FORTRESS

amGard pro

*pro*Net - PROFINET / PROFIsafe communication module
Configuration Instructions

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Important:
This document of example is for the purpose of demonstration only. It represents only part of a complete safety system and does not fulfil any safety function on its own. It is the customer's responsibility to ensure that the setting of the *pro*Net units is correct and complies with the relevant risk assessment of the applications, safety standards and regulations. No responsibility is accepted if the document is misused. The information in this document is subject to change without notice and should not be construed as a commitment by Fortress Interlocks. Fortress Interlocks assumes no responsibility for any errors that may appear in this document.

Contents

General Information

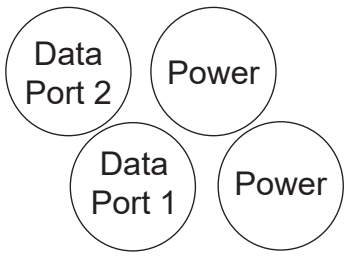
This document demonstrates how to connect a Fortress proNet unit to Siemens S7-1200 Failsafe PLC. The information provided in this document accompanies the installation instructions for proNet.

List of components and software

***pro*Net communication module**

This document uses a Fortress Interlocks amGard*pro* *pro*Net PF10 unit. The PF10 is composed of 2 data ports and 2 power ports. Please refer to *pro*Net datasheet for further details.

PF10



Siemens PLC

he PLC used for this demonstration is Siemens SIMATIC S7-1214FC Failsafe PLC.

Software used for this document

The programing and commissioning software used were as follows:
1. Siemens Proneta 2.3 - Commissioning and diagnostics tool for PROFINET networks
2. SIMATIC Step 7 Safety Basic version 14.0
3. SIMATIC Step 7 Basic version 14.0

General information about *pro*Net

The *pro*Net module allows the features of amGard*pro* to become distributed IO on a PROFINET network. Safety data is exchanged using PROFIsafe protocol.
See individual datasheets for further details about the modules. Also see the installation instruction for the information of mounting and product dimensions. These documents are both available from Fortress Interlocks website.

The GSDML file for proNet units can also be downloaded from Fortress website link below:
http://www.fortressinterlocks.com/Product/169/pronet-profinet-profisafe-communication-module

Two GSDML files are provided on the website:

- For units with part numbers containing N0xxxxN or N2xxxxN please download: “GSDML Zip File”. This is for units that **do not** support MRP.
- For units with part numbers containing N6xxxxN or N8xxxxN please download: “GSDML Zip File for

Assigning an IP address and device name using Proneta

Assign the IP address and device name of the unit by using PRONETA 2.3 Commissioning and Diagnostics Tool for PROFINET (Available from: https://www.siemens.com/global/en/home.html)

Figure 1: Open PRONETA, go to GSDML Manager Page and click on load button to add GSDML file for the first time

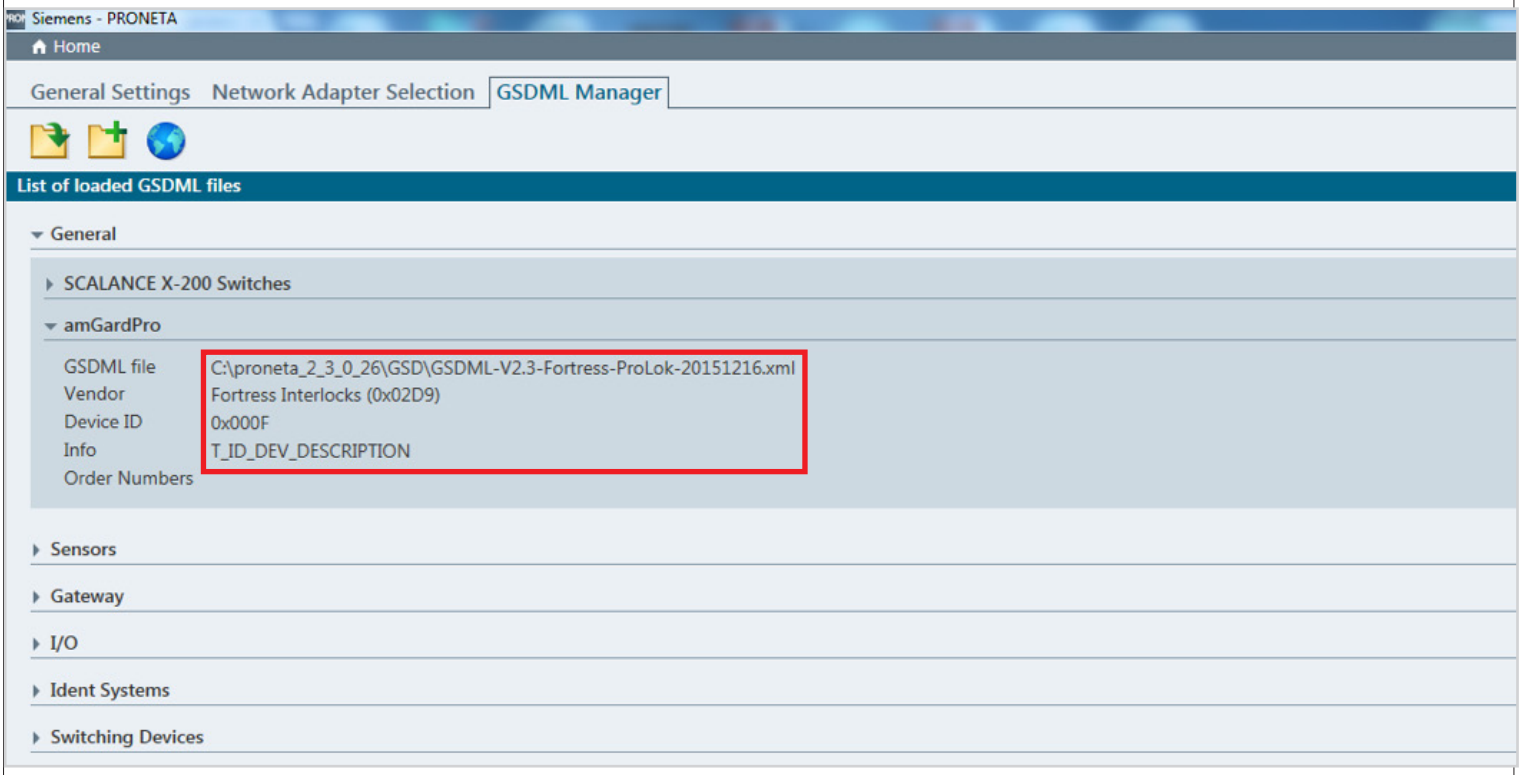


Figure 2: The proNet GSDML is now added to the product library

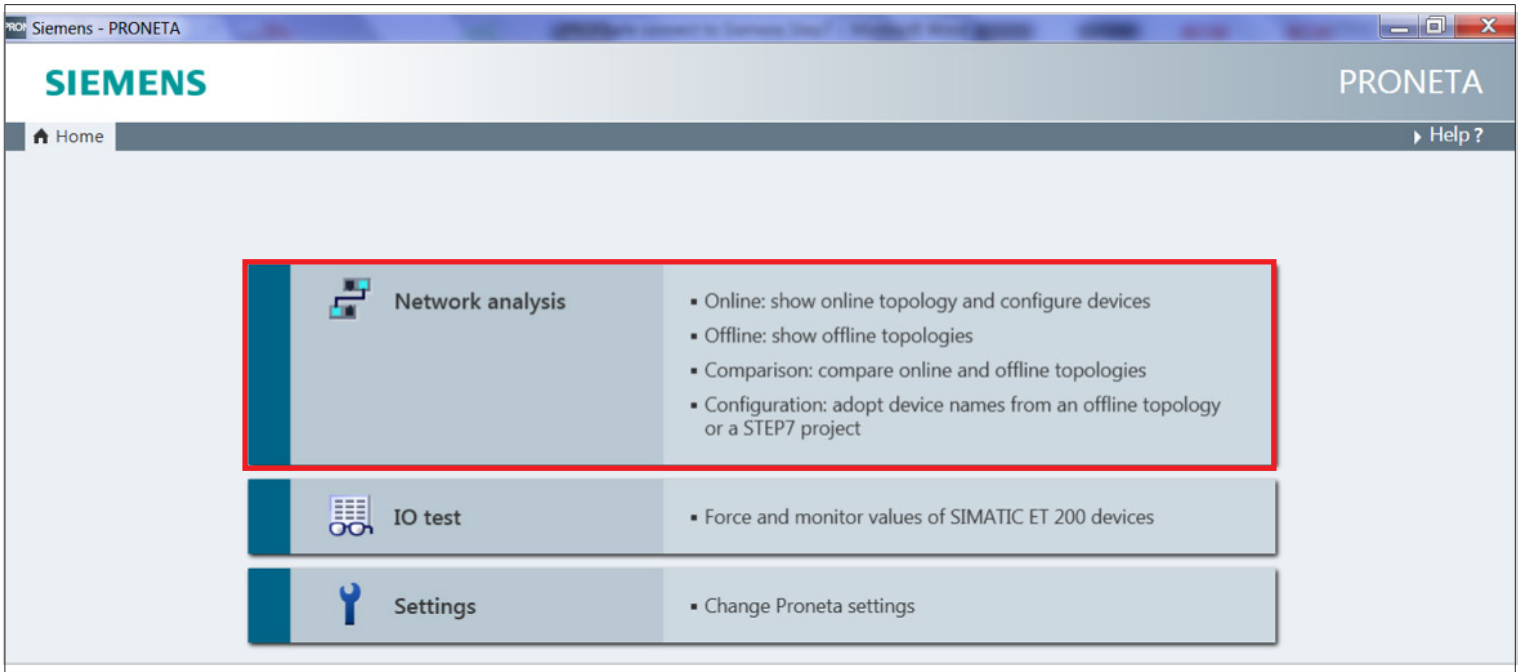


Figure 3: Click on network analysis to scan the devices on PROFINET network

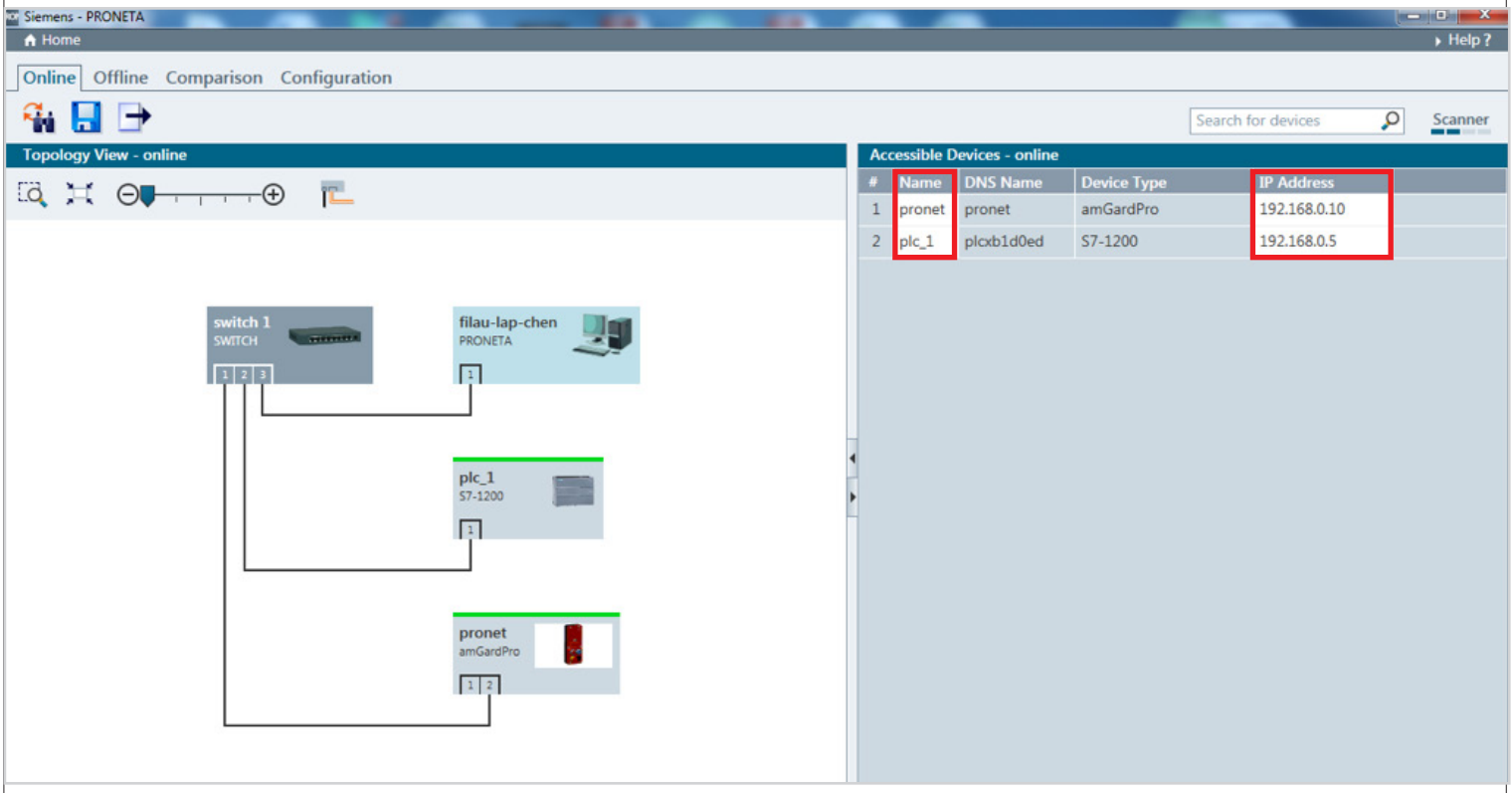


Figure 4: Device names and IP addresses of units can be changed on the above page

Set up F-Address in the *pro*Net unit

F-Address provides the unique identification for the F-Device on the PROFIsafe network. The F-Address of the proNet unit must be set via DIP switches in the proNet unit. The range of F-Addresses that can be set is 1 to 1023. F-Addresses need to be unique for each device on the network. After the F-Address is set, the power of the unit must be cycled.

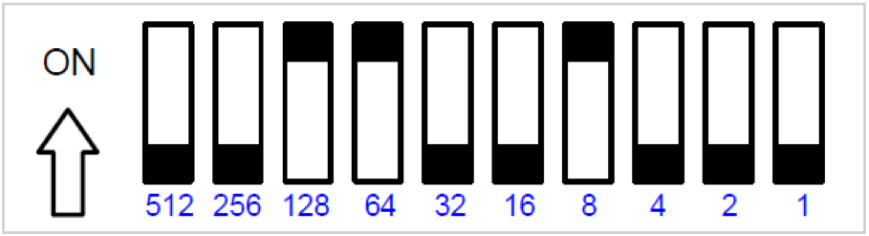


Figure 5: For example, the F-Address is set to 200 in the above photo.

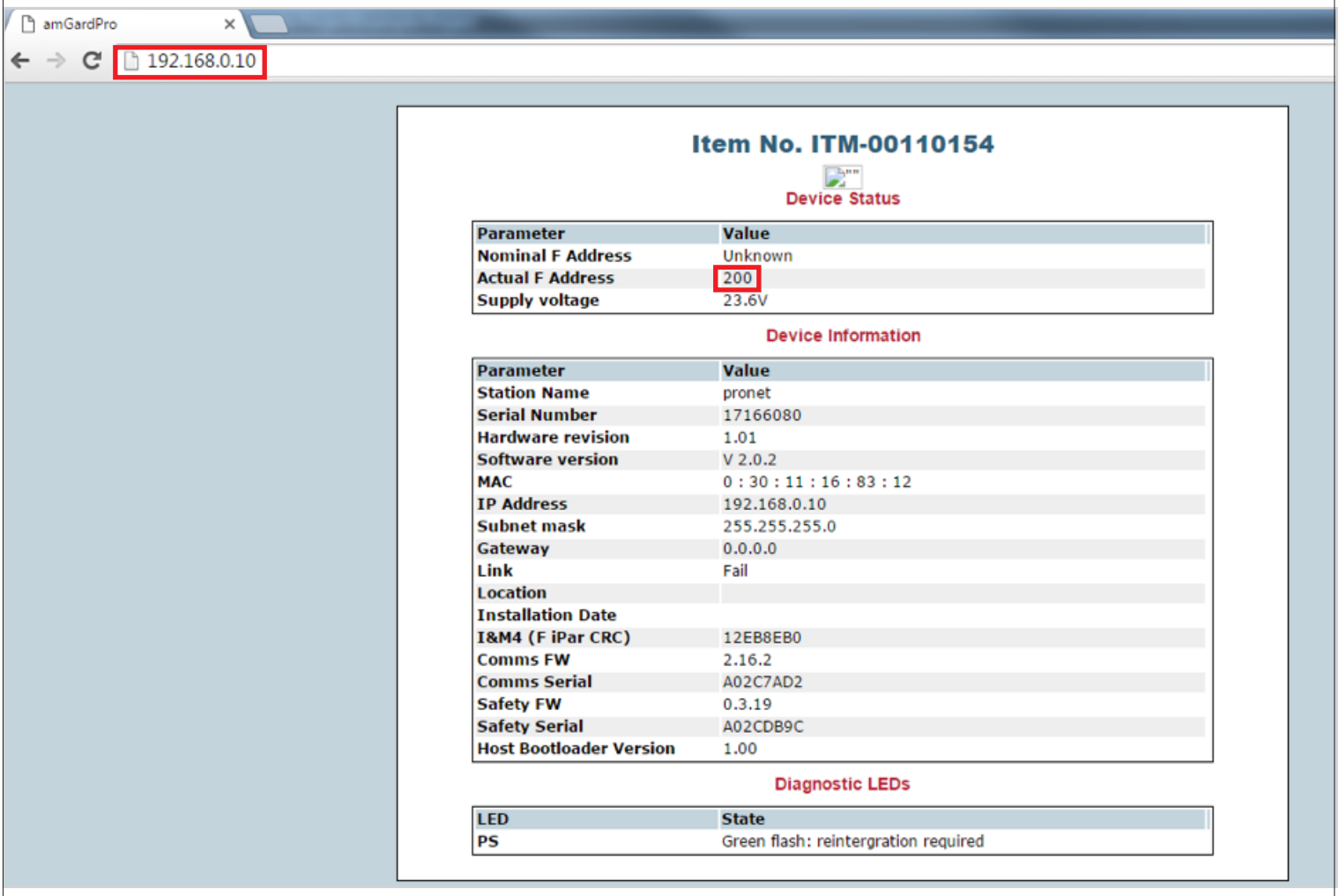


Figure 6: Cycle the power after the dip switches are set. Open the web interface in the browser by using the IP address of the unit. The current F-Address is shown on the page.
Note: The number shown in the photo is for illustration purposes only.

Adding a proNet unit to a TIA Portal V14 Project

1. Installing the GSDML file

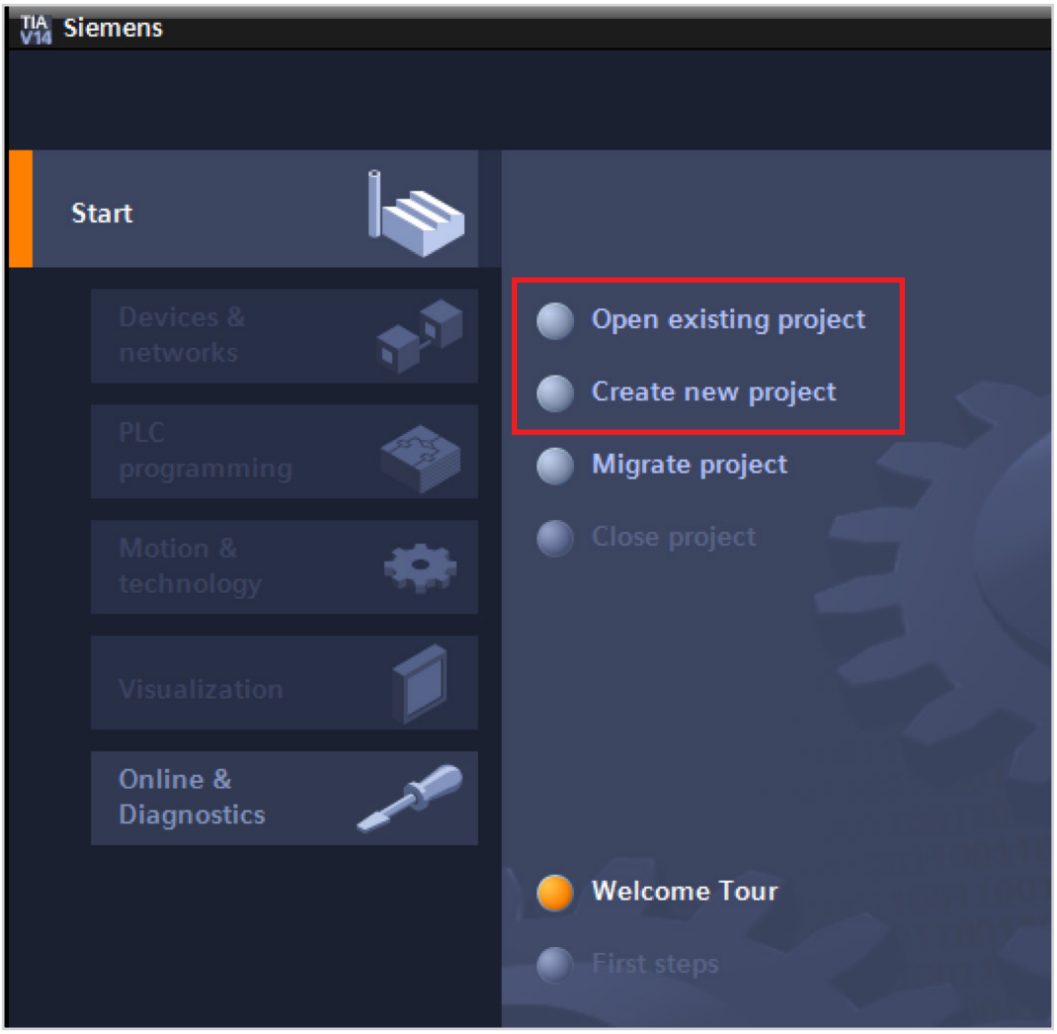


Figure 7: Create the new project or open up the existing project

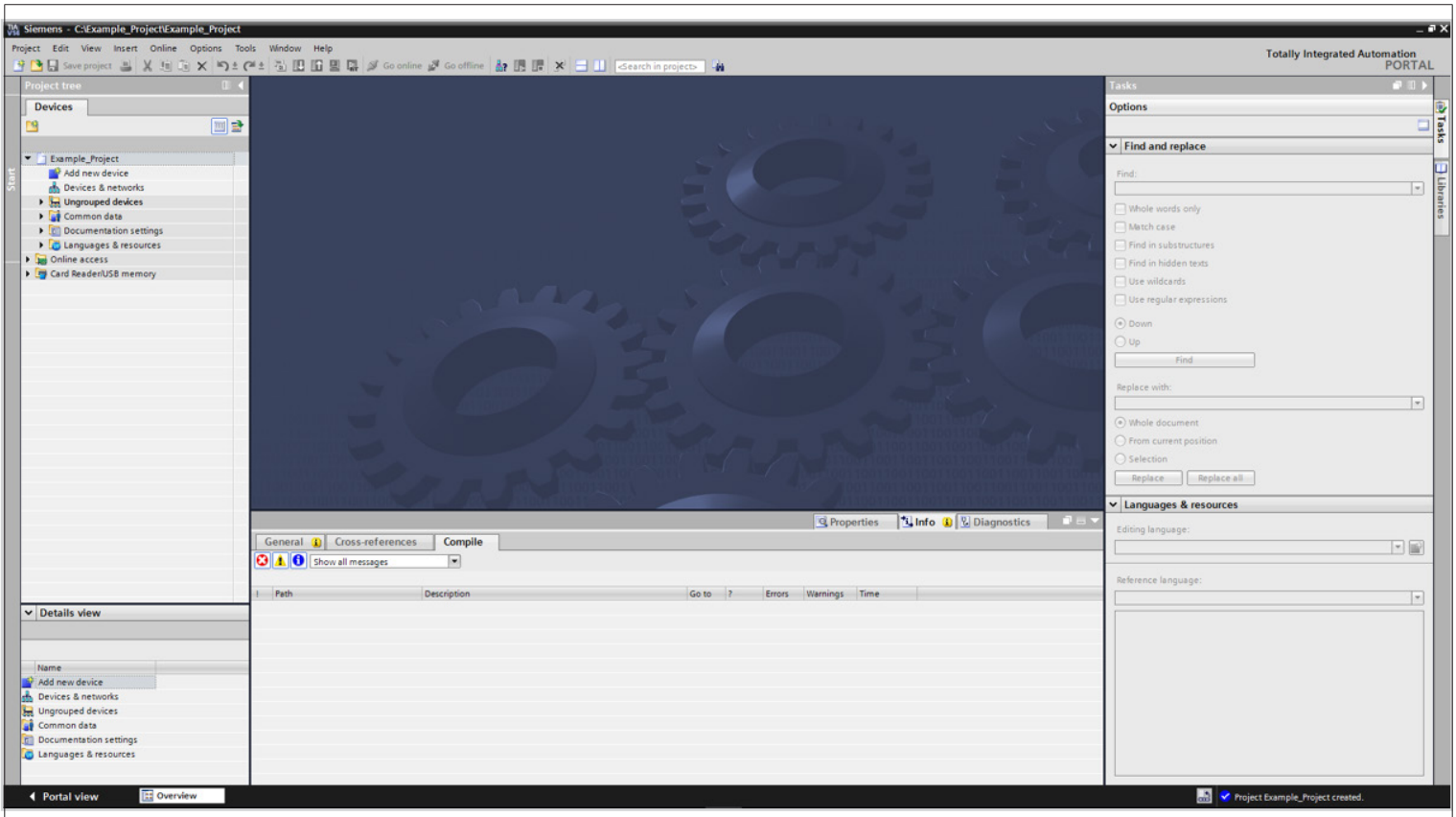


Figure 8: When project is opened, go to Project View Window

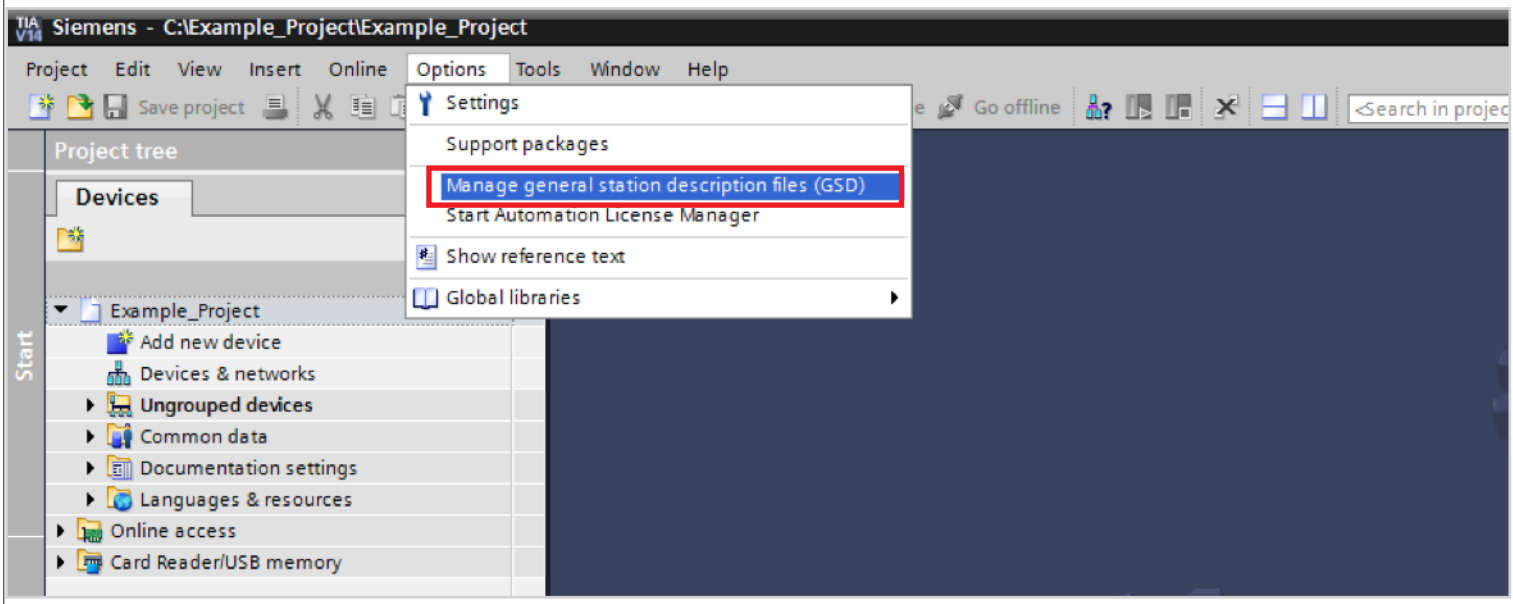


Figure 9: Install the Fortress GSDML file for the first time by clicking on ‘Manage general description files (GSD)’

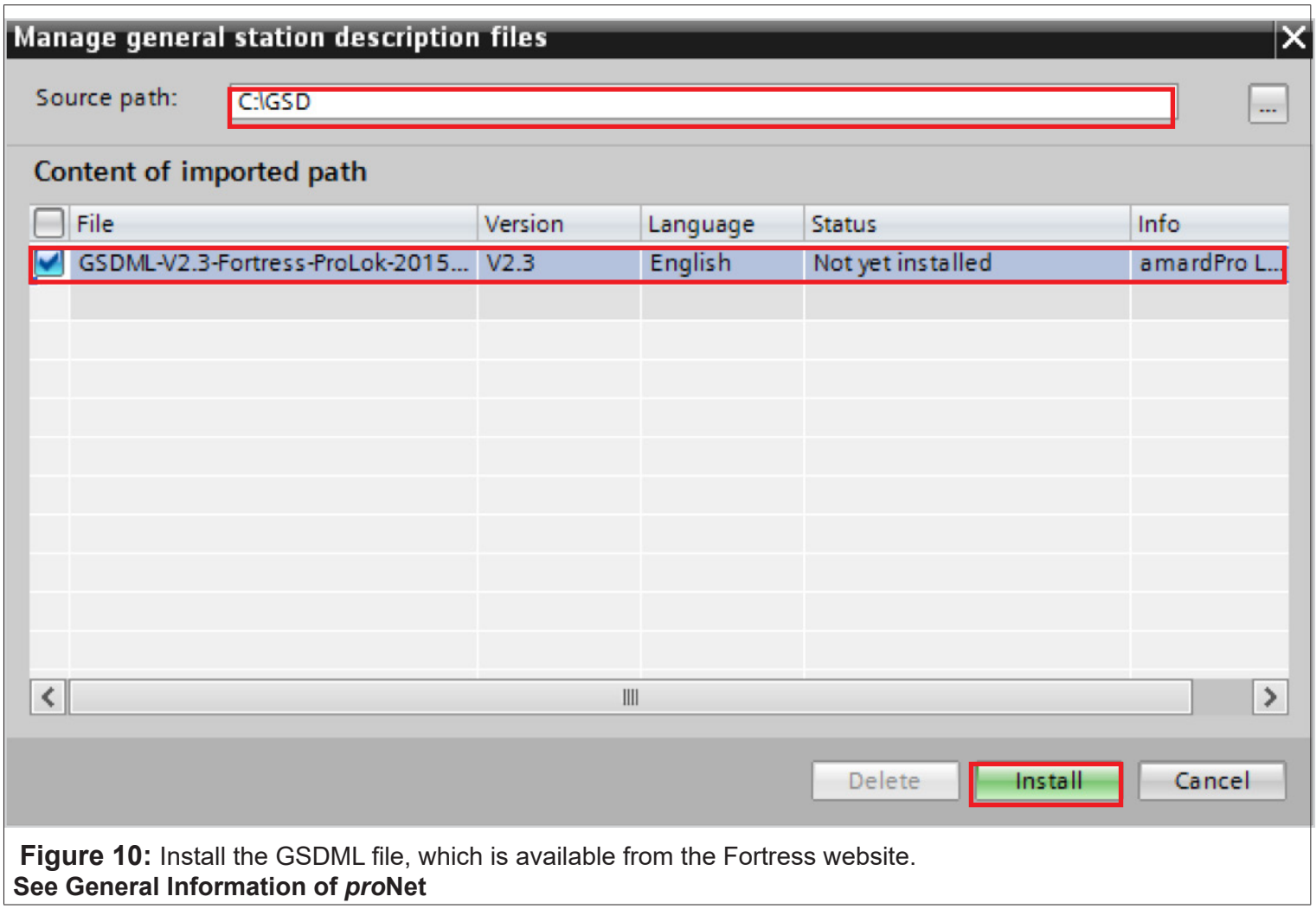


Figure 10: Install the GSDML file, which is available from the Fortress website.
See General Information of *pro*Net

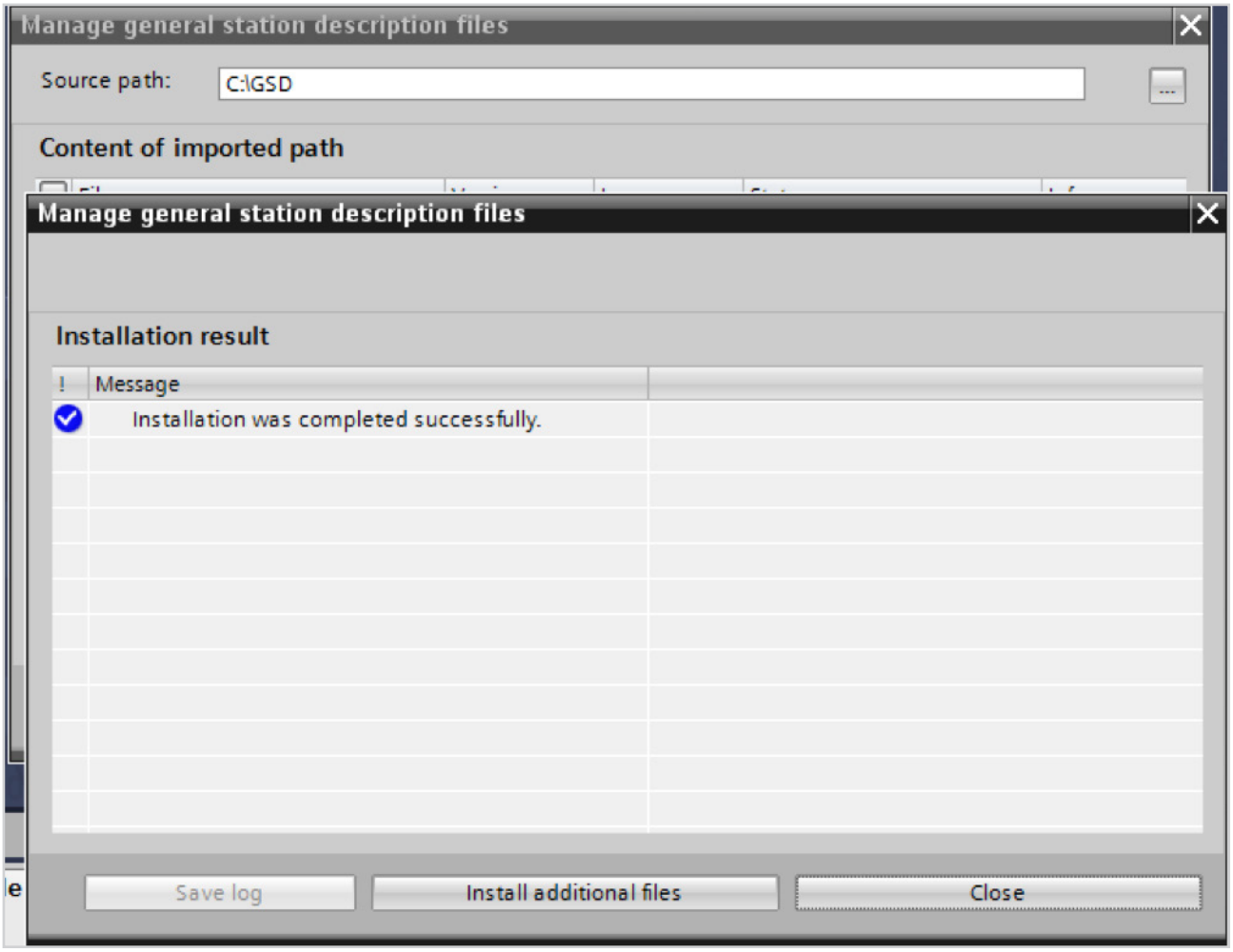


Figure 11: When the GSDML file is installed successfully it can be selected from the device catalog

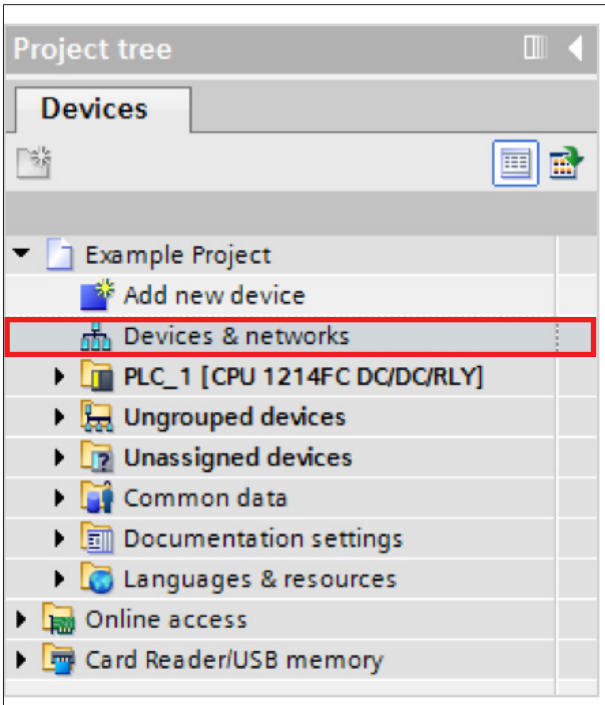


Figure 12: Click on Devices & networks tab under project tree.

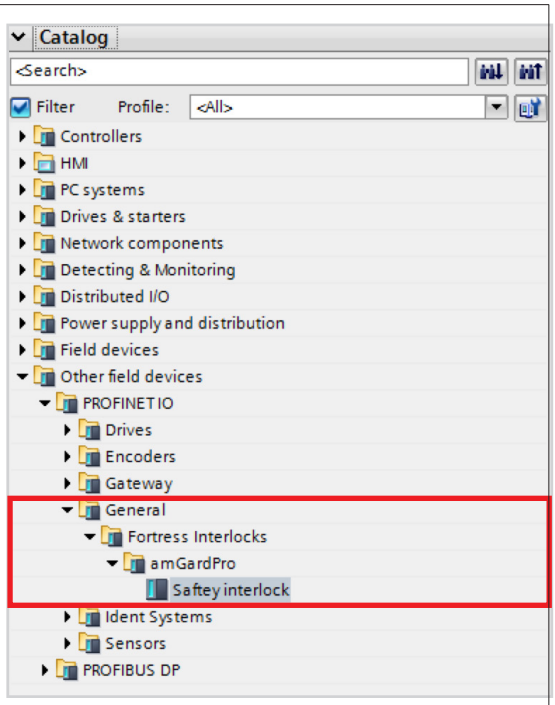


Figure 13: The *pro*Net unit will be shown in the device catalog

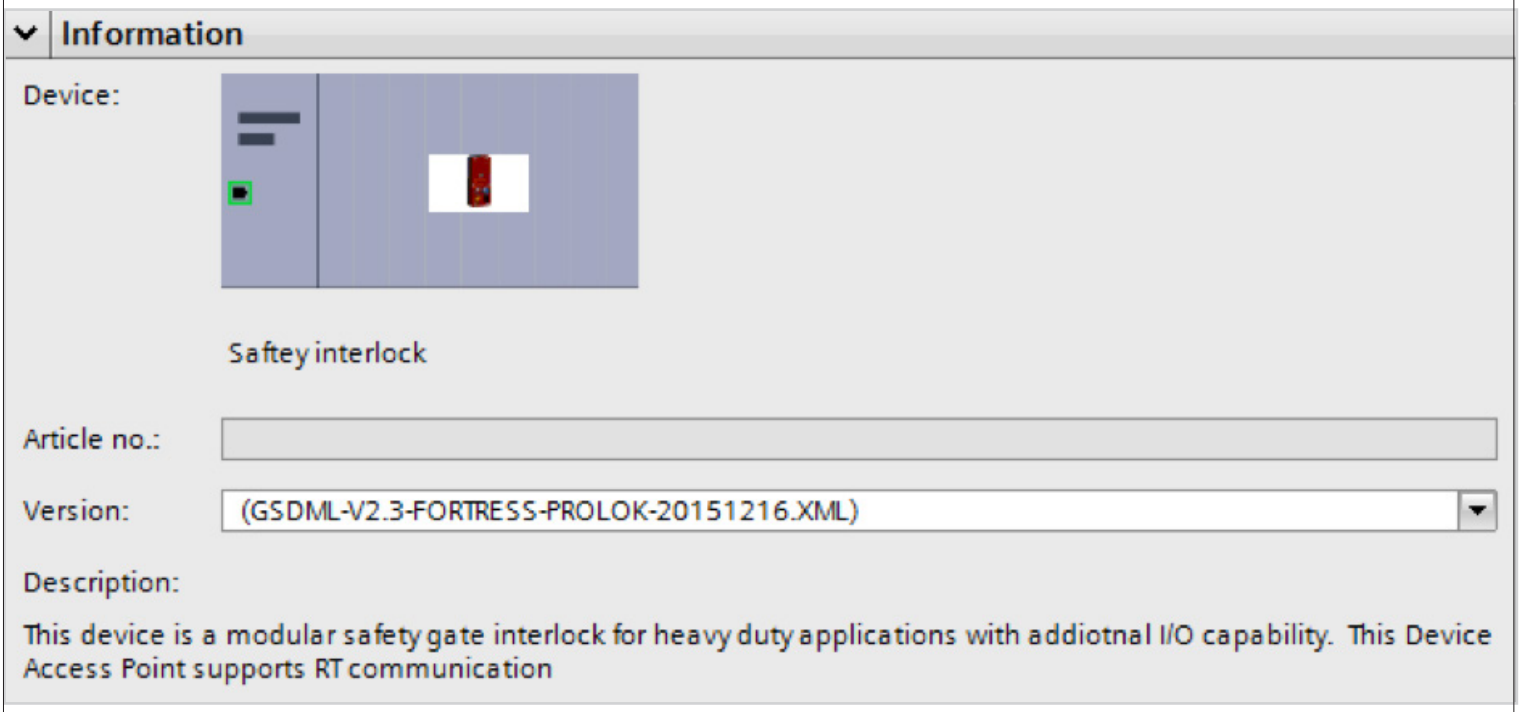


Figure 14: The ProNet unit shown in the information page

Adding a *pro*Net unit to Network and setup parameters

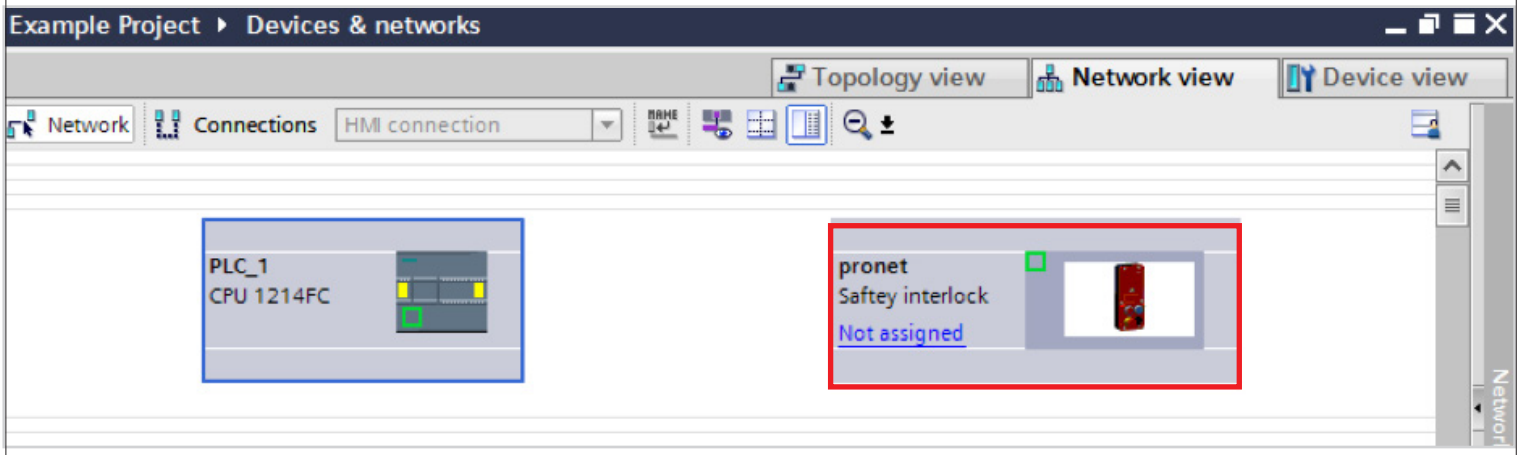


Figure 15: Drag *pro*Net unit into network, and double click on the new proNet unit to access to the device view of the new unit

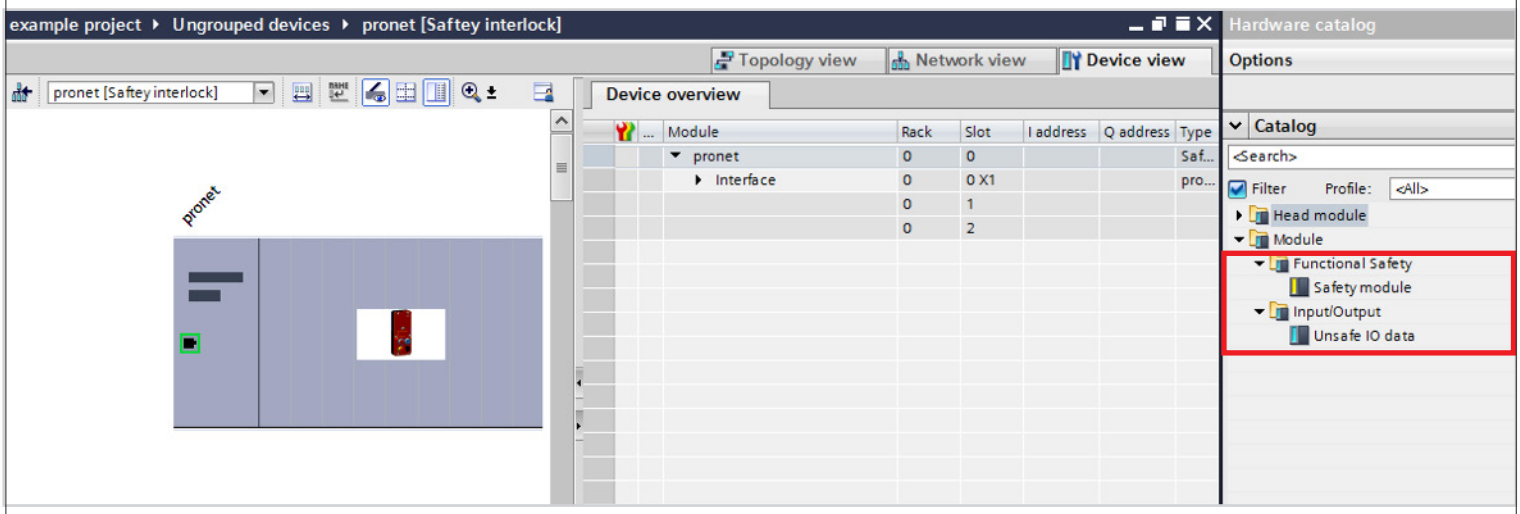


Figure 16: Drag the safety module and Unsafe IO module from catalog into the device interface

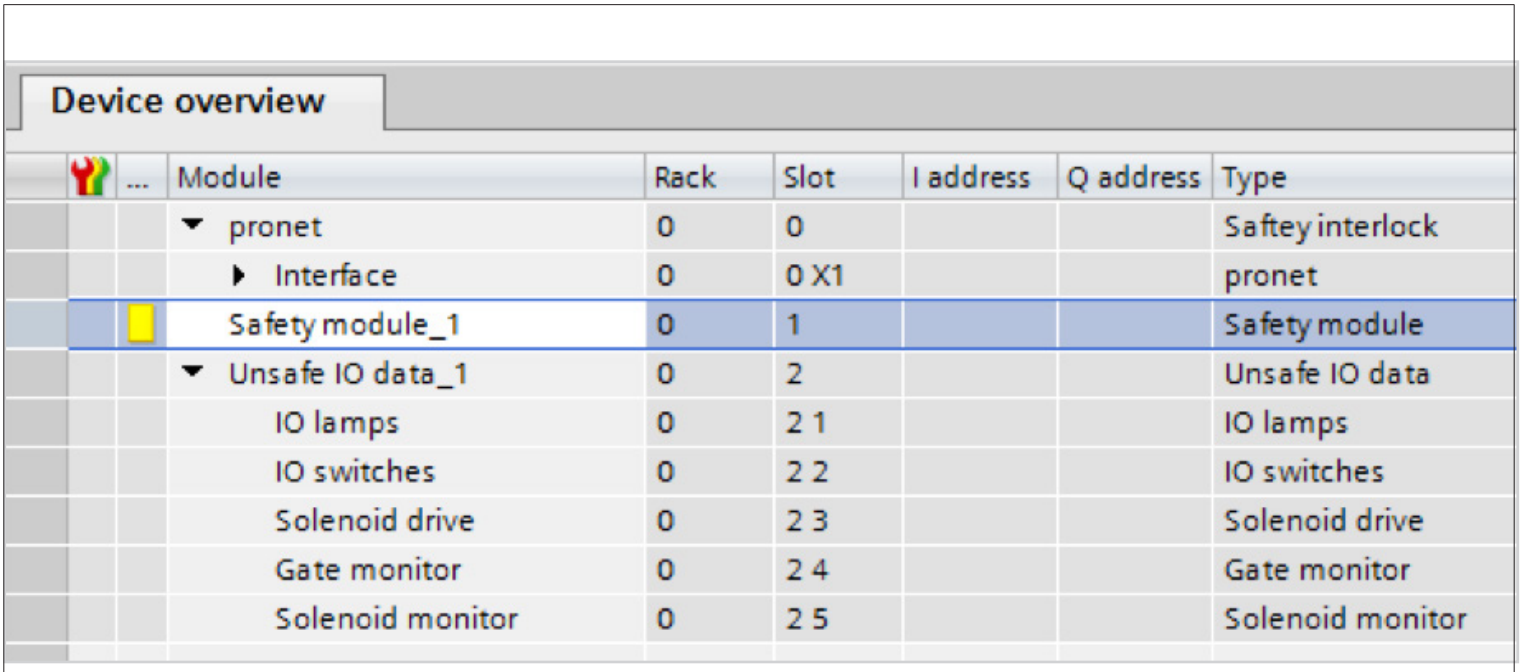


Figure 17: The safety module and unsafe IO module is added to the unit

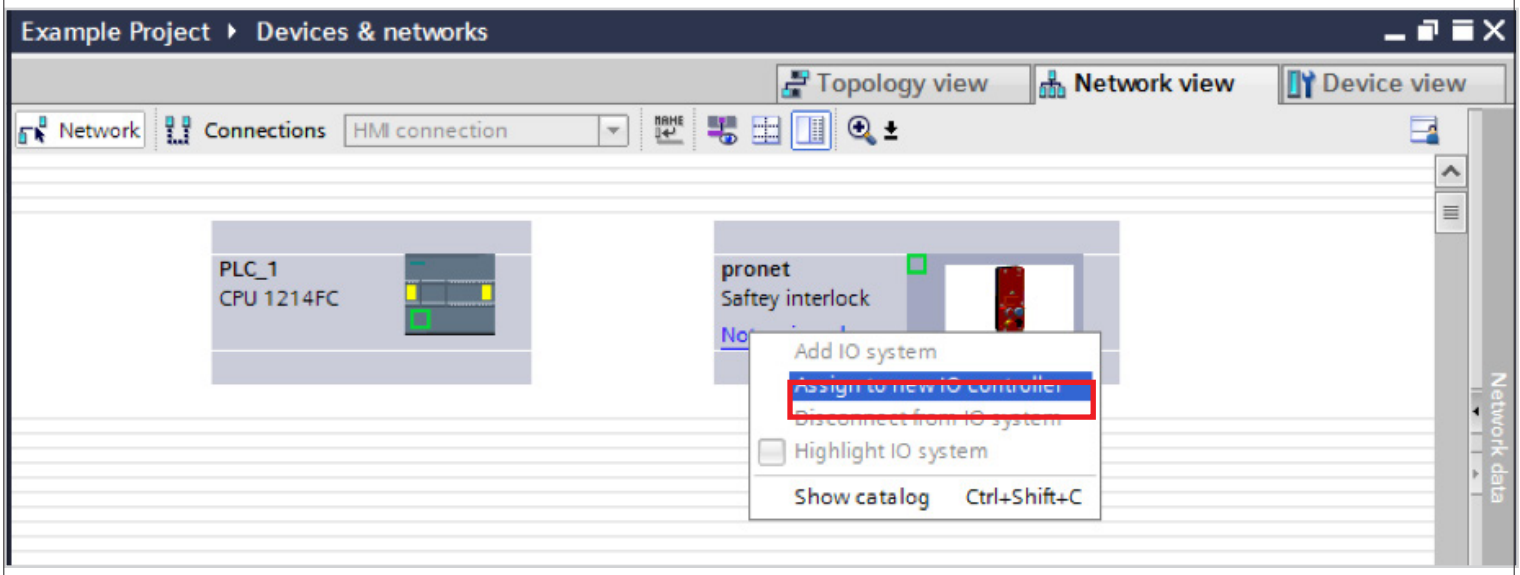


Figure 18: Connect ProNet unit to PLC in Network View – Assigning it to the PLC

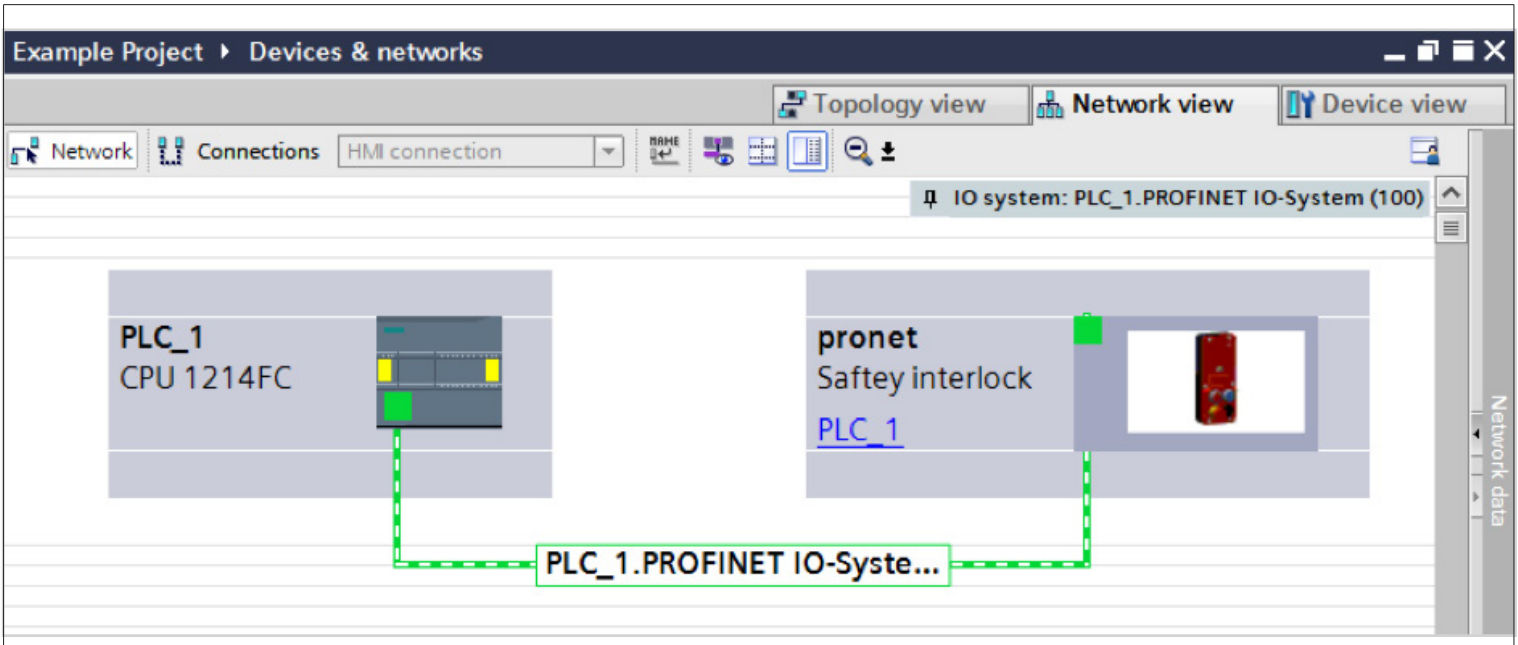


Figure 19: PROFINET link is shown between the PLC and *pro*Net unit.

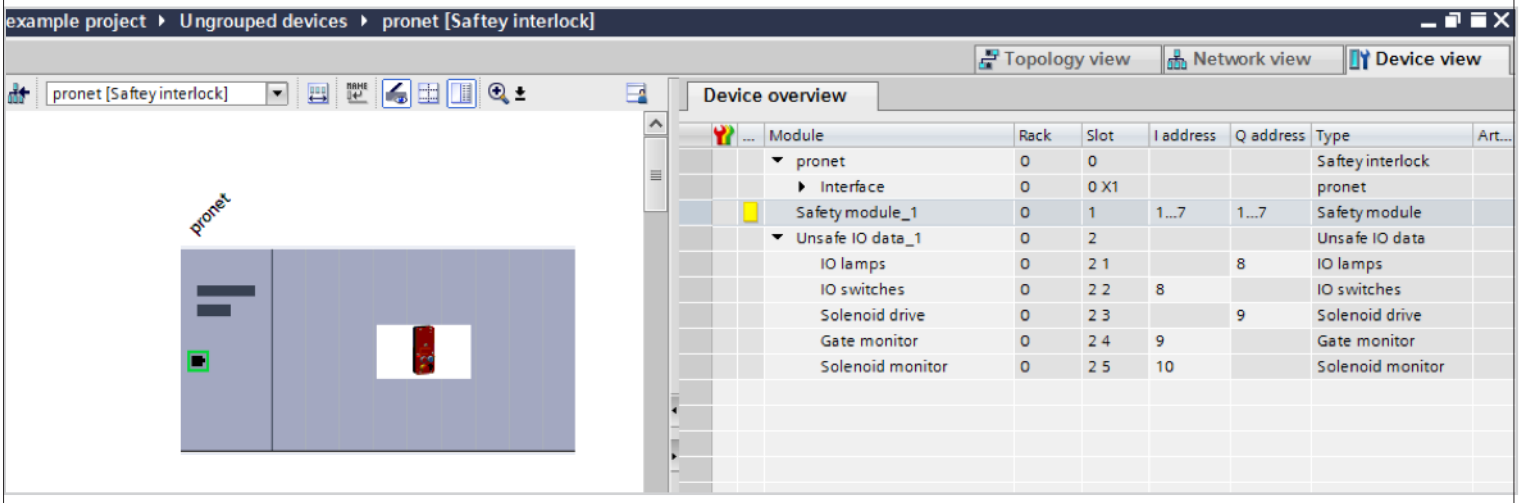


Figure 20: non-safety IO addresses and safety IO addresses are assigned to the unit

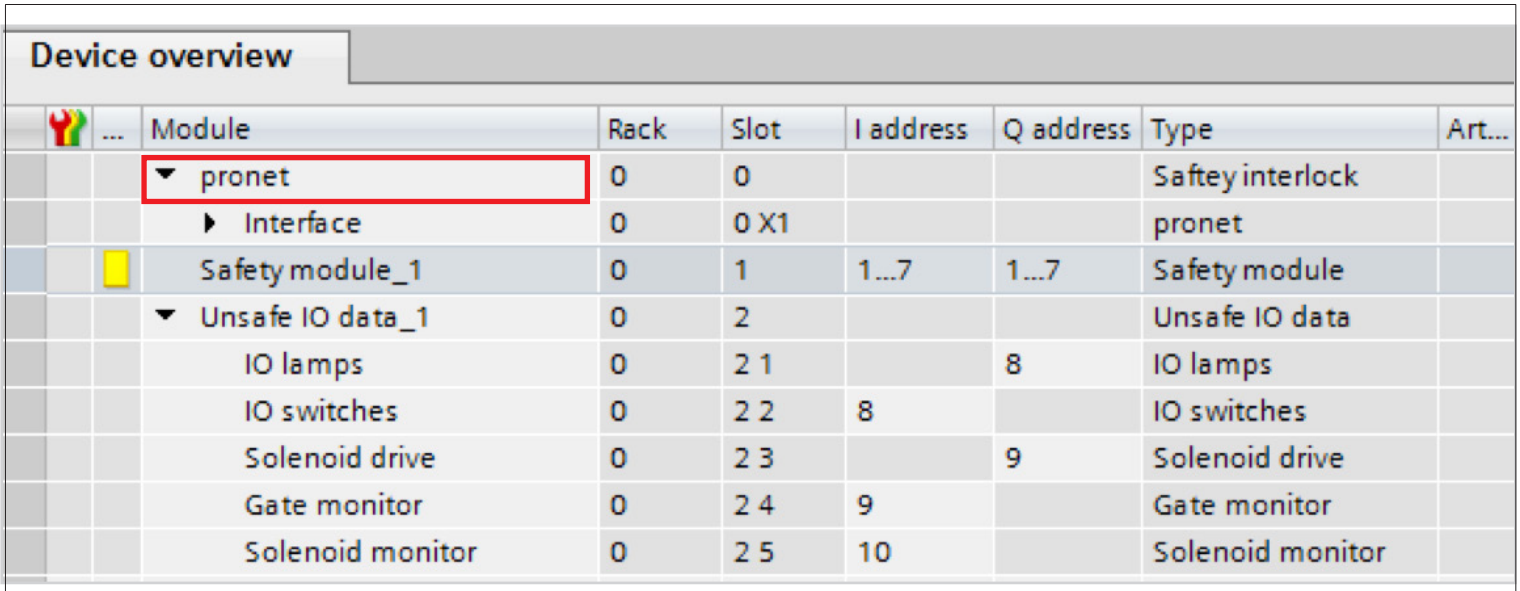


Figure 21: Click on the unit to view the setting page of *pro*Net

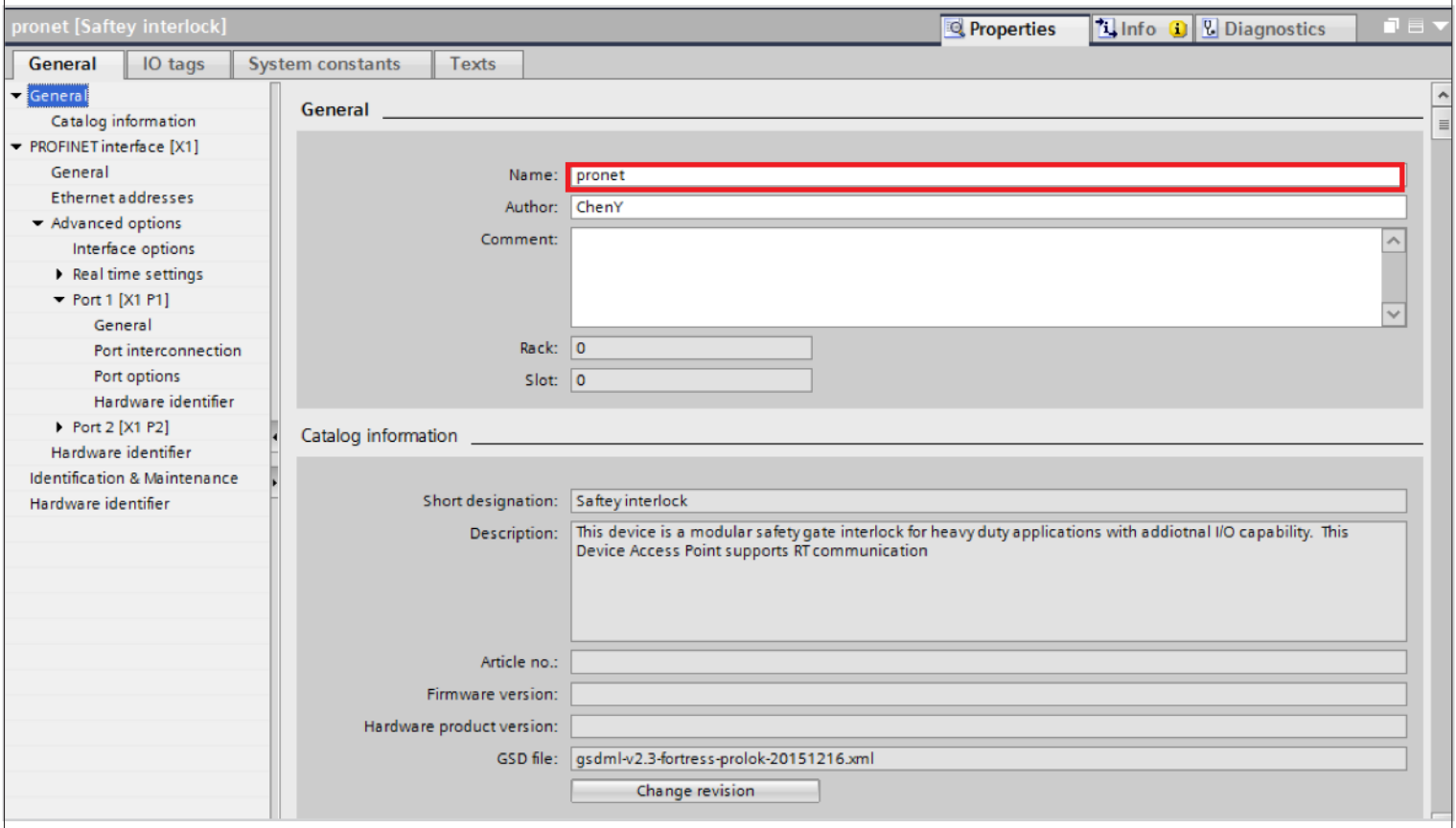


Figure 22: Set the device name of the *pro*Net unit

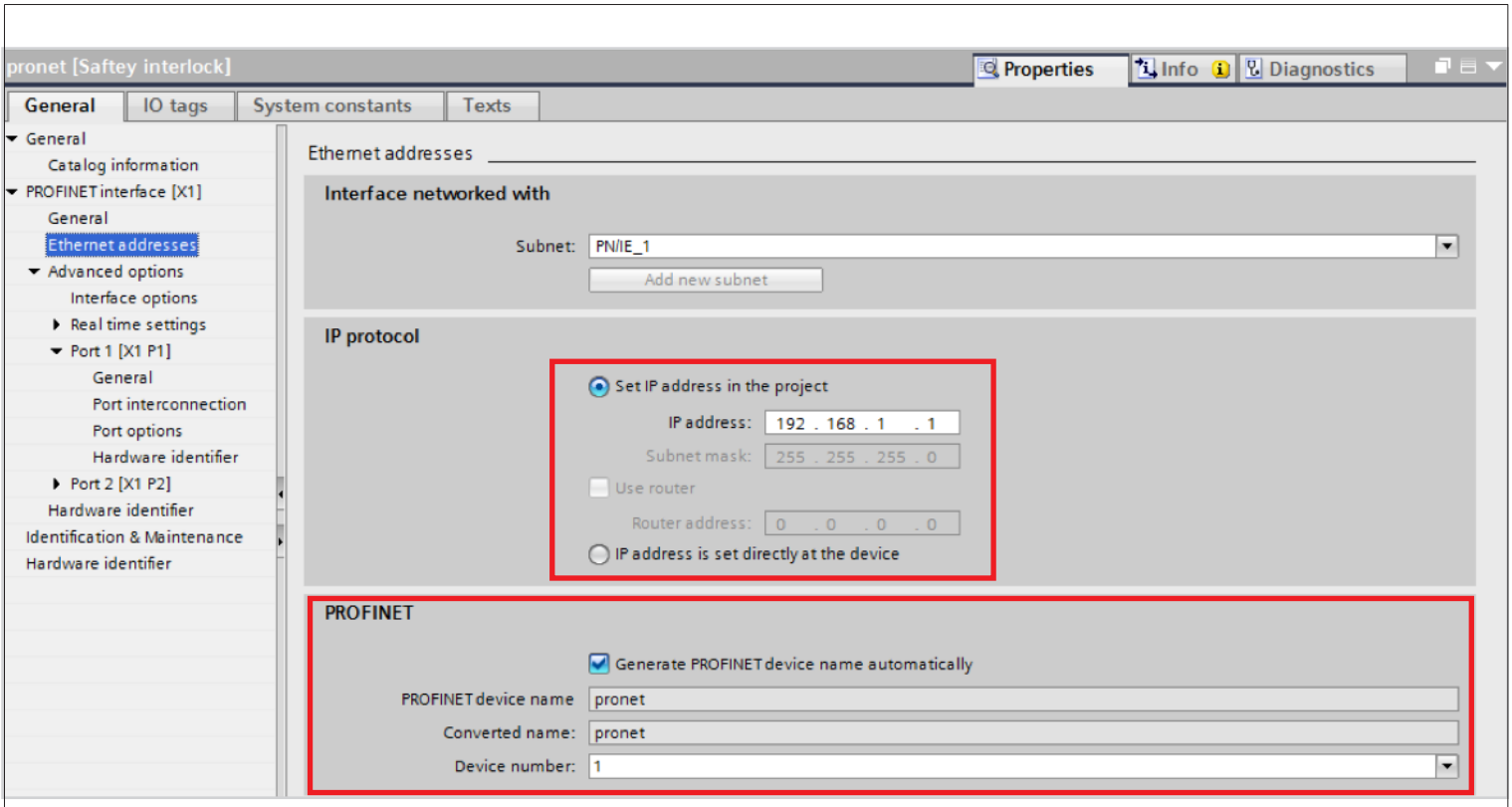
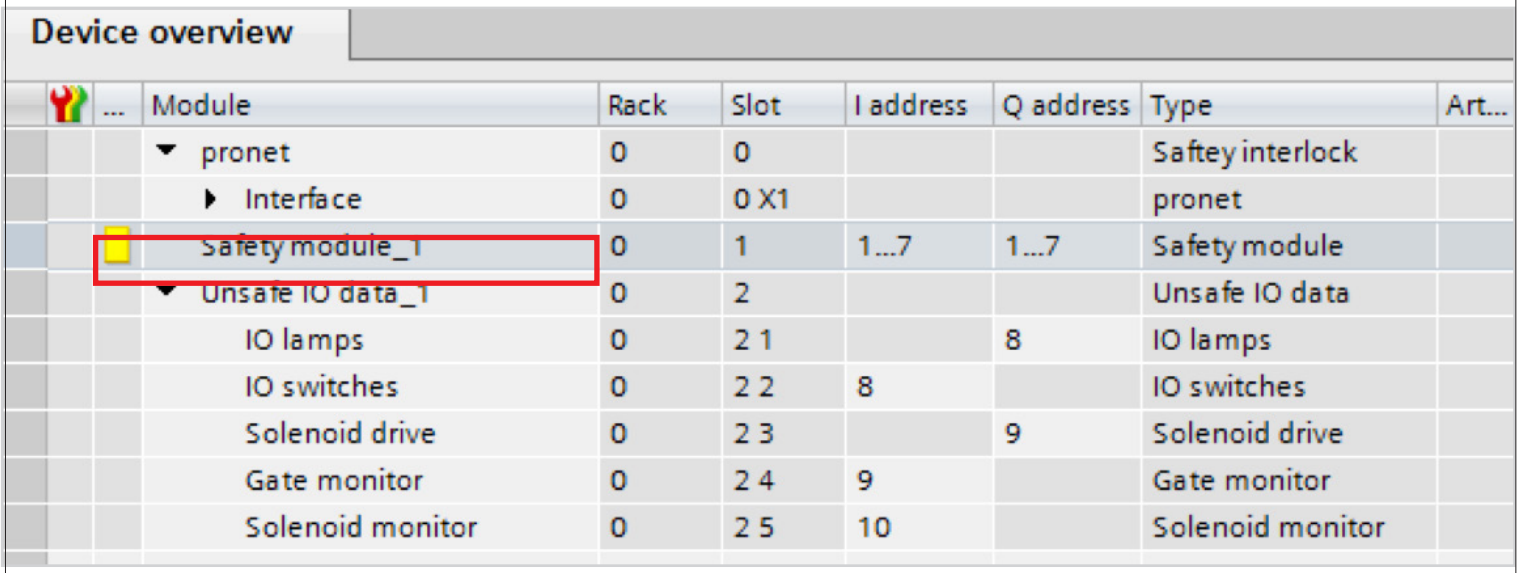


Figure 23: Set the IP address of the *pro*Net unit in the program, the device name can also be set up under the page



...	Module	Rack	Slot	I address	Q address	Type	Art...
	pronet	0	0			Saftey interlock	
	Interface	0	0 X1			pronet	
	Safety module_1	0	1	1...7	1...7	Safety module	
	Unsafe IO data_1	0	2			Unsafe IO data	
	IO lamps	0	2 1		8	IO lamps	
	IO switches	0	2 2	8		IO switches	
	Solenoid drive	0	2 3		9	Solenoid drive	
	Gate monitor	0	2 4	9		Gate monitor	
	Solenoid monitor	0	2 5	10		Solenoid monitor	

Figure 24: Right-click on the safety module and select properties to access to the properties page of safety module

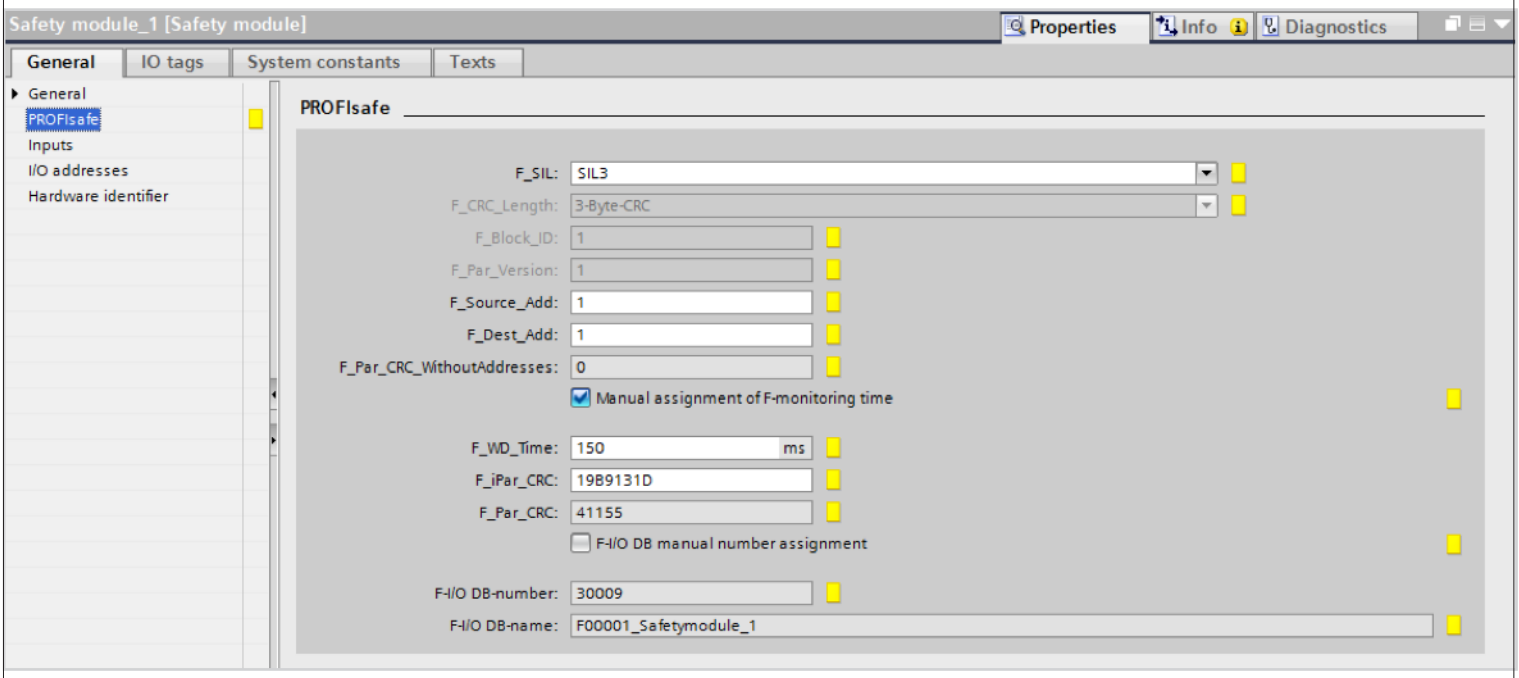


Figure 25: The PROFIsafe setting including F-Address can be changed under this page. The values and settings shown in this example are for the purpose of demonstration only. It is customer's responsibility to make sure the setting of PROFIsafe unit is correct based on customer's risk assessment and applications. No responsibility is accepted if the information in this document is misused.

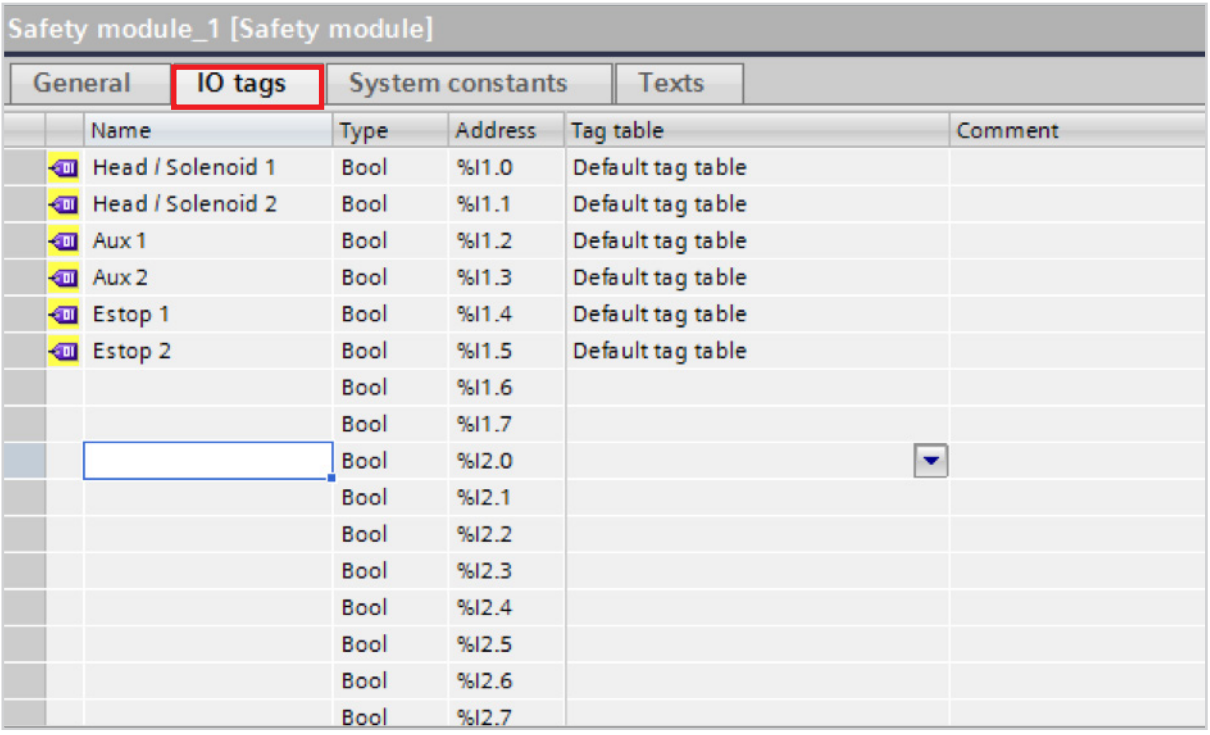
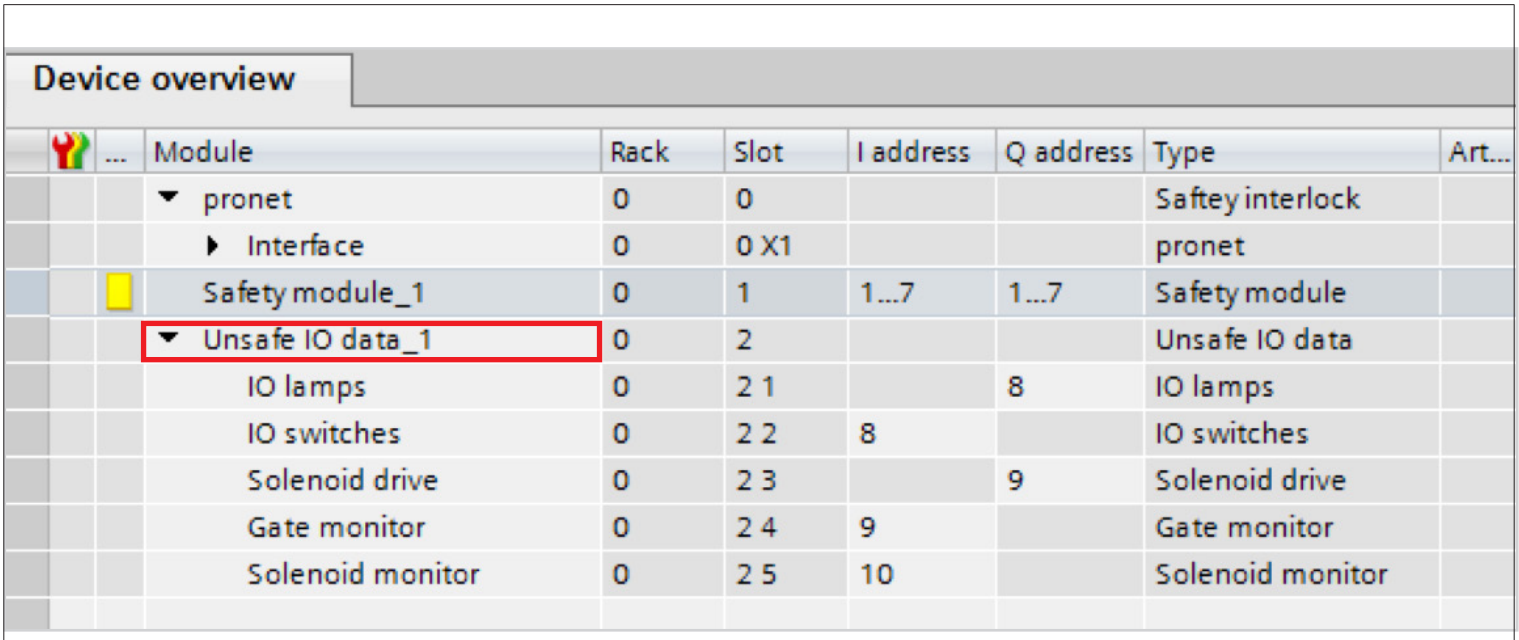


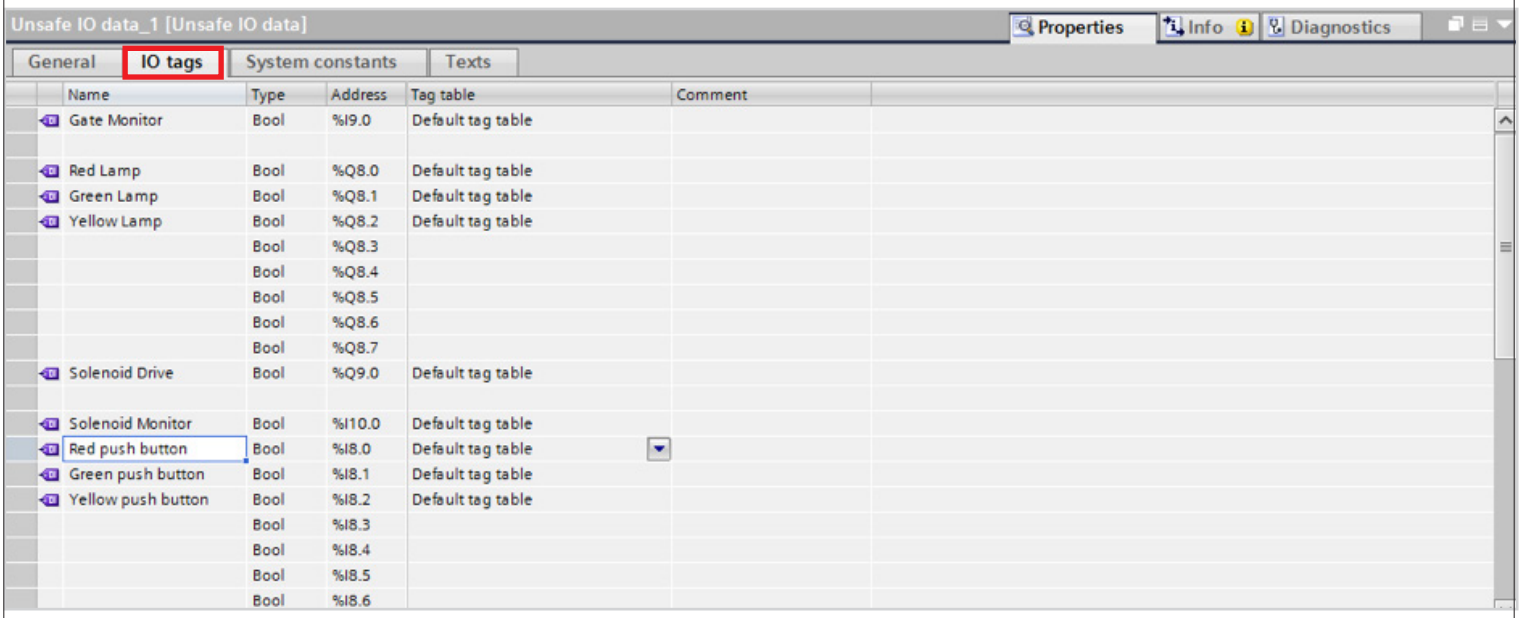
Figure 26: Click on "IO tags" to create the tags for the safety IO



Device overview

	Module	Rack	Slot	I address	Q address	Type	Art...
	pronet	0	0			Saftey interlock	
	Interface	0	0 X1			pronet	
	Safety module_1	0	1	1...7	1...7	Safety module	
	Unsafe IO data_1	0	2			Unsafe IO data	
	IO lamps	0	2 1		8	IO lamps	
	IO switches	0	2 2	8		IO switches	
	Solenoid drive	0	2 3		9	Solenoid drive	
	Gate monitor	0	2 4	9		Gate monitor	
	Solenoid monitor	0	2 5	10		Solenoid monitor	

Figure 27: Click on Unsafe IO data to view the properties page of Unsafe IO



Unsafe IO data_1 [Unsafe IO data] — Properties | Info | Diagnostics

General | IO tags | System constants | Texts

Name	Type	Address	Tag table	Comment
Gate Monitor	Bool	%I9.0	Default tag table	
Red Lamp	Bool	%Q8.0	Default tag table	
Green Lamp	Bool	%Q8.1	Default tag table	
Yellow Lamp	Bool	%Q8.2	Default tag table	
	Bool	%Q8.3		
	Bool	%Q8.4		
	Bool	%Q8.5		
	Bool	%Q8.6		
	Bool	%Q8.7		
Solenoid Drive	Bool	%Q9.0	Default tag table	
Solenoid Monitor	Bool	%I10.0	Default tag table	
Red push button	Bool	%I8.0	Default tag table	
Green push button	Bool	%I8.1	Default tag table	
Yellow push button	Bool	%I8.2	Default tag table	
	Bool	%I8.3		
	Bool	%I8.4		
	Bool	%I8.5		
	Bool	%I8.6		

Figure 28: Click on “IO tags” to create the tags for Non Safety IO.

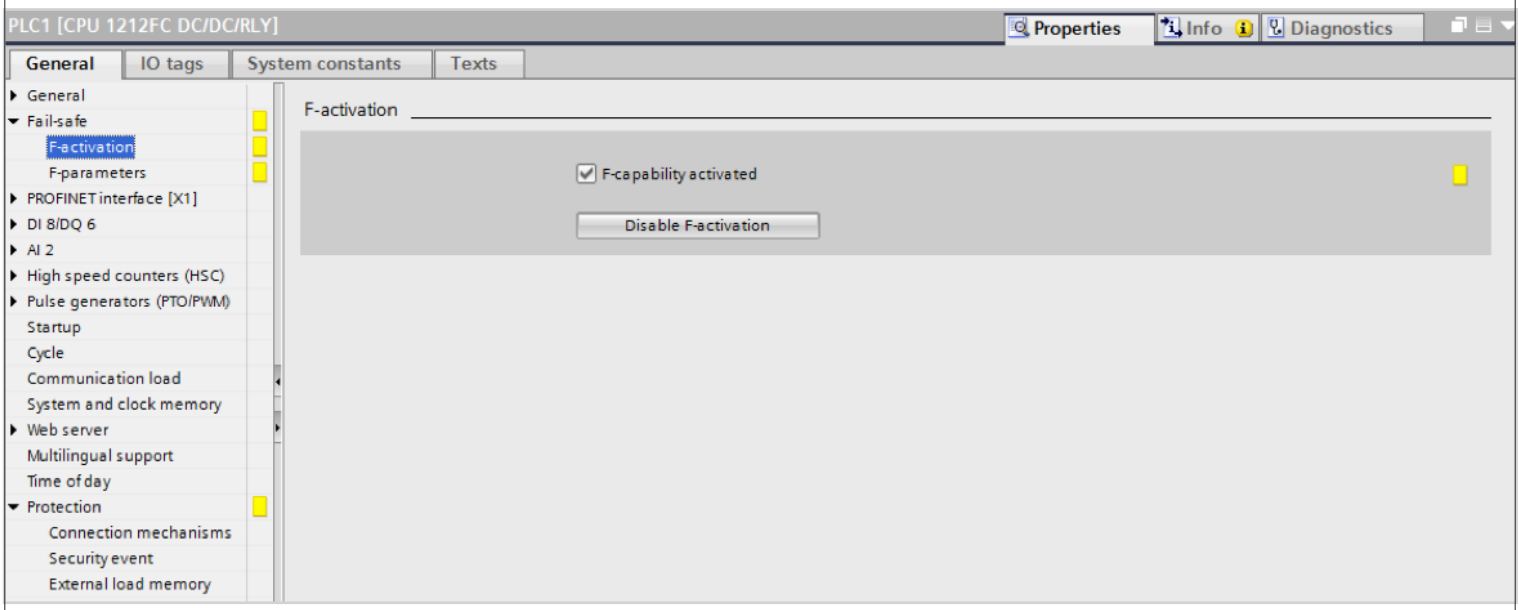


Figure 29: Make sure F-Capability enabled on the PLC. The safety parameters should be configured based on the customer's application and according to their individual risk assessment. The values and settings shown in this example are for the purpose of demonstration only. No responsibility is taken if the information in this document is misused.