

PNOZ m ES CC-Link with Mitsubishi Q-Series



Product
Type: PNOZ m ES CC-Link
Name: PNOZmulti 2 series
Manufacturer: Pilz GmbH & Co. KG, Safe Automation

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Validity of Application Note

This present Application Note is valid until a new version of the document is published.

This and other Application Notes can be downloaded in the latest version and for free from www.pilz.com.

For a simple search, use our [content document \(1002400\)](#) or the [direct search function](#) in the download area.

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We are grateful for any feedback on the contents.

October 2016

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1. Useful documentation

Reading the documentation listed below is necessary for understanding this application note. The availability of the indicated tools and safe handling are also presupposed with the user.

1.1. Documentation from Pilz GmbH & Co. KG

No.	Description	Item No.
1	Pilz international homepage, download section	www.pilz.com
2	PNOZmulti 2 Communication Interfaces	1002971-EN-XX
3	Technical Catalogue PNOZmulti	1001153-EN-XX
4	Operating Manual PNOZ m B0	1002660-EN-XX
5	Operating Manual PNOZ m ES CC-Link	1003817-EN-XX

2. Hardware configuration

2.1. Pilz products

No.	Descriptions	Order number	Version	Number
1	PNOZ m B0	772100	1.2	1
2	PNOZ m ES CC-Link	772135	1.0	1

2.2. Mitsubishi products

No.	Descriptions	Order number	Version	Number
1	Mitsubishi MELSEC Q00JCPU	Q00JCPU	-	1
2	Mitsubishi MELSEC QJ61BT11	QJ61BT11	-	1

2.3. Hardware configuration

2.3.1. Pilz products

The screenshot displays the PNOZmulti Configurator interface. On the left, a tree view under 'Modules' lists various hardware components. The right pane, titled 'Configured Hardware', shows a warning icon and the text 'Cannot move this module.' Below this, two images of hardware modules are shown: a green base unit and a yellow base unit. At the bottom right, a table lists the configured hardware.

	Module Name	Version	Equipment ...	Location ...	I	O
-1	Fieldbus module PNOZmulti 2	v1.0	a2		128	128
0	Base Unit PNOZ m B0	v1.2	a1		20	4

Fig 1: PNOZmulti Configurator – Hardware Configuration

2.3.2. Mitsubishi products

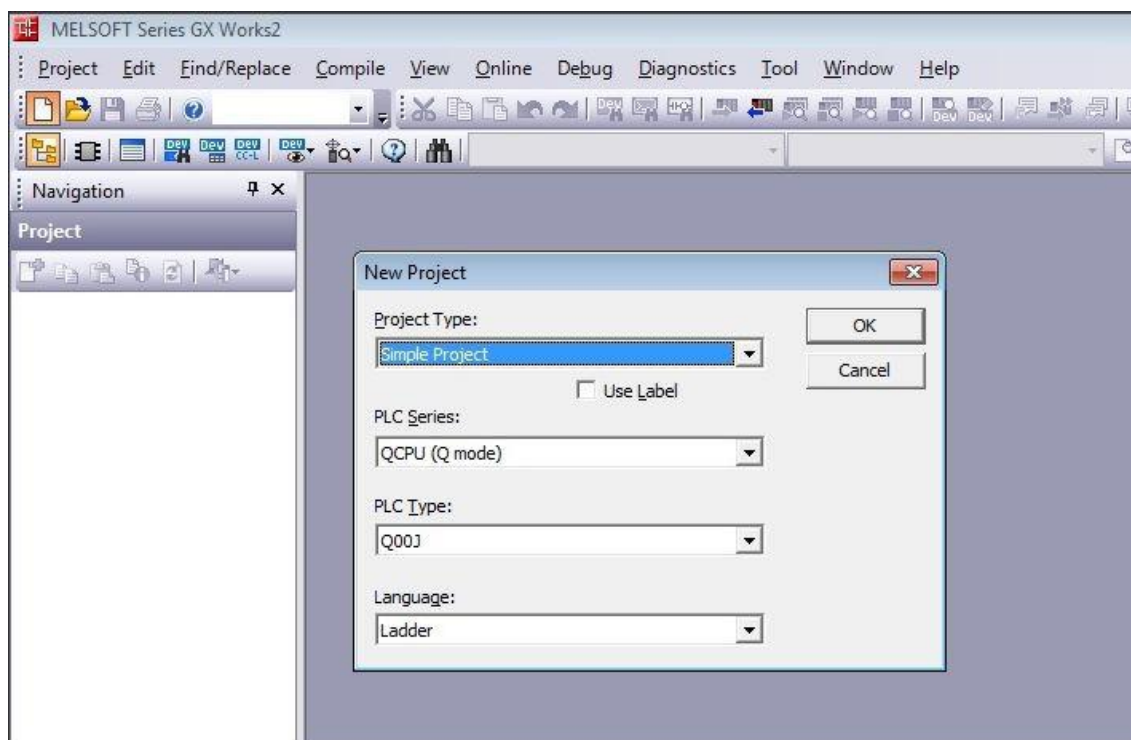


Fig 2: GX Works2 – Hardware Configuration

3. Used Software

3.1. Pilz products

No.	Descriptions	Version
1	PNOZmulti Configurator	9.6.0 Build 20

3.2. Mitsubishi products

No.	Descriptions	Version
1	GXWorks2	1.98C

4. Application Task

Create a CC-Link connection between PNOZ m ES CC-Link and Mitsubishi Q-serie with GXWorks2.

The Module PNOZ m ES CC-Link is a remote device which supports Version 1.1 of CC-Link and occupied 3 Stations.

CC-Link Address of PNOZ m ES CC-Link Module is set to 1 with a baud rate of 500 kb/s.

4.1. Mitsubishi PLC

4.1.1. Hardware Configuration

- ▶ Create a new project
- ▶ Select the PLC series and PLC Type

4.1.2. CC-Link Configuration

- ▶ Open the CC-Link Network Parameter (1)
- ▶ Select the Number of Modules (2)
- ▶ Assign the addresses Remote input / output and register (3)
- ▶ Edit the Station Information (4)

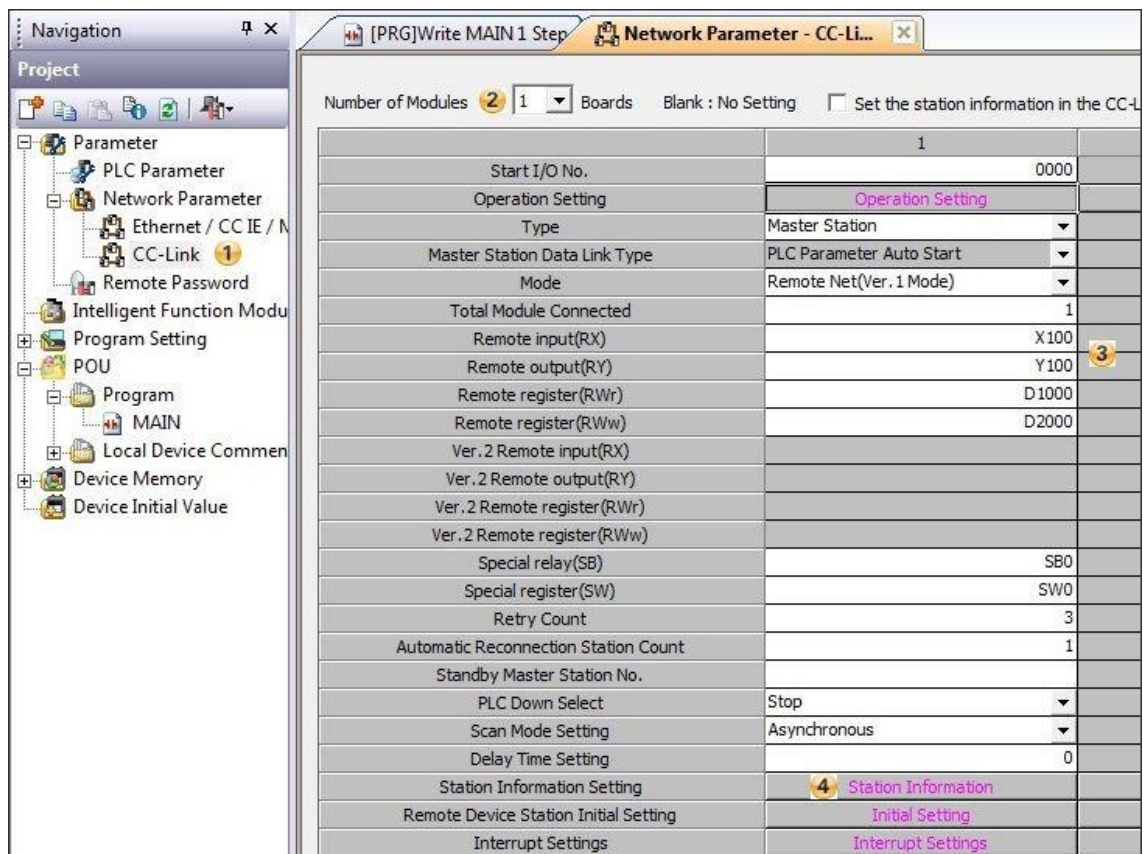


Fig 3: GX Works2 – Network Parameter

- ▶ Configure the number of occupied stations, the PNOZ m ES CC-Link Occupied Stations 3 (1)
- ▶ Click to Check (2)
- ▶ Click to End (3)

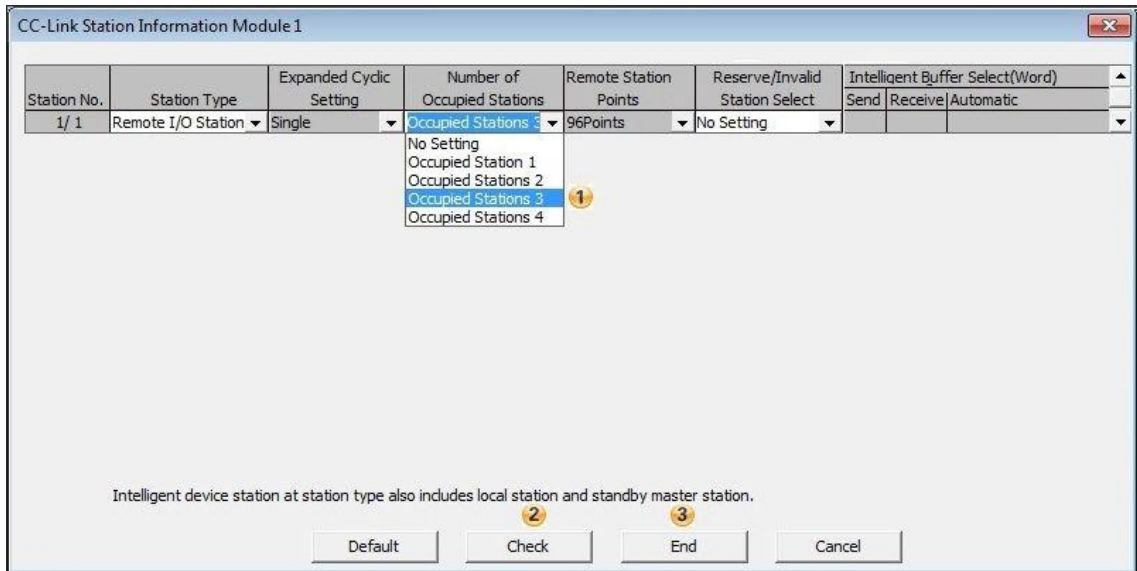


Fig 4: GX Works2 – Network Parameter – Station Information

4.1.3. Download

- ▶ Build (1)
- ▶ Download (2)

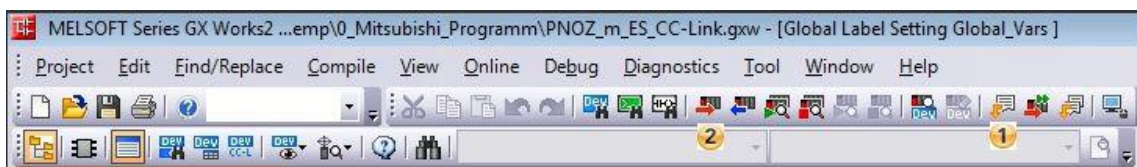


Fig 5: GX Works2 – Build and Download

- ▶ Select the data transferred to the PLC (1)
- ▶ Execute (Start Download) (2)

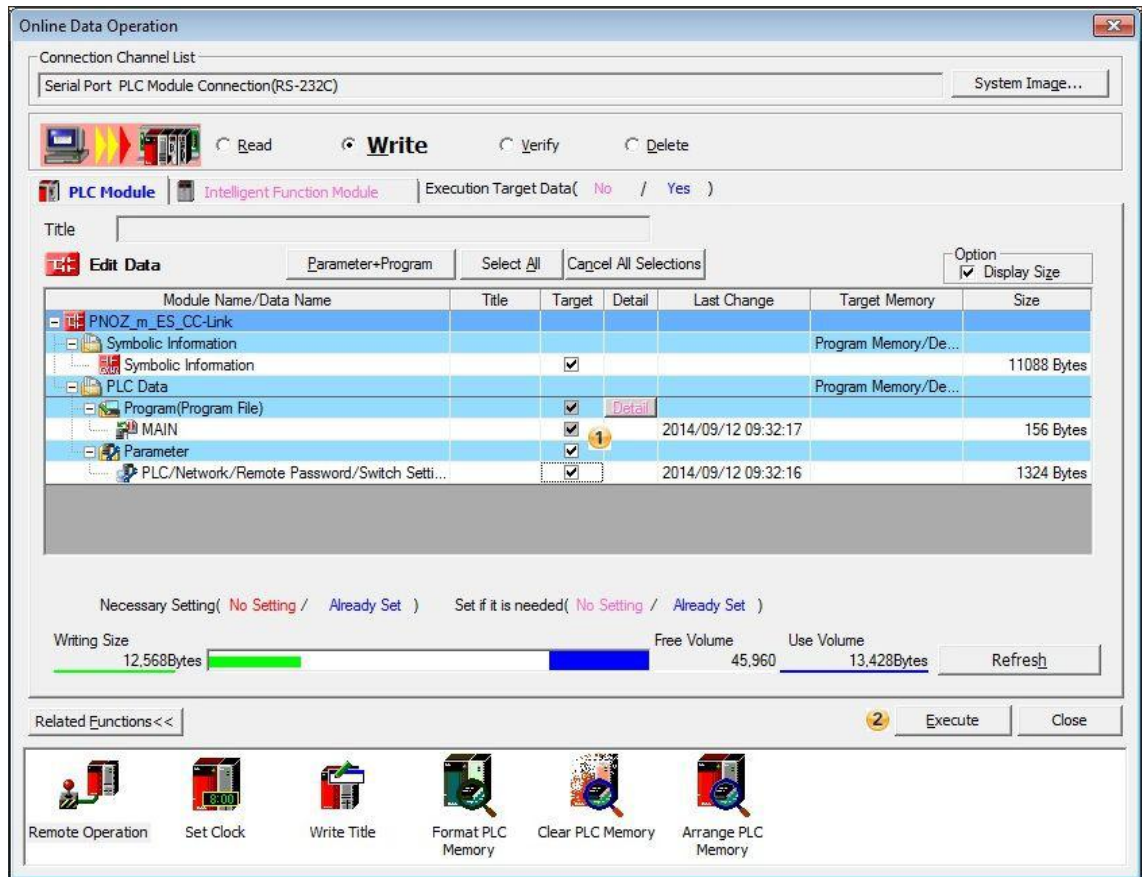


Fig 6: GX Works2 – Download

4.1.4. PNOZ m ES CC-Link address assignment

Register	Content	System Q	
		Address in Sample	
RY 00..0F	virtual Input 0..15	Y100..Y10F	
RY 10..1F	virtual Input 16..31	Y110..Y11F	
RY 20..2F	virtual Input 32..47	Y120..Y12F	
RY 30..3F	virtual Input 48..63	Y130..Y13F	
RY 40..4F	virtual Input 64..79	Y140..Y14F	
RY 50..5F		virtual Input 80..87	Y150..Y15F
RWw00	virtual Input 96..103	virtual Input 88..95	D2000
RWw01	virtual Input 119..112	virtual Input 111..104	D2001
RWw02	-	virtual Input 120..127	D2002
RX 00..0F	virtual Output 0..15	X100..X10F	
RX 10..1F	virtual Output 16..31	X110..X11F	
RX 20..2F	virtual Output 32..47	X120..X12F	
RX 30..3F	virtual Output 48..63	X130..X13F	
RX 40..4F	virtual Output 64..79	X140..X14F	
RX 50..5F		virtual Output 80..87	X150..X15F
RWr00	virtual Output 96..103	virtual Output 88..95	D1000
RWr01	virtual Output 119..112	virtual Output 111..104	D1001
RWr02	LED Status Base Module Bit 0: OFAULT LED is ON Bit 1: IFAULT LED is ON Bit 2: FAULT LED is ON Bit 3: DIAG LED is ON Bit 4: RUN FS LED is ON Bit 5: Reserved Bit 6: Reserved Bit 7: RUN ST LED is ON (only for PNOZ m B1)	virtual Output 120..127	D1002
RWw03	Request Segment number	Request Table number	D2003
RWr03	Reply Segment number	Reply Segment number	D1003
RWr04	Payload Segment byte 1	Payload Segment byte 0	D1004
RWr05	Payload Segment byte 3	Payload Segment byte 2	D1005
RWr06	Payload Segment byte 5	Payload Segment byte 4	D1006
RWr07	Payload Segment byte 7	Payload Segment byte 6	D1007
RWr08	Payload Segment byte 9	Payload Segment byte 8	D1008
RWr09	Payload Segment byte 11	Payload Segment byte 10	D1009
RWr0A	-	Payload Segment byte 12	D100A

Fig 7: PNOZ m ES CC-Link address assignment

4.1.5. Request of Table and Segments

If you need more information from the PNOZmulti System you can use the Table and Segments. The content of the data in the Table and Segments are explained in the document "PNOZmulti 2 Communication Interfaces".

We want to read out the Version of the Fieldbus Module. This information is stored in the Table 93, Segment 0 in Byte 10 and 11. In this example it is D1009 and shows the Version 1.1.

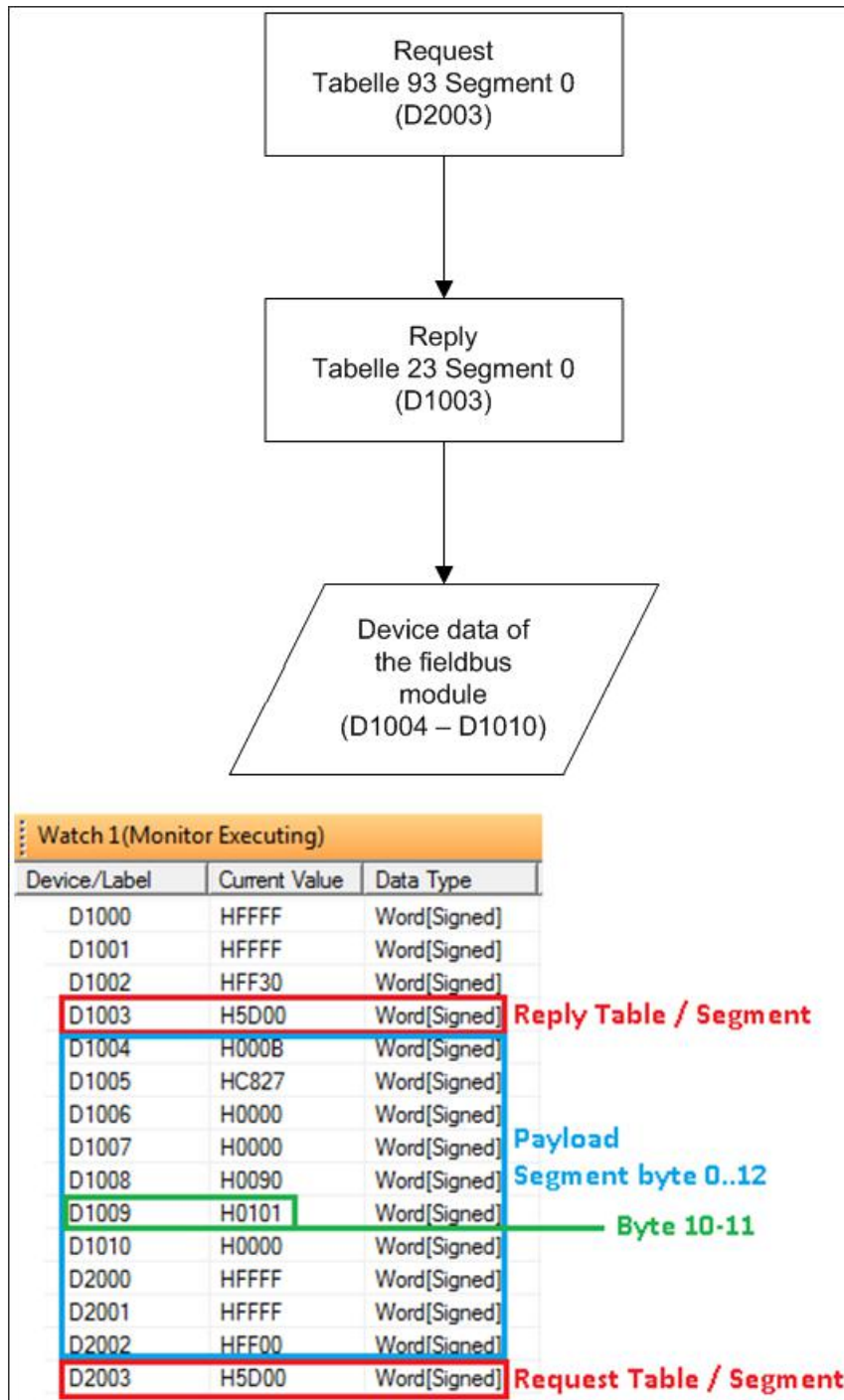


Fig 8: Request Table 93 Segment 0

4.2. PNOZmulti

4.2.1. PNOZmulti Configuration

- ▶ Create a new project
- ▶ Select Modules

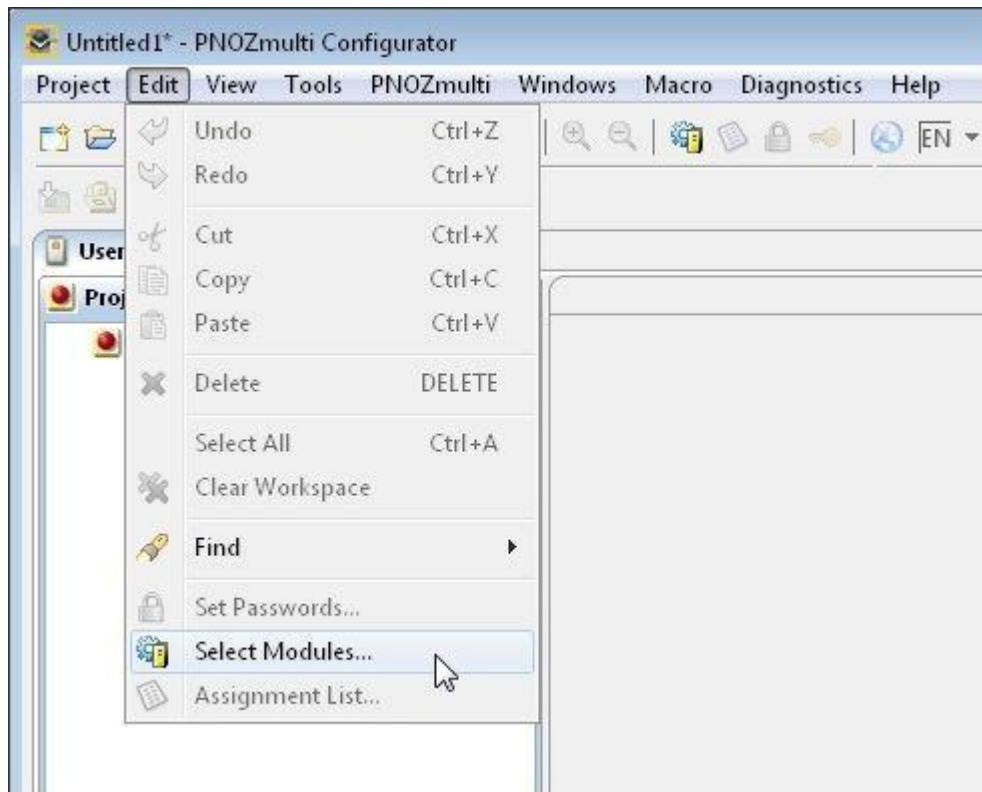


Fig 9: PNOZmulti Configurator – Select Modules

- ▶ Select the used Hardware

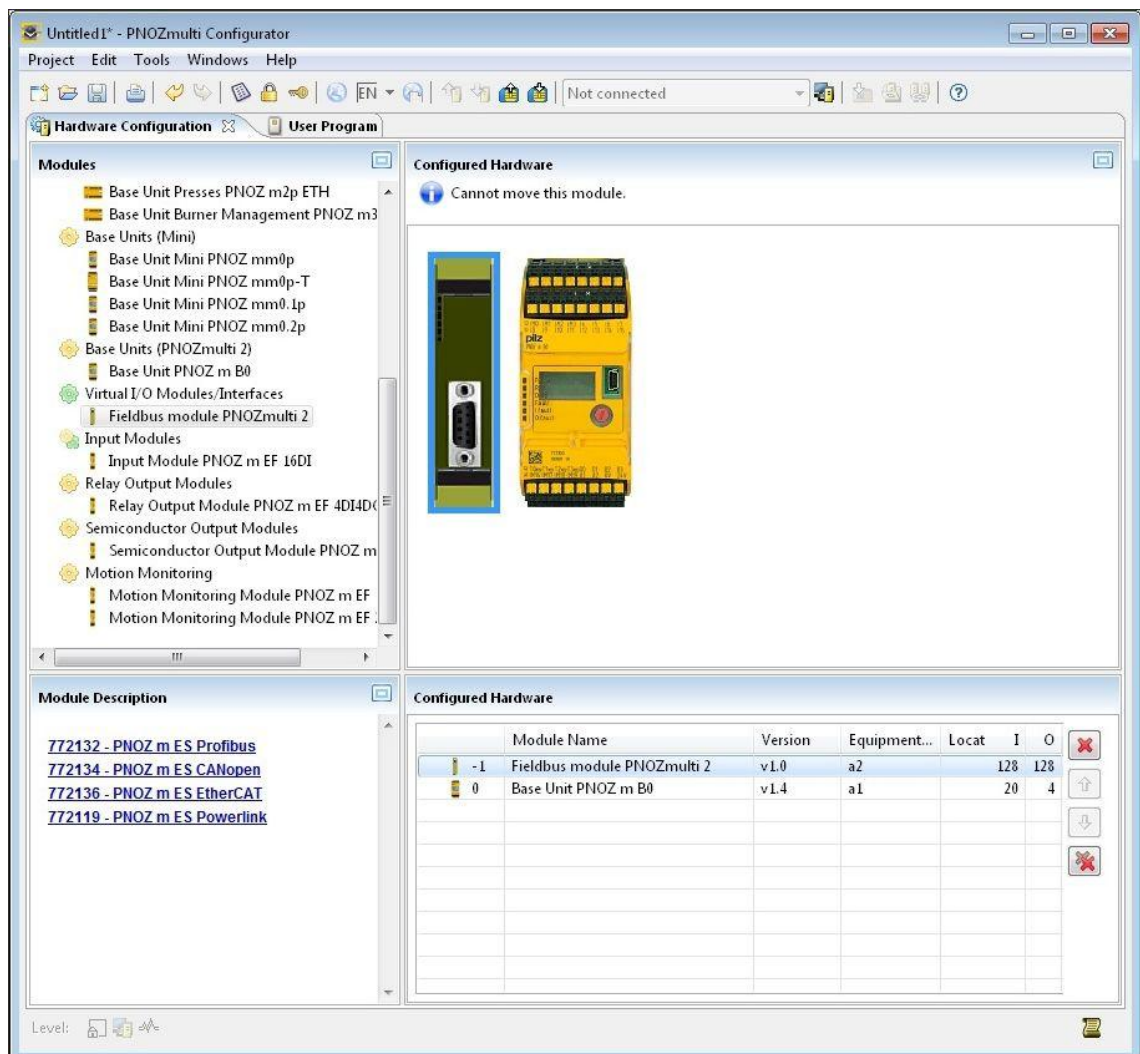


Fig 10: PNOZmulti Configurator – Select the used Hardware

Notice: ▶ To test the communication between the PNOZmulti and the Ethernet/IP Scanner you need at least one safety function in the PNOZmulti program.

- ▶ Insert a safety function, e.x. E-STOP

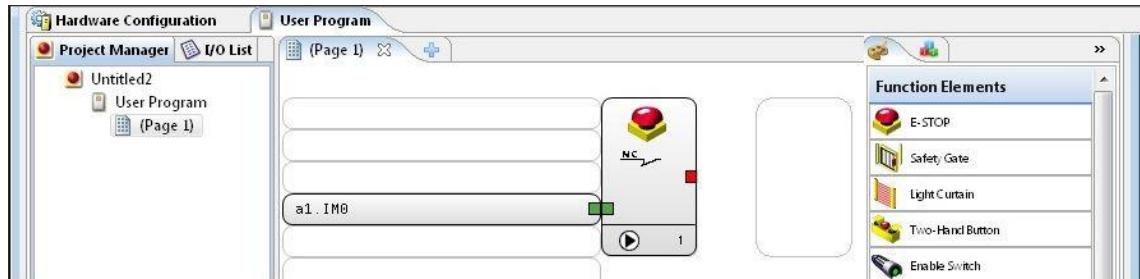


Fig 11: PNOZmulti Configurator – Insert E-Stop

- ▶ Insert an output and connect it with the E-STOP

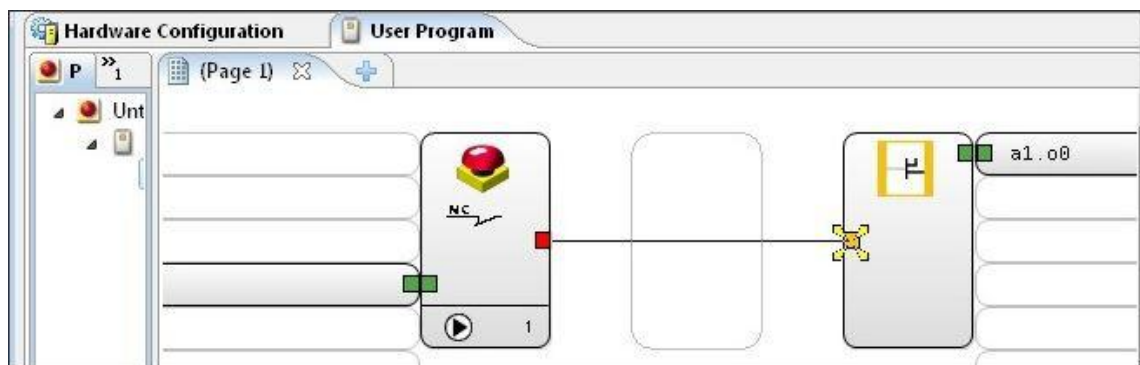


Fig 12: PNOZmulti Configurator – Insert Output

▶ Insert a virtual Output

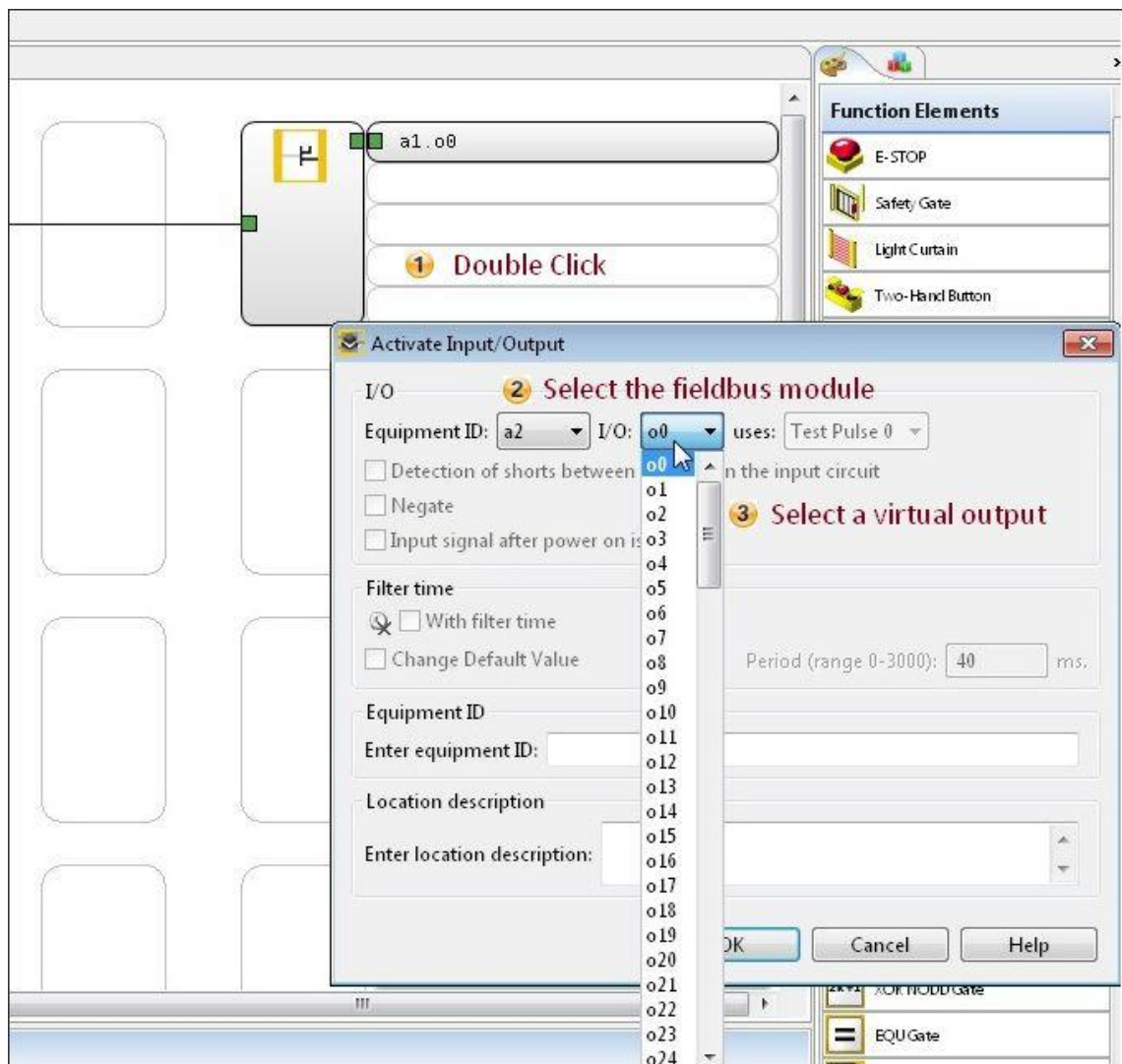


Fig 13: PNOZmulti Configurator – Insert a virtual Output

- ▶ Connect the virtual Output with the E-STOP to get the status of the E-STOP

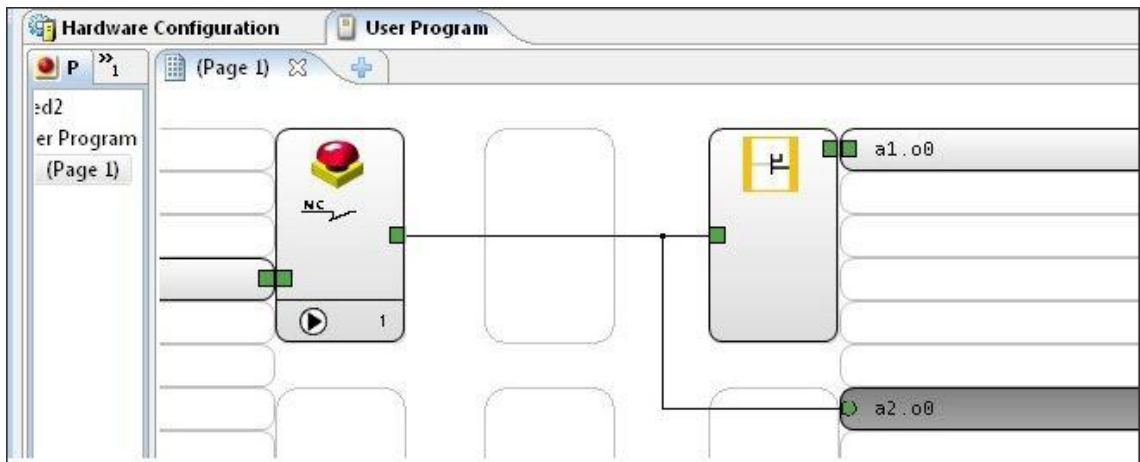


Fig 14: PNOZmulti Configurator – virtual Output is connected with E-Stop

4.2.2. PNOZmulti Download

- ▶ Select Interface

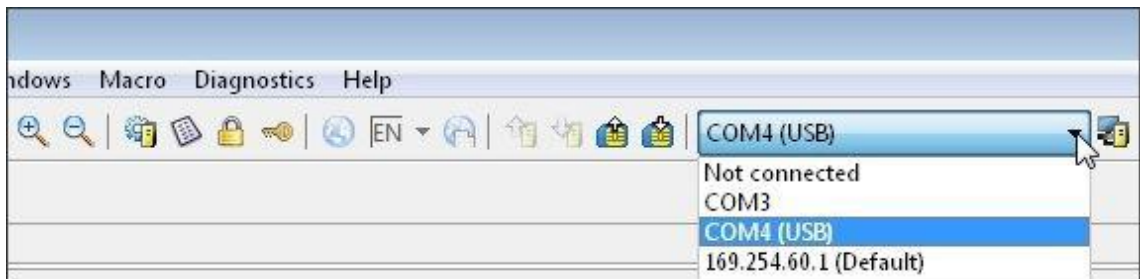


Fig 15: PNOZmulti Configurator – Select the Interface



Fig 16: PNOZmulti Configurator – Download to PNOZmulti (1)

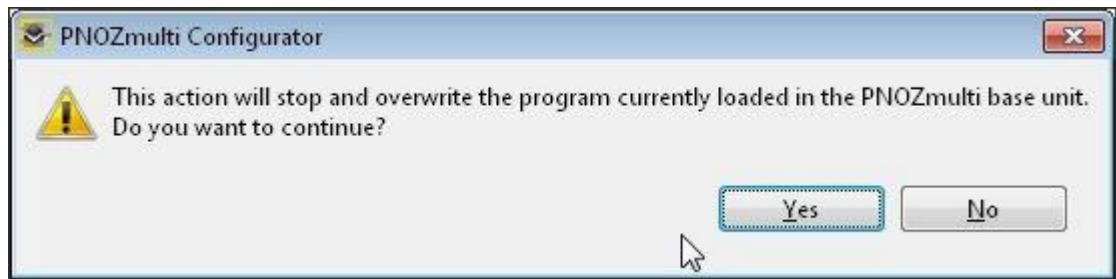


Fig 17: PNOZmulti Configurator – Download to PNOZmulti (2)



Fig 18: PNOZmulti Configurator – Download to PNOZmulti (3)

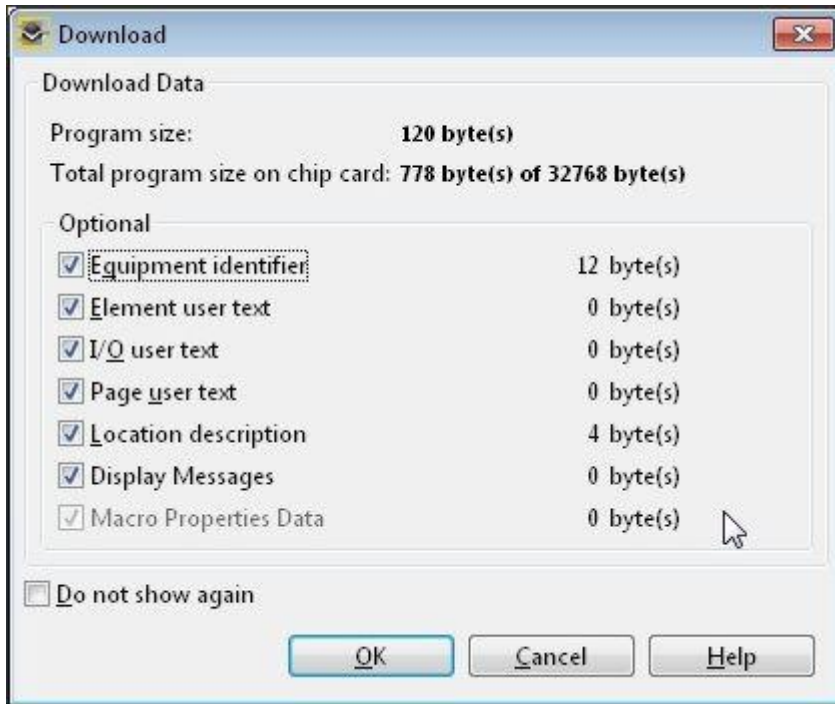


Fig 19: PNOZmulti Configurator – Download to PNOZmulti (4)

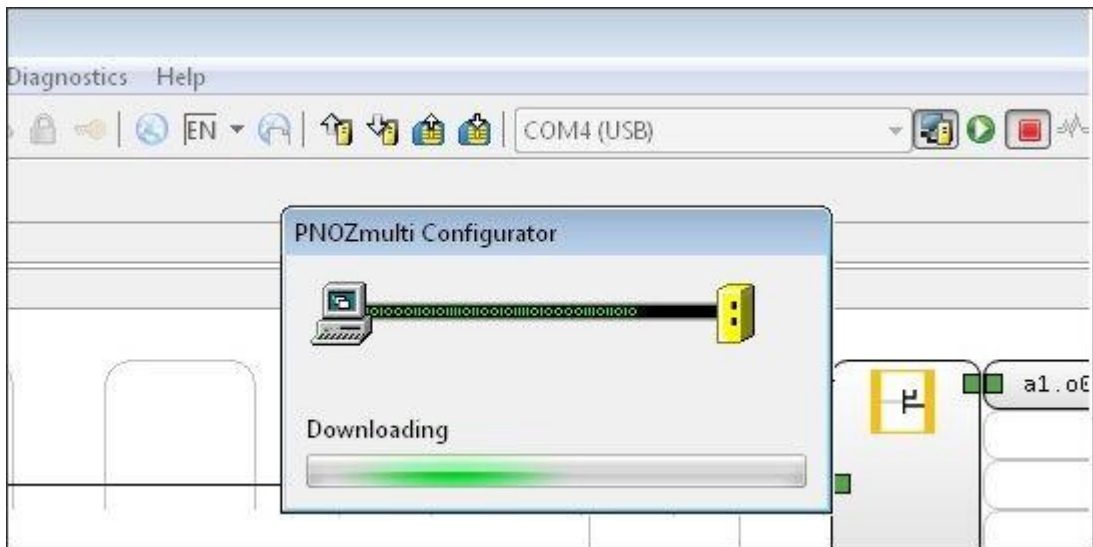


Fig 20: PNOZmulti Configurator – Download to PNOZmulti (5)

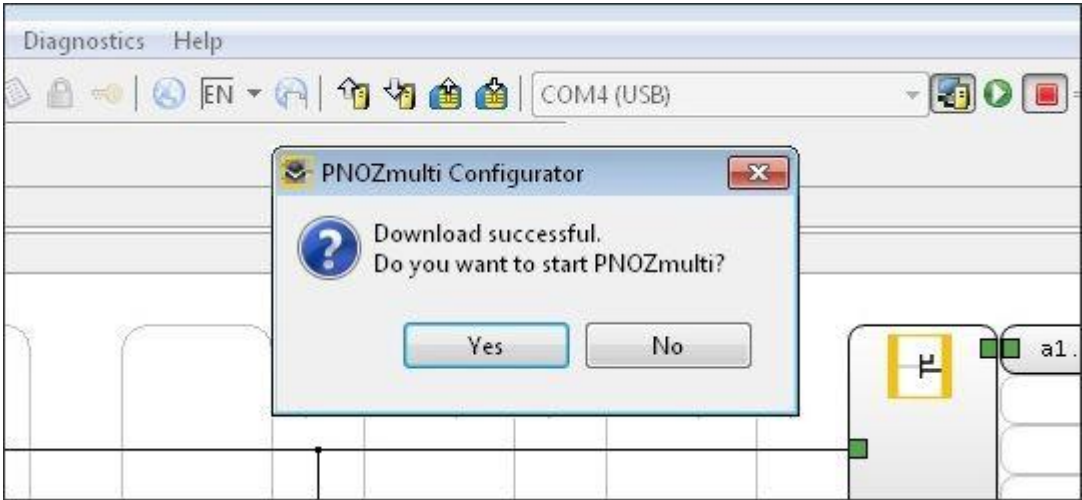


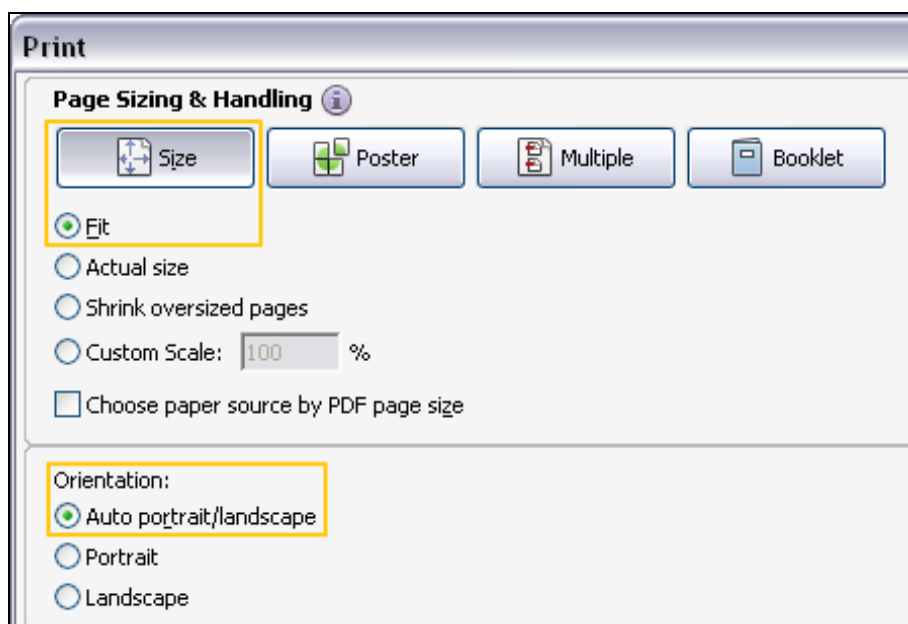
Fig 21: PNOZmulti Configurator – Download to PNOZmulti (6)

5. Table of figures

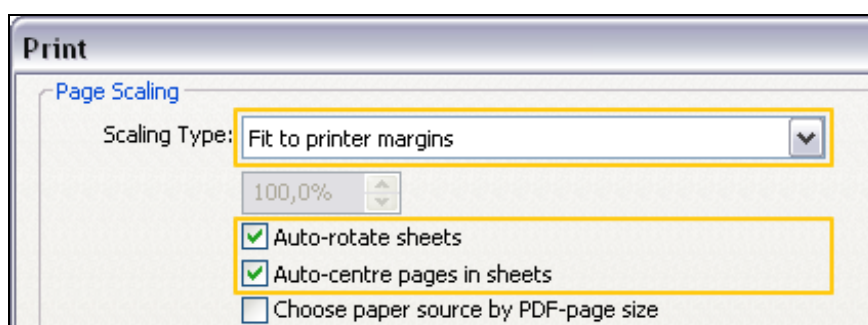
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Recommended printer settings

Adobe Acrobat Reader (www.adobe.com)



PDF-XChange Viewer (www.tracker-software.com)



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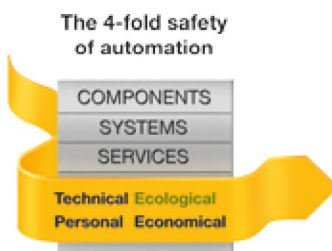
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Pilz develops environmentally-friendly products using ecological materials and energy-saving technologies. Offices and production facilities are ecologically designed, environmentally-aware and energy-saving. So Pilz offers sustainability, plus the security of using energy-efficient products and environmentally-friendly solutions.

Energy saving by Pilz



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