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# FEN20 Start-up Guide

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Created By: Division 3



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## About This Guide

This guide will show the how to set the IP address on an FEN20 device. It will also show the user how to configure the FEN20 devices using EtherNet/IP, Profinet, and Modbus TCP configurations.

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## **Required Parts**

## Hardware

FEN20-4DIP-4DXP - Multiprotocol 4 DI, 4 DI/DO slave FEN20-16DXP - Multiprotocol 16 DI/DO slave VT250-57x-L7-IPM – Turck programmable HMI. (Note: Any VT250 model can be used following the same steps) RJ45-RJ45-1M, Ethernet cables SE-44X-E924 – 9 Port Unmanaged Ethernet Switch 24V Power supply Any Digital Input Any Digital Output

## Software

Windows 7 or Windows XP Pactware / IO Assistant 3+ CoDeSys V3.5 SP1 Turck IP address tool RS Logix 5000 RS Linx GE Proficy Machine Edition <u>Turck GSD(ML) Files</u>

### EDS and GSD Files

Some network stations require "driver" files. These files are used in the master configuration software to tell the master what stations and parameters to use on the network. For DeviceNet the files have an EDS extension. For Profibus they are GSD. Please enter a part number to search for the EDS or GSD file.

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Download all EDS Files (Zip)

Download all GSD Files (Zip)

You may also search for individual files through our general Part and ID number search.



# FEN20 Modules

## Introduction

FEN20-16DXP is a multiprotocol communication adapter which supports following networking standards:

- EtherNet/IP
- PROFINET
- Modbus TCP/IP

The factory default "out of the box" setting is that all communication protocols are enabled. After power-up, a multiprotocol device is listening on all necessary ports to detect on which kind of network it is used. The "Active Fieldbus Protocol" is defined as the first protocol to do one of the following actions:

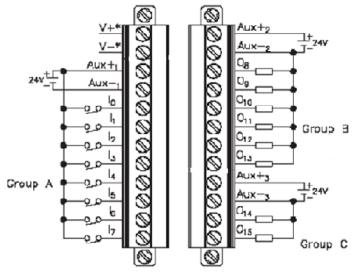
- EtherNet/IP: Establish a Class 1 Exclusive Owner connection to device.
- PROFINET RT: Connect request.
- Modbus TCP: Write to Output Register Range.

The Configuration Guide describes device features and configuration procedure in the EtherNet/IP environment.

## **Connection Diagrams**

FEN20-16DXP connection diagrams

• FEN20-16DXP wiring



- V1+ will have the following functions
  - Station power and Group A of IOs
  - Provide 700mA to Vaux1+
  - It is galvanically isolated from groups B and C
- V2+ will have the following functions
  - Power for Group B
  - It is galvanically isolated from groups A and C
- V3+ will have the following functions
  - Power for Group C
  - It is galvanically isolated from groups A and B

## **LED** Diagnostics

- LED Status
  - I/O
- IO0 IO15
  - Solid Green:
- n: Input Responded, Output on Input not asserted, output off
  - Off:

- -

input not asserted, output

- BUS
  - Solid Green: Active connection to master
  - Flashing Green: Ready
  - Solid Red: ACD or bit set in Status word
  - Flashing Red: Blink/Wink command active
  - Off: No power supplied
- ETH1/ETH2
  - Solid Green: Ethernet Link (100 Mbps)
  - Flashing Green: Ethernet communication (100 Mbps)

- Solid Yellow: Ethernet Link (10Mbps)
- Flashing Yellow: Ethernet communication (10 Mbps)
- Off: No Ethernet Link



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# IO and Configuration Data Map

EtherNet/IP IO data map consists of:

- Produced (input) data: 5 x UINT (16-bit)
  - Consumed (output) data: 2 x UINT (16-bit)
- Configuration data: 16 x USINT (8-bit)

						FI	EN20-	16DXF	)							
Input Map	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
Word 0							UB Iow		UL Iow							Diag Warn
Word 1	I-16	I-15	I-14	I-13	I-12	1-11	I-10	1-9	1-8	1-7	1-6	1-5	1-4	1-3	1-2	1-1
Word 2			EC 5		Reserved								EM 0			
Word 3	OSC 8	OSC 7	OSC 6	OSC 5	OSC 4	OSC 3	OSC 2	OSC 1								IGS
Word 4				Rese	erved				OSC 16	OSC 15	OSC 14	OSC 13	OSC 12	OSC 11	OSC 10	OSC 9
Output Map	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
Word 0								Rese	erved							
Word 1	0-16	0-15	0-14	0-13	0-12	0-11	0-10	0-9	0-8	0-7	0-6	0-5	0-4	0-3	0-2	0-1

Abbreviations:

- I1...I16: Input state
- 01...016: Output state
- DiagWarn: Summarized diagnostic warning
- UI: UI voltage too low error
- Ub: Ub voltage too low error
- EM0: Summarized diagnostics mod 0

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- IGS: Input group status error
- OSC1...16: Output status O1 O16 short-circuit
- QC QuickConnect

	FEN2	0-16DXP	Configura	ation Ass	embly Da	ta						
	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0				
Byte 0												
Byte 1												
Byte 2												
Byte 3												
Byte 4		Reserved										
Byte 5												
Byte 6												
Byte 7												
Byte 8												
Byte 9				Reserved				QC				
Byte10-15				Rese	erved							

## Setting up the IP Address

The general procedure for IP address setup is:

- Set rotary switches to desired position
- Cycle (reset) power to the station
- Run IP address server to assign IP address
- Set address switches to rotary mode or PGM mode
- Cycle power to the station

When address switches are in rotary mode, the last octet may be dialed in 1-254 range.

## **Default IP Address**

The default IP address is:

- IP-address 192.168.1.254
- Subnet mask 255.255.255.0
- Default gateway 192.168.1.1

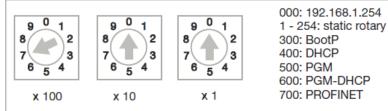
To reset IP address to default, set address switches to 0 and reset device power.

## Address Switches

FEN20 devices have three rotary switches marked as follows:

- x100 sets the last digit of IP address to a 100's value
- x10 sets the last digit of IP address to a 10's value
- x1 sets the last digit of IP address to a 1's value

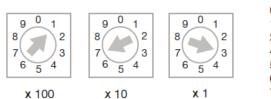
Switch position determines either address or device mode of operation as follows:



When using the static rotary mode, the last octet of the module's IP address can be set via the rotary codingswitches on the module.

Address range is 1 to 254. Addresses 0 and 255 are reserved and cannot be used. Following example shows the last octet set to of address xx.xxx.**173** 

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000: 192.168.1.254 1 - 254: static rotary 300: BootP 400: DHCP 500: PGM 600: PGM-DHCP 700: PROFINET

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TURCK

Industrial Automation



## FEN20 Start-up Guide BOOTP/DHCP Mode (300/400)

An Ethernet station (client) may obtain IP address from the BOOTP / DHCP server when address switches are set to 300 (BOOTP) or 400 (DHCP). The IP address, as well as the subnet mask assigned to the station, is stored in the device's EEPROM. When the station is subsequently switched to rotary or PGM-mode and power rest, the IP address is read from the EEPROM.

5	BOOTP/DHCP 5	erver 2.	3						
File	e Tools Help								
EF	lequest History								
	Clear History	Add to	Relation Lis	st					
	(hr:min:sec)	Туре	Ethernet A	ddress (MAC)		P Address	Hostname		
	16:00:12 16:00:07	DHCP DHCP	00:17:08:6 00:07:46:F	F:20:07		192.168.1.125			
	16:00:07	DHCP	00:07:46:F	FF:20:07					
			Ne	ew Entry				×	
								_	
FF	elation List		E	themet Addres	is (MAC)	00:07:46:FF:	20:07		
	New Delete	Enable	BOOTF	IP	Address	: <b>192</b> .168	. 1 . 1	25	
	Ethernet Addres	s (MAC)	T	н	ostname	e:	Enter the	a IR addre	ss for the device to b
	00:07:46:FF:20:0	)7	D	De	scription	τ.	Enter un	s in doure	ss for the device to b
						ОК	Cancel	1	
								_	
S	tatus								Entries
L	Inable to service [	DHCP rec	quest from Ol	0:17:08:61:44:	10.				1 of 256

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# PGM-DHCP Mode (600)

When the rotary switches are set to 600 it enables PGM–DHCP mode of operation. This mode is the Out-of-the-Box mode and provides the customer with powerful and convenient IP address setup. Procedure is the identical as for DHCP mode. When finished, click on "*Disable BOOTP/DHCP"*. The device switches into PGM mode and keeps assigned IP address in the EEPROM memory.

Sin B	OOTP/DHCP	Server 2	.3				_ I ×
File	Tools Help						
⊂ B¢	equest History-						
	Clear History	Lodes	Belation List				
	Ciedi Histoly		Theiadion List				
	(hr:min:sec)	Туре	Ethernet Addres	s (MAC)	IP Address	Hostname	<b>^</b>
	16:24:25	DHCP	00:50:56:84:32:	EC			
	16:24:24	DHCP	00:07:46:FF:20:		192.168.1.125		
	16:24:24 16:24:21	DHCP	00:07:46:FF:20: 00:07:46:FF:20:				
	16:24:21	DHCP	00:07:46:PP:20: 00:1C:25:72:B5				
	16:24:18	DHCP	00:07:46:FF:20:				
	16:24:14	DHCP	00:07:46:FF:20:				-1
		51105	00.07.0000000	~~			_
_ Re	elation List			_			 
	New Delete	e Enabl	e BOOTP Enab	le DHCP Di	sable BOOTP/DHCP		
l f							 
	Ethernet Addre	<u> </u>	26 1	IP Address	Hostname	Description	
	00:07:46:FF:20	:07	DHCP	192.168.1.12	5		
SL	atus						 Entries
	isable DHCP] (	ommand	successful				1 of 256
10	sable pricing c	John Maria :	NUCCESSION				101200

## PGM Mode (500)

When the rotary switches are set to 500 (PGM mode), the device will use either the factory default IP address on the first power-up or maintain current IP address whatever it is. Device IP address may be also changed, when in PGM mode, with software tools like:

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- Device WEB server
- TURCK IP address tool
- IOAssistant configuration tool

PGM and Web Server (500)

Use any web browser and enter current IP address of the device. When device web server starts, enter "pass-word" into "Login" field:

	×168.1.44/home.htm	Enter "password"
FEN20-16DXP Embedded Website of FEN20	Block I/O Module	and press Login
		Password [Login] Industrial Automation
Home >		
Home Station Diagnostics Ethernet Statistics Links	Station Information Type Identification Number Firmware Revision Bootloader Revision EtherNet/IP Revision PROFINET Revision Modbus TCP Revision Rotary Switch Mode	FEN20-16DXP 6931089 V3.0.6.0 V7.1.0.0 V2.5.0.0 V1.1.7.0 V1.2.0.0 PGM

Enter device new IP address, press "Submit" and then "Reset". Restart web page.

- -

	admin-user@1	92.168.1.48 [Logout] Industrial Automation
Network Configuration >		
lome letwork Configuration tation Configuration tation Diagnostics thernet Statistics inks change Admin Password 6DXP Parameters	<b>Network Settings</b> Changing the IP address will r Ethernet Port 1 setup Ethernet Port 2 setup IP Address Netmask	Autonegotiate  Autonegotiate  192.168.1.144 255.255.255.0
	Default Gateway MAC Address	192.168.1.1 00:07:46:bb:20:01
	LLDP MAC Address 1 LLDP MAC Address 2	00:07:46:bb:20:02 00:07:46:bb:20:03

## PGM and TURCK IP address tool (500)

#### Start the IP address tool and press search:

Ti Ti	urck IP Address Tool, \	/ers. 1.3					
9	Search		C	) 🔳 💿 🚟			TURCK
	Change Rese	t Wink		Close			Industrial Automation
No	Ethernet address	IP address	Netmask	Gateway	Mode	Device	Version
1	Change Rese Ethemet address 00:07:46:BB:20:01 d 1 Device.	192.168.1.144	255.255.255.0	192.168.1.1	PGM		6.0.0.0
Foun	d 1 Device.						.::

Highlight device, press "Change" button and enter new IP address; press "Write to device".

Turck IP Address Tool, Vers. 1.3				_ 🗆 🗙	
Search	Change Device IP proper	ties		TURCK	
Change Reset	Ethernet address	IP address 192.168.1.33		Industrial Automation	
No Ethernet address IP addres	00:07:46:BB:20:01	192.168.1.33	Device	Version	
1 00:07:46:BB:20:01 192.168.	Netmask	Gateway		6.0.0.0	
	255.255.255.0	192.168.1.1			
	Cancel	Write to device			
Found 1 Device.	<u></u>				

Press search and verify address:

	urck IP Address Tool, V	Vers. 1.3					
	Search		C	) 🔳 🎯 🚟			TURCK
	Change Rese	et Wink	c	Close			Industrial Automation
No	Ethernet address	IP address	Netmask	Gateway	Mode	Device	Version
1	00:07:46:BB:20:01	192.168.1.33	255.255.255.0	192.168.1.1	PGM		6.0.0.0

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#### PGM and IOAssistant

Highlight currently displayed IP address and write new one. DO the same with Netmask and Gateway.

Turck BL Service TCP-IP.PW3 - PACTware							
· · · ·	xtras Window Help						
i 🗋 🐸 🛃 🎯 🖓 🕴 🥨 🙀 i 🗖 ⊵	堕间 🕸 💈 🕸 👘						
Project 📮 🗙	TCP/IP Busaddress ma	inagement					
Device tag Address 🛈 🕉 Dev	Devic	ce type B	L Service Ethern	net		TUR	СК
		ription <b>B</b>	IL Service over e	thernet commun	ication DTM	Industrial Auton	nation
	🗖 र 😤 🖈 🛛 🕴	🔊 🗘 😻	IP‡ IP†   + <b>0</b>   È	1 🖷 🛨 🗉	Busa	lddress manage	ement
	Online available devices	Add devices ma	anually				
	Linksys Adapter (192.168.1	.48/255.255.255	5.0)				-
	Device type	Online ID	IP address	Netmask	Gateway	Ethernet address	Mode
	PEN20-16DXP	1500027	<u>192.168.1.33</u>	255.255.255.0	192.168.1.1	00:07:46:BB:20:01	PGM

Press Apply and follow dialog:

Image: Second state sta											
Linksys Adapter (192,168,1.4						-					
Device type	Online ID	IP address	Netmask	Gateway	Ethernet address	Mode					
🖉 FEN20-16DXP	1500027	<u>192.168.1.44</u>	255.255.255.0	192.168.1.1	00:07:46:88:20:01	PGM					
BL Service Ethernet Busaddress managem       Image: BL Service Ethernet Busaddr											
Device type	Online ID	(	Yes	No	hort name						

### New IP address is accepted:

🗖 • 🖹 🔹 🔊	🤍 😻 🗍	Bus	address manage	ement							
Online available devices Add devices manually											
Linksys Adapter (192.168.1.48/	Linksys Adapter (192.168.1.48/255.255.255.0)										
Device type	Device type Online ID IP address Netmask Gateway Ethernet address Mode										
7 FEN20-16DXP	1500027	255.255.255.0	192.168.1.1	00:07:46:88:20:01	PGM						

- -

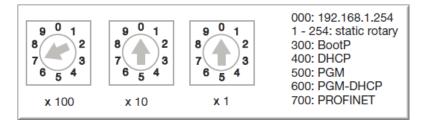
### FEN20 Start-up Guide RESTORE Mode (0)

The RESTORE mode is a special mode which restores the IP address to the factory default values. Station responds to PING command, but it does not operate when switches are set to 0.

Set all three rotary switches to 0 and cycle the power to the station. It instantaneously restores IP address, Mask and Gateway as follows:

- IP address: 192.168.1.254
- Mask: 255.255.255.0
- Gateway: 192.168.1.1

Set rotary switches to any position as following diagram and cycle device power:



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# RECOVERY Mode (900)

The RECOVERY mode (900) is a special mode which resets all device resources to factory default values. It will clear all previously assigned parameter values to the device. Set rotary switches to 900 and cycle the power to the device. Wait for a moment, set rotary switches as previously described and cycle device power again.

# EtherNet/IP Configuration

Following section provides information how to configure FEN20 product line with Rockwell Automation Logix controllers (mainly ControlLogix, GuardLogix, CompactLogix controllers). Third party devices may be configured using two different configuration methods which depend on a controller revision:

- Device configuration using EDS file (Electronic Data Sheet): All Log ix controllers, revision 20.00.00 and above, s upport device configuration using EDS files (EDS profiles) and configuration assembly data
- Device configuration using Ethernet Generic Profile: All Logix controllers, revision 19.01.00 and below, support device configuration using Ethernet Generic Device profile and Catalog files based on CIP bridging device concept

## FEN20 Configuration using EDS Files

An EDS file which supports configuration assembly data can be imported into RSLogix5000 project as a third party Add-on-Profile d evice. O nce it is imported, L ogix D esigner c reates d evice c onfiguration t ag t hat c ontains its configuration data. It is saved in the project and it is pushed to the device whenever connection between the controller and the device is established.

- -

The FEN20 device configuration procedure includes following steps:

- Configure EtherNet/IP interface
- Create RSLogix5000 project
- Install device EDS file(s)
- FEN20 general configuration
- FEN20 connection configuration
- FEN20 input, output and configuration data tags

# Configure User Interface

Configure user interface to the ControlLogix platform using RSLinx communication software and add new EtherNet/IP driver. The assign IP address is actual address of the Ethernet port of the PC:

🗞 RS	SLinx (	Classic Professional			
File	Edit	View Communica	tions Station DDE/OPC Security	y Window Help	
2	윪	50 612	<b>N</b> ?		
	Con	figure Drivers			? ×
		Available Driver Types: - EtherNet/IP Driver		▼ Add New	Close Help
		Configured Drivers: Name and Description AB_VBP-1 RUNI		Status Running	Configure Startup Start
			AB_ETHIP-1	Cancel	 Delete

Select designated driver and click apply:

- -

Configure driver: AB_ETHIP-1	? ×
EtherNet/IP Settings	
Browse Local Subnet     O Browse Remote Subnet	
Description	IP Address
Windows Default	
ASIX AX88772 USB2.0 to Fast Ethemet Adapter	192.168.1.48
Microsoft Virtual WiFi Miniport Adapter #2	unknown
Microsoft Virtual WiFi Miniport Adapter	unknown

IP address 192.168.1.48 is address of a PC's Ethernet port used for the network configuration.

# Create RSLogix5000 Project

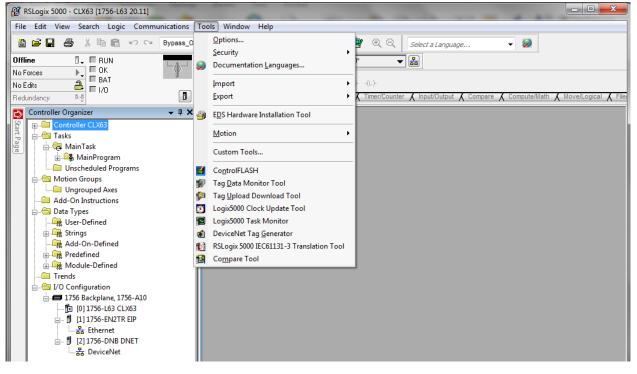
Open new RSlogix5000 project and configure your PLC

🔀 RSLogix 5000 - CLX63 [1756-L63 20.11]		x
File Edit View Search Logic Communi	nications Tools Window Help	
1 🖻 🖬 🎒 X 🖬 🖻 🗠 🗠 🛙	Bypass_Offdelay 🗸 🗸 🙀 🙀 👔 📴 📝 😰 🔍 🔍 Select a Language, 🗸 🎉	
Offline ☐ ■ RUN No Forces ■ ■ OK No Edits ▲ ■ /0 Redundancy ® 5	Path:       AB_ETHIP-1\192.168.1.63\Backplane\0"         Image: Application of the state of the	al 🔏 File/
Controller Organizer	🗢 🕂 🗶 Controller Properties - CLX63	
Controller CLX63 Tasks Tasks MainTask MainProgram Unscheduled Programs Ungrouped Axes Add-On Instructions Data Types Add-On-Defined Predefined Module-Defined Trends 1/756 Backplane, 1756-A10 1/756-EN2TR EIP Classes 1/2 Configuration 1/756 Backplane, 1756-A10 1/756 Ethernet Classes 1/2 Configuration 1/756 Backplane, 1756-A10 1/756 Ethernet Classes 1/2 Configuration 1/756 Backplane, 1756-A10 1/756 Ethernet Classes DeviceNet	Advanced       SFC Execution       File       Redundancy       Nonvolatile Memory       Memory       Security         General       Serial Port       System Protocol       User Protocol       Major Faults       Minor Faults       Date/Time         Vendor:       Allen-Bradley       Type:       1756-L63 ControlLogix5563 Controller       Change Controller         Revision:       20.11       Name:       CLX63         Description:       EIP device configuration       •         Chassis Type:       1756-A10       10-Slot ControlLogix Chassis       •         Slot:       0       •       •       •         OK       Cancel       Apply       Help	
Ready		

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#### Tools > EDS Hardware Installation Tool



#### Follow istruction of the wizard

Rockwell Automation's EDS Wiz	zard
	Welcome to Rockwell Automation's EDS Wizard
	The EDS Wizard allows you to: - register EDS-based devices. - unregister a device. - change the graphic images associated with a device. - create an EDS file from an unknown device. - upload EDS file(s) stored in a device.
	To continue click Next       Next >     Cancel

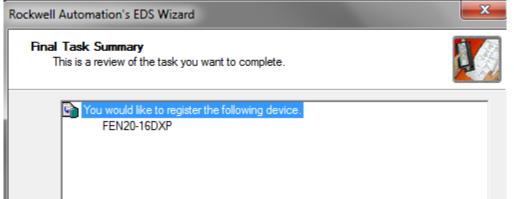
- -



#### FEN20 Start-up Guide Register a single EDS file

Registration Electronic Data Sheet file(s) will be a Automation applications.	dded to your system for use in Rockwell
• Register a single file	
$\ensuremath{\mathbb{C}}$ Register a directory of EDS files	Look in subfolders
Named:	

#### Following file is registered:



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# Configure FEN20-16DXP

Following example shows how to add FEN20-16DXP device to the project. The same procedure is used for any other FEN20 lwjerpq3rptq34ptoi module. To add new device to the EtherNet/IP network use: File > New Component > Module

👸 R	SLogix 5000 - CLX63 [1756-L63 20.11]			0.0		-	-
File	Edit View Search Logic Communications T	ools	W	indow Help			
1	New Ctrl+		Г	→ <u></u>	<b>A I</b>	୪ 🗣 ହେର୍	Select a Language
Ē	<u>O</u> pen Ctrl+ <u>C</u> lose	0	Path	: AB_ETHIP-1\192.168.	1.63\Backpla	ane\0*	▼ 品
	Save Ctrl+	s	FI		++-()-	-(U)(L)-	
	Save <u>A</u> s		<b>\</b> ₽	avorites 🖌 Add-On 👗	Alarms 🚶	Bit 🕻 Timer/Cour	nter 🔏 Input/Output 🔏 Compare 🌶
	Ne <u>w</u> Component	Þ		Add-On Instruction			
	Import Component	•	C in the second	<u>D</u> ata Type			
	Compact	_	IJ	<u>M</u> odule			
			<b>i</b>	<u>P</u> rogram			
	Page Set <u>u</u> p			<u>R</u> outine			
	<u>G</u> enerate Report			String Type			
	<u>P</u> rint	•	Ø	<u>T</u> ag	Ctrl+W		
	Print Op <u>t</u> ions		6	Tas <u>k</u>			
	1 CLX63.ACD		ً	Tre <u>n</u> d		]	
	2 CLX62V20_TBEN_QC_Eds_noxdp.ACD						
	3 C:\Users\\CLX62V20_TBEN_QC_Eds_R2.ACD						
	4 C:\Users\\2013\TBEN\TBEN_Conn.ACD						
	5 C:\Users\\CLX62V20_TBEN_DLR_1.ACD						
	<u>6</u> TBEN_Conn.ACD						
	Z C:\Users\\TBEN\CLX62V20_TBEN_DLR.ACD						
	8 C:\Users\\CLX62V20_TBEN_DLR_CELL1.ACD						
	E <u>x</u> it						

or right-click at "Ethernet" and select "New module"

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	ne, 1 63 C N2T	LX63	
器 Ethern 器 [2] 1756-[ 器 Device	IJ	New Module Discover Modules	
	ß	Paste	Ctrl+V
		Print	•



Enter Search Text for Module Ty	ре С	lear	Filter	5		Hide Filters
Module Type	e Category Filters		V	Modu	le Type Vendor Filters	
<ul> <li>Communication</li> <li>Communications Adapter</li> <li>Controller</li> <li>Digital</li> </ul>		-	▼ ▼ ▼	Allen-Bradley Advanced Micro Co Cognex Corporation Endress+Hauser		
•	Þ	•	•			۱.
Catalog Number	Description			Vendor	Category	
0005_007B_0030 0005_007B_0038 0005_007B_0039 0005_007B_003A 0005_007B_0060 0005_007F_0027 0005_007F_0028 002F_000C_000B 1305-ACDrive-EN1 1336E-IMPACTDrive-EN1	SP600 SP600 ER 400V SP600 ER 200V SP600 ER 600V Liquiflo 2.0 MD60 MD65 CJ1W-EIP21 AC Drive via 1203-EN1 AC Drive via 1203-EN1			Reliance Electric Reliance Electric Reliance Electric Reliance Electric Reliance Electric Reliance Electric Omron Corporation Allen-Bradley Allen-Bradley	DPI to EtherNet/IP DPI to EtherNet/IP DPI to EtherNet/IP DPI to EtherNet/IP DPI to EtherNet/IP MDI to EtherNet/IP MDI to EtherNet/IP Communications Add Drive	apter
1336E-IMPAC TURVE-EN1 1336F-PLUSIIDrive-EN1 1336R-REGENBrake-EN1 1336S-PLUSDriveLG-EN1	AC Drive via 1203-EN1 Brake via 1203-EN1 007-600 HP Code AC Drive	via 12 III	20	Allen-Bradley Allen-Bradley	Drive Scrol	I to find evice

# By searching specific name:

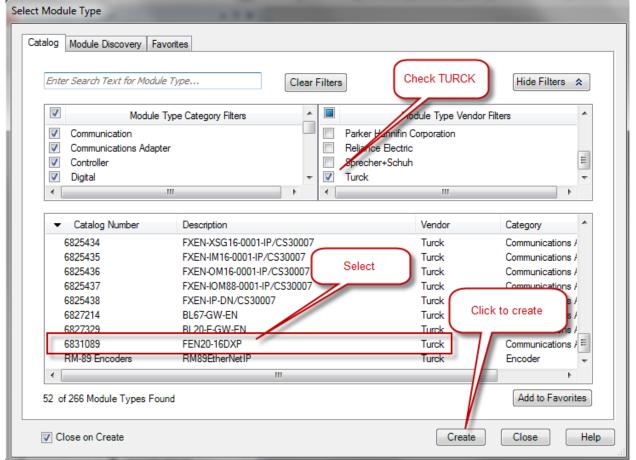
- -

FEN2	20	C	lear	Filters	Hi	ide Filters 🕱
	Module Type Category Filte	rs			Module Type Vendor Filters	
	Communication				Advanced Micro Controls Inc. (AMCI)	Ξ
1	Communications Adapter				Allen-Bradley	
	Controller				Cognex Corporation	
	Digital		Ŧ		Endress+Hauser	-
•			•	•	III	•

- -



Or by flitering the "Module Type Vendor Filters" to serch specific products, as follows:



If device name does not appear in the list of registered device, either device EDS file is not installed or installation failed.

- -



Enter required data into the "**New Module**" general page: • Name (tag name) and description

- -

- IP address •
- Click "Change" to open Module Definition page •

General <u>Conn</u> Type: Vendor:	ection   Module Info   Internet Protocol   Port Conf 6831089 FEN20-16DXP Turck	
Parent: Name: Description:	EN2TR FEN20 Enter device description or comments, e.g.: FEN20-16DXP FW V3.0.6.0 EIP V2.5.0.0 MAC 00:07:46:80:00:01	Ethernet Address  Private Network: 192.168.1. 44  IP Address: Host Name:
Module Defir Revision: Electronic K Connections	2.5 aying: Compatible Module	Click to select proper connection and device data type. TURCK devices support INT data format.



## FEN20 Start-up Guide Module Definition Data Format

*FEN20 supports INTEGER data format only*. It is important to edit and change data format used by RSLogix5000 to match INTEGER. A failure to do so may case erronious IO data or inoperable IO data update. Use "Change" button to:

- Change data format to INTEGER
- Review connection type

FEN20 supports following connections:

- Exclusive Owner
- Input Only Connection
- Listen Only Connection

#### Note:

Exclusive Owner connection is the preferd, default, connection type use by the device. Input Only and Listen Only connections are used to configure the device with multiple PLC's and they do not support configuration assemblies.

The "Module Definition" page provides following setup options:

- -

Module Definition*  Revision:  Electronic Keying: Comp. Connections:	▼ 5 <sup>★</sup>	Module Defini Revision: Electronic Keying: Connections:	2 •	5 💭 ule 🔹
Name	Size	Name		Size
Exclusive Owner	Input: 10 Output: 4	Exclusive Own	ner Output:	5 INT
Exclusive Owner Input Only Connection Listen Only Connection	]		Must use	SINT INT
ОК	Cancel Help		OK Cano	cel Help
uired setup for the		erties: FN2TR (6831089.2.5)		



		onfiguration	
Type:	6831089 FEN20-16DXP	Module Definition*	_
Vendor:	Turck		
Parent	EN2TR	Revision: 2	- 5 🚔
Name:	FEN20	Electronic Keying: Compatil	ble Module .
Description:	Enter device description or comments, e.g.:	Connections:	
	FEN20-16DXP FW V3.0.6.0	Name	Size
	EIP V2.5.0.0 MAC 00:07:46:80:00:01	Exclusive Owner	Input: 5 INT
	11AC 00.01.40.00.0101		Output: 2
Module Defi	nition		
Revision:	2.5	Required setup	
Electronic K			
Connection:			
Connection	Exclusive Owner	ОК	Cancel Help
	Chan	ge	



## Communication RPI, Multicast / Unicast

The "Connection" tab is used for selecting:

- RPI (Requested Packet Rate) is a scheduled interval when a Target (FEN20) and Origin (controller) transmit data. The connection timeout may occure after 4xRPI time, when either Target or Origin stops sending data.
- Unicast:
  - Used for point-to-point communication (TCP, UDP)
  - Both Producer /Consumer use IP address classes A, B, or C for data exchange
  - No need to process and reject multicast packets
  - Reduces burden on all EIP participants
- Multicast:
  - Used for one-to-many communications (UDP)
  - Multicast allows for multiple consumers. However, a single consumer is supported
  - With multiple consumers, multicast is more timely efficient than unicast
  - Uses IP address class D (multicast addresses, e.g. 239.192.1.2)

New Module						
General* Connection* Module Info* Internet Protocol*	Port Configuration*					
Name	Requested Packet Interval (RPI) (ms)	Input Type	Input Trigger			
Exclusive Owner	20.0 ≑ 1.0 - 3200.0	Unicast 🔹	Cyclic 🚽			
Increase or decrease RPI interval per project requirements.	re		n with multiple illers.			
Status: Creating	(	ОК	Cancel Help			

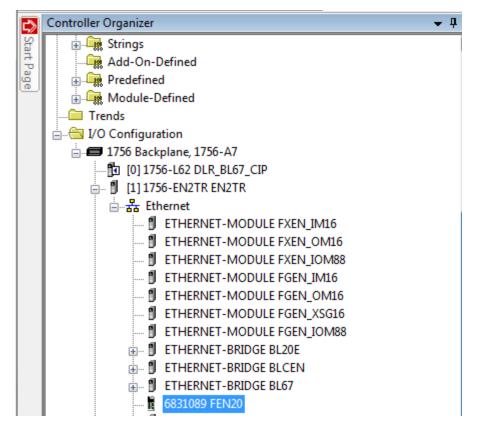
- -

Following dialog to complete device configuration.



# Input, Output and Configuration Data Tags

The new device, after being configured, is added to the Controller Oranizer and associated input, output and configuration tags are created at the Controller Tags level.



Input data tag content:

Note: Device "ConnectionFaulted" flag is attached to the input data by the controller.

Scope: DLR_BL67_CIP - Show: All Tags - T. Enter							
Name	Data Type	Description					
	_0030:68310	Input (Produced) data					
FEN20:1.ConnectionFaulted	BOOL	Controller provided connection status					
FEN20:1.Data	INT[5]	Input (Produced) data					
	INT	FEN20 status word					
	INT	Input data					
	INT	Scheduled diagnostics					
	INT	Scheduled diagnostics					
	INT	Scheduled diagnostics					



(	Output data tag content:								
	Scope: DLR_BL67_CIP    Show: All Tags     ▼.								
Name Data Type Description									
		E-FEN20:I			_0030:68310	Input (Produced) data			
					_0030:68310	Output (Consumed) data			
		- FEN20:0.Data		INT[2]	Output (Consumed) data				
				INT	FEN20 control word				
				INT	Output data				

#### Configuration data tag content:

- -

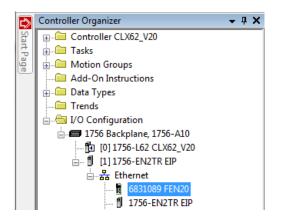
Scope: DLR_BL67_CIP - Show: All Tags - V.							
Name Data Type Description							
	E-FEN20:C	_0030:68310	Configuration assembly				
	FEN20:C.Quick_Connect_0	BOOL	1 = Enable QuickConnect				
		_0030:68310	Input (Produced) data				
		_0030:68310	Output (Consumed) data				

Note: The "Quick\_Connect" parameter may be used only in conjuction with QC infrastructure and program control. When enabled, it causes ethernet ports to be set as described in the FEN20 and QC section of the document.



## FEN20 Profile Info

The device property is a subject to change. It also provides path to check installed EDS file: right-click on the device and select *"Properties"*:



Click on marked icon and follow instructions:

- -

1	Module Propert	ies: EIP (6831089 2.5)		
Γ	Gen (al Connec	ction Module Info Internet	Protocol Port Configuration	<u>^</u>
	Туре:	6831089 FEN20-16DXP	About RSLogix 5000 Module Profile Info	
		e icon and lect	6831089 FEN20-16DXP	
		dule Profile	Core:	
	Name:	FEINZU	RSLogix 5000 Module Profile Core	
	Description:	Enter device description or	Software Version Installed: 8.01.2627.0	44 🚔
		FEN20-16DXP FW V3.0.6.0	Module Vendor:	
		EIP V2.5.0.0.	Turck	
		MAC 00:07:46:80:00:01		
			EDS File: Revision: 2.3	
			Creation Date: 4/15/2013	
	⊂ Module Definit	tion	Creation Time: 5:03:31 PM	
	Revision:	2.5	Modification Date: 8/20/2013	
	Electronic Ke		Modification Time: 1:44:05 PM	
	-		View EDS File	
	Connections:	Exclusive Owner		
			ОК	
			file and installed	
		EDS	S file	-
1	III			 ₽
1				



## FEN20 Start-up Guide FEN20 Configured as Ethernet Generic Device

Earlier versions of RSlogix5000 Programming Software and Logix controllers, revision 19 or less do not support EDS files. Third party devices are configured using Ethernet Generic profile. It generally creates input, output and configuration tags as array of data. Configuration data is manually entered. A device is implicitly configured using one of the following connections: Exclusive Owner (default), Input Only or Listen Only connection.

The FEN20-16DXP device configuration procedure includes following steps:

- Create RSLogix5000 project
- Add new device
- Configure connection data
- Review input, output and configuration data tags

- -

## Create a New RSLogix5000 Project

RSLogix 5000 - CLX63_V19 [1756-L63 19.11]*	SLogix 5000 - CLX63_V19 [1756-L63 19.11]*						
File Edit View Search Logic Communications Tools Wind	ow Help						
🛅 📂 🛃 🎒 👗 🖙 🖙 🖼 Bypass_Offdelay	🗸 🐥 🍇 🚡 📝 🕂 🔍 🔍 Select a Language 🗸 🤣						
Offline       Image: Controller Organizer       Image: Controller CLX63_V19         Redundancy       Image: Controller CLX63_V19       Image: Controller CLX63_V19         Image: Controller CLX63_V19       Image: Controller CLX63_V19							
Create Output Unlatch instruction							
L							



## Add New Device

Right click to add new module:

⇔	Controller Organizer	<b>→</b> 中 ×	
Sta	🚛 🗀 Controller CLX63		
Start Page	🗄 🗀 Tasks		
age	🗄 🧰 Motion Groups		
	🛁 Add-On Instructions		
	🗄 🗀 Data Types		
	🗀 Trends		
	🗄 📇 I/O Configuration		
	🚊 🛲 1756 Backplane, 1	L756-A10	
	- [0] 1756-L63 (	CLX63	
	🚊 🖞 [1] 1756-EN21	TR EIP	
	🚊 📲 Ethernet		
	- 🖞 17: 🖞	New Module	
	🗒 681	Discover Modu	les
	R	§ Paste	Ctrl+V
		Print	•

Select "ETHERNET-MODULE" and click "OK":

Sele	ect Module			x
Modu	ule	Description	Vendor	
	ETHERNET-BRIDGE	Generic EtherNet/IP CIP Bridge	Allen-Bradley	•
	ETHERNET-MODULE	Generic Ethernet Module	Allen-Bradley	
	EtherNet/IP	SoftLogix5800 EtherNet/IP	Allen-Bradley	
	In-Sight 1700 Series	Vision System	Coonex Corporation	

New device configuration page looks as follows:

- -

Type: Vendor: Parent:	ETHERNET-MODULE Generic Ethern Allen-Bradley EIP	et Module			
Name:		Connection Pa	rameters		
Description:			Assembly Instance:	Size:	
		Input:		125	🚔 (32-bit)
	<b></b>	Output:		124	🚔 (32-bit)
Comm Forma	t: Data - DINT 🔹 👻	Configuration	r	0	(8-bit)
-Address / H	fost Name	Configuration		_	- (0 bk)
IP Addr	ess:	Status Input:			_
🔘 Host Na	ime:	Status Outpu	t:		



Enter following data and click OK:

- Name
- CommFormat field : Data INT
- IP address
- Assembly instances and size per Table 2.1:

New Module					×
Type: Vendor: Parent:	ETHERNET-MODULE Generic Etherr Allen-Bradley EIP				
Name:	FEN20	Connection Para			
Description:	FEN20-16DXP		Assembly Instance:	Size:	
		Input:	103	5	🗧 (16-bit)
	<b>.</b>	Output:	104	2	🗧 (16-bit)
Comm Format	Data - INT 🔹	Configuration:	106	0	(8-bit)
Address / H	ost Name	Conliguration.			(0-01()
IP Addre	ss: 192 . 168 . 1 . 44	Status Input:			
🔘 Host Na	me:	Status Output:			
🔲 Open Modu	ile Properties	ОК	Cano	el	Help

The device is implicitly configured with the controller using "Exclusive Owner" connection. It is defult connection and only one that supports configuration assembly data.

Table 2.1 contains assembly instance and data size information for the FEN20 product family. The configuration assembly data is pushed to the device during the communication startup (a Forward Open request).

Exclusive Owner connection	Input assembly instance	Input size	Output assembly instance	Output size	Configuration assembly instance	Configuration size	Table 2.1 –
FEN20-16DXP	103	5	104	2	106	0	

Exclusive Owner configuration data

Configure connection data according to the project requirements:

- -

Module Properties: EIP (ETHERNET-MODULE 1.1)								
General Connection Module Info								
Requested Packet Interval (RPI): 10.0 + ms (1.0 - 3200.0 ms) Inhibit Module Major Fault On Controller If Connection Fails While in Run Mode Use Unicast Connection over EtherNet/IP								



## **Configuration Assembly Data**

The device Configuration data is an array of data saves in a PLC. It pushes configuration to the device during the Forward Open request. That occurs every time when device is connected, or power reset or replaced with the same model.

Following table shows the structure of the FEN20-16DXP configuration data:

FEN20-16DXP												
	Bit7	BIt6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0				
Byte0												
Byte1												
Byte2												
Byte3												
Byte4		Reserved										
Byte5												
Byte6												
Byte7												
Byte8												
Byte9		Reserved QC										
Byte10-15	Reserved											

#### Table 2.4 – FEN20-16DXP configuration data

- -

Abbreviations:

QC - Quick Connect



## Input Only Connection Configuration

Input Only connection is used to configure a device when:

- It is configured with multiple PLCs (max three) where only one is Ecxlusive Owner
- Other PLCs get input data only. They maintaine connection if exclusive owner is closed
- PLCs have to be set to the same RPI and must use MULTICAST messaging. PLCs may reside on different subnets, VLANs, when infrastructure is available.
- Enter following data and click OK:
- Name
- CommFormat field : Input Data INT
- IP address
- Assembly instances and size per Table 2.2:

New Module								
Type: Vendor: Parent: Name: Description:	ETHERNET-MODULE Generic E Allen-Bradley EIP FEN20 FEN20-16DXP	thernel	t Module - Connection Para	ameters Assembly Instance:	Size:			
	Input Only connection	Î	Input:	103	5	🚔 (16-bit)		
	EII 72.0.0	Ŧ	Output:	254				
Comm Format:	Input Data - INT	•	Configuration:	106	0	🚔 (8-bit)		
Address / H	ost Name		coninguration.		-			
IP Addre	ss: 192 . 168 . 1 . 44		Status Input:					
🔘 Host Nar	me:		Status Output:					
🔲 Open Modu	le Properties		OK	Cano	el	Help		

The device is implicitly configured with the controller using "Input Only" connection. Table 2.2 contains assembly instance and data size information for the FEN20-L1 product family.

	Input Only connection	Input assembly instance	Input size	Output assembly instance	Output size	Configuration assembly instance	Configuration size	Table 2.2 – Input
	FEN20-16DXP	103	5	254	n/a	106	0	Only
ĺ								

configuration data

#### Note: If multiple connections to the device are used, then use casme RPI and Multicast

Requested Packet Interval (RPI): 10.0 🔿 ms (1.0 - 3200.0 ms)								
Inhibit Module								
Major Fault On Controller If Connection Fails While in Run Mode								
Use Unicast Connection over EtherNet/IP								

- -



# Listen Only Connection Configuration

Listen Only connection is used to configure a device when:

- It is configured with multiple PLCs (max three) where only one is Ecxlusive Owner
- Other PLCs get input data only. They drop connection if exclusive owner is closed
- PLCs have to be set to the same RPI and must use MULTICAST messaging. PLCs may reside on different subnets, VLANs, when infrastructure is available.

Enter following data and click OK:

- Name
- CommFormat field : Input Data INT
- IP address
- Assembly instances and size per Table 2.3:

New Module						×
Type: Vendor: Parent:	ETHERNET-MODULE Gener Allen-Bradley EIP	ic Ethernel				
Name:	FEN20		<ul> <li>Connection Para</li> </ul>	ameters Assembly		
Description:	FEN20-16DXP			Instance:	Size:	
	Input Only connection EIP V2.5.0.0		Input:	103	5	🚔 (16-bit)
	EII V2.3.0.0	Ŧ	Output:	255		
Comm Format	: Input Data - INT	-	Configuration:	106	đ	(8-bit)
Address / H	łost Name		configuration.			(0 DK)
IP Addre	ess: 192 . 168 . 1 .	44	Status Input:			_
🔘 Host Na	me:		Status Output:			
🔲 Open Mode	ule Properties		ОК	Can	cel	Help

The device is implicitly configured with the controller using "Input Only" connection. Table 2.3 contains assembly instance and data size information for the FEN20-L1 product family

Listen Only connection	Input assembly instance	Input size	Output assembly instance	Output size	Configuration assembly instance	Configuration size	Table 2.3 – Listen
FEN20-16DXP	103	5	255	n/a	106	0	Only

#### configuration data

#### Note: If multiple connections to the device are used, then use casme RPI and Multicast

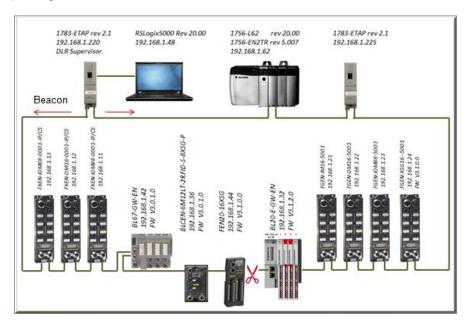
	Requested Packet Interval (RPI): 10.0 🚔 ms (1.0 - 3200.0 ms)							
	🔲 Inhibit Module							
	Major Fault On Controller If Connection Fails While in Run Mode							
	Use Unicast Connection over EtherNet/IP							
_								

- -

## FEN20 Start-up Guide FEN20 and DLR Network

A Device Level Ring (DLR) network is the EtherNet/IP network capable of fast recovery and uninterrupted service in case of a single break point in network topology. It consists of a ring supervisor and ring nodes connected in closed loop, ring topology. The ring supervisor maintains DLR protocol, performs fast fault detection and reconfiguration of the network architecture into a linear in less than 3msec for 50 node network.

Nodes do not require any DLR related configuration and no external switches are necessary. Following image illustrates a simple ring network:



## FEN20 DLR features

FEN20 series is designed to meet DLR network requirements including:

- Compliance with the DLR and QoS Object Specification, Volume 2: EtherNet/IP Adaptation of CIP, Chapter 5: Object library, Edition 1.15
- Integrated embedded switching technology that supports two external and an internal Ethernet ports with following features:
  - Auto-negotiation, with 10/100Mbps, full/half duplex
  - Forced setting of speed/duplex

- -

- Turn off flow control on ring ports;
- Auto MDIX (medium dependent interface crossover), in both auto-negotiate and forced speed/duplex modes.
- Fault detection in the ring topology on either Ethernet port to the left or right of the breaking point and error reporting to the supervisor

## FEN20 and QC startup

The Quick Connect (QC) provides high device availability during startup of EtherNet/IP network. Typical application where it is implemented is a f requent robot tool exchange along as sembly lines in the automotive industry, Figure 1.

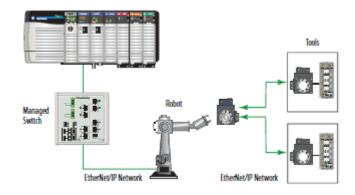


Figure 1: Tool exchange

When new tool is engaged and locked into the robot arm, it generates a high lock signal to the Logix controller which starts the QC allocation sequence. The QC sequence has to be complete in less than 350msec. The QC is supported by Logix controller's revision 20.00.00 and above.

## The Quick Connect Sequence

Following sequence of events describe Quick Connect application:

- The Logix controller inhibits current QC modules and turns power OFF
- The robot arm physically disengages a tool
- The robot arm physically attaches a new tool that has one or more QC modules mounted on the tool
- The robot acknowledges successful attachment of a tool with appropriate lock signal
- The Logix controller turns power ON to the QC modules when lock signal is received
- The Logix controller waits for QC modules to complete initialization before it un-inhibits device
- The robot is ready for operation when connections with device are established

## Ethernet port setup

FEN20 Ethernet ports are marked as:

- "P1", Ethernet port 1
- "P2", Ethernet port 2

Note that it is essential to connect incoming Ethernet cable to P1. When QC is enabled, Ethernet ports are set as follows:

Ports	Auto-negoti-	Port	Forced speed	Speed	Duplex
	ate	Mode	/ duplex		
P1	Disabled	MDI	Enabled	100	Full
P2	Disabled	MDIX	Enabled	100	Full

### **Enable QC**

• If FEN20 is configured using EDS file, set QC parameter to 1:

9	Scope: DLX62_V20 - Show: All Tags							
	Name	Value 🗲	SIEB A	Data Type	Alias	Description		
	E-FEN20:C	{}		_0030:683				
	FEN20:C.Quick_Connect_0	0	Decimal	BOOL		1 = QC Enabled		
		{}		_0030:683				
		{}		_0030:683				

• If FEN20 is configured as Ethernet Generic module, set "... C:Data[9]:= 1"

Scope: 🛐 CLX63_V19 🗸 🗸	Show: /	All Tags			•
Name	Value 🗲	SEE A	Data Type	Alias For	Description
E-FEN20:C	{}		AB:ETHER		Configuration data
FEN20:C.Data	{}	Decimal	SINT[400]		Configuration data
FEN20:C.Data[0]	0	Decimal	SINT		Configuration data
	0	Decimal	SINT		Configuration data
	0	Decimal	SINT		Configuration data
	0	Decimal	SINT		Configuration data
	0	Decimal	SINT		Configuration data
	0	Decimal	SINT		Configuration data
FEN20:C.Data[6]	0	Decimal	SINT		Configuration data
	0	Decimal	SINT		Configuration data
+-FEN20:C.Data[8]	0	Decimal	SINT		Configuration data
+-FEN20:C.Data[9]	1	Decimal	SINT		1 = QC Enabled
+-FEN20:C.Data[10]	0	Decimal	SINT		Configuration data

- Download configuration to the PLC and connect the gateway
- QC mode will be executed during the next gateway power-up and subsequent power cycles

## Disable QC

- Clear QC attribute of the configuration assembly instance 106, byte 10
- Download configuration to the PLC and connect the gateway
- Standard mode is executed on the next and subsequent power cycles of the gateway

- -

### Reset to factory default

- Set the rotary switches to 900 and cycle power to the module
- Set the rotary switches to 100 and cycle power to the module
- The module is reset to factory default settings and
  - IP address 192.168.1.100
  - Mask 255.255.255.0
  - Gateway 192.168.1.1

- -

## QC startup time

The startup time is 200msec.

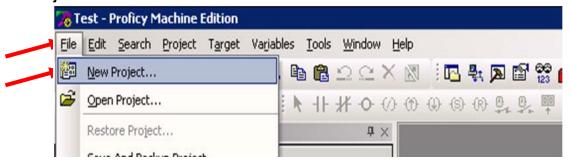
# **PROFINET** Configuration

### Setup

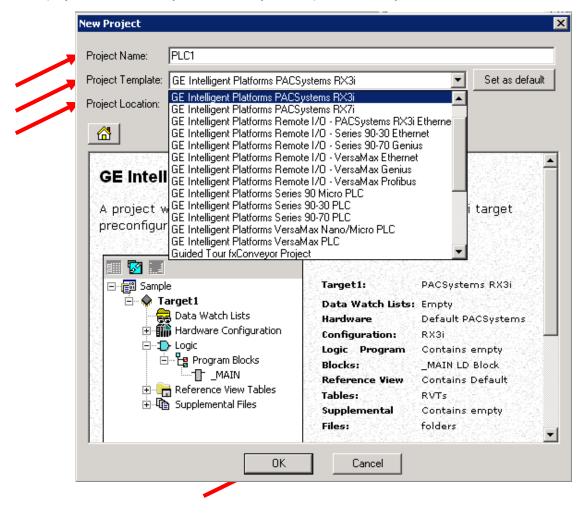
# **GE Proficy Machine Edition Setup**

It is assumed that there is working knowledge of GE Proficy Machine Edition. If not, please refer to the <u>GE Proficy Machine Edition Manual</u>.

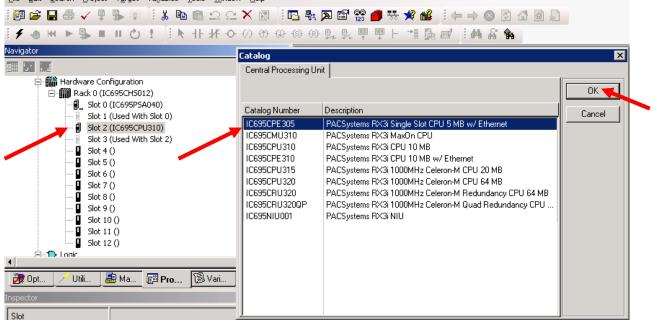
Create a New project in Proficy using New Project Wizard or Open Project **File -> New Project** 



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

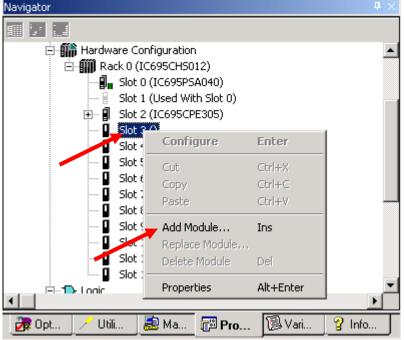


Once the project is in Proficy, Right click on the Processor and select the CPU . Click "OK" Elle Edit Search Project Target Variables Iools Window Help



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

- -



TURCK

Industrial Au<mark>tomation</mark>



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".

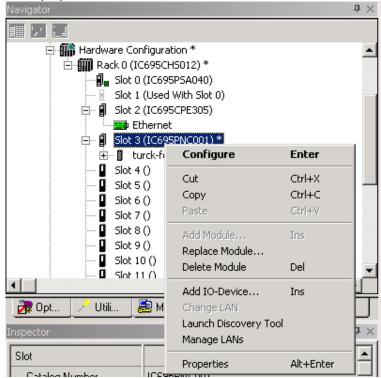
- -

Catalog	×
Central Processing Un	ut
Discrete Input Discr	ete Output   Discrete Mixed   Analog Input   Analog Output   OK
Analog Mixed Comm	nunications Bus Controller   Motion   3rd Party   Power Supplies
Catalog Number	Description
IC693BEM321	90-30 Fanuc I/O Link Module (Master)
IC693BEM331	90-30 Genius Bus Controller (GBC)
IC693BEM341	90-30 2.5 MHz FIP Bus Controller
IC693DNM200	90-30 DeviceNet Master
IC694BEM321	90-30 Fanuc I/O Link Module (Master)
IC694BEM331	RX3i Genius Bus Controller (GBC)
IC694DNM200	RX3i DeviceNet Master
IC695PBM300	RX3i Profibus Master
IC695PNC001	RX3i PROFINET Controller (2 SFP)

# IP Addressing

In Turck products, the IP addressing can be set by either connecting to the Turck Gateway through Pactware, the IP address tool, or through Internet Explorer or modifying the first three octets of the IP Address. The last octet will be set by the rotary dials or dip switches.

• 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	

Connection	Connection Settings					
Connection: Local Area Connection 2 LAN: LAN01 Status: No Errors				Refresh Device List		
				<b>•</b>		
Status	Device Name	Δ	IP Address	Vendor	Device Type	
<b>Q</b>		•	192.168. 1. 2	Hans Turck GmbH + Co. KG	FEN20-16DXP	
2	fgen		192.168. 1.111	Hans Turck GmbH + Co. KG	FGEN-IOM88-5001	
٠	pn-io		192.168. 1.77	Siemens	\$7-300	
Filters (3/3)		Selection	Properties			
💌 🚫 Assign	ied	MAC Add	ress: 00-07-46-FF-40-CF	IP Address: 192.168.1.2	Identify Device	
🔽 🔞 Assign	ed with errors	Device R Vendor ID	013D	Subnet Mask: 255,255,255,0 Gateway: 192,168,1,1	Edit Device	
🗹 🥐 Not as	signed	Device ID	9001			



• 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 identifing the device, the LEDs on the gateway will flash. When Done click on the exit button

	erties		
VendorName: Ha MACAddress: 00 DeviceType: FE		Vendor ID: 013D Device ID: 9001 Device Role: Device	Identify Devic
Device Name			Set Device Nan
NP Address IP Address: Subnet Mask: Gateway:	192.168.1.2 255.255.255.0 192.168.1.1		Set IP Informatio
Reset device to fa	actory settings	<u> </u>	Reset Device

- -



# Installing GSD / GSDML Files in the Hardware Configuration

In the Toolchest window click on the dropdown arrow and select a Profibus /Profinet Device.

Toolchest	Ф ×
Profibus Devices	<b>~</b>
- 🎉 🗄 All Drawers	
Project	
PLC1	
- 🍋 9030 Ethernet NIU	
— 🍋 Basic Data Types	
— 🍋 Basic Enum Types	
- 🍋 DeviceNet Devices	
- 🖰 FBD Instructions	
— 🍋 Guided Tour	
— 🍋 HART Utilities	
- Constructions	
— 🍋 Motion Developer	
— 🍋 Motion Developer Flowchart	
— 🍋 PACSystems ENIU High Availabily Enablers	
- C FBD Instructions	
- C Ladder Instructions	
- C SFC Instructions	
🗕 🍋 Profibus Devices	
- 🍋 Profinet Devices	

Right mouse click on the Toolchest window, click Assistants -> Add GSD File...

- -

🍋 Profibus Devices		
	Collapse All	
<ul> <li>HORNER ELECTRIC</li> <li>TOTAL CONTROL PRODUCTS</li> <li>TURCK INC_</li> <li>WHEDCO, INC_</li> </ul>	New Drawer Rename Drawer Delete Drawer De	el
	Export Drawer Import Drawer Import Drawer as Copy	
	Scan for new objects	
	New Folder	
	Assistants	Add GSD File     Write To GSD File     Update From GSD File



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

Choose a GSDML	file to import					? ×
Look in:	C FEN20		•	🗢 🔁	📸 🎹	
		JRCK-FEN20-2013070 URCK-FEN20-201307				
My Recent Documents						
Desktop						
🤌 😥 Mu Doouroonto						
My Documents						
My Computer						
						0
My Network Places	File name:	1			<u> </u>	Open
	Files of type:	GSDML Files (GSD)	ML*.xml;GSDML*.	.zip)	<u> </u>	Cancel

• 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.

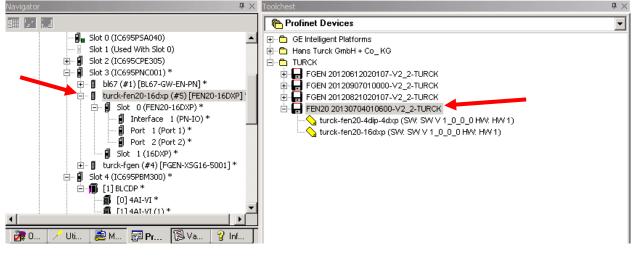
- -

• All Profinet files are .XML files.

Adding a Profinet Device onto the Network.

- Toolchest 🖰 Profinet Devices -🚰 All Drawers 🖳 Project - 📲 PLC1 🔳 Local 👘 9030 Ethernet NIU 🚰 Basic Data Types 🕐 Basic Enum Types 🚰 DeviceNet Devices FBD Instructions 😤 Guided Tour 陓 HART Utilities ED Instructions 🍋 Motion Developer Motion Developer Flowchart 降 PACSystems ENIU High Availabily Enablers PC FBD Instructions 🚰 PC Ladder Instructions PC SFC Instructions 🖰 Profibus Devices - 🍋 Profinet Devices 🚰 RX3I Ethernet NIU 隋 VersaSafe Integration 隋 View (QuickPanel) Expert Objects 隋 View (QuickPanel) Scripting 🕅 View ActiveX objects 🚰 View Expert Objects 🍋 View Scripting
- 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. .

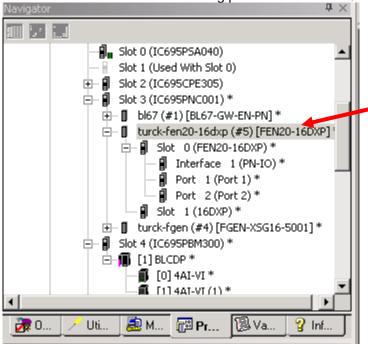


• Once it is under the Profinet, click on the gateway and the device name and IP Address will be in the Inspector. This must match the configuration downloaded to the gateway when using the network discovery tool.

Navigator	<b>†</b> ×			
	(IC695PSA040)			
	(Used With Slot 0)			
	(IC695CPE305)			
	(IC695PNC001) * 57 (#1) [BL67-GW-EN-PN] *			
	rck-fen20-16dxp (#5) [FEN20-16DXP]			
	Slot 0 (FEN20-16DXP) *			
	🔋 Interface 1 (PN-IO) *			
	Port 1 (Port 1)*			
	🗐 Port 2 (Port 2) * Slot 1 (16DXP) *			
	rck-fgen (#4) [FGEN-XSG16-5001] *			
$\square \square $				
🖻 📲 [1] BLCDP *				
🗊 [0] 4AI-VI *				
IIIII	[1] 4AI-VI (1) *			
	M 📴 Pr 🔞 Va 💡 Inf			
Inspector	+ ×			
IO-Device				
Device Number	5			
Update Rate (ms)	128			
Reference Variable	<none></none>			
Network Identification				
IO LAN	LAN01			
Device Name	turck-fen20-16dxp			
Device Description				
IP Address	192.168.1.2			
⊟General				
	GSDML-V2.2-TURCK-FEN20-20130704			
GSDML	G3D/ME-92.2-10116/(1EN20-20130104			
GSDML Device Type	FEN20-16DXP			
	FEN20-16DXP			
Device Type	FEN20-16DXP			

- -

• Double click on turck-fen20=16dxp to bring up the properties / station parameters of the gateway. Double click on slot 1 to bring parameters for the 16 DXP points



- -



	<ul> <li>This will bring up the GW</li> </ul>	/ parameters for Profinet.	
	PROFINET DCP - Direct Connection (0	0.3.5.1) 16DXP (0.3.5.0) FEN20-16DXP	₹ ×
ľ	10-Device Access Point   Media Redundand	y Station parameter Protocol selection GSDML Details	
	Output behaviour at communication loss:	Set to zero	•
	Disable all diagnosis:		
	Disable output power diagnosis:		
	1/O Assistant Force Mode disabled:		

### • After changing the parameters click the X to close the window.

- -

4	PROFINET DCP - Direct Conr	nection (0.3.5.1) 16DXP (0.3.5.0) FEN20-16DXP		= ×
	Settings Inputs/outputs GS	DML Details		
l	Digital input 1::	Normal	•	-
l	Digital input 2::	Normal	•	
l	Digital input 3::	Normal	•	
l	Digital input 4::	Normal	•	
l	Digital input 5::	Normal	•	
l	Digital input 6::	Normal	•	
l	Digital input 7::	Normal	•	
l	Digital input 8::	Normal	•	
l	Digital input 9::	Normal	•	
l	Digital input 10::	Normal .	•	
l	Digital input 11::	Normal	•	
l	Digital input 12::	Normal	•	
l	Digital input 13::	Normal	•	
l	Digital input 14::	Normal	•	
l	Digital input 15::	Normal	•	
l	Digital input 16::	Normal	•	
	Output 1::	Activate	•	
	Output 2::	Activate	•	
	Output 3::	Activate	•	



# Modbus TCP Configuration

The following pages contain step by step instructions to set up communication between a Turck FEN20-16DXP multriprotocol slave to a Turck VT250-57x-L7-IPM HMI display. This example will use Modbus TCP communication between the devices.

Hardware

The following hardware was used to create this startup guide.

- VT250-57x-L7-IPM – Turck programmable HMI. (note: any VT250 model can be used following the same steps)

- FEN20-16DXP Multiprotocol 16 DI/DO slave
- SE-44X-E924 9 Port Unmanaged Ethernet Switch
- Ethernet cables
- 24 VDC Power supply

### Software

The following software will be required to setup this system:

- CoDeSys V3.5 SP1 Hotfix 1 (can be downloaded from

http://pdb.turck.de/media/ en/Anlagen/SW CoDeSys v3510.zip)

- Turck IP address tool (can be downloaded from www.turck-usa.com/Support/Downloads ~ Software/)

### Setup

Hardware setup

- 1. Change the rotary switches on the FEN20 to 0,1,3 to have an IP address of 192.168.1.13
- 2. Connect VT250 and FEN20 to the Ethernet switch
- 3. Power up both devices
- 4. Setup the IP address on the VT250 using IP address tool:

- -

S	Turck IP Address Tool, Vers. 1.3			RCK			
No	Ethernet address	IP address	Netmask	Gateway	Mode	Device	utomation Version
1 2 3 4	00:07:46:24:06:0A 00:07:46:FF:40:CF 00:07:46:00:32:EA 00:07:46:00:0D:5F	192.168.1.254 192.168.1.2 192.168.1.110 192.168.1.120	255.255.255.0 255.255.255.0 255.255.255.0 255.255.255.0	192.168.1.1 192.168.1.1 192.168.1.1 192.168.1.1	PGM ROTARY ROTARY ROTARY	VT250-57x-L7-IPM	1.5.3.0 3.0.0.0 0.0.0.0 0.0.0.0
oun	d 4 Devices.						



# Setting Up the VT250 1) File, new project

🍺 Co	DeSys		
Eile	<u>E</u> dit <u>V</u> iew		_
	New Project	Ctrl+	-N
Ē	Open Project.		
	<u>C</u> lose Project		
	Save Project	Ctrl+	-S
	Save Project A	s	
	Project <u>A</u> rchive	2	•
	Source upload		
	Source downlo	a <u>d</u>	
3	P <u>r</u> int		
	Page Setup		
	Recent project	ts	•
	E <u>x</u> it	Alt+F	₹4

2) Select standard project and name it

🛅 New Proje	ect			×
Categories	:	Templates:		
	raries ojects	Empty project Standard project p	Standard project w	
A project co	ntaining one device, one ap	lication, and an empty implementa	tion for PLC_PRG	
Name:	VT250 modbus master sam	ple		
Location:	C: \Users\rsolis\Documents	Codesys	-	
			OK Cance	<b>ا</b>

- -

3) Select Turck VT250-57x and click OK

- -

Standard Pro	oject	×	
61	You are about to create a new standard project. This wizard will create the following objects within this project:		
	- A program P - A cyclic task	nmable device as specified below LC_PRG in the language specified below which calls PLC_PRG every 20 milliseconds to the newest version of the Standard library currently installed.	
	Device:	Turck VT250-57x (Hans Turck GmbH & Co. KG)	
	PLC_PRG in:	Ladder Logic Diagram (LD)	
		OK Cancel	

4) Configure the communication with VT250 in Codesys. Go to Devices, double click on Device (VT250-57x). Click on scan network to find the connected VT250

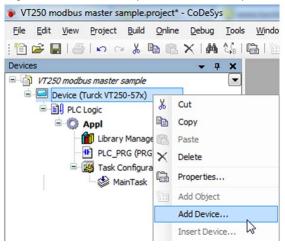
Pike Edit Wew Project Build Online Debug Tools Window Help         Image: Device Imag	VT250 modbus master sample.project - CoDeSys	had got any of the Monal for		
Device       • • • • • • •         • • • • • • • • • • • • • • • • • • •	<u>File Edit View Project Build Online Debug Tools</u>	s <u>W</u> indow <u>H</u> elp		
W1220 module master sample          Image: Communication Settings       Apple         Image: Communication Settings       Apple         Image: Communication Settings       Apple         Image: Communication Settings       Apple         Image: Communication Settings       Setect the network path to the controller:         Image: Communication Settings       Setect the network path to the controller:         Image: Communication Settings       Setect the network path to the controller:         Image: Communication Settings       Setect the network path to the controller:         Image: Communication Settings       Setect the network path to the controller:         Image: Communication Settings       Setect the network path to the controller:         Image: Communication Settings       Setect the network path to the controller:         Image: Communication Settings       Setect the network path to the controller:         Image: Communication Settings       Setect the network path to the controller:         Image: Communication Settings       Setect the network path to the controller:         Image: Communication Settings       Setect the network path to project         Image: Communication Settings       Setect the network path to project	i 🛅 🚅 🔒 i 🚑 i 🗠 🖂 🗄 🛍 🗙 i 🖊 🎼	\$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$  \$		
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Select the network path to the controller: Set active path PLC PRG (PRG) Set active path to the controller: Set active path Mode Name: Set active path Set active path CCP//P Node Name: Set active path Set active path				
Select the network path to the controller: PLC_PRG(R) Mointask		Communication Settings Applications Log PLC settings Task deployment Status Inform	mation	
Gateway-1       Istac Configuration         Image: Configuration       Image: Configuration         Image: Configuration <td></td> <td>Select the network path to the controller:</td> <td></td> <td></td>		Select the network path to the controller:		
Implementation   Imple			Set active path	
Task Configuration MainTask  MainTas				
MainTask Add device  WeinTask WainTask WainTa		Gateway-1	Gateway-1	
TCP/IP       Add device         IP-Address:       localhost         Port:       Scan network         1217       Filter :         Target ID       Sorting order :         Name       V			Add gateway	
Cahost Port I217 Filter: Farget ID Sorting order: Name Don't save network path in project	- Sharingay			
Cahost Port: 1217 Filter: Irarget ID ▼ Sorting order: Name ▼			IP-Address:	
1217       Filter:         Target ID       Sorting order:         Name       Name			localhost	
Filter : Target ID  Sorting order : Name Don't save network path in project			Port: Scan network	
Image: Don't save network path in project			1217	
Sorting order : Name			Filter :	
Don't save network path in project			Target ID 👻	
Don't save network path in project				
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		Secure online mode		
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Description Project Object Position		Description		
Description Project Position		Description	Project Object	Position
Precompile: <u>V</u> <u>V</u>	POUs Se Devices	Precompile: 1 OK		
Current user: (nobody)				Current user: (nobody)



5) Click on the desired VT250 to highlight it and click on "Set active path". The selection becomes **bold** 

VT250 modbus master sample.project* - CoDeSys	had part asynch due Month for any second sec	
File Edit View Project Build Online Debug Too	ols Window Help	
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Devices 👻 🕂 🗙	Start Page 11 Device	🗙 ToolBox 👻 म 🗙
VT250 modbus master sample	Communication Settings Applications Log PLC settings Task deployment Status Information	
Device (Turck VT250-57x)	Communication Security Applications Log PLC settings Task deployment   Status   Information	
E DLC Logic	Select the network path to the controller:	
Library Manager	Gateway-1:022D.A0FE Set active path	
PLC_PRG (PRG)	Gateway-1 Node Name:	
🖹 🔣 Task Configuration	VT250-57P-L7-DNM [02C8]	
MainTask	TVT250-57x-L7-IPM [022D.A0FE] (active)	
	022D.AOFE Add device	
	Target ID: 16#10070020	
	Target Name: E Scan network Turdk VT250-57x	
	Target Type: Filter :	
	16#1000 Target ID	
	Target Vendor:	
	Hans Turck GmbH & Co. Sorting order :	
	Name	
	Target Version: 3.5,1.0	
	🔄 Don't save network path in project	
	Secure online mode	
	Messages	<b>→</b> ₽ ×
	· 00	error(s) 😗 0 warning(s) 🟮 0 message(s)
	Description Project Object	Position
POUs 👷 Devices	Precompile: 0 <u>OK</u>	
		Current user: (nobody)

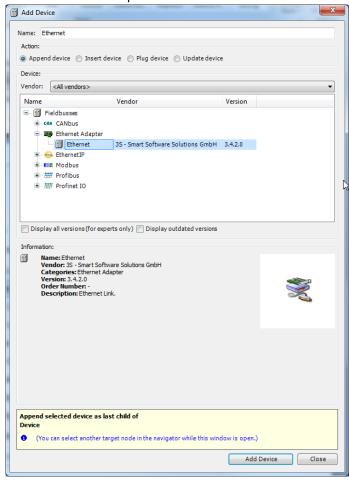
6) Right click on "Device (Turck VT250-57x)" and click on "Add device"



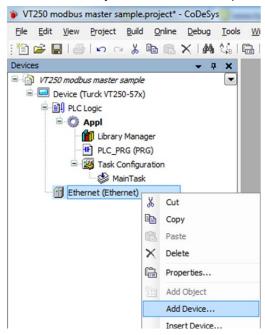
- -



7) Select "Ethernet adapter" and click "Add device"



8) Right click on the recently added Ethernet adapter and click "Add device"



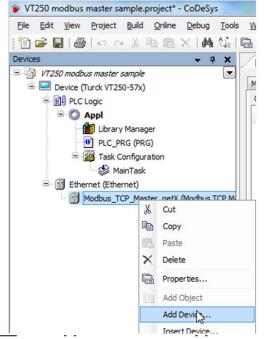
- -



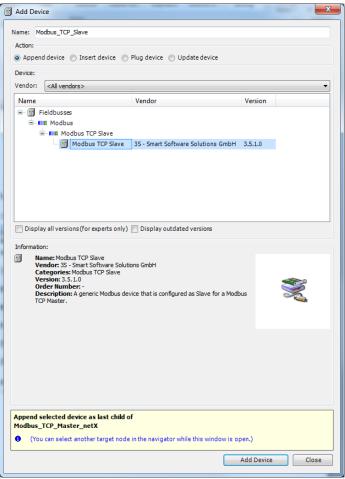
9) Select "Modbus TCP master netX" from the list and click "add device"

	Device		
Name:	Modbus_TCP_Master_netX		
Action			
	pend device 🔘 Insert device 🔘 Plug	g device 💿 Update device	
Device	2		
Vendo	or: <all vendors=""></all>		•
Nam	1P	Vendor	Version
	Fieldbusses	Vendor	reision
F			
	🖨 📖 Modbus TCP Master		
	Modbus TCP Master	35 - Smart Software Solutions GmbH	3.5.1.0
	Modbus TCP Master netX	Hilscher Gesellschaft für Systemautomation mbH	3.5.1.0
Di			
	splay all versions (for experts only)	Display outdated versions	
		mautomation mbH	
Apper Ether	hation: Name: Modbus TCP Master netX Vendor: Hilscher Gesellschaft für Syster Categories: Modbus TCP Master Version: 3.5.1.0 Order Number: - Description: A device that works as a l slaves can get connected to it.	mautomation mbH Modbus Master on Ethernet. Up too 8	
Apper Ether	hation: Name: Modbus TCP Master netX Vendor: Hilscher Gesellschaft für Syster Categories: Modbus TCP Master Version: 3.5.1.0 Order Number: - Description: A device that works as a l slaves can get connected to it.	mautomation mbH	

10) Right click on the recently added Modbus master, click on "Add device"

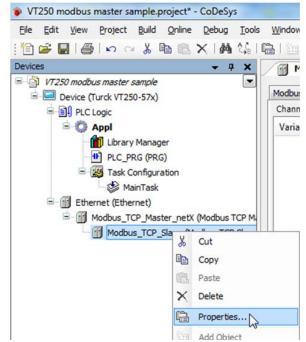


11) Select Modbus TCP slave



12) This will be the FEN20. Name can be changed by right clicking on it, and click properties

- -



### FEN20 Start-up Guide 13) Change name

Change name		
Properties - FEN20	[Device: Ethernet: Modbus_TCP_Master_netX]	x
Common Build	Access control	
Ð	FEN20	
Full name:	FEN20 [Device: Ethernet: Modbus_TCP_Master_netX]	
Object type:	Device	
Open with:	Device Editor	
	OK Cancel Apply	

- -

14) Double click on the Modbus slave to change its configuration. First we need to assign the IP address. For this example we are using 192.168.1.13

VT250 modbus master sample.project* - CoDeSys		and the second	_ 0 <b>_ X</b>
Elle Edit View Project Build Online Debug Tools Windo	low <u>H</u> elp		
1 🖌 🕞 🔄 🗠 🗠 3 🖻 🛍 X 1 🗛 🕼 🖳 1	월 - 🔓   🕮   🐝 🦚 🕞 🔲 [眞 7일 4일 7일 20 1 수		
	FEN20	- X	FoolBox 👻 म 🗙
Berne (Hack Yize Sha)     Bill (Logic     Bill (Mark Yize Sha)     Bill (Back Yize Sha)	busTCP Slave Modbus Slave Channel Modbus Slave Init ModbusTCPSlave Configuration ModbusTCPSlave I/O Mapping Status Information Modbus-TCP Slave IP Address: 192 , 168 , 1 , 13		
Task Configuration	Unit-ID [1.247] Response Timeout (ms) 1000		
Ethernet (Ethernet)     Modbus_TCP_Master_netX (Modbus TCP M.     Modbus_TCP_Slave)	Port 502		
Messag	ges		▼ Ŧ X
Build		<ul> <li>O error</li> </ul>	(s) 🕐 0 warning(s) 🚯 6 message(s)
Descrip	iption Project emory area 1 contains Retain Data: highest used address: 8150, largest contiguous memory gap: 8150 (100 %) VT250 modbus m	Object	Position
	emory area 2 contains Persistent Data: highest used address: 8150, largest contiguous memory gap: 8150 (100 %) VT250 modbus m		
	uild complete 0 errors, 0 warnings : ready for download!		
	ipile: 0 <u>OK</u>		Current us any (asks da)



- 15) The communication between Modbus TCP master and Modbus Slaves is realized via Modbus channels. To configure them click on Modbus Slave Channel tab. The information for this channels is taken from the Modbus TCP data map included on the datasheet [Insert datasheet datamap]
- 16) Click on Modbus Slave Channel tab then add channel

VT250 modbus master sample.project* - CoDeSys		
Ele Edit View Project Build Online Debug Too	ls <u>Window</u> <u>Help</u>	
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Devices 👻 🕂 🗙	- ×	ToolBox 👻 🕂 🗙
State of the second state		1
Device (Turck VT250-57x)	ModbusTCP Slave Modbus Slave Channel Modbus Slave Init ModbusTCPSlave Configuration ModbusTCPSlave I/O Mapping Status Information	
PLC Logic	Name Access Type Trigger READ Offset Length Error Handling WRITE Offset Length	
🖻 🔘 Appl		
Library Manager		
PLC_PRG (PRG)		
Task Configuration		
MainTask		
Ethernet (Ethernet)     Modbus_TCP_Master_netX (Modbus TCP M		
FEN20 (Modbus TCP Master_netX (Modbus TCP M		
I PERZo (Houbus TCP Slave)		
	Add Channel Delete Edit	
	Messages	<b>~</b> ₽ X
		error(s) 🕚 0 warning(s) 🕚 0 message(s)
	Description Project Object	Position
	Precompile: 0 OK	
POUs Z Devices		
		Current user: (nobody)

17) First we will add the input data. This is using Read Holding Registers (Function Code 3). The offset is the Modbus register indicated on the datamap. Length is the amount of registers (in WORD format). In this case is offset is 0x000 and length 1

- -

Channel	
Name	FEN_INPUTS
Access Type	Read Holding Registers (Function Code 3)
Trigger	Cyclic   Cycle Time (ms) 100
Comment	
READ Register	
Offset	0x0000 -
Length	1
Error Handling	Keep last Value
WRITE Register	
Offset	0x0000 💌
	0
Length	0



18) Same steps for the outputs. Add channel and use the information from the datamap. Write multiple registers (Function code 16). Offset is 0x0800 and length is 1.

Channel Name	FEN_OUTPUTS	
Access Type	Write Multiple Registers (Function Code 16)	•
Trigger	Cyclic   Cycle Time (ms) 100	
Comment		
READ Register		
Offset		-
Length	0	
Error Handling	Keep last Value 👻	
WRITE Register		
Offset	0x0800	•
Length	1	

- -

19) Once input and output channels are created, go to Modbus TCP Slave I/O mapping tab. We will assign variable names for one input and one output bit (data tags). Make sure that "Always update variables" is enabled

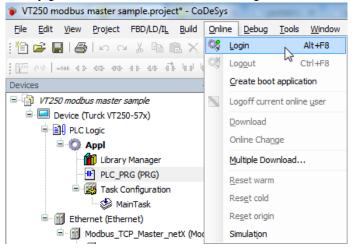
hannels			PSlave Configuration	ModbusTCF	Slave I/O Mapping	Status	s Information			
ariable	Mapping	Channel	Address	Туре	Default Value	Unit	Description			
- Ø		FEN20_INPUTS	%IW0	ARRAY			Read Holdin			
<u> </u>		FEN20_INPUTS[0]	%IW0	WORD			READ 16#0			
FEN20_INPUT0	**	Bit0	%IX0.0	BOOL	FALSE					
🚸		Bit1	%IX0.1	BOOL	FALSE					
🔌		Bit2	%IX0.2	BOOL	FALSE					
🚸		Bit3	%IX0.3	BOOL	FALSE					
🔌		Bit4	%IX0.4	BOOL	FALSE					
🔌		Bit5	%IX0.5	BOOL	FALSE					
🔷		Bit6	%IX0.6	BOOL	FALSE					
🔌		Bit7	%IX0.7	BOOL	FALSE					
🔷		Bit8	%IX1.0	BOOL	FALSE					
🐠		Bit9	%IX1.1	BOOL	FALSE					
<b>*</b>		Bit10	%IX1.2	BOOL	FALSE					
🔌		Bit11	%IX1.3	BOOL	FALSE					
🔷		Bit12	%IX1.4	BOOL	FALSE					
🚸		Bit13	%IX1.5	BOOL	FALSE					
<b>*</b>		Bit14	%IX1.6	BOOL	FALSE					
<b>*</b>		Bit15	%IX1.7	BOOL	FALSE					
i- ø		FEN20_OUTPUTS	%QW0	ARRAY			Write Multipl			
<b>≐</b> ~ <i>♦</i>		FEN20_OUTPUTS	%QW0	WORD			WRITE 16#0			
····· 🚸		Bit0	%QX0.0	BOOL	FALSE					
FEN20_OUTPUT1		Bit1	%QX0.1	BOOL	FALSE					
····· 🔶		Bit2	%QX0.2	BOOL	FALSE					
- 🔷		Bit3	%QX0.3	BOOL	FALSE					
🔶		Bit4	%QX0.4	BOOL	FALSE					
🔕		Bit5	%OX0.5	BOOI	FAI SE				<b>*</b>	



 Double click on "PLC\_PRG" on the devices tree. Create a small logic, when FEN20\_INPUT0 is turn ON activates FEN20\_OUTPUT1.

VT250 modbus master sample.project* - CoDeSys	and the second s		-	
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Devices v 4 ×	PLC_PRG		• •	<b>▼</b> ₽ X
VT250 modbus master sample	1 PROGRAM PLC_PRG	*	General	
E Device (Turck VT250-57x)	2 VAR		Boolean O	
E Il PLC Logic	3 END_VAR		Math opera	
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- 📶 Library Manager				
PLC_PRG (PRG)		=		
🖹 🌃 Task Configuration				
MainTask			I ► Contac	t
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FEN20 (Modbus TCP Slave)			4/1 Paralle	negated contact
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	Description	Project Obje		Position ^
	Total allocated memory size for code and data: 121028 bytes	VT250 modbus mast		
	Memory area 0 contains Data, Input, Output, Memory and Code: highest used address: 723968, largest contiguous me	VT250 modbus mast		
4 III +	Memory area 1 contains Retain Data: highest used address: 8150, largest contiguous memory gap: 8150 (100 %)	VT250 modbus mast		
	Precompile:      OK			
POUs 😪 Devices				
			Current us	er: (nobody)

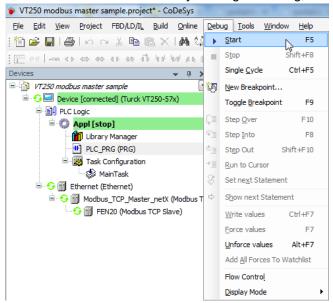
21) Finally go to main menu "Online". Click Login and Yes when prompted.



- -



22) Put the VT250 on Run mode by clicking on Debug, Start



- -

23) Connect an input to the first input of the FEN20 and turn it on. This will turn the second output on the station.

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VT250 modbus m <mark>ast</mark> er sample.project* - CoDeSys		and the state of the		and the second second		the pathons of	The strength		
<u>File Edit View Project FBD/LD/IL Build Online D</u>	ebug <u>T</u> ools <u>W</u> indow <u>H</u> elp	•							
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VT250 modbus master sample	Device.Appl.PLC PRG							Seneral	
🖹 🎲 🔲 Device [connected] (Turck VT250-57x)							E Barriel	Boolean Operators	
🗎 🗐 PLC Logic	Expression	Type	Value	Prepared value	Comment			1ath operators	
🖹 🔘 Appl [run]								Other Operators	
Library Manager								unction blocks	
PLC_PRG (PRG)							L	adder elements.	
Task Configuration							6	Network	
MainTask							4	E Contact	
😑 😏 🚮 Ethernet (Ethernet)								Negated contact	
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😔 🔛 FEN20 (Modbus TCP Slave)							4	Parallel negated cont	act
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	Description					Project	Object	Position	
	Memory area 1 contains Retain Data: highest used address: 8150, largest contiguous memory gap: 8150 (100 %)     V7250 modbus mast								
	Memory area 2 contains Persistent Data: highest used address: 8150, largest contiguous memory gap: 8150 (100 %)     VT250 modbus mast								
		s, 0 warnings : ready for d							
POUs See Devices	Precompile: 1 OK								