

TECH NOTE :: ClipX – Using the external ethernet and fieldbus channels

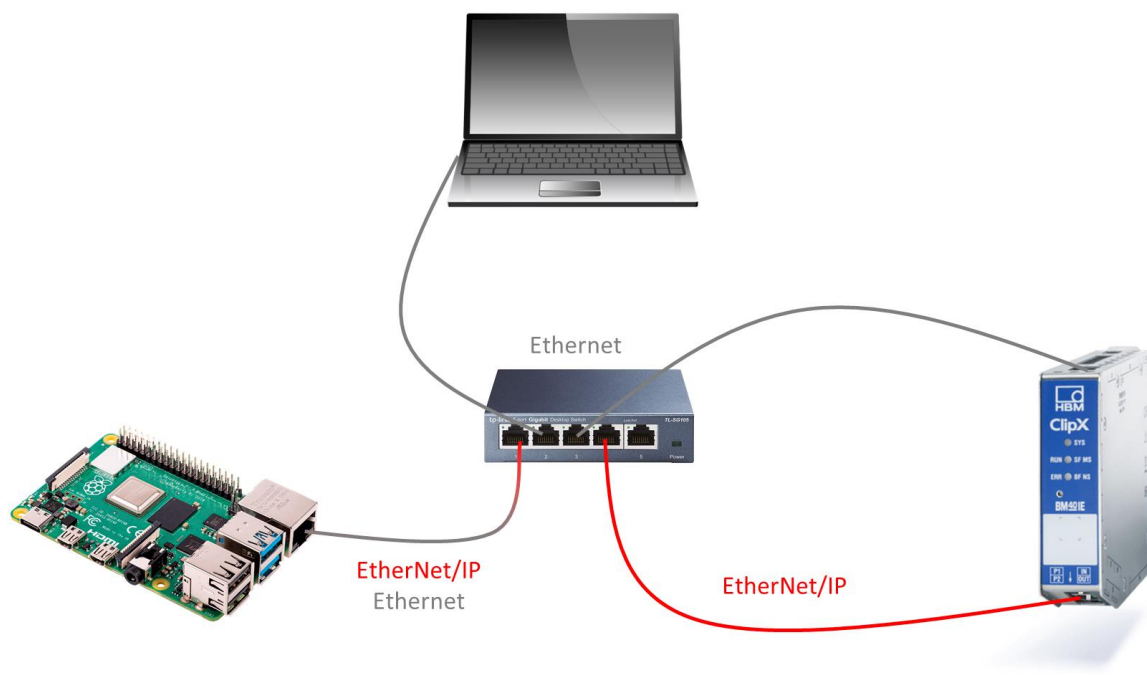
Version: 2020-06-10

Author: Michael Guckes, Roland Siepmann

Status: HBM: Public

Brief description

This is an instruction for using the external ethernet and fieldbus channels of ClipX. Both via Ethernet and via fieldbus, two values that are considered by ClipX as measured values can be fed in externally. In this example, the fieldbus values are transmitted using a Raspberry Pi with Codesys Runtime, using the EtherNet/IP protocol.



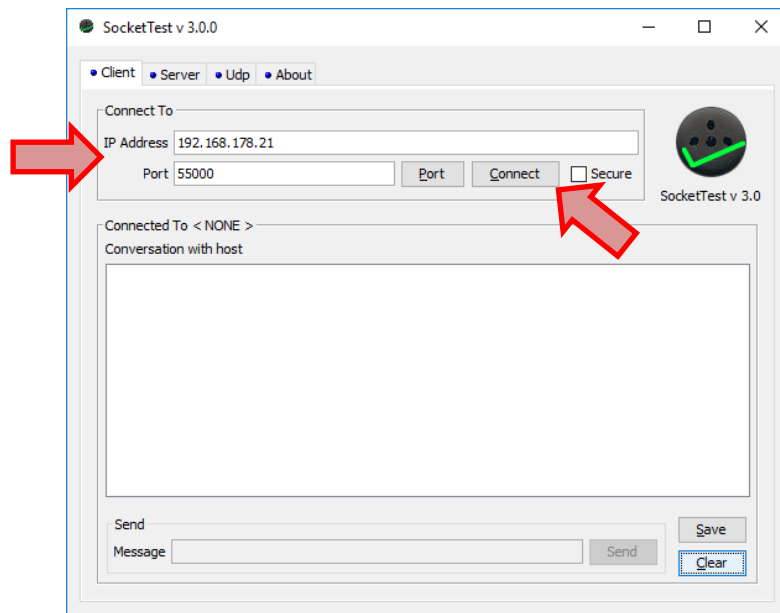
Carry out

Control the external channels using the object dictionary via ethernet TCP/IP

The external values are transmitted by controlling the object dictionary of ClipX via a TCP/IP socket connection. In this example the java tool 'SocketTest' is used.

- Open the software
- Enter the IP address of ClipX and select the port 55000
- Connect to the device

Note: The connection is terminated by ClipX if there is no communication for about 45 seconds.



The controllable values are:

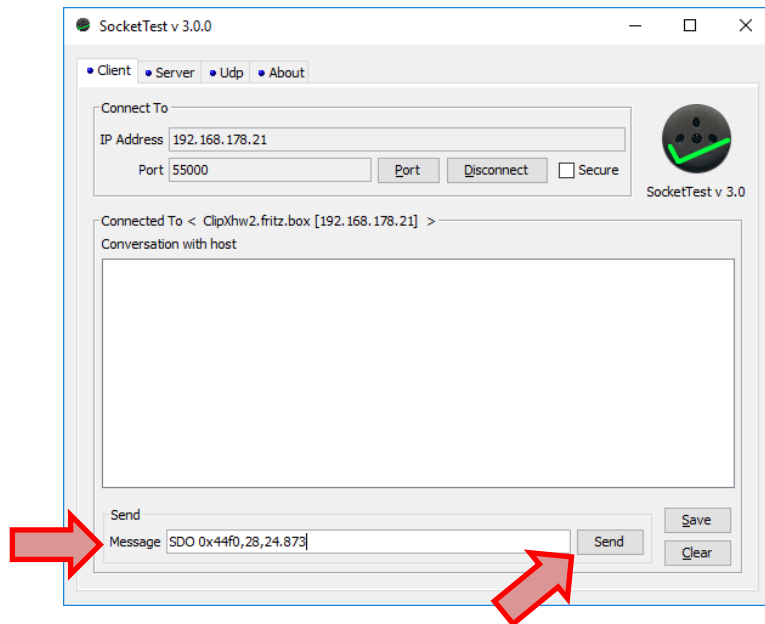
External Eth. Value 1:	Index 0x44F0	Subindex: 28
External Eth. Value 2:	Index 0x44F0	Subindex: 29

Also the fieldbus values can be set through this method:

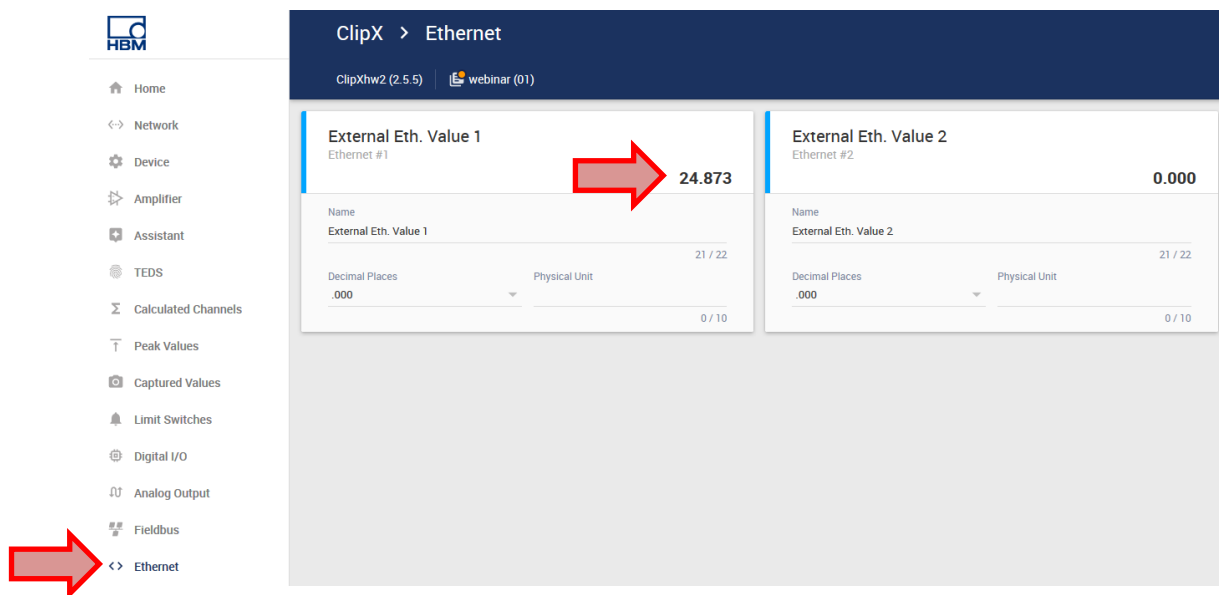
Fieldbus Value 1:	Index 0x44F0	Subindex: 30
Fieldbus Value 2:	Index 0x44F0	Subindex: 31

For controlling the following SDO command is used:

Set External Eth. Value 1 to the value 24,873: SDO 0x44f0,28,24.873



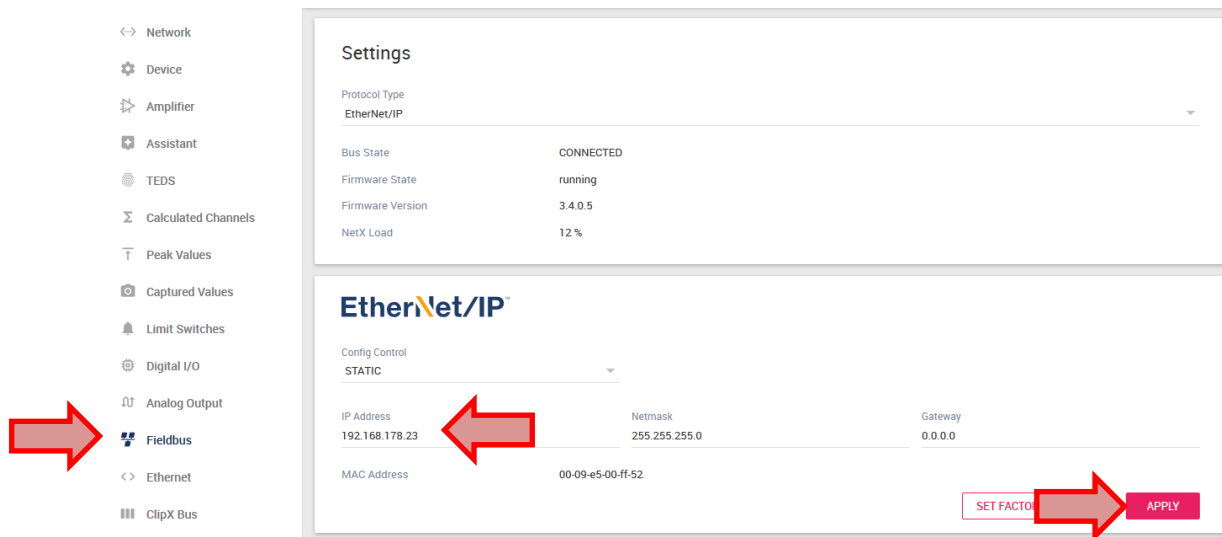
After that the desired value is available in ClipX.



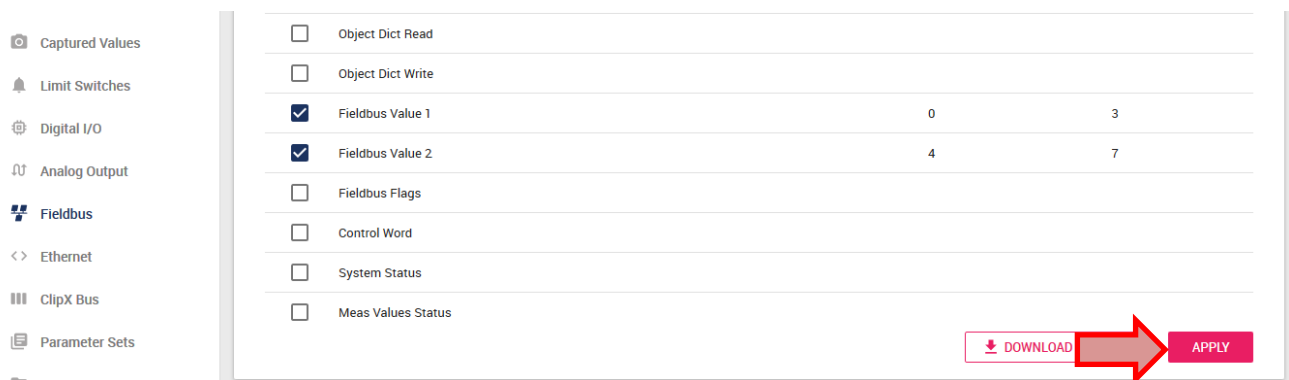
Set the external fieldbus values using EtherNet/IP with a PLC

First, the channels must be configured for the EtherNet/IP operation.

- Open the ClipX webserver
- Go to the fieldbus menu
- Activate the EtherNet/IP protocol and set up the network configuration

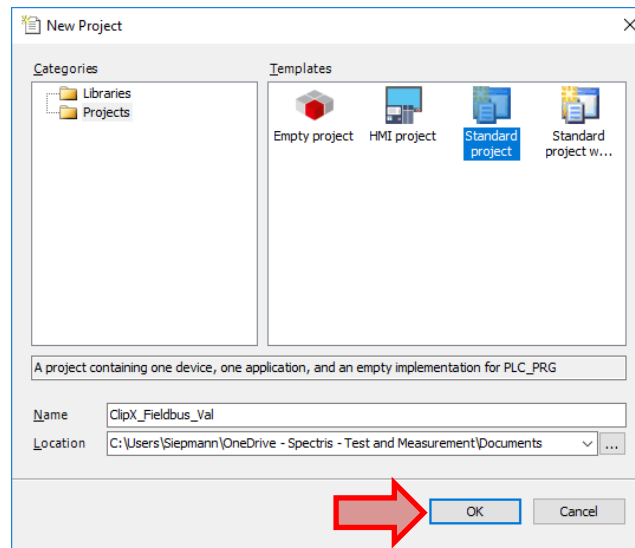


- Configure the channels (fieldbus value 1 and 2 must be selected)
- Confirm with 'Apply'

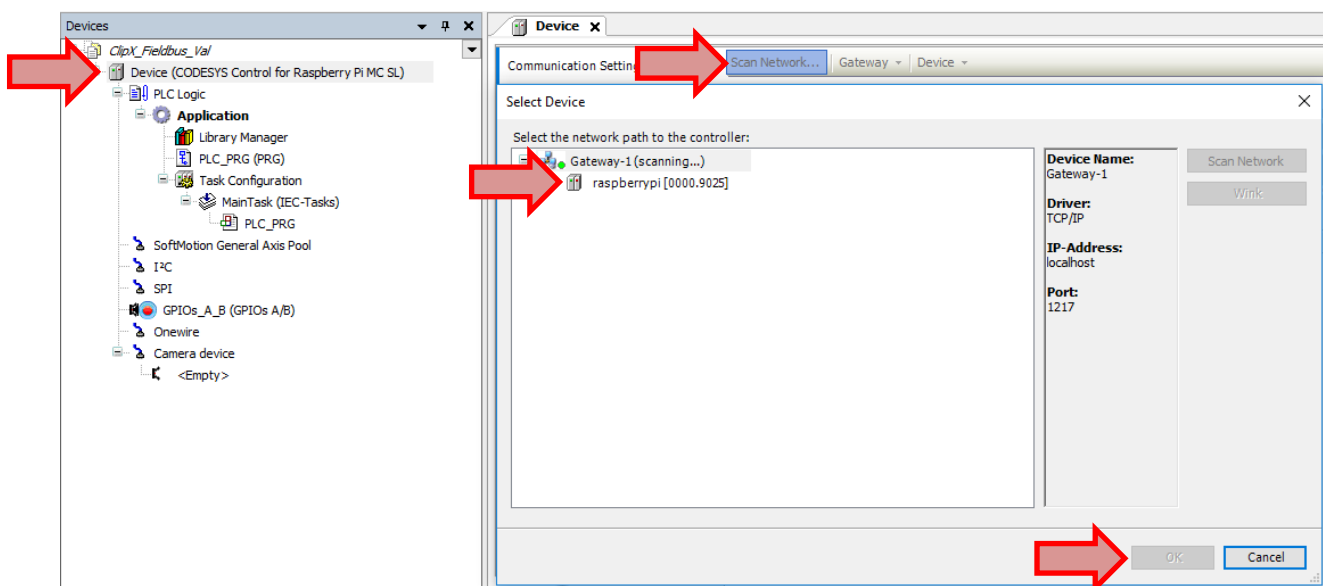


Now the settings are made in Codesys. At first a new standard project is created.

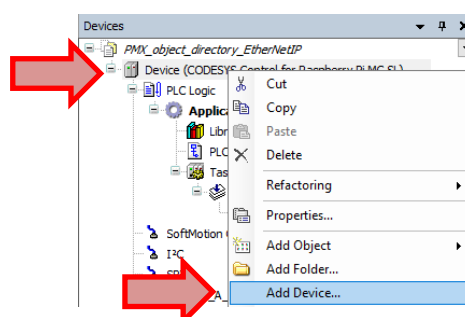
- Create a new standard project
- Set up a project name
- Create the project



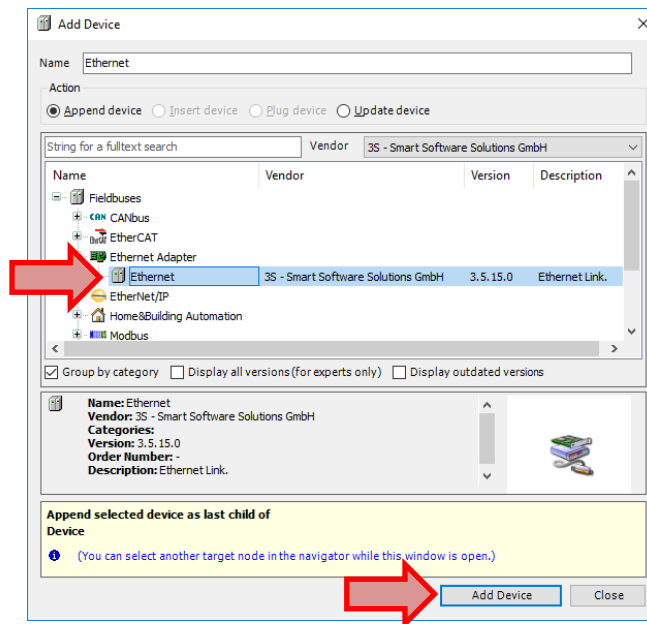
- Double click on device → Scan Network... and select your PLC



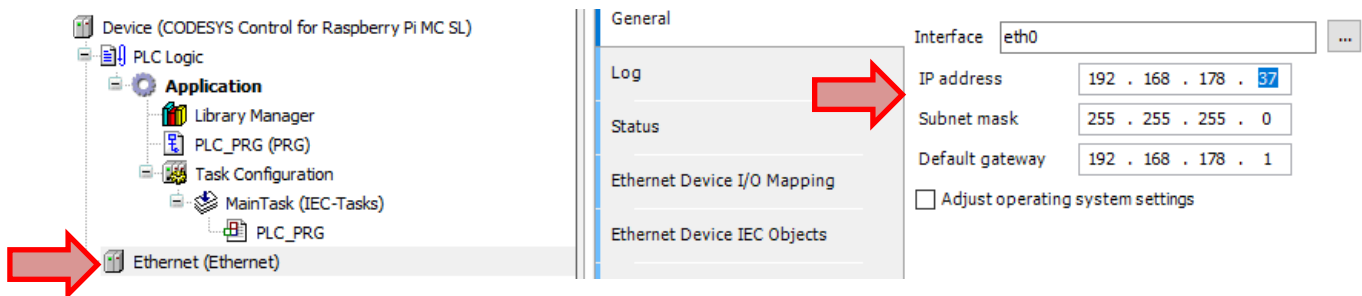
- Right click on device and select 'Add device...'



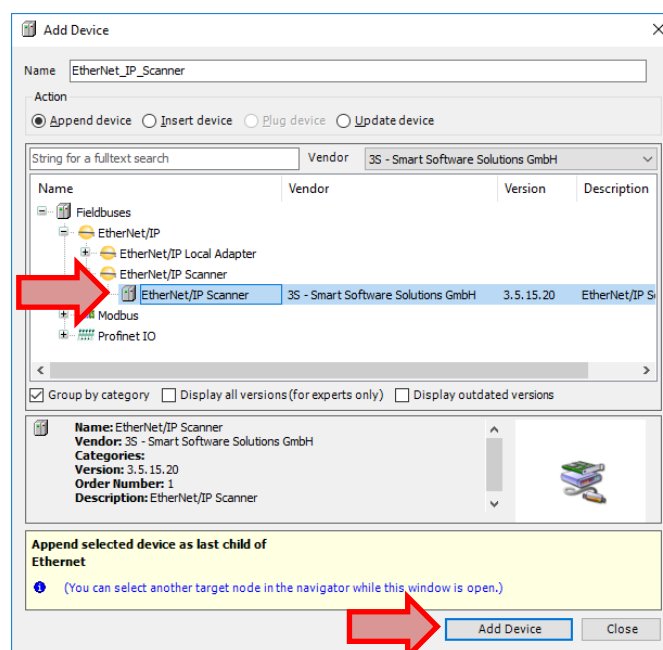
- Add Ethernet



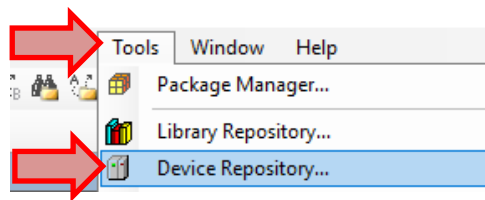
- Double click on 'Ethernet' and enter the IP address or the network interface



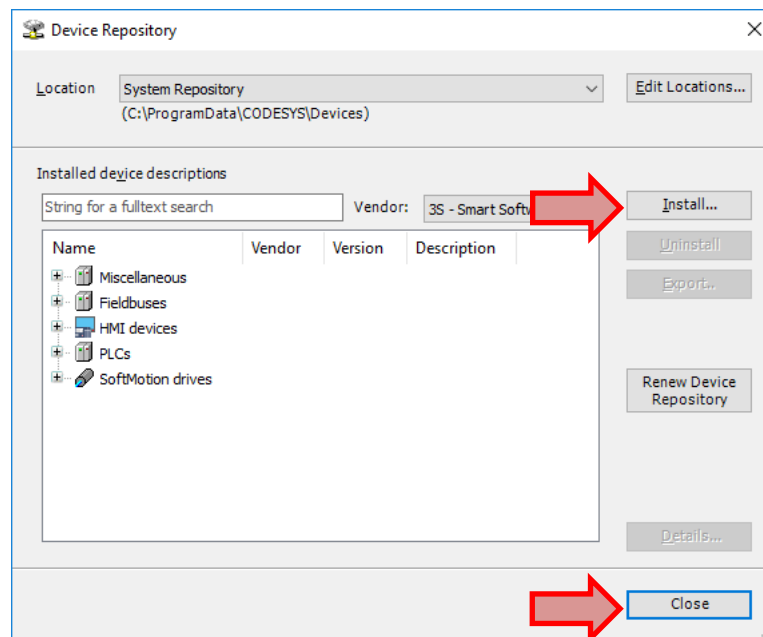
- Right click on 'Ethernet' and again select 'Add device...'
- Add the EtherNet/IP Scanner



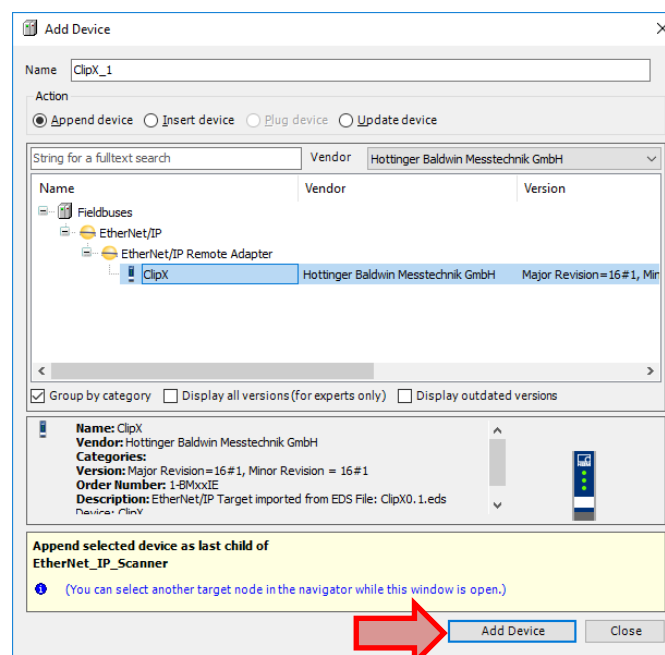
- At 'Tools' select the 'Device Repository...'



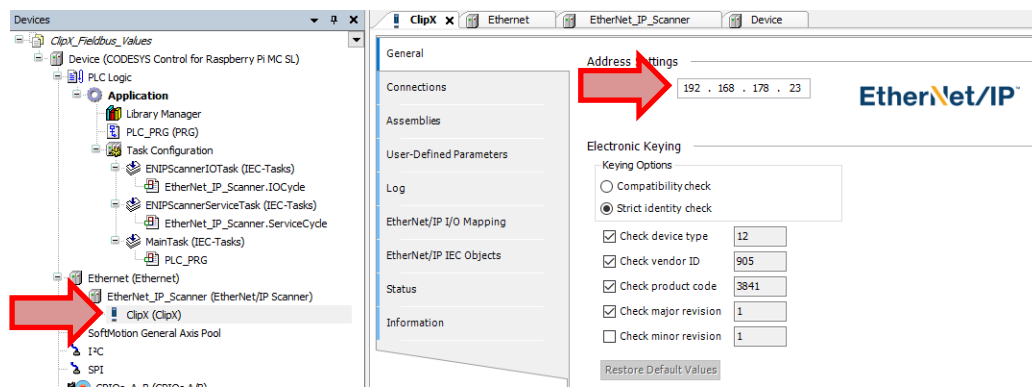
- Click 'Install' and install the .eds file of ClipX
- Confirm with 'Close'



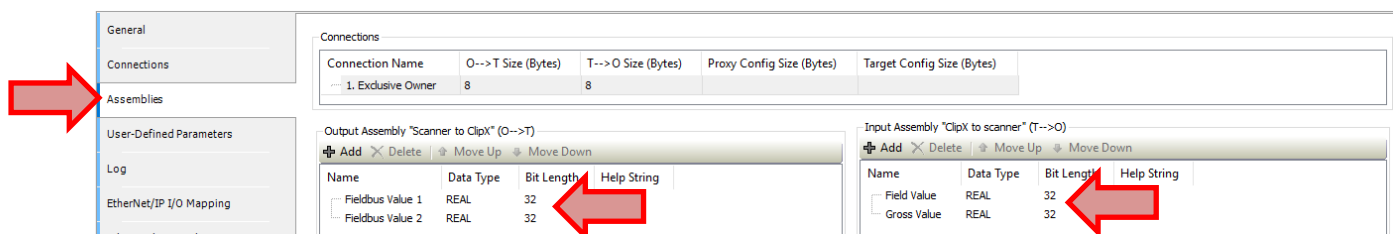
- Right click on 'EtherNet_IP_Scanner' and add the ClipX



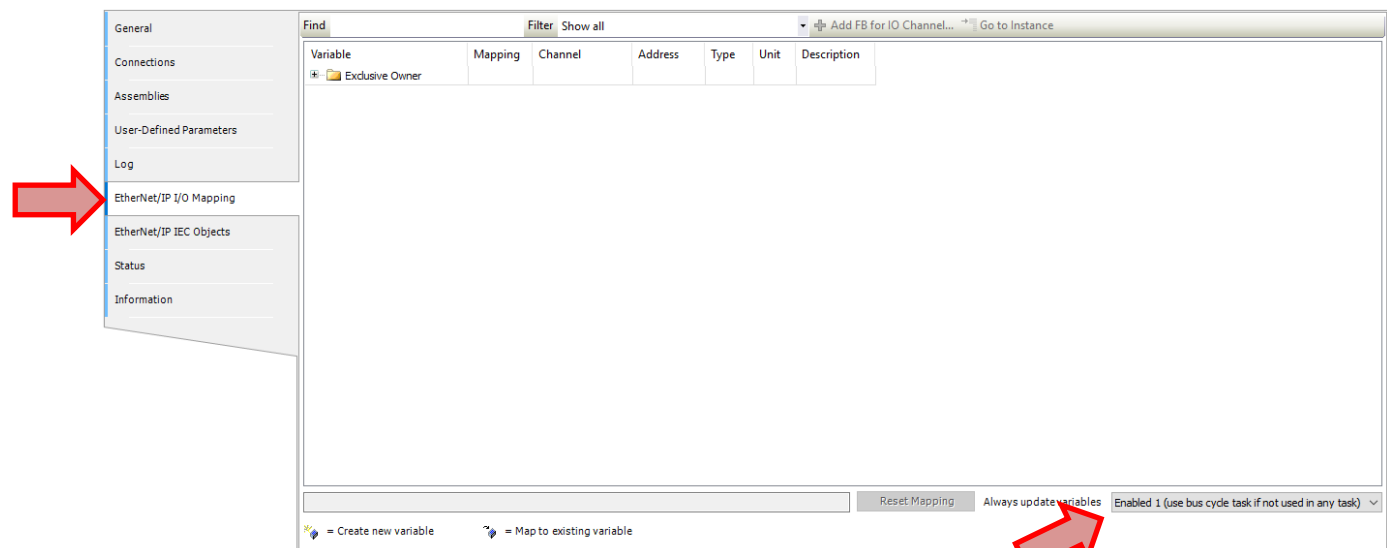
- Select ClipX and enter the IP address



- Go to 'Assemblies', delete all channels and add your configured channels (here: Field Value, Gross Value, Fieldbus Value 1, Fieldbus Value 2)



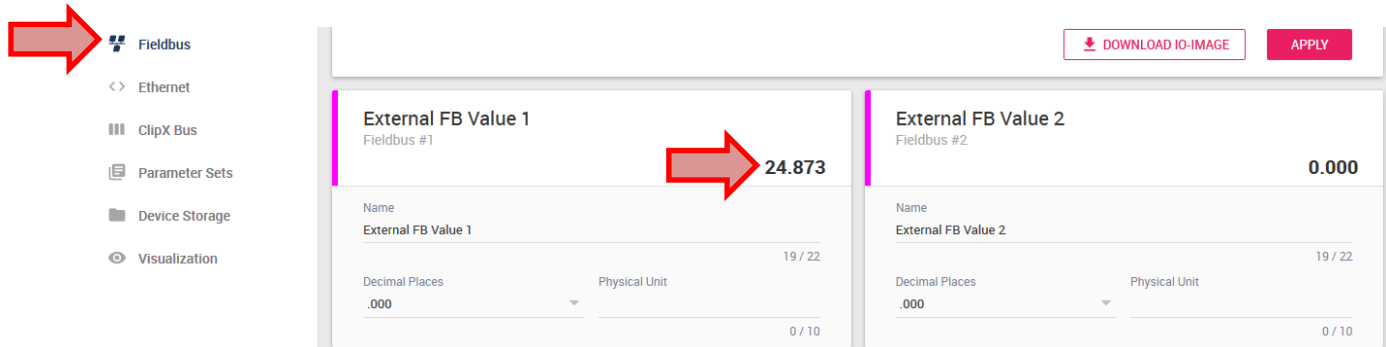
- Go to EtherNet/IP I/O Mapping
- In the lower section select the option 'Enabled 1...'



- Load the program to the PLC and start it
- Enter the desired value and send it to ClipX using 'Ctrl+F7'

Variable	Mapping	Channel	Address	Type	Current Value	Prepared Value	Unit	Description
Exclusive Owner								
		Field Value	%ID0	REAL	0.000120071621			
		Gross Value	%ID1	REAL	-2.29055381			
		Fieldbus Value 1	%QD0	REAL	0	24.873		
		Fieldbus Value 2	%QD1	REAL	0			

- The desired value is now available for ClipX



Fieldbus

< > Ethernet

ClipX Bus

Parameter Sets

Device Storage

Visualization

External FB Value 1
Fieldbus #1

24.873

Name
External FB Value 1

Decimal Places
.000

Physical Unit

19 / 22

0 / 10

External FB Value 2
Fieldbus #2

0.000

Name
External FB Value 2

Decimal Places
.000

Physical Unit

19 / 22

0 / 10

DOWNLOAD IO-IMAGE

APPLY

Disclaimer

These examples are for illustrative purposes only. They cannot be used as the basis for any warranty or liability claims.