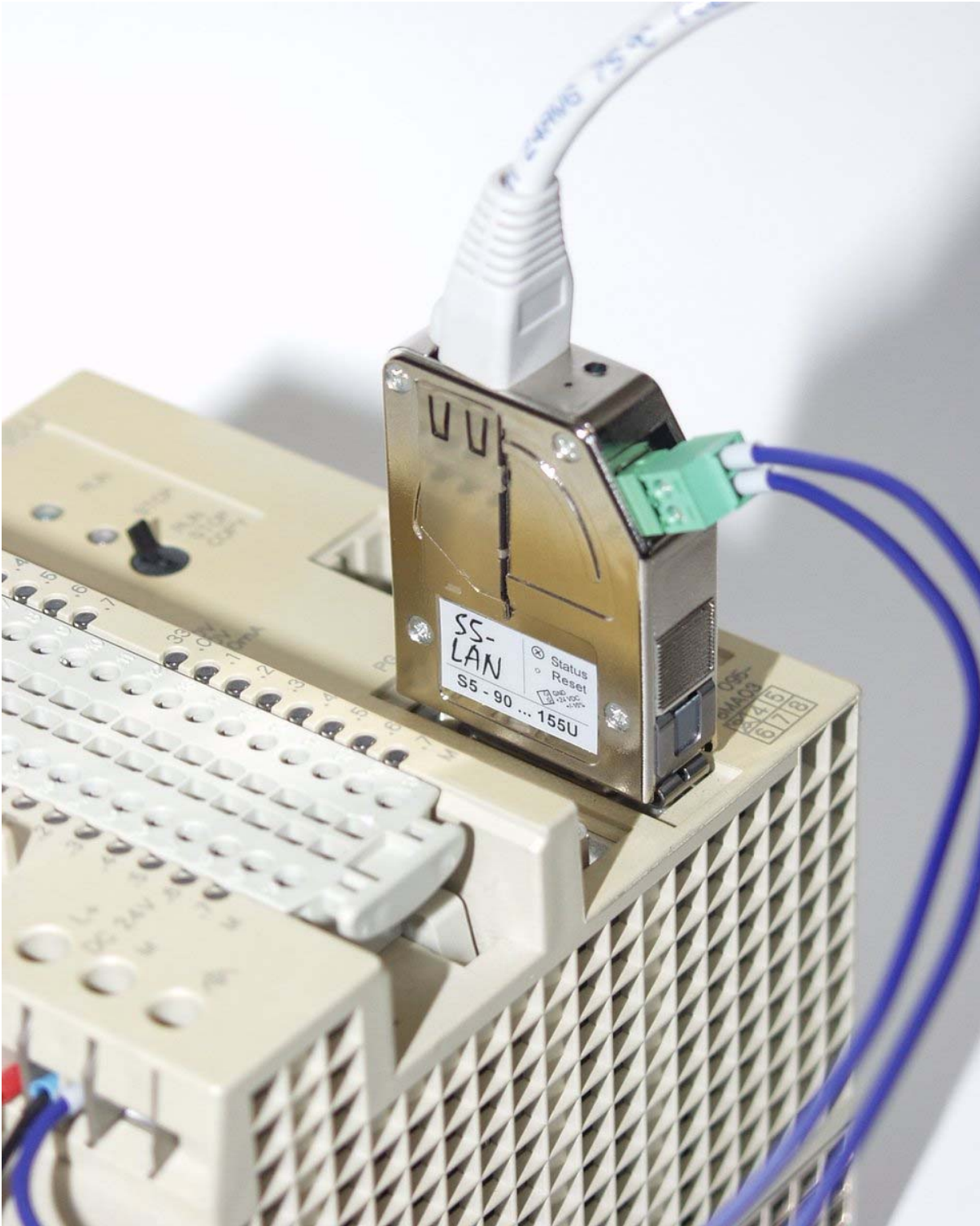


3 S5 – LAN ORD. NO. 9359-LAN



Content:

- 3 S5 – LAN ORD. NO. 9359-LAN 1**
- 3.1 Description 3
- 3.2 System Requirements..... 3
- 3.3 Connection Possibilities 4
- 3.4 Installation..... 7
- 3.4.1 Installation of the Step© 5 special driver for PG-USB/S5-LAN..... 7
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- 3.6 Operating Instructions..... 11
- 3.6.1 Direct communication with WinCC 6.0 25
- 3.6.2 S5-LAN Gateway communication..... 28
- 3.6.2.1 Technical informations about the configuration area**Fehler! Textmarke nicht definiert.**
- 3.7 Technical Data..... 33

3.1 Description

The S5 – LAN module connects the computer with the S5 PLC via network or directly.

3.2 System Requirements

Computer :

Supported Operating Systems: Windows 98 + SE/ME/NT/2000/XP

Software

PLC – programming software
(e.g. PG2000, Step© 5, WinCC, S5 für Windows)

PLC - VCom software (see chapter 5.0)

Hardware

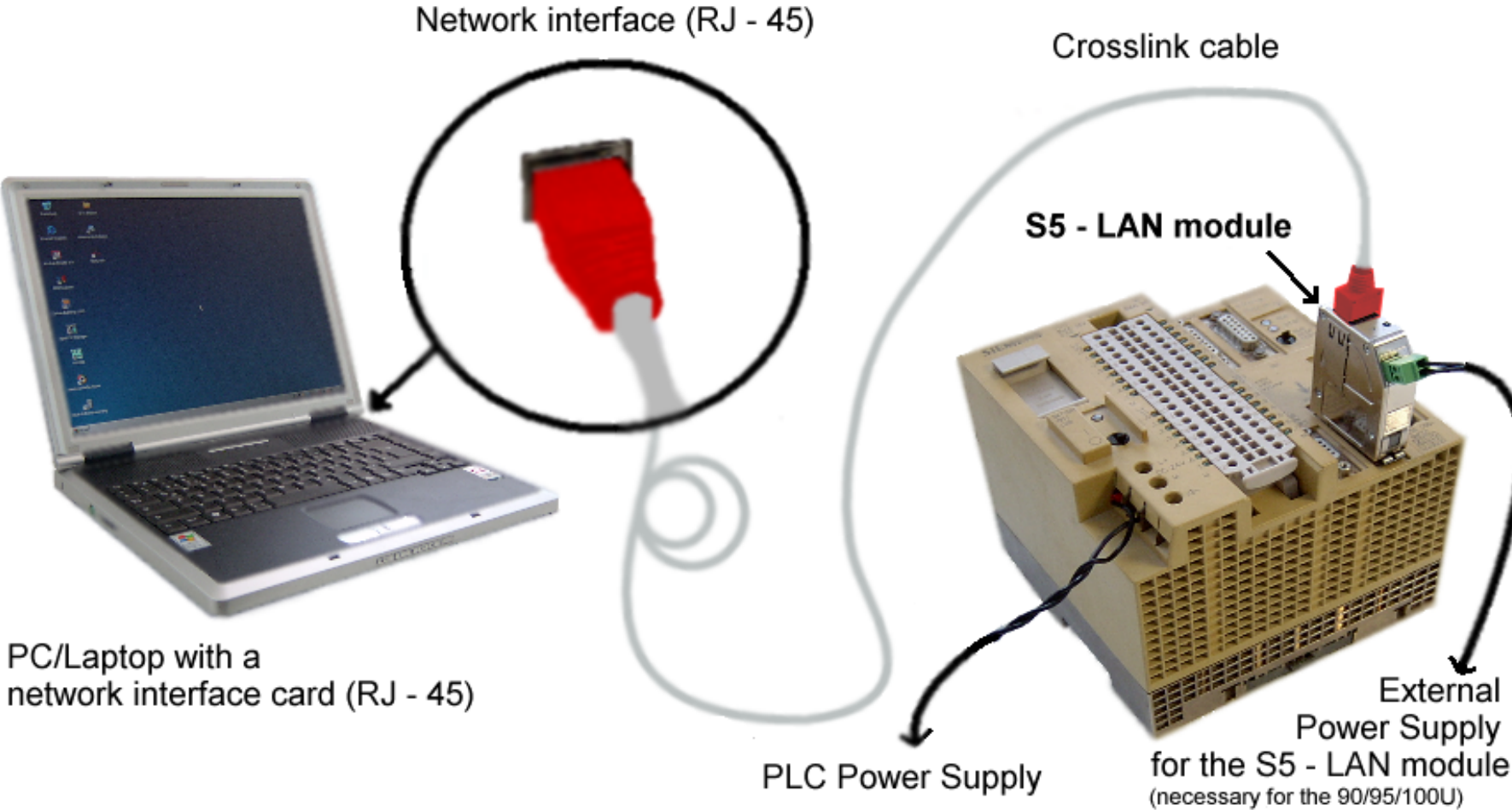
Network card 10/100MBit installed in the computer.



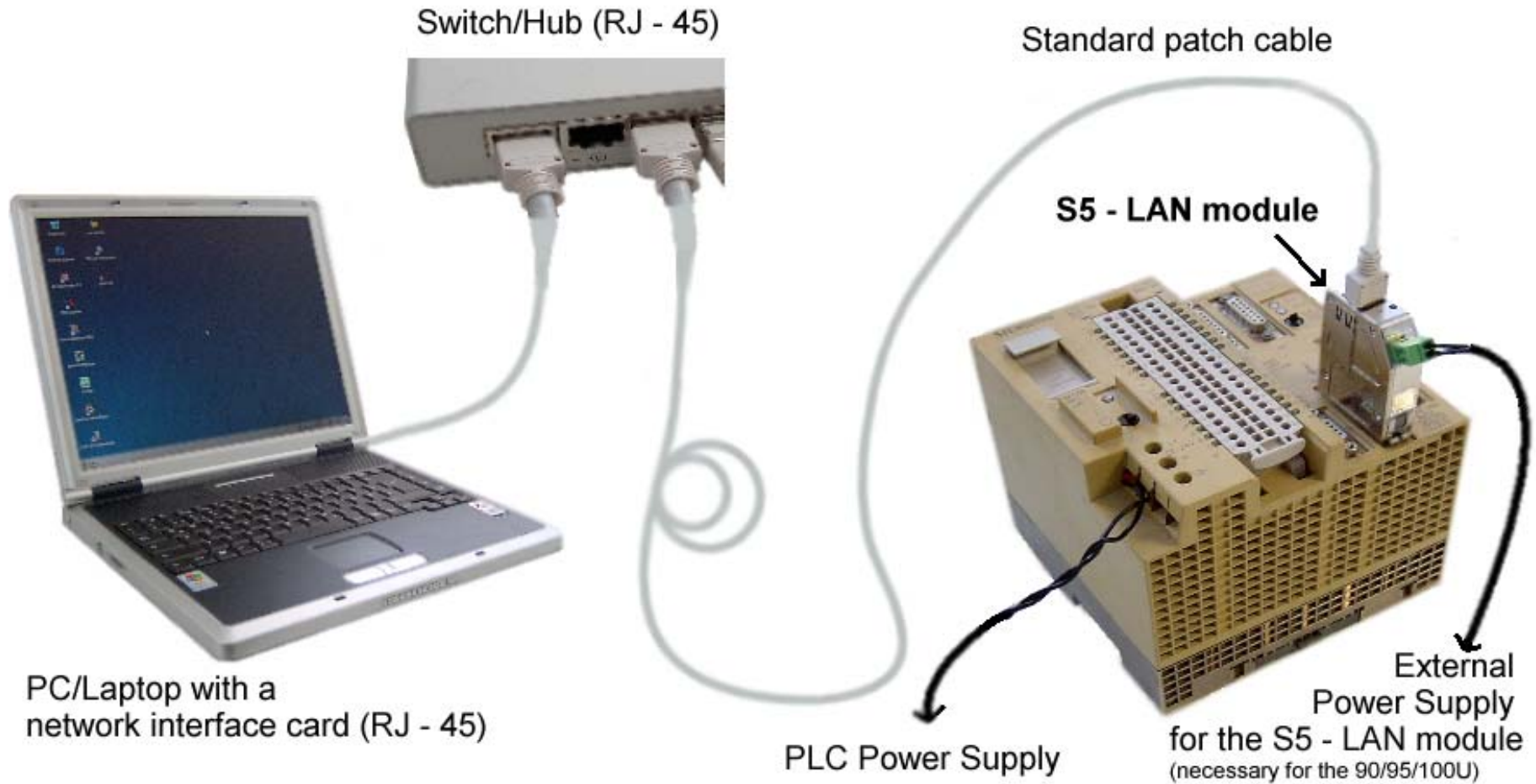
*The network card must provide a RJ – 45 interface.
Older variants often work with BNC interfaces..*

3.3 Connection Possibilities

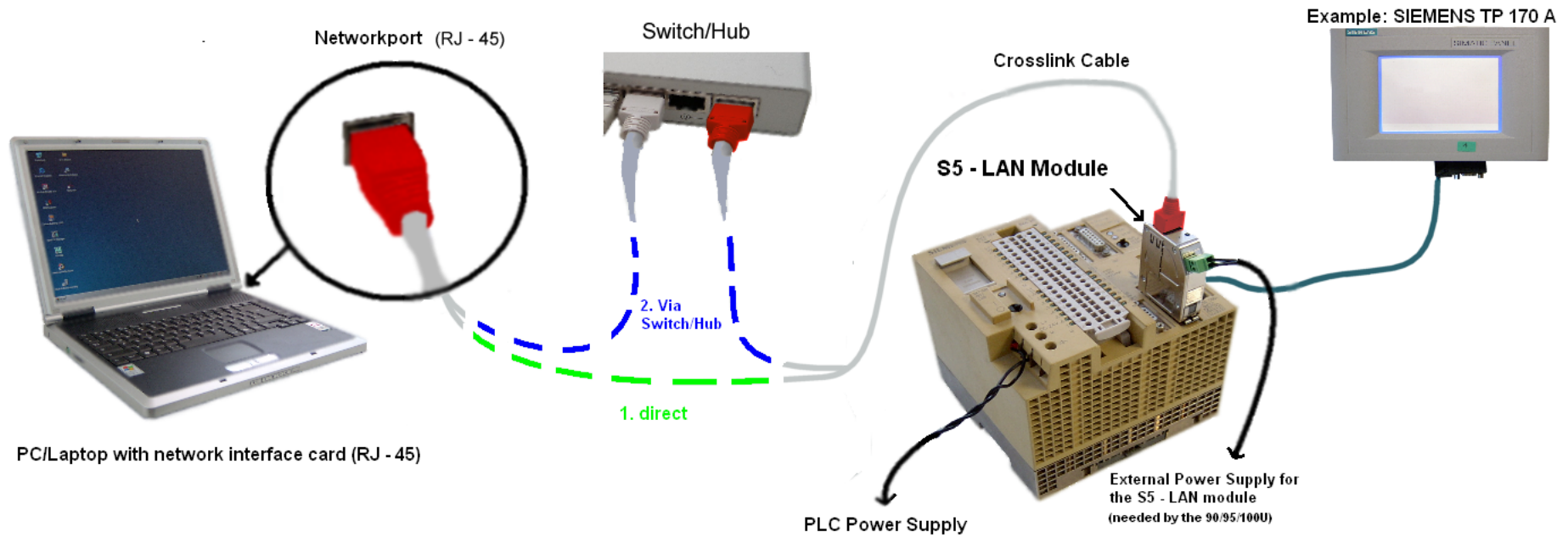
S5 – LAN module directly connected to the computer.



S5 – LAN module connected to the computer using a switch or hub.



S5 – LAN connection possibility with operating terminal



3.4 Installation

Hardware

The S5 – LAN module will be plugged in directly on the S5 PLC. Use the network interface as described below:

S5 – LAN to switch/hub

Connect the network cable of the S5 LAN module to the switch/hub. If you are using a crosslink cable, connect this cable to the **uplink** port of the switch/hub. If you are using an auto-negotiating switch you can put the network cable to a free port of your choice.

S5 – LAN to computer

Use a crosslink cable to connect the S5 LAN module with the computer, directly.

Power is taken of the PLC. Alternatively the module can take the power of a 24V/DC external power supply (if the PLC does not have a 24V/DC power supply e.g. AG-95U and AG-100U).

Software

To communicate to the PLC, please install the PLC-VCom software, as described in chapter 5.2.

3.4.1 Installation of the Step© 5 special driver for PG-USB/S5-LAN

Install this special driver if you want to use the configured COM interface (configured by PLC – VCom) for Siemens Step© 5 with the DOS Box.

NOTICE: *Before installing the Step© 5 special driver be sure to have the PLC – VCom already installed as described in chapter 5.2.*



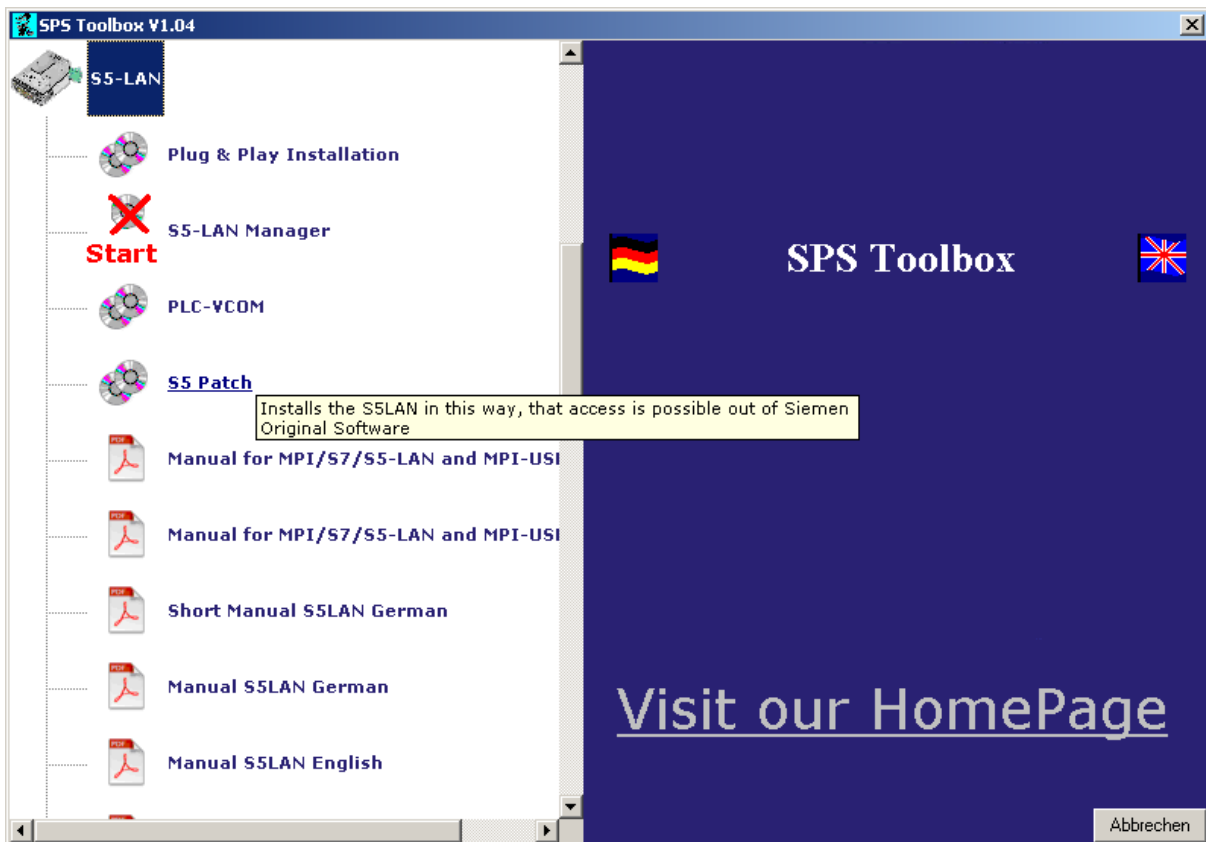
Before going on with the installation be sure to have no S5 – software running, otherwise the Step© 5 special driver cannot be installed.

By using the Step© 5 VCom for Windows 98 + SE this driver is not needed because the driver already provides this function.



3. Starting the Toolbox ...

Insert the Demo-CD into your CD/DVD – Rom drive to start the Toolbox. The main dialog appears.



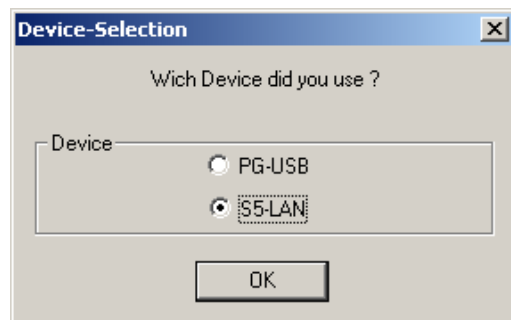
If the TOOLBOX does not appear, please start the file Mega.exe on your TOOLBOX – Disc.

4. Start the installation – wizard ...

To start the driver installation, first expand the tree by clicking on the S5 Product you want to use. Then click on „S5 Patch“. Choose your language and click on „OK“.

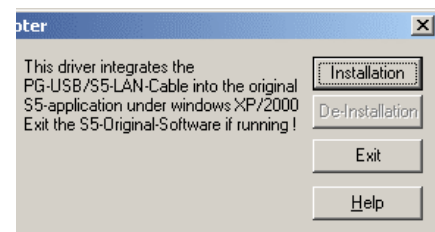
5. Choosing the device ...

Now choose the device/cable – type you want to install. Choose between „PG-USB“ and „S5-LAN“. Confirm with „OK“.



6. Copy data ...

Start the installation with a click on „Installation“ in the next dialog. The necessary files will be copied by the installation wizard. Please wait a moment so that the wizard can finish the installation.



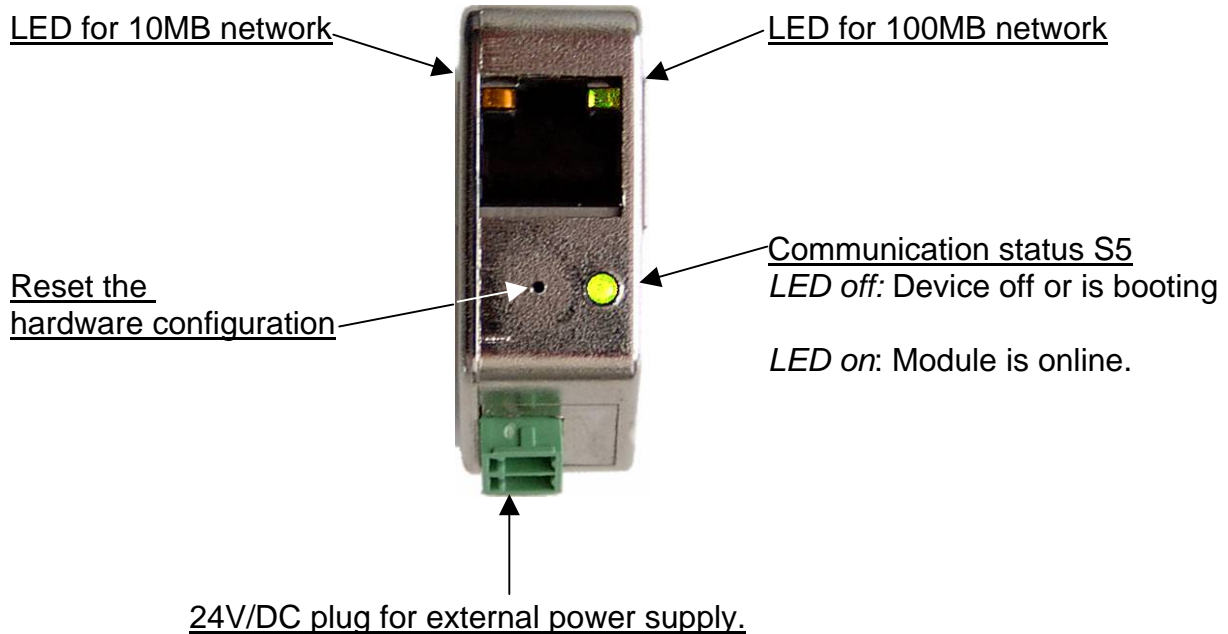
As soon as the button „**Installation**“ appears deactivated (grey font) the installation is finished, successfully.

Now close the wizard with a click on „**Exit**“.

You can delete the installation with „**De-Installation**“.

NOTICE: *If the COM interface from the PLC – VCom is changed after installation of the Step© 5 special driver you need to reinstall this driver.*

3.5 Control Elements



Both network LED's (10MB/100MB) are reacting identical.

LED off: not connected.

LED on: connected (LINK).

LED blinking: working.

Reset the hardware configuration by using a thin stick (like an office clip). Put the stick in the thin hole beside the status LED. Wait two seconds until the communication status LED begins to blink. Now you can remove the stick out of the hole. The module resets itself and starts with the configuration "DHCP/AutoIP" and "auto Subnet". As soon as the communication LED is on, the module is ready for work.

3.6 Operating Instructions



Be sure that your system is supported. If you do not know see chapter 3.2 System Requirements. Also be sure to have connected the module correctly; otherwise see chapter 3.3 Connection Possibilities and/or chapter 3.4 Installation.

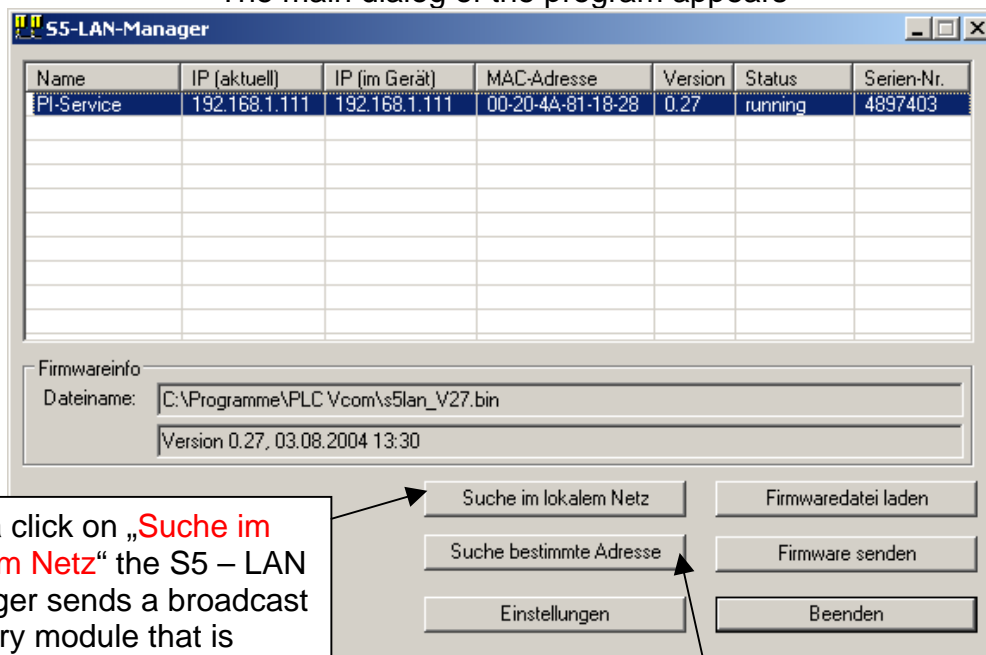
Step 1 → S5 – LAN Manager (changing the IP address)



The S5 – LAN Manager is installed with the PLC – VCom.

Start the S5 – LAN manager using the program entry in the startmenu.
(Standard: PLC – VCom software → S5 – LAN manager)

The main dialog of the program appears



With a click on „Suche im lokalem Netz“ the S5 – LAN manager sends a broadcast to every module that is connected with your network. After that all modules that are connected to your network will be displayed in the list box.

If you already know the IP address of your S5 – LAN module click on „Suche bestimmte Adresse“ to search for it. A small dialog with a text box (for the IP address) opens. Fill the text box with the desired IP number and click „suchen“ to search for it. After that the desired cable (if found) will be displayed in the list box.

The modules that are displayed in the list box can be marked blue with a click. (Only one entry can be selected at the same time).

To change the configuration of the module (especially the IP address) click „Einstellungen“. A lot of configuration data can be changed by new dialog.

At the moment only the configurations „IP – Address“ and „Subnet – Mask“ are interesting for us.

Configure the IP number and the Subnet – Mask and save your configuration with a click on „OK“.

The S5 – LAN module is now configured.



For more information about the *S5 – LAN manager* see chapter 5.4. Configuring the IP address is not so easy so if you have problems see chapter 6.1 „*Troubleshooting*“.

Step 2 → configure the PLC – VCom software

Start the PLC – VCom application. Press in the **section state** of the following dialog the button “**configure**“. The assistant starts. Choose the desired MPI cable and click “**OK**“ to go on. If the connection is established the chosen cable is shown in the **section state** and on the left side you can see the status **connected**.



If you are having problems with using the PLC – VCom dialog, go to chapter 5.3 control elements of the PLC – VCom description.

Step 3 → configure a PLC application

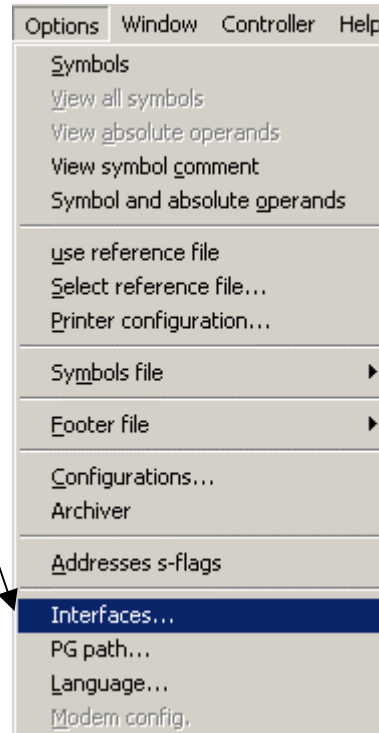
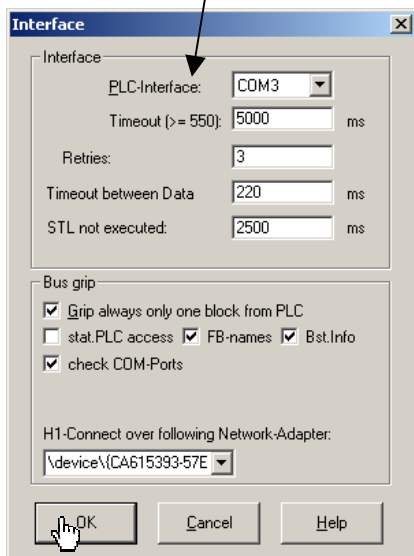
- a. PG 2000 (v4.41)
- b. SIMATIC Step 5 Manager (v5.2 + SP1)
- c. Windows Control Center (WinCC) (v6.0)
- d. Windows Control Center flexible 2004 (WinCC flexible) (v5.2.0.0)
- e. ProTool/Pro (v6.0 + SP2)
- f. S5 for Windows v5.02

a. PG 2000 (v4.41)

a1. Start the PG 2000 software by using the desktop link or by using the application entry in the start menu.

a2. In the menu "Options" click "Interfaces".

a3. A dialog appears. In the section "Interface" you can configure the "PLC - Interface" (COM - Port).



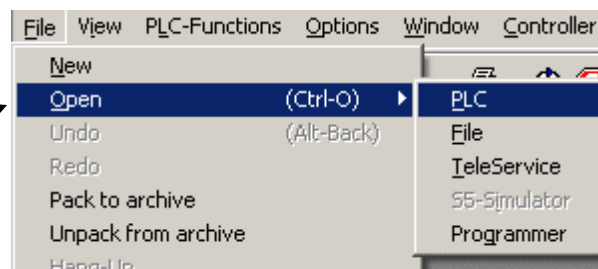
a4. Activate the check-boxes „Grip always only one block from PLC“, „FB-names“, „Bst.Info“ and „check COM-Ports“ in the „Bus grip“ - Area. Leave the list box „H1-Connect over following Network-Adapter“ as it is.

a5. Save your configuration by pressing "OK".



a6. Now the software is ready to establish a connection to the PLC.

Click the symbol "Open" and afterwards press "PLC". Alternative you can click "File" → "Open" → "PLC".



The connection between PG 2000 and the PLC is now established. A new window appears. Now you can edit the blocks in the PLC.

b. SIMATIC Step© 5 Manager (v5.2 + SP1)

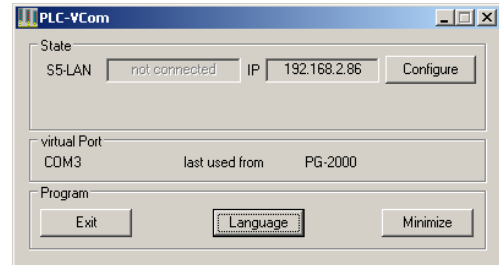
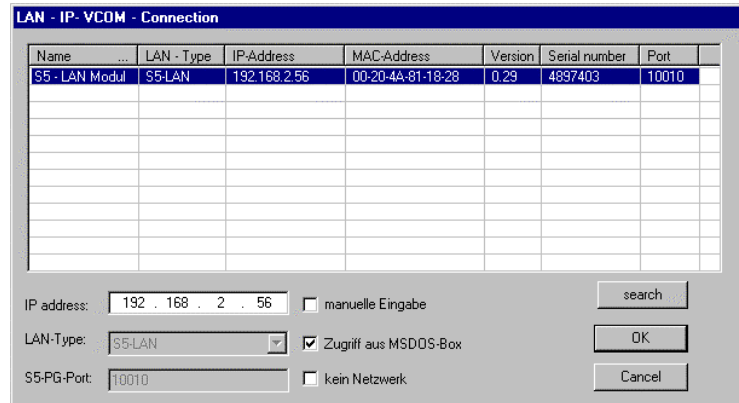


Please be sure that the interface configuration is correct as described in **point b**

- b1. Start the PLC – VCom software. Go to “**configure**” and activate the checkbox “**Zugriff auf MSDOS-Box**”. Mark the S5 – LAN module and press “**OK**”.

The PLC – VCom dialog displays now in the sector “**state**” the S5 – LAN module with the note “**(MSDOS)**” (see screenshot). “**Minimize**” the dialog.

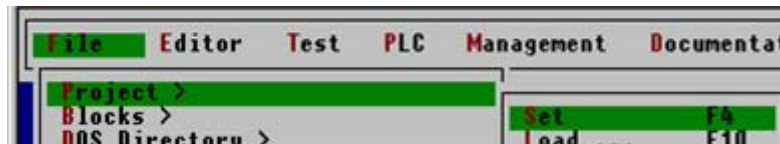
This step is necessary so that the Step© 5 software is able to communicate with the PLC.



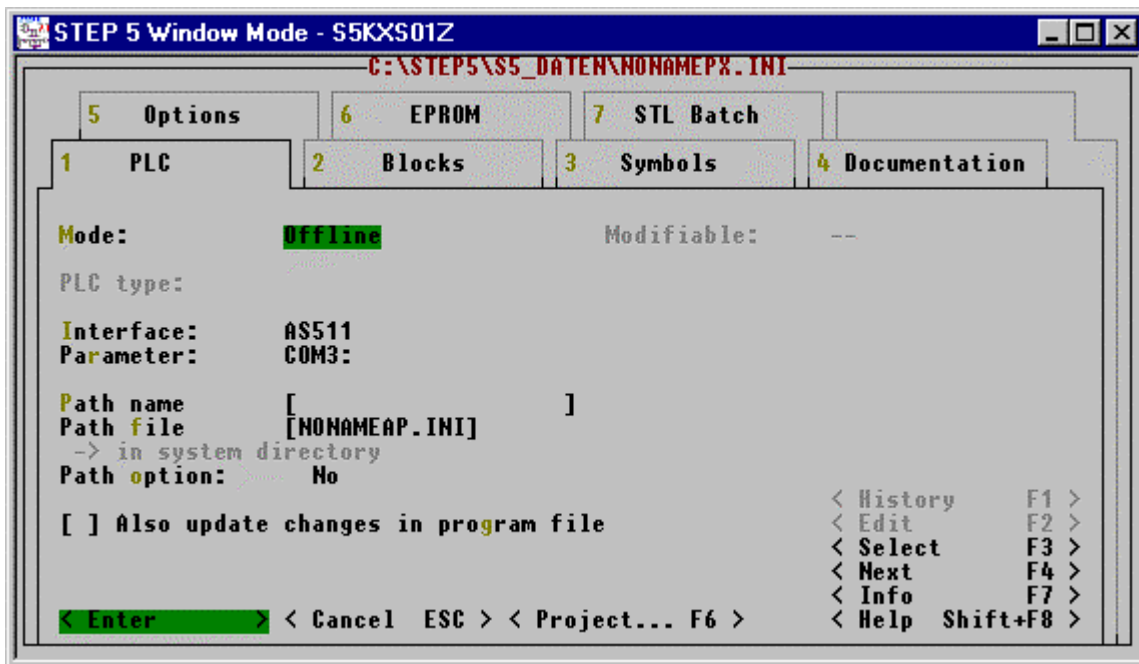
Detailed information about the PLC – VCom software is described in the chapter 5.0

- b2. Start the Step© 5 software by using the desktop link or the program entry in the start menu.

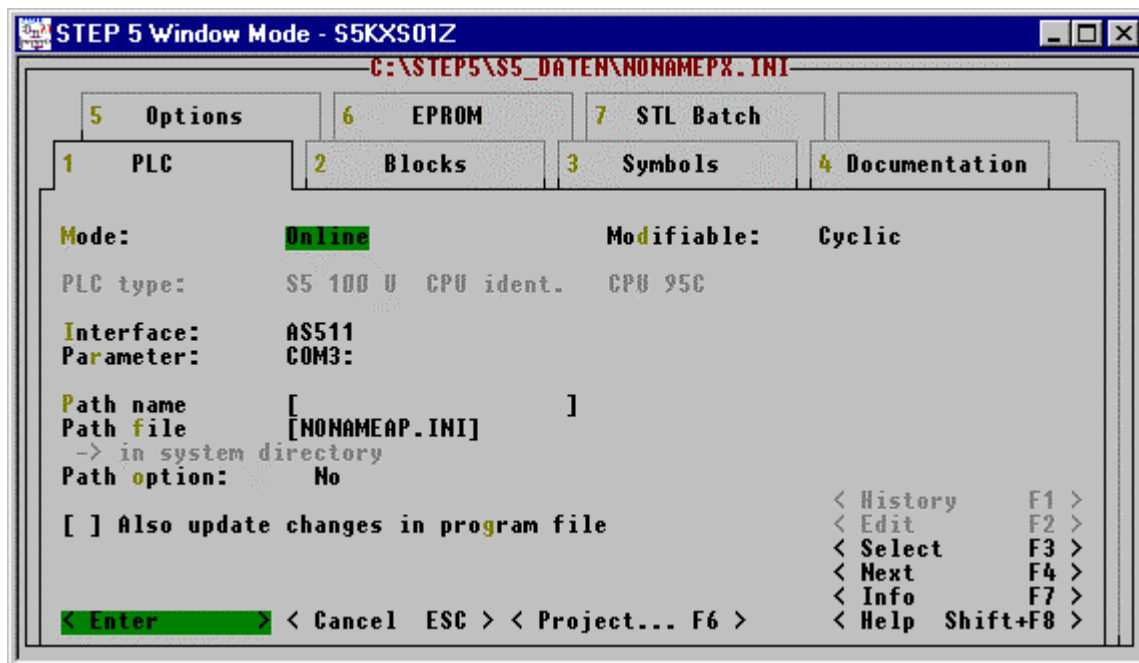
- b3. Click on „**File**“ → „**Project**“ → „**Set**“ to start the configuration dialog. Alternatively you can start this dialog by pressing „**F4**“ on your keyboard.



- b4. Configure to “Interface” the used PLC interface (e.g. „AS511“) in the registry card „AG“. Below you can change the used COM port which has been created by the PLC – VCom software (e.g. “COM3”).



- b5. With „F3“ you can change the „Mode“ to „Online“. Th Window should now display the „PLC type“.



The connection is established as soon as the “Mode” is changing successfully to “Online”.

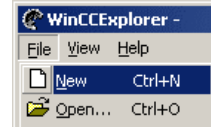
c. Windows Control Center (WinCC) (v6.0)



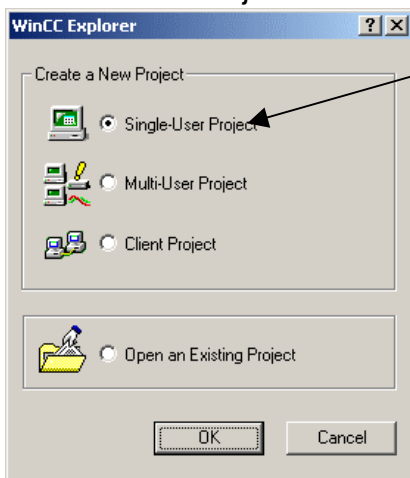
Please be sure that the interface configuration is correct as described in **point b**

c1. Start WinCC by using the desktop link or the program entry in the start menu.

c2. Click on "Datei" → "Neu" or click on the symbol with a white empty letter to open a new project.



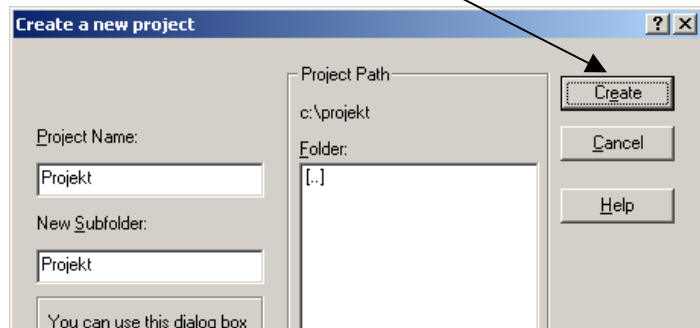
c3. In the next dialog you can choose between: „Single-User Project“, „Multi-User Project“ and „Client Project“. This manual just describes the „Single-User Project“.



If you want to use a different project type please read the WinCC manual for detailed information.

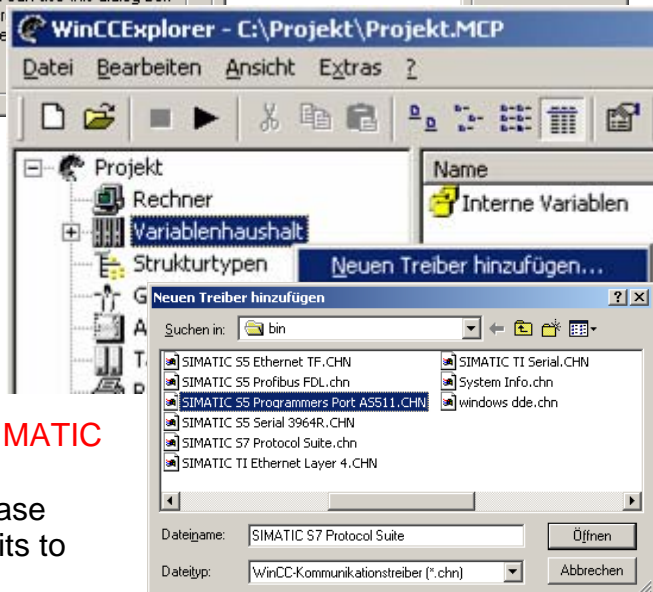
c4. „OK“ leads you to an dialog where you can specify the projects name, path and subfolder. The chosen configuration will be created with a click on „Create“.

c5. Please wait until the WinCC software created your project successfully. The content of your project will be displayed in the left part of the main window.



c6. To create a communication between the PLC and the software the software must know with what kind of PLC it is about to communicate. Therefore click right on "Tag Management" and in the context menu choose "Add New Driver".

c7. In the open dialog choose the correct communication driver. For the S5 SPS you can choose the „SIMATIC S5 Programmiers Port AS511.chn“. If you are using a different PLC please inform yourself about which driver fits to your PLC.

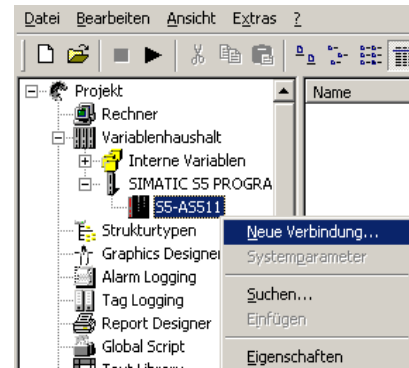




It is important that the chosen communication driver fits to your PLC otherwise the connection between software and PLC cannot be established.

c8. In the „**Tag Management**“ you will find a new sub menu named like the driver you selected before. Open this menu and you will see a lot more submenus. Now you should right click on the bus type that you are using with your PLC (in this example „**MPI**“). From the context menu choose „**Add New Connection**“.

c9. Now you are able to enter the name of the connection. Click next on „**Properties**“ to start a new dialog. Just choose the used COM port from the list box (which has been created by PLC – VCom) (in this example „**\\ \COM3**“).



Confirm with „**OK**“ until the main window appears.

Now you can start the communication with  and stop this communication with a click on  .

d. Windows Control Center flexible 2004 (WinCC flexible) (v5.2.0.0)

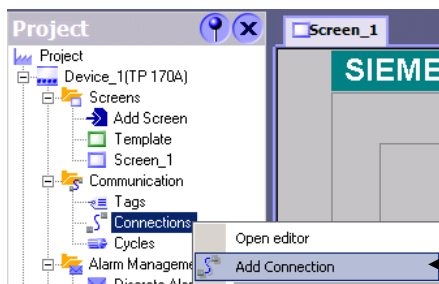
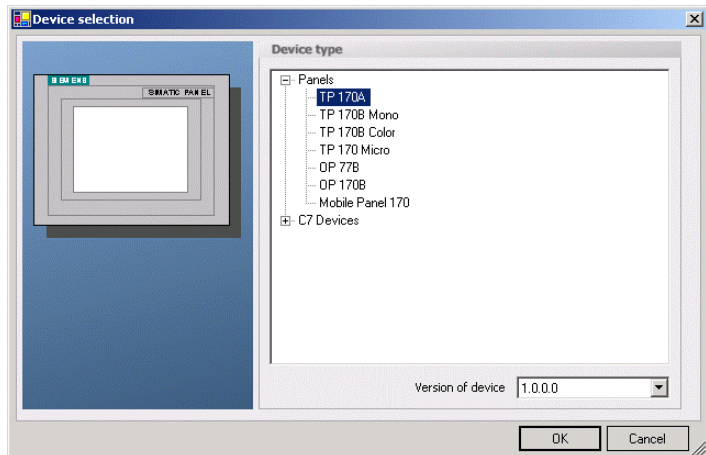


Please be sure that the interface configuration is correct as described in *point b*

d1. Start WinCC flexible 2004 by using the desktop link or click on the program entry in the start menu.

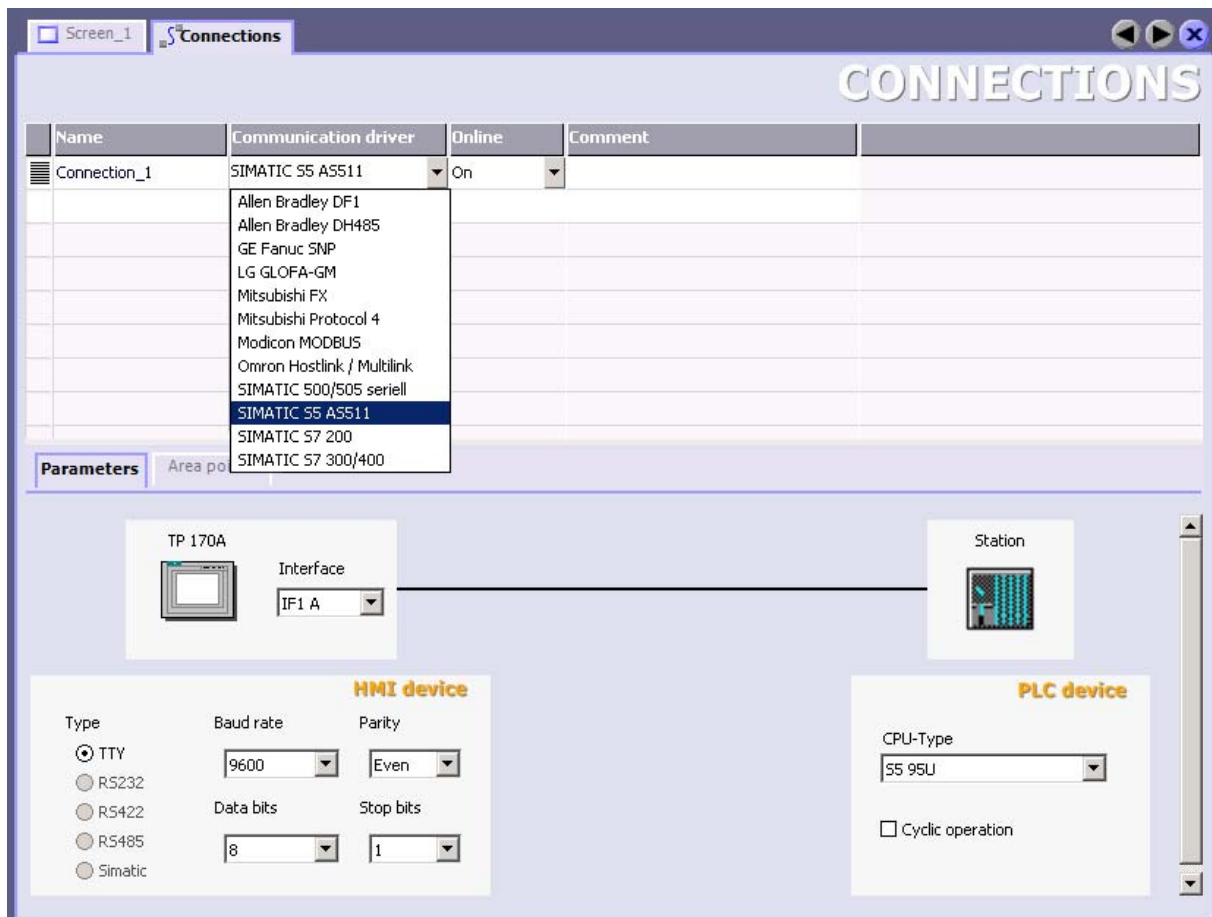
d2. At first choose „**Create an empty project**“ from the „**Start page**“.

d3. In the „**Device selection**“ mark the used operator panel (e.g. „**TP 170A**“) and confirm with „**OK**“.



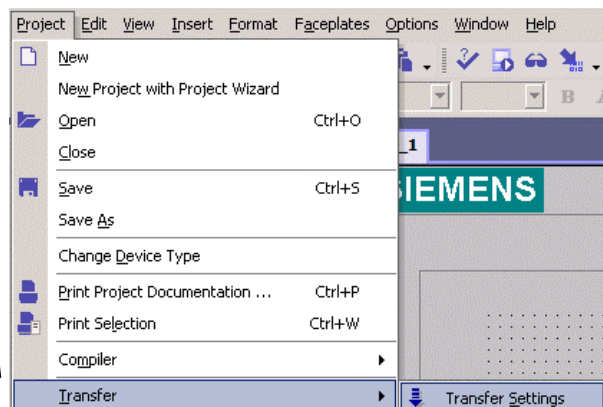
d4. After the project has been created, right click on „**Connections**“ in the menu „**Communication**“ from the „**Project – Window**“. In the context menu click on „**Add Connection**“.

- d5. A new configuration window opens in the right part of the main window.
 Important for a working connection is:
- ⇒ the communication driver (set up which PLC you are using (example: „**SIMATIC S5 AS511**“))
 - ⇒ choose the used **“CPU type”** (e.g. **“S5 95U”**)
 - ⇒ Now configure the interface parameter in the sector **“HMI device”** (example: Baud rate **„9600“**, Parity **„Even“**, Data bits **„8“**, Stop bits **„1“**).

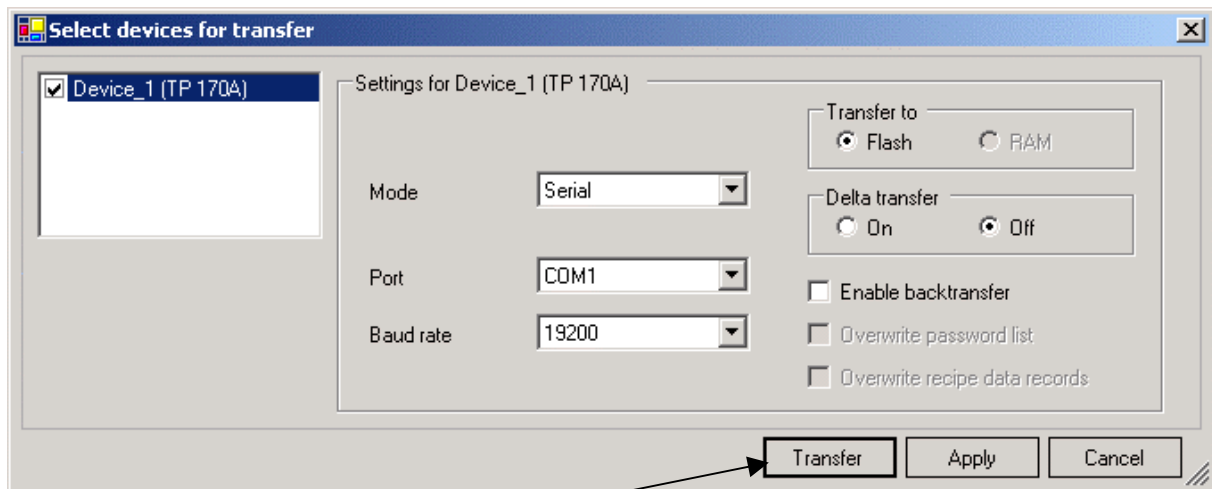


d6. Now you can start with your work. If you have finished work you can transfer this project to the panel by reading the next steps.

d7. Choose **„Transfer Settings“** from the sub menu **„Transfer“**.



- d8. In the new dialog change the „Mode“ to „Serial“ and set the „Port“ of the operator panel (e.g. „COM1“). Change the “Baudrate” to “19200”. The „Delta transfer“ is not supported yet so turn it „Off“.



- d9. Press the button „Transfer“ to start communication with the terminal. Your project is about to be transferred.

The WinCC flexible software is now able to communicate with your operator panel.

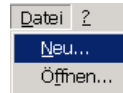
e. ProTool/Pro v6.0 SP2



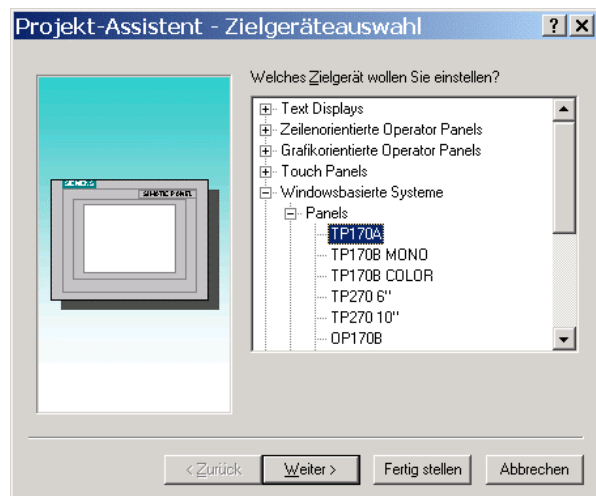
Please be sure that the interface configuration is correct as described in **point b**

e1. Start ProTool/Pro by using the desktop link or program entry in the start menu.

e2. Choose from the menu „**File**“ the sub menu „**New**“
click on the right symbol.

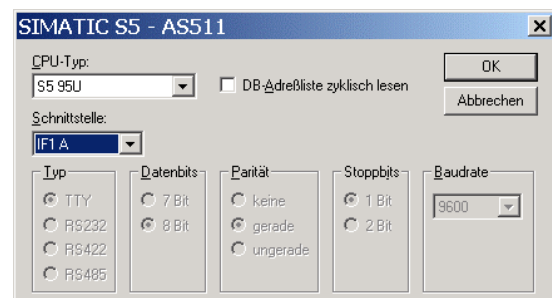
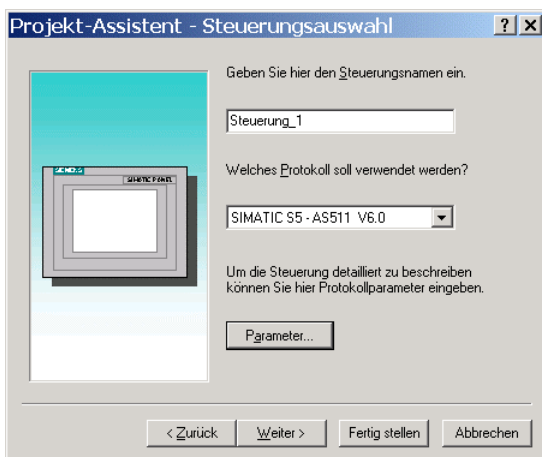


e3. The next dialog asks you which operator panel you are using.
Mark the used panel (e.g. „**TP 170A**“)



e4. „**Next**“ leads you to a new dialog.
Type in the specific fields the name of the PLC device and choose the used PLC in the driver selection (e.g. „**SIMATIC S5 – AS511 V6.0**“).

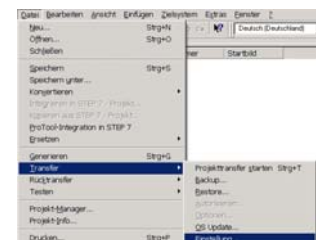
e5. The button „**Parameter...**“ calls a dialog which offers configuration elements for the chosen PLC type.
Choose the used „**CPU type**“ and the interface which is connected with the operator panel (e.g. „**IF1 A**“)
Also you have to configure the „**Type**“, „**Data bits**“, „**Parity**“, „**Stop bits**“ and the „**Baud rate**“ of the interface.



Confirm the dialog and go on with „**Next**“.

e6. In the main window start the Transfer Settings dialog by clicking on „**File**“ → „**Transfer**“ → „**Settings...**“

Choose „**Serial**“ from the list box and set the „**Port**“ of the operator panel (e.g. „**COM1**“). Now configure the desired „**Baudrate**“ (e.g. „**19200**“).



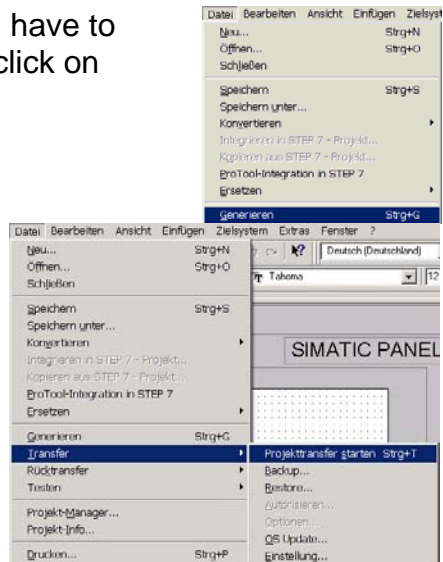
Confirm with „**OK**“ and start with your work. If you have finished working on this project you can go on with the next steps.

e7. If you want to transfer you project to the panel you have to generate the project first. This can be done with a click on „File“ → „Generate“.

e8. To transfer the project just click on „File“ → „Transfer“ „Start Project Transfer“ or click on the right symbol ().

Please wait while the project is transferred.

The communication between the operator panel is now established.



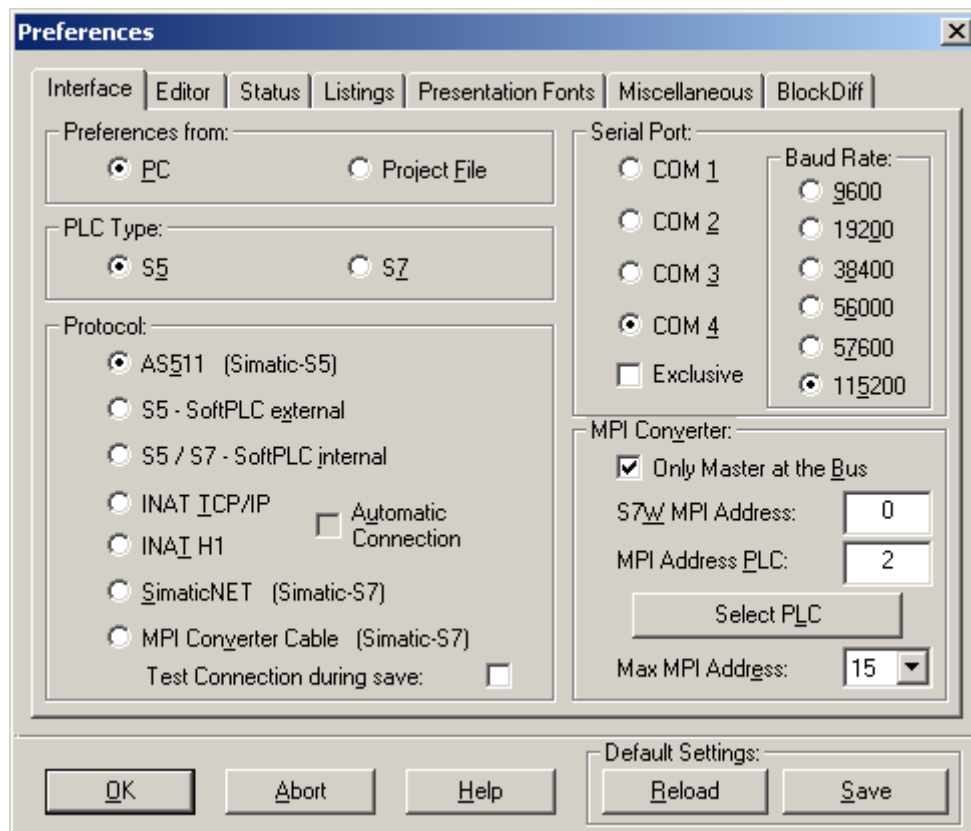
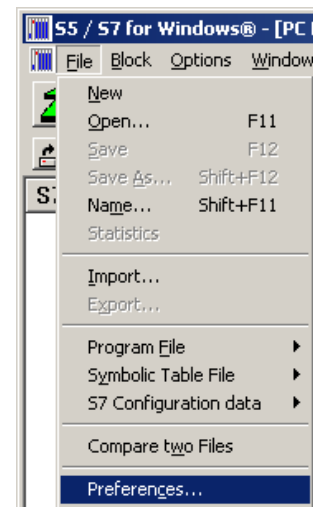
f. S7 for Windows v5.02



Please be sure that the interface configuration is correct as described in **point b**


- f1. Start the “S5/S7 for Windows” software by using the link on your desktop or use the link in your start menu (standard is “Programs\S5 for Windows\S5 for Windows”)
- f2. Choose **File->Preferences...** (top left in the menu bar) to configure the communication configuration between the computer and the PLC.

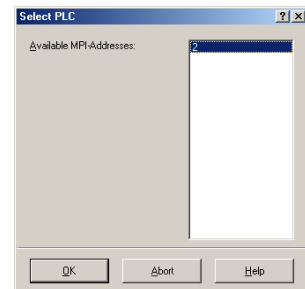
A new dialog appears which offers the possibility to set up a lot of configuration data about the communication with your PLC.



- f4. Choose the first registry card „**Interface**“ (standard) and set up the configuration data as described below:
 - Area: „Preferences from:“** → **PC**
 - Area: „PLC Type:“** → **S5**
 - Area: „Protocol:“** → **AS511 (Simatic-S5)**
 - Area: „Serial Port:“** → Choose the virtual COM port which has been created by PLC-VCom (e.g. “**COM 4**”).
 - Area: „Baud Rate“** → Choose the speed you want to use at the bus (e.g. “**115200**“)

- Area: „MPI Converter:“** → Activate the checkbox „**Only Master at the Bus**“ if you have only one PLC in the bus.
 → Leave the fields „**S7W MPI Address**“ and „**MPI Address PLC**“ as it is.
 → The number in the listbox „**Max MPI Address**“ must be higher than the PLC with the highest station address in your MPI bus. Otherwise every PLC which is higher than this number will not be seen (e.g. if there is only one PLC in your bus „**15**“ is more than enough).

f5. After the software is configured and the PLC-VCom is connected with the PLC, please click **“Select PLC”** in the area **“MPI Converter”**. A new dialog appears where you can select the desired PLC. While this dialog opens you can see right now (in the bottom right of the task bar) the green blinking PLC VCom icon. This means that the software is already talking to the PLC. 



f6. The dialog displays all the PLCs that can be found in your MPI bus. Select the desired one and confirm with **“OK”**.

f7. Close the preferences dialog by pressing the **„OK“** button.

f8. Back in the main window press the **„PC Block List“** button for testing the new established communication configuration.



f9. Please wait a moment for the software to read the desired blocks from the PLC. The blocks will be displayed in the listbox below the menu bar (see picture to the right).

OB	1	-
SFC	0	-
SFC	1	-
SFC	2	-
SFC	3	-
SFC	4	-
SFC	20	-
SFC	21	-
SFC	22	-
SFC	28	-
SFC	29	-
SFC	30	-
SFC	31	-
SFC	32	-
SFC	33	-
SFC	34	-
SFC	36	-
SFC	37	-
SFC	38	-
SFC	39	-
SFC	40	-
SFC	41	-
SFC	42	-
SFC	43	-
SFC	44	-
SFC	46	-
SFC	47	-
SFC	49	-
SFC	50	-
SFC	51	-

The communication between the software and your PLC is established.



If you had any trouble up to this point go ahead in chapter 6.1 Frequently Asked Questions.

3.6.1 Direct communication with WinCC 6.0

This communication uses the H1-ISO-on TCP protocol. Also called RFC1006 protocol. It is used in the S5 world of Siemens to communicate via ethernet with the CP 1430 TCP. Therefore you have to enter the TSAP and SSAP. The S5-LAN module accepts every name for SSAP and TSAP.

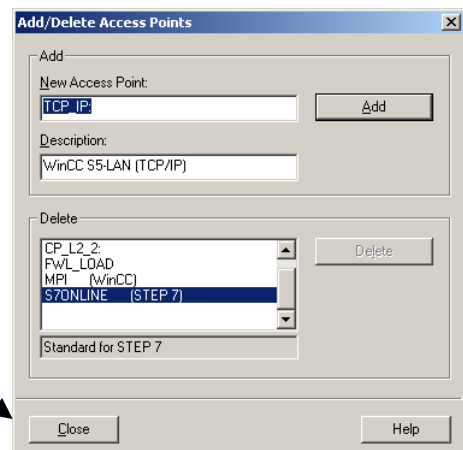
This protocol does also fit with WinCC (choose S5 TCP/IP Layer 4).

NOTICE: *If you want to use this protocol you have to configure **102** as **S5-Server-Port** to the S5-LAN module.*

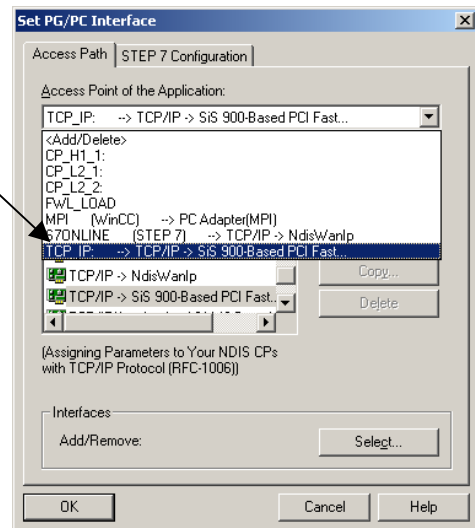


*The configuration part of the S5 – LAN module is described as a short version from now on. More information about configuring the S5 – LAN module you can find in chapter 3.6 „**Operation Instructions**“.*

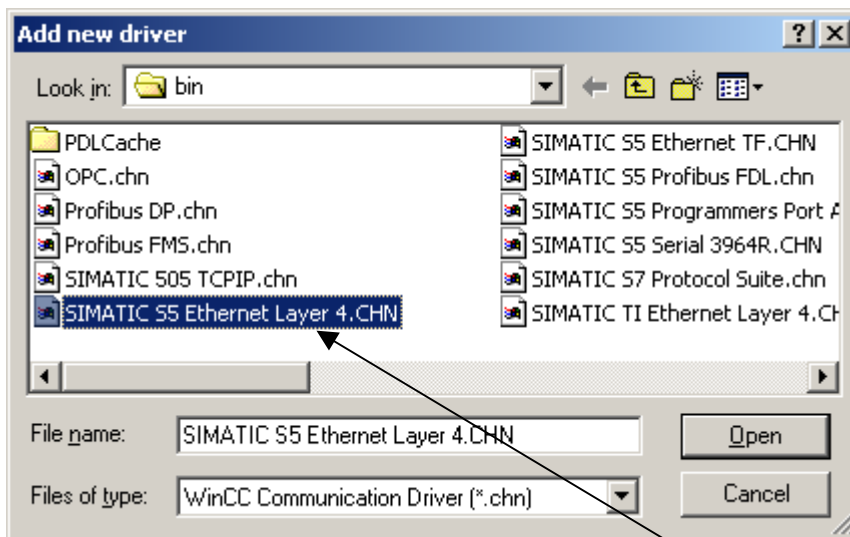
1. First start the S5 – LAN Manager by using the link in your start menu.
2. Press the button „**Suche im lokalem Netz**“ and select the S5 – LAN module which should be used for the communication with WinCC.
3. Use the button „**Einstellungen**“ to open the configuration dialog. Set the „**S5-Server-Port**“ to „**102**“.
4. Confirm your configuration with „**OK**“ and close the program with „**Beenden**“.
5. Next step is setting up the PG/PC interface to configure a useful assignment. Go to the control panel and click on „**Set PG/PC interface**“.
6. Search in the „**Access Point of the Application**“ for „**TCP_IP:**“. If this entry is available go ahead with step h otherwise choose „**<Add/Delete>**“.
7. This dialog offers you the possibility to add a new access point. Set the name of the „**New Access Point**“ to „**TCP_IP:**“ and set the „**Description**“ (e.g. „**WinCC S5-LAN (TCP/IP)**“) you want to set. Click on „**Add**“ and „**Close**“ the dialog.



- Select the network interface card you want to use and choose in „Access Point of the Application“ this entry: **“TCP_IP: → TCP/IP → XXX”**. **“XXX”** stands for your network interface card. Save the configuration with **“OK”**.

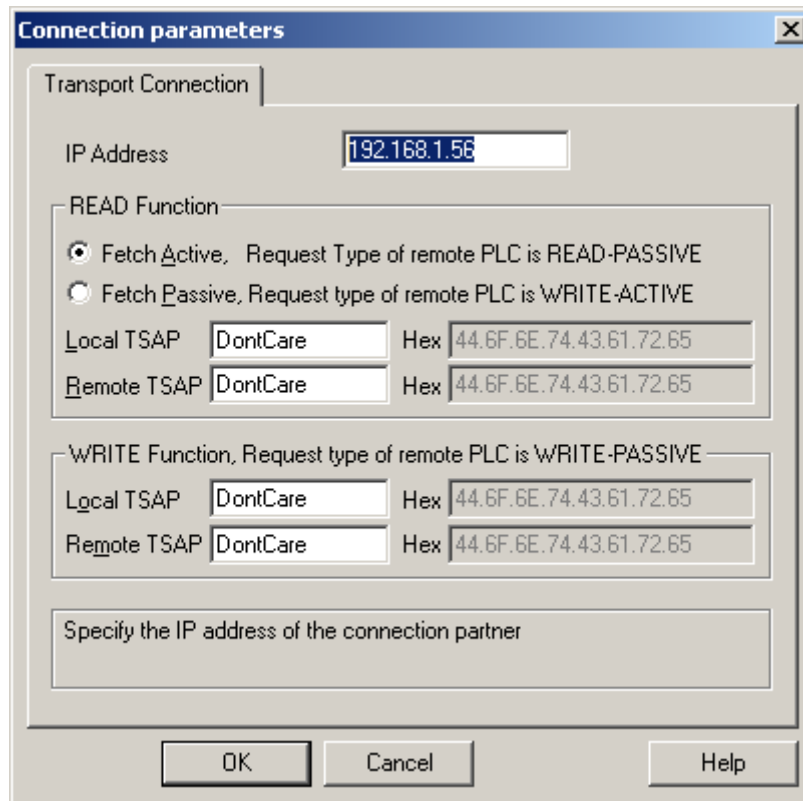


- Now start WinCC 6.0. Create a new project or open an existing one.
- In the explorer (on the left) you can see some content of your project. Also there is the **“Tag Management”**. Click with the right mouse key on **“Tag Management”** and in the context menu choose **“Add new driver...”**.



- Choose the communication driver **“SIMATIC S5 Ethernet Layer 4.CHN”**. Get back to the program with **“Open”**. The **“Tag Management”** has changed because of that.
- Expand the branch **“SIMATIC S5 ETHERNET LAYER 4”** and perform a right click on **“S5-Transport (TCP/IP)”**. In the context menu choose **“New connection...”**.
- In the properties dialog you can set the name of the connection (e.g. **“S5 – LAN”**) and use the button **“Properties”** to set the **“IP address”** from the S5 – LAN module for this connection.

14. In the section „**READ-Function**“ activate “**Fetch Active**“. Both section are containing “**Local TSAP**“ and “**Remote TSAP**“ as parameters. You can configure these parameters as you wish. Confirm the connection parameters with “**OK**“.



15. Back in the main window you should add the new branch in “**S5-Transport (TCP/IP)**“ from “**SIMATIC S5 ETHERNET LAYER 4**“.

The settings for a direct communication with WinCC are finished.

3.6.2 S5-LAN Gateway communication

Requirements: **S5-LAN Manager**

Supported since firmware version **0.44** of the S5-Gateway.



Only the connection type “*ISO-on-TCP*” is supported by the S5-Gateway.
Only 2 connections are possible!

1. Start the S5-LAN Manager and search for your S5-Gateway module. As soon as it is found select it and click on the button “**S5-Gateway-Verbindung**”. A dialog appears where you can set up the gateway connection.

Nr	Name	Typ	aktiv	P-Zyklus	Konfig-DB	IP-Partner	Port Lokal	Po
1	V1	ISO on ...		0	DB20.DBW0	192.168...	0	102
2		ISO on ...		0	DB0.DBW0	0.0.0.0	0	0

2. In the lower part of the dialog you will find the connection list where you select the connection you want to edit.
3. At the top of the dialog a edit box called “**Name:**” allows you to give the connection a logical name.

4. Below set up the position of the “**Konfigurations-Datenbausteins**“ (configuration datablock). Therefore just set the position of the datablock (DB) to the left edit box (e.g. “**20**” for DB20). Then set up the starting point which specifies when the configuration area starts (the edit box is called “**ab DW**”).
5. Set the connection type list box (its called “**Verbindungs-Typ**“ in the dialog) to “**ISO-on-TCP-Verbindung**“. This connection type uses the TCP-Port 102.
6. The polling cycle (ms) specifies the elapsed time until the S5-Gateway reads and checks the configuration area whether something has to be done. If this box is set to zero the configuration area will be read without making a break.
7. Only the IP address of the member (“**Partner**”) can be set in the address part (“**Adressen**”). The IP address of the S5-Gateway you have to set as known by using the S5-LAN Manager (see chapter 5.5).

NOTICE: If 0.0.0.0 is set as member IP address the IP address will not be checked on connection start up. In this case every device which knows the TSAP (see Point 9) of the S5-Gateway can establish a connection.

8. Configure to both devices the TSAP (Transport-Service-Access-Point). This one consists of 16 characters and identifies the connection. This will be needed to identify a connection to a IP address which has more than one connections running.

*NOTICE: Since firmware version 0.45 of the S5-Gateway every device can use any TSAP to establish a connection if the member TSAP is not set (TSAP-Length (“**Länge**”) = 0). Therefore the member just needs to know the IP address and the TSAP of the S5-Gateway.*

9. The communication is compatible to the “**ISO-on-TCP-Verbindung**“ connection of the CP343-1. In this case only the required connections of the S7-CP343-1 has to be configured. Set the TPDU-size (Transport-Protocol-Data-Unit) to **512**. So you have specified that the maximum package size which can be received or transmitted is 512.

NOTICE: The communication to the S5 PLC will be set up by using the PG interface. On the PG interface a baudrate of 9600 Bit/s is used. Of course this needs longer run times for protocols. For that reason be sure that the member is not too fast by sending data to the S5-Gateway module. Otherwise a order jam is possible. An sending interval of at least 600ms (we suggest 1000ms) is required by a data amount of 256 Byte.

Finally the S5-Gateway communication is set up.

3.6.2.1 Configuration part specifications

Format of the configuration area

	DL								DR								DW
	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	
Recieve	Reserved								RTYP ('D', 'X', 'M', 'E', 'A')								0
	RDBN (if 'D' or 'X' it is the block number)																1
	RBEG (if 'D' or 'X' it is the StartDW otherwise the StartByte)																2
	RLEN (Size of the receive shelf in bytes)																3
	reserved																4
Send	Reserved								STYP ('D', 'X', 'M', 'E', 'A')								5
	SDBN (if 'D' or 'X' block number)																6
	SBEG (if 'D' or 'X' it is the StartDW otherwise the StartByte)																7
	SLEN (Size of the send shelf in bytes)																8
	Reserved																9
Send	TxLEN (Send length in bytes)																10
	TxSTAT (Send state)																11
	Reserved								Reserved				DO NE	ER R	AC T	12	
	RxLEN (Receive length in bytes)																13
Recieve	RxSTAT (Receive state)																14
	Reserved								Reserved				ND R	ER R	AC T	15	
	Reserved																16
Reserved for extensions	Reserved																17
	Reserved																18
	Reserved																19

Every field in detail:

Name	Description	FB-Parameter-name	Access R = read W = write	
			S5-GW	PLC
RTYP	Data type of the receive shelf: 'D' = DB 'X' = DX 'M' = Mark 'E' = Input 'A' = Output	RTYP	R	W
RDBN	If RTYP DB or DX it is a block number otherwise there is no use.	RDBN	R	W
RBEG	Start of the receive shelf. If DB and DX it is the start data word, otherwise it is the start data byte.	RBEG	R	W
RLEN	Length of the receive shelf in byte (even if DB).	RLEN	R	W
STYP	Data type of the send shelf: 'D' = DB 'X' = DX 'M' = Mark 'E' = Input 'A' = Output	STYP	R	W
SDBN	If STYP DB or DX it is a block number otherwise there is no use.	SDBN	R	W
SBEG	Start of the send shelf. If DB and	SBEG	R	W

	DX it is the start data word otherwise it is the start data byte.			
SLEN	Length of the send shelf in byte (even if DB).	SLEN	R	W
TxLEN	Number of bytes which should be send.	LEN	R	W
TxSTAT	Evaluate send state if DONE or ERR is 1. If DONE is 1 the objective is completed without an error. In this case STAT is 0.	STAT	W	R
TxACT	Start a send objective in the S5-LAN.	ACT	R/W	R/W
TxERR	Is 1 if an error occurred. The field STAT contains an detailed error code.	ERR	W	R/W
TxDONE	Is 1 if the send objective is completed successfully.	DONW	W	R/W
RxLEN	Number of bytes received.	LEN	W	R
RxSTAT	Evaluate the receive state if DONE or ERR is 1. If DONE is 1 the objective is completed without an error. In this case STAT is 0.	STAT	W	R
RxACT	Frees the receive shelf if set to 1.	ACT	R/W	R/W
RxERR	Is 1 if an error occurred. The field STAT contains an detailed error code.	ERR	W	R/W
NDR	Is 1 if data has been received. In this case evaluate RxLEN.	NDR	W	R/W

For an easy communication the FB55Z (S5L_SEND) and FB56 (S5L_RECV) are provided. These blocks are used for the communication between S5-Gateway and the PLC. This FB's have been developed likely to the S5 communication FC's (FC5, FC6, AG-SEND bzw. AG-RECV).

NOTICE: These blocks are using MW 200 and MW 202 as temporary used flags.

Notice that every state (ERR, DONE, NDR) will be set for only one cycle. In this case execute the required steps (evaluate STAT and/or free the receive shelf). Please take the description of the input and output parameters from table above.

The following states can be taken by the STAT field.:

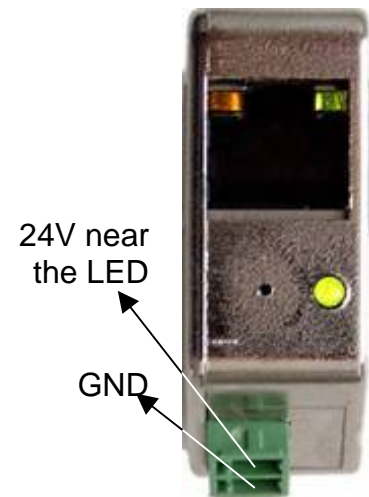
STAT on call of S5L_SEND			
DONE	ERR	STAT	Description
1	0	0000H	Objective completed without an error.
0	1	8304H	Connection is not established
0	1	8185H	Send shelf is too small SLEN < LEN
0	1	8184H	Wrong data type for the send shelf set.
0	1	FFFFH	Generic error.
STAT on call of S5L_RECV			
DONE	ERR	STAT	Description
1	0	0000H	Data has been received (check LEN and get the data)
0	1	8304H	Connection is not established
0	1	8185H	Receive shelf is too small RLEN < LEN
0	1	8184H	Wrong data type for the receive shelf set
0	1	FFFFH	Generic error

In the following example the DB20 will be used as a configuration data block. E 4.0 controls the sending action and E 4.1 the receiving action. If the E 4.0 is '1' 10 Bytes of the DB100 at DW 0 will be send. E 4.1 frees 10 bytes at DW 100 of the receive shelf DB100.

```
      :SPA  FB  56
Name :S5L_SEND
JDBN :    KF +00020
JDBW :    KF +00000
STYP :    KC D
SDBN :    KF +00100
SBEG :    KF +00000
SLEN :    KF +00010
ACT  :    E   4.0
LEN  :    KF +00010
DONE :    M   11.0
ERR  :    M   11.1
STAT :    MW  20
:
      :SPA  FB  56
Name :S5L_RECV
JDBN :    KF +00020
JDBW :    KF +00000
RTYP :    KC D
RDBN :    KF +00100
RBEG :    KF +00100
RLEN :    KF +00010
ACT  :    E   4.1
LEN  :    MW  24
NDR  :    M   13.0
ERR  :    M   13.1
STAT :    MW  22
```

3.7 Technical Data

Description	Technical specifications
Dimension without cables	42x15x65mm (LxWxH)
External Supply Voltage	24V/DC DC, max. 80mA
Connection	10/100 MBit (automatically recognized)
Included	S5 – LAN module Virtual COM – Port for Windows



NOTICE: *If you are using the AG-90U do not use the 24V output for power supply.*