EUCHNER

Application

Access to the web server of the MBM-EC P

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Contents

1. About this document

1.1. Version

Version	Date	Change/addition	Chapter
01-09/22	09/08/2022	Prepared	All

1.2. Scope

This document is used for configuring a connection to the web interface of the EtherCAT P bus module MBM-EC-.. .

1.3. Target group

Design engineers and installation planners for safety systems on machines, as well as setup and servicing staff possessing special expertise in handling safety components as well as expertise in the installation, setup, programming and diagnostics of programmable logic controllers (PLCs) and bus systems.

1.4. Supplementary documents

The overall documentation for this application consists of the following documents:

Document title (document number)	Contents	
Operating instructions (2540772)	Operating instructions Bus module MBM-EC-..-MLI-... (EtherCAT)	
Possibly enclosed data sheets	Item-specific information about deviations or additions	

2. Components/modules used

2.1. EUCHNER

Description	Order number / item
Bus module MBM-EC... (M8 connection, P-coded)	163293 / MBM-EC-S7-MLI-3B-163293

TIP!

More information and downloads about the aforementioned EUCHNER products can be found at www.euchner.com.

2.2. Others

Description	Order number / item
Basic BECKHOFF CPU module with PROFINET RT controller	CX2030
BECKHOFF EtherCAT extension	EK1110
BECKHOFF 2-port EtherCAT P branch with feed-in	EK1322
BECKHOFF EtherCAT P box, 2-port EtherCAT-to-EtherCAT P feed-in	EPP1322-0001

2.3. Software

Description	Version
TwinCAT 3	3.1.4024.32

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3. EtherCAT P with EPP1322 to X001 of the CX2030

The EtherCAT P box EPP1322 is connected to the second port X001 of the CX2030.

3.1. Overview

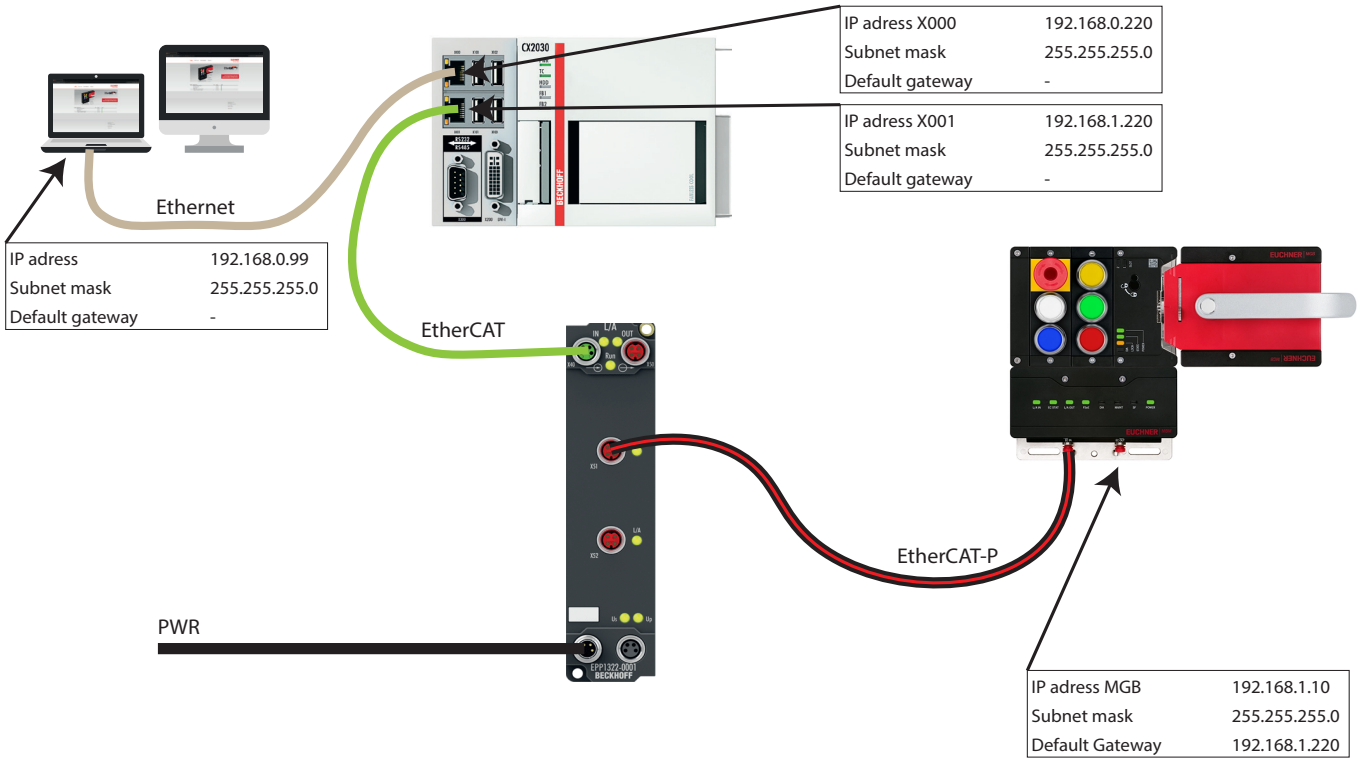

Fig. 1: Overview

3.2. Configuration

3.2.1. PC/laptop

The following settings have been made for the PC's network adapter:

IP address	192.168.0.99
Subnet mask	255.255.255.0
Default gateway	- - -.- - -.- - -.- - -

A route of the MGB's network area (here: 192.168.1.10) to the Gateway address (here: network adapter X000 of the CX2030: 192.168.0.220) must also be created. To do this, open a tool such as Windows PowerShell as an administrator and enter the following command:

```
route add 192.168.1.0 mask 255.255.255.0 192.168.0.220 -p
```

0:

IP address range from 1 to 255

-p:

If the "-p" parameter is used together with the "ADD" command, a route will be retained even if the system is restarted.

By default, routes are not retained after a system restart. This parameter is ignored for all other commands, as these always affect the corresponding permanent routes.

3.2.2. CX2030 interface X000

The following settings have been made for the PC's network adapter X000:

IP address	192.168.0.220
Subnet mask	255.255.255.0
Default gateway	- - -.- - -.- - -.- - -

3.2.3. CX2030 interface X001

The following settings have been made for the PC's network adapter X001:

IP address	192.168.1.220
Subnet mask	255.255.255.0
Default gateway	- - -.- - -.- - -.- - -

3.2.4. TwinCAT 3 - MBM-EC-S7-MLI-3B

IP address	192.168.1.10
Subnet mask	255.255.255.0
Default gateway	192.168.1.220

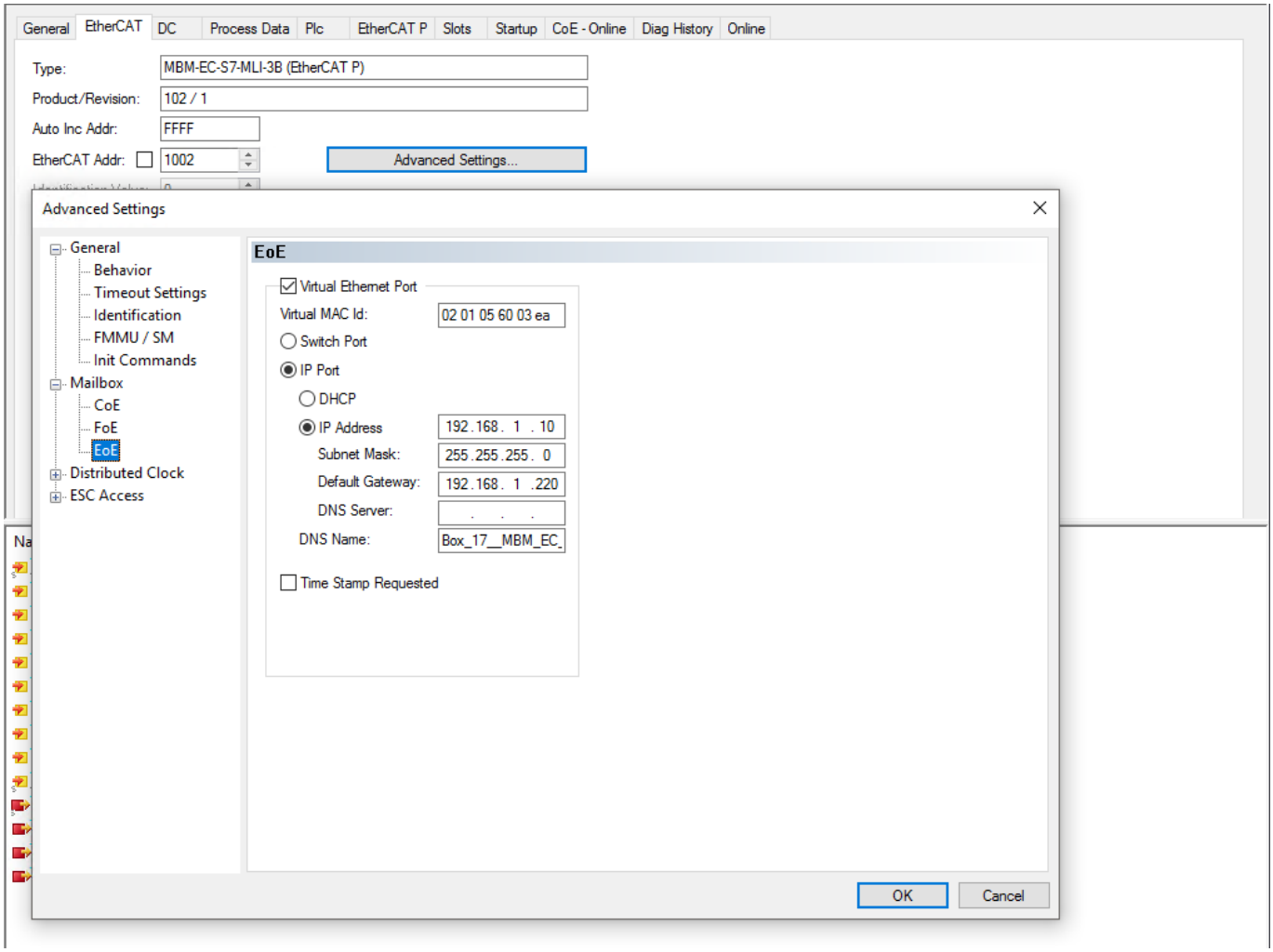

Fig. 2: Advanced Settings MBM

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4. EtherCAT P with EPP1322 to EK1110

The EtherCAT P box EPP1322 is connected to EtherCAT extension EK1110.

4.1. Overview

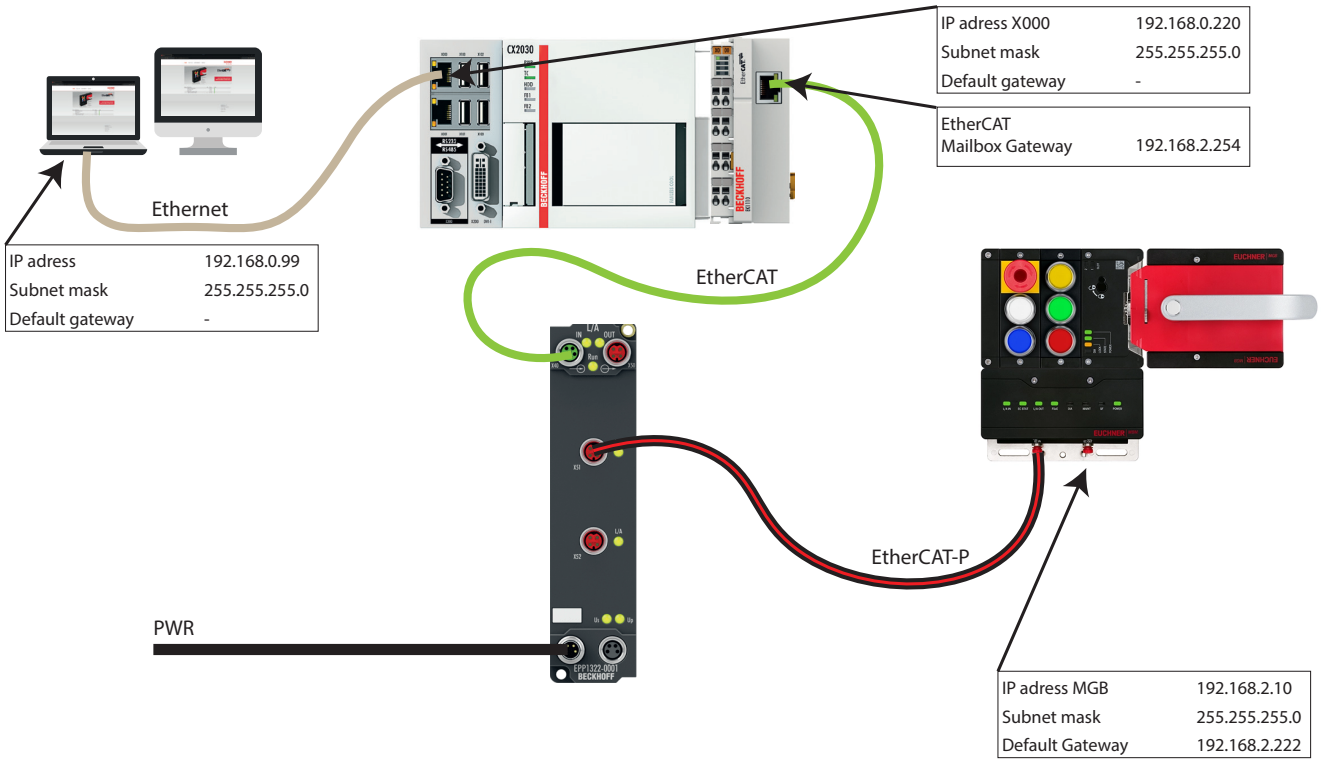

Fig. 3: Overview

4.2. Configuration

4.2.1. PC/laptop

The following settings have been made for the PC's network adapter:

IP address	192.168.0.99
Subnet mask	255.255.255.0
Default gateway	- - -.- - -.- - -.- - -

A route of the MGB's network area (here: 192.168.2.10) to the Gateway address (here: network adapter X000 of the CX2030: 192.168.0.220) must also be created. To do this, open a tool such as Windows PowerShell as an administrator and enter the following command:

```
route add 192.168.2.0 mask 255.255.255.0 192.168.0.220 -p
```

0:

IP address range from 1 to 255

-p:

If the "-p" parameter is used together with the "ADD" command, a route will be retained even if the system is restarted.

By default, routes are not retained after a system restart. This parameter is ignored for all other commands, as these always affect the corresponding permanent routes.

4.2.2. CX2030 interface X000

The following settings have been made for the PC's network adapter X000:

IP address	192.168.0.220
Subnet mask	255.255.255.0
Default gateway	- - -.- - -.- - -.- - -

4.2.3. Beckhoff Virtual Ethernet Adapter

IP address	192.168.2.222
Subnet mask	255.255.255.0
Default gateway	192.168.0.220

4.2.4. EtherCAT Master

EtherCAT Mailbox Gateway

IP address	192.168.2.254

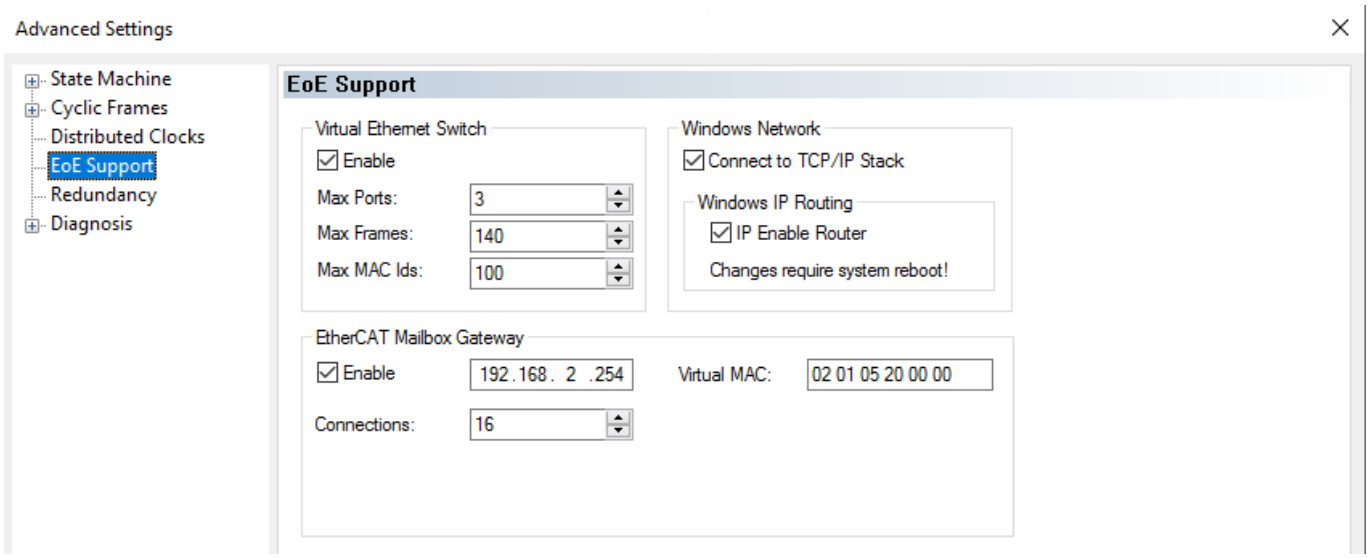

Fig. 4: Advanced Settings Mailbox Gateway

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4.2.5. TwinCAT 3 - MBM-EC-S7-MLI-3B

IP address	192.168.2.10
Subnet mask	255.255.255.0
Default gateway	192.168.2.222

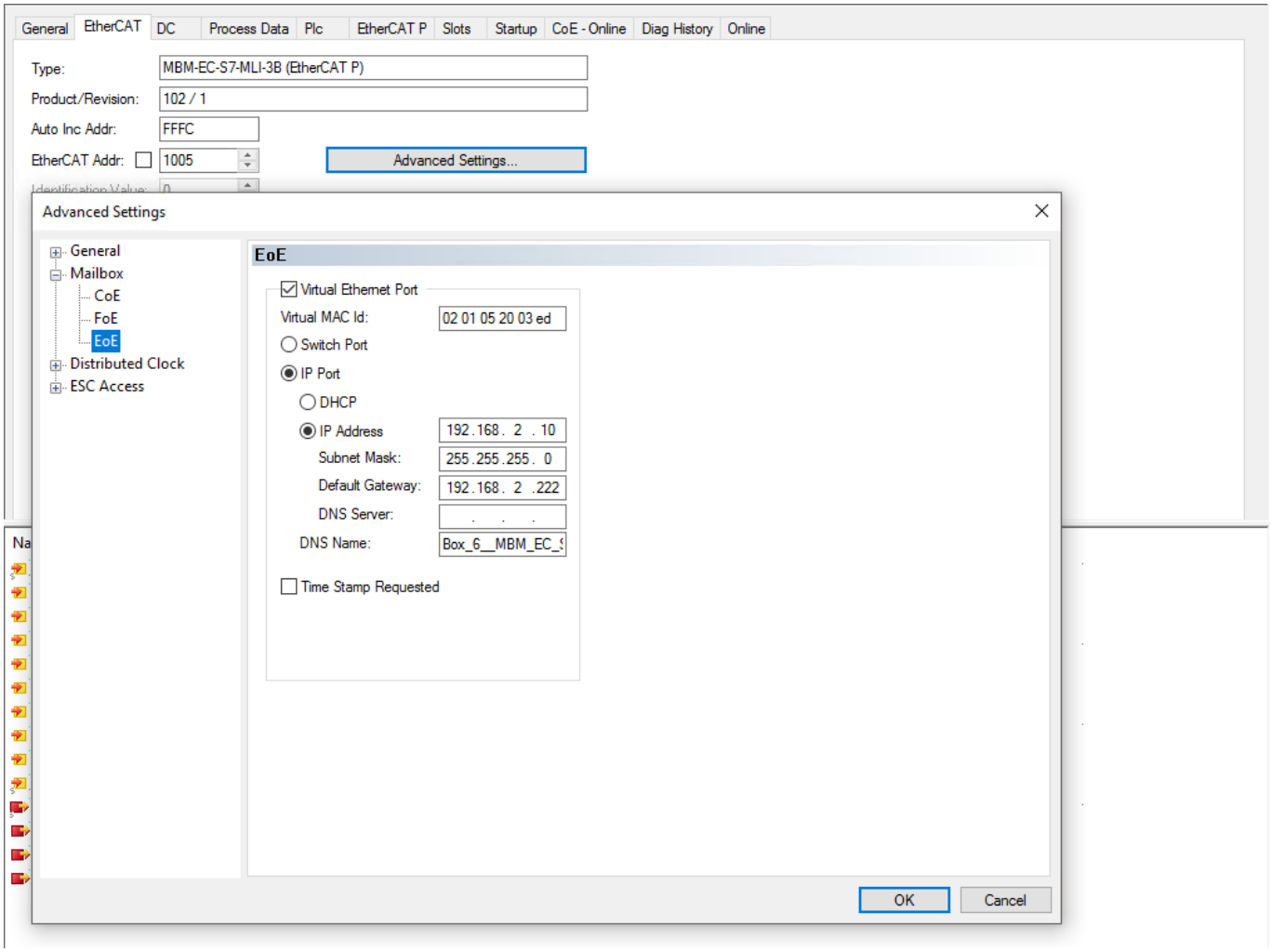

Fig. 5: Advanced Settings MBM

5. EtherCAT P with EK1322

The MBM is connected to the EK1322 via EtherCAT P.

5.1. Overview

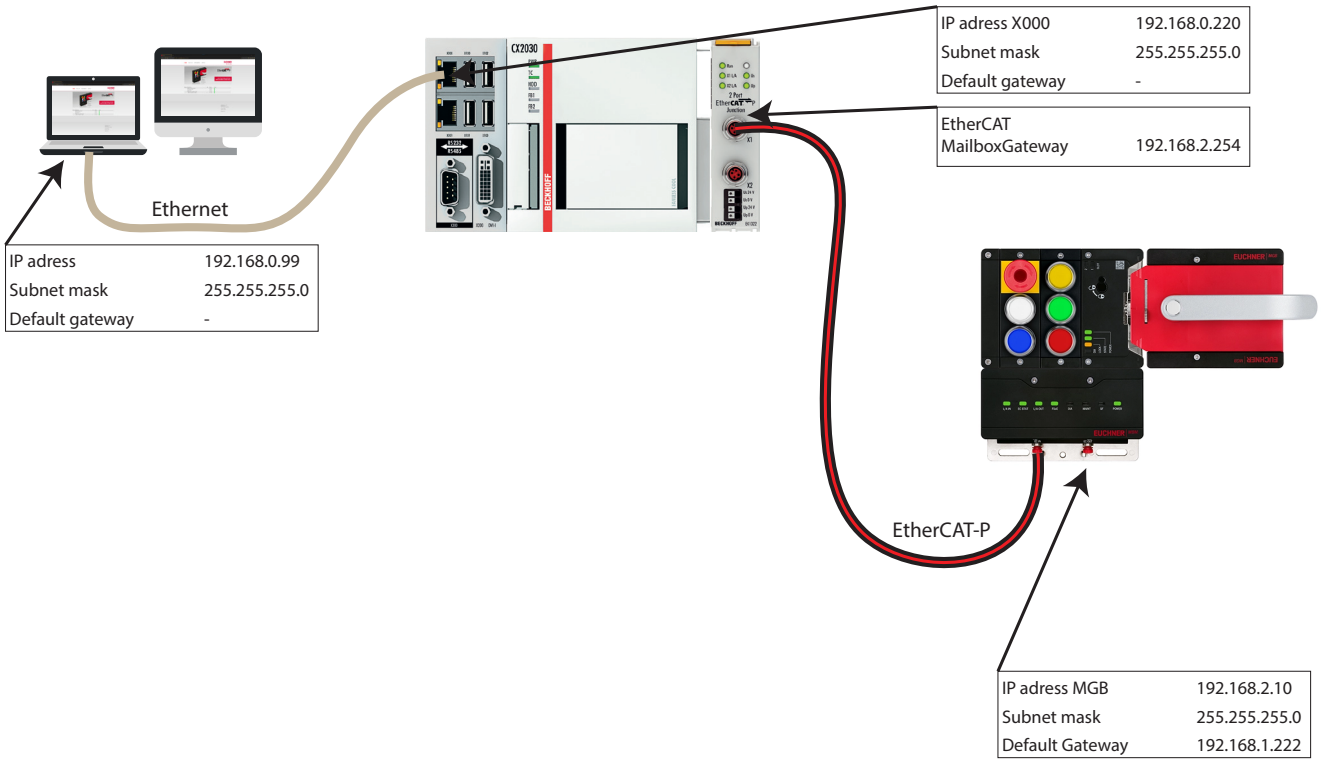

Fig. 6: Overview

5.2. Configuration

5.2.1. PC/laptop

The following settings have been made for the PC's network adapter:

IP address	192.168.0.99
Subnet mask	255.255.255.0
Default gateway	- - -.- - -.- - -.- - -

A route of the MGB's network area (here: 192.168.1.10) to the Gateway address (here: network adapter X000 of the CX2030: 192.168.0.220) must also be created. To do this, open a tool such as Windows PowerShell as an administrator and enter the following command:

```
route add 192.168.1.0 mask 255.255.255.0 192.168.0.220 -p
```

0:

IP address range from 1 to 255

-p:

If the "-p" parameter is used together with the "ADD" command, a route will be retained even if the system is restarted.

By default, routes are not retained after a system restart. This parameter is ignored for all other commands, as these always affect the corresponding permanent routes.

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5.2.2. CX2030 interface X000

The following settings have been made for the PC's network adapter X000:

IP address	192.168.0.220
Subnet mask	255.255.255.0
Default gateway	- - -.- - -.- - -.- - -

5.2.3. Beckhoff Virtual Ethernet Adapter

IP address	192.168.2.222
Subnet mask	255.255.255.0
Default gateway	192.168.0.220

5.2.4. EtherCAT Master

EtherCAT Mailbox Gateway

IP address	192.168.2.254

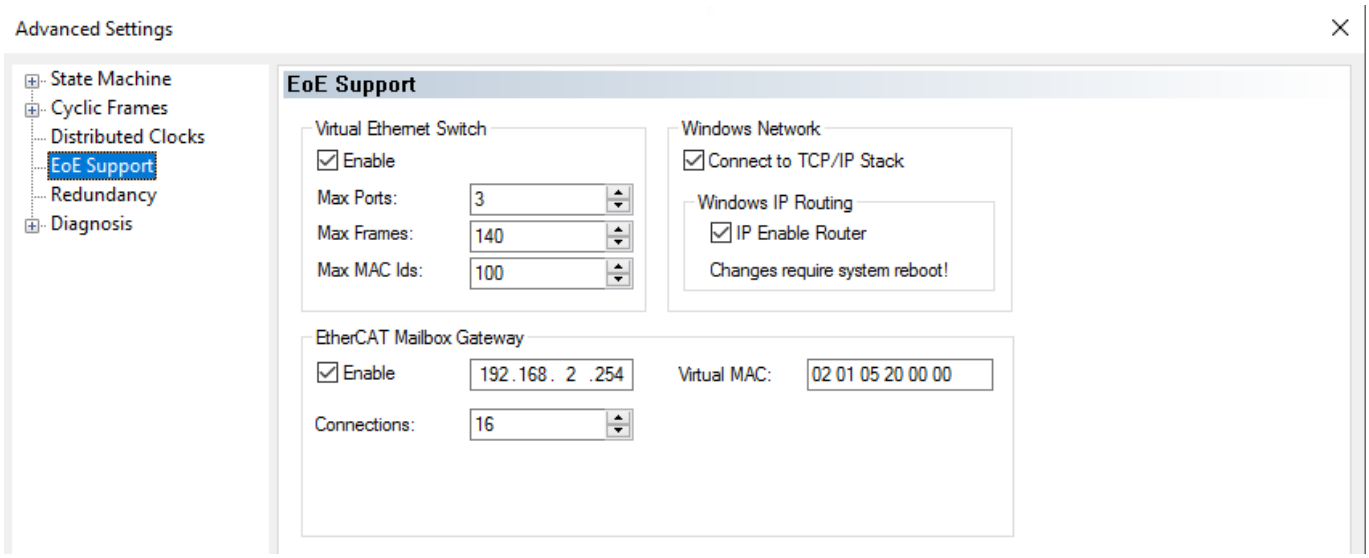

Fig. 7: Advanced Settings Mailbox Gateway

5.2.5. TwinCAT 3 - MBM-EC-S7-MLI-3B

IP address	192.168.2.10
Subnet mask	255.255.255.0
Default gateway	192.168.2.222

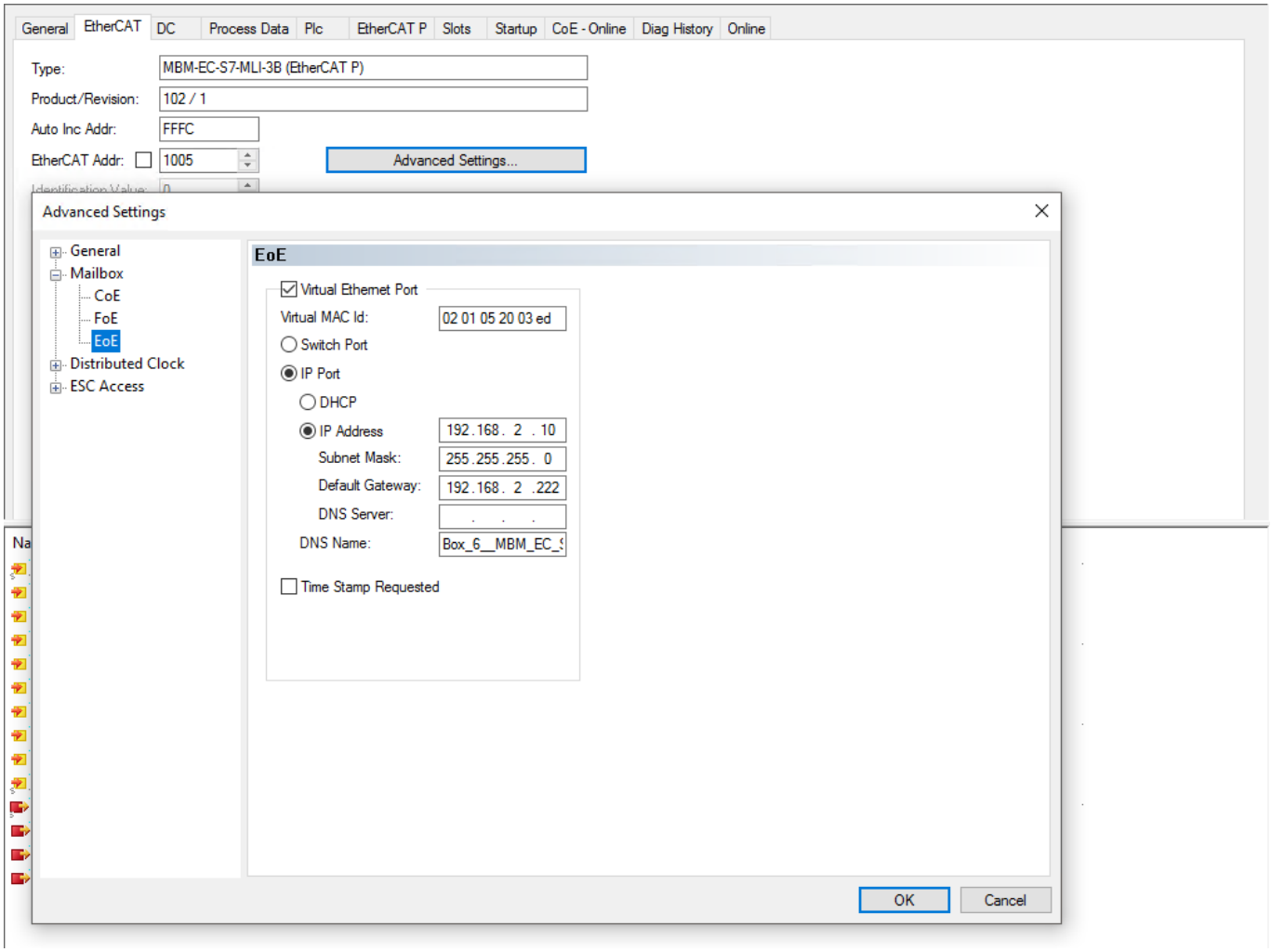

Fig. 8: Advanced Settings MBM

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6. Important note – please observe carefully!

This document is intended for a design engineer who possesses the requisite knowledge in safety engineering and knows the applicable standards, e.g. through training for qualification as a safety engineer. Only with the appropriate qualification is it possible to integrate the example provided into a complete safety chain.

The example represents only part of a complete safety chain and does not fulfill any safety function on its own. In order to fulfill a safety function, the energy switch-off function for the danger zone and the software must also be considered in the safety evaluation, for example.

The applications provided are only examples for solving certain safety tasks for protecting safety doors. The examples cannot be comprehensive due to the application-dependent and individual protection goals within a machine/installation.

If questions concerning this example remain open, please contact us directly.

According to the Machinery Directive 2006/42/EC, the design engineer of a machine or installation has the obligation to perform a risk assessment and take measures to reduce the risk. While doing this, the engineer must comply with the applicable national and international safety standards. Standards generally represent the current state-of-the-art. Therefore, the design engineer should continuously inform himself about changes in the standards and adapt his considerations to them. Relevant standards for functional safety include EN ISO 13849 and EN 62061. This application must be regarded only as assistance for the considerations about safety measures.

The design engineer of a machine/installation has the obligation to assess the safety engineering himself. The examples must not be used for an assessment, because only a small excerpt of a complete safety function was considered in terms of safety engineering here.

In order to be able to use the safety switch applications correctly on safety doors, it is indispensable to observe the standards EN ISO 13849-1, EN ISO 14119 and all relevant C-standards for the respective machine type. Under no circumstances does this document replace the engineer's own risk assessment, and it cannot serve as the basis for a fault assessment.

In particular in relation to a fault exclusion, it must be noted that a fault can be excluded only by the machine's or installation's design engineer and this action requires justification. A general fault exclusion is not possible. More information about fault exclusion can be found in EN ISO 13849-2.

Changes to products or within assemblies from third-party suppliers used in this example can lead to the function no longer being ensured or the safety assessment having to be adapted. In any event, the information in the operating instructions on the part of EUCHNER, as well as on the part of third-party suppliers, must be used as the basis before this application is integrated into an overall safety function. If contradictions should arise between the operating instructions and this document, please contact us directly.

Use of brand names and company names

All brand names and company names stated are the property of the related manufacturer. They are used only for the clear identification of compatible peripheral devices and operating environments in relation to our products.

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