User Manual
ACCON-NetLink-PRO compact

This manual is for project developers, users and assemblers who utilize the ACCON-NetLink-PRO compact.

It shows the user the handling of the ACCON-NetLink-PRO compact and explains signaling functions. All necessary data for assembling should be provided to the assembler. © 1995 - 2016

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Note:

We have checked the content of this manual for conformity with the hardware and software described. Nevertheless, because deviations cannot be ruled out, we cannot accept any liability for complete conformity. The data in this manual have been checked regularly and any necessary corrections will be included in subsequent editions. We always welcome suggestions for improvement.

Last update 2016-09-26. All technical changes reserved.

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1   TECHNICAL DESCRIPTION

ACCON-NetLink-PRO compact is a handy communication and programming adaptor between PC and S7 controllers. The electronics of the ACCON-NetLink-PRO compact is placed in a PROFIBUS plug's case. Thus, the adapter is very small and handy.
As all-rounder, the ACCON-NetLink-PRO compact can be connected to the PLC via MPI, PROFIBUS and PPI. The ACCON-NetLink-PRO compact independently detects the current bus settings of the PLC.

The ACCON-NetLink-PRO compact's communication to the PC is carried out via TCP/IP. The configuration of the ACCON-NetLink-PRO compact can be created and changed via its integrated web site. For security reasons the access to the web site is protected by a password.

The ACCON-NetLink-PRO compact supports the S7 communication via RFC1006 (ISO on TCP). Thus TCP/IP communication processors (e. g. CP343-1) can be replaced by this adapter. But projected connections are not supported. Furthermore the ACCON-NetLink-PRO compact supports the parametrization of DP-Slaves via DP-V1 (Class 2). A driver for SIMATIC applications (ACCON-S7-NET) is included in delivery. The ACCON-NetLink-PRO compact is fed via the bus connection. Alternatively, the device can be externally supplied via 24 VDC.

The ACCON-NetLink-PRO compact can be connected to the PC via a hub or switch or directly with the supplied patch cable (Cross-Link).

Features:

- Automatic bus profile detection

- Full PROFIBUS speed up to 12 Mbps

- Extended diagnostics

- Support of MPI, PROFIBUS and PPI

- Supports DHCP

- Support of Slave programming via DP-V1 (Class 2)

- Supports all established SIMATIC Engineering Tools

- Supports ISO on TCP (RFC 1006)

- Voltage feed from the PLC or controller

- External 24-V power supply possible

- Plug with PG bushing

- Applicable up to 60 °C

2   SCOPE OF DELIVERY

- ACCON-NetLink-PRO compact
- Patch cable (Cross-Over, 3 meters)
- DELTA LOGIC Automatisierungstechnik-DVD including ACCON-S7-NET-Driver

Suitable accessories can be found on www.deltalogic.de.
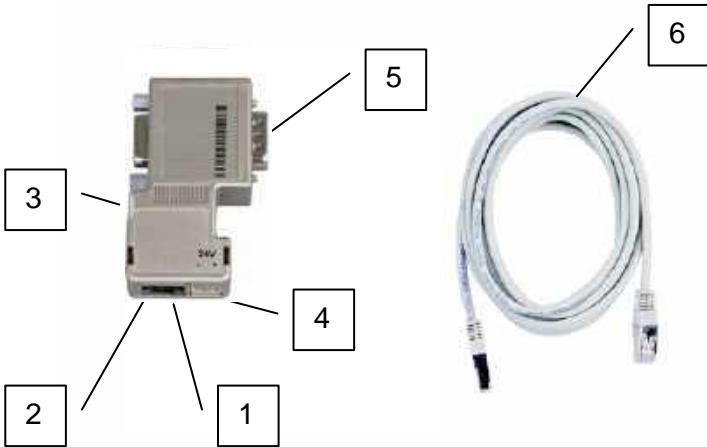
3   DEVICE DESCRIPTION

Figure 1: ACCON-NetLink-PRO compact

1.   RJ45 bushing to connect the device to the Ethernet

2.   Status LEDs for the Ethernet-Interface

3.   Status LEDs

4.   Power supply bushing for 24 VDC. Please keep the polarity in mind.

5.   Bus plug with PG bushing

6.   Patch cable (Cross-Over, 3 meters)

Start of the ACCON-NetLink-PRO compact

In the first seconds after starting the ACCON-NetLink-PRO compact the Power LED lights blue. The start procedure will be finished after about 20 seconds then the device is ready to operate.

LED display

	POWER LED	ACTIVE LED	BUS LED
Ready to operate	BLUE		
Trying to log in on the device at the bus	BLUE		ORANGE BLINKING
Device is logged in on the bus	BLUE	GREEN	
Data exchange with a controller (Data)	BLUE	GREEN BLINKING	

Table 1: Status LEDs

	POWER LED	ACTIVE LED	BUS LED
Transmitting firmware update	BLUE BLINKING		RED BLINKING

Table 2: Status LEDs Firmware Update

	LINK LED GRÜN	ACTIVE LED GELB
No Ethernet connection	OFF	OFF
Ethernet activity	ON	BLINKING

Table 3: Status LEDs Ethernet

4   REQUIREMENTS FOR OPERATING

Hardware

Siemens S7-200-, S7-300 and S7-400 automation devices or compatible to S7. The utilized PCs must have a working network connection via TCP/IP. Also the network configuration must be known. Usual network cards are suitable.

Software

To use the ACCON-S7-NET drivers you need a PC including Windows XP, 2003R2, 7, 2008R2, 8.1, 2012R2, 10. On this PC the SIMATIC Device Drivers (PG/PC-Interface) have to be installed. The SIMATIC Device Drivers will be installed with e. g. STEP 7, STEP 7 lite or STEP 7-Micro/Win. By installing ACCON-S7-NET more interfaces will be added to the PG/PC-Interface.

Take care of your Firewall Settings. The ACCON-NetLink-PRO compact uses the TCP ports 7777 and 102 (RFC1006). The Device Search function uses the UDP ports 25342 and 25343. The default IP address of the ACCON-NetLink-PRO compact is 192.168.4.49.

Assembly

Installation and assembly have to be carried out according to VDE 0100 / IEC 364. As the ACCON-NetLink-PRO compact is an IP30 module it has to be built into a switch cabinet.

For secure operating please keep the maximum ambient temperature of 60 °C in mind.

5 COMMISSIONING

*The ACCON-NetLink-PRO compact is shipped with the IP address
192.168.4.49.*

Connection to the automation device

Connect the 9-pin SUB-D plug to the MPI or PROFIBUS interface of your
S7 controller.

Connection to the PC via RJ45 Ethernet-Interface

Put one end of the patch cable into the Ethernet bushing of your
ACCON-NetLink-PRO and the other end into a hub or switch which is
connected to your PC's network card.

You can also directly connect the ACCON-NetLink-PRO compact to your
PC's network card without a switch.

Installation software

After inserting the DELTA LOGIC Automatisierungstechnik-DVD please
start the data file SetupAcconS7Net.exe for the ACCON-S7-NET driver
(<DVD-drive>\S7-Adapter).

For an installation you have to be logged in as administrator.

Set PG/PC-Interface

1. Open the SIMATIC PG/PC interface from the windows control panel.

The following points have to be in the dialog «Set PG/PC Interface»:

- ACCON-S7-NET NLPro(MPI)

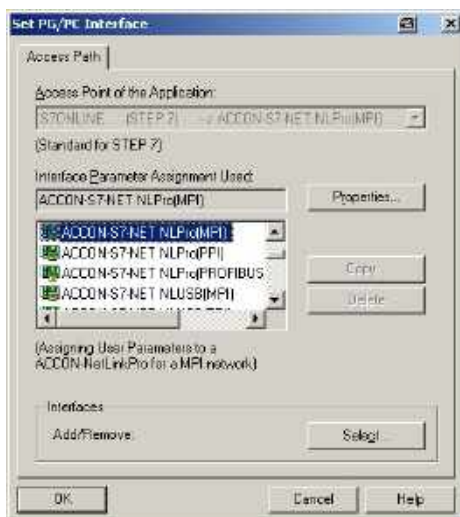- ACCON-S7-NET NLPro(PPI)

- ACCON-S7-NET NLPro(PROFIBUS)

Figure 2: Set PG/PC Interface

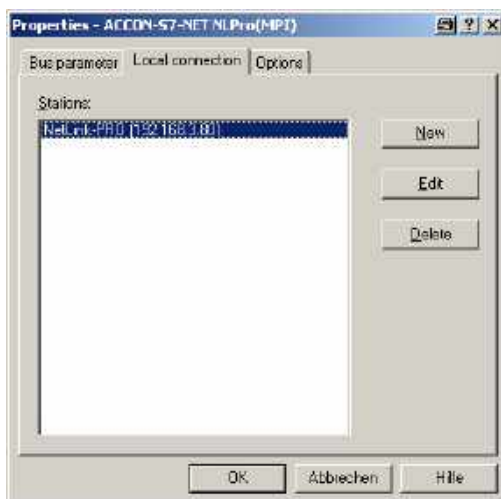2. Click on the button »Properties«.

Figure 3: A new created station

3. Click on »New« to create a station for the ACCON-NetLink-PRO compact. By selecting a station it is set which ACCON-NetLink-PRO compact is assigned to the PG/PC Interface. But these stations will not be stored in the ACCON-NetLink-PRO compact.

Figure 4: Set a station

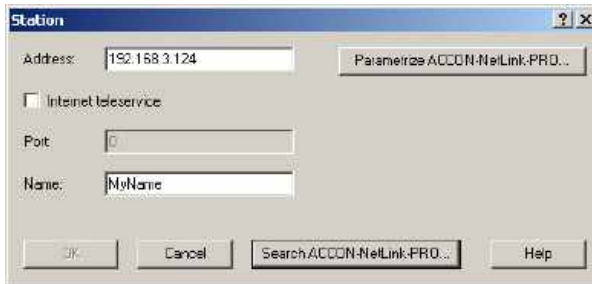4. Click on »Search ACCON-NetLink-PRO compact...« in the »Station« dialog. The following window appears:
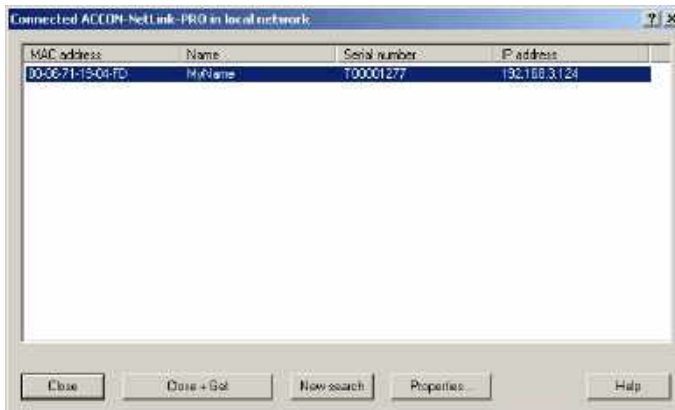

Figure 5: List of all connected ACCON-NetLink-PRO compact devices

6. Mark the ACCON-NetLink-PRO compact and click on »Close + Get«. If the list is empty please read the chapter »Trouble shooting«.

7. The window »Station« appears again. Click on »OK«. The driver settings are completed now.

8. Close the window »Properties – ACCON-S7-NET NLPro(MPI)« by a click on »OK«.

9. Close the window »Set PG/PC-Interface« by a click on »OK«.

10. When an access path is changed in this settings a warning appears. Confirm with »OK« when you want to accept the changes.

The ACCON-NetLink-PRO compact is shipped with the IP address 192.168.4.49.
The ACCON-NetLink-PRO compact's IP address must fit into your network. For this the first three places of the IP address of the PC and the ACCON-NetLink-PRO compact have to be equal, e. g.
PC: IP address 192.168.4.10
ACCON-NetLink-PRO compact IP address 192.168.4.49
(only valid if subnet mask 255.255.255.0 is used)
For more information please go to chapter 7 »TCP/IP Parametrization«.

The ACCON-NetLink-PRO compact can be parametrized via a web interface, too. To do this open your web browser and enter the URL »http://192.168.4.49« as long as you did not change the default address.

6   TCP/IP PARAMETRIZATION

There are two ways:

- Parametrization via »Set PG/PC Interface«

- Parametrization via the web interface of the ACCON-NetLink-PRO compact (look for chapter 9)

The ACCON-NetLink-PRO compact will be shipped with the IP address 192.168.4.49.

Setting TCP/IP parameters

To change the TCP/IP parameters select the desired station and click on »Edit«. The following window appears.
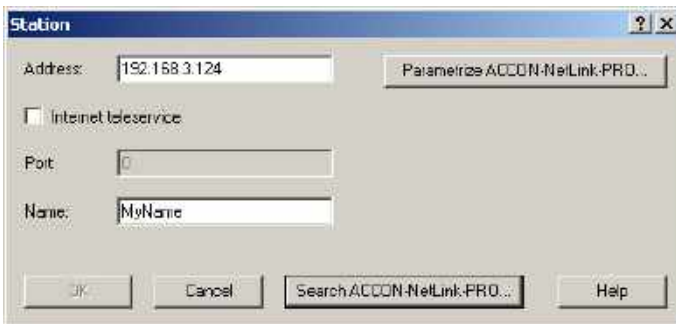

Figure 6: Set station

Via »Parametrize ACCON-NetLink-PRO compact...« you get to the input mask with the ACCON-NetLink-PRO compact's parameters.
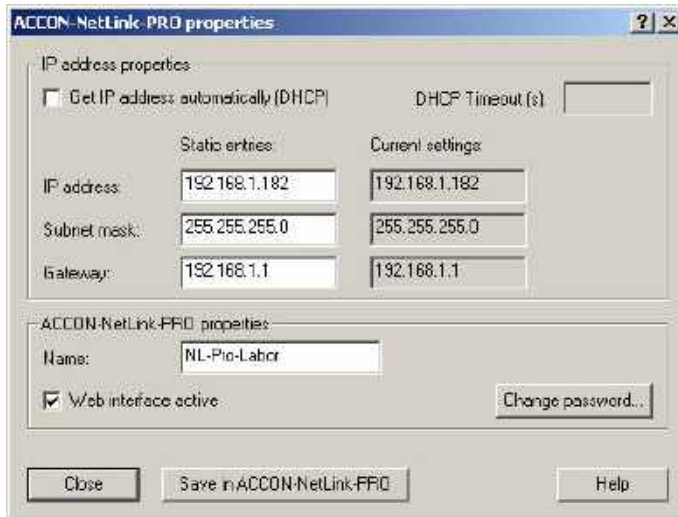
Figure 7: Settings of the ACCON-NetLink-PRO compact

Static TCP/IP configuration

If the ACCON-NetLink-PRO compact is used in a network without a DHCP server or if the ACCON-NetLink-PRO compact should always work with the same IP address despite an existing DHCP server, you have to enter the desired IP address into the input mask for »Static entries«. In this case you must not set the function »Get IP address automatically (DHCP)«.

The ACCON-NetLink-PRO compact's IP address must fit into your network. For this the first three places of the IP address of the PC and the ACCON-NetLink-PRO compact have to be equal, e. g. PC: IP address 192.168.4.10, ACCON-NetLink-PRO compact IP address 192.168.4.49 (only valid if subnet mask 255.255.255.0 is used).

Use of DHCP (Dynamic Host Configuration Protocol)

The problem with DHCP is, that after every switch-on the parametrized ACCON-NetLink-PRO compact can get another IP address. The system administrator responsible for the DHCP server can prevent it. The ACCON-NetLink-PRO compact's MAC address must have a permanent IP address at the DHCP server.

If the ACCON-NetLink-PRO compact should get the IP address via DHCP automatically, you have to set the function »Get IP address automatically (DHCP)«.

Additionally, the field »DHCP Timeout in s« will be activated. If the ACCON-NetLink-PRO compact does not get any parameters from a DHCP server within the time set, the device uses the static parameters to assure that the ACCON-NetLink-PRO compact is available in the network and if necessary configurable.

Values smaller than 30 seconds will be replaced by the default value (30 seconds) as most of the DHCP servers need between 12 and 20 seconds to assign valid parameters.

By clicking on the button »Save in ACCON-NetLink-PRO compact« the parameters will be permanently stored in the ACCON-NetLink-PRO compact. If not the parameters will be deleted after the next reboot.

Default values since firmware 2.58
User name: ACCON-NetLink-PRO compact
*Password: **consists of the last 8 Hex characters of the device MAC address.** This information is printed on the NetLink housing.*

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

(see side 37 for access via webinterface)

Default values before firmware 2.58
User name: ACCON-NetLink-PRO compact
Password: admin

If all entered correctly the following message appears:
»Parameter in the ACCON-NetLink-PRO compact successfully written «.

The reboot time depends on the DHCP. It takes at most 20 seconds plus the set DHCP timeout.

Additional features

In the input mask »ACCON-NetLink-PRO compact properties« there are more options:

- Name:
  Here you can give the ACCON-NetLink-PRO compact a name for a better identification in the search window. This name will be stored in the device.
  A possible naming would be according to the location (e. g. conveying machinery HG1), user name (e g. Mr. Smith) or something else.

- Change password:
  Here you can set or change an already existing password.
  When a password is set you can only change the ACCON-NetLink-PRO compact's configuration with it. This is valid for both, parametrization via driver and web interface.

- Web interface active:
  If activated and the password is known, the parametrization of the ACCON-NetLink-PRO compact can be shown and changed with any standard browser (e. g. Internet Explorer, Firefox, Opera,…). For more information please go to chapter 9.

By clicking the button »Save in ACCON-NetLink-PRO compact« all parameters will be stored in the ACCON-NetLink-PRO compact.

7   BUS SETTINGS

The ACCON-NetLink-PRO compact can be used with three different bus systems: PPI, MPI and PROFIBUS.

Configuration example MPI

The most important setting in connection with the bus configuration is the station address. This is the address which has the ACCON-NetLink-PRO compact on the bus when going online. The station address can be in the range from »0« to »12« as long as the chosen address is smaller or equal as the highest station address. This address is allowed only once.

The timeout can be set in the station-related settings of the ACCON-S7-NET driver. If there is no response to a driver enquiry within the set timeout, a communication error is sent to the SIMATIC application. The decrease of the timeout has no effect on the transmission time and data throughput. 30000 ms is the recommended timeout value.

In the net-related settings you have to adjust the transmission rate as well as the HSA of the automation system to which should communicated.
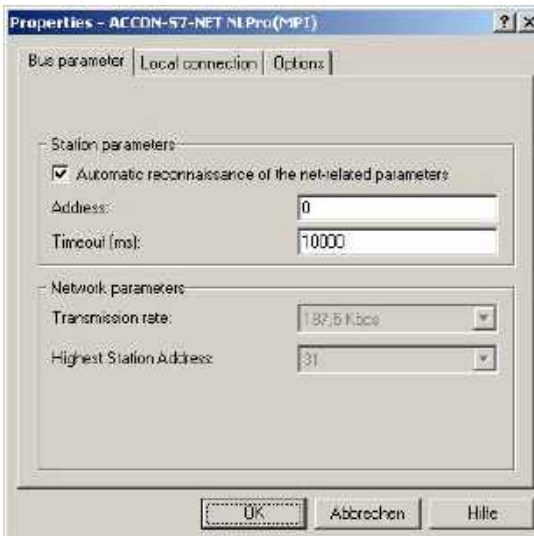

Figure 8: Automatic reconnaissance of the net-related parameters activated

To ease the configuration it is possible to activate the function »Automatic reconnaissance of the net-related parameters«. Thus the ACCON-NetLink-PRO compact gets the bus parameters independently. So the ACCON-NetLink-PRO compact can be used with different automation systems without changing the bus settings.

The automatic reconnaissance of the net-related parameters cannot be used when the function »Automatic reconnaissance of the net-related parameters« is not activated or not supported in the used PLC, e. g.:

-using S7-200

-older Siemens S7 CPUs

-if the ACCON-NetLink-PRO compact is the only master at the bus

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When using the autobaud function the initialization lasts a bit longer because the online parameters have to be determined. It is possible that the autobaud function does not work correctly at slower transmission rates (e. g. 19.2 Kbps) or with global data communication.

PROFIBUS communication

The PROFIBUS configuration is the same as the MPI configuration. Only the net-related parameters are wider. With PROFIBUS the additional settings for bus profile and bus parameters are available:
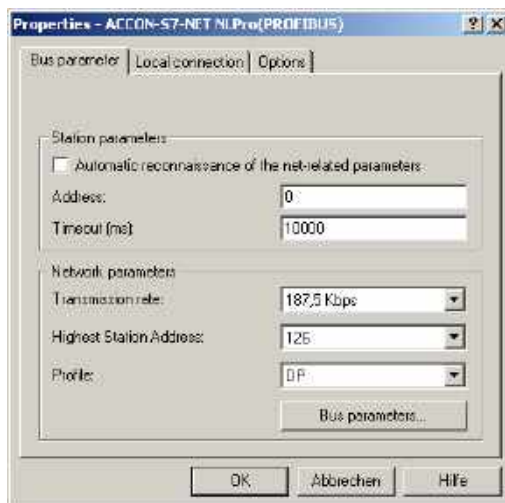

Figure 9: Automatic reconnaissance of the net-related parameters deactivated

Profile:

Using PROFIBUS the following profiles »DP«, »Standard« and »User-defined« can be used. You have to select the profile which is already set in the automation system.

Bus parameters:

Unlike to MPI the bus parameters under PROFIBUS are not constant and change in relation to the number and type of the used PROFIBUS stations.

You should always use the PROFIBUS parameters which are set in the actual automation system (look for it in the STEP7 project).
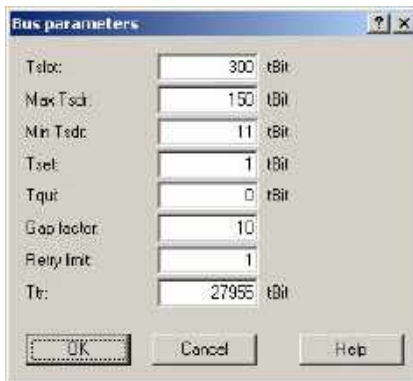
Figure 10: Extended bus parameter settings

To sidestep these partly complex steps you can use the function »Automatic reconnaissance of the net-related parameters« under PROFIBUS.

To get the » Automatic reconnaissance of the net-related parameters« to work, you have to activate »Cyclic distribution of the bus parameters« in the hardware parametrization of the interface.

The following screenshot shows the switch for the »Cyclic distribution of the bus parameters«. It is located in the hardware configuration of any PROFIBUS interface:
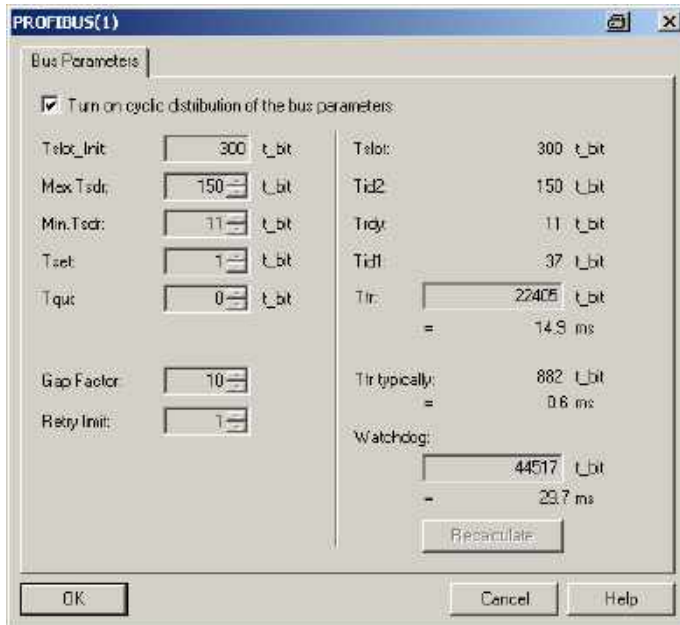
Figure 11: Automatic reconnaissance of the net-related parameters

PPI communication

The PPI configuration is the same as the MPI configuration, but the automatic reconnaissance of the net-related parameters is not possible with S7-200 controllers.

The PPI communication is supported not until version 2.5 of the ACCON-S7-NET drivers. At least firmware version 1.40 is needed.
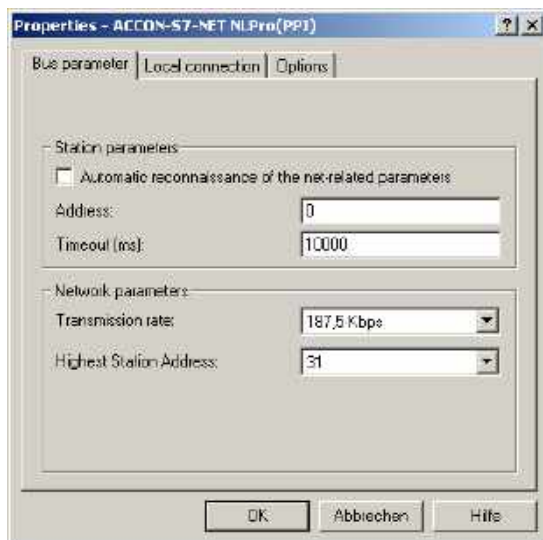
Figure 12: Bus settings PPI

For more information of the use of Advanced PPI look for the help of the S7-200 programming software.

To communicate with a EM 277 you have to activate Advanced PPI

Latest driver and firmware versions can be found on our web site in the »Download« section.

Driver options

In the tab »Options« you can select the language of the dialogs and messages. Furthermore the driver versions are displayed.
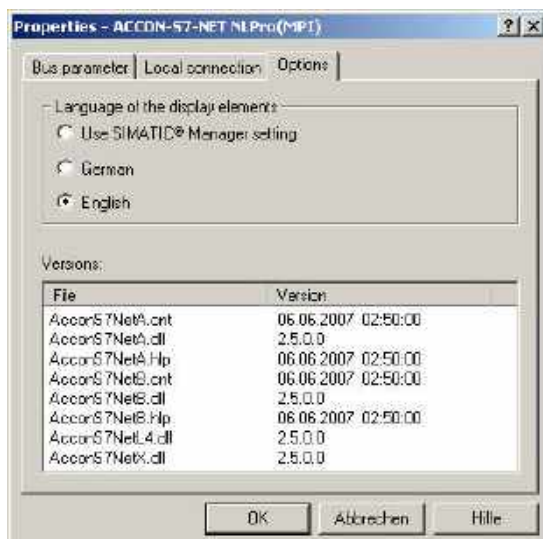
Figure 13: Driver options

Language of the display elements

After switching the language you have to call the settings window again to accept the changes.

Version information

The names and versions of all drivers are indicated here.

If problems occur you can quickly check if the correct versions are installed by indicating the driver data.

You will find the latest drivers and firmware versions on our web site at www.deltalogic.de in the »Download« section.

Diagnostics function:

You can find this function via **Set PG/PC-Interface > Diagnostics**. There you can execute hardware diagnostics of the module. You can determine the following values:

1. List of all reachable stations at the bus.

2. The bus parameters with which the ACCON-NetLink-PRO compact has logged in on the bus.
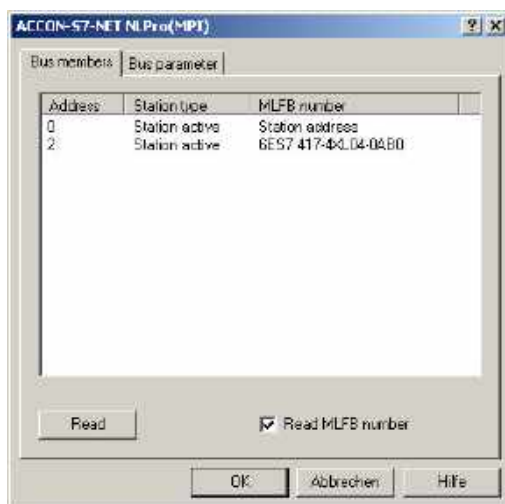
Figure 14: Diagnostics function

Click on the button »Read« to determine the values.

Notes about the stations:

Address:	Bus address of the station
Station type:	There are active (Master) and passive (Slave) stations
MLFB number:	The order number of the station is only shown if the option »Read MLFB number« is activated. The used ACCON-NetLink-PRO compact is shown as »Station address«.

Notes about the bus parameters:

If there is no automatic reconnaissance of the net-related parameters, the manually set bus parameters of the ACCON-NetLink-PRO compact are shown.

8 COMMUNICATION VIA RFC1006 (S7-TCP/IP)

RFC1006 is an official standard and supported by many manufacturers.

Lots of manufacturers of visualizations are using this protocol to access S7 controllers via Siemens' Ethernet CPs (e. g. CP343-1 or CP443-1).

The following software with RFC1006 support has been tested with the ACCON-NetLink-PRO compact:

- WinCC V6.0 (Siemens AG)

- ZenOn V6.2 (COPA-DATA)

- PROCON-Win V3.2 (GTI Control)

- DELTA LOGIC S7/S5-OPC-Server from V3.1 (DELTA LOGIC GmbH)

- ACCON-AGLink40 (DELTA LOGIC GmbH)

- INAT-OPC-Server (INAT GmbH)

- WinCE 5.0 Terminal TP21AS (Sütron Electronic GmbH)

- InTouch V9.5 (Wonderware GmbH)

The communication with S7-200 controller over RFC1006 is not supported.

Configuring the RFC1006 option

RFC1006 can be used anytime.

In the web interface is an option »Go online after boot up«. It can be used to automatically log in the ACCON-NetLink-PRO compact on bus after it boots up. This option doesn't have to be activated to communicate with RFC1006.

Addressed Mode (RFC1006)
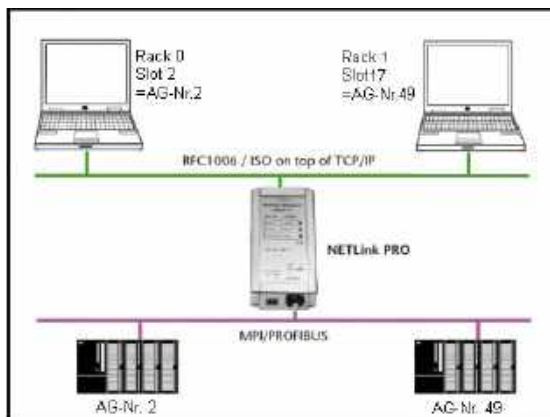
Figure 15: Addressed Mode

With the addressed mode it is possible to access several CPUs which are at the same MPI/PROFIBUS. If this mode is used you have to configure the following in the web interface:

- »Rack/Slot Mode« has to be off (»OFF«)

- In the application's RFC1006 driver you have to indicate the bus address (rack and slot number) of the CPU which should be accessed.

Example:

If you want to communicate with the PLC number 2:
➔ **Rack 0, Slot 2.**

If you want to communicate with the PLC number 49:
➔ **Rack 1, Slot 17.**

A conversion table for the rack and slot numbers is in the chapter »Appendix«

Parametrization tools without a rack and slot fields mostly have a parametrization field for the »Remote TSAP«. Normally, this is 2 bytes long and is shown in hexadecimal. The field where only 1 byte is used can be parametrized as follows:

If you want to communicate with the PLC number 2:

➔ **Remote TSAP 0202$_{hex}$.**

If you want to communicate with the PLC number 49:

➔ **Remote TSAP 0231$_{hex}$.**

There is a conversion table for the Remote TSAP values in chapter »Appendix«

You can also use the formula »Rack * 32 + Slot = Address«.

Configuration example of RFC1006 with STEP7 NetPro

In the Network Configuration of STEP7 (NetPro) you can build a virtual S7 PLC as an ACCON-NetLink-PRO compact. On this way you can connect a S7 PLC on MPI or PROFIBUS via Routing. For this the virtual S7 PLC have to be configured with the IP address and the Bus address of the NetLink. Don't forget to set "S7Online (STEP7) ➔ TCP/IP" in the PG/PC-Interface.
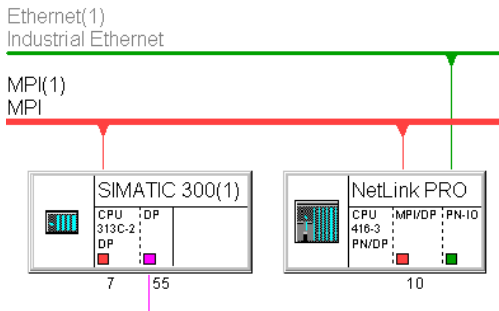
It also can be implemented in the TIA Portal.
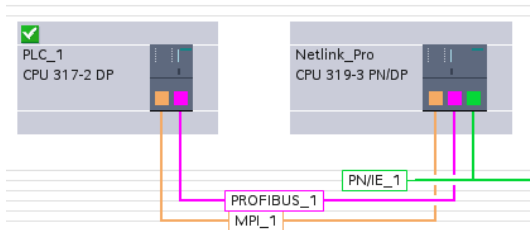
Configuration example of RFC1006 with ACCON AGLink
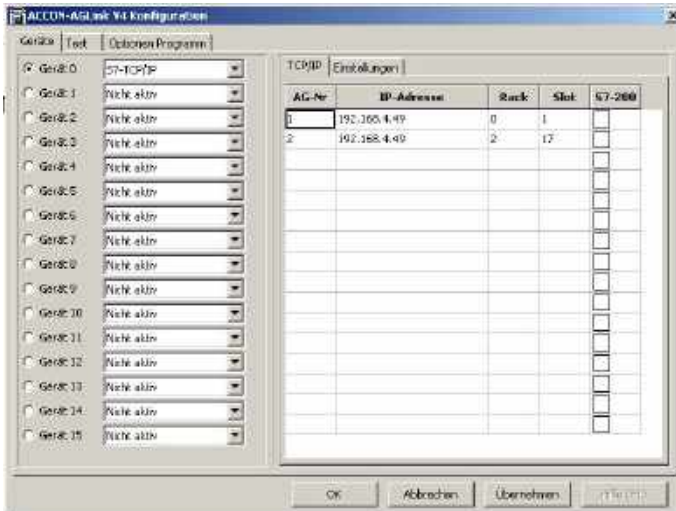
Figure 16: Configuration example for RFC1006

This configuration can be used for the following software packages:

- ACCON-AGLink Version 3.x and 4.0

- DELTA LOGIC S7/S5-OPC-Server

- SPS-Analyzer AutoSPy

- ACCON-S7-Power-Tools

- ACCON-S7-EasyLog

Use of RFC1006 with WinCC v 6.0

To parametrize a RFC1006 connection in WinCC, you have to create a new TCP/IP connection in the »SIMATIC S7 PROTOCOL SUITE«. The new connection is called »NetLink_PRO« here.
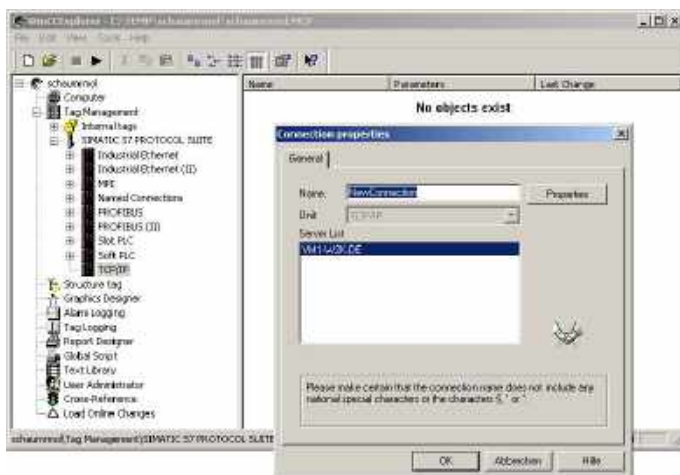
Figure 17: Create TCP/IP connection

Click on »Read« and you get to the following settings:
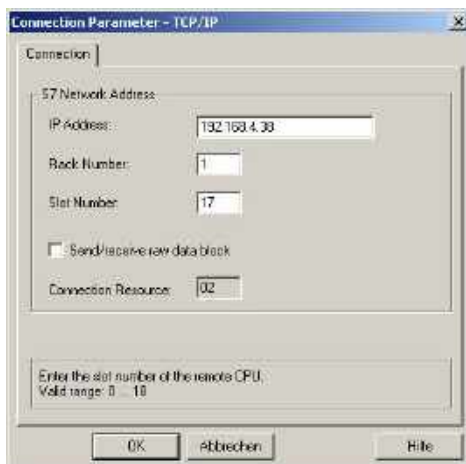
Figure 18: Connection parameters TCP/IP

In this case the ACCON-NetLink-PRO compact has the IP address 192.168.4.38. The target CPU with which should be communicated has the PROFIBUS address 49. The addressed mode is used, so the value for

Rack and Slot can be checked up in the address conversion table in chapter »14 APPENDIX«.

But the connection still needs a variable. To do so, open the context menu of the connection with a right mouse click and choose »New tag…«.
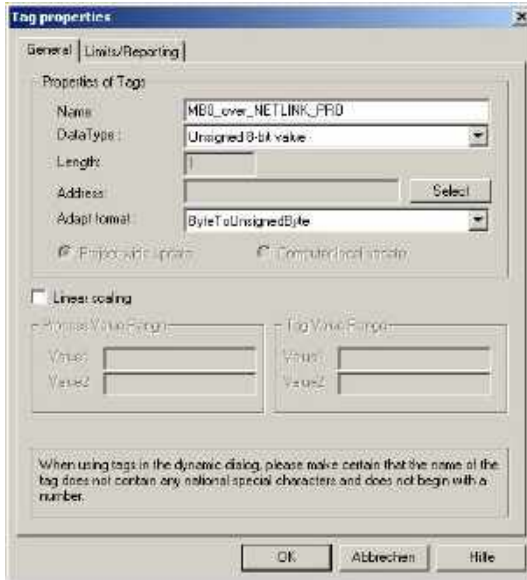
Figure 19: Tag properties

In the »Tag properties« window you can choose the type of the variable (MB0_over_NetLink_PRO, here) via the button »Select«.
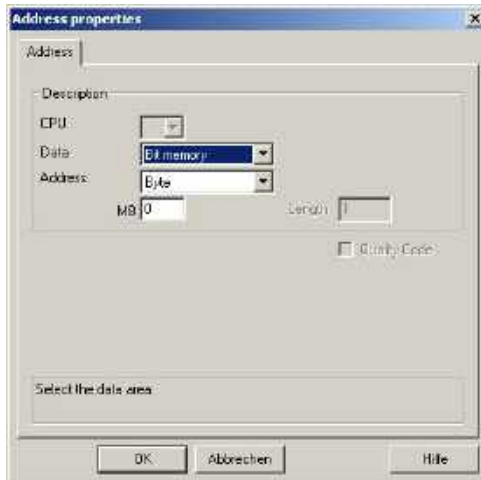
Figure 20: Flag byte 0 is going to be projected

In the following screenshot you can see that there is now a new variable called »MB0_over_NETLink_PRO« under the point »NetLink_PRO«.
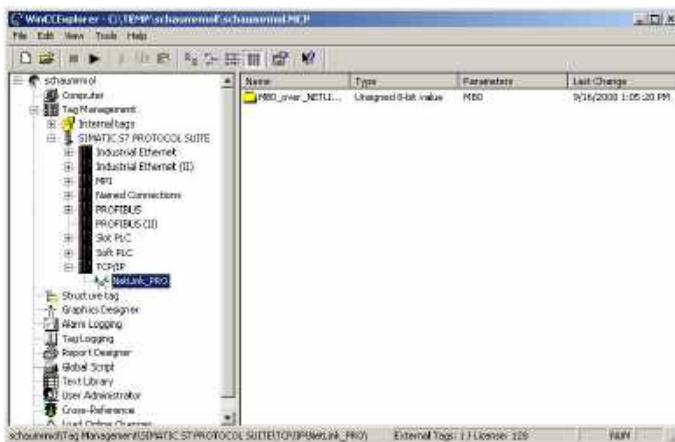
Figure 21: Connection »NETLINK_PRO«

If this variable is now included in the initial screen of the WinCC project, a connection will be established to the CPU with address 49 via the

ACCON-NetLink-PRO compact to access marker byte 0. Further variables of different types can, of course, be created and used according to the same scheme. It is also possible to create additional TCP/IP connections in order to communicate with more CPUs.

Rack/Slot Mode
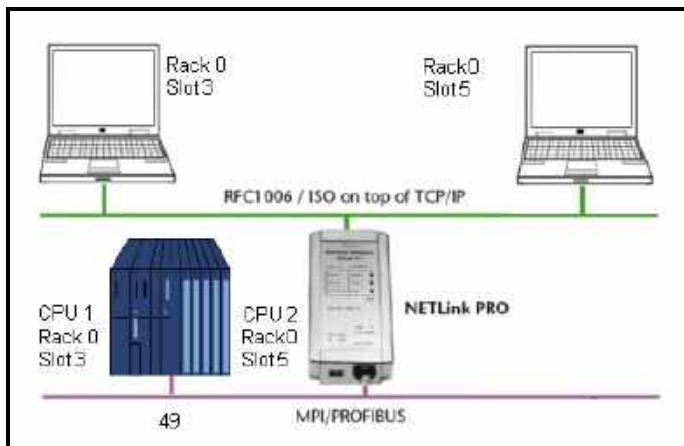
Figure 22: Rack/Slot Mode

A special feature of the RFC1006 option is the Rack/Slot mode. Using this function it is possible to access several CPUs which are on the same Rack (Multicomputing) via one bus address. A connection from a PROFIBUS-CP (z. B. CP342-5) to a S7 CPU is possible, too.

Only to the set station (PLC number) will be communicated to. This station forwards the data packages to the desired Rack/Slot.

To use this function, the following settings on the configuration page of the web interface have to be made:

- »Rack/Slot mode« (»ON«)

- At »Fix destination address for R/S mode« the address (PLC number) of the desired communication partner has to be entered. In this example »49«.

9   THE WEB INTERFACE

The web interface of the ACCON-NetLink-PRO compact can be used with any standard browser (e. g. Internet Explorer, Mozilla Firefox, Opera, etc.).

Start page

The welcome page of the ACCON-NetLink-PRO compact is called with »http://ip-address«. (Default IP address: 192.168.4.49)

The web interface can activated/deactivated via the configuration in the PG/PC interface

Via the welcome page you get to the following pages:

* Welcome page

* Configuration page

* Page for security settings

* Page to monitor variables

* Website of the DELTA LOGIC Automatisierungstechnik GmbH

Status page

The status page shows the currently used settings of the ACCON-NetLink-PRO compact. You cannot change anything there.

This page provides the following information:

Device specific parameters:

Product name	ACCON-NetLink-PRO compact
Order number	161701-PRO
Firmware name	ACCON-NetLink-PRO compact
Firmware version	e. g. V2.30
Bios version	e. g. V2.30
Serial number	e. g. T00006262
MAC address	e. g. 00:06:71:19:00:3E

Device name	The name which was stored in the ACCON-NetLink-PRO compact is shown here.

MPI/PPI/PROFIBUS status:

Device is not online	If the ACCON-NetLink-PRO compact is not connected to a PLC, these words will be shown red.
Currently used connections	The number of used bus connections is shown here.

These Parameters are only shown if a connection to a PLC is established:

Own station address	If the ACCON-NetLink-PRO compact is active on the bus, you have to enter the bus address here.
Online Bus parameters	If the ACCON-NetLink-PRO compact is active on the bus, the itemized bus parameter set is shown here.
List of active stations	If the ACCON-NetLink-PRO compact is active on the bus, the list of active stations is output here. The own address is displayed in red.
List of passive stations	If the ACCON-NetLink-PRO compact is active on the bus, the list of passive stations is output here.

TCP/IP status:

IP address	Current IP address of the ACCON-NetLink-PRO compact (e. g. 192.168.4.54).
Subnet mask	Current subnet mask of the ACCON-NetLink-PRO compact (e. g. 255.255.255.0).
Gateway	Current standard gateway of the ACCON-NetLink-PRO compact (e. g. 192.168.4.33).
Listen on port	The TCP port on which the ACCON-NetLink-PRO compact can be reached. The default port is 7777.
DHCP	Shows if DHCP is activated or not If DHCP is »ON« there is the additional information if DHCP was successful or if the parametrized default IP address is used.
DHCP timeout	Shows the DHCP timeout in seconds
Configured via DHCP	Shows if the IP address is given from a DHCP Server
Connected to client address	IP address which is connected to the NetLink.
Security interface ON/OFF	Shows if the Security interface is activated.
Currently used TCP connections	The amount of open TCP connections is shown here.

MPI/PROFIBUS Settings

Go Online after boot up	Shows if the NetLink connects automatically with RFC1006 after it boots up or not (»ON« or »OFF«). If activated (»ON«) further parameters are visible.

The following parameters are only visible if "Go online after boot up" is activated:

Own station address	Shows the own station address. It is the address with which the ACCON-NetLink-PRO compact participates in the bus cycle.
Stored bus parameters	If autobaud is »OFF«, the stored bus parameters, with which the ACCON-NetLink-PRO compact tries to go online, are displayed here.
Rack/Slot-Mode	(»ON«)➔ Rack/Slot-Mode is active (»OFF«)➔ Addressed-Mode is active .
Fix target address for Rack/Slot-Mode	If the Rack/Slot-Mode is activated, all incoming RFC1006 queries are forwarded to the parametrized bus address.
Number of used RFC connections	If the ACCON-NetLink-PRO compact has opened at least one TCP or RFC connection, the amount of open RFC connections is shown here.

Additionally there are three Buttons on the website:

Diagnostic Page
With this button you can get closer information about the communication of the NetLink.

Search Passive Stations
With this button you can search passive Stations (e. g. S7-200, IM151-7, DP-Slaves, ...). The slave addresses will be shown on the website at the »List of passive stations«.

Go Online/Offline
With this button you can manually go online or offline with the ACCON-NetLink-PRO compact.

Configuration page

The ACCON-NetLink-PRO compact can be configured via this page.
Before opening this page you have to enter the **correct device name**
(»ACCON-NetLink-PRO compact«) and the **password** (see below).

Figure 23: User name and password

The user name and the password are case-sensitive!

Default values since firmware 2.58
User name: ACCON-NetLink-PRO compact
Password: consists of the last 8 Hex characters of the device MAC address. This information is printed on the NetLink housing.

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

Since NetLink firmware version 2.58, the user must define an individual password when calling up the web interface for the first time. This must then be saved in the NetLink.

Note: The default password „admin" from older device versions may no longer be used. The new password to be set by you have to use 5 - 8 characters and spaces are not permitted.

Default values before firmware 2.58
User name: ACCON-NetLink-PRO compact
Password: admin

After a successful authentication you have writing access on all parameters which are configurable via the driver interface of the ACCON-S7-NET driver.

Device specific parameters:

Device name	Name of the NetLink (max. 20 characters)

TCP Parameters:

Static IP address	Used IP address if DHCP is deactivated or DHCP timeout elapsed.
Static subnet mask	Used subnet mask if DHCP is deactivated or DHCP timeout elapsed.
Static gateway	Used gateway if DHCP is deactivated or DHCP timeout elapsed.
Additional NetLink Port	In addition to the standard port you can store a further user-definable port for the ACCON-NetLink-PRO compact.
DHCP ON/OFF	DHCP status
DHCP timeout	30 to 65500 seconds
Web interface ON/OFF	Web interface active or not

MPI/PROFIBUS settings

Go Online after boot up ON/OFF	If this option is »ON« the NetLink automatically tries to log in on the bus after it boots up.

The following Parameters are only shown if »Go online after boot up« is activated:

Own station address

The option »Own station address« shows with which bus address the ACCON-NetLink-PRO compact has logged in on the bus.

The value for the station address can be in the range of »0« including »126«. But the chosen address must not be higher than the HSA

(highest station address) and is not assigned to another device at the same bus.

Single Master ON/OFF

Using the option »Bus autobaud ON/OFF« you can set if the ACCON-NetLink-PRO compact searches the bus parameters and goes online then, or the device uses the stored bus parameters when going on the bus. »ON« or »OFF« is possible.

Single Master bus parameters

If the option »Single Master ON/OFF« is activated (»ON«), you have to fill in the parameter fields, belonging to the subitem »Single Master bus parameters«, correctly.

When parametrizing you have to keep in mind that with PROFIBUS all parameters are dependent from each other, e. g. if the baudrate is changed then all other parameters are changed, too.

With MPI all parameters are given except the baudrate. If a MPI connection is changed from 187.5 Kbps to e. g. 12000 Kbps all other parameters are unmodified.

Bus Profile	MPI or DP
Baud rate	Enter desired baudrate in Kbps. Possible values are: 9.6; 19.2; 45.45; 93.75; 187.5; 500; 1500; 3000; 6000 and 12000.
HSA	The highest station address is entered here. With MPI normally »31« and with PROFIBUS »126«. Values which are not equal to the default values can be used. All stations have to be adjusted equally.
Tslot_Init	Using MPI this value is always »415«. With PROFIBUS the respective value has to be taken from the parametrization of the bus master (normally the CPU).
Ttr	Using MPI this value is always »9984«. With PROFIBUS the respective value has to be taken from the parametrization of the bus master (normally the CPU).
Max. Tsdr	Using MPI this value is always »400«. With

	PROFIBUS the respective value has to be taken from the parametrization of the bus master (normally the CPU).
Min. Tsdr	Using MPI this value is always »20«. With PROFIBUS the respective value has to be taken from the parametrization of the bus master (normally the CPU).
Tset	Using MPI this value is always »12«. With PROFIBUS the respective value has to be taken from the parametrization of the bus master (normally the CPU).
Tqui	Using MPI this value is always »0«. With PROFIBUS the respective value has to be taken from the parametrization of the bus master (normally the CPU).
Gap	Using MPI this value is always »5«. With PROFIBUS the respective value has to be taken from the parametrization of the bus master (normally the CPU).
Retry	Using MPI this value is always »2«. With PROFIBUS the respective value has to be taken from the parametrization of the bus master (normally the CPU).

Please keep in mind that a wrong parametrized ACCON-NetLink-PRO compact can interfere with the bus so that a regular operating is not possible any more.

Due to this reason the autobaud function is very handy. Thus the correct parameters are used, automatically. But the CPU must support this function.

Wrong bus parameters can interfere with the bus!

Rack/Slot-Mode or Routing over RFC ON/OFF	(»ON«)➔ Rack/Slot-Mode is active (»OFF«)➔ Addressed-Mode is active.
Fix destination address for R/S mode or Station address of routing gateway	If the Rack/Slot-Mode is activated, all incoming RFC1006 queries are forwarded to the parametrized bus address.

User/Password Settings

User	Here you can set a Username (Default: ACCON-NetLink-PRO compact)
New password	Password with a maximum of 8 digits
Retype new password	Repeat password with a maximum of 8 digits

Entered changes can be undone with the button »Cancel«.

By clicking on »Submit« the entered values are checked. If there is a wrong input a possible solution is shown.

If all is correct, all changes are shown again and with a click on »Store« the values will be stored in the ACCON-NetLink-PRO compact.

To activate the new configuration, the ACCON-NetLink-PRO compact will be restarted after saving the new parameters.

If desired the ACCON-NetLink-PRO compact can be activated remotely via the configuration interface. To do this click on »System Reset«.

Security page

The security page contains rudimental TCP security settings. Before opening this page you have to enter the **correct device name** (»ACCON-NetLink-PRO compact«) and the **password** (see side 37). Via the button »factory defaults« the ACCON-NetLink-PRO compact can be set to its standard settings.

If the TCP-Access list is activated with »ON«, only TCP connections to the ACCON-NetLink-PRO compact can be established which have been unlocked in the table »TCP address 1« to »TCP address 12« (whitelist).

Enter an IP address which has to be unlocked according to the following example: »192.168.4.36«. To deactivate it, enter »OFF«.

TCP/IP addresses which are not indicated here, have only read access on the web interface and cannot change the configuration. An access with ACCON-S7-NET is limited, too.

If you want to avoid unauthorized use you must not add possible proxy server in company networks to the list. Otherwise a secure use of the ACCON-NetLink-PRO compact is only limited.

To undo changes just press the »Cancel« button.

By clicking on »Submit« the entered values will be checked. If there is a wrong input a possible solution is shown. If all is correct, all changes are shown again and with a click on »Store« the values will be stored in the ACCON-NetLink-PRO compact.
To activate the new configuration, the ACCON-NetLink-PRO compact will be restarted after saving the new parameters.

If desired the ACCON-NetLink-PRO compact can be activated remotely via the configuration interface. To do this click on »Device Reboot«. It is possible to restore the ACCON-NetLink-PRO's default values via the button »Restore Factory defaults«. All user-defined settings will be deleted.

Observe Variables

This function can only be used when the NetLink is Online and the RFC-1006 mode is used. The activation is described in chapter »8«.

Parameters for monitoring variables:

MPI Address	With the help of the dropdown menu an active MPI/PROFIBUS address (S7-CPU) is selected.
Number of Variables	For a better overview the number of the desired variables can be selected between 1 and 10.
No.	Continuous numeration.
Address Area	The following items are supported: AB, AW, AD, EB, EW, ED, MB, MW, MD, DBB, DBW, DBD, Counter and Timer.
Address Index*	Address of the bytes which want to be shown. * Data modules in the nomenclature »Data module offset« e. g.: 108.10
Result Value	The output value of a pressed button can be seen here.
Display Format	Possible display modes are decimal, hexadecimal or binary
Description	Free-selectable description (max. 32 characters)

To show the desired values the buttons »1x fetch«, for a refresh once, or »cyclic fetch«, for a permanent online request, are available.

With »Save Configuration« the created mask including all set variables and their descriptions can be stored in the ACCON-NetLink-PRO compact.
The refresh rate is set to 0.5 seconds. If several stations use this function from the TCP/IP side, then there is always only one connection resource reserved in the ACCON-NetLink-PRO compact. During the additional data exchange via MPI/PROFIBUS the »Observe Variables« function has the lowest priority. Thus the refresh rate in the web interface is dependent from the parallel bus load.

10 REMOTE MAINTENANCE WITH THE ACCON-NETLINK-PRO COMPACT

If the ACCON-NetLink-PRO compact is used for remote maintenance the administrators of both involved networks should be consulted.
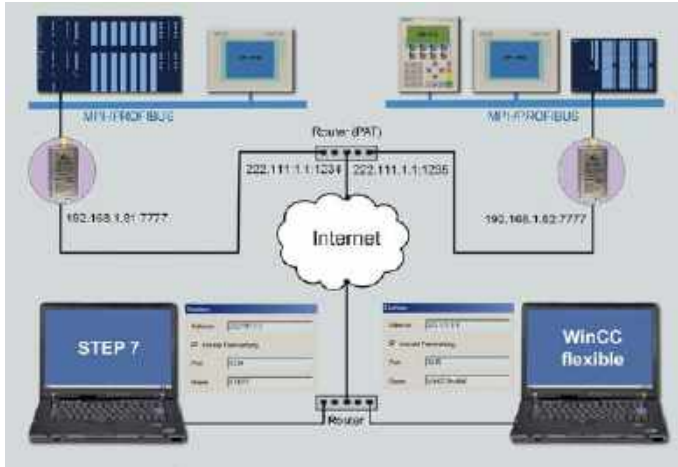
Figure 24: Example of an internet remote maintenance

If more than one ACCON-NetLink-PRO compact is used behind a router, you can activate »Internet remote maintenance« at the stations. On this way each station gets its own port address. Furthermore the router should support NAPT (Network Address and Port Address Translation) respectively PAT (Port Address Translation).

11 TROUBLE SHOOTING
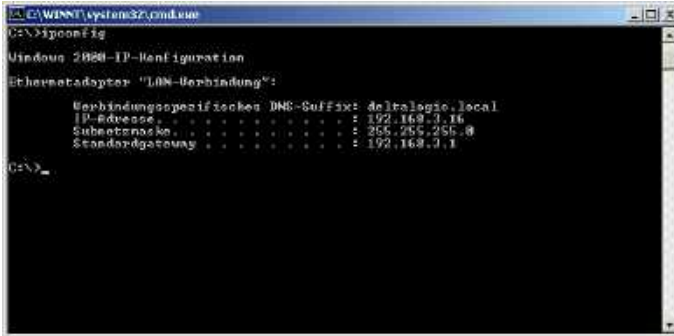
Error	Cause	Solution
Power LED does not light	-ACCON-NetLink-PRO compact has no voltage supply -The used MPI bushing has not the necessary 24 VDC	- Plug MPI/PROFIBUS cable on PLC interface - Apply 24 VDC externally
Active LED is blinking red	ACCON-NetLink-PRO compact exception error on Ethernet side	Plug MPI/PROFIBUS cable again on the PLC interface
Connect LED is blinking red	ACCON-NetLink-PRO compact exception error on MPI/PROFIBUS side	Plug MPI/PROFIBUS cable again on the PLC interface
Link LED does not light green	No connection to the Ethernet	Check Ethernet connection
Configuration of the ACCON-NetLink-PRO compact via ACCON-S7-NET		
The message »ACCON-NetLink-PRO compact cannot be parametrized now.« appears	ACCON-NetLink-PRO compact is active on the bus during parametrization	ACCON-NetLink-PRO compact has to be inactive during parametrization
The message »Wrong password« appears	Password incorrect and/or parametrization time exceeded	Enter correct password and mind parametrization time (see side 37)
Setting TCP/IP parameters		
No ACCON-NetLink-PRO compact is reachable via the entered IP address	-ACCON-NetLink-PRO compact is not online or still starting -IP configuration of PC and ACCON-	-Activate ACCON-NetLink-PRO compact or complete starting procedure -PC and ACCON-

	NetLink-PRO compact are not identical	NetLink-PRO compact have to be in the same network segment
ACCON-NetLink-PRO compact not reachable	Ports have to be released in the firewall	To search the ACCON-NetLink-PRO compact the UDP ports 25342 and 25343 have to be released. For the communication the TCP port 7777 and 102 (RFC1006) have to be released.
The program STARTER® has problems when accessing a MICROMASTER® or SINAMICS®	Failure and application monitoring too low	1. Increase the timeout in the PG/PC-Interface to 80000ms. 2. Increase failure monitoring to 200ms and application monitoring to 5000ms

12   FREQUENTLY ASKED QUESTIONS

Q: I do not know my PC's IP address.

A: Use the prompt and enter the command »ipconfig« to gain information about your Ethernet interface.

Figure 25: ipconfig

Q: The configuration tool as well as the web interface asks for a password. But I did not enter any password.

A: The ACCON-NetLink-PRO compact must have a password. If no password is set, the standard password (see side 37) is used.

Q: There are no dialog settings in the Simatic Manager.

A: When you installed the ACCON-S7-NET driver for the first time you have to add it to the PG/PC interfaces, too. Make sure that you have administrator rights when installing the driver. After a successful installation you have to reboot your system. Simatic Manager Version 5.1 is minimum!

Q: It is not possible to go online when the adapter is put on the PROFIBUS.

A: If possible use the autobaud function. If not desired or possible you have to check the Profibus' timing parameters in the STEP7 project planning. Via the »Bus Parameters« button you can enlist the read off values into the extended bus parameter settings. You have to increase the »TRT« (Target Rotation Time) parameter in the ACCON-NetLink-PRO compact as well as on the PLC.

Q: Sometimes MPI or PROFIBUS connections with high baud rates are getting disconnected although the ACCON-NetLink-PRO compact is put on the PLC and no other users are connected.

A: Be sure that the bus is correctly terminated. Even though the ACCON-NetLink-PRO compact is the only device connected to the bus in addition to the PLC. You have to insert the final resistor. Above all high baud rates can be interfered.

Q: If I set the ACCON-NetLink-PRO compact to autobaud in the PG/PC interface and try to go online, the active LED lights up briefly before a message appears telling me that the bus parameters cannot be determined.

A: Please deactivate the autobaud function in the NETLink-S7-NET driver (PG/PC interface) and set the correct baud rate and the correct profile.

Q: I enabled the RFC function the web interface and would like the ACCON-NetLink-PRO compact to go on the bus using autobaud. Unfortunately, the active LED just flashes but no communication is possible via my visualization system.

A: Please deactivate the autobaud function in the web interface of the ACCON-NetLink-PRO compact and set the correct baud rate with the corresponding bus parameters.

Q: I have read that the ACCON-NetLink-PRO compact can communicate with up to seven PCs at the same time. But I can't manage to query a status of my automation system from more than six PCs at once.

A: A total of seven TCP connections are available that can be used at the same time. However, please note that only up to six connections can be used at once per type of connection (NETLink-S7-NET or RFC1006 connections are possible). The purpose of this is to keep one connection channel free for the other protocol in each case.

Q: I am using the rack/slot mode of the RFC1006 interface and have specified address 2 for my existing PLC in the web interface in »Fix destination address for R/S mode«. Although the ACCON-NetLink-PRO compact online is active (active LED lights up), my visualization system tells me that no connection can be established.

A: Make sure you have assigned the correct values to rack and slot in the parametrization. Look for chapter »8«.

Q: I would like to use addressed mode of the RFC1006 interface (rack/slot mode = OFF) so I can access several PLCs on the same bus. Unfortunately, I am not sure how to parameterize the fields rack and slot in the visualization used.

A: If addressed mode is used, a combination of rack and slot specifies the destination address of the automation system.

Q: If I mix RFC1006 connections and connections via the STEP7 driver, the connection sometimes breaks off or error messages appear saying that it is not possible to establish a connection.

A: For communication with S7-300 modules it may be necessary to parameterize the communication resources. The user can influence the allocation of existing »Connection Resources« under object properties of the PLC in the hardware configuration.

13 TECHNICAL DATA

Supported operating systems	No restrictions (the driver for SIMATIC ACCON-S7-NET is only compatible with Windows XP, 2003R2, 7, 2008R2, 8.1, 2012R2, 10)
Hardware requirements	Ethernet interface and TCP/IP protocol
Supported PLCs	S7-200, S7-300, S7-400
Default IP	192.168.4.49
port addresses (communication)	TCP 7777, TCP 102 (RFC1006)
port addresses (NetLink Search)	Broadcast to UDP 25342, UDP 25343
Weight in kg	ca. 0.25
Dimensions (W x H x D) in mm	64 x 40 x 17
Protection type	IP 20
Voltage supply	24 VDC ± 25 %
External voltage supply possible	Yes
Power consumption	Max. 150 mA
Galvanically separated	Yes
Operating temperature	0 °C to 60 °C
Temperature storage/ transport	-20 °C to 90 °C
Relative humidity	5 % to 85 % at 30 °C (no bedewing)
Connection cable to the PC	Patch cable (Ethernet, straight, 3 m)

Supported bus profiles	MPI, DP, standard, Universal (DP/FMS), user-defined with automatic detection, PPI
Supported transmission rate of the bus connection to the PLC	9.6 Kbps to 12 Mbps with automatic detection
Supported transmission rates Ethernet	10/100 Mbps with automatic detection
Max. number of connections to TCP/IP	16
Max. number of connections to MPI, PROFIBUS, PPI	32
Supported software	ACCON-S7-EasyLog, ACCON-AGLink, DELTA LOGIC S7/S5-OPC-Server. With the driver for SIMATIC ACCON-S7-NET the following software can be used; SIMATIC Manager from V5.3, WinCC, WinCC flexible, ProTool, STEP7-Micro/WIN, TIA Portal

Table 4: Technical data

Pin assignment

Assignment MPI/PROFIBUS interface

Port	Signal	Meaning
1	-	Not used
2	GND	Ground/ voltage supply (looped-through)
3	RxD / TxD-P	Received/transmission data-P
4	-	Not used
5	DGND	Ground for bus termination (looped-through)
6	DVCC	5 VDC for bus termination (looped-through)

7	VCC	24 VDC power supply (looped-through)
8	RxD / TxD-N	Received/transmission data -N
9	-	Not used

Assignment Ethernet interface (Host-Interface)

Port	Signal	Meaning
1	TX+	transmission data
2	TX-	transmission data
3	RX+	Received data
4	-	Not used
5	-	Not used
6	RX-	Received data
7	-	Not used
8	-	Not used

The ACCON-NetLink-PRO compact is supplied with a 3 meter patch cable (Cross-Over) category 5.

The maximum length between two TCP/IP interfaces must not exceed 100 meter according to IEEE802.

If there are distances greater than 100 meters you have to use repeater or switches.

Voltage bushing

When using an external voltage feed you have to mind the correct polarity and the voltage.

14 APPENDIX

Address conversion table

The following table serves as a parametrization help for the addressed mode. The bus address can be converted to Rack/Slot or TSAP, e. g. the controller with the bus address 49 is addressed by Rack 1 and Slot 17 or with the TSAP 0231.

Bus-adr.	Rack	Slot	TSAP	Bus-adr.	Rack	Slot	TSAP
0	0	0	0200	64	2	0	0240
1	0	1	0201	65	2	1	0241
2	0	2	0202	66	2	2	0242
3	0	3	0203	67	2	3	0243
4	0	4	0204	68	2	4	0244
5	0	5	0205	69	2	5	0245
6	0	6	0206	70	2	6	0246
7	0	7	0207	71	2	7	0247
8	0	8	0208	72	2	8	0248
9	0	9	0209	73	2	9	0249
10	0	10	020A	74	2	10	024A
11	0	11	020B	75	2	11	024B
12	0	12	020C	76	2	12	024C
13	0	13	020D	77	2	13	024D
14	0	14	020E	78	2	14	024E
15	0	15	020F	79	2	15	024F
16	0	16	0210	80	2	16	0250
17	0	17	0211	81	2	17	0251
18	0	18	0212	82	2	18	0252
19	0	19	0213	83	2	19	0253
20	0	20	0214	84	2	20	0254

Bus-adr.	Rack	Slot	TSAP	Bus-adr.	Rack	Slot	TSAP
21	0	21	0215	85	2	21	0255
22	0	22	0216	86	2	22	0256
23	0	23	0217	87	2	23	0257
24	0	24	0218	88	2	24	0258
25	0	25	0219	89	2	25	0259
26	0	26	021A	90	2	26	025A
27	0	27	021B	91	2	27	025B
28	0	28	021C	92	2	28	025C
29	0	29	021D	93	2	29	025D
30	0	30	021E	94	2	30	025E
31	0	31	021F	95	2	31	025F
32	1	0	0220	96	3	0	0260
33	1	1	0221	97	3	1	0261
34	1	2	0222	98	3	2	0262
35	1	3	0223	99	3	3	0263
36	1	4	0224	100	3	4	0264
37	1	5	0225	101	3	5	0265
38	1	6	0226	102	3	6	0266
39	1	7	0227	103	3	7	0267
40	1	8	0228	104	3	8	0268
41	1	9	0229	105	3	9	0269
42	1	10	022A	106	3	10	026A
43	1	11	022B	107	3	11	026B
44	1	12	022C	108	3	12	026C
45	1	13	022D	109	3	13	026D
46	1	14	022E	110	3	14	026E
47	1	15	022F	111	3	15	026F

Bus-adr.	Rack	Slot	TSAP	Bus-adr.	Rack	Slot	TSAP
48	1	16	0230	112	3	16	0270
49	1	17	0231	113	3	17	0271
50	1	18	0232	114	3	18	0272
51	1	19	0233	115	3	19	0273
52	1	20	0234	116	3	20	0274
53	1	21	0235	117	3	21	0275
54	1	22	0236	118	3	22	0276
55	1	23	0237	119	3	23	0277
56	1	24	0238	120	3	24	0278
57	1	25	0239	121	3	25	0279
58	1	26	023A	122	3	26	027A
59	1	27	023B	123	3	27	027B
60	1	28	023C	124	3	28	027C
61	1	29	023D	125	3	29	027D
62	1	30	023E	126	3	30	027E
63	1	31	023F				

Table 5: Conversion table

Updates on the Internet:

You can find the latest drivers and firmware versions on www.deltalogic.de in the download section.