

PG-UNI user manual

(english)



Art.Nr. 9359-3.10CM

Art.Nr. 9359-3

Art.Nr. 9359-3.05M

Art.Nr. 9359-3.10M

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Content

1 Description	3
1.1 Operatin Instruction	3
1.2 Circuit diagram	3
2 System requirements	3
2.1 Operating system (s)	3
2.2 Software	3
2.3 Hardware	4
3 Installation	4
3.1 Hardware	4
3.1.1 Prolongation of PG-UNI and PG-UNI-II	4
3.1.2 UNI-prolongation-set	4
3.1.3 NETZ-Adapter	4
3.1.4 PG-ISO-Adapter	5
3.2 Software	6
4 Implementing	6
4.1 Programming software to use with direct access	6
4.1.1 PG2000 für S5 (V5.10)	6
4.1.2 SIMATIC Step© 5 Manager	7
4.1.3 Windows Control Center (WinCC) (v6.0)	8
4.1.4 Windows Control Center flexible 2004 (WinCC flexibel) (v5.2.0.0)	10
4.1.5 ProTool/Pro v6.0 SP2	11
4.1.6 S5 for Windows v5.02	13
5 Technical data	15
5.1 Pinning RS232	15
5.2 Pinning TTY / 20mA current Loop	16

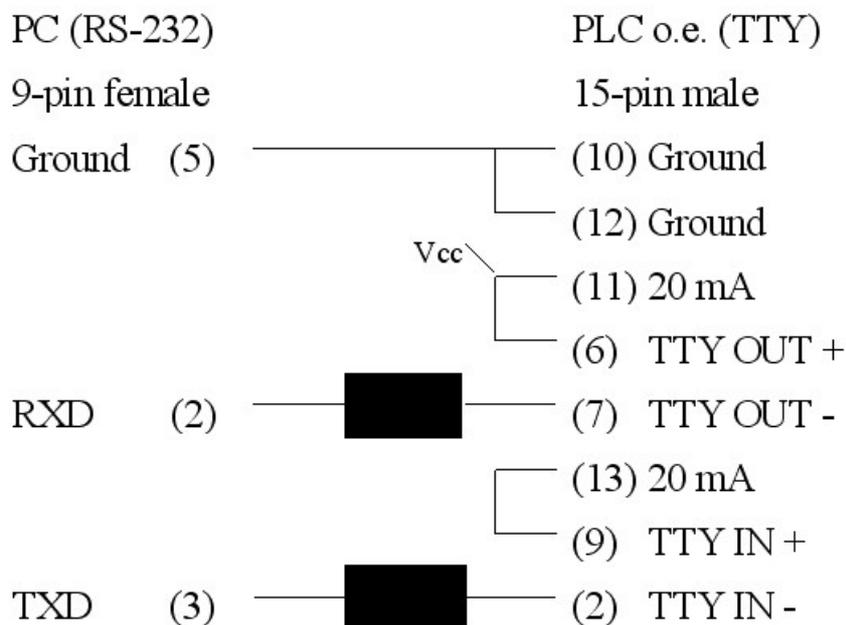
1 Description

The PG-COM, PG-UNI and the PG-UNI-II connect the unit PC about the serial interface (COM 9-pol) with the PG-Port of a Siemens SIMATIC-S5 (TTY/20mA).

1.1 Operatin Instruction

The PG-UNI and the PG-UNI-II however uses the 20mA-current sources of the Siemens PLC around to produce the power supply of the internal electronics.

1.2 Circuit diagram



2 System requirements

2.1 Operating system (s)

- Windows 98 + SE
- Windows ME/NT/2000
- Windows XP
- Windows Vista
- Windows 7

2.2 Software

- PLC - programming software (eg PG2000, Step © 5, S5 for Windows, WinCC)

2.3 Hardware

- 9pin. serial COM port

3 Installation

3.1 Hardware

Plug the programming cable to the X4/X5- interface of the S5-PLC and the 9 pin. plug into the COM port on your computer. The cables be provided with power from the PLC.

The programming cable is standard with a 9 pin. Sub-D socket (V24-side) were delivered.

The following variants are offered as a special version :

- 25-pin connector (COM2 on standard IBM compatible. PC's)
- 25-pin connector (e.g. COM1 Siemens PG720)

3.1.1 Prolongation of PG-UNI and PG-UNI-II

It is possible with the PG-UNI-prolongation, to prolongate the PG-UNI or the PG-UNI-II up to 300m at the TTY side

Order Description (Please specify length):

PG-UNI- prolongation:	Art.no. 9390
PG-UNI + prolongation:	Art.no. 9359-3 + 9390
PG-UNI-II + prolongation:	Art.no. 9359-2 + 9390

3.1.2 UNI-prolongation-set

The UNI-Verlängerungsset (UNI-prolongation-set) contains the complete material (without prolongation cable) which is necessarily for the making of a UNI-prolongation.

A corresponding wiring diagram for the soldering to the SUB-D plugs is enclosed.
Recommended cable: 2x2x0,25mm² in twisted pairs with shield.

Order Description:

PG-UNI-Verlängerungsset Art.Nr. 9359-7
(PG-UNI-prolongation-set)

3.1.3 NETZ-Adapter

The Netzadapter generates the 20mA current sources for the send- and the receive-path at the TTY-interface. (necessary at passive TTY-interfaces as e.g. IP266 and other pieces of equipment without or faulty current sources)

The power supply of the Netzadapter is been carried out through 12-24VDC.

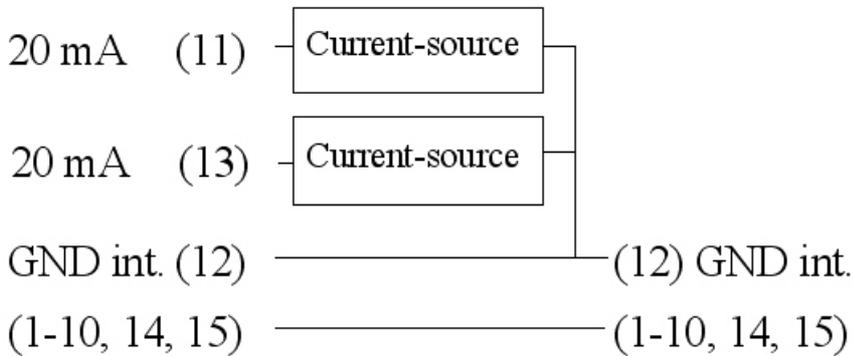
Circuit diagram NETZ-Adapter

PG-UNI / PG-UNI-II

PLC

15-pin female

15-pin male



Order Description:

Netz-Adapter Art.no. 9359-4

3.1.4 PG-ISO-Adapter

The PG-ISO-Adapter generates from the side siemens existing operating voltage of 5 or 24V the 20mA current sources for this send and receive path at the TTY-interface (required for passive TTY interfaces such as IP266 and other devices without or with damaged power sources). It can be used with the PG and PG-UNI-UNI-II. Galvanic decoupling up to 1000V.

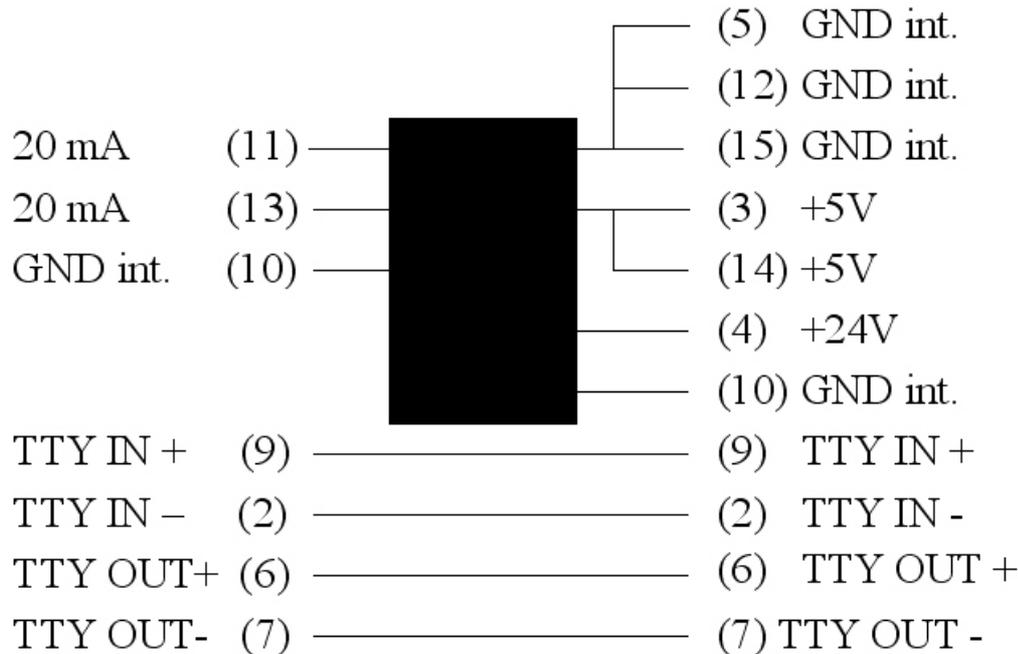
Circuit diagram PG-ISO-Adapter:

PG-UNI / PG-UNI-II

PLC

15-pin female

15-pin male



Order Description:

PG-ISO-Adapter Art.no. 9359-8

3.2 Software

You need the appropriate programming software (eg PG 2000, Step © 5, S5 for Windows, WinCC) to work with the PLC.

4 Implementing

Connect your module as described in the chapter " Hardware installation " to the PLC and to the programming device or to your computer.



If you want to respond to a PLC via the module you have to comply the requirements as described in the chapter "system requirements" . In addition, please make sure that the module is properly connected

4.1 Programming software to use with direct access

After you have adjusted and connected the PLC-VCOM or the programming adapter to the COM-port on your computer, you will be able to connect with your programming software to the PLC and work with it.

How you have to adjust your programming software is described in the following points:

4.1.1 PG2000 für S5 (V5.10)

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



2. Choose from menu "View" => "S5 155U-90 ..."

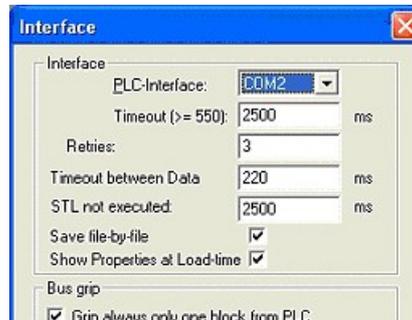
In the menu "Options" click "Interfaces".

3. A dialog appears. In the section "Interface"

you can configure the “PLC – Interface“ (COM – Port).

4. Set in the section "Bus grip" the tick "Grip always only one block from PLC", "FB-names", "Bst. Info" and "check "COM-Ports"

5. Save your configuration by pressing “OK“.



6. 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“.

Mark	Baustein	Größe	Adresse	BB-Nr	Bausteinname	
CB	001	128 W				zyklischer Bau
SFC	000	90 W			SET_CLK	Uhrzeit setzen
SFC	001	90 W			READ_CLK	Uhrzeit lesen
SFC	006	126 W			RD_SNINFO	Startinformation
SFC	020	90 W			BLKMOV	Variable kopieren
SFC	021	90 W			FLL	Variablenpaar
SFC	022	98 W			CREAT_DB	Datenbaustein
SFC	023	90 W			DEL_DB	Löschen eines
SFC	024	94 W			TEST_DB	Testen eines D
SFC	036	96 W			MSK_FLT	Synchronfehler
SFC	037	96 W			DMR_FLT	Synchronfehler
SFC	038	96 W			READ_ERR	Ergebnisstatus
SFC	039	90 W			DIS_RPT	Bearbeitung ne
SFC	040	90 W			EN_IRT	Bearbeitung ne
SFC	041	90 W			DS_AIRT	Bearbeitung ne
SFC	042	98 W			EN_AIRT	Bearbeitung ne
SFC	043	96 W			RE_TRIGR	Zykluszeitüber
SFC	046	96 W			STP	CPU in Betriebs
SFC	047	98 W			WART	Vorbereitung v

The connection between PG 2000 and the PLC is now established.

A new window appears. Now you can edit the blocks in the PLC.

4.1.2 SIMATIC Step© 5 Manager

1. Start your SIMATIC Step© 5 Manager by using the desktop link or the application entry in the start menu.



2. in the "File" menu , in submenu "project" you can the "Setting" dialog open.

3. In the tab "AG" configure the used PLC interface (example: "AS511").

Below that, you can set the COM port (example: "COM3").



4. with "F3" change, the "operating mode" to "online".

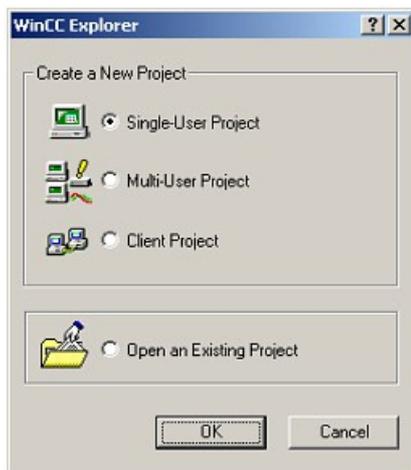
The window should display the "AG-type"

5. The connection with the PLC is successfully established when the "operating mode" changes to "Online."

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

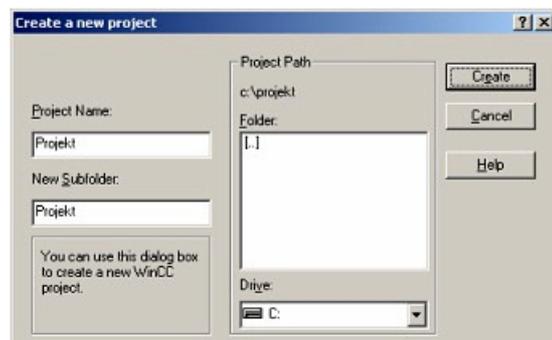
1. Start WinCC by using the desktop link or the program entry in the start menu.

2. Choose „New” in the menu „File” or click on the white („letter”) symbol to start a new project.



3. The next dialog offers you several project types „Single - User Project“, „Multi - User Project“ and „Client Project“.

The next steps are describing the „Single - User Project“.



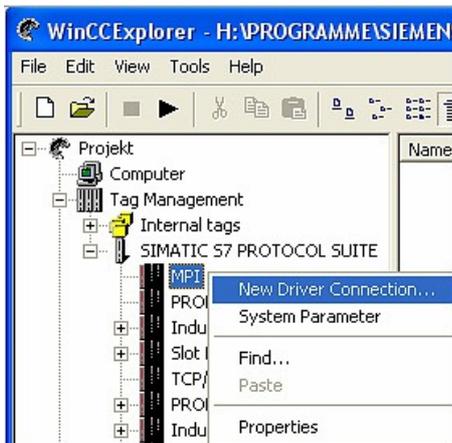
4. OK“ leads you to a new dialog. Type in the „Project Name“ and the „Subfolder“ of the „Project Path“

With „Create“ the chosen configuration is confirmed.



If you want to use one of the other options, please read this further in the manual of the WinCC software.

5. Please wait until the project is created. Afterward the project content is shown in the left part of the main window.



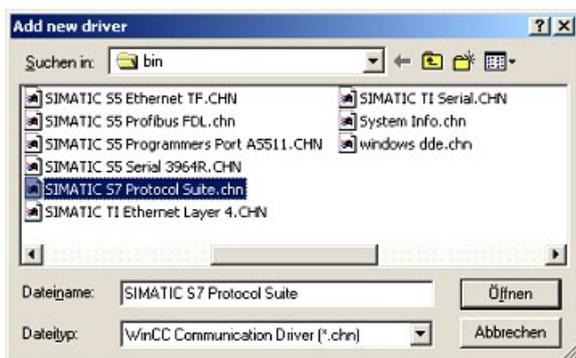
6. For a proper working communication with the PLC there must be defined how the software has to communicate with the PLC

Therefore right click on „Tag Management“ to open the context menu. Choose „Add New Driver ...“.

7. In the dialog „Add new driver“ select the driver which fits to your PLC

For a S5 PLC, you can choose the file SIMATIC S5 Programmiers Port AS511.chn.

If you are using a different PLC please inform yourself which driver fits with your PLC.



It is important that the chosen driver fits with the PLC otherwise the connection cannot be established.

8. In the explorer you should see into the variable manager the branch "SIMATIC S5 PROGRAMMERS PORT".

Expand the branch and the protocols for several connections will appear

Right click on the desired connection „S5-AS511“. A context menu opens. Click on „New Connection...“.

9. Now you are able to type in the name of the connection. With a click on „Configuration“ a new dialog will appear.

Set up the station address of the PLC (in this example „3“).

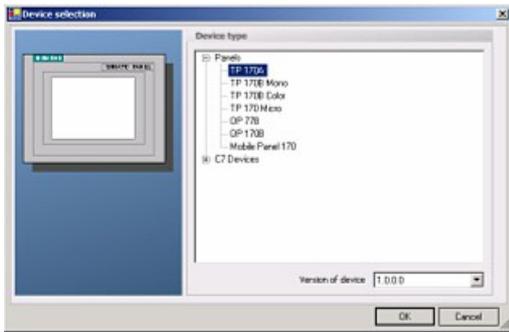
10. Confirm with "OK" until you are back to the main window.

11. Now you can with  start the communication and with  this end it again.

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

1. Start the WinCC flexible 2004 software by using the desktop link or the program entry in the start menu.

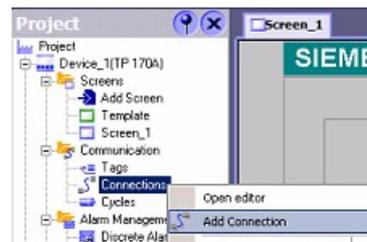
2. At first click on „Create an empty project“ in the „Start page“.



3. In the „Device selection“ mark the used operator panel (example: „TP 170A“)

confirm with „OK“.

4. After the project has been created right click in the project window on „Connections“ of the sub menu „Communication“.



In the context menu click on „Add Connection“.

5. Right in the main window appears the new tab "Connections" where you are different settings options.

Important for the connection are:

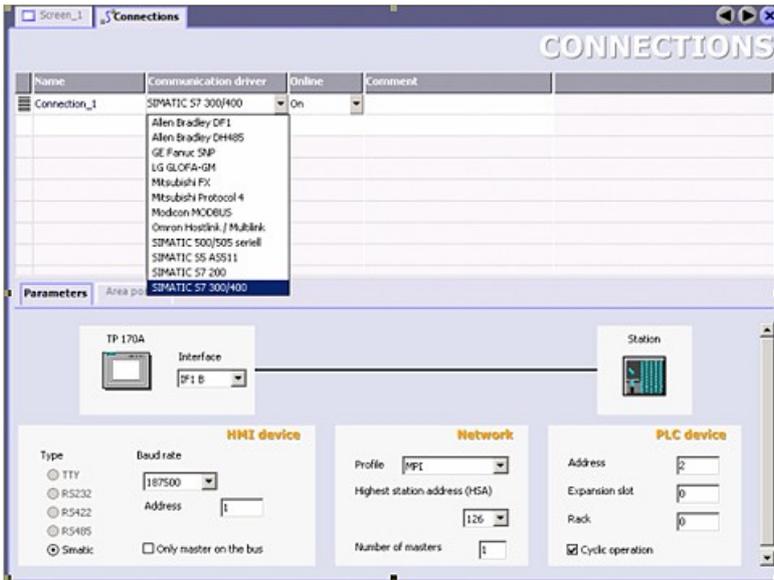
=> the communication driver (set up which PLC you are using

(eg: „SIMATIC S5 AS511“)

=> select the used "CPU - type" (eg "S5 95U")

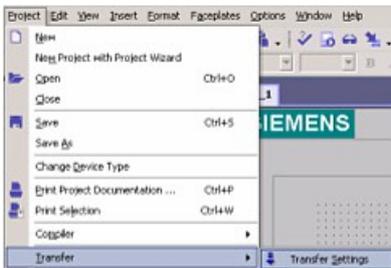
=> configure the interface parameters in the section "terminal"

(eg: baud rate „9600“, Parity„even“, Data bits „8“, Stop bits „1“).



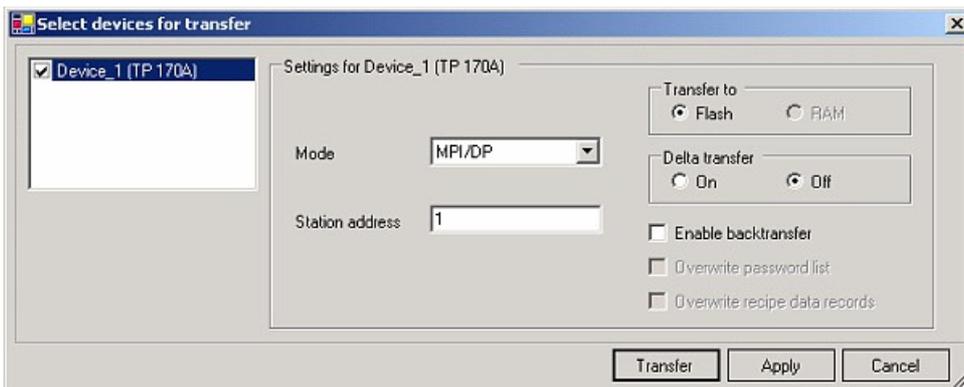
6. Now you can start with your work.

If you have finished work you can transfer this project to the panel by reading the next steps.



7. Choose „Transfer Settings“ from the sub menu „Transfer“.

8. In the new dialog change the „Mode“ to „serial“ and set the „Station address“ of the operator panel (e.g. „1“). Please set the baud rate to "19200". The "Delta transfer" is not supported by the S5-LAN. Turn them so "Off".

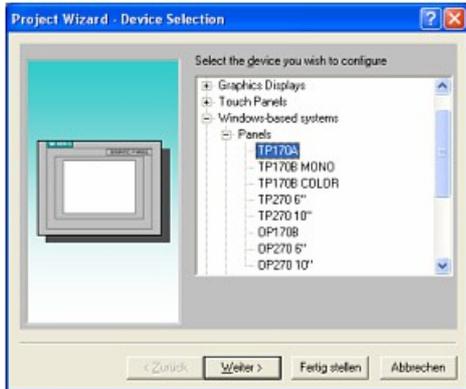


9. Press the button „Transfer“ to start communication with the terminal. Your project is about to be transferred.

The communication with the operator terminal is so successfully established .

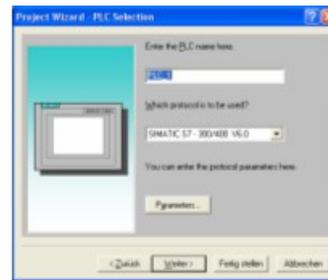
4.1.5 ProTool/Pro v6.0 SP2

1. Start ProTool/Pro by using the desktop link or program entry in the start menu.
2. Choose from the menu „File“ the sub menu „New“ or click on the right symbol.



3. The next dialog asks you which operator panel you are using.

Mark the used panel (e.g. „TP 170A“)



4. „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“)



5. Via „Parameter...“ you are calling an configuration dialog from the chosen PLC driver

Select the used "CPU type" and the "interface" to which the terminal is connected (eg "IF1 A").

Furthermore you configure the parameters of the interface ("type", "bits", "Parity", "Stop Bits", "baud rate").

7. confirm with „OK“ until you got back to the „PLC Selection“.Go on with „Next“.

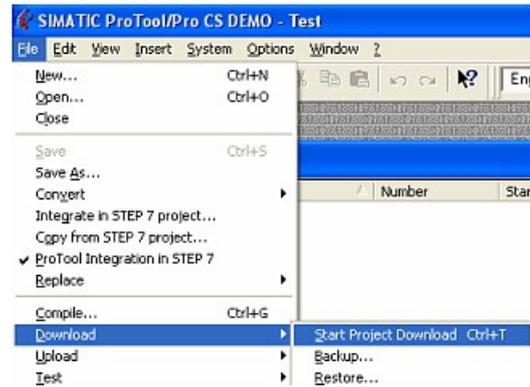
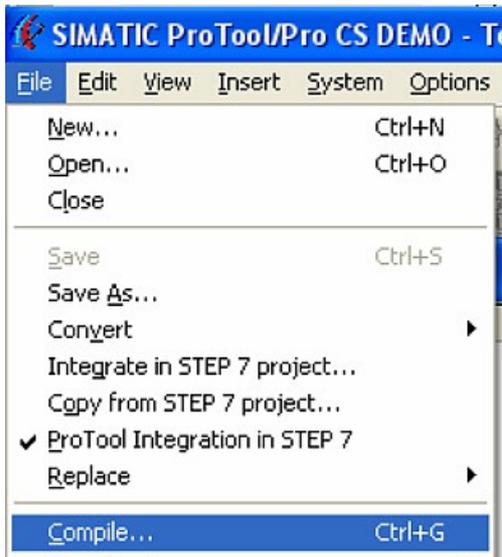
8. In the main window start the Transfer Settings dialog by clicking on „File“ „Transfer“ „Settings...“. Choose „Serial“ and the COM interface of the operating terminal (e.g.: „COM1“). set the baud rate to "19200".

Confirm with „OK“.

and start with your work

If you have finished working on this project you can go on with the next steps.

9. 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“ - „Compile“.



10. To transfer the project just click on „File“ „Download“ „Start Project Download“ or click on the right symbol .

Please wait while the project is transferred.

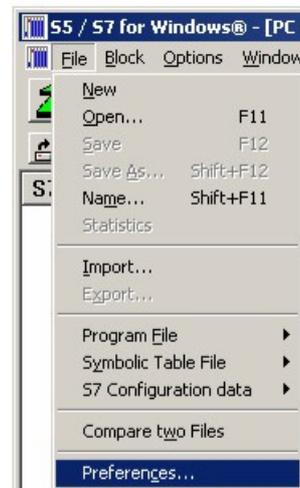
The communication between the operator panel is now established.

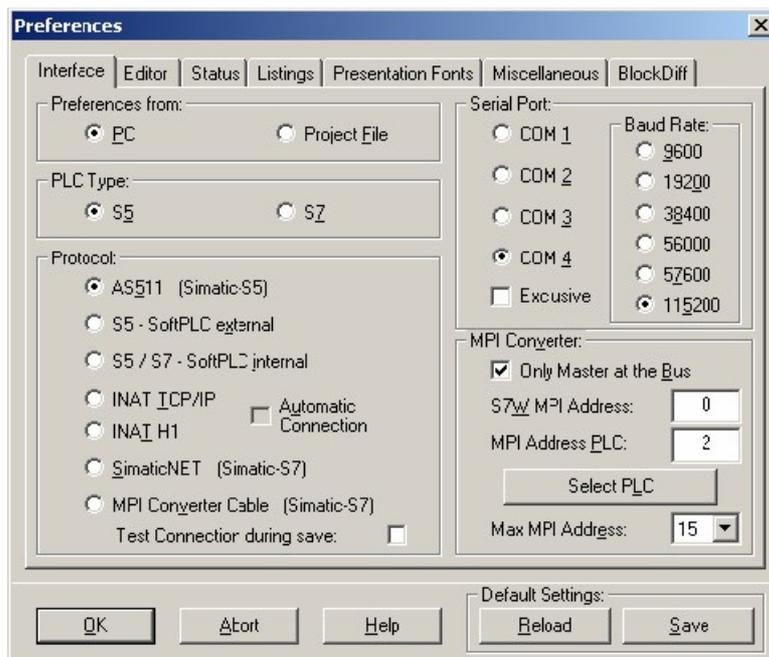
4.1.6 S5 for Windows v5.02

1. Start the “S5 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“)

2. Choose File ->Preferences... (top left in the menu bar) to configure the communication configuration between the computer and the PLC.

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





4. Choose the first registry card „Interface“ (standard) and set up the configuration data as described below:

- => Interface Settings from : „PC“
- => PLC type: „S5“
- => Protocol: „AS511 (Simatic - S5“)
- => Serial Port: Select here the COM port for the AG-access
- => Baud Rate: Choose the speed you want to use at the bus

4. 5. After the software is configured , click “Select PLC” in the area “MPI Converter“. A new dialog appears where you can select the desired PLC



5. In this dialog you can see all PLC's which are connected to your PC.

Choose from the list box (left) the desired station (the PLC) and confirm with "OK". (In the example "2")

6. Close the preferences dialog by pressing the „OK“ button.



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

8. 9. 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).

Baustein	Adress
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 S5 for Windows and the PLC is now established.

5 Technical data

Supply voltage:	from the current sources of the PLC
Power consumption:	0,2 watt
Display:	-
Interfaces:	to the PLC: TTY/20mA current loop (PG-COM passiv, PLC aktiv) to the PD/PC: RS232: 9,6 KBd - 115,2 KBd
Operating temperature:	0 - 55°C
Case:	plastic case
Dimensions:	47 x 40 x 15 mm
<u>Scope of delivery:</u>	PG-UNI-cable

5.1 Pinning RS232

Pin no.	Notation	Signalname	Direction (of cable)
1	NC	not connected	
2	TXD	Transmitted Data	Out
3	RXD	Received Data	In
4	NC	not connected	
5	GND	Signal Ground	
6	NC	not connected	
7	NC	not connected	
8	NC	not connected	
9	NC	not connected	

This cable is designed to be connected directly on a COM interface of a PC. The cable can be lengthened by a 1:1-cable to the PC up to 15m maximum. The cable should have a good quality.

5.2 Pinning TTY / 20mA current Loop

Pin no.	Notation	Signal name	Direction
1	NC	not connected	
2	TTY OUT -	transmitter data -	In
3	NC	not connected	
4	NC	not connected	
5	NC	nor connected	
6	TTY IN +	receive data +	Out
7	TTY IN -	receive data -	In
8	NC	not connected	
9	TTY OUT +	send data +	Out
10	GND	internal ground	In
11	I-Tx	20mA current source transmitter	In
12	GND	internal ground	In
13	I-Rx	20mA current source transmitter	In
14	NC	not connected	
15	NC	not connected	