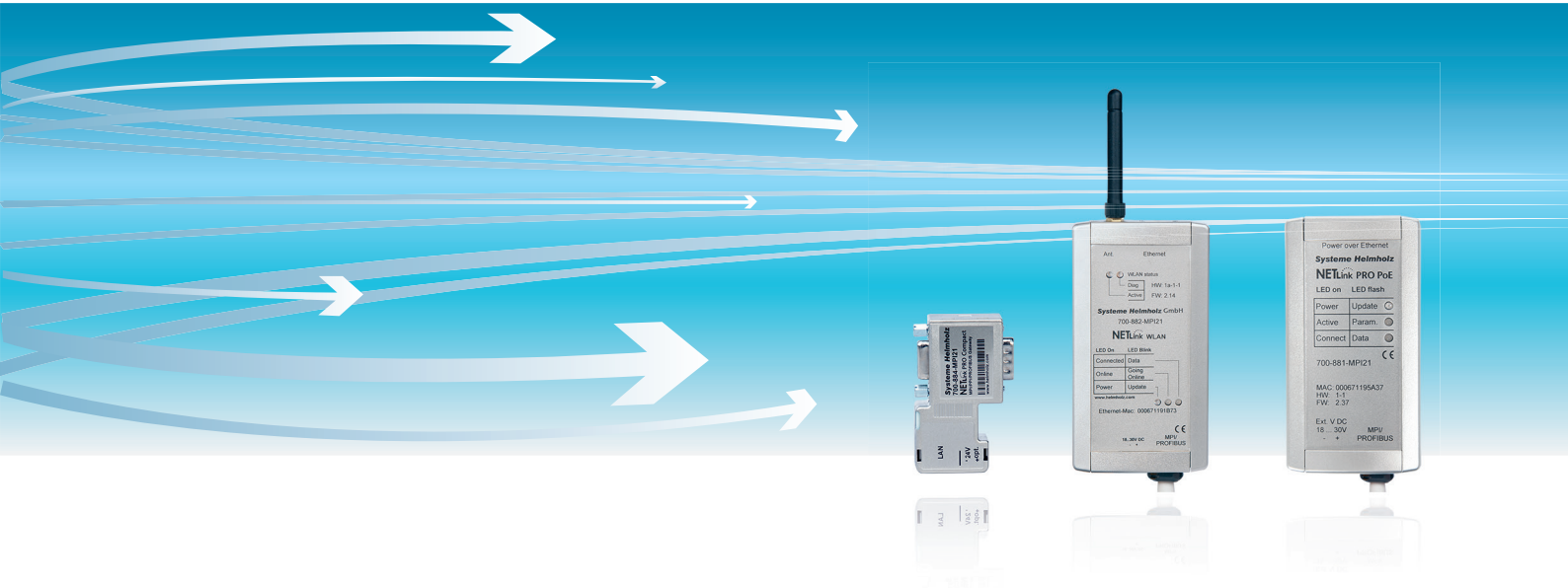
Helmholz®
COMPATIBLE WITH YOU



Version 3 en as of FW 2.60

Quick Start Guide
NETLink® Ethernet Gateways

www.helmholz.com

Content

1. Introduction

General note:

The functions described here relate to 32 and 64 bit Windows[1] operating systems.

Write down the MAC address of your NETLink® before installing the adapter in your system. This is required to activate the web interface!

The NETLink® Ethernet versions enable implementation of TCP/IP on MPI/PPI/PRO-FIBUS with up to 32 simultaneous connection channels. More detailed information can be found in the manual.

This Quick Start Guide goes over the basic settings for the initial commissioning in a local TCP/IP network.

2. Checking the Network Situation

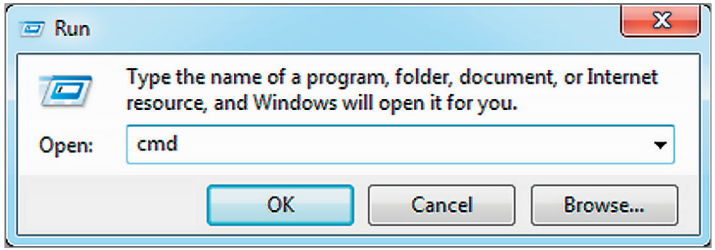
If a new NETLink® is to be added to an intranet, use the “ping” command to check in the command line interpreter (cmd) whether a network subscriber with this address already exists.

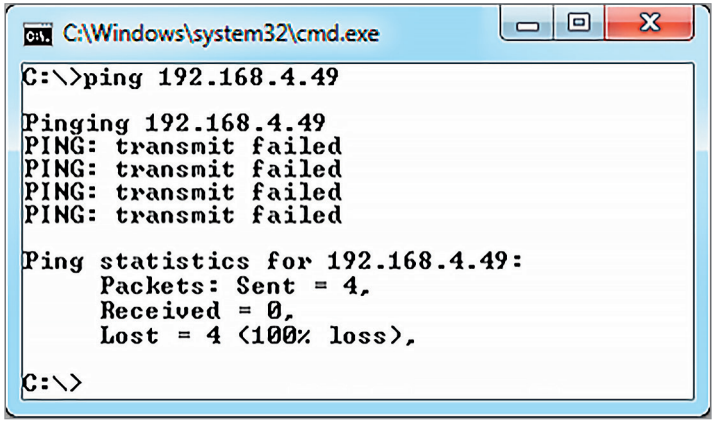
Note: *First ask your network administrator whether the preset values are compatible with your network and freely available.*

2.1 Start cmd via the “Run” function

Start -> All Programs -> Accessories -> Run -> Open: cmd -> OK

All NETLink® versions with the IP address: 192.168.4.49 and the subnet mask: 255.255.0.0 are supplied as standard.



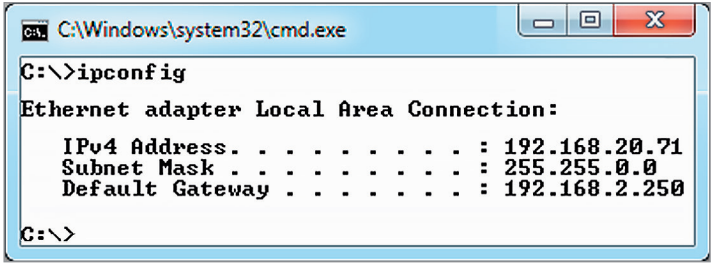


2.2 Display the computer's network configuration

For initial commissioning, we recommend a separate PG/PC to NETLink® connection without integration into the company network.

With the "ipconfig" command you can easily display the settings for your PG/PC LAN network card.

With the setting for the computer network card that is shown here, the IP address range is adjusted to the default value for NETLink®.



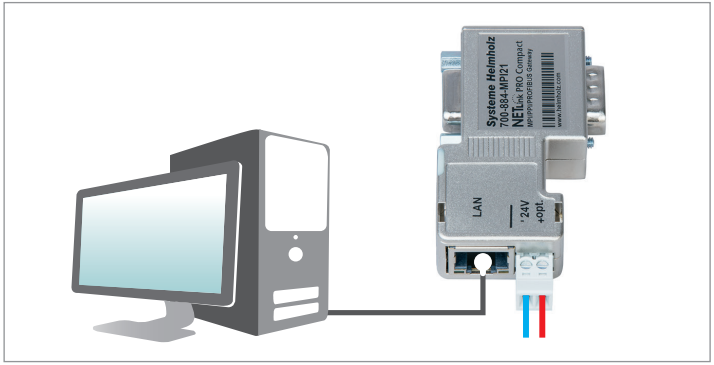
3. Preparing the NETLink®

3.1 24 V power supply

Connect the NETLink® to the MPI or PROFIBUS interface of your automation system. The required 24 V are normally available at the bus interface. Alternatively, an external DC voltage source can also be connected to the two-pole connector.

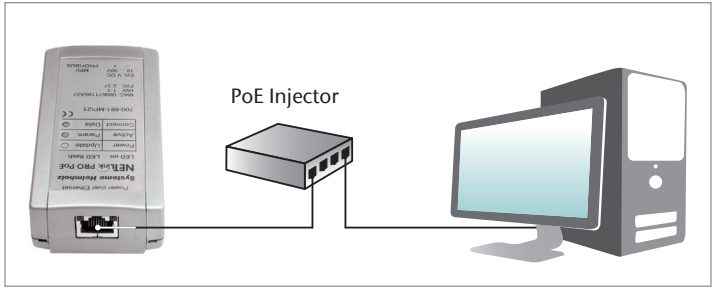
3.2 TCP/IP connection

Connect the network connection of your PG/PC (LAN card) to the RJ45 LAN socket of the NETLink® adapter using an Ethernet cable (a 3 m CAT5 cable is included in the delivery).



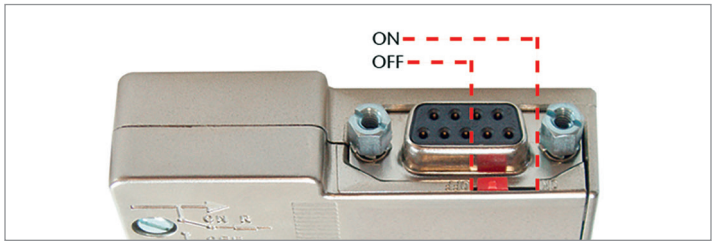
3.3 Power over Ethernet connection (only NETLink® PRO PoE)

When the “Power over Ethernet” function is used, you will see a standard PoE injector shown in the graph by way of example. Alternatively, it can be installed in the LAN route to supply the NETLink® PRO PoE with 48 V.



3.4 Termination (only NETLink® PRO PoE and NETLink® WLAN)

The bus connector with PG socket makes it possible to plug in further bus participants. The terminating resistor must be inserted (ON) when the NETLink® is plugged in at the start or end of a bus segment. If this is not the case, the switch must be in the OFF position.



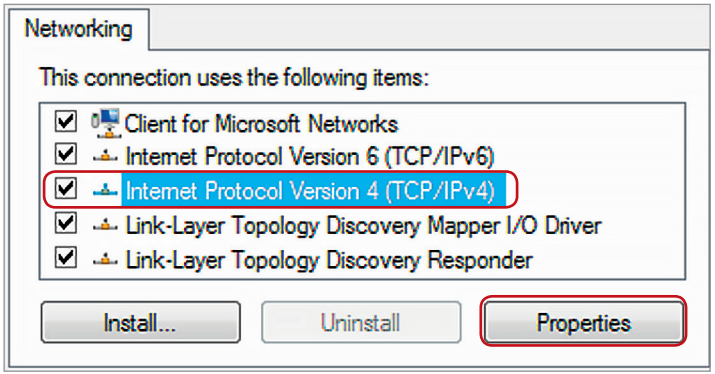
4. IP Address Settings on the PG/PC Network Card

Note: *It is possible that for the following steps you may require admin rights to your PG/PC.*

Start by opening the properties for your LAN connection.
For Windows[1] 7 and above you can access them as follows:

Start -> Control Panel -> Network and Sharing Center -> Change adapter settings

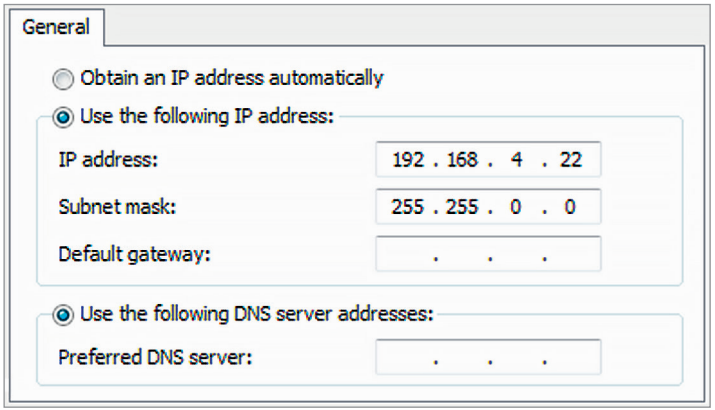
Open the Properties dialog box for the network connection that you want to use in order to establish the LAN connection to the NETLink®. To change your computer's IP address, select „Internet Protocol (TCP/IP)" and click on the „Properties" button.



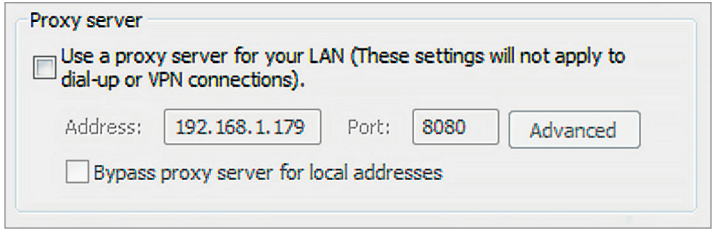
All NETLink® devices are supplied with the IP address 192.168.4.49. This means that you will have to use the same address range for your computer. Please note that this applies not only to the IP address, but to the subnet mask as well.

The IP address to be set here must fall within the "192.168.4.x" address range, the subnet mask should be identical to that of the NETLink® (255.255.0.0).

No entries need to be made with the default gateway and preferred DNS server. Once the settings are applied, the "LAN connection" should be recognized.



Note: *If your PG/PC is used in a network with proxy, it may be the case that you need to deactivate the proxy server function in the configuration of your browser to be able to establish a connection to the NETLink®.*



5. Establishing Access to the Integrated Web Interface

5.1 Save individual password in the NETLink®

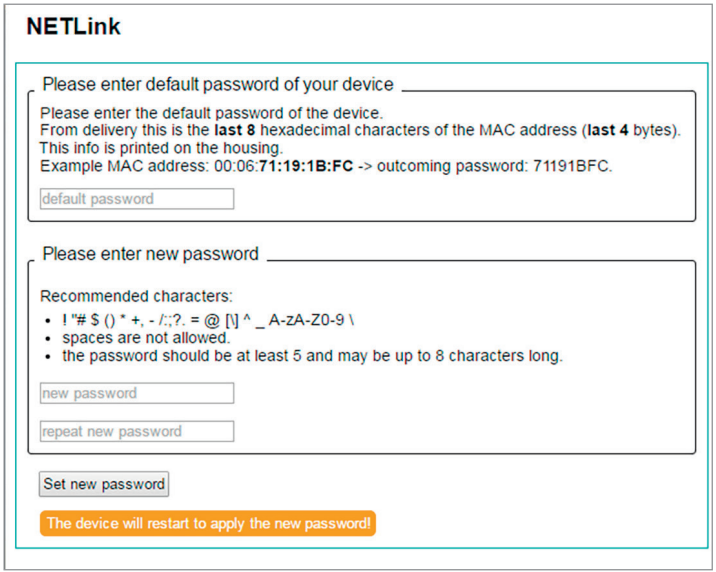
When your PG/PC network card has accepted the new settings, start a browser (Firefox, Chrome, Opera) and enter the IP address of the NETLink® in the address line (URL) as follows: http://192.168.4.49.

As of NETLink® firmware version 2.60, the user must define an individual password when calling up the web interface for the first time. This must then be saved in NETLink®. The view shown on the right then appears.

In the delivery state, the default password consists of the last 8 Hex characters of the device MAC address. This information is printed on the housing. Please note the spelling as follows:

Example of MAC address: 00:06:71:19:1B:FC -> resulting password: 71191BFC

Note: *The standard password „admin“ from older device versions may no longer be used. The new password to be set by you may not exceed 8 characters and spaces are not permitted.*

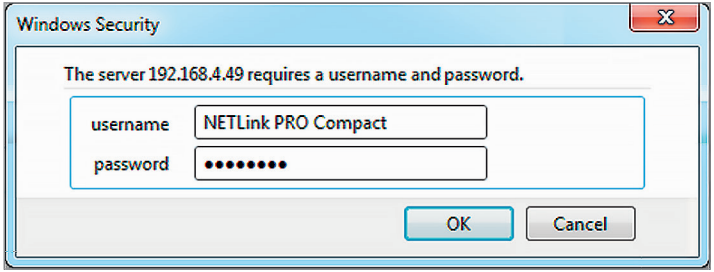


5.2 Standard login in the web interface

To be able to establish a connection to the web interface, with future login procedures the corresponding user name, depending on the version of the device, must be entered as follows:

- 700-881-MPI21 = NETLink PRO PoE
- 700-882-MPI21 = NETLink WLAN
- 700-884-MPI21 = NETLink PRO Compact

Note: *In all cases, the details entered are case-sensitive!*

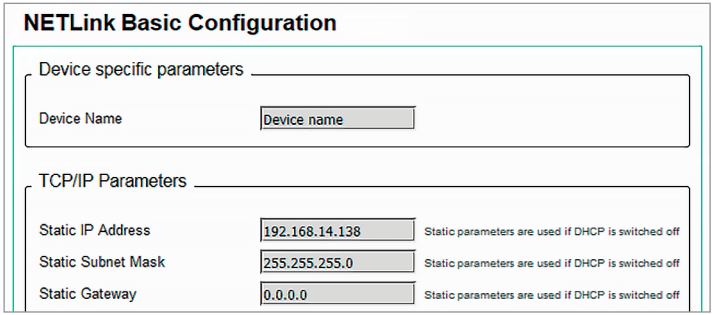


5.3 Change the configuration via the web interface

The device name, the password, the IP address and the subnet mask of the adapter can now be reconfigured and stored in the device for example on the configuration page. The NETLink® can then be accessed in the LAN network via an IP address which is changed here.

Note: *If you change this IP address, please note that you will have to change the address space (subnet mask) for your computer accordingly. See also Chapter 4 on page 6. Once you have made and saved changes in the device, the NETLink® automatically restarts.*

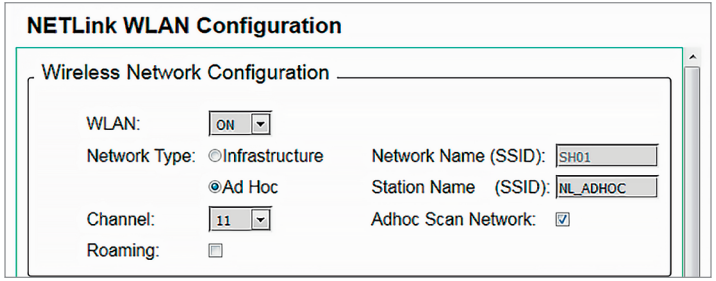
It should be noted that the user names/passwords which you adapt in this configuration interface cannot be reset by a type of "master reset". If it is no longer possible to access the security-relevant pages of the web interface with the login data you normally use, please contact our technical support.



5.4 WLAN configuration (only NETLink® WLAN)

In the delivery state, the WLAN function is not active. This is activated under the “WLAN Configuration” menu item. This is also where the network type is defined and the security parameters are stored. The “Save Configuration” button is used to permanently save the parameters in the NETLink® WLAN.

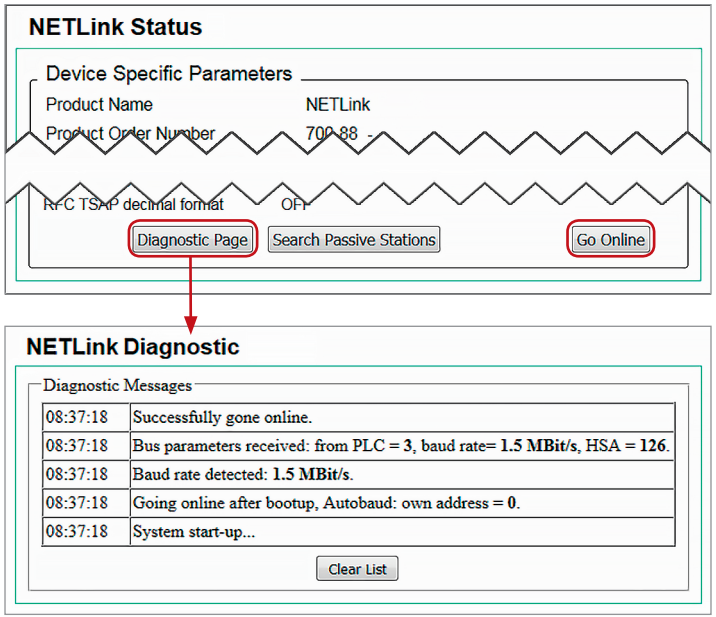
Further details are described in Chapter 7 starting on page 12.



5.5 Additional feature: Diagnostic function

The web interface has a diagnostic function implemented in it which can be accessed via the status page.

It is important here for the adapter to be logged into the bus system. This can be done via an engineering tool or with the “Go Online” button on the status page. If the “Diagnostic Page” button is then activated, the recognized communication parameters are listed or a status report is issued.



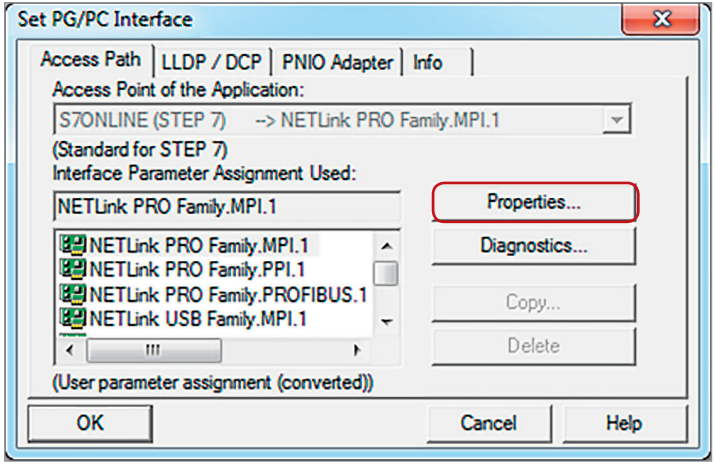
6. Integration of an NETLink® Adapter into the PG/PC Interface of the Engineering Software

Please install the NETLink® S7 NET driver on your PG/PC from the enclosed CD or download its latest version at www.helmholz.com.

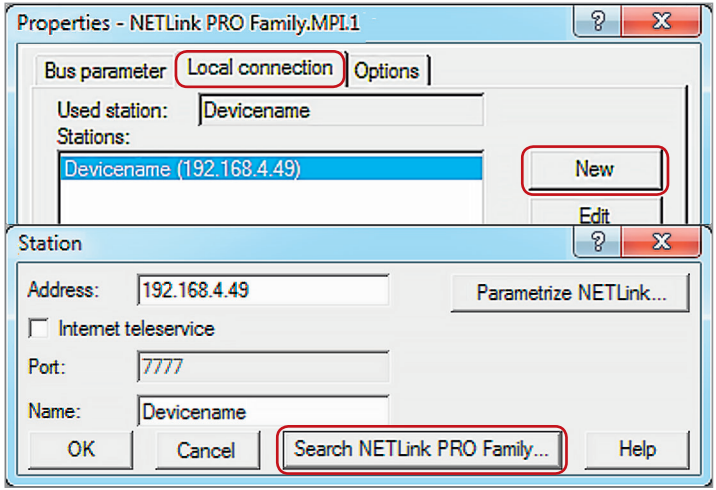
Notes: *For the TIA Portal2 as well, the general assignments must be carried out only on the PG/PC interface (accessible via the Windows¹ Control Panel).*

If you're using an old operating system (< XP SP3) you have to add the interface „NETLink®-S7-NET PRO" manually with an intermediate step during the installation.

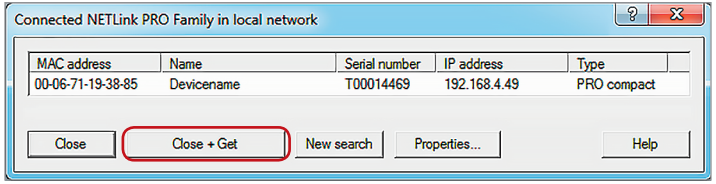
To integrate the NETLink® into the PG/PC interface, select the interface Parameter Assignment (MPI, PPI or PROFIBUS) and open the properties of "NETLink® PRO Family".



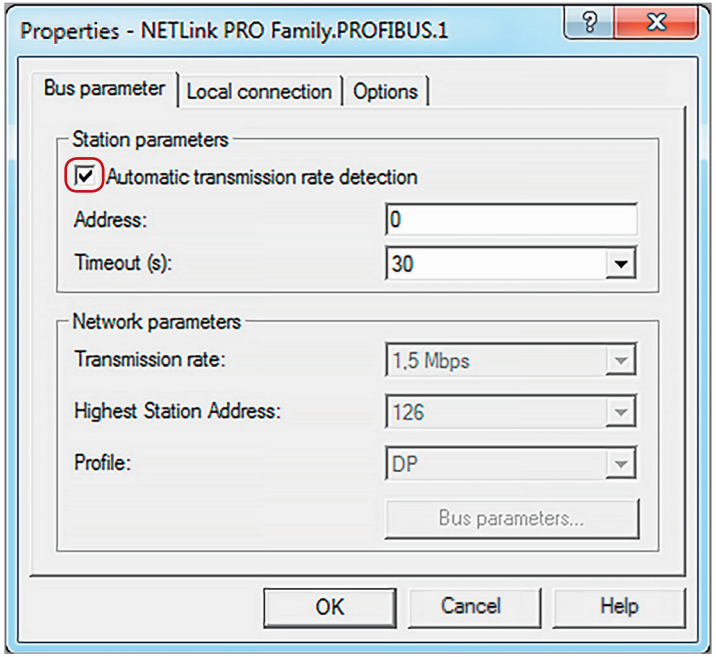
Click the "New" button under the "Local Connection" tab to add the adapter. You can enter the IP address and the name of the adapter manually or you can use the integrated search function of the driver. To do this, click on the button "Search NETLink® PRO Family...".



When the “Close + Get” button is activated, your adapter appears in the list as an active station. The access path to the connected controllers is now defined with this setting and it is possible to work with the Simatic² engineering software.



Note: *After installation, “Automatic transmission rate detection” is active in the bus settings. There are also CPUs (or passive participants) that do not send any bus parameters. If this is not the case, then an error message appears when the connection is being established and the network-related parameters have to be manually adjusted (clear checkmark).*

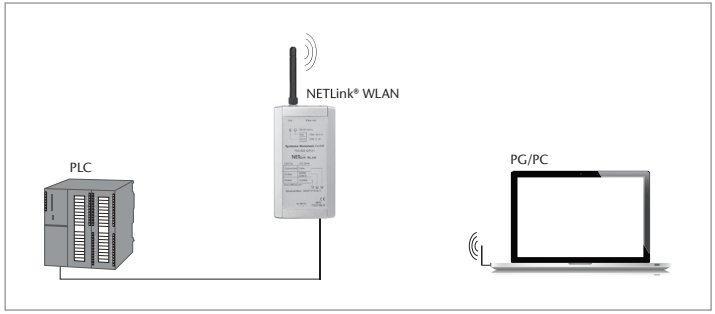


7. WLAN Operating Mode (only NETLink® WLAN)

General information about the wireless network topologies:

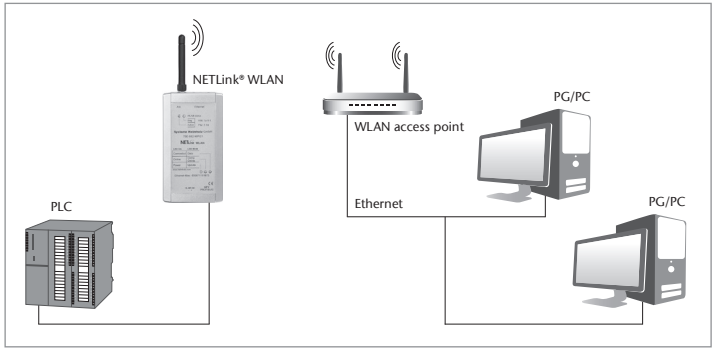
Ad-hoc mode

- Point-to-point connection with no more than 2 participants
- Very suitable for short distances
- Easy and quick to implement
- Maximum data transfer rate 11 Mbit/s



Infrastructure mode

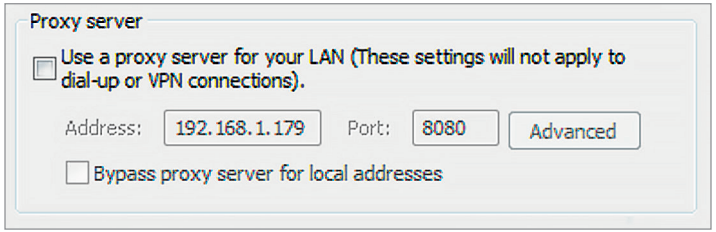
- Maximum transmission rate of 54 Mbit/s to NETLink® WLAN
- One access point organizes the connections to other network participants and the internet
- If several access points are combined, the range in a network increases
- The NETLink® WLAN can be used in existing infrastructures

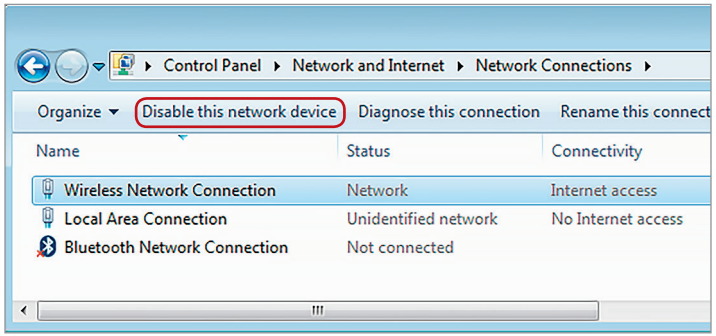


7.1 Preparations for activation of the ad-hoc mode

- The WLAN network card of the PG/PC is to be assigned a fixed IP address – matching the address range of the NETLink® WLAN.
- An active proxy server function must be switched off.
- It is possible that other network devices may need to be deactivated in the PG/PC (relevant if they are in the same IP address segment of the WLAN network card).
- The operating system opens an information box when a wireless network is within range. A connection can then be established by means of the corresponding configuration aids.

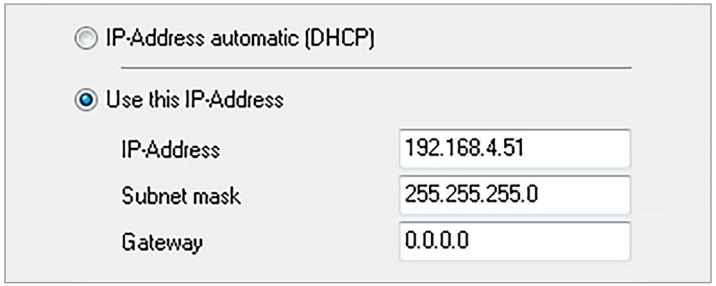
Note: *This chapter describes how you establish an unencrypted connection. Further information about this can be found in the NETLink® manual under Chapter 7.7.4.*





7.2 Preparations for activation of the infrastructure mode

- The SSID of the access point must be entered in the NETLink® WLAN.
- The encryption settings of the NETLink® WLAN must match those of the access point (these details can be obtained from the administrator that is in charge of the infrastructure network).
- The IP settings of the NETLink® WLAN may need to be adapted (e.g. DHCP); information about this can be obtained from the relevant administrator.



8. LED Description

8.1 NETLink® PRO Compact

Power LED Blue	Is always on and indicates the general readiness for operation. A flashing Power LED indicates a non-existent/faulty TCP/IP connection.
BUS LED Red/green (orange)	Flashes orange when the adapter attempts to log in on the MPI/PPI/PROFIBUS. When this is successful, the LED switches to a green constant light.
Active LED Green	Flashes green (when a data exchange is taking place).

8.2 NETLink® PRO PoE

Power LED Green	Is always on and indicates the general readiness for operation. A flashing Power LED indicates a non-existent TCP/IP connection.
Active LED Red/green	Only active when the adapter has successfully logged into the MPI/ PPI/PROFIBUS.
Data LED Red/green	Usually in flashing mode (when a data exchange is taking place).

Note: *The red LEDs are only active in the event of a firmware update or when there are communication errors!*

8.3 NETLink® WLAN

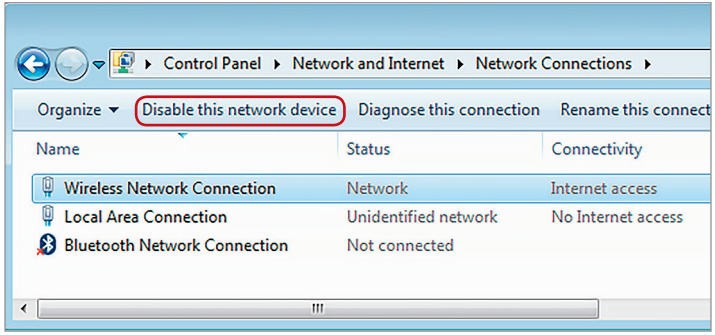
Active LED Green	Non-cyclical flashing indicates WLAN activity. During cyclical flashing, WLAN partners in range are searched for in ad hoc mode and infrastructure mode.
DIAG LED Orange	Diagnoses the WLAN module and only flashes during the switch-on process. Otherwise always off in normal operation (constant light indicates a defect).
Power LED Green	Is always on and indicates the general readiness for operation.
Online LED Green	Only active when the adapter has successfully logged into the MPI/ PPI/PROFIBUS.
Data LED Green	Usually in flashing mode (when a data exchange is taking place).

9. Tips and Information

If despite configuring all network parameters correctly you are still unable to establish a connection, it may be necessary to deactivate other network devices in the PG/PC (relevant if they are in the same IP address segment of the LAN network card).

You will find other helpful documents, specifications and manuals in the Support/Download section at www.helmholz.com:

- Application examples with RFC 1006 (ISO on top of TCP/IP)
- Communication connection with the project-specific interface
- Examples of CPU-to-CPU communication



9.1 Update and diagnostics software SHTools

With the aid of our freely available diagnostics and update software SHTools, you can, for example, carry out firmware updates yourself. In order to ensure the complete functional scope of your NETLink® adapter, we recommend that you regularly update your devices. The software's latest version is available for download at www.helmholz.com.

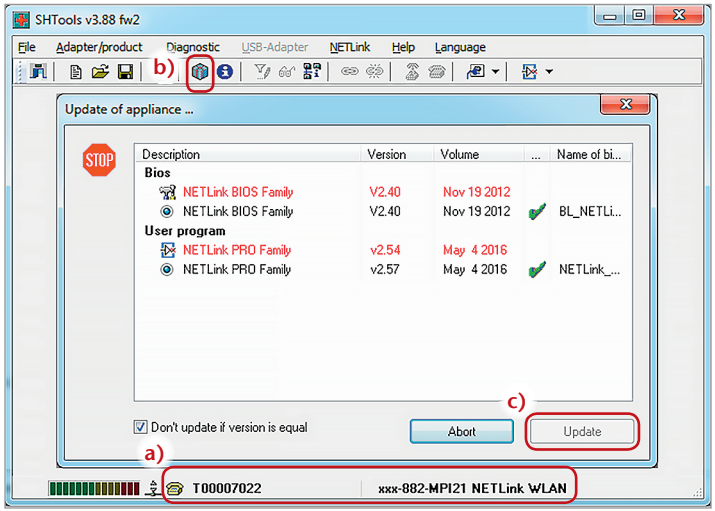
First connect your Helmholz adapter to your PG/PC before you open SHTools.

Below you can find a description of the screenshot to the right:

a) Connected devices are found automatically after the program is started through the menu-guided user interface.

b) With the aid of the update button, the internal binary directory of SHTools is browsed for current firmware files and displayed.

c) Start the update procedure with the appropriate button if necessary. Adapter parameters that you have already saved are not overwritten in this action.



Note

The contents of this Quick Start Guide have been checked by us so as to ensure that they match the hardware and software described. However, we assume no liability for any existing differences, as these cannot be fully ruled out.

The information in this Quick Start Guide is, however, updated on a regular basis. When using your purchased products, please make sure to use the latest version of this Quick Start Guide, which can be viewed and downloaded on the Internet at www.helmholz.com.

Our customers are important to us. We are pleased to receive suggestions for improvement and new impulses.

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2) Simatic and TIA Portal are registered trademarks of Siemens AG.

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