

Your Global Automation Partner

TURCK

FEN20-...

Startup

Getting Started Guide



Table of Contents

1	About these instructions	4
1.1	Target groups	4
1.2	Explanation of symbols used	4
1.3	Additional documents	4
1.4	Feedback about these instructions	4
2	Notes on the product	5
2.1	Product identification	5
2.2	Turck service	5
3	For your safety	5
3.1	General safety instructions	5
4	FEN20 product family	6
5	FEN20 IP address setup	8
5.1	Setting the IP address	8
5.2	Downloading Turck Service Tool	8
5.3	Service tool features	9
5.3.1	Assigning an IP address using Turck Service Tool	10
5.4	Assigning an IP address using Rockwell BOOTP/DHCP	11
5.5	FEN20-16DXP	12
5.5.1	Modes of operation	12
6	EtherNet/IP configuration (Rockwell)	15
6.1	Turck catalog files	15
6.2	Configuration with catalog file	16
6.2.1	FEN20 configuration procedure	16
6.3	Configuration with EDS file	18
7	PROFINET configuration	21
7.1	GE Proficy machine edition setup	21
7.1.1	Create new GE project	21
7.1.2	Add the FEN20 device	23
7.1.3	Assign FEN20 name and IP address	24
7.1.4	Installing GSD or GSDML files in the hardware configuration	25
7.1.5	Adding a PROFINET device onto the network.	26
8	Modbus TCP configuration	29
8.1	Create TX500 Modbus TCP master project	30
8.1.1	Add Ethernet adapter	31
8.1.2	Add Modbus master	34
8.1.3	Add Modbus TCP slave	35
8.1.4	Configure FEN20 IO data map	36
9	Turck subsidiaries - contact information	41

1 About these instructions

The instructions describe the features and commissioning of the product and help you to operate the product as intended.

Read these instructions carefully before using the product. This is to avoid possible damage to persons, property or the device. Retain the instructions for future use during the service life of the product. If the product is passed on, pass on these instructions as well.

1.1 Target groups

These instructions are aimed at qualified personnel and must be carefully read by anyone mounting, commissioning, operating, maintaining, dismantling or disposing of the device.

1.2 Explanation of symbols used

The following symbols are used in these instructions



DANGER

DANGER indicates an immediately dangerous situation, with high risk, the death or severe injury, if not avoided.



WARNING

WARNING indicates a potentially dangerous situation with medium risk, the death or severe injury, if not avoided.



ATTENTION

ATTENTION indicates a situation that may lead to property damage, if it is not avoided.



NOTE

In NOTES you find tips, recommendations and important information. The notes facilitate work, provide more information on specific actions and help to avoid overtime by not following the correct procedure.

➤ **CALL TO ACTION**

This symbol identifies steps that the user has to perform.

➔ **RESULTS OF ACTION**

This symbol identifies relevant results of steps.

1.3 Additional documents

The following additional documents are available online at www.turck.com:

- Data sheets

1.4 Feedback about these instructions

We make every effort to ensure that these instructions are as informative and as clear as possible. If you have any suggestions for improving the design or if some information is missing in the document, please send your suggestions to techdoc@turck.com.

2 Notes on the product

2.1 Product identification

The following user manual describes common features and setup of the FEN20 product family:

- IP address setup
- EtherNet/IP configuration example
- PROFINET configuration example
- Modbus TCP configuration example

2.2 Turck service

Turck supports you with your projects, from initial analysis to the commissioning of your application. The Turck product database under www.turck.com contains software tools for programming, configuration or commissioning, data sheets and CAD files in numerous export formats.

The contact details of Turck subsidiaries worldwide can be found on [p. 41](#).

3 For your safety

The product is designed according to state-of-the-art technology. However, residual risks still exist. Observe the following warnings and safety notices to prevent damage to persons and property. Turck accepts no liability for damage caused by failure to observe these warning and safety notices.

3.1 General safety instructions

- The device must only be mounted, installed, operated and maintained by trained and qualified personnel.
- The device may only be used in accordance with applicable national and international regulations, standards and laws.
- The device meets the EMC requirements for industrial areas. When used in residential areas, take measures to avoid radio interference.

4 FEN20 product family

The common features and operating procedures, which are described in this guide, may be applied to every FEN20 device, see the following table and "Definition of terms".

Article	IP	Input description					Output description					EtherNet/IP				Advanced features		
		Address setup	Number of inputs	DIN rail mount	Input type	Signal type	Short circuit protection	Number of outputs	Output type	Signal type	Maximum output load	Short circuit protection	Ethernet ports	Configuration Assembly	DLR	QC	ACD	FLC
FEN20-4DIP-4DXP	S	8	-	DI	PNP	✓	8	DO	PNP	0.5 A	-	2	✓	✓	✓	✓	✓	✓
FEN20-4DIP-4DXP-DIN	S	8	✓	DI	PNP	-	8	DO	PNP	0.5 A	✓	2	✓	✓	✓	✓	✓	✓
FEN20-4DIN-4DXN	S	8	-	DI	NPN	✓	8	DO	NPN	0.5 A	✓	2	✓	✓	✓	✓	✓	✓
FEN20-4DIN-4DXN-DIN	S	8	✓	DI	NPN	✓	8	DO	NPN	0.5 A	✓	2	✓	✓	✓	✓	✓	✓
FEN20-EN1	S	8	-	R	PNP	-	-	-	-	-	✓	2	✓	✓	✓	✓	-	-
FEN20-EN1-DIN	S	8	✓	R	PNP	-	-	-	-	-	✓	2	✓	✓	✓	✓	-	-
FEN20-16DXP	SH	16	-	DI	PNP	-	16	DO	PNP	0.5 A	✓	2	✓	✓	✓	✓	✓*	✓**
FEN20-4IOL	S	4	✓	IOL	PNP	✓	4	IOL	PNP	0.4 A	-	2	✓	✓	✓	✓	✓	-

* only BEEP-slave

** up to ARGEE3

Definition of terms

Address setup	
S	Software setup
SH	Software and hardware setup via rotary switches
I/O type	
DI	Discrete input
DO	Discrete output
R	Router function
AI	Analog input
AO	Analog output
IOL	IO-Link Master or DI/DO
Signal type	
PNP	Sourcing
NPN	Sinking
EtherNet/IP	
Configuration Assembly	Enables passing configuration data during ForwardOpen
DLR	Device Level Ring
QC	QuickConnect
ADC	Address Conflict Detection

Extended functions

FLC	<p>Field Logic Controller FEN20 can be converted into a simple Field Logic Controller (i.e. PLC) that can execute a stand-alone application or become a distributed control component of the EtherNet/IP, Modbus TCP or PROFINET based control system. FLC solutions by Turck are made possible using ARGEE (A Really Great Engineering Environment), a web-based programming environment that allows users to set conditions and actions directly at the field level. By utilizing HTML5, Turck provides a complete engineering environment for users to write, run, simulate, debug, and monitor code, all without requiring the use of a PLC.</p>
BEEP	<p>Backplane Ethernet Extension Protocol BEEP is a technology feature of many Turck Multiprotocol digital block I/O modules. BEEP allows a network of up to 33 devices (1 master + 32 slaves) or 480 bytes of data, to appear to the PLC as a single device on a single connection using a single IP address of the master.</p>



NOTE

BEEP is supported by the following FEN20 devices that have firmware revision:

- V 3.3.4.0 FEN20-4DIP-4DXP, FEN20-4DIN-4DXN
- V 3.8.3.0 FEN20-16DXP (BEEP slave only)
- not supported FEN20-EN1, FEN20-EN1-DIN, FEN20-4IOL

Refer to "ARGEE Reference Manual" for further information on FLC.
 Refer to "BEEP Reference Manual" for further information on BEEP.

5 FEN20 IP address setup

All FEN20 devices support software setup of the IP address using either Turck Service Tool or BOOTP/DHCP server. Additionally, FEN20-16DXP has rotary switches capable of setting the IP address. FEN20-4DIP-4DXP and FEN20-4DIN-4DXN stations do not have rotary switches capable of setting the IP address.

5.1 Setting the IP address

Users should set the IP address using either Turck Service Tool or any other IP address server such as BOOTP/DHCP utility, to set, modify or reset the IP address of the device.

The device out of box IP address setup is:

- IP address: 192.168.1.254
- Netmask: 255.255.255.0
- Gateway: 0.0.0.0

Mode of operation:

- PGM Programmable
- DHCP Dynamic Host Configuration Protocol



NOTE

In the PGM mode the device will reference the previous IP address at power-up, which was assigned to the device prior to shut down.

- Use Turck Service Tool for the IP address management.
-

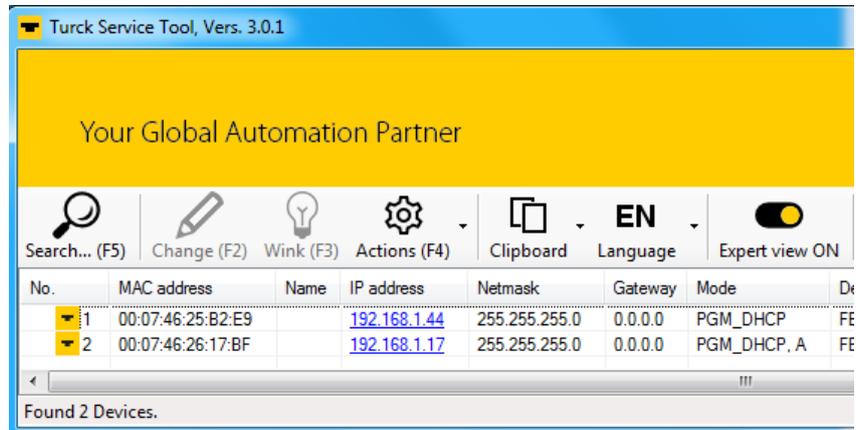
5.2 Downloading Turck Service Tool

The Turck Service Tool can be downloaded from the Turck Website using the following link:

- [Turck Service Tool](#)

5.3 Service tool features

The Service tool displays the assigned IP addresses of devices on the network:

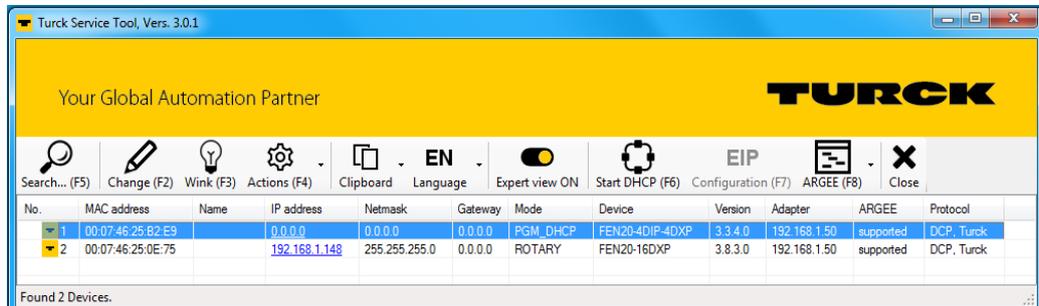


Overview of features

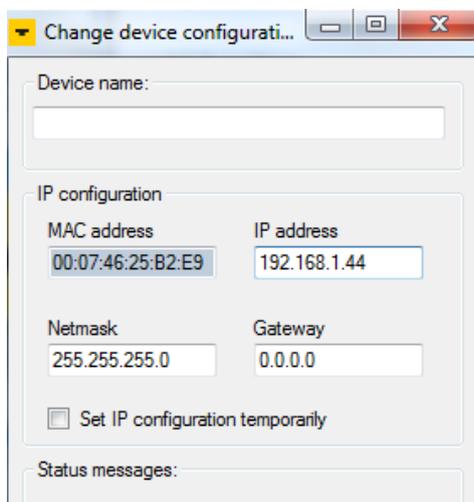
Function	
Change (F2)	Change device IP address when device is set to PGM or PGM_DHCP mode, or assign device a PROFINET name
Wink (F3)	Wink command - flashes BUS LED of the highlighted device
Actions (F4)	Action button - used to reset the device to the factory default setting Clipboard – copies selected connection Language – Selects between English and German text Expert View - Enables / disables advanced functions
Search (F5)	Network Search function is used to discover Turck devices connected to the same physical network segment
Start DHCP (F6)	Starts the DHCP server
Configuration (F7)	EtherNet/IP configuration page
ARGEE (F8)	ARGEE handling
BEEP (F9)	BEEP composite handling

5.3.1 Assigning an IP address using Turck Service Tool

- Click F5 – **Search network**
- Highlight the device to be assigned/changed an IP address.



- Click F2 – **Change**.
- Enter the IP address, Netmask and Gateway addresses.



- Complete setup by clicking button
-
- The Service tool immediately shows newly assigned IP address. The device Webserver may be initiated by clicking on the **IP address** hyperlink if the address is on the same subnet as a PC that runs the Service too.



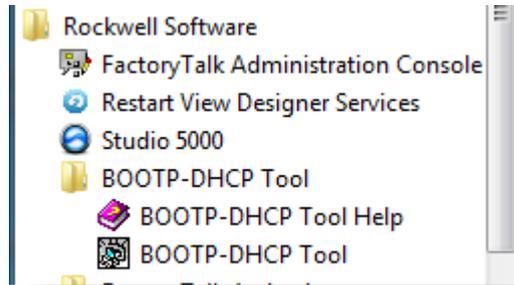
NOTE

0.0.0.0 at IP address, Netmask and Gateway, indicates that the device came up with the factory default setup and that DHCP client is active, requesting IP address assignment.

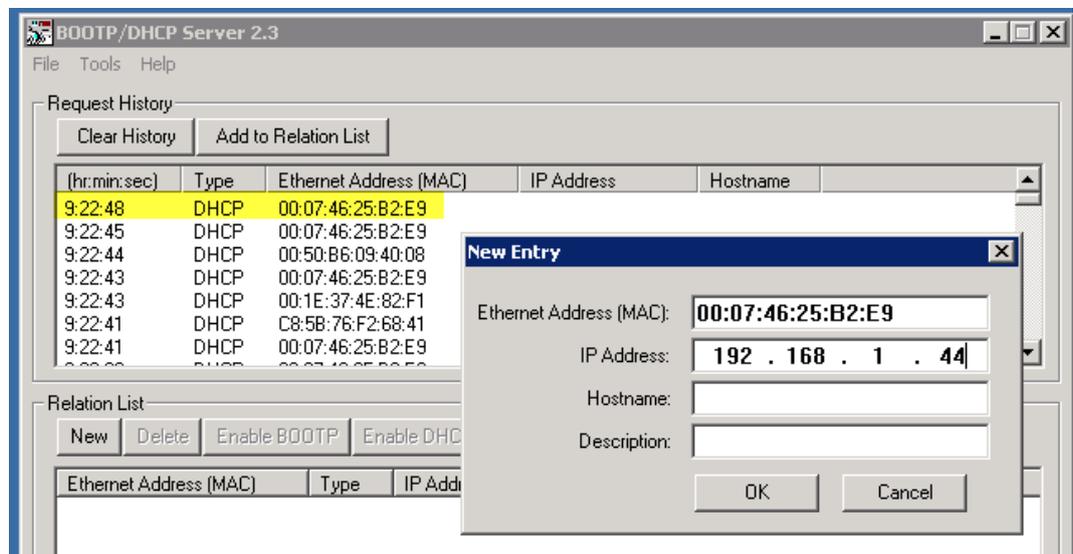
IP address	Netmask	Gateway
0.0.0.0	0.0.0.0	0.0.0.0

5.4 Assigning an IP address using Rockwell BOOTP/DHCP

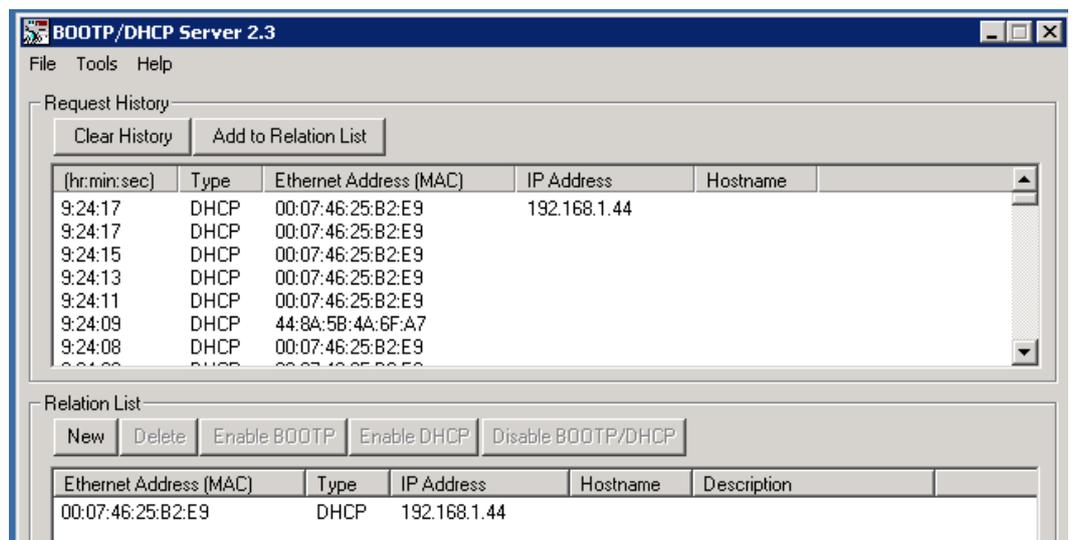
- Search Rockwell Software directory for BOOTP/DHCP server tool:



- Start DHCP tool and click on the MAC address of the device which needs and IP address
- Enter IP address and click **OK**.

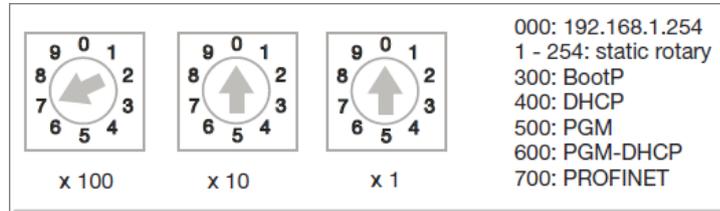


- The device is successfully assigned IP address when it appears in the **IP Address** column



5.5 FEN20-16DXP

► Three rotary switches of the FEN20-16DXP provide various modes of operation, as seen below.



5.5.1 Modes of operation

Based on the position of the switches, the device performs the following operation:

- 000 Restore IP address
- 300 BOOTP mode client
- 400 DHCP mode client
- 500 PGM programmable mode
- 600 PGM-DHCP mode
- 700 PROFINET mode
- 900 Device Recovery Mode (F_reset)
- 1...254 Static IP address



NOTE

The general rule of handling rotary switches when selecting mode of operation is:

- Set the rotary switches to the desired position
- Cycle power to the station.
- Proceed with intended operation as explained hereafter.

Restore IP address mode (000)

The Restore IP address mode (Network Reset) restores the IP address to the default value. The settings become effective after voltage reset.

When switches are set at 000, the device is capable to:

- Respond to PING command,
- Respond to Turck Service tool
- Run device Webserver

► The device cannot be connected to a PLC and it does not respond to any connection request.

Default IP Address

The factory default setup when switches are set to 000 position:

- IP address 192.168.1.254
- Subnet 255.255.255.0
- Gateway 0.0.0.0

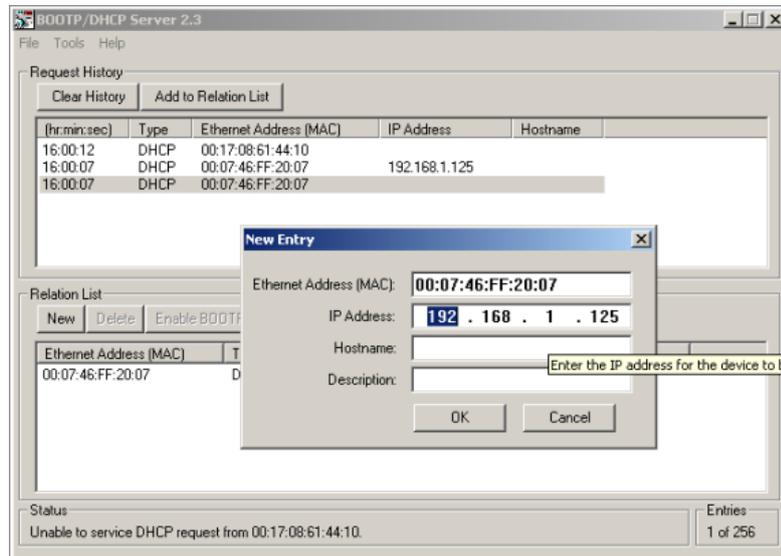


NOTE

Switch setting "000" is not an operating mode. After resetting the IP address to the default values, it is necessary to set another mode.

BOOTP/DHCP mode (300/400)

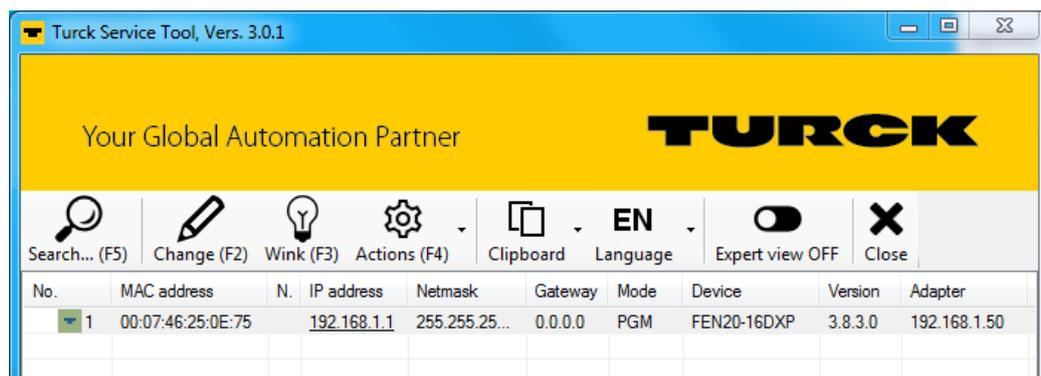
- This mode assigns an IP address using the BOOTP/DHCP server respectively.



- After an IP address is assigned, it is temporarily stored in the device. In order to permanently store the IP address, set the rotary switches to either:
 - 001...253 which affects the last octet of the device IP address
 - 500 programmable position
- Then cycle power to the device.

PGM mode (500)

- Launch the Turck Service Tool
- Select F5 – search network
- Under **Mode** verify the device reads PGM



- Select F2 – **Change** and change IP address
- Enter desired value.
- Click **Set in device**.

PGM-DHCP mode (600)

PGM-DHCP mode is a combination of the DHCP (400) and PGM (500) modes. The device, when initially powered with switches set to 600, acts as DHCP client. It requests assignment of an IP address. After the IP address is assigned, the device disables DHCP and switches to PGM mode. Switches may be left in 600 position. Upon power cycle, the device retains the last known IP address.

- To reset PGM-DHCP mode, set rotary switches to 000 and cycle power

PROFINET mode (700)

Allows a PROFINET server to assign a PROFINET name and IP address to the device. The Turck service tool may be used to assign device name and IP address.

RECOVERY mode F_Reset (900)

When the rotary switches are set to the RECOVERY mode (900), the device resets all device resources to factory default values, including configuration parameters and IP address.

- Set rotary switches to 900, cycle the power and wait 10 seconds
- Set rotary switches to any other position and then cycle power.



NOTE

Switch setting "000" is not an operating mode. After resetting the IP address to the default values, it is necessary to set another mode.

6 EtherNet/IP configuration (Rockwell)

It is assumed that there is working knowledge of RS Logix Designer from Rockwell.

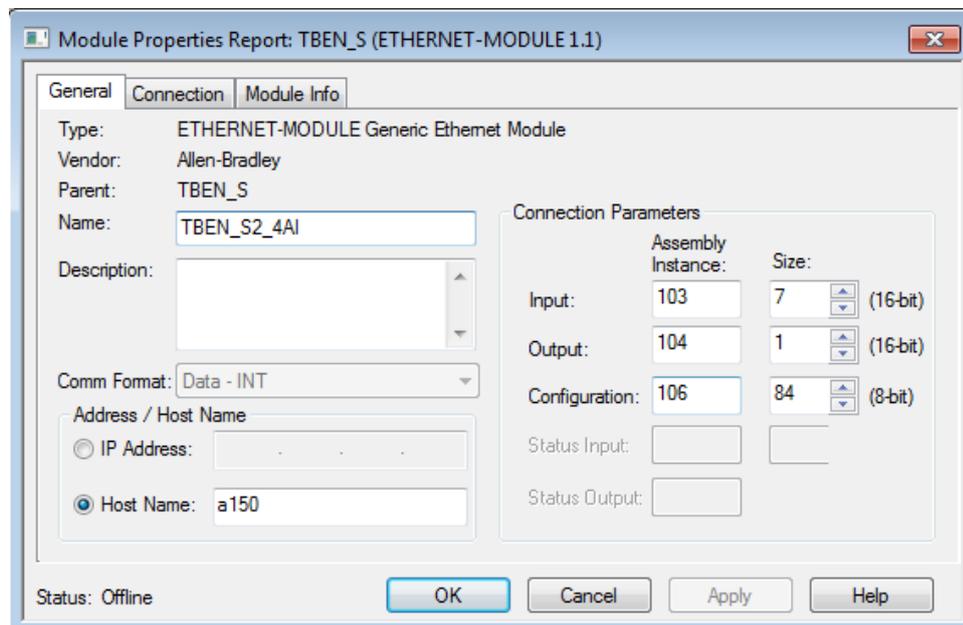
The FEN20 module (in this example the FEN20-4DIP-4DXP) is configured on the EtherNet/IP network using either:

- Generic device profile or
- EDS file

The single generic device profile is available with the Logix5000 controllers. The collection of the generic device profiles of the Turck devices is called a Turck Catalog File.

6.1 Turck catalog files

- Turck devices are assigned pre-defined configurations using the generic device profile. The device configuration contains following information, as an example:



- The collection of the predefined configurations is saved as an L5K file and called the catalog file.
- There are several catalog files:
 - Turck_BLOCK_STATIONS contains all block block IO station configurations
 - BL20-E Catalog file, contains all BL20 IO module and BL20-E-GW-EN configurations
 - BL67 Catalog file, contains all BL67 IO module and BL67-GW-EN configurations



NOTE

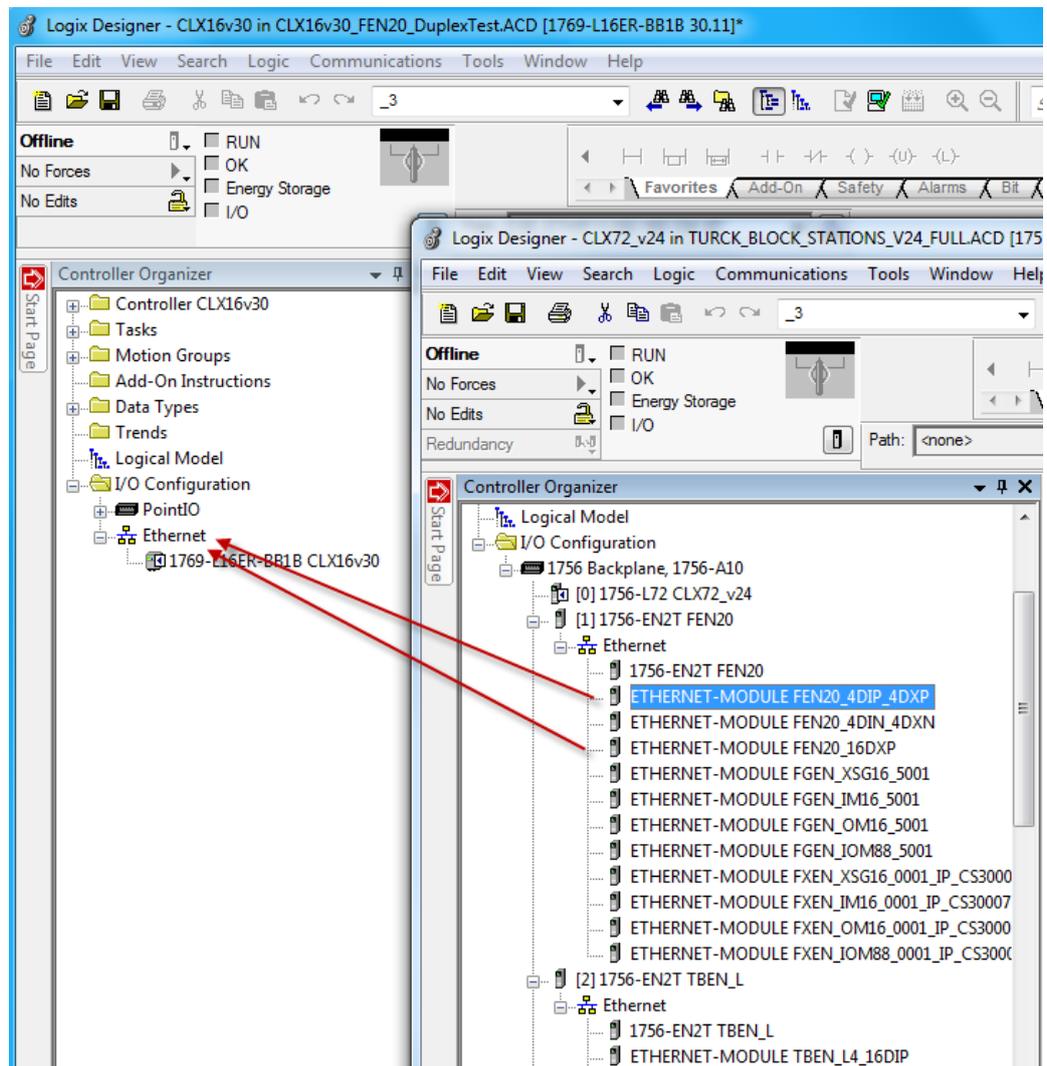
Refer to document “How to Configure TBEN-Lx in RSLogix5000 Using Catalog File”. It contains detailed description of using the catalog files to configure TBEN-L, TBEN-S, FEN20 and BLCEN.

6.2 Configuration with catalog file

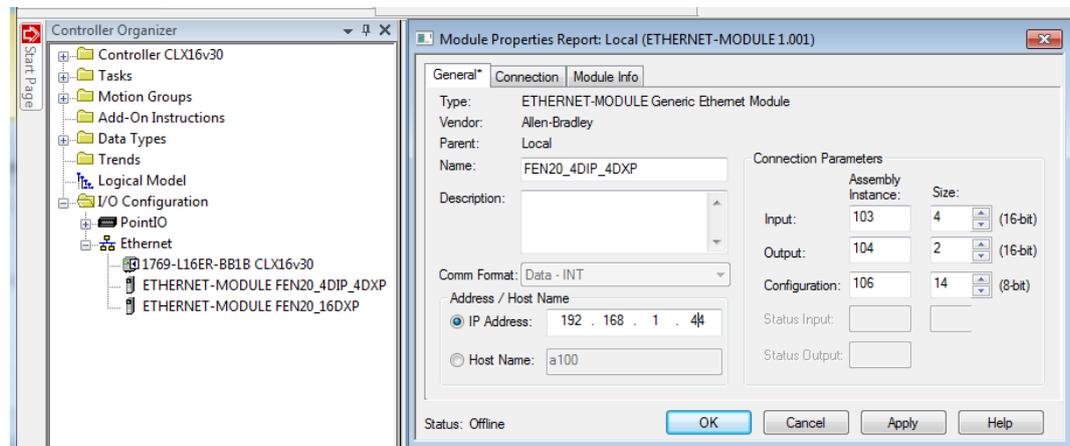
The FEN20 device configurations are located in the Turck_BLOCK_STATIONS catalog file.

6.2.1 FEN20 configuration procedure

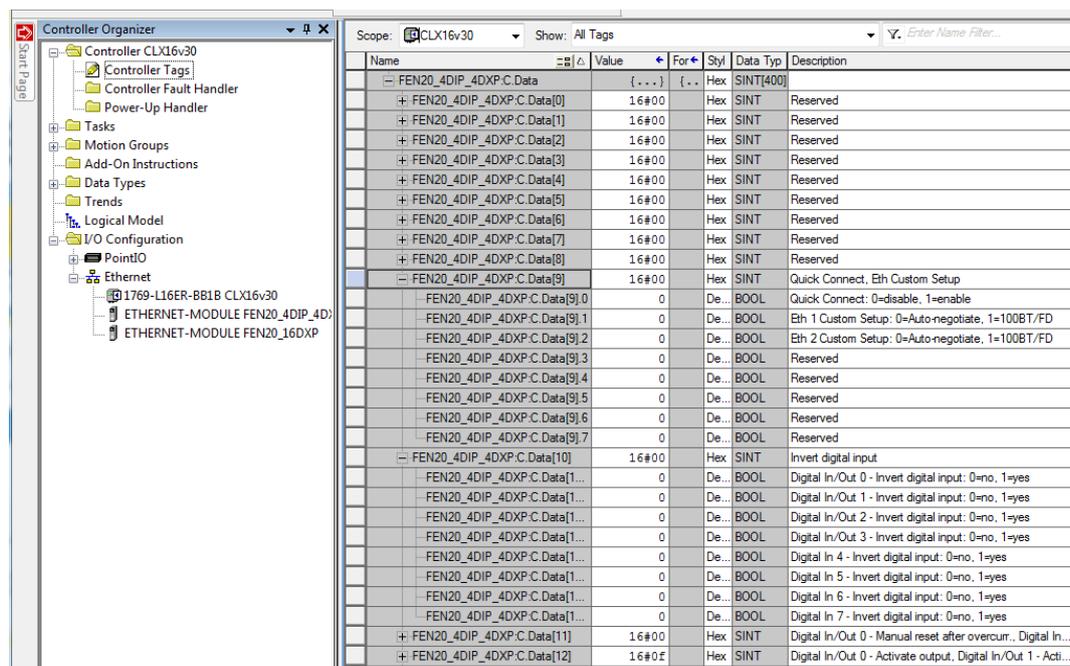
- ▶ Open both your online project and the **Turck_BLOCK_STATIONS_V24_FULL.ACD** catalog file in separate windows.
- ▶ Expand the **1756-EN2T FEN20** bridge in the catalog file.
- ▶ Drag the FEN20-4DIP-4DXP configuration and drop it into the **Ethernet** of the Controller organizer.
- ▶ Drag the FEN20-16DXP configuration and drop it into the Ethernet .
- ▶ Close the catalog file.



- Click on the dropped FEN20 device
- Insert the **Name** and **IP Address** into the following fields:



- Under **Controller** → **Controller Tags**, expand **FEN20_4DIP_4DXP:C.Data** tag
- The device configuration tag provides configuration options that may be selected / modified at this point



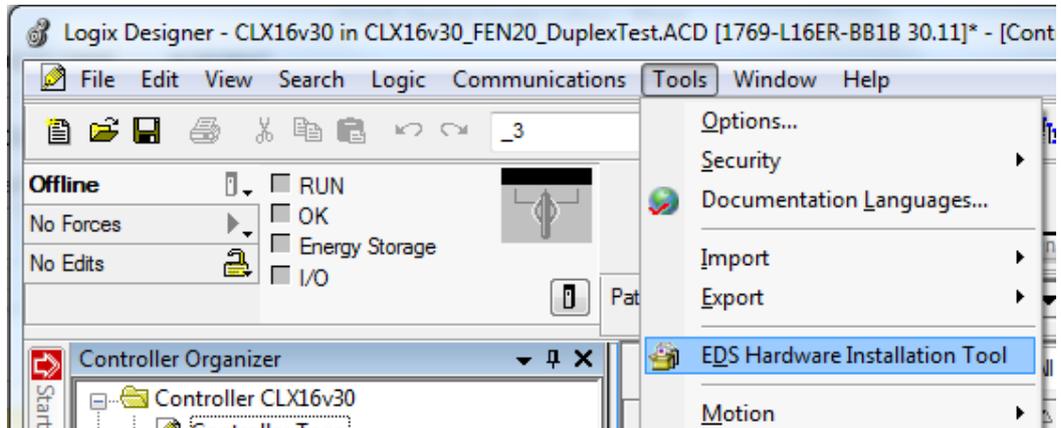
NOTE

Turck catalog file advantages are:

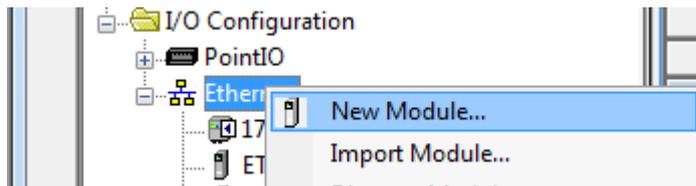
- The FEN20 configuration data is saved into the controller and downloaded to the device whenever the connection between the PLC and the device is established.
- The device replacement is seamless as configuration data is downloaded to new device
- The device configuration does not depend on the EDS file.

6.3 Configuration with EDS file

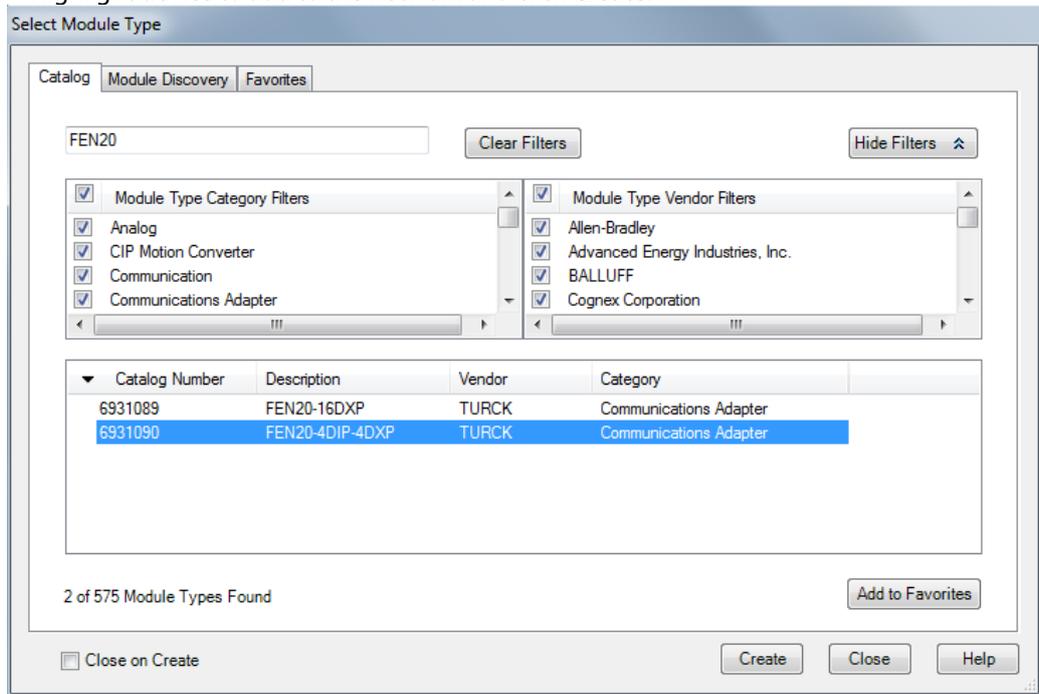
- ▶ The following example shows configuration an FEN20 device with a Rockwell PLC utilizing the EDS file.
- ▶ Install EDS file using the Logix Designer menu.



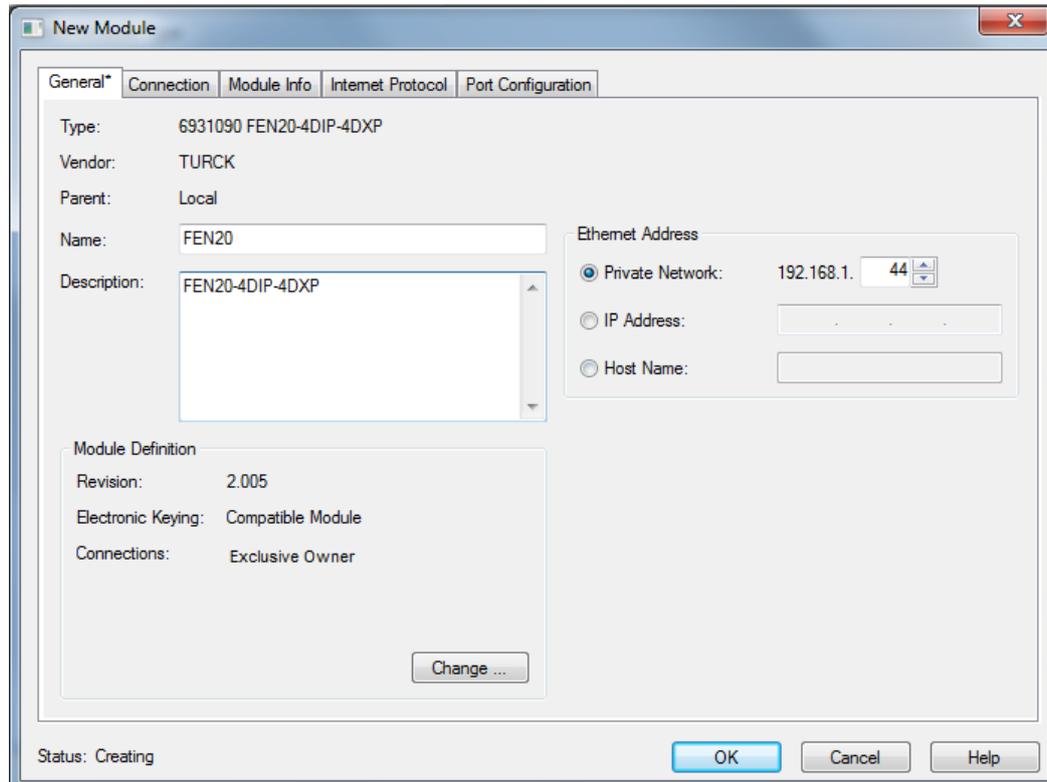
- ▶ Select **New Module** in the Controller Organizer.



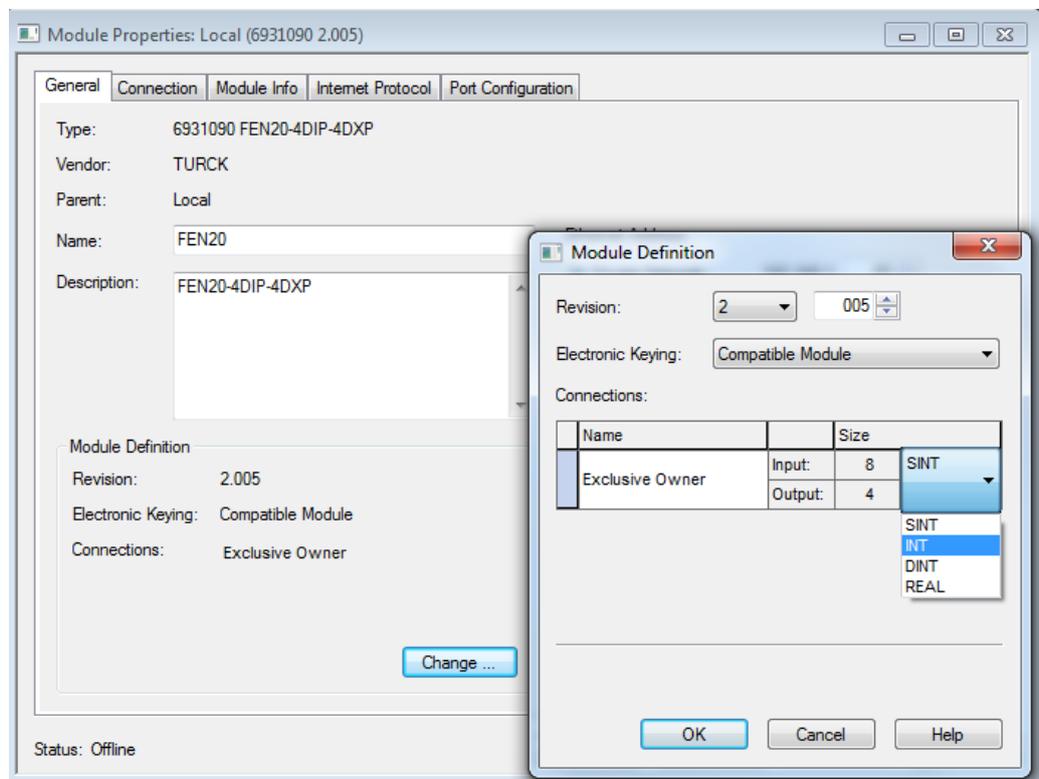
- ▶ Highlight device to add to the network and click **Create**.



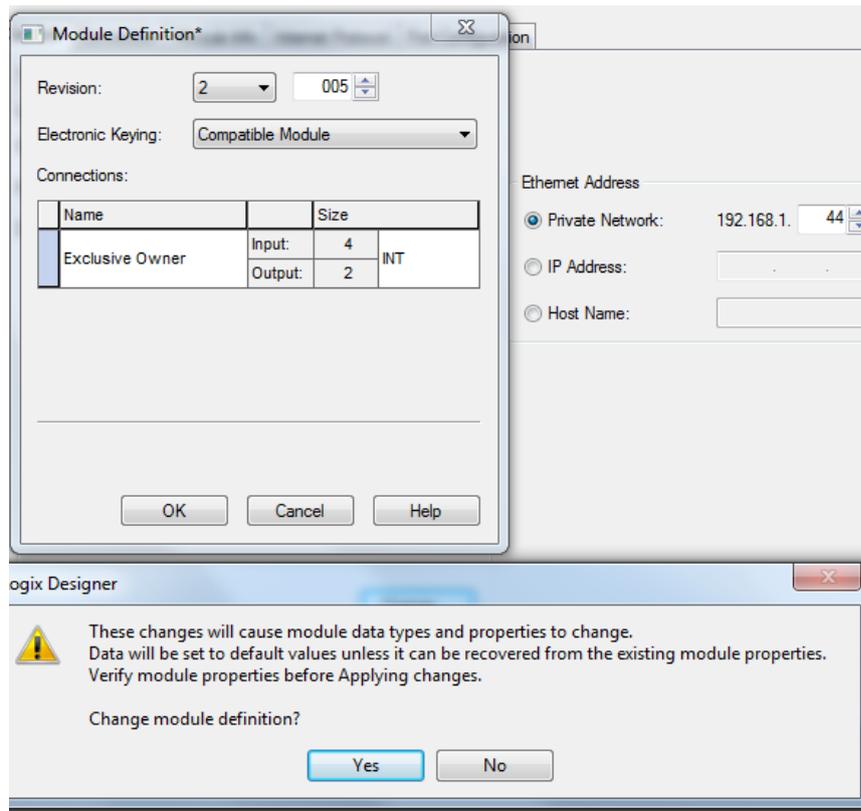
- Enter device Name and Ethernet Address fields.



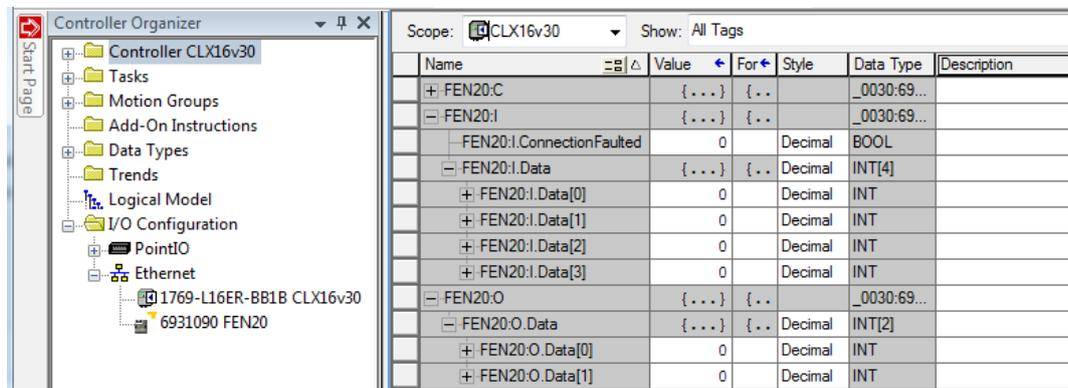
- Click **Change** to open the **Module Definition**.
- Select INT data format, click **OK**.



► Confirm and follow dialog to end configuration.



► The FEN20 data is represented in the INT data format:



NOTE

Disadvantages of using EDS file for device configuration:

- Tag description is missing
- Minor changes to the EDS file requires the file to be updated. When done, a project that had used previous release of the EDS file, cannot display device properties. This is usually causing issues for a system integrator.

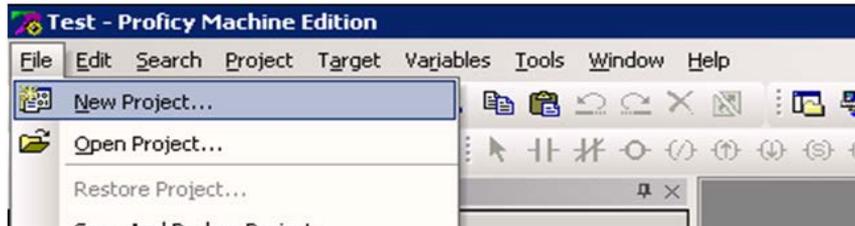
7 PROFINET configuration

7.1 GE Proficy machine edition setup

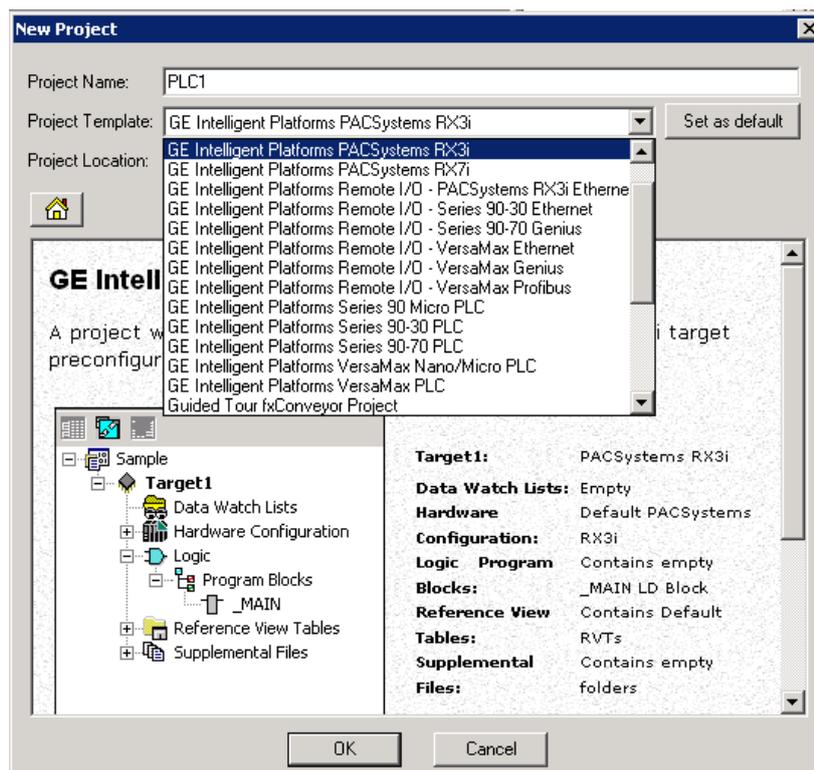
It is assumed that there is working knowledge of GE Proficy Machine Edition.

7.1.1 Create new GE project

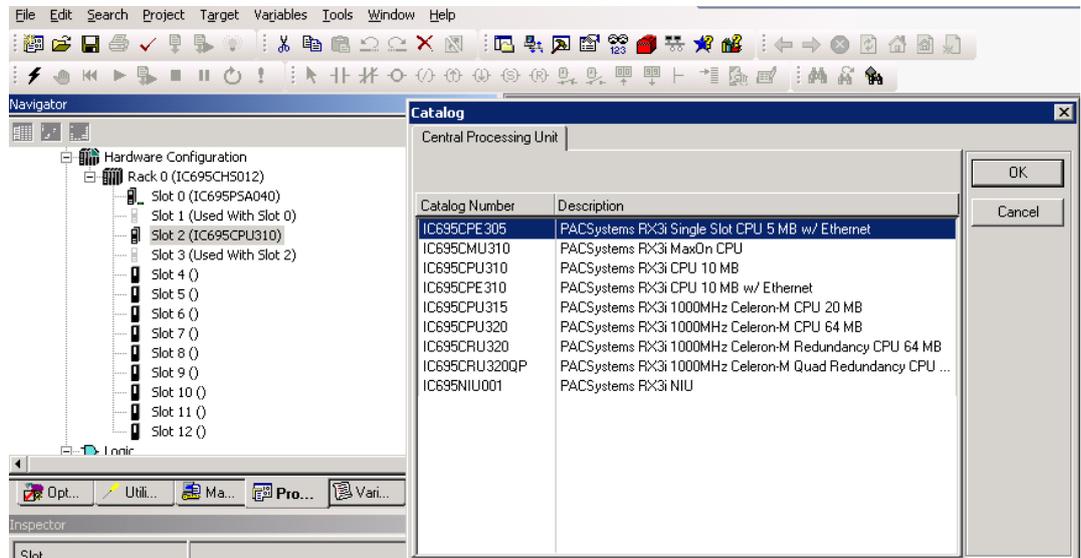
- Create a New project in Proficy using New Project Wizard or Open Project.
- Select **File** → **New Project**.



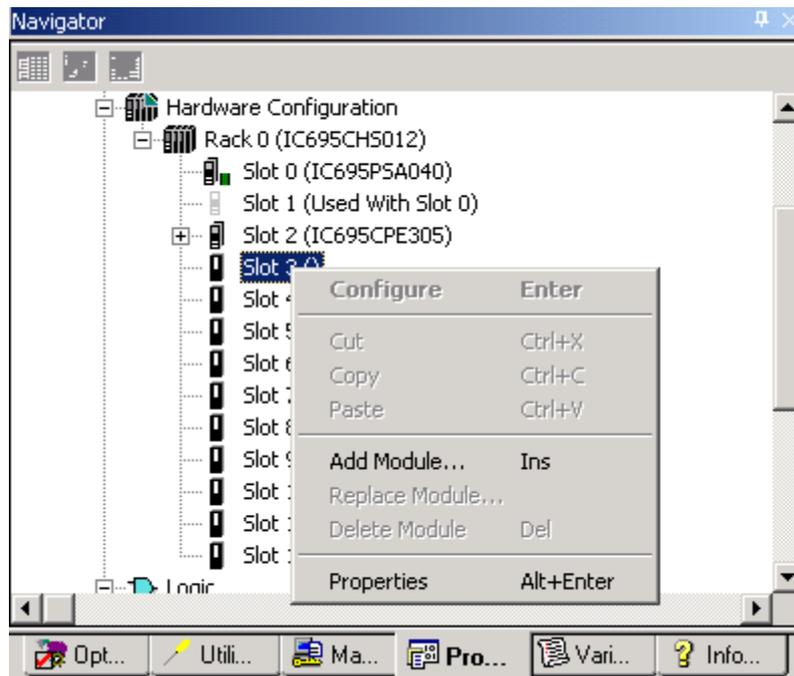
- For a new project, insert the Project Name, Project Template, and Project location.
- When done click **OK**.



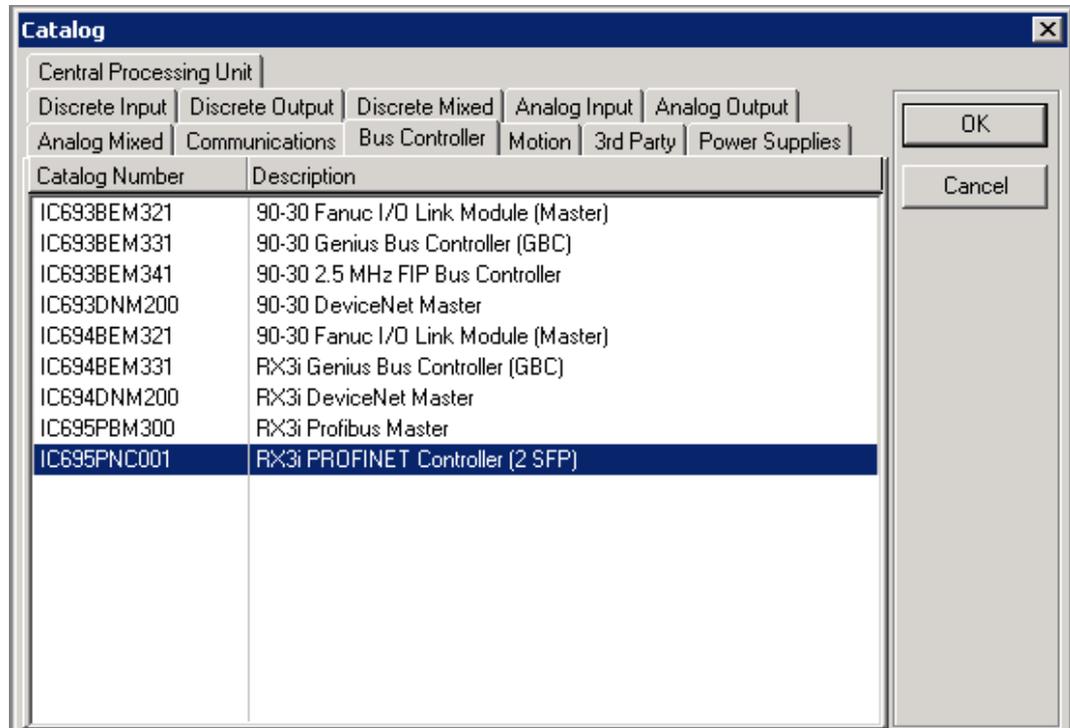
- Once the project is in Proficy, Right click on the Processor and select the CPU.
- Click OK.



- To add the PROFINET Controller, right click on the slot the PROFINET card is in the chassis and in the pop up window click Add Module.

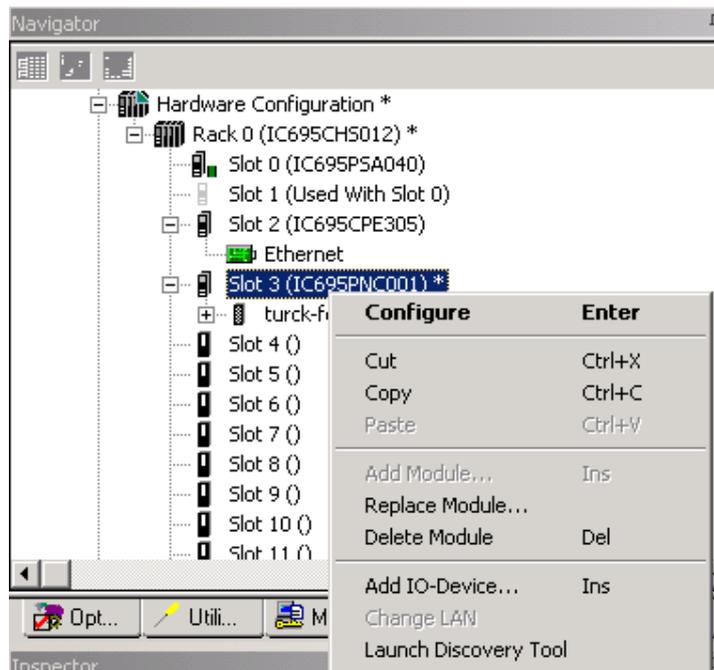


- In the Catalog Window, click on the **Bus Controller** Tab and select communication master. In our example, the RX3i Profibus Master and RX3i PROFINET Controller are used.
- Click **OK**.

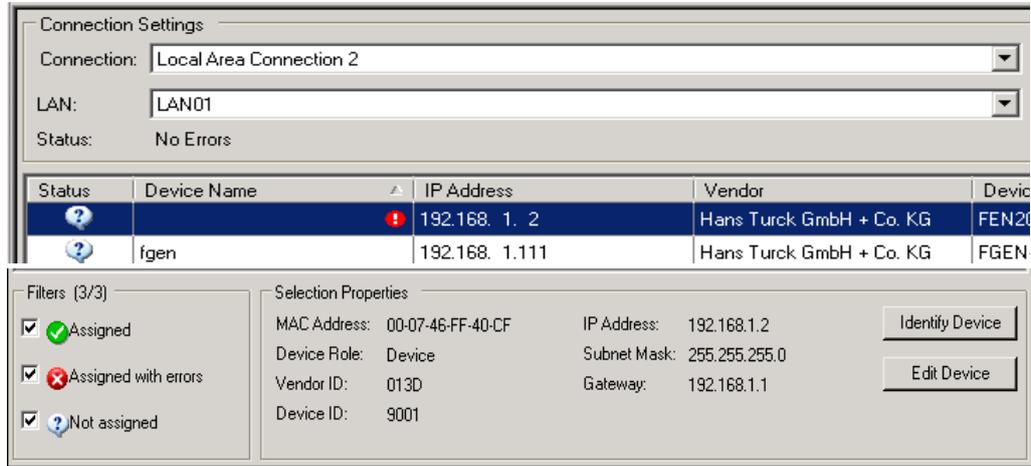


7.1.2 Add the FEN20 device

- Right click on the **PROFINET Controller** in the Navigator Window. Select **Launch Discovery Tool** in the Pop up Window.

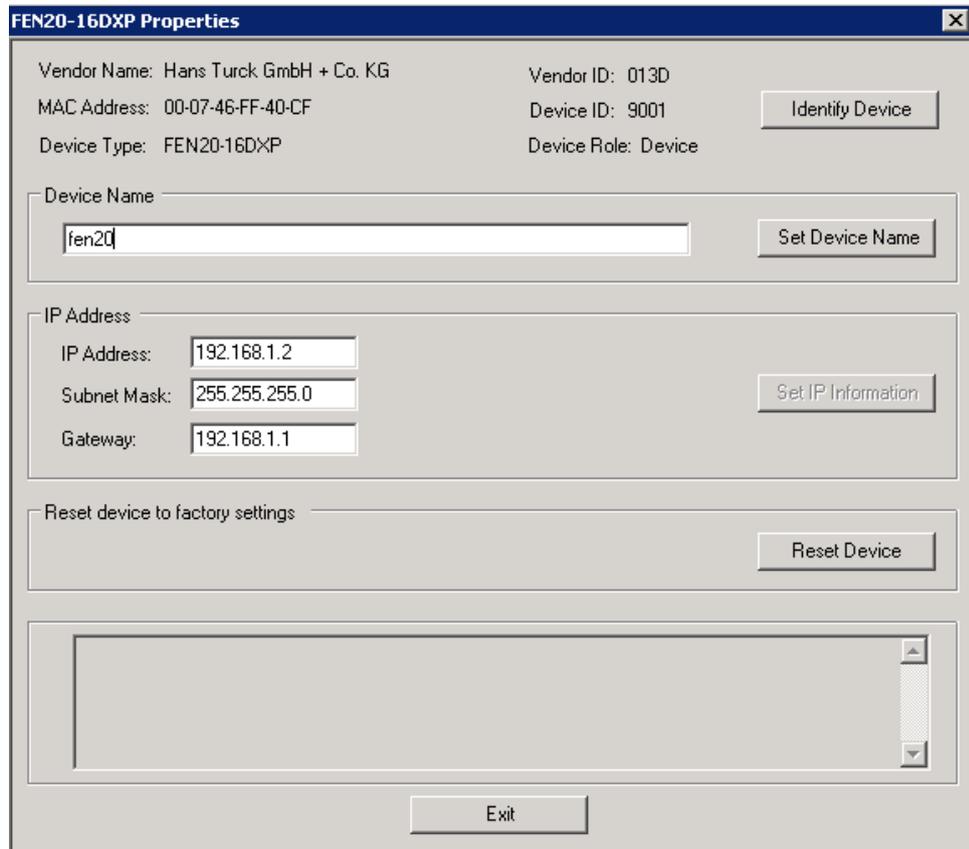


- Click on **Refresh Device List** to bring list of devices on the network.
- Select device to be modified and click **edit device**.



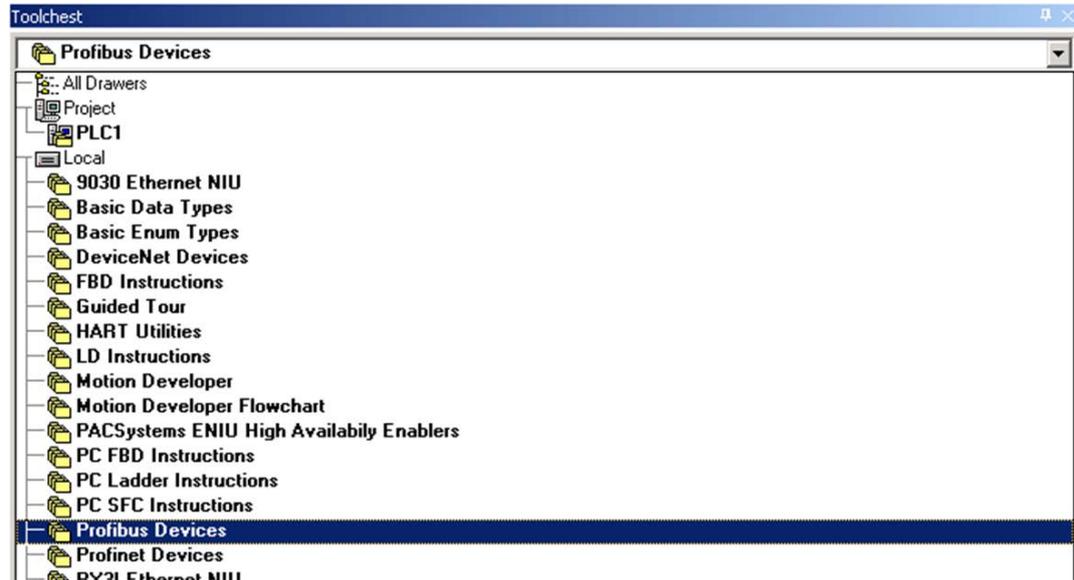
7.1.3 Assign FEN20 name and IP address

- In the properties window, the Device Name and IP address can be changed. You can also reset the device to factory defaults and identify the device on the network. When identifying the device, the LEDs on the gateway will flash. When Done click on the exit button.

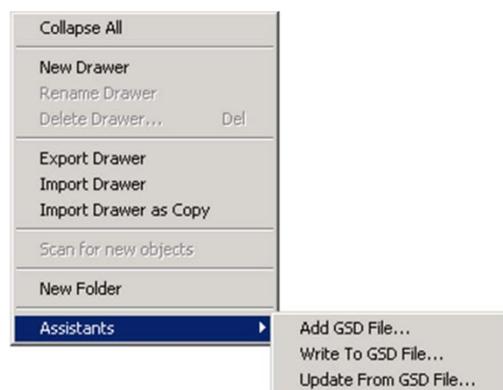
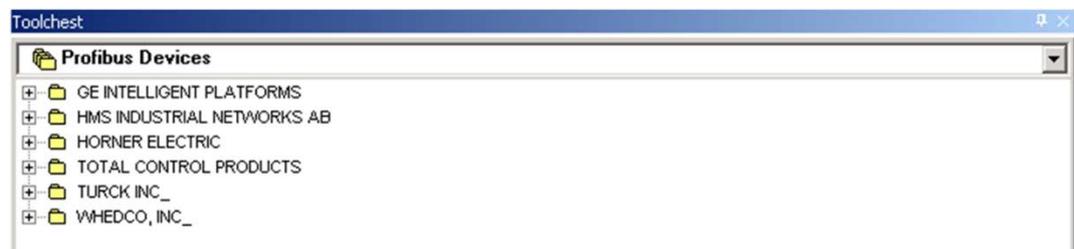


7.1.4 Installing GSD or GSDML files in the hardware configuration

- In the **Toolchest** window click on the dropdown arrow and select a Profibus or PROFINET Device.

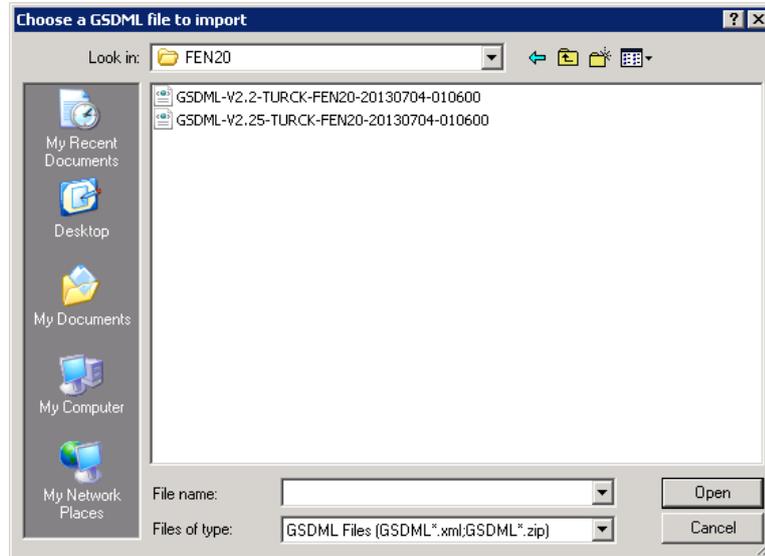


- Right mouse click the Toolchest window.
- Click **Assistants** → **Add GSD File....**



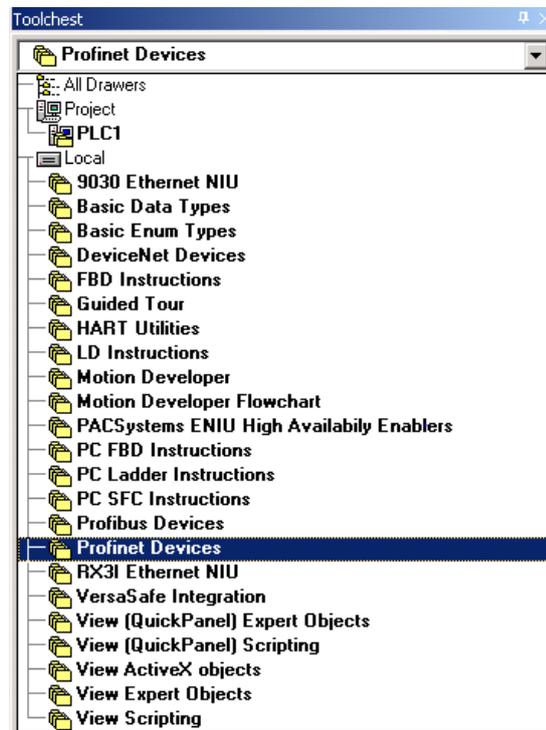
NOTE
 All files with .GSD are the default GSD files in the English language. Other versions may include GSE (English), GSF (French), and GSG (German) languages.
 All PROFINET files are xml files.

- Browse to the folder where the GSD file is located.
- Select file(s). Click **Open**.

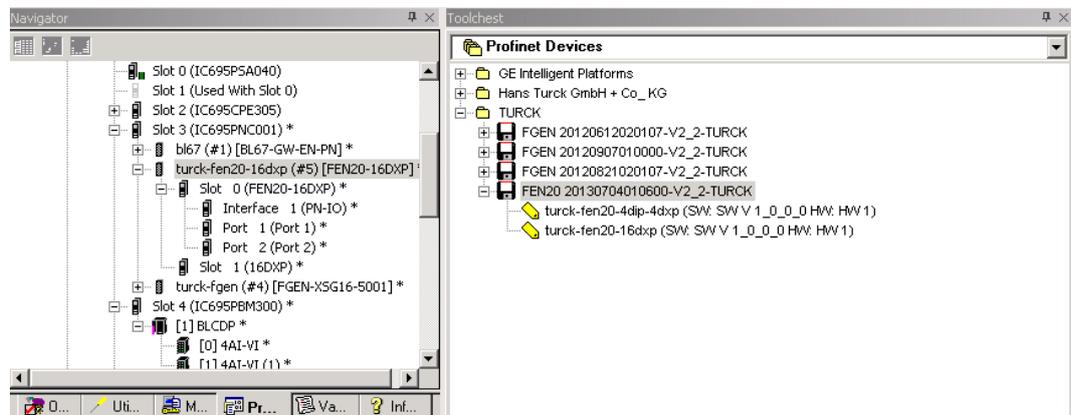


7.1.5 Adding a PROFINET device onto the network.

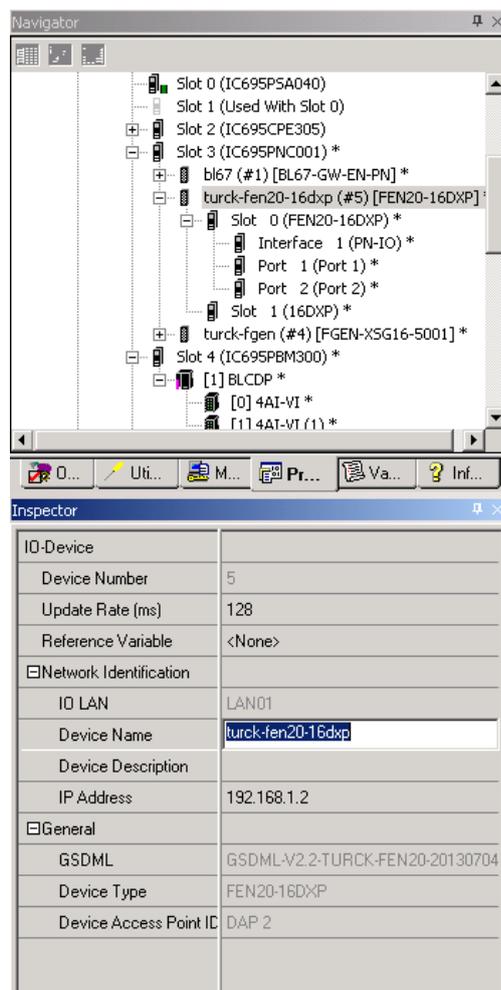
- Click on the PROFINET Devices drop down in the **Toolchest**.



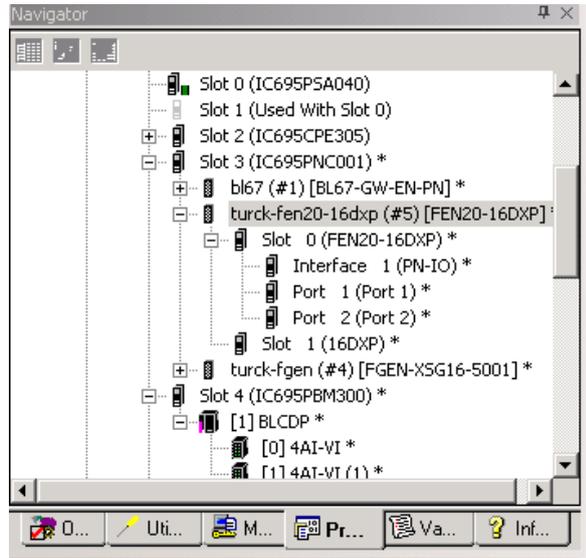
- Click on the folder to open the folder
- Click on the GSDML file and drag it to the PROFINET card.



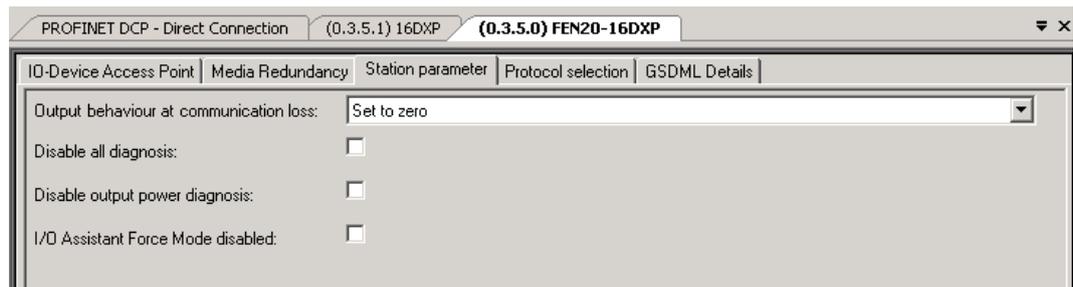
- Once it is under the PROFINET, click on the gateway and the device name and IP Address will be in the Inspector. This must match the configuration downloaded to the gateway when using the network discovery tool.



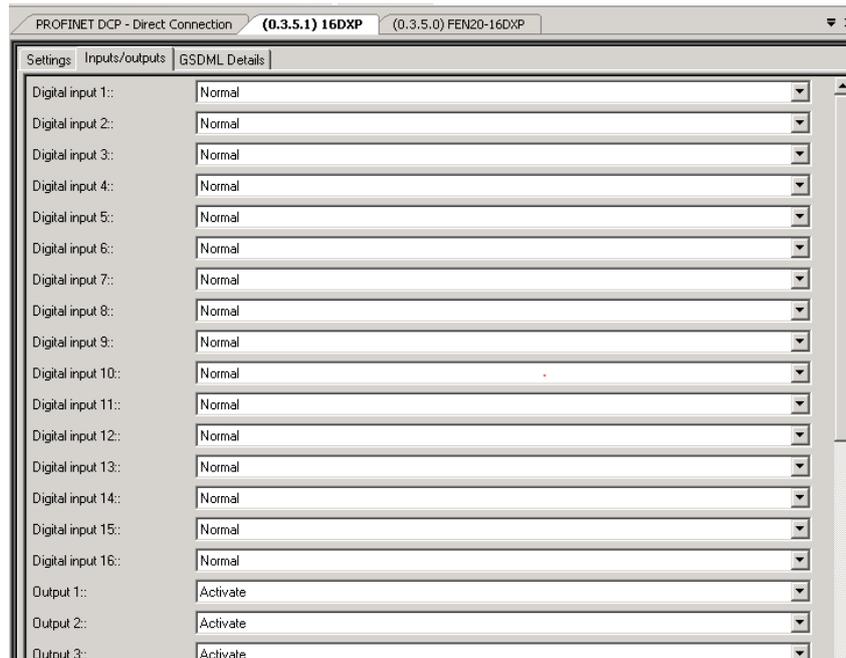
- Double click on **turck-fen20-16d xp** to bring up the properties and station parameters of the gateway. Double click on **slot 1** to bring parameters for the 16 DXP points.



- ➔ This will bring up the GW parameters for PROFINET.



- After changing the parameters click the x to close the window.

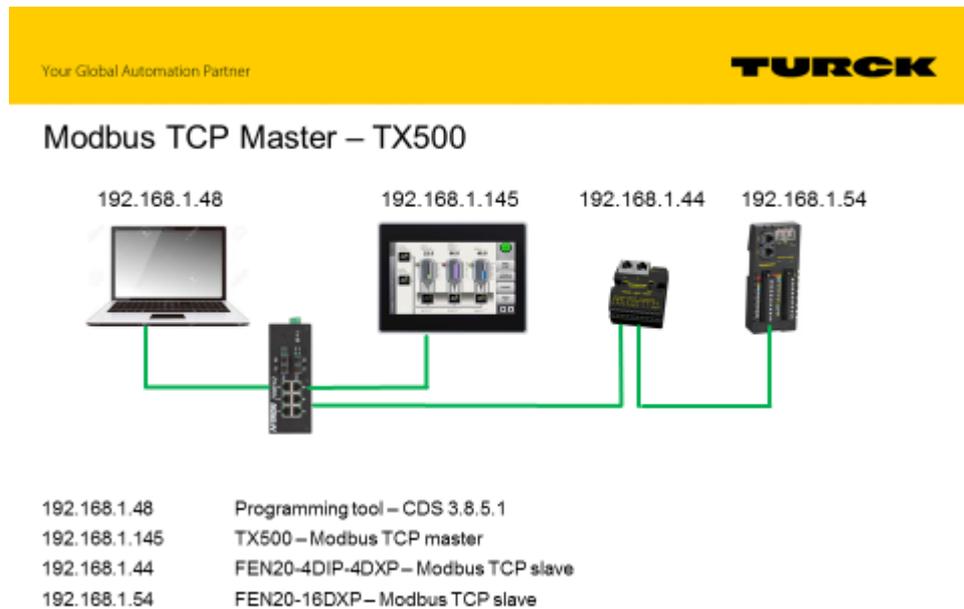


8 Modbus TCP configuration

The Modbus TCP project and configuration of the FEN20 (in this example the FEN20-4DIP-4DXP) is shown utilizing Turck's TX500 HMI/PLC platform, which supports:

- IEC 61131 multitasking PLC runtime utilizing CODESYS v3.5.8.1 PLC
- 20 MB program/data memory
- 32 kB non-volatile memory
- PROFINET Controller (master)
- EtherNet/IP Scanner (master)
- Modbus TCP Client (master)
- Modbus RTU Client (master)
- CANopen Master (optional via plug-in module)
- Modbus TCP Server (slave)
- Modbus RTU Server (slave)
- OPC UA Server
- Standard Ethernet TCP/IP und UDP/IP communication
- Serial RS232, RS485 and RS422 communication

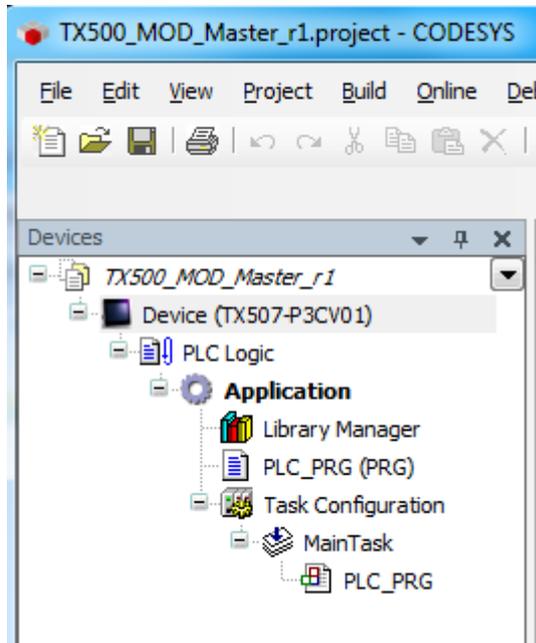
Network topology used in the project:



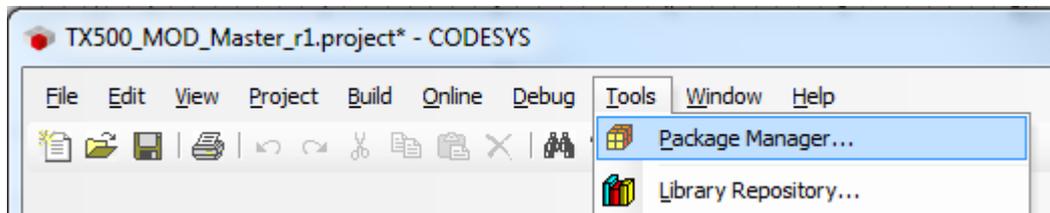
8.1 Create TX500 Modbus TCP master project

It is assumed that user has a basic knowledge of the CODESYS project and programming environment.

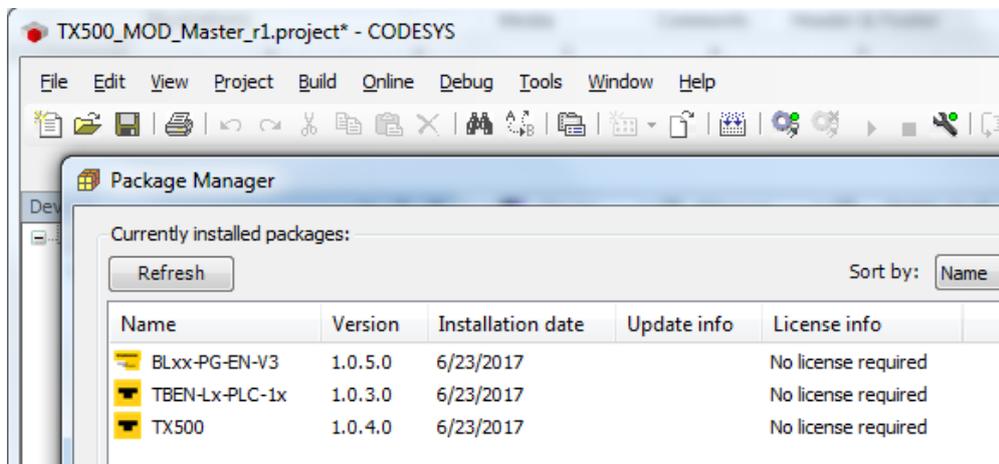
► Open an existing project or start a new CDS3 project:



► At **Tools** menu, open **Package Manager**.

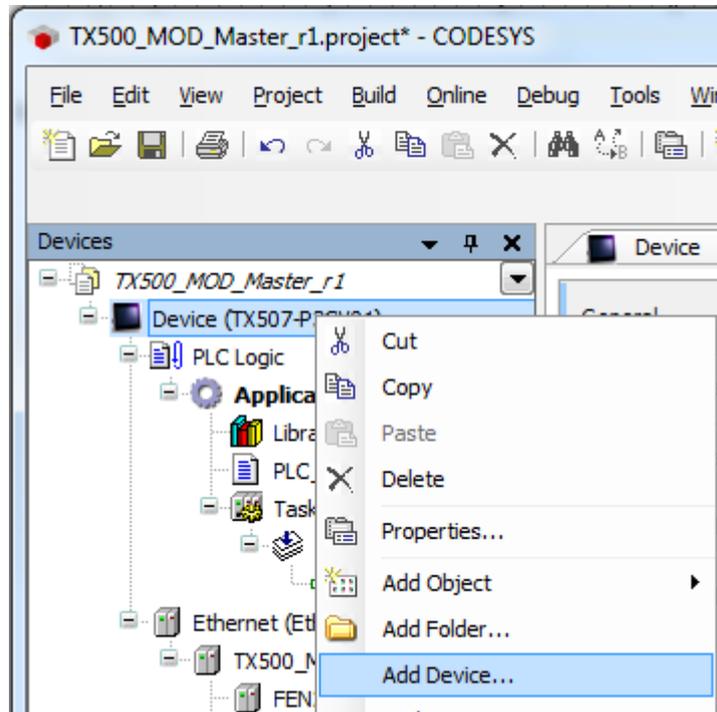


► Verify that TX500 DTM package is installed; if not, follow dialog to install package.

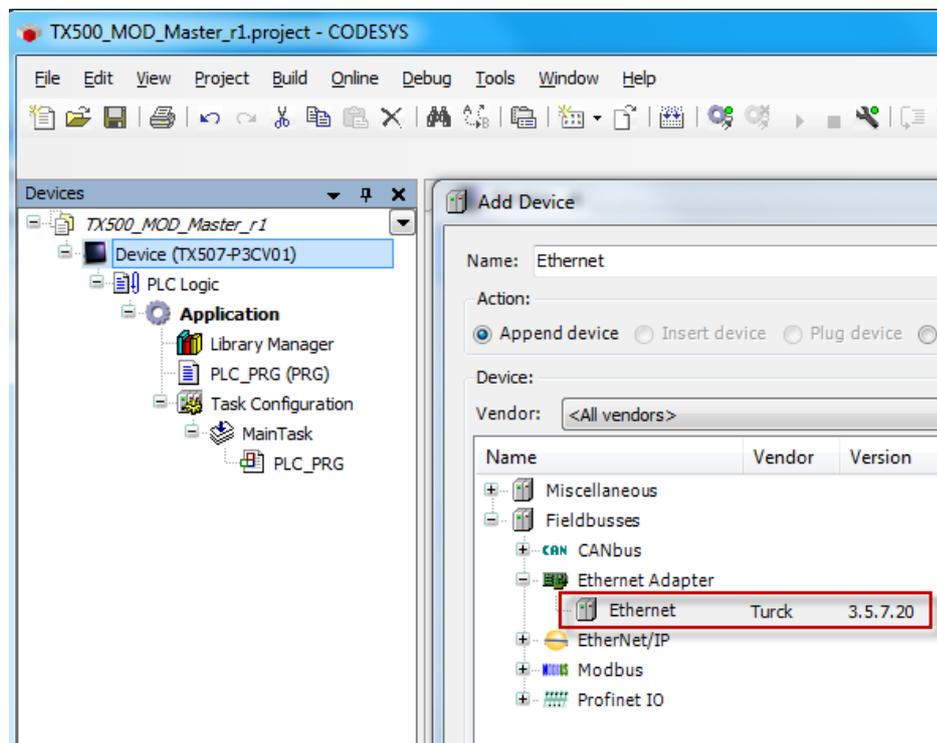


8.1.1 Add Ethernet adapter

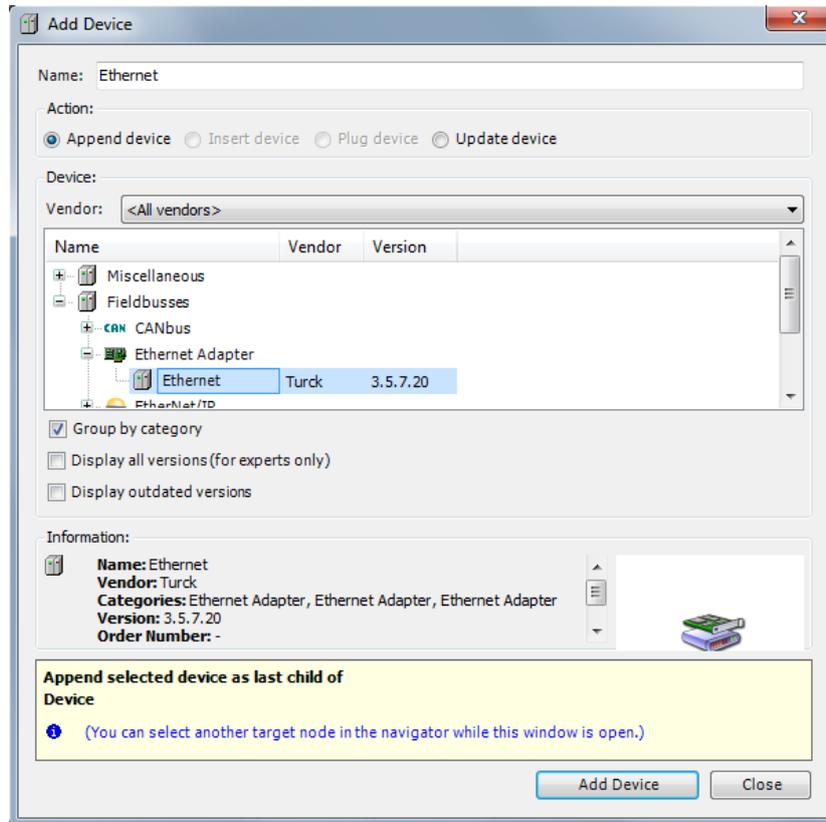
- Highlight **Device** in the **Device organizer**.
- Right-click to **Add Device**.



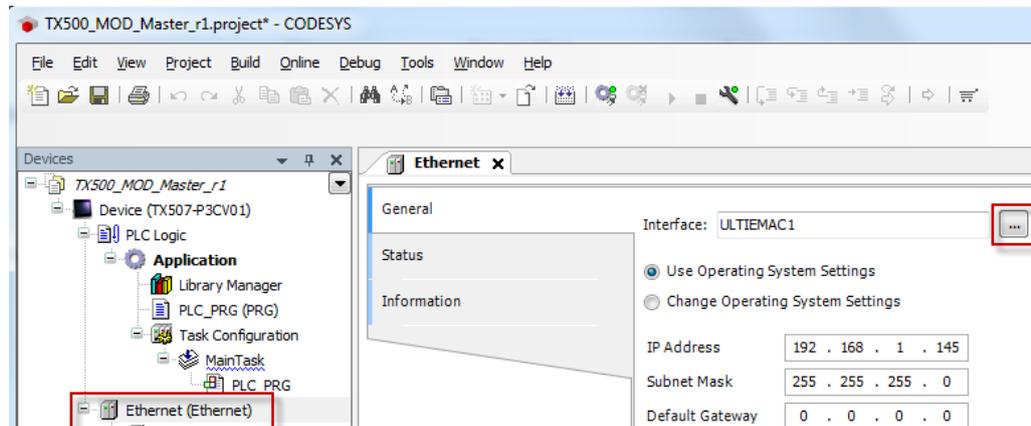
- Expand **Fieldbuses** in the **Add device** page.
- Expand **Ethernet adapter** and select **Ethernet by Turck**.



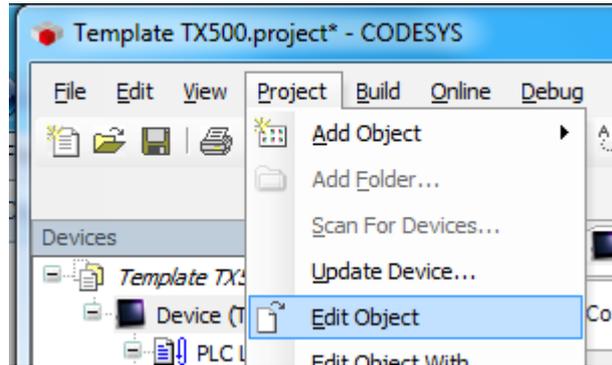
► Click **Add Device**.



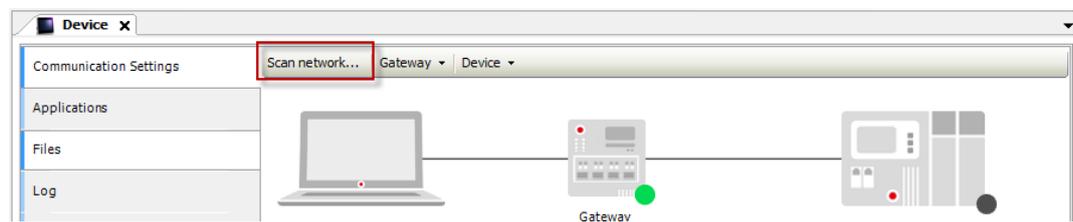
► At **Ethernet Adapter** , assign an IP address to the adapter (it is actual IP address of the TX500).



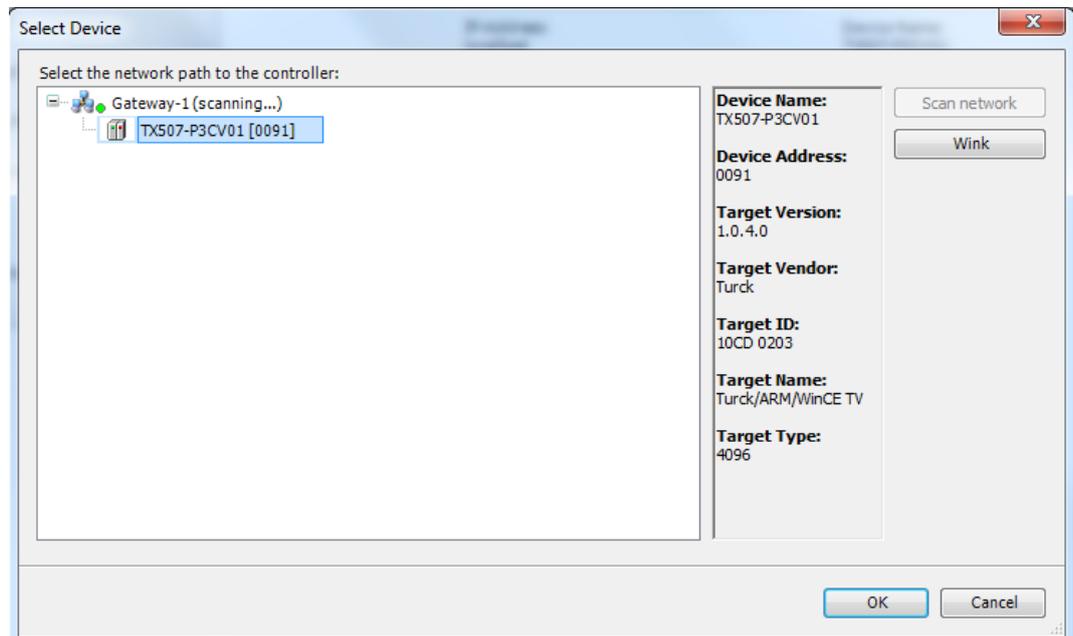
► Other option is to highlight **Device**, open **Project** menu, select **Edit Object**.



► Scan network on the **Scan network...** page.

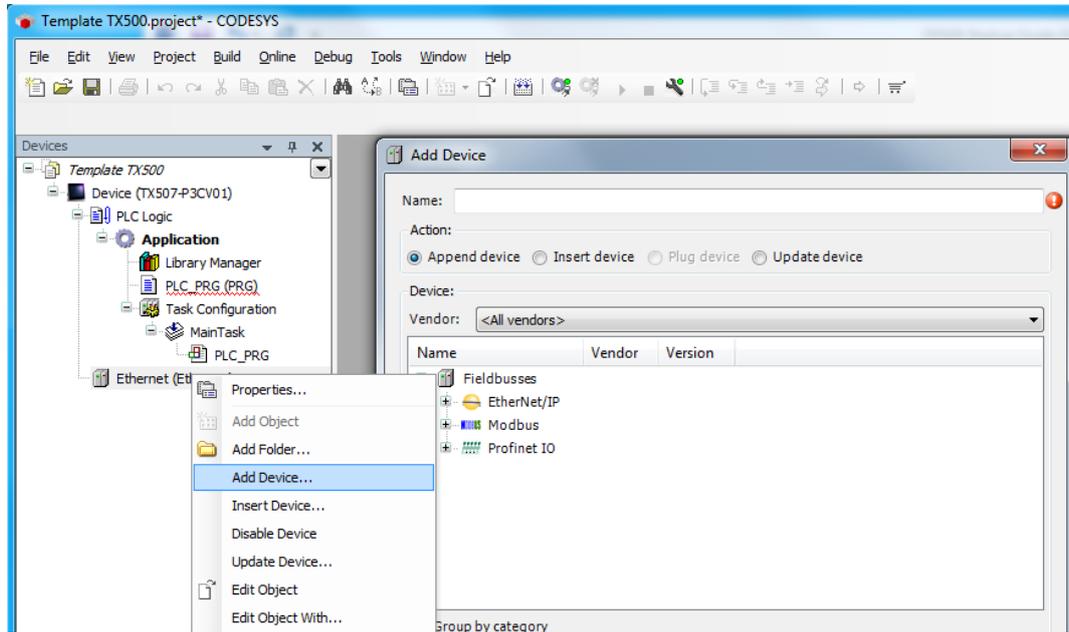


► Confirm selection when right side is populated as follows:

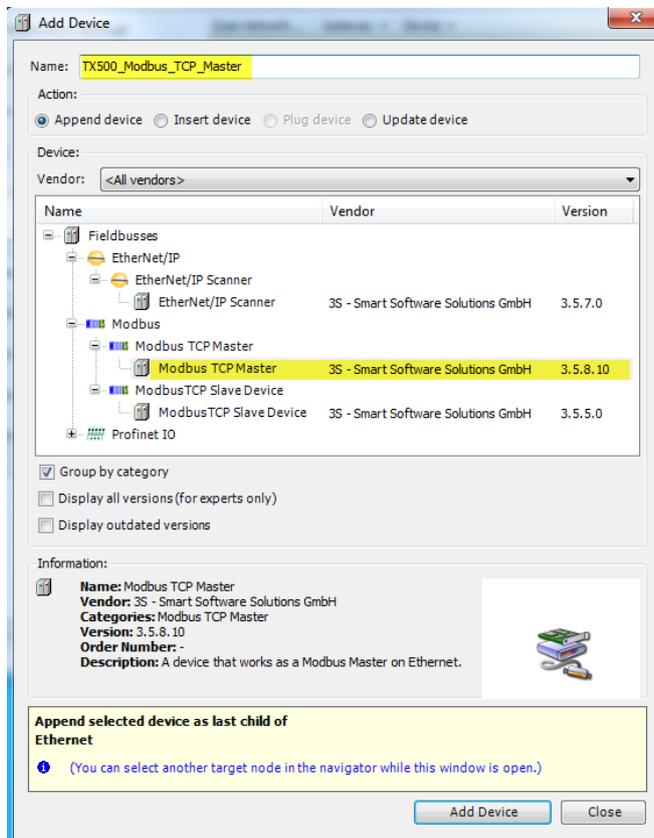


8.1.2 Add Modbus master

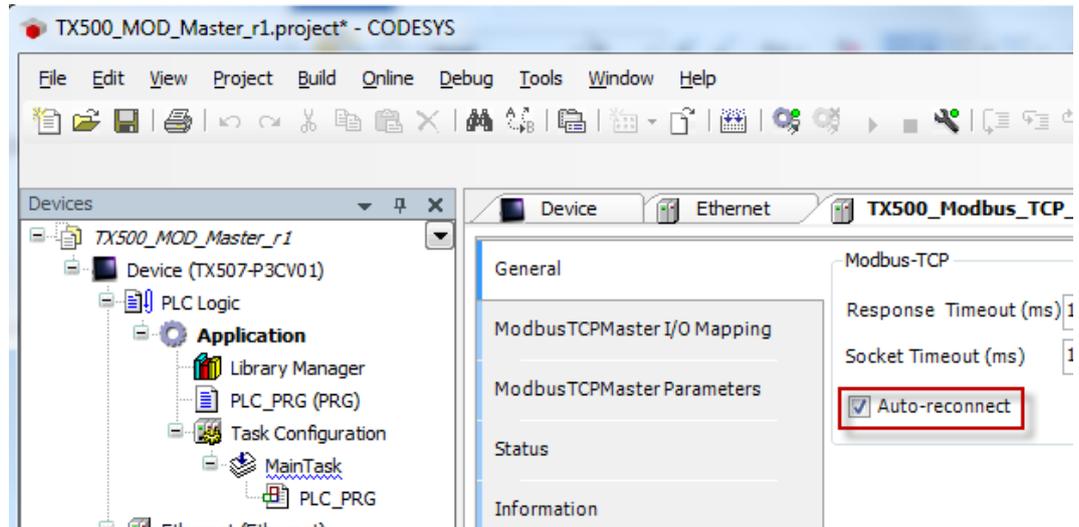
► At **Ethernet** in the device organizer, right-click and select **Add Device....**



- At **Add device** page, expand **Modbus**.
- Highlight **Modbus TCP Master**.
- Enter name **TX500_Modbus_TCP_Master** in the name field.
- Click **Add Device** at lower corner.



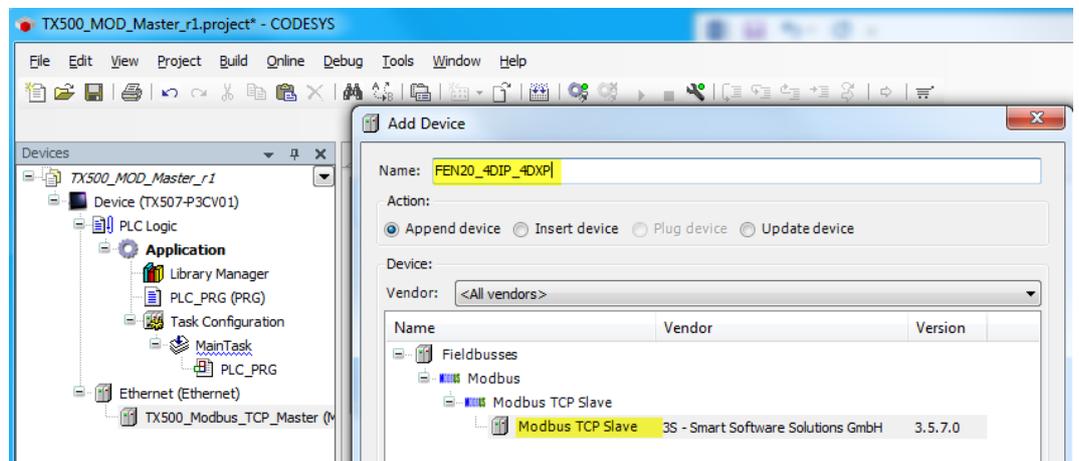
- At TX500_Modbus_TCP_Master property page, check the check-box **Auto-connect**.



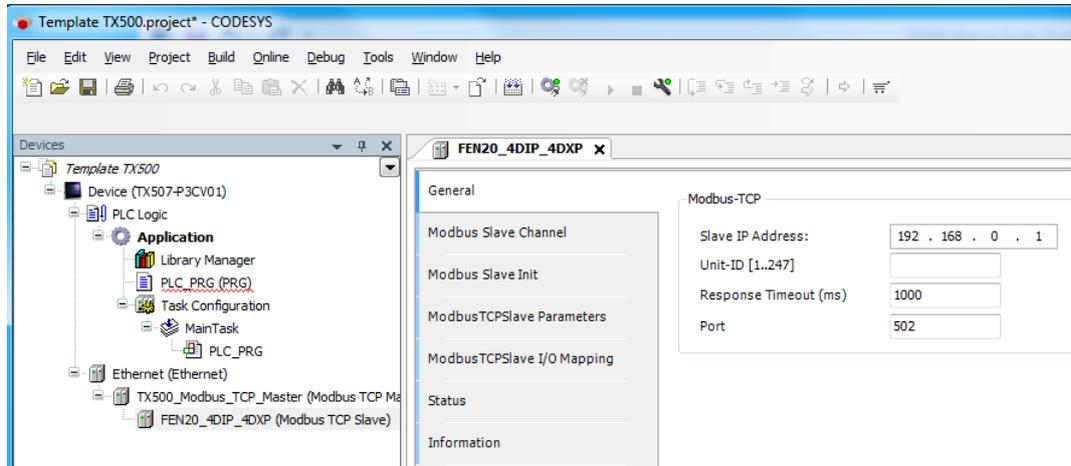
8.1.3 Add Modbus TCP slave

The next part shows how to configure FEN20-4DIP-4DXP as the Modbus TCP slave. The same procedure is used for any other Modbus TCP slave device.

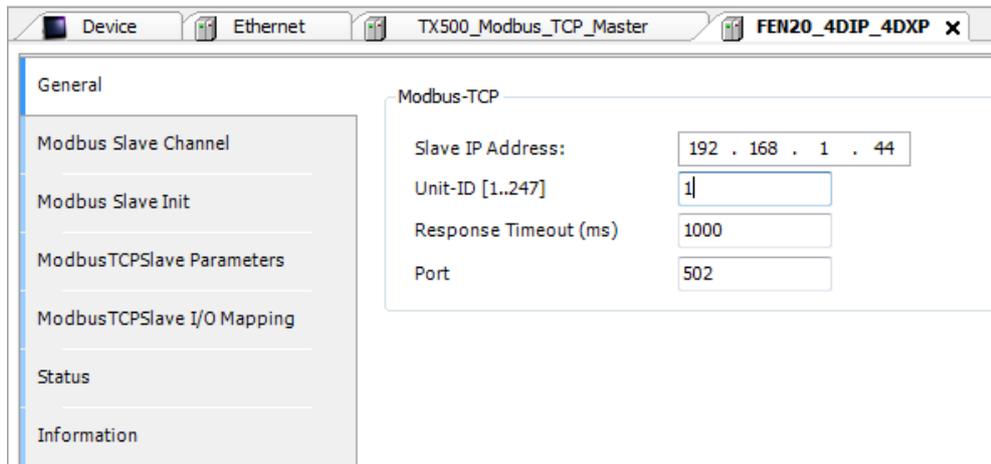
- At TX500_Modbus_TCP_Master, right-click and select **Add Device....**
- Select **Modbus TCP Slave** by 3S.
- Enter **FEN20_4DIP_4DXP** into **Name** field.
- Click **Add Device** and exit.



- At FEN20 in the device organizer, double-click to open the device property page.



- At **General** tab, enter the IP address of the FEN20-4DIP-4DXP into **Slave IP address**.
- Assign 1 to **Unit-ID** (each device has unique Unit-ID number).



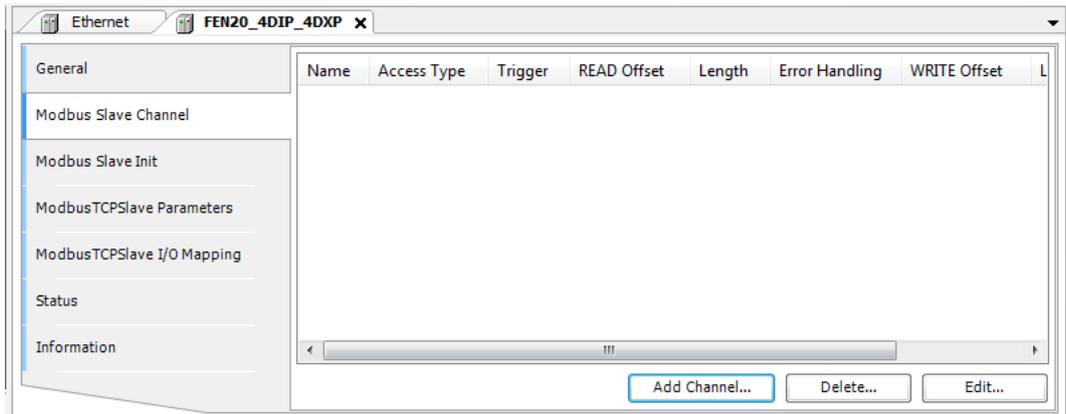
8.1.4 Configure FEN20 IO data map

- The FEN20-4DIP-4DXP data sheet contains the IO data map of the device which is used to configure IO channels in the project:

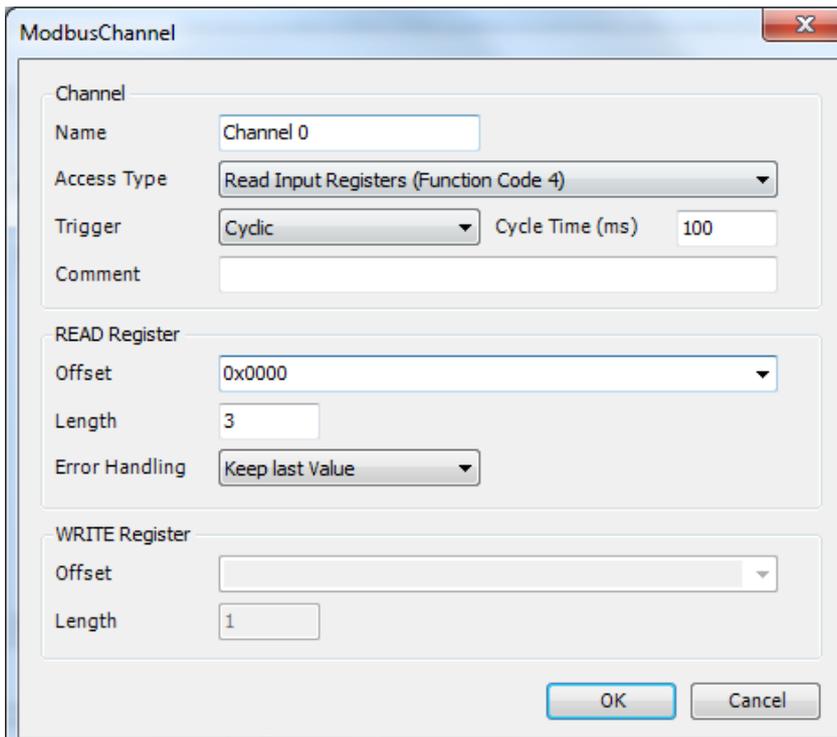
Process Data Mapping
Modbus TCP Register Mapping

	Reg	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Inputs (RO)	0x0000	-	-	-	-	-	-	-	-	DI7	DI6	DI5	DI4	DI3	DI2	DI1	DI0
Status (RO)	0x0001	-	FCE	-	-	CFG	COM	V1 low	-	-	-	-	-	-	-	-	Diag Warn
Diag (RO)	0x0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	I/O Diag
Outputs (RW)	0x0800	-	-	-	-	-	-	-	-	-	-	-	-	DO3	DO2	DO1	DO0
I/O Diag (RO)	0xA000	-	-	-	-	SCO3	SCO2	SCO1	SCO0	-	-	-	-	-	-	-	IGS

► At Modbus Slave Channel tab, click **Add Channel....** button.



- Configure Channel 0 input data block, starting at address 0x0000 and data size 3 where:
- Address 0x0000 Input data
 - Address 0x0001 Device status
 - Address 0x0002 IO Diagnostic warning bit



- Configure Channel 1 output data block, starting at address 0x0800 and data size 1 where:
 - Address 0x0800 Output data
 -

The screenshot shows the 'ModbusChannel' configuration window for 'Channel 1'. The 'Channel' section includes: Name: Channel 1; Access Type: Write Multiple Registers (Function Code 16); Trigger: Cyclic; Cycle Time (ms): 100; Comment: Output data. The 'READ Register' section includes: Offset: (empty); Length: 1; Error Handling: Keep last Value. The 'WRITE Register' section includes: Offset: 0x0800+; Length: 1. 'OK' and 'Cancel' buttons are at the bottom right.

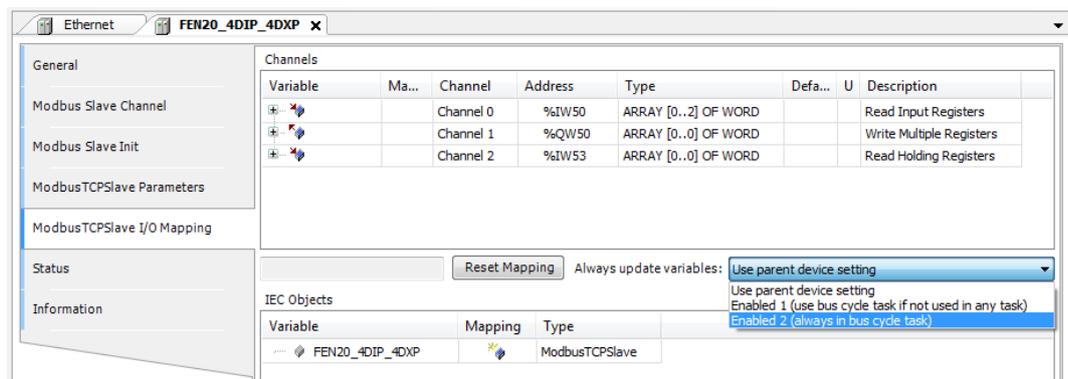
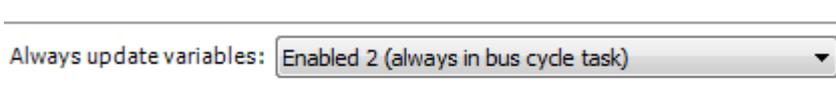
- Add next channel for the IO diagnostics. It is read-only at:
 - Address 0xA000 IO diagnostics

The screenshot shows the 'ModbusChannel' configuration window for 'Channel 2'. The 'Channel' section includes: Name: Channel 2; Access Type: Read Holding Registers (Function Code 3); Trigger: Cyclic; Cycle Time (ms): 100; Comment: Diag IO. The 'READ Register' section includes: Offset: 0xA000; Length: 1; Error Handling: Keep last Value. The 'WRITE Register' section includes: Offset: 0x0000; Length: 1. 'OK' and 'Cancel' buttons are at the bottom right.

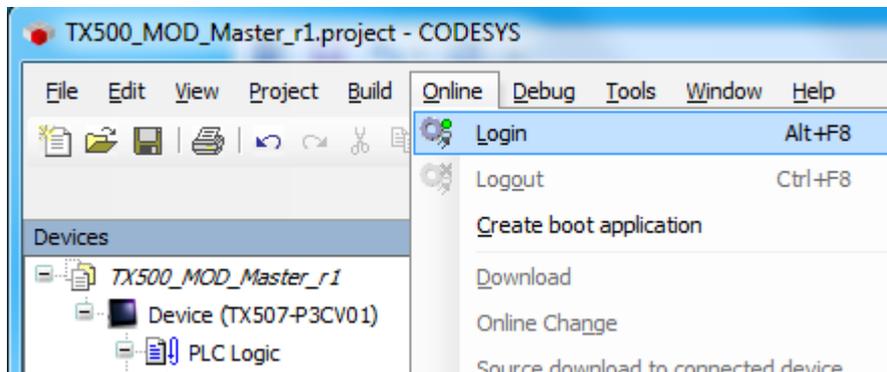
The IO data map overview:

Name	Access Type	Trigger	READ Offset	Length	Error Handling	WRITE Offset	Length	Comment
Channel 0	Read Input Registers (Function Code 04)	Cyclic, t#100ms	16#0000	3	Keep last Value			Input registers
Channel 1	Write Multiple Registers (Function Code 16)	Cyclic, t#100ms				16#0000	1	Output data
Channel 2	Read Holding Registers (Function Code 03)	Cyclic, t#100ms	16#A000	1	Keep last Value			Diag IO

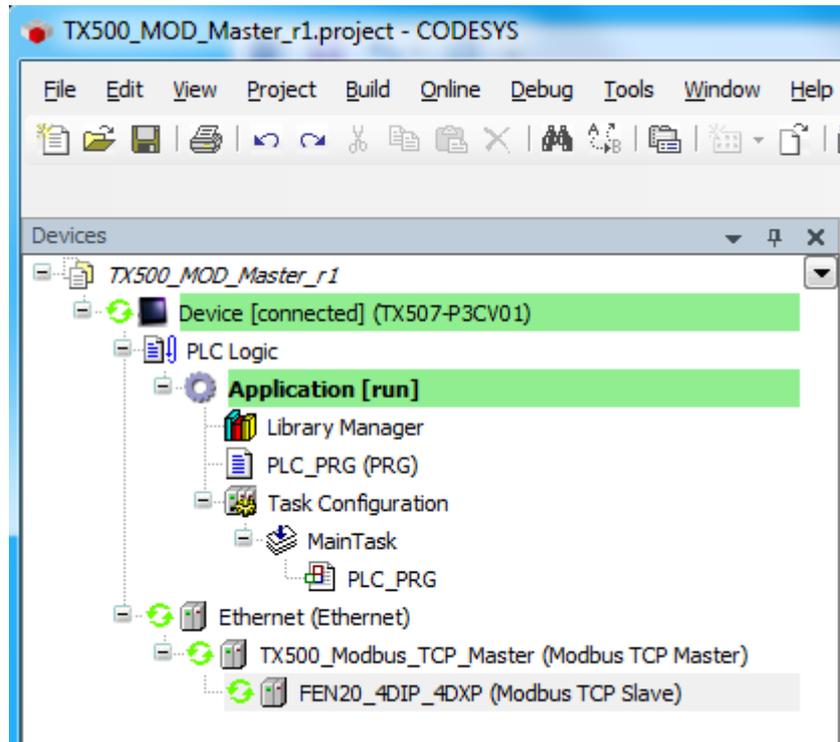
► Select how are channels updated at **Always update variables** field as follows.



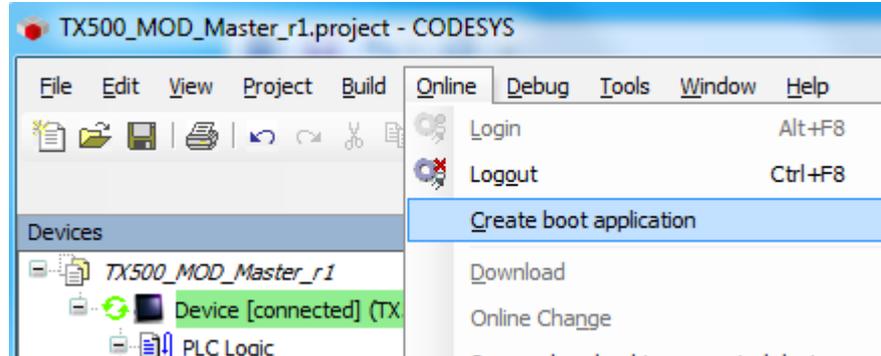
► **Online menu, Login:**



► The FEN20-4DIP-4DXP configuration is completed and the project is running.



► Create Boot application and download to the device.



9 Turck subsidiaries - contact information

Germany	Hans Turck GmbH & Co. KG Witzlebenstraße 7, 45472 Mülheim an der Ruhr www.turck.de
Australia	Turck Australia Pty Ltd Building 4, 19-25 Duerdin Street, Notting Hill, 3168 Victoria www.turck.com.au
Belgium	TURCK MULTIPROX Lion d'Orweg 12, B-9300 Aalst www.multiprox.be
Brazil	Turck do Brasil Automação Ltda. Rua Anjo Custódio Nr. 42, Jardim Anália Franco, CEP 03358-040 São Paulo www.turck.com.br
China	Turck (Tianjin) Sensor Co. Ltd. 18,4th Xinghuazhi Road, Xiqing Economic Development Area, 300381 Tianjin www.turck.com.cn
France	TURCK BANNER S.A.S. 11 rue de Courtalin Bat C, Magny Le Hongre, F-77703 MARNE LA VALLEE Cedex 4 www.turckbanner.fr
Great Britain	Großbritannien TURCK BANNER LIMITED Blenheim House, Hurricane Way, GB-SS11 8YT Wickford, Essex www.turckbanner.co.uk
India	TURCK India Automation Pvt. Ltd. 401-403 Aurum Avenue, Survey. No 109 /4, Near Cummins Complex, Baner-Balewadi Link Rd., 411045 Pune - Maharashtra www.turck.co.in
Italy	TURCK BANNER S.R.L. Via San Domenico 5, IT-20008 Bareggio (MI) www.turckbanner.it
Japan	TURCK Japan Corporation Syuuhou Bldg. 6F, 2-13-12, Kanda-Sudacho, Chiyoda-ku, 101-0041 Tokyo www.turck.jp
Canada	Turck Canada Inc. 140 Duffield Drive, CDN-Markham, Ontario L6G 1B5 www.turck.ca
Korea	Turck Korea Co, Ltd. B-509 Gwangmyeong Technopark, 60 Haan-ro, Gwangmyeong-si, 14322 Gyeonggi-Do www.turck.kr
Malaysia	Turck Banner Malaysia Sdn Bhd Unit A-23A-08, Tower A, Pinnacle Petaling Jaya, Jalan Utara C, 46200 Petaling Jaya Selangor www.turckbanner.my

Mexico	Turck Comercial, S. de RL de CV Blvd. Campestre No. 100, Parque Industrial SERVER, C.P. 25350 Arteaga, Coahuila www.turck.com.mx
Netherlands	Turck B. V. Ruiterlaan 7, NL-8019 BN Zwolle www.turck.nl
Austria	Turck GmbH Graumanngasse 7/A5-1, A-1150 Wien www.turck.at
Poland	TURCK sp.z.o.o. Wroclawska 115, PL-45-836 Opole www.turck.pl
Romania	Turck Automation Romania SRL Str. Siriului nr. 6-8, Sector 1, RO-014354 Bucuresti www.turck.ro
Russian Federation	TURCK RUS OOO 2-nd Pryadilnaya Street, 1, 105037 Moscow www.turck.ru
Sweden	Turck Sweden Office Fabriksstråket 9, 433 76 Jonsered www.turck.se
Singapore	TURCK BANNER Singapore Pte. Ltd. 25 International Business Park, #04-75/77 (West Wing) German Centre, 609916 Singapore www.turckbanner.sg
South Africa	Turck Banner (Pty) Ltd Boeing Road East, Bedfordview, ZA-2007 Johannesburg www.turckbanner.co.za
Czech Republic	TURCK s.r.o. Na Brne 2065, CZ-500 06 Hradec Králové www.turck.cz
Turkey	Turck Otomasyon Ticaret Limited Sirketi Inönü mah. Kayisdagi c., Yesil Konak Evleri No: 178, A Blok D:4, 34755 Kadiköy/ Istanbul www.turck.com.tr
Hungary	TURCK Hungary kft. Árpád fejedelem útja 26-28., Óbuda Gate, 2. em., H-1023 Budapest www.turck.hu
USA	Turck Inc. 3000 Campus Drive, USA-MN 55441 Minneapolis www.turck.us

TURCK

28 subsidiaries and over
60 representations worldwide!

100002948 | 2022/04



www.turck.com