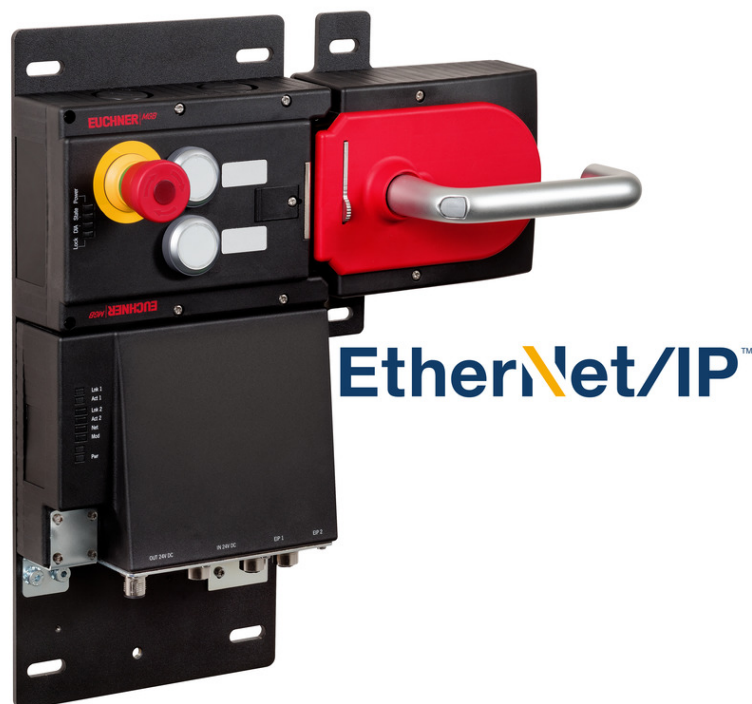


MGB-L1B-EI... on Allen Bradley ControlLogix with Gateway in Network



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Guard locking according to EN ISO 14119 actuated by spring force applied – power-ON released (closed-circuit current principle)

Safety function Guard locking for personnel protection acc. to EN ISO 14119

Reliability values according to EN ISO 13849 Category 4, PL e

Components/modules used

EUCHNER

Description	Order no./item designation Set	Order no./item designation Evaluation unit
Safety system MGB with Ethernet/IP interface, guard locking with guard lock monitoring	126636 / MGB-L1HB-EIA-R-126636 126638 / MGB-L1HB-EIA-L-126638	126635 / MGB-L1B-EIA-R-126635 126637 / MGB-L1B-EIA-L-126637

Tip: More information and downloads about the aforementioned EUCHNER products can be found at www.euchner.com. Simply enter the order number in the search box.

Others

Description	Item
Allen Bradley ControlLogix 4 Slots Chassis	Mat No PN-240518
Allen Bradley Logix 5576S Automation Controller 8M/4M	Mat No PN-98688
Allen Bradley Logix L7SP SIL3 PLe Safety Partner	Mat No PN-98690
Allen Bradley 2-PORT CLX HI-CAP ENET/IP MODULE – TP	Mat No. 184724

Notice: The MGB can be used on control systems of the type RSLogix5000 from version 20 (firmware 20.011).

Software



Figure 1

Functional description

General

The MGB-L1B-EL... is guard locking in accordance with EN ISO 14119 according to the closed-circuit current principle. If an MGB is to be operated in a different subnet than the one used by the control system, the MGB is connected to an Allen Bradley Control-Logix CPU via a gateway. Figure 2 shows a very simple example.

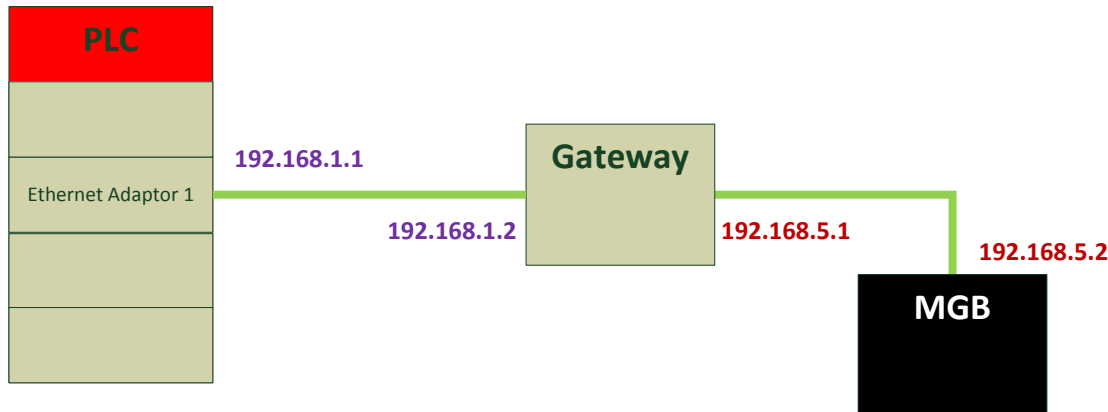


Figure 2

Setting the gateway address in the MGB

Notice: The following screen shots were created with version 28.0 of the Studio 5000 software. Depictions with RSLogix5000 or other versions of Studio 5000 can differ from the images shown here.

The procedure used here works both for MGBs that were never used before and for MGBs that have already saved an IP address. This requires creating an auxiliary project in Studio 5000. This project is used only to set the gateway address, an IP address and the subnet mask.

Tip: There is also software available, e.g. from EtherNet/IP Tools, with which a gateway address and other settings can be made directly on the MGB.

1. Assigning a temporary IP address for the MGB

As the first step, use the DIP switches on the side of the MGB to set an address. The first seven digits of this setting are always 192.168.1.xxx, with "xxx" being replaced with the DIP switch setting. Any IP address in the network 192.168.1.xxx is used for the control system for this example, and 192.168.1.2 is used as the temporary IP address of the MGB.

Set the DIP switches to the following positions and then switch on the voltage at the MGB:

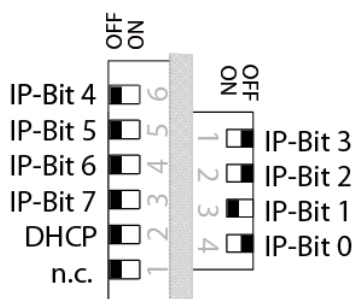


Figure 3

Once the MGB has booted, the MGB adopts the IP address 192.168.1.2.

Now switch the voltage off again and set the following DIP switch position:

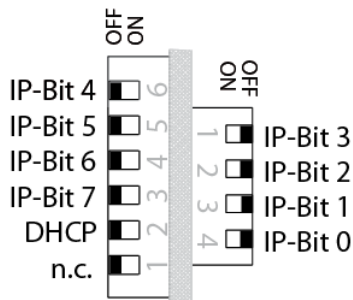


Figure 4

Now switch the MGB on again. Since DIP switch 2 remains OFF, DHCP is not activated. The previously saved address 192.168.1.2 continues to be used. The MGB communication parameters can be changed in this DIP switch setting.

2. Creating an auxiliary project in RSLogix5000

It is now necessary to create a small auxiliary project with a CPU, an Ethernet adapter and the MGB. The communication settings for the MGB can now be changed on the "Port Configuration" tab of the generic safety module.

Create the MGB as follows:

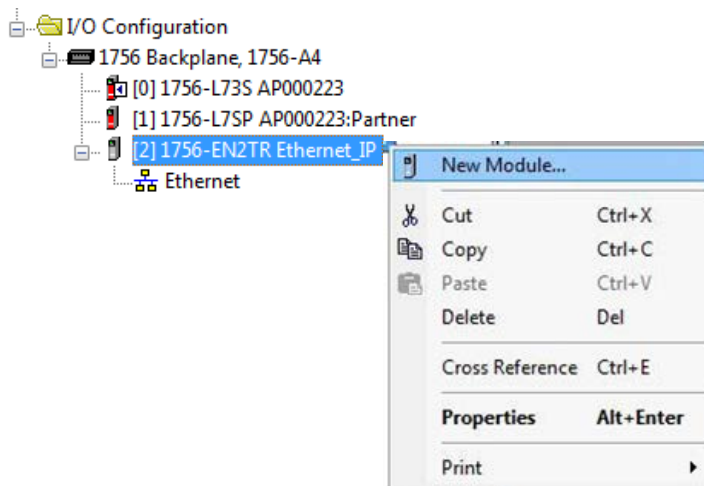


Figure 5

Use this to open the dialog field to add a new module.

3. Selection: “Generic EtherNet/IP Safety Module”

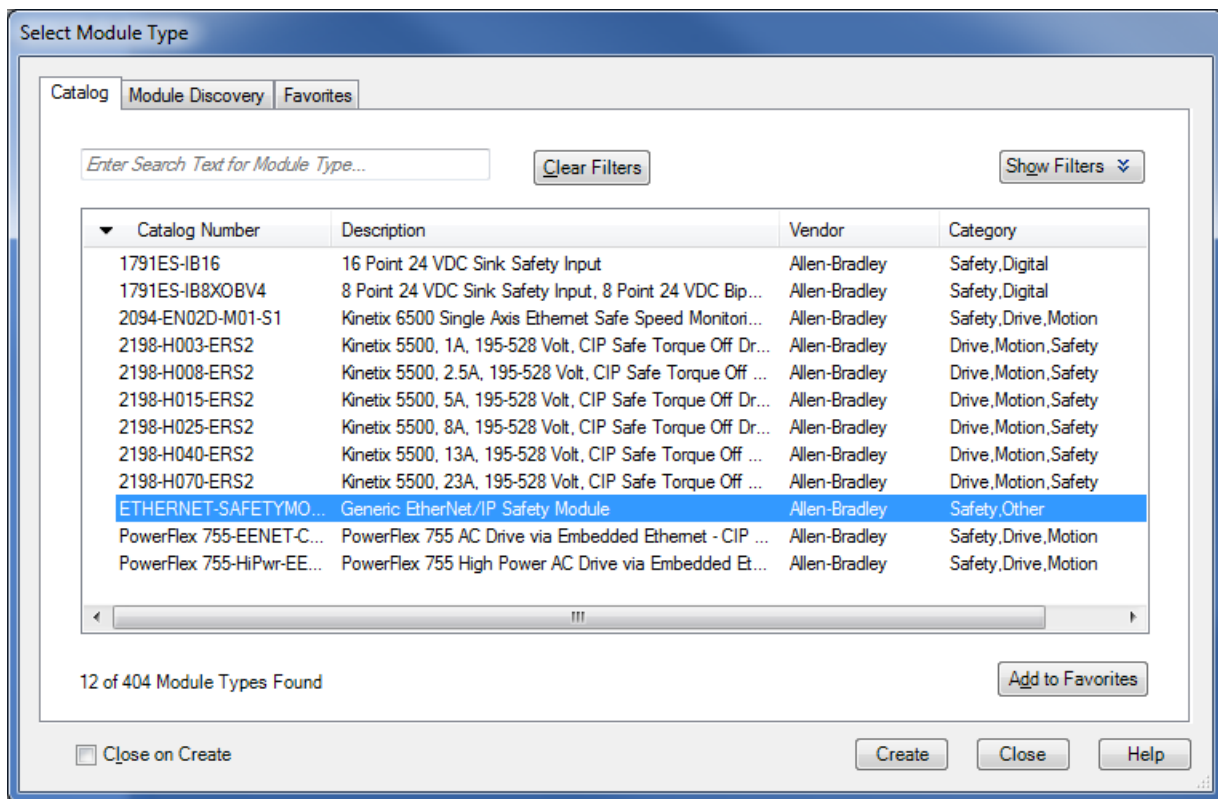
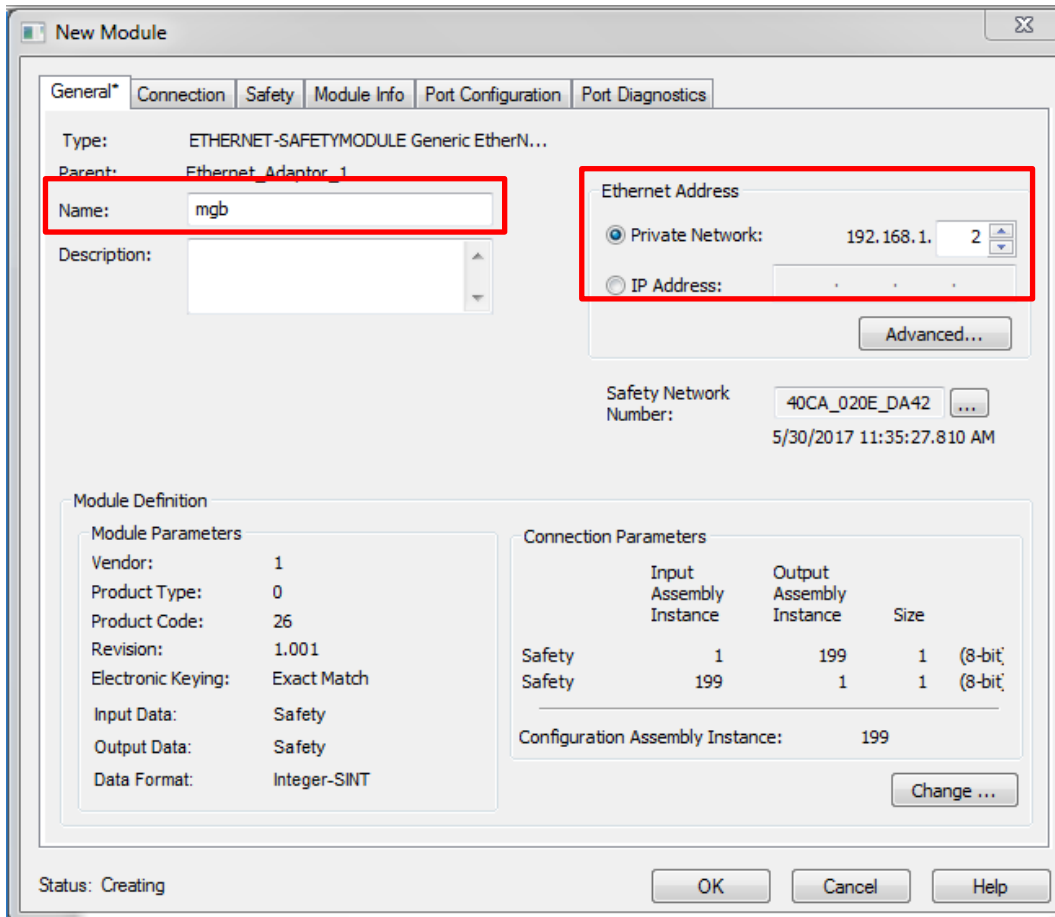


Figure 6

Create the “Generic Ethernet/IP Safety Module” as a new device on the Ethernet.

4. Parameter settings for the MGB

General:



New Module

General* | Connection | Safety | Module Info | Port Configuration | Port Diagnostics

Type: ETHERNET-SAFETYMODULE Generic EtherN...

Parent: Ethernet_Adaptor_1

Name: **mgb**

Description:

Ethernet Address

☒ Private Network: 192.168.1. **2**

☐ IP Address:

Advanced...

Safety Network Number: 40CA_020E_DA42
5/30/2017 11:35:27.810 AM

Module Definition

Module Parameters

Vendor:	1
Product Type:	0
Product Code:	26
Revision:	1.001
Electronic Keying:	Exact Match
Input Data:	Safety
Output Data:	Safety
Data Format:	Integer-SINT

Connection Parameters

	Input Assembly Instance	Output Assembly Instance	Size
Safety	1	199	1 (8-bit)
Safety	199	1	1 (8-bit)
Configuration Assembly Instance:		199	

Change ...

Status: Creating

OK Cancel Help

Figure 7

- Assign any name to the MGB.
- Assign the device the IP address 192.168.1.2.

The MGB parameters will not be set correctly below; the purpose here is only to set the gateway address and the IP address of the MGB correctly. All other parameters must be set correctly in the actual project.

Tip: Use the application AP000223 in your actual project to perform full parameter assignment for the MGB.

Safety:

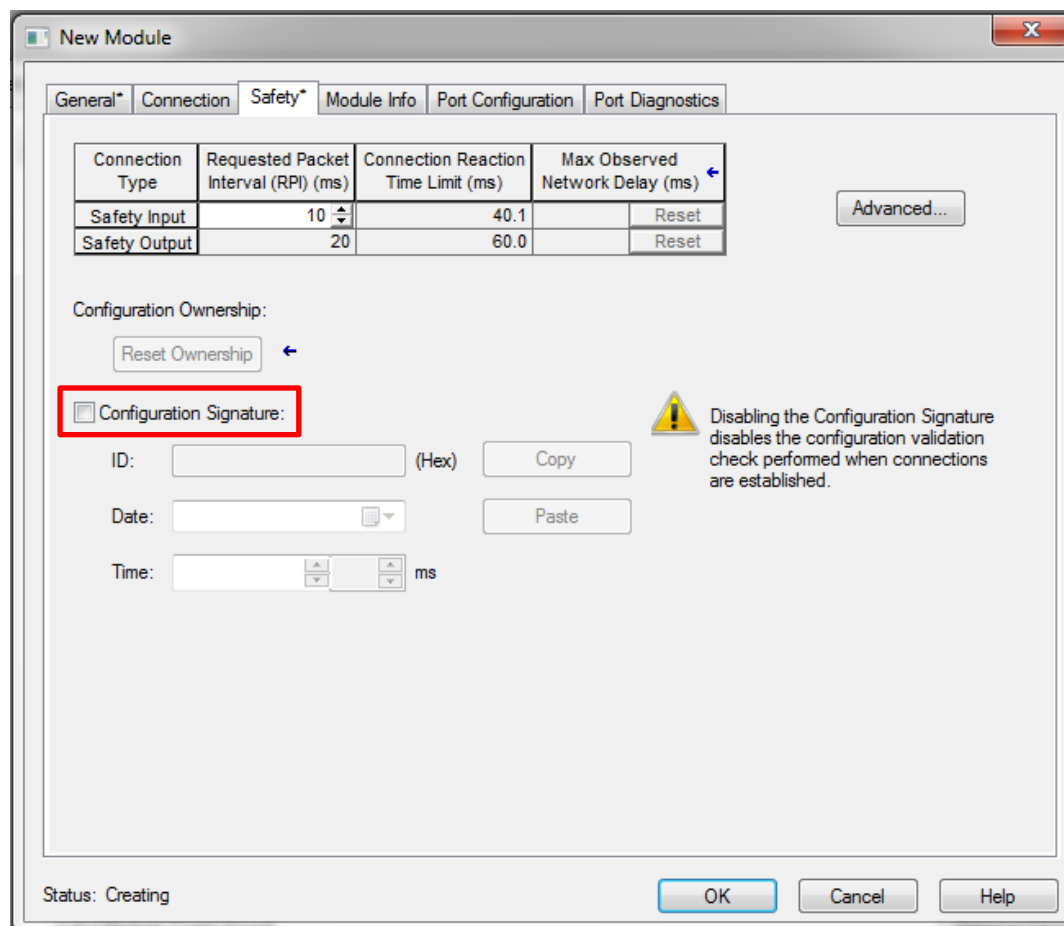


Figure 8

Deselect the configuration signature (the MGB does not include any configuration data).

5. Downloading the configuration

Now go online with the control system and load the auxiliary project into the control system.

6. Setting the gateway address and the IP address

Subsequently open the “Port Configuration” tab in the MGB properties.

You can make all settings for the network in this screen. Set the gateway to the desired address and set the MGB's IP address at the same time. You can also set the subnet mask if necessary.

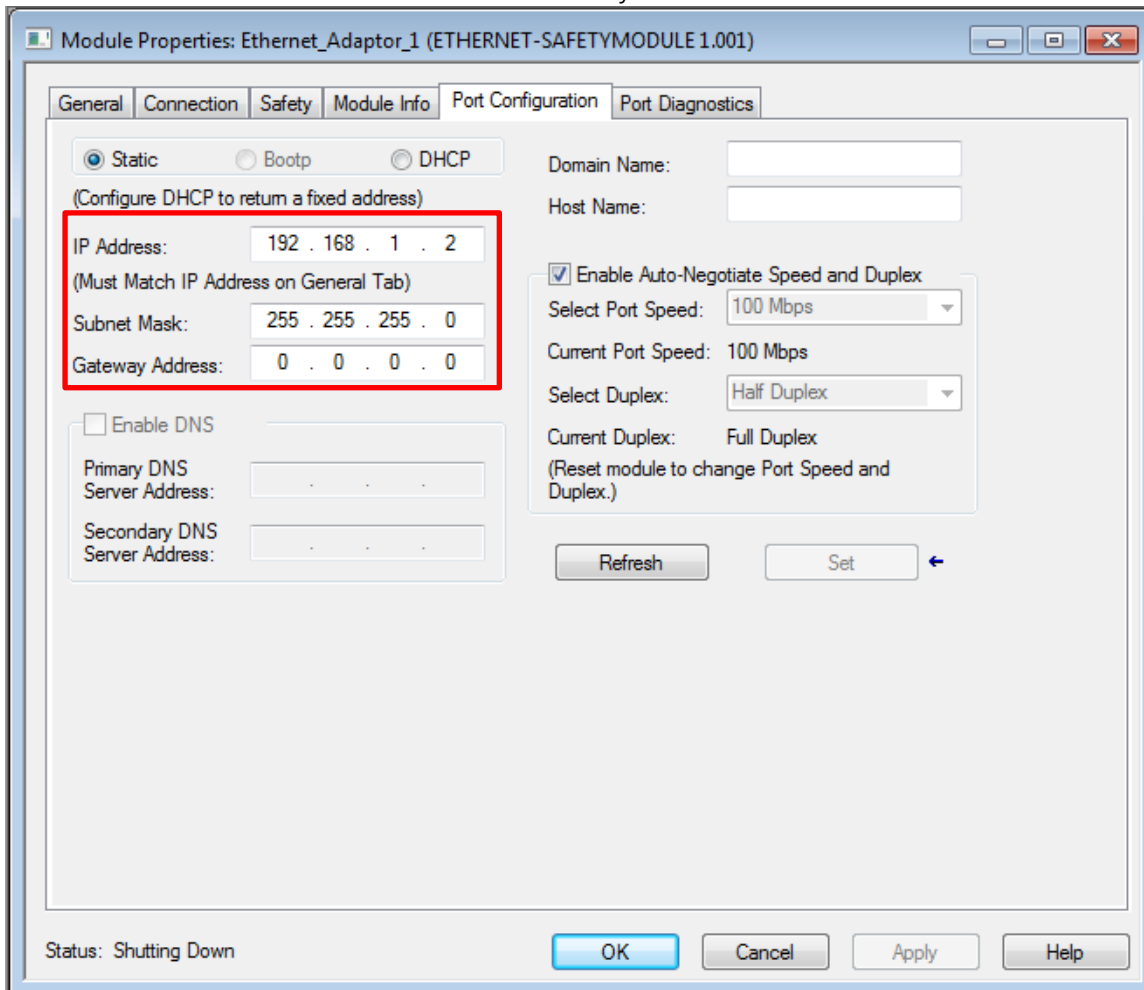


Figure 9

For the example from Figure 2, make the settings as shown in Figure 10.

Notice: The MGB must be in the same subnet as the gateway. Studio 5000 will otherwise display an error message.

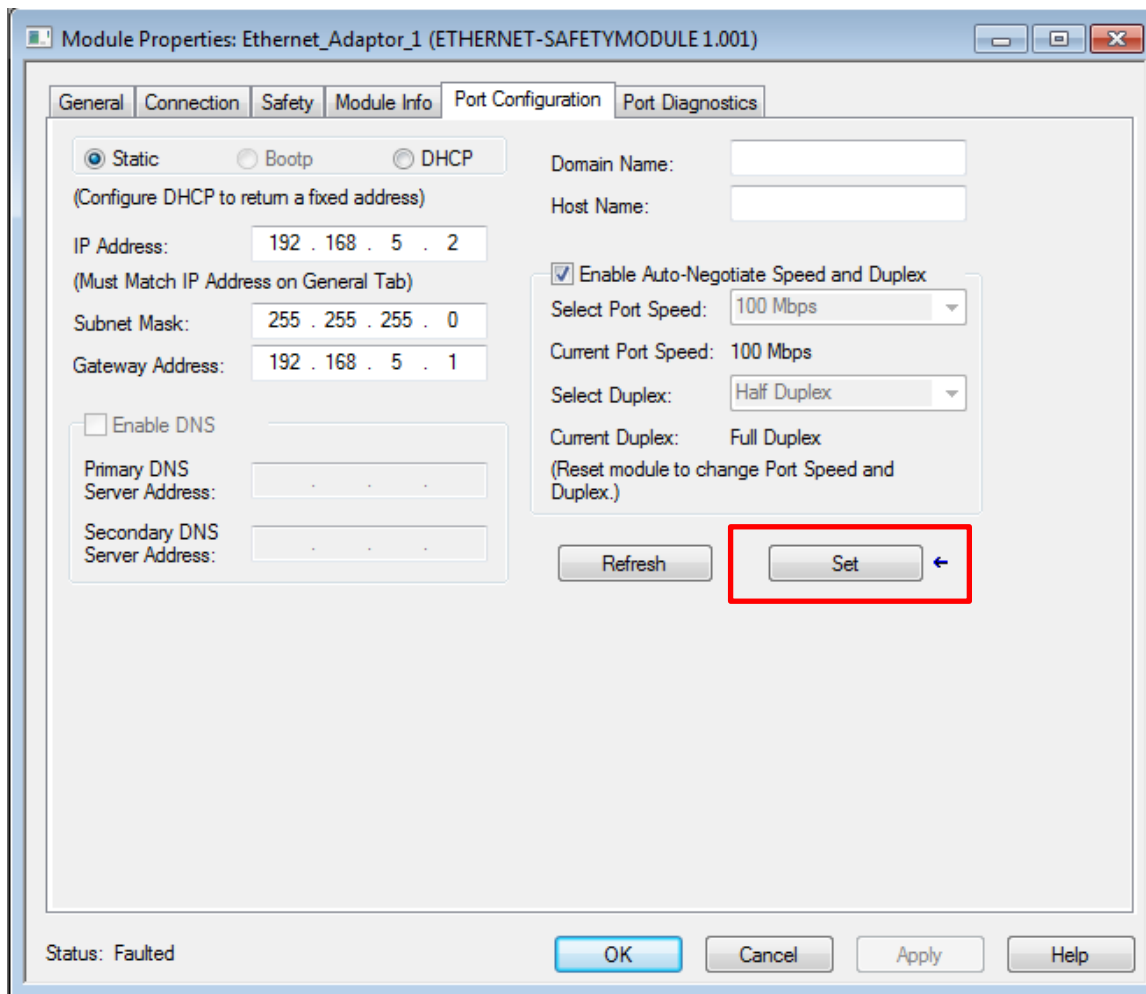


Figure 10

Click "Set" to accept the values. The following warning then appears:

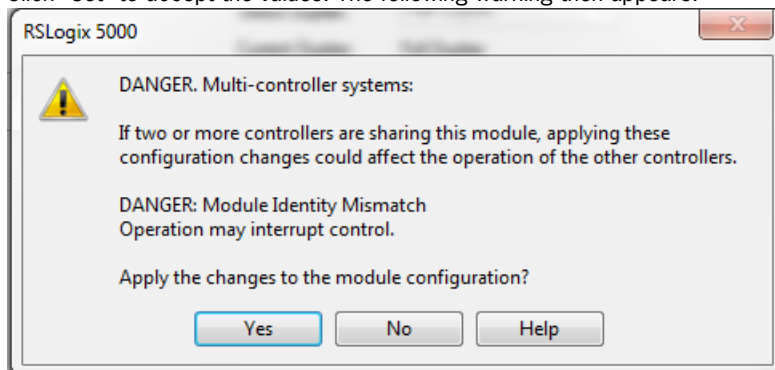


Figure 11

Click "Yes." The settings will now be saved in the MGB. These values will be adopted when you switch the MGB off and then back on again.

ATTENTION: Do not change the DIP switch position afterwards!

IMPORTANT: You can no longer reach the MGB from the control system with the auxiliary project. The MGB can be reached again only when you correctly position the MGB in the network via the gateway. Use your actual project for this purpose, no longer the auxiliary project for setting the gateway address.

IMPORTANT: Set the "Safety Network Number" only in the actual project, never in this auxiliary project.

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 introduced example 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 hazard location and the software within the safety evaluation must also be considered, for example.

The introduced applications 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.

In accordance with Machinery Directive 2006/42/EC, the design engineer of a machine or installation is obligated to perform a risk assessment and take measures to reduce the risk. When doing this, the engineer must comply with the applicable national and international 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 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 him/herself. The examples must not be used for 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.

Particularly in case of fault exclusion, it must be noted that this can be performed only by the design engineer of a machine or installation and requires a reason. 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.