

See also Functional Description of firmware "MultiMediaCard (MMC)"

C2602 - Attributes

Display: C2602
Ident N°: C2602

10.2.202 C2604 Error when reading the internal memory

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

During the execution of the "P-0-4092, C2600 Copy IDN from internal memory to optional memory" an error occurred.

Cause	Remedy
Error when reading internal flash memory	Restart "P-0-4092, C2600 Copy IDN from internal memory to optional memory". If diagnostic message is displayed repeatedly: save parameter values via serial interface or SERCOS interface, if required. In the medium term, have control section checked for functional safety

C2604 - Attributes

Display: C2604

Ident N°: C2604

10.2.203 C2801 Analog input not configured

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

During the execution of the command for adjusting the analog input ("P-0-0220, C2800 Analog input adjust command") an error was detected. The execution of the command was aborted.

Cause	Remedy
Command for automatic adjust of analog input was started although there hadn't any analog input been configured on drive controller	Check parameter "P-0-0218, Analog input, control parameter". In this parameter an analog input has to be assigned for selected analog input assignment

See also Functional Description of firmware "Analog Input"

C2801 - Attributes

Display: C2801

Ident N°: C2801

10.2.204 C2802 Oscillations of input signal outside tolerance range

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

When the command "P-0-0220, C2800 Analog input adjust command" is executed, the quality of the reference signal used is checked.

Diagnostic Command Messages

Cause	Remedy
During **gain adjust**, reference voltage was used that fluctuates by more that 1% of input voltage range	Check input signal used for precision; if necessary, use different calibration signal
During **zero point adjust**, input voltage is not exactly "0" and fluctuates by more than 1% of input voltage range	Short circuit analog inputs by means of wire bridge

See also Functional Description of firmware "Analog Inputs"

C2802 - Attributes

Display: C2802
Ident N°: C2802

10.2.205 C2803 Measured values at zero point and max. value identical

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "P-0-0220, C2800 Analog input adjust command" an error was detected. The execution of the command was aborted.

Cause	Remedy
During zero point and gain adjust, the same voltage value was provided at analog input	Voltage provided at input has to be modified between two steps of adjust (voltage value for zero adjust: 0 V, voltage value for gain adjust: maximum input voltage)

See also Functional Description of firmware "Analog Inputs"

C2803 - Attributes

Display: C2803
Ident N°: C2803

10.2.206 C2804 Automatic adjust failed

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command "P-0-0220, C2800 Analog input adjust command" was aborted due to an unspecified error. Please contact our service department.

C2804 - Attributes

Display: C2804
Ident N°: C2804

10.2.207 C2903 Error when accessing the MMC

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of "P-0-4072, C2900 Command Firmware update from MMC" a check is run to find out whether the firmware was correctly loaded.

Cause	Remedy
A transmission error occurred during transmission of firmware from MMC	Execute "P-0-4072, C2900 Command Firmware update from MMC" again. If error occurs again, contact a Rexroth service engineer
Firmware file (ibf file) available on MMC is not correct (does not match control section)	Use different MMC with firmware file appropriate for control section • control section CSH01.1C: firmware MPH • control section CSB01.1x: firmware MPB • control section CDB01.1x: firmware MPD

☞ If the command error occurs during the transmission of the firmware to an optional module, the respective system error (F8xxx) is displayed in addition to the command error C2903.

C2903 - Attributes

Display: C2903
Ident N°: C2903

10.2.208 C2904 Error when accessing the flash

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the "P-0-4072, C2900 Command Firmware update from MMC" an error occurred.

Cause	Remedy
Due to voltage fluctuations in device an active request was aborted	Execute "P-0-4072, C2900 Command Firmware update from MMC" again
Control section is defective	Replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

☞ If the command error occurs during the transmission of the firmware to an optional module, the respective system error (F8xxx) is displayed in addition to the command error C2904.

Diagnostic Command Messages

C2904 - Attributes

Display: C2904
Ident N°: C2904

10.2.209 C2905 Programmed firmware defective

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the "P-0-4072, C2900 Command Firmware update from MMC" an error occurred.

Cause	Remedy
Firmware transfer from MMC was incorrect	Execute "P-0-4072, C2900 Command Firmware update from MMC" again
Firmware available on MMC is not correct	Use a different MMC with the desired firmware
An error was detected during check of flash	Execute "P-0-4072, C2900 Command Firmware update from MMC" again. If error occurs repeatedly, replace control section or entire drive controller

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

☞ If the command error occurs during the transmission of the firmware to an optional module, the respective system error (F8xxx) is displayed in addition to the command error C2905.

C2905 - Attributes

Display: C2905
Ident N°: C2905

10.2.210 C3001 Synchronization and storage failed

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command "P-0-3204, C3000 Synchronize and store safety technology IDN command" was not or incorrectly executed.

Cause	Remedy
Hardware defect of optional module "safety technology I/O"	Reset optional module "safety technology I/O" by a restart. If command error occurs repeatedly, hardware has to be replaced
Firmware error	Please contact our service department

See also documentation "Integrated Safety Technology"

C3001 - Attributes

Display: C3001
Ident N°: C3001

10.2.211 C3101 Act. modulo value cycle greater than max. travel range

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command error C3101 is generated when the calculated modulo value for the actual value cycle is greater than the maximum travel range ("S-0-0278, Maximum travel range").

C3101 - Attributes

Display: C3101
Ident N°: C3101

10.2.212 C3102 Drive is still in drive enable

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Cause	Remedy
Drive enable has been set and command "P-0-0071, C3100 Recalculate actual value cycle" was started	To be able to carry out the command, drive enable has to be removed

C3102 - Attributes

Display: C3102
Ident N°: C3102

10.2.213 C3201 Incorrect input for current

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "P-0-4033, C3200 Command Calculate data for asynchronous motor" an error was detected.

Cause	Remedy
List element 1 (rated current) in "P-0-4032, Type plate list asynchronous motor" is outside of useful limits	Value for rated current has to be inside of following limits: rated current > 0.01 * amplifier peak current **and** rated current < 10 * amplifier peak current

C3201 - Attributes

Display: C3201
Ident N°: C3201

10.2.214 C3202 Incorrect input for voltage

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "P-0-4033, C3200 Command Calculate data for asynchronous motor" an error was detected.

Cause	Remedy
List element 2 (rated voltage) in "P-0-4032, Type plate list asynchronous motor" is outside of useful limits	Value for rated voltage has to be between 10 V and 2000 V

C3202 - Attributes

Display: C3202
Ident N°: C3202

10.2.215 C3203 Incorrect input for frequency

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "P-0-4033, C3200 Command Calculate data for asynchronous motor" an error was detected.

Cause	Remedy
List element 3 (rated frequency) in "P-0-4032, Type plate list asynchronous motor" is outside of useful limits	Value for rated frequency has to be between 5 Hz and 3000 Hz

C3203 - Attributes

Display: C3203
Ident N°: C3203

10.2.216 C3204 Incorrect input for speed

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "P-0-4033, C3200 Command Calculate data for asynchronous motor" an error was detected.

Cause	Remedy
There is no useful relation between list element 4 (rated speed) in "P-0-4032, Type plate list asynchronous motor" and rated frequency, i.e. number of pole pairs cannot be calculated	Correct list element 4 (rated speed) in "P-0-4032, Type plate list asynchronous motor"

C3204 - Attributes

Display: C3204
Ident N°: C3204

10.2.217 C3205 Incorrect input for power factor

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "P-0-4033, C3200 Command Calculate data for asynchronous motor" an error was detected.

Cause	Remedy
Power factor of motor is outside of useful limits	List element 5 (power factor cos phi) in "P-0-4032, Type plate list asynchronous motor" has to be between 0.5 and 0.999

C3205 - Attributes

Display: C3205
Ident N°: C3205

10.2.218 C3206 Incorrect input for power

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "P-0-4033, C3200 Command Calculate data for asynchronous motor" an error was detected.

Cause	Remedy
There is no useful relation between list element 6 (rated power) in "P-0-4032, Type plate list asynchronous motor" and electric power that results from the other rated data. Mechanical power output has to be smaller than effective electric power of motor at rated point because an efficiency of less than 1 is assumed. Furthermore a mechanical power output smaller than 40% of effective electric power is not valid	Correct values in "P-0-4032, Type plate list asynchronous motor" and restart command "P-0-4033, C3200 Command Calculate data for asynchronous motor"

C3206 - Attributes

Display: C3206
Ident N°: C3206

10.2.219 C3207 Type plate list incomplete

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "P-0-4033, C3200 Command Calculate data for asynchronous motor" an error was detected.

Cause	Remedy
List length of parameter "P-0-4032, Type plate list asynchronous motor" is shorter than 6 elements or at least one element has value "0"	Please check: To calculate motor and controller parameters from type plate of an asynchronous motor, value higher than "0" has to be entered in all 6 list elements of "P-0-4032, Type plate list asynchronous motor"

C3207 - Attributes

Display: C3207
Ident N°: C3207

10.2.220 C3208 Error when writing parameters

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "P-0-4033, C3200 Command Calculate data for asynchronous motor" an error occurred (e.g. violation of limit values) when a parameter for motor control was written.

Cause	Remedy
At least one list element in "P-0-4032, Type plate list asynchronous motor" has no useful value so that at least one parameter is outside of allowed limits when motor data are calculated	Correct values in "P-0-4032, Type plate list asynchronous motor" and restart command "P-0-4033, C3200 Command Calculate data for asynchronous motor"

C3208 - Attributes

Display: C3208
Ident N°: C3208

10.2.221 C3209 Command execution impossible

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "P-0-4033, C3200 Command Calculate motor data" an error occurred.

Cause	Remedy
Command cannot be executed with connected motor	Connect asynchronous motor and parameterize "P-4014, Type of construction of motor" accordingly

C3209 - Attributes

Display: C3209
Ident N°: C3209

10.2.222 C3501 Acquisition velocity not allowed

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "P-0-0340, C3500 Command Determine encoder correction values" an error was detected.

To acquire the signal shape the axis has to be moved at constant velocity; the velocity command value has to be within an allowed range of values. The controller monitors the velocity command value and, if necessary, signals inadmissible acquisition velocity.

Cause	Remedy
Acquisition velocity outside of allowed range of values	Check range of values for acquisition velocity (range of values relates to encoder shaft or sensor head)

"Acquisition velocity" see Functional Description of firmware "Encoder Correction"

C3501 - Attributes

Display: C3501
Ident N°: C3501

10.2.223 C3502 Motor encoder not available

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Diagnostic Command Messages

Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "P-0-0340, C3500 Command Determine encoder correction values" an error was detected.

Cause	Remedy
Motor encoder does not supply any signal or is not recognized by controller	Check whether signals of motor encoder are reaching controller. If necessary, replace motor encoder or motor encoder cable
Motor encoder not available, not connected or not registered ("open-loop" operation)	Connect motor encoder and register it in "P-0-0074, Encoder type 1 (motor encoder)"

C3502 - Attributes

Display: C3502
Ident N°: C3502

10.2.224 C3503 Optional encoder not available

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "P-0-0340, C3500 Command Determine encoder correction values" an error was detected.

Cause	Remedy
Optional encoder does not supply any signal or is not recognized by controller	Check whether signals of optional encoder are reaching controller. If necessary, replace encoder or encoder cable
Optional encoder not available, not connected or not registered	Connect optional encoder and register it in "P-0-0075, Encoder type 2 (optional encoder)"

C3503 - Attributes

Display: C3503
Ident N°: C3503

10.2.225 C3504 Measuring encoder not available

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "P-0-0340, C3500 Command Determine encoder correction values" an error was detected.

Cause	Remedy
Measuring encoder does not supply any signal or is not recognized by controller	Check whether signals of measuring encoder are reaching controller. If necessary, replace encoder or encoder cable
Measuring encoder not available, not connected or not registered	Connect measuring encoder and register it in "P-0-0076, Encoder type 3 (measuring encoder)"

C3504 - Attributes

Display: C3504
Ident N°: C3504

10.2.226 C3505 No encoder selected

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "P-0-0340, C3500 Command Determine encoder correction values" an error was detected.

Cause	Remedy
At start of command "P-0-0340, C3500 Command Determine encoder correction values" there hadn't any encoder been selected in "P-0-0341, Control word for encoder correction"	Select encoder in "P-0-0341, Control word for encoder correction"

C3505 - Attributes

Display: C3505
Ident N°: C3505

10.2.227 C3506 Correction value table cannot be stored

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "P-0-0340, C3500 Command Determine encoder correction values" an error was detected.

Cause	Remedy
Determined correction value table ("P-0-0342, Correction value table for encoder correction") is incomplete	Execute command "P-0-0340, C3500 Command Determine encoder correction values" again, select different acquisition velocity
Due to hardware problem, determined correction value table ("P-0-0342, Correction value table for encoder correction") cannot be stored in drive	Replace device

C3506 - Attributes

Display: C3506
Ident N°: C3506

10.2.228 C3601 Motor not or not correctly connected

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When the command "P-0-0565, C3600 Command Motor data identification" is executed, test pulses are output to the motor. An error was detected during the execution of the command.

Cause	Remedy
Motor not connected to drive controller	Connect motor
Motor not correctly connected to drive controller	Check and correct motor connection

See also Functional Description of firmware "Automatic Setting of Motor Control"

C3601 - Attributes

Display: C3601
Ident N°: C3601

10.2.229 C3602 Determined values invalid

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When executing the command "P-0-0565, C3600 Command Motor data identification" the determined values were detected to be invalid.

Cause	Remedy
Type plate data not entered correctly	Check values, correct them if necessary, then successively calculate "C3200 Command Calculate data for asynchronous motor" and start "C3600 Command Motor data identification"

See also Functional Description of firmware "Automatic Setting of Motor Control"

C3602 - Attributes

Display: C3602
Ident N°: C3602

10.2.230 C3603 Device current limit too low

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

When executing the command "P-0-0565, C3600 Command Motor data identification" the drive detected that the required measuring current couldn't be generated.

Cause	Remedy
Controller cannot make sufficient measuring current available	If possible, reduce value in "P-0-0001, Switching frequency of the power output stage" **- or -** use controller with higher type current

See also Functional Description of firmware "Automatic Setting of Motor Control"

C3603 - Attributes

Display: C3603

Ident N°: C3603

10.2.231 C3604 Error when writing parameters

Validity

Contained in 02VRS: «-» «-» «-»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

When the command "P-0-0565, C3600 Command Motor data identification" was executed, the writing of at least one of the calculated parameters caused a limit error.

Cause	Remedy
Type plate data not entered correctly	Check values, correct them if necessary, then successively start "C3200 Command Calculate data for asynchronous motor" and "C3600 Command Motor data identification"

See also Functional Description of firmware "Automatic Setting of Motor Control"

C3604 - Attributes

Display: C3604

Ident N°: C3604

10.2.232 C3605 Motor turning{

Validity

Contained in 02VRS: «-» «-» «-»

Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»

Contained in 05VRS: «MPB» «MPH» «MPD»

Supported by supply unit: «-»

The command "P-0-0565, C3600 Command Motor data identification" may only be started when the motor is not moving. Motor motion is detected by the possibly available motor encoder.

Diagnostic Command Messages

Cause	Remedy
Command C3600 had been started when motor was still moving	Start command C3600 when motor in standstill

See also Functional Description of firmware "Automatic Setting of Motor Control"

C3605 - Attributes

Display: C3605
Ident N°: C3605

10.2.233 C3606 Type of construction of motor not allowed

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command "P-0-0565, C3600 Command Motor data identification" can only be used for asynchronous motors! The functional principle of the motor is recognized by means of the setting of "P-0-4014, Type of construction of motor".

Cause	Remedy
Command C3600 was started for a synchronous motor	C3600 cannot be used! If required, use "C4600 Command Calculate motor control parameters"

See also Functional Description of firmware "Automatic Setting of Motor Control"

C3606 - Attributes

Display: C3606
Ident N°: C3606

10.2.234 C3701 Error when manually unlocking the safety door

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The command "C3700 Manually unlocking the safety door" was not or incorrectly executed.

Cause	Remedy
Drive still is in normal operation, there hasn't been any safety function activated yet **- or -** Drive is not in operating mode	Clear command "C3700 Manually unlocking the safety door". Select safety function via operating mode switch. Execute command again

See also documentation "Integrated Safety Technology"

C3701 - Attributes

Display: C3701
Ident N°: C3701

10.2.235 C3901 Abrasion of brake only possible with drive enable

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

It is impossible to execute the command "P-0-0544, C3900 Command Brake resurfacing".

Cause	Remedy
Command was activated without drive enable ("AF") having been set	Switch drive to "AF", then start command "P-0-0544, C3900 Command Brake resurfacing"

See also Functional Description of firmware "Motor Holding Brake"

C3901 - Attributes

Display: C3901
Ident N°: C3901

10.2.236 C3902 Error during abrasion of brake

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

The execution of the command "brake resurfacing" ("P-0-0544, C3900 Command Brake resurfacing") was aborted by an error.

Cause	Remedy
Torque of the amplifier is reduced	Remove reduction
Axis is mechanically blocked	Remove mechanical blocking
Axis is at end stop or runs towards it	Choose axis position such that sufficient motion is possible
Resurfacing of brake is impossible because motor generates less torque than holding torque of brake	Check whether there are torque limitations active in drive or whether controller was sufficiently dimensioned
Sum of weight load and brake torque is greater than motor peak torque	Reduce weight load, if possible

See also Functional Description of firmware "Motor Holding Brake"

C3902 - Attributes

Display: C3902
Ident N°: C3902

10.2.237 C3903 Command execution impossible

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

It was impossible to start the command "abrasion of brake" ("P-0-0544, C3900 Command Abrasion of brake").

Cause	Remedy
Brake control has not been activated in parameter P-0-0525, Holding brake control word"	Activate brake control in parameter "P-0-0525, Holding brake control word"
Value in "P-0-0540, Torque of motor holding brake" is "0"	Enter correct value for "P-0-0540, Torque of motor holding brake"

See also Functional Description of firmware "Motor Holding Brake"

C3903 - Attributes

Display: C3903
Ident N°: C3903

10.2.238 C4001 Error during safety related homing procedure

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "P-0-3228, C4000 Homing procedure command channel 2" an error occurred.

☞ The command was not or incorrectly executed so that there is no safety related reference or position.

Cause	Remedy
No home switch was configured for channel 2	Configure a home switch in "P-0-3211, Safety technology I/O control word, channel 2"
Actual position value difference between channel 1 and channel 2 is greater than value entered in "P-0-3229, Tolerance window for safety related homing procedure"	Check parameter setting of "P-0-3229, Tolerance window for safety related homing procedure" and "P-0-3231, Safety related reference position channel 2"
Failure on home switch input signal	Check wiring of home switch; check signal quality

☞ In addition to trouble shooting, you have to reboot the drive; to do this switch control voltage off and then on again.

See also documentation "Integrated Safety Technology"

C4001 - Attributes

Display: C4001
Ident N°: C4001

10.2.239 C4002 Incorrect distance of dedicated point channel 1-2

Validity

Contained in 02VRS: «MPB» «MPH» «MPD»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

For encoders which without home switch do not have unequivocal reference to the axis position, a check is run at the beginning of command "P-0-3228, C4000 Homing procedure command channel 2" to find out whether the distance of the dedicated points of channel 1 and channel 2 is greater than the tolerance window plus a tolerance of 10 percent:

```
(S-0-0052/S-0-0054 - S-0-0150/S-0-0151 - P-0-3231) > (P-0-3229 * 1,1)
```

S-0-0052 S-0-0052, Reference distance 1
S-0-0054 S-0-0054, Reference distance 2
S-0-0150 S-0-0150, Reference offset 1
S-0-0151 S-0-0151, Reference offset 2
P-0-3231 P-0-3231, Safety related reference position channel 2
P-0-3229 P-0-3229, Tolerance window for safety related homing procedure

Fig.10-5: Checking the distance of dedicated points of channel 1 and channel 2

This check allows detecting failures which are simultaneously taking effect on both reference inputs; incorrect position data reference can thereby be excluded.

Cause	Remedy
Distance of dedicated points of channel 1 and channel 2 is smaller than "P-0-3229, Tolerance window for safety related homing procedure" (plus tolerance of 10 percent)	Check parameter setting and change it, if necessary **- or -** Mount home switch appropriately Then execute "P-0-3228, C4000 Homing procedure command channel 2" again

C4002 - Attributes

Display: C4002
Ident N°: C4002

10.2.240 C4101 Switching only possible without AF

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

During the execution of the command "S-0-0216, C4100 Switch parameter set command" an error occurred.

Diagnostic Command Messages

Cause	Remedy
Parameter set switching with parameter group "encoder parameters" was started although axis still is in "AF"	Remove drive enable ("AF") before starting command

See also Functional Description of firmware "Parameter Set Switching"

C4101 - Attributes

Display: C4101
Ident N°: C4101

10.2.241 C4102 Switching only possible in parameter mode

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

"C4100 Switch parameter set command" couldn't be executed.

Cause	Remedy
Parameter set switching was activated in operating mode although parameter group "motor parameters" has been included in switching process	Bring drive to parameter mode (P2) before starting command

See also Functional Description of firmware "Parameter Set Switching"

C4102 - Attributes

Display: C4102
Ident N°: C4102

10.2.242 C4103 Preselect parameter set forbidden value

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

"C4100 Switch parameter set command" couldn't be executed.

Cause	Remedy
Value entered in parameter "S-0-0217, Preselect parameter set command" is greater than value in "P-0-2217, Parameter set switching, preselection range"	Before starting "C4100 Switch parameter set command", set value in "S-0-0217, Preselect parameter set command" to valid value

See also Functional Description of firmware "Parameter Set Switching"

C4103 - Attributes

Display: C4103
Ident N°: C4103

10.2.243 C4104 Error during parameter set switching (->S-0-0423)

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

"C4100 Switch parameter set command" couldn't be executed.

Cause	Remedy
An error occurred during parameter set switching	IDN of parameter which caused error is displayed in "S-0-0423, IDN-list of invalid op. data for parameterization level". Write valid value to displayed parameter

See also Functional Description of firmware "Parameter Set Switching"

C4104 - Attributes

Display: C4104
Ident N°: C4104

10.2.244 C4201 Oscillation requires drive enable

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

During the execution of the command "S-0-0190, C4200 Drive-controlled oscillation command" an error was detected.

Cause	Remedy
At start of command, drive wasn't yet ready for power output	Before starting C4200 switch power on and set drive enable

See also Functional Description of firmware "Drive-Controlled Oscillation"

C4201 - Attributes

Display: C4201
Ident N°: C4201

10.2.245 C4202 Oscillation command speed cannot be reached

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

Five seconds after start of "C4200 Drive-controlled oscillation command" the deviation of the actual velocity value from the oscillation start speed still is greater than or equal to the value of "S-0-0157, Velocity window". There is no command value curve generated for oscillation, as C4200 cannot be acknowledged.

Diagnostic Command Messages

Cause	Remedy
Value of "S-0-0157, Velocity window" is zero	Set "S-0-0157, Velocity window" to valid value greater zero
Motor is blocked or due to high degree of friction speed is too low	Check mechanical drive system for blocking or stiffness

See also Functional Description of firmware "Drive-Controlled Oscillation"

C4202 - Attributes

Display: C4202
Ident N°: C4202

10.2.246 C4302 Distance home switch - reference mark erroneous

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command for NC-controlled homing (C4300) an error was detected.

The axis is equipped with a home switch connected to the controller (see settings for home switch and reference mark in "S-0-0147, Homing parameter").

Cause	Remedy
Distance between home switch edge and next reference mark determined by controller is not inside allowed range	Read value from parameter "S-0-0298, Reference cam shift" and take it over to parameter "S-0-0299, Home switch offset" **- or -** Shift reference cam by value of "S-0-0299, Home switch offset"

See also Functional Description of firmware "Establishing Position Data Reference for Relative Measuring Systems"

C4302 - Attributes

Display: C4302
Ident N°: C4302

10.2.247 C4304 Homing of absolute encoder not possible

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command for NC-controlled homing (C4300) an error was detected:

NC-controlled homing is impossible with absolute measuring system.

C4304 - Attributes

Display: C4304
Ident N°: C4304

10.2.248 C4306 Reference mark not detected

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command for NC-controlled homing (C4300) an error with regard to the reference marks of the encoder was detected.

If the reference marks of the relative encoder to be homed (selected in "S-0-0147, Homing parameter") occur cyclically over the travel range, the position difference of the reference marks detected by the controller is monitored. This requires the correct setting for "P-0-0153, Optimum distance home switch-reference mark".

Cause	Remedy
Reference marks do not occur in expected position difference	Check measuring system to be homed and corresponding wiring **- or -** Check and, if necessary, correct setting of "P-0-0153, Optimum distance home switch-reference mark"
Value set in "P-0-0153, Optimum distance home switch-reference mark" does not match encoder that is used	Correct setting of "P-0-0153, Optimum distance home switch-reference mark"

See also Functional Description of firmware "Establishing Position Data Reference for Relative Measuring Systems"

C4306 - Attributes

Display: C4306
Ident N°: C4306

10.2.249 C4307 Home switch input not assigned

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "S-0-0146, C4300 NC-controlled homing procedure command" an error was detected.

Cause	Remedy
Home switch hasn't been assigned to any digital input	Assign home switch ("S-0-0400, Home switch") to a digital input via parameter "P-0-0300, Digital I/Os, assignment list"
Home switch was connected to NC but "S-0-0147, Homing parameter" was incorrectly parameterized	Correct setting of respective bit of "S-0-0147, Homing parameter"

See also Functional Description of firmware "Establishing Position Data Reference for Relative Measuring Systems"

Diagnostic Command Messages

C4307 - Attributes

Display: C4307
Ident N°: C4307

10.2.250 C4308 Pos. stop a. HW lim. switch not allowed f. modulo axes

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command for NC-controlled homing (C4300) an error was detected:

Cause	Remedy
NC-controlled homing at positive stop or travel range limit switch with modulo axes isn't a useful combination and therefore not allowed!	Modify control information for homing in "S-0-0147, Homing parameter" in a useful way

C4308 - Attributes

Display: C4308
Ident N°: C4308

10.2.251 C4601 Error when writing parameters

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When the command "P-0-0566, C4600 Command Calculate motor control parameters" was executed, the writing of at least one of the calculated parameters caused a limit error.

Cause	Remedy
Motor data weren't correctly entered in motor parameters	Check values, correct them if necessary, then start "C4600 Command Calculate motor control parameters" again
Incorrect motor data	Check motor data, if necessary consult motor manufacturer. After entering corrected values start "C4600 Command Calculate motor control parameters" again

See also Functional Description of firmware "Automatic Setting of Motor Control"

C4601 - Attributes

Display: C4601
Ident N°: C4601

10.2.252 C4701 Drive active, activation of easy startup impossible

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «MPB» «MPH» «MPD»

Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «-» «-» «-»
Supported by supply unit: «-»

The command "P-0-4085, C4700 Command Activate easy startup mode" was started, but could not be executed.

Cause	Remedy
Drive had been active when command for activating "easy startup" mode was started	Remove drive enable before starting command "P-0-4085, C4700 Command Activate easy startup mode"

See also Functional Description of firmware "Initial Start in Easy Startup Mode"

C4701 - Attributes

Display: C4701
Ident N°: C4701

10.2.253 C4901 PLC command error no. 1

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

The command "P-0-1449, C4900 PLC command" for controlling a PLC program was started.

Cause	Remedy
PLC program has generated "PLC command error no. 1"	See program description of PLC program for how to react to C4901

See also Application Manual "Rexroth IndraMotion MLD"

C4901 - Attributes

Display: C4901
Ident N°: C4901

10.2.254 C4902 PLC command error no. 2

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

The command "P-0-1449, C4900 PLC command" for controlling a PLC program was started.

Cause	Remedy
PLC program has generated "PLC command error no. 2"	See program description of PLC program for how to react to C4902

See also Application Manual "Rexroth IndraMotion MLD"

Diagnostic Command Messages

C4902 - Attributes

Display: C4902
Ident N°: C4902

10.2.255 C4903 PLC command error no. 3

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

The command "P-0-1449, C4900 PLC command" for controlling a PLC program was started.

Cause	Remedy
PLC program has generated "PLC command error no. 3"	See program description of PLC program for how to react to C4903

See also Application Manual "Rexroth IndraMotion MLD"

C4903 - Attributes

Display: C4903
Ident N°: C4903

10.2.256 C4904 PLC command error no. 4

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

The command "P-0-1449, C4900 PLC command" for controlling a PLC program was started.

Cause	Remedy
PLC program has generated "PLC command error no. 4"	See program description of PLC program for how to react to C4904

See also Application Manual "Rexroth IndraMotion MLD"

C4904 - Attributes

Display: C4904
Ident N°: C4904

10.2.257 C4910 PLC command timeout

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

The command "P-0-1449, C4900 PLC command" for controlling a PLC program was started. The PLC did not acknowledge the command input.

Cause	Remedy
PLC program was not started	Start PLC program and then execute "P-0-1449, C4900 PLC command" again
Loaded PLC program is not correct	Correct PLC program, load it and then execute "P-0-1449, C4900 PLC command" again

See also Application Manual "Rexroth IndraMotion MLD"

C4910 - Attributes

Display: C4910
Ident N°: C4910

10.2.258 C5401 PLC program not ready for retain data backup

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

During the execution of the command "P-0-4054, C5400 Command Save PLC retain data on MMC" an error occurred.

Cause	Remedy
No PLC program has been loaded (cf. "P-0-1351, PLC status word")	Check PLC programs (load them, if necessary) and then start "P-0-4054, C5400 Command Save PLC retain data on MMC"
PLC program still is active (cf. "P-0-1351, PLC status word")	Stop PLC program and then start "P-0-4054, C5400 Command Save PLC retain data on MMC"

☞ The MMC is an optional component of the control section.

C5401 - Attributes

Display: C5401
Ident N°: C5401

10.2.259 C5402 Error when writing data to the MMC

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

During the execution of the command "P-0-4054, C5400 Command Save PLC retain data on MMC" an error occurred.

Diagnostic Command Messages

Cause	Remedy
MMC (MultiMediaCard) has not been plugged	Plug MMC into controller and then start "P-0-4054, C5400 Command Save PLC retain data on MMC"
MMC (MultiMediaCard) was not formatted correctly	Start command "P-0-4072, C2900 Command Firmware update from MMC" and then "P-0-4054, C5400 Command Save PLC retain data on MMC"

☞ The MMC is an optional component of the control section.

C5402 - Attributes

Display: C5402
Ident N°: C5402

10.2.260 C5501 PLC program not ready for loading retain data

Validity

Contained in 02VRS:	«-»	«-»	«-»
Contained in 03VRS:	«-»	«-»	«-»
Contained in 04VRS:	«-»	«MPH»	«-»
Contained in 05VRS:	«MPB»	«MPH»	«-»
Supported by supply unit:	«-»		

During the execution of the command "P-0-4055, C5500 Command Load PLC retain data from MMC" an error occurred.

Cause	Remedy
No PLC program has been loaded (cf. "P-0-1351, PLC status word")	Check PLC programs (load them, if necessary) and then start "P-0-4055, C5500 Command Load PLC retain data from MMC"
PLC program still is active (cf. "P-0-1351, PLC status word")	Stop PLC program and then start "P-0-4055, C5500 Command Load PLC retain data from MMC"

☞ The MMC is an optional component of the control section.

C5501 - Attributes

Display: C5501
Ident N°: C5501

10.2.261 C5502 MMC not available or not OK

Validity

Contained in 02VRS:	«-»	«-»	«-»
Contained in 03VRS:	«-»	«-»	«-»
Contained in 04VRS:	«-»	«MPH»	«-»
Contained in 05VRS:	«MPB»	«MPH»	«-»
Supported by supply unit:	«-»		

During the execution of the command "P-0-4055, C5500 Command Load PLC retain data from MMC" an error occurred.

Cause	Remedy
MMC (MultiMediaCard) has not been plugged	Plug MMC into controller and then start "P-0-4055, C5500 Command Load PLC retain data from MMC"
MMC (MultiMediaCard) was not formatted correctly	Start command "P-0-4072, C2900 Command Firmware update from MMC" and then "P-0-4055, C5500 Command Load PLC retain data from MMC"

☞ The MMC is an optional component of the control section.

C5502 - Attributes

Display: C5502
Ident N°: C5502

10.2.262 C5503 PLC retain data do not match PLC program

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

During the execution of the command "P-0-4055, C5500 Command Load PLC retain data from MMC" an error occurred.

Cause	Remedy
PLC retain data on MMC do not match currently running PLC program (see "P-0-1360, PLC program identifier")	Plug appropriate MMC into controller and then start "P-0-4055, C5500 Command Load PLC retain data from MMC" **- or -** Load appropriate PLC program and then start "P-0-4055, C5500 Command Load PLC retain data from MMC"

☞ The MMC is an optional component of the control section.

C5503 - Attributes

Display: C5503
Ident N°: C5503

10.2.263 C5504 Unknown format in PLC retain file

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

During the execution of the command "P-0-4055, C5500 Command Load PLC retain data from MMC" an error occurred.

Diagnostic Command Messages

Cause	Remedy
File "SPS-Retain.pbf" has unknown format	Load appropriate firmware to controller and then start "P-0-4055, C5500 Command Load PLC retain data from MMC"

☞ The MMC is an optional component of the control section.

C5504 - Attributes

Display: C5504
Ident N°: C5504

10.2.264 C5505 Invalid PLC retain data

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «MPH» «-»
Contained in 05VRS: «MPB» «MPH» «-»
Supported by supply unit: «-»

During the execution of the command "P-0-4055, C5500 Command Load PLC retain data from MMC" an error occurred.

Cause	Remedy
Stored PLC retain data in file "SPS-Retain.pbf" are invalid	Again generate file "SPS-Retain.pbf" with "P-0-4054, C5400 Command Save PLC retain data on MMC" and then start "P-0-4055, C5500 Command Load PLC retain data from MMC"

☞ The MMC is an optional component of the control section.

C5505 - Attributes

Display: C5505
Ident N°: C5505

10.2.265 C5601 Command requires drive enable

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the "P-0-0518, C5600 Command subsequent optimization of commutation offset" an error occurred.

Cause	Remedy
Command for subsequent optimization of commutation offset setting was started, but drive is not in "AF"	Switch drive to "AF" and then restart command "P-0-0518, C5600 Command subsequent optimization of commutation offset"

See also Functional Description of firmware "Commutation Setting"

C5601 - Attributes

Display: C5601
Ident N°: C5601

10.2.266 C5602 Axis blocked

Validity

Contained in 02VRS:	«-»	«-»	«-»
Contained in 03VRS:	«-»	«-»	«-»
Contained in 04VRS:	«MPB»	«MPH»	«MPD»
Contained in 05VRS:	«MPB»	«MPH»	«MPD»
Supported by supply unit:	«-»		

During the execution of the "P-0-0518, C5600 Command subsequent optimization of commutation offset" an error occurred.

Cause	Remedy
To successfully carry out command for subsequent optimization of commutation offset setting, motor/axis must be able to freely move by some degrees; this is not the case	Remove axis blocking and then restart command "P-0-0518, C5600 Command subsequent optimization of commutation offset"

See also Functional Description of firmware "Commutation Setting"

C5602 - Attributes

Display: C5602
Ident N°: C5602

10.2.267 C5603 Timeout: axis in motion

Validity

Contained in 02VRS:	«-»	«-»	«-»
Contained in 03VRS:	«-»	«-»	«-»
Contained in 04VRS:	«MPB»	«MPH»	«MPD»
Contained in 05VRS:	«MPB»	«MPH»	«MPD»
Supported by supply unit:	«-»		

During the execution of the command "P-0-0518, C5600 Command subsequent optimization of commutation offset", the axis must have stopped or after motion triggered by the execution of the command, the axis must come to standstill again. If this is impossible, the command is aborted.

Cause	Remedy
External motion mechanically coupled	Remove external motion; uncouple motor, if necessary
Axis has very long post-pulse oscillation	Reduce oscillation time of axis, generate slight additional friction at axis, if necessary

See also Functional Description of firmware "Commutation Setting"

C5603 - Attributes

Display: C5603
Ident N°: C5603

10.2.268 C6001 Measuring system unavailable

Validity

Contained in 02VRS:	«-»	«-»	«-»
Contained in 03VRS:	«-»	«-»	«-»

Diagnostic Command Messages

Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the "Set absolute measuring" command (C6000) the measuring system selected by parameter "S-0-0448, Control word for setting absolute measuring" was detected to be unavailable.

Cause	Remedy
Command was activated by mistake	Prevent command from being activated
Measuring system has not been parameterized	Parameterize measuring system

See also Functional Description of firmware "Establishing the Position Data Reference"

C6001 - Attributes

Display: C6001
Ident N°: C6001

10.2.269 C6002 Absolute evaluation of measuring system impossible

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the "Set absolute measuring" command (C6000) it was detected that absolute evaluation of the selected measuring system is impossible.

The command "set absolute measuring" can only be executed, when an absolute measuring system is available (see "S-0-0277, Position feedback 1 type" or "S-0-0115, Position feedback 2 type").

Cause	Remedy
Command was activated by mistake	Prevent command from being activated
Motor encoder or optional measuring system have not been designed as absolute encoders	Equip motor or optional measuring system with absolute encoder function

See also Functional Description of firmware "Establishing the Position Data Reference"

C6002 - Attributes

Display: C6002
Ident N°: C6002

10.2.270 C6003 Absolute encoder offset cannot be saved

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

When executing the command for setting absolute measuring (C6000) the offset of the encoder zero point with regard to the machine zero point is determined and stored in the data memory of the encoder. It was impossible to store the offset correctly.

Cause	Remedy
Communication between encoder and drive is disturbed	Check encoder cable and repair it, if necessary **- or -** Replace encoder

C6003 - Attributes

Display: C6003
Ident N°: C6003

10.2.271 C6004 Command cannot be executed under drive enable

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «MPB» «MPH» «MPD»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

Cause	Remedy
Command "C6000 Command Set absolute measuring" was started with drive enable having been activated; in first stage of expansion of function "set absolute measuring" according to SERCOS specification, this is not supported	Reset drive enable, then clear command error and restart command "C6000 Command Set absolute measuring"

C6004 - Attributes

Display: C6004
Ident N°: C6004

10.2.272 C6101 Incorrect IP settings

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «MPB» «MPH» «MPD»
Supported by supply unit: «-»

During the execution of the command "P-0-1534, C6100 Command Activate IP settings", the settings made by the user are checked.

Cause	Remedy
Settings for IP address, network mask and gateway address for one or several interfaces do not match	Correct changed settings of IP communication for concerned interfaces and execute command "P-0-1534, C6100 Command Activate IP settings" again

C6101 - Attributes

Display: C6101
Ident N°: C6101

Diagnostic Command Messages

10.2.273 C7001 CCD: impossible to adjust slave addresses

Validity

Contained in 02VRS: «-» «-» «-»
Contained in 03VRS: «-» «-» «-»
Contained in 04VRS: «-» «-» «-»
Contained in 05VRS: «-» «MPH» «-»
Supported by supply unit: «-»

During the execution of the command "P-0-1635, CCD: command adjust slave addresses" (C7000) an error occurred.

Cause	Remedy
During execution of command C7000 and within the scope of remote address assignment, there is an attempt to write corresponding addresses of CCD slaves ("S-0-1040, Drive address of master communication") such as parameterized in "P-0-1636, CCD: command topology". This is impossible, as CCD slaves are not in phase 2.	Bring CCD slaves to phase 2 (e.g. switch CCD master to parameter mode)

See also Functional Description of firmware "Cross Communication (CCD)"

C7001 - Attributes

Display: C7001
Ident N°: C7001

11 Extended Diagnosis (P-0-3219)

Display	E-code channel 1 (P3219 [0])	E-code channel 2 (P3219 [1])	Safety technology error
C0254	53		PROFIsafe is not allowed in conjunction with this firmware
C0254	213		PROFIsafe configuration error: PROFIsafe was activated by P-0-3290 unequal zero. The precondition for this, however, is missing, as there is no PROFIBUS master communication available.
C0255		596	Validation check with regard to parameterization "deceleration in the case of error reaction": Parameterization in parameters P-0-0119, P-0-0117 and P-0-3210 (bit 9) is not allowed
C0255		600	No measuring system connected to connector X4
C0255		33, 43	Encoder type is not supported by channel 2
C0256	216		Configuration error: "Safety related limited absolute position" or "safety related limited absolute end position" was configured, but the required homing encoder has not been connected to X4.x
C0256	420		Configuration of a safety function that has not been released (safety related braking and holding system)
C0256	421		Configuration of "safety related braking and holding system" (P-0-3300, bit0=1) with main spindle brake (P-0-0525, bit1=1) is not allowed
C0256	422		Configuration of "safety related braking and holding system" (P-0-3300, bit0=1) and "best possible deceleration with torque disable" is not allowed
C0256	423		Configuration of "safety related braking and holding system" (P-0-3300, bit0=1) and reaction "torque disable in the case of F7 errors" (P-0-3210, bit9=1) is not allowed
C0256	424		Configuration of a safety function that has not been released (safety related I/Os)
C0256	425		Configuration of a safety function that has not been released (safety related limited absolute end position)
C0256	426		Configuration error: "Safety related braking and holding system" requires motor holding brake (P-0-0525, bit 2)
C0256	428		Configuration of "safety related braking and holding system" (P-0-3300, bit0=1) and "best possible deceleration with return motion" is not allowed
C0256	436		Configuration error: P-0-3307 mustn't be smaller than S-0-0207
C0256	438		Configuration error: "Safety related braking and holding system" may only be operated with "safety related monitored deceleration" (P-0-3210, bit 13)
C0256	440		Configuration error: Signal "HAT-Steuer" (P-0-3301, bit 0) is missing or has been configured twice (P-0-0300)
C0256	532		Configuration error: An impermissible error reaction was configured, F7 reaction=velocity command value reset (P-0-3210) and P-0-0119=torque-free
C0256	590		Configuration error: Contradictory direction of motion (involved parameters: P-0-3239, P-0-3240, P-0-3250, P-0-3260 or P-0-3270)
C0256	591		Configuration error: "Gear independence with safety technology encoder mounted on the load side" is only allowed with rotary, load-related scaling for position, velocity and acceleration data (see P-0-3210, S-0-0044, S-0-0076, S-0-0160)

Extended Diagnosis (P-0-3219)

Display	E-code channel 1 (P3219 [0])	E-code channel 2 (P3219 [1])	Safety technology error
C0256	592		Configuration error: "Gear independence with safety technology encoder mounted on the load side" and "safety related braking and holding system" are not allowed simultaneously (see P-0-3210, P-0-3300)
C0256	593		Configuration error: "Gear independence with safety technology encoder mounted on the load side" and "safety related limited absolute position" or "gear independence with safety technology encoder mounted on the load side" and "safety related limited absolute end position" are not allowed (see P-0-3210, P-0-3239, P-0-3240, P-0-3250)
C0256	594		Configuration error: "Gear independence with safety technology encoder mounted on the load side" with motor encoder as safety technology encoder (X4) is not allowed
C0257	48		No motor encoder or external encoder plugged at optional slot X4
C0265	214		Safety technology configuration error: "Safety related limited absolute position" and "motor-related scaling" have been configured
C0723	102		"C07_02 load defaults procedure for safety technology" presently cannot be executed, as channel 2 is still busy with execution of another safety technology command
C2103	1548, 1549, 1550		Safety related brake check: Test point holding torque of motor holding brake incorrectly carried out in positive direction
C2103	1553, 1554, 1555		Safety related brake check: Test point holding torque of motor holding brake incorrectly carried out in negative direction
C2103		510	Safety related brake check: Motor brake controlled
C2103		507, 509	Safety related brake check: Redundant holding brake not released
C2103		508, 514	Safety related brake check: Motor brake not controlled
C2107	1558, 1559, 1560		Safety related brake check: Test point holding torque of redundant holding brake incorrectly carried out in positive direction
C2107	1563, 1564, 1565		Safety related brake check: Test point holding torque of redundant holding brake incorrectly carried out in negative direction
C2107		506	Safety related brake check: When the force due to weight is determined, motion is expected when the brakes have been released. The drive did not move. In spite of control, a brake does not release
C2107		511	Safety related brake check: Redundant holding brake not released
C2107		512	Safety related brake check: Motor brake controlled
C2107		514	Safety related brake check: Motor brake not controlled
C2108	1541		Safety related brake check: Channel 1 error-free, see error code channel 2
C2108	1541		Safety related brake check: Channel 1 signals successful, see error message of channel 2
C2108	1543		Brake check: Command C2100 is not allowed with selection "safety related operation"
C2108	1543		Safety related brake check: Command C2100 is not allowed with selection "safety related operation"
C2108	1545		Safety related brake check: Axis did not move [or less than half the monitoring window ("P-0-3310" / 2)]
C2108	1546		Safety related brake check: Starting torque exceeded (P-0-0545 or P-0-0540 < P-0-0546)

Extended Diagnosis (P-0-3219)

Display	E-code channel 1 (P3219 [0])	E-code channel 2 (P3219 [1])	Safety technology error
C2108	1546		Safety related brake check: Starting torque exceeded, P-0-0546 > P-0-0545 (or P-0-0540, when P-0-0545=0)
C2108	1542, 1544		"Safety related brake check" faulty
C2108	1545, 1547		Safety related brake check: - axis did not move (<P-0-3310/2) or - axis moved too far (>P-0-3310*2)
C2108		507	Safety related brake check: Redundant holding brake not released
C2108		508	Safety related brake check: Motor brake not controlled
C2109	1551, 1556, 1561, 1566	582, 583	Safety related brake check: Incorrect torque normalization - replacement of motor (P-0-3304 <--> P-0-0051) - incorrect current measurement (P-0-0043)
C4001	1086		Channel 2 signals error for internal command "homing procedure channel 2" Cause: P-0-3280 deviates by more than one internal measuring-system-dependent threshold from S-0-0051/S-0-0053 or no homing input channel 2 configured in P-0-3211
C4001		153	Command "safety related homing procedure" was started. But no reference input at channel 2 was configured in parameter P-0-3211
C4001		157	Command "safety related homing procedure" was carried out. Actual position value difference between channel 1 and channel 2 is greater than parameterized in P-0-3229
C4001		163	Command "safety related homing procedure" was started. The actual position value systems of channel 1 and channel 2 were not synchronized before, this is automatically carried out in the transition command from 3 to 4
C4002	1087		Incorrect distance of dedicated points of channel 1 and 2 [S-0-0052/54 - S-0-0150/151 - P-0-3231] > P-0-3229*1.1
E3107	1311		Safety related reference is missing for monitoring in the case of "safety related limited absolute end position"
E3115	1416, 1418		Safety related braking and holding system: "Prewarning, end of brake check time interval"
Exxx	1xxx		In the case of warning on channel 1, 1000 is added to the error code
F3112	191		"Special mode safety related motion" selected with "safety related limited absolute position" without channel 2 having been homed
F3112	312	179, 271	Safety related reference is missing for monitoring in the case of "safety related limited absolute end position"
F3112		155	"Special mode safety related motion 1" selected with "safety related limited absolute position" without channel 2 having been homed
F3112		156	"Special mode safety related motion 2" selected with "safety related limited absolute position" without channel 2 having been homed
F3112		283, 284	Missing safety related reference for monitoring of "safety related limited absolute position" in "special mode safety related motion"

Extended Diagnosis (P-0-3219)

Display	E-code channel 1 (P3219 [0])	E-code channel 2 (P3219 [1])	Safety technology error
F3115	415, 417	254	Monitoring of time interval brake check Cause: Drive had been in "AF" for 15 min and brake check hasn't been carried out yet or the time defined in P-0-3302 was exceeded
F3116	439	256	Monitoring of actual load torque: Nominal load torque of holding system exceeded
F3117	192		Validation error of actual position values channel 1 and 2 (in the case of safety related reference)
F3117		154	Actual position value difference between channel 1 and channel 2 greater than determined internal measuring-system-dependent threshold
F3117		158	With the configuration "reference input channel 2 with static signal", 24V were measured at the reference input outside of the tolerance window P-0-3231 +/- P-0-3229. Cause: Possibly short circuit to 24V.
F3122		219	Command "apply redundant holding brake" was started. Brake could not be applied within 50 ms (diagnostic input at channel 2 (X41) at 24V)
F3122		221	The internal command "release redundant holding system" was started. Brake could not be released within 50 ms (diagnostic input at channel 2 (X41) at 0V)
F3122		223	During the command "resurfacing of redundant holding brake", the redundant holding system is applied. The brake, however, could not be applied within 200 ms (diagnostic input at channel 2 (X41) at 24V)
F3122		224	During the command "resurfacing of redundant holding brake", the redundant holding system is released. The brake, however, could not be released within 200 ms (diagnostic input at channel 2 (X41) at 0V)
F3122		505	Safety related braking and holding system: Feedback signal from control module (HAT) is 0V Cause: Missing connection between control module (HAT) and diagnostic input at connector X41 (HSI11) or Error in control module (HAT)
F3122		532	Safety related braking and holding system: Error in feedback signal of module (HAT) Cause: Brake applied: line interrupted, short circuit to 0V or error message of control module (HAT) or Brake released: short circuit to 24V
F3123	432	518, 519, 556	Safety related braking and holding system: No valid brake check status during transition to special mode
F3123		533, 534	Safety related braking and holding system: No valid brake check status during transition from parameter mode to operating mode with selection of special mode
F3130	23		Not all input signals of channel 1 are at low level during dynamization pulse
F3130		26	During dynamization of input E1n of channel 2, the input does not go to 0V. Cause: Short circuit between input E1n and 24V.

Extended Diagnosis (P-0-3219)

Display	E-code channel 1 (P3219 [0])	E-code channel 2 (P3219 [1])	Safety technology error
F3130		28	During dynamization of input E2n of channel 2, the input does not go to 0V. Cause: Short circuit between input E2n and 24V.
F3130		29	During dynamization of input E3n of channel 2, the input does not go to 0V. Cause: Short circuit between input E3n and 24V.
F3130		35	During dynamization of input E4n of channel 2, the input does not go to 0V. Cause: Short circuit between input E4n and 24V.
F3131	24	48	EA20 is statically at low level. Cause: Short circuit to GND or EA20 not connected or power supply at X41 missing
F3131	26		EA20 is statically at high level. Cause: Short circuit to 24V
F3131	151		Diagnostic/acknowledgment slave: EA20 does not toggle during initialization in operating mode (after phase progression or clear error). Cause: +24V are missing at X41 or short circuit to V+ or GND
F3131	152	125, 141, 160	Diagnostic/acknowledgment slave: EA20 is statically at low level. Cause: Short circuit to 0V or EA20 not connected or power supply at X41 missing
F3131	153		Diagnostic/acknowledgment slave: It was impossible to set EA20 to high level (it toggles)
F3131	154		Diagnostic/acknowledgment slave: It was impossible to set EA20 to high level
F3131	155	124, 150	Diagnostic/acknowledgment slave: EA20 is permanently at high level. Cause: Either by master or by short circuit to 24V
F3131	161	46	Diagnostic/acknowledgment master: EA20 does not toggle during initialization in operating mode (after phase progression or clear error). Cause: One module in the group with non-activated safety technology or short circuit EA20 to 24 V
F3131	163		Diagnostic/acknowledgment master: It was impossible to set EA20 to high level
F3131	164		Diagnostic/acknowledgment master: EA20 longer than 600 ms at high level during acknowledgment request
F3131	167		Diagnostic/acknowledgment master: EA20 does not toggle when safety door is locked
F3131	170		Diagnostic/acknowledgment master: EA20 does not toggle when safety door is unlocked
F3131	171	174	Single axis for diagnosis/acknowledgment: EA20 at low level for more than 10 ms (EA20 should be permanently at 24V). Cause: 24V supply missing at X41 or short circuit EA20 to 0V
F3131		49	Diagnostic/acknowledgment master: EA20 does not toggle during initialization in operating mode (after phase progression or clear error). Cause: No voltage supply at X41 or short circuit EA20 to 0V
F3131		124	Diagnostic/acknowledgment master: EA20 is permanently at high level. Cause: One module in the group with non-activated safety technology or short circuit EA20 to 24 V

Extended Diagnosis (P-0-3219)

Display	E-code channel 1 (P3219 [0])	E-code channel 2 (P3219 [1])	Safety technology error
F3131		129	Diagnostic/acknowledgment slave: EA20 does not toggle. Cause: One module in the group with non-activated safety technology or short circuit EA20 to 24 V
F3131		142	Safety door unlocked or diagnostic output at "safe" in the case of PLC control, although safety of zone does not exist
F3132	166		Diagnostic/acknowledgment master: A10 cannot be set to low level when safety door is locked
F3132	169		Diagnostic/acknowledgment master: A10 cannot be set to high level when safety door is unlocked
F3132	172		Single axis for diagnosis/acknowledgment: Channel 1 acknowledges safety and channel 2 does not. (A10 and A10n at high level)
F3132	173		Single axis for diagnosis/acknowledgment: Channel 2 acknowledges safety and channel 1 does not. (A10 and A10n at low level)
F3132	335		Safety related output has been activated/set; after a tolerance time of 2 seconds, feedback at check input E10 is missing (P-0-3212, bit 9 = high for t > 10ms)
F3132	336		Safety related output has been deactivated/reset; after a tolerance time of 2 seconds, feedback at check input E10 is still present (P-0-3212, bit 9 = low for t > 10ms)
F3132	33, 36, 38, 40, 42, 100, 101, 168		Diagnostic/acknowledgment master: E10 has low level at end of unlocking of safety door
F3132	93, 165		Diagnostic/acknowledgment master: E10 has high level at end of locking of safety door
F3132		126	Diagnostic master/slave with PLC control: During transition to normal operation, EA10n cannot be set to 24V (short circuit EA10n to 0V)
F3132		127	In safety related status and control of a safety door: EA10n at high level. Remedy: Check wiring in control circuit
F3132		128	In safety related status, EA10n (with configuration of a PLC control) cannot be set to low level. Cause: EA10n has short circuit to 24V or error in wiring
F3132		143	Error in control of safety door. Cause: EA10n defective or feedback via E10 missing
F3132		201	Activation safety related output: Control of channel 2 has not taken place within one second Cause: Internal relay defective or output EA10n is at 24V
F3132		206	Activation safety related output: The drive is not able to switch to the active status within 1s. Remedy: Check wiring in control circuit and feedback circuit (input E10 = 0V)
F3132		209	Activation safety related output: Control of channel 1 via A10 has not taken place within one second

Extended Diagnosis (P-0-3219)

Display	E-code channel 1 (P3219 [0])	E-code channel 2 (P3219 [1])	Safety technology error
F3132		146, 176	In non-safety-related status, EA10n cannot be set to high level
F3132		147, 175	In safety related status, EA10n cannot be set to low level
F3132		202, 204	Activation safety related output: After activated status has been reached, this status is permanently checked. An error was detected during this check. Remedy: Check wiring in control circuit and feedback circuit (input E10 = 0V)
F3132		207, 208	Deactivation safety related output: After safety related status has been reached at load circuit, this status is permanently checked. An error was detected during this check. Remedy: Check wiring in control circuit and feedback circuit (input E10 = 24V)
F3132		211, 212	Deactivation safety related output: Upon request, drive is not able to switch load circuit to safety related status within two seconds. Cause: Incorrect control of channel 2 or feedback via channel 1 not ok (input E10 = 24V)
F3134	109		Interval "dynamization of safety function selection" (EA30||EDynK1) is greater P-0-3223 * 1,2
F3134	111, 117	63	Interval of dynamization signal (EA30 or P-0-3212, bit 10) exceeded (P-0-3223)
F3134		139	In synchronization phase of dynamization during transition to operating mode, dynamization signal is longer than 1.5-fold time of P-0-3223 at 24V
F3135	108		Pulse width of dynamization signal (EA30 or P-0-3212, bit 10) shorter than minimum pulse width of 30ms
F3135	98, 99, 116	57	Pulse width of dynamization signal (EA30 or P-0-3212, bit 10) greater than P-0-3224
F3135		64	Dynamization pulse at EA30 smaller than minimum pulse width (30ms)
F3135		140	In synchronization phase of dynamization during transition to operating mode, dynamization signal is longer than 1.5-fold time of P-0-3224 at 0V
F3140	54	426	P-0-3291 of channels 1 and 2 are different
F3140	55	425	P-0-3290 of channels 1 and 2 are different
F3140	56	404	P-0-3210 of channels 1 and 2 are different
F3140	57		P-0-3211 of channels 1 and 2 are different
F3140	58		P-0-3240, P-0-3250, P-0-3260 and P-0-3270 of channels 1 and 2 are different
F3140	77	439	P-0-3239 of channels 1 and 2 are different
F3140	78	440	P-0-3295 of channels 1 and 2 are different
F3140	79	441	P-0-3300 of channels 1 and 2 are different
F3140	120	363, 364, 365	Safety technology parameters of channels 1 and 2 are different Channel 1: Up to FWA-INDRV_-MPx03V08 P-0-3220, then P-0-3234 Channel 2: P-0-3220
F3140	121	369, 370, 371	Safety technology parameters of channels 1 and 2 are different Channel 1: Up to FWA-INDRV_-MPx03V08 P-0-3221, then P-0-3220 Channel 2: P-0-3221

Extended Diagnosis (P-0-3219)

Display	E-code channel 1 (P3219 [0])	E-code channel 2 (P3219 [1])	Safety technology error
F3140	122	366, 367, 368	Safety technology parameters of channels 1 and 2 are different Channel 1: Up to FWA-INDRV_-MPx03V08 P-0-3222, then P-0-3221 Channel 2: P-0-3222
F3140	123	387, 388, 389	Safety technology parameters of channels 1 and 2 are different Channel 1: Up to FWA-INDRV_-MPx03V08 P-0-3223, then P-0-3222 Channel 2: P-0-3223
F3140	124	390, 391, 392	Safety technology parameters of channels 1 and 2 are different Channel 1: Up to FWA-INDRV_-MPx03V08 P-0-3224, then P-0-3223 Channel 2: P-0-3224
F3140	125	418, 419, 420	Safety technology parameters of channels 1 and 2 are different Channel 1: Up to FWA-INDRV_-MPx03V08 P-0-3225, then P-0-3224 Channel 2: P-0-3225
F3140	126	422, 423, 424	Safety technology parameters of channels 1 and 2 are different Channel 1: Up to FWA-INDRV_-MPx03V08 P-0-3229, then P-0-3225 Channel 2: P-0-3229
F3140	127	360, 361, 362	Safety technology parameters of channels 1 and 2 are different Channel 1: Up to FWA-INDRV_-MPx03V08 P-0-3230, then P-0-3229 Channel 2: P-0-3230
F3140	128	372, 373, 374	Safety technology parameters of channels 1 and 2 are different Channel 1: Up to FWA-INDRV_-MPx03V08 P-0-3231, then P-0-3230 Channel 2: P-0-3231
F3140	129	393, 394, 395	Safety technology parameters of channels 1 and 2 are different Channel 1: Up to FWA-INDRV_-MPx03V08 P-0-3232, then P-0-3231 Channel 2: P-0-3232
F3140	130	410, 411, 412	Safety technology parameters of channels 1 and 2 are different Channel 1: Up to FWA-INDRV_-MPx03V08 P-0-3233, then P-0-3232 Channel 2: P-0-3233
F3140	131	414, 415, 416	Safety technology parameters of channels 1 and 2 are different Channel 1: Up to FWA-INDRV_-MPx03V08 P-0-3234, then P-0-3233 Channel 2: P-0-3234
F3140	132	348, 349, 350	P-0-3241 of channels 1 and 2 are different
F3140	133	351, 352, 353	P-0-3242 of channels 1 and 2 are different
F3140	134	336, 337, 338	P-0-3243 of channels 1 and 2 are different
F3140	135	324, 325, 326	P-0-3244 of channels 1 and 2 are different

Display	E-code channel 1 (P3219 [0])	E-code channel 2 (P3219 [1])	Safety technology error
F3140	136		P-0-3245 of channels 1 and 2 are different
F3140	137	354, 355, 356	P-0-3251 of channels 1 and 2 are different
F3140	138	357, 358, 359	P-0-3252 of channels 1 and 2 are different
F3140	139	339, 340, 341	P-0-3253 of channels 1 and 2 are different
F3140	140	327, 328, 329	P-0-3254 of channels 1 and 2 are different
F3140	141		P-0-3255 of channels 1 and 2 are different
F3140	142	342, 343, 344	P-0-3263 of channels 1 and 2 are different
F3140	143	330, 331, 332	P-0-3264 of channels 1 and 2 are different
F3140	144		P-0-3265 of channels 1 and 2 are different
F3140	145	345, 346, 347	P-0-3273 of channels 1 and 2 are different
F3140	146	333, 334, 335	P-0-3274 of channels 1 and 2 are different
F3140	147		P-0-3275 of channels 1 and 2 are different
F3140	350	442, 443, 444	P-0-3302 of channels 1 and 2 are different
F3140	351	450, 451, 452	P-0-3306 of channels 1 and 2 are different
F3140	352	454, 455, 456	P-0-3307 of channels 1 and 2 are different
F3140	353	462, 463, 464	P-0-3311 of channels 1 and 2 are different
F3140	354	466, 467, 468	P-0-3226 of channels 1 and 2 are different
F3140	355	470, 471, 472	P-0-3246 of channels 1 and 2 are different
F3140	356	474, 475, 476	P-0-3256 of channels 1 and 2 are different
F3140	357	478, 479, 480	P-0-3266 of channels 1 and 2 are different
F3140	358	482, 483, 484	P-0-3276 of channels 1 and 2 are different
F3140	368	432, 433, 434	P-0-3235 of channels 1 and 2 are different

Extended Diagnosis (P-0-3219)

Display	E-code channel 1 (P3219 [0])	E-code channel 2 (P3219 [1])	Safety technology error
F3140	369	436, 437, 438	P-0-3236 of channels 1 and 2 are different
F3140	370	446, 447, 448	P-0-3303 of channels 1 and 2 are different
F3140	371	458, 459, 460	P-0-3310 of channels 1 and 2 are different
F3140	372	486, 487, 488	P-0-3304 of channels 1 and 2 are different
F3140		405	P-0-3240 of channels 1 and 2 are different
F3140		406	P-0-3250 of channels 1 and 2 are different
F3140		407	P-0-3260 of channels 1 and 2 are different
F3140		408	P-0-3270 of channels 1 and 2 are different
F3140		396, 400	P-0-3211 (input E1n) of channels 1 and 2 are different
F3140		397, 401	P-0-3211 (input E2n) of channels 1 and 2 are different
F3140		398, 402	P-0-3211 (input E3n) of channels 1 and 2 are different
F3140		399, 403	P-0-3211 (input E4n) of channels 1 and 2 are different
F3140	148	428, 429, 430	P-0-3282 of channels 1 and 2 are different
F3141	3	58	Selection validation error: Signal "BA" of channels 1 and 2 is unequal
F3141	200	59	Selection validation error: Signal "ASP" of channels 1 and 2 is unequal
F3141	201	60	Selection validation error: Signal "ZT" of channels 1 and 2 is unequal
F3141	202	61	Selection validation error: Signal "S1" of channels 1 and 2 is unequal
F3141	203	62	Selection validation error: Signal "S2" of channels 1 and 2 is unequal
F3141	330	195	Selection validation error: Signal "safety related input 1" of channels 1 and 2 is unequal
F3141	331	196	Selection validation error: Signal "safety related input 2" of channels 1 and 2 is unequal
F3141	332	197	Selection validation error: Signal "safety related input 3" of channels 1 and 2 is unequal
F3141	333	198	Selection validation error: Signal "safety related input 4" of channels 1 and 2 is unequal
F3141	334	199	Selection validation error: Signal "safety related output" of channels 1 and 2 is unequal
F3142	35		Activation time of enabling control (P-0-3222) exceeded in special mode safety related motion SBB1
F3142	37		Activation time of enabling control (P-0-3222) exceeded in special mode safety related motion SBB2
F3142	39		Activation time of enabling control (P-0-3222) exceeded in special mode safety related motion SBB3
F3142	41		Activation time of enabling control (P-0-3222) exceeded in special mode safety related motion SBB4
F3142		68	Activation time of enabling control (P-0-3222) exceeded

Display	E-code channel 1 (P3219 [0])	E-code channel 2 (P3219 [1])	Safety technology error
F3142		578	Individual activation time of enabling control (P-0-3246) exceeded when selecting special mode safety related motion SBB1
F3142		579	Individual activation time of enabling control (P-0-3256) exceeded when selecting special mode safety related motion SBB2
F3142		580	Individual activation time of enabling control (P-0-3266) exceeded when selecting special mode safety related motion SBB3
F3142		581	Individual activation time of enabling control (P-0-3276) exceeded when selecting special mode safety related motion SBB4
F3144	53	599	PROFIsafe is not allowed in conjunction with this firmware
F3144	76	173	"Deactivation of acknowledgment support: single acknowledgment" and "master for diagnosis and acknowledgment" (in P-0-3210) configured, this is not allowed
F3144	499	585	Configuration error: Switch drive to P2, clear error and switch to P4 again; C0256 is then signaled with corresponding error code in P-0-3219
F3144		5	As of MPx04: Mode selector was configured twice in P-0-3211
F3144		6	As of MPx04: Drive interlock was configured twice in P-0-3211
F3144		7	As of MPx04: Enabling control was configured twice in P-0-3211
F3144		8	As of MPx04: Reference input was configured twice in P-0-3211
F3144		9	As of MPx04: Safety switch 1 was configured twice in P-0-3211
F3144		10	As of MPx04: Safety switch 2 was configured twice in P-0-3211
F3144		12	As of MPx04: No valid configuration in P-0-3211
F3144		95	PROFIsafe and hardware inputs configured (in P-0-3211), this is not allowed
F3144		184	Mode selector was parameterized in P-0-3211, this is not allowed when using PROFIsafe
F3144		185	Drive interlock was parameterized in P-0-3211, this is not allowed when using PROFIsafe
F3144		186	Enabling control was parameterized in P-0-3211, this is not allowed when using PROFIsafe
F3144		187	Reference input was configured twice in P-0-3211
F3144		188	"Safety switch 1" was parameterized in P-0-3211, this is not allowed when using PROFIsafe
F3144		189	"Safety switch 2" was parameterized in P-0-3211, this is not allowed when using PROFIsafe
F3144		190	"Safety related input 1" was configured twice in P-0-3211
F3144		191	"Safety related input 2" was configured twice in P-0-3211
F3144		192	"Safety related input 3" was configured twice in P-0-3211
F3144		193	"Safety related input 4" was configured twice in P-0-3211
F3144		215	Diagnostic input of redundant holding brake was configured twice in P-0-3211

Extended Diagnosis (P-0-3219)

Display	E-code channel 1 (P3219 [0])	E-code channel 2 (P3219 [1])	Safety technology error
F3144		216	Safety related braking and holding system parameterized, but no diagnostic input was configured for channel 2 in P-0-3211
F3144		490	Configuration error: "Safety related limited absolute position" and "gear independence with safety technology encoder mounted on the load side" not allowed
F3144		491	Configuration error: "Safety related limited absolute end position" and "gear independence with safety technology encoder mounted on the load side" not allowed
F3144		492	Configuration error: "Safety related braking and holding system" and "gear independence with safety technology encoder mounted on the load side" not allowed
F3144		609	Configuration error: Both directions (P-0-3300 bit 9/10) were parameterized as direction input for the brake check
F3144		180, 181, 182, 183	Safety related input 1-4 was parameterized for safety technology 24V EA, this is only possible in conjunction with PROFIsafe
F3144		568, 572	Different monitoring for direction of rotation was parameterized in P-0-3239 and P-0-3240
F3144		569, 573	Monitoring for direction of rotation was parameterized differently in P-0-3239 and P-0-3250
F3144		570, 574	Monitoring for direction of rotation was parameterized differently in P-0-3239 and P-0-3260
F3144		571, 575	Monitoring for direction of rotation was parameterized differently in P-0-3239 and P-0-3270
F3145		67	Diagnostic master with control of safety door. During transition to normal operation the door cannot be locked. Cause: Error in wiring of safety door or short circuit between EA10n, A10, E10 and 24V
F3146		47	Difference in measuring system between incremental and analog system is greater than 1/4 division period
F3146		66	During measuring system evaluation, two active counting edges were detected. The information no longer is unequivocal (position error)
F3146		120, 121	Incorrect encoder signals. Amplitude monitoring
F3146		33, 43, 604, 605	Encoder type is not supported by channel 2
F3147	299		Danger to persons! The firmware used is a test version and the specific safety technology firmware test was not carried out for this firmware. It is only destined for a limited time and restricted applications. Contact our service department.
F3152	47	172, 200	Safety parameters cannot be stored in the safety memory (wrong version) (Invalid parameter set, probably of a previous version)
F7010	9	69	P-0-3243 exceeded in "special mode safety related motion 1"
F7010	14	90	P-0-3253 exceeded in "special mode safety related motion 2"
F7010	19	93	P-0-3263 exceeded in "special mode safety related motion 3"

Extended Diagnosis (P-0-3219)

Display	E-code channel 1 (P3219 [0])	E-code channel 2 (P3219 [1])	Safety technology error
F7010	22	94	P-0-3273 exceeded in "special mode safety related motion 4"
F7011	10	88	P-0-3241 exceeded in "special mode safety related motion 1"
F7011	15	91	P-0-3251 exceeded in "special mode safety related motion 2"
F7012	11	89	P-0-3242 exceeded in "special mode safety related motion 1"
F7012	16	92	P-0-3252 exceeded in "special mode safety related motion 2"
F7013	7	1	P-0-3244 exceeded in "special mode safety related motion 1"
F7013	12	11	P-0-3254 exceeded in "special mode safety related motion 2"
F7013	17	18	P-0-3264 exceeded in "special mode safety related motion 3"
F7013	20	22	P-0-3274 exceeded in "special mode safety related motion 4"
F7020	94	133	P-0-3234 was exceeded
F7021	313	177	P-0-3235 was exceeded
F7021	314	178	P-0-3236 was exceeded
F7021	315, 327		Safety related end position was exceeded: Tracked threshold was exceeded by more than P-0-3232 Position polarity, inverted -> safety related end position, positive Otherwise -> safety related end position, negative
F7021	316, 328		Safety related end position was exceeded: Tracked threshold was exceeded by more than P-0-3232 Position polarity, inverted -> safety related end position, negative Otherwise -> safety related end position, positive
F7021	319, 321		Safety related end position was exceeded: Command values point to forbidden direction Position polarity, inverted -> safety related end position, positive Otherwise -> safety related end position, negative
F7021	320, 322		Safety related end position was exceeded: Command values point to forbidden direction Position polarity, inverted -> safety related end position, negative Otherwise -> safety related end position, positive
F7022	431		Missing feedback or brake controlled with drive enable missing
F7030	194		P-0-0048 > P-0-3233 in safety related operational stop
F7030	197		Operating mode position control: Derived position command value > P-0-3233 in safety related operational stop
F7030	4, 196	97, 98, 265, 266	P-0-3230 exceeded in safety technology function "safety related operational stop"
F7031	5	576	P-0-3232 exceeded in negative direction in "special mode safety related motion"
F7031	6	577	P-0-3232 exceeded in positive direction in "special mode safety related motion"
F7031	588		Positive monitoring of direction of motion has detected motion in negative direction (> P-0-3232)

Extended Diagnosis (P-0-3219)

Display	E-code channel 1 (P3219 [0])	E-code channel 2 (P3219 [1])	Safety technology error
F7031	589		Negative monitoring of direction of motion has detected motion in positive direction (> P-0-3232)
F7031		101	P-0-3232 exceeded in positive direction in "special mode safety related motion 4"
F7031		102	P-0-3232 exceeded in negative direction in "special mode safety related motion 4"
F7031		103	P-0-3232 exceeded in positive direction in "special mode safety related motion 3"
F7031		104	P-0-3232 exceeded in negative direction in "special mode safety related motion 3"
F7031		105	P-0-3232 exceeded in positive direction in "special mode safety related motion 2"
F7031		106	P-0-3232 exceeded in negative direction in "special mode safety related motion 2"
F7031		107	P-0-3232 exceeded in positive direction in "special mode safety related motion 1"
F7031		108	P-0-3232 exceeded in negative direction in "special mode safety related motion 1"
F7040	450	445	Validation error parameterized - effective threshold P-0-3302
F7040	451	453	Validation error parameterized - effective threshold P-0-3306
F7040	452	457	Validation error parameterized - effective threshold P-0-3307
F7040	453	465	Validation error parameterized - effective threshold P-0-3311
F7040	454	469	Validation error parameterized - effective threshold P-0-3226
F7040	455	473	Validation error parameterized - effective threshold P-0-3246
F7040	456	477	Validation error parameterized - effective threshold P-0-3256
F7040	457	481	Validation error parameterized - effective threshold P-0-3266
F7040	458	485	Validation error parameterized - effective threshold P-0-3276
F7040	468	431	Validation error parameterized - effective threshold P-0-3235
F7040	469	435	Validation error parameterized - effective threshold P-0-3236
F7040	470	449	Validation error parameterized - effective threshold P-0-3303
F7040	471	461	Validation error parameterized - effective threshold P-0-3310
F7040	472	489	Validation error parameterized - effective threshold P-0-3304
F7040		324, 325, 326	P-0-3244 of channels 1 and 2 are different
F7040		327, 328, 329	P-0-3254 of channels 1 and 2 are different
F7040		410, 411, 412	P-0-3233 of channels 1 and 2 are different
F7043		295	Output stage cannot be switched on via channel 2 during transition from drive interlock or safety related standstill to a special mode
F7043		267, 500	Output stage cannot be switched on via channel 2 during transition to normal operation
F7050	27		Time for safety related stopping process exceeded during transition to safety related standstill Cause: Actual velocity value > P-0-3233 or drive enable still set

Extended Diagnosis (P-0-3219)

Display	E-code channel 1 (P3219 [0])	E-code channel 2 (P3219 [1])	Safety technology error
F7050	28		Time for safety related stopping process exceeded during transition to drive interlock Cause: Actual velocity value > P-0-3233 or drive enable still set
F7050	32		Time for safety related stopping process exceeded during transition to safety related operational stop (actual velocity value > P-0-3233)
F7050	90		Time for safety related stopping process exceeded (P-0-3220 or P-0-3225) during transition to parameter mode
F7050	91		Time for safety related stopping process exceeded during transition to internal error status "safety related standstill error" (the error reaction could not remove drive enable within the time P-0-3220/P-0-3225)
F7050		601	Configuration error: P-0-0117 = 1 (NC error reaction activated; with F3 error) and transition time (P-0-3220/P-0-3225) parameterized smaller than 30s
F7050		123, 290	Time for safety related stopping process exceeded (P-0-3220) during transition to safety related standstill or drive interlock Cause: Actual velocity value > P-0-3233 or drive enable still set
F7050		134, 288	Time for safety related stopping process exceeded (P-0-3225) during transition to safety related standstill or drive interlock Cause: Actual velocity value > P-0-3233 or drive enable still set
F7050		144, 285, 557	Time for safety related stopping process exceeded (P-0-3220) during transition to safety related operational stop Cause: Actual velocity value > P-0-3233
F7050		145, 286	Time for safety related stopping process exceeded (P-0-3225) during transition to safety related operational stop Cause: Actual velocity value > P-0-3233
F7051	411		Safety related braking and holding system: When decelerating with "velocity command value reset with ramp and filter", the deceleration ramp has fallen below the value set in P-0-3282
F7051	205, 208, 217		In the safety technology function "safety related standstill", the deceleration ramp has fallen below the value set for safety related monitored deceleration (P-0-3282)
F7051	206, 209, 218		In the safety technology function "safety related operational stop", the deceleration ramp has fallen below the value set for safety related monitored deceleration (P-0-3282)
F7051	207, 210, 219		In the safety technology function "safety related drive interlock", the deceleration ramp has fallen below the value set for safety related monitored deceleration (P-0-3282)
F7051	270, 271, 272		During the transition to "safety related standstill error", the deceleration ramp has fallen below the value set for safety related monitored deceleration (P-0-3282)
F7051		502	During best possible deceleration, drive is not able to come to standstill within P-0-3282
F7051		547	Drive is not able to come to standstill within the parameterized monitoring limits
F7051		559	Drive is not able to come to the special mode motion within the parameterized monitoring limits (P-0-3225 or P-0-3220, P-0-3282)

Extended Diagnosis (P-0-3219)

Display	E-code channel 1 (P3219 [0])	E-code channel 2 (P3219 [1])	Safety technology error
F7051		563	During NC-controlled transition to the special mode standstill [after delay was over (P-0-3226)], drive is not able to come to standstill within the parameterized monitoring limits (P-0-3225 or P-0-3220, P-0-3282)
F7051		161, 272, 273	In the function "safety related monitored deceleration during transition from normal operation to safety related standstill/operational stop", drive is not able, within the scope of possible acceleration, to reach standstill within transition time P-0-3220
F7051		162, 274	In the function "safety related monitored deceleration during transition from safety related operation to safety related standstill/operational stop", drive is not able, within the scope of possible acceleration, to reach standstill within transition time P-0-3225
F7051		565, 589	During drive-controlled deceleration, drive is not able to come to standstill within P-0-3282
F8027	113		Drive enable is set in internal error status "safety related standstill error"
F8027	114		Drive enable is set in safety technology function "safety related standstill"
F8027	115		Drive enable is set in safety technology function "drive interlock"
F8027	303		Drive enable is set with "parking axis"
F8134	273		During the transition to "safety related standstill error", deceleration ramp has fallen below the value set in P-0-3282
F8134	405		Safety related braking and holding system: Missing feedback or brake controlled with drive enable missing
F8134	406		Safety related braking and holding system: Missing control of redundant holding brake without drive enable in standstill
F8134	408		Safety related braking and holding system: Missing control of motor holding brake ("P-0-3307, Safety technology - drive off delay time" is running)
F8134		235, 542	Motor brake or redundant holding brake released, although output stage is not active Remedy: Check control of brakes
F8135	205		In the safety technology function "safety related standstill", the deceleration ramp has fallen below the value set for safety related monitored deceleration (P-0-3282)
F8135	207		In the safety technology function "safety related drive interlock", the deceleration ramp has fallen below the value set for safety related monitored deceleration (P-0-3282)
F8135	272	566, 567, 586	During the transition to "safety related standstill error", deceleration ramp has fallen below the value set in P-0-3282
F8135	273		F7 error reaction: During the transition to "safety related standstill error", deceleration ramp has fallen below the value set in P-0-3282
F8135	407		Safety related braking and holding system: Missing control of redundant holding brake without drive enable Cause: Delay by motor holding brake is not sufficient
F8135	410		Time for safety related stopping process exceeded, the error reaction could not remove drive enable within the time P-0-3220/P-0-3225 Remedy: Check parameterization P-0-3220/P-0-3225 and S-0-0207
F8135	412, 413	546	Safety related braking and holding system: When decelerating with "velocity command value reset", the deceleration ramp has fallen below the value set in P-0-3282

Display	E-code channel 1 (P3219 [0])	E-code channel 2 (P3219 [1])	Safety technology error
F8135		592	After an F7 error has occurred, the drive accelerates in spite of velocity command value reset Cause: Possibly commutation error
F8201		5	Up to MPx03: Mode selector was configured twice in P-0-3211
F8201		6	Up to MPx03: Drive interlock was configured twice in P-0-3211
F8201		7	Up to MPx03: Enabling control was configured twice in P-0-3211
F8201		8	Up to MPx03: Reference input was configured twice in P-0-3211
F8201		9	Up to MPx03: Safety switch 1 was configured twice in P-0-3211
F8201		10	Up to MPx03: Safety switch 2 was configured twice in P-0-3211
F8201		12	Up to MPx03: No valid configuration in P-0-3211
F8201		159	Version of safety memory does not match firmware Remedy: Load defaults procedure command and then reload and store safety technology parameters

Fig.11-1: Extended diagnosis with P-0-3219

12 Handling, Diagnostic and Service Functions

12.1 Replacing the Firmware

See Functional Description of firmware "Replacing the Firmware"

12.2 Firmware Download

The firmware download is carried out with the auxiliary program "Loader". The loader is either

- activated via the valid firmware available in the device, if firmware update is to be carried out.

- or -

- activated directly via the control section, if there isn't any valid firmware available in the device.

The list below contains the causes of invalid firmware in the device:

Cause	Remedy
Firmware download via IndraWorks or Dolfi aborted (e.g. computer crash or cable removed during download) **- or -** Firmware replacement via MMC aborted (MMC was removed) **- or -** Voltage failure during firmware replacement	Firmware must be reloaded via serial connection (IndraWorks) (see Functional Description "Replacing the Firmware")
Device-internal, non-volatile flash memory defective	Replace drive controller

12.3 Messages During the Firmware Download

The active loader appears on the display. It precedes the download status display:

- **LD: ?????**: the loader of the control section is active
- **FL: ?????**: the loader of the firmware is active

☞ Explanation of the messages displayed during firmware download:
XX: ????? = active loader : download status

During error-free firmware download, the following diagnostic messages are displayed:

XX: DL

XX: ERASE

XX: PROG

XX: CKS

12.4 FL: DL

Brief Description: Download -> Shutdown carried out successfully

A shutdown was carried out.

FL: DL: The firmware loader is active.

LD: DL: The loader in the control section is active.

☞ You can only exit the shutdown mode by rebooting (requested via the master communication or by switching the drive off).

12.5 FL:ERASE

Brief Description: Clearing active

The loader (**FL:ERASE** = firmware loader, **LD:ERASE** = loader in control section) is in the clearing mode. The requested memory range / module is being cleared.

12.6 FL: PROG

Brief Description: Programming active

The loader (**FL:PROG** = firmware loader, **LD:PROG** = loader in control section) is in the programming mode. The transmitted data are written to the requested address in the memory range / module.

12.7 FL: CKS

Brief Description: Checksum calculation active

The checksum calculation is active. Subsequent to the calculation a comparison with the stored checksums is run.

☞ "**FL: CKS**" means firmware loader and "**LD: CKS**" means loader in control section.

12.8 FL:E ADR

Brief Description: Warning: address error

Cause	Remedy
Address read from IBF file is outside of allowed range	Please contact our service department

☞ "**FL:E ADR**" means firmware loader and "**LD:E ADR**" means loader in control section.

12.9 FL:E SEC

Brief Description: Warning: range error

Cause	Remedy
Data in IBF concerning memory range (firmware, loader, boot kernel) are incorrect	Please contact our service department

☞ "**FL: SEC**" means firmware loader and "**LD: SEC**" means loader in control section.

12.10 FL:E FW

Brief Description: Warning: no valid firmware available

Cause	Remedy
Firmware module contained in internal memory is defective, therefore clearing of loader is impossible	Carry out firmware update (by means of "Dolfi" program or by starting command "P-0-4072, C2900 Command Firmware update from MMC")

☞ "**FL:E FW**" means firmware loader and "**LD:E FW**" means loader in control section.

12.11 FL:E LD

Brief Description: Warning: no valid loader available

Cause	Remedy
Firmware module contained in internal memory is defective, therefore clearing of loader is impossible	Carry out firmware update (by means of "Dolfi" program or by starting command "P-0-4072, C2900 Command Firmware update from MMC") **ATTENTION:** If "Dolfi" is used for carrying out firmware update, it is first necessary to program loader before firmware module can be programmed

☞ "**FL:E LD**" means firmware loader and "**LD:E LD**" means loader in control section.

12.12 FL:E SEQ

Brief Description: Warning: sequence error

Cause	Remedy
Command order was not complied with when drive firmware was programmed	Use auxiliary program "Dolfi" or command "P-0-4072, C2900 Command Firmware update from MMC" for firmware update **– or –** Carry out shutdown before clearing or programming drive firmware
You tried to write to a range with valid checksum	Before writing, clear range to which data are to be written

☞ "**FL:E SEQ**" means firmware loader and "**LD:E SEQ**" means loader in control section.

12.13 FL:F9002

Brief Description: Error: operating system error

See "F9002 Error internal RTOS function call"

12.14 FL:F2100

Brief Description: Error: internal memory defective

See "F2100 Incorrect access to command value memory"

12.15 FL:F CKS

Brief Description: Error: checksum error

Cause	Remedy
Checksums of programmed modules are calculated after firmware update. Calculated and entered checksums were detected to be different	Carry out firmware update again; should error occur again, please contact our service department

☞ "**FL:F CKS**" means firmware loader and "**LD:F CKS**" means loader in control section.

12.16 FL:F ACC

Brief Description: Error: access error

Cause	Remedy
Several possibilities of firmware update (serial **and** MMC) were used **simultaneously**. An access conflict has occurred	Restart firmware update using only one possibility (serial **or** MMC)

☞ "**FL:F ACC**" means firmware loader and "**LD:F ACC**" means loader in control section.

12.17 FL:F2101

Brief Description: Error: MMC defective

See "F2101 It was impossible to address MMC"

12.18 FL:F8122

Brief Description: Error: control section defective

An error occurred during firmware update.

Cause	Remedy
Hardware of control section is defective	Replace control section or entire drive controller; use hardware configuration of same type

☞ Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.

Identical cause / remedy: "F8122 Control section defective"

12.19 FL:F8129

Brief Description: Error: optional module incorrectly programmed

See "F8129 Incorrect optional module firmware"

12.20 FL:F8130

Brief Description: Error: optional safety module 2 incorrectly programmed

See "F8130 Firmware of option 2 of safety technology defective"

12.21 FL:F8120

Brief Description: Error: firmware does not support hardware

See "F8120 Invalid control section/firmware combination"

13 Notes for Machine Operators

13.1 General Information

Time-consuming debugging attempts and repair of drive components at the machine cannot be accepted due to the production downtimes this implicates.

The modularity of the Rexroth AC drives allows replacing individual drive components. In case servicing becomes necessary, you can confine yourself to locating errors at the motor, at the drive controller or at the supply unit and to replacing the respective component.

☞ Repeated adjustments are not required.

13.2 Diagnosing Malfunction and Removing Errors

Diagnosing Malfunction

The supply unit signals operating states, warnings or errors via the display at the front of the device.

Prerequisites for diagnosing failures are that the control voltage +24 V is within tolerance and the processors in the supply unit and the drive controllers are working without error.

Resetting an Error

Stored error messages have to be reset before the device is ready for operation again. An error can be reset by

- pressing the "ESC" key at the control panel for starting the RESET command (cf. "S-0-0099, C0500 Reset class 1 diagnostics") or
- switching off the control voltage supply
- RESET command via the module bus (by drive)

CAUTION

Destruction of the supply unit when power is switched on and a drive controller is defective!

⇒ After having reset an overcurrent error and after having replaced a defective supply unit, the error memories of the drive controllers have to be read before the supply unit is switched on again.

Replacing Defective Drive Components

If a defective component has to be replaced, the following aspects have to be observed:

- Only Rexroth service engineers or especially trained users are allowed to replace the control section. The replacement of the entire drive controller is described in the Project Planning Manual for the power section.
- Only Rexroth service engineers are allowed to replace optional modules of the control section.
- The replacement of the supply unit is described in the Project Planning Manual for supply units and power sections.
- In case devices fail within the warranty period, the defective components have to be returned to Bosch Rexroth; for addresses and telephone numbers please see the printed documentation (chapter "Service and Support") or the Internet (http://www.boschrexroth.com).

Checks and Repairs

If checks or repairs are required, the following applies:

- Checks and repairs may only be carried out by the Rexroth service department or by especially trained staff.
- For checks at the installation, the corresponding safety regulations have to be complied with.

Notes for Machine Operators

- Repair of drive components at the machine can be very time-consuming. For this reason, replace defective drive components completely.

WARNING

Danger to persons and damage to machines can arise from the removal of malfunction!

⇒ Only have malfunction removed by especially trained staff.

⇒ Do not put protective devices out of operation.

⇒ Observe the Safety Instructions for Electric Drives and Controls in the homonymous chapter.

13.3 Contacting the Service Department

If you would like to contact our service department, we ask you to have the following information ready in order to facilitate quick and purposeful handling:

- Type data and serial numbers of devices and motors
- Failure condition
- Diagnostic display, if available
- Software versions, if necessary

For addresses and telephone numbers please see the printed documentation (chapter "Service and Support") or the Internet (http://www.boschrexroth.com).

14 Notes for Installation Programmers

14.1 How to Handle Command Errors

If an error occurs during the execution of a command, the respective command error is generated by the drive.

The are several possibilities of diagnosing a command error:

- Evaluate the command change bit in "P-0-0115, Device control: status word"
- Evaluate "S-0-0390, Diagnostic message number" which contains the error message as a number (e.g. C0201)
- Evaluate "S-0-0095, Diagnostic message" which contains the error message as ASCII text (e.g. "C0201 Invalid parameters (->S-0-0423)")
- Evaluate the command status (see Functional Description "Command Processing")

A command error cannot be removed by "clearing errors", but only by completing the corresponding command.

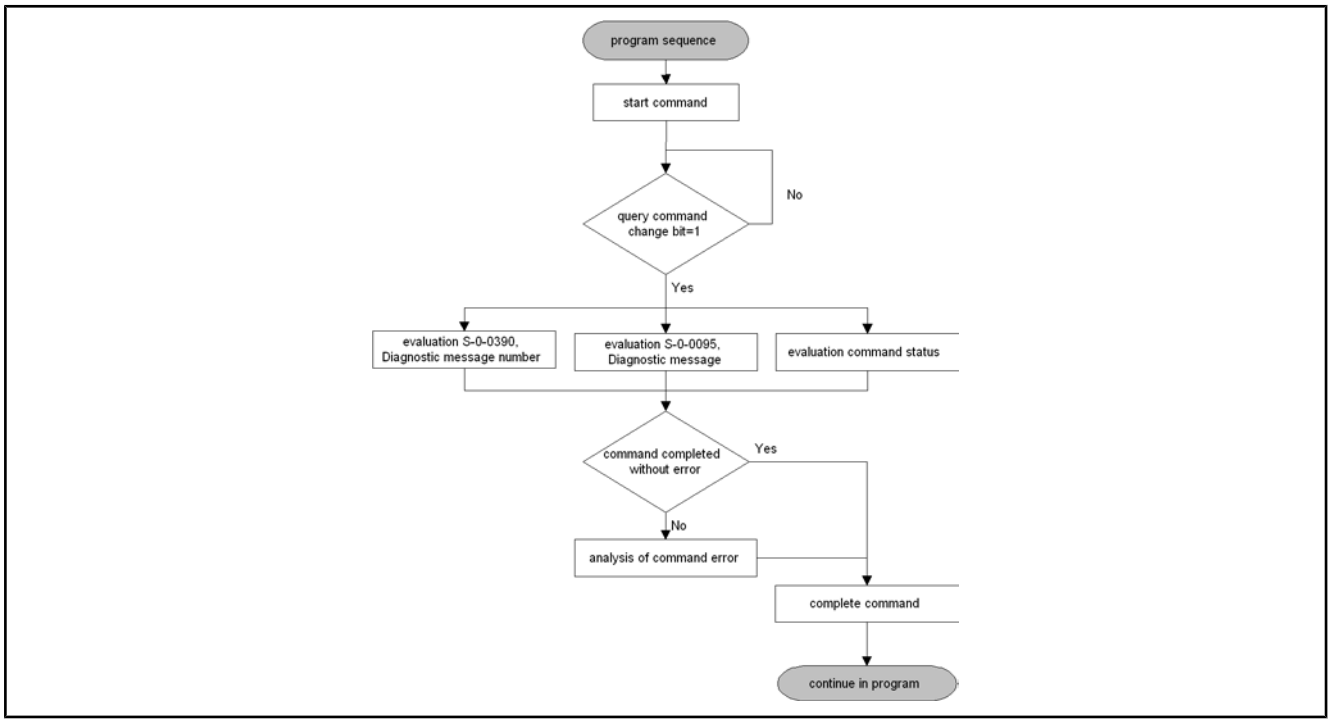


Fig. 14-1: Example of command handling

14.2 How to Handle Errors

If an error occurs while the drive is in operation, the corresponding error reaction is carried out.

The are several possibilities of diagnosing a drive error:

- Evaluate the collective error bit (class 1 diagnostics bit) in the respective master communication status word (e.g. "S-0-0135, Drive status word"; "P-0-4078, Field bus: status word"; "P-0-4028, Device control word")

- Evaluate "S-0-0011, Class 1 diagnostics" in order to obtain the detail information with regard to the cause of the error
- Evaluate "S-0-0390, Diagnostic message number" which contains the error message as a number (e.g. F6034)
- Evaluate "S-0-0095, Diagnostic message" which contains the error message as ASCII text (e.g. "F6034 Emergency-Stop")

☞ Before a drive error is cleared, the cause for the occurrence of the error should be investigated and permanently removed.

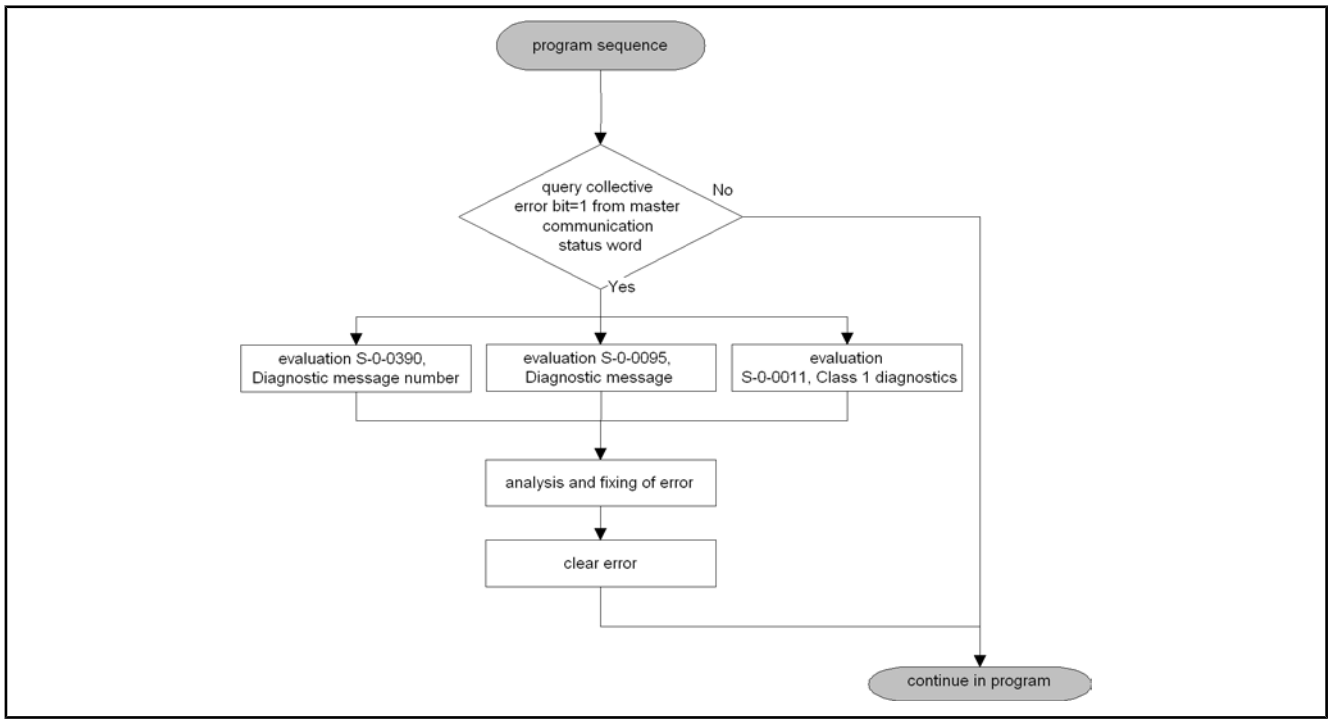


Fig.14-2: Example of error handling

14.3 How to Handle Warnings

If a warning occurs while the drive is in operation, this diagnostic warning message is maintained as long as the condition for the warning has been fulfilled.

The are several possibilities of diagnosing a drive warning:

- Evaluate the collective warning bit (class 2 diagnostics bit) in the respective master communication status word (e.g. "S-0-0135, Drive status word"; "P-0-4078, Field bus: status word"; "P-0-4028, Device control word")
- Evaluate "S-0-0012, Class 2 diagnostics" in order to obtain the detailed information with regard to the cause of the warning
- Evaluate "S-0-0390, Diagnostic message number" which contains the warning message as a number (e.g. E2054)
- Evaluate "S-0-0095, Diagnostic message" which contains the warning message as ASCII text (e.g. "E2054 Not homed")

☞ Warnings cannot be cleared. They persist until the condition that activated the warning is no longer fulfilled. In order to remove the cause of the triggering of the warning, carry out the remedy specified in the description of the respective warning.

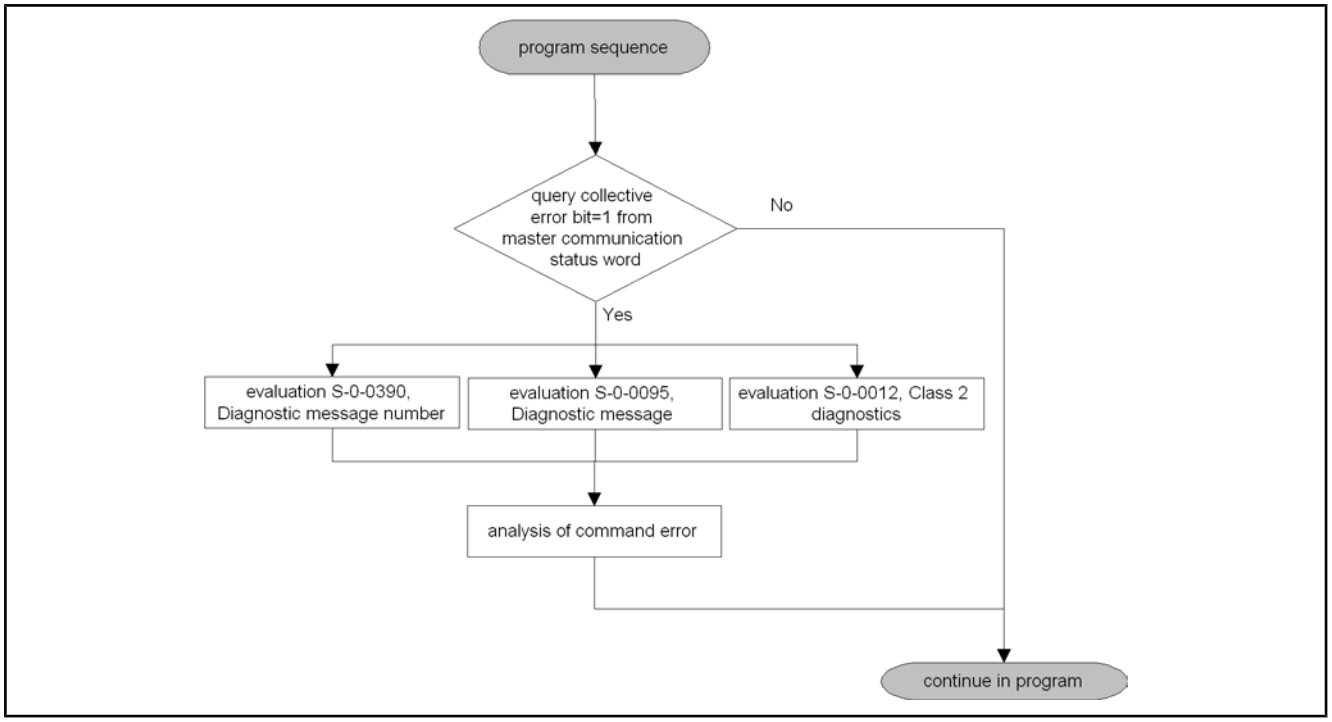


Fig. 14-3: Example of warning handling

☞ For drives with SERCOS master communication, it is only possible to reset the collective warning bit (change bit of class 2 diagnostics) by read-accessing the parameter "S-0-0012, Class 2 diagnostics".

15 Service and Support

15.1 Helpdesk

Our service helpdesk at our headquarters in Lohr, Germany, will assist you with all kinds of inquiries.

Contact us:

- By phone through the Service Call Entry Center,
  Monday to Friday 7:00 am - 6:00 pm CET
  +49 (0) 9352 40 50 60
- By fax
  +49 (0) 9352 40 49 41
- By e-mail: service.svc@boschrexroth.de

15.2 Service Hotline

Out of helpdesk hours please contact our German service department directly:

+49 (0) 171 333 88 26

or

+49 (0) 172 660 04 06

Hotline numbers for other countries can be found in the addresses of each region (see below).

15.3 Internet

Additional notes regarding service, maintenance and training, as well as the current addresses of our sales and service offices can be found on

http://www.boschrexroth.com

Outwith Germany please contact our sales/service office in your area first.

15.4 Helpful Information

For quick and efficient help please have the following information ready:

- Detailed description of the fault and the circumstances
- Information on the type plate of the affected products, especially type codes and serial numbers
- Your phone and fax numbers as well as your e-mail address so we can contact you in case of questions

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