Quick start guide

UM QS EN IL EIP BK - M340

Integration of the IL EIP BK DI8 DO4 2TX-PAC bus coupler into a Modicon M340 controller

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Designation: UM QS EN IL EIP BK - M340

Revision: 00

Order No.: —

This user manual is valid for:

Designation	Revision	Order No.
IL EIP BK DI8 DO4 2TX-PAC	HW 03; FW 103	2897758

Please observe the following notes

User group of this manual

The use of products described in this manual is oriented exclusively to:

- Qualified electricians or persons instructed by them, who are familiar with applicable standards and other regulations regarding electrical engineering and, in particular, the relevant safety concepts.
- Qualified application programmers and software engineers, who are familiar with the safety concepts of automation technology and applicable standards.

Explanation of symbols used and signal words

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety measures that follow this symbol to avoid possible injury or death.

There are three different categories of personal injury that are indicated with a signal word.

DANGER This indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING This indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION This indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

This symbol together with the signal word **NOTE** and the accompanying text alert the reader to a situation which may cause damage or malfunction to the device, hardware/software, or surrounding property.

This symbol and the accompanying text provide the reader with additional information or refer to detailed sources of information.

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1 About this document

1.1 Aim of this document

This quick start guide helps you to start up an Inline station (IP20) in an Ethernet/IP™ network with a Modicon M340 controller using the Unity software.

Please proceed as follows to start up IP67 modules of the Fieldline product range:

Configure the station in such a way that it produces or consumes a preset amount of data. This amount of data is the maximum to be expected depending on the connected configuration. Thus, the controller configuration does not need to be adapted when the configuration connected to the IL EIP BK DI8 DO4 2TX-PAC bus coupler is changed.

1.2 Hardware and software versions

Devices or software with the following version was used for preparation of this quick start:

Table 1 Hardware

Manufacturer	Order No.	Type	Hardware version	Firmware version
Phoenix Contact	2897758	IL EIP DI8 DO4 2TX-PAC	03	103
Schneider Electric		BMXNOC0401	01	1:01

Table 2 Software

Manufacturer		Type	Version
Phoenix Contact		Ethernet/IP™ made easy	1.0.1.68
Schneider Electric		Unity Pro S	V5.0
Phoenix Contact	IL_EIP_BK_DI8_DO4_M340.eds	EDS file for M340	

1.3 Example

Install the required devices according to the information given in the associated documentation. The documentation from Phoenix Contact can be found on the Internet at www.phoenixcontact.net/catalog.

The following explanations are based on this example:

– 32-bit digital inputs (including eight digital bus coupler inputs), this corresponds to 4 bytes.
– 8 words for analog inputs, this corresponds to 16 bytes
– Two bytes for every status word of the station are added to these words.

This results in 22 bytes of data.

– 16-bit digital outputs (including four digital bus coupler outputs), this corresponds to 2 bytes.
– 4 words for analog outputs, this corresponds to 8 bytes.

This results in a data consumption of 10 bytes.

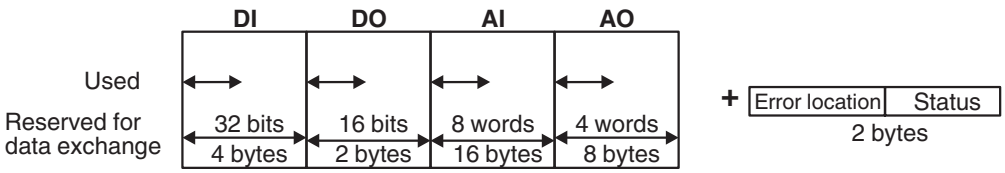


Figure 1 Example structure

Status word structure

Table 3 Byte 0: Local bus status

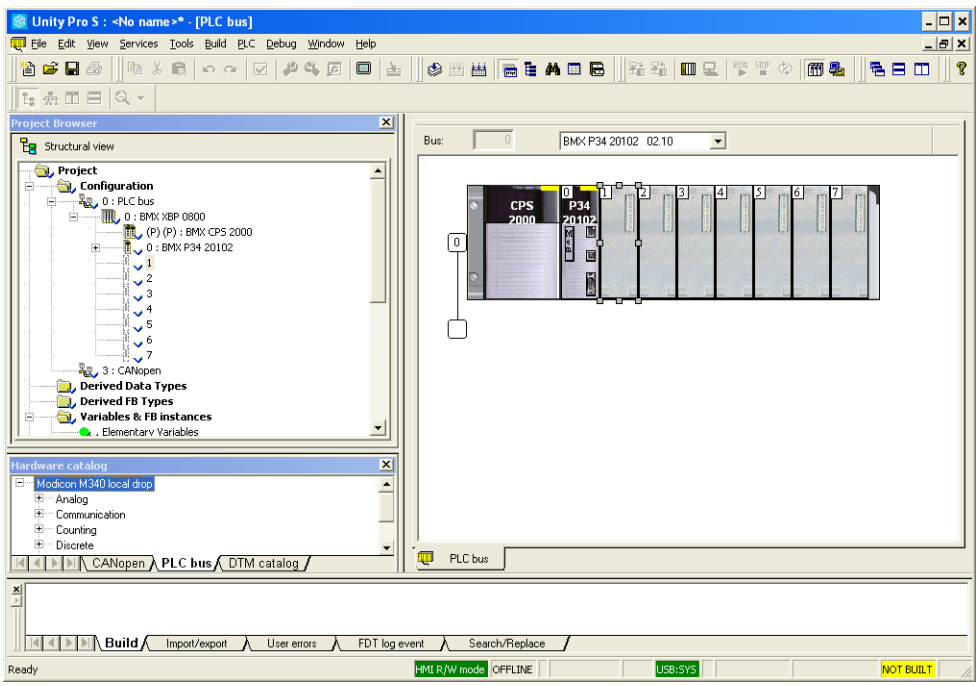
Bit	Meaning of bit x = 1
0	CRC error during transmission on the local bus
1	I/O error on the local bus (short circuit in the digital output module).
2	U_L, U_S or U_M < 11 V.
3	The existing configuration differs from the stored configuration.
4	Communication with the first local bus module not present or no longer present.
5	Communication loss in the local bus detected (see byte 1).
6	Outputs in output position (Fault Mode 2)
7	Reserved

Table 4 Byte 1: Error location (number of the faulty local bus module)

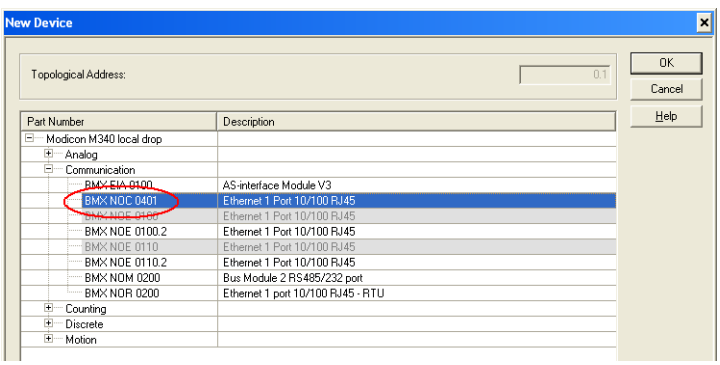
Content	Meaning
1	Module with four integrated digital outputs (bus coupler)
2	Module with eight integrated digital inputs (bus coupler)
3	First active Inline module connected to the bus coupler
4	Second active Inline module connected to the bus coupler

2 Adding an EIP bus coupler in Unity

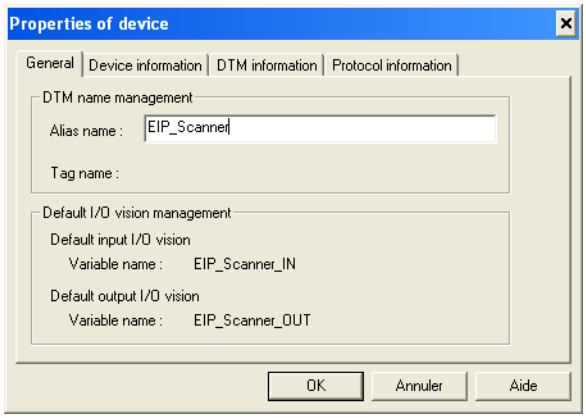
- Create a Unity project with your controller.



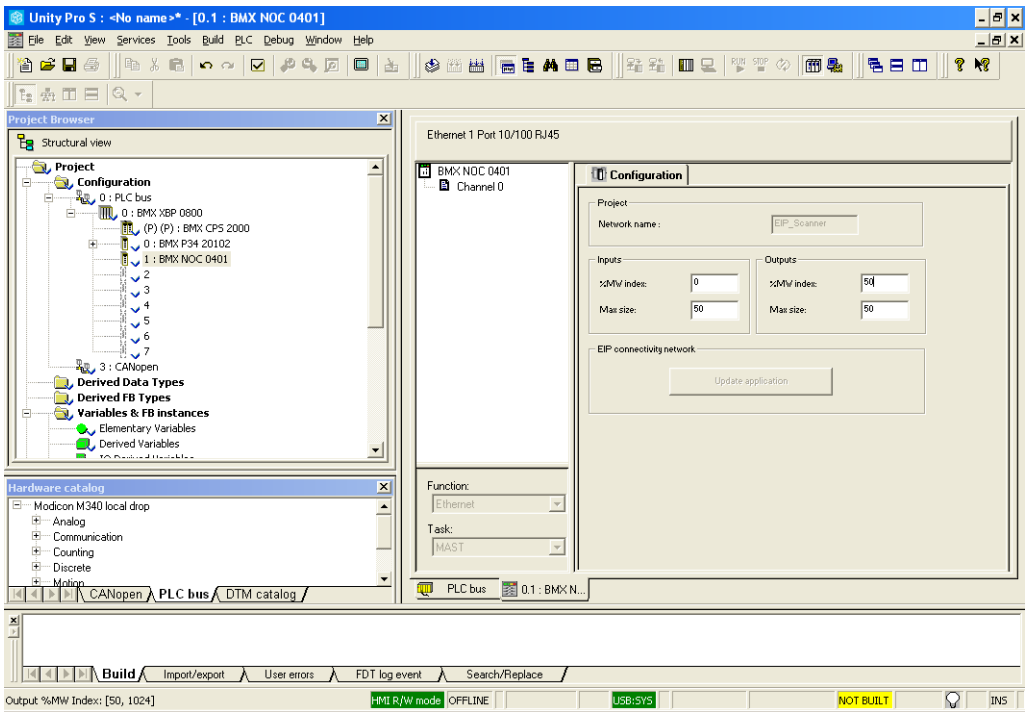
- Add the EIP bus coupler to your controller configuration.



- Assign a name to the EIP bus coupler.

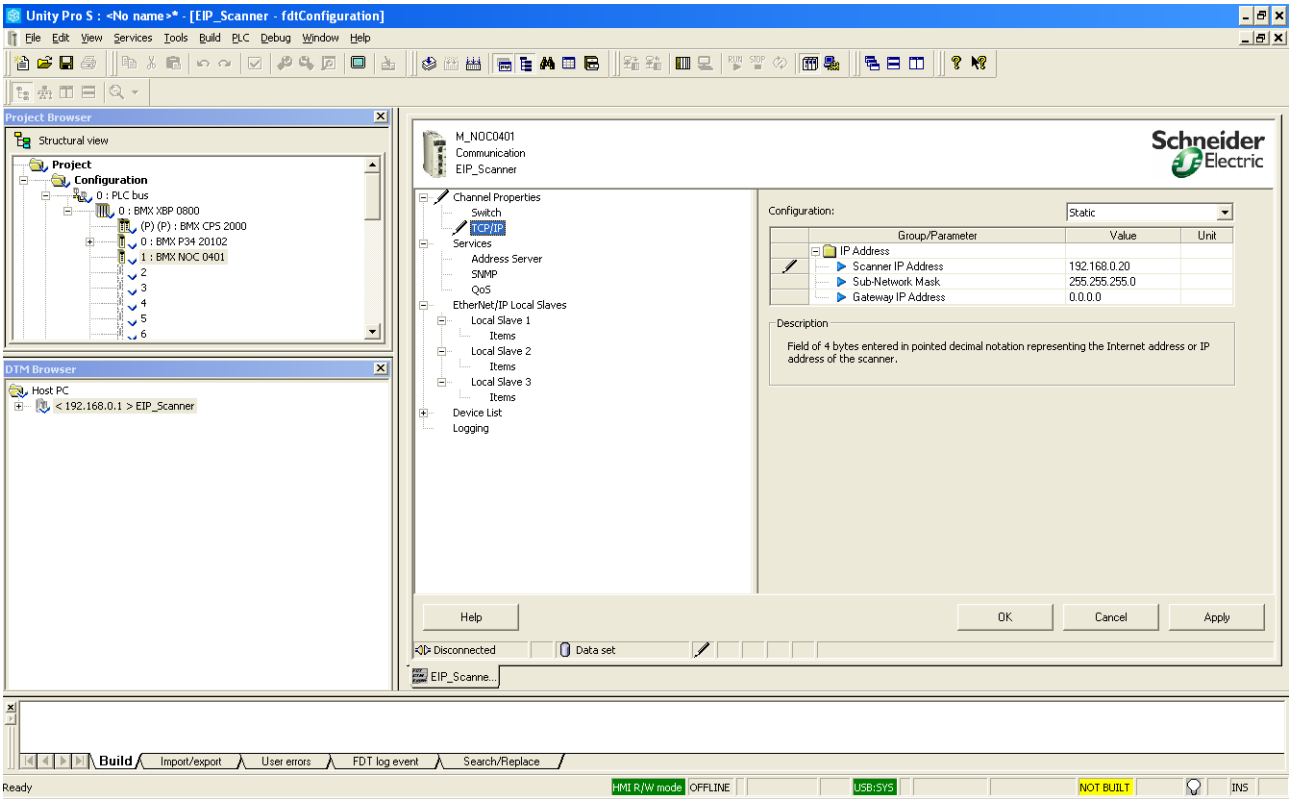


- Define the I/O area. Please note that 16 I/O words are reserved for the EIP bus coupler.



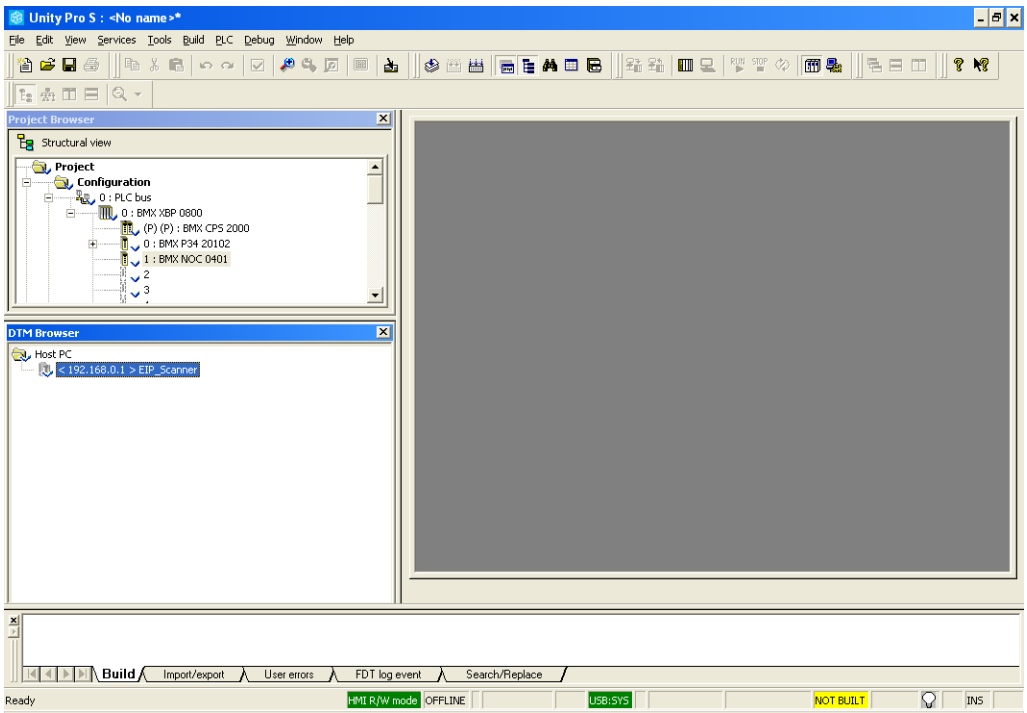
In addition to the 16 words reserved by the EIP bus coupler, this example provides 34 I/O words at the remote stations (thus 50 I/O words). The inputs of this station can be accessed from %MW16 (Inline status word) and the outputs from %MW66.

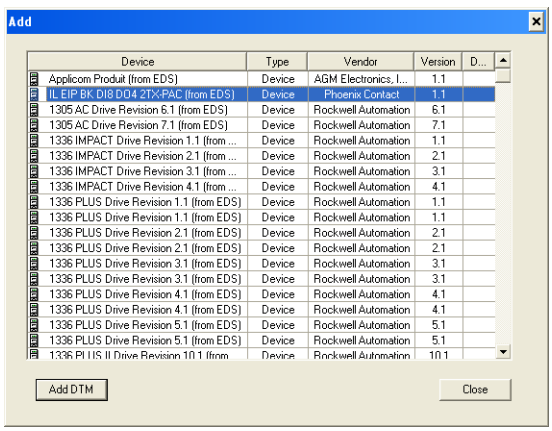
- Define the IP address of the bus coupler in the DTM navigator.

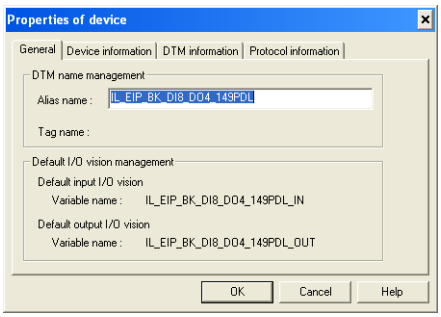


3 Adding a bus coupler in DTM Navigator

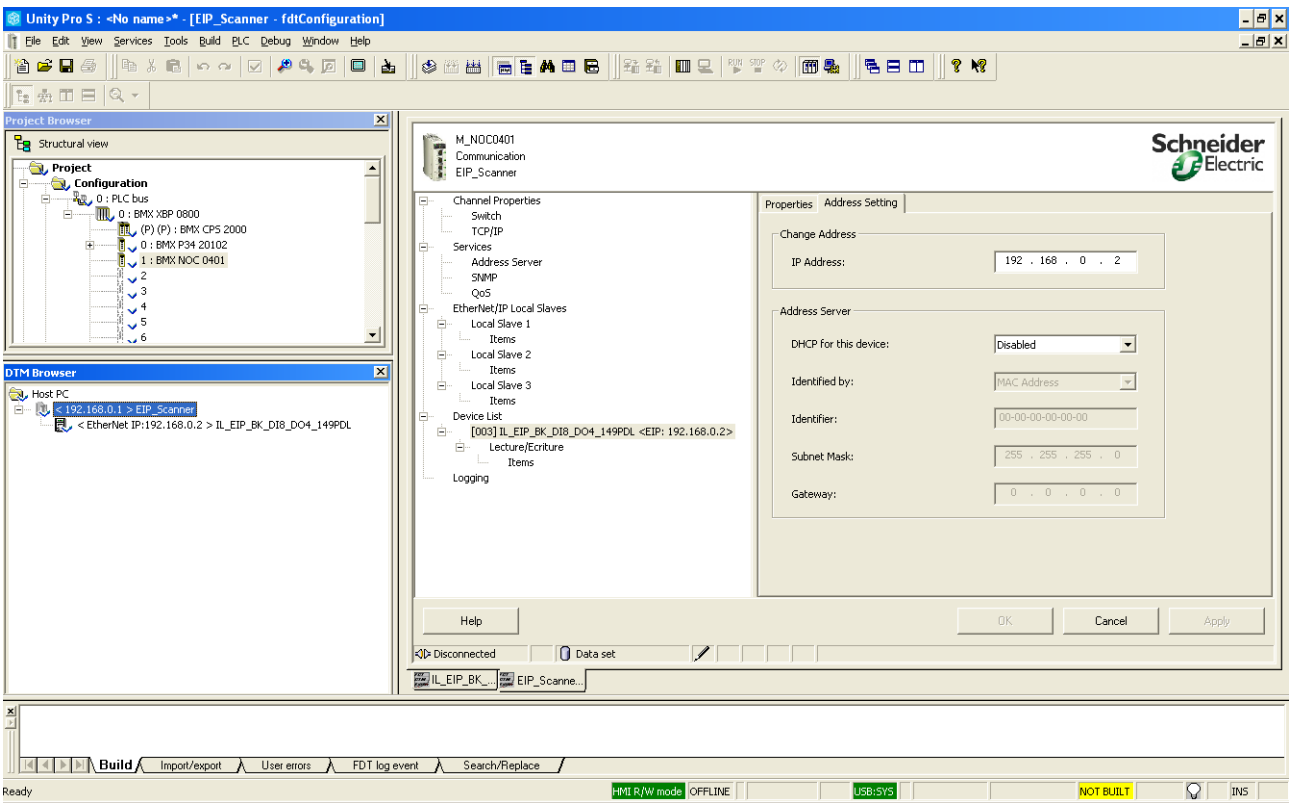
- In DTM Navigator, click the EIP bus coupler with the right mouse button and click “Add”.





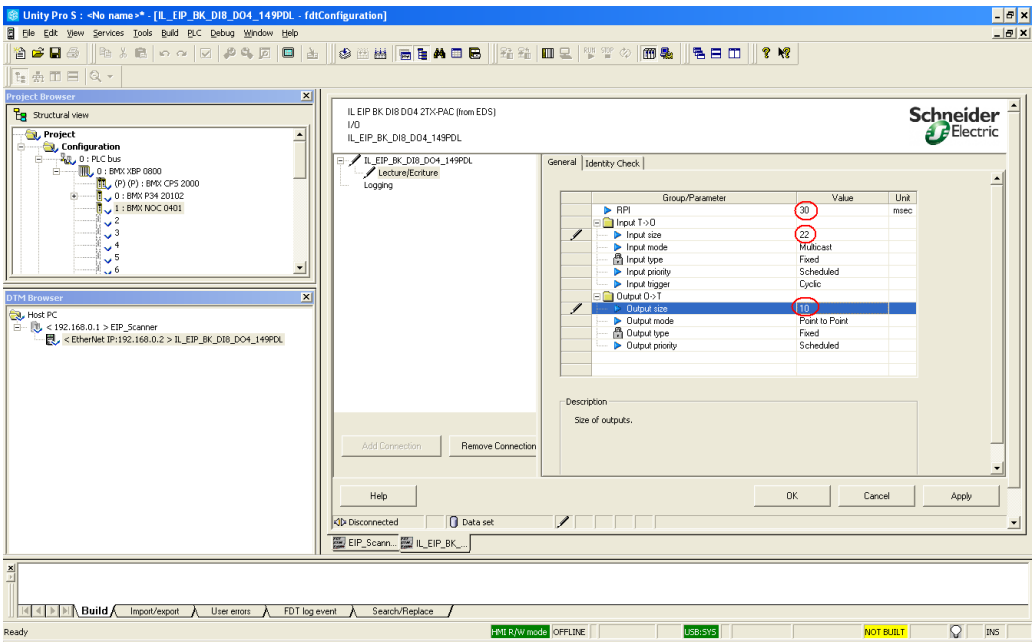


- Set the IP address of the I/O station.

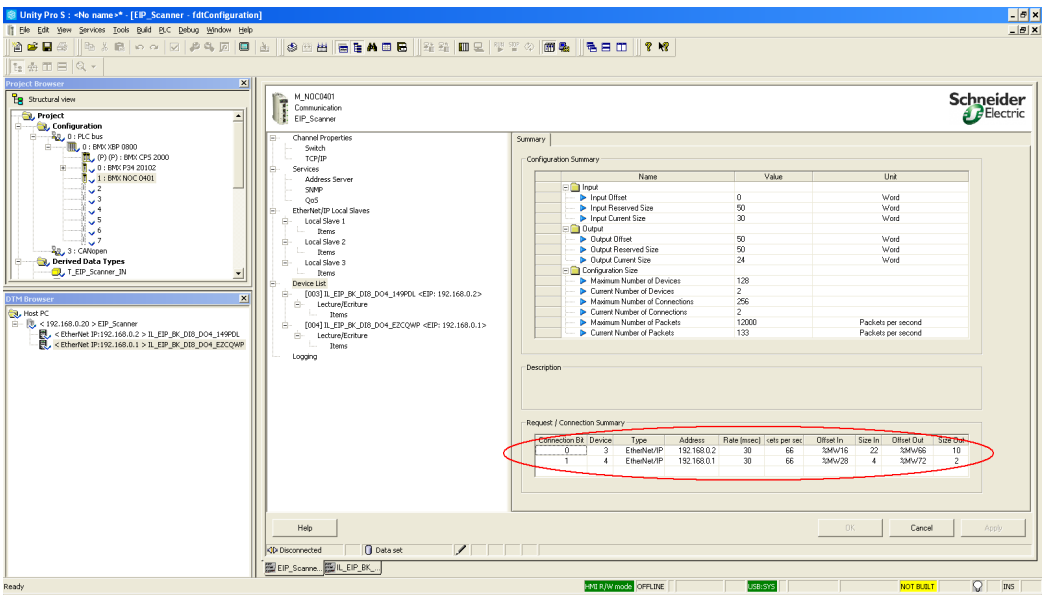


- Specify the provided produced/consumed amount of data and the cycle time (RPI) of the I/O station.

In this example, 22 input bytes (produced by the station) are provided in Multicast or Unicast modes as well as 10 output bytes (consumed by the station) in the Unicast mode (point-to-point).



A connection summary will be shown.

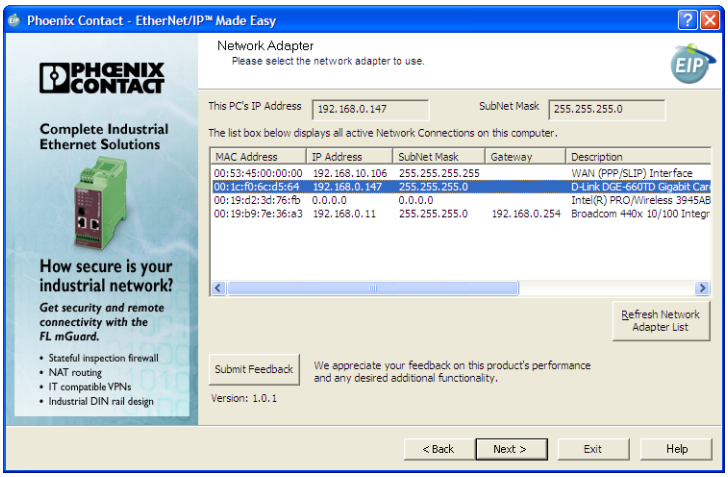


Offline operation is finished now.

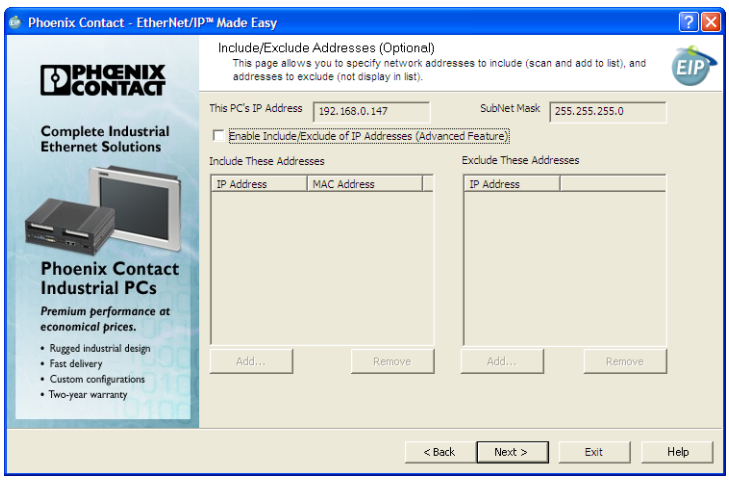
4 Online assignment of the IP address of the Inline I/O station

4.1 Open the Ethernet/IP™ Made Easy application

- Select the network card of the computer.

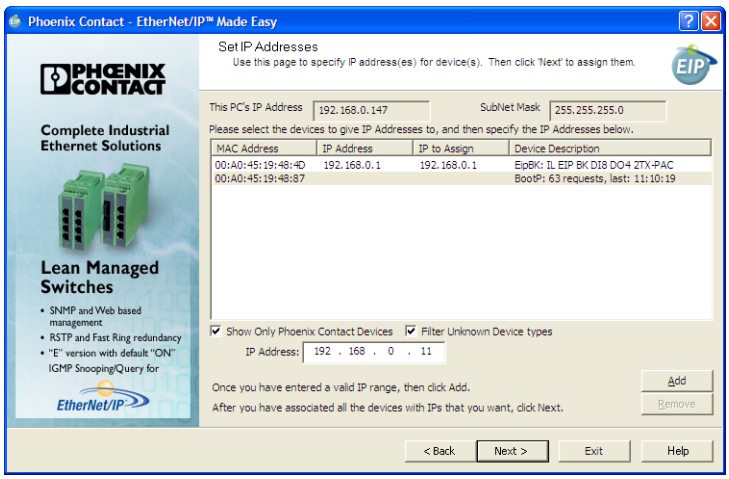


- Option: Filter for available addresses.

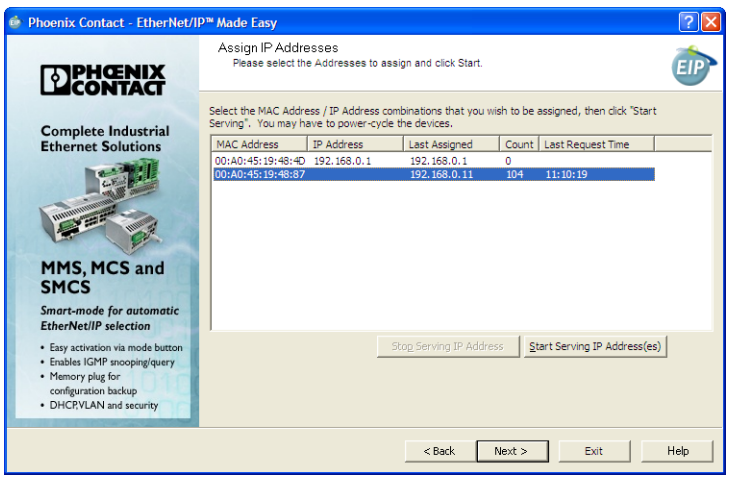


4.2 BootP server

- Select the target station.



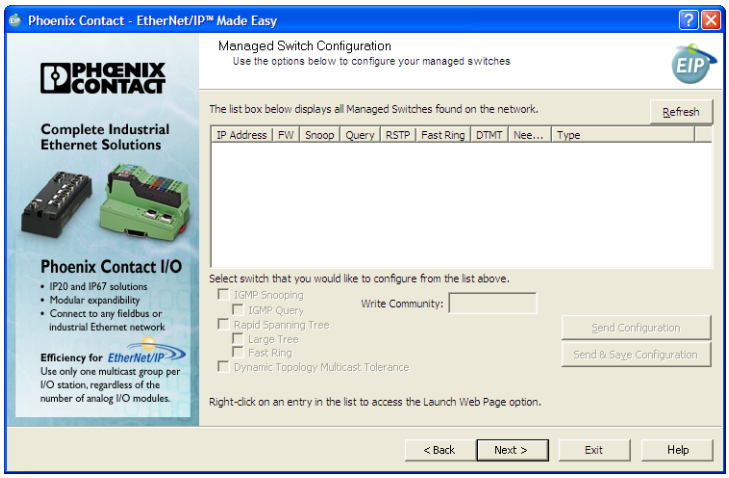
- Enter the IP address and confirm the input with “Add”.



- Assign the IP address by clicking “Start ...” (“Assigning” and afterwards the address given in the “IP Address” field).

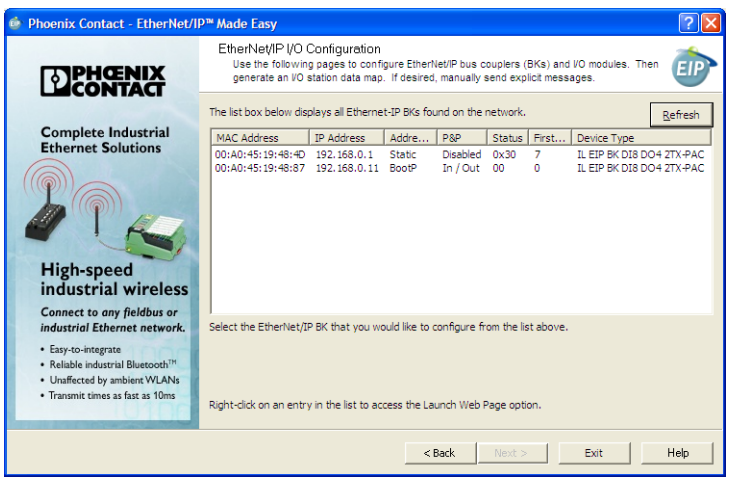
- Option: Configure the Managed Switch.

The view shown in the screenshot allows fast configuration of the basic settings of the Managed Switches in the network (IGMP, Snooping, RSTP, etc.).

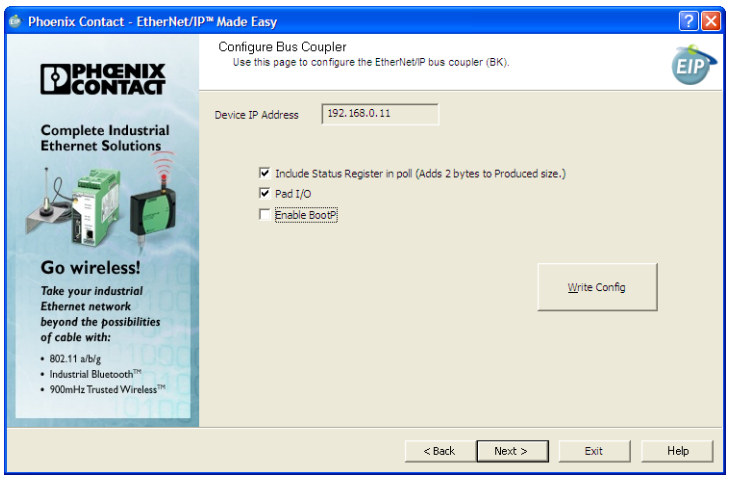


4.3 Changing to a static IP address

- Select the station to be configured.



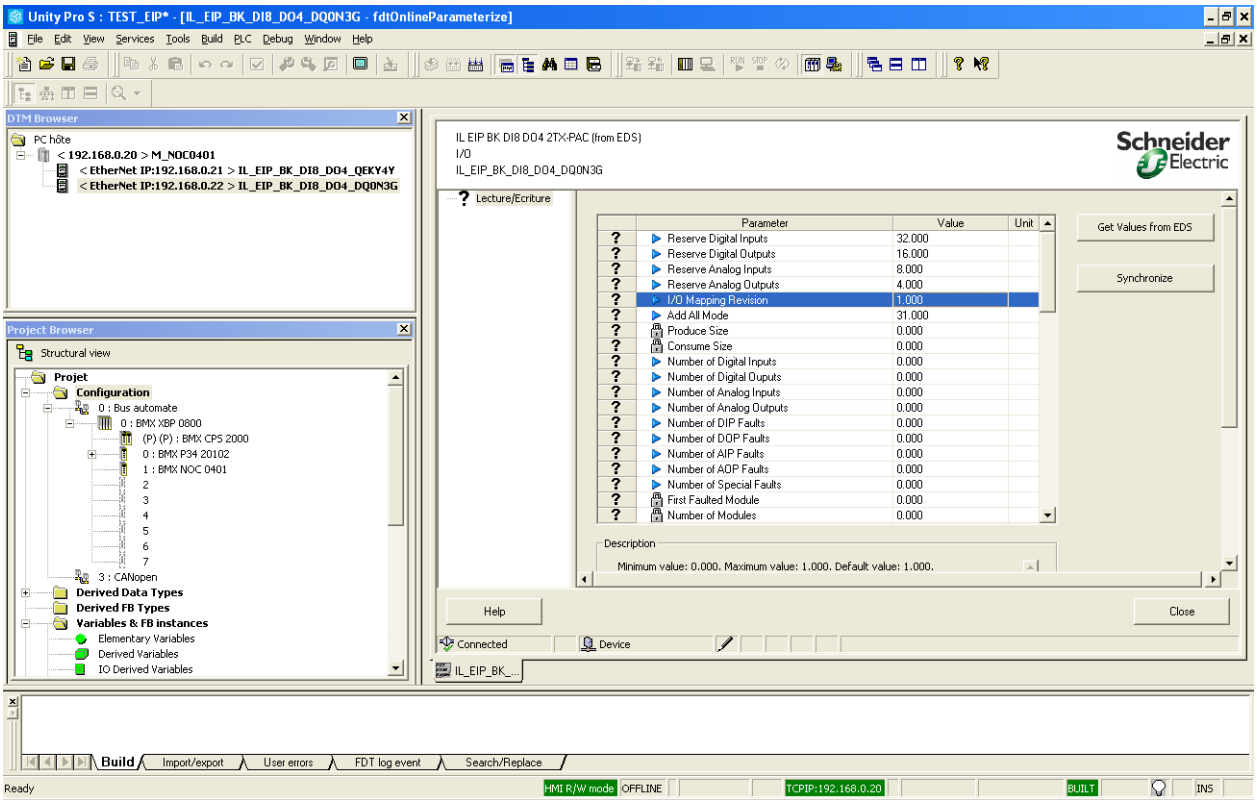
- Deactivate the BootP server.



The station now has a fixed IP address. You can exit the “EtherNet/IP™ Made Easy” program.

5 Online setting of the digital and analog I/O reserves

- In DTM Navigator right-click IL_EIP_BK_DI8_DO4 and afterwards “Connect”.
- Write the parameters from the EDS file.



Here, you select the digital or analog inputs and outputs in accordance with the produced and consumed amount of data.

In our example:

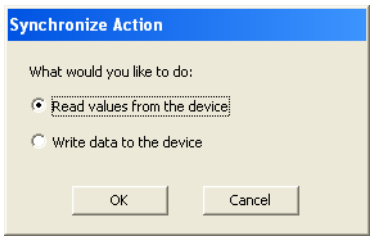
– Included status word = 2 bytes
– Reserve 32-bit digital input = 4 bytes
– Reserve 8-bit analog output = 16 bytes

This corresponds the provided produced amount = 22 bytes

– Reserve 16-bit digital output = 2 bytes
– Reserve 4-bit analog output = 8 bytes

This corresponds to the consumed amount = 10 bytes

These parameters become effective as soon as the “Add All IO” is set to TRUE.



These parameters have now been written to the I/O station. This can also take place with explicit messages.

Activate communication by placing the switch to STOP/RUN or activating the corresponding bit (%MW 50.0).

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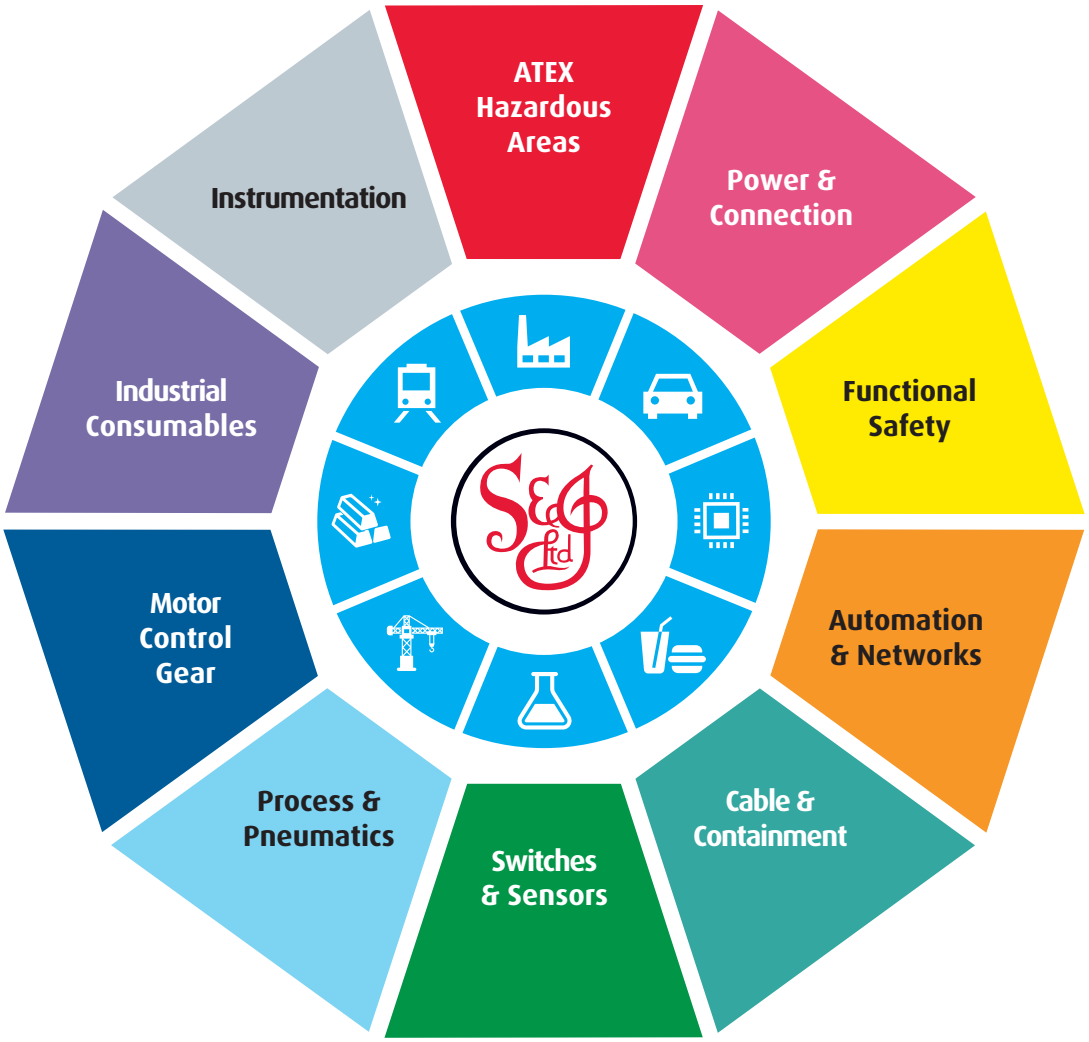

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