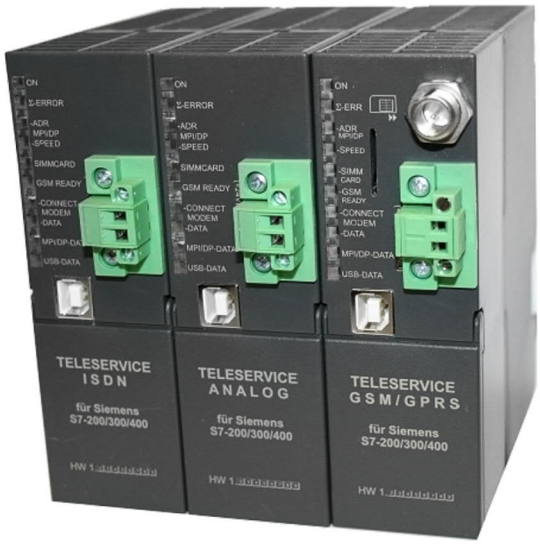
TELEService GSM user manual

(english)



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TELEService GSM

1 Description

The TELE-SERVICE connects the programming device or computer via the serial interface (COM port) or an USB port with the PLC. Over an analog phone line (modem), ISDN or GSM, you can also connect with the MPI or Profibus interface of an S7-300/400. The device automatically detects at the first access of the programming software via the serial interface, with which baud rate the programming device wants to communicate. In the MPI-site can be adjusted baud rates from 9600 baud up to 12 Mbaud.

The TELE-SERVICE is externally supplied with 24V DC voltage. By the compact design is possible a snap and screw on the rail of the S7-300.

1.1 Telephone connection / communication types

The following types of telephone and communication can be used:

		TeleService		
		analogous	ISDN	GSM
PG/PC-Modem	analogous	YES	NO	YES
	ISDN	YES, if analogous emulation is supported (z.B. Fritz-Card)	YES	YES, if analogous emulation is supported (eg Fritz Card)
	GSM (for exmaple M20-Terminal)	YES	NO	YES

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©7, S7 for Windows, Microwin)
- PLC - VCom software (optional when connecting to a computer via USB)
- Cable - Manager software (for configuring the Tele Service)
- Tele - Service software (from Siemens or PG2000 with the option Tele Service)

2.3 Hardware

- USB 1.1 - Connection Type A (alternative to the COM interface)
- 9-pin serial COM interface (only with a null modem cable)
- Analog telephone connection (only for analog Tele Service)
- ISDN connection (only for ISDN Tele-Service)
- GSM antenna with FME connector (only at Tele Service GSM)

2.4 Specials to the Option "Allways in the bus"

In the device you would be able to set the option "allways in the bus" with the TIC-driver. The device goes only in the bus when it get from the Step7-software the command and is then allways in the bus.

3 Connecting options

Connect Tele-service directly to the PC.

Connect Teleservice via a telephone connection.

4 Installation

4.1 Hardware

For all connections is required a supply via external 24V DC!
Please note that the earthing takes place over the profile rail on which will be screwed the teleservice.

Connect the left socket (under the flap) to your PLC and connect your computer with the Tele-servcie as described below in one of the three options.

Connect Tele-service directly via RS232:
To connect the PC directly to the serial interface of the Teleservice device, a null modem cable is required (especially for access via PPIMultiMaster on an S7-22x).

Connect Tele-service directly via USB:
To connect the PC directly to the USB interface of the Teleservice device, an USB cable type A to B is necessary.

Teleservice as TS-Adapter (TS = Tele Service):
Connect the Tele service to your S7-300/400. Connect the phone socket with your telephone system or insert your SIM card into the SIM card shaft and connect the antenna to the tele-service.

By using a second modem to the PC, a connection can be established with a S7-300/400.

For operation of the TELE-SERVICE the following requirements must be met:

1) You need the TeleService-software from Siemens on the PG side or the PG2000 software with the option TeleService. For the operation and configuration of the TeleService device, you can use the MPI cable manager from our company.

2) To establish a connection via the analog telephone network, ISDN or GSM, you need a commercially available analog or ISDN modem or a GSM-enabled mobile phone with a connection cable on the PC side.

4.1.1 Mounting SIM cards

The TELE-SERVICE GSM requires a SIM card for operating which is activated for data traffic. This is at the first series loaded in the device not freely accessible. In this way a misuse or theft is prevented. The newer devices have a Teleservice SIM card shelf.

The SIM card must be executed in 3V technology!

4.1.1.1 SIM card selection

When selecting your SIM card, you should be aware that your chosen provider supports Circuit Switched Data (CSD) protocol and is enabled for your card.

The release of the CSD service for your SIM card can also be done afterwards.

The CSD service requires a separate phone number. Because of that, your SIM card is associated through the enabling another number.

1. Phone number: Telephone number for incoming calls
2. Phone: data number for incoming data transfer

4.1.1.2 Insert the SIM card (AB HW 1.1)

Insert the SIM card with the gold contacts in the direction of the voltage supply and with the beveled edge upwards into the SIM card holder.

After a successful insertion, the SIM card extends out about 2 mm.

4.1.1.3 Insert the SIM card (ONLY HW 1.0)

Disconnect the TELE-SERVICE from the voltage supply. Unscrew the MPI / Profibus connector (under the flap) and then the antenna. Then open the screw at the bottom of the TELE-SERVICE. Fold the device upwards away, so that it completely can be lifted out of the profile rail.

The case is of two parts and just snapped together.

Press with a phase tester successively up and down in the middle of the Tele-Service in the lug so that the 2 hooks from the lugs go from inside to outside. Then straight unplug the front piece. The circuit board holds on front with 2 hex screws (5mm) at the MPI / DP interface. Remove them.

Then drag the circuit board carefully from the front piece. Make sure that the antenna connection is not tearing.

Carefully remove the antenna connection, the RS232 port and the metallic module (UNSGSM) from the circuit board. Turn around the metal module and on the right side and you will see the SIM card holder.

Insert the SIM card with the gold contacts facing down and the beveled edge forward into the SIM card holder.

The SIM card must be executed in 3V technology!

Turn the metal module around again and plug it again to the circuit board.

Make sure that all pins are correctly seated on the upper two power strips. After plugging must be plugged the antenna connector again.

ATTENTION: The pin in the middle is very fine and can snap off easily!

Then plug the RS232 connector again.

Now slide the circuit board back into the guide rail of the front side.

Screw the 2 hex screws on the front side (5mm) back on to the MPI / DP interface. Slide the bottom part back into the top part until it snaps. Screw the TELE-SERVICE device again on the profile rail and connect the antenna and the MPI / DP bus again. Then plug the supply voltage to the device again.

4.2 Software

please install the PLC - VCom software to establish a communication with the PLC as described in " PLC-VCOM Installation ". It is only required for a direct access via USB on the tele-service.

Furthermore, you need a corresponding programming software (eg PG 2000, Step©7, S7 for Windows, Microwin) to work with the PLC. These will only work if you are directly connected to the Tele-Service.

For a remote maintenance via telephone line, you need a programming software with Tele-Service option (eg PG2000 with option Tele-Service, Tele-Service software from Siemens).

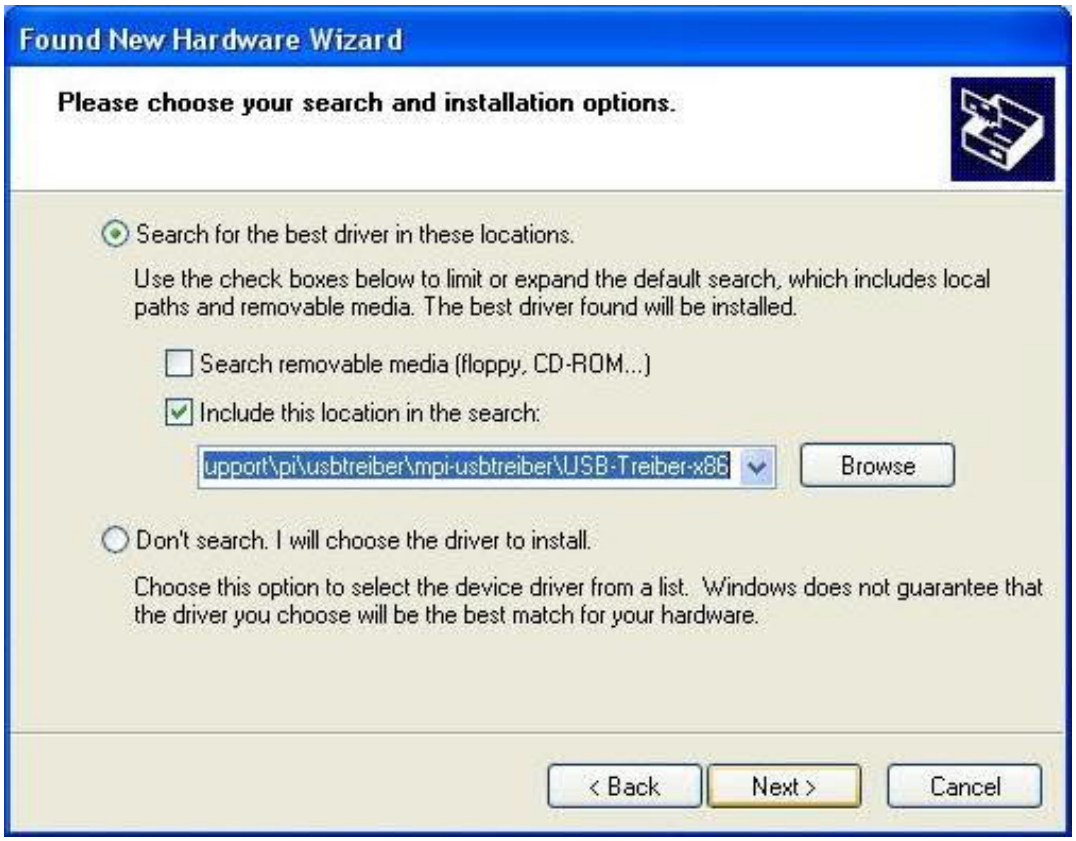
You also install the MPI cable Manager software as described in " MPI cable installation manager ", to configure your telephone service.

4.3 USB-driver-installation for 32-bit-systems

The S7-Interface S7-USB, MPI-USB or MPI-II-Kabel over USB as well as the devices of TeleService-familiy will be connected to USB 1.1-compatible port of the PC.
This opens the Hardware-Installation-Wizard:

We don´t need a connection to Windows update.
Select now "Install from a list or specific location":

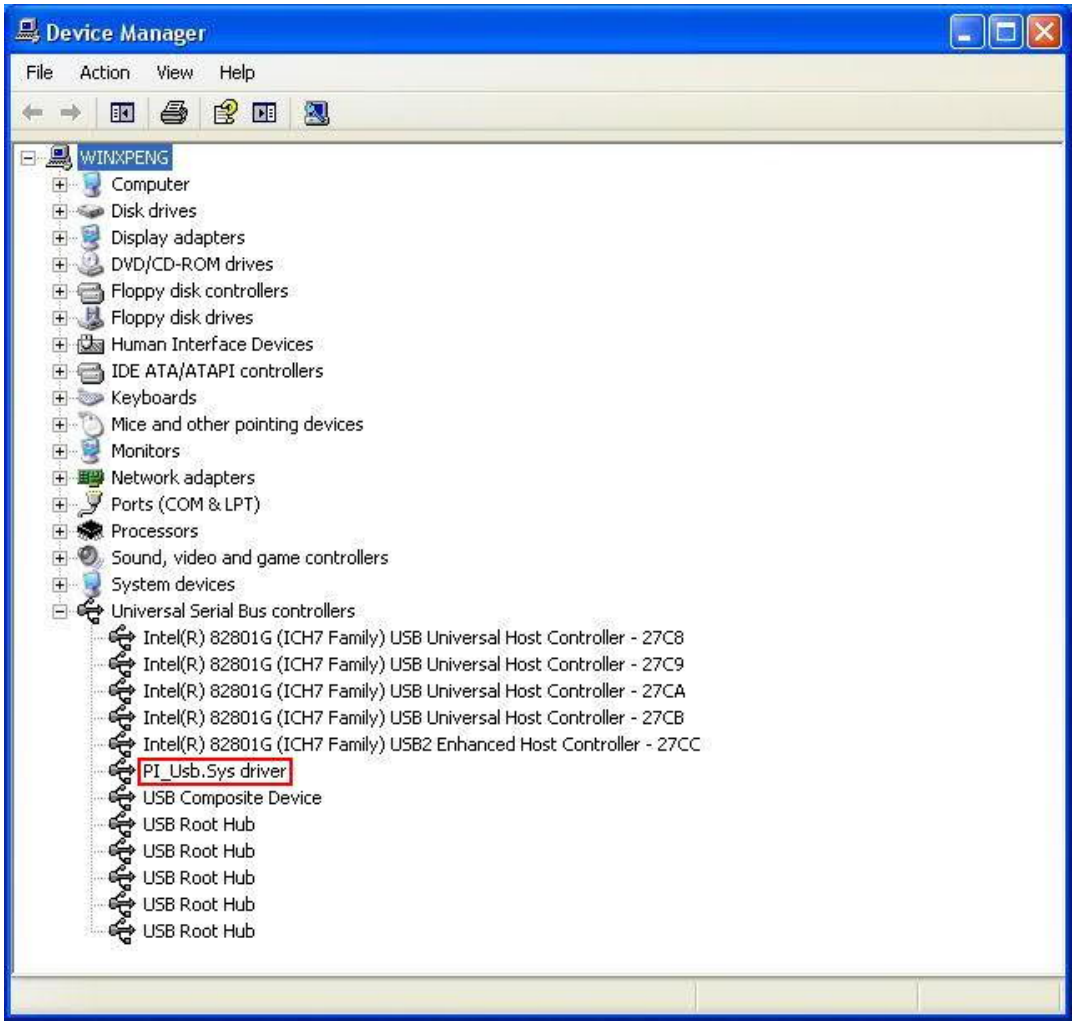
Enter as source the folder "..\USB-Treiber-x86". Either in the folder where the downloaded drivers were extracted or the directory on the product CD:



The message of windows logo test skip with "Continue Anyway":

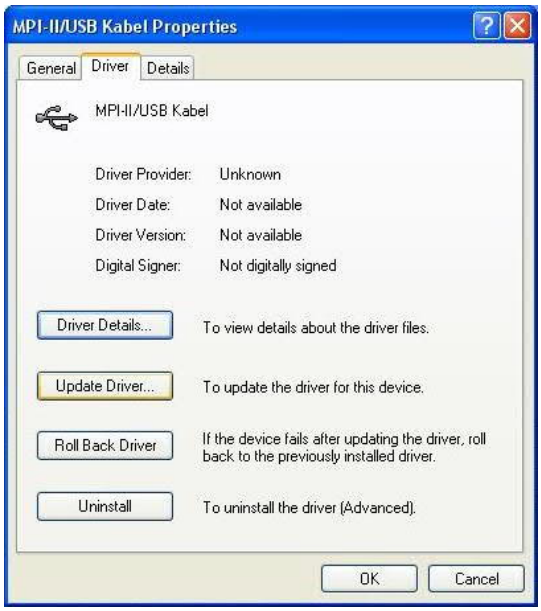
After copying the data appears a little moment later the success message:

Upon a successful installation the "PI_Usb.Sys driver" will be displayed without any warnings in the device manager:



Will this entry in the device manager shown with a "yellow exclamation mark", then please install the driver again or look in the driver properties about the reason.

If the driver has to be updated, please use the function "Update ..." in the driver properties:

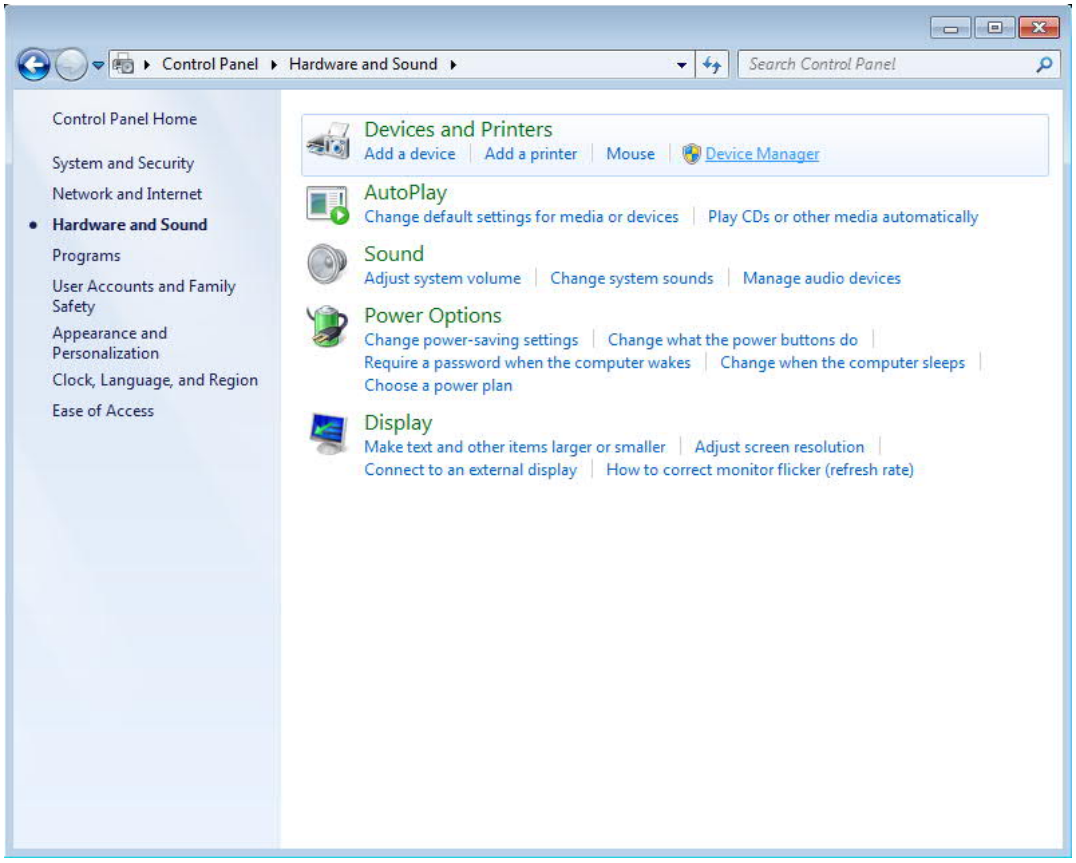


If the driver has to be deleted, please use the function "Uninstall" in the driver properties:

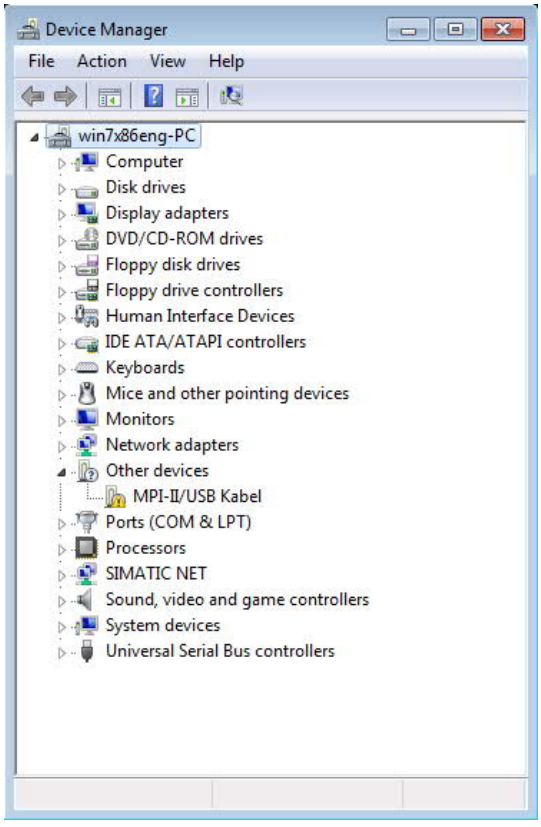
If you install older versions of PLCVCom, Step7-direct-driver or S7IFC, the actual usb-driver will be possible overwritten by previous versions because it was included until 01/11/2012 in their install-shields!

4.4 USB-driver-installation for Win7 64-bit

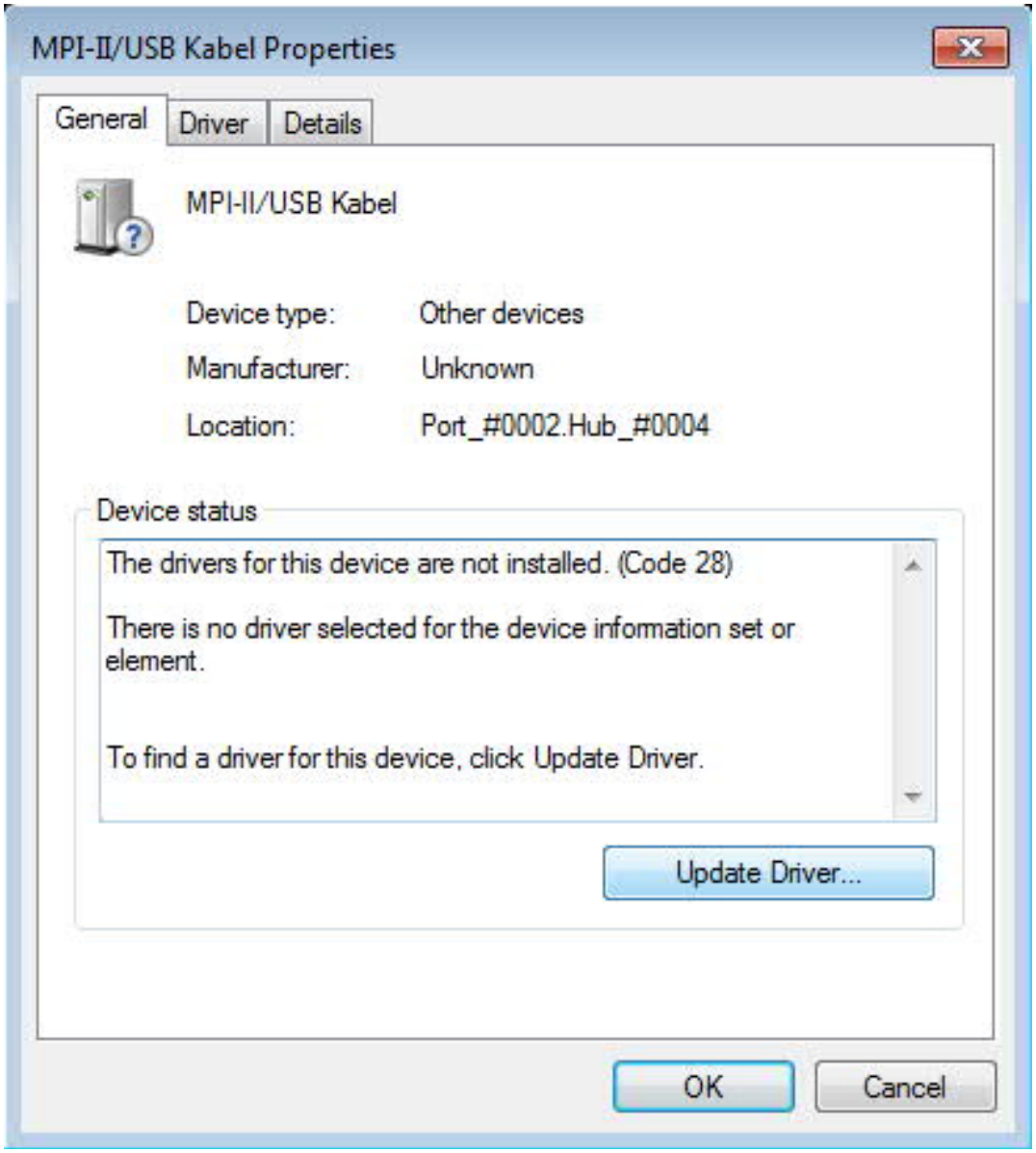
The S7-Interface S7-USB, MPI-USB or MPI-II-Kabel over USB as well as the devices of TeleService-familiy will be connected to USB 1.1-compatible port of the PC.
After the first plug of the device Win7 displays the message Nach dem ersten Anstecken am PC meldet Win7 zuerst „Installing device driver software“ and after some time „Device driver software was not installed“. This messages could be closed.
Please start the windows device manager in the control panel.



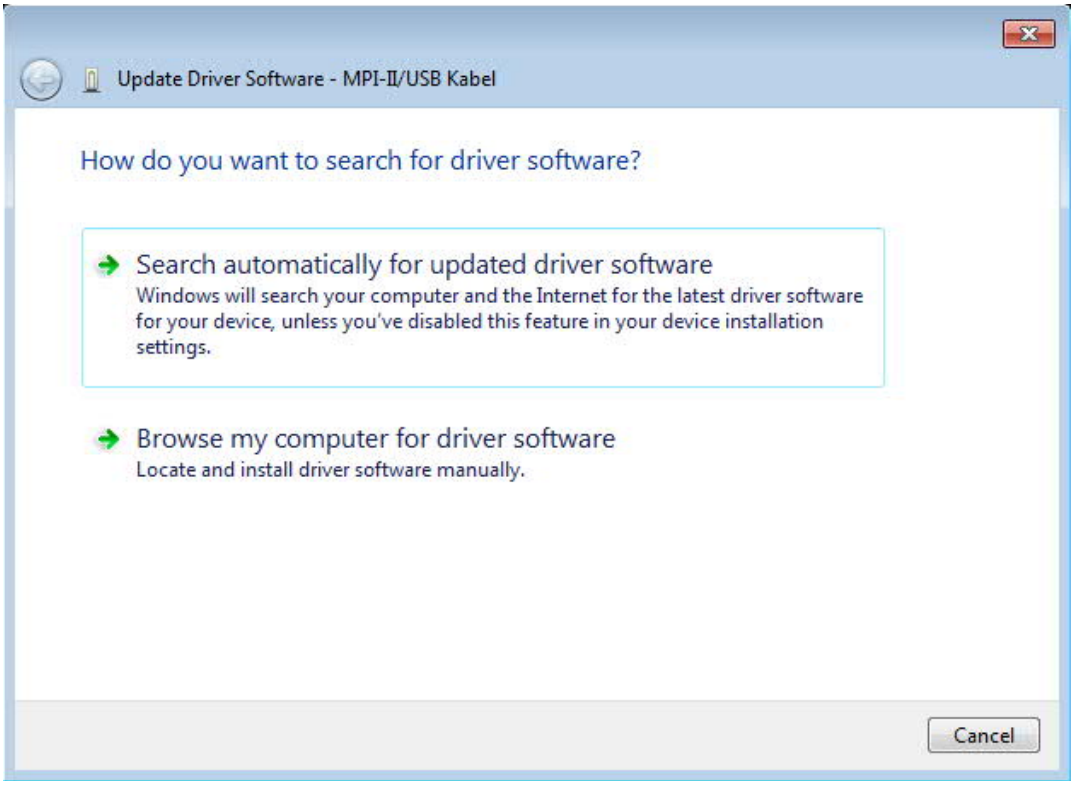
In the device manager would be the new device shown with a exclamation mark:



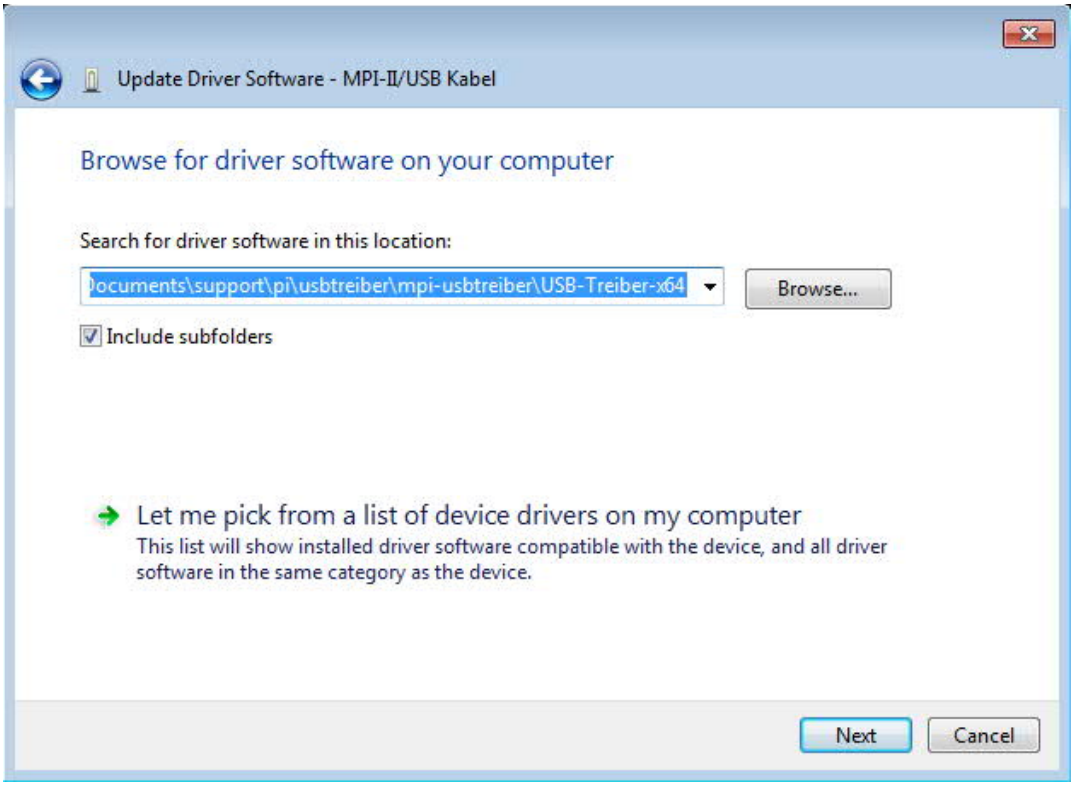
With a right mouse-button-click you will open the properties of the new device:



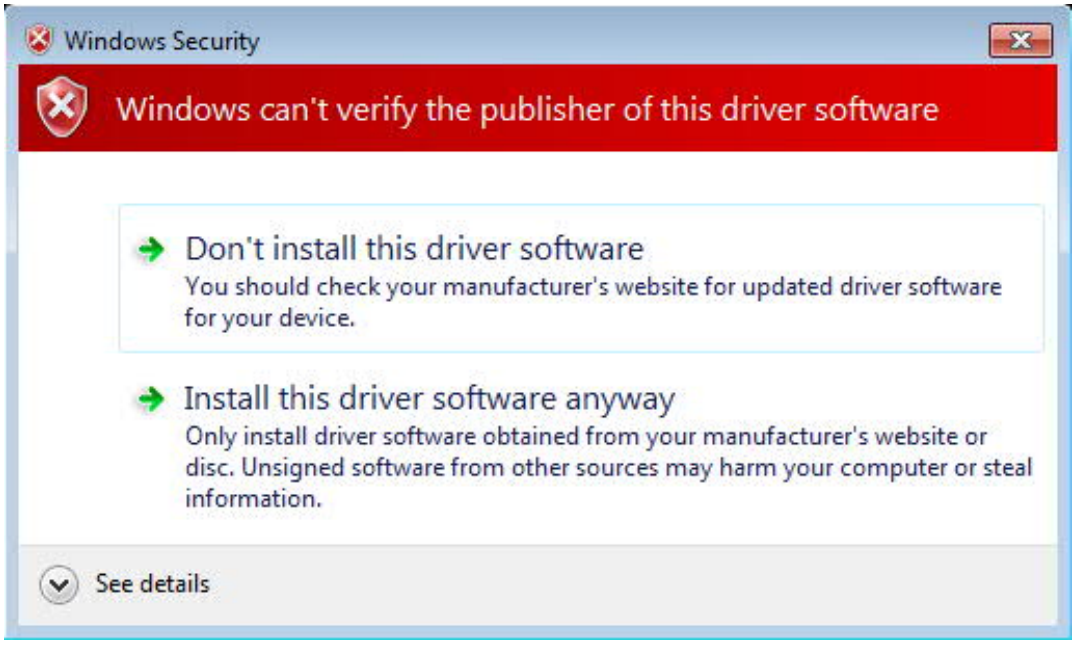
Now select "Update Driver...":



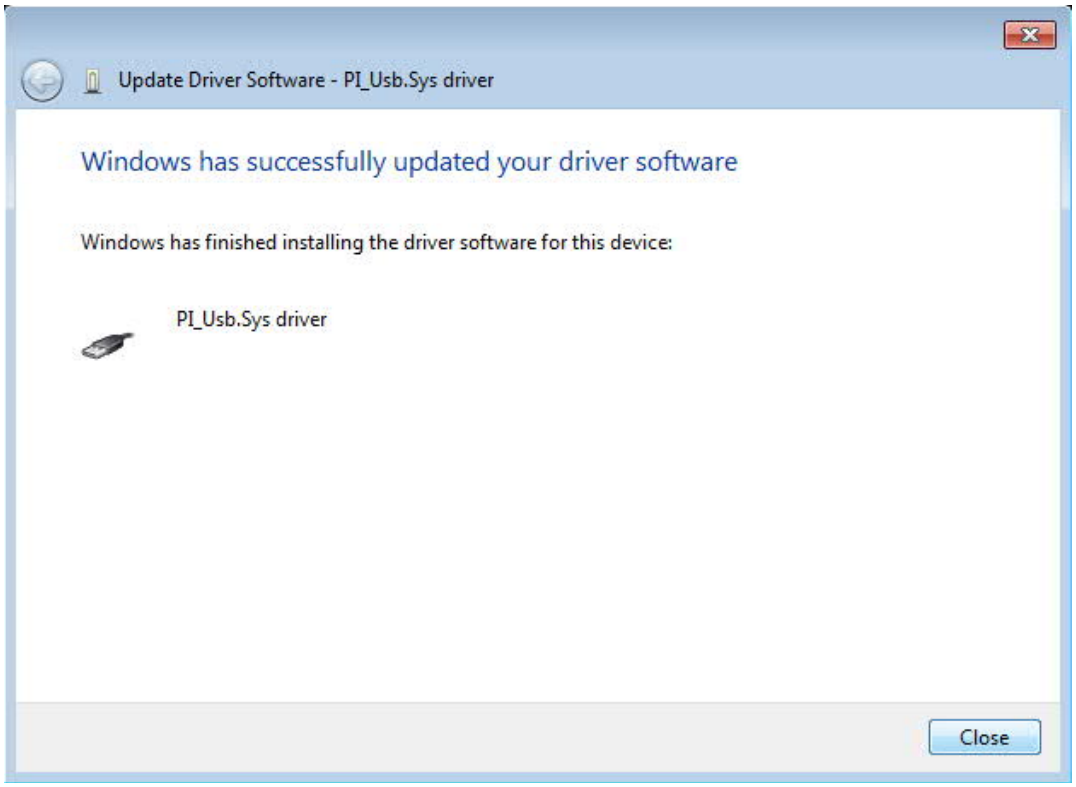
Please select "Browse my computer for driver software" and define as source the folder "..\USB-Treiber-x64". Either in the folder where the downloaded drivers were extracted or the directory on the product CD:



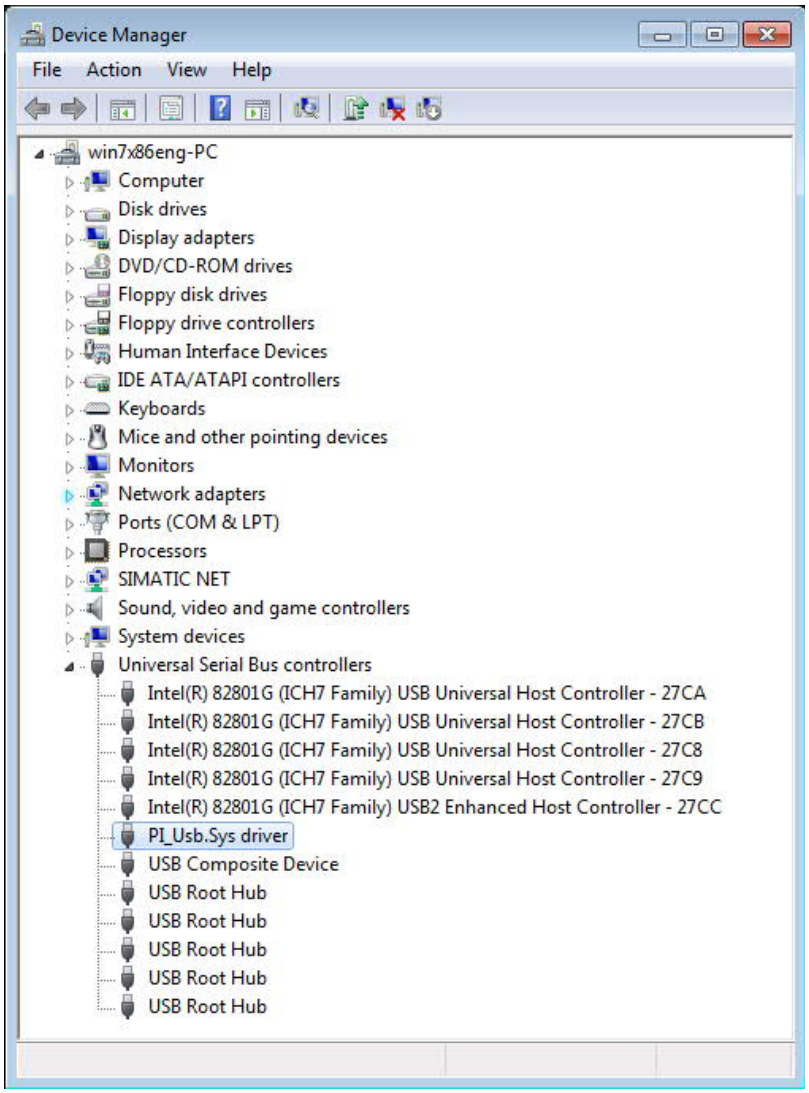
After pressing "Next" the message appears of windows UAC



Please press install and a little moment later appears the success message

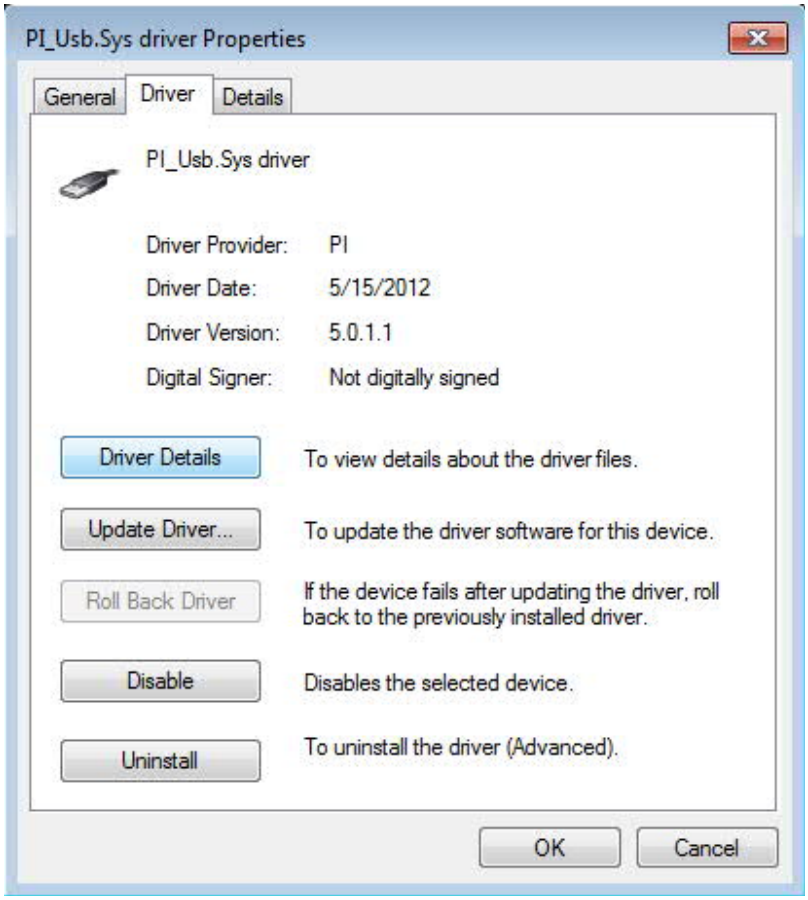


To verify the successful installation, you can look again in the device manager:



Here may appear no exclamation mark!

If the driver has to be updated, please use the function "Update driver ..." in the driver properties:



If the driver has to be deleted, please use the function "Uninstall" and set the check-box in "Delete the driver software for this device":

If you install older versions of PLCVCom, Step7-direct-driver or S7IFC, the actual usb-driver will be possible overwritten by previous versions because it was included until 01/11/2012 in their install-shields!

5 Control elements

5.1 Status LEDs

LED	Color	Meaning
ON	green	Power supply is available
E-Error	red	Group error
MPI/DP-ADR	red	MPI connection exists
MPI/DP-SPEED	red	Telephone connection exists
SIMMCARD	red	PIN number of the SIM card is not configured
GSM READY	yellow	OFF = Modem is turned off ON = no registry at GSM Flashing 200ms/2s = authentication on GSM successful Flashing 200ms/600ms = call and communication
MODEM CONNECT	yellow	Connection via modem is constructed
MODEM DATA	yellow	Flashes when data are transmitted over the modem line
MPI/DP DATA	yellow	Flashes when data are transmitted on the MPI bus
USB DATA	yellow	Blinking when data are transmitted to the USB interface

6 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 descript in the chapter "system requirements" . In addition,please make sure that the module is properly connected

6.1 Using the PLC-VCOM

(The PLC-VCOM is only needed if your module is not connected via the 9 pin COM port to the computer. For products with USB, Ethernet connection, etc., the PLC-VCOM is required)

1. Start the PLC - VCOM application (If it has not already started yet).

2. Click in the main window of the PLC-VCOM, in the status area “configure”. The configuration wizard will start.

3. It lists all the found modules / cables and the additional information’s such as IP address and MAC address of the module.

4. Choose the desired MPI cable and click „OK“ to go on.

5. 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.

6. It also displays, the PLC-VCOM the IP address for the module and the IP address of the

computer which is connected to the module.

If you have any promlems with the use of PLC-VCOM software, go to the chapterPLC – VCOM and look there for operating instructions.

6.2 Firstconfiguration

Your Tele-Service is parameterized on a MPI- or PROFI-BUS if the baudrate and the version sent automatically. Baudrates uo to 12 MBaud will be recognized and supported.

So there are no settings to do for a direct access over USB, RS232 or analogous phone line.

By remote maintenance over ISDN you have to set the MSN / EAZ and over GSM you have to deposit the PIN in the Tele-Service.

If you have problems with the PLC-VCOM or MPI-Kable- Manager please read in the chapter „PLC-VCOM“ and „MPI-Kabel-Manager “.

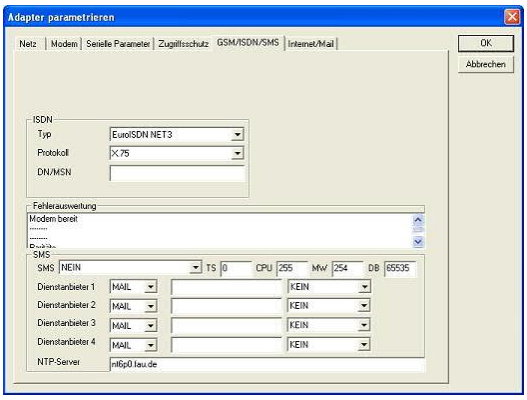
1. Start the PLC-VCOM and configurate it like in chapter „PLC-VCOM configuration“ to connect with the Tele-Service. (Only necessary, if you connect the Tele-Service with the PC over USB!)

2. Start the MPI-Kabel-Manager and push under „Interface“ „Search“. By access query choose „direct“ if your Tele-Service is connected with an USB-cable or Nullmodem-cabel or „modem“ if your Tele-Service is connected with a phone plug.

3. Now choose the COM-Port in „set interface“ which is connected with your Tele-Service. Here you can defined with which TS-Software you want to access.

4. Now push the button „Teleservice“ after „check adapter“. Choose the access type like in point two descripted.

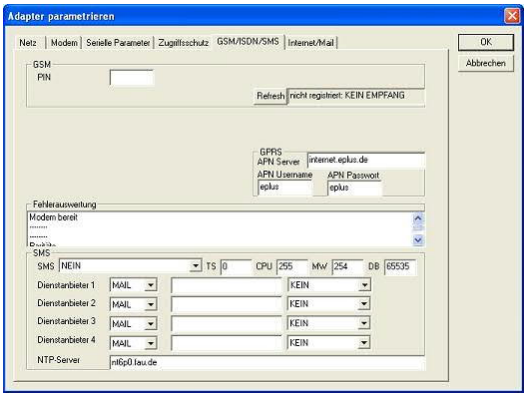
5. In the follow menu choose „adapter parameterize“ and confirm the query with the Siemens Tele-Service version you use.



For Tele-Service ISDN:

6. Enter in „DN/MSN“ your MSN or EAZ number which are assigned to your Tele-Service in the telephone system.

The type and protocol are default for europe. Here you don't have to change something.



For Tele-Service GSM:

6. Enter in „PIN“ your pin of the SIM-carte to log in the GSM-net.

After the PIN is saved, you can view the connection quality with the button „Refresh“.

7. If you want to have an access point, you can adjust user with password in the menu „access

protection“.

If you want to parameterize other properties please read the chapter „MPI-Kabel-Manager review“. There all options will be descripted and explained exactly.

Finally save your settings by pressing „OK“ right on the top .

6.3 Programming software used for remote maintenance

After installing and configuring the remote maintenance device, you can, with the help of the Software (Siemens Tele-Service or PG2000 with Tele-Service option), access and work with the PLC

As you must adjust your programming software is described in the following points..

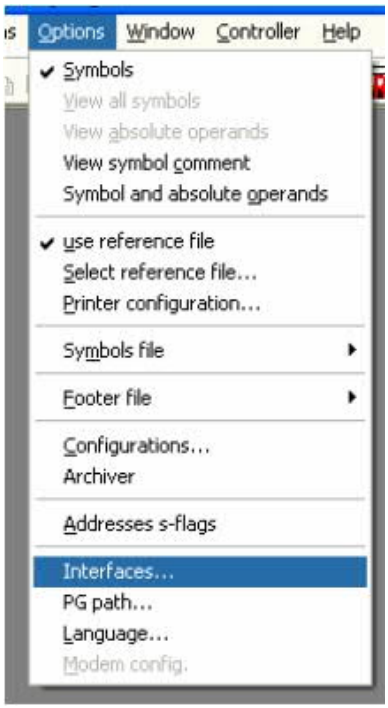
6.4 Programming software to use with direct access

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:

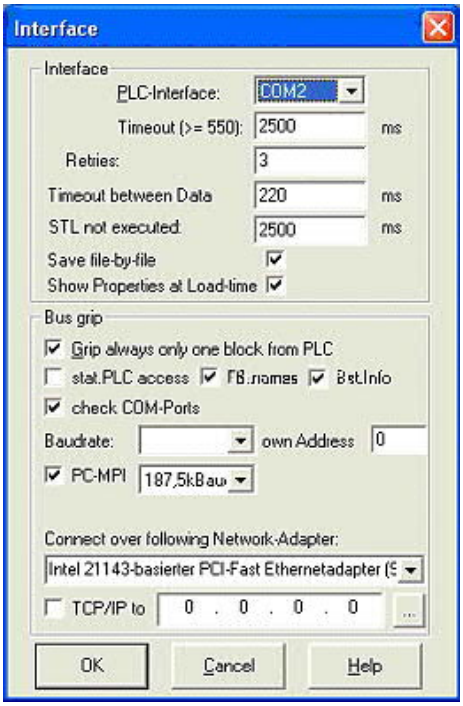
6.4.1 PG2000 für S7 (V5.10)

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



2. Choose from "View" => "S7-300/400"

In the menu “Options“ click “Interfaces“..



3. A dialog appears, in which you are able to set the “AG-Interface” (COM-port) in the section “Interfaces”.

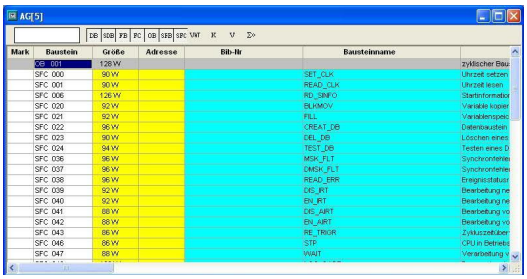
4. Configure the baud rate in the section “Bus access“ to “19,2k“. Below change the value for PC - MPI to “187,5kBaud“.

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“



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

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

6.4.2 PSet PG/PC interface

This step is required for the following software:
=> *TIA-Portal*
=> *SIMATIC Step© 7 Manager*
=> *Windows Control Center (WinCC) (v6.0)*
=> *Windows Control Center flexible 2004 (WinCC flexible) (v5.2.0.0)*
=> *ProTool/Pro (v6.0 + SP2)*
=> *Microwin 3.2*

1. Open the system configuration by using the start menu.

2. Click on „Set PG/PC interface“.

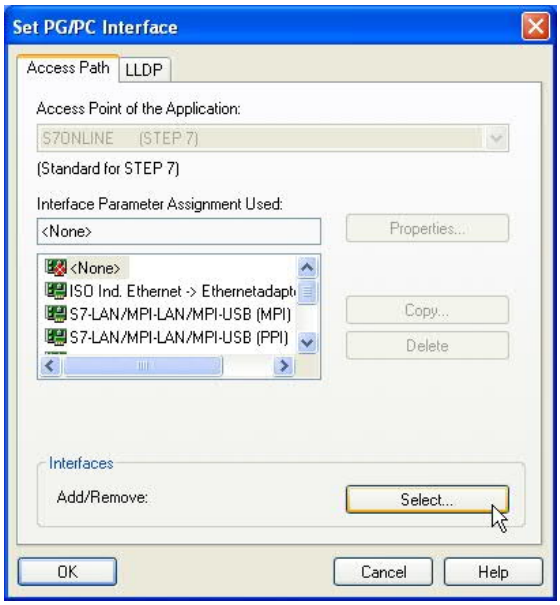
3. A Dialog with a list box named “Interface Parameter Assignment Used:” appears. This box should offer following entries

- TIC ETH/USB(MPI) or TIC ETH/USB.MPI.1
- TIC ETH/USB(Profibus) or TIC ETH/USB.Profibus.1
- TIC ETH/USB(PPI) or TIC ETH/USB.PPI.1

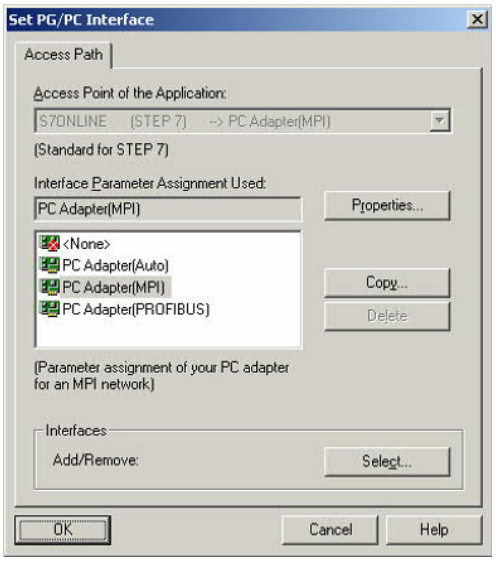
or some “TCP/IP” entries

If this is the case, please continue with the step MPI settings or Profibus settings.

If so not please install the "TIC-driver" on this PC and after a restart this entries must exist. If you want to install the TCP/IP-driver follow the link.



6.4.2.1 TCP/IP RFC1006 Communication



4. Press "Select" to add the RFC1006 required elements to the PG / PC - interface configuration.

5. In the dialog "Select", choose" TCP / IP" and click on "Install".

6. After successful installation, click "Close".

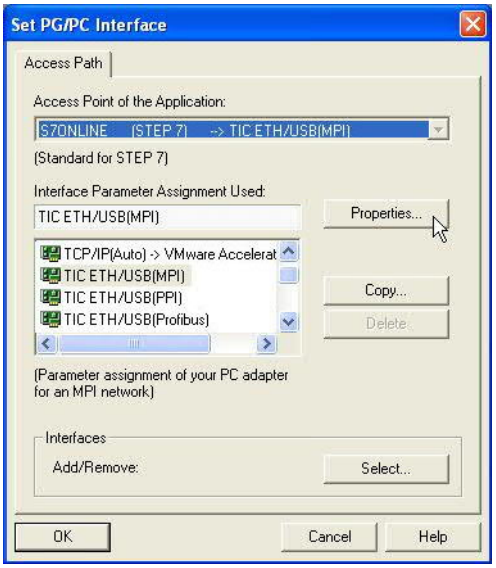
7. Back to the “Set PG/PC interface“ dialog you will now find the desired entries called “PC - Adapter(Auto)“ (not supported), “PC - Adapter(MPI)“ and “PC - Adapter(PROFIBUS)“. Now

you are able to configure the bus.

If you want to use the “MPI“communication type go ahead with step MPI setting .

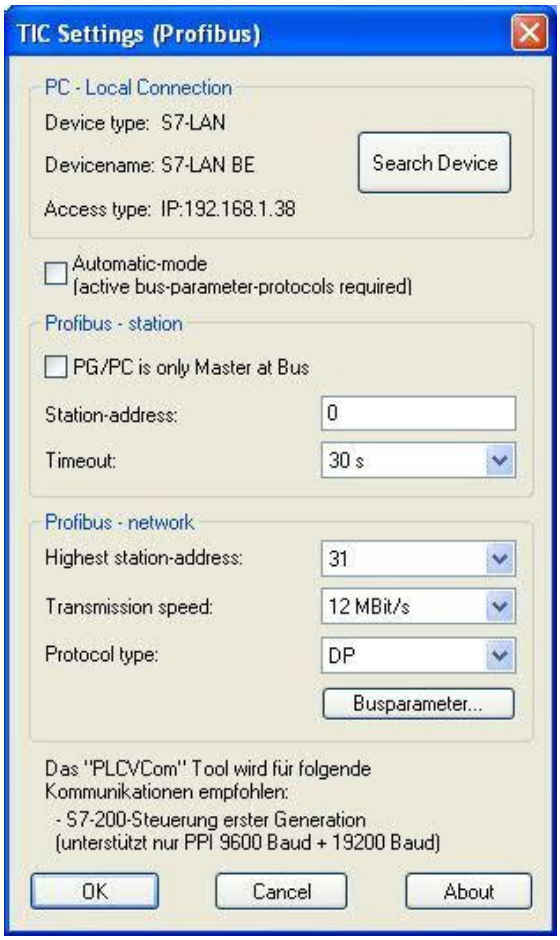
The settings for "PROFIBUS" is explained in Profibus setting .

6.4.2.2 MPI setting

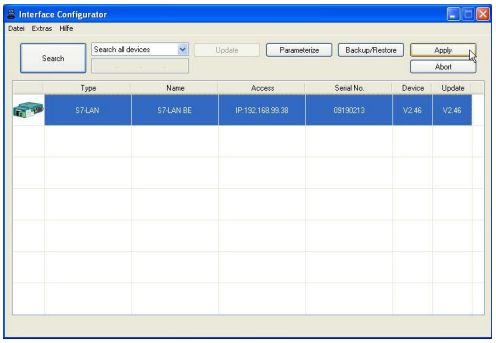


7. Select "TIC ETH/USB(MPI)" and click "Properties".

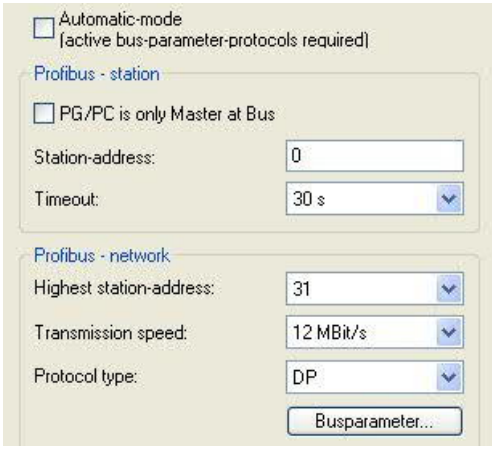
8. Open the properties dialog



9. Is the device-type is not identical with your used device, search for your device with "Search Device". Select the device in the result windows and click on the button "Apply".

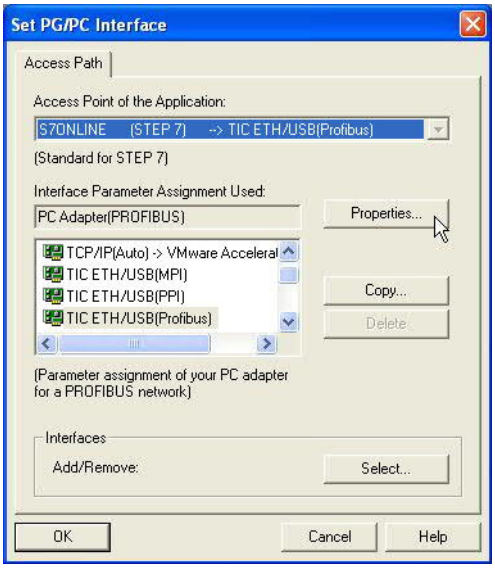


10. Activate the "Automatic-mode" when you will be shure, that the connected PLC sends cyclic bus-parameter-protocols. When not please configure the bus by hand.



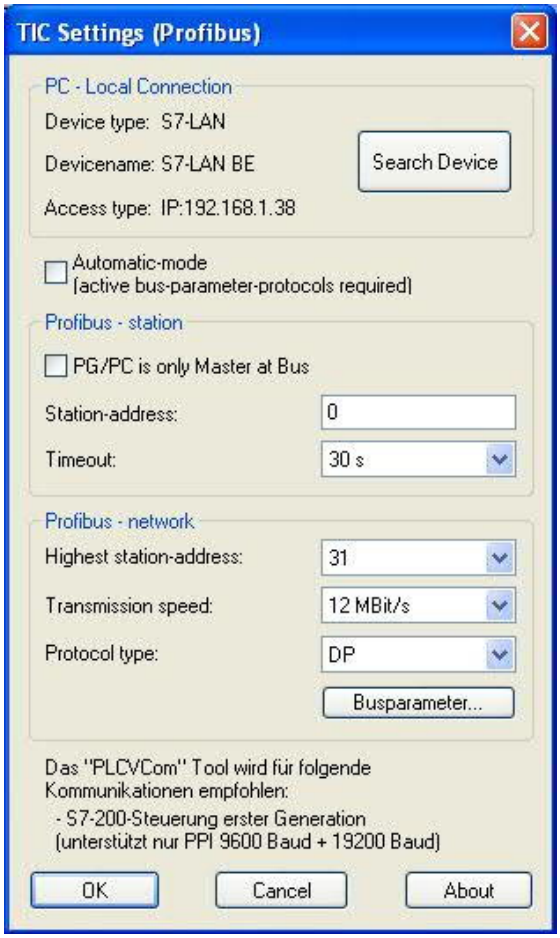
6.4.2.3 Profibus setting

11. Save your configuration with „OK“ and close the „Set PG/PC–interface“ dialog with „OK“.

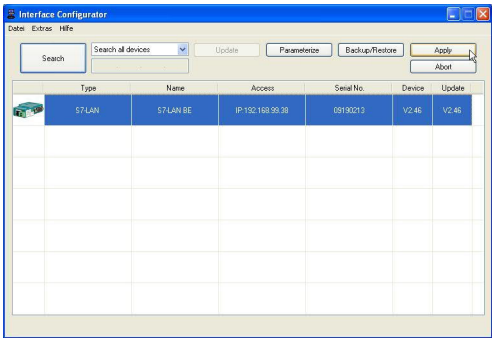


12. Mark the entry „TIC ETH/USB(PROFIBUS)“ and click on „Properties“.

13. Open the properties dialog



14. Is the device-type is not identical with your used device, search for your device with "Search Device". Select the device in the result windows and click on the button "Apply".



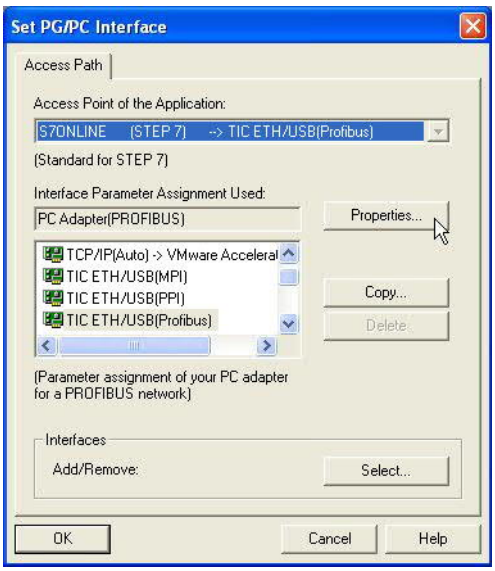
15. Activate the "Automatic-mode" when you will be shure, that the connected PLC sends cyclic bus-parameter-protocols. When not please configure the bus by hand.

16. Save your configuration with „OK“ and close the „Set PG/PC–interface“ dialog with „OK“.

6.4.2.4 TCP/IP RFC1006 setting

17. For this kind of communication you only have to install the corresponding software.

6.4.2.5 ProTool/Pro RunTime (RT) Configuration



18. If you want to use ProTool/Pro RunTime you can set the "PG/PC Interface" by selecting the entry "DPSONLINE". Therefore you have to select "Access Point of Application" and configure it as described above. The easiest way is to use the S7-LAN/MPI-LAN/MPI-USB-driver which supports USB and LAN products.

The interface configuration for these programs is finished.
Continue with the software which you want to use:

=> SIMATIC Step© 7 Manager (v5.2 + SP1)
=> Windows Control Center (WinCC) (v6.0)
=> Windows Control Center flexible 2004 (WinCC flexible) (v5.2.0.0)
=> ProTool/Pro (v6.0 + SP2)
=> Microwin 3.2

6.4.3 SIMATIC Step© 7 Manager (v5.2 + SP1)

Configurate the interface as described in Set PD/PC-Interface.

1. Klick in the drop - down menu "target system" on "Display Accessible Nodes".

2. If you can see the list with possible Bus-devices, a communication over the cable has taken place. "Direct" connected devices will be shown, also the conditions if it is an "active" or "passive" assembly.

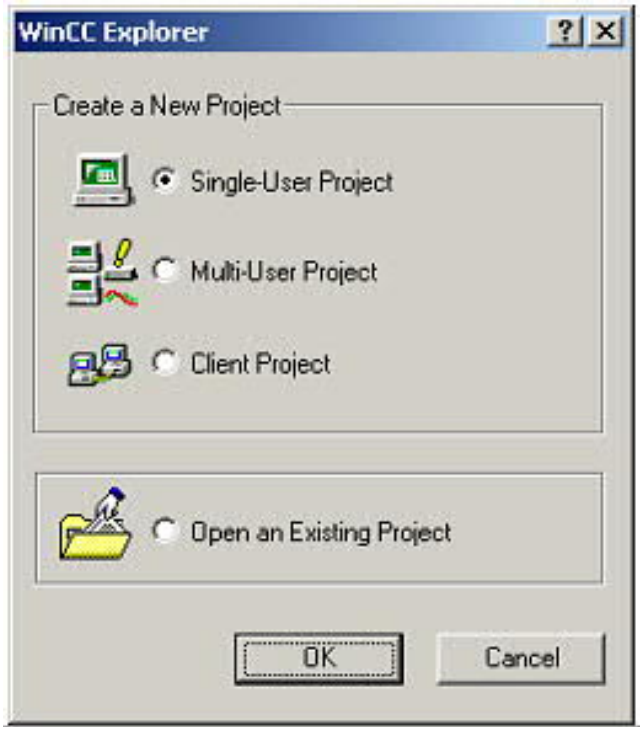
3. In this window you can edit each assembly with his blocks.

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

Configurate the interface as described in Set PD/PC-Interface.

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.

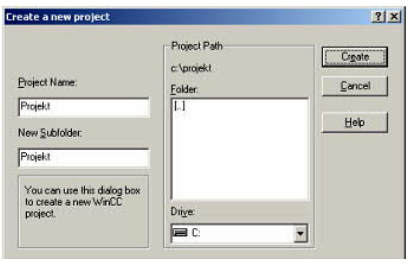


3. The next dialog offers you several project types “Single-User Project”, “Multi-User Project” and “Client Project”.

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

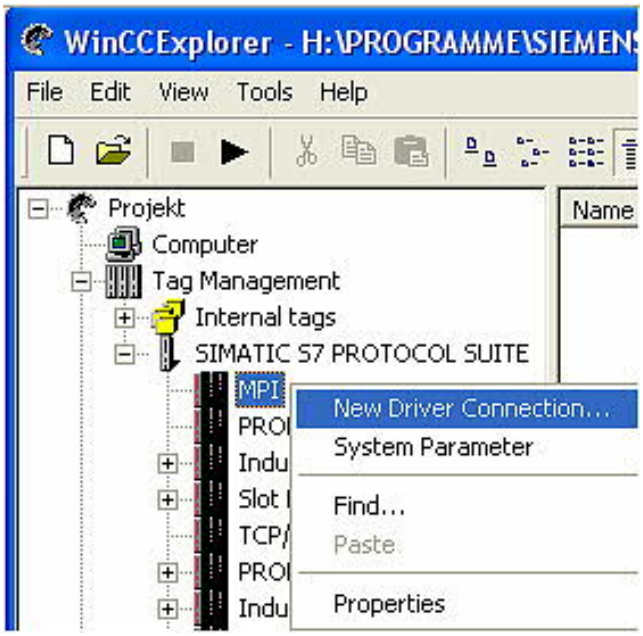
4. “OK” leads you to a new dialog. Type in the “Project Name” and the “Subfolder” of the project path.

The chosen configuration is confirmed with “Create”.



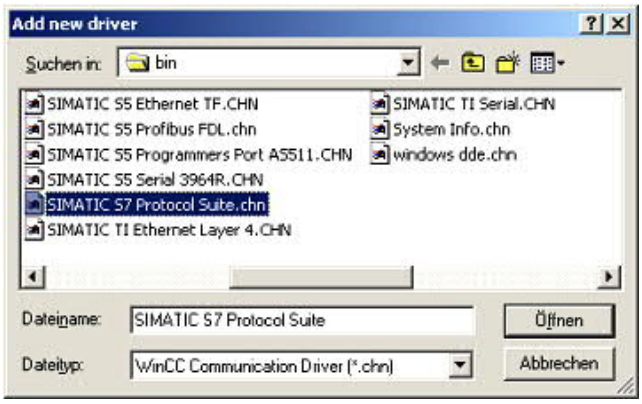
To use one of the other options please go ahead and read in the manual of WinCC software.

5. Please wait until the project is created. The project content will be 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 you have to right-click on “Tag Management” it opens the context menu. Choose “New Driver Connection … “.



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

For a S7 PLC choose „SIMATIC S7 Protocol Suite.chn“.

If you want to use an other PLC please inform yourself first, which driver fits with your PLC.

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

8. You should see now in the Explorer under the branch “Tag Management” the branch “SIMATIC S7 PROTOCOL SUITE”. Expand the branch and many protocols for various compounds will appear.

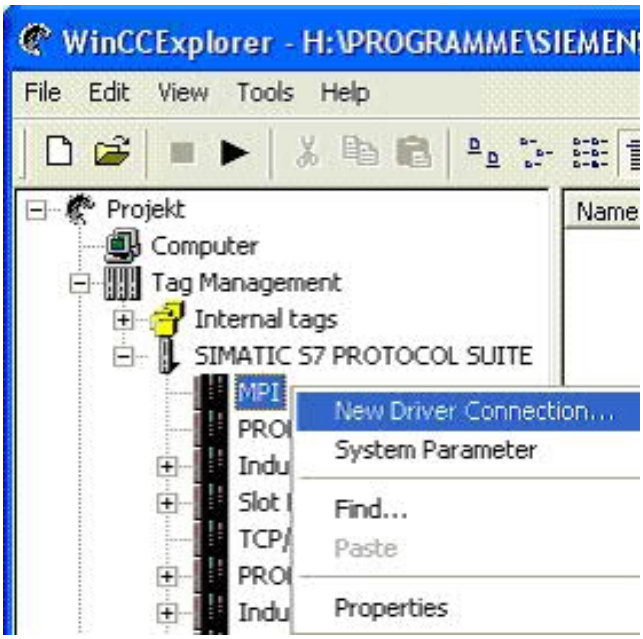
The General way of proceeding a new connection is to:

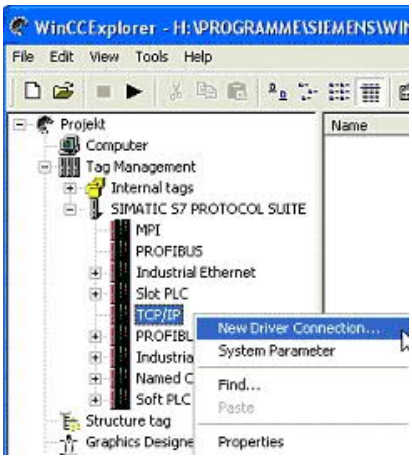
Right-click on the desired connection (MPI - > Picture: “MPI“, TCP/IP - > Picture: “TCP/IP“). A context menu opens. Click on „New Driver Connection…”.

This manual describes the connection configurations:

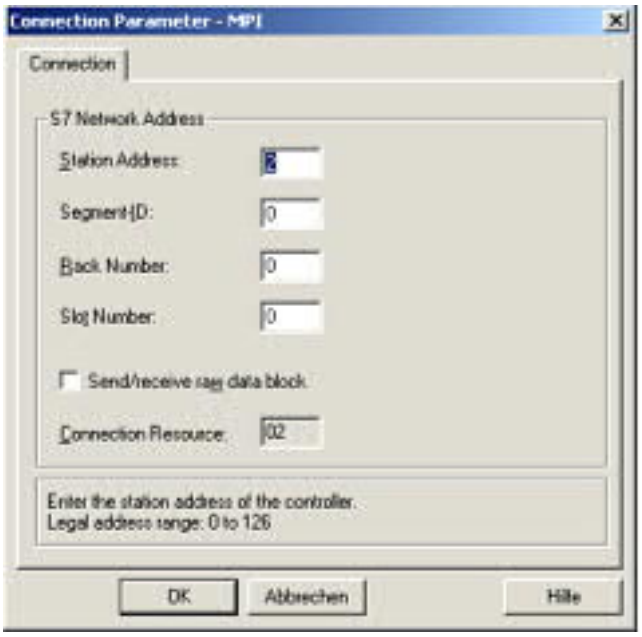
- for „MPI„ (MPI-II-cable, MPI-USB-cable, S7-USB-modul, S7-LAN-modul and MPI-LAN-cable)
- for „TCP/IP„ (only S7-LAN-modul and MPI-LAN-cable).

MPI **TCP/IP**





6.4.4.1 MPI Configuration



6.4.4.2 TCP/IP Configuration

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

Set up the station address of the PLC (in this example "2“).

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

Read further "Communication and fault diagnosis “ .

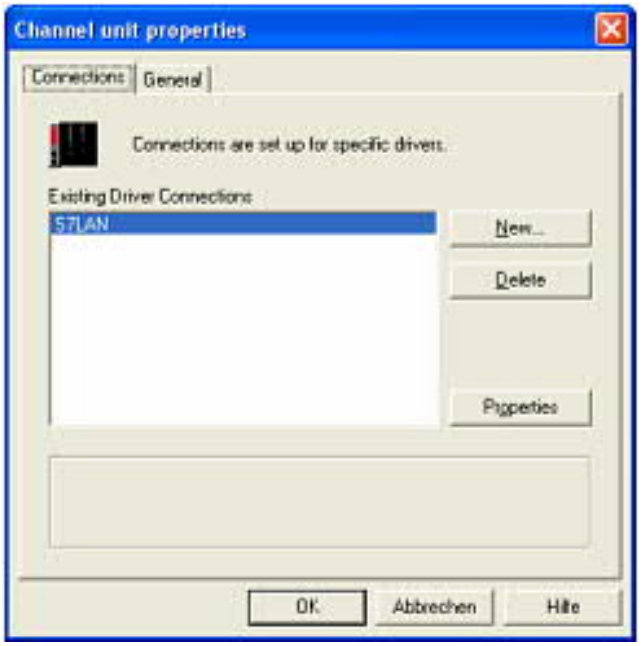
10. A dialog appears where you can configure the connection parameters.

Set up the IP - Address of the module and configure the rack number as well as the slot number.

Confirm this configuration by clicking “OK”.

Example configuration:
IP - address 192.168.1.55
Rack - Number: 0
Slot - Nr.: 2

11. With a right-click on the new connection you can start the properties dialog. In this dialog please click on properties.



12. In this “Channel unit properties” you are able to see all “available connections”.

Choose the latest created connection and click again on „Properties”.

Now you can see all the variables which has been created for this connection.

In fact this connection is a new connection so there should not be any variable in the list.

To add a new variable click on „New”.

13. Now you are able to set up the name of the variable and different more properties.

In our example, we assign the following values:

Name: „S7LAN_MW0“
Data type : „unsigned 16 - Bit value“
Length: „2“
Address: „MW0“
Format adaptation: „WordToUnsignedWord“

Click on „Choose” beside the Address to define the address from the variable.
Example configuration: The data area from the variable is set to „Mark“ and the address is set to „Word”. The edit box „MW“ is set to „0”.

14. Confirm all open dialogs with „OK“ until you reach the main window.

15. The connection needs to know which network interface card it should be used to send data via the Ethernet. Open the “System parameters“dialog from the context menu (right-click on TCP/IP).

16. Choose from the registry card „Unit“ and set the “logical device name“ to your network interface card (usually the name of the NIC begins with a „TCP/IP - > „).

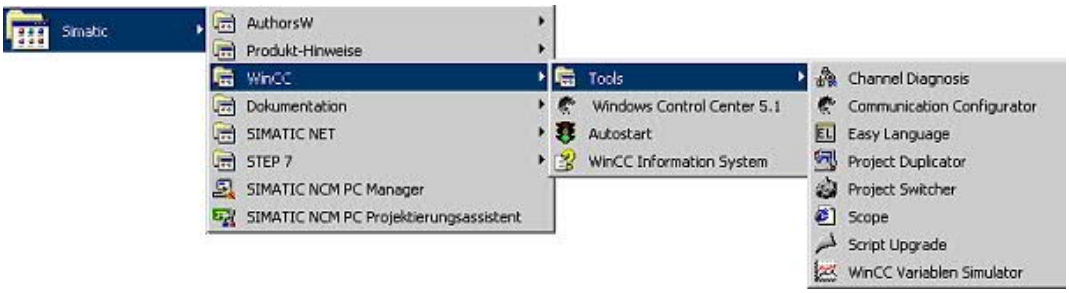
17. Confirm with „OK“.

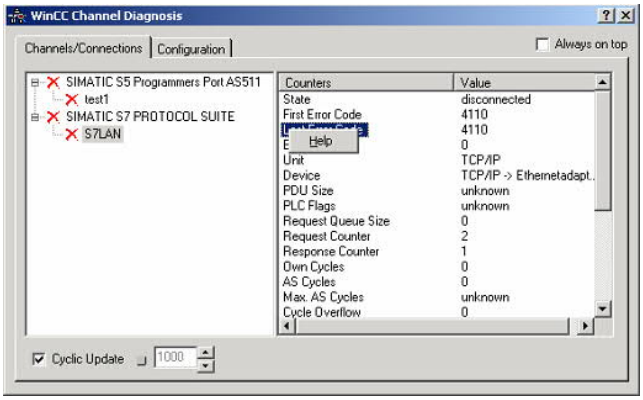
18. Now you are able to start the communication. Stop it by clicking on .

6.4.4.3 Communication and fault diagnosis

To clean up errors faster the WinCC Software offers a tool named "Channel Diagnosis”. This tool analyses all connections from your WinCC software. For demonstration purposes please stop the last started connection from your WinCC explorer.

19. Start the software "Channel Diagnosis“ by using your link in the start menu.

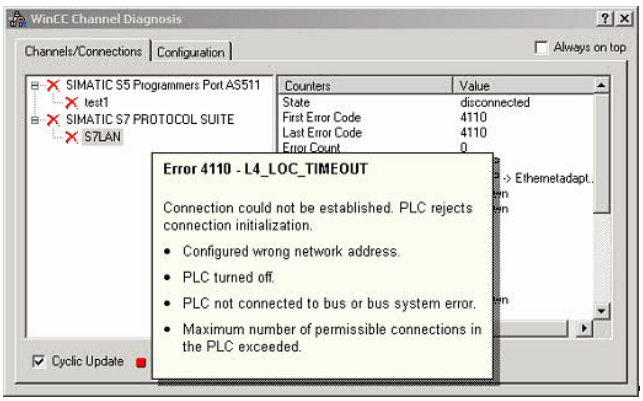




20. The tool could not detect a running connection so it marked the connection/s with a red ‘X’ (registry card "Channels/Connections“).

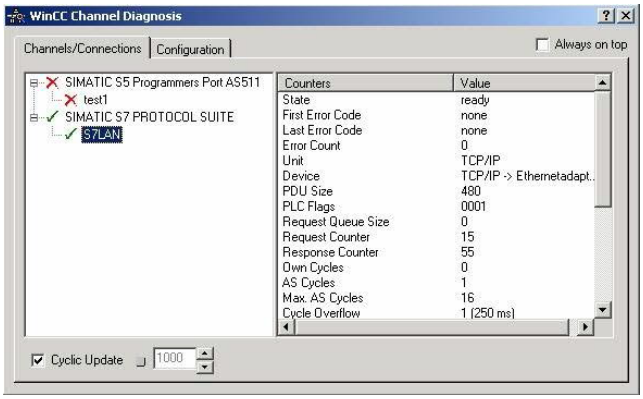
Click on the last created, not active connection (with the red ‘X’) and some informations from the connection will appear in the right part of the dialog.

One of these counters is called "Last Error Code“.



21. If you take a right-click on the error value a window opens with “Help”.

Click on the “Help” window and a yellow window appears (tooltip) with detailed error descriptions.



22. Lets see what happens if the connection runs properly. Start the connection from your WinCC Explorer.

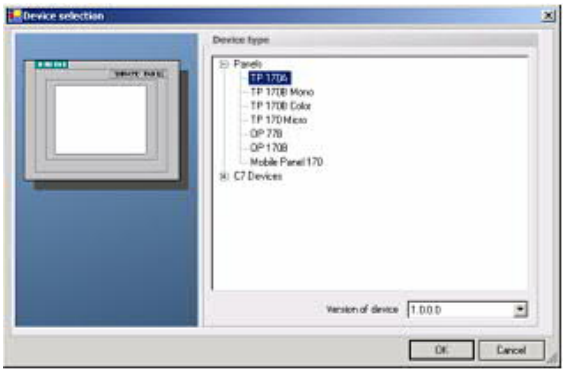
The "Channel Diagnosis“dialog marks the connection with a green hook if everything worked out.

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

Please make sure that the interface configuration is correct as described in PD/PC-Set interface

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

2. First you need to select “Create an empty project” on your first page.

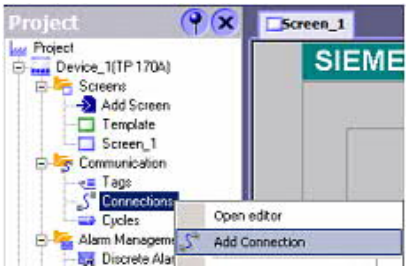


3. In the "Device selection“mark the used operator panel (example: "TP 170A“)

confirm with "OK“.

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

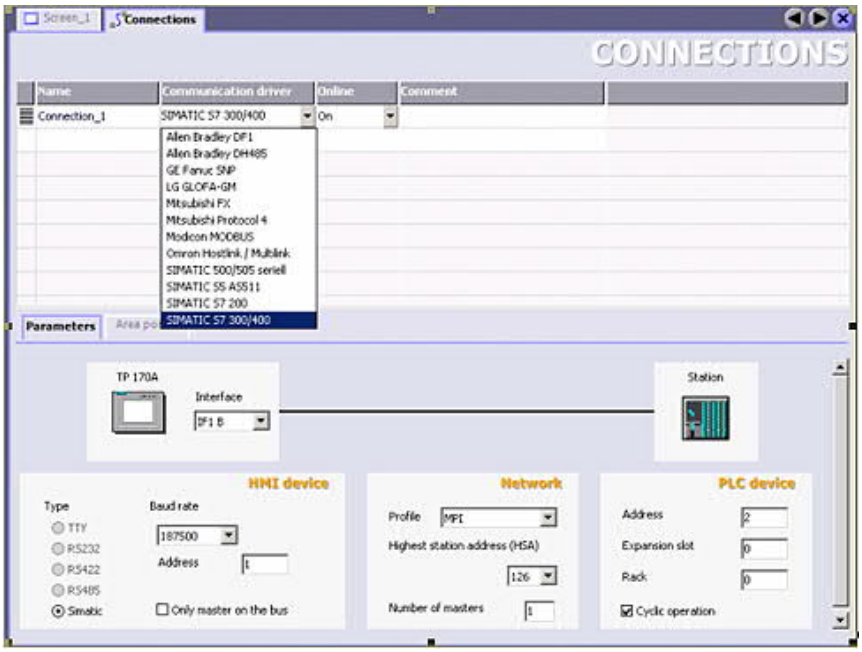
In the context menu click on “Add Connection“.

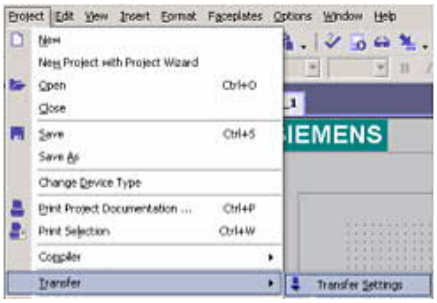


5. A new configuration window “Connections” opens in the right part of the main window. This offers you different setting options.

Important for the connection is:

=> the communication driver (set up which PLC you are using (example: "SIMATIC S7 300/400“))
=> the Baud rate (Set this on "187 500")
=> the address of the terminal (HMI) (in this example "1“)
=> the Profile ("MPI“ for example)
=> the Highest Station Address (HSA) (e.g. "126“)
=> the address of the PLC (e.g. "2“)



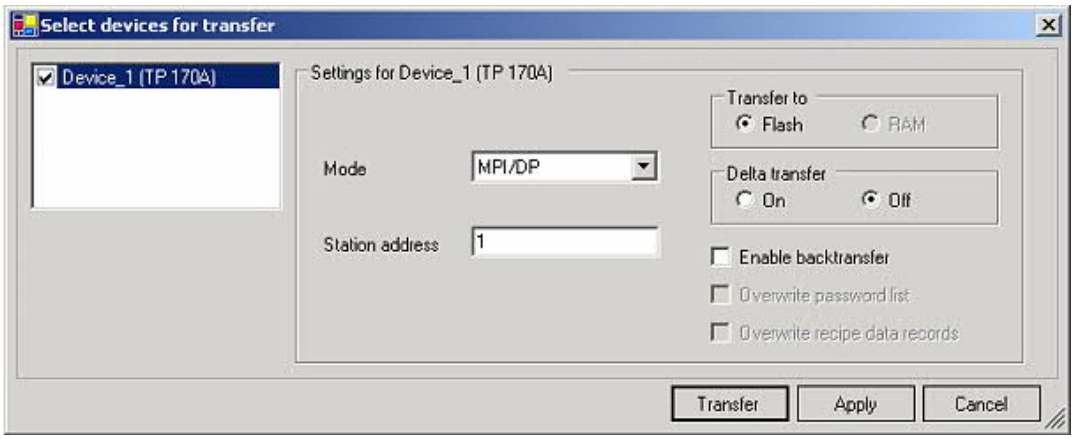


6. Now you can start with your work.

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 „MPI/DP“ and set the „Station address“ of the operator panel (e.g. „1“). If desired you can switch the „Delta transfer“ to „On” (in this example we set it „Off”).



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

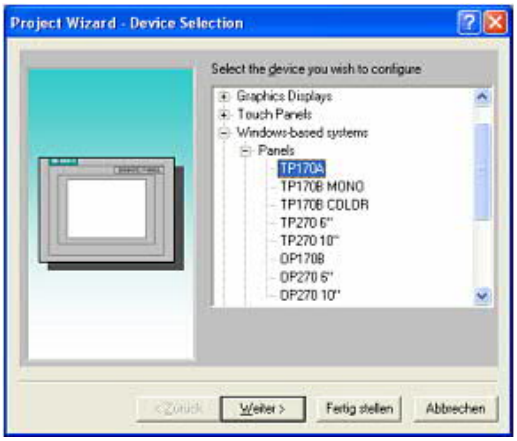
The WinCC flexible software is now able to communicate with your operator panel.

6.4.6 ProTool/Pro v6.0 SP2

Please be sure that the interface configuration is correct as described in PD/PC-set interface

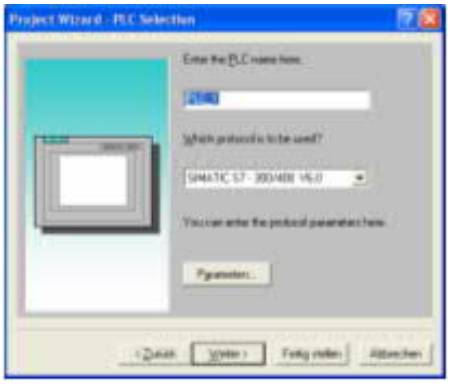
1. Start ProTool/Pro by using the desktop link or program entry in the start menu.

2. Choose from the menu „File“ the sub menu „New“ or click on the right symbol.



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

Mark the used panel (e.g. „TP 170A“)

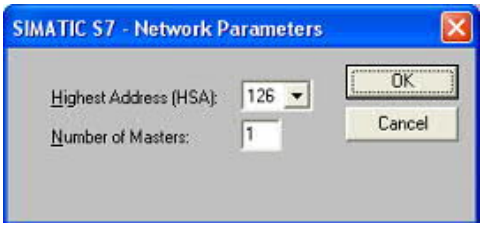


4. „Next“ leads you to a new dialog. Type in the specfic fields the name of the PLC device and choose the used PLC in the driver selection (e.g. „SIMATIC S7 – 300/400 V6.0“).

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

Set up the station address of the panel (example „1“) and of the PLC (example „2“).

Leave the point "Interface" in the standard configuration. In the sector „Net parameter“ choose the interface which uses your module on the PLC (e.g. „MPI“). Configure the baud rate to „187.5“.



6. The button „More ...“ leads you to a small dialog where the „Highest Station Address“ should be configured to „126“. Set up the „Number of masters“ (e.g. „1“)

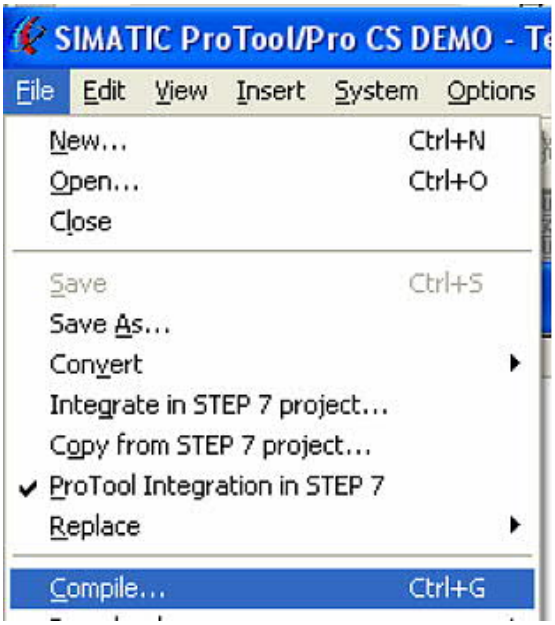
7. confirm with „OK“ until you got back to the „Control Selection“.Go on with „Next“.

8. In the main window start the Transfer Settings dialog by clicking on „File“ „Transfer“ „Settings...“. Choose „MPI / PROFIBUS DP“ from the listbox and type in the station address of the operator panel (e.g. „1“).

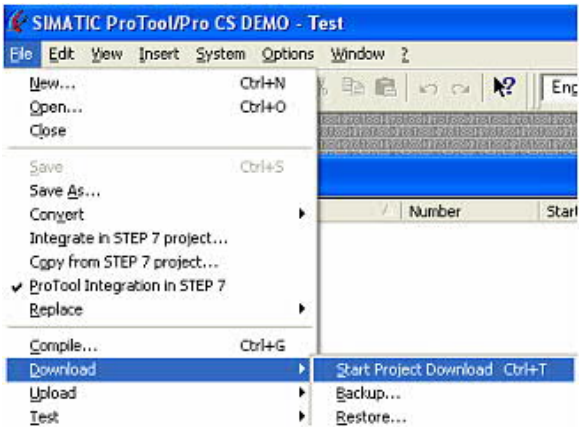
Confirm with „OK“.

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.

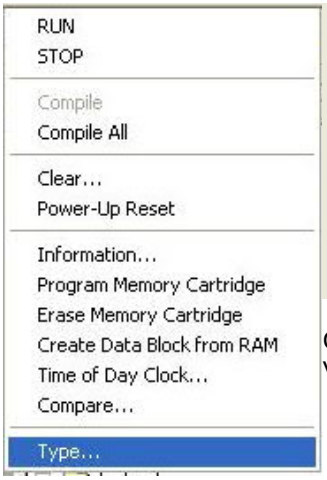
The communication between the operator panel is now established.

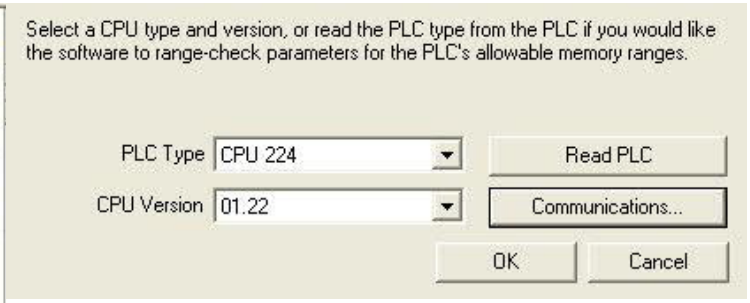
6.4.7 Microwin v3.2 (only for S7 200)

Please be sure that the interface configuration is correct as described in PD/PC-set interface

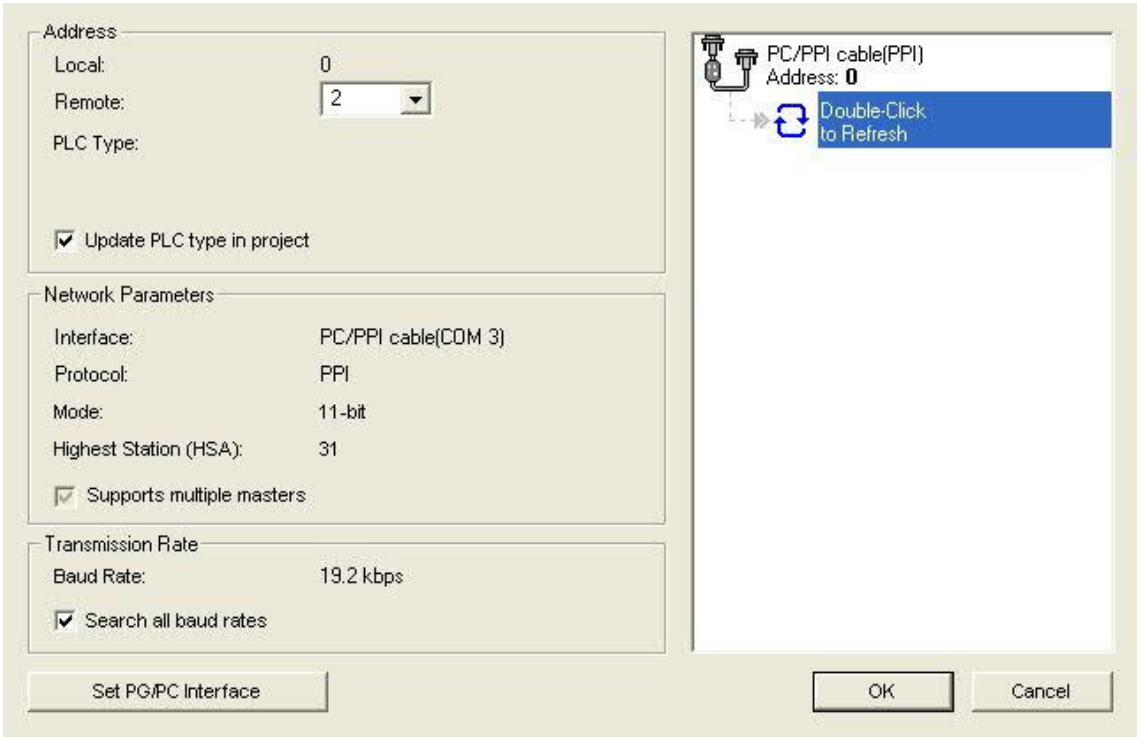
1. Start Microwin using the desktop link or program entry in the Start menu.

2. Click on „Type“ in the menu „PLC





Configure the „PLC Type“ (e.g. „CPU 224“) as well as the „CPU Version“ (e.g. „01.22”) to the dialog.



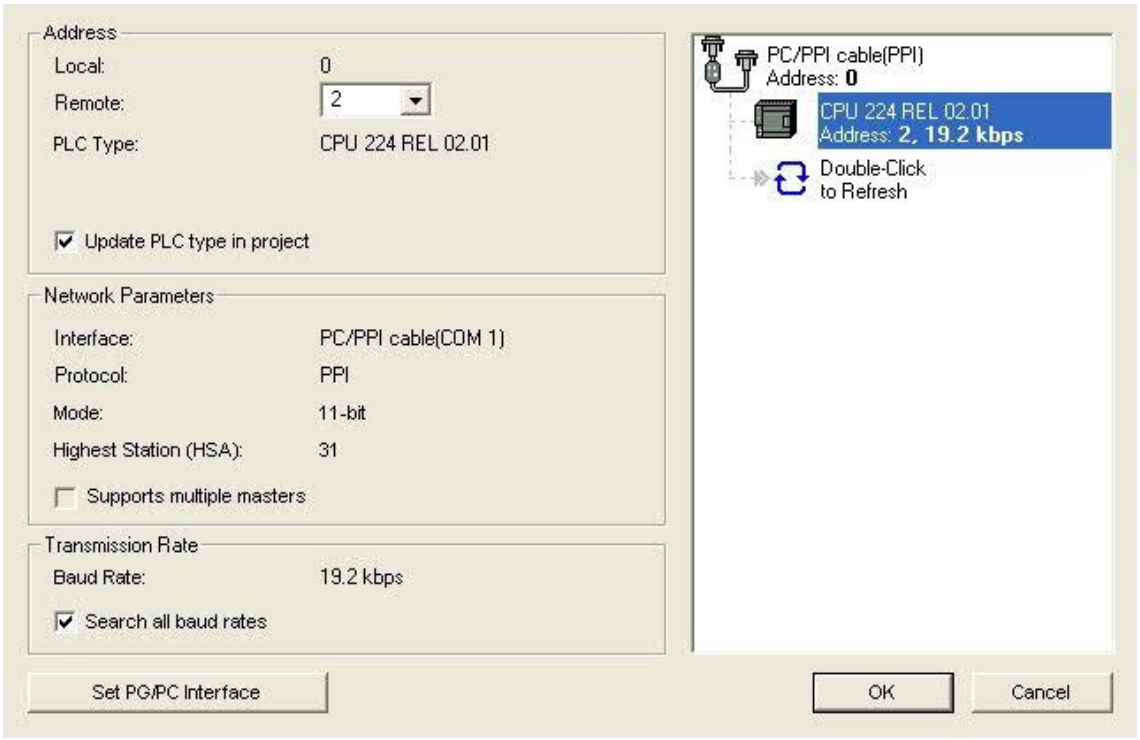
3. Click on „Communications...” to start the next dialog.

In the sector „Address” set up the „Remote” listbox with the station address of the PLC (e.g. „2”).

If you skipped the point b („ PD/PC-set interface“) you can configure the PG/PC interface with a click on „Set PG/PC interface“.

4. In the right part of the dialog double click on the blue arrow symbol to test the communication with the PLC.

5. The sector „Address“ should be updated and displays the „PLC Type”. Also the CPU of the PLC is displayed in the right part of the dialog.



6. Confirm with „OK“ until you get back to the main window.

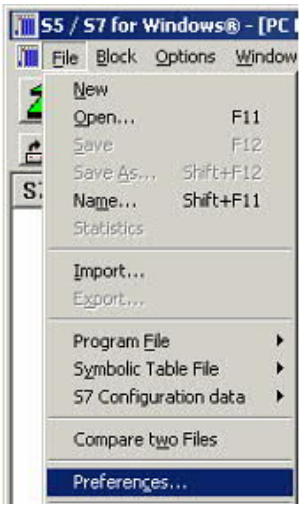
The communication with the PLC ist now established.

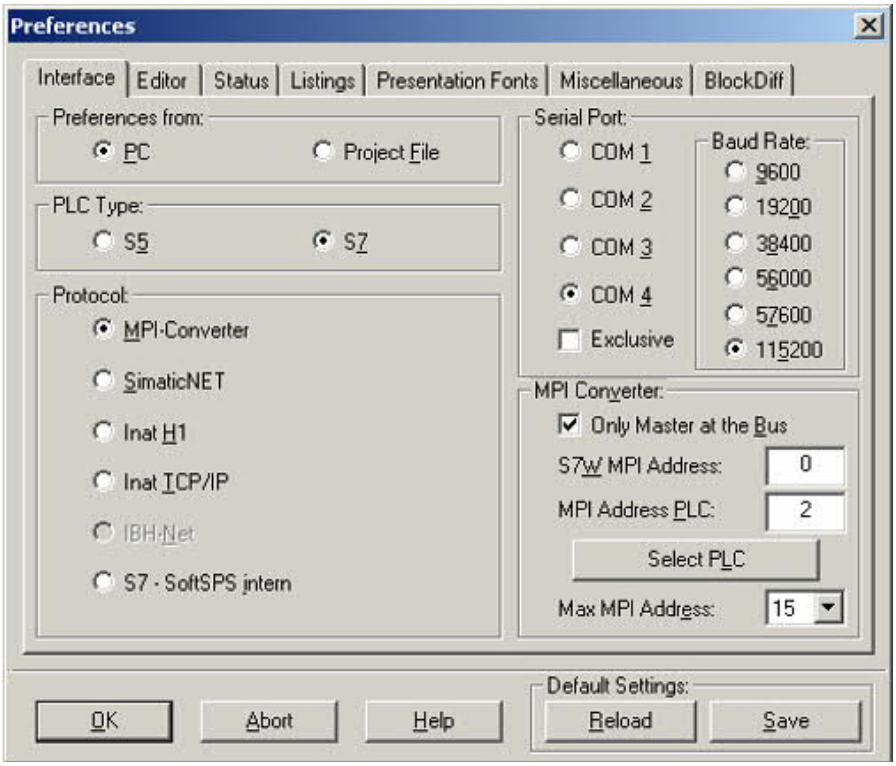
6.4.8 S7 for Windows v5.02

1. Start the „S7 for Windows” software by using the link on your desktop or use the link in your start menu (standard is „Programs\S7 for Windows\S7 for Windows“)

2. Choose File - >Preferences... to configure the communication configuration between the computer and the PLC.

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





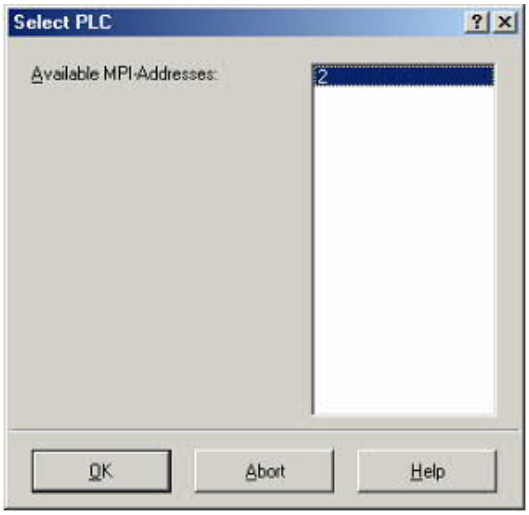
3. Choose the first registry card „Interface“ (standard) and set up the configuration data as descriped below:

=> Area: „Preferences from:“ =>PC
=> Area: „PLC Type:“ => S7
=> Area: „Protocol:“ => MPI - Umsetzer
=> 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 been seen (e.g. if there is only one PLC in your bus „15“ is more than enough).

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



5. The dialog displays all the PLCs that can be found in your MPI bus.

Select the desired one and confirm with „OK”.

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. 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).

The communication between the software and your PLC is established.

7 Configuration

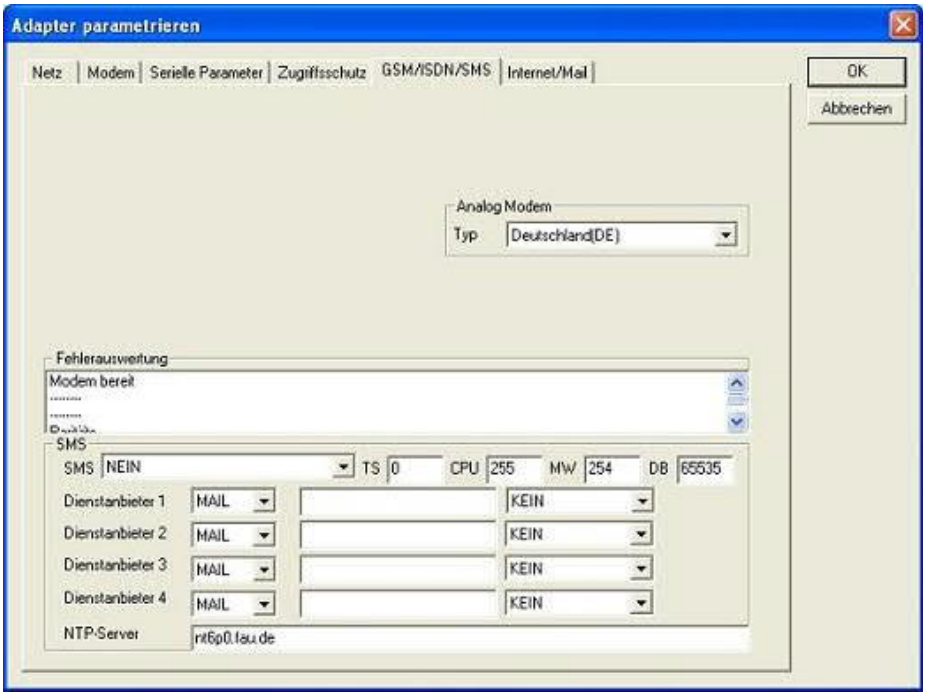
7.1 SMS + DTMF processing

7.1.1 Settings in the cable manager

1. Start the MPI cable manager and select the COM port to which is connected to your product.

2. Click on the tab "Teleservice", "Check Adapter" and then "Parameterize Adapter".

3.Select in the menu "Parameterize adapter" the tab "GSM / ISDN / SMS".



SMS:

Processing / only send / only reception / reception and transmission / DTMF / Send DTMF + / reception + DTMF / reception + + Send DTMF

Warning: check previously the parameterization, after activating it is going to the MPI bus and the specified PLC will be addressed
SMS reception only with TELESERVICE GSM
DTMF reception only with TELESERVICE GSM

TS:

Local Station Address (may not already exists in the MPI / Profibus!)

CPU:

From this station number, the memory word and the data block are read for communication

MW:

Communication flag word (in the first byte is the command, in the second the status). Always use straight operand address.

DB:

communication data block.

Service Provider 1/2/3/4:

Here are configured the SMS providers, including the type, number and coding. In the data block of the PLC this is encoded DBB0.

1 B#16#00
2 B#16#01
3 B#16#02
4 B#16#03

Type:

There are possible the following service provider types
- NONE, the service provider is not defined
- TAP, the service provider uses the TAP protocol (eg: D1, E +)
- UCP, the service provider uses the UCP protocol (eg: D2)
- GSM, the service provider will be contacted directly by phone.
Adjust NO character encoding. (only possible with TeleService GSM!)
In this case to query the required SMSC number, use the button "SMSC" on the right side of the Teleservice device.

phone number

of the service provider, up to 20 digits, possibly country code is needed (eg: 0049 1771167)

character encoding:

The following codes are possible:
- NO for GSM.
- Special characters, by special characters can be used umlauts.
- GSM7BIT, via escape sequences can be used umlauts.

Please note that the protocol is related to the character encoding.

7.1.2 PLC configuration for general SMS dispatch

After you configure the SMS / DTMF operation with the MPI cable Manager software, the specified PLC can send a SMS, receive, or accept a voice call to receive a receipt via DTMF. Therefore is needed a flag word and a data block.

The flag word should be located at an even address.

Example: MW 254 is the communication flag word

In the MB 254 is then the command byte which knows the following values:

value	meaning
00h	Last orders have been processed, no further job
01h	SMS sending started
02h	SMS reception started (only TS GSM!)
10h	Release DTMF reception for a call, should a call have been received, the normal data operation is activated again (not at TS ISDN!)
20h	Turn off DTMF receiving then SMS can be sent / received again.

To activate a job, in the status byte must be in the command byte a 00h and a 01h or 02h. In our example, an SMS will be sent when:

L W#16#0100
T MW 254

From teleservice then is the flag word read every 5 seconds, and if necessary the data block (here DB255)is read and interpreted.

After the job is finished the command byte is written again to 00h. In the status byte is the result. The reception of an SMS has a higher priority than sending an SMS. This means that if the flag word contains 0300h, only the reception is processed.

At DTMF reception, the modem is set to voice operation, and remains in operation until either a voice call is made and is then hanged up again or via MW 254, the command "20h = DTMF reception turn off" is triggered. For that also the status byte must be set to 00h!

In the MB 255 is the status byte. This knows the following values:

value	meaning
00h	Order has not been recognized by the teleservice
10h	SMS transmission has been detected and is still running
11h	The data block does not exist in the PLC or is too small
12h	Telephone number definition in the data block is incorrect or empty
13h	SMS text definition is incorrect or empty
14h	SMS reception from PLC is desired, enable missing
15h	SMS sending from PLC is desired, enable missing
20h	The in the data block specified provider number is not in the range 0-3
21h	Provider type is not defined
22h	Telephone number of the provider is empty or greater than 20 characters
23h	Provider does not respond or takes off, but no connect
24h	"Call center provider for GSM transmission" is adjusted
25h	Teleservice has an analog or ISDN modem, the GSM type is not possible.
2Fh	Provider is just being called
40h	Provider is busy or has hung
41h	Our modem currently in use
60h	Connection to the provider is built up
70h	Provider will be checked
71h	Provider type is unknown
72h	Timeout has expired at communication with providers
73h	Provider returns error message back
74h	Provider call center could not be adjusted
75h	Target telephone number was sent, waiting for messages-start
76h	SMS message could not be sent.
80h	Message has been sent successfully
81h	SMS reception, timeout expired
82h	SMS is currently being read
83h	Read SMS, timeout expired
84h	Read SMS telephone number, timeout expired
85h	SMS Telephone number is read
86h	Read SMS telephone number, timeout expired
87h	Read SMS date / time, timeout expired
88h	SMS date / time is being read
89h	SMS date / time will be read

8Ah	Read SMS telephone number, timeout expired
8Bh	Type in the SMS data into Data Block
8Ch	Errors when "Write SMS data in data block"
8Dh	SMS is deleted from the SIM card
8Eh	SMS could not be deleted
8Fh	Wait until message completely
90h	SMS has been received and entered into DB
91h	No SMS received
A0h	DTMF reception ready
A1h	Initialization of DTMF faulty (e.g.: TS ISDN!)
A2h	Waiting for Call
A3h	Timeout while waiting for call * 2
A4h	Call detected, user type in now a DTMF
A5h	Call ended by the user or timeout * 2
A6h	Hang up faulty
A7h	Data module could not be written with DTMF data
B0h	GPRS Time finished * 1
B1h	GPRS set APN server * 1
B2h	GPRS set APN user *1
B3h	GPRS set APN password * 1
B4h	Register GPRS * 1
B5h	GPRS PIN *1
B6h	GPRS set attributes * 1
B7h	connection start * 1
B8h	Set UDP port * 1
B9h	Set NTP server * 1
BAh	Open connection and send data * 1
BBh	Waiting for response NTP server * 1
BCh	Receive data, calculate time *1
BDh	GPRS timeout occurred * 1
C0h	Cancel / end call at DTMF reception

*1 not implemented yet
*2 From Teleservice V1.39 obsolete

The communication data block has the following format:

Adresse	Name	Typ	Anfangswert	Kommentar
0.0		STRUCT		
+0.0	Dienstnummer	BYTE	B#16#2	Provider-Nummer 0-3 (SMS-Konfiguration im MPI-Kabelmanager)
+1.0	Reserve	BYTE	B#16#0	Reserviert
+2.0	Telefonnummer	STRING[20]	'0177xxxxxxx'	Handy-Telefonnummer an die die SMS verschickt werden soll
+24.0	TelEnde	BYTE	B#16#0	Endekennung MUSS 0 sein !
+25.0	Reserve1	BYTE	B#16#0	Reserviert
+26.0	Meldung	STRING[160]	'Versuch 2 : öäüÖÄÜß+*-'	Nachricht die gesendet werden soll
+188.0	MeldEnde	BYTE	B#16#0	Endekennung MUSS 0 sein !
+189.0	Reserve3	BYTE	B#16#0	Reserviert
+190.0	Reserve2	ARRAY[0..1]	B#16#0	Reserviert für spätere Erweiterungen
*1.0		BYTE		
+192.0	Stunden	BYTE	B#16#0	Absendezeit Stunden
+193.0	Minuten	BYTE	B#16#0	Absendezeit Minuten
+194.0	Sekunden	BYTE	B#16#0	Absendezeit Sekunden
+195.0	TimeZone	BYTE	B#16#0	Zeitzone in Viertelstunden (Bsp:8 => 8*15Min = 2h)
+196.0	Tag	BYTE	B#16#0	Absendedatum Tag
+197.0	Monat	BYTE	B#16#0	Absendedatum Monat
+198.0	Jahr	BYTE	B#16#0	Absendedatum Jahr
+199.0	Nummer	BYTE	B#16#0	Nummer der SMS auf der SIM-Karte
+200.0	EmpfTelefonnummer	STRING[20]	''	Absendetelefonnummer
+222.0	EmpfTelEnde	BYTE	B#16#0	Endekennung MUSS 0 sein !
+223.0	Reserve4	BYTE	B#16#0	Reserviert
+224.0	EmpfMeldun	STRING[160]	''	empfangener Nachrichtentext bis zu 160 Zeichen
+386.0	EmpfMeldEnde	BYTE	B#16#0	Endekennung MUSS 0 sein !
*388.0		END_STRUCT		

adress	data type	description
000	BYTE	Provide number 0-3
001	BYTE	reserved
002	String[20]	Mobile phone number that should receive the SMS (max 20 characters)
024	BYTE	End identification phone number (must be 00h)
025	BYTE	reserved
026	String[160]	SMS text, at special characters the data length is less than 160 characters, it is then cut off.
188	BYTE	End identification SMS text (must be 00h)
189	BYTE	reserved
190	BYTE	reserved
191	BYTE	reserved
192	BYTE	hours (00-24)
193	BYTE	minutes (00-59)
194	BYTE	seconds (00-59)
195	BYTE	Time zone (unit quarter hours)
196	BYTE	day (01-31)
197	BYTE	month (01-12)
198	BYTE	year (00-99, e.g.:06 = 2006)
199	BYTE	Number in the SIM card flag
200	String[20]	Phone number that sent the SMS (max 20 characters)
222	BYTE	End identification phone number (must be 00h)
223	BYTE	reserved
224	String[160]	Received SMS text
225	BYTE	End identification phone number (must be 00h)

The data bytes 0 to 191 are only read, the data bytes 192 to 225 are written by the tele-service.

In Germany, the following numbers of the providers at the moment are up to date, however this could change:

network	phone number	type	coding
D1	01712521001	TAP	special character
D1	01712521002	TAP	special character
D2	01722278000 (ISDN)	UCP	GSM 7 Bit
D2	01722278010 (ISDN)	UCP	GSM 7 Bit
D2	01722278020	UCP	GSM 7 Bit
D2	01722278025	UCP	GSM 7 Bit
E+	01771167	TAP	GSM 7 Bit
E+ *	01770610000	GSM	NO

* only Teleservice GSM

COUNTRY	PROVIDER	SMSC CALL NUMBER	ISDN	MODEM	PROTOCOL
Australia	Telstra	+61 18 018767		7E1	TAP,mnmail
Austria	A1	+43 900 664914		7E1	TAP
Austria	AirPage	+43 688 3232111		7E1	TAP
Belgium	Mobistar	+32 495 955205		8N1	UCP-01
Belgium	Proximus	+32 075 161622		8N1	UCP-01
Denmark	Tele Danmark	+45 4362 5250		8N1	UCP
Finland	Sonera	+358 20 9801		8N1	UCP-01
Germany	T-Mobile	+49 171 2521001	x75	8N1	TAP,PG1
Germany	E-Plus	+49 177 1167	x75	8N1	TAP,PG1
Germany	O2	+49 1090 0179 7673425		8N1	TAP
Germany	Vodafone	+49 172 2278000		8N1	UCP
Germany	Vodafone	+49 172 2278010	x75		UCP
Germany	AnnyWay	+49 90032669005	x75		UCP
Ireland	Eircell	+353 1 2607000		8N1	TAP,PG1
Ireland	Esat Digifone	+353 86 8525352		8N1	TAP
Netherlands	KPN	+31 653 141414	x75		UCP
Norway	Telenor	+47 900 02198		8N1	UCP-01

Portugal	Telecell	+351 91 1449		8N1	UCP
Portugal	TMN	+351 96 2113		8N1	UCP-01
Spain	Movistar	+34 609 001058		8N1	UCP
Sweden	Telia Price 1	+46 740 930000		8N1	UCP
Sweden	Telia Price 2	+46 740 930100		7E1	UCP-01
Sweden	Telia Price 3	+46 740 930200		8N1	UCP
Switzerland	Swisscom	+41 900 900941	x75		UCP
Switzerland	NatelD	+41 79 4998990		8N1	UCP
UK	BT Paging	+44 345 581354		7E1	TAP
UK	Vodafone	+44 385 499993		8N1	TAP
UK	Cellnet	+44 860 980480		8N1	UCP
UK	Cellnet	+44 860 980480		8N1	TAP
UK	Hutchison	+44 941 100400		7E1	TAP
UK	one2one	+44 958 879889		7E1	TAP
UK	Orange	+44 973 100601			TAP

See also in chapter SMSC.

Please note that lately the provider send SMS only to their own networks (Exception type GSM). To send SMS anyway to any desired recipient, there are paid offers, which can then read a SMS messages also on landline phones.

network	phone number	type	coding
Materna	090032669002	UCP	GSM 7Bit

Warning: With this incurred additional to the normal telephone charges further costs!

(at the moment SMS on mobile / landline as language 17ct)

More information under www.sms-in-festnetz.de

7.1.3 Example Configuration

Principle there are 2 ways to send an SMS. At the first the Teleservice device dials in at a central call-in number and passes the headquarters a SMS job. At the second via the GSM modem itself, a SMS is sent via the SMSC (similar to a text message is sent by the mobile phone). The following variants have to be registered with the MPI cable manager into the Tele-Service.

7.1.3.1 Variant 1 for Tele-service analog, ISDN and GSM

Please note that some providers transmit a text message only to its own network, i.e. Vodafone will not transmit a text message to a mobile phone with Eplus number.

SMS: "Send only" or "send and receive" (GSM only).

TS:	Free local station address
CPU:	MPI address of the controller that controls the SMS sending / receiving
MW:	Flag word in the PLC that controls the SMS sending / receiving
DB:	Data block in the PLC that contains the send / receive data
Type:	UCP
Phone number	01722278020 (Vodafon,D1)
Character code	GSM 7bit

7.1.3.2 Variant 2 only for Tele-service GSM

For this must be known the SMSC number on the SIM card (can also be read and automatically entered via MPI cable manager)

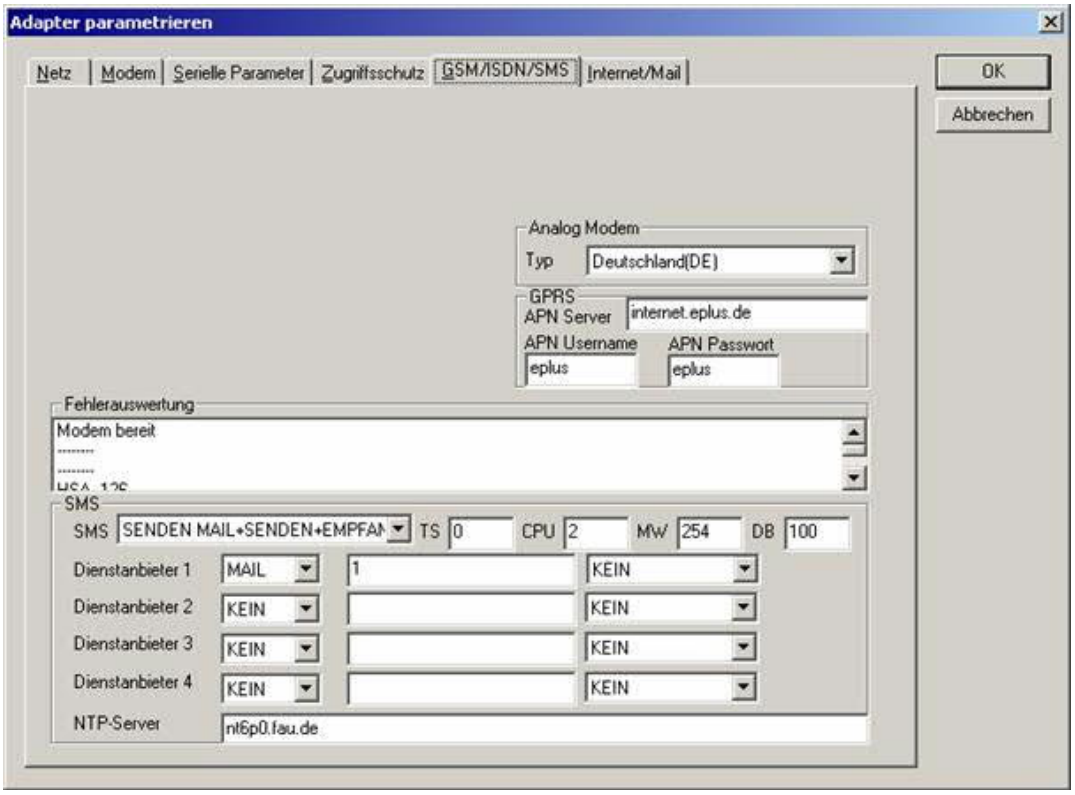
SMS:	"Send only" or "send and receive" (GSM only).
TS:	Free local station address
CPU:	MPI address of the controller that controls the SMS sending / receiving
MW:	Flag word in the PLC that controls the SMS sending / receiving
DB:	Data block in the PLC that contains the send / receive data
Type:	GSM
Phone number	+491770610000 (SMSC Eplus)
Character code	none

7.2 Sending of E-Mails

To send E-Mail with the TeleService Device the following pre-cautions must met:

- Operating system of TeleService is at least V1.48
- Cable-manager at least V3.23
- access on Internet by Phone-Call, Protocol PPP
- accessible EMail-Server in the Internet, Authentification with AUTH-LOGIN

7.2.1 Properties in the Cable-manager

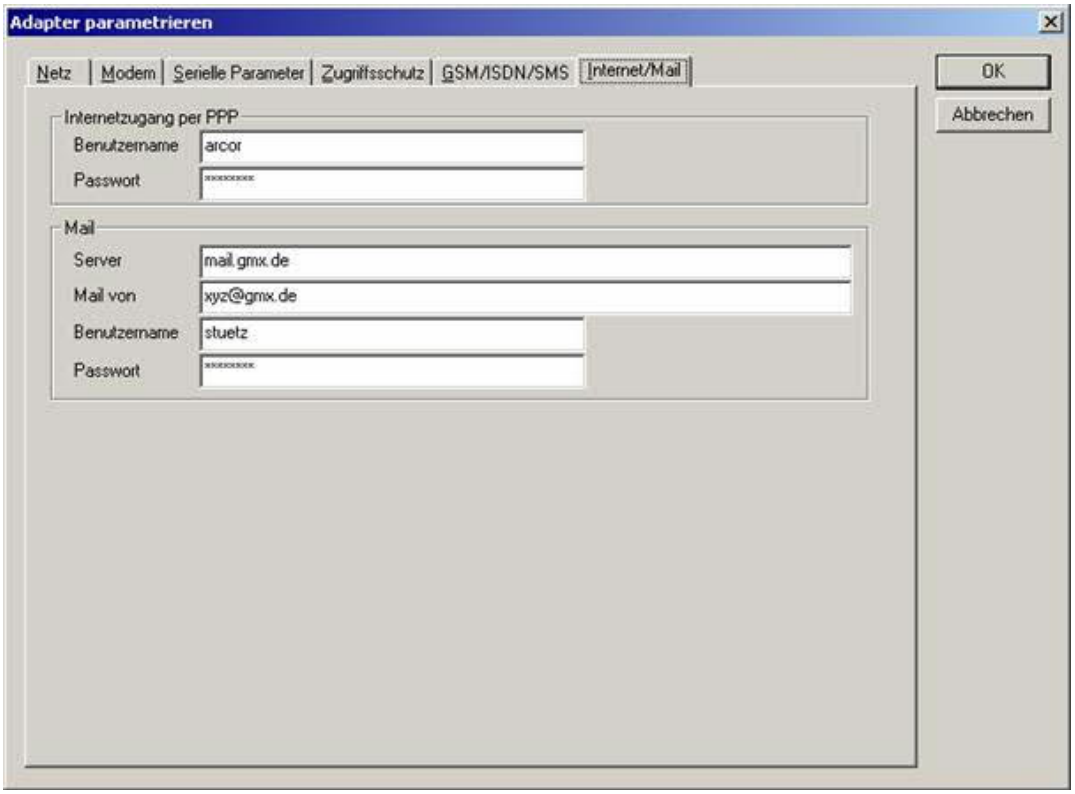


SMS:	additionally to the Receiving/sending of SMS and DTMF-processing, the Type "SENDEN MAIL" is usable.

Attention: check Parameter before activation. After activation the Device is trying to connect to MPI-Bus and station address.

TS:	local station-address (should not be used twice in the MPI/Profibus!)
PLC:	from this station-address the Flagword and Data-block is accessed for communication
MW:	communication-flagword (the first byte is the command, the second is the state). Use even operand-addresses.
DB:	communication-data-block.
Provider 1/2/3/4	Configure the Internet-Provider to use, Protocol PPP is needed. In the data-block of the PLC the coding is DBB0. 1 B#16#00 2 B#16#01 3 B#16#02 4 B#16#03
Type:	use the type "MAIL" to send E-Mails over Internet by Call and E-Mail-server
Phone-number	of the Internet-Provider, up to 20 Chars, eventually you need the Country-Code-Prefix (f.e.:0049)
Charset	use "NONE" for GSM or EMAIL

7.2.2 Configure Internet / E-Mail-Server



After a call to the Internet-Provider, the connection is configured by PPP, eventually a *Username* and *Password* is needed, define them in "access to Internet by PPP"

Attention: This is **NOT** the Username and Password of your E-Mail-account!

In the next section "Mail" the E-Mail-account is defined:

Server:	Name of the Email-Servers, which is iused to send the EMail.
Mail from:	Source-EMail-Addresse (should be from the same Free-mailer, instead a delivery is mostly not possible)
Username	Name of the User-account (mostly the EMail-address or Customer-number)
Password:	Password for the EMail-Account

7.2.3 Configuration in the PLC

After configuration of the MAIL-Mode with the MPI-Cablemanager Application, the connected PLC could then send a MAIL. A flag-word and a data-block is needed in the PLC.

The Flag-word should be at an even operand-address.

Ex.: FW 254 is the communication-flag-word

the command is written to FY 254, there are the following values possible:

Value	Description
00h	Last offer is done or no offer is running
01h	SMS-Send is started
02h	SMS-Receive is started (only TS GSM!)
10h	DTMF-Receive is possible for one call, if a call was made the normal data-mode is entered again (not with TS ISDN!)
20h	Disable DTMF-Receive, a normal SMS-Send/Receive is then again possible
40h	Start sending the E-Mail

To start an offer the State-byte must be 00h and in the command-byte a 40h, in our example we start a EMAIL-offer with:

L W#16#4000
T MW 254

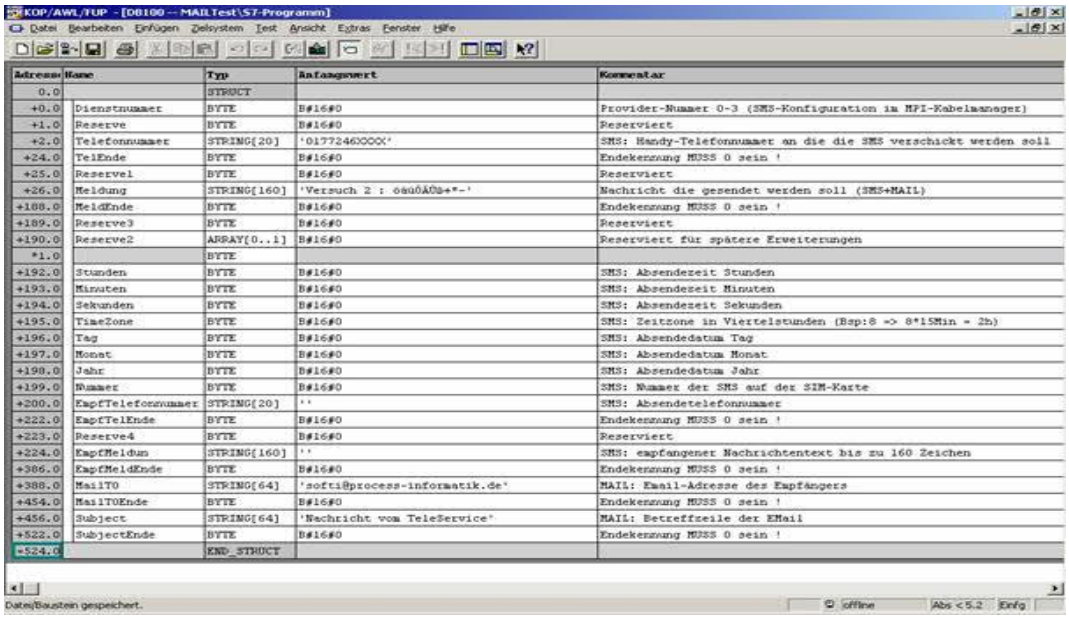
In the TeleService the flag-word is read every 5 Seconds, and if needed the data-block (DB255).

At end of the offer, the command-byte is written with 00h, in the state-byte is then the result-code.

The state-byte (FY 255) could have the following additionally used values
(look also into Chapter „SPS configuration for SMS-sending“

Value	Description
16h	Destination – E-Mail - Address wrong/empty
17h	Subject-line wrong/empty
D0h	No connect to PPP-Server
D1h	No DNS possible
D2h	Error when sending the message

The communication-data-block has the following structure:



Off	data-type	Description
000	BYTE	Provider-Number 0-3
001	BYTE	Reserved
002	String[20]	Handy-phone-number which should get the SMS (max 20 Chars)
024	BYTE	End of phone-number (must be 00h)
025	BYTE	Reserved
026	String[160]	*EMAIL-Message*
188	BYTE	End of EMAIL-Message (must be 00h)
189	BYTE	Reserved
190	BYTE	Reserved

191	BYTE	Reserved
192	BYTE	Hour (00-24)
193	BYTE	Minutes (00-59)
194	BYTE	Seconds (00-59)
195	BYTE	Timezone (Quarter Elements)
196	BYTE	Day of month (01-31)
197	BYTE	Month (01-12)
198	BYTE	Year (00-99,Ex:06 = 2006)
199	BYTE	Number in SIM-Card Memory
200	String[20]	Phone-number which sent the SMS (max 20 Chars)
222	BYTE	End of phone-number (must be 00h)
223	BYTE	Reserved
224	String[160]	Received SMS-Message
386	BYTE	*End of SMS-Message (must be 00h)*
388	String[64]	*Destination E-Mailaddress of Reciever*
454	BYTE	*End of E-Mailaddress (must be 00h)*
456	String[64]	*Subject-line in the EMAIL*
522	BYTE	*End of Subject-line (must be 00h)*

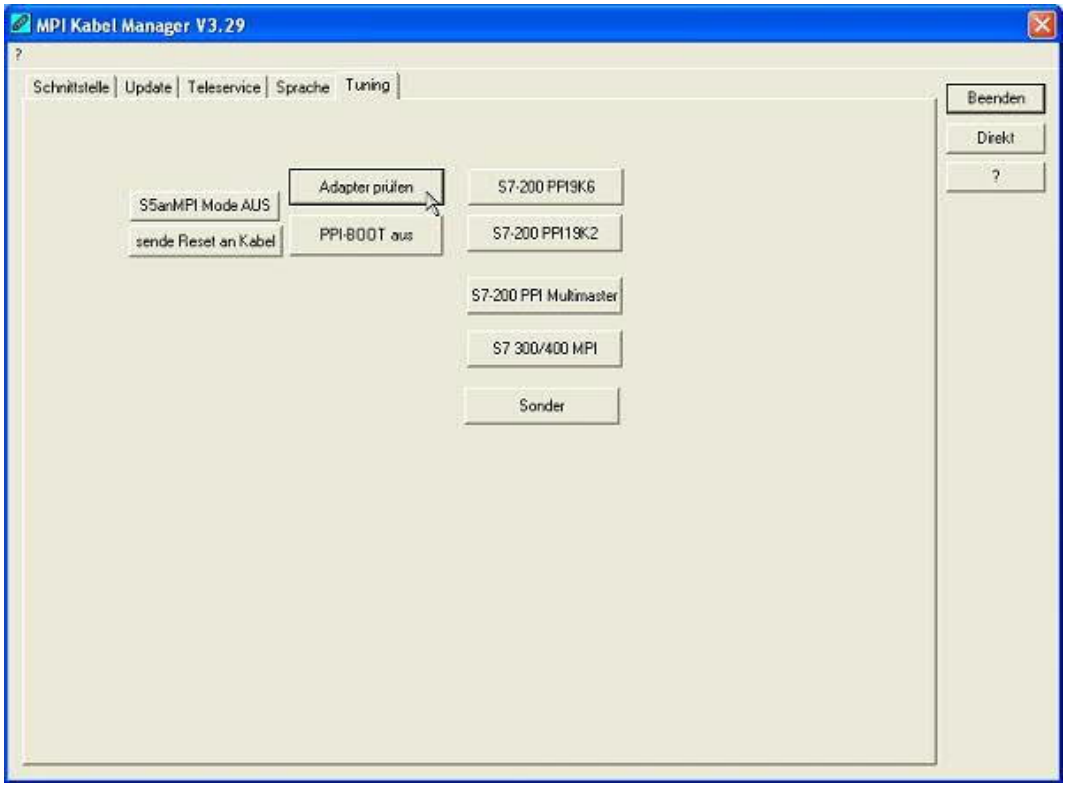
The data-bytes 0 to 191 and 388 ro 522 are read, the data-bytes 192 to 225 are written from TELESERVICE. The lines written in *cursive* Typefont are needed for sending the EMail.

7.3 S7-22X via modem line

Example: Teleservice / MPI modem to an S7-22X via modem line

Start the MPI cable manager, then select the tab "Tuning"

7.3.1 Settings in the cable manager



Click the button "Check Adapter". It appears a dialog in which is adjusted the connection type.

In our case this will be a connection via modem.

Select the button "modem" for a connection via modem, "direct" when the teleservice via USB or the teleservice / MPI-Modem is connected via a serial interface.

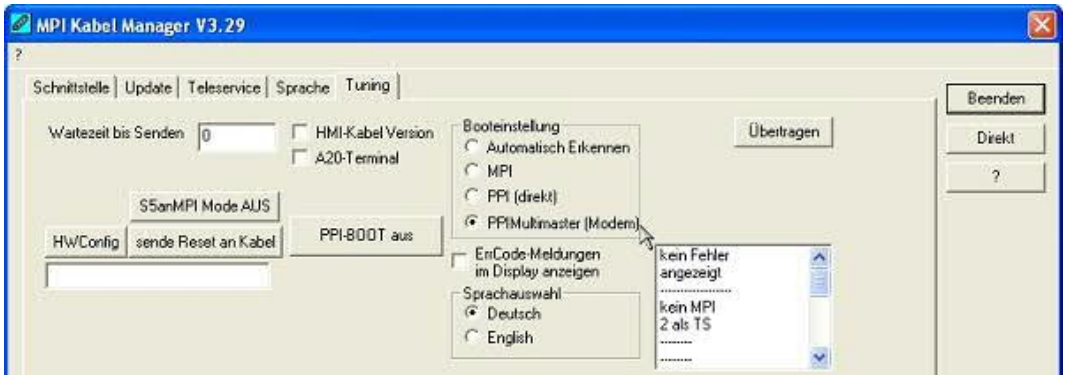
It appears a selection dialog in which is executed the call to the remote service / MPI-Modem.

Select the appropriate modem and enter the telephone number.

Then press the control button "OK" to start the call.

Then appears a message window:

Once the connection is established it appears the following dialog:



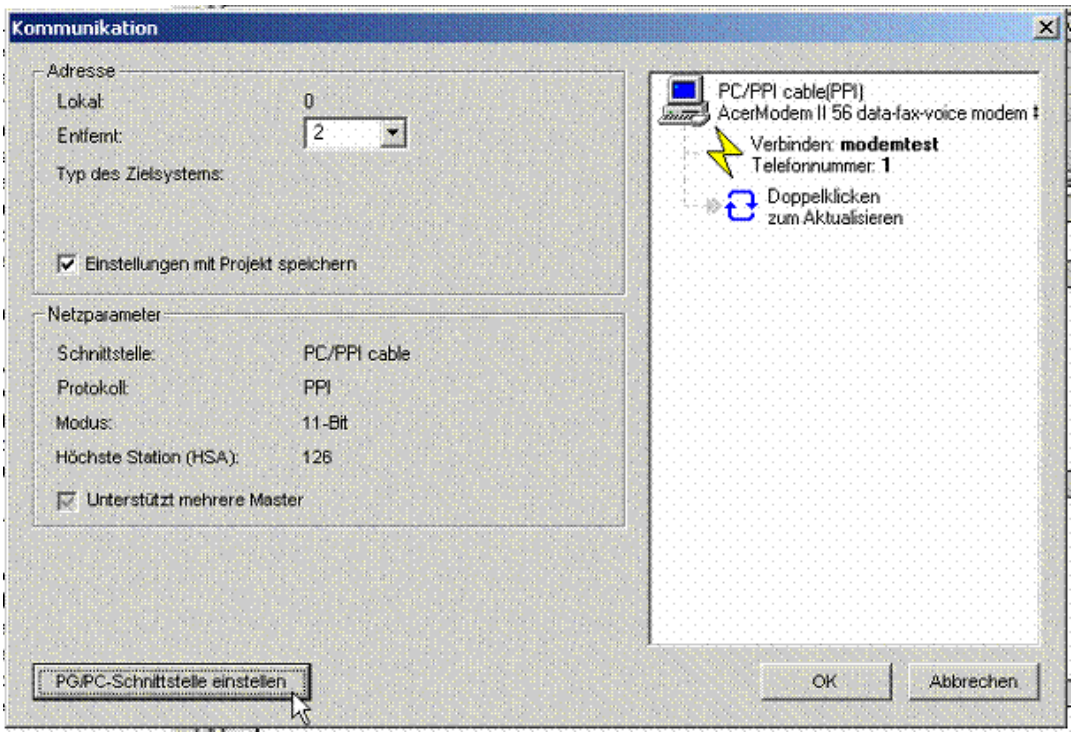
Select under the "Boot Settings", the entry "PPIMultimaster (modem)". Then press the control button "Transfer".

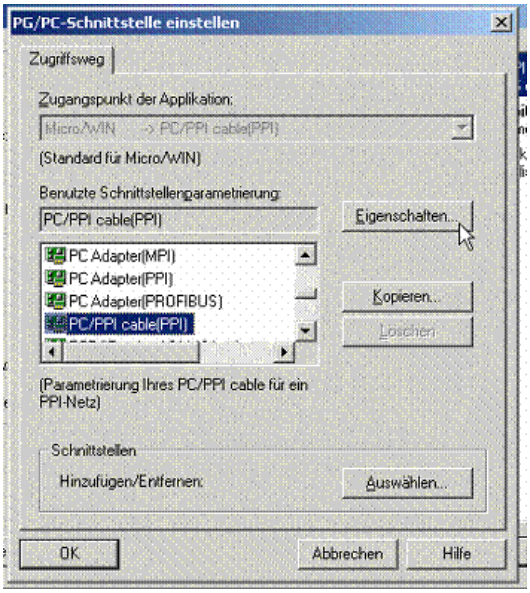
Then close the MPI cable manager, the connection will end automatically.

7.3.2 Settings in the MicroWin Software V4.0

Start the MicroWin software V4.0 and select the communication settings

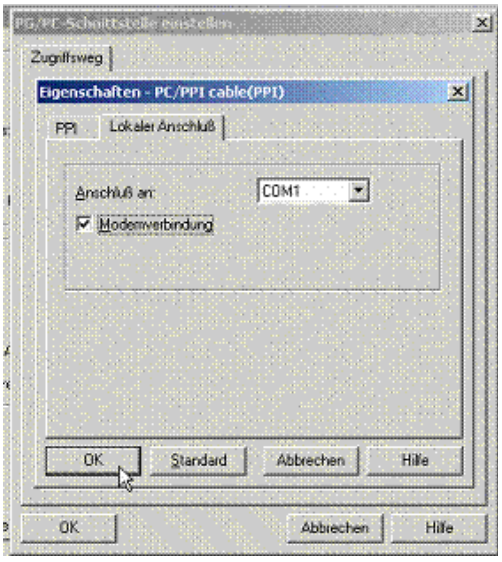
The following dialog appears:





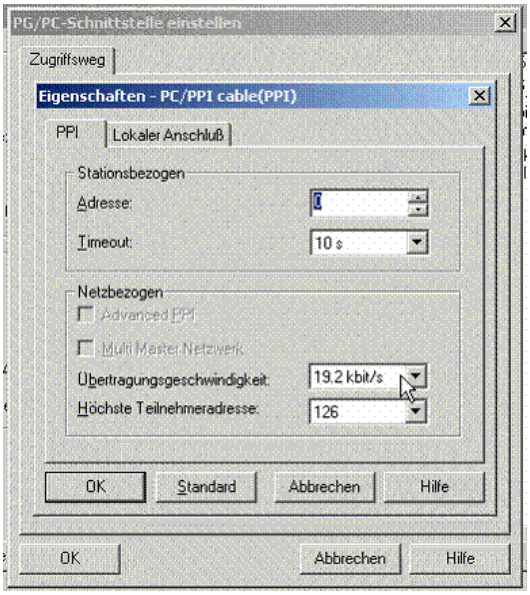
With a click on "Set PG / PC Interface" appears a driver selection dialog.

Select "PC / PPI cable (PPI)" and click on "Properties".

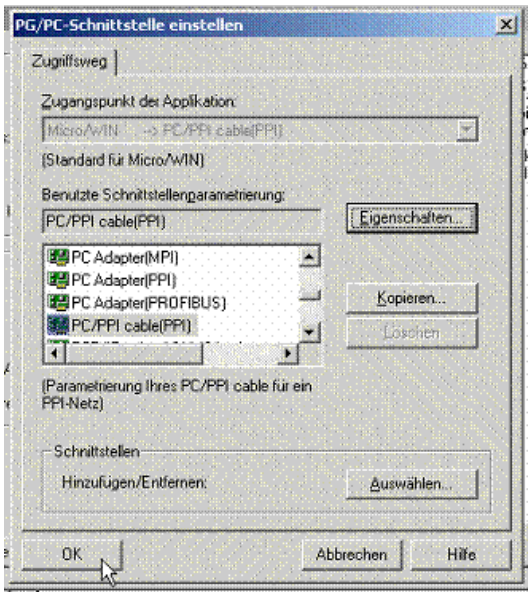


At first select the tab "Local Connection".

Adjust the COM port of the modem and place a checkmark at "modem".

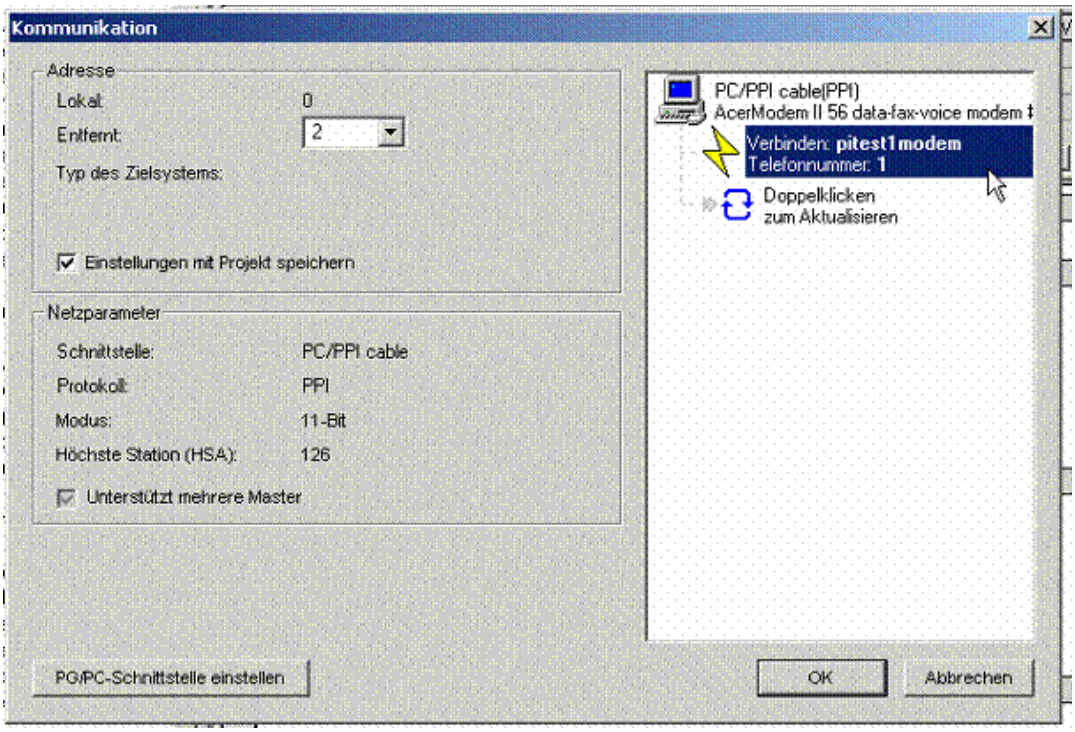


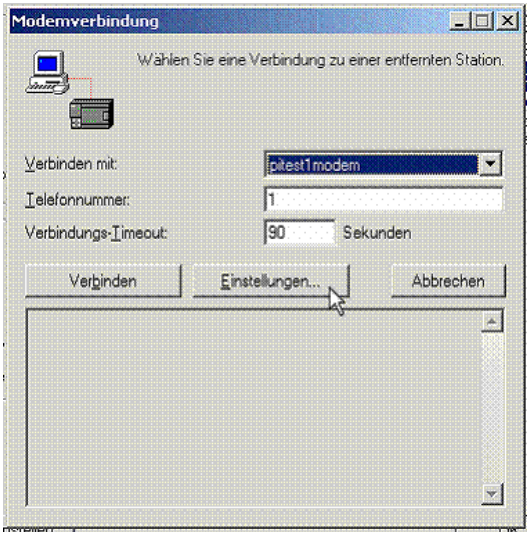
Check under the tab "PPI" the PPI baud rate once again (transmission speed)



Confirm these and the following dialog with OK.

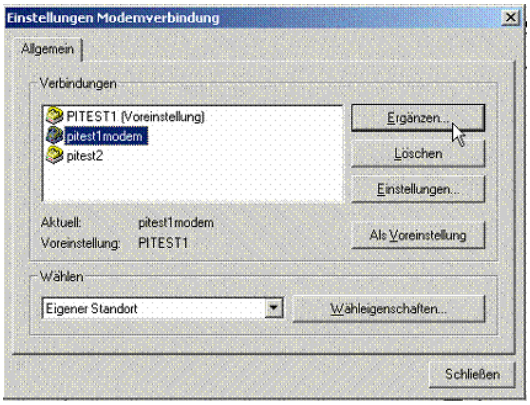
Then the following display is to view on the screen.





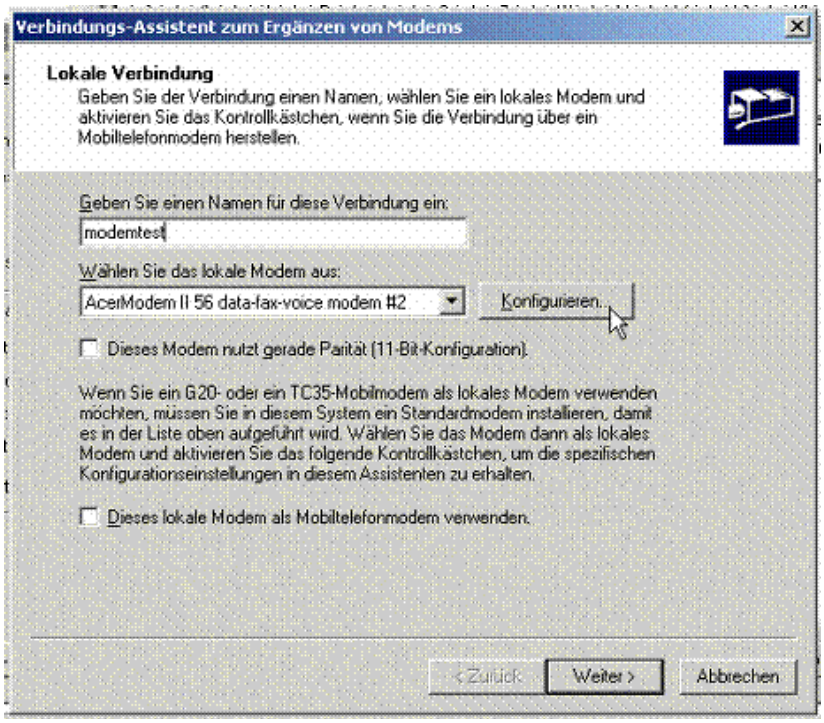
After a double click on "Connect", it appears the following dialog.

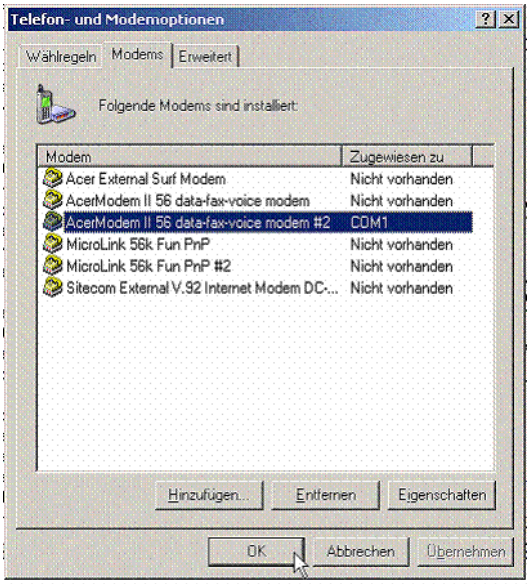
Select "Settings" to create a new modem.



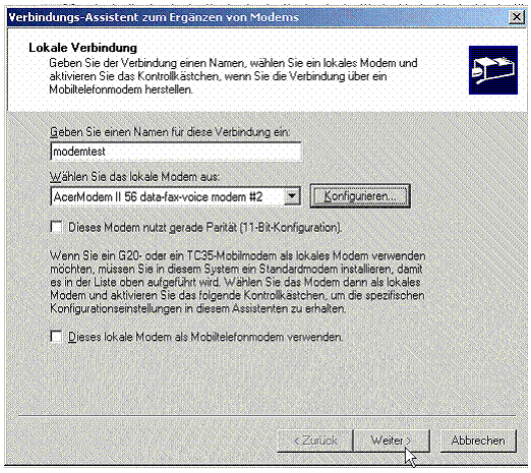
Select "supplement" and a new dialog will be open.

In this you enter a meaningful name and press the control button "Configure".

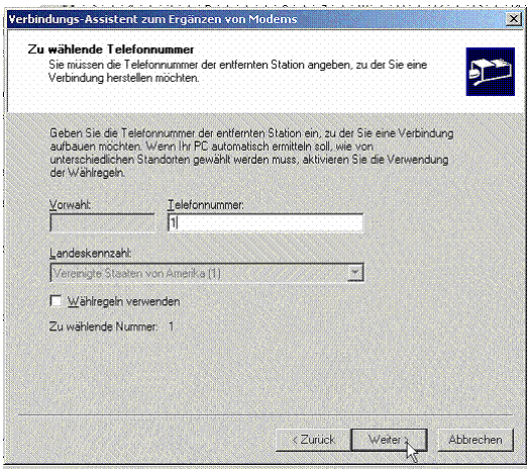




Then select the modem with the appropriate interface in the following dialog and confirm this with´ "OK".

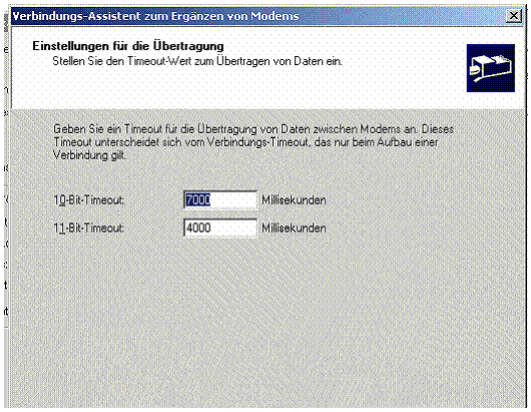


Confirm this configuration with "Next".



Enter the phone number which should be called.

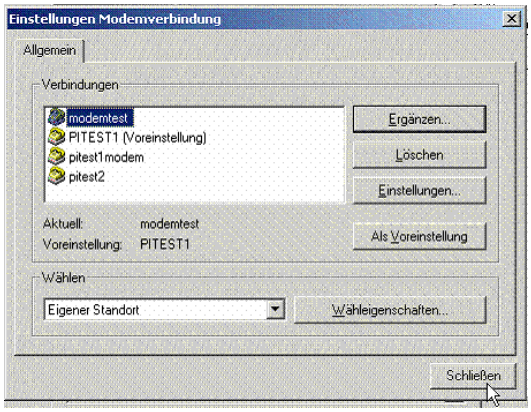
Then confirm with "Next".



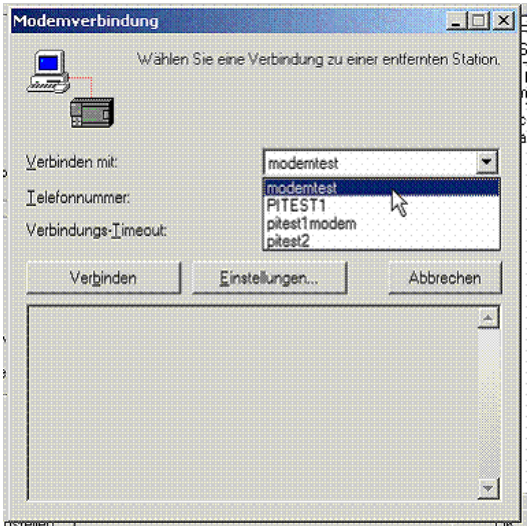
Here you define the timeout times.

Confirm with "Next".

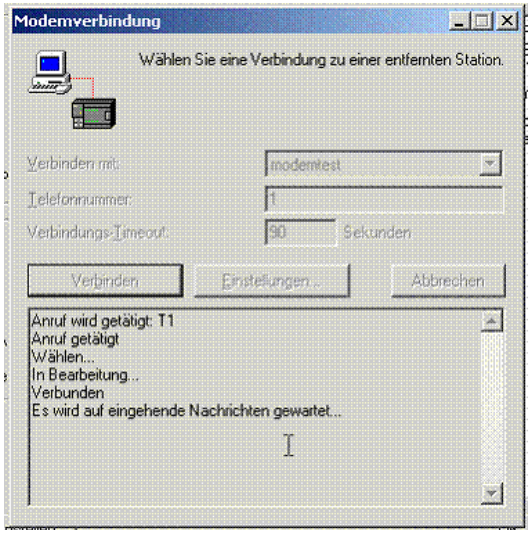
It appears a summary.
Confirm with "Finish".



Now select the newly defined entry and click "Close":

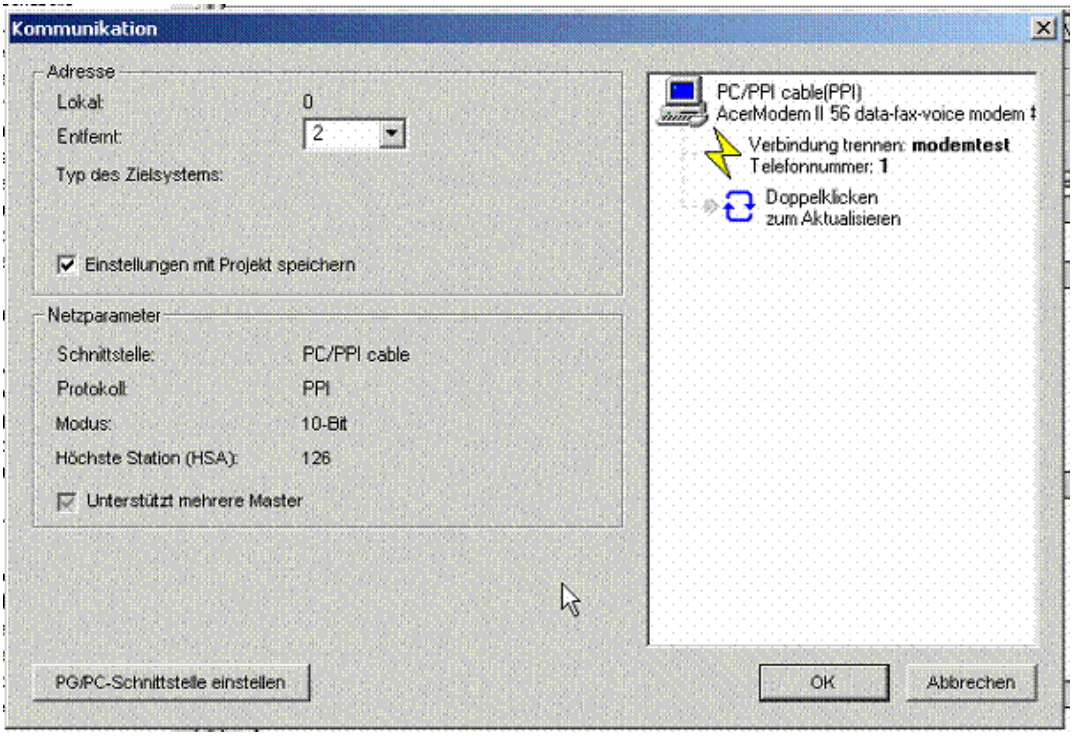


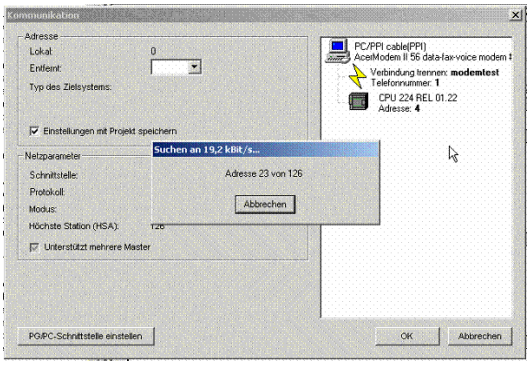
Select the new modem and confirm with "Connect".



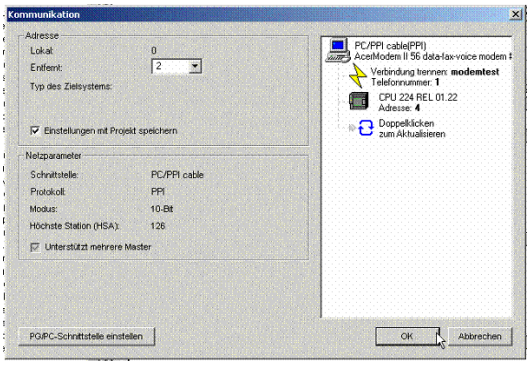
It will now be established a connection.

After a short while the connection is established:





With a double click the CPU can now be searched via the existing modem connection.



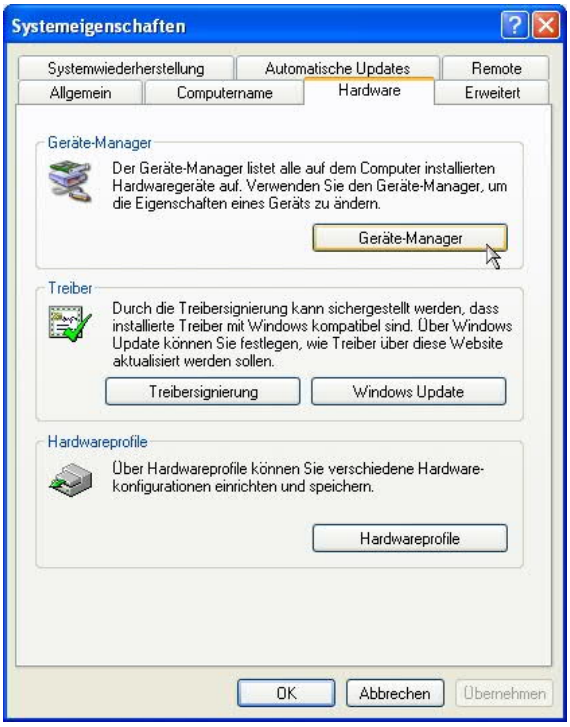
Then you can work with the found controls as usual.

To end the connection double-click "Disconnect" and then click "Disconnect" on the control button.

7.4 Pretend connection speed on the PC side

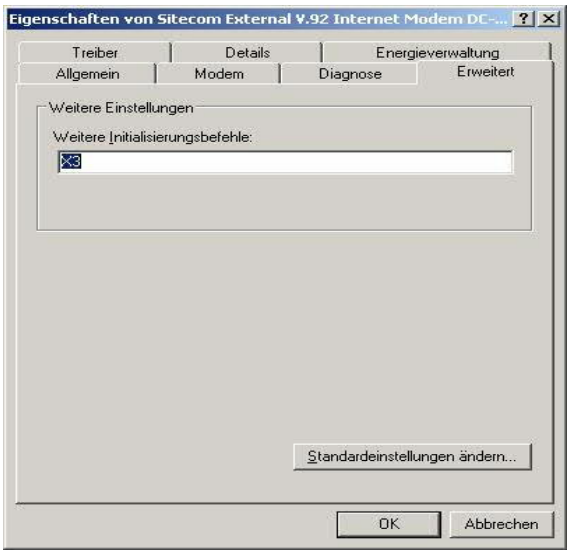
In order to pretend problems in the transmission or GSM connection (9600 baud), the modem speed on the PC side in the properties of the modem, must be specified a "AT". This depends of the connected modem.

Under „Start“ => "Control Panel" => click on the "System".



There click on the button "Device Manager" under the "Hardware" tab.

Open the subtree under "Modems" and call the "Properties" of the modem (right mouse button)



At the next screen there is an "Advanced" tab.

In said the additional commands can be entered without a preceding "AT"

Below are some settings for specific modems. This list does no claim to completeness, even for errors. If applicable read in the AT command to set of the modem or ask the manufacturer for it.

7.4.1 3Com/USR modems

&U<n>
lower connection speed

&N<n>
upper connection speed, when used alone (without & U) is connected only with this connection speed

<n> Modem type V.90

<n>	Bps	<n>	Bps
0	no limit	20	32000
1	300	21	33333
2	1200	22	34666
3	2400	23	36000
4	4800	24	37333
5	7200	25	38666
6	9600	26	40000
7	12000	27	41333
8	14400	28	42666
9	16800	29	44000
10	19200	30	45333
11	21600	31	46666
12	24000	32	48000
13	26400	33	49333
14	28800	34	50666
15	31200	35	52000
16	33600	36	53333
17	28000	37	54666
18	29333	38	56000
19	30666	39	57333

<n> Modem type V.90

<n>	Bps	<n>	Bps
0	no limit	17	33333
1	300	18	37333
2	1200	19	41333
3	2400	20	42666
4	4800	21	44000
5	7200	22	45333
6	9600	23	46666
7	12000	24	48000

8	14400	25	49333
9	16800	26	50666
10	19200	27	52000
11	21600	28	53333
12	24000	29	54666
13	26400	30	56000
14	28800	31	57333
15	31200	32	64000
16	33600		

7.4.2 ESS (Teledrive) modems

+MS=<mod>,<auto>,<min>,<max>

<mod> modulation

<mod>	**modulation**
0	V.21
1	V.22
2	V.22bis
9	V.32
10	V.32bis
11	V.34
17	V.90
64	Bell 103

<auto> automatic Mode

<auto>	**Description**
0	Note manual specification
1	The modems choose the settings themselves

<min> baud rate 300...57333bps
<max> baud rate 300...57333bps

7.4.3 PCTel based modems.

n0s37=<mod>
modulation type

s34=<n>
baud rate

<mod> modulation

<mod>	**modulation**
13	56Kflex
14	V.90

<n> Modem type V.90

<n>	Bps	<n>	Bps
0	28000	11	42666
1	29333	12	44000
2	30666	13	45333
3	32000	14	46666
4	33333	15	48000
5	34666	16	49333
6	36000	17	50666
7	37333	18	52000
8	38666	19	53333
9	40000	20	54666
10	41333	21	56000

<n> Modem type 56KFlex

<n>	Bps	<n>	Bps
0	32000	7	46000
1	34000	8	48000
2	36000	9	50000
3	38000	10	52000
4	40000	11	54000
5	42000	12	56000
6	44000		

7.4.4 TOPIC chipset modems.

*i<n>
maximum connection speed

<n> modem type V.34 and among them

<n>	Bps	<n>	Bps
0	1200	9	21600
1	2400	10	24000
2	4800	11	26400
3	7200	12	28800
4	9600	13	31200
5	12000	14	33600
6	14400	19	31200
7	16800	20	33600
8	19200		

<n> Modem type V.90

<n>	Bps	<n>	Bps
1	28000	12	42666
2	29333	13	44000
3	30666	14	45333
4	32000	15	46666
5	33333	16	48000
6	34666	17	49333
7	36000	18	50666
8	37333	19	52000
9	38666	20	53333
10	40000	21	54666
11	41333	22	56000

7.4.5 Broadcom BCM modem

S61=<maxtx>
maximum transmission speed

S37=<maxrx>
maximum reception speed

<maxtx> maximum transmission speed

<n>	Bps	<n>	Bps
0	automatic	13	41333
3	28000	14	42666
4	29333	15	44000
5	30666	16	45333
6	32000	17	46666
7	33333	18	48000
8	34666	19	49333
9	36000	20	51333
10	37333	21	52000
11	38666	22	53333
12	40000		

<maxrx> maximum reception speed

<n>	Bps	<n>	Bps
0	automatic	13	16800
1	300	14	19200
5	1200	15	21600
6	2400	16	24000

8	4800	17	26400
9	9600	18	28800
10	12000	19	31200
11	14400	20	33600
12	7200		

7.4.6 Lucent / Agere based modems.

+MS=<mod>,<auto>,0,<up>,0,<down>

<mod> modulation

<mod>	**modulation**
V21	V.21
V22	V.22
V22B	V.22bis
V23	V.23
V32B	V.32bis
V34	V.34
V90	V.90
56K	56Kflex
V92	V.92

<auto> automatic mode

<auto>	**Description**
0	Note manual specification
1	The modems are looking out the settings themselves

<up> minimum reception speed

<auto>	**Description**
0	automatic
300...33600	depending from <mod>

<down> maximum transmission speed

<auto>	**Description**
0	automatic
300...56000	depending from <mod>

AMR and Soft modems

+MS=<mod>,<auto>,<mindown>,0,<maxdown>

<mod> modulation

<mod>	modulation
V21	V.21
V22	V.22
V22B	V.22bis
V23	V.23
V32B	V.32bis
V34	V.34
V90	V.90
56K	56Kflex
V92	V.92

<auto> automatic mode

<auto>	Description
0	Note manual specifiation
1	The modems choose the settings themselves

<mindown> minimum receiving speed

<auto>	Description
0	automatic
300...33600	depending from <mod>

<maxdown> maximum transmission speed

<auto>	Description
0	automatic
300...56000	depending from <mod>

old modems

-V90=<n>

<n> baud rate

<n>	Bps	<n>	Bps
0	V.90 turn off	12	41333
1	automatic	13	42666
2	28000	14	44000
3	29333	15	45333
4	30666	16	46666
5	32000	17	48000
6	33333	18	49333

7	34666	19	50666
8	36000	20	52000
9	37333	21	53333
10	38666	22	54666
11	40000	23	56000

7.4.7 Rockwell / Connexant based modems

no HCF and Soft56 modems

+MS=<mod>,<auto>,<min>,<max> ...

<mod> modulation

<mod>	modulation
12	V.90
56	K56Flex
11	V-34

<auto> automati cmode

<auto>	Description
0	Note manual specification
1	The modems are looking out the settings themselves

<min> minimum connection speed
<max> maximum connection speed 300 ... 56000 (abhängig von <mod>)

at HCF and Soft56 modems

+MS=<mod>,<auto>,<mintx>,<maxtx>,<minrx>,<maxrx>

<mod> modulation

<mod>	modulation
V90	V.90
K56	K56Flex
V34	V-34

<auto> automatic mode

<auto>	Description
0	Note manual specification
1	The modems choose the settings themselves

<minrx> minimum receiving speed
<maxrx> maximum reception speed
<mintx> minimum transmission speed
<maxtx> maximum transmission speed 300 ... 56000 (depending from <mod> and direction)

7.4.8 VIA Chipset modems

%B<n>
maximum connection speed

%L<n>
minimum connection speed

<n> baud rate

<n>	Bps	<n>	Bps
0	automatic	27	48000
1	300	28	50000 (56KFlex)
2	1200	29	52000
3	2400	30	54000 (56KFlex)
4	4800	31	56000
6	9600	32	58000 (56KFlex)
9	14400	33	60000
11	16800	34	28000 (V.90)
12	19200	35	29333 (V.90)
13	21600	36	30666 (V.90)
14	24000	37	33333 (V.90)
15	26400	38	34666 (V.90)
16	28800	39	37333 (V.90)
17	31200	40	38666 (V.90)
18	33600	41	41333 (V.90)
19	32000	42	42666 (V.90)
20	34000 (56KFlex)	43	45333 (V.90)
21	36000	44	46333 (V.90)
22	38000 (56KFlex)	45	49333 (V.90)
23	40000	46	50666 (V.90)
24	42000 (56KFlex)	47	53333 (V.90)
25	44000	48	54666 (V.90)
26	46000 (56KFlex)		

7.4.9 Cirrus/Ambient modems

+MS=<mod>,<auto>,<mintx>,<maxtx>,<minrx>,<maxrx>

<mod> modulation

<mod>	modulation
BELL103	Bell 103
BELL212	Bell 212
V21	V.21
V22	V.22
V22B	V.22bis

V23	V.23
V32	V.32
V32B	V.32bis
V34	V.34
V34S	V.34 version S
X2	X2
V90	V.90

<auto> automatic mode

<auto>	Description
0	Note manual specification
1	The modems are looking out the settings themselves

<minrx> minimum receiving speed 0 automatic, 2400...33600

<maxrx> maximum receiving speed 0 automatic, 2400...57600

<mintx> minimum transmission speed
<maxtx> maximum transmission speed 0 automatic, 300...33600

7.4.10 Motorola SM56 modems

%B<n>

<n> baud rate

<n>	Bps	<n>	Bps
0	automatic	27	48000
1	300	28	50000 (56KFlex)
2	1200	29	52000
3	2400	30	54000 (56KFlex)
4	4800	31	56000
6	9600	32	58000 (56KFlex)
9	14400	33	60000
11	16800	34	28000 (V.90)
12	19200	35	29333 (V.90)
13	21600	36	30666 (V.90)
14	24000	37	33333 (V.90)
15	26400	38	34666 (V.90)
16	28800	39	37333 (V.90)
17	31200	40	38666 (V.90)
18	33600	41	41333 (V.90)
19	32000	42	42666 (V.90)
20	34000 (56KFlex)	43	45333 (V.90)

21	36000	44	46333 (V.90)
22	38000 (56KFlex)	45	49333 (V.90)
23	40000	46	50666 (V.90)
24	42000 (56KFlex)	47	53333 (V.90)
25	44000	48	54666 (V.90)
26	46000 (56KFlex)		

7.4.11 Smartlink modems

+MS=<mod>,<auto>,<min>,<max>

<mod> modulation

<mod>	modulation
90	V.90

<auto> automatic mode

<auto>	Description
0	Note manuel specification
1	The modems are looking out the settings themselves

<min> baud rate 300...33600bps
<max> baud rate 300...57333bps

8 PLC-VCOM

8.1 Description

It creates a new, virtual com-port in your system, with which the programming software of your PC (such a. PG 2000, Step© 5/7, S5/S7 for Windows, WinCC, Microwin) can communicate with the device

Supported operating-systems:

- Windows XP
- Windows Vista
- Windows 7 Professional, Ultimate and Enterprise
- Windows 8.1 Professional
- Windows 10 Pro and Enterprise

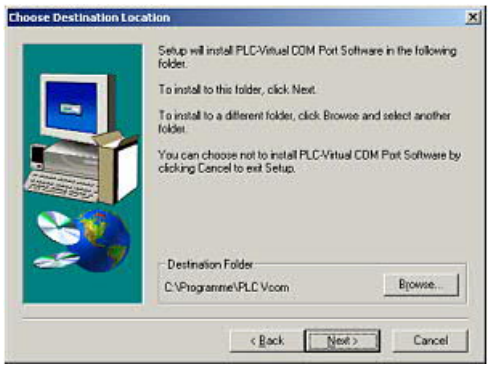
The PLC-VCom application is needed for use with the following devices:

• MPI-LAN Cable– Art. No.. 9352-LAN
• S7-LAN Modul – Art. No.. 9352-LANCon
• MPI-USB Cable– Art. No.. 9352-USB
• S7-USB Modul – Art. No.. 9352-S7-USB
• MPI-II Cable (USB – mode) – Art. No.. 9352 + 9352.1
• S5-LAN Modul – Art. No.. 9359-LAN
• Tele-Service (as programming adapter) – Art. No.. 9377-(ANALOG/ISDN/GSM)-OP

By installing the PLC-VCOM adiconalmente were installed the **S5-LAN** and the **MPI-LAN.** Both offer the possibility to manage the network configuration of your products

8.2 Installation

1. Download the PLCVCom from the product-page of your MPI-product and start the installation.

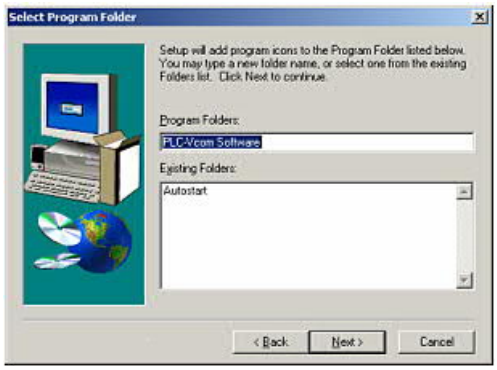


2. After choosing language the welcome dialog appears in the chosen language.

Click “Next“ to define the installation path (see right picture).

This can be done with a click “Browse…”

If you are ready press “Next“ to go on.



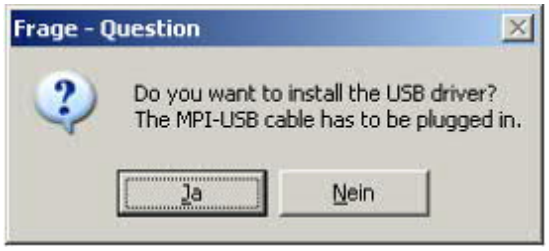
3. In the next dialog you can choose the program folder for your start menu.

Go on with “Next”.

8.2.1 USB driver installation using Windows NT/2000/XP

This part of the description is for the operating systems Windows NT/2000/XP.If you are using Windows 98SE or ME please read the description „Final configuration of the PLC-VCOM“.

This driver is only required for USB devices such as MPI-USB/MPI-II/S7-USB.
Connect this your MPI-USB cable to your computer.



5. "Yes" to start the driver installation.

"No" to skip the driver installation and go directly to the"Final configuration of the PLC-VCOM".

6. On Windows XP this dialog appears while installation (see left picture).

It is the “Windows Driver Qualifying Question”.

Press “continue installation“ to go on.

7. After the driver has been installed, please disconnect your MPI-USB Cable and than connect it again.

This loads the new installed driver. “OK” to go on.

8.2.2 Final configuration of the PLC-VCOM

8. Choosing the COM – Port

Already occupied COM port can be viewed in Windows Device Manager if you are not sure which COM ports are still available.

If you are not sure which port is unused, press "OK".

Later you can start this dialog again by clicking in the application folder of your start menu on "SelectCOM".

9. The installation ends with a click on "OK".

8.2.3 USB driver installation using Windows 98SE/ME)

After you have finished the installation of the PLC – VCom software (Step 9 and 10) you now have to install an USB driver. Therefore the software PLC – VCom must be installed. Otherwise the needed driver file is not available.

This driver is only required for USB devices such as MPI-USB/MPI-II/S7-USB.

10. Plug the cable into the USB port of your computer and wait until the automatical hardware recognition starts

. Alternative: „Control panel - Hardware".

11. The "hardware assistent" wants you to install the "USB < - > Serial" driver. Click on "Next" to configure the driver search.

12. Choose in the next dialog "Search for the best device driver (recommended)" and click on „Next"..

13. Activate the checkbox “Set the driver position:“ and deactivate all the others.

Click on “Choose…“ and choose the path where the PLC – VCom software is installed.

Confirm your configuration with “OK“ and click on ”Next“.

14. Now the “Hardware - Assistent“ should show a dialog which is equal to the picture below.

Click on “Next“ to start the installation.

15. After the installation finished successful click on “Ready“ to end this installation.

16. The installation is finished successfully after you have restarted you system.

The virtual COM-Port is only view-, select- and accessible when the PLCVCOM is in the „connected“ state, that means a cable is present and usable.

8.3 Overview

Beside your watch, in your Windows – Taskbar, appears a new Symbol. This one is for the PLC – VCom software.

It shows the actual connection status with your cable/module MPI-II, MPI-USB, MPI-LAN, S7-USB, S7-LAN or S5-LAN.

8.3.1 Status description:

PLC – VCom is connected with your cable/module and operational.

PLC – VCom is not connected.

The red symbol indicates that sending/receiving data has been failed.

Send status: (left field):
Data is send to the cable/module if this one is green.

Receive status: (right field):
Data is received from the cable/module if this one is green.

8.3.2 Main Window

1. Configuration: Select and open the configuration program for your products.
=> PLC-VCOM: Management, connection and communication with the cables
=> S5-LAN: configuration of your S5-LAN modules
=> MPI/S7-LAN: Configuration of your MPI-LAN or S7LAN

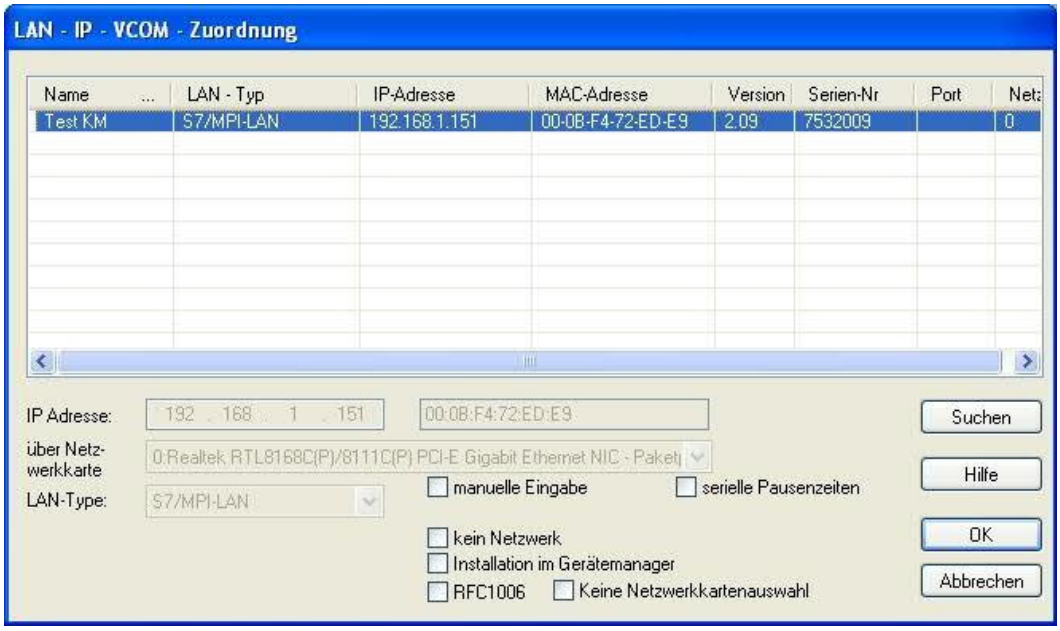
2. Info: information about the PLC-VCOM and your computer.

3. Status: Display the connection parameters of the cable connected.
=> Top left: shows the name of the currently connected product
=> semi-left: shows the connection status
=> half right: shows the IP address of the connecting cable
=> Top right: Click here to search or select a device
=> right middle: name of the connected cable
=> bottom right: displays information about current computer connections

4. Virtual Port: Display of selected virtual COM ports and
the program that the last has accessed on this COM port.

5. Program: Buttons to adjust the PLC-VCOM
=> Exit. This button closes the program and the COM – Port
=> Lenguage: Switch the Language to english/german.
=> Help: opens the Help menu of the PLC-VCOM, when they should have problems or questions
=> “Minimize” the dialog. This button does not close the program. It just minimizes the program. You will find the PLC – VCom symbol in the Windows – taskbar beside the watch.

8.3.3 Configuration window



1. List of available cable / modules:
=> Linewise display of the products found with your properties

2. IP-Adress:
=> IP address and MAC address of the selected cable / module

3. Via network card:
=> Selection of the used network interface card

4. LAN-Type:
=> Selection of the be connected cable / Module Types

5. Several check boxes:
=> Manual entry: allows you to enter the parameters manually
=> no network: for products which are not in any network
=> Installing in the device Manager: Installs the PLC-VCOM COM port in Device Manager (required only for S7 for Windows and S7 Doctor software)
=> RFC1006: activation of RFC1006 communication method
=> no network card selection: Passes the routing of packets to the operating system
=> serial interval times: slow down the serial transmission eg panel transfers

6. Search
=> With a click on Search you are sending an broadcast to every cable/module that is connected with your network or your system. Every responding cable/module will be inserted to the list.

7. Help:
=> opens the Help menu of the configuration, if they have problems or questions

8. OK:
=> Ends the PLC-VCOM configuration and accepts the entered / selected settings

9. Cancel:
=> Ends the PLC-VCOM configuration and discards the entered / selected settings

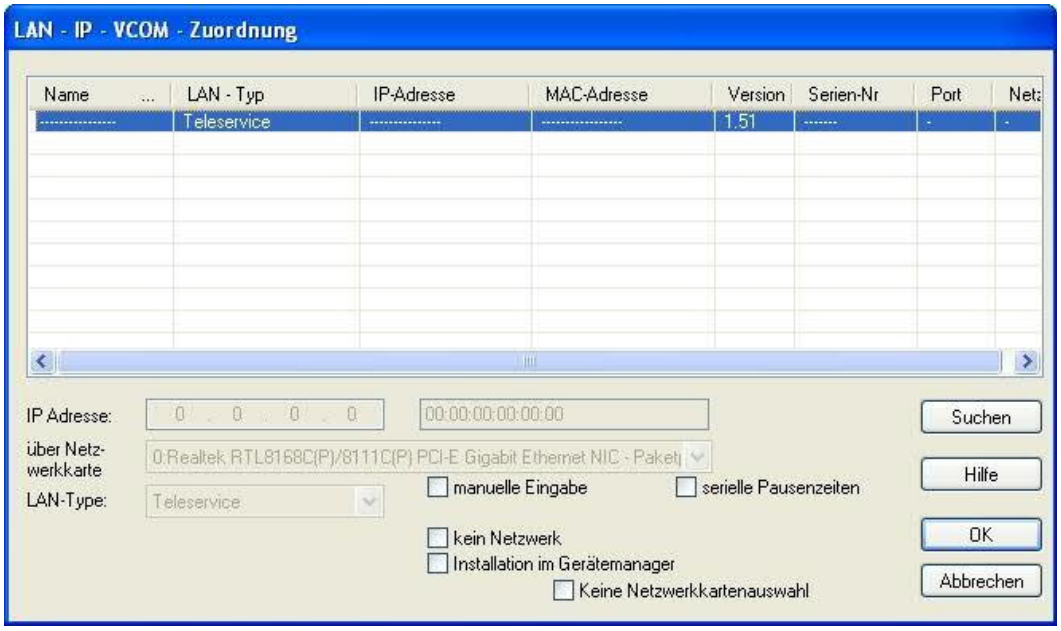
8.4 Configuration

1. Start the PLC – VCom application, if this is not already running.

2. Open the PLC-VCOM by clicking on the icon PLC-VCOM in the system tray.

3. After the PLC-VCOM is open, click in the status area on the "Configure" and the wizard to configure is launched.

8.4.1 TELE-Service



8.4.1.1 Automatically

1. With a click on "Search" you send a call to all cables and modules that are located on your network or directly connected to the computer.
Each cable / module reacting to this broadcast is entered in the list of participants.

2. Select the desired cable / module so that it is highlighted in blue.
Here all parameters are automatically included in the configuration wizard.

8.4.1.2 Manually

The manual entry relates to the network users who are located behind a router, in other networks because the broadcast for the automatic detection is not propagated by routers and network devices so they can not be found.

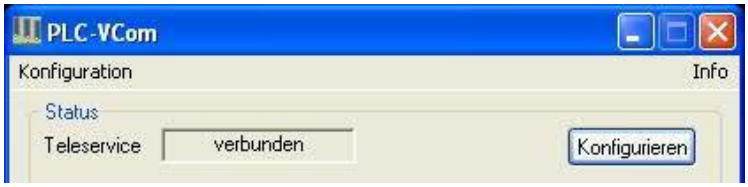
This point is not to note for USB devices because these are all connected directly to the computer.

8.4.1.3 Final settings

3.Select the options that you may need, eg no network card selection, no network, install in the device manager or serial break times.

Information about the options see the "Overview" section of the PLC VCOMs, which can be selected and deselected by using the checkboxes.

4. Confirm your entry / selection with "OK"



5. In the main window of the PLC VCOMs appears the type of cable will connect to the computer after a successful connection and the connection status "connected".

6. Finally, click "Minimize" to decrease the PLC-VCOM in the notification area so that it can continue to manage the virtual COM port.

9 S7-Interface Configurator Help

Language selection
User interface
Bus configuration
Network settings
Parameterize TELEService
Index "Network"
Index "Modem"
Index "Serial Parameter"
Index "Access Protection"
Index "GSM/ISDN/SMS"
Index "Internet/Mail"
Tuning
Factory defaults
PPI Boot off
Emergency-Loader

9.1 Language selection:

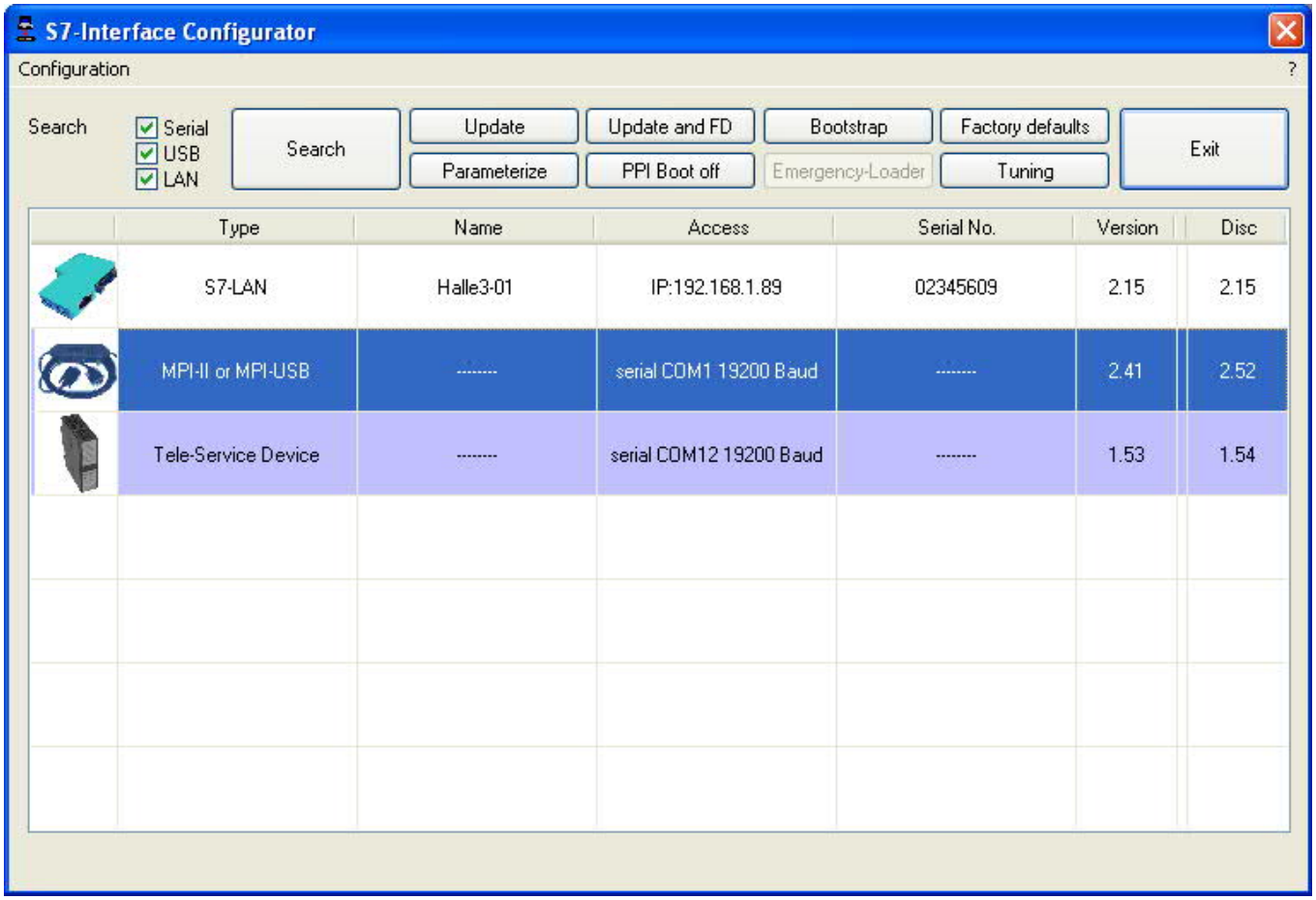
Select the menu **Configuration** to change the language permanently:

9.2 User interface:

Select near **Search** which interfaces are searched permanently for devices.
You could choose:

- Serial All existing COM-Ports are scanned for devices
- USB Search devices which are connected by USB
- LAN Search devices on all network-cards

The button **Search** starts a parallel search on all selected interfaces.
After selecting a updateable device the button **Update** gets available.



Below the buttons is a list of the found devices. In each line an image, the type of the device, name (if existing), interface, serial number (if possible) and the OS-version of the device is displayed. On the rightmost position the actual OS-version on the harddisk is displayed.

The background of the lines could use the following colours:

- White — The OS of the device is up-to-date
- Light blue — The OS of the device is not up-to-date, the device could be updated
- Red — An error occured by accessing the device
- Yellow — Update is in progress for this device
- Dark blue — Selected device

Double click onto a device which could be updated shows the version-documentation of the device (only available in German):

The button **Update with FD** updates the OS of the device and sets the factory default.

The button **Bootstrap** sets the firmware/configuration to factory default.

The button **Factory defaults** sets the configuration to factory default.

The button **Parameterize** activates a dialog regarding to the device:

Overview:

Device	**Dialog**
TELEService MPI / PPI - Profibusmodem	Parameterize TELEService
MPI/PPI	Parameterize TELEService
MPI-II MPI-USB	*Choices:* Bus configuration Parameterize TELEService
S7-USB	Bus configuration
S7-LAN MPI-LAN	*Choices:* Bus configuration Network settings

The button **PPI Boot off** disables the PPI boot option of a serial connected device.

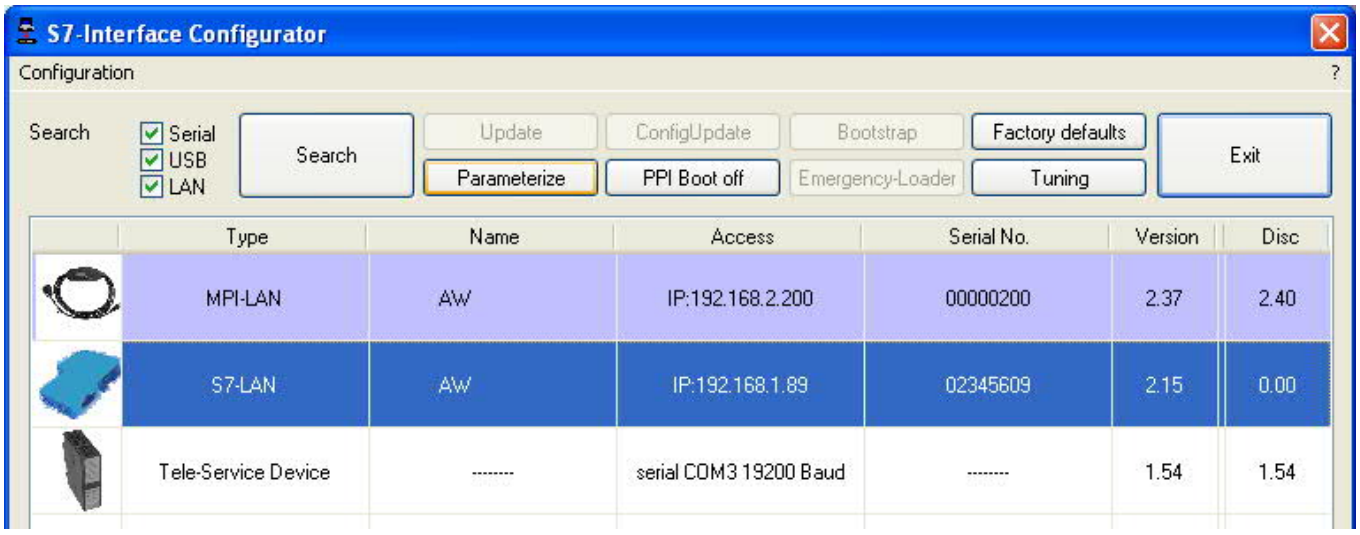
The button **Emergency-Loader** tries to repair LAN products which are in emergency-loader mode.

The button **Tuning** activates a dialog for special parameters.

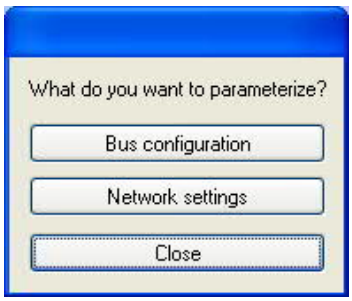
The button **Exit** leaves the application.

9.3 Bus configuration

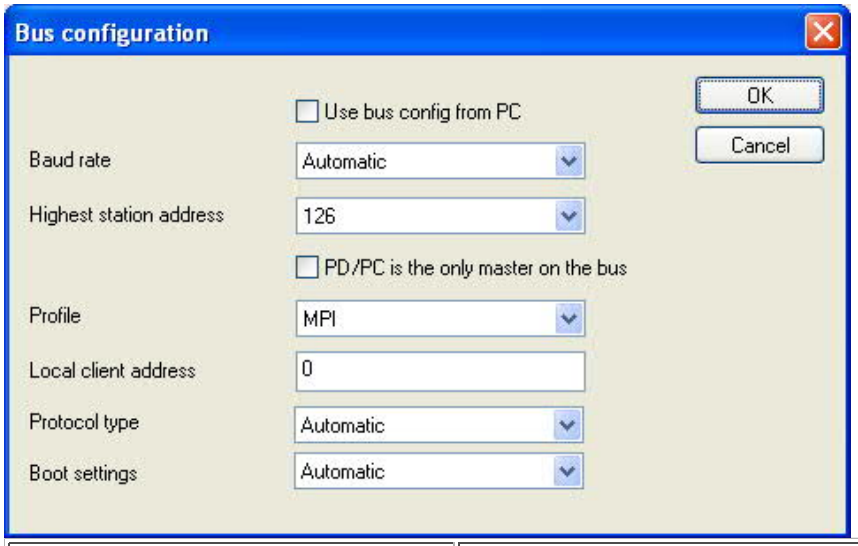
To parameterize the connection to the device, select a device and click "**Parameterize**".



Regarding to the device you maybe have to click on the button **Bus configuration** (see parameterize table).



Here you can parameterize the following:



• **Use bus config for PC**	Tooks the bus configuration from the PC
• **Baud rate**	chooses the Baut rate for the cable to bus communication
• **Highest station address**	The highest station-address in the bus (the less you use, the more performanceon the MPI-bus, must be corresponding with the configuration in the CPU's)
• **PD/PC is the only master on the bus**	The TS-Adapter is the one and only master in the MPI-bus (adapter hast to speak to all passive clients)
• **Profile**	Bustype of the connection
• **Local client address**	Which local station-address is used for the TS-Adapter. Please consider that a programming device has normally the number 0, operator panel have 1, CPU's use 2, FM/CP's 3 etc. **Please**: Never use the same station-number for 2 different stations!
• **Protocol type**	Protocol type of the connection
• **Boot settings**	Boot setting of the connection

9.4 Network settings

Here you can set the network configuration of the selected device:

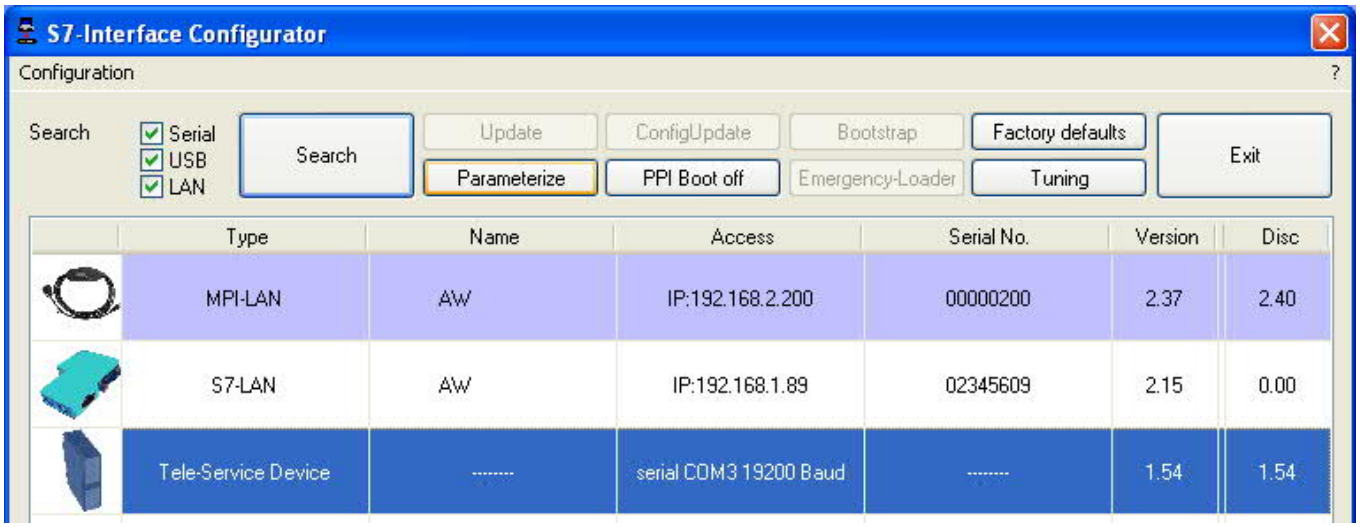
• Factory default	This button sets all over the network reachable devices to factory default.
• DHCP-client active	When set the device acts as DHCP-client.
• IP address	Here you could enter the IP Address over which the device is accessed in the network.
• Subnetmask	Here you could enter the Subnetmask of your network.
• Gateway address	Here you could enter the IP address of your Gateway. Usual a router address.
• Device name	Here you could change the device name.

Factory default:

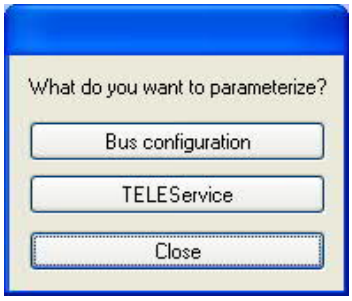
• DHCP-client active	*not set*
• IP Address	192.168.1.56
• Subnetmask	255.255.255.0
• Gateway address	0.0.0.0
• Device name	*empty*

9.5 Parameterize TELEService

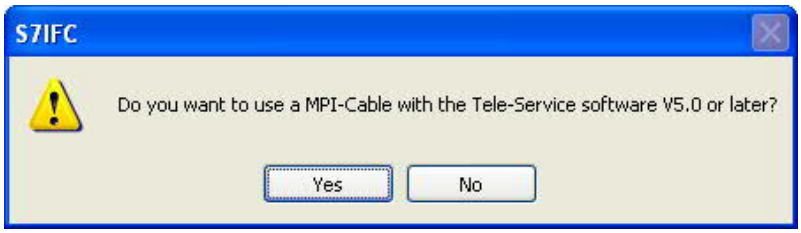
To parameterize the device, first click on the device, after that on "**Parameterize**".



Regarding to the device, you maybe have to click on the **TELEService** button.



After clicking on "**TELEService**" a message will show up:

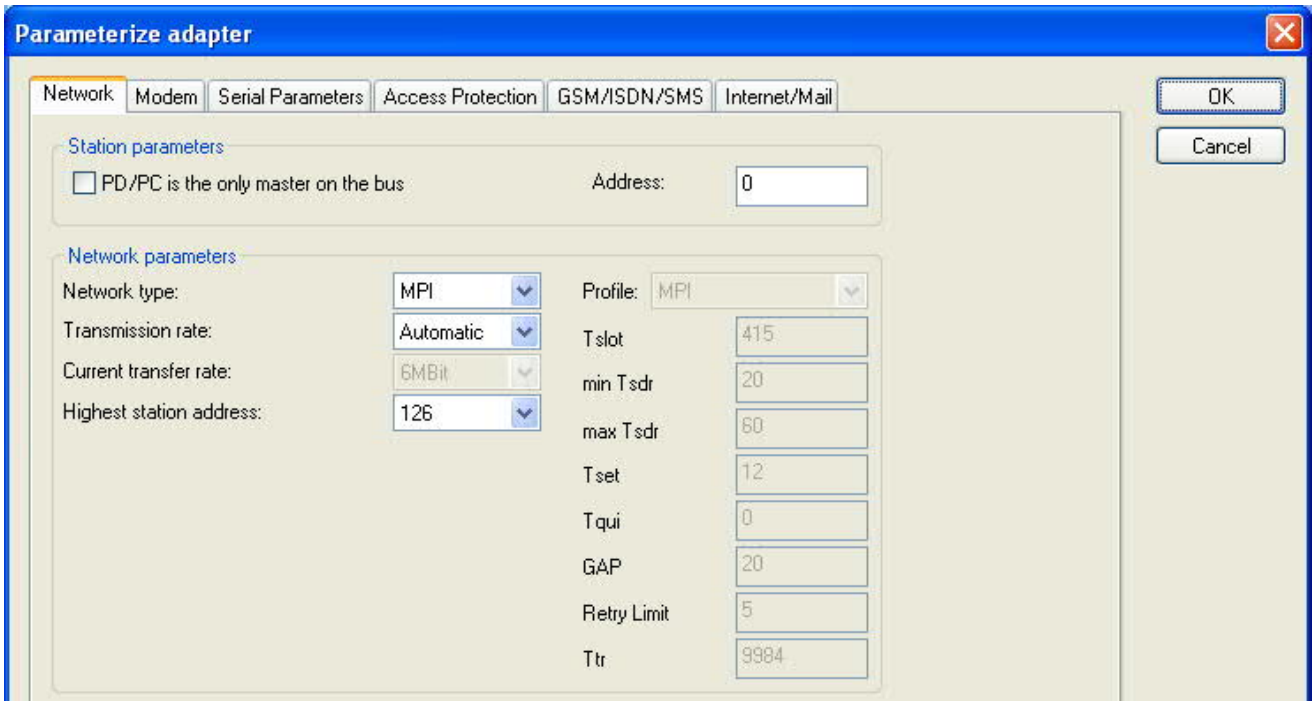


Depending on the version of your TELEService software choose **Yes** or **No**.

The regular parameters can be changed manually in the following categories:

9.5.1 Index "Network":

Here you can configurate following:



Station related:

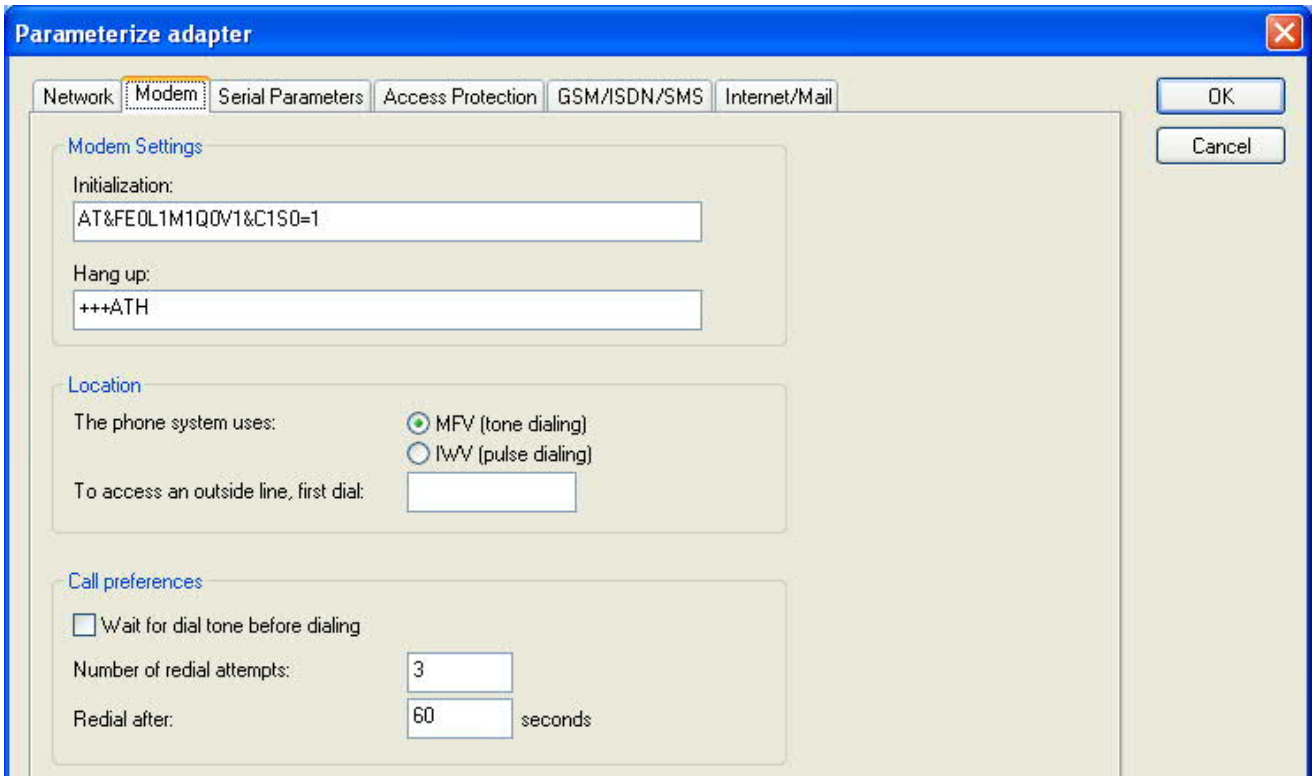
• **PD/PC is the only master on the bus**	The TS-Adapter is the only master on the MPI-bus (adapter must speak to all passive clients)
• **Address**	Which local station-address is used for the TS-Adapter. Please consider that a programming device has normally the number 0, operator panel have 1, CPU's use 2, FM/CP's 3 etc. **Remind**: Never use the same station-number for 2 different stations!

Network related:

• **Network type**	The network type MPI or PROFIBUS
• **Transmission rate**	The transmission speed on the MPI bus
• **Current transfer rate**	Shows the current transfer rate of the device
• **Highest station address**	The highest station address in the bus (the less you use, the more performance on the MPI bus, must be corresponding with the configuration in the PLC's)

9.5.2 Index "Modem":

In this dialog you could configure the modem related setup.



Modem Settings:

• **Initialization**	AT	start command
	&F	use factory settings
	E0	echo off
	L1	volume of speaker is low
	M1	speaker is on at connection
	Q0	output of the return values
	V1	return values plain text
	&C1	DCD shows status of the carrier sound
	S0=1	automatic connection after 1 ring
• **Hang up**	+++	Switch to command mode
	AT	start command
	H	Hang up connection

Location:

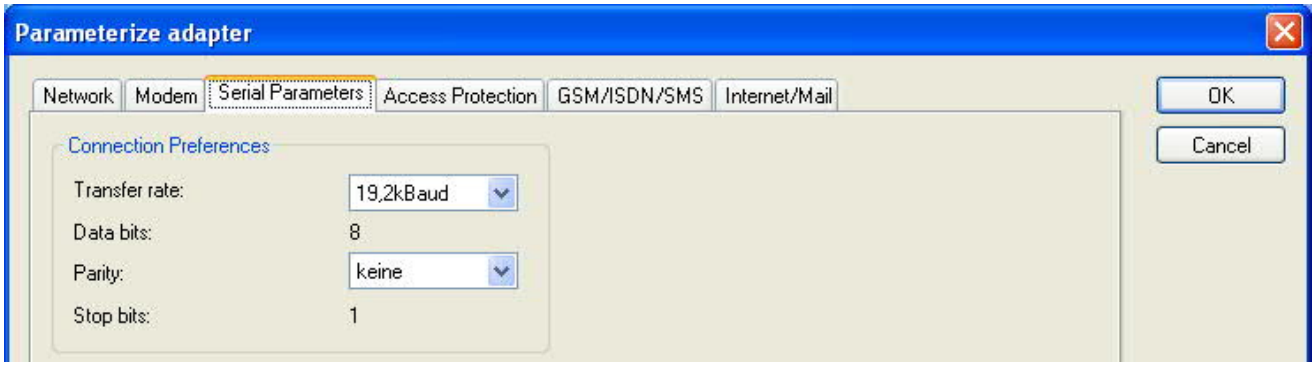
• **The phone system uses**	There are two possible call techniques: MFV tone, the telephone number is transfered by several frequencies IWV pulse, the telephone number is transfered with the amount of several pulses on the line
• **To access an outside line, first dial**	If you need a prefix before your number to establish a call outside, you must enter the prefix here e.g. 0.

Call Preferences:

• **Wait for dial tone before dialing**	In case the modem should wait for a free line, you should set the corresponding checkbox.
• **Number of redial attempts**	At number of retries you could configure the number of retries for a connection before the call is stopped.
• **Redial after**	Using a retry you could enter the seconds the application should wait between calls.

9.5.3 Index "Serial parameter":

In this dialog the transfer rate between modem and TS-Adapter is selected.

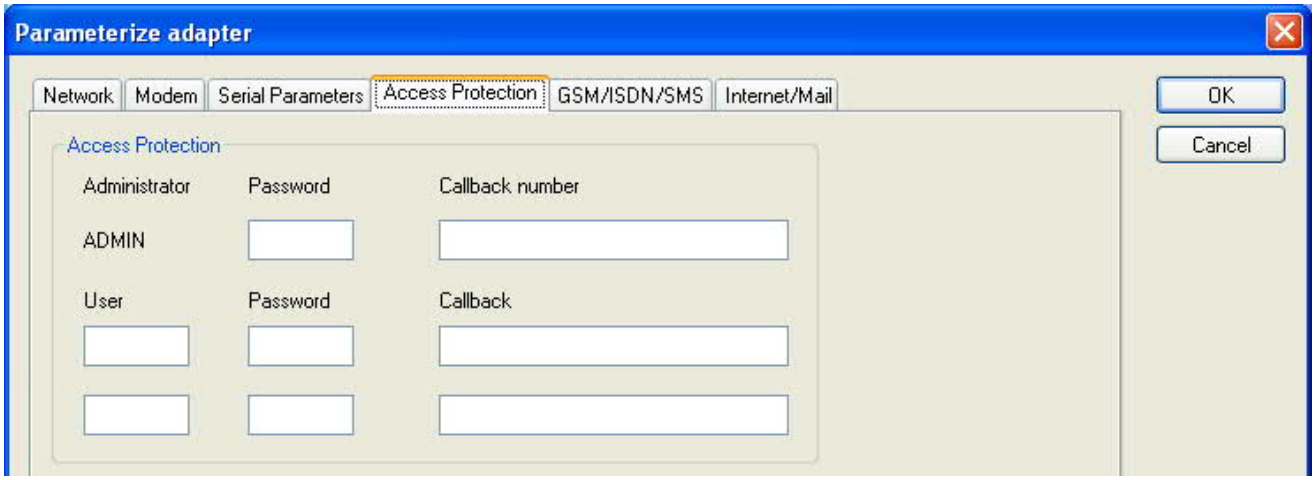


Connection Preferences:

• **Transfer rate**	The transfer-rate could choosen between the follwing values: 2400, 4800, 9600, 19.2k, 38.4k, 57.6k and 115.2kBaud
• **Parity**	The parity could be choosen, but this is modem dependend because some modems could not handle the parity bit: None: (There is no parity testing) Odd: (The amount of bits set to 1 is odd) Even: (The amount of bits set to 1 is even)

9.5.4 Index "Access Protection":

The access over a telephone line could be configured in this dialog.



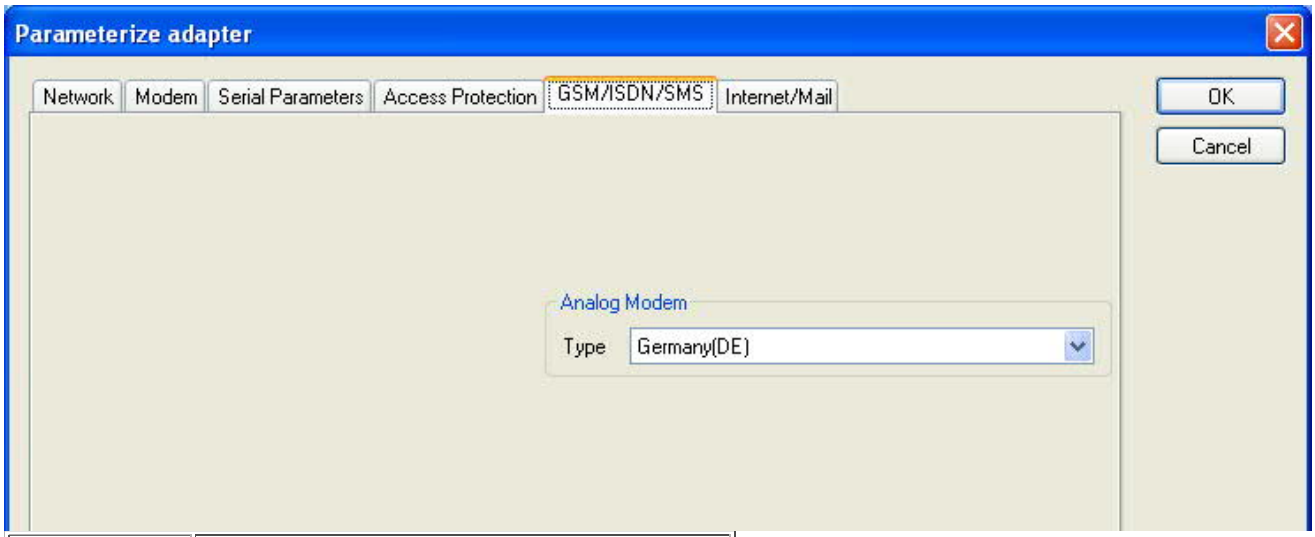
Access Protection:

• The administrator can change the configuration over a telephone line. • The two user accounts can not change the configuration.
• The username is maximal 8 characters long. • Every user and the administrator should use a password which is used to login in the TELEService over a telephone-line.
• After three failed retries the connection is hanged up, so you must call again (not like the original TS-adapter).
• After changing the password for a user/administrator you must re-type it again correctly.
• You can enter a callback number which is used for a callback from the TS-adapter. After you dialed the number of the TS-adapter, you are asked for username and password. In case the username and password is valid, the connection is hang up and the TS-adapter calls back the configured callback number.

9.5.5 Index "GSM/ISDN/SMS":

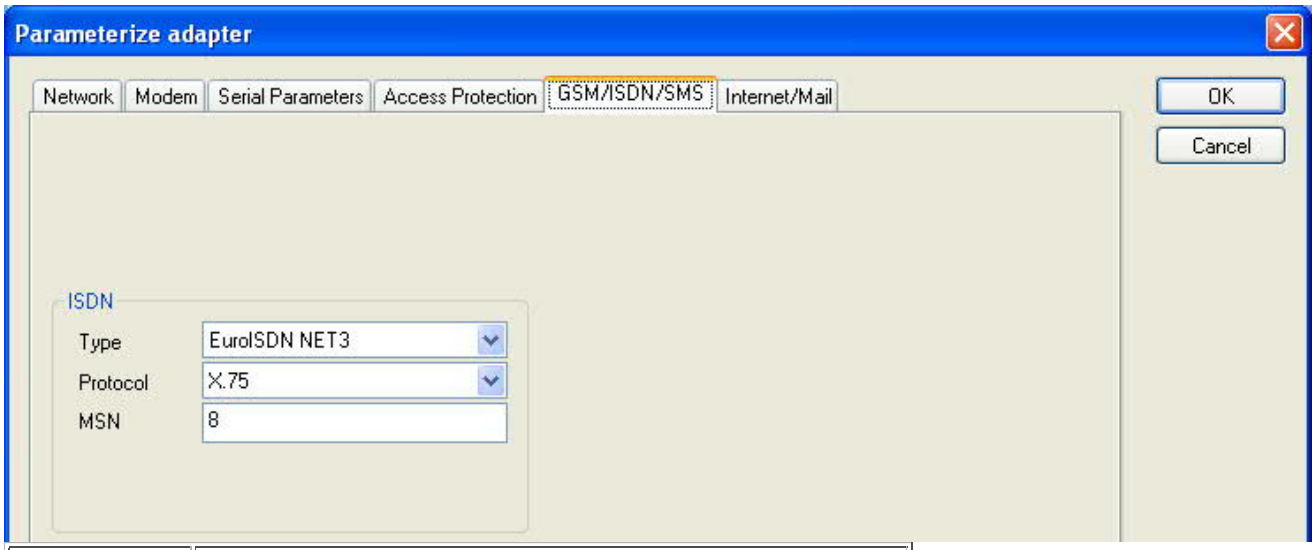
Information about the three different devices:

Analog Modem::



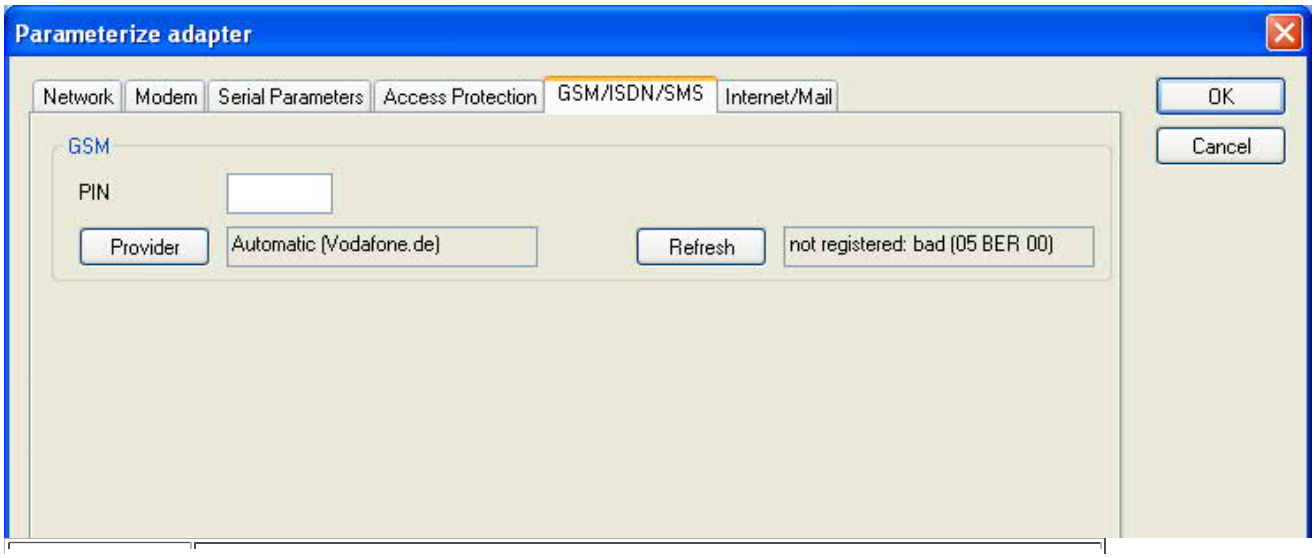
• **Type**	You could choose the location of the modem.

ISDN Modem:



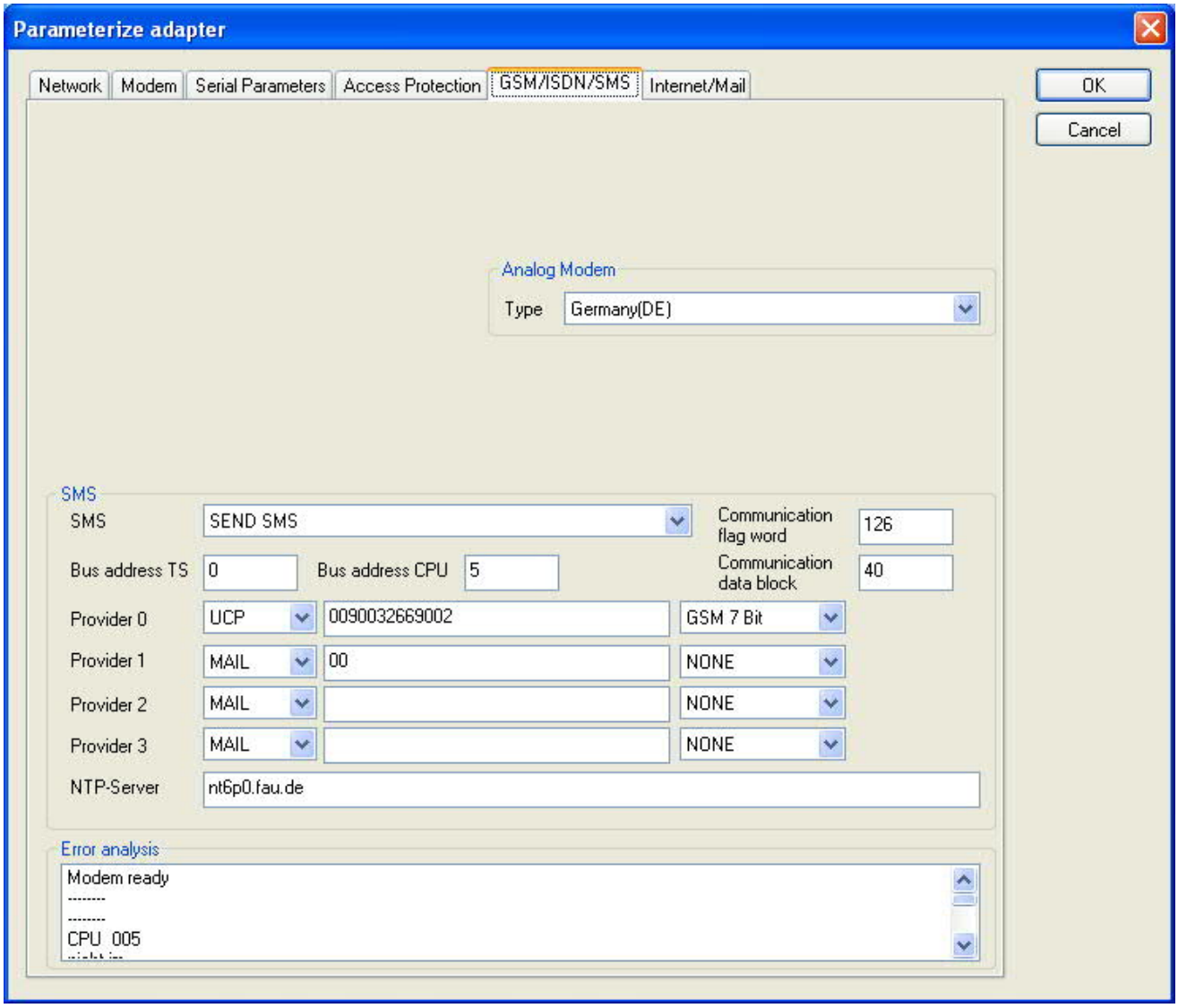
• **Type**	Choose the type of the ISDN network: • AT&T 5ESS • Nothern Telecom DMS-100 • EuroISDN NET3 (Standard) • INS64 • US NI-1 • VN4
• **Protocol**	Choose the transfer protocol type: • Modem like • V.120 • X.75 (Standard) • ML-PPP • SoftBonding • HDLC • CLEAR
• **MSN**	• Multiple Subscriber Number is used for all ISDN channels. • If empty no MSN is used.

GSM Modem:



• **PIN**	• PIN number of the SIM card, up to eight numeric characters (only for TELE-SERVICE GSM).
• **Provider**	• With the button „Provider“ the provider could be choosen. • Read the list of providers could be elapse more than a minute. • In the end the possible provider are listed for selection. With „Automatic“ the GSM-Modem tries to connect automatically to a provider. On the right side of the button, the actual used selection is displayed. **Display Description:** • Automatic: The provider is automatically searched and selected from the GSM-modem. • Manual: The Provider is selected manually from the GSM-Modem • no network registered: No connection to the GSM-network, the receive-quality is too bad • set format: The format of the provider is set • Manual/automatic: The modem tries to select manually the provider, if this fails an automatic search is done • unknown: Unknown response from GSM-Modem
• **Refresh**	• The button „Refresh“ reads the signal strength from the modem, the quality is displayed. **Display Description:** • Unknown: Unknown state of the GSM-network • no registration: The modem is not registered in the GSM network, no provider found • registration denied: Registration in the GSM-network is denied • Search network: In Search for a GSM-Provider • GSM: Attached to GSM • GSM(ROAMING): Attached to GSM, but with a Roaming-Partner. This could lead to high costs! The radio quality is displayed, together with the bit-error-rate. **Value Description:** • 99 No network, no receive • 00 Very, very bad receive-quality • 01 Very bad receive-quality • 02 to 09 Bad receive-quality • 10 to 17 Medium receive-quality • 18 to 25 Normal receive-quality • 26 to 30 Good receive-quality • 31 Best receive-quality

Information about the rest of the Index GSM/ISDN/SMS:



SMS:

• **SMS**	Switches: • NO • SEND SMS • RECEIVE SMS • SEND+RECEIVE SMS • DMTF CONFIRMATION • SEND SMS+DTMF CONFIRMATION • RECEIVE SMS+DTMF CONFIRMATION • SEND+RECEIVE+DTMF CONFIRMATION • SEND MAIL • SEND MAIL+SEND SMS • SEND MAIL+RECEIVE SMS • SEND MAIL+SEND+RECEIVE SMS • SEND MAIL+DTMF CONFIRMATION • SEND MAIL+SEND SMS+DTMF CONFIRMATION • SEND MAIL+RECEIVE SMS+DTMF QUITTUNG • SEND MAIL+SEND+RECEIVE+DTMF CONFIRMATION **Attention**: before setting ON check configuration, after activating the device will go on the MPI bus and tries to connect to the defined PLC. Receive of SMS only with TELEService-GSM Receive of DTMF only with TELEService GSM

• **Bus address TS**	local station address (should not be used twice in the MPI/Profibus!)
• **Bus address CPU**	from this station address the flag word and data block is accessed for communication
• **Communication flag word**	communication-flagword (the first byte is the command, the second is the state). Use even operand-addresses.
• **Communication data block**	Address of the CPU in the Bus
• **Provider 0/1/2/3**	Configure the SMS-Provider to use, including type, phone-number and char-code. 1. First Input: Choose a type of the transmission. 2. Second Input: Telephone number or email address. 3. Third Input: Choose a character encoding.
• **NTP-Server**	Input for an Network Time Protocoll - Server

Error analysis::

The possible error conditions for the modem, mpi bus problems or other problems are displayed in this text-field.
First the modem-related information is shown:

Message

- Modem ready
- Modem error
- No answer from modem
- Modem detects ring
- End of connection
- connected via modem line
- No dialtone detected
- Phone-line or telephone busy
- Phone-number is blacklisted in modem
- Phone-number delayed. Access denied for 1 minute.
- Fax-call detected
- Data-call detected
- unknown error
- The selected direct-access-number not configured
- The configured PIN-Number is wrong for the inserted SIM-Card
- The SIM-Card is not or wrong inserted or the SIM-Card is a 5V Type

Possible MPI-Bus error-messages

MPI/Profibus-Configuration erroneous

Timeout at MPI/Profibus detach from device.

The local station-address is used twice in the MPI/Profibus.

A20/M20/TC35 Modem operation

The MPI/Profibus is not correctly configured

The HSA is not configured optimal

The MPI/Profibus-Baudrate is not detectable

Overflow in the internal MPI-Readbuffer

Overflow in the internal LAN-Readbuffer

Overflow in the serial Buffer

The selected MPI/Profibus-Baudrate is wrong

Overflow in internal LAN-Writebuffer

LAN-Recieve-Error

LAN-Send-Error

The PD-Numberr is wrong

The transferred SAP is wrong/unknown

ErrCode 01: The Destination address (XXX) of a State protocol > 127 detected. In the MPI/Profibus-Bus there are no stations possible which station number is greater than 127. (FC=YYh)

ErrCode 02: At state-protocol the Source-Address is detected as 127. This is the Broadcast-address which is not possible.

ErrCode 03: The received State protocols destination address (XXX respectively YYY) does not exist in the MPI-Bus. (FC=ZZh)

ErrCode 04: The function-code (YYh) of the received State protocol from XXX is incorrect. The 7th Bit is High, but according to the specification the Bit has to be low.

ErrCode 05: A State protocol has been received. But the function-code (YYh) means that the participant is not ready to enter the bus.

ErrCode 06: The function-code in the State-protocol received from XXX is unknown (FC=YYh)

ErrCode 11: The sender (XXX) of the received data-protocol is unknown. To send data the participant must get the Token. (SSAP=YYh, FC=ZZh, length=UUU)

ErrCode 12: Data-protocol with Source-address 255 (Broadcast) is useless. (CPU=XXX, SSAP=YYh, FC=ZZh, length=UUU)

ErrCode 13: The sender (XXX) of the received data-protocol is unknown. To send data the participant must get the Token. (SSAP=YYh, FC=ZZh, length=UUU)

ErrCode 14: The 7th Bit of the function-code is High, but according to the specification the Bit has to be low. (CPU=XXX, SSAP=YYh, FC=ZZh, length=UUU)

ErrCode 15: The upper 4 Bit of the Function-code are wrong/unknown)
(CPU=XXX, SSAP=YYh, FC=ZZh, length=UUU)

ErrCode 16: Unknown function-code has been transmitted to the cable. (CPU=XXX, SSAP=YYh, FC=ZZh, length=UUU)

ErrCode 17: Destination-SAP are defined till 3Fh in data-protocols. (CPU=XXX, SSAP=YYh, FC=ZZh, length=UUU)

ErrCode 18: Source-SAP are defined till 3Fh in data-protocols. (CPU=XXX, SSAP=YYh, FC=ZZh, length=UUU)

ErrCode 19: Received a data-protocol with destination-SAP=0, Connection request from another bus-participant with our cable. (CPU=XXX,SSAP=YYh,FC=ZZh,DSAP=UUh)

ErrCode 1A: Participants are sending data to our cable with source-SAP = 0, which means that the participant has not made a connection establishment or has lost the negotiated SAP.
(CPU=XXX,SSAP=YYh,FC=ZZh,DSAP=UUh)

ErrCode 1B: Data-protocol with unknown data-function-code received.
(CPU=XXX,SSAP=YYh,FC=ZZh,DFC=UUh)

ErrCode 1C Data-protocol with unknown data-function-code received.
(CPU=XXX,SSAP=YYh,FC=ZZh,DFC=UUh)

ErrCode 1D: Received a state-protocol with error-code.
(CPU=XXX,FPGA=YYh,RAM=ZZh)

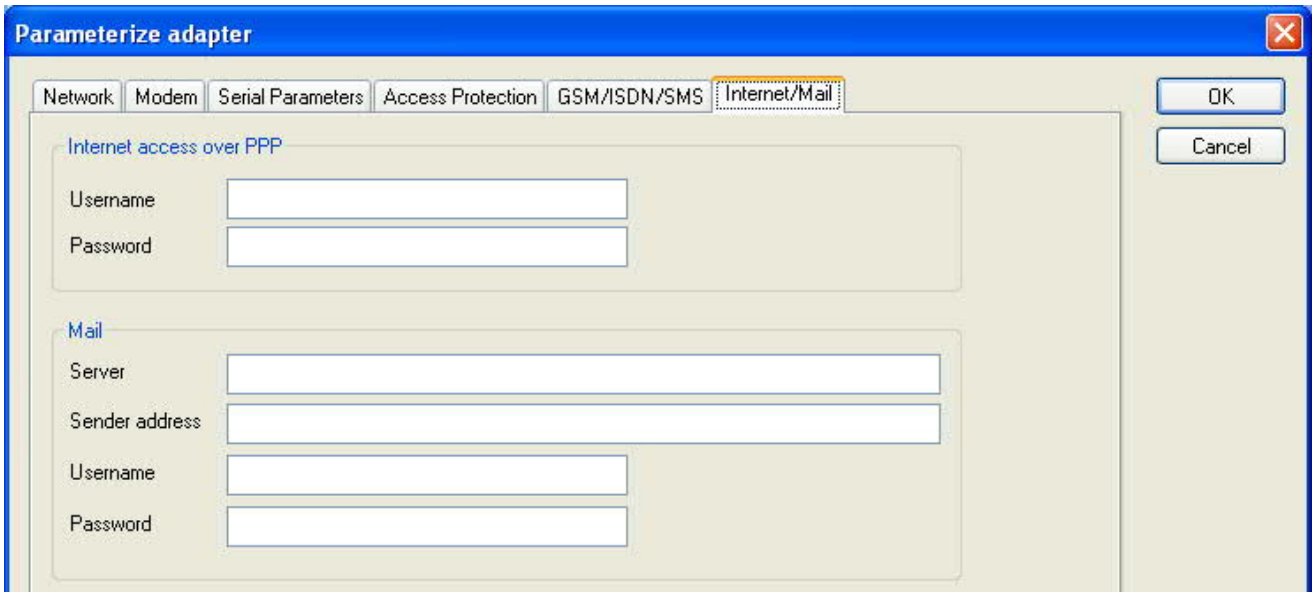
ErrCode 1E: FPGA has caused an interrupt although no data present.
(SD1=XXh,SD1=YYh,CPU=ZZZ,FC=UUh)

ErrCode 20: Unknown protocol at PPIMultimaster-Mode. (FC=XXh,Länge=YYY)

ErrCode 21: Unknown baud-rate at PPIMultimaster-Mode. (Baudrate=XXh)

After that additional hints are displayed.

9.5.6 Index "Internet/Mail":



The internet connection is configured by PPP, often a username and password is needed. Define them in "Internet access over PPP".
Attention: This is NOT the username and password of your E-Mail-account!

In the next section "Mail" the E-Mail-account is defined:

Internet access over PPP:

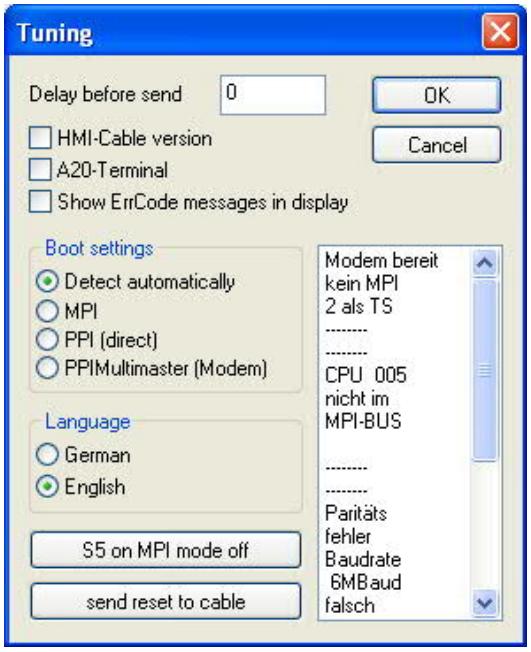
• **Username**	Username for the Internet access
• **Password**	Userpassword for the Internet access

Mail:

• **Server**	Name of the SMTP-Email-Servers, which is used to send the E-Mail.
• **Mail from**	Source-E-Mail-Address (should be from the same Free-mailer, instead a delivery is often not possible)
• **Username**	Name of the User-account (often the E-Mail-address or Customer-number)
• **Password**	Password for the E-Mail-Account

9.6 Tuning

This menu is only used in some special cases.
Select the device and click the button **"Tuning"** and after that the following dialog is displayed:



The following configuration is possible, it will be transferred to the Cable by pressing the button „OK“.
The configuration is saved permanently in the Flash-ROM:

• **Delay before send**	At ProTool RT the communication could break down, because the MPI-Cable is transferring the answer-protocol to fast. In this case you could insert a time in 0.1ms ticks. Insert at first 300, to great values are preventing the communication.
• **HMI-Cable version**	Some Touch-panels has the problem, that when they get a wrong version-information they never retry to connect (and then the correct version is transferred). In this case the HMI-version-information could be transferred immediately.
• **A20-Terminal**	When using the A20 or M20-Terminal, the control-lines on the serial port are not used. In that case the TELEService-function is not working. With this property the control-lines are no longer used and therefore the A20/M20 can communicate over TELEservice.
• **Show ErrCode messages in display**	Shows error messages on the display of the connected device

Boot settings:

Normally the MPI-Cable automatically selects the correct bus type, no changes are needed. In special-cases the MPI-Bus could be selected as PPI.

For example: This application and the PLC are powered on at the same time. The application is communicating immediately with the cable, the PLC is booting, in this case the MPI-Bus is not running. The MPI-Bus is erroneous, so no communication is starting. If this occurs you could choose, that the cable is working as MPI-Adapter only.

Language:

You could select the language which is used on the cable (German or English).

S5 on MPI mode off:

Deactivates temporary the "S5 on MPI" function, the cable doesn't poll the bus anymore.

send reset to cable:

Send reset to cable.

Console:

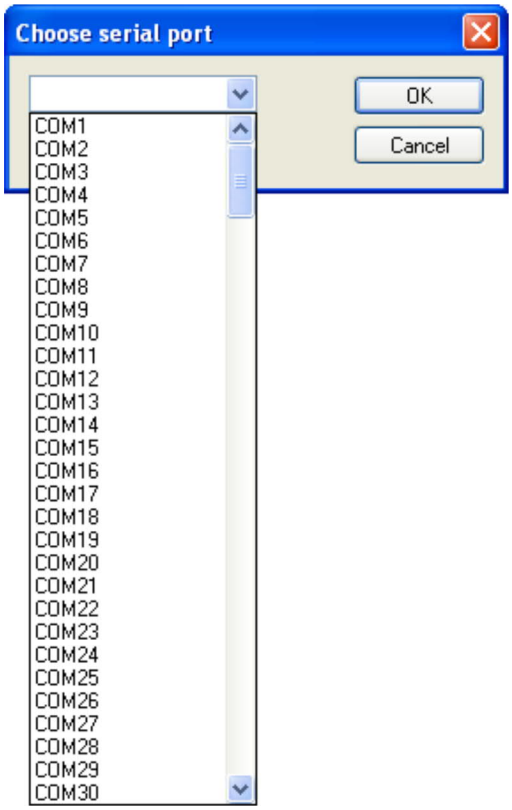
Shows some information about the status of the connection.

9.7 Factory defaults

This button sets the configuration of the selected device to factory defaults.

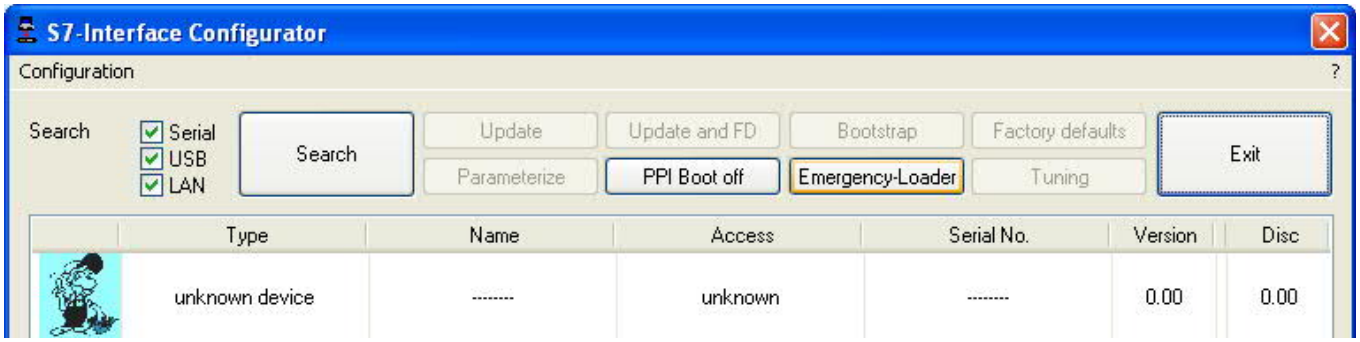
9.8 PPI Boot off

In PPI boot mode S7IFC cannot communicate with the cable. To disable the PPI boot mode, click on the button PPI Boot off. In the following dialog you must select the serial port where the cable is connected:

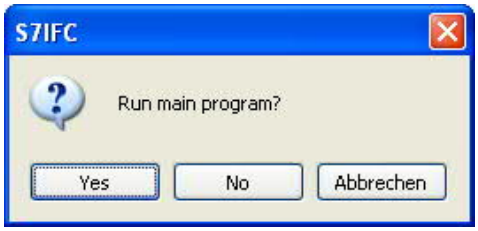


9.9 Emergency-Loader

LAN products running in emergency-loader are automatically found by S7IFC:



After a click on **Emergency-Loader** the following dialog appears:



On a click on **Yes** the emergency-loader tries to run the main program of the firmware.
On a click on **No** the emergency-loader tries to rewrite the complete firmware.

10 MPI cable manager

10.1 Description

The MPI cable manager allows you to install an update in your cables and modules and configure them.

The MPI cable manager can be used for the following products:

• MPI-LAN cable– Art. ID. 9352-LAN
• S7-LAN module– Art. ID. 9352-LANCon
• MPI-USB cable– Art. ID. 9352-USB
• S7-USB module– Art. ID. 9352-S7-USB
• MPI-II cable (USB – operation) – Art. ID. 9352 + 9352.1
• MPI/PPI cable– Art. ID. 9350
• Tele-Service – Art. ID. 9377-(ANALOG/ISDN/GSM)-OP
• MPI/PPI-profibusmodem – Art. ID. 9379-(G)-OP

10.2 Installation

1. Download the MPI-Kabelmanager from the product-page of your MPI-product and start the installation.

2.Following the Language selection the installation starts and a welcome-screen is displayed.

Next click onto the button „Next“.

To change the installation path, click on "Browse".

Then click "Continue".

3. Select in this dialog the program folder for the MPI cable manager startup items.

Then click "Continue".

4. Wait for the installation of the files.

5. End the installation after a successful copy of data with "Finish".

10.3 Overview

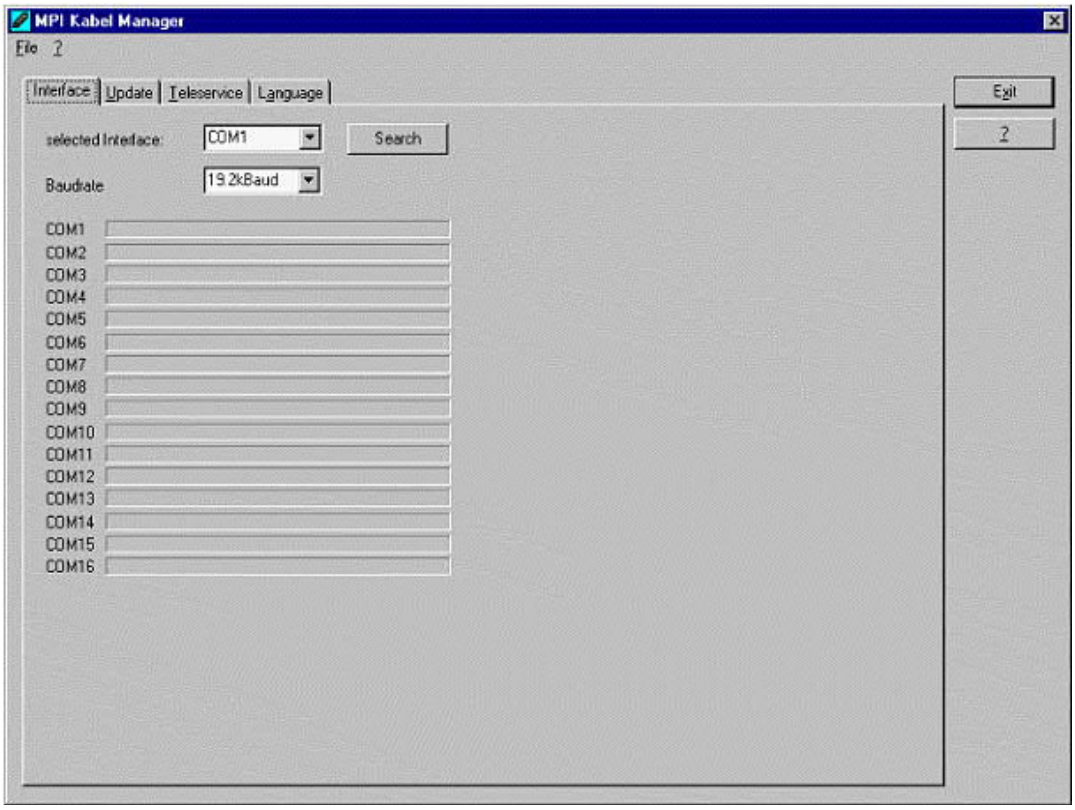
10.3.1 Language

After starting the application the tab Language is displayed at first:

In this Dialog you could choose the used language in the application.

You could choose between German and English and confirm by clicking on the desired language.

10.3.2 Interface



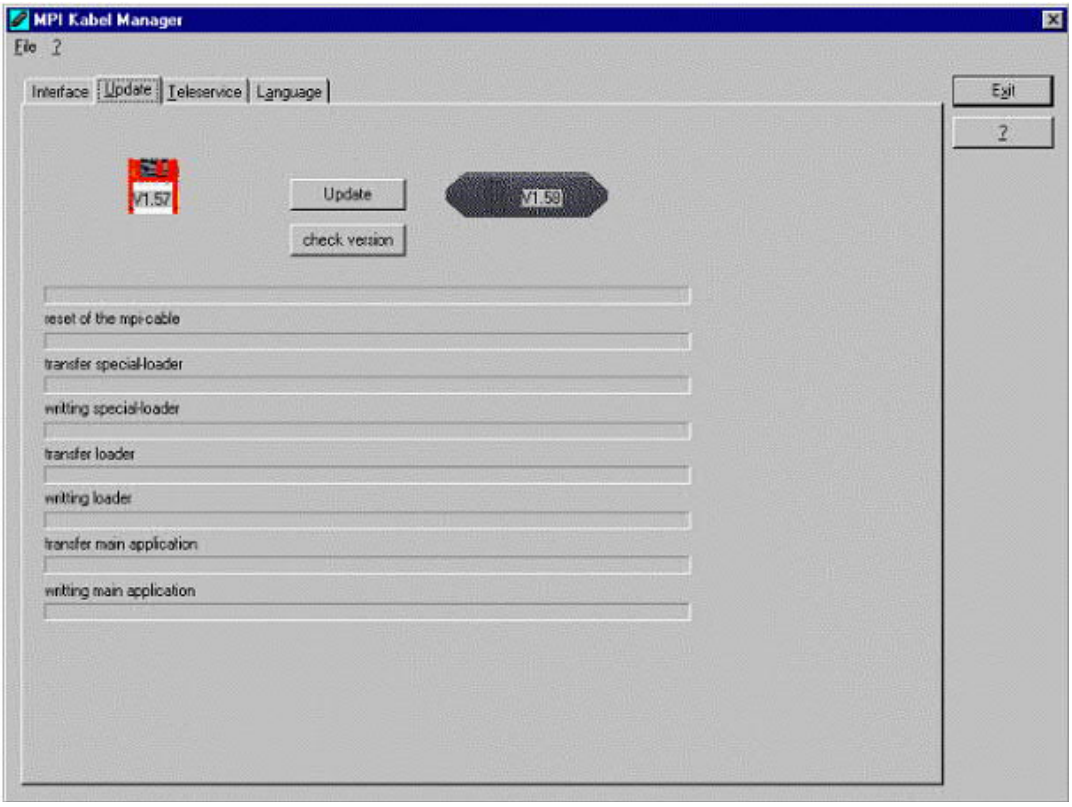
In „set interface“ you can choose the COM-port you device is connected at. Only the COM-port which was aktive at starting the MPI-Kabel-Manager are shown.

„Search“ update the COM-port listed in „set interface“ and put the Kabelmanager to the respective COM-port.

For access query choose „Direct“ if your product connects via USB-cable or Nullmodem-cable. „Modem“ if your product connects via telephone line or „TELE-Network“ if your product connects with a TELE-Network device via telephone line.

The bars below shows at which COM-port something was found or not.

10.3.3 Update



The diskette show the current operating system installed on your PC for corresponding product.

The cabel-symbol on the right show the operating system which is installed on your product at the moment.

With the button „default settings“ you can set your products on default settings. Should the device be out of order after configurated. This button is selectable after the version check.

With „Update“ you can install the current operating system. This button also is selectable after version check.

With „version check“ your cable which is connected to the COM-Port reviewed.

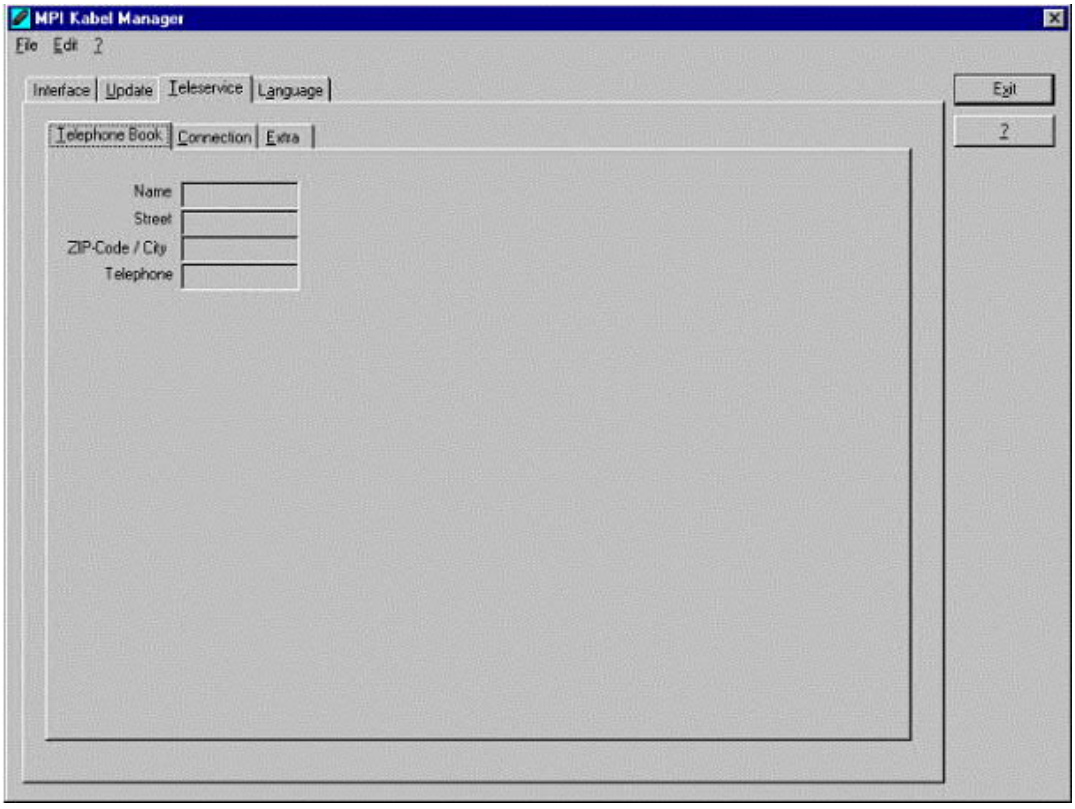
The symbol next to version check shows the running update.

While update do not plug out the cable from the PLC or turn off the power supply (The cable will lost all data)!

If the update is breaking before finished, it could be that the MPI-Cable displays in the first line of the LCD „Load 1.50“ and in the second line „CheckUpd“. Close the MPI-Cable-Manger and restart it. After “check version” (which could time about 30 seconds) and following „Update“ the broken update is restarted and finished.

10.3.4 Teleservice

In this dialog the spezific configuration of the Tele-Service is taken. There are 3 Tabs, where the last one is activated:



10.3.4.1 Telephone book

At the moment not implemented!

In this dialog you could define new elements or edit/erase existing elements in your telephone-book.

You could edit the following data:

=> Name for the connection (these are displayed at connection)
=> street
=> ZIP-code and country
=> Telephone number you can reach the TS-adapter

10.3.4.2 Connect

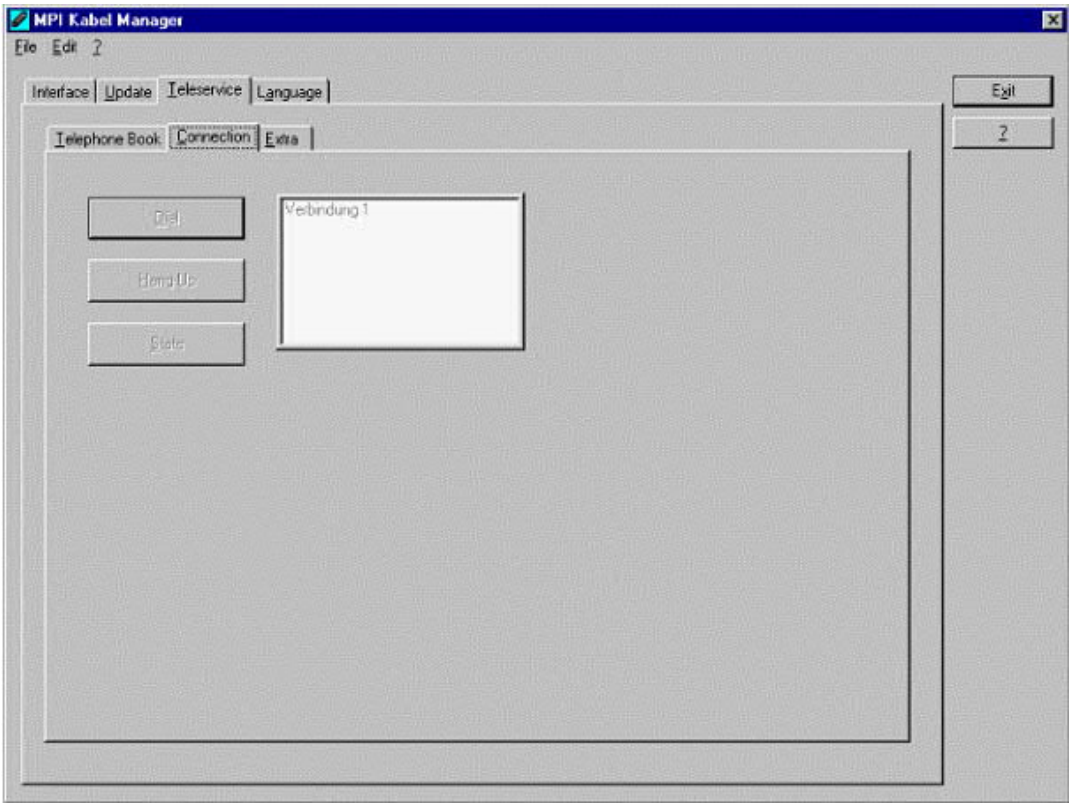
At the moment not implemented!

In this dialog the connection to another modem with a MPI-cable connected is started. Choose on the right side the named connection, then press „connect“ to establish it.

With „Hang-Up“ you could stop an existing connection.

With the button „State“ the state of the connection is displayed at the lower side of the dialog.

10.3.4.3 Extra



In this dialog, all configuration to the TS-adapter is done.

The actual state of the MPI-cable is displayed right of the button “TS-function”, where the follwing 4 possible Messages could apear:

„TS-Adapterfunction is NOT activ. To activate press TS-function“

The MPI-cable acts like an PC-Adapter. There will no answer for TS-spezific protocols, the attached modem will not initialized and the baud-rate to the PG/Modem is not fixed. The baud-rate is detected automatically.

„TS-Adapterfunktion is ACTIVE. To disable press TS-function“

The MPI-cable acts like an TS-Adapter. There will an answer to TS-spezific protocols, the adapter could now configured. An attached Modem will be initiliazed and the baud-rate to the modem is fixed.

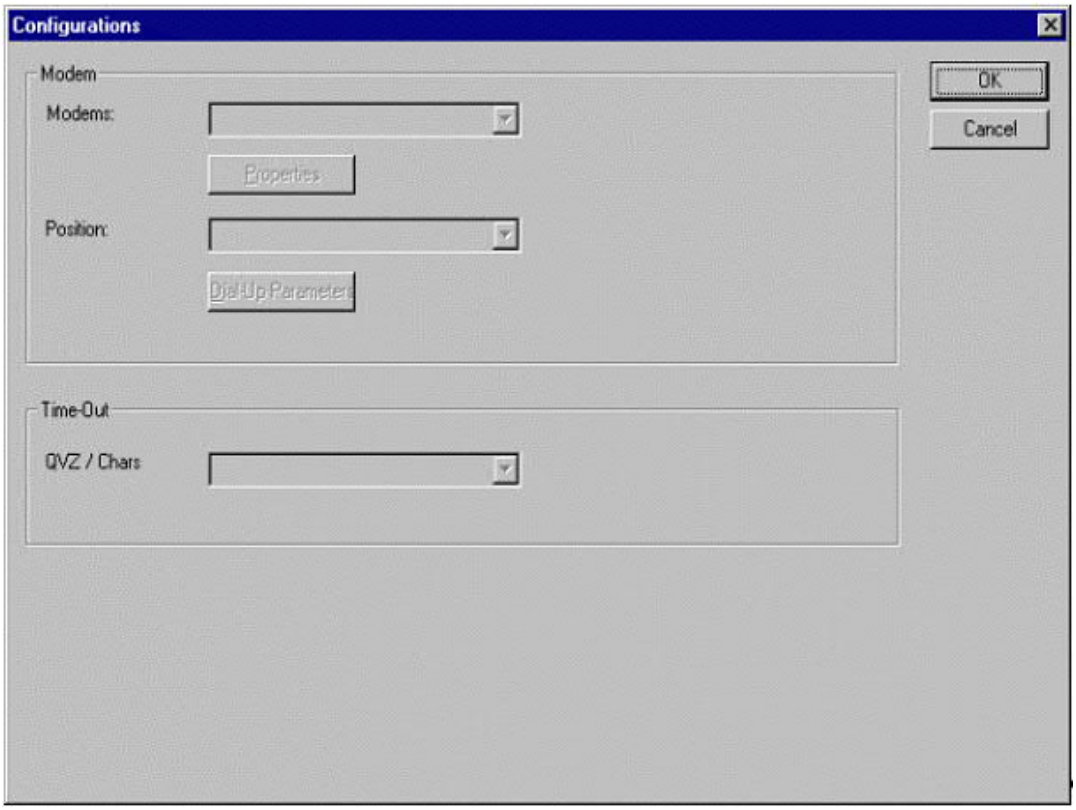
„SNDERR“ or „RCVERR“

There is a communication error at sending or recieving data from the mpi-cable. Disconnect the MPI-cable from the power supply (PLC). Change to the tab Connect and after that back to Extra. If the problem remains, check the connection to the MPI-cable, especially the COM-port in the dialog interface.

With the buttons you could define which modem is used, activate or disable the TS-function or configure the TS-adapter:

10.3.4.3.1 „Setup“

In the follwing dialog you could choose the used modem.



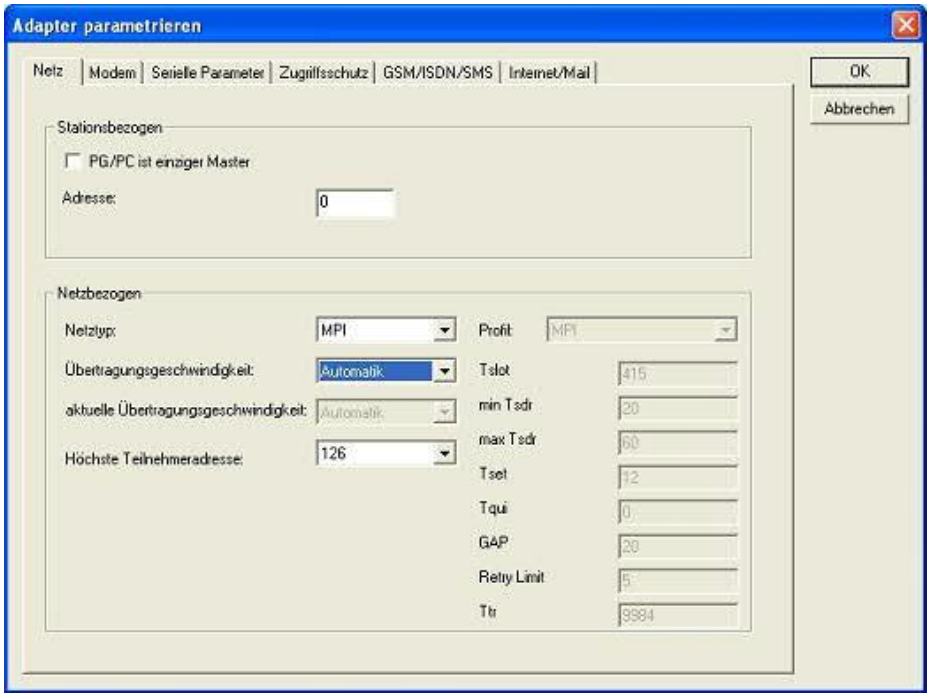
10.3.4.3.2 „TS-function“

With this button you select the function of the MPI-cable as TS- or PC-adapter. Right of this button the actual state of the MPI-cable is displayed.

10.3.4.3.3 „configure adapter“

In the following dialog you could, after activating the MPI-cable as TS-adapter, configure the TS-spezific setup.

Network



station related:

Here you can configurate following:

The TS-Adapter is the one and only master in the MPI-bus

Which local station-address is used for the TS-Adapter. Please consider that a programming device has normally the number 0, operator panel have 1, PLC's use 2, FM/CP's 3 etc.

Please: Never use the same station-number for 2 different stations!

network related:

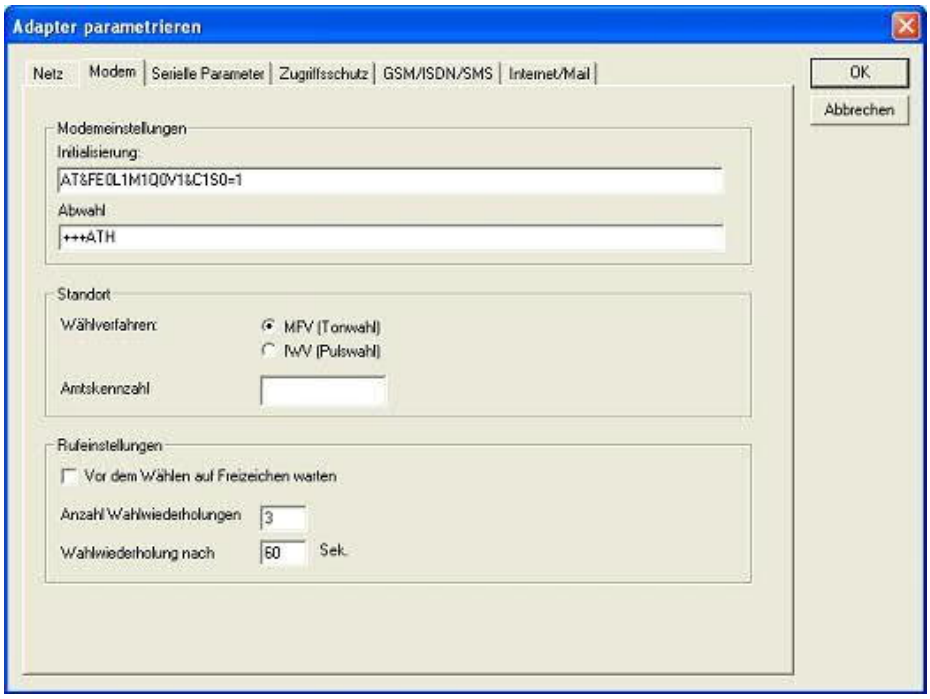
Here you can configurate following:

The Nettype MPI or PROFIBUS

The transfer-speed on the MPI-bus

The highest station-adress in the bus (the less you use, the more performanceon the MPI-bus, must be corresponding with the configuration in the PLC's)

Modem



In this dialog you could configure the modem-related setup.

The Init-String is composed out of several commands to the modem:
AT => start command
&F => use factory settings
E0 => Echo off
L1 => loudness of speaker is low
M1 => speaker is on at connection
Q0 => output of the return values
V1 => return values plain text
&C1 => DCD shows status of the carriersound
S0=1 => automatic connection after 1 ring

The Hang-Up-String is composed of 2 elements:
+++ => Change to command-mode
AT => start command
H => Hand-Up connection

Ther are 2 possible calling technics:
MFV tone, the telphone-number is transfer by several frequencies
IWV pulse, the telephone-number is transfered with the count of several pulses on the line

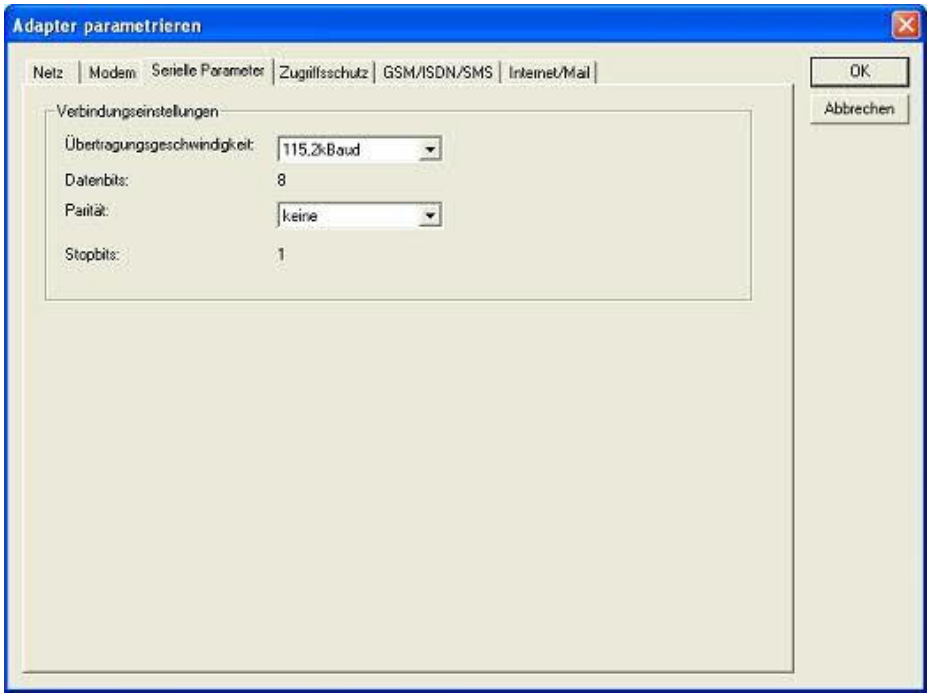
When you must a pre-call to establish a call outside your company, you could define it at Amtskennzahl.

When the modem should wait for a free line, so you should set the corresponding checkbox.

At number of retries you could configure the number of retries for a connection before the call is stopped.

When using a retry you could choose the seconds which the application should wait between calls.

Serial parameter

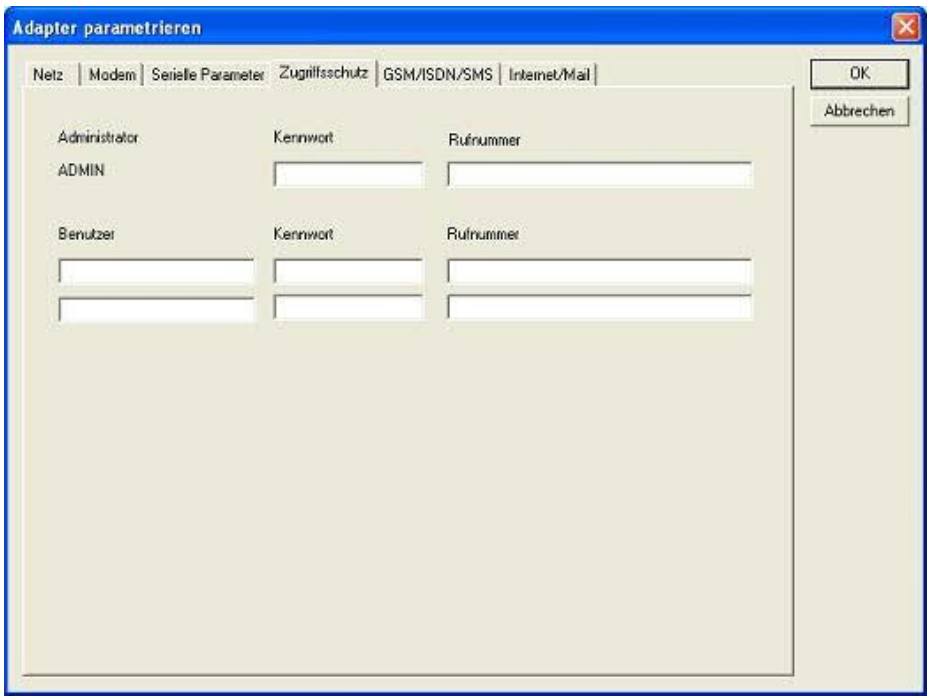


In this dialog the transfer-rate between modem and TS-Adapter is selected.
The transfer-rate could choosen between the follwing values:
2400, 4800, 9600, 19.2k, 38.4k, 57.6k and 115.2kBaud

The Parity could be choosen, but this is modem-dependant because some modems could not transfer the parity-bit:

None: (There is no parity testing)
Odd: (The number of one-bits are odd)
Even: (The number of one-bits are even)

Password



The Access over a telephone-line on the PLC could be configured in this dialog.

The Administrator could change the configuration over a telephone line, where an 2 User could not change the configuration.

The User-Name is maximal 8 Chars long.Every user and the administrator could use a password which is used to log into the PLC over a telephone-line. These have to enter for each new call.

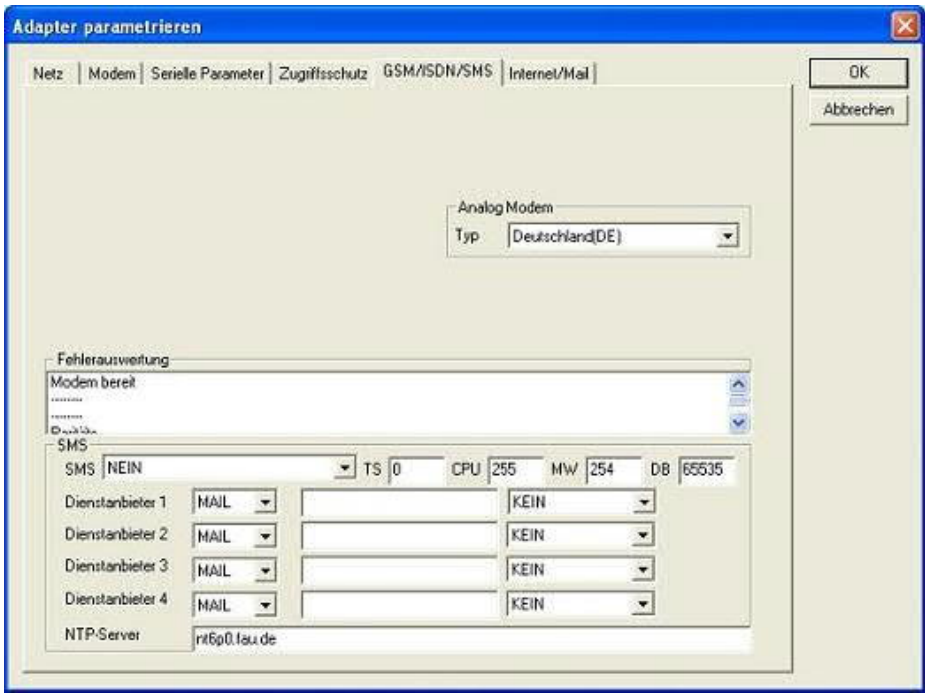
After 3 wrong retries the connection is hanged up, so you must call again (Not so with an original TS-adapter).

After changing the password for one user/administrator you must re-type it again correctly before it is used.

In call-back-number you could define a telephone-number which is used for call-back from the TS-adapter. After you connect with the TS-adapter, you are asked for your user-name and password. When the correct password and user-name is transfered, the connection is hanged-up and the TS-adapter is calling back this configured call-back-number.

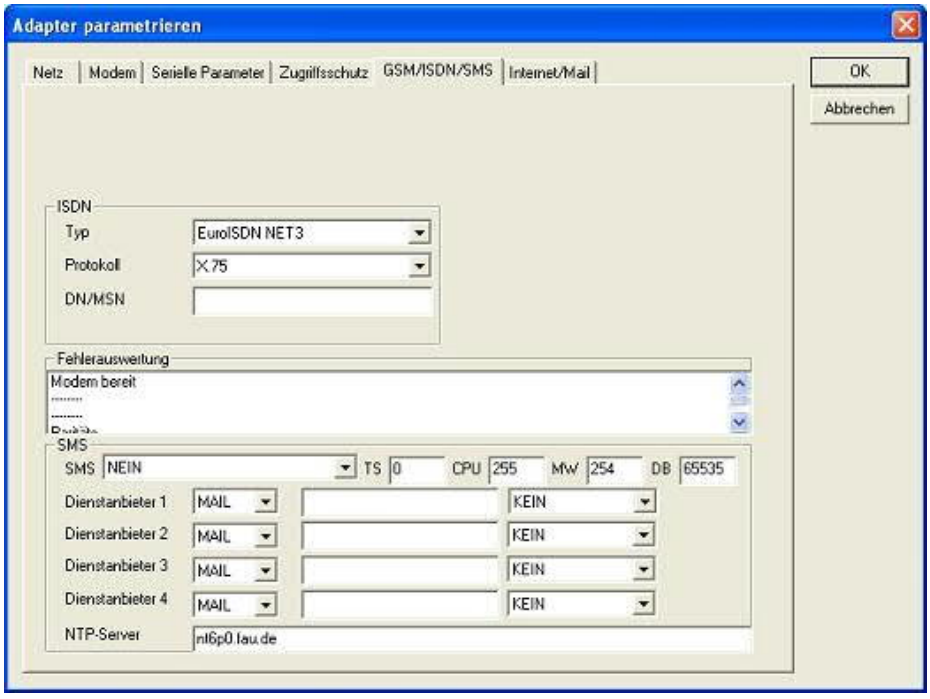
GSM/ISDN/SMS

Analog modem:



You could choose the Location of the Modem.

ISDN modem:



Type: Choose the type of the ISDN-network switch:

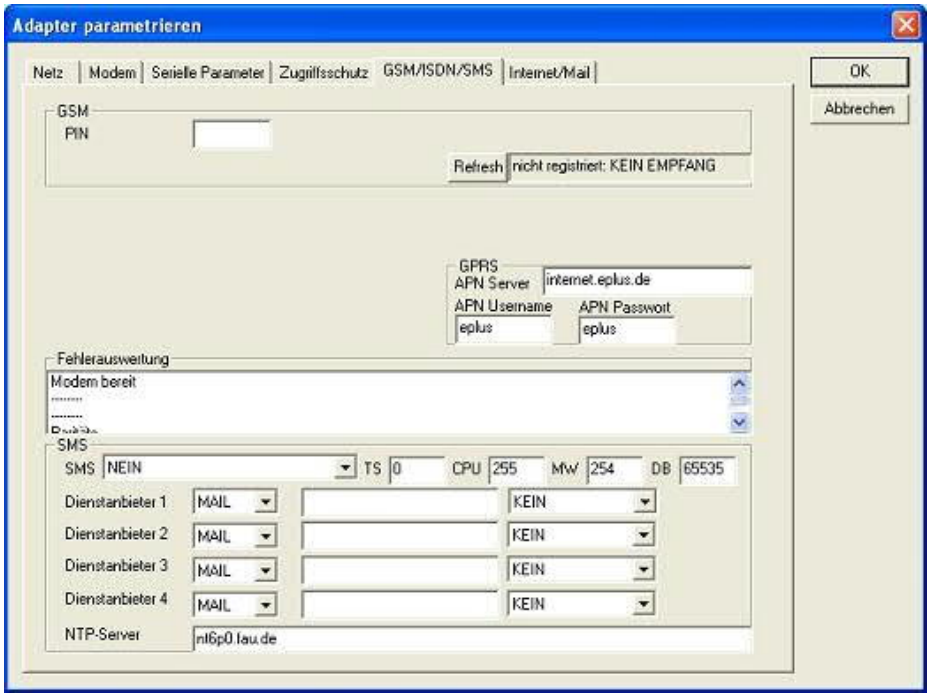
AT&T 5ESS
Nothern Telecom DMS-100
EuroISDN NET3 (Standard)
INS64
US NI-1
VN4

Protocol: Choose the transfer-protocol-type:

Modem like
V.120
X.75 (Standard)
ML-PPP
SoftBonding
HDLC
CLEAR

DN/MSN: Directory Number resp. Multiple Subscriber Number Is used for both ISDN-channels. When using the number 255 no DN/MSN is used.

GSM modem:



PIN: PIN-Number of the SIM-Card, up to 8 numeric chars, (only for TELE-SERVICE GSM).

Provider: With the button „Provider“ the provider could be choosen. Reading of the list of providers could be elapse more than a minute. At end the possible provider are listed for selection. With „Automatic“ the GSM-Modem tries to connect automatically to a provider. On the right side of the button, the actual used selection is displayed.

Display Description:

Automatic: The provider is automatically searched and selected from the GSM-modem.
Manual: The Provider is selected manually from the GSM-Modem
no network registered: No connection to the GSM-network, the receive-quality is too bad
set format: The format of the provider is set
Manual/automatic: The modem tries to select manually the provider, if this fails an automatic search is done
unknown: Unknown response from GSM-Modem

Refresh: The button „Refresh“ reads from the Modem the receive quality, the quality is displayed.

Display Description:

Unknown: Unknown state of the GSM-network
no registration: The modem is not registered in the GSM network, no provider found
registration denied: Registration in the GSM-network is denied
Search network: In Search for a GSM-Provider
GSM: Attached to GSM
GSM(ROAMING): Attached to GSM, but with a Roaming-Partner. This could lead to high costs!

The Receive Quality is displayed, also as value together with the bit-error-rate.

Value Description:

99 No network, no receive
00 Very, very bad receive-quality
01 Very bad receive-quality
02 to 09 Bad receive-quality
10 to 17 Medium receive-quality
18 to 25 Normal receive-quality
26 to 30 Good receive-quality
31 Best receive-quality

Messages:

The possible error conditions for the modem, mpi-bus-problems or other problems are displayed

in this text-field. Firstly, the modem-related information is shown:

Message
Modem ready
Modem error
No answer from modem
Modem detects ring
End of connection
connected via modem line
No dialtone detected
Phone-line or telephone busy
Phone-number is blacklisted in modem
Phone-number delayed. Access denied for 1 minute.
Fax-call detected
Data-call detected
unknown error
The selected direct-access-number not configured
The configured PIN-Number is wrong for the inserted SIM-Card
The SIM-Card is not or wrong inserted or the SIM-Card is a 5V Type

Following the possible MPI-Bus error-messages

Message
MPI/Profibus-Configuration erroneous
Timeout at MPI/Profibus detach from device.
The local station-address is used twice in the MPI/Profibus.
A20/M20/TC35 Modem operation
The MPI/Profibus is not correctly configured
The HSA is not configured optimal
The MPI/Profibus-Baudrate is not detectable
Overflow in the internal MPI-Readbuffer
Overflow in the internal LAN-Readbuffer
Overflow in the serial Buffer
The selected MPI/Profibus-Baudrate is wrong
Overflow in internal LAN-Writebuffer
LAN-Recieve-Error
LAN-Send-Error
The PD-Numberr is wrong
The transferred SAP is wrong/unknown

ErrCode 01: The Destination address (XXX) of a State protocol > 127 detected. In the MPI/Profibus-Bus there are no stations possible which station number is greater than 127. (FC=YYh)

ErrCode 02: At state-protocol the Source-Address is detected as 127. This is the Broadcast-address which is not possible.

ErrCode 03: The received State protocols destination address (XXX respectively YYY) does not exist in the MPI-Bus. (FC=ZZh)

ErrCode 04: The function-code (YYh) of the received State protocol from XXX is incorrect. The 7th Bit is High, but according to the specification the Bit has to be low.

ErrCode 05: A State protocol has been received. But the function-code (YYh) means that the participant is not ready to enter the bus.

ErrCode 06: The function-code in the State-protocol received from XXX is unknown (FC=YYh)

ErrCode 11: The sender (XXX) of the received data-protocol is unknown. To send data the participant must get the Token. (SSAP=YYh, FC=ZZh, length=UUU)

ErrCode 12: Data-protocol with Source-address 255 (Broadcast) is useless. (CPU=XXX, SSAP=YYh, FC=ZZh, length=UUU)

ErrCode 13: The sender (XXX) of the received data-protocol is unknown. To send data the participant must get the Token. (SSAP=YYh, FC=ZZh, length=UUU)

ErrCode 14: The 7th Bit of the function-code is High, but according to the specification the Bit has to be low. (CPU=XXX, SSAP=YYh, FC=ZZh, length=UUU)

ErrCode 15: The upper 4 Bit of the Function-code are wrong/unknown)
(CPU=XXX, SSAP=YYh, FC=ZZh, length=UUU)

ErrCode 16: Unknown function-code has been transmitted to the cable. (CPU=XXX, SSAP=YYh, FC=ZZh, length=UUU)

ErrCode 17: Destination-SAP are defined till 3Fh in data-protocols. (CPU=XXX, SSAP=YYh, FC=ZZh, length=UUU)

ErrCode 18: Source-SAP are defined till 3Fh in data-protocols. (CPU=XXX, SSAP=YYh, FC=ZZh, length=UUU)

ErrCode 19: Received a data-protocol with destination-SAP=0, Connection request from another bus-participant with our cable. (CPU=XXX,SSAP=YYh,FC=ZZh,DSAP=UUh)

ErrCode 1A: Participants are sending data to our cable with source-SAP = 0, which means that the participant has not made a connection establishment or has lost the negotiated SAP.
(CPU=XXX,SSAP=YYh,FC=ZZh,DSAP=UUh)

ErrCode 1B: Data-protocol with unknown data-function-code received.
(CPU=XXX,SSAP=YYh,FC=ZZh,DFC=UUh)

ErrCode 1C Data-protocol with unknown data-function-code received.
(CPU=XXX,SSAP=YYh,FC=ZZh,DFC=UUh)

ErrCode 1D: Received a state-protocol with error-code.
(CPU=XXX,FPGA=YYh,RAM=ZZh)

ErrCode 1E: FPGA has caused an interrupt although no data present.
(SD1=XXh,SD1=YYh,CPU=ZZZ,FC=UUh)

ErrCode 20: Unknown protocol at PPIMultimaster-Mode. (FC=XXh,Länge=YYY)

ErrCode 21: Unknown baud-rate at PPIMultimaster-Mode. (Baudrate=XXh)

After that additional hints are displayed.

SMS:

SMS: Switches Processing OFF / Only Receive / Only Send / Receive and Send.

Attention: before setting ON check configuration, after activating the device will go into the MPI-BUS and tries to connect to the defined PLC. Receive of SMS only with TELESERVICE-GSM Receive of DTMF only with with TELESERVICE GSM

TS: local station-address (should not be used twice in the MPI/Profibus!)

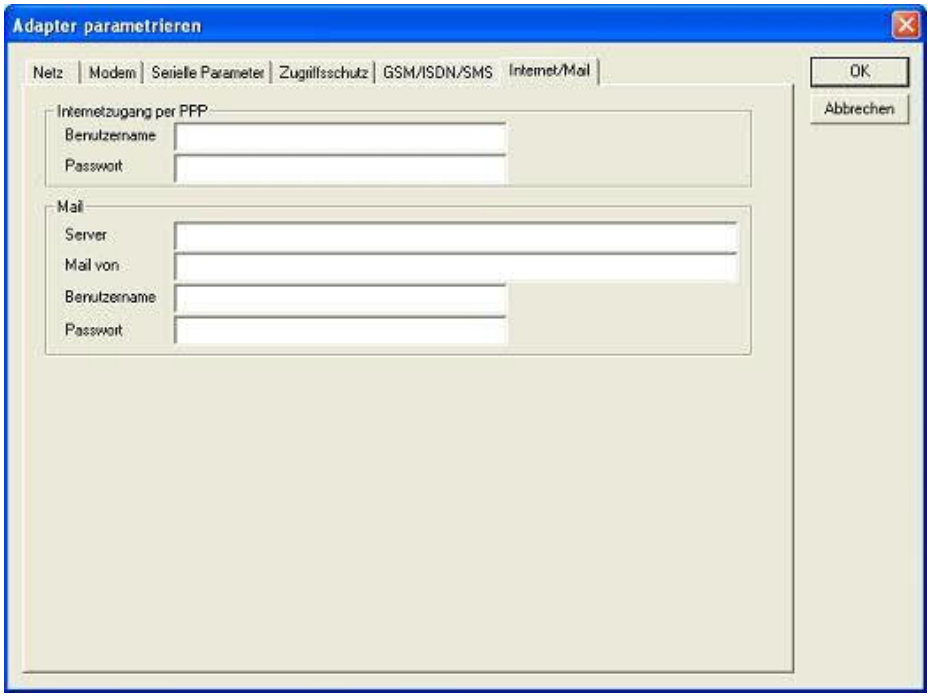
PLC: from this station-address the Flagword and Data-block is accessed for communication

MW: communication-flagword (the first byte is the command, the second is the state). Use even operand-addresses.

DB: communication-data-block.

Provider 1/2/3/4: Configure the SMS-Provider to use, including type, phone-number and char-code.

Internet/Mail



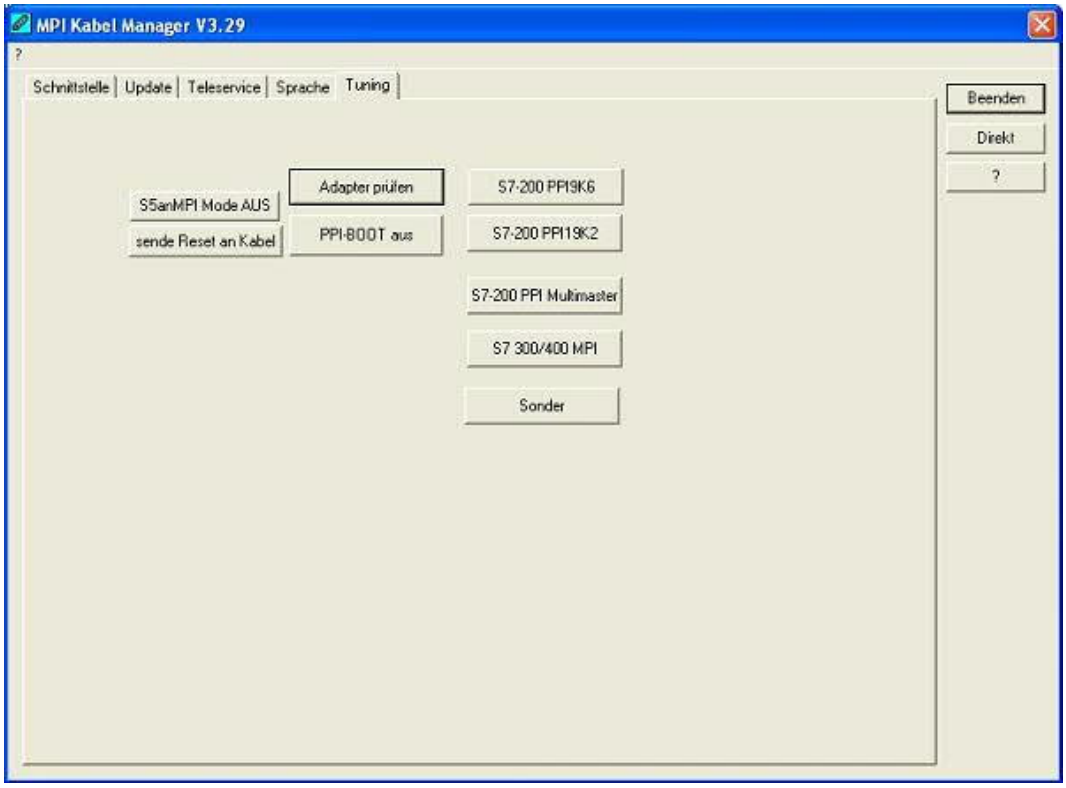
10.3.4.3.4 „Import parameter“

With this button you could import the parameter from an ASCII-file. This file is compatible to the original file-format.

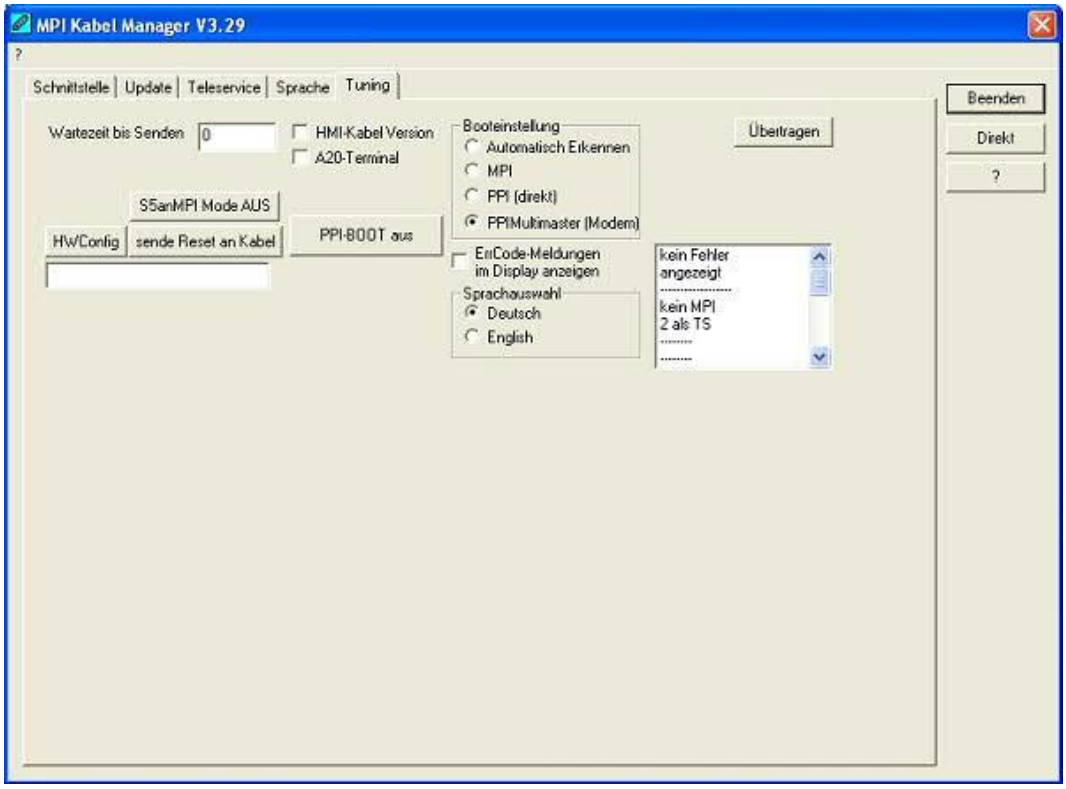
10.3.4.3.5 „Export parameter“

With this button you could export the parameter to an ASCII-file which has the same file-format as the original.

10.3.5 Tuning



This tab is only used in some special cases. If you press the button „Check Adapter“ the cable is connected und after that the following dialog is displayed:



There are the following configuration possible, they will be transferred to the MPI-Cable by pressing the button „Transfer“. The configuration is saved permanently in the Flash-ROM:

Time to send:

At ProTool RT the communication could break down, because the MPI-Cable is transferring the answer-protocol to fast. In this property you could insert a time in 0.1ms ticks. Insert at first 300, to great values are preventing the communication.

HMI-Cable-Version:

Some Touch-panels have the problem, that when they get a wrong version-information they

never retry to connect (and then the correct version is transferred). In this case the HMI-version-information could be transferred immediately.

A20-Terminal:

When using the A20 or M20-Terminal, the control-lines on the serial port are not used. In that case the tele-service-function is not working. With this property the control-lines are no longer used and therefore the A20/M20 can communicate over tele-service.

Bootconfiguration:

Normally the MPI-Cable automatically selects the correct bus-type, no changes are needed. In special-cases the MPI-Bus could be selected as PPI.

For example: This application and the PLC are powered on at the same time. The application is communicating immediately with the cable, the PLC is booting, in this case the MPI-Bus is not driven. The MPI-Bus is erroneous, so no communication is starting.
If this occurs you could choose, that the cable is working as MPI-Adapter only..

Language:

You could select the language which is used from the cable (German or English).

11 Technical data

Supply voltage:	24V DC +/- 20%
Power consumption:	5 watt
Display:	detailed status indication via 10 LEDs
Handling/Configuration:	TIC-driver
Interfaces:	**to the PLC:** PPI/MPI/Profibus interface: 9,6 KBd - 12 MBd **to the PD/PC:** RS232: 9,6 KBd - 115,2 KBd / with a 1on1-cable to the PC USB 1.1 jack type B **others:** -
Integrated modem:	56K-analogue modem / ISDN-modem / GSM-modem
Operating temperature:	-30 - +55°C
Case:	single-size standard S7-300-case
Dimensions:	40 x 125 x 115 mm
Scope of delivery:	
	TeleService-device MPI-conncting-cable 1m Power connector 2pins big For Analogue-version: telephone-cable TAE For ISDN-version: telephone-cable ISDN For GSM-version: magnetic base antenna

11.1 Pin assignment RS232

Pin number	Short form	Designation	Direction
1	DCD	receive line signal detected	input
2	RXD	receive data	input
3	TXD	transmit data	output
4	DTR	data device is ready	output
5	GND	signal mass	input
6	DSR	transmission means is ready	input
7	RTS	request to send	output
8	CTS	clear to send	input
9	RI	call sign	input

The interface is occupied as a PC. You need a null modem cable at the computer for the connection. Optionally the end of the cable can be extended with a 1:1 extension cable up to 15m. On a good quality of the extension cable should be respected.

11.2 Pin assignment null modem cable

Pin number TS	Short form	Designation	Pin number PC
1	DCD	detected the receive line signal	7, 8
2	RXD	receive data	3
3	TXD	transmit data	2
4	DTR	data device is ready	6
5	GND	signal mass	5
6	DSR	transmission means ready	4
7	RTS	request to send	1
8	CTS	clear to send	1
9	RI	call sign	9

11.3 Pin assignment USB

Pin number	Short form	Designation	Direction
1	NC	not used	
2	D –	data line –	Bi - directional
3	D +	data line +	Bi - directional
4	GND	signal mass	input

Attention:

Do not extend The USB cable. (maximum cable length is 5 m)

An extension would reduce the signal quality of the bus and cause transmission errors!

11.4 Pin assignment

Pin No.	Notation	Signalname	Direction (of cable)
1	NC	Not Connected	
2	M24V	Ground of the 24V	In
3	Ltg_B	Data line B	BiDir.
4	RTS-AS	Request to Send from the PLC	In
5	M5V	Ground of the 5V	IN
6	P5V	5V output	Out
7	P24V	24V Supply input	IN
8	Ltg_A	Data line A	BiDi
9	RTS-PG	Request to Send to the PLC	Out

Note

The shield is attached with the MPI/PPI connector via the shield of the adapter casing. To find directly attended PLC´s , RTS-AS and M5V must be connected in the cable. P5V means a output of the cable and works only as an output for a bus-termination with resistors. This 5V output doesn't drive any load and have a 100R resistor inside his direction.

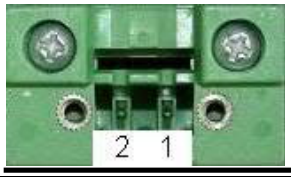
observe:

Don't lengthen the connection by a 1:1 cable to the PLC, because there are 24V and 5V inside of the cable. The quality of the bus-signal will be risen down!

To lengthen the connection, please use a MPI-NETZ-Adapter and connect only the signals Ltg_A and Ltg_B 1:1 and the shield at both sides of the metal-casing at the SUB-D connector

For an extension of the cable please supply the cable with external power and only prolong the signals Ltg_A and Ltg_B 1:1. Connect the shield on the SUB-D connector, possibly include a termination resistors (on the bus-END).

11.5 Pin assignment power connector



Pin number	Short form	Designation	Direction
1	P24V	24V DC voltage	input
2	GND	mass	output

11.6 Pin assignment RJ12

Pin number	Short form	Designation
1	NC	not connected
2	NC	not connected
3	A	A-line
4	B	B-line
5	NC	not connected
6	NC	not connected

11.7 pin assignment ISDN

Pin no.	Short Form	name	direction
1	NC	Not connected	
2	NC	Not connected	
3	TX +	Send line +	Out
4	RX +	received line +	In
5	RX –	received line –	In
6	TX –	Send line –	Out
7	NC	Not connected	
8	NC	Not connected	

12 Troubleshooting

12.1 Troubleshooting

I have the problem that a remote maintenance not can be realized with an USB-to-serial converter via a standard modem. Why is that?

Many of these USB to serial converters which can be bought on the market, can not reproduce all signals of a real serial interface. You can buy an alternative from us:

designation : USB to Serial converter cable
item number: 9359-1-RS232

I use a laptop with an integrated modem as programming device. At the remote maintenance via teleservice there are disconnects again and again.

According to the specification, the carrier frequency is constant. However, some laptop soft modems do not maintain this. Laptop modems are designed primarily for dialing into the internet, where the frequency is set by the provider. Our suggestion is to use an external modem instead.

The connection can not be established to the facility modem. However, I get a dial tone when I call the GSM modem.

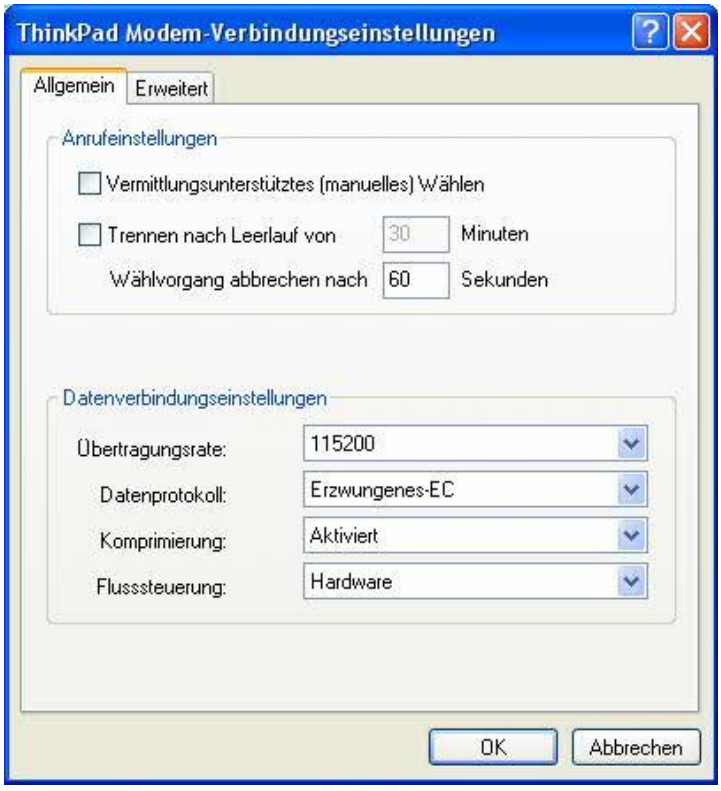
Make sure that the CSD protocol is enabled for your SIM card and you have dialed the correct phone number. For more details, see the TeleService manual under the chapter SIM card selection.

Can also be used SIM cards for remote maintenance with the TeleService GSM, which are normally used to make calls with the phone?

On the SIM card must be enabled the CSD protocol, which is required to use the incoming data service. This is usually unlocked by default at SIM cards that can be used to make calls, but it also can be done later.

I use the operating system Windows 2000. Again and again there are connection aborts.

In a connection without error control, it may often happen that the connection fails. Therefore you should set the data protocol " Forced EC", in the modem properties in your TeleService software:



Must the last state to be safe after the take back of the order-flag bytes, or must be short waited always before resetting?

The TeleService first enter the state and then the job is deleted in the command byte.

Example:
MW254 01xxh
Then 0180h
Then 0080h

Waiting time is not necessary after deleting the command byte.

What makes the teleservice if during the execution of an order the communication flag word from the controller is set to zero?

This is not permitted. The CPU should not change the flag word during the execution of an order.

Exception: At the DTMF receiving it is possible to write the value 2000h in the flag word 254. As the status byte then is entered C0h.

Is the last status always be 76h or 80h when sending or can it stand on 73h?

It also can appear other feedbacks:

71h = Provider unknwon
72h = Timeout at the communication with the provider
73h = SMS provider has returned an error message or do not reply
74h = Provider CallCenter not possible
76h = SMS message could not be sent

Is it still possible to send a SMS if the space on the SIM card is saturated by unread SMS?

At TAP and UCP is called a phone number of a service provider (SMS), the communication is executed via the respective protocol (whether GSM, ISDN or analog). This is nothing else than a data connection. With GSM, no new message will be generated (sent items) in the message buffer of the SIM card, but transferred directly to the GSM modem. Sending is possible even with a full receive buffer.

What should I note, if I want to call your technical support?

Please keep ready all relevant information of your system constellation, with the connected participants and program modules.

13 Miscellaneous

13.1 Possible deployment-countries of teleservice analog

(Countries in the English spelling)

Afghanistan(AF)
Albania(AL)
Algeria(DZ)
American Samoa(AS)
Andorra(AD)
Angola(AO)
Anguilla(AI)
Antarctica(AQ)
Antigua and Barbuda(AG)
Argentina(AR)
Armenia(AM)
Aruba(AW)
Australia(AU)
Austria(AT)
Azerbaijan(AZ)
Bahamas(BS)
Bahrain(BH)
Bangladesh(BD)
Barbados(BB)
Belarus(BY)
Belgium(BE)
Belize(BZ)
Benin(BJ)
Bermuda(BM)
Bhutan(BT)
Bolivia(BO)
Bosnia and Herzegowina(BA)
Botswana(BW)
Bouvet Island(BV)
Brazil(BR)
British Indian Ocean Territory(IO)
Brunei Darussalam(BN)
Bulgaria(BG)
Burkina Faso(BF)
Burundi(BI)
Cambodia(KH)
Cameroon(CM)
Canada(CA)
Cape Verde(CV)
Cayman Islands(KY)

Central African Republic(CF)
Chad(TD)
Chile(CL)
China(CN)
Christmas Island(CX)
Cocos (Keeling) Islands(CC)
Colombia(CO)
Comoros(KM)
Congo(CG)
Cook Islands(CK)
Costa Rica(CR)
Cote D'Ivoire(CI)
Croatia(HR)
Cuba(CU)
Cyprus(CY)
Czech Republic(CZ)
Denmark(DK)
Djibouti(DJ)
Dominica(DM)
Dominican Republic(DO)
East Timor(TP)
Ecuador(EC)
Egypt(EG)
El Salvador(SV)
Equatorial Guinea(GQ)
Eritrea(ER)
Estonia(EE)
Ethiopia(ET)
Falkland Islands (Malvinas)(FK)
Faroe Islands(FO)
Fiji(FJ)
Finland(FI)
France(FR)
France-Metropolitan(FX)
French Guiana(GF)
French Polynesia(PF)
French Southern Territories(TF)
Gabon(GA)
Gambia(GM)
Georgia(GE)

Germany(DE)
Ghana(GH)
Gibraltar(GI)
Greece(GR)
Greenland(GL)
Grenada(GD)
Guadeloupe(GP)
Guam(GU)
Guatemala(GT)
Guinea(GN)
Guinea-Bissau(GW)
Guyana(GY)
Haiti(HT)
Iran(Islamic Republic of)(IR)
Iraq(IQ)
Ireland(IE)
Israel(IL)
Italy(IT)
Jamaica(JM)
Japan(JP)
Jordan(JO)
Kazakhstan(KZ)
Kenya(KE)
Kiribati(KI)
Korea-Democratic People's Republic of(KP)
Korea-Republic of(KR)

Heard and Mc Donald Islands(HM)
Honduras(HN)
Hong Kong(HK)
Hungary(HU)
Iceland(IS)
India(IN)
Indonesia(ID)
Libyan Arab Jamahiriya(LY)
Liechtenstein(LI)
Lithuania(LT)
Luxembourg(LU)
Macau(MO)
Macedonia-The Former Yugoslav Republic of(MK)
Madagascar(MG)
Malawi(MW)
Malaysia(MY)
Maldives(MV)
Mali(ML)
Malta(MT)
Marshall Islands(MH)
Martinique(MQ)
Mauritania(MR)
Mauritius(MU)
Mayotte(YT)
Mexico(MX)
Micronesia(Federated States of)(FM)
Moldova-Republic of(MD)
Oman(OM)
Pakistan(PK)
Palau(PW)
Panama(PA)
Papua New Guinea(PG)
Paraguay(PY)
Peru(PE)
Philippines(PH)
Pitcairn(PN)
Poland(PL)
Portugal(PT)
Puerto Rico(PR)
Qatar(QA)
Reunion(RE)
Romania(RO)
Russian Federation(RU)
Rwanda(RW)
St. Helena(SH)
Saint Kitts and Nevis(KN)
Saint Lucia(LC)
Svalbard and Jan Mayen Islands(SJ)
Swaziland(SZ)
Sweden(SE)
Switzerland(CH)
Syrian Arab Republic(SY)
Taiwan-Province of China(TW)
Tajikistan(TJ)
Tanzania-United Republic of(TZ)
Thailand(TH)
Togo(TG)
Tokelau(TK)
Tonga(TO)
Trinidad and Tobago(TT)
Tunisia(TN)
Turkey(TR)
Turkmenistan(TM)
Turks and Caicos Islands(TC)
Kuwait(KW)
Kyrgyzstan(KG)
Lao People's Democratic Republic(LA)
Latvia(LV)
Lebanon(LB)
Lesotho(LS)
Liberia(LR)
Monaco(MC)
Mongolia(MN)
Montserrat(MS)
Morocco(MA)
Mozambique(MZ)
Myanmar(MM)
Namibia(NA)
Nauru(NR)
Nepal(NP)
Netherlands(NL)
Netherlands Antilles(AN)
New Caledonia(NC)
New Zealand(NZ)
Nicaragua(NI)
Niger(NE)
Nigeria(NG)
Niue(NU)
Norfolk Island(NF)
Northern Mariana Islands(MP)
Norway(NO)
St. Pierre and Miquelon(PM)
Saint Vincent and the Grenadines(VC)
Samoa(WS)
San Marino(SM)
Sao Tome and Principe(ST)
Saudi Arabia(SA)
Senegal(SN)
Seychelles(SC)
Sierra Leone(SL)
Singapore(SG)
Slovakia(SK)
Slovenia(SI)
Solomon Islands(SB)
Somalia(SO)
South Africa(ZA)
South Georgia and the South Sandwich Islands(GS)
Spain(ES)
Sri Lanka(LK)
Sudan(SD)
Suriname(SR)
United Arab Emirates(AE)
United Kingdom(UK)
United States(US)
United States Minor Outlying Islands(UM)
Uruguay(UY)
Uzbekistan(UZ)
Vanuatu(VU)
Vatican City State (Holy See)(VA)
Venezuela(VE)
Vietnam(VN)
Virgin Islands (British)(VG)
Virgin Islands (U.S.)(VI)
Wallis and Futuna Islands(WF)
Western Sahara(EH)
Yemen(YE)
Yugoslavia(YU)
Zaire(ZR)

Tuvalu(TV)
Uganda(UG)
Ukraine(UA)
Zambia(ZW)
Zimbabwe(ZW)

13.2 SMSC providers

Country	Provider	SMSC number
Albania	AMC	+355-3820
	Vodafone	+355 69 2000 200
Andorra	???	+376-301004
Australia	One.Tel	+61-411990001
	Vodafone	+61-415011501
	Telstra	+61-418706700
	Telstra	+61-418706800
	Telstra	+61-418706900
	Optus	+61-412025989
	Optus	+61-411990000
	Optus	+61-411990001
	Optus	+61-411990003
Austria	A1	+43-6640501
	Connect ONE	+43-6990001999
	Max-Mobil	+43-676021
	Tele.ring	+43-65009000000
Azerbaijan	Azercell	+994-509103300
	Bakcell	+994-557070707
Baharain	Batelco	+97392
	Batelco	+97394
	Batelco	+97396
	Batelco	+973973
	Batelco	+97398
Bangladesh	GrameenPhone	+88017099999
	GrameenPhone	+88017500569
Belgium	Mobistar	+32-95955205

	Mobistar	+32-495002530
	Proximus	+32-475161616
	Orange	+32-486000005
Bosnia and Herzegovina	PTT GSM BIH	+387-66125522
Botswana	Mascom Wireless	+267-71010024
	Vista Cellular	+267-72000003
Brunei	Darussalam	+673879500
Bulgaria	MobilTel	+35988000301
Canada	Fido Canada	+1-5149931123
Chile	Entel PCS	+56-98890005
China	Telecom China	+86-1390591500
	Telecom China	+86-13800100500
Croatia	Cronet	+385-980501
	VIPNET	+385-910401
Cyprus	Cytamobile	+35799700000
Czech Republic	Eurotel	+420-602909909
	Radiomobil	+420-603051
Denmark	Sonofon	+45-40590000
	TeleDanmark	+45-40390999
	Telia	+45-28187000
	Mobilix	+45-26265151
	Free!	+45 40590006
Egypt	Click GSM	+20105996500
	Mobinil	+20122000020
Estonia	EMT	+372-5099000
	Ritabell	+372-5509911

	Radiolinja	+372-568771010
Fiji	???	+679901400
Finland	Radiolinja	+358-508771010
	Sonera	+358-405202000
France	SFR	+33-609001390
	Bouygues	+33-660003000
	Itineris	+33-689004000
	Itineris	+33-689004431
	Itineris	+33-68900458
Germany	D1	+49-1710760000
	D1	+49-1715990000
	D1 Talkline	+49-1710760900
	D2	+49-172227033
	D2	+49-1722270000
	D2	+49-1722270333
	D2 Talkline	+49-1722270258
	Debitel	+49-1722270222
	IC3S	+49-1722270201
	Dr Materna	+49-1722270111
	E2 VIAG	+49-1760000443
	E-Plus	+49-1770600000
	E-Plus	+49-1770610000
	E-Plus	+49-1770620000
Greece	Panafon	+30-94219000
	Telestet	+30-93599000
	Telestet	+30-93597000
	Cosmote	+30-97100000
Netherlands	Libertel/Vodafone	+31-6540881000
	KPN Telecom	+31-653131313
	Telfort	+31-626000230
	BEN	+31-624000000
	Dutchtone	+31628500561
	TELE-2	+31640191919

	KPN Telecom (Hi! PrePaid)	+31-6-53131314
Hong Kong	Hutchinson	+852-94985795
	HK Telecom	+852-90288000
	Smartone	+852-90100000
Hungary	Pannon	+36-209300099
	Westel900	+36-30-9888-000
	Vodafone	+36709996500
Iceland	Landssimi Islands hf	+354-8900100
	Tal	+354-6999099
India	BPL Mobile	+91-9821000005
	MAXtouch	+91-9820005446
	Essar Cellphone	+91-9811009998
	Tata	+919848001104
	Command	+919830099990
	AirTel Delhi	+91-98100-51914
	Skycell Cellular	+919840011003
	Spice Karnataka	+919844198441
	Spicell	+919831029222
	Usha Martin Telekom ltd	+919830099990
Indonesia	Satelindo	+62-81615
	Satelindo	+62 816 124
	Satelindo	+62 816 125
	Satelindo	+62 816 126
	Satelindo	+62 816 127
	Satelindo	+62 816 128
	Telkomsel	+62-81100000
	Exelcomindo	+62-818445009
Ireland	Eircell	+35387699989
	Esat	+353-868002000
	Meteor	+353-857000000
Isle of Man	Pronto GSM	+447624499955

Israel	Orange	+972-54-120032
Italy	Omni	+39-3492000200
	Omni	+39-3492000300
	Omni	+39-3492000400
	Omni	+39-3492000500
	TIM	+39-3359609600
	TIM	+39-3359608000
	TIM	+39-338960960
	TIM	+39-338980000
	Wind	+39-3205858500
Kenya	Safaricom	+25472500010
	Kencell	+254733000810
Kuwait	MTC	+96596000303
	Al-Wataniya	+9656373717
Kyrgyzstan	Bitel GSM	+996 502 58 88 00
Latvia	LMT	+371-9202020
	Baltcom GSM	+371 9599994
Lebanon	FTML Cellis	+61-3488888
Lithuania	Bite GSM	+370-9950115
	Omnitel	+370-9899992
Luxembourg	PTT	+352-021100003
	Tango	+352-091000030
Macau	CTM	+85366
	CTM	+85368
Macedonia	MobiMak	+389 70 000501
Malaysia	ADAM	+60-173600010
	Celcom	+60-193900000
	Mutiara	+60-162999000

	Maxis	+60-120000015
Malta	Vodafone	+356-941816
	goMobile	+35679700003
Mauritius	EMTEL	+230 7290999
	cellplus	+230 2500005
Mongolia	MobiCom	+97699000030
Montenegro	Pro monte	+38169200000
	Monet	+38167100100
Morocco	Maroc Telecom	+212 61 00 00 21
	Maroc Telecom	+212 61 00 00 22
	Maroc Telecom	+212 61 00 00 23
	Meditel	+2123992000
Namibia	MTC	+26481
New Zealand	Vodafone	+64-21600600
Norway	NetCom	+47-92001000
	NetCom	+47-9208977
	TeleNor	+47-90002100
	TeleNor	+47-90007777
	Sense Mobil	+47 90002100
Pakistan	Mobilink	+92300000042
Peru	Claro	+51197990000
	Movistar	+51195599000
Philippines	Globe	+63-91702
	Globe	+63-91703
	Globe	+63-91704
	Globe	+63-91709
	Islacom	+63-9150200003
	Smart	+63-9180000101

Poland	Era GSM	+48-602951111
	Era GSM	+48-602951112
	Polkomtel	+48-601000310
	Polkomtel	+48-601000311
	IDEA Centertel	+48-501200777
Portugal	Telecel	+351-911616161
	TMN	+351-936210000
	OPTIMUS	+35193121314
Qatar	QATARNET	+974 5589955
Reunion	Reunion	+33609001390
Romania	Connex	+40-92004000
	Dialog	+40-94946000
Russia	North West Russia	+7-8129600096
	MTS	+7-0957699100
	BeeLine	+7-90173100
Rwanda	???	+25008110333
Saudiarabia	Sauditel	+966 5 503 1999
Serbia	MobTel	+38163100100
	MobTel	+38163100200
	MobTel	+38163100300
	MobTel	+38163100400
	MobTel	+38163100300
	PTT Telekom	+381-650000900
	PTT Telekom	+381-640000900
Seychelles	Airtel	+248700000
Singapore	Mobile One	+65-96845999
	Mobile One	+65-96845997
	SingTel	+65-96400001

	SingTel	+65-96500001
	SingTel	+65-98189999
	SingTel	+65-96197777
	Starhub	+6598540020
Slovakia	Eurotel	+421-903333000
	Globtel	+421-905303303
	Si.Mobil	+386-40441000
Slovenia	Mobitel	+386-41001333
South Africa	MTN	+27-831000002
	MTN (Prepaid)	+27-831000113
	Vodacom	+27-829119
	Vodacom	+27-829129
Spain	Telefonica MoviStar	+34-609090909
	Vodafone (Airtel)	+34-607003110
	Amena	+34-656000311
Sweden	Comviq	+46-707990001
	Comviq	+46-707990002
	Comviq	+46-707990003
	Comviq	+46-707773078
	Europolitan	+46-708000708
	Telia	+46-705008999
Switzerland	Swisscom	+41-794999000
	diAX	+41-765980000
	Orange	+41-787777070
Taiwan	Chung Wa Tele	+886-932400821
Tanzania	Tritel	+255812904000
Thailand	AIS Thailand	+66-18110888
	WP1800	+66-16110400
Turkey	Turkcell	+90-5329010000

	Turkcell	+90-5329020000
	Turkcell	+905329030000
	Turkcell	+90-5329040000
	Telsim	+90-5429800033
Ukraine	UMC	+38050000501
	Kyivstar	+380672021111
	Golden Telecom	+380444990000
	Wellcome	+38044 251 7777
United Arab Emirates	UAE Etisalat	+97150 6060000
United Kingdom	Isle of Man Pronto GSM	+447624499955
	Vodafone	+44-7785016005
	CellNet	+44-7802000332
	Virgin Mobile	+447958879890
	Orange	+44-7973100973
	Orange	+44-7973100974
	One2One	+44-7958879879
	Guernsey Telecoms	+44-4481/7781
	Jersey	+44-7781
USA	Aerial Comms	+1-8132630025
	Aerial Comms	+1-2812350025
	VoiceStream	+1-2063130004
	Pacific Bell	+1-2099042010
	Pacific Bell	+1-2099042020
	Pacific Bell	+1-2099042030
	Powertel	+1-3343338200
	DigiPH PCS	+1-3342090307
	Omnipoint	+1-9179070004
	Sprint	+1-7044100000
	Washington PCS	+1-410258953
Venezuela	Digitel	+58-12-8000000
Vietnam	Mobilfone	+84 90700000
	Vinaphone	+84 91020005
	Vinaphone	+84 91020010

Yugolsavia	MobTel	+381-63-100400
	MobTel	+381-63100300
	MobTel	+381-63100200
	MobTel	+381-63100100
	MobTel	+381-6310030034
	MobTel	+381-6310040034
	PTT Telekom Serbia	+381-650000900
Zimbabwe	Econet Wireless	+263-91010030
	Net*One	+26311191201

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