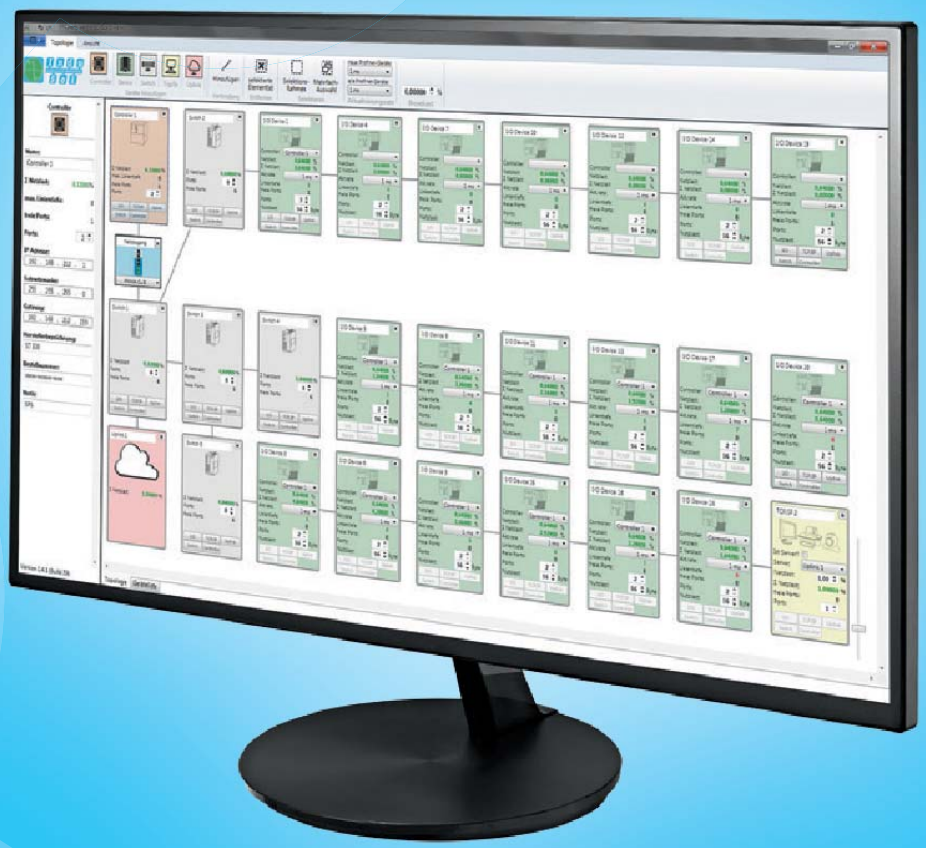
Indu-Sol GmbH – Specialist in Industrial Networks

PROnetplan

User Manual



Diagnostic and service tools for PROFINET / Ethernet

PROFIBUS PROFINET INDUSTRIAL ETHERNET CAN DeviceNet SafetyBUS p AS-i INTERBUS EMV WIRELESS

Revision overview

Date	Revision	Change(s)
06.12.2013	0	First version
31.03.2017	1	Update for Version 1.6

Caution!

This device may only be put into operation and operated by qualified personnel. Qualified personnel, as referred to in the safety-related information of this manual, are persons who are authorised to put into operation, to earth and to label devices, systems and electrical circuits in accordance with the standards of safety engineering.

Contents

1 General information

Please read this document thoroughly from start to finish before you begin installing the software and putting it into operation.

1.1 General

The PROnetplan software allows the preliminary design of PROFINET networks. In an intuitive way, the network can be assembled on a graphic interface. Important network parameters such as capacity utilisation, line depth and occupied ports are calculated and displayed automatically. The simple simulation of communication parameters and changes in network structure allows estimating and planning the utilisation of network capacity.

1.2 Disclaimer

Indu-Sol GmbH does not guarantee that the hardware and software will work properly in all application situations. With the technical means available today, it is not possible to develop software that perfectly meets all application requirements without errors. Indu-Sol GmbH therefore rejects any liability for direct or indirect damage arising from the operation of the hardware and software and the usability described in the manual.

1.3 Scope of supply

The scope of supply comprises the following individual parts:

- PROnetload Installation CD

1.4 System requirements

Operating system

- Windows 7 32 bit and 64 bit
- Windows 8 32 bit and 64 bit
- Windows 10 32 bit and 64 bit
- Windows 2008 Server
- Windows 2012 Server
- Windows 2016 Server

Hardware requirements

- Intel Atom 800MHz or better
- 1GB RAM or better
- Min. 400MB hard disk space

2 Installing PROnetload

To start the installation, double-click the **setup.exe** file, which can be found on the Installation CD.

If not all required Windows components have been pre-installed (e.g. NET Framework 4), the missing components will automatically be installed with the software.

Subsequently the PROnetplan software has to be configured.

Select an appropriate installation path for the installation (see Figure 1) and press 'Next' to start the installation.

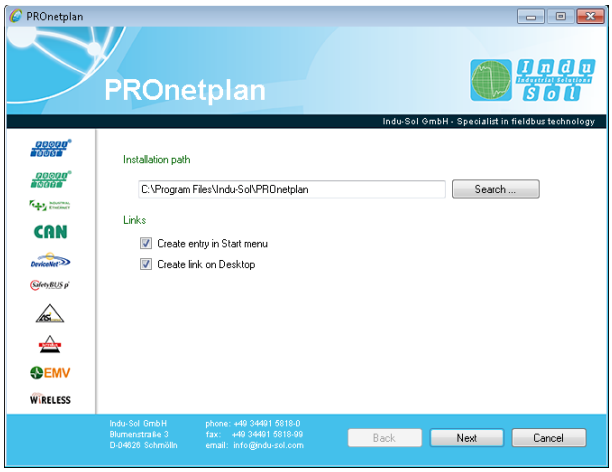


Figure 1: Selecting the installation path

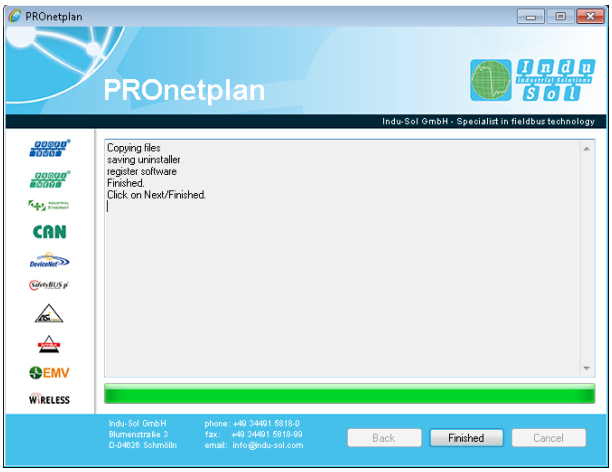


Figure 2: Completing the entire installation

3 The user interface

In this chapter, the individual menu items are explained.

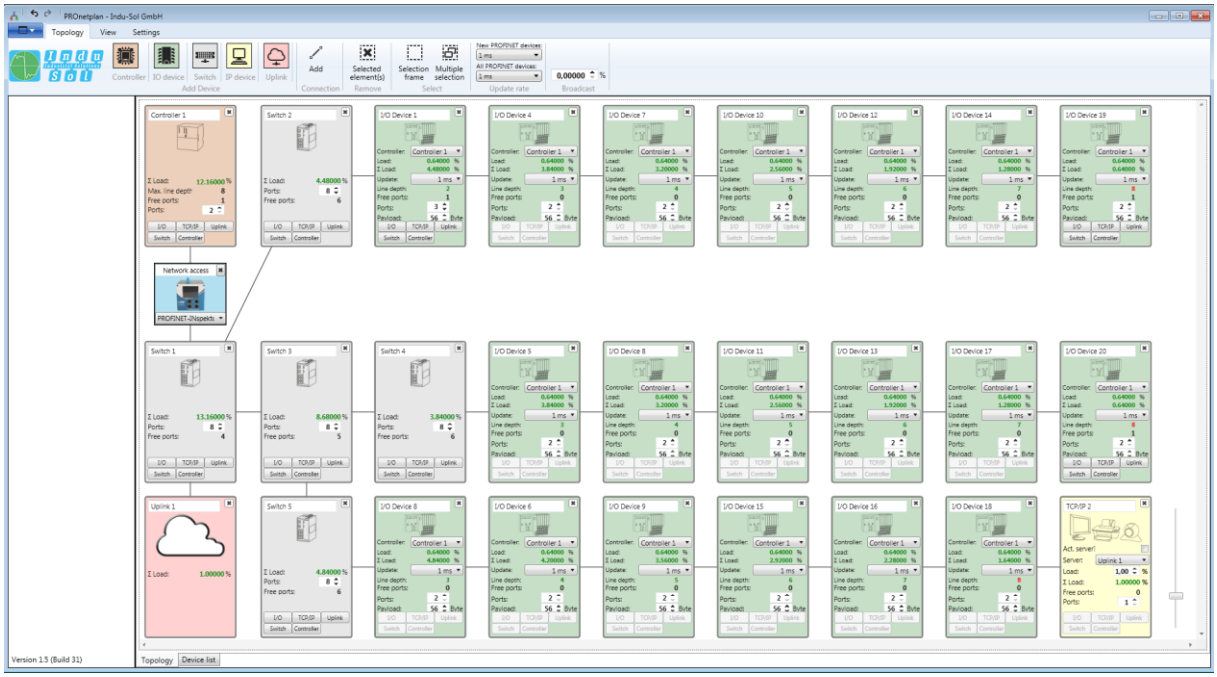
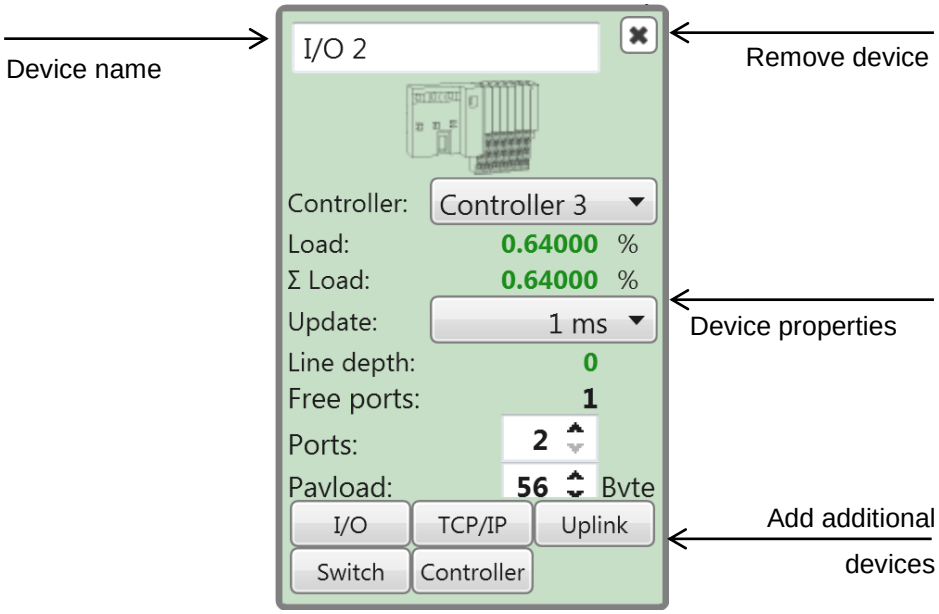


Figure 3: User interface

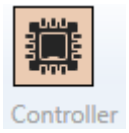
3.1 Topology

The topology can be created and edited in two different ways.

One way consists in using the functions of the individual devices in order to add additional devices to the network, or to remove them.

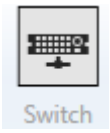


In addition to this option, the functions from the menu bar can be used for editing. The following options are available for this purpose:



Adding a controller: For a controller, the network load and the maximum line depth of a controller domain are shown.

Adding an I/O device: A controller domain, update rate, number of ports and payload are assigned to each I/O device. For network planning, the total network load and the network load generated by the device are shown at each I/O device, as well as its own line depth and number of open ports.



Adding a switch: At the switch, the number of ports can be freely selected. The total load at the switch is displayed, and devices can be added.

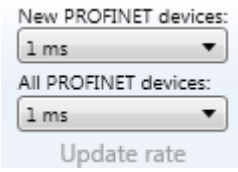
Adding an IP device: IP devices are used if standard Ethernet devices are present in the network, such as e.g. computers, panels, cameras, etc. To establish a communication relation, a server-client connection must be configured.

Adding an uplink: An uplink describes the connection to another network that is separated e.g. by a router, firewall or gateway.

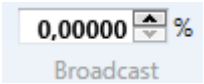
With this function, you can add individual connections between different devices.

All selected elements can be removed with this function.

You can select a group of devices by means of a 'Selection frame' or by 'Multiple selection'. The respective function must be activated.



With this function, you can specify the update rate for new or all I/O devices.



Setting the broadcast load for the network

Undo changes, or apply changes again.

3.1.1 Network access

A network access should be provided for each connection of a controller. The following network access options are available:

Figure 4: PROFINET-INspektor NT

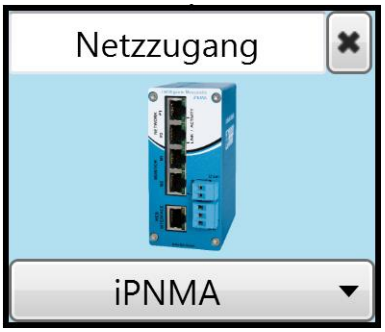


Figure 5: iPNMA

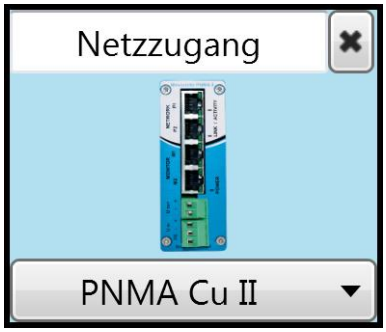


Figure 6: PNMA II

3.1.2 Device and connection information

By selecting a device or a connection, all important information can be displayed, e.g. the network configuration, order information, connection type, and a network access.

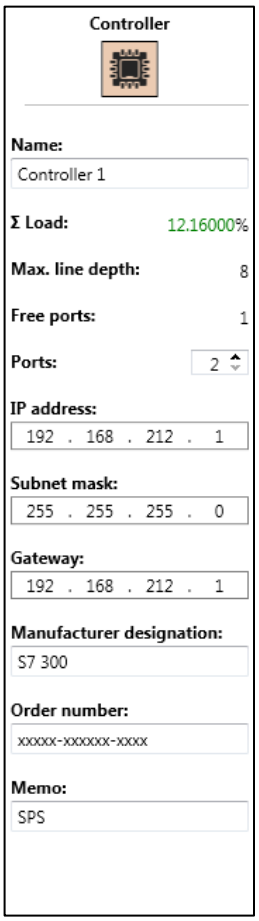


Figure 7: Device information

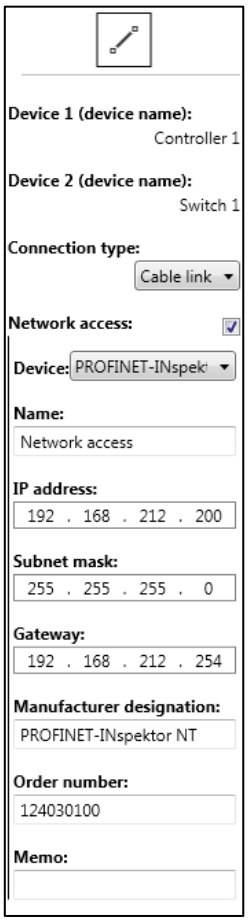
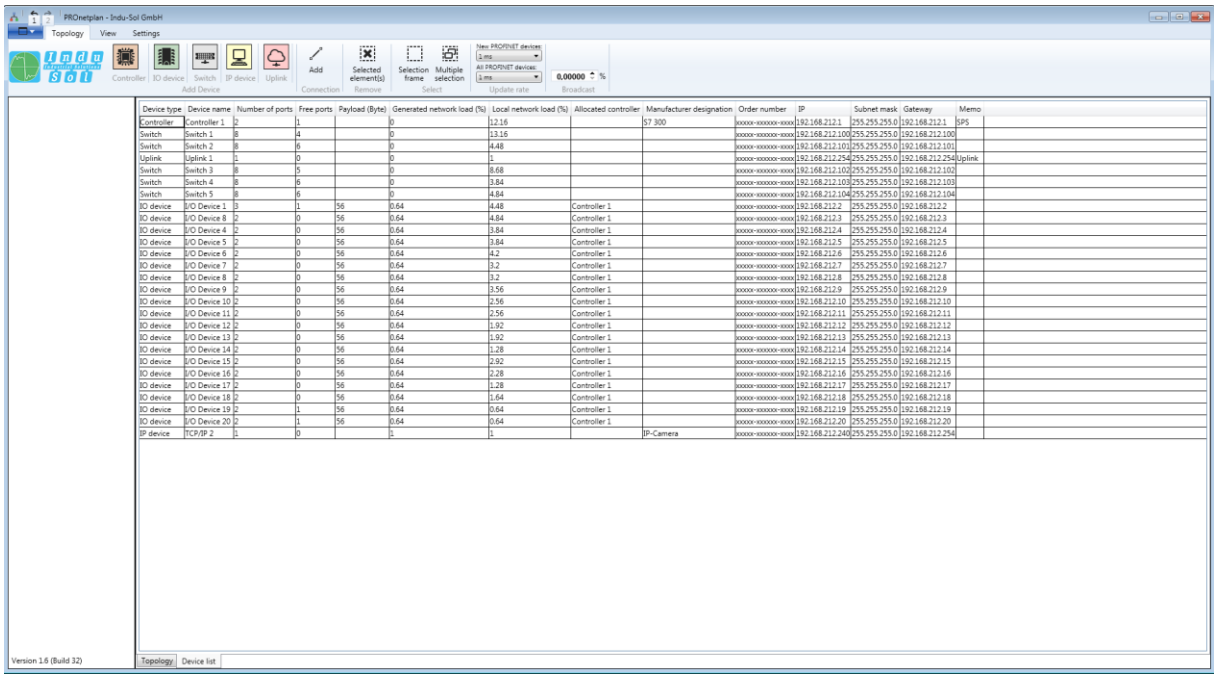


Figure 8: Connection information

3.2 Device list

In the device list, all devices are clearly displayed with the configured settings.



Device type	Device name	Number of ports	Free ports	Payload (Byte)	Generated network load (%)	Local network load (%)	Allocated controller	Manufacturer designation	Order number	IP	Subnet mask	Gateway	Memo
Controller	Controller 1	2	1		0	12.16		S7 300	xxxxx-xxxxxx-xxxx	192.168.212.1	255.255.255.0	192.168.212.1	SPS
Switch	Switch 1	8	4		0	13.16			xxxxx-xxxxxx-xxxx	192.168.212.100	255.255.255.0	192.168.212.100	
Switch	Switch 2	8	6		0	4.48			xxxxx-xxxxxx-xxxx	192.168.212.101	255.255.255.0	192.168.212.101	
Uplink	Uplink 1	1	0		0	1			xxxxx-xxxxxx-xxxx	192.168.212.254	255.255.255.0	192.168.212.254	Uplink
Switch	Switch 3	8	5		0	8.68			xxxxx-xxxxxx-xxxx	192.168.212.102	255.255.255.0	192.168.212.102	
Switch	Switch 4	8	6		0	3.84			xxxxx-xxxxxx-xxxx	192.168.212.103	255.255.255.0	192.168.212.103	
Switch	Switch 5	8	6		0	4.84			xxxxx-xxxxxx-xxxx	192.168.212.104	255.255.255.0	192.168.212.104	
IO device	I/O Device 1	3	1	56	0.64	4.48	Controller 1		xxxxx-xxxxxx-xxxx	192.168.212.2	255.255.255.0	192.168.212.2	
IO device	I/O Device 8	2	0	56	0.64	4.84	Controller 1		xxxxx-xxxxxx-xxxx	192.168.212.3	255.255.255.0	192.168.212.3	
IO device	I/O Device 4	2	0	56	0.64	3.84	Controller 1		xxxxx-xxxxxx-xxxx	192.168.212.4	255.255.255.0	192.168.212.4	
IO device	I/O Device 5	2	0	56	0.64	3.84	Controller 1		xxxxx-xxxxxx-xxxx	192.168.212.5	255.255.255.0	192.168.212.5	
IO device	I/O Device 6	2	0	56	0.64	4.2	Controller 1		xxxxx-xxxxxx-xxxx	192.168.212.6	255.255.255.0	192.168.212.6	
IO device	I/O Device 7	2	0	56	0.64	3.2	Controller 1		xxxxx-xxxxxx-xxxx	192.168.212.7	255.255.255.0	192.168.212.7	
IO device	I/O Device 8	2	0	56	0.64	3.2	Controller 1		xxxxx-xxxxxx-xxxx	192.168.212.8	255.255.255.0	192.168.212.8	
IO device	I/O Device 9	2	0	56	0.64	3.56	Controller 1		xxxxx-xxxxxx-xxxx	192.168.212.9	255.255.255.0	192.168.212.9	
IO device	I/O Device 10	2	0	56	0.64	2.56	Controller 1		xxxxx-xxxxxx-xxxx	192.168.212.10	255.255.255.0	192.168.212.10	
IO device	I/O Device 11	2	0	56	0.64	2.56	Controller 1		xxxxx-xxxxxx-xxxx	192.168.212.11	255.255.255.0	192.168.212.11	
IO device	I/O Device 12	2	0	56	0.64	1.92	Controller 1		xxxxx-xxxxxx-xxxx	192.168.212.12	255.255.255.0	192.168.212.12	
IO device	I/O Device 13	2	0	56	0.64	1.92	Controller 1		xxxxx-xxxxxx-xxxx	192.168.212.13	255.255.255.0	192.168.212.13	
IO device	I/O Device 14	2	0	56	0.64	1.28	Controller 1		xxxxx-xxxxxx-xxxx	192.168.212.14	255.255.255.0	192.168.212.14	
IO device	I/O Device 15	2	0	56	0.64	2.92	Controller 1		xxxxx-xxxxxx-xxxx	192.168.212.15	255.255.255.0	192.168.212.15	
IO device	I/O Device 16	2	0	56	0.64	2.28	Controller 1		xxxxx-xxxxxx-xxxx	192.168.212.16	255.255.255.0	192.168.212.16	
IO device	I/O Device 17	2	0	56	0.64	1.28	Controller 1		xxxxx-xxxxxx-xxxx	192.168.212.17	255.255.255.0	192.168.212.17	
IO device	I/O Device 18	2	0	56	0.64	1.64	Controller 1		xxxxx-xxxxxx-xxxx	192.168.212.18	255.255.255.0	192.168.212.18	
IO device	I/O Device 19	2	1	56	0.64	0.64	Controller 1		xxxxx-xxxxxx-xxxx	192.168.212.19	255.255.255.0	192.168.212.19	
IO device	I/O Device 20	2	1	56	0.64	0.64	Controller 1		xxxxx-xxxxxx-xxxx	192.168.212.20	255.255.255.0	192.168.212.20	
IP device	TCP/IP 2	1	0		1	1		IP-Camera	xxxxx-xxxxxx-xxxx	192.168.212.240	255.255.255.0	192.168.212.254	

Figure 8: Device list

4 Glossary

4.1 Network load

PROnetplan dynamically shows the resulting load for every connection in the network. This also applies to complex network structures, or networks with multiple controllers. This helps to identify potential bottlenecks already at the planning stage.

4.2 Line depth

PROnetplan shows the line depth dynamically for each device. The communication partner can be assigned for every device in the network.

4.3 Free ports

Displays remaining free ports on switches and devices. For switches, certain ports are designated strictly for the Service port, and a warning is issued if an attempt is made to assign such ports otherwise.

4.4 Update rate

The update rate can be set uniformly for all devices, or separately at each device. By means of simple simulations, the effects of the selected update rate on the network load can be run through in advance.

4.5 Payload

The payload describes the size of the process data to be transmitted. The value can be selected freely between 40 Byte and 1436 Byte.

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