



MGB-EIP – IP Address Assignment with BOOTP/DHCP

Contents

| | | |
|-----------|---|-----------|
| 1. | About this document..... | 3 |
| 1.1. | Version | 3 |
| 1.2. | Scope..... | 3 |
| 1.3. | Target group | 3 |
| 1.4. | Supplementary documents | 3 |
| 2. | Components/modules used | 4 |
| 2.1. | EUCHNER | 4 |
| 2.2. | Software | 4 |
| 3. | IP address assignment with BOOTP/DHCP | 5 |
| 3.1. | General BOOTP/DHCP settings | 5 |
| 3.2. | New (out of the box) MGB..... | 6 |
| 3.3. | Assigning a new IP address to an MGB already in use | 9 |
| 4. | Important note – please observe carefully! | 14 |

1. About this document

1.1. Version

| Version | Date | Change/addition | Chapter |
|----------|-----------|-----------------|---------|
| 01-01/21 | 1/21/2021 | Prepared | All |
| | | | |

1.2. Scope



This document describes IP address assignment to an MGB Ethernet/IP with BOOTP/DHCP.

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 | |
|-------------------------------------|---|--|
| Manual (2126330) | Safety Systems Manual MGB-L...B-EI... (Ethernet/IP) with Data Structure Type A |  |
| Possibly enclosed data sheets | Item-specific information about deviations or additions |  |

2. Components/modules used

2.1. EUCHNER

| Description | Order number / item |
|---------------------------------|--------------------------------------|
| MGB with Ethernet/IP™ interface | All MGBs with Ethernet/IP™ interface |



TIP!

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

2.2. Software

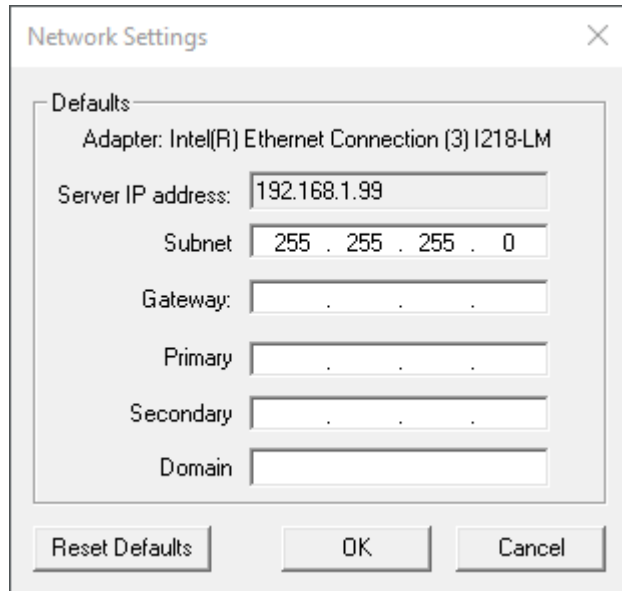
| Description | Version |
|---|---------|
| BootP DHCP Ethernet/IP Commissioning Tool | 3.05.00 |

3. IP address assignment with BOOTP/DHCP

3.1. General BOOTP/DHCP settings

Select the *Network Settings* option from the *Tools* menu.

Depending on the network, enter the *subnet mask*, the *gateway address*, the *primary and/or secondary DNS address* and the *domain name*.



Network Settings

Defaults

Adapter: Intel(R) Ethernet Connection (3) I218-LM

Server IP address: 192.168.1.99

Subnet 255 . 255 . 255 . 0

Gateway: . . .

Primary . . .

Secondary . . .

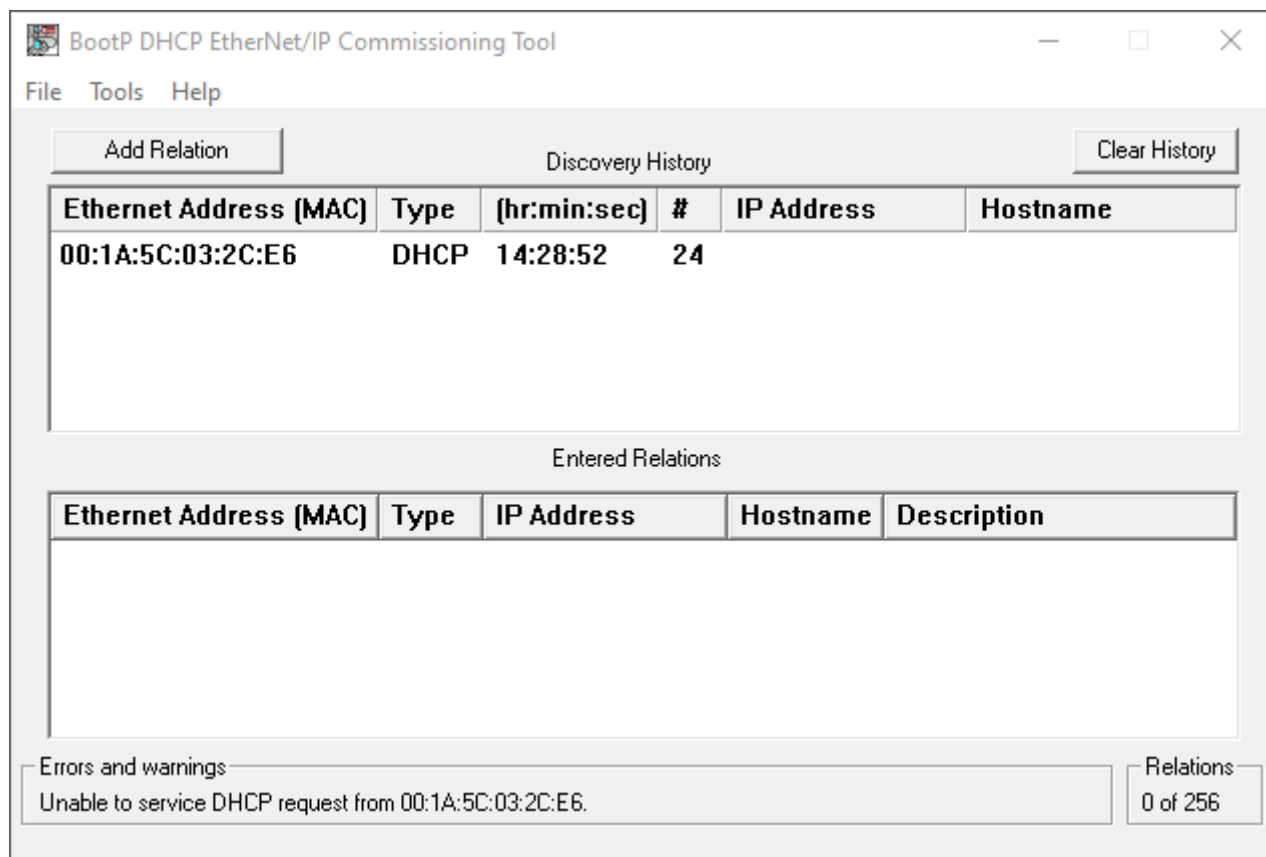
Domain

Reset Defaults OK Cancel

Figure 1: BOOTP/DHCP network settings

3.2. New (out of the box) MGB

1. Open BOOTP/DHCP and select the corresponding network adapter.
2. Make the network settings.
3. Connect the network cable (X3 or X4) to the appropriate RJ45 port on the PC.
4. Connect the MGB to the power supply (X1 or X2).
5. The connected MGB is displayed in the *Discovery History*.



6. Compare the MAC address from BOOTP/DHCP with the MAC address on the type label.



7. Select the MGB and add a new relation with *Add Relation*.

BootP DHCP EtherNet/IP Commissioning Tool

File Tools Help

Add Relation Discovery History Clear History

| Ethernet Address (MAC) | Type | [hr:min:sec] | # | IP Address | Hostname |
|------------------------|------|--------------|----|------------|----------|
| 00:1A:5C:03:2C:E6 | DHCP | 14:32:52 | 88 | | |

Entered Relations

| Ethernet Address (MAC) | Type | IP Address | Hostname | Description |
|------------------------|------|------------|----------|-------------|
|------------------------|------|------------|----------|-------------|

Errors and warnings
Unable to service DHCP request from 00:1A:5C:03:2C:E6.

Relations
0 of 256

8. Assign the IP address of the MGB and confirm with *OK*.

New Entry

Server IP Address: 192.168.1.99

Client Address (MAC): 00:1A:5C:03:2C:E6

Client IP Address: 192 . 168 . 1 . 2

Hostname:

Description:

OK Cancel

9. After successful IP address assignment, the MGB and its IP address are displayed under *Entered Relations*.

The screenshot shows the 'BootP DHCP EtherNet/IP Commissioning Tool' window. The 'Entered Relations' section is active, displaying a table with the following data:

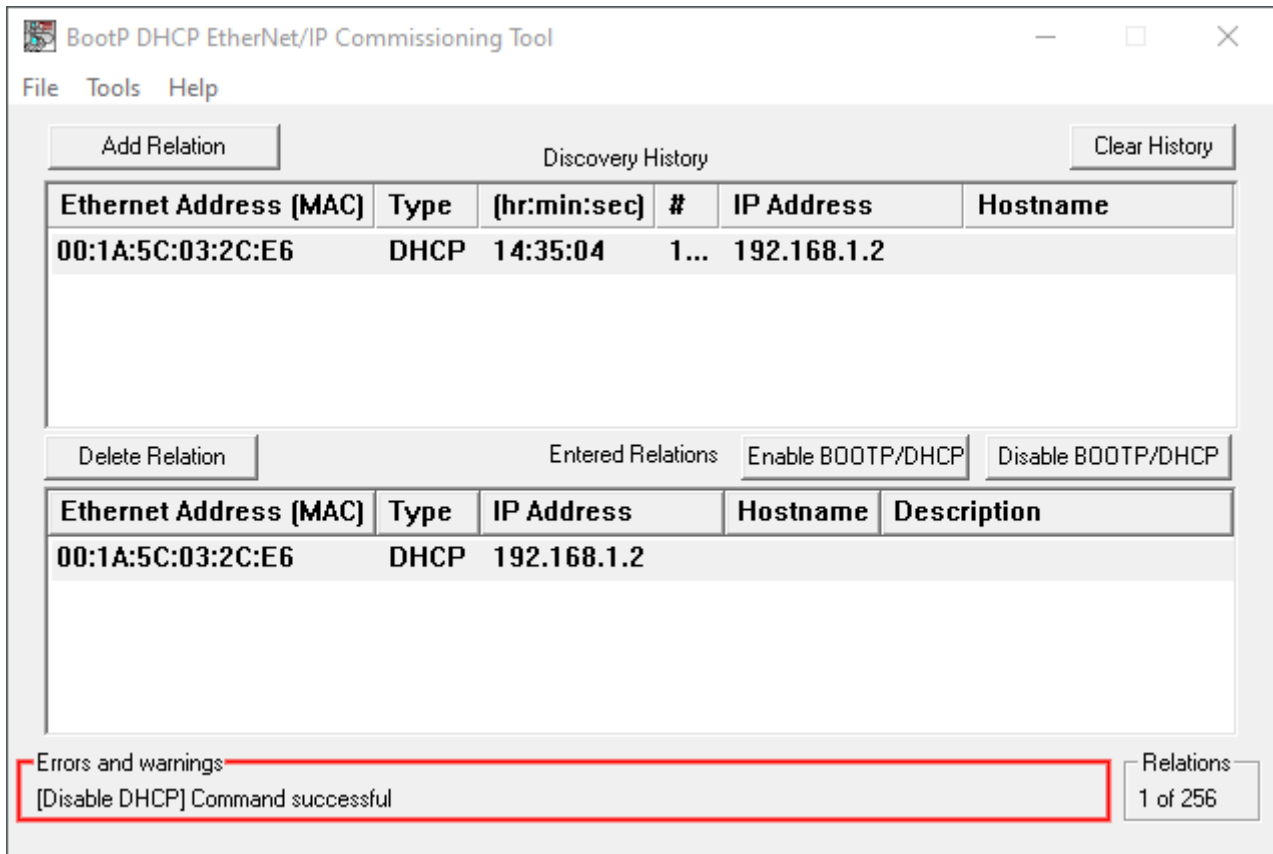
| Ethernet Address (MAC) | Type | [hr:min:sec] | # | IP Address | Hostname |
|------------------------|------|--------------|------|-------------|----------|
| 00:1A:5C:03:2C:E6 | DHCP | 14:35:04 | 1... | 192.168.1.2 | |

Below the table, there are buttons for 'Delete Relation', 'Entered Relations', 'Enable BOOTP/DHCP', and 'Disable BOOTP/DHCP'. The 'Entered Relations' button is highlighted. The 'Errors and warnings' section at the bottom shows the message: 'Sent 192.168.1.2 to Ethernet address 00:1A:5C:03:2C:E6'. The 'Relations' counter shows '1 of 256'.

10. Deactivate DHCP in the MGB using *Disable BOOTP/DHCP*.

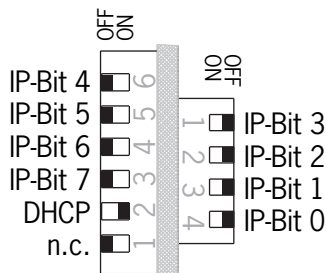
The screenshot shows the same 'BootP DHCP EtherNet/IP Commissioning Tool' window. The 'Entered Relations' section is still active, displaying the same table as in the previous screenshot. The 'Disable BOOTP/DHCP' button is now highlighted with a red rectangle, and a mouse cursor is pointing at it. The 'Errors and warnings' section at the bottom shows the same message: 'Sent 192.168.1.2 to Ethernet address 00:1A:5C:03:2C:E6'. The 'Relations' counter shows '1 of 256'.

11. Successful acknowledgment and completion of IP address assignment.



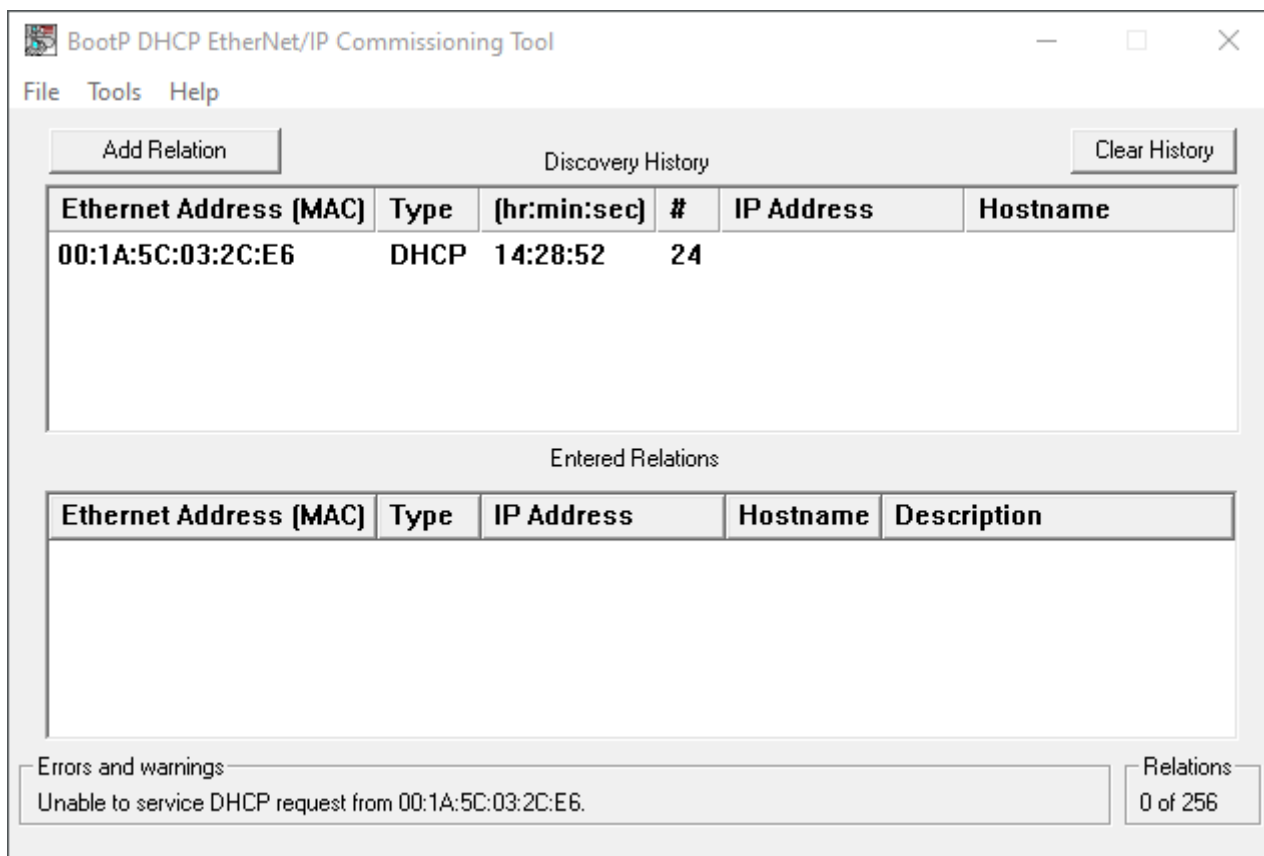
3.3. Assigning a new IP address to an MGB already in use

1. Set the DHCP DIP switch to ON.



2. Open BOOTP/DHCP and select the corresponding network adapter.
3. Make the network settings.
4. Connect the network cable (X3 or X4) to the appropriate RJ45 port on the PC.
5. Connect the MGB to the power supply (X1 or X2).

6. The connected MGB is displayed in the *Discovery History*.



7. Compare the MAC address from BOOTP/DHCP with the MAC address on the type label.



8. Select the MGB and add a new relation with *Add Relation*.

BootP DHCP EtherNet/IP Commissioning Tool

File Tools Help

Add Relation Discovery History Clear History

| Ethernet Address (MAC) | Type | [hr:min:sec] | # | IP Address | Hostname |
|------------------------|------|--------------|----|------------|----------|
| 00:1A:5C:03:2C:E6 | DHCP | 14:32:52 | 88 | | |

Entered Relations

| Ethernet Address (MAC) | Type | IP Address | Hostname | Description |
|------------------------|------|------------|----------|-------------|
|------------------------|------|------------|----------|-------------|

Errors and warnings
Unable to service DHCP request from 00:1A:5C:03:2C:E6.

Relations
0 of 256

9. Assign the IP address of the MGB and confirm with OK.

New Entry

Server IP Address: 192.168.1.99

Client Address (MAC): 00:1A:5C:03:2C:E6

Client IP Address: 192 . 168 . 1 . 2

Hostname:

Description:

OK Cancel

10. After successful IP address assignment, the MGB and its IP address are displayed under *Entered Relations*.

The screenshot shows the 'BootP DHCP EtherNet/IP Commissioning Tool' window. The 'Entered Relations' section is active, displaying a table with the following data:

| Ethernet Address (MAC) | Type | IP Address | Hostname | Description |
|------------------------|------|-------------|----------|-------------|
| 00:1A:5C:03:2C:E6 | DHCP | 192.168.1.2 | | |

Below the table, the 'Errors and warnings' section shows: 'Sent 192.168.1.2 to Ethernet address 00:1A:5C:03:2C:E6'. The 'Relations' counter shows '1 of 256'.

11. Deactivate DHCP in the MGB using *Disable BOOTP/DHCP*.

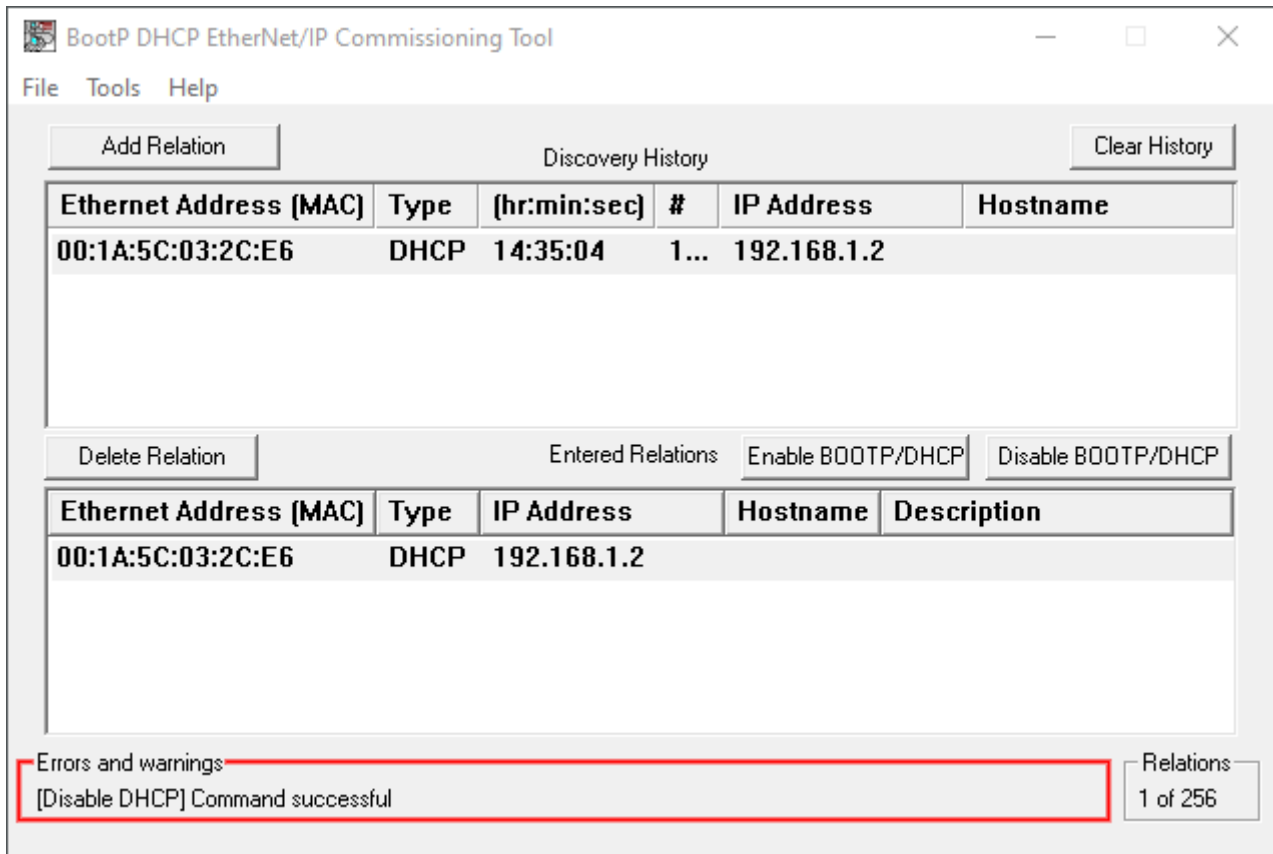
The screenshot shows the same 'BootP DHCP EtherNet/IP Commissioning Tool' window. The 'Disable BOOTP/DHCP' button in the 'Entered Relations' section is highlighted with a red rectangle. The table below it remains the same:

| Ethernet Address (MAC) | Type | IP Address | Hostname | Description |
|------------------------|------|-------------|----------|-------------|
| 00:1A:5C:03:2C:E6 | DHCP | 192.168.1.2 | | |

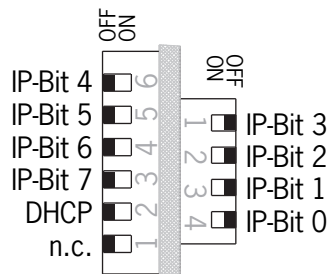
The 'Errors and warnings' section and 'Relations' counter are also visible at the bottom.

d

12. Successful acknowledgment and completion of IP address assignment.



13. Set the *DHCP* DIP switch of the MGB to *OFF*. If the DIP switch is not set to *OFF*, the IP address setting will be deleted again the next time the MGB is restarted.



4. 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 technology 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.

EUCHNER GmbH + Co. KG
Kohlhammerstraße 16
70771 Leinfelden-Echterdingen
Germany
info@euchner.de
www.euchner.com

Edition:
AP000262-01-01/21
Title:
Application MGB
MGB-EIP – IP Address Assignment with BOOTP/DHCP

Copyright:
© EUCHNER GmbH + Co. KG, 01/2021

Subject to technical modifications; no responsibility is accepted for the accuracy of this information.