Compact manual

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Read the manual before starting any work!

b maXX®
BM4400, BM4600, BM4700

POWER CONVERSION EQUIPMENT
UL LISTED 38WA

E 5.06014.02
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1 INTRODUCTION

This short instruction serves as an assistance for the mounting of the devices of the series b maXX® BM4400, BM4600, BM4700 with the type designation BM44XX - XXX - XX2XX[Ryy] in a switching cabinet.

Please, take all information for system configuration with b maXX® BM4400, BM4600, BM4700 from the manual b maXX® BM4400, BM4600, BM4700.

This short instruction does not replace the safety instruction nor the manual, but it rather requires knowledge of the safety instruction (document no. 5.04021) and of the manual b maXX® BM4400, BM4600, BM4700 (document no. 5.04043) from the user.

In the packing the Safety Instructions are enclosed. The manual is to be found on the enclosed documentation DVD in the packing.

Documents also can be found in the internet under www.baumueller.de in the area Downloads.

1.1 Copyright and trade mark

b maXX® is a registered trade mark of Baumüller Nürnberg GmbH
HIPERFACE® is a registered trade mark of SICK/Stegmann
FUNDAMENTAL SAFETY INSTRUCTIONS

2.1 Legal information

This manual is addressed to technical qualified personnel, who is specifically skilled and who is thoroughly familiar with all warnings and maintenance procedures.

The user is responsible for the execution of service and commissioning according to the safety notes of the prevailing standards and other relevant national and local instructions concerning conductor dimensioning and protection, grounding, disconnector, overcurrent protection and so on.

For damages, which result from the mounting or from the connection, the one is liable, who has carried out the mounting or the installation.

WARNING

The following may occur, if you disregard these safety notes:
- serious personal injury
- death

All persons, who work with this device, must know and regard the safety notes and the safety instructions in this manual.

Apart from this, any and all persons who work on this device must additionally know and regard to all regulations and instructions, that are valid at the location.

WARNING

The following may occur, if you disregard these safety notes:
- serious personal injury
- death

*The danger is: electricity.*

Knowledge of manual and of safety instructions.
3.1 Marking of the device - type key

On the type plate (label) you will find, besides others, the type key of the device.

Figure 1: Position of type key label
3.1 Marking of the device - type key

The type key has the form: BM4XXX - XXX - XXXXX[Ryy] - XX. Directly behind the type key is the design code (-XXXX - X - XXX - XXX). The design code contains information, which only is important to Baumüller Nürnberg GmbH.

That’s why in the following table only the type key is explained.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BM4XXX</td>
<td>Device generation</td>
</tr>
<tr>
<td>BM4XXX</td>
<td>Type</td>
</tr>
<tr>
<td>BM4XX</td>
<td>4: Vector controller with and without encoder feedback (closed loop / open loop)</td>
</tr>
<tr>
<td>BM4X</td>
<td>5: for M-controller oder V-controller developed devices, see manual 5.05022</td>
</tr>
<tr>
<td>BMX</td>
<td>6: Vector controller like 4, but optimized for max. peak current</td>
</tr>
<tr>
<td>BMX</td>
<td>7: Vector controller like 4, but optimized for max. nominal current</td>
</tr>
<tr>
<td>BM4XX</td>
<td>Size of cabinet</td>
</tr>
<tr>
<td>BM4XX</td>
<td>1 to 7 (from cabinet size 1 there are two different wide versions)</td>
</tr>
<tr>
<td>BM4XX</td>
<td>Current grading (output rated current)</td>
</tr>
<tr>
<td>BM4XX</td>
<td>0 to 6 (current value is dependent on the cabinet size), see appendix D</td>
</tr>
<tr>
<td>BM4XX</td>
<td>Cooling type</td>
</tr>
<tr>
<td>BM4XX</td>
<td>S: air-cooled with air supply and with air outlet in the control cabinet</td>
</tr>
<tr>
<td>BM4XX</td>
<td>A: air-cooled with air supply and with air outlet outside the control cabinet</td>
</tr>
<tr>
<td>BM4XX</td>
<td>Z: water-cooled with water cooler in the control cabinet</td>
</tr>
<tr>
<td>BM4XX</td>
<td>F: water-cooled with water cooler outside the control cabinet</td>
</tr>
<tr>
<td>BM4XX</td>
<td>C: (cold plate) cooling via mounting wall of the control cabinet</td>
</tr>
<tr>
<td>BM4XX</td>
<td>Mains type</td>
</tr>
<tr>
<td>BM4XX</td>
<td>T: TN- or TT-mains</td>
</tr>
<tr>
<td>BM4XX</td>
<td>I: IT-mains and ‘grounded delta’</td>
</tr>
<tr>
<td>BM4XX</td>
<td>Safety relay</td>
</tr>
<tr>
<td>BM4XX</td>
<td>0: no module</td>
</tr>
<tr>
<td>BM4XX</td>
<td>1: Module with one relay and high power current contacts</td>
</tr>
<tr>
<td>BM4XX</td>
<td>2: Module with two relays and high power current contacts</td>
</tr>
<tr>
<td>BM4XX</td>
<td>3: Module with one relay and low current contacts</td>
</tr>
<tr>
<td>BM4XX</td>
<td>4: Module with two relays and low current contacts</td>
</tr>
<tr>
<td>BM4XX</td>
<td>5: Module with one relay and all current contacts</td>
</tr>
<tr>
<td>BM4XX</td>
<td>6: Module with two relays and all current contacts</td>
</tr>
<tr>
<td>BM4XX</td>
<td>Hardware type/power unit type</td>
</tr>
<tr>
<td>BM4XX</td>
<td>0: Rectifier and inverter with chopper resistor transistor $U_{DC} = 540$ V</td>
</tr>
<tr>
<td>BM4XX</td>
<td>1: Rectifier and inverter with chopper resistor transistor $U_{Mains} = 230$ V ± 10%, $U_{DC} = 310$ V</td>
</tr>
<tr>
<td>BM4XX</td>
<td>2: Power module (only output sided inverter). Operation as power module, $U_{DC} = 540$ V</td>
</tr>
<tr>
<td>BM4XX</td>
<td>3: Rectifier and inverter with chopper resistor transistor $U_{DC} = 540$ V short packaging for BM465X, BM466X, BM475X und BM476X</td>
</tr>
<tr>
<td>BM4XX</td>
<td>Hardware type/controller unit versions</td>
</tr>
<tr>
<td>BM4XX</td>
<td>1: Module in slots A to H pluggable</td>
</tr>
<tr>
<td>BM4XX</td>
<td>2: Modules in slots A to M pluggable</td>
</tr>
<tr>
<td>BM4XX</td>
<td>Hardware type (internal information via Baumüller Nürnberg GmbH)</td>
</tr>
<tr>
<td>BM4XX</td>
<td>0XX: Controller without 7-segment display (RS 485 interface)</td>
</tr>
<tr>
<td>BM4XX</td>
<td>1XX: Controller without 7-segment display (RS 485 interface)</td>
</tr>
<tr>
<td>BM4XX</td>
<td>2XX: Controller with 7-segment display (RS 485 interface)</td>
</tr>
<tr>
<td>BM4XX</td>
<td>3XX: Controller with 7-segment display (Ethernet interface)</td>
</tr>
</tbody>
</table>
Optional chopper resistor

R16: Chopper resistor with 16 Ω
R10: Chopper resistor with 10 Ω
R05: Chopper resistor with 5 Ω
R03: Chopper resistor with 3 Ω

State of software controller (firmware)

01: Series version 1.x
03: Series version 3.x

NOTE

This type key is only for the basic device without the plug-in modules. Every plug-in module (except the controller) has its own type key.
3.1 Marking of the device - type key
The installation instructions, dimensions and drilling plans of the individual device versions for the configuration are to be taken from the manual.
Figure 2: Mounting instruction BM441X, BM442X-S, BM443X-S/Z, BM463X-S/Z, BM444X-S/Z, BM464X-S/Z

<table>
<thead>
<tr>
<th>Device</th>
<th>BM441X-XXX -XO -X1</th>
<th>BM441X-XXX -X2</th>
<th>BM442X-S</th>
<th>BM443X-S/Z</th>
<th>BM463X-S/Z</th>
<th>BM464X-S/Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - screws</td>
<td>2 x M5</td>
<td>4 x M5</td>
<td>4 x M5</td>
<td>4 x M5</td>
<td>4 x M5</td>
<td>4 x M5</td>
</tr>
<tr>
<td>B - washers</td>
<td>2 x (5.3 x 10)</td>
<td>4 x (5.3 x 10)</td>
<td>4 x (5.3 x 10)</td>
<td>4 x (5.3 x 10)</td>
<td>4 x (5.3 x 15)</td>
<td>4 x (5.3 x 15)</td>
</tr>
<tr>
<td>C - mount spacing</td>
<td>c = 5 mm</td>
<td>c = 5 mm</td>
<td>c = 5 mm</td>
<td>c = 5 mm</td>
<td>c = 5 mm</td>
<td>c = 5 mm</td>
</tr>
</tbody>
</table>
Figure 3: Mounting instruction BM445X-S/Z, BM465X-S/Z, BM446X-S/Z and BM466X-S/Z

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A - screws</td>
<td>4 x M8</td>
<td>4 x M8</td>
<td>4 x M8</td>
<td>4 x M8</td>
</tr>
<tr>
<td>B - washers</td>
<td>4 x (8.4 x 17)</td>
<td>4 x (8.4 x 17)</td>
<td>4 x (8.4 x 17)</td>
<td>4 x (8.4 x 17)</td>
</tr>
<tr>
<td>C - mount spacing</td>
<td>c = 7 mm</td>
<td>c = 7 mm</td>
<td>c = 7 mm</td>
<td>c = 7 mm</td>
</tr>
</tbody>
</table>
**Figure 4:** Mounting instruction BM447X-A/F and BM477X-FXX-3XXXX

<table>
<thead>
<tr>
<th>Device</th>
<th>BM447X-S/A</th>
<th>BM447X-F</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - screws</td>
<td>38 x M6</td>
<td>22 x M6</td>
</tr>
<tr>
<td>B - conical spring washers</td>
<td>38 x DIN6796-6-FST</td>
<td>22 x DIN6796-6-FST</td>
</tr>
<tr>
<td>C - washers</td>
<td>38 x (6.4 x 12.5)</td>
<td>22 x (6.4 x 12.5)</td>
</tr>
</tbody>
</table>
### Figure 5: Mounting instruction ‘miscellaneous’

<table>
<thead>
<tr>
<th>Device</th>
<th>BM454X-A/F/Z/C</th>
<th>BM443X-A/F/C</th>
<th>BM444X-A/F</th>
<th>BM445X-A/F</th>
<th>BM446X-A/F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BM463X-A/F</td>
<td>BM464X-A/F</td>
<td>BM465X-A/F</td>
<td>BM466X-A/F</td>
<td></td>
</tr>
<tr>
<td>A - screws</td>
<td>4 x M5</td>
<td>14 x M4</td>
<td>16 x M5</td>
<td>16 x M8</td>
<td>20 x M8</td>
</tr>
<tr>
<td>B - washers</td>
<td>4 x (5.3 x 10)</td>
<td>14 x (4.3 x 9)</td>
<td>16 x (5.3 x 15)</td>
<td>16 x (8.4 x 17)</td>
<td>20 x (8.4 x 17)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Device</th>
<th>BM465X-FXX-3XXXX</th>
<th>BM466X-FXX-3XXXX</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BM475X-FXX-3XXXX</td>
<td>BM476X-FXX-3XXXX</td>
</tr>
<tr>
<td>A - screws</td>
<td>18x M6</td>
<td>18 x M8</td>
</tr>
<tr>
<td>B - washers</td>
<td>18 x (6,4x17)</td>
<td>18 x (8,4x21)</td>
</tr>
</tbody>
</table>

**NOTE**

At the types BM4XXX-F and BM4XXX-Z, which have got water cooling, do not forget to connect the cooling circuit to the heat sink on the reverse side of the devices.
The important data for the dimensioning of the electric connections are to be found in the manual.
Figure 6: Connection diagram with a directly controlled motor brake
Additional relay is necessary only if the voltage of the brake is ≠24V, if the current of the brake is greater than the switching capacity of X101 or if you consider UL508C and the current of the brake is greater 4 A. Perhaps consider a limited operating voltage range of the brake because of the internal voltage drop to max. 2.6 V.

Figure 7: Connection diagram with motor brake controlled via an additional relay.
** is only valid for BM444X, BM445X and BM446X accordingly the cooling versions S and A. for BM447X cooling type -A:

![Connection diagram](image)

** The power supply at X100 or X101 must be fused external. At the selection of the fuse you must consider the cross-section of the connecting cable and the maximum allowable load capacity.

In case you consider UL 508 C, you must limit the power supply to 100 W or fuse it with a UL-listed 4 A fuse.

Ba- ... 1D1 Connections for chopper resistor and DC link, see Figure 9 on page 23 and the following.

R_B Chopper resistor

PE....1W1 Mains connection, see Figure 9 on page 23 ff.

S1 Fuses (circuit cable + device)

S2 Fuse (fan) *)

L1 Mains choke (not necessary for BM441X and BM442X except BM4426)

L2 Mains filter

X1 Serial interface (RS 232), see Figure 18 on page 32.

X3 Connections for ready-for-use, quickstop, pulse enable, see Figure 18 on page 32.

X36 Connections for fan (only BM444X-S/-A, BM445X-S/-A, BM446X-S/-A, BM447X-A)

X100 Connections for 24 power supply, further information see Figure 18 on page 32 (SELV/PELV)

X101 Connections for brake, motor temperature, see Figure 9 on page 23 and the following (SELV/PELV)

X102 Connections of the safety relay, see Figure 9 on page 23 and the following (SELV/PELV)

X103 Connections of the optional, second safety relay (only BM443X - BM447X)

A:X1 Encoder module, see manual 5.01042 (SELV/PELV)

ENC Encoder

BRE Brake

PE....1W2 Connections for motor, see Figure 9 on page 23 ff.
5.2 Connection diagrams

NOTE
When having a switched-off safety relay, it is not possible at BM441X and BM442X to use a chopper resistor.

The electrical connections for devices **BM4412** and **BM4413** are shown in the following figure:

![Connection Diagram](image)

Figure 9: Electrical connections for mains, motor, upon others for BM4412 and BM4413
The electrical connections for device **BM4414** are shown in the following figure:

Figure 10: Electrical connections for mains, motor, upon others for BM4414
The electrical connections for device BM442X are shown in the following figure:

Figure 11: Electrical connections for mains, motor, upon others for BM442X
The electrical connections for device BM443X and BM463X are shown in the following figure:

Figure 12: Electrical connections for mains, motor, upon others for BM443X and BM463X
The electrical connections for device **BM444X and BM464X** are shown in the following figure:

![Diagram of electrical connections](image)

Figure 13: Electrical connections for mains, motor, upon others for BM444X and BM464X

*) only BM444X-S/-A
The electrical connections for the devices **BM445X, BM465X, BM446X** and **BM466X** are shown in the following figure:

![Connection Diagram](image-url)

**NOTE**

The chopper resistor is connected at the devices BM445X and BM446X between Ba- and 1C1.

Also see >Figure 6< on page 20.
The electrical connections for the device **BM466X** and **BM476X** are shown in the following figure:

Figure 15: Electrical connections for mains, motor, upon others for BM466X and BM476X
The electrical connections for the device **BM4755** are shown in the following figure:

**Figure 16:** Electrical connections for mains, motor, upon others for BM4755
The electrical connections for the device **BM447X** and **BM4773** are shown in the following figure:

Figure 17: Electrical connections for mains, motor, upon others for BM447X and BM4773

*)only BM447X-/-A
Figure 18: Connection X100 and connections of the controller unit

- X100-1: +24V (SELV/PELV)
- X100-2: +24V (SELV/PELV)
- X100-3: Mains on (bus) (SELV/PELV)
- X100-4: Chopper resistor (SELV/PELV)
- X100-5: M24V (SELV/PELV)
- X100-6: M24V (SELV/PELV)

- UH1: green: Programmable LED
- yellow: Programmable LED
- UH2: green: Programmable LED
- yellow: Programmable LED
- H1: green: Torque direction1
- yellow: Torque direction2
- H2: green: Enable
- yellow: Power ON
- H3: red: Current limit reached
- H4: red: Error

- X4: reserved

- 1: reserved
- 2: TxD RS232
- 3: RxD RS232
- 4: DTR, DSR
- 5: Grounding
- 6: DTR, DSR
- 7: RTS
- 8: CTS
- 9: reserved

- X2: Connection for Baumüller memory module PSI

- X3-1: BB on (NO) (SELV/PELV)
- X3-2: BB on (middle selector switch)
- X3-3: Reference potential for 4 and 5
- X3-4: Quickstop (SELV/PELV)
- X3-5: Pulse enable (SELV/PELV)
- X3-6: BB on (NC) (SELV/PELV)
COMMISSIONING

In this chapter we describe an exemplary commissioning of a bmaXX® device with a Baumüller motor DS 56-M with sine-cosine encoder. Carry out the commissioning, to make sure that the delivered devices are in an accordingly condition. This commissioning is not for the complete installation of the device for your application.

6.1 Requirements to the executing personnel

The personnel, who is assigned for commissioning, must have enough knowledge about:

- Safety technology
- PC-operation (windows), especially in the program WinBASS II (up to FW 3.09) or ProDrive (from FW 3.07).
- Connection and operating method of the device b maXX® 4400.
6.2 Preconditions

The commissioning is an exemplary checking of the functionality of the device. When commissioning, your assure yourself if the device is ready for operation.

Commissioning with Baumüller-motors

The, furthermore described, exemplary commissioning is specified to Baumüller motors. In order to reduce your scope of work, you are provided with a motor database, within the operating software WinBASS II, which provides the most values automatically (reads out), so that you can concentrate on the checking of the values.

If you, however, choose another configuration (e. g. another encoder), you must enter more values yourself, because the reading of the data isn’t completely available anymore.

Commissioning of motors of other manufacturers

Motors of other manufacturers we have not included into the motor data base. In this case you must feed all values yourself. However, it is possible to include these motors into the motor database.

6.3 Preparations

Precondition for the commissioning is that mounting and installation are correctly executed.

1 Assure, that mounting is correctly executed and especially that all safety instructions were referred to (see mounting in manual of b maXX® 4400).

NOTE

Figures referring to the next working steps are to be found in the manual of the basic unit b maXX4400.

2 Assure, that the installation is correctly executed, and that especially all safety instructions were referred to.

3 WinBASS II must be installed onto the PC/laptop. The controller firmware versions, which are supported by WinBASS II / ProDrive are to be found in WinBASS II / ProDrive Online-Help in the menu ‘User indications/supported b maXX devices’.

NOTE

The controller firmware versions, which are supported by WinBASS II / ProDrive are to be found in the WinBASS II / ProDrive Online Help in the menu ‘User indications/Supported b maXX® devices’, or on the WinBASS II / ProDrive CD in the readme file under ‘User indications/Supported b maXX® devices’.

At commissioning you can among other things enter motor- and encoder data in the operating software or wrong values can be corrected. In order, to carry out commissioning efficiently, it is advantageous, if you have all data when starting with commissioning. Data for Baumüller motors can be found within the operating software in form of a ‘motor database’.

4 Assure, that you have all necessary data.
Motor data (type plate)

This data is, e.g. on the type plate of the motor, which you use when commissioning.

<table>
<thead>
<tr>
<th>Name</th>
<th>Value, e.g.</th>
<th>Is required for input parameter list/parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor type, -designation</td>
<td>DS 56-M</td>
<td>Parameter list/configuration motor</td>
</tr>
<tr>
<td>Rated voltage $U_N$</td>
<td>330 V</td>
<td>Parameter list/configuration motor</td>
</tr>
<tr>
<td>Rated current $I_N$</td>
<td>4.0 A</td>
<td>Parameter list/configuration motor</td>
</tr>
<tr>
<td>Rated speed $n_N$</td>
<td>3000 RPM</td>
<td>Parameter list/configuration motor</td>
</tr>
</tbody>
</table>

In this example we are using the motor data base, the values from the chart then only serve as a purpose of control.

Motor data (data sheet)

This data is to be found on the data sheet of the motor, which you use when you are commissioning.

<table>
<thead>
<tr>
<th>Name</th>
<th>Value, e.g.</th>
<th>Is used to enter parameter list/parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limit current $I_{peak}$</td>
<td>14.3 A</td>
<td>Parameter list/configuration motor</td>
</tr>
<tr>
<td>Number of pole pairs</td>
<td>3</td>
<td>Parameter list/configuration motor</td>
</tr>
<tr>
<td>Max. Speed $n_{max.}$</td>
<td>6000</td>
<td>Parameter list/configuration motor</td>
</tr>
<tr>
<td>Pole position, if specified</td>
<td>240°</td>
<td>Parameter list/configuration motor</td>
</tr>
</tbody>
</table>

1) You can also let the notch position be determined by WinBASS II / ProDrive (see > Find notch position on page 54).

Encoder data (data sheet)

This data you will find on the data sheet of the encoder, which you use during commissioning.

<table>
<thead>
<tr>
<th>Name</th>
<th>Value, e.g.</th>
<th>Is used to enter parameter list/parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encoder type</td>
<td>SinCos-encoder Stegmann SRS 50/60</td>
<td>at sine-cosine encoders with HIPERFACE® interface the encoder type is automatically entered via the HIPERFACE® interface</td>
</tr>
<tr>
<td>PPR count</td>
<td>1024</td>
<td>Parameter list/configuration encoder/ BM_u_Enc1PulsesPerRev</td>
</tr>
<tr>
<td>Encoder type</td>
<td>Resolver</td>
<td>-</td>
</tr>
<tr>
<td>PPR count</td>
<td>1</td>
<td>Parameter list/configuration encoder/ BM_u_Enc1PulsesPerRev</td>
</tr>
</tbody>
</table>

5 Assure, that the motor fulfills the following conditions:
- equipped with a suitable encoder, in our example: Resolver or SinCos encoder SRS50
- connected to b maXX® 4400
- Ready-to-operate

6 Make sure, that switching elements for pulse enable and quickstop clearance are connected to b maXX4400 (e.g. in a switchboard) and are operating. Assure, that the switches are in off-position (inactive).

7 Assure, that all safety devices are connected line- and motor sided and are ready-to-operate.
Preparations

8 Assure, that the encoder for motor control (resolver or sine-cosine encoder) is connected with the encoder cable to the encoder module BM4-ENC-01 or BM4-ENC-02 in slot A.

9 If necessary, assure, that the safety relay is plugged in and is connected according to the instructions.

10 Assure, that PC/laptop is connected with a serial cable (RS232/9-pin sub-d connector) to the plug connection X1 of the controller. Start WinBASS II / ProDrive.

NOTE
The company Baumüller Nürnberg GmbH recommends the usage of optically decoupled transmitters (e.g. from the company Ratioplast part no. 901SV232C6095 and part no. 901SV232T6095)
You can get an optically decoupled interface cable as an accessories named programming cable.
After starting the ProDrive Startpage appears. Usually you can proceed as follows.

On the Startpage select ‘Select device’. The window ‘Select device’ appears (see Figure 21 on page 39).

Select the serial interface under (1), where the PC is connected with the b maXX device.

Then select the type of device, b maXX4400 drive under (2).

Then press ‘test’ (3). If an online connection with the b maXX device is generated, then an according session (4) is shown. The shown version and the version of the device have to match. If you press ‘Connect’ (see Figure 22 on page 40) and the versions don’t match the error message ‘version conflict’ will appear. This conflict can be solved by the offered XML data update.

NOTE
In case there is no session for the present controller firmware version you need an update for the WinBASS II / ProDrive program.
NOTE

In case there is a PLC in the b maXX® device a communication with WinBASS II / ProDrive to the controller only can be established, if a project is existing in the PLC!
With a click on 'Ok' (5) the graphically user interface is started. Further notes and explanations are to be found in the online help of the program. This online help is initiated with F1 or under ?/help subjects or on the following starting window with 'help'.

Figure 21: ProDrive: Select device
17 Wait until the following display mask appears and there, click on the 'project tree' button.

![Figure 22: ProDrive: Startpage](image)

18 Click in the ProDrive Navigation on 'power unit'.

![Figure 23: ProDrive: Navigation](image)
The following survey shows commissioning schematically. The individual steps of the commissioning you will find described in detail in "Executing commissioning" from page 43.

**NOTE**

If your device has not got a safety relay, pass over the steps 5, 6, 13 and 14 of the starting sequence (see Figure 24).
6.5 Executing commissioning

Start with the commissioning, after you have completed the preparations.

1 Effectuate the power supply to the b maXX® (supply voltage + control voltage).
Hereupon the device starts up and shows its operational readiness by flashing of the orange-colored LED H-2 (Power ON).
- LED H-2 must light up orange, this means Power ON, the device is ready-to-operate.
- LED H-2 may not light up green: The green shining LED H-2 signified ‘operation enabled’! The motor is power supplied and can rotate! Immediately cancel this with the switch element pulse enable or quickstop enable!
- LED H-3; the red luminous LED means current limit reached. Reduce the load of the motor. Continue the parameterization.
- LED H-4; a red flashing LED signifies a state of error. Later the error is removed with the help of the operating program WinBASS II / ProDrive. Continue the parameterization.

2 Now plug on the (RS232-)cable connector from the PC/laptop to the controller at the bmaXX®.
The communication between the processor and the b maXX® runs through the connection cable.

3 Start WinBASS II (up to FW 3.09) or ProDrive (from FW 3.07), as far as it isn’t running yet.

NOTE
In case you get an error message referring a plug-in module, then please first check if the plug-in module is accurately cabled and if need be, is supplied with voltage.
6.5 Executing commissioning

Warnings/reset errors

4 Then click on 'drive management'

![ProDrive: Navigation](image)

5 Activate the voltage supply for the safety relay (in case a safety relay exists).
6 „Acknowledge“ existing warnings/errors in the window „Device management“ (if necessary press the button „Acknowledge messages“ several times).

Figure 26: ProDrive: Drive Manager

**NOTE**
Because of the manifold combination possibilities of motors and encoders we will only give one example. Enter the given data of motor and encoder!
7 Click on ‘power unit’.

8 The current, which is necessary for your application is entered in ‘Maximum current of the drive’, the maximum is the limit current of the motor (according to data sheet): 2.5 A in order to operate the motor and the power unit.
Parameterize encoder

Now parameters still have to be entered for the encoder.

9 Go back to the ProDrive Navigation.
10 Click on the tab ‘Startpage’

On the Startpage you can see, at which slot the encoder module is plugged in (resolver - BM4-ENC-01 or sine-cosine - BM4-ENC-02).

![ProDrive - Service - b maXX 4400](image)

Figure 29: ProDrive: Startpage

11 Check, if the plug-in modules were detected correctly.

CAUTION

The following may occur, if you disregard these safety notes:

- Property damage

The danger is: errors in the hardware identification. The device in which the b maXX® 4400 is installed, can be damaged or can work defective, if a module or more modules were not recognized or were recognized wrong.

Cancel commissioning, if at least one plug-in module was not or was wrong recognized. Contact Baumüller Nürnberg GmbH.

12 Go back to the ProDrive Navigation.
13 Double-click on ‘encoder’.
14 Click on 'encoder1' if your encoder module is in slot A. Click on 'encoder2' if your encoder module is in slot B.

The window 'encoder1-configuration' opens.

![Encoder 1 configuration](image)

15 When using a resolver or sine-cosine encoder without HIPERFACE®-interface. With a sine-cosine encoder with HIPERFACE-interface the data is automatically transferred over the HIPERFACE-interface - do not change data.

- (1) Resolver: PPR count = 1, sine-cosine without HIPERFACE® e.g. PPR count = 1024
- (2) Resolver: rotations = 1, sine-cosine without HIPERFACE® e.g. rotations = 1
- both encoders: activation (activate encoder)

Enter overspeed limit manually in block 'speed threshold'.
16. Change to the ProDrive Navigation and there click on 'motor'.

![ProDrive: Navigation](image1)

**Figure 31:** ProDrive: Navigation

17. Click in the motor window on the button 'Motor database'.

![Motor database](image2)

**Figure 32:** ProDrive: Motor database

18. The following window appears

![Motor database window](image3)

**Figure 33:** ProDrive: Selection of the motor

19. In this window you enter with:
   - the motor nominal voltage: "540 V"
   - the motor type: 'DS 56-S'
   - the nominal speed: '6000 rev/min'
   - the maximum speed is automatically taken over from the value for basic speed.
6.5 Executing commissioning

NOTE
The values for the nominal speed and the maximum speed are the same at synchronous motors and therefore, at choice of nominal speed, are taken over into the maximum speed.
At asynchronous motors you must select both values separately. Software for asynchronous motors: in preparation.

20 Activate button OK.
With this all data is taken from the motor database over in the accordant parameters and display fields of WinBASS II / ProDrive.

21 Check all values of the motor with the motor data sheets (this is only a purpose of control, if you use the motor database of Baumüller). When you are using a motor of an other manufacturer, you must do this anyway).

NOTE
When you use a motor of an other manufacturer, you can also take his data into the motor database.

Motor data change
Normally, you will find no deviations between the motor data sheet and the automatically from the motor database taken values.
In case, you want to change values, you have got to do the following:
22 Click on the tab 'startpage'. On the start page you enter next to 'enable service operation': Service' and close this input with enter'.
Now you are able to change the so-far write-protected data in the screen menu. If you would like to re-establish the write-protection, then enter with 'off' instead of service'.
23 Click on the ProDrive Navigation of 'motor'.
Check motor data  

In the motor window and in the sub-window synchronous motor or asynchronous motor all important motor data or motor parameters are displayed. Check all data.

Use parameter list  

If you are not using the Baumüller motor database, you can enter all motor parameters also with help of the 'parameter list'.

Click on the tab parameter list.
26 In the parameter list click on 'configuration motor'.

The following motor parameters must be described:
- Maximum speed mech. (P0072 motor maximum speed mechanical)
- Number of pole pairs (P0065 Motor number of pole pairs)
- Rotating field (P0087 Motor rotating field)

Now save the entered data.

27 Click in the icon bar on the icon 'Data set management'.

Figure 35: ProDrive: Parameter list

Figure 36: ProDrive: Data set management
28 Click in the data set management on the button 'save all'.

Figure 37: ProDrive: Data set management

29 Wait until next to 'data set status' is shown: 'o.k.'
Thus the data set is saved in the EEPROM.

30 Turn off the voltage supply for the safety relay (if existing).
31 Disconnect the device from the mains- and the control voltage.
32 Turn on the power supply for the safety relay (if a safety relay is existing)
33 Effectuate the power supply to the b maXX®
(supply voltage + control voltage).

By switching on and off you can check, if your settings lead to warnings or errors.
Find notch position

Now the notch position of the motor still has to be found.

34 Go to the ProDrive Navigation and double-click on 'operating mode', then click on 'find notch position'.

35 Click on the icon 'drive manager dialogue'.

Find notch position

Additionally the window 'drive manager dialogue' appears.

36 Select method 0 for 'mode' (1).

37 Select 'find notch position' in the scroll list (2).

WARNING

The following may occur, if you disregard these safety notes:

- serious personal injury
- death

The danger is: mechanical effects. With a non-free-rotating motor the motor and parts, which are connected to the motor can be damaged/destroyed.

Assure, that the motor can rotate freely during commissioning.

38 Activate the pulse enable and the quickstop clearance.

39 Click on 'start' (3).

40 Wait until the text appears in this field (4): 'notch position was found'.

41 Then click on "Off" (5).
Check if the measured value meets the expected value (6) (at Baumüller motors: resolver: 330°, sine-cosine 240° ± 5°).

Inactivate the pulse enable and quickstop clearance.

With this activity all parameterization workings for an exemplary commissioning are completed. You can now convince yourself from the proper functions, by letting the motor rotate shortly.

First rotating of the motor.

Go back to the ProDrive Navigation.
Double-click on ‘setpoint generators’.
Click on ‘ramp function generator’.

Figure 40: ProDrive: Ramp function generator
47 Enter the values into the following entry fields:
   - (Ramp function generator) input (1)
   - Enter with value ‘10’.
48 In case you have shut the window 'drive manager dialogue': click on the icon 'Drive management'.

Additionally the window ‘drive manager dialogue’ appears.

49 Select in the drive manager dialogue in the scroll list (1) the operating mode ‘speed control’.
50 Activate the pulse enable and the quickstop clearance.
51 Click on the drive manager dialogue menu on the button 'start' (2)
   Now the motor should rotate with 10% of the maximum speed.
52 Click in the drive manager menu on the button ‘off’ (3)
   Now the motor will stop.
53 Inactivate the pulse enable and quickstop clearance.
This data set now should be saved.

54 Click in the icon bar on the icon ‘data set management’.

![ProDrive: Data set management - icon bar](image)

Figure 43: ProDrive: Data set management - icon bar

55 Click in the data set management on the button ‘save all’.

![ProDrive: Data set management](image)

Figure 44: ProDrive: Data set management

56 Wait until next to ‘data set status’ is shown: ‘o.k.’
Thus the data set is saved in the EEPROM.

Drive switch off

57 Turn off the voltage supply for the safety relay (if existing).

58 Separate over the accordant switching elements the device from the mains- and control voltage.
Thus the commissioning is successfully completed.
6.5 Executing commissioning
In this chapter we describe, how the device works during operation and how you handle the device during operation.

7.1 Enable signals

These signals must have a signal level of 24 V (DC) and must be connected to the terminals X3-4 and X3-5 (Figure 18 on page 32).

**Pulse enable**

During operation the signal 'pulse enable' must constantly be created, so that the device supplies power. Additionally the pulse enable has to be done by the controller. Both signals are AND-linked, so the failure of one of these signals results in impulse inhibit of the power unit.

**Quickstop**

Allow the signal 'quickstop' only then, if you must stop the installation/device as quick as possible.

During operation the signal 'quickstop' must constantly be applied, that the device supplies power.

7.2 Switch-on frequency

The device may not be switched on and off as often as you like. Between two switch-on-sequences there should be a certain time period, in order to protect the devices/fuses.

**NOTE**

- refer to the specified waiting time, if you switch on the supply voltage for the device again, after you have switched off the device.

Imperative for the devices **BM441X** and **BM442X** is:

between two switch-on-sequences at least one minute must have passed, before you switch on the device again. In case you switch off the device beforehand, the durability of the device will be shortened.

Imperative for the devices **BM443X, BM444X, BM445X, BM446X** and **BM447X**:  
**No waiting time** has to be complied with.
7.3 Display elements - LED

BM44XX - XXX - XX0XX and BM44XX - XXX - XX1XX:

On the front side of the device there are 4 LEDs. The 4 LEDs (H1 to H4) show information about the operating status and are also displayed in WinBASS II / ProDrive.

BM44XX - XXX - XX2XX:

On the front side of the device there are six LEDs. Both upper LEDs (UH1 and UH2: 2) are freely programmable. The four lower LEDs (H1 to H4) show information about the operating status and are also displayed in WinBASS II / ProDrive.

Figure 18 on page 32 shows the position of the display elements.

### 7.3.1 Operating condition (H1, H2)

Both of the upper LEDs (H1 and H2) indicate, how the device is working at the time.

- **green:** the motor rotates, torque direction 1.
- **orange:** the motor rotates, torque direction 2.

**NOTE**

The LED H1 cannot be taken as rotational direction indicator. It only shows the torque directions.

- **green:** Pulse enable. The motor is power supplied by the power unit.
- **orange:** Power ON, the device is ready-to-operate. In case the LED lights up orange colored during operation, maybe the pulse enable is missing or the quickstop was activated.
- **flashing in turn green/orange:** Pulses for field generation at asynchronous machines enabled. No release for torque generation.
- **green with a short orange-colored flashing or orange with a short green flashing:** Saving procedure active in the EEPROM, if possible do not switch off device in this phase.
7.3.2 Current limit (H3)

The third LED (H-3) indicates whether the current limit has been reached.

- red: adjusted current limit of the controller has been reached.
  - Application is adapted or 'no reaction'.

7.3.3 Error (H4)

LED doesn’t light up: the internal monitoring have not found an error.

- Red, continuously: Error.
  - Remove the error with help of the operating program WinBASS II / ProDrive. Further information is to be found in Error detection and troubleshooting from page 63.
- Red, flashing: Warning.
  - Warnings you are able to see in the drive manager of the operating program WinBASS II / ProDrive. Warnings do not affect operation of the device. Further infor-

7.3.4 Display

The 7-segment-display in normal operation shows the operation status. In case of error the error number is shown.

<table>
<thead>
<tr>
<th>Display</th>
<th>Status</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Not ready-to-start</td>
<td>Initialization phase, pulses inhibited.</td>
</tr>
<tr>
<td>1</td>
<td>Inhibit start</td>
<td>Pulses inhibited, initialization completed error-free.</td>
</tr>
<tr>
<td>2</td>
<td>Ready-to-start</td>
<td>Pulses inhibited</td>
</tr>
<tr>
<td>3</td>
<td>Switched on</td>
<td>Pulses for field generation at asynchronous machines enabled, no torque generation yet.</td>
</tr>
<tr>
<td>4</td>
<td>Operation enabled</td>
<td>Pulses enabled, drive function enabled</td>
</tr>
<tr>
<td>5</td>
<td>Inhibit operation active</td>
<td>Pulses enabled, braking procedure active</td>
</tr>
<tr>
<td>6</td>
<td>Shutdown active</td>
<td>Pulses enabled, braking procedure active</td>
</tr>
<tr>
<td>7</td>
<td>Quickstop active</td>
<td>Pulses enabled, braking procedure active</td>
</tr>
<tr>
<td>E</td>
<td>Error reaction active</td>
<td>Pulses enabled, braking procedure active</td>
</tr>
<tr>
<td>F</td>
<td>Error</td>
<td>Pulses inhibited, error status</td>
</tr>
<tr>
<td></td>
<td>In the display the error number is shown.</td>
<td></td>
</tr>
</tbody>
</table>

The single drive statuses are specified in chapter device management in parameter manual 5.03039.
In the status error the error numbers are shown in the display. Only the errors are shown, which enable an error reaction in the drive or have enabled one. Errors without reaction and also warnings are not displayed.

First of all the display of error no. starts in showing for about 1.5 s „F“. Then, three digits of the error code are displayed. The individual digits are displayed for about 0.8 s, interrupted by a short break. If there are further errors, they are displayed according to the same principle. The procedure recurs, as soon as all errors have been displayed.

Example: Error 125 and 91 are existing:

```
F 125 F 091 F 125
```

If the mains voltage and the 24-volt supply is applied to the device after the electric installation has been completed, then, at least the LEDs should flash and the 7-segment display should show a status.
ERROR DETECTION AND TROUBLE-SHOOTING

8.1 Error detection

In the following we will inform you about the different errors and the consequential error messages. The errors can either be of mechanical or of electrical causes. The devices of the series b maXX® 4400 signal an error status via the lighting up of the lowest red LED H4 on the front side of the cabinet. Additionally the error number is displayed via the 7-segment display on the front side of the cabinet. By the error number the error message can be determined with the help of the error list in this documentation. Furthermore the error message is displayed in the operating software WinBASS II / ProDrive:

- Start the operating program WinBASS II (up to FW 3.09) or ProDrive (from FW 3.07), if it isn’t running yet.

The error message signaled with ‘error’ is to be found in WinBASS II / ProDrive:

- Open a list in the project tree by clicking on the + in front of ‘management’.
- Select from this list ‘Device management’.

**NOTE**

If you are not able to start the motor, although the red LED H4 isn’t lighting up and although the LED H2 is lighting up green, check the parameterization of the b maXX® 4400 with the parameter list in WinBASS II / ProDrive.

Error possibilities are e. g.: torque limit = 0 has been set or notch position is not correct (also see parameter manual b maXX® 4400).

If no LEDs are lighting up on the front side of the device, check the 24V supply.

8.2 Troubleshooting

The error messages are based on the troubleshooting in the b maXX® devices, which also are termed as error lists. If an error appears, the according definite error message is displayed within a short time in WinBASS II / ProDrive in the menu ‘drive manager’, whose meaning you can look up in the error list.
8.2 Troubleshooting

8.2.1 Reset errors

If the red error LED is lighting up, there is at least one error. You can react upon this, by 'Quit' the error in WinBASS II / ProDrive, that means, that you inform the device, that you have noted the error, that you have removed it or that you want to pass over it. Due to error reset all error messages are reset. An individual error reset is not possible. The acceptance causes a resetting of the error, in case the reset was possible due to the error situation.

8.2.2 Error parameters - error messages (error list) - error reactions

In the following you will find all error messages. An (error) message is shown in WinBASS II in the window ‘drive manager’. In the list field ‘messages’ you will find the (abbreviated) error names, at HIPERFACE® errors also the device part, the error number (not at errors according to HIPERFACE® specification) and, separated by a colon, the meaning of this error, e.g. ‘MotorError 96: Short-circuit temperature sensor’. At HIPERFACE® errors e.g. ‘Encoder 1 communication: Parity error’.

**Error processor P0201**

<table>
<thead>
<tr>
<th>Error no.</th>
<th>Meaning</th>
<th>Reaction</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>reserved</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Watchdog-Error</td>
<td>IS</td>
<td>Execute a restart of b maXX® 4400</td>
</tr>
<tr>
<td>2</td>
<td>Incorrect or unexpected interrupt has occurred</td>
<td>IS</td>
<td>Execute a restart of b maXX® 4400</td>
</tr>
<tr>
<td>3</td>
<td>NMI interrupt/bus error</td>
<td>IS</td>
<td>Execute a restart of b maXX® 4400</td>
</tr>
<tr>
<td>4 to 15</td>
<td>reserved not assigned = 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Error operating system P0202

<table>
<thead>
<tr>
<th>Error no.</th>
<th>Meaning</th>
<th>Reaction</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Errors while booting</td>
<td>IS</td>
<td>Execute a restart of b maXX® 4400</td>
</tr>
<tr>
<td>17</td>
<td>Software error:</td>
<td>IS</td>
<td>Execute a restart of b maXX® 4400</td>
</tr>
<tr>
<td>18</td>
<td>Time slot configuration</td>
<td>IS</td>
<td>Execute a restart of b maXX® 4400</td>
</tr>
<tr>
<td>19</td>
<td>Time slot - time error</td>
<td>IS</td>
<td>Execute a restart of b maXX® 4400; Change configuration of the time slice oper-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ation system</td>
</tr>
<tr>
<td>20</td>
<td>1 = No free memory</td>
<td>IS</td>
<td>Execute a restart of b maXX® 4400</td>
</tr>
<tr>
<td>21</td>
<td>Invalid error code</td>
<td>IS</td>
<td>Execute a restart of b maXX® 4400</td>
</tr>
<tr>
<td>22</td>
<td>Invalid warning code</td>
<td>IS</td>
<td>Execute a restart of b maXX® 4400</td>
</tr>
<tr>
<td>23</td>
<td>False FPGA version</td>
<td>IS</td>
<td>Contact Baumüller</td>
</tr>
<tr>
<td>24</td>
<td>Two position controller: error while writing to target parameter</td>
<td>IS</td>
<td>Ensure that the target parameter is writeable in these operating conditions and the value to write is in the valid value margin.</td>
</tr>
<tr>
<td>25</td>
<td>Checksum error flash system data</td>
<td>IS</td>
<td>The system data in the controller flash is invalid and was replaced by default values. These default values are written to the flash by switching off and on.</td>
</tr>
<tr>
<td>26</td>
<td>Power unit is not supported</td>
<td>IS</td>
<td>Use an appropriate power unit or contact Baumüller</td>
</tr>
<tr>
<td>27 to 31</td>
<td>reserved</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not assigned = 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Error Proprog communication P203

<table>
<thead>
<tr>
<th>Error no.</th>
<th>Meaning</th>
<th>Reaction</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>Timeout protocol</td>
<td>adjustable</td>
<td>Execute a restart of b maXX® 4400</td>
</tr>
<tr>
<td>33</td>
<td>Protocol structure</td>
<td>adjustable</td>
<td>Execute a restart of b maXX® 4400</td>
</tr>
<tr>
<td>34</td>
<td>Wrong module type</td>
<td>adjustable</td>
<td>Contact Baumüller</td>
</tr>
<tr>
<td>35</td>
<td>Too many data in the telegram</td>
<td>adjustable</td>
<td>Contact Baumüller</td>
</tr>
<tr>
<td>36</td>
<td>Not enough data in telegram</td>
<td>adjustable</td>
<td>Contact Baumüller</td>
</tr>
<tr>
<td>37</td>
<td>Invalid operand</td>
<td>adjustable</td>
<td>Contact Baumüller</td>
</tr>
<tr>
<td>38</td>
<td>Invalid memory type</td>
<td>adjustable</td>
<td>Test RAM</td>
</tr>
<tr>
<td>39</td>
<td>Invalid operand address</td>
<td>adjustable</td>
<td>Enter a valid address</td>
</tr>
</tbody>
</table>
### Error in function or option modules P0204

<table>
<thead>
<tr>
<th>Error no.</th>
<th>Meaning</th>
<th>Reaction</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>48</td>
<td>Error in Function module A Level 3</td>
<td>error</td>
<td>see Error Function module A to E P0240 to P0244&lt; on page 82 (= 3. level)</td>
</tr>
<tr>
<td>49</td>
<td>Error in Function module B Level 3</td>
<td>error</td>
<td>see Error Function module A to E P0240 to P0244&lt; on page 82 (= 3. level)</td>
</tr>
<tr>
<td>50</td>
<td>Error in Function module C Level 3</td>
<td>error</td>
<td>see Error Function module A to E P0240 to P0244&lt; on page 82 (= 3. level)</td>
</tr>
<tr>
<td>51</td>
<td>Error in Function module D Level 3</td>
<td>error</td>
<td>see Error Function module A to E P0240 to P0244&lt; on page 82 (= 3. level)</td>
</tr>
<tr>
<td>52</td>
<td>Error in Function module E Level 3</td>
<td>error</td>
<td>see Error Function module A to E P0240 to P0244&lt; on page 82 (= 3. level)</td>
</tr>
<tr>
<td>53</td>
<td>Error in Option module G Level 3</td>
<td>error</td>
<td>see Error option module G to M P0245 to P0250&lt; on page 83 (= 3. level)</td>
</tr>
<tr>
<td>54</td>
<td>Error in Option module H Level 3</td>
<td>error</td>
<td>see Error option module G to M P0245 to P0250&lt; on page 83 (= 3. level)</td>
</tr>
<tr>
<td>55</td>
<td>Error in Option module J Level 3</td>
<td>error</td>
<td>see Error option module G to M P0245 to P0250&lt; on page 83 (= 3. level)</td>
</tr>
<tr>
<td>56</td>
<td>Error in Option module K Level 3</td>
<td>error</td>
<td>see Error option module G to M P0245 to P0250&lt; on page 83 (= 3. level)</td>
</tr>
<tr>
<td>57</td>
<td>Error in Option module L Level 3</td>
<td>error</td>
<td>see Error option module G to M P0245 to P0250&lt; on page 83 (= 3. level)</td>
</tr>
<tr>
<td>58</td>
<td>Error in Option module M Level 3</td>
<td>error</td>
<td>see Error option module G to M P0245 to P0250&lt; on page 83 (= 3. level)</td>
</tr>
</tbody>
</table>
## Error detection and troubleshooting

### Error power Supply P0205

<table>
<thead>
<tr>
<th>Error no.</th>
<th>Meaning</th>
<th>Reaction</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>64</td>
<td>Mains failure</td>
<td>adjustable</td>
<td>Restore the connection to the power supply</td>
</tr>
<tr>
<td>65</td>
<td>Phase failure</td>
<td>IS</td>
<td>Check if all phases are correctly connected and voltage-carrying</td>
</tr>
<tr>
<td>66</td>
<td>Mains undervoltage</td>
<td>IS</td>
<td>Assure the compliance with the mains specifications (see techn. data)</td>
</tr>
<tr>
<td>67</td>
<td>Mains overvoltage</td>
<td>IS</td>
<td>Assure the compliance with the mains specifications (see techn. data)</td>
</tr>
<tr>
<td>68</td>
<td>Undervoltage 24V</td>
<td>IS</td>
<td>Assure the compliance with the mains specifications (see techn. data)</td>
</tr>
<tr>
<td>68 to 79</td>
<td>reserved</td>
<td>not assigned = 0</td>
<td></td>
</tr>
<tr>
<td>79</td>
<td>Mains monitor collected errors</td>
<td>Adjustable</td>
<td>See P0236</td>
</tr>
</tbody>
</table>

### Error power unit P0206

<table>
<thead>
<tr>
<th>Error no.</th>
<th>Meaning</th>
<th>Reaction</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>Communication error after HIPERFACE® specification</td>
<td>IS</td>
<td>see Error power unit - serial interface P0233&lt; on page 77 (= 3. level)</td>
</tr>
<tr>
<td>81</td>
<td>Heatsink temperature</td>
<td>IS</td>
<td>Let the device cool down and/or reduce the load</td>
</tr>
<tr>
<td>82</td>
<td>U DC link overvoltage</td>
<td>IS</td>
<td>Reduce the DC link voltage</td>
</tr>
<tr>
<td>83</td>
<td>Overcurrent</td>
<td>IS</td>
<td>Reduce the load and check the current controller settings as well as the cabling and the motor</td>
</tr>
</tbody>
</table>
### 8.2 Troubleshooting

<table>
<thead>
<tr>
<th>Error no.</th>
<th>Meaning</th>
<th>Reaction</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>84</td>
<td>Ground current</td>
<td>IS</td>
<td>Check the installation of the device (from b maXX 443x) and check the motor for ground fault</td>
</tr>
<tr>
<td>85</td>
<td>Device internal overtemperature</td>
<td>IS</td>
<td>Make sure of a sufficient ventilation in the device</td>
</tr>
<tr>
<td>86</td>
<td>Cable break temperature sensor</td>
<td>IS</td>
<td>Pass on the device for repair</td>
</tr>
<tr>
<td>87</td>
<td>Safety relay off (or defect)</td>
<td>IS</td>
<td>Check the safety relay, exchange it for a new</td>
</tr>
<tr>
<td>88</td>
<td>Bridge short-circuit</td>
<td>IS</td>
<td>Carry out a restart. At recurring error messages renew the controller cartridge</td>
</tr>
<tr>
<td>89</td>
<td>Power unit not ready-to-operate</td>
<td>IS</td>
<td>Complete the operational readiness to the power unit</td>
</tr>
<tr>
<td>90</td>
<td>Phase failure</td>
<td>IS</td>
<td>Check if all phases are correctly connected and voltage-carrying</td>
</tr>
<tr>
<td>91</td>
<td>Mains failure</td>
<td>IS</td>
<td>Restore the mains supply</td>
</tr>
<tr>
<td>92</td>
<td>Mains undervoltage</td>
<td>IS</td>
<td>Assure the compliance with the mains specification (see technical data)</td>
</tr>
<tr>
<td>93</td>
<td>Mains overvoltage</td>
<td>IS</td>
<td>Assure the compliance with the mains specification (see technical data)</td>
</tr>
<tr>
<td>94</td>
<td>Undervoltage U DC link</td>
<td>IS</td>
<td>Check the power connections</td>
</tr>
<tr>
<td>95</td>
<td>reserved</td>
<td>not assigned = 0</td>
<td></td>
</tr>
<tr>
<td>Error no.</td>
<td>Meaning</td>
<td>Reaction</td>
<td>Troubleshooting</td>
</tr>
<tr>
<td>----------</td>
<td>---------------------------------------------------</td>
<td>----------</td>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td>96</td>
<td>Short-circuit temperature sensor (Tm &lt;= -30 °C)</td>
<td>adjustable</td>
<td>Remove the short-circuit in the temperature sensor</td>
</tr>
<tr>
<td>97</td>
<td>Temperature sensor - motor not connected (Tm &gt; +300 °C)</td>
<td>adjustable</td>
<td>Remove open circuit in the temperature sensor circuit</td>
</tr>
<tr>
<td>98</td>
<td>Motor overtemperature</td>
<td>IS</td>
<td>Remove motor over temperature by cooling down and/or reducing the load</td>
</tr>
<tr>
<td>99</td>
<td>Error i²t &gt; 100%</td>
<td>IS</td>
<td>Leave drive in inhibited status until i²t-actual value decreases under 100%</td>
</tr>
<tr>
<td>100</td>
<td>Power unit maximal current &gt; motor maximal current</td>
<td>adjustable</td>
<td>Set power unit maximal current P1241 lower than motor maximal current P0069</td>
</tr>
<tr>
<td>101</td>
<td>reserved</td>
<td></td>
<td></td>
</tr>
<tr>
<td>102</td>
<td>Collective error finding notch position</td>
<td>IS</td>
<td>see &gt;Error finding notch position P0237&lt; on page 133 (= 3. level)</td>
</tr>
<tr>
<td>103 to 111</td>
<td>reserved</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## 8.2 Troubleshooting

### Error Encoder1 P0208

<table>
<thead>
<tr>
<th>Error no.</th>
<th>Meaning</th>
<th>Reaction</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>Communication error (HIPERFACE®-Specification)</td>
<td>IS</td>
<td>see encoder 1 (HIPERFACE® P0234 (= 3rd level))</td>
</tr>
<tr>
<td>113</td>
<td>reserved</td>
<td></td>
<td></td>
</tr>
<tr>
<td>114</td>
<td>Error at overwriting of encoder position information</td>
<td>IS</td>
<td>Execute the command again. If the error occurs again, contact Baumüller Nürnberg GmbH.</td>
</tr>
<tr>
<td>115</td>
<td>Cable break encoder 1</td>
<td>IS</td>
<td>Remove the cable break in the encoder cable of encoder 1 or check the assignment of the encoder cable</td>
</tr>
<tr>
<td>116</td>
<td>Overspeed encoder 1</td>
<td>IS</td>
<td>Check the allowable rotational speed for encoder 1</td>
</tr>
<tr>
<td>117</td>
<td>Amplitude limit exceeded</td>
<td>IS</td>
<td>Use another encoder</td>
</tr>
<tr>
<td>118</td>
<td>Encoder type unknown</td>
<td>IS</td>
<td>Check if the correct encoder is connected or use another encoder</td>
</tr>
<tr>
<td>119</td>
<td>Invalid data field for motor data</td>
<td>IS</td>
<td>Use another encoder</td>
</tr>
<tr>
<td>120</td>
<td>Incorrect motor data</td>
<td>IS</td>
<td>Use another encoder</td>
</tr>
<tr>
<td>121</td>
<td>Saving error of motor data</td>
<td>IS</td>
<td>Use another encoder</td>
</tr>
<tr>
<td>122</td>
<td>Motor data write-protected. (is not valid for BM motors)</td>
<td>IS</td>
<td>Use another encoder</td>
</tr>
<tr>
<td>123</td>
<td>Field angle error</td>
<td>IS</td>
<td>Check the shielding of the encoder cable</td>
</tr>
<tr>
<td>124</td>
<td>Encoder without temperature measuring</td>
<td>adjustable</td>
<td>Use an encoder module with temperature measuring</td>
</tr>
<tr>
<td>125</td>
<td>Memory capacity in the encoder for electronic type plate too small</td>
<td>adjustable</td>
<td>Use another encoder with a greater memory</td>
</tr>
<tr>
<td>126 to 127</td>
<td>reserved not assigned = 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Error encoder 2 P0209

<table>
<thead>
<tr>
<th>Error no.</th>
<th>Meaning</th>
<th>Reaction</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>128</td>
<td>Communication error (HIPERFACE®-Specification)</td>
<td>IS</td>
<td>see encoder 2 (HIPERFACE®) P0235 (3rd level)</td>
</tr>
<tr>
<td>129</td>
<td>reserved</td>
<td></td>
<td></td>
</tr>
<tr>
<td>130</td>
<td>Error at overwriting of Encoder position information</td>
<td>IS</td>
<td>Execute the command again. If the error occurs again, contact Baumüller Nürnberg GmbH.</td>
</tr>
<tr>
<td>131</td>
<td>Cable break encoder 2</td>
<td>IS</td>
<td>Remove the cable break in the encoder cable of encoder 1 or check the assignment of the encoder cable</td>
</tr>
<tr>
<td>132</td>
<td>Overspeed encoder 2</td>
<td>IS</td>
<td>Check the allowable rotational speed for encoder 2</td>
</tr>
<tr>
<td>133</td>
<td>Amplitude limit exceeded</td>
<td>IS</td>
<td>Use another encoder</td>
</tr>
<tr>
<td>134</td>
<td>Encoder type unknown</td>
<td>IS</td>
<td>Check if the correct encoder is connected or use another encoder</td>
</tr>
<tr>
<td>135</td>
<td>Invalid data field for motor data</td>
<td>IS</td>
<td>Use another encoder</td>
</tr>
<tr>
<td>136</td>
<td>Incorrect motor data</td>
<td>IS</td>
<td>Use another encoder</td>
</tr>
<tr>
<td>137</td>
<td>Saving error of motor data</td>
<td>IS</td>
<td>Use another encoder</td>
</tr>
<tr>
<td>138</td>
<td>Motor data write-protected. (is not valid for BM motors)</td>
<td>IS</td>
<td>Use another encoder</td>
</tr>
<tr>
<td>139</td>
<td>Field angle error</td>
<td>IS</td>
<td>Check the shielding of the encoder cable</td>
</tr>
<tr>
<td>140</td>
<td>Encoder without temperature measuring</td>
<td>adjustable</td>
<td>Use an encoder module with temperature measuring</td>
</tr>
<tr>
<td>141</td>
<td>Memory capacity in the encoder for electronic type plate too small</td>
<td>adjustable</td>
<td>Use another encoder with a greater memory</td>
</tr>
<tr>
<td>142 to 143</td>
<td>reserved not assigned = 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Error encoder manager P0210

<table>
<thead>
<tr>
<th>Error no.</th>
<th>Meaning</th>
<th>Reaction</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>144</td>
<td>Absolute position of encoder 1 unknown</td>
<td>IS</td>
<td>Use another encoder</td>
</tr>
<tr>
<td>145</td>
<td>Absolute position of encoder 2 unknown</td>
<td>IS</td>
<td>Use another encoder</td>
</tr>
<tr>
<td>146</td>
<td>Encoder module 1 is missing</td>
<td>IS</td>
<td>Check, if the right encoder is connected to module position A</td>
</tr>
<tr>
<td>147</td>
<td>Encoder module 2 is missing</td>
<td>IS</td>
<td>Check, if the right encoder is connected to module position B</td>
</tr>
<tr>
<td>148</td>
<td>Encoder module for measured value storage is missing</td>
<td>IS</td>
<td>Install the encoder module</td>
</tr>
<tr>
<td>149</td>
<td>At resolver no measured value storage possible</td>
<td>IS</td>
<td>Use a SinCos- or incremental encoder</td>
</tr>
<tr>
<td>150</td>
<td>Triggering not possible, because no incremental encoder</td>
<td>IS</td>
<td>Use for this option an incremental incremental encoder</td>
</tr>
<tr>
<td>151</td>
<td>Digital I/o-module is missing</td>
<td>IS</td>
<td>Install the digital I/O-Module</td>
</tr>
<tr>
<td>152</td>
<td>Incremental encoder emulation module is necessary and is missing</td>
<td>IS</td>
<td>Install the incremental encoder-emulation module</td>
</tr>
<tr>
<td>153</td>
<td>Encoder module 1 is necessary for incremental encoder emulation and is missing</td>
<td>IS</td>
<td>Install the encoder module to slot A</td>
</tr>
<tr>
<td>154</td>
<td>Encoder module 2 is necessary for incremental encoder emulation and is missing</td>
<td>IS</td>
<td>Install encoder module to slot B</td>
</tr>
<tr>
<td>155</td>
<td>Initialization error of the incremental encoder-emulation module</td>
<td>IS</td>
<td>Restart system</td>
</tr>
<tr>
<td>156</td>
<td>Incremental encoder-emulation module (HW) signals error</td>
<td>IS</td>
<td>Restart system, if error message recur change the module</td>
</tr>
<tr>
<td>157</td>
<td>Error incremental encoder emulation module</td>
<td>IS</td>
<td>Use for this option an incremental encoder</td>
</tr>
<tr>
<td>158</td>
<td>SSI encoder emulation module is missing</td>
<td>IS</td>
<td>Install the SSI-encoder-emulation module</td>
</tr>
<tr>
<td>159</td>
<td>Error in setpoint source encoder 1 or 2</td>
<td>IS</td>
<td>See encoder error message</td>
</tr>
</tbody>
</table>
### Error drive manager P0211

<table>
<thead>
<tr>
<th>Error no.</th>
<th>Meaning</th>
<th>Reaction</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>160</td>
<td>Timeout communication</td>
<td>adjustable</td>
<td>Remove the timeout of the Proprog communication</td>
</tr>
<tr>
<td>161</td>
<td>Timeout BACI</td>
<td>adjustable</td>
<td>Remove the timeout of the BACI communication option module</td>
</tr>
<tr>
<td>162</td>
<td>Timeout cyclic communication</td>
<td>adjustable</td>
<td>Remove the timeout of the cyclic communication</td>
</tr>
<tr>
<td>163</td>
<td>Timeout required data</td>
<td>adjustable</td>
<td>Remove the timeout of the required data communication</td>
</tr>
<tr>
<td>164</td>
<td>Field bus error</td>
<td>adjustable</td>
<td>Check the field bus communication</td>
</tr>
<tr>
<td>165</td>
<td>Controller not synchronous to external signal</td>
<td>adjustable</td>
<td>set the Sync-Offset and / or Sync-tolerance</td>
</tr>
<tr>
<td>166</td>
<td>Error at brake control</td>
<td>IS</td>
<td>Check the wiring and the function of the brake</td>
</tr>
<tr>
<td>167</td>
<td>No release of holding brake when starting the drive</td>
<td>IS</td>
<td>Check the holding brake</td>
</tr>
<tr>
<td>168</td>
<td>No closing of holding brake at stopping of drive</td>
<td>adjustable</td>
<td>Check the holding brake</td>
</tr>
<tr>
<td>169</td>
<td>Error holding brake status (cyclic monitoring)</td>
<td>adjustable</td>
<td>Check the holding brake</td>
</tr>
<tr>
<td>170</td>
<td>Error holding brake lining</td>
<td>adjustable</td>
<td>Check the holding brake</td>
</tr>
<tr>
<td>171</td>
<td>Initialize holding brake error</td>
<td>IS</td>
<td>Check, if there is a DIO module, if it is in the correct position and if it is correctly parameterized (also see P0883)</td>
</tr>
<tr>
<td>172</td>
<td>Error holding brake: holding torque not reached</td>
<td>IS</td>
<td>Ensure that the torque limits are not set too small (</td>
</tr>
<tr>
<td>173 to 175</td>
<td>reserved not assigned = 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Error data record manager P0212

<table>
<thead>
<tr>
<th>Error no.</th>
<th>Meaning</th>
<th>Reaction</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>176</td>
<td>EEPROM copy error</td>
<td>adjustable</td>
<td>Copy the data set once more</td>
</tr>
<tr>
<td>177</td>
<td>Write timeout EEPROM</td>
<td>adjustable</td>
<td>The data in the EEPROM are invalid, please save all data records</td>
</tr>
<tr>
<td>178</td>
<td>Checksum error EEPROM</td>
<td>IS</td>
<td>EEPROM faulty or described faulty</td>
</tr>
<tr>
<td>179</td>
<td>No boot data set</td>
<td>IS</td>
<td>The data in the EEPROM are invalid, please save all data records</td>
</tr>
<tr>
<td>180</td>
<td>Incompatible software</td>
<td>IS</td>
<td>The data in the EEPROM are invalid, please save all data records</td>
</tr>
<tr>
<td>181</td>
<td>There is no data set</td>
<td>adjustable</td>
<td>The data in the EEPROM are invalid, please save all data records</td>
</tr>
<tr>
<td>182</td>
<td>Checksum error im PSI module</td>
<td>adjustable</td>
<td>PSI EEPROM faulty or described faulty</td>
</tr>
<tr>
<td>183</td>
<td>PSI is reset</td>
<td>adjustable</td>
<td>Please save all data records</td>
</tr>
<tr>
<td>184</td>
<td>PSI data invalid</td>
<td>adjustable</td>
<td>The data in the PSI are invalid, please save all data records</td>
</tr>
<tr>
<td>185</td>
<td>Autotuning tables invalid.</td>
<td>adjustable</td>
<td>Restart autotuning</td>
</tr>
<tr>
<td>186</td>
<td>A/D correction table invalid</td>
<td>adjustable</td>
<td>Replace the controller cartridge</td>
</tr>
<tr>
<td>187</td>
<td>EEPROM is reset</td>
<td>IS</td>
<td>The data in the EEPROM are invalid, please save all data records</td>
</tr>
<tr>
<td>188 to 191</td>
<td>reserved not assigned = 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Error position controller P0213

<table>
<thead>
<tr>
<th>Error no.</th>
<th>Meaning</th>
<th>Reaction</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>192</td>
<td>Position deviation dynamic</td>
<td>adjustable</td>
<td>Remove the dynamical position deviation error</td>
</tr>
<tr>
<td>193</td>
<td>Position deviation static</td>
<td>adjustable</td>
<td>Remove the statical position deviation error</td>
</tr>
<tr>
<td>194</td>
<td>Encoder 1 is used for position control, but is inactive. This error is also shown, if the faulty positioning is in one of the inactive data records.</td>
<td>IS</td>
<td>Activate encoder 1</td>
</tr>
<tr>
<td>195</td>
<td>Encoder 2 is used for position control, but is inactive. This error is also shown, if the faulty positioning is in one of the inactive data records.</td>
<td>IS</td>
<td>Activate encoder 2</td>
</tr>
<tr>
<td>196</td>
<td>Software limit switch 1 exceeded</td>
<td>adjustable</td>
<td>Check the target position with the by the limit switch enabled travelling range</td>
</tr>
<tr>
<td>197</td>
<td>Software limit switch 2 exceeded</td>
<td>adjustable</td>
<td>Check the target position with the by the limit switch enabled travelling range</td>
</tr>
<tr>
<td>198</td>
<td>Hardware limit switch 1 exceeded</td>
<td>adjustable</td>
<td>Check the target position with the by the limit switch enabled travelling range</td>
</tr>
<tr>
<td>199</td>
<td>Hardware limit switch 2 exceeded</td>
<td>adjustable</td>
<td>Check the target position with the by the limit switch enabled travelling range</td>
</tr>
<tr>
<td>200</td>
<td>Homing necessary and not yet executed</td>
<td>adjustable</td>
<td>Execute homing</td>
</tr>
<tr>
<td>201</td>
<td>Setpoint in mode Set-of-setpoints didn’t arrive in time</td>
<td>adjustable</td>
<td>Assure, that positioning data and handshake take place in time (also see parameter manual)</td>
</tr>
<tr>
<td>202</td>
<td>Target position ≧ Modulo position</td>
<td>Adjustable</td>
<td>Minimize target position or adjust Modulo position P1239</td>
</tr>
<tr>
<td>203</td>
<td>Spindle positioning: Error while initialization of the trigger</td>
<td>Adjustable</td>
<td>Used encoder without triggersignal (zero pulse) or incorrect adjustment in P1425 spindle positioning mode</td>
</tr>
<tr>
<td>204</td>
<td>Spindle positioning: Timeout at trigger signal</td>
<td>Adjustable</td>
<td>Check encoder for zero pulse; check encoder connector; check zero pulse signal by means of the toggle bit (encoder 1/2 status bit 8)</td>
</tr>
<tr>
<td>205</td>
<td>Error occurred while executing homing</td>
<td>Adjustable</td>
<td>Check the function of the reference switch and the hardware limit switch; adjust the encoder input selection where necessary; select only supported homing methods</td>
</tr>
<tr>
<td>206 to 207</td>
<td>not assigned = 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 8.2 Troubleshooting

#### Error speed controller P0214

<table>
<thead>
<tr>
<th>Error no.</th>
<th>Meaning</th>
<th>Reaction</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>208</td>
<td>Drive blocked</td>
<td>IS</td>
<td>Remove the blockade of the drive</td>
</tr>
<tr>
<td>209</td>
<td>Encoder 1 is parameterized as encoder for the motor control, but the evaluation is not activated. This error is also shown, if the faulty positioning is in one of the inactive data records.</td>
<td>IS</td>
<td>You have got to either activate the encoder in the encoder 1 (mode P0150) or you set the encoder 2 as encoder for the position control (parameter P1030)</td>
</tr>
<tr>
<td>210</td>
<td>Encoder 2 is parameterized as encoder for the motor control, but the evaluation is not activated. This error is also shown, if the faulty positioning is in one of the inactive data records.</td>
<td>IS</td>
<td>You have got to either activate the encoder in the encoder 2 (mode P0160) or you set the encoder 1 as encoder for the position control (parameter P1030)</td>
</tr>
<tr>
<td>211</td>
<td>Overspeed Open loop</td>
<td>IS</td>
<td>Check parameterization and reduce speed</td>
</tr>
<tr>
<td>212 to 223</td>
<td>not assigned = 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Error free control section P0215

<table>
<thead>
<tr>
<th>Error no.</th>
<th>Meaning</th>
<th>Reaction</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>224 to 234</td>
<td>Not assigned = 0</td>
<td>adjustable</td>
<td></td>
</tr>
<tr>
<td>235</td>
<td>Torque coupling: General error in the master</td>
<td>adjustable</td>
<td></td>
</tr>
<tr>
<td>236</td>
<td>Torque coupling: Operating mode in the slave is not speed control</td>
<td>IS</td>
<td></td>
</tr>
<tr>
<td>237</td>
<td>Configuration error reaction return motion is invalid</td>
<td>IS</td>
<td></td>
</tr>
<tr>
<td>238</td>
<td>Return motion destination was not reached</td>
<td>adjustable</td>
<td></td>
</tr>
<tr>
<td>239</td>
<td>Application error (enabled by P0302 bit 1)</td>
<td>adjustable</td>
<td></td>
</tr>
</tbody>
</table>

#### Error CANsync P0216

<table>
<thead>
<tr>
<th>Error no.</th>
<th>Meaning</th>
<th>Reaction</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>240 to 245</td>
<td>not assigned = 0</td>
<td>no reaction</td>
<td>Check the parameterization of the DC-parameters, see parameter manual</td>
</tr>
<tr>
<td>246</td>
<td>Invalid DIP switch settings</td>
<td>according to setting</td>
<td>Correct the wrong setting of the DIP switch on the module</td>
</tr>
<tr>
<td>247 to 255</td>
<td>not assigned = 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## 3. Level

**Error power unit - serial interface P0233**

(communication error to the power unit)

<table>
<thead>
<tr>
<th>Error code</th>
<th>Meaning</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Data overflow</td>
<td>Error indicates high EMC problems; please reduce these. Contact Baumüller</td>
</tr>
<tr>
<td>7</td>
<td>Bit frame error</td>
<td>Error indicates high EMC problems; please reduce these. Contact Baumüller</td>
</tr>
<tr>
<td>8</td>
<td>Invalid command state</td>
<td>Contact Baumüller</td>
</tr>
<tr>
<td>9</td>
<td>Parity error</td>
<td>Restart of b maXX®</td>
</tr>
<tr>
<td>10</td>
<td>Checksum error</td>
<td>Error indicates high EMC problems; please reduce these. Contact Baumüller</td>
</tr>
<tr>
<td>11</td>
<td>Unknown error code</td>
<td>Error indicates high EMC problems; please reduce these. Contact Baumüller</td>
</tr>
<tr>
<td>12</td>
<td>Data number error</td>
<td>Error indicates high EMC problems; please reduce these. Contact Baumüller</td>
</tr>
<tr>
<td>13</td>
<td>Invalid argument</td>
<td>Error indicates high EMC problems; please reduce these. Contact Baumüller</td>
</tr>
<tr>
<td>14</td>
<td>Data field is write protected</td>
<td>Error indicates high EMC problems; please reduce these. Contact Baumüller</td>
</tr>
<tr>
<td>15</td>
<td>Invalid access code</td>
<td>Error indicates high EMC problems; please reduce these. Contact Baumüller</td>
</tr>
<tr>
<td>16</td>
<td>Data field is not changeable in its size</td>
<td>Error indicates high EMC problems; please reduce these. Contact Baumüller</td>
</tr>
<tr>
<td>17</td>
<td>Word address outside of data field</td>
<td>Error indicates high EMC problems; please reduce these. Contact Baumüller</td>
</tr>
<tr>
<td>18</td>
<td>Data field is nonexistent</td>
<td>Error indicates high EMC problems; please reduce these. Contact Baumüller</td>
</tr>
</tbody>
</table>
## Troubleshooting

### Error encoder 1 - serial interface P0234
### Error encoder 2 - serial interface P0235
(communication error after HIPERFACE® specification in the encoder 1 / encoder 2)

<table>
<thead>
<tr>
<th>Error code</th>
<th>Meaning</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Analog signals outside specification</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>2</td>
<td>Error in internal angle offset</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>3</td>
<td>Data field partitioning table destroyed</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>4</td>
<td>Analog limit values not available</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>5</td>
<td>Internal I²C-bus not operative</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>6</td>
<td>Internal checksum error</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>7</td>
<td>Internal watchdog error - encoder reset</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>8</td>
<td>Overflow of the counter</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>9</td>
<td>Parity error</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>10</td>
<td>Checksum error</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>11</td>
<td>Unknown error code</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
</tbody>
</table>

2 encoders can be connected to a b maXX® 4400 at most. Accordingly maximum errors can appear in function module 1 and function module 2. The term ‘encoder 1’ or ‘encoder 2’ in the column ‘device part’ stands for one of the five currently existing encoder module types.
# Error detection and troubleshooting

<table>
<thead>
<tr>
<th>Error code</th>
<th>Meaning</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Data number error</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>13</td>
<td>Invalid argument</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>14</td>
<td>Data field is write protected</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>15</td>
<td>Invalid access code</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>16</td>
<td>Data field is not changeable in its size</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>17</td>
<td>Word address outside of data field</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>18</td>
<td>Data field is nonexistent</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>19 to 27</td>
<td>reserved</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Absolute monitoring of the analog signals</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>29</td>
<td>Transmission current critical</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>30</td>
<td>Encoder temperature critical</td>
<td>Check the motor temperature</td>
</tr>
<tr>
<td>31</td>
<td>Rotational speed too high - no formation of positioning possible</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>32</td>
<td>Position singleturn unreliable</td>
<td>Internal encoder error Contact Baumüller</td>
</tr>
<tr>
<td>33</td>
<td>Multiturn position error</td>
<td>Internal encoder error Contact Baumüller</td>
</tr>
<tr>
<td>34</td>
<td>Multiturn position error</td>
<td>Internal encoder error Contact Baumüller</td>
</tr>
<tr>
<td>35</td>
<td>Multiturn position error</td>
<td>Internal encoder error Contact Baumüller</td>
</tr>
<tr>
<td>36</td>
<td>Invalid power unit data checksum</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>37</td>
<td>No response from encoder</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>38</td>
<td>Encoder address unknown</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>39</td>
<td>Error reading the absolute angle position</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
</tbody>
</table>
## Troubleshooting

<table>
<thead>
<tr>
<th>Error code</th>
<th>Meaning</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>Invalid checksum of received data</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>41</td>
<td>Unknown encoder type</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>42 to 63</td>
<td>reserved</td>
<td></td>
</tr>
<tr>
<td>64</td>
<td>No response of HIPERFACE® encoder</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>65</td>
<td>No response from EnDat encoder</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>66</td>
<td>Useless response to encoder command</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>67</td>
<td>Type of encoder is not applicable</td>
<td>Use an other type of encoder</td>
</tr>
<tr>
<td>68 to 79</td>
<td>reserved</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>CRC has determined an error</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>81</td>
<td>Invalid command</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>82</td>
<td>Error in response telegram</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>83</td>
<td>Alarm bit is set</td>
<td>Restart the system</td>
</tr>
<tr>
<td>84</td>
<td>Memory is occupied</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>85</td>
<td>Incorrect data checksum</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>86</td>
<td>Motor data length and/or data version of encoder and controller firmware are not identical</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>87</td>
<td>No EnDat interface</td>
<td>Check the encoder cable and if the encoder has been connected correctly.</td>
</tr>
<tr>
<td>88</td>
<td>Exceeding of transmission format which is able to be evaluated</td>
<td>Use another length measuring system type</td>
</tr>
<tr>
<td>89</td>
<td>Exceeding of the evaluable measuring step length</td>
<td>Use another length measuring system type</td>
</tr>
<tr>
<td>90</td>
<td>Signal period length &lt; measuring step length</td>
<td>Use another length measuring system type</td>
</tr>
<tr>
<td>91</td>
<td>EnDat 2.2: Error during initialization the master module</td>
<td></td>
</tr>
<tr>
<td>Error code</td>
<td>Meaning</td>
<td>Troubleshooting</td>
</tr>
<tr>
<td>------------</td>
<td>---------</td>
<td>-----------------</td>
</tr>
<tr>
<td>92</td>
<td>EnDat 2.2: Timeout during measuring the signal propagation time</td>
<td></td>
</tr>
<tr>
<td>93</td>
<td>EnDat 2.2: Error - propagation time compensation is switched off</td>
<td></td>
</tr>
<tr>
<td>94</td>
<td>EnDat 2.2: Type of encoder does not support EnDat 2.2 (introduction set, power supply, clock frequency)</td>
<td></td>
</tr>
<tr>
<td>95</td>
<td>EnDat 2.2: No RM-Bit is set, encoder absolute position is not referenced</td>
<td></td>
</tr>
<tr>
<td>96</td>
<td>Error lighting</td>
<td>Connect encoder</td>
</tr>
<tr>
<td>97</td>
<td>Error signal amplitude</td>
<td>Connect encoder</td>
</tr>
<tr>
<td>98</td>
<td>Error position value</td>
<td>Connect encoder</td>
</tr>
<tr>
<td>99</td>
<td>Error overvoltage</td>
<td>Exchange the encoder module</td>
</tr>
<tr>
<td>100</td>
<td>Error undervoltage</td>
<td>Exchange the encoder module</td>
</tr>
<tr>
<td>101</td>
<td>Error overcurrent</td>
<td>Exchange the encoder module</td>
</tr>
<tr>
<td>102</td>
<td>Error battery</td>
<td>Connect encoder</td>
</tr>
<tr>
<td>103 to 111</td>
<td>reserved</td>
<td></td>
</tr>
<tr>
<td>112</td>
<td>Position error detected during multiple request</td>
<td></td>
</tr>
<tr>
<td>113</td>
<td>Error triggered by additional info 1</td>
<td>Fehler durch Zusatzinfo 1 ausgelöst</td>
</tr>
<tr>
<td>114</td>
<td>Error triggered by additional info 2</td>
<td>Fehler durch Zusatzinfo 2 ausgelöst</td>
</tr>
<tr>
<td>115</td>
<td>Error triggered by additional info 3</td>
<td>Fehler durch Zusatzinfo 3 ausgelöst</td>
</tr>
<tr>
<td>116</td>
<td>Error triggered by additional info 4</td>
<td>Fehler durch Zusatzinfo 4 ausgelöst</td>
</tr>
<tr>
<td>117</td>
<td>Error triggered by additional info 5</td>
<td>Fehler durch Zusatzinfo 5 ausgelöst</td>
</tr>
<tr>
<td>118</td>
<td>Error triggered by additional info 6</td>
<td>Fehler durch Zusatzinfo 6 ausgelöst</td>
</tr>
<tr>
<td>119</td>
<td>Error triggered by additional info 7</td>
<td>Fehler durch Zusatzinfo 7 ausgelöst</td>
</tr>
</tbody>
</table>
## Error Function module A to E P0240 to P0244

<table>
<thead>
<tr>
<th>Level 3 error no.</th>
<th>Meaning</th>
<th>Reaction</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Reserved error</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Module not detected</td>
<td>adjustable</td>
<td>Check if the correct module is located at the correct slot</td>
</tr>
<tr>
<td>2</td>
<td>Module not permitted at this position</td>
<td>adjustable</td>
<td>Check if the correct module is located at the correct slot</td>
</tr>
<tr>
<td>3</td>
<td>24 V missing or output short-circuited</td>
<td>adjustable</td>
<td>Check the wiring of the digital outputs</td>
</tr>
<tr>
<td>4</td>
<td>Wrong target parameter value by digital input</td>
<td>adjustable</td>
<td>Check the parametrization of the input channel</td>
</tr>
<tr>
<td>5</td>
<td>Direct PLC-I/O access for this module not permitted</td>
<td>adjustable</td>
<td>Do not select the module</td>
</tr>
<tr>
<td>6</td>
<td>Reserved error</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Module not allowed in controller</td>
<td>IS</td>
<td>Remove the module</td>
</tr>
<tr>
<td>8 to 15</td>
<td>Reserved error</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Error detection and troubleshooting

### Error option module G to M P0245 to P0250

<table>
<thead>
<tr>
<th>Sub-error no.</th>
<th>Meaning</th>
<th>Reaction</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>4096</td>
<td>Wrong parameter no. at setpoint parameter 1</td>
<td>adjustable</td>
<td>Check the according setpoint parameter</td>
</tr>
<tr>
<td>4097</td>
<td>Wrong parameter no. at setpoint parameter 2</td>
<td>adjustable</td>
<td>Check the according setpoint parameter</td>
</tr>
<tr>
<td>4098</td>
<td>Wrong parameter no. at setpoint parameter 3</td>
<td>adjustable</td>
<td>Check the according setpoint parameter</td>
</tr>
<tr>
<td>4099</td>
<td>Wrong parameter no. at setpoint parameter 4</td>
<td>adjustable</td>
<td>Check the according setpoint parameter</td>
</tr>
<tr>
<td>4100</td>
<td>Wrong parameter no. at setpoint parameter 5</td>
<td>adjustable</td>
<td>Check the according setpoint parameter</td>
</tr>
<tr>
<td>4101</td>
<td>Wrong parameter no. at setpoint parameter 6</td>
<td>adjustable</td>
<td>Check the according setpoint parameter</td>
</tr>
<tr>
<td>4102</td>
<td>Wrong parameter no. at setpoint parameter 7</td>
<td>adjustable</td>
<td>Check the according setpoint parameter</td>
</tr>
<tr>
<td>4103</td>
<td>Wrong parameter no. at setpoint parameter 8</td>
<td>adjustable</td>
<td>Check the according setpoint parameter</td>
</tr>
<tr>
<td>4104</td>
<td>Wrong parameter no. at setpoint parameter 9</td>
<td>adjustable</td>
<td>Check the according setpoint parameter</td>
</tr>
<tr>
<td>4105</td>
<td>Wrong parameter no. at setpoint parameter 10</td>
<td>adjustable</td>
<td>Check the according setpoint parameter</td>
</tr>
<tr>
<td>4106</td>
<td>Wrong parameter no. at setpoint parameter 11</td>
<td>adjustable</td>
<td>Check the according setpoint parameter</td>
</tr>
<tr>
<td>4107</td>
<td>Wrong parameter no. at setpoint parameter 12</td>
<td>adjustable</td>
<td>Check the according setpoint parameter</td>
</tr>
<tr>
<td>4108</td>
<td>Wrong parameter no. at setpoint parameter 13</td>
<td>adjustable</td>
<td>Check the according setpoint parameter</td>
</tr>
<tr>
<td>4109</td>
<td>Wrong parameter no. at setpoint parameter 14</td>
<td>adjustable</td>
<td>Check the according setpoint parameter</td>
</tr>
<tr>
<td>4110</td>
<td>Wrong parameter no. at setpoint parameter 15</td>
<td>adjustable</td>
<td>Check the according setpoint parameter</td>
</tr>
<tr>
<td>4111</td>
<td>Wrong parameter no. at setpoint parameter 16</td>
<td>adjustable</td>
<td>Check the according setpoint parameter</td>
</tr>
<tr>
<td>4112</td>
<td>Wrong parameter no. at actual value parameter 1</td>
<td>adjustable</td>
<td>Check the according actual value parameter</td>
</tr>
<tr>
<td>4113</td>
<td>Wrong parameter no. at actual value parameter 2</td>
<td>adjustable</td>
<td>Check the according actual value parameter</td>
</tr>
</tbody>
</table>
### Troubleshooting

<table>
<thead>
<tr>
<th>Sub-error no.</th>
<th>Meaning</th>
<th>Reaction</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>4114</td>
<td>Wrong parameter no. at actual value parameter 3</td>
<td>adjustable</td>
<td>Check the according actual value parameter</td>
</tr>
<tr>
<td>4115</td>
<td>Wrong parameter no. at actual value parameter 4</td>
<td>adjustable</td>
<td>Check the according actual value parameter</td>
</tr>
<tr>
<td>4116</td>
<td>Wrong parameter no. at actual value parameter 5</td>
<td>adjustable</td>
<td>Check the according actual value parameter</td>
</tr>
<tr>
<td>4117</td>
<td>Wrong parameter no. at actual value parameter 6</td>
<td>adjustable</td>
<td>Check the according actual value parameter</td>
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<tr>
<td>4118</td>
<td>Wrong parameter no. at actual value parameter 7</td>
<td>adjustable</td>
<td>Check the according actual value parameter</td>
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<tr>
<td>4119</td>
<td>Wrong parameter no. at actual value parameter 8</td>
<td>adjustable</td>
<td>Check the according actual value parameter</td>
</tr>
<tr>
<td>4120</td>
<td>Wrong parameter no. at actual value parameter 9</td>
<td>adjustable</td>
<td>Check the according actual value parameter</td>
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<tr>
<td>4121</td>
<td>Wrong parameter no. at actual value parameter 10</td>
<td>adjustable</td>
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<td>Wrong parameter no. at actual value parameter 11</td>
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<td>4123</td>
<td>Wrong parameter no. at actual value parameter 12</td>
<td>adjustable</td>
<td>Check the according actual value parameter</td>
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<td>4124</td>
<td>Wrong parameter no. at actual value parameter 13</td>
<td>adjustable</td>
<td>Check the according actual value parameter</td>
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<td>4125</td>
<td>Wrong parameter no. at actual value parameter 14</td>
<td>adjustable</td>
<td>Check the according actual value parameter</td>
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<td>4126</td>
<td>Wrong parameter no. at actual value parameter 15</td>
<td>adjustable</td>
<td>Check the according actual value parameter</td>
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<tr>
<td>4127</td>
<td>Wrong parameter no. at actual value parameter 16</td>
<td>adjustable</td>
<td>Check the according actual value parameter</td>
</tr>
<tr>
<td>4128</td>
<td>Invalid value at setpoint parameter no. 1</td>
<td>adjustable</td>
<td>Make sure that you have got correct values within the permitted value range.</td>
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<tr>
<td>4129</td>
<td>Invalid value at setpoint parameter no. 2</td>
<td>adjustable</td>
<td>Make sure that you have got correct values within the permitted value range.</td>
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<tr>
<td>4130</td>
<td>Invalid value at setpoint parameter no. 3</td>
<td>adjustable</td>
<td>Make sure that you have got correct values within the permitted value range.</td>
</tr>
<tr>
<td>4131</td>
<td>Invalid value at setpoint parameter no. 4</td>
<td>adjustable</td>
<td>Make sure that you have got correct values within the permitted value range.</td>
</tr>
<tr>
<td>4132</td>
<td>Invalid value at setpoint parameter no. 5</td>
<td>adjustable</td>
<td>Make sure that you have got correct values within the permitted value range.</td>
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<table>
<thead>
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<th>Meaning</th>
<th>Reaction</th>
<th>Troubleshooting</th>
</tr>
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<tbody>
<tr>
<td>4133</td>
<td>Invalid value at setpoint parameter no. 6</td>
<td>adjustable</td>
<td>Make sure that you have got correct values within the permitted value range.</td>
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<tr>
<td>4134</td>
<td>Invalid value at setpoint parameter no. 7</td>
<td>adjustable</td>
<td>Make sure that you have got correct values within the permitted value range.</td>
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<tr>
<td>4135</td>
<td>Invalid value at setpoint parameter no. 8</td>
<td>adjustable</td>
<td>Make sure that you have got correct values within the permitted value range.</td>
</tr>
<tr>
<td>4136</td>
<td>Invalid value at setpoint parameter no. 9</td>
<td>adjustable</td>
<td>Make sure that you have got correct values within the permitted value range.</td>
</tr>
<tr>
<td>4137</td>
<td>Invalid value at setpoint parameter no. 10</td>
<td>adjustable</td>
<td>Make sure that you have got correct values within the permitted value range.</td>
</tr>
<tr>
<td>4138</td>
<td>Invalid value at setpoint parameter no. 11</td>
<td>adjustable</td>
<td>Make sure that you have got correct values within the permitted value range.</td>
</tr>
<tr>
<td>4139</td>
<td>Invalid value at setpoint parameter no. 12</td>
<td>adjustable</td>
<td>Make sure that you have got correct values within the permitted value range.</td>
</tr>
<tr>
<td>4140</td>
<td>Invalid value at setpoint parameter no. 13</td>
<td>adjustable</td>
<td>Make sure that you have got correct values within the permitted value range.</td>
</tr>
<tr>
<td>4141</td>
<td>Invalid value at setpoint parameter no. 14</td>
<td>adjustable</td>
<td>Make sure that you have got correct values within the permitted value range.</td>
</tr>
<tr>
<td>4142</td>
<td>Invalid value at setpoint parameter no. 15</td>
<td>adjustable</td>
<td>Make sure that you have got correct values within the permitted value range.</td>
</tr>
<tr>
<td>4143</td>
<td>Invalid value at setpoint parameter no. 16</td>
<td>adjustable</td>
<td>Make sure that you have got correct values within the permitted value range.</td>
</tr>
<tr>
<td>4144</td>
<td>Invalid value for Setpoint period</td>
<td>adjustable</td>
<td>Make sure that you have got correct values within the permitted value range.</td>
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<tr>
<td>4145</td>
<td>Invalid value for Actual value period</td>
<td>adjustable</td>
<td>Make sure that you have got correct values within the permitted value range.</td>
</tr>
<tr>
<td>4146</td>
<td>False value for Cycle offset setpoints</td>
<td>adjustable</td>
<td>Make sure that you have got correct values within the permitted value range.</td>
</tr>
<tr>
<td>4147</td>
<td>False value for Cycle offset actual values</td>
<td>adjustable</td>
<td>Make sure that you have got correct values within the permitted value range.</td>
</tr>
<tr>
<td>4148</td>
<td>BACI timeout at cyclic data</td>
<td>adjustable</td>
<td>Check the communication rate with the adjusted timeout P0839</td>
</tr>
<tr>
<td>4149</td>
<td>BACI timeout at Service data</td>
<td>adjustable</td>
<td></td>
</tr>
<tr>
<td>4150</td>
<td>Check results in faulty checksum</td>
<td>IS</td>
<td>Execute a restart by switching on and off</td>
</tr>
<tr>
<td>4151</td>
<td>ramp-up Timeout when waiting for the slave type or when waiting for the resetting of config-pending-flag</td>
<td>adjustable</td>
<td>Execute a restart by switching on and off</td>
</tr>
<tr>
<td>4152</td>
<td>Invalid data transfer structure type</td>
<td>adjustable</td>
<td>Contact Baumüller</td>
</tr>
</tbody>
</table>
### Troubleshooting

<table>
<thead>
<tr>
<th>Sub-error no.</th>
<th>Meaning</th>
<th>Reaction</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>4153</td>
<td>Internal error: Wrong BACI status</td>
<td>adjustable</td>
<td>Contact Baumüller</td>
</tr>
<tr>
<td>4154</td>
<td>Access conflicts with slave at cyclic Communication:</td>
<td>adjustable</td>
<td>Contact Baumüller</td>
</tr>
<tr>
<td>4155</td>
<td>Error cyclic Communication: Parameter value wrong</td>
<td>adjustable</td>
<td>Contact Baumüller</td>
</tr>
<tr>
<td>4156</td>
<td>Error cyclic Communication: Alive-counter conflict</td>
<td>adjustable</td>
<td>Check the value of the transmitted parameter</td>
</tr>
<tr>
<td>4157</td>
<td>Cmd interface: Channel number wrong (0 or &gt; 6)</td>
<td>adjustable</td>
<td>Check if the option module and the controller are synchronous.</td>
</tr>
<tr>
<td>4158</td>
<td>Cmd interface: The channel which was indicated does not exist</td>
<td>adjustable</td>
<td>Contact Baumüller</td>
</tr>
<tr>
<td>4159</td>
<td>Cmd interface: Internal error - wrong pointer</td>
<td>adjustable</td>
<td>Contact Baumüller</td>
</tr>
<tr>
<td>4160</td>
<td>Cmd interface: Internal error - wrong status</td>
<td>adjustable</td>
<td>Contact Baumüller</td>
</tr>
<tr>
<td>4161</td>
<td>Cmd interface: Wrong package number</td>
<td>adjustable</td>
<td>Contact Baumüller</td>
</tr>
<tr>
<td>4162</td>
<td>Cmd interface: Wrong command number</td>
<td>adjustable</td>
<td>Contact Baumüller</td>
</tr>
<tr>
<td>4163</td>
<td>Cmd interface: Wrong status when handling the package</td>
<td>adjustable</td>
<td>Contact Baumüller</td>
</tr>
<tr>
<td>4164</td>
<td>Cmd interface: Timeout at command processing</td>
<td>adjustable</td>
<td>Contact Baumüller</td>
</tr>
<tr>
<td>4165</td>
<td>Cmd interface: Wrong package length</td>
<td>adjustable</td>
<td>Contact Baumüller</td>
</tr>
<tr>
<td>4166</td>
<td>Cmd interface: Descriptor not available</td>
<td>adjustable</td>
<td>Contact Baumüller</td>
</tr>
<tr>
<td>4167</td>
<td>Cmd interface: Wrong package type</td>
<td>adjustable</td>
<td>Contact Baumüller</td>
</tr>
<tr>
<td>4168</td>
<td>Cmd interface: Checksum error</td>
<td>adjustable</td>
<td>Contact Baumüller</td>
</tr>
<tr>
<td>4169</td>
<td>Module identification: PCI-error when reading</td>
<td>adjustable</td>
<td>Check the reliability performance of the option module</td>
</tr>
<tr>
<td>4170</td>
<td>Module identification: PCI-error when writing</td>
<td>adjustable</td>
<td>Check the reliability performance of the option module</td>
</tr>
<tr>
<td>4171</td>
<td>Module identification: general reading error</td>
<td>adjustable</td>
<td>Check the reliability performance of the option module</td>
</tr>
<tr>
<td>4172</td>
<td>Module identification: general error at writing</td>
<td>adjustable</td>
<td>Check the reliability performance of the option module</td>
</tr>
<tr>
<td>4173</td>
<td>Internal error</td>
<td>adjustable</td>
<td>Contact Baumüller</td>
</tr>
</tbody>
</table>
8.2.3 Parameter description – warnings (warning bit list)

Warning power supply P0261

<table>
<thead>
<tr>
<th>Warning no.</th>
<th>Meaning</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>reserved warning</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Undervoltage 24V</td>
<td>Assure the compliance with the specification</td>
</tr>
<tr>
<td>2</td>
<td>Mains undervoltage</td>
<td>Assure the compliance with the mains specification</td>
</tr>
<tr>
<td>3</td>
<td>Mains overvoltage</td>
<td>Assure the compliance with the mains specification</td>
</tr>
<tr>
<td>4</td>
<td>Mains failure</td>
<td>Restore the mains supply</td>
</tr>
<tr>
<td>5</td>
<td>Phase failure</td>
<td>Check if all phases are correctly connected and voltage-carrying</td>
</tr>
<tr>
<td>6 to 15</td>
<td>reserved warning</td>
<td></td>
</tr>
</tbody>
</table>
### Warnings power unit P0262

<table>
<thead>
<tr>
<th>Warning no.</th>
<th>Meaning</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Inside temperature of device</td>
<td>Establish the specified environmental conditions, assure correct ventilation conditions</td>
</tr>
<tr>
<td>17</td>
<td>Heatsink temperature</td>
<td>Reduce the power output, check the fans of the device</td>
</tr>
<tr>
<td>18</td>
<td>Timeout at DC link charging</td>
<td>Check the mains phase sequence (clockwise phase sequence) and avoid taking energy from the DC link during charging</td>
</tr>
<tr>
<td>19</td>
<td>not assigned = 0</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Safety relay not controlled</td>
<td>Check the cabling of the safety relay</td>
</tr>
<tr>
<td>21 to 22</td>
<td>reserved warning</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Difference of voltage</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mains DC link &gt; 40 V</td>
<td>Check the power connections</td>
</tr>
<tr>
<td>24</td>
<td>Ixt-threshold 1 is exceeded</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Take steps, so that the Ixt actual value doesn't exceed 100 %</td>
</tr>
<tr>
<td>25 to 31</td>
<td>reserved warning</td>
<td></td>
</tr>
</tbody>
</table>

### Warnings motor P0263

<table>
<thead>
<tr>
<th>Warning no.</th>
<th>Meaning</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>Temperature threshold 1 exceeded</td>
<td>Reduce the power output of the motor</td>
</tr>
<tr>
<td>33</td>
<td>Temperature threshold 2 exceeded</td>
<td>Reduce the power output of the motor</td>
</tr>
<tr>
<td>34</td>
<td>Pt threshold exceeded</td>
<td>Reduce the power output of the motor</td>
</tr>
<tr>
<td>35 to 47</td>
<td>reserved warning</td>
<td></td>
</tr>
</tbody>
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<td>15.05.2006</td>
<td>First edition</td>
</tr>
<tr>
<td>5.06014.02</td>
<td>24.05.2011</td>
<td>ProDrive added. BM4600 und BM4700 integrated.</td>
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