

Ethernet/IP: Changeover from ASi gateways type K20 to KE5



Introduction

Changeover from ASi gateways with Ethernet/IP interface type K20 to the new VBG-EP1-KE5-D*

With these instructions, you can easily switch from previously used K20 gateways to the new KE5 gateways.

The following advantages result from a change:

- Extensive web server for easy configuration and diagnostics
- Easy commissioning via your mobile device
- REST API interface enabling the implementation of IIoT solutions
- Multiprotocol functionality supports PROFINET and EtherNet/IP
- Quick setup via push button

Switch connections

Ethernet



Change Ethernet

1. Remove the Ethernet connections from the K20 sockets EtherNet/IP 1 and EtherNet/IP 2
2. Insert the Ethernet connectors into the sockets X1 and X2 at the VBG-EP1-KE5-D*.

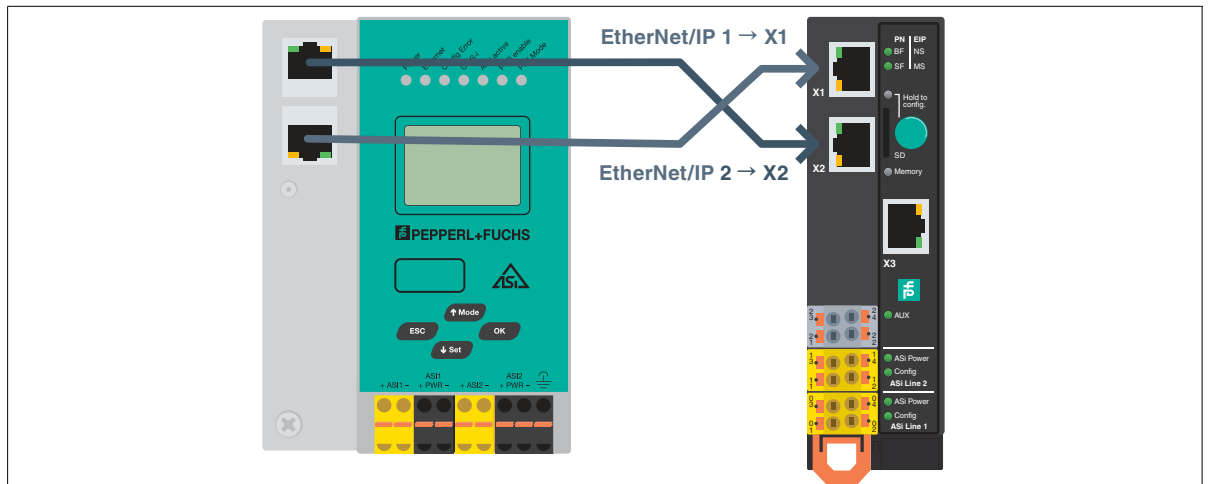


Figure 1

ASi Power Supply



Note

If you are using a K20 gateway with integrated data decoupling so far, you need a special ASi power supply for the supply of the KE5 gateway.



Change power supply to VBG-EP1-KE5-D

1. Take the power supply connections out of the K20 sockets ASi PWR+/-.
2. Plug the connections of the power supply into the sockets 03 and 01 on the VBG-EP1-KE5-D.

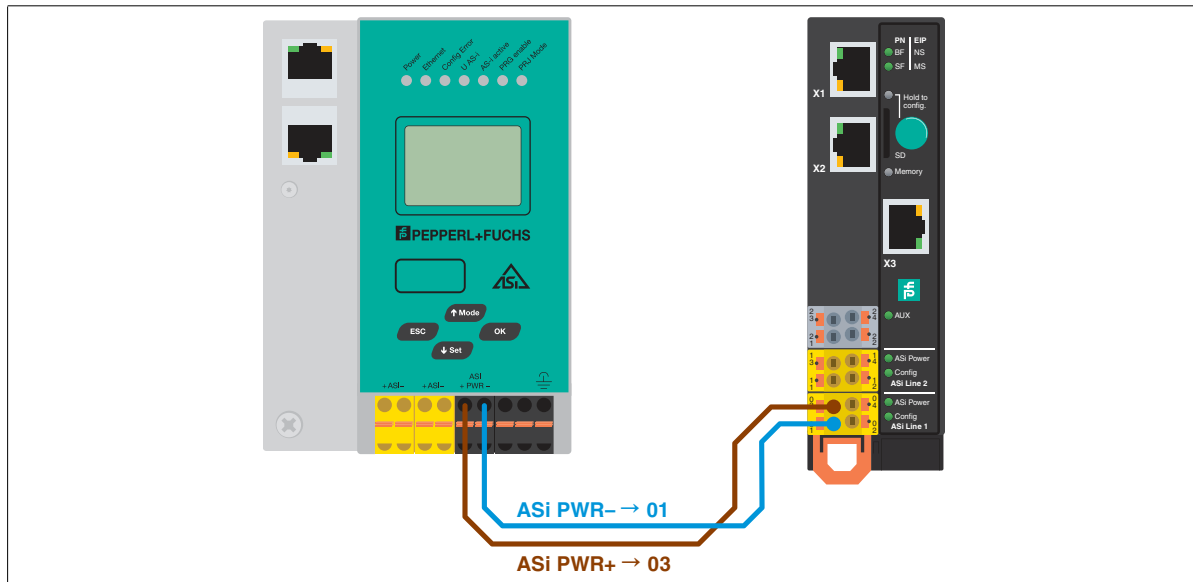


Figure 2



Change power supply to VBG-EP1-KE5-DMD

1. Take the power supply connections out of the K20 sockets ASi1 PWR+/- and ASi2 PWR+/-.
2. Plug the connections of the power supply into the sockets 03 and 01 for ASi network 1 and 13 and 11 for ASi network 2.

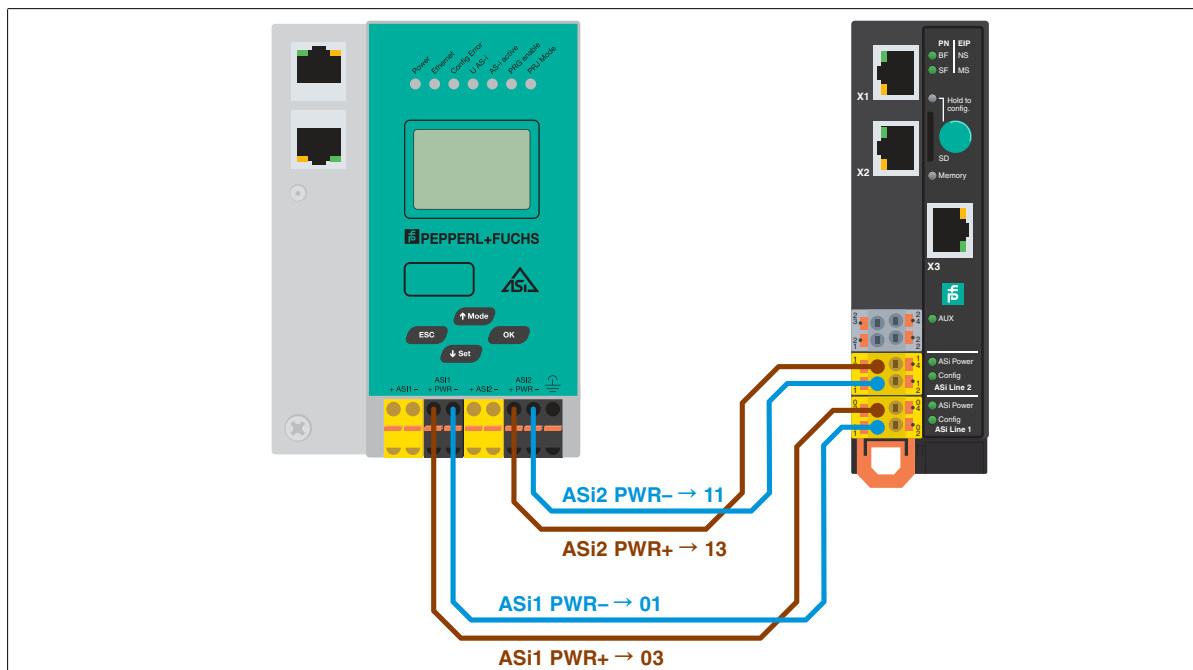


Figure 3

ASi Network



Change ASi network to VBG-EP1-KE5-D

1. Take the connectors of the ASi network out of the K20 sockets ASi +/-.
2. Plug the connectors for the ASi network into the sockets 04 and 02.

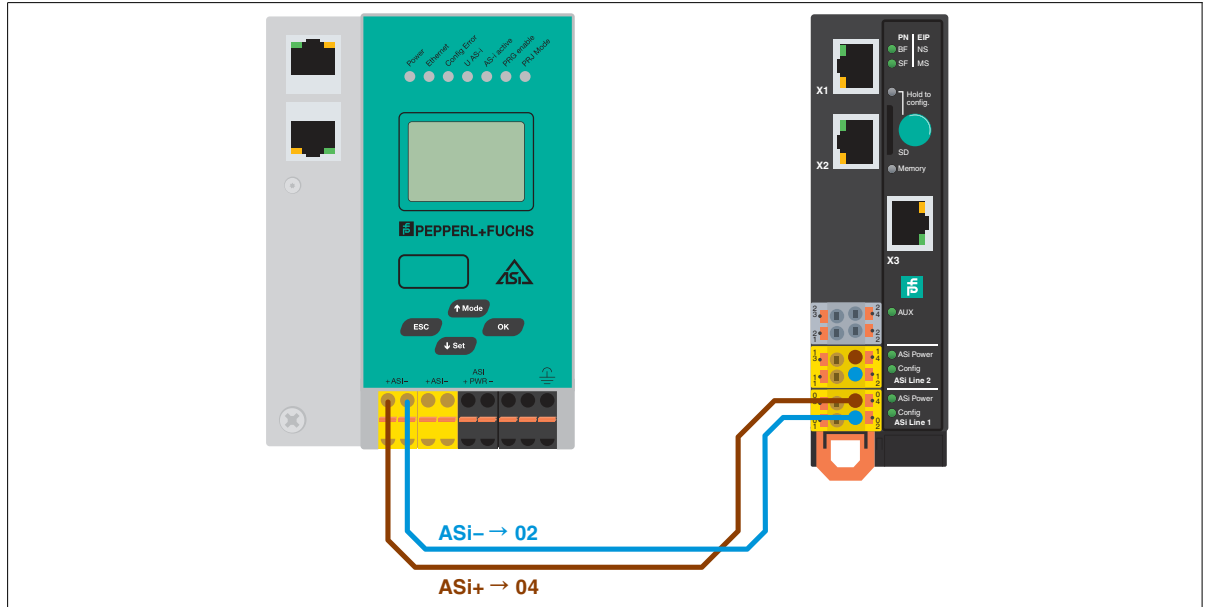


Figure 4



Change ASi network to VBG-EP1-KE5-DMD

1. Take the connectors of the ASi network 1 and 2 out of the K20 sockets ASi1 +/- and ASi2 +/-.
2. Plug the connectors for ASi network 1 into the sockets 04 and 02 for ASi network 2 into the sockets 14 and 12

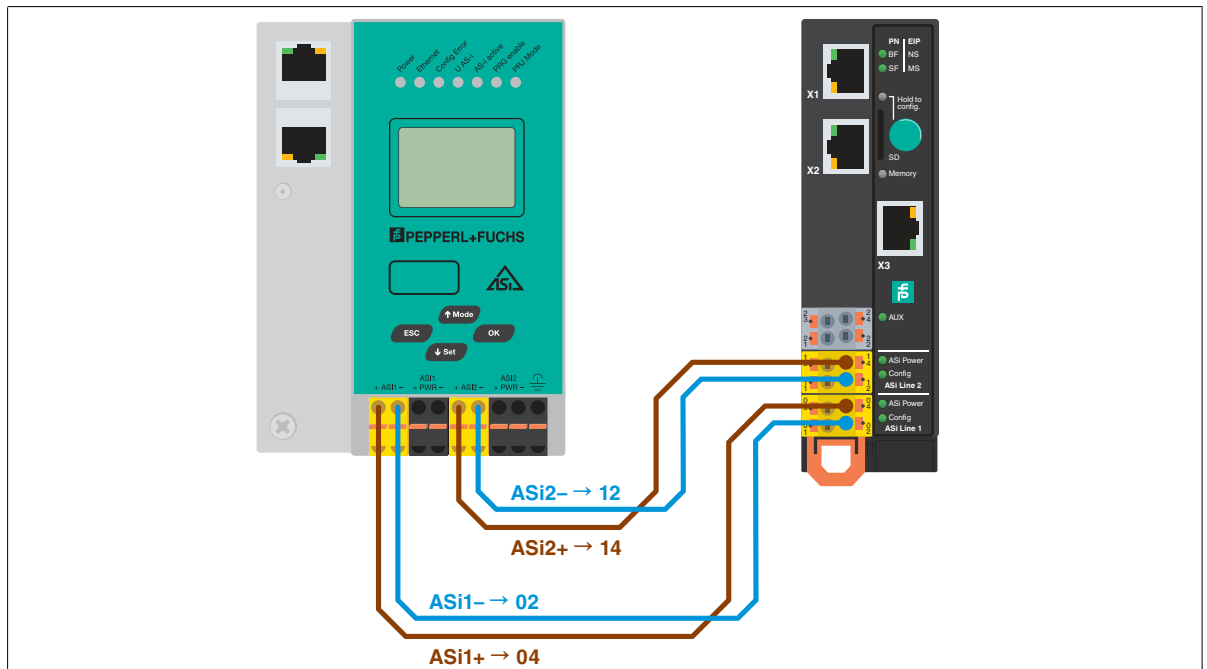


Figure 5

Transfer Configuration



Store ASi configuration on KE5 gateway

1. Connect the VBG-EP1-KE5-D* , .
2. Press and hold the pushbutton for 5 seconds.
 - ↳ The ASi 1 LEDs flash yellow.
 - ↳ The configuration of the ASi network 1 can be saved.
3. Press and hold the pushbutton for 5 seconds.
 - ↳ The Memory LED flashes green
 - ↳ The configuration of ASi network 1 is stored.



Note

Switching between ASi network 1 and 2 at VBG-EP1-KE5-DMD

4. Press the pushbutton briefly.
 - ↳ The ASi 2 LEDs flash yellow.
 - ↳ The configuration of the ASi network 2 can be saved.
5. Press and hold the pushbutton for 5 seconds.
 - ↳ The Memory LED flashes green
 - ↳ The configuration of ASi network 2 is stored.



Note

The device reboots automatically after saving the configuration.

Ethernet/IP integration

Setting up the VBG-EP1-KE5-D* is very easy thanks to the advanced features. If you need more information, you can find a video tutorial and description files on our website.



Note

By default the VBG-EP1-KE5-D* gateway is set to the PROFINET protocol. Make sure that the VBG-EP1-KE5-D* is set to the Ethernet/IP protocol.



Switching the Fieldbus Protocol

A new gateway is always in PROFINET mode. The push button can be used to switch the fieldbus protocol to EtherNet/IP and back to PROFINET. Please note that switching the fieldbus mode will cause the gateway to restart and will reset the fieldbus configuration.

1. Press and hold the push button for at least five seconds.
 - ↳ The LEDs for ASi line 1 flash yellow.
2. **VBG-EP1-KE5-DMD**: Short-press the push button four times for EtherNet/IP or short-press three times for PROFINET.
3. **VBG-EP1-KE5-D**: Short-press the push button twice for EtherNet/IP or short-press once for PROFINET.
 - ↳ The SF/MS LED flashes.
4. Press and hold the push button for at least five seconds.
 - ↳ The LEDs for ASi line 1 and ASi line 2 flash.
 - ↳ The gateway switches to EtherNet/IP mode
5. Switch back to PROFINET mode by repeating steps 1–3.

Setting the IP address for ports X1/X2

To set the IP address in Ethernet/IP mode, you can use the BootP/DHCP tool.

Save existing K20 project

Before you start the change, make a backup copy of the project. Make a note of the name of the previous EDS file and all parameters used for the K20 gateways via an appropriate notification (mailbox).



Download EDS files

1. Download the appropriate EDS file for your device from our website.
 - VBG-EP1-KE5-D
 - VBG-EP1-KE5-DMD

Difference EPS files

Function	K20	KE5
IO mapping options	9 or 22	3
Diagnosis	Mailbox	Directly assigned
Analog mapping	3 or 22	5
Config file to set the parameters	No	Yes

Table 1



Note

In this instruction we use Studio 5000 and Alan Bradley PLC as Ethernet/IP PLC. A similar process is applicable for any Ethernet/IP system.



Apply Configuration

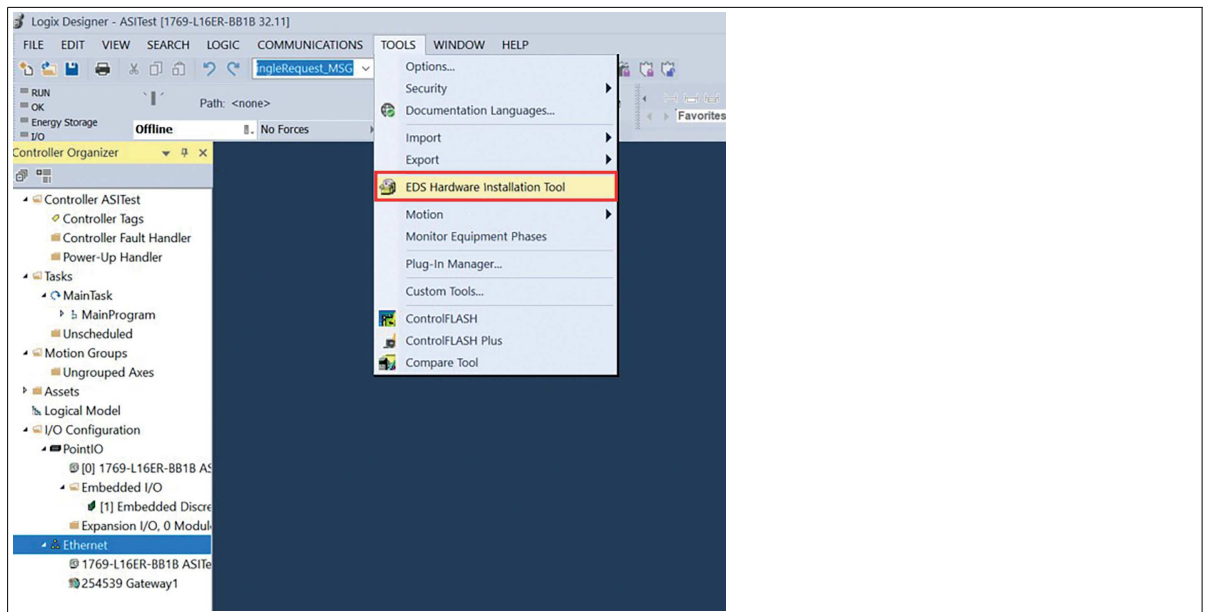


Figure 6

2. Add a new module. Select the appropriate EDS file.

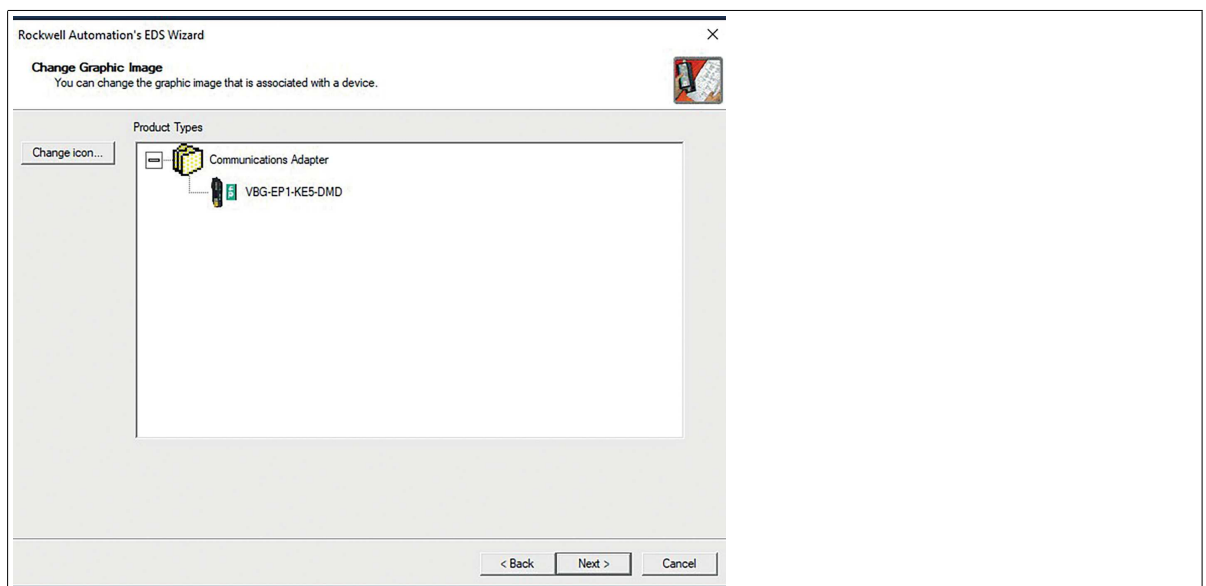


Figure 7

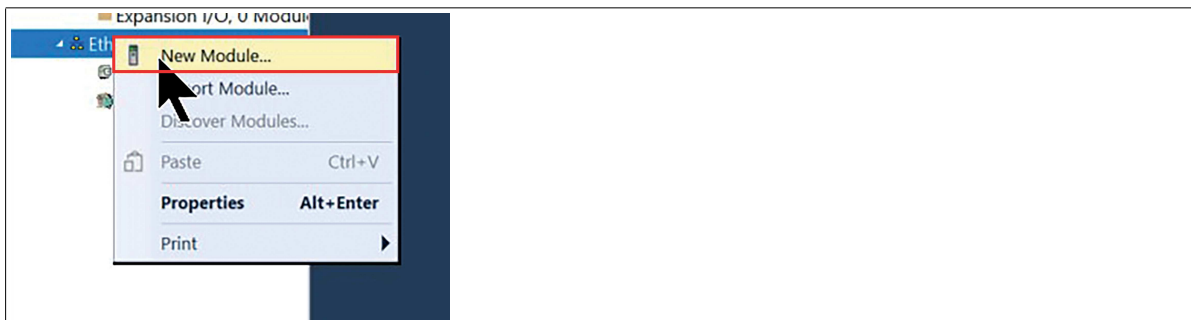


Figure 8

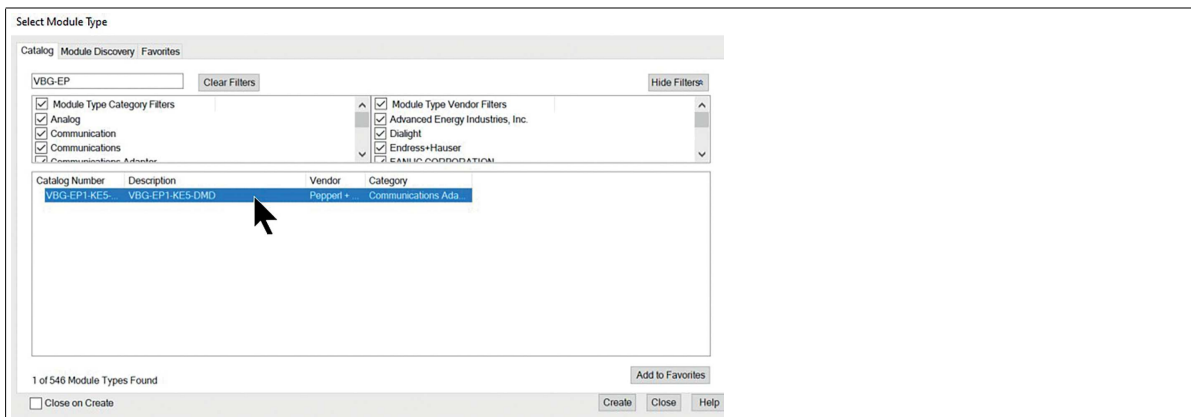


Figure 9

3. Name the module. In the example we use the name "NewPF".
4. Assign the IP address.

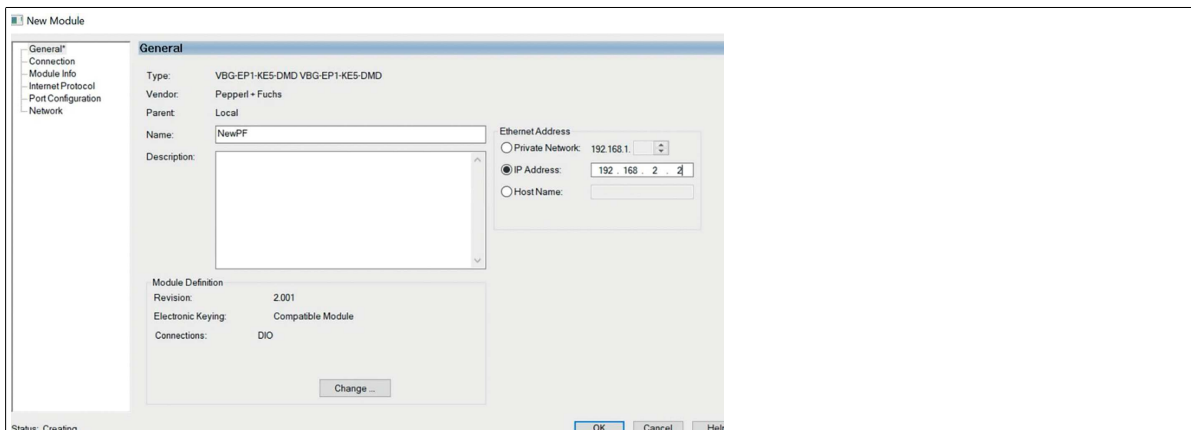


Figure 10

5. Use the different modes according to the requirements of your ASi project.

Example

VBG-ENX-K20-D	VBG-ENX-K20-DMD	VBG-EP1-KE5-D*
I/O: C1 A Slaves	I/O: C1 A Slaves	DIO
I/O: C1 A Slaves + CI	I/O: C1 A Slaves + CI	DIO Diagnostics
I/O: C1 A Slaves + C1 Analog	I/O: C1 A Slaves + C1 Analog	DIO Diagnostics AIO
I/O: C1 A Slaves + C1 Analog + CI	I/O: C1 A Slaves + C1 Analog + CI	
I/O: C1 A/B Slaves	I/O: C1 A/B Slaves	
I/O: C1 A/B Slaves + CI	I/O: C1 A/B Slaves + CI	
I/O: C1 A/B Slaves + C1 Analog	I/O: C1 A/B Slaves + C1 Analog	
I/O: C1 A/B Slaves + C1 Analog + CI	I/O: C1 A/B Slaves + C1 Analog + CI	
I/O: C1 A/B Slaves + C1 Slaves 10-31 Analog + CI (S	I/O: C1 A/B Slaves + C1 Slaves 10-31 Analog + CI (SWID 87835 only)	
I: C1 A Slaves	I: C1 A Slaves	
I: C1 A Slaves + C1 Analog	I: C1 A Slaves + C1 Analog	
I: C1 A/B Slaves	I: C1 A/B Slaves	
I: C1 A/B Slaves + C1 Analog	I: C1 A/B Slaves + C1 Analog	
I: C1/2 A Slaves	I: C1/2 A Slaves	
I: C1/2 A Slaves + C1 Analog	I: C1/2 A Slaves + C1 Analog	
I: C1/2 A Slaves + C1 Analog + CI	I: C1/2 A Slaves + C1 Analog + CI	
I: C1/2 A Slaves + C1/2 Analog	I: C1/2 A Slaves + C1/2 Analog	
I: C1/2 A Slaves + C1/2 Analog + CI	I: C1/2 A Slaves + C1/2 Analog + CI	
I: C1/2 A/B Slaves	I: C1/2 A/B Slaves	
I: C1/2 A/B Slaves + CI	I: C1/2 A/B Slaves + CI	
I: C1/2 A/B Slaves + C1 Analog	I: C1/2 A/B Slaves + C1 Analog	
I: C1/2 A/B Slaves + C1 Analog + CI	I: C1/2 A/B Slaves + C1 Analog + CI	
I: C1/2 A/B Slaves + C1/2 Analog	I: C1/2 A/B Slaves + C1/2 Analog	
I: C1/2 A/B Slaves + C1/2 Analog + CI	I: C1/2 A/B Slaves + C1/2 Analog + CI	
I: C1/2 A/B Slaves + C1/2 Slaves 10-31 Analog + CI (SWID 87835 only)	I: C1/2 A/B Slaves + C1/2 Slaves 10-31 Analog + CI (SWID 87835 only)	
I: C1 A Slaves	I: C1 A Slaves	
I: C1 A Slaves + C1 Analog	I: C1 A Slaves + C1 Analog	
I: C1 A/B Slaves	I: C1 A/B Slaves	
I: C1 A/B Slaves + C1 Analog	I: C1 A/B Slaves + C1 Analog	
I: C1/2 A Slaves	I: C1/2 A Slaves	
I: C1/2 A Slaves + C1 Analog	I: C1/2 A Slaves + C1 Analog	
I: C1/2 A Slaves + C1/2 Analog	I: C1/2 A Slaves + C1/2 Analog	
I: C1/2 A/B Slaves	I: C1/2 A/B Slaves	
I: C1/2 A/B Slaves + C1 Analog	I: C1/2 A/B Slaves + C1 Analog	
I: C1/2 A/B Slaves + C1/2 Analog	I: C1/2 A/B Slaves + C1/2 Analog	

In the example we have selected the DIO diagnostics AIO. AIO provides all digital and analog signal values. Due to the size of the analog data we have chosen INT instead of SINT.

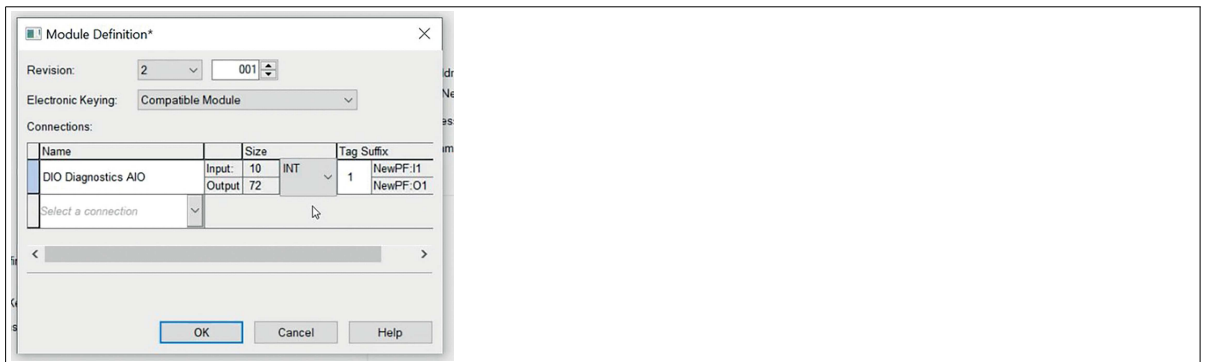


Figure 11

Description and assignment of the controller tags

In the Controller Tags section you will see three parameter files that start with the name of the imported EDS file. With these files you can set the parameters for the following functions:

- Configuration: *:C, in the example "NewPF:C"
- Inputs: *:I1, in the example "NewPF:I1"
- Outputs: *:O1, in the example "NewPF:O1"

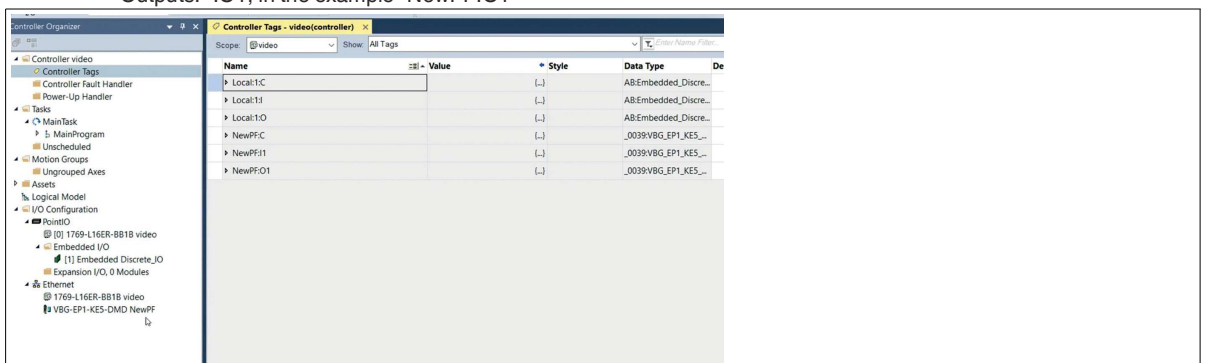


Figure 12

Transfer the parameters from the backup copy of the project to the corresponding parameter tables.



Note

The `Use_Activation_Parameters_Config` parameter controls the use of the parameter table. Set the parameter to 1 to use the data from the parameter table.

	(-)	(-)	_0039%
NewPF.C			
NewPF.C.Configuration_Assembly_Version	0	Decimal	SINT
NewPF.C.Use_Activation_Parameter_Config	1	Decimal	SINT
NewPF.C.Activ_param_L1_addr_1_1A	15	Decimal	SINT
NewPF.C.Activ_param_L1_addr_2_2A	15	Decimal	SINT
NewPF.C.Activ_param_L1_addr_3_3A	15	Decimal	SINT
NewPF.C.Activ_param_L1_addr_4_4A	15	Decimal	SINT
NewPF.C.Activ_param_L1_addr_5_5A	15	Decimal	SINT
NewPF.C.Activ_param_L1_addr_6_6A	15	Decimal	SINT
NewPF.C.Activ_param_L1_addr_7_7A	15	Decimal	SINT
NewPF.C.Activ_param_L1_addr_8_8A	15	Decimal	SINT
NewPF.C.Activ_param_L1_addr_9_9A	15	Decimal	SINT
NewPF.C.Activ_param_L1_addr_10_10A	15	Decimal	SINT
NewPF.C.Activ_param_L1_addr_11_11A	15	Decimal	SINT
NewPF.C.Activ_param_L1_addr_12_12A	15	Decimal	SINT
NewPF.C.Activ_param_L1_addr_13_13A	15	Decimal	SINT
NewPF.C.Activ_param_L1_addr_14_14A	15	Decimal	SINT
NewPF.C.Activ_param_L1_addr_15_15A	15	Decimal	SINT
NewPF.C.Activ_param_L1_addr_16_16A	15	Decimal	SINT
NewPF.C.Activ_param_L1_addr_17_17A	15	Decimal	SINT
NewPF.C.Activ_param_L1_addr_18_18A	15	Decimal	SINT
NewPF.C.Activ_param_L1_addr_19_19A	15	Decimal	SINT

Figure 13

You can now map the modules in the ASi net.

Name	Value	Style	Data Type	Description
NewPF:1.Data	(-)	Decimal	INT[106]	
NewPF:1.Data[0]	0	Decimal	INT	2A, 3A, Flags, 1A
NewPF:1.Data[1]	0	Decimal	INT	6A, 7A, 4A, 5A
NewPF:1.Data[2]	0	Decimal	INT	10A, 11A, 8A, 9A
NewPF:1.Data[3]	0	Decimal	INT	14A, 15A, 12A, 13A
NewPF:1.Data[4]	0	Decimal	INT	18A, 19A, 16A, 17A
NewPF:1.Data[5]	0	Decimal	INT	22A, 23A, 20A, 21A

Figure 14

When you have mapped all modules, you can load the project to your PLC and test it.