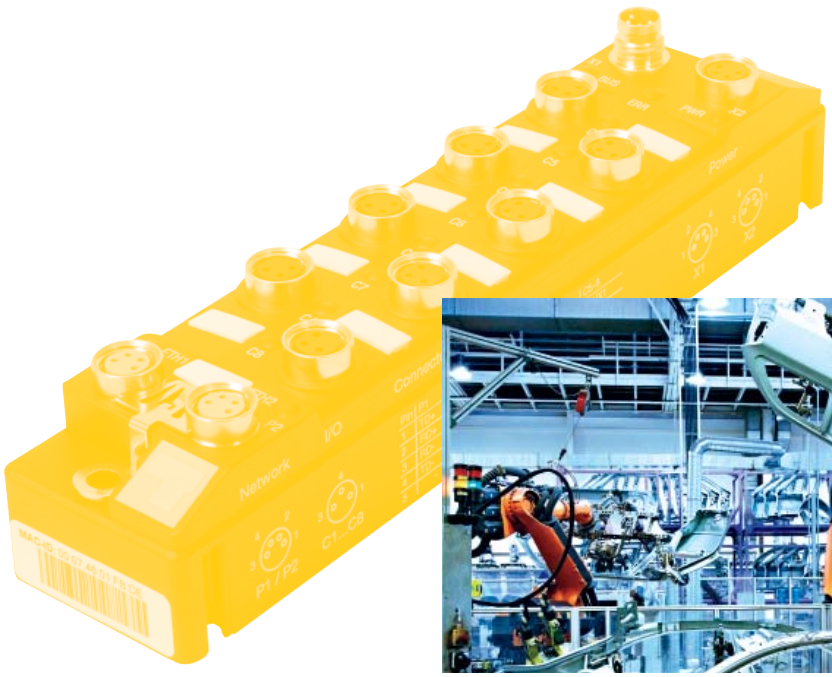
TURCK

Industrial Automation

GETTING STARTED

FIRST STEPS FOR COMMISSIONING TBEN-S-STATIONS



Sense it! Connect it! Bus it! Solve it!

Edition 02/2015

1 Getting Started TBEN-S

1.1 Default IP address

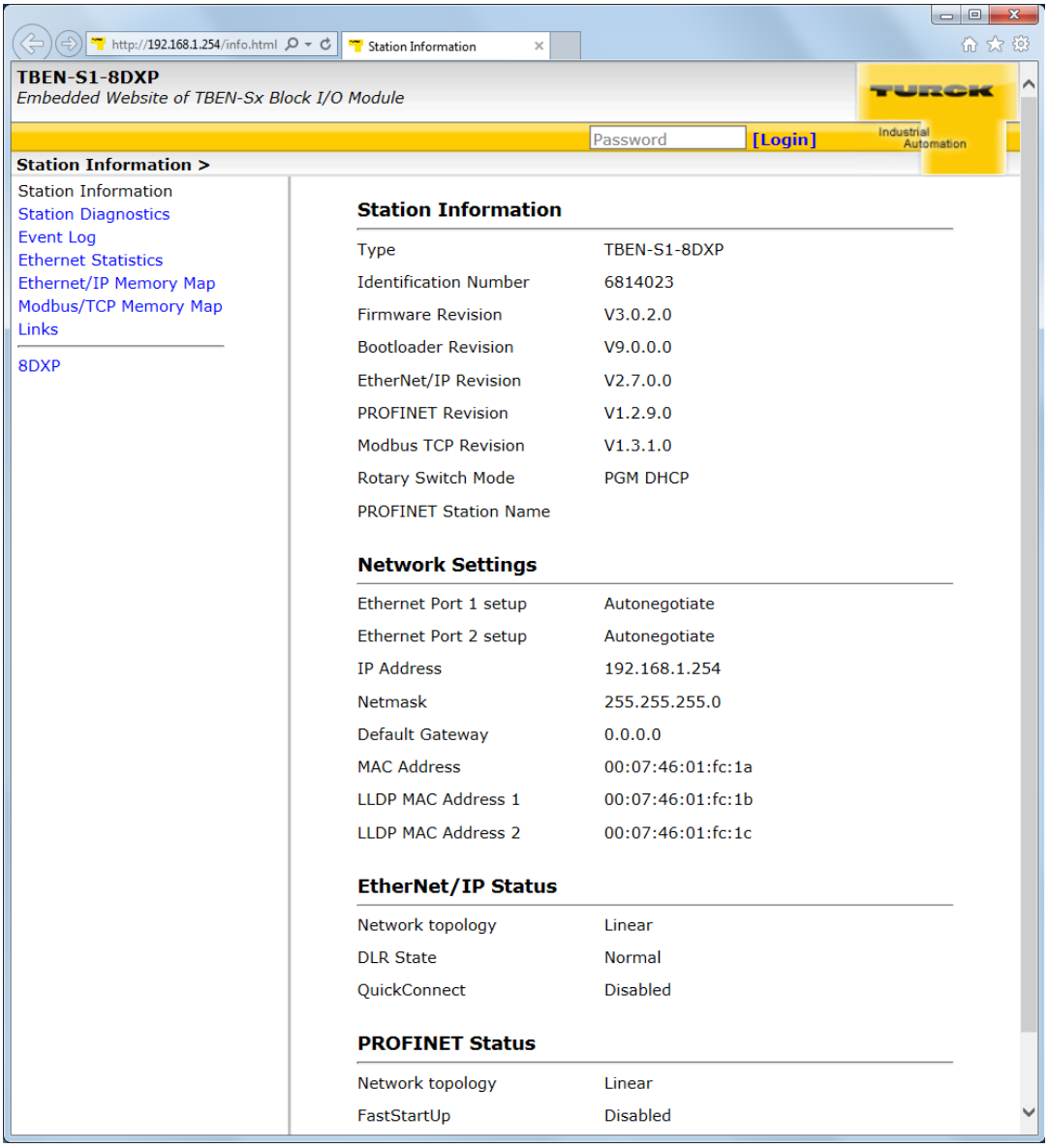
In the delivery status, neither an address nor a PROFINET name is stored in the devices.

But, in order to be able to configure the device via web interface, the web server can be accessed using the IP address
IP Address

192.168.1.254.

Therefore, the device and the PC used for configuration have to be nodes in the same network.

Figure 1-1: Start page



1.2 The web server

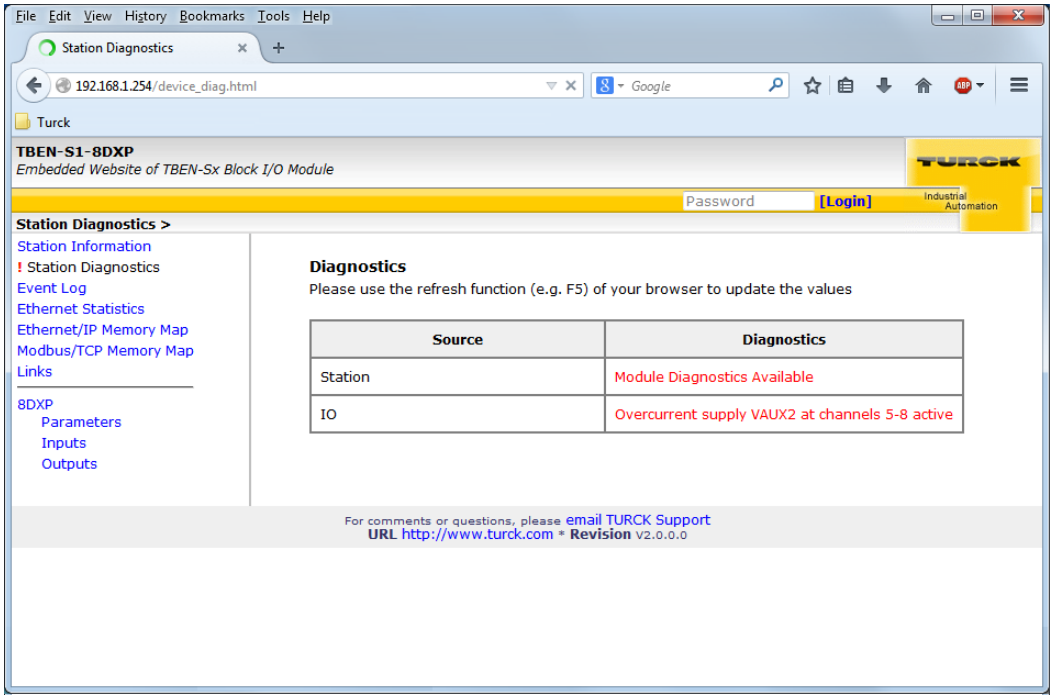
Without a user login, the web server can only be accessed read only.

The web server shows for example **version information** and **devices status** information.

This includes:

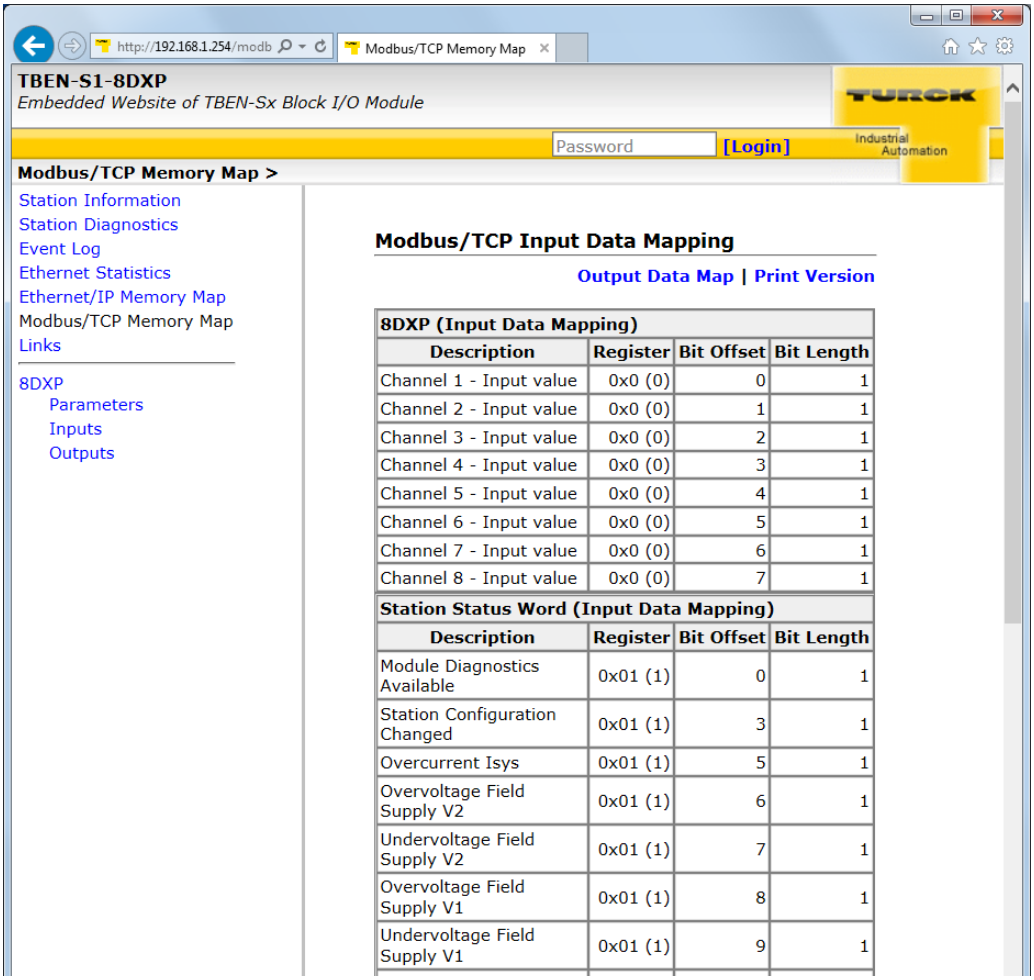
- Firmware version information for the different stacks,
- Ethernet port properties and statistics,
- Diagnostic information in plain text,
- A history for diagnostic events and status information with time stamp,

Figure 1-2: Web server diagnostics



Additionally, the web server shows a **data mapping** for Modbus TCP and EtherNet/IP™.

Figure 1-3: Web server data mapping (example for Modbus TCP)



8DXP (Input Data Mapping)			
Description	**Register**	**Bit Offset**	**Bit Length**
Channel 1 - Input value	0x0 (0)	0	1
Channel 2 - Input value	0x0 (0)	1	1
Channel 3 - Input value	0x0 (0)	2	1
Channel 4 - Input value	0x0 (0)	3	1
Channel 5 - Input value	0x0 (0)	4	1
Channel 6 - Input value	0x0 (0)	5	1
Channel 7 - Input value	0x0 (0)	6	1
Channel 8 - Input value	0x0 (0)	7	1
Station Status Word (Input Data Mapping)			
Description	**Register**	**Bit Offset**	**Bit Length**
Module Diagnostics Available	0x01 (1)	0	1
Station Configuration Changed	0x01 (1)	3	1
Overcurrent Isys	0x01 (1)	5	1
Overvoltage Field Supply V2	0x01 (1)	6	1
Undervoltage Field Supply V2	0x01 (1)	7	1
Overvoltage Field Supply V1	0x01 (1)	8	1
Undervoltage Field Supply V1	0x01 (1)	9	1

1.2.1 Web server login

In order to execute changes in the web interface, an administrator login is necessary.

The default password is:

password

NOTE

If, for safety reasons, the web server has to be deactivated completely, this can be done via the protocol specific mechanisms (PROFINET: GSDML-configuration/EtherNet/IP™: Class Instance Attribute/Modbus TCP: parameter register) or via the web server itself.
For more information, please read the manual for TBEN-S, D301347.

Safe usage of the web server

In the TBEN-S-modules, a default-password is assigned to the web server, for the administrator access.

We strongly recommend to use an individual password, in order to avoid possible misuse by a third party!

This should be done in the context of the network security concept for the complete facility in which the modules are placed.

1.2.2 Web server logout

In order to disconnect a logged in user/PC with administrator rights from the web server, a logout is necessary.

If only the web browser is closed, the last active access is reactivated when opening the web server again from the same PC, which means, possibly with all administrator rights.

1.2.3 Access rights for "admin"

In the logged in state, several settings can be done intuitively via the web interface.

- Changing the admin password
- Changing the IP settings
- Activating and deactivating the different protocols
- Assignment of the PROFINET name
- Activating and deactivating of different EtherNet/IP™ options
- Activating the Modbus TCP Watchdog
- Reset of the device to factory settings

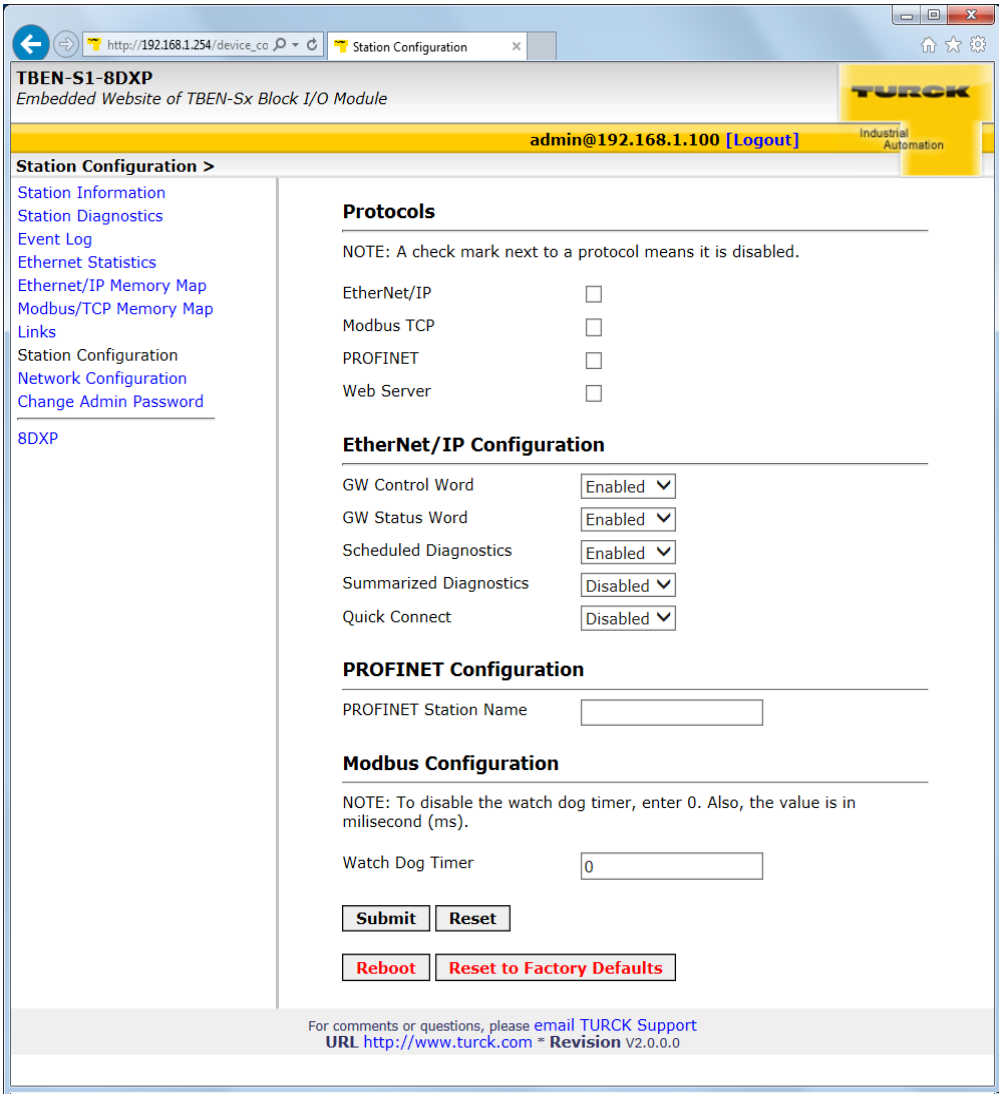


Figure 1-4: Web server with admin rights

1.2.4 Usage of mobile devices

The internal web server has a responsive design. This means, the web functions can also be executed using a mobile device,, e.g. a smartphone.

The web content is automatically adapted to the smaller display in order to assure an optimized web server representation.

The TBEN-S device and the mobile device have to be nodes of the same network. Please assure therefore that the IP addresses of both devices are part of the same subnet (e.g. 255.255.255.0).

In addition to that, a WLAN access has to be available for the mobile device.

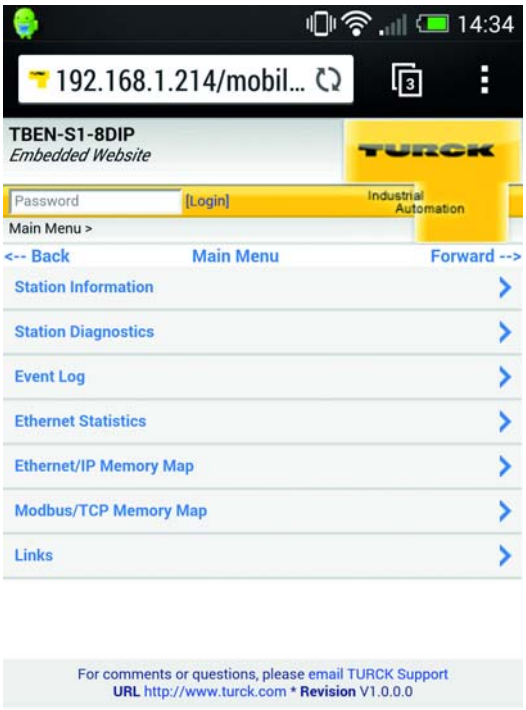


Figure 1-5: Access to the web server via smartphone

1.3 The TURCK IP Address Tool

1.3.1 IP address assignment with the TURCK IP Address Tool

In addition to the web server, TURCK offers the IP-Address Tool, a simple and small tool for finding a connected TBEN-S-device and configuring its IP-settings.

The software is available on www.turck.de/de under "Downloads → Software → Service Tool“.

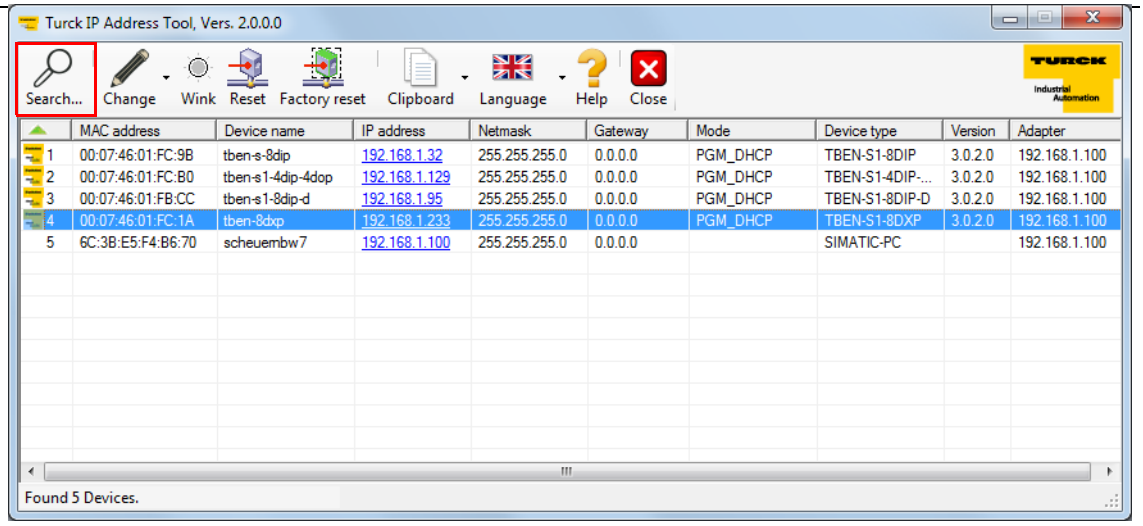
NOTE

The tool used UDP broadcast messages. This means, a device can be found even, if the device's IP settings do not match the IP settings of the PC.
The tool is therefore very helpful for devices which have already been operated and whose network configuration is unknown.

Procedure:

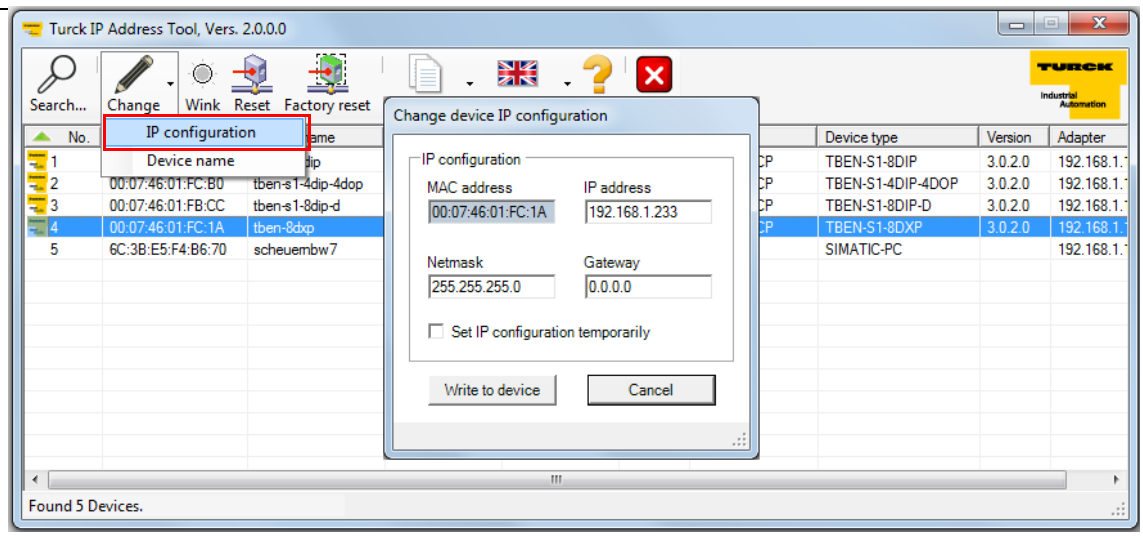
After activating the "search"-function, all devices which are nodes of the network are listed.

Figure 1-6: IP Address Tool, search function



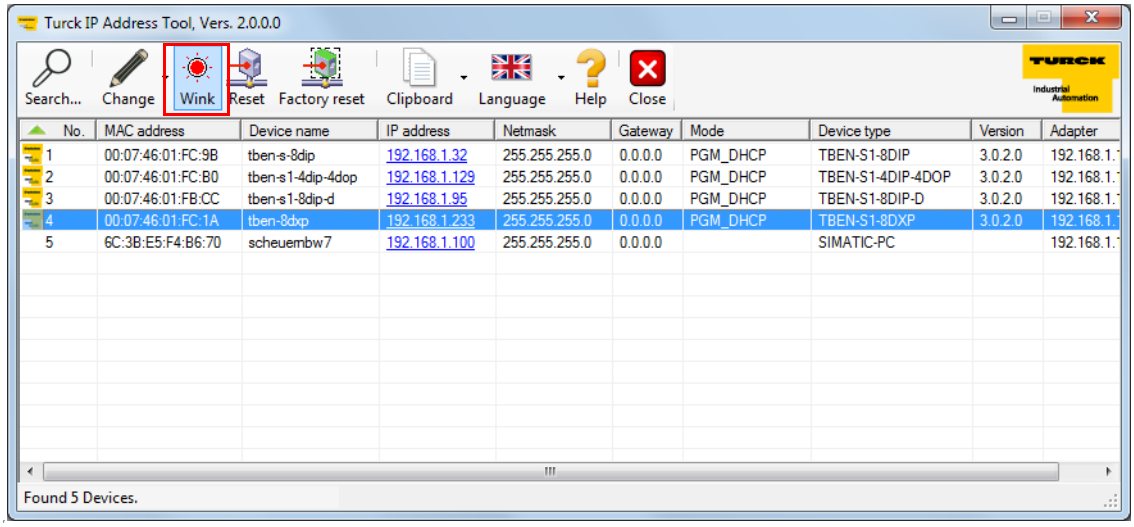
Use the "Change" button in order to adapt the device's network settings.

Figure 1-7: IP Address Tool, changing IP settings



By using the **Wink** function a single device is forced to send an LED signal. This is done for localizing one device within in a group of several identical devices in an existing installation or machine.

Figure 1-8: IP Address Tool, Wink function



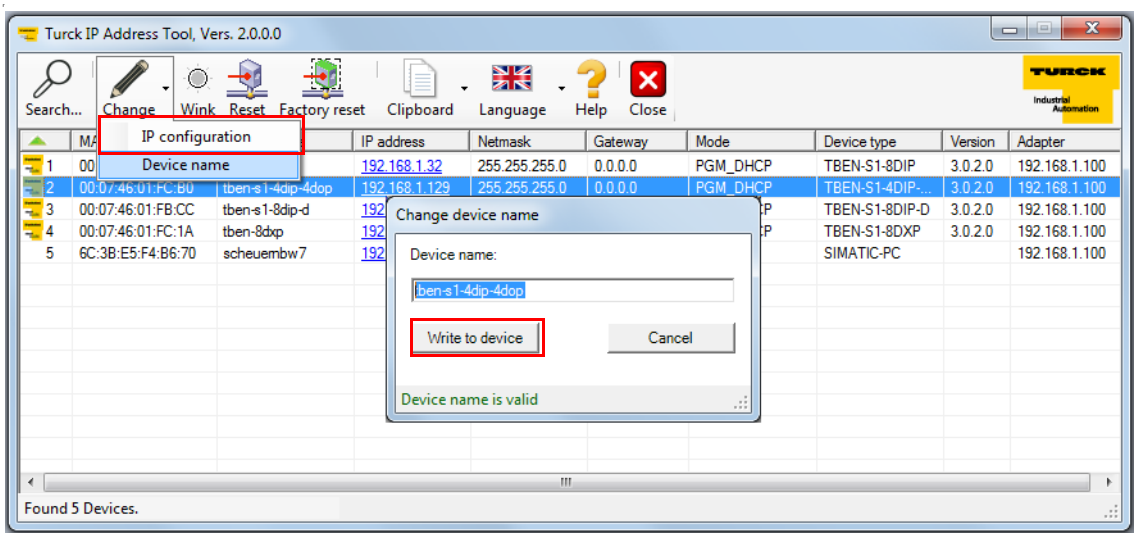
1.3.2 PROFINET name assignment with the TURCK IP Address Tool

The methods for address assignment and finding devices mentioned above are general methods.

There is no standard in address or name assignment in Modbus TCP. For that reason the IP address assignment via web server or IP Address Tool is important.

For the operation at PROFINET, the stations of course support the protocols and tools for the naming of devices used in the PLC environment.
The TURCK IP Address Toll can be used for PROFINET device name assignment. By using the PROFINET protocol DCP (´Device Configuration Protocol), it should always be possible to find devices and to read out their device information.

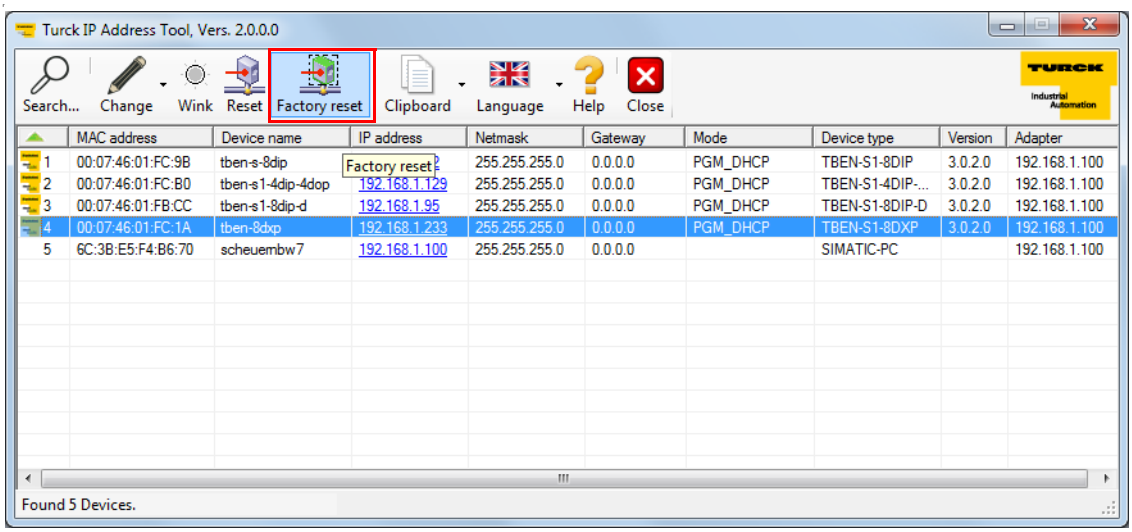
Figure 1-9: IP Address Tool, PROFINET name assignment



1.3.3 "Reset to factory settings" with the TURCK IP Address Tool

Like the web server, the TURCK IP Address Tool allows the reset of devices to their factory settings.

Figure 1-10: IP Address Tool, factory settings



1.4 Device configuration files

The actual device configuration files (GSDML-files for PROFINET® and EDS-files for EtherNet/IP™) can be downloaded from the TURCK website www.turck.de/en.

1.5 LED behavior

Table 1-1: LED-displays of TBEN-S devices

A *can also occur in combination*

LED	Color	Status	Meaning
PWR	green	on	V1 and V2 OK
	red	on	V2 missing or < 18 V DC
		off	V1 missing or < 18 V DC
ETHx	green	on	Link established,100 Mbps
		blinking	Ethernet Traffic, 100 Mbps
	yellow	on	Link established,100 Mbps
		blinking	Ethernet Traffic, 10 Mbps
		off	no Ethernet link
ERR	green	on	No diagnostic message available
	red	on	Diagnostic message pending
BUS	green	on	Active connection to a master
		blinking	Device is ready for operation
	red	on	IP address conflict or restore mode or timeout
		blinking	Blink-/wink-command active
	red / green	on	Autonegotiation and/or waiting for DHCP-/BootP-address assignment.
C1 to C8	green	on **A**	Input or output active
	red	blinking **A**	Overload at supply voltage V1 or V2 (all connector-LEDs of the supply group are flashing) or at one connector (TBEN-S1-8DIP-D: only the LED at the respective connector is flashing).
		on	output active, overload/overcurrent at output
		off	Input and/or output inactive

1.6 Max. number of modules in a daisy chain

Prerequisites:

- optimized network
- only TBEN-S-modules in the daisy chain, no additional switches, no third-party devices
- exchange of pure process data, no acyclic data
- max. 50 m of cable length between the TBEN-S

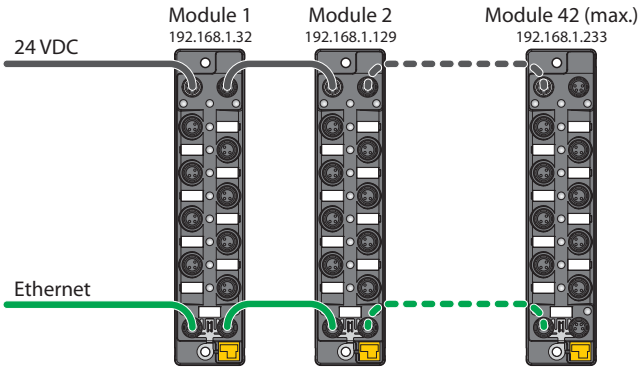
Table 1-2: Maximum number of TBEN-S-modules

Cycle time	Maximum number of TBEN-S-modules
1 ms	21
2 ms	42

NOTE

Deviations from the specification above may lead to a reduction of possible TBEN-S-modules connected to one daisy chain.

Figure 1-11: Daisy Chain



1.7 Further information

Further information about the device of the TBEN-S product range can be found on our web site www.turck.de/en and in the manual (TURCK documentation no. D301347) which can be downloaded from the web site.

1.8 PROFINET name assignment for third party manufacturers

Primary Setup Tool from Siemens

Tools like for example the Primary Setup Tool from SIEMENS can also be used for PROFINET device name assignment.

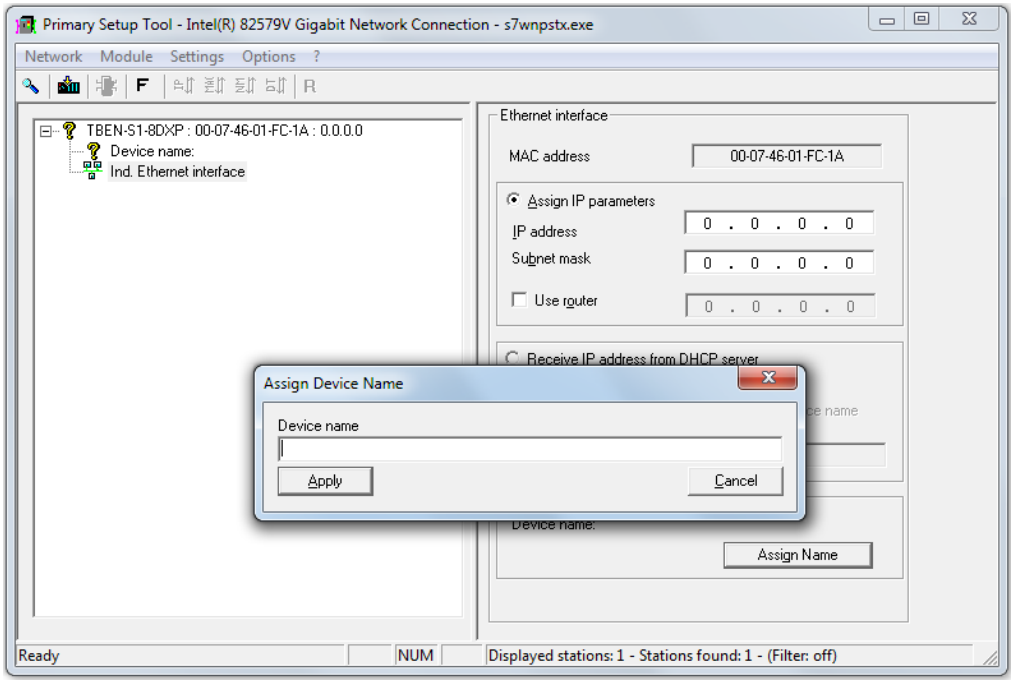


Figure 1-12: Primary Setup Tool from Siemens

STEP7/TIA Portal

At PROFINET, the device behaves like every other PROFINET node.

The functions of the Primary Setup Tool are also integrated in the STEP7 hardware configuration or in the TIA Portal.
The installation of the Primary Setup Tool is thus not necessary in a STEP7-environment/ in TIA Portal.

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