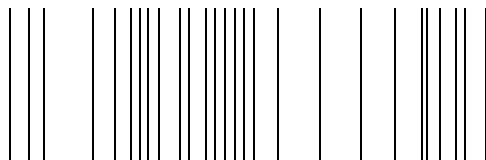
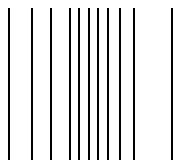


**be in motion** **be in motion**



**BM4-O-EIP-01**

**EtherNet/IP adapter module**

**Manual**

**E**

5.08031.01



Title	Manual
Product	<b>BM4-O-EIP-01 EtherNet/IP adapter module</b>
Version	5.08031.01
Issue date	10.05.2009
Part no.	432419
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# INTRODUCTION

This manual is an important component of your b maXX<sup>®</sup>4400 device. Please, therefore completely read this manual, before starting operation, last but not least on behalf of your own security.

In this chapter we describe the first steps, which have to be done after you have received the module **BM4-O-EIP-01**. We will define terms, which are continuously used throughout this manual. We will also be giving you instructions, with regards to what should be taken into consideration when handling with this module.

Further information is to be found in the manuals „Manual b maXX<sup>®</sup>4400“ document no. 5.04043 and „b maXX<sup>®</sup> 4400 Parameter manual“ document no. 5.03039.

## 1.1 First steps

---

- 1 Check delivery, see [►Packing and Transportation ◀](#) from page 15.
- 2 Forward all documents, which were delivered with the plug-in module to the responsible places in your company.
- 3 Provide capable personnel for mounting and commissioning.
- 4 Hand over this manual to the personnel and assure, that in particular the safety instructions, which are stated here are understood and can be followed.

## 1.2 Used terms

---

For the Baumüller product „**BM4-O-EIP-01**“, we will also use in this manual the terms „Module“, „Plug-in module“ or „EtherNet/IP adapter module“.

For the product „Basic unit b maXX<sup>®</sup> 4400“ we will use the term „b maXX“. The controller in the basic unit is also referred as the „b maXX controller“.

For a list of the abbreviations that are used, refer to [►Abbreviations ◀](#) from page 51.



# FUNDAMENTAL SAFETY INSTRUCTIONS

Every Baumüller plug-in module we have constructed and made according to strict safety specifications. Nevertheless the work with the plug-in module can be dangerous.

In this chapter we described dangers, that can arise when working with the Baumüller plug-in module. Dangers we point up with symbols (icons). All symbols that are used in this manual are listed and explained.

How you can protect yourself against the single dangers in the concrete case, we will not explain in this chapter. In this chapter we inform you only about general safety precautions. Concrete protective measures we will always give directly in the subsequent chapters after the note to the danger.

## 2.1 Hazard information and commands

---



Hazard information will show you the dangers, that can lead to injuries or even to death. Always follow the hazard information given in this documentation.

---

We always divide a hazard into three danger classes. Every danger class is signalized by one of the following signal words:

### **DANGER**

- considerable damage to property • severe injury • death - **will** occur

### **WARNING**

- considerable damage to property • severe injury • death - **can** occur

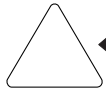
### **CAUTION**

- damage to property • light to medium personal injury - **can** occur

## 2.1 Hazard information and commands

### 2.1.1 Structure of a hazard information

The following examples show the principle construction of a hazard information. A triangle is used, if there is a danger against humans. If the triangle is missing, the notes of danger only refer to damages to property.



A triangle shows, that there is a danger for humans.  
The color of the border shows, how great the hazard is - the darker the color the greater the danger is.



The icon in the square describes the hazard.  
The color of the border shows, how great the hazard is - the darker the color the greater the danger is.



The icon in the circle demonstrates a command. This command must be followed by the operator.  
(the circle is dashed, because not by every hazard information a command is existent as icon)



The circle demonstrates, that a danger for damage to property exists.



The icon in the square describes the hazard.  
The color of the border shows, how great the hazard is - the darker the color the greater the danger is. (the square is dashed, because not by every hazard information the danger is demonstrated as an icon)

The text next to the icons is constituted as follows:

#### **HERE IS THE SIGNAL WORD, WHICH SHOWS THE LEVEL OF THE DANGER**

Here we write, if one or more of the consequences mentioned below appear, if this warning information is not followed.

- here we describe the possible consequences. The worst consequence is right most.

*Here we describe the danger.*

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



## 2.1.2 Used hazard instructions

If there is a hazard sign in front of a signal word: ⚠ or ⚠ or ⚠, then the safety information refers to personal injury.

If there is a round hazard sign in front of a signal word: ⓘ then the safety instruction refers to damage to property.

### 2.1.2.1 Hazard information against personal injuries

In order to differentiate optically we use for every class of hazard information an own bordering for the triangular hazard information and for the square pictographs.

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



#### DANGER

The following **will arise**, if you ignore this warning note:

- severe injury
- death

*The hazard is: **electricity**. If necessary, here the hazard is described more exact.*

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



#### DANGERDANGER

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

- serious personal injury
- death

*The hazard is: **mechanical influence**. If necessary, here the hazard is described more exact.*

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

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



#### WARNING


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

- serious personal injury
- death

*The hazard is: **electricity**. If necessary, here the hazard is described more exact.*

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

## 2.1 Hazard information and commands

For the hazard class **CAUTION** we use the hazard sign . The following hazard information of this hazard class is used in this documentation.

The following hazard information of this hazard class is used in this documentation.



### CAUTION

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

- minor to medium personal injury.

*The hazard is: **sharp edges**. If necessary, here the hazard is described more exact.*

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.

*The hazard is: **improper disposal**. If necessary, here the hazard is described more exact.*

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

### 2.1.2.2 Hazardous instructions against damage to property

If there is a round hazard sign in front of a signal word:  then the safety instruction refers to damage to property.



### CAUTION

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

- property damage.

*The hazard is: **electrostatic discharge**. If necessary, here the hazard is described more exact.*

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

## 2.1.2.3 Used mandatory signs



wear safety gloves



wear safety shoes

## 2.2 Information sign



### NOTE

This note is a particularly important information.

## 2.3 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 devices are made according to the state-of-the-art technology and they are fail-safe. They can be installed safe, can be put into operation and they function without problems, if it is assured, that the instructions of the manual are followed.

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.

### 2.4 Appropriate use

---

You must always use the plug-in module appropriately. Some important information is listed below. The information stated below shall give you some impression on how to use the plug-in module conventionally. We do not raise any claim to the sufficiency of the notes stated below - follow all instructions given in this operating instruction.

- You must only install the plug-in module in series b maXX<sup>®</sup> 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.
- Install the plug-in module only in the specified slot/slots.
- Install this device in the way as it is described in the manual.
- Ensure that connections always comply with the stipulated specifications.
- Operate the plug-in module only when it is technically unobjectionable.
- Always operate the plug-in module in an environment, as specified in „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

---

In the following we are listing some examples of inappropriate use. The notes below should give you an idea of what is meant by inappropriate use of the plug-in module. However, we cannot list all possible cases of inappropriate use here. All usages, in which the instructions of this manual are disregarded are faulty and therewith forbidden, especially in the following cases:

- You have build in the plug-in module in other devices as the series b maXX 4400.
- You disregarded the notes in this manual.
- You have not used the plug-in module according to the terms.
- The plug-in module has been
  - mounting incorrect,
  - connected incorrectly,
  - commissioning incorrect,
  - operated incorrectly,
  - mounted, connected, commissioned, operated and/or maintained by not qualified or inadequately qualified personnel,
  - overloaded,
  - operated
    - with defective safety devices,
    - with incorrectly mounted safety devices or without safety devices,
    - with non-functional safety- and protection devices,
    - not within the required environmental conditions

- You have reconstructed the plug-in module, without having this authorized in written form 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.

The „General sales terms and delivery conditions“ version 1.1 from February 15, 2002 or the newest version of Baumüller Nürnberg GmbH are always valid. These will have been available to you since the conclusion of the contract at the latest.

## 2.6 Safety devices

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

The dust cover of the controller of the b maXX<sup>®</sup> devices protects protection class IP20 the plug-in modules from dirt and damages caused by static discharges due to touches. This means that you must replace the cover after successfully mounting the plug-in module.

## 2.7 Training of the personnel



### WARNING

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

- serious personal injury
- death

Devices of the company Baumüller Nürnberg GmbH may only be assembled, installed, operated and maintained by qualified personnel.

Qualified personnel (professionals) is defined below:

Qualified personnel

Authorized electronic engineers and skilled persons of the customer or third persons, who have learned the installation and commissioning of Baumüller drive systems and who are authorized, to put circuits and devices into operation according to the standards of the safety technology, to ground and to label.

Qualified personnel has a training or an instruction due to the local valid standards of the safety technique in maintenance and usage of an adequate safety equipment.

Requirements to the operating personnel

The operating of the drive system must only be executed by persons, who have had a training, who have been instructed and who have been authorized for this.

Fault clearance, servicing, cleaning, maintenance and exchange must only be carried out by skilled or instructed personnel. These persons must know the operating manual and must act according to this.

The commissioning as well as the instruction must only be carried out by qualified personnel.

### 2.8 Safety measures in standard operation

---

- Consider the valid safety regulations for the system at the installation location of the device, in which this device is mounted.
- Provide the unit with additional monitoring and protective equipment if the safety regulations demand this.

### 2.9 Responsibility and liability

---

To be able to work as safe as possible with this EtherNet/IP adapter module, you must know and follow the danger notes as well as the safety instructions of this manual.

#### 2.9.1 Observing the safety notes and safety instructions

---

In this manual we use visually unified safety instructions, which are intended to prevent from personal injury or damage to property.



#### **WARNING**

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

- serious personal injury • death

All persons, who work on and with devices of the series b maXX<sup>®</sup>, must have this manual available at their work place and must follow the instructions and notes contained therein - especially the safety instructions.

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.

#### 2.9.2 Dangers when handling this module

---

The slave module was developed and manufactured according to the state-of-the-art technology and in compliance with the valid regulations and standards. Nevertheless, dangers can arise during use. An overview of possible dangers is to be found in chapter [►Fundamental safety instructions◄](#) from page 7 and in [►Figure 3◄](#) on page 19.

We warn you against the acute danger at the respective places in this manual.

#### 2.9.3 Warranty and Liability

---

All information in this manual is non-binding customer information; it is subject to ongoing further development and is updated on a continuous basis by our revision service.

Warranty- and liability claims against Baumüller Nürnberg GmbH are excluded, if particularly one or more of the under [►Inappropriate use◄](#) on page 12 described causes have led to the damage.

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

## PACKING AND TRANSPORTATION

Before shipment we have packed every Baumüller plug-in module in such a way, that a damage during transportation is nearly impossible.

### 3.1 Transportation

---

The plug-in modules are packed according to the order in the manufacturing company.

- Avoid strong transportation vibrations and severe hits (max. 1 g).
- Avoid statical discharges on the electronically parts of the plug-in modules.
- Don't take the plug-in module out of the protecting packing until shortly before you want to mount it.

### 3.2 Unpacking

---

After receipt of the plug-in module, which is still packed:

- Check, if transportation damages are visible on the packing!

If so:

- Immediately complain to the deliverer. Let the claim be confirmed in writing and immediately contact the substitution of Baumüller Nürnberg GmbH, which is in charge for your company.

---

#### CAUTION



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

- Property damage



*The danger is: **electrostatic discharge**. If you expose the plug-in module, especially the electronically parts, to electrical discharges by touching with your hand, it can sustain damage or can completely be destroyed.*

Refer to the instructions and notes referring to the working with electrostatic sensitive devices, when working with the plug-in module.

---

### 3.3 Dispose packing

---

If there is no transportation damage recognizable:

- Open the packing of the module.
- Check the scope of supply on basis of the delivery note.

The scope of supply is:

- **BM4-O-EIP-01 (EtherNet/IP adapter module)**
  - This manual inclusively Declaration of Manufacturer
- 
- Pack in the module back into the packing for transportation and raise a claim at the serving Baumüller-substitution, in case a transportation damage is recognizable or the delivery is not complete.

### 3.3 Dispose packing

---

The packing consists of cardboard and plastics.

- Regard the local disposal instructions, in case you dispose the packing.

### 3.4 To be considered by transportation

---

For the first transportation of the module, the module was packed in the manufacturer's company. In case you would have to transport the module later on, please consider the following:

- Use the original packing.
- or
- Use a packing which is suitable for ESD-sensitive modules.

Assure, that the following conditions are fulfilled during the entire transport:

- 2 K 3 (climatic category) <sup>1)</sup>
- - 30 °C to + 70 °C (temperature range)
- max. 1 g (vibration, shock, repetitive shock)

<sup>1)</sup> EN 50178, table 7

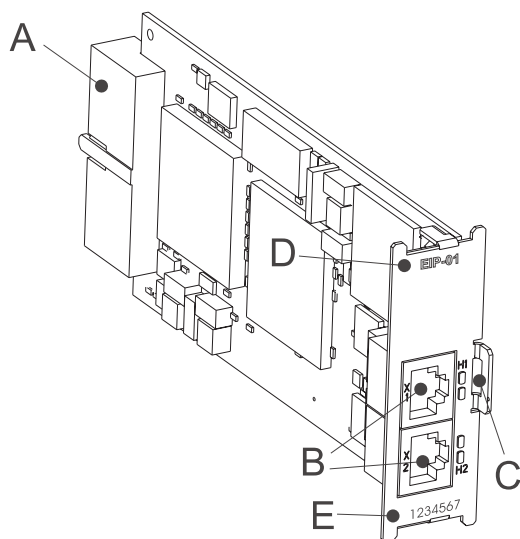


## DESCRIPTION OF THE ETHERNET/IP ADAPTER MODULE

In this chapter we describe the adapter module **BM4-O-EIP-01** and explain the type key on the plug-in module. The EtherNet/IP adapter module serves as a connection of b maXX<sup>®</sup> 4400 to the digital interface in order to communicate between controls and drives in numerical controlled machines.

### 4.1 Structure

The EtherNet/IP adapter module is a module to plug in a device from the b maXX<sup>®</sup> series. The plug-in module has a connector (A) on the back side, which is used for the connection of the plug-in module with the controller unit.



A = connector (on the back side)

B = Input/output

C = handle

D = module identification

E = serial number

Figure 1: EtherNet/IP plug-in module

The EtherNet/IP adapter module has on the front side two connectors. The lower one is to connect the module to the EtherNet/IP network (connector assignment see [►RJ45 connections◄](#) on page 30).

The data of the plug-in module and of the accessories (connection cables) are to be found in chapter [►Technical data◄](#) from page 57.

### 4.1.1 Slots

You may only plug in one EtherNet/IP adapter module in a free slot at the b maXX<sup>®</sup> 4400. The slots **G** or **H** can be used (possible slots see [►Figure 5◄](#) on page 23).

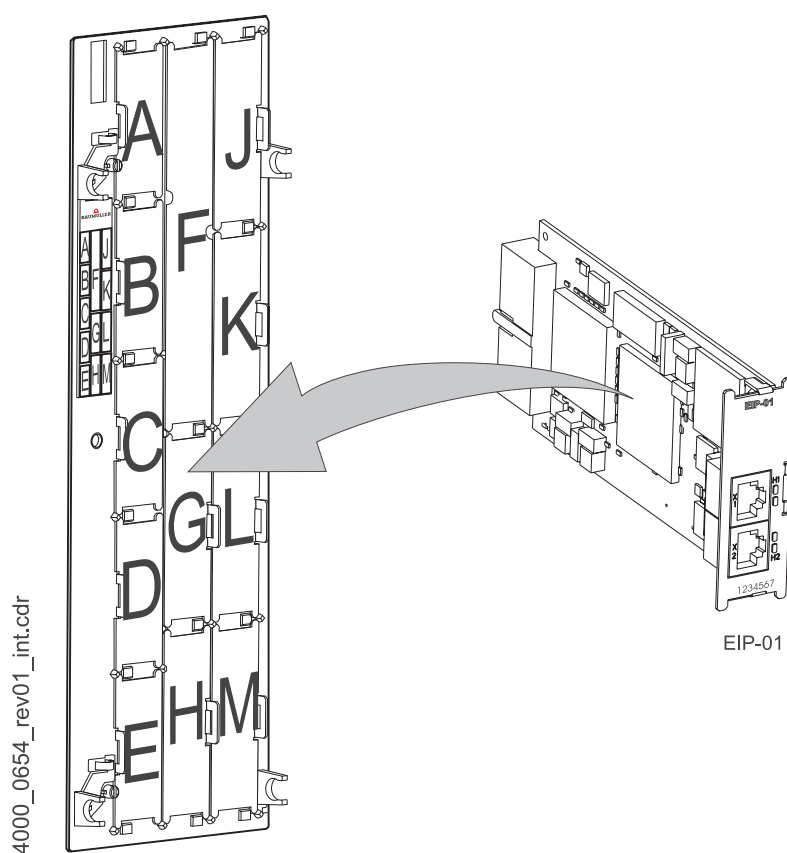


Figure 2: Controller unit, slot

#### NOTE



In case you insert a Baumüller plug-in module into an unsuitable slot, it will not operate. We have assured, that the plug-in module is not damaged thereby.

## 4.2 Danger areas

The greatest dangers originate from the basic unit b maXX<sup>®</sup>4400, in which this module is inserted. Please follow all the safety instructions for the basic unit b maXX<sup>®</sup>4400. The following figure gives a view of the existing danger areas at the plug-in module.

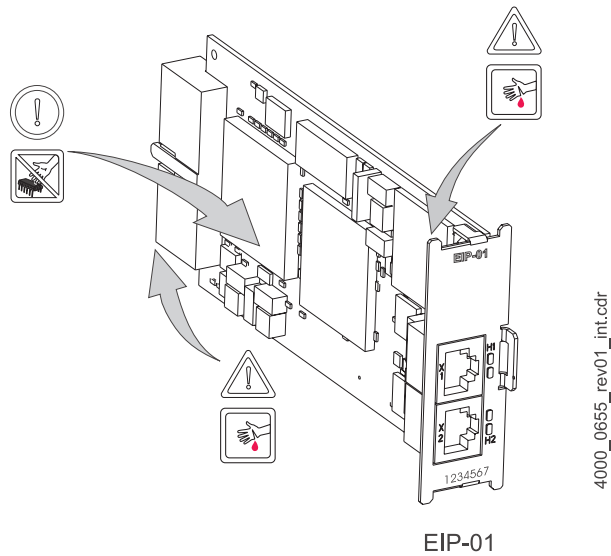


Figure 3: Danger areas

### 4.3 Marking of the EtherNet/IP adapter module - type key

On the front sheet you will find a type key („D“ in [►Figure 1◄](#) on page 17) and the serial number („E“ in [►Figure 1◄](#) on page 17) of the plug-in module.



#### NOTE

This type key only applies to the EtherCAT-slave module **BM4-O-EIP-01** of the series b maXX 4400. Other plug-in modules have an own type key. Type key of the accessories see [►Accessories◄](#) on page 53.

<u>BM4</u> - O - EIP - 01	Device family, in which the plug-in module can be build in
BM4 - <u>O</u> - EIP - 01	Plug-in module type (option module)
BM4 - O - <u>EIP</u> - 01	Plug-in module identification (EtherNet/IP)
BM4 - O - EIP - <u>01</u>	Plug-in module version (EtherNet/IP)

This type key you will find on the front side of the front sheet. The type key includes the basic data of the plug-in module. With the type key you will find further data in the chapter „Technical Data“. A survey of all the technical data is to be found in [►Appendix D - Technical data◄](#) from page 57.

# MOUNTING AND INSTALLATION

In this chapter we describe the mechanical mounting and the electrical installation of an EtherNet/IP adapter module.

The mounting/installation exists of the following steps:

- 1 Mount plug-in module.
- 2 Connect plug-in module with EtherNet/IP network.

## 5.1 General safety instructions

- Pay attention to the information in the chapters ►[Fundamental safety instructions](#)◄ from page 7.
- Pay attention to all areas at the device, which could be dangerous for you while mounting.

The following figure gives a view of the existing danger areas at the plug-in module.

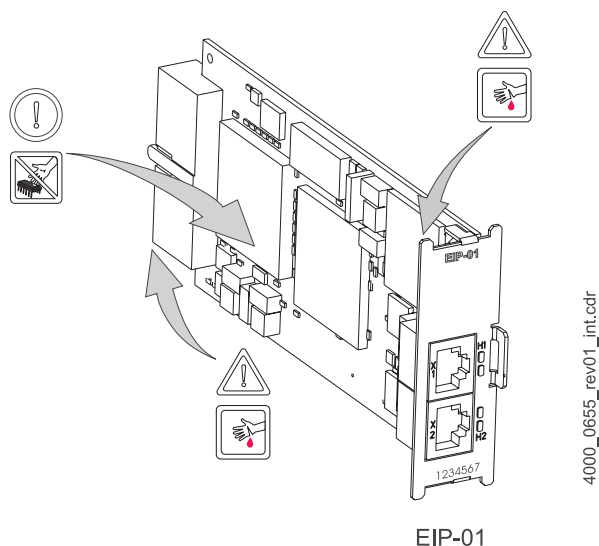


Figure 4: Danger areas

### 5.2 Requirements to the executing personnel

---



#### DANGER

The following **will occur**, if you disregard this safety information:

- serious personal injury • death

*The danger is: **electricity**. Device and environment in the control cabinet can carry dangerous voltages.*

Before you start working, please assure that the device and the environment is off-circuit.

Pay attention to the relevant safety instructions when using mains voltage leading devices.

Assure, that only qualified personnel mount and install this plug-in module.

At each case qualified personnel are persons, who are authorized by the responsible persons, to carry out necessary actions and who recognize the possible dangers and who are able to avoid these dangers. They have had the training, the experience, they were given instructions as well as knowledge about the relevant standards and instructions, they have knowledge of the accident prevention regulations and of the operating environments. The required qualifications for the work with this unit are for example:

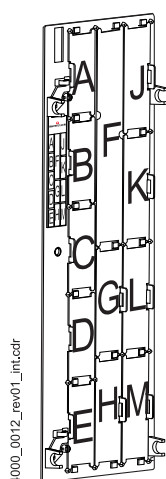
- Training or instruction due to the standards of the safety engineering in maintenance and use of appropriate safety equipment.

### 5.3 Preparation.

---

- Assure yourself by means of the type key (see „D“ in [▶Figure 1◀](#) on page 17), that you keep the right plug-in module ready.
- Determine the correct slot (see [▶Figure 5◀](#) on page 23).

## • Slot combinations



Steckkarten\_Rev14\_e

	Function modules									Option modules												
	BM4-F-ENC-XX (encoder 1 for motor control recommended)	BM4-F-ENC-XX (encoder 2)	BM4-F-AIO-01 (analog I/O)	BM4-F-AIO-02/03 (analog I/O)	BM4-F-DIO-XX (digital I/O)	BM4-F-FIO-XX (fast digital I/O)	BM4-F-IEE-XX (incremental encoder emulation)	BM4-F-SIE-XX (SSI-SSI encoder emulation)	BM4-F-CAN-01 (CANsync slave) <b>in prep.</b>	BM4-O-SER-XX (Sercos slave)	BM4-O-CAN-05 (CANsync slave)	BM4-O-PRO-01 (Profibus slave)	BM4-O-CAN-03 (CANopen slave)	BM4-O-DNT-XX (DISC-NT slave module)	BM4-O-PLC-XX (SPS)	BM4-O-CAN-06* (CANsync master)	BM4-O-CAN-04* (CANopen master)	BM4-O-IEI-XX* (incremental encoder emulation)	BM4-O-ETH-01* (Ethernet)	BM4-O-ETH-02* (Ethernet + CANopen master)	BM4-O-ECT-01 (EtherCAT slave)	BM4-O-EIP-01 (EtherNet/IP adapter module)
A	X	-	-	-	o	o	-	o	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B	-	X	-	-	o	o	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	o	o	X	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
D	-	-	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E	-	-	X	X	o	o	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F	Controller unit, permanently installed																					
G	-	-	-	-	-	-	-	-	-	o	o	o	o	o	o	X	X	X	X	X	o	o
H	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	o	o	o	o	o	X	X
J	-	-	-	-	-	-	-	-	-	-	P	P	P	-	-	o	o	o	o	o	-	-
K	-	-	-	-	-	-	-	-	-	-	P	P	P	-	-	o	o	o	o	o	P	P
L	-	-	-	-	-	-	-	-	-	-	P	P	P	-	-	o	o	o	o	o	P	P
M	-	-	-	-	-	-	-	-	-	-	P	P	P	-	-	o	o	o	o	o	P	P

### X: preferred slot

Baumüller Nürnberg GmbH recommends, in order to reach the highest functional range, to insert the plug-in modules into these slots.

### o: possible slot

only if the preferred slot is occupied, we recommend in order to reach the highest functional range, to insert the plug-in modules into this slot.

### P: only possible, if on slot G or H a PLC module (PLC) is plugged and the PLC (and not the controller) executes the communication to the field bus slave module.

-: not possible - card doesn't work in this slot.

\* Precondition for these cards is an inserted PLC module (PLC).

Figure 5: Slot combinations

### 5.4 Mounting

- 1 Switch off the b maXX<sup>®</sup> 4400 device and assure it against unintentional switching on during mounting.

#### DANGER

The following **will occur**, if you disregard this safety information:

- serious personal injury • death

*The danger is: **electricity**. Device and environment in the control cabinet can carry dangerous voltages.*

Before you start working, please assure that the device and the environment are off-circuit. Pay attention to the relevant safety instructions when using mains voltage leading devices.



- 2 Pull off the dust cover towards the front from the controller unit; the slots now are visible.
- 3 Look at the controller unit for the provided slot (H).

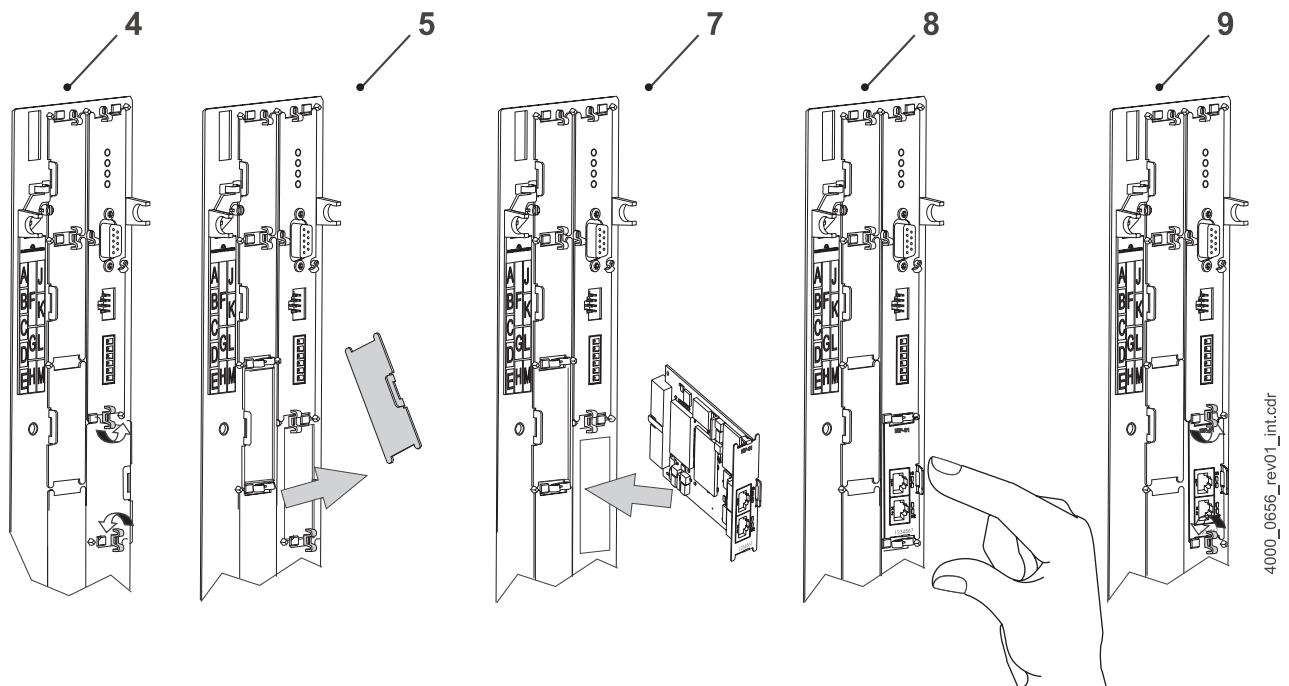


Figure 6: Mounting

- 4 Turn the twist lock beyond and beneath by 90°. The twist locks now are standing horizontally.
- 5 Take the front panel cover towards the front off. Keep this cover.





## CAUTION

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

- Property damage



The danger is: **electrostatic discharge**. The *EtherNet/IP adapter module* has ESD sensible parts.

Regard the described ESD procedures when handling the plug-in module.

Touch the plug-in module only at its handle (see „C“ in [▶Figure 1◀](#) on page 17).

- 6 Take the *EtherNet/IP adapter module* out of its transport packing. Avoid the contact with electronically parts of the plug-in module.
- 7 Plug the *EtherNet/IP adapter module* into the guide supports of the slot. The handle must point to the same side as the other handles in this slot strip (here: right side).
- 8 Press with two fingers on the front panel until the *EtherNet/IP adapter module* within the device sensible latches tightly into the end position.
- 9 Turn the twist lock beyond and beneath by 90° into the vertical position (locking position).
- 10 Put the dust cover on the device again.



## NOTE

If you, within the scope of a repair of the *EtherNet/IP adapter module*, simply displace it by a similar plug-in module, you can shorten the further operation, installation, commissioning and so on. Then you simply must put on the connector to the plug-in module, put on the dust cover again and you can turn on the device again.

Thus the mounting of the *EtherNet/IP adapter module* is completed.

### 5.5 Installation

During the installation you cable the *EtherNet/IP adapter module*. Die EtherNet cables can be ordered at Baumüller Nürnberg GmbH (see [►Appendix B - Accessories◄](#) on page 53) or can be made self. Baumüller Nürnberg GmbH assumes no responsibility to facilitate compliance with the required EMC-limit values and the normal operating of the drive if the cables have been made self.

#### 5.5.1 Connection diagram

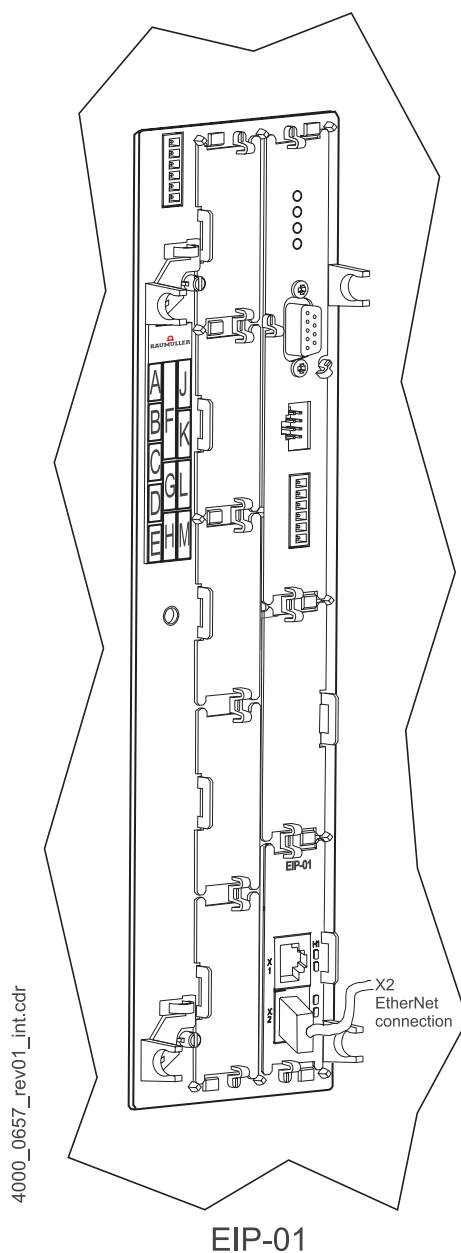


Figure 7: Connection sample EtherNet/IP adapter module

### 5.5.2 Requirements on the electrical connection



#### CAUTION

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

- Property damage

The danger is: **electrical voltage**. *In case you do not ensure the requirements to the electrical connection, the plug-in module can be damaged/destroyed.*

Assure, that the specified connecting values in the technical data are complied with and that the connections are made according to the requirements of EtherNet/IP.

To achieve the standard EN 60204-1 (electrical equipment of machines), you must use the cables, which are recommended there. The connectors may not fall off - otherwise the following dangers can arise - short circuits, interference voltage a. s. o.

- Regard to EMC-compatible laying of the Ethernet connection cables.

### 5.5.3 Requirements to the connection cables

Baumüller has released the following cables for use:

- EtherNet connection cable;  
further information is to be found in [►D.2 Cable connector◄](#) on page 57.

### 5.5.4 Operating sequence of installation

- 1 Make sure, that the b maXX<sup>®</sup> device is off-circuit.
- 2 Wait 10 minutes (capacitors are discharging). If you have additional capacitors connected to the DC link, the discharging of the DC link also can last much longer. In this case you must determine the necessary waiting time yourself.
- 3 Take off the cover from the controller unit.
  - The EtherNet/IP adapter module is in slot **G** or **H**, see [►Figure 2◄](#) on page 18.
- 4 Connect die EtherNet connection cables with the plug-in module (outgoing cable downwards).
- 5 Attach the cover to the device again.
- 6 Install the cables according to the instructions into the control cabinet.



# COMMISSIONING

In this chapter we describe how you take the mounted and installed (see [►Mounting and installation◄](#) from page 21) EtherNet/IP adapter module into operation. The commissioning assures, that the EtherNet/IP adapter module operates correctly.

Make sure before commissioning, that the following preconditions are fulfilled:

- 1 Plug-in module is correctly mounted.
- 2 Plug-in module is correctly installed.
  - EtherNet connection cables are cabled correctly.
- 3 The control cabinet is properly closed and all safety devices are put into operation.
- 4 The b maXX<sup>®</sup> device is ready-to-operate.

## 6.1 General safety instructions

---

► Refer to [►Fundamental safety instructions◄](#) from page 7.



### DANGER

The following **will occur**, if you disregard this safety information:

- serious personal injury
- death

*The danger is: **mechanical effects**. During commissioning the drive can rotate.*

Refrain from rotating parts sufficiently. Consider that the machine parts are able to be activated by starting drives. In any case activate the safety devices of the machine parts and drives which are concerned.

## 6.2 Requirements to the executing personnel

---

The workings on commissioning may only be carried out by skilled personnel, who especially understands the safety instructions and -notes and can obey to these.

### 6.3 Description and checking of the operating- and displaying elements

Due to 4 LEDs H1 to H4 the status of the EtherNet/IP adapter module is displayed. At the EtherNet/IP adapter module for b maXX controller furthermore, in addition, error messages can be displayed in the operation program ProDrive.

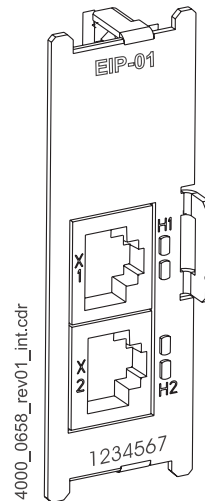


Figure 8: Front panel EtherNet/IP adapter module BM4-O-EIP-01

- **RJ45 connections**

X1	without function
X2	EtherNet/IP connection

- **Code switch SW13000, SW13100**

The code switch SW13100 provide an offset value to the basic **IP address**. If the offset value is zero the IP address is taken from DHCP, from G/H configuration of the b maXX controller or from non-volatile memory of the IP adapter module. In addition, the value of the eight switches is the last number of the IP address. The first three numbers are always 192.168.1.

SW13100:                      setting of IP address  
                                      192.168.1.0 + [offset value]

Example:

SW13100

IP address from DHCP, controller or flash



192.168.1.1



192.168.1.2



- **LEDs**

LED	Flashing pattern	Meaning
H1 green	without function	without function
H2 green	without function	without function
H3	Off	X1: Link/activity, no connection (no link)
	On	X1: Link/activity, connection (link)
	flashing	X1: Link/activity, data transmission (act)
H4	Off	No error
	On	Error

### 6.4 Procedure of commissioning

Commissioning only serves as an identification of the EtherNet/IP adapter module.

#### 6.4.1 Identification of the EtherNet/IP adapter module for b maXX<sup>®</sup> controller

During the booting up of the device the controller unit automatically reads out the identification of the EtherNet/IP adapter module. After that you have to check with help of Pro-Drive, if the plug-in module has been correctly recognized.

- 1 Switch on the b maXX<sup>®</sup>4400.
- 2 Wait until the system has booted.
- 3 Delete possible upcoming errors/error messages at the device b maXX<sup>®</sup>4400.  
These errors can be due to faulty mounting or faulty installation (e.g. missing power supply). Not until you have removed the error, you may continue commissioning.

#### CAUTION



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

- Property damage



*The danger is: **electrostatic discharge**. When plugging/unplugging the energized plug-in module, the device and/or EtherNet/IP adapter module can be damaged.*

The *EtherNet/IP adapter module* may not be pulled off or plugged in, if the b maXX<sup>®</sup> device is switched on. Beforehand switch off the device.

#### NOTE



Should the plug-in module, due to external conditions, be pulled out of the device, then turn off the device. Then try to insert the plug-in module again, as we describe in chapter [►Mounting and installation◄](#) from page 21.



# OPERATION

For a more detailed guide to operating the EtherNet/IP adapter module for b maXX<sup>®</sup> controller, refer to the EtherNet/IP adapter programming manual and to the b maXX<sup>®</sup> 4400 parameter manual.

In this chapter we describe the setting possibilities of the parameters, which have influence on the EtherNet/IP adapter module **BM4-O-EIP-01**.

## 7.1 Parameters

The settings of the parameters define the performance of the plug-in module during operation. The parameters are adjusted by using the software ProDrive.

- 1 Start ProDrive.
- 2 Start „project tree“.
- 3 Click in the project tree on  
+ „Management/drive management“.
- 4 In window „Drive manager“ then select  
+ „Control by BACI and ProDrive“,  
+ „BACI writing accesses enable service data“,  
+ „BACI writing accesses enable process data“  
in order to enable the communication with EtherNet/IP.

### Setting of the communication source

### Setting the synchronization time

Because there are no synchronization telegrams or time stamps the user must set the source sync signal and the sync interval to „synchronous mode is deactivated“.

### NOTE



The error parameters of the EtherNet/IP adapter module you will find in chapter [Error detection and troubleshooting](#) from page 35.



# ERROR DETECTION AND TROUBLE-SHOOTING

In this chapter we describe the error displays at the EtherNet/IP adapter module. We explain the meaning of every error display and how you can react to this.

## 8.1 Safety instructions

---

► Refer to ► [Fundamental safety instructions](#)◄ from page 7.

## 8.2 Requirements to the executing personnel

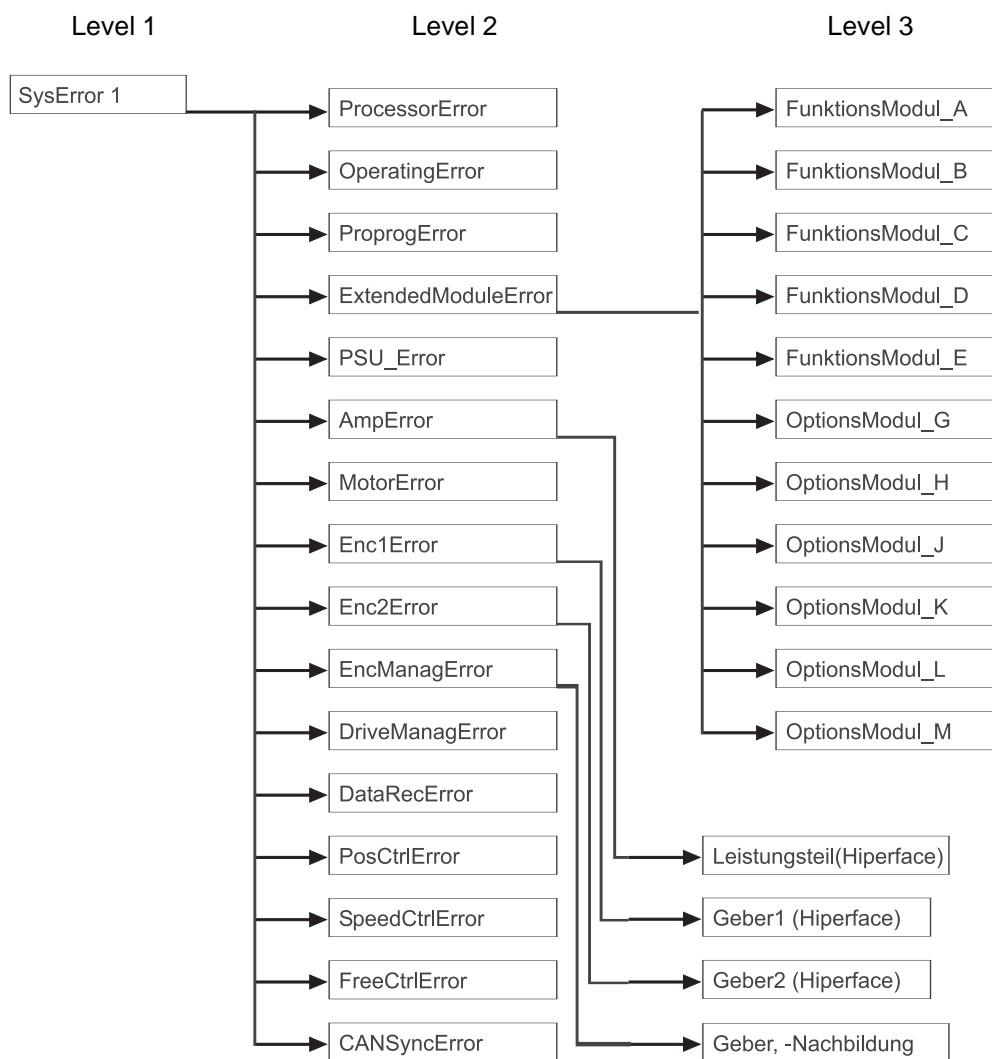
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The personnel, who works with the b maXX<sup>®</sup> device, must be introduced in the safety instructions and in the operation of the device and must be familiar with the accurate operating of the device. Especially the reaction to failure indications and -conditions requires special knowledge, which the operator must have. In the following we will inform you about the different faults and the consequential error messages. The errors can either be of mechanical or of electrical causes.

### 8.3 Error parameters - error messages (error list) - error reactions

The devices of the series b maXX<sup>®</sup> 4400 signal an error status of the EtherNet/IP adapter module via the flashing up of the red LED on the front side of the cabinet. The reason and the content of the error message must be determined either over a PC/notebook, a hand-held operator and the error list in this manual and/or over the operating software.

In the following you will find all error messages. An error message is shown in ProDrive in the window „drive manager“. In the list field „Messages“ you will find the (abbreviated) error name, the error number and, divided by a colon, the meaning of this error, e.g. ModuleError 53: error in option module 1.



4000\_0061\_rev01\_int.cdr

Figure 9: Structure of the error list - survey

- 1. Level** **SysError1**, only interesting for the access to errors via parameters, to be used without ProDrive, e. g. by field bus communication. This error is not shown in ProDrive.
- 2. Level** Next level below SysError1. Here you find errors, which you can remove directly with help of the displayed information or also a note referring to the next level in which the error could be.  
We have arranged the error messages according to the survey [►Figure 9◄](#) on page 36.  
In the column „reaction“ the reaction of the system to the error is to be found:
- „IS“ = pulse inhibit;
  - „According to setting“ means, that you can select how the system reacts, e.g. braking on brake ramp, quickstop a.s.o. Details on this are to be found in the „Operation manual b maXX<sup>®</sup> 4400“ or in the EtherNet/IP adapter programming manual.
- 3. Level** Following error messages can be generated from the EtherNet/IP adapter module (according to slot G or H) in the case of an error:

**P0245****Error option module G****P0246****Error option module H**

Sub-error no.	Meaning	Reaction
4096	Wrong parameter no. at setpoint parameter 1	Adjustable
4097	Wrong parameter no. at setpoint parameter 2	Adjustable
4098	Wrong parameter no. at setpoint parameter 3	Adjustable
4099	Wrong parameter no. at setpoint parameter 4	Adjustable
4100	Wrong parameter no. at setpoint parameter 5	Adjustable
4101	Wrong parameter no. at setpoint parameter 6	Adjustable
4102	Wrong parameter no. at setpoint parameter 7	Adjustable
4103	Wrong parameter no. at setpoint parameter 8	Adjustable
4104	Wrong parameter no. at setpoint parameter 9	Adjustable
4105	Wrong parameter no. at setpoint parameter 10	Adjustable
4106	Wrong parameter no. at setpoint parameter 11	Adjustable
4107	Wrong parameter no. at setpoint parameter 12	Adjustable
4108	Wrong parameter no. at setpoint parameter 13	Adjustable
4109	Wrong parameter no. at setpoint parameter 14	Adjustable
4110	Wrong parameter no. at setpoint parameter 15	Adjustable
4111	Wrong parameter no. at setpoint parameter 16	Adjustable
4112	Wrong parameter no. at actual value parameter 1	Adjustable
4113	Wrong parameter no. at actual value parameter 2	Adjustable
4114	Wrong parameter no. at actual value parameter 3	Adjustable
4115	Wrong parameter no. at actual value parameter 4	Adjustable
4116	Wrong parameter no. at actual value parameter 5	Adjustable
4117	Wrong parameter no. at actual value parameter 6	Adjustable
4118	Wrong parameter no. at actual value parameter 7	Adjustable

Sub-error no.	Meaning	Reaction
4119	Wrong parameter no. at actual value parameter 8	Adjustable
4120	Wrong parameter no. at actual value parameter 9	Adjustable
4121	Wrong parameter no. at actual value parameter 10	Adjustable
4122	Wrong parameter no. at actual value parameter 11	Adjustable
4123	Wrong parameter no. at actual value parameter 12	Adjustable
4124	Wrong parameter no. at actual value parameter 13	Adjustable
4125	Wrong parameter no. at actual value parameter 14	Adjustable
4126	Wrong parameter no. at actual value parameter 15	Adjustable
4127	Wrong parameter no. at actual value parameter 16	Adjustable
4128	Invalid value at setpoint parameter no. 1	Adjustable
4129	Invalid value at setpoint parameter no. 2	Adjustable
4130	Invalid value at setpoint parameter no. 3	Adjustable
4131	Invalid value at setpoint parameter no. 4	Adjustable
4132	Invalid value at setpoint parameter no. 5	Adjustable
4133	Invalid value at setpoint parameter no. 6	Adjustable
4134	Invalid value at setpoint parameter no. 7	Adjustable
4135	Invalid value at setpoint parameter no. 8	Adjustable
4136	Invalid value at setpoint parameter no. 9	Adjustable
4137	Invalid value at setpoint parameter no. 10	Adjustable
4138	Invalid value at setpoint parameter no. 11	Adjustable
4139	Invalid value at setpoint parameter no. 12	Adjustable
4140	Invalid value at setpoint parameter no. 13	Adjustable
4141	Invalid value at setpoint parameter no. 14	Adjustable
4142	Invalid value at setpoint parameter no. 15	Adjustable
4143	Invalid value at setpoint parameter no. 16	Adjustable
4144	Invalid value for setpoint period	Adjustable
4145	Invalid value for actual value period	Adjustable
4146	Wrong value for cycle offset setpoints	Adjustable
4147	Wrong value for cycle offset actual values	Adjustable
4148	BACI-timeout with cyclic Data	Adjustable
4149	BACI timeout at service data	Adjustable
4150	Checksum error during test	Adjustable
4151	Ramp-up timeout when waiting for the slave type or when waiting for the resetting of config-pending-flag	Adjustable
4152	Invalid data transfer structure type	Adjustable
4153	Internal error: Wrong BACI status	Adjustable
4154	Access conflicts with slave at cyclic Communication:	Adjustable
4155	Error cyclic Communication: Parameter value wrong	Adjustable
4156	Error cyclic Communication: Alive-counter conflict	Adjustable
4157	Cmd interface: Channel number wrong (0 or > 6)	Adjustable
4158	Cmd interface: The channel which was indicated does not exist	Adjustable
4159	Cmd interface: Internal error - wrong pointer	Adjustable
4160	Cmd interface: Internal error - wrong status	Adjustable
4161	Cmd interface: Wrong package number	Adjustable
4162	Cmd interface: Wrong command number	Adjustable
4163	Cmd interface: Wrong status when handling the package	Adjustable

Sub-error no.	Meaning	Reaction
4164	Cmd interface: Timeout at command processing	Adjustable
4165	Cmd interface: Wrong package length	Adjustable
4166	Cmd interface: No descriptor available anymore (not enough storage)	Adjustable
4167	Cmd interface: Wrong package type	Adjustable
4168	Cmd interface: Checksum error	Adjustable
4169	Module identification: PCI-error when reading	Adjustable
4170	Module identification: PCI-error when writing	Adjustable
4171	Module identification: general Reading error	Adjustable
4172	Module identification: general Error at writing	Adjustable
4173	Internal error	Adjustable
4174	Configuration cyclic services: Parameters are not or not cyclic writeable	Adjustable
4175	Configuration cyclic services: Invalid parameter number	Adjustable

## NOTE



Further details are to be found in the manual of b maXX<sup>®</sup> 4400.





## MAINTENANCE

If you comply with the prescribed environmental conditions, see [►Appendix D - Technical data◄](#) from page 57, the EtherNet/IP adapter module **BM4-O-EIP-01** is maintenance-free. In case a defect of the EtherNet/IP adapter module is determined or assumed, contact Baumüller Nürnberg GmbH.





## REPAIR

A defect EtherNet/IP adapter module **BM4-O-EIP-01** cannot be repaired; for replacement contact Baumüller Nürnberg GmbH.



## DEMOUNTING, STORAGE

In this chapter we describe, how you shutdown and store the EtherNet/IP adapter module **BM4-O-EIP-01**.

### 11.1 Safety instructions

---

► Refer to ► [Fundamental safety instructions](#) ◄ from page 7.



#### WARNING

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

- serious personal injury
- death

*The danger is: **electricity**. The unit carries dangerous voltages and currents, as well as residual charges in the DC link.*

Assure, when working in the control cabinet, that all electrical terminals in the control cabinet are off-circuit and are safe against re-closure.

Await the discharge of the DC link, before you carry out demounting works. The capacitors which are used in the device are **10 min.** after interruption of the supply voltage discharge so far, that the connections can be demounted without danger.

If you have additional capacitors connected to the DC link, the decharging also can last much longer. In this case you must determine the necessary waiting time yourself.

Before working, check at the electrical connections with suitable measuring devices, that the connections are off-circuit.

Remove the connections not until the safe isolation from supply has been checked.

---

### 11.2 Requirements to the executing personnel

The personnel which you instruct to demount the device must have the knowledge and training to carry out these works properly. Select the personnel in such a way, that the safety instructions, which are mounted to the device and its parts as well as to the connections, are understood and applied to.

### 11.3 Demounting

- Provide the following working materials, before you start demounting:
  - Suitable packing for the EtherNet/IP adapter module, preferably the original packing.
  - Cover for the covering of the released slot (or new EtherNet/IP adapter module).

Carry out the demounting in the following order:

- 1 Put the basic unit b maXX<sup>®</sup> 4400 off-circuit and assure it against unintentional re-starting.
- 2 Wait 10 minutes (capacitors are discharging). If you have additional capacitors connected to the DC link, the decharging also can last much longer. In this case you must determine the necessary waiting time yourself.
- 3 Open the control cabinet.
- 4 Take off the cover of the basic unit b maXX<sup>®</sup> 4400.
- 5 Take off the EtherNet connection cable.
- 6 Turn the twist locks over and under the front sheet of the EtherNet/IP adapter module by 90° (horizontal = release position).



#### CAUTION

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

- Property damage

*The danger is: **electrostatic discharge**. The electronically parts of the PCB can be damaged or destroyed by touchings with your hands.*

Touch the EtherNet/IP adapter module only at the handle of the front sheet.

- 7 Pull the EtherNet/IP adapter module at the handle forwards out of the controller unit.
- 8 Lay the EtherNet/IP adapter module into the prepared packing - thereby touch plug-in module only at the handle.
- 9 Put a cover (or a new EtherNet/IP adapter module) in the slot, which is now standing open (handle must show to the right side of the device).
- 10 Turn the twist locks by 90° degrees (vertical = fastening position).
- 11 Put the dust cover on the device again.
- 12 Close the control cabinet.
- 13 Document the demounting (or the replacement) of the EtherNet/IP adapter module.

The device now can be switched on again. In case you want to dispose the EtherNet/IP adapter module, you will receive further information in [►Disposal◄](#) from page 49.

## 11.4 Storage conditions

---

Store the EtherNet/IP adapter module in a suitable packing and at the in [►Appendix D - Technical data◄](#) on page 57 specified storage conditions.

## 11.5 Recommissioning

---

In case you would like to take the EtherNet/IP adapter module in operation again, refer to the specifications under „Storage conditions“. Then again run a commissioning, see [►Commissioning◄](#) from page 29.





## DISPOSAL

In this chapter we describe the correct and safe disposal of the device EtherNet/IP adapter module (**BM4-O-EIP-01**). At the disposal there is basically electronic scrap.

### NOTE



Baumüller products do not belong to the scope of the EU guideline for the disposal of electrical and electronics devices (WEEE, 2002/96/EG). Therefore, no costs are to be carried by Baumüller for the canceling and disposal of old devices.

### 12.1 Safety instructions

► Refer to ► [Fundamental safety instructions](#) ◄ from page 7.

### CAUTION



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

- minor to medium personal injury.



*The danger is: **sharp edges**. The components of the EtherNet/IP adapter module, sheet metal components and so on can have sharp edges! In case a EtherNet/IP adapter module is not taken at its handle, the fingers or palms can be cut.*

Touch the EtherNet/IP adapter module only at the front panel and or carry suitable protection gloves.

## 12.2 Requirements to the executing personnel

---



### CAUTION

The following **can occur**, if you disregard this warning instruction:

- Environmental pollution

*The danger is: **incorrect disposal.***

You may only dispose under consideration of the safety instructions. If necessary, also refer to the local regulations. In case you cannot carry out a secure disposal, contact a certified disposal business.

*Dangerous materials may result or may be set free from a fire.*

Do not expose electronic components to high temperatures.

*The inner insulation e. g. various power semiconductors hold beryllium oxide. When opened, the beryllium dust is dangerous to your health.*

Do not open the electronic components.

---

## 12.2 Requirements to the executing personnel

---

The personnel which you instruct to dispose/demount the device must have the knowledge and training to carry out these works properly. The personnel is to be selected in such a way, that the safety instructions on the basic unit b maXX<sup>®</sup> 4400 and its parts are understood and referred to.

## 12.3 Disposal instructions

---

<b>Preconditions</b>	<ul style="list-style-type: none"><li>• EtherNet/IP adapter module was already properly demounted.</li><li>• All technical appliances for demounting are prepared and are in a faultless condition.</li></ul>
<b>Sheet steel</b>	The front panel exists of galvanized sheet steel. Sheet steel must be given to the iron metal recycling.
<b>Electronic scrap</b>	The electronic scrap from PCBs, which no further can be demounted, must be recycled as special waste. Thereby refer to the relevant instructions.

## 12.4 Recycling plants/offices

---

Assure, that the disposal is carried out according to your company's regulations and the regulations of the disposal companies and official administrations. In case of doubt, contact the local business administration, which is responsible for your company or the environmental office.



## APPENDIX A - ABBREVIATIONS

AC	Alternating Current
BACI	Baumüller Drives Communication Interface
BOOTP	Bootstrap Protocol
CIP	Common Industrial Protocol
CPU	Central Processing Unit
DC	Direct Current
DHCP	Dynamic Host Configuration Protocol
EDS	Electronic Data Sheet
EMC	Electromagnetic Compatibility
EN	European Standard
ESD	Electrostatic Discharge
I/O	Input/Output Command
IP	Internet Protocol
LED	Light Emitting Diode
MAC	Media Access Control
P	Identification Number
PCB	Printed Circuit Board
PLC	Programmable Logic Controller
RAM	Random Access Memory
RPI	Request Packet Interval
SINT	Short Integer (8 bit)
TCP	Transmission Control Protocol
UCMM	Unconnected Message Manager
X	Contact Bar, Connector, Connection





## APPENDIX B - ACCESSORIES

In this appendix you will find all accessories listed, which are available for the EtherNet/IP adapter module **BM4-O-EIP-01** of Baumüller Nürnberg GmbH.

In case you have questions and suggestions according the accessories, do not hesitate to contact our product management.

### B.1 List of all accessories

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- available EtherNet connection cables:  
Type: Patch cable, STP

Type	Length [m]	Part number
K-ETH-33-0-0.5	0.5	325160
K-ETH-33-0-01	1	325161
K-ETH-33-0-02	2	325162
K-ETH-33-0-03	3	325163
K-ETH-33-0-04	4	325317
K-ETH-33-0-05	5	325164
K-ETH-33-0-10	10	325165

Other lengths on request.





## **APPENDIX C - DECLARATION OF CONFORMITY**

## C.1 Declaration of Conformity



### Declaration of Conformity to the EtherNet/IP™ Specification

ODVA hereby issues this Declaration of Conformity to the EtherNet/IP™ Specification for the product(s) described below. The Vendor listed below (the "Vendor") has holds a valid the Terms of Usage Agreement for the EtherNet/IP Technology from ODVA, which is incorporated herein by reference, thereby agreeing that it is the Vendor's ultimate responsibility to assure that its EtherNet/IP Compliant Products conform to the EtherNet/IP Specifications and that the EtherNet/IP Specifications are provided by ODVA to the vendor on an AS IS basis without warranty. NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE BEING PROVIDED BY ODVA.

In recognition of the below EtherNet/IP Compliant Product(s) having been EtherNet/IP Conformance Tested at ODVA-authorized Test Service Provider and having received a passing result from ODVA at the Composite Test Revision Level specified below, this Declaration of Conformity authorizes the Vendor to use the EtherNet/IP Certification Marks in conjunction with the specific EtherNet/IP Compliant Product(s) described below, for so long as the Vendor's Terms of Usage Agreement for the EtherNet/IP Technology remains valid.



EtherNet/IP CONFORMANCE TESTED™

Certification Logo Mark

Certification Word Mark

This Declaration of Conformity is issued on **07 January 2008** on behalf of ODVA by:

Katherine Voss  
Executive Director

Vendor Information	
Vendor Name	Baumuller Inc.
Vendor Address	1858 S. Elmhurst Road Mount Prospect, IL 60056 USA

Test Information	
Test Date	21 December 2007
Composite Test Revision	4
ODVA File Number	10561

Product Information	
Identity Object Instance 1	
Device(s) Under Test	Value
Vendor ID (Identity Object Attribute 1)	1020
Network Category	Node
Device Type (Identity Object Attribute 2)	0x00
Device Profile Name	Generic Device
Product Revision (Identity Object Attribute 4)	1.001

Products Covered Under This Declaration of Conformity			
No.	Product Code (Identity Object Attribute 3)	Product Name (Identity Object Attribute 7)	SOC File Name
1	01	bmaxx EtherNet/IP Adapter EIP01	bmaXX.stc

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## APPENDIX D - TECHNICAL DATA

In this appendix you will find the technical data of the EtherNet/IP adapter module **BM4-O-EIP-01** of Baumüller Nürnberg GmbH.

### D.1 EtherNet/IP adapter module BM4-O-EIP-01

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The plug-in module has the following specifications:

	<b>EIP-01</b>
Power supply	5 V, internal over controller unit
Current input	approx. 450 mA, internal over controller unit
Bus connections	RJ 45
Number of parameters	see parameter manual b maXX <sup>®</sup> 4400
Data width of parameters	16 / 32 bit
Baud rates	10 / 100 MBit/s
Environmental conditions	as basic unit b maXX <sup>®</sup> 4400
Storage conditions	as basic unit b maXX <sup>®</sup> 4400

### D.2 Cable connector

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Usable Baumüller cable connectors can be found in [►B.1 List of all accessories◄](#) on page 53.





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## Revision survey

Version	Date of issue	Changings
5.08031.01	13.05.2009	First issue







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