BAUMÜLLER

be in motion be in motion

BM4-O-PRO-01

Option Module PROFIBUS-DP-Slave for b maXX
Operating Instructions

E	5.03040.02

Title	Operating Instructions
Product	Option Module PROFIBUS-DP-Slave for b maXX BM4-O-PRO-01
Last Revision	April 18, 2005
Order number	376489

Binding nature

These Operating Instructions are a part of the unit/machine. These Operating Instructions must always be available to operators and be legible. If the unit/machine is sold, the owner must pass on these Operating Instructions together with the unit/machine.
After selling the unit/machine you must pass on this original and all the copies that you made to the purchaser. After disposing of the machine in any way, you must destroy this original and all the copies that you made.

When you pass on these Operating Instructions, all earlier revisions of the corresponding Operating Instructions are invalidated.
Note that all the data/numbers/information that are quoted are **current values at the time of printing.** This information is **not legally binding** for dimensioning, calculation and costing.
Within the scope of further-development of our products, Baumüller Nürnberg GmbH reserve the right to change their technical data and handling.

We cannot guarantee these Operating Instructions are completely error-free unless this is expressly indicated in our General Conditions of Business and Delivery.

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INTRODUCTION

This Operation Manual is an important constituent of your b maXX 4400 unit; accordingly and last but not the least, in the interest of your own safety, go through this documentation completely.

In this chapter we will describe, the first steps that you should carry out on receiving the module. Also defined are the terms used throughout this documentation. Directions to be followed while using the option module are also given.

Further additional information on operation and use of the modules can be found in the documentation „Operating Instructions b maXX 4400“, „Application Manual b maXX 4400“ and „Application Manual PROFIBUS-DP-Slave for b maXX PLC“.

1.1 First steps

1 Check the consignment , see ▹Packaging and transportation ◃ from page 15 onward.
2 Pass on all the papers supplied alongwith the Plug-in Module to the concerned Sections in your undertaking .
3 Keep suitable personnel ready for assembly and commissioning.
4 Hand over this Operation Manual to these personnel and see that especially the Safety Instructions given therein are understood and followed.

1.2 Terminology used

We shall also be calling the Baumüller-Product „BM4-O-PRO-01“as „Option Module“, „Plug-in Module“ or „PROFIBUS-DP-Slave Module“.

We shall also be calling the Baumüller-Product „BM4-O-PLC-01“ as „b maXX PLC“ or „BM4-O-PLC“, and the product „Basic unit b maXX 4400“ as „b maXX“.

The controller in the basic unit is also called as „b maXX controller“.

A list of abbreviations used can be found in ▹Abbreviations ◃ from page 51 onward.

1.2 Terminology used

2

BASIC SAFETY INSTRUCTIONS

We have designed and manufactured each Baumüller plug-in module in accordance with the strictest safety regulations. Despite this, working with the plug-in module can be dangerous for you.

In this chapter, we will describe the risks that can occur when working with a Baumüller plug-in module. Risks are illustrated by icons. All the symbols that are used in this documentation are listed and explained.

In this chapter, we cannot explain how you can protect yourself from specific risks in individual cases. This chapter contains only general protective measures. We will go into concrete protective measures in subsequent chapters directly after information about the individual risk.

2.1 Hazard information and instructions

WARNING

The following **may occur**, if you do not observe this warning information:

- serious personal injury
- death

The hazard information is showing you the hazards which can lead to injury or even to death.

Always observe the hazard information given in this documentation.

Hazards are always divided into three danger classifications. Each danger classification is identified by one of the following words:

DANGER

- Considerable damage to property
- Serious personal injury
- Death **will** occur

WARNING

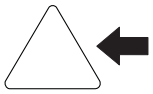
- Considerable damage to property
- Serious personal injury
- Death **can** occur

CAUTION

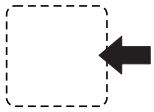
- Damage to property
- Slight to medium personal injury **can** occur

2.1.1 Structure of hazard information

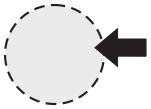
The following two examples show how hazard information is structured in principle. A triangle is used to warn you about danger to living things. If there is no triangle, the hazard information refers exclusively to damage to property.



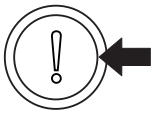
A triangle indicates that there is danger to living things.
The color of the border shows how severe the hazard is: the darker the color, the more severe the hazard is.



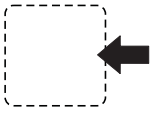
The icon in the rectangle represents the hazard.
The color of the border shows how severe the hazard is: the darker the color, the more severe the hazard is.



The icon in the circle represents an instruction. Users must follow this instruction.
(The circle is shown dashed, since an instruction is not available as an icon for each hazard advisory).



The circle shows that there is a risk of damage to property.



The icon in the rectangle represents the hazard.
The color of the border shows how severe the hazard is: the darker the color, the more severe the hazard is. (The rectangle is shown dashed, since the danger is not represented as an icon with every hazard advisory)

The text next to the icons is structured as follows:

THE SIGNAL WORD IS HERE THAT SHOWS THE DEGREE OF RISK

Here we indicate whether one or more of the results below occurs if you do not observe this warning.

- Here, we describe the possible results. The worst result is always at the extreme right.

Here, we describe the hazard.

Here, we describe what you can do to avoid the hazard.

2.1.2 Hazard advisories that are used

If a signal word is preceded by one of the following danger signs: ⚠ or ⚠ or ⚠, the safety information refers to injury to people.

If a signal word is preceded by a round danger sign: Ⓘ, the safety information refers to damage to property.

2.1.2.1 Hazard advisories about injuries to people

To be able to differentiate visually, we use a separate border for each class of hazard information with the triangular and rectangular pictograms.

For danger classification **DANGER,** we use the ⚠ danger sign. The following hazard information of this danger classification is used in this documentation.

DANGER

The following **will occur**, if you do not observe this danger information:

- serious personal injury
- death

*Danger from: **electricity.** The hazard may be described in more detail here.*

Here, we describe what you can do to avoid the hazard.

DANGER

The following **will occur**, if you do not observe this danger information:

- serious personal injury
- death

*Danger from: **mechanical effects.** The hazard may be described in more detail here.*

Here, we describe what you can do to avoid the hazard.

For danger classification **WARNING,** we use the ⚠ danger sign. The following hazard information of this danger classification is used in this documentation.

WARNING

The following **may occur**, if you do not observe this warning information:

- serious personal injury
- death

*Danger from: **electricity.**The hazard may be described in more detail here.*

Here, we describe what you can do to avoid the hazard.

For danger classification **CAUTION,** we use the ⚠ danger sign. The following hazard information of this danger classification is used in this documentation.

CAUTION

The following **may occur**, if you do not observe this caution information:

- minor to medium personal injury.

*Danger from: **sharp edges.** The hazard may be described in more detail here.*

Here, we describe what you can do to avoid the hazard.

CAUTION

The following **may occur**, if you do not observe this danger information:

- environmental pollution.

*Danger from: **incorrect disposal.** The hazard may be described in more detail here.*

Here, we describe what you can do to avoid the hazard.

2.1.2.2 Hazard advisories about damage to property

If a signal word is preceded by a round danger sign: ⓘ, the safety information refers to damage to property.

CAUTION

The following **may occur**, if you do not observe this caution information:

- property damage.

*Danger from: **electrostatic discharge.** The hazard may be described in more detail here.*

Here, we describe what you can do to avoid the hazard.

2.1.2.3 Instruction signs that are used

wear safety gloves

wear safety shoes

2.2 Information signs

NOTE

This indicates particularly important information.

2.3 Legal information

This documentation is intended for technically qualified personnel that has been specially trained and is completely familiar with all warnings and maintenance measures.

The equipment is manufactured to the state of the art and is safe in operation. It can be put into operation and function without problems if you ensure that the information in the documentation is complied with.

Operators are responsible for carrying out servicing and commissioning in accordance with the safety regulations, applicable standards and any and all other relevant national or local regulations with regard to cable rating and protection, grounding, isolators, overcurrent protection, etc.

Operators are legally responsible for any damage that occurs during assembly or connection.

2.4 Appropriate Use

You must always use the plug-in module appropriately. Some important information is listed below. The information below should give you an idea of what is meant by appropriate use of the plug-in module. The information below has no claim to being complete; always observe all the information that is given in these operating instructions.

- You must only install the plug-in module in series b maXX 4400 units.
- Configure the application such that the plug-in module is always operating within its specifications.
- Ensure that only qualified personnel works with this plug-in module.
- Mount the plug-in module only in the specified slot/slots.
- Install the plug-in module as specified in this documentation.
- Ensure that connections always comply with the stipulated specifications.
- Operate the plug-in module only when it is in technically perfect condition.
- Always operate the plug-in module in an environment that is specified in the technical data.
- Always operate the plug-in module in a standard condition.
  For safety reasons, you must not make any changes to the plug-in module.
- Observe all the information on this topic if you intend to store the plug-in module.

You will be using the plug-in module in an appropriate way if you observe all the comments and information in these operating instructions.

2.5 Inappropriate Use

Below, we will list some examples of inappropriate use. The information below should give you an idea of what is meant by inappropriate use of the plug-in module. We cannon, however, list all possible cases of inappropriate use here. Any and all applications in which you ignore the information in this documentation are inappropriate; particularly, in the following cases:

- You installed the plug-in module in units that are not Series b maXX 4400.
- You ignored information in these operating instructions.
- You did not use the plug-in module as intended.
- You handled the plug-in module as follows
  - you mounted it incorrectly,
  - you connected it incorrectly,
  - you commissioned it incorrectly,
  - you operated it incorrectly,
  - you allowed non-qualified or insufficiently qualified personnel to mount the module, commission it and operate it,
  - you overloaded it,
  - You operated the module
    - with defective safety devices,
    - with incorrectly mounted guards or without guards at all,
    - with non-functional safety devices and guards
    - outside the specified environmental operating conditions
- You modified the plug-in module without written permission from Baumüller Nürnberg GmbH.
- You ignored the maintenance instructions in the component descriptions.
- You incorrectly combined the plug-in module with third-party products.
- You combined the drive system with faulty and/or incorrectly documented third-party products.
- Your self-written PLC software contains programming errors that lead to a malfunction.

Version 1.1 of Baumüller Nürnberg GmbH's General Conditions of Sale and Conditions of Delivery dated 2/15/02 or the respective latest version applies in all cases. These will have been available to you since the conclusion of the contract at the latest.

2.6 Protective equipment

In transit, the plug-in modules are protected by their packaging. Do not remove the plug-in module from its packaging until just before you intend to mount it.

The cover on the b maXX units' controller sections provides IP20 protection to the plug-in modules from dirt and damage due to static discharges from contact. This means that you must replace the cover after successfully mounting the plug-in module.

2.7 Personnel training

WARNING

The following **may occur**, if you do not observe this warning information:

- serious personal injury
- death

Only qualified personnel are allowed to mount, install, operate and maintain equipment made by Baumüller Nürnberg GmbH.

Qualified personnel (specialists) are defined as follows:

Qualified Personnel

Electrical engineers and electricians of the customer or of third parties who are authorized by Baumüller Nürnberg GmbH and who have been trained in installing and commissioning Baumüller drive systems and who are authorized to commission, ground and mark circuits and equipment in accordance with recognized safety standards.

Qualified personnel has been trained or instructed in accordance with recognized safety standards in the care and use of appropriate safety equipment.

Requirements of the operating staff

The drive system may only be operated by persons who have been trained and are authorized.

Only trained personnel are allowed to eliminate disturbances, carry out preventive maintenance, cleaning, maintenance and to replace parts. These persons must be familiar with the Operating Instructions and act in accordance with them.

Commissioning and instruction must only be carried out by qualified personnel.

2.8 Safety measures in normal operation

- At the unit's place of installation, observe the applicable safety regulations for the plant in which this unit is installed.
- Provide the unit with additional monitoring and protective equipment if the safety regulations demand this.
- Observe the safety measures for the unit in which the plug-in module is installed.

2.9 Responsibility and liability

To be able to work with this PROFIBUS-DP-Slave option module in accordance with the safety requirements, you must be familiar with and observe the hazard information and safety instructions in this documentation.

2.9.1 Observing the hazard information and safety instructions

In these operating instructions, we use visually consistent safety instructions that are intended to prevent injury to people or damage to property.

WARNING

The following **may occur**, if you do not observe this warning information:

- serious personal injury
- death

Any and all persons who work on and with Series b maXX units must always have available these Operating Instructions and must observe the instructions and information they contain – this applies in particular to the safety instructions.

Apart from this, any and all persons who work on this unit must be familiar with and observe all the rules and regulations that apply at the place of use.

2.9.2 Danger arising from using this module

The PROFIBUS-DP-Slave option module has been developed and manufactured to the state of the art and complies with applicable guidelines and standards. It is still possible that hazards can arise during use. For an overview of possible hazards, refer to the chapter entitled ▹Basic Safety Instructions ◃ from page 7 onward and to ▹Figure6 on page 20. We will also warn you of acute hazards at the appropriate locations in this documentation.

2.9.3 Warranty and Liability

All the information in this documentation is non-binding customer information; it is subject to ongoing further development and is updated on a continuous basis by our permanent change management system.

Warranty and liability claims against Baumüller Nürnberg GmbH are excluded; this applies in particular if one or more of the causes listed in ▹Inappropriate Use ◃ from page 12 onward or below caused the fault:

- Disaster due to the influence of foreign bodies or force majeure.

3

PACKAGING AND TRANSPORTATION

We package every Baumüller unit before shipping such that it is highly unlikely that it will be damaged in transit.

3.1 Transportation

The plug-in modules are packed at the factory in accordance with the order.

- Avoid severe vibrations and jolts (max. 1 *g*) in transit.
- Avoid static discharges to the plug-in modules' electronic components.
- Do not remove the plug-in module from its protective packaging until just before you intend to mount it.

3.2 Unpacking

After receiving the unit while it is still packaged:

- Check whether there is any visible damage!

If there is:

- Complain to the delivery company. Have your complaint confirmed in writing and contact immediately your nearest Baumüller Nürnberg GmbH subsidiary.

CAUTION

The following **may occur**, if you do not observe this caution information:

- property damage.

Danger from: ***electrostatic discharge.*** *If you touch the plug-in module, and especially its electronic components, and subject them to electrostatic discharges, the module can be damaged or even totally destroyed.*

When handling the plug-in module, always observe the regulations and information on handling electrostaticaly sensitive components.

If no damage is visible:

- Open the unit's packaging.
- Check the scope of supply against the delivery note.

The scope of supply is:

- **BM4-O-PRO-01 (Option module PROFIBUS-DP-Slave for b maXX)**
- these Operating Instructions including the declaration of conformity/manufacturer declaration

- complain to your local Baumüller subsidiary if you find damage or if the delivery is not complete.

3.3 Disposing of the packaging

The packaging consists of cardboard and plastic.

- Observe local disposal regulations if you intend to dispose of the packaging.

3.4 Observe during transportation

The unit was packaged at the manufacturer's plant for initial transportation. If you have to transport the unit at a later date, please note the following points:

- Use the original packaging material

or

- Use packaging that is suitable for electrostatic sensitive devices.

Ensure that the following conditions always apply during transportation:

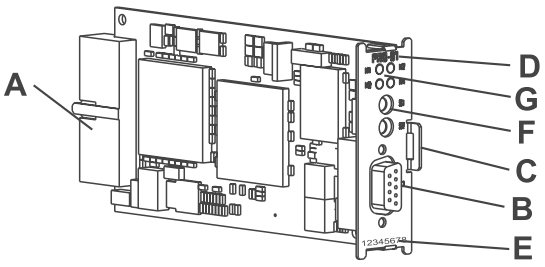
- 2 K 3 (Climatic category)
- - 30° C to + 70° C (Temperature range)
- Max. 1 *g* (Vibration, shock, repetitive shock)

4

DESCRIPTION OF THE OPTION MODULE PROFIBUS-DP-SLAVE FOR B MAXX

In this chapter, we will describe the Option Module PROFIBUS-DP-Slave for b maXX and explaine the type code on the Plug-in Module.

4.1 Structure



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A = Plug connector (back-mounted)
B = 9 pin Sub-D socket (front)
C = Grip
D = Short term
E = Type label
F = Rotary switch
G = LEDs

4000_st53_rev02_int.cdr

Figure 1: Plug-in module BM4-O-PRO-01

4.1.1 Rotary switch

The Option Module PROFIBUS-DP-Slave for b maXX is preconfigured by means of the rotary switch. The PROFIBUS-subscriber address is set thereby (also see the Application Manual PROFIBUS-DP-Slave in this connection).

A PROFIBUS-subscriber receives a subscriber address, with which it reports to the PROFIBUS. This subscriber address can be set by the rotary switches S1 and S2. The setting must be undertaken before switching on the device/unit, since the Option Module PROFIBUS-DP-Slave evaluates the setting once directly after switching on.

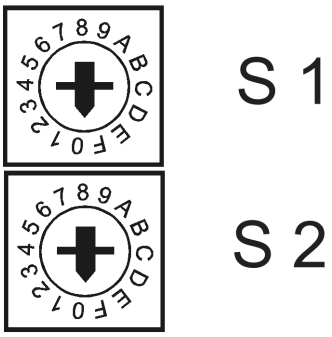


Figure 2: Rotary switches S1 and S2

Setting the PROFIBUS-DP subscriber address 1 to 125 or hexadecimal 01_hex to 7D_hex.

S1 for lower 4 Bits (low nibble)

S2 for the upper 4 Bits (high nibble)

Example 1 The Option Module PROFIBUS-DP-Slave gets the subscriber address 1 or 01_hex.

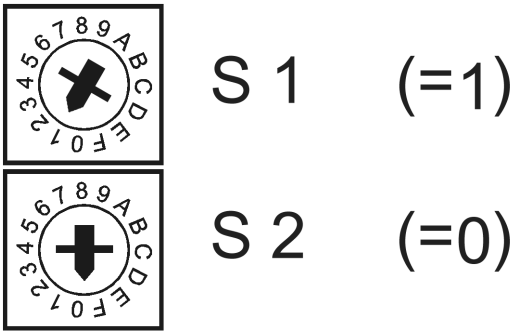


Figure 3: Rotary switch with the set address 1 or 01_hex

Example 2 The Option Module PROFIBUS-DP-Slave gets the subscriber address 125 or 7D_hex.

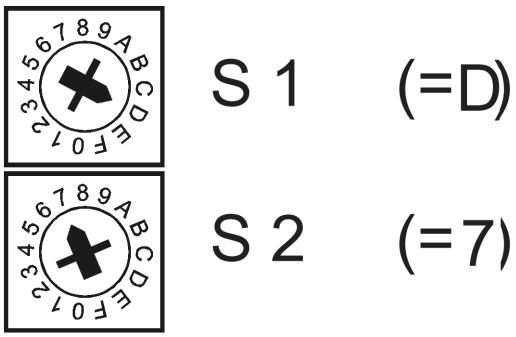


Figure 4: Rotary Switch with the set address 125 or 7D_hex

The subscriber address 0 or 00_hex is not permissible.

Setting of the value 126 or 7E_hex enables a one time configuring of the PROFIBUS-DP-subscriber address by means of a PROFIBUS-Telegram sent by the PROFIBUS-Master (also see the Application Manual PROFIBUS-DP-Slave in this connection).

4.1.2 Slot for the Option Module PROFIBUS-DP-Slave BM4-O-PRO-01

The slot **G** is provided for the Option Module PROFIBUS-DP-Slave.

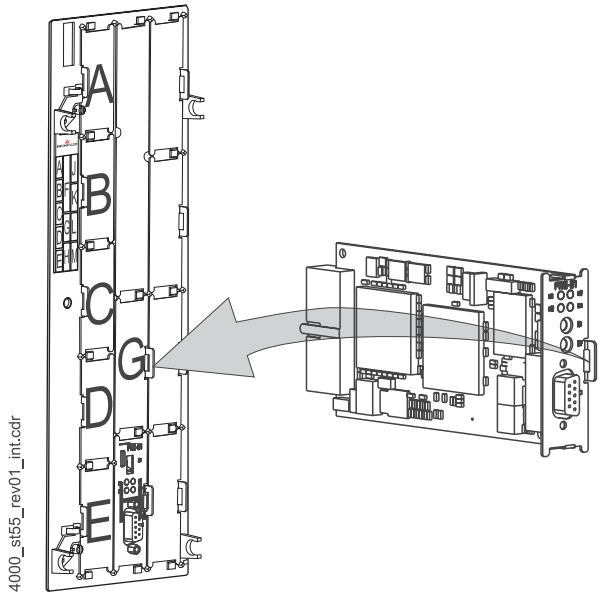


Figure 5: Option Module PROFIBUS-DP-Slave in slot G and b maXX PLC in slot H

NOTE

If you insert a Plug-in Module in a slot which is not suitable, then it will not function. We have ensured , that the Plug-in Module cannot get damaged hereby.

4.2 Danger Zones

The b maXX 4400 basic unit that is plugged into this module represents the greatest hazard. Observe all the safety instructions of the b maXX 4400 basic unit. The illustration below gives you an overview of the danger zones in the plug-in module.

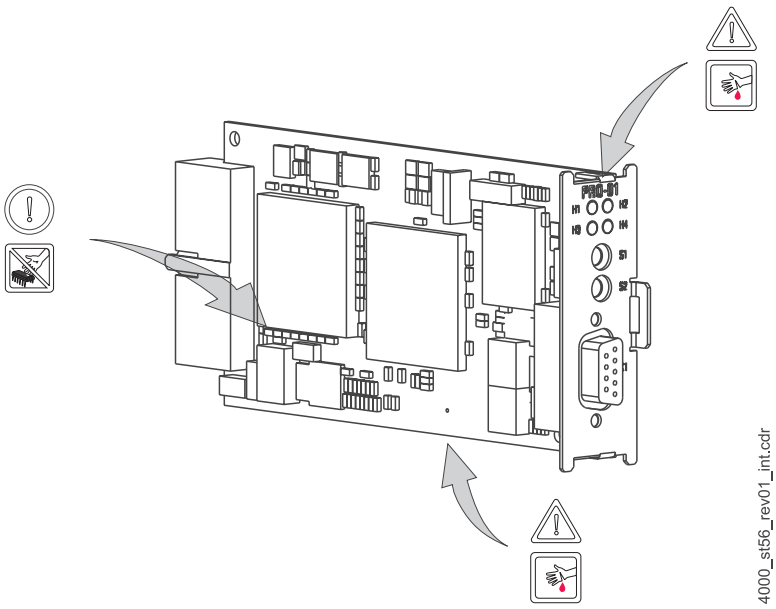


Figure 6: Danger zones

4.3 Labeling of the option module PROFIBUS-DP-Slave type code

On the front panel, you will find the type code („E“ in ▹Figure1 on page 17) of the plug-in module.

NOTE

This type code hold good exclusively for the Option Module PROFIBUS-DP-Slave pertaining to the series b maXX 4400. Other plug-in modules have their own type code.

BM4 - O - PRO - xx - yy - zz	Device generation in which you can install the plug-in module
BM4 - O - PRO - xx - yy - zz	Option module
BM4 - O - PRO - xx - yy - zz	Plug-in module type (b maXX PROFIBUS-DP)
BM4 - O - PRO - xx - yy - zz	Version module: 01: PROFIBUS-DP - Slave
BM4 - O - PRO - xx - yy - zz	Version Hardware: 00: Standard
BM4 - O - PRO - xx - yy - zz	Version Software: 00: PROFIBUS-DP-Slave for b maXX controller 01: PROFIBUS-DP-Slave for b maXX PLC

You will find this type code on the plate indicating the type on the front side of the front panel (see „E“ in ▹Figure1 on page 17). The type code contains the basic data of the plug-in module. For a list of all the technical data, refer to ▹Appendix D - Technical Data◃ from page 59 onward.

5

ASSEMBLY AND INSTALLATION

In this chapter, we will describe mechanical assembly and electrical installation of the option module PROFIBUS-DP-Slave.

Assembly/installation consists of the following steps:

1 Mount the plug-in module.

2 Connect the plug-in module to the communication cables.

5.1 General safety regulations

- Observe the information in chapters ▹Basic Safety Instructions ◃ from page 7 onward.
- Observe all areas on the b maXX unit that could be dangerous when you are carrying out assembly.

The figure below gives you an overview of the danger zones on the plug-in module.

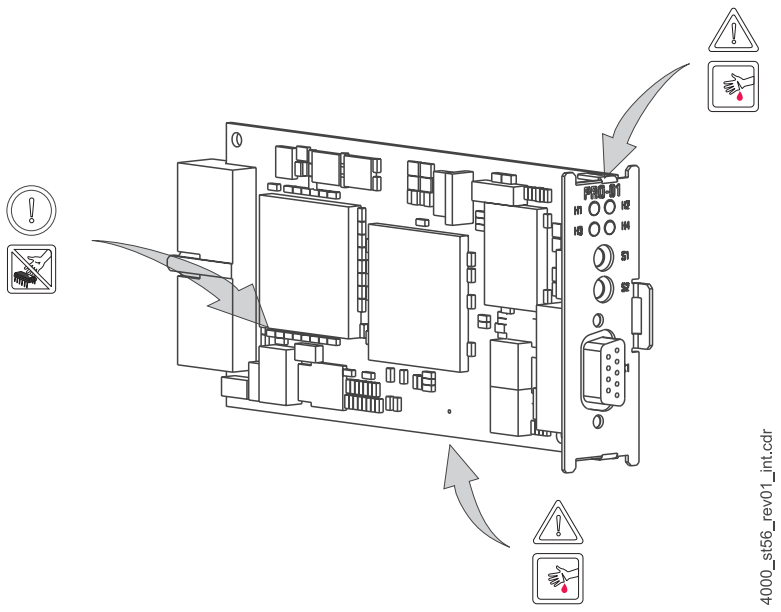


Figure 7: Danger zones

5.2 Requirements of the personnel carrying out work

DANGER

The following **will occur**, if you do not observe this danger information:

- serious personal injury
- death

*The danger is: **Electricity.** The unit and the vicinity of the control cabinet may carry dangerous voltages.*

Before starting any work, ensure that the unit and its vicinity are free of voltage.

Observe the relevant safety regulations when handling current-carrying units.

Ensure that only qualified personnel assembles and installs this plug-in module.

Qualified personnel is considered to be people whose training, experience and knowledge of relevant standards and regulations, accident prevention regulations and conditions in the plant has led to their being authorized by the plant safety manager to carry out activities that are needed in each case while recognizing and avoiding any possible hazards that might arise. The qualifications that are necessary for working with the unit include, for example:

- Trained or instructed in accordance with recognized safety standards in the care and use of appropriate safety equipment

5.3 Preparation

➲ Consult the type code (see "E" in ▹Figure 8 on page 22) to ensure that you have the correct plug-in module.

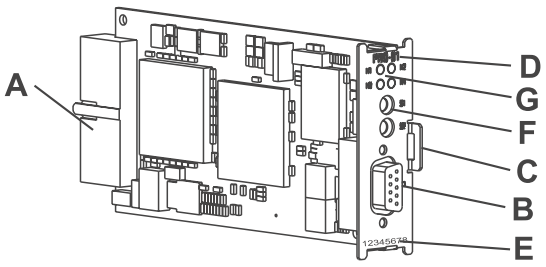
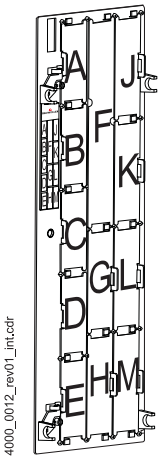


Figure 8: Option module PROFIBUS-DP-Slave for b maXX

➲ Determine the correct slot (see ▹Figure 9 on page 23).



	Function modules						Option modules										
	BM4-F-ENC-XX (encoder 1 for motor management)	BM4-F-ENC-XX (encoder 2)	BM4-F-AIO-XX (analog I/O)	BM4-F-DIO-XX (digital I/O)	BM4-F-IEE-XX (incremental encoder emulation)	BM4-F-CAN-01 (CANsync-Slave)	BM4-O-SER-XX (Sercos-Slave) **in preparation**.	BM4-O-ETH-XX* (Ethernet-Slave)	BM4-O-CAN-05 (CANsync-Slave)	BM4-O-PRO-01 (PROFIBUS-DP-Slave)	BM4-O-CAN-03 (CANopen-Slave)	BM4-O-PLC-XX (PLC)	BM4-O-CAN-06* (CANsync-Master)	BM4-O-PRO-02* (Profibus-Master) **in preparation**	BM4-O-CAN-04* (CANopen-Master)	BM4-O-IEI-XX* (incremental counter ermodule)	BM4-O-MFM-XX* (digital and analog I/O module) **in preparation**
A	**X**	-	-	o	-	-	-	-	-	-	-	-	-	-	-	-	-
B	-	**X**	-	o	-	-	-	-	-	-	-	-	-	-	-	-	-
C	-	-	-	o	**X**	**X**	-	-	-	-	-	-	-	-	-	-	-
D	-	-	-	**X**	-	-	-	-	-	-	-	-	-	-	-	-	-
E	-	-	**X**	o	-	-	-	-	-	-	-	-	-	-	-	-	-
F Controller section permanently installed																	
G	-	-	-	-	-	-	o	**X**	**X**	**X**	**X**	-	**X**	**X**	**X**	**X**	**X**
H	-	-	-	-	-	-	**X**	-	o	o	o	**X**	-	-	-	-	-
J	-	-	-	-	-	-	o	o	o	o	o	o	o	o	o	o	o
K	-	-	-	-	-	-	o	o	o	o	o	-	o	o	o	o	o
L	-	-	-	-	-	-	o	o	o	o	o	-	o	o	o	o	o
M	-	-	-	-	-	-	o	o	o	o	o	-	o	o	o	o	o

X: Preferred slot
Baumüller Nürnberg GmbH recommends plugging the plug-in modules in this slot.

o: Possible slot
Baumüller recommends fitting the plug-in modules in this slot only if the preferred slot is already assigned.

-: Not possible – the board does not function in this slot.

* The condition for these boards is that a PLC module is fitted.

Figure 9: Combinations of slots

5.4 Assembly

1 Switch off the b maXX 4000 unit and secure it from being unintentionally restarted during assembly.

DANGER

The following **will occur**, if you do not observe this danger information:

- serious personal injury
- death

*Danger from: **electricity**. The unit and the vicinity of the control cabinet may carry dangerous voltages.*

Before starting any work, ensure that the unit and its vicinity are free of voltage. Observe the relevant safety regulations when handling current-carrying units.

2 Pull the cover forward from the controller section: you can now see the slots.

3 Look for the intended slot (**G**) on the controller section.

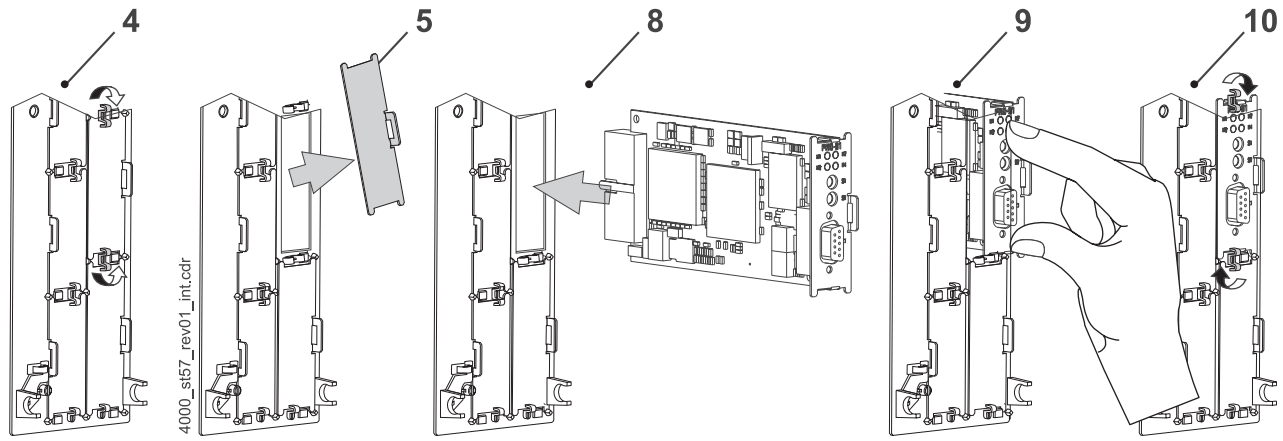


Figure 10: Assembly

4 Turn the spagnolet locks above and below this slot by 90°. The spagnolet locks are now horizontal.

5 Take out the front panel cover forward. Keep this cover. If you remove plug-in cards, you must close the unit again using the cover.

CAUTION

The following **may occur**, if you do not observe this caution information:

- property damage.

*The danger is : **electrostatic discharge.** The option module PROFIBUS-DP-Slave contains parts which are sensitive to ESD.*

Observe and pay attention to the ESD-measures described for handling the plug-in module.

Only hold the plug-in module by the gripping piece (see „C“ in ▹Figure 8 on page 22).

6 Observe and pay attention to the ESD-measures described for handling the modules.

7 Take the option module PROFIBUS-DP-Slave for b maXX out of its transportation packing: Avoid contact with electronic components of the plug-in module.
Set the rotary switch:

Example The option module PROFIBUS-DP-Slave receives the subscriber address 1 or 01_hex.

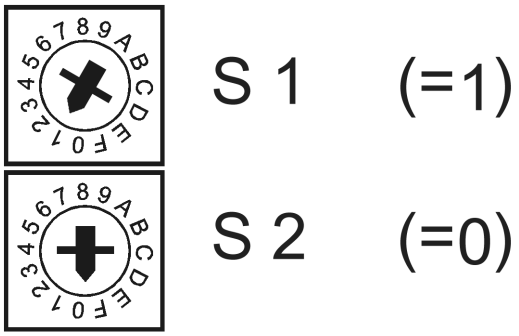


Figure 11: Rotary switch with address set at 1 or 01_hex

8 Insert the Option Module PROFIBUS-DP-Slave in the guide rails of the slot. The handle must be pointing to the side the same as the remaining handles in this slot strip (here : the right side).

9 Keep pressing two fingers on the front panel until you feel the card engage in the end position inside the unit.

10 Turn the spagnolet locks above and below this slot by 90° to the vertical position (locked position).

11 Remount the cover on the unit.

NOTE

If you only want to replace Option Module PROFIBUS-DP-Slave within the scope of repairs with a card of the same type, the rest of the procedure is considerably shorter. In this case, you only need to restore the connections to the module, put the front cover back on and switch the unit on again.

This completes the assembly of the Option Module PROFIBUS-DP-Slave. Connection of cables and the commissioning is covered in the sections that follow.

5.5 Installation

During installation, connect the Option Module PROFIBUS-DP-Slave by the cable(s).

5.5.1 Connection diagram

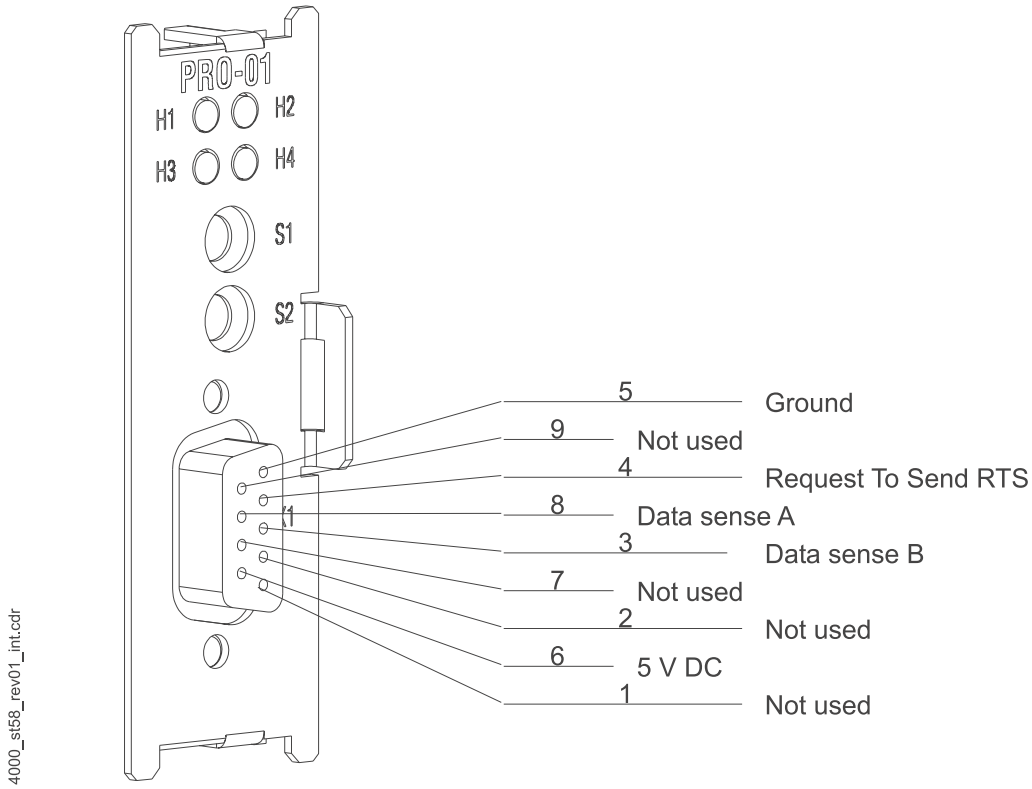


Figure 12: Connection diagram option module PROFIBUS-DP-Slave for b maXX PLC

5.5.2 Requirements of electrical connection

CAUTION

The following **may occur**, if you do not observe this caution information:

- property damage.

Danger from: **electrical voltage**. *If you are not able to ensure the plug-in module's requirements of the electrical connection, the plug-in module can be damaged or destroyed.*

Ensure that you comply with the connection values that are specified in the technical data and that the connections were made in accordance with the stipulations.

Prevent short-circuits between inputs/outputs. In the case of a short-circuit between inputs/outputs, the plug-in module can be destroyed.

To be able to comply with Standard EN 60 204-1 (Electrical Equipment of Machines), you must use the cables that are suggested in the standard. The connectors must not drop; otherwise, there is a risk of short-circuits or external voltages, etc.

- Ensure EMC-appropriate laying of the connection cables.

5.5.3 Requirements of the connecting cable

Different manufacturers can be involved for networking of the overall systems due to standardised cable connection of the PROFIBUS-systems. Attention must be paid thereby only to ensure that the parts used and the cable(s) conform to the PROFIBUS-Norm.

Further additional information on the cables can be found in ▹Appendix B - Accessories◃ from page 53 onward.

5.5.4 Sequence of installation

- Ensure that the b maXX unit is deenergized.
- Remove the front cover from the unit.
- The option module for b maXX PLC is in slot G, siehe ▹Figure 9 on page 23.
- Connect the 9-pole Sub-D-socket on the front panel of the Option Module PROFIBUS-DP-Slave by using the PROFIBUS-communication cable, occupation of terminals, see ▹D.2 Pin assignment 9-pin Sub-D socket X1◃ from page 60 onward.
- Remount the cover on the unit.
- Lay the connecting lines as stipulated in the control cabinet.

This completes installation.

6

COMMISSIONING

In this chapter, we will describe, how to commision the just assembled and installed (see ▹Assembly and installation ◃ from page 21 onward) Option Module PROFIBUS-DP-Slave for b maXX. The commissioning ensures that the Option Module PROFIBUS-DP-Slave for b maXX functions properly. Further additional information on programming can be found in the „Application Manual b maXX PLC“, in the „Application Manual PROFIBUS-DP-Slave for b maXX PLC“ as also in the „Programming Manual PROFIBUS-DP-Slave for the b maXX controller“.

Before starting commissioning, see that the following prerequisites are met:

1 The plug-in module has been assembled correctly.

2 The plug-in module has been installed correctly.

3 All the safety equipment has been commissioned.

4 The b maXX unit is ready for use.

6.1 General safety regulations

➲ Observe the ▹Basic Safety Instructions ◃ from page 7 onward.

DANGER

The following **will occur**, if you do not observe this danger information:

- serious personal injury
- death

Danger from: **mechanical effects**. *At commissioning, the drive can rotate.*

Keep far enough away from the rotating parts. Note that when drives are starting up machine parts can be set in motion. In all cases, activate the machine's safety devices.

6.2 Requirements of the personnel carrying out work

Commissioning work must only be carried out by trained specialists who have understood the safety regulations and information and can implement them.

6.3 Description/inspection of the safety and monitoring systems

Before commissioning the Option Module PROFIBUS-DP-Slave for b maXX, the errors/ error messages eventually present on the basic device b maXX 4400 must be eliminated. These errors may be attributed to faults during assembling (e. g. defective cable) or during installation. Continue with commissioning only after having eliminated the errors.

6.4 Description and inspection of the controls and displays

6.4.1 Sample configuration

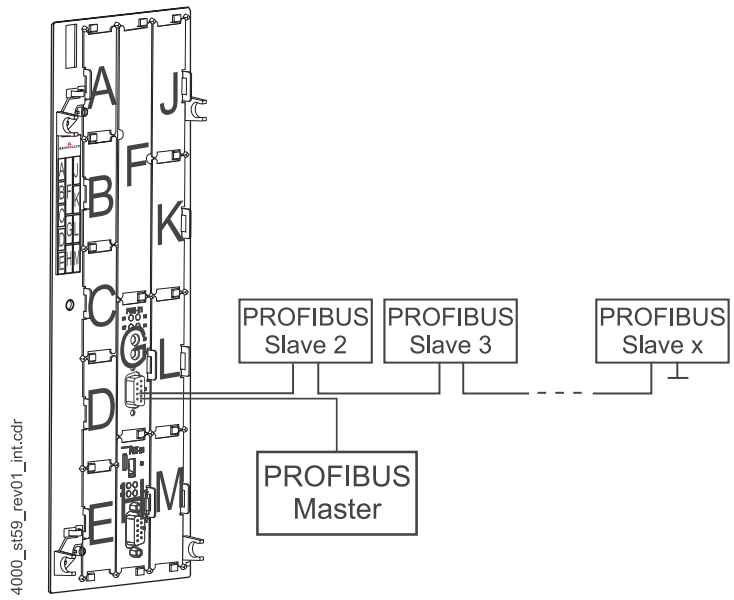


Figure 13: b maXX with PROFIBUS-DP-Slave for b maXX in the option slot G and b maXX PLC in the option slot H

6.4.2 LEDs

The Option Module PROFIBUS-DP-Slave has 4 LEDs (two red and two green) as the display elements. Hereafter, these LEDs will be named H1 to H4. During initialisation and operation of the Option Module PROFIBUS-DP-Slave for b maXX, these LEDs have different significance.

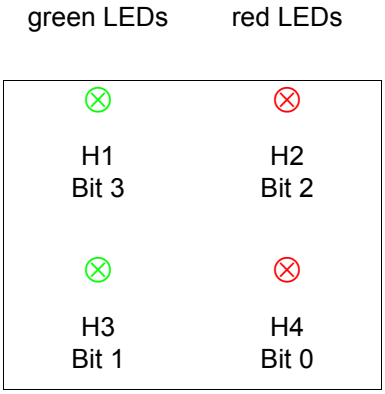


Figure 14: LEDs of the Option Module PROFIBUS-DP-Slave for b maXX PLC

6.4.2.1 Switching on and initialisation of the Option Module PROFIBUS-DP-Slave for b maXX PLC

After swiching on, the LEDs glow one after the other for a brief duration in the sequence H1 (green), H2 (red), H3 (green), H4 (red).

Thereafter, the Option Module PROFIBUS-DP-Slave for b maXX PLC is initialised.

This completes the basic initialisation of the Option Module PROFIBUS-DP-Slave for b maXX PLC. If any error has occured during initialisation, then the LEDs H2 and H4 blink synchronously.

See ▹Finding and eliminating disturbances ◃ from page 37 onward for eliminating the cause of the error.

6.4.2.2 Commissioning of the Option Module PROFIBUS-DP-Slave for b maXX PLC

An application program for the b maXX PLC can undertake configuring the Option Module after initialisation of the Option Module PROFIBUS-DP-Slave for b maXX PLC.

The Option Module now waits for configuring by the b maXX PLC (H1 to H4 off).

In case of the Option Module b maXX PLC, this configuring of the Option Module PROFIBUS-DP-Slave, called as „initialisation of PROFIBUS-Slave interface on the Option Module PROFIBUS-Slave for b maXX PLC“.

Further additional information can be found in the "Application Manual b maXX PLC" and in the "Application Manual PROFIBUS-DP-Slave for b maXX PLC".

After configuring the Option Module by the application program for b maXX PLC, the LEDs have the significance as indicated in the table below:

H1 (green)	H2 (red)	H3 (green)	H4 (red)	Significance
Off	On	Off	Off	Bus Error / Hardware Watchdog *)
On	Off	Off	Off	Data Exchange Mode
Off	Off	On	Off	Parameterizing- / configuring mode
Off	On	Off	On	Configuration error *)
On	On	On	On	Software Watchdog *)
Off	Blinks	Off	Blinks	(Synchronous Blinking) Frequency of blinking of H2 (red) and H4 (red) indicates different errors/faults *)

Blinking: about 200 ms on, then about 200 ms off.

*) See ▹Finding and eliminating disturbances ◃ from page 37 onward for elimination of the cause of the error.

6.4.2.3 Switching on and initialisation of the Option Module PROFIBUS-DP-Slave for b maXX controller

After swiching on, the LEDs glow one after the other for a brief duration in the sequence H1 (green), H2 (red), H3 (green), H4 (red).

Thereafter, the Option Module PROFIBUS-DP-Slave for b maXX controller is initialised.

This completes the basic initialisation of the Option Module PROFIBUS-DP-Slave for b maXX controller. If any error has occured during initialisation, then the LEDs H2 and H4 blink synchronously.

See ▹Finding and eliminating disturbances ◃ from page 37 onward for eliminating the cause of the error.

6.4.2.4 Commissioning of the Option Module PROFIBUS-DP-Slave for b maXX PLC

After initialisation of the Option Module PROFIBUS-DP-Slave, the Option Module is configured as per the parameters set in WinBASS II for the Option Module.

In this connection, see the „Programming Manual PROFIBUS-DP-Slave for b maXX controller".

After configuring the Option Module, the LEDs have the significance as indicated in the table below:

H1 (green)	H2 (red)	H3 (green)	H4 (red)	Significance
Off	On	Off	Off	Bus Error / Hardware Watchdog *)
On	Off	Off	Off	Data exchange Mode
Off	Off	On	Off	Parameterizing- / configuring mode

H1 (green)	H2 (red)	H3 (green)	H4 (red)	Significance
Off	On	Off	On	Configuration error *)
On	On	On	On	Software Watchdog *)
Off	Blinks	Off	Blinks	(Synchronous Blinking) Frequency of blinking of H2 (red) and H4 (red) indicates different errors/faults *)

Blinking: about 200 ms on, then about 200 ms off.

*) See ▹Finding and eliminating disturbances ◃ from page 37 onward for elimination of the cause of the error.

6.5 Commissioning sequence

The commissioning of the Option Module PROFIBUS-DP-Slave for b maXX PLC is divided in the following sections:

1 Recognition of the Option Module PROFIBUS-DP-Slave for b maXX PLC.

2 Testing the function.

The commissioning of the Option Module PROFIBUS-DP-Slave for b maXX controller is divided in the following sections:

1 Recognition of the Option Module PROFIBUS-DP-Slave for b maXX controller.

2 Testing the function.

6.5.1 Recognition of the Option Module PROFIBUS-DP-Slave for b maXX PLC

- Read and observe the ▹General safety regulations ◃ from page 29 onward.
- You must have carried out correctly section "Assembly and Installation".
- Switch on the b maXX 4400.

NOTE

The Option Module PROFIBUS-DP-Slave must not be pulled off or plugged in, when the b maXX unit is switched on. Switch off the unit beforehand.

6.5.2 Testing of functioning of the Option Module PROFIBUS-DP-Slave for b maXX PLC

After switching on, the LEDs blink one after the other (as described in ▹Switching on and initialisation of the Option Module PROFIBUS-DP-Slave for b maXX PLC ◃ on page 31).

The Option Module now waits for configuring by the b maXX PLC (H1 to H4 off). This completes testing of functioning.

If a complete application is present, then the Option Module PROFIBUS-DP-Slave for b maXX PLC may be in the parameterizing- or configuring mode (H3 on, H1 off, H2 off, H4 off) or may already have changed in the data exchange mode (H1 on, H2 off, H3 off H4 off). This change can take place very quickly, so that in the parameterizing- or configuring mode, H3 is switched on for a very brief duration.

6.5.3 Recognition of the Option Module PROFIBUS-DP-Slave for b maXX controller

- Read and observe the ▹General safety regulations ◃ from page 29 onward.
- You must have carried out correctly section "Assembly and Installation".
- Switch on the b maXX 4400 basic unit.

NOTE

The Option Module PROFIBUS-DP-Slave must not be pulled off or plugged in, when the b maXX unit is switched on. Switch off the unit beforehand.

6.5.4 Testing of functioning of the Option Module PROFIBUS-DP-Slave for b maXX controller

After switching on, the LEDs blink one after the other (as described in ▹Switching on and initialisation of the Option Module PROFIBUS-DP-Slave for b maXX PLC ◃ on page 31).

The Option Module changes now in the parameterizing- or configuring mode (H3 on, H1 off, H2 off, H4 off).

If a complete application is present, then the Option Module PROFIBUS-DP-Slave for b maXX PLC may thus already have changed in the data exchange mode (H1 on, H2 off, H3 off H4 off). This change can take place very quickly, so that in the parameterizing- or configuring mode, H3 is switched on for a very brief duration.

7

OPERATION

7.1 Operation of the Option Module PROFIBUS-DP-Slave for b maXX PLC

Instructions for operation of the Option Module PROFIBUS-DP-Slave for b maXX PLC can be found in the "Application Manual PROFIBUS-DP-Slave for b maXX PLC", as also in "Application Manual b maXX PLC" and in the "Programming Manual PROPROG wt II".

7.2 Operation of the Option Module PROFIBUS-DP-Slave for b maXX controller

Instructions for operation of the Option Module PROFIBUS-DP-Slave for b maXX controller can be found in the "Programming Manual PROFIBUS-DP-Slave for the b maXX controller".

8

FINDING AND ELIMINATING DISTURBANCES

In this chapter, we will describe disturbance displays on the Option Module PROFIBUS-DP-Slave for b maXX. We explain the meanings of each disturbance display and how you can respond to them.

8.1 Safety regulations

- Observe the ▹Basic Safety Instructions ◃ from page 7 onward.

8.2 Requirements of the personnel carrying out work

The personnel who work with the b maXX basic unit must have been instructed in operating the unit and be familiar with correctly operating it. Responding to error displays and status conditions in particular requires special knowledge that operators must demonstrate. Below, we will inform you about the various disturbances and the error messages that result from them. These disturbances can have mechanical or electrical causes.

8.3 Error messages (error list) - responses to errors

8.3.1 Option Module PROFIBUS-DP-Slave for b maXX PLC

The Option Module PROFIBUS-DP-Slave for b maXX PLC signals errors by the LED-combinations indicated below:

H1 (green)	H2 (red)	H3 (green)	H4 (red)	Meaning
Off	On	Off	Off	Bus Error / Hardware Watchdog *)
On	Off	Off	Off	*Data Exchange Mode*
Off	Off	On	Off	*Parameterization- / Configuration mode*
Off	On	Off	On	Configuration error **)
On	On	On	On	Software Watchdog ***)
Off	Blinks	Off	Blinks	(Synchronous Blinking) The blinking frequency of H2 (red) and H4 (red) represents different errors.****)

Blinking: about 200 ms on, then about 200 ms off

*) Bus Error:
The Option Module can monitor by Watchdog-time (set by the master via a PROFIBUS-Telegramm), whether (or not) communication with the master takes place within this time period. If after expiry of this period, there is no communication with the master, then this is displayed by the Option Module as "Bus Error / Watchdog". Furthermore, the reference and actual values of the Option Module are not updated.

The Option Module then causes automatic recognition of Baud rate to take place for re-storing communication at the Bus. As soon as the Option Module starts communicating again, the Option Module must be parameterised by the master. Thereafter, the Option Module goes in the "Data_Exchange" mode and the reference and actual values of the Option Module are updated again .

**) Configuration Error
A configuration error is displayed if the Option Module PROFIBUS-DP-Slave has not been configured correctly by b maXX PLC.
In this case, refer to the Chapter „Configuring the Option Module PROFIBUS-DP-Slave by using the PROFIBUS-Slave-Configurator“ in the „Application Manual PROFI-BUS-DP-Slave for b maXX PLC"

***) Software Watchdog
The Software-Watchdog is displayed if the Option Module PROFIBUS-DP-Slave is not functioning properly any more. In this case, the b maXX 4400 must be switched off and again switched on.
If this message occurs again, send the Option Module PROFIBUS-DP-Slave to Baumüller, describing the error(s) occuring thereby.

****) The blinking frequency of H2 and H4 has the following meaning

Pattern	Meaning	Removal of Fault
1-time blinking, then pause	Hardware defective, or no PROFI-BUS-Hardware on the Option Module	Send the module to the manufacturer
2-times blinking, then pause	No PROFIBUS-Slave-Software on the Option Module	Send the module to the manufacturer
3-times blinking, then pause	A new(er) PROFIBUS-Software required on the Option Module PROFIBUS-DP-Slave	Send the module to the manufacturer
4-times blinking, then pause	Hardware-defect in the b maXX basic unit	Send the unit to the manufacturer

8.3.2 Option Module PROFIBUS-DP-Slave for b maXX controller

The Option Module PROFIBUS-DP-Slave for b maXX controller signals errors by the LED-combinations indicated below:

H1 (green)	H2 (red)	H3 (green)	H4 (red)	Meaning
Off	On	Off	Off	Bus Error / Hardware Watchdog *)
On	Off	Off	Off	*Data Exchange Mode*
Off	Off	*On*	Off	*Parameterization- / Configuration mode*
Off	On	Off	On	Configuration error **)
On	On	*On*	On	Software Watchdog ***)
Off	Blinks	Off	Blinks	(Synchronous Blinking) The blinking frequency of H2 (red) and H4 (red) represents different errors.****)

Blinking: about 200 ms on, then about 200 ms off

*) Bus Error:
The Option Module can monitor by Watchdog-time (set by the master via a PROFIBUS-Telegramm), whether (or not) communication with the master takes place within this time period. If after expiry of this period, there is no communication with the master, then this is displayed by the Option Module as "Bus Error / Watchdog". Furthermore, the reference and actual values of the Option Module are not updated.

The Option Module then causes automatic recognition of baud rate to take place for re-storing communication at the bus. As soon as the Option Module starts communicating, the Option Module must be parametrised again by the master. Thereafter, the Option Module goes in the "Data_Exchange" state and the reference and actual values of the Option Module are updated again .

**) Configuration Error
A configuration error is displayed if the Option Module PROFIBUS-DP-Slave has not been configured correctly

See "Programming Manual PROFIBUS-DP-Slave for b maXX controller".

***) Software Watchdog
The Software-Watchdog is displayed if the Option Module PROFIBUS-DP-Slave is not functioning properly any more. In this case, the b maXX 4400 must be switched off and again switched on.
If this message occurs again, send the Option Module PROFIBUS-DP-Slave to Baumüller, describing the error(s) occuring thereby.

****) The blinking frequency of H2 and H4 has the following meaning

Pattern	**Meaning**	**Removal of Fault**
1-time blinking, then pause	Hardware defective, or no PROFI-BUS-Hardware on the Option Module	Send the module to the manufacturer
2-times blinking, then pause	No PROFIBUS-Slave-Software on the Option Module	Send the module to the manufacturer
3-times blinking, then pause	A new(er) PROFIBUS-Software required on the Option Module PROFIBUS-DP-Slave	Send the module to the manufacturer
4-times blinking, then pause	Hardware-defect in the b maXX basic unit	Send the unit to the manufacturer

9

MAINTENANCE

The Option Module PROFIBUS-DP-Slave for b maXX does not require any maintenance, if the ambient conditions specified, see ▹Appendix D - Technical Data◃ from page 59 on-ward are adhered to. Contact Baumüller Nürnberg GmbH, if you notice or sense some defect in the Option Module PROFIBUS-DP-Slave for b maXX.

10

OVERHAUL

You cannot overhaul a defective Option Module PROFIBUS-DP-Slave for b maXX; contact Baumüller Nürnberg GmbH to obtain a replacement unit.

11

DISMANTLING, STORAGE

In this chapter, we will describe how you decommission the Option Module PROFIBUS-DP-Slave for b maXX and store it.

11.1 Safety regulations

➲ Observe the ▹Basic Safety Instructions ◃ from page 7 onward.

WARNING

The following **may occur**, if you do not observe this warning information:

- serious personal injury
- death

The danger is: **Electricity.** *The unit carries hazardous voltages and currents as also residual charge(s) in the intermediate circuit.*

Ensure that all the electrical connections have been deenergized and are secured against re-starting.

Wait until the intermediate circuit has discharged before starting any dismantling work. The capacitors that are used in the unit have discharged automatically **10 min**. after the supply voltage is switched off such that you can dismount the connections without any risk.

Before starting work on the electrical connections, use appropriate measuring equipment to ensure that the connections are dead.

Do not dismount the connections until you are certain that they are dead.

CAUTION

The following **may occur**, if you do not observe this caution information:

- property damage.

The danger is: **electrical destruction.** *The sub-asssembly may get destroyed electrically if it is removed with the supply voltage on .*

Ensure that all the electrical connections have been deenergized and are secured against re-starting.

Wait until the intermediate circuit has discharged before starting any dismantling work. The capacitors that are used in the unit have discharged automatically **10 min**. after the supply voltage is switched off such that you can dismount the connections without any risk.

Before starting work on the electrical connections, use appropriate measuring equipment to ensure that the connections are dead.

Do not dismount the connections until you are certain that they are dead.

WARNING

The following **may occur**, if you do not observe this warning information:

- serious personal injury
- death

The danger is: ***Uncontrollable characteristics of the machine/system.*** *Removal of the module with switched on supply voltage can change the characteristics of the machine/system.*

Ensure that all the electrical connections have been deenergized and are secured against re-starting.

Wait until the intermediate circuit has discharged before starting any dismantling work. The capacitors that are used in the unit have discharged automatically **10 min**. after the supply voltage is switched off such that you can dismount the connections without any risk.

Before starting work on the electrical connections, use appropriate measuring equipment to ensure that the connections are dead.

Do not dismount the connections until you are certain that they are dead.

11.2 Requirements of the personnel carrying out dismantling jobs

The personnel that carries out dismantling must have the necessary knowledge and have been trained appropriately to carry out this work. Choose these persons such that they understand and can apply the safety instructions printed on the unit and parts of it and on the connections.

11.3 Dismantling

Keep the working materials listed below before commencing dismentalling:

- Suitable packing for the Option Module PROFIBUS-DP-Slave, as far as possible, original packing.
- Cover plate to cover the slot.

Carry out the dismentaling in the following order:

1 Deenergize the b maXX 4400 basic unit and secure it from unintentional switch-on.
2 Wait ten minutes (the capacitors discharge).
3 Open the control cabinet.
4 Remove the b maXX 4400 basic unit's cover.
5 Remove the male connectors from the sockets.
6 Turn the spagnolet locks above and below the option module's front panel slot by 90° (in the horizontal position, they are unlocked).

CAUTION

The following **may occur**, if you do not observe this caution information:

- property damage.

*The danger is: **electrostatic discharge.** The electronic components on the PCB may get damaged or destroyed by hand contact.*

Hold the Option Module PROFIBUS-DP-Slave only at the handle on the front panel.

7 Pull the option module by the handle forwards out of the b maXX basic unit.
8 Place the module in the prepared packaging – when doing this, only touch the plug-in module by the handle.
9 Insert a cover plate (or a new Option Module PROFIBUS-DP-Slave for b maXX) in the insertion slot which is open now (the handle must be pointing to the left of the unit).
10 Turn the spagnolet locks by 90° (in the vertical position the locks are fastened.
11 Remount the cover on the unit.
12 Close the control cabinet.
13 Document the dismantling activities carried out (or replacement) of the Option Module PROFIBUS-DP-Slave for b maXX.

You can now switch the unit back on. If you want to dispose of the module, refer to chapter ▷Disposal ◁ from page 49 onward.

11.4 Storage conditions

Store the Option Module PROFIBUS-DP-Slave in a suitable packing and at the storage conditions specified in ▷Technical Data ◁ from page 59 onward.

11.5 Recommissioning

Use the data given under „Storage Conditions“ if you want to start the Option Module PROFIBUS-DP-Slave for b maXX again. Carry out then the commisioning activities all over again.

12

DISPOSAL

Correct and safe way of disposal of the Option Module PROFIBUS-DP-Slave for b maXX (BM4-O-PRO-01) is described in this chapter. Electronic scrap is produced mainly during disposal.

12.1 Safety regulations

➲ Observe the ▹Basic Safety Instructions ◃ from page 7 onward.

CAUTION

The following **may occur**, if you do not observe this caution information:

- minor to medium personal injury.

*The danger is: **sharp edges.** The components of the Option Module PROFIBUS-DP-Slave, sheet metal parts, etc. may be having sharp edges! If you cannot hold the Option Module PROFIBUS-DP-Slave by its handle, you may cut your fingers or the palm.*

Hold the Option Module PROFIBUS-DP-Slave only by the handle on the front plate.

CAUTION

The following **may occur**, if you do not observe this danger information:

- environmental pollution.

*The danger is: **improper disposal.***

Disposal must always be carried out with due regards to and compliance of the safety regulations. Where required, also observe the local regulations. If you cannot carry out the disposal by yourself, then assign this job to a suitable disposal agency.

In the event of fire, hazardous materials may eventually get evolved or liberated.

Do not expose the electronic components to high temperatures.

Berylliumoxid is used as internal insulation, e.g. in various power semiconductors. The Beryllium dust evolved on opening is hazardous to health.

Do not open the electronic structural elements.

12.2 Requirements of the personnel carrying out work

The personnel that carries out disposal/dismantling must have the necessary knowledge and have been trained appropriately to carry out this work. Choose these persons such that they understand and can apply the safety instructions printed on the b maXX 4400 basic unit and parts of it.

12.3 Disposal guide

Conditions

- The Option Module PROFIBUS-DP-Slave has already been correctly dismantled.
- All the necessary technical aids for dismantling are ready for use and are in perfect technical condition.

Sheet steel The front panel is made of galvanized sheet steel. Dispose of the sheet steel in your local reusable ferrous metal system.

Electronic scrap You must dispose of the electronic scrap (PCB) that cannot be further dismantled as special waste. When doing this, observe the applicable regulations.

12.4 Disposal locations/official bodies

Ensure that you carry out disposal in accordance with your company's guidelines and with the regulations of the responsible disposal locations and official bodies. If in doubt, contact the Trade Supervisory Authority that is responsible for your company or the Environmental Protection Authorities.

A

APPENDIX A - ABBREVIATIONS

BACI Baumüller Component Interface

BUB Ballast unit

BUC Baumüller feed/return feed unit

BUG Baumüller converter basic feed unit

BUM Baumüller individual power unit

BUS Baumüller power module

CE Communité Europeenne

CEN Comité Européen de Normalisation

CPU Central Processing Unit

DC d.c. current

DP-RAM Dual-Port RAM

DIN Deutsches Institut für Normung e.V. (German Standards Institute)

EMV Elektromagnetische Verträglichkeit (Electromagnetic Compatibility)

EN Europäische Norm (European standard)

ESD electrostatic sensitive device (elektrostatisch gefährdete Bauteile, EGB)

I/O Input/Output, Eingang und Ausgang

ISO International Standard Organisation

LED Light Emitting Diode

PLC Process loop control, Speicher programmierbare Steuerung, SPS

PNO PROFIBUS Nutzerorganisation (User Organisation) e.V.

PROFIBUS
Process **Fi**eld**bus**, DIN 19245

PROFIBUS-DP
PROFIBUS - **D**ecentralised **P**eriphery, this is the Bus from the Profibus-Master to the Profibus-Slaves

RAM Random Access Memory

VDE Verband deutscher Elektrotechniker (German Association of Electrical Engineers)

16# Prefix for Hexadecimal number

B

APPENDIX B - ACCESSORIES

All the accessories that are available for the Option Module PROFIBUS-DP-Slave for b maXX of Baumüller Nürnberg GmbH are listed in this appendix.

If you have any queries about accessories or suggestions for improvements, Baumüller's Product Management will be pleased to hear from you.

B.1 List of all the accessories

Different manufacturers can be involved for networking of the overall systems due to standardised cable connection of the PROFIBUS-systems. Attention must be paid thereby only to ensure that the parts used and the cable(s) conform to the PROFIBUS-Norm.

Selection of Siemens Plugs

Cable course/path	vertical	can be set from 0° - 30°	at a slope of 30°
Transmission speeds	9,6 kBit/s...12 MBit/s	9,6 kBit/s...12 MBit/s	9,6 kBit/s...1,5 MBit/s
Termination resistance	integrated, can be added in the circuit	integrated, can be added in the circuit	----------
Ordering Numbers	6ES7 972-	6ES7 972	6ES7 972
without PG-connecting bush	0BA10-0XA0	0BA20-0XA0	0BA30-0XA0
with PG-connecting bush	0BB10-0XA0	0BB20-0XA0	----------

NOTE

At least one plug with PG-connecting bush per PROFIBUS-Ring must be available for facilitating error analysis, so that a PROFIBUS-Analyser can be connected without any problem.

C

APPENDIX C - MANUFACTURER DECLARATION

In this section we provide general information about EU directives, the CE symbol and the Declaration by Manufacturer.

C.1 What is an EU directive?

EU directives specify requirements. The directives are written by the relevant bodies within the EU and are implemented by all the member countries of the EU in national law. In this way the EU directives guarantee free trade within the EU.

An EU directive only contains essential minimum requirements. You will find detailed requirements in standards, to which references are made in the directive.

C.2 What the CE symbol indicates

a) The CE marking symbolizes conformity to all the obligations incumbent on manufacturers for the product by virtue of the Community directives providing for its affixing.

…

b) The CE marking affixed to industrial products symbolizes the fact that the natural or legal person having affixed or been responsible for the affixing of the said marking has verified that the product conforms to all the Community total harmonization provisions which apply to it and has been the subject of the appropriate conformity evaluation procedures.

…

Council Decision 93/465/EEC, Annex I B. a) + c)

We affix the CE mark to the equipment and to the documentation as soon as we have established that we have satisfied the requirements of the relevant directives.

All converters and control systems supplied by the Baumüller Nürnberg GmbH satisfy the requirements of 73/23/EEC (Low Voltage Directive).
As all converters and control systems comply with the requirements of the harmonized

standards EN50178, EN 60204-1, EN 60529 and HD625.1 S1, the protection targets of 73/23/EWG are reached.

With specified application of this Baumüller equipment in your machinery, you can act on the assumption that the equipment satisfies the requirements of 98/37/EG (machinery directive). Therefore the equipment is developed and constructed in such a way, that the requirements of the harmonized standard EN 60204-1 can be met by the electrical installation.

Compliance with 89/336/EEC (EMC Directive) depends on how the equipment is installed. Since you are performing installation yourself, it is you who are responsible for complying with 89/336/EEC.
A declaration of conformity on the EMC directive therefore cannot be issued.

We will provide you with support in the form of EMC information. You will find this information in the operating manual and in “filters for main applications”. When you have complied with all the requirements we impose in this documentation, you can assume that the drive satisfies the requirements of the EMC Directive.
The limit values and requirements for variable-speed electrical drives are determined in the harmonized product standard EN61800-3. If you are erecting an installation, for which a declaration of conformity on the EMC directive must be generated, it may be necessary to specify several harmonized standards, which you have used for the compliance of the protection targets of the directive. The harmonized product standard EN 61800-3 has to be used with electrical drives.

To enable you to market your machine within the EU, you must be in possession of the following:

- Conformity mark (CE mark)
- Declaration(s) of Conformity regarding the directive(s) relevant to the machine

C.3 Definition of the term Declaration by Manufacturer

A Declaration by Manufacturer as defined by this documentation is a declaration that the machine/safety component brought into circulation conforms to all the relevant fundamental safety and health requirements.

By issuing the Declaration of Conformity in this section the Baumüller Nürnberg GmbH declares that the equipment conforms to the relevant fundamental safety and health requirements resulting from the directives and standards which are listed in the Declaration of Conformity .

The Baumüller equipment is integrated into a machine. For health and safety, of the users for example, it is important for the entire machine to conform to all the relevant fundamental safety and health requirements. For this reason the Baumüller Nürnberg GmbH draws attention in the Declaration by Manufacturer to the fact that it is prohibited to put the machine as a whole into operation before it has been declared that the machine conforms to the provisions of the Machinery Directive.

C.4 Declaration of Manufacturer

EG-Herstellererklärung

Declaration by Manufacturer

gemäß EG-Richtlinie 98/37/EG (Maschinen) vom 22.06.1998
geändert durch: 98/79/EG vom 27.10.1998

in accordance with EC directive 98/37/EG (machinery) dated 22.06.1998
changed by: 98/79/EC dated 27.10.1998

Optionsmodul PROFIBUS-DP-Slave für b maXX BM4-O-PRO-01

Das obige Gerät wurde entwickelt und konstruiert sowie anschließend gefertigt in Übereinstimmung mit o. g. EG-Richtlinie und u. g. Normen in alleiniger Verantwortung von:
The unit specified above was developed and constructed as well as manufactured in accordance with the above mentioned directive and the standards mentioned below under liability of:

Baumüller Nürnberg GmbH, Ostendstr. 80 - 90, D- 90482 Nürnberg

Berücksichtigte Normen - standards complied with:

Norm / standard	
EN 60204-1	Sicherheit von Maschinen - Elektrische Ausrüstung von Maschinen Safety of machinery - Electrical equipment of machines

Die Inbetriebnahme der Maschine, in die dieses Gerät eingebaut wird, ist untersagt bis die Konformität der Maschine mit der obengenannten Richtlinie erklärt ist.
The machinery into which this unit is to be incorporated must not be put into service until the machinery has been declared in conformity with the provisions of the directive mentioned above.

Nürnberg, 20. April 2005

27/4/05

Andreas Baumüller
Geschäftsführer
Head Division

ppa. 22.4.2005

ppa. Dr. Peter Heidrich
Entwicklungsleiter
Head of development

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D

APPENDIX D - TECHNICAL DATA

The technichal data of the Option Module PROFIBUS-DP-Slave manufactured by Baumüller Nürnberg GmbH is given in this appendix.

D.1 Connection values

Baud rate	9,6 kBit/s, 19,2 kBit/s, 31,25 kBit/s, 45,45 kBit/s, 93,75 kBit/s, 187,5 kBit/s, 500 kBit/s, 1,5 MBit/s, 3,0 MBit/s, 6,0 MBit/s, 12,0 MBit/s
Physical Layer	IEC 61158
Potential Separation	Optocoupler, DC/DC-Converter
Plug connector	9-pole Sub-D-socket
Operating Voltage	+5 V DC internal
Current Intake	350 mA
Ambient Conditions	Same as b maXX 4400 basic unit
Storage Conditions	Same as b maXX 4400 basic unit
Transportation Conditions	Same as b maXX 4400 basic unit

D.2 Pin assignment 9-pin Sub-D socket X1

Pin No.	Assignment
1	not assigned
2	not assigned
3	Data line-B
4	Request To Send RTS
5	Data ground
6	5 V_{DC}
7	not assigned
8	Data line-A
9	not assigned

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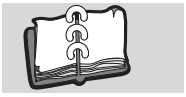
Revision level	State	Modifications
5.03040.02	18.04.2005	Chapter 4.1.1 Rotary switch and chapter 5.4 Example: Rotary switch turned by 180° (representation as mounted on module)



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