MPI / PPI - Profibusmodem user manual

(english)

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MPI / PPI - Profibusmodem

1 Description

The MPI-Modem connects the programming device or PC over the serial Interface (COM-Port) or by Modem to the PC over an analog telephone line with the MPI- or DP/FMS-Connector of the S7-300/400 PLC. The MPI-Modem selects automatically on the first access which Port and which Baud rate is used. On the MPI side can set baud rates of up to 12 Mbaud 19K2.
On the MPI-Side you could use Baud rates from 19k2 up to 12MBaud.

The MPI-Modem is powered externally. with 24V DC Voltage

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)
- Cable - Manager software (for Tele-service configuration)
- Tele - Service software (Siemens or PG2000 with the option of tele-service)

2.3 Hardware

- 9-pin serial COM port.
- Analog phone line (only for analog MPI-modem)
- GSM Antenna with FME Connector (only for MPI-Modem 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

MPI-modem connected directly to the PC.

MPI-modem connected via a telephone connection.

4 Control elements

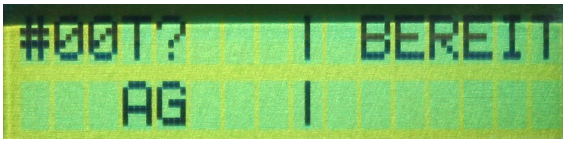
4.1 Status-LEDs

LED	Farbe	Bedeutung
ON	green	Power supply is available
Error	red	Error
MPI	yellow	MPI connection exists
Modem	yellow	Telephone connection exists

4.2 Keys

Key	Name	Description
Esc	ESCAPE	Back to Main Page / Message
↵	ENTER	Change the menu / Confirm entry
←	LINKS	Back one menu level / cancel input (input is NOT saved)
→	RECHTS	Call submenu
↑	HOCH	Selecting a menu item / increase a value
↓	RUNTER	Selecting a menu item / decrease a value

4.3 Display



First line => #02TD00¯ | MODEM BE

Seconnd line => !02AG04 |

Explanation of the display from left to right:
to the left of the display is the area PG / AG and right of the display is the Modem area, separated with separators

To the left of separators, first line:

#02 => A Sharp „#“ with the number of connected active stations on the MPI-Bus (in this example 2)

TD => is the letter identifier of the PC baud rate

Display	Description
MD	115,2k or automatic Baudrate-Selection active (Modem)
TD	115,2k or automatic Baudrate-Selection active (serial line)
MS	19,2k (Modem)
TS	19,2k (serial line)
Ms	38,4k (Modem)
Ts	38,4k (serial line)
mS	57,6k (Modem)
tS	57,6k (serial line)

00 => is the station number of the MPI-modem. (Default is "0")

(click on "Set PG / PC interface" in the Control Panel. Then click on "Properties". Now you can change the "address" of the cable in the tab "MPI", in section "Stationbezogen")

(in "options" => "interfaces" in the PG 2000 software. Further down in the dialog you can now change the "local address" of the cable.)

¯ => If this symbol is above the line, then the cable is communicating with the plc

If this symbol is below the line, then the cable is communicating with pc

MODEM BE => Modem ready, displays the status of the modem

To the left of the separator second line:

! => means on which mode the cable is connected to the PLC.

Display	Description
!	Cable is connected directly to the PLC
?	Cable is not connected directly to the PLC
! (invers)	Cable is connected directly to the PLC (passive module)
? (invers)	Cable is not connected directly to the PLC (passive module)

02 => indicates the number of connected and active stations in the MPI-Bus.
every 750 milliseconds (¾ second) will display another operator in case of several operators found

AG => static text for the protocol that is used to the pc

04 => displays the station number of the device is currently connected to the PC software (in this example station 04)

To the right of the separator, first line

This line displays the current modem mode. The following messages can be displayed

Message	Description
MODEM READY	The modem is booted and ready

MODEM ERROR	The modem reports an error
NO ANSWER	The modem don’t send an answer
RING	The modem is called
CON.END	The connection is terminated
CONNECT <Bd>	The modem is connected to a line with the displayed Baudrate
NO CARRIER	The carrier is lost.
LINE BUSY	The phone-line or number is busy
BLACKLISTED	The called number is not allowed in the modem
NR.DELAYED	The number called is too often or fast redialed. The dialing is not allowed for a minute
FAX	Fax-call detected
DATA	Data-call detected
UNKNOWN MESS.	The modem generates an unknown message
DIALING	The phone-number which is dialed is shown in the bottom line
ENTRY EMPTY	The Fast-Access Entry is Empty
wrong PIN	The PIN-number configured is wrong
SIMCard wrong	The SIM-Card is not inserted, or not correctly placed.

To the right of the separator second line

In the GSM-Version the display shows in the bottom line additional information about the GSM-Network:

Display	Description
SIM/PIN	SIM Card not inserted or PIN-Number wrong
RegDend	Registration denied in the GSM-network
Unknown	Unknown state
GSM:<xx>	Connection established to a provider.
Srch:<xx>	Searching provider in GSM-network, not yet found

At „ROAM“,“GSM“ and „Srch“ additionally the Recieve-Quality is duisplayed (greater values are better).

-- no recieve (antenna not connected?)
01 very bad
to
31 best and optimal

5 Installation

5.1 Hardware

For all possible connections you will need a external power supply 24 V DC!!
The ground can be made through a 6.3mm ferrule on the lower end of the case.

Close the right jack to your PLC and connect your computer as one of the two options described below with the MPI-Modem.

MPI-Modem directly connected by RS232:
To connect the PC directly to the serial interface of the MPI-Modem, connect the RS232 interface of the MPI-Modem to the PC via a 9-pin 1:1cable . If the PC or programming device only has free 25-pin COM-interface, you can use an ordinary mouse adapter Art. Nr 9359-9

MPI-Modem as TS-Adapter (TS = Tele Service):
Connect the MPI-modem to your S7-300/400. Connect the phone jack to your telephone system.

With the help of a second modem on the PC you can connect to a S7-300/400

For the operation of the MPI-Modem must be meets the following conditions

1) You need the software TELE-SERVICE from Siemens in the PG-Side or the PG-2000 Software with the option TELE-SERVICE. To work and configuration the MPI-Modem device can use the MPI-CABEL Manager of our company.

2) To establish a connection via the analog telephone network requires a standard analog modem

5.2 Software

You need the appropriate programming software (eg PG 2000, Step © 7, S7 for Windows, Microwin) to work with the PLC. This will only work if you connect directly with the MPI-Modem.

For remote maintenance via telephone line, you need a programming software with Tele-service option (eg PG 2000 with option tele-service, teleservice software from Siemens).

To configure the MPI-Modem can also install the MPI-cable Manager software as explained in Chapter " MPI cable installation manager " . Alternatively, this is also possible using the keyboard.

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 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..

6.2 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.

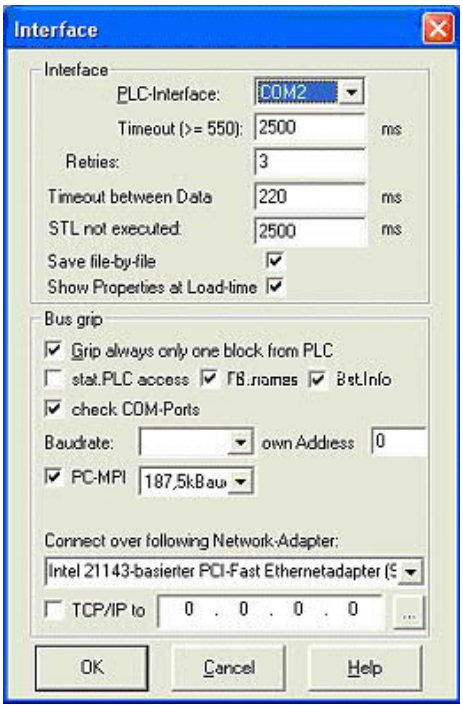
How you have to adjust your programming software is described in the following points:

6.2.1 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.

6.2.2 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“.

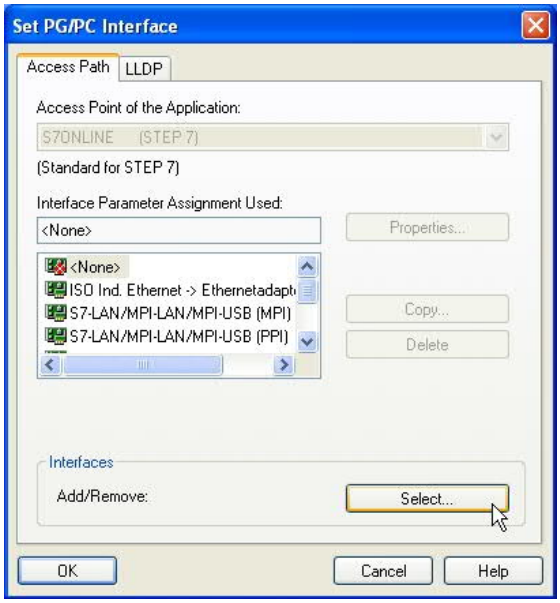
3. A Dialog with a list box named “Interface Parameter Assignment Used:” appears. This box should offer following entries

- 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

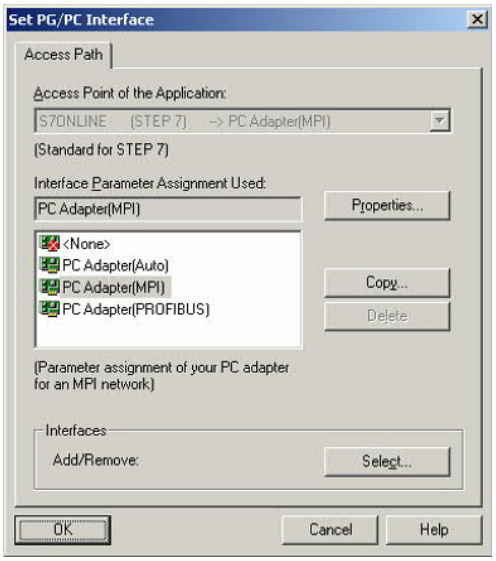
or some “TCP/IP” entries

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.



6.2.2.1 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".

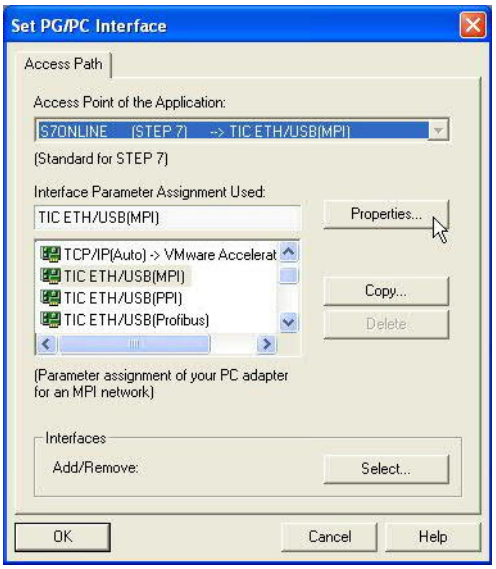
6. After successful installation, click "Close".

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 .

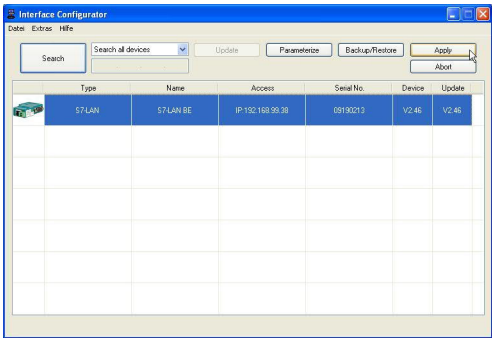
6.2.2.2 MPI setting



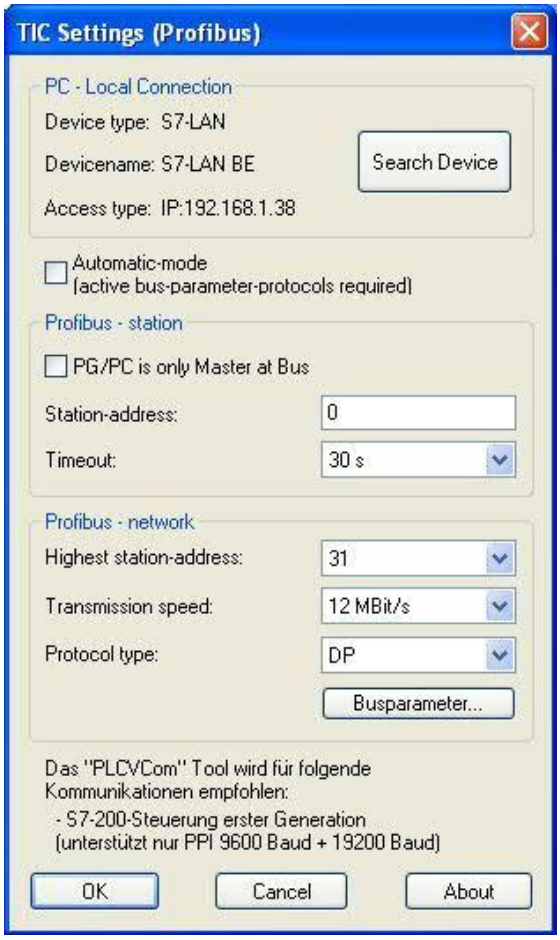
7. Select "TIC ETH/USB(MPI)" and click "Properties".

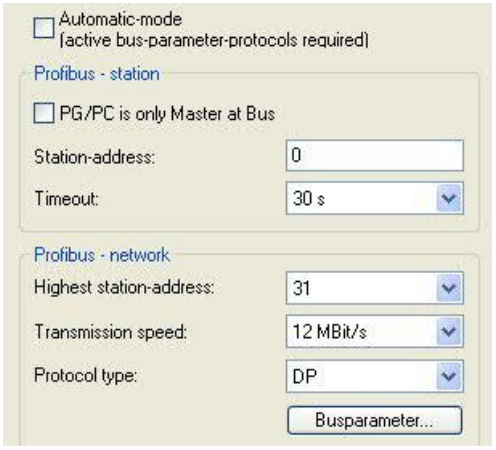
8. Open the properties dialog

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".



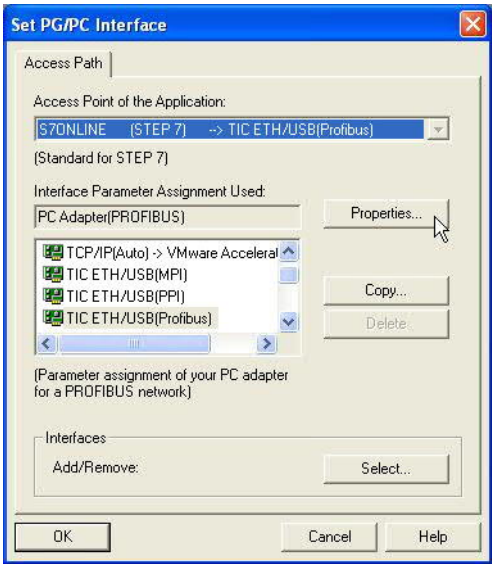
10. Activate the "Automatic-mode" when you will be shure, that the connected PLC sends cyclic bus-parameter-protocols. When not please configure the bus by hand.





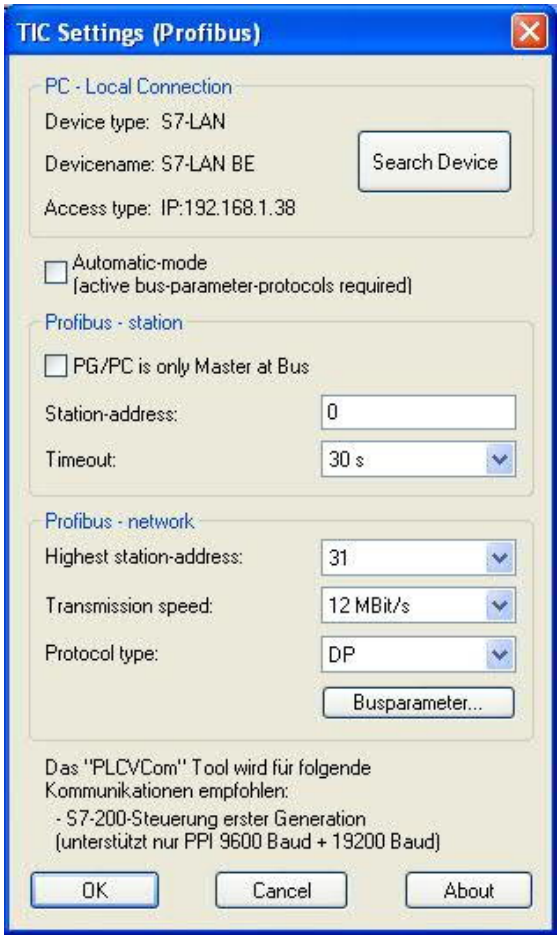
6.2.2.3 Profibus setting

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

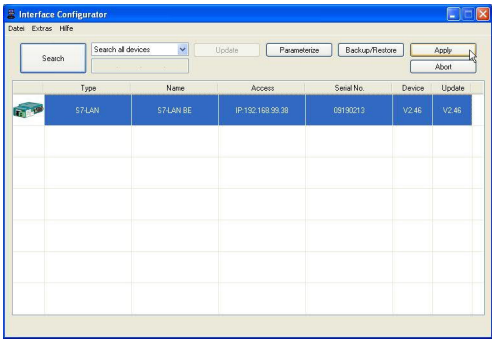


12. Mark the entry „TIC ETH/USB(PROFIBUS)“ and click on „Properties“.

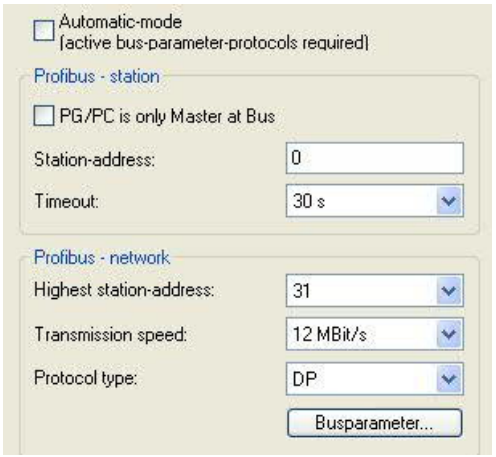
13. Open the properties dialog



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.

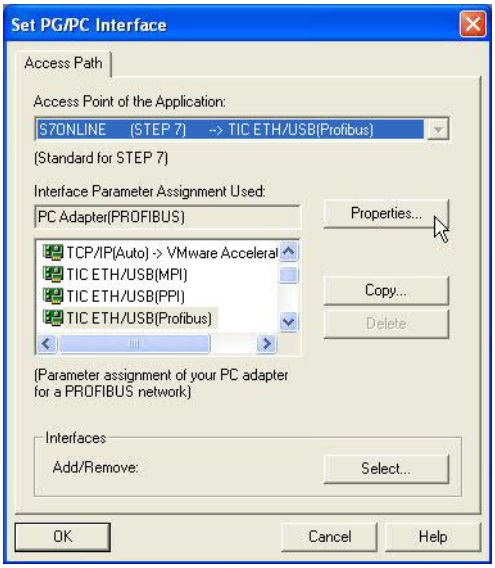


16. Save your configuration with „OK“ and close the „Set PG/PC–interface“ dialog with „OK“.

6.2.2.4 TCP/IP RFC1006 setting

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

6.2.2.5 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

6.2.3 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.

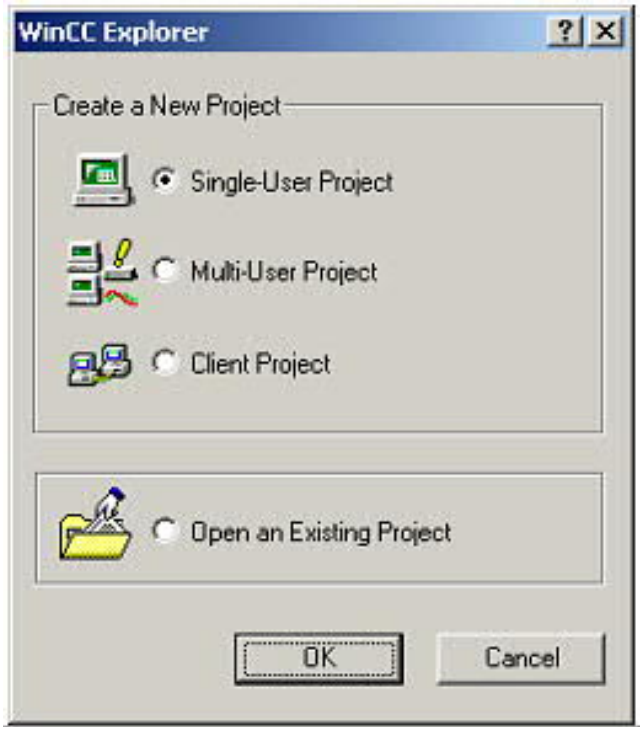
3. In this window you can edit each assembly with his blocks.

6.2.4 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.

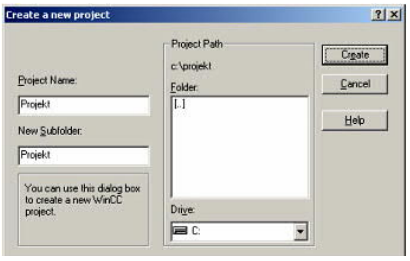


3. The next dialog offers you several project types “Single-User Project”, “Multi-User Project” and “Client Project”.

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

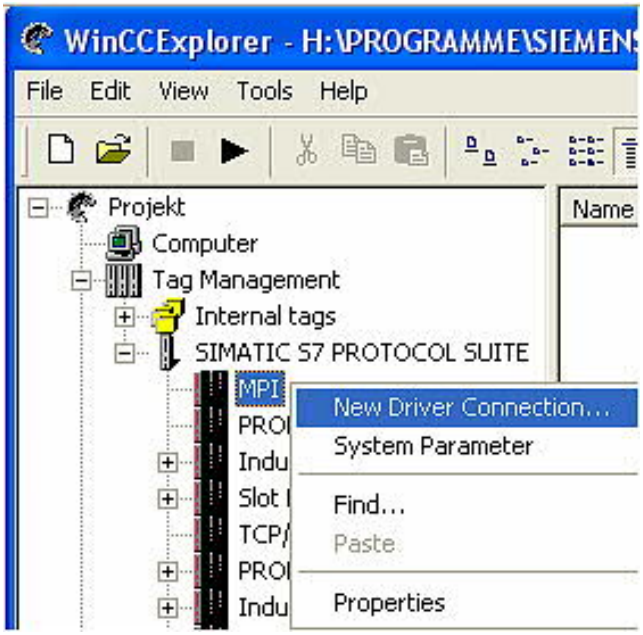
4. “OK” leads you to a new dialog. Type in the “Project Name” and the “Subfolder” of the project path.

The chosen configuration is confirmed with “Create”.



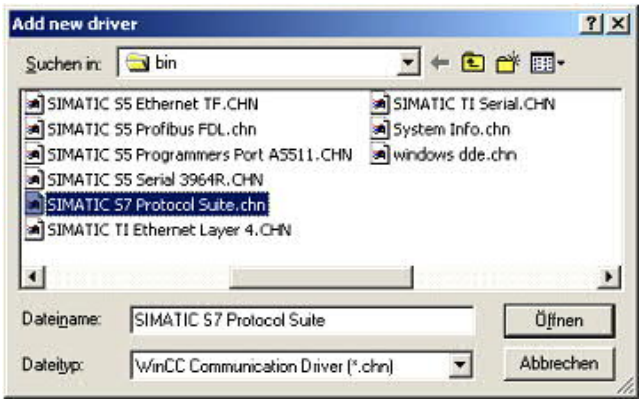
To use one of the other options please go ahead and read in the manual of WinCC software.

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.

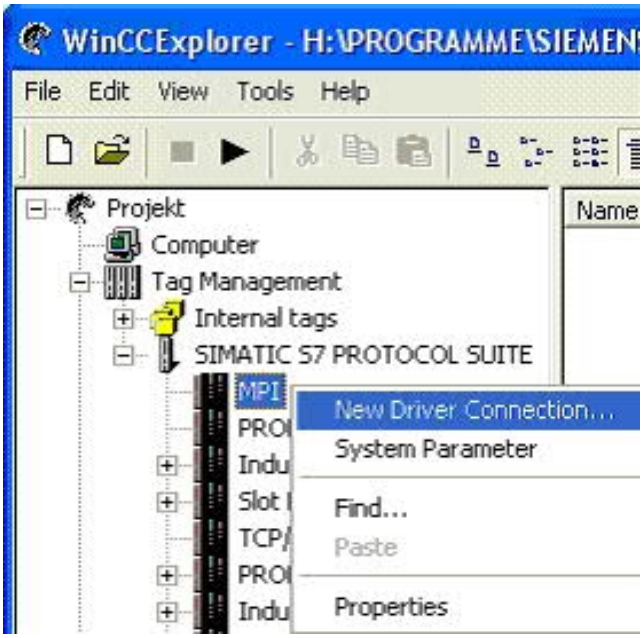
The General way of proceeding a new connection is to:

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

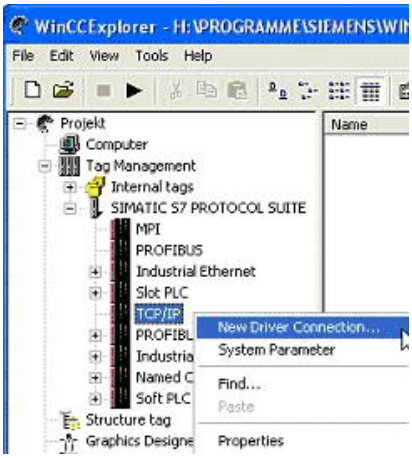
This manual describes the connection configurations:

- 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



6.2.4.1 MPI 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 “ .

6.2.4.2 TCP/IP Configuration

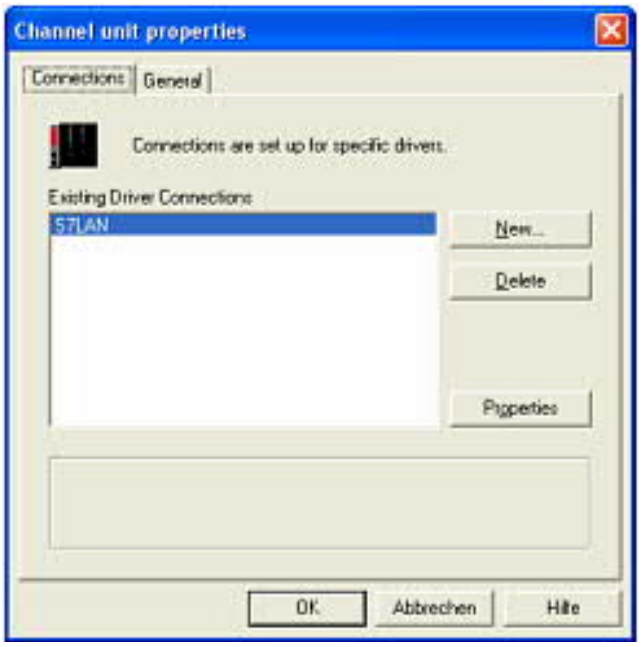
10. A dialog appears where you can configure the connection parameters.

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 - > „).

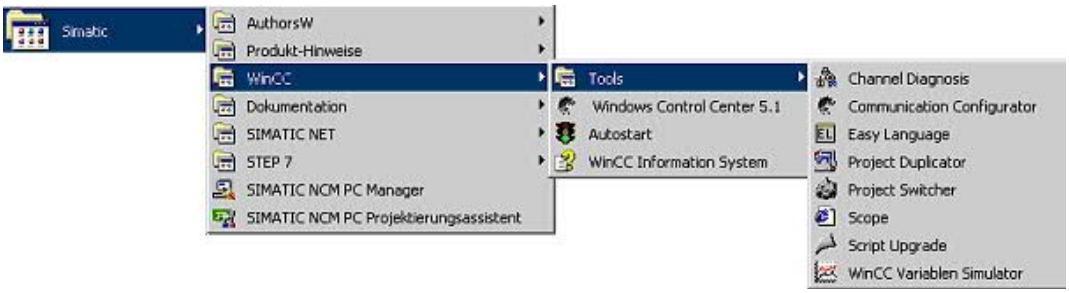
17. Confirm with „OK“.

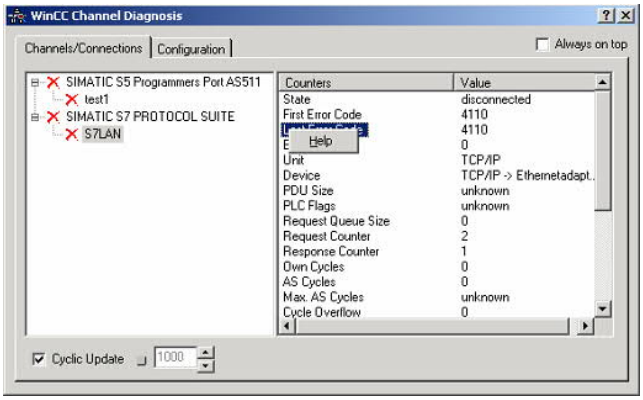
18. Now you are able to start the communication. Stop it by clicking on .

6.2.4.3 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.

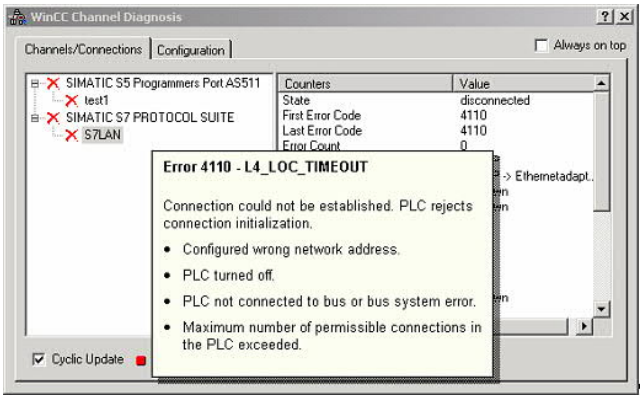




20. The tool could not detect a running connection so it marked the connection/s with a red ‘X’ (registry card "Channels/Connections“).

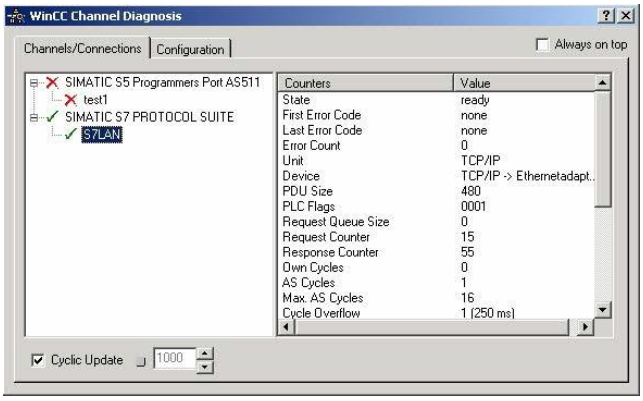
Click on the last created, not active connection (with the red ‘X’) and some informations from the connection will appear in the right part of the dialog.

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.

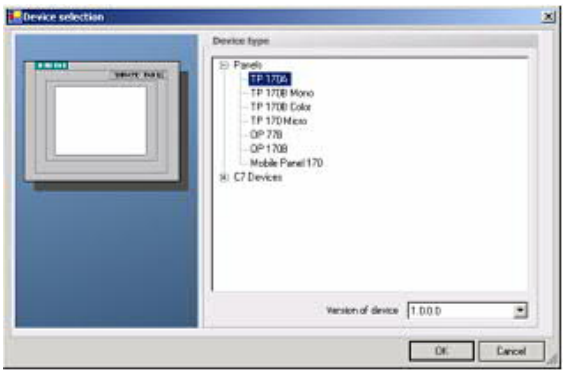
The "Channel Diagnosis“dialog marks the connection with a green hook if everything worked out.

6.2.5 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

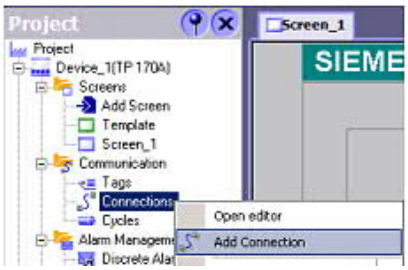
1. Start the WinCC flexible 2004 software by using the desktop link or the program entry in the start menu.

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“.



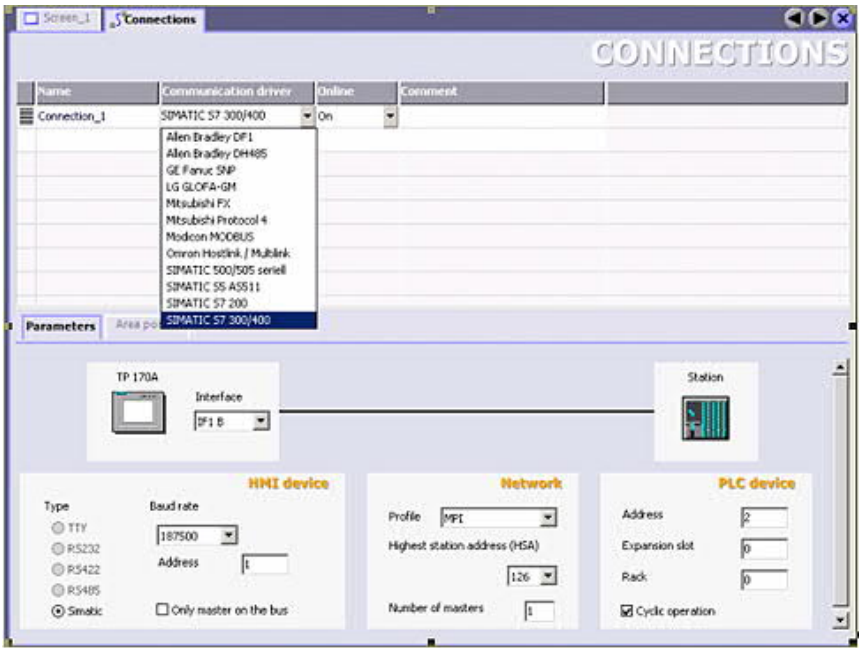
4. After the project has been created right-click in the project window on “Connections“of the sub menu “Communication“.

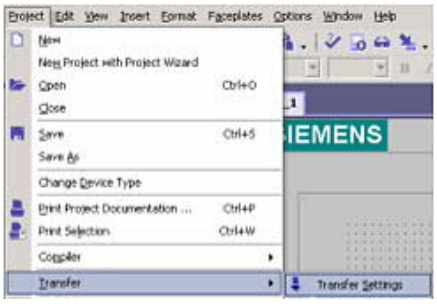
In the context menu click on “Add Connection“.

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“)



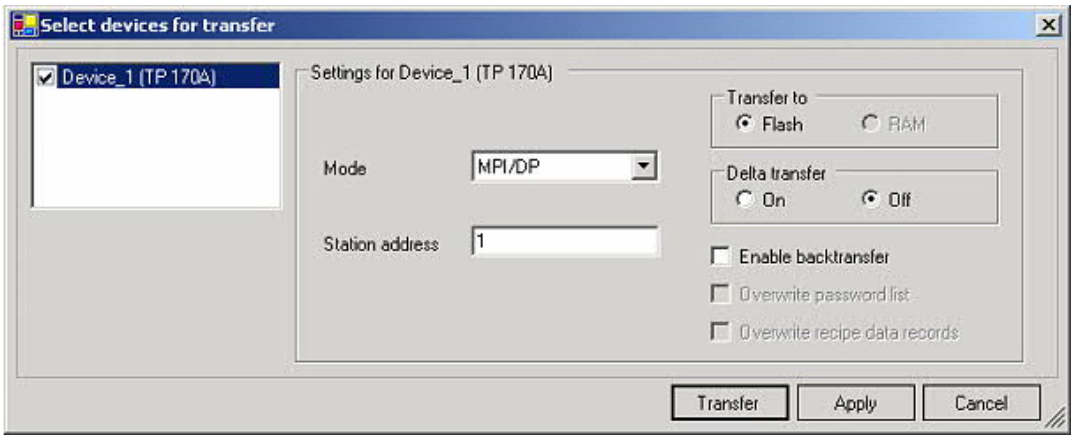


6. Now you can start with your work.

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.

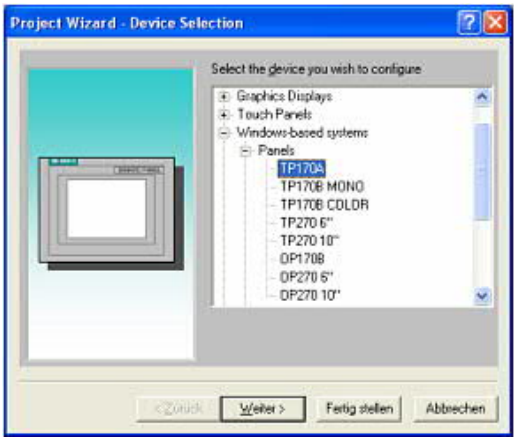
The WinCC flexible software is now able to communicate with your operator panel.

6.2.6 ProTool/Pro v6.0 SP2

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

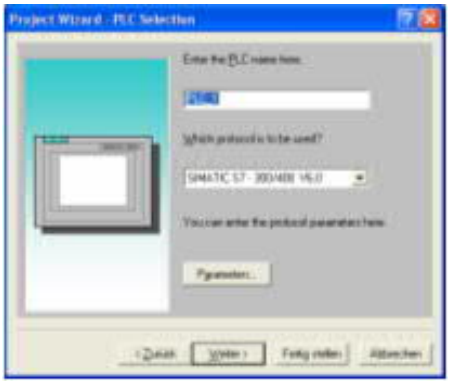
1. Start ProTool/Pro by using the desktop link or program entry in the start menu.

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“)

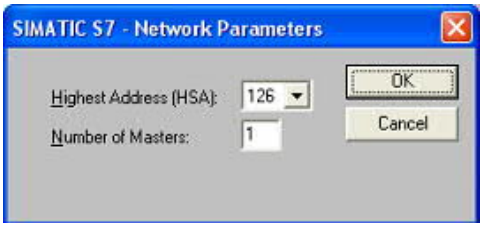


4. „Next“ leads you to a new dialog. Type in the specfic fields the name of the PLC device and choose the used PLC in the driver selection (e.g. „SIMATIC S7 – 300/400 V6.0“).

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“)

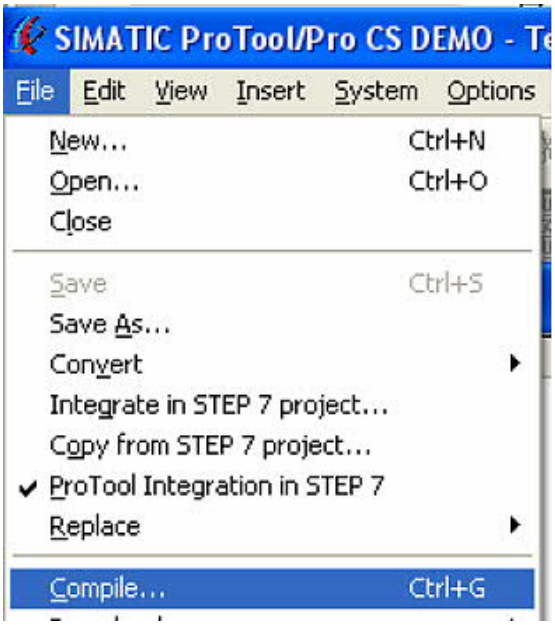
7. confirm with „OK“ until you got back to the „Control Selection“.Go on with „Next“.

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“).

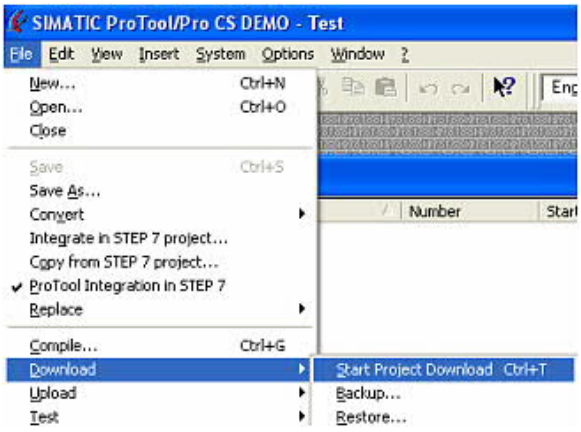
Confirm with „OK“.

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.

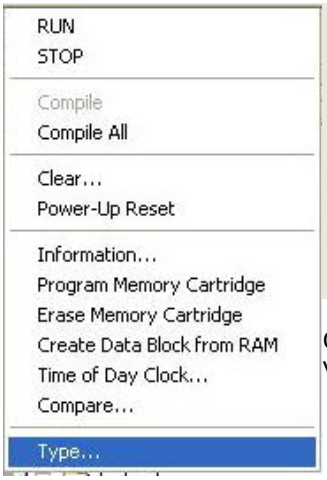
The communication between the operator panel is now established.

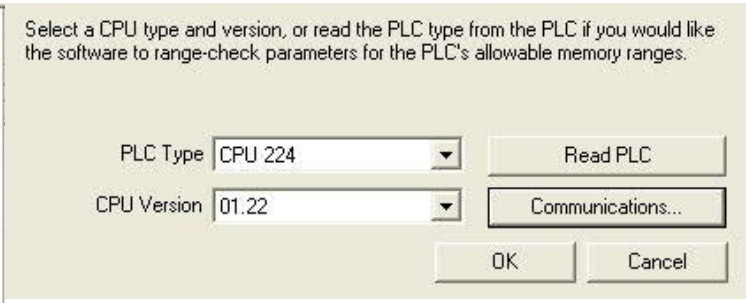
6.2.7 Microwin v3.2 (only for S7 200)

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

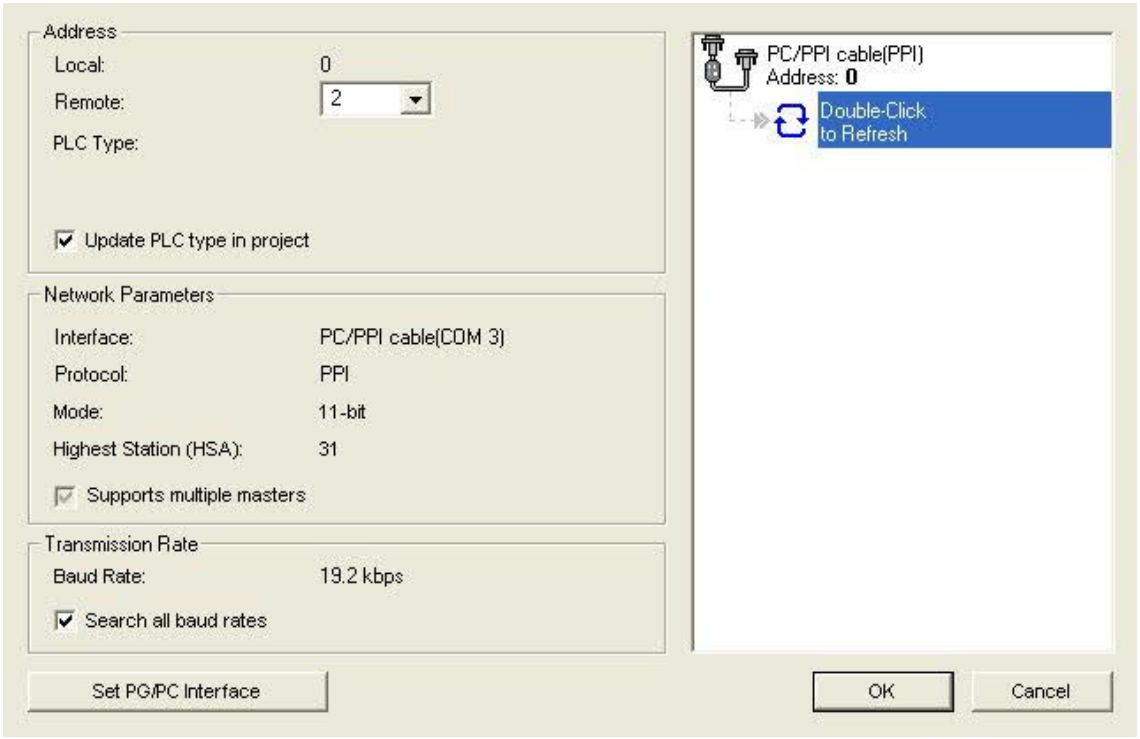
1. Start Microwin using the desktop link or program entry in the Start menu.

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.



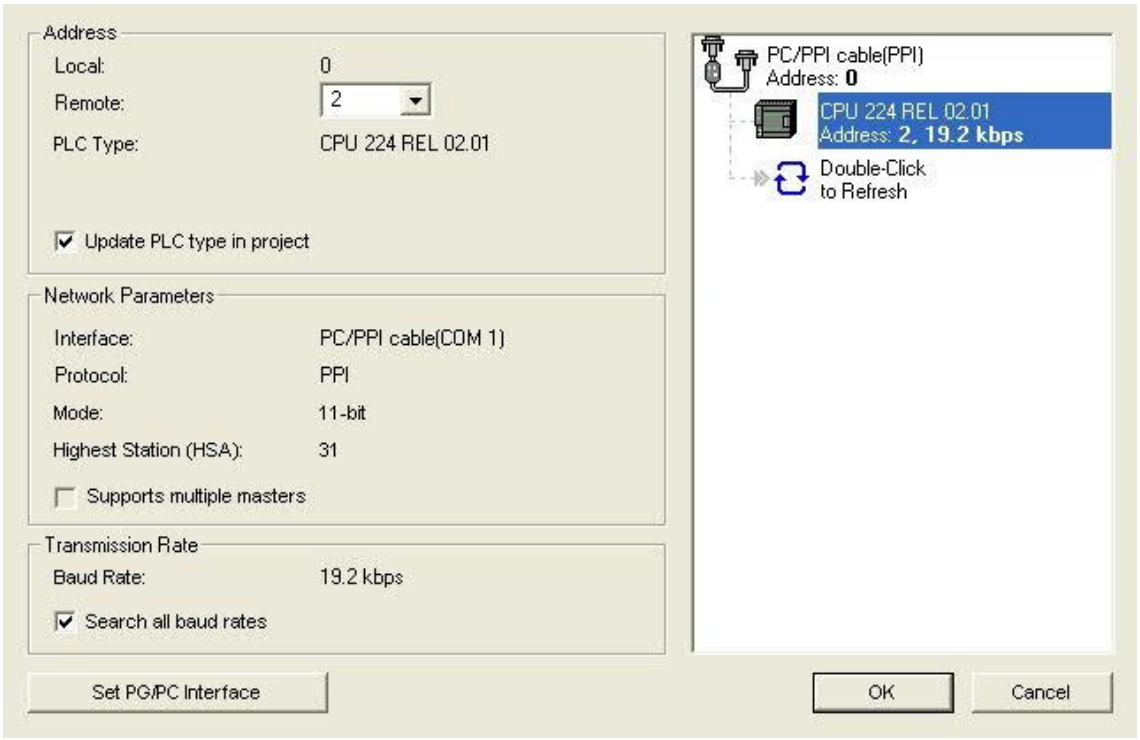
3. Click on „Communications...” to start the next dialog.

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.

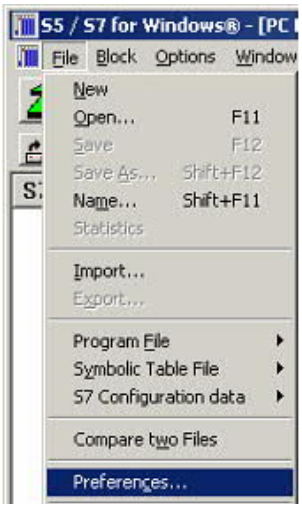
The communication with the PLC ist now established.

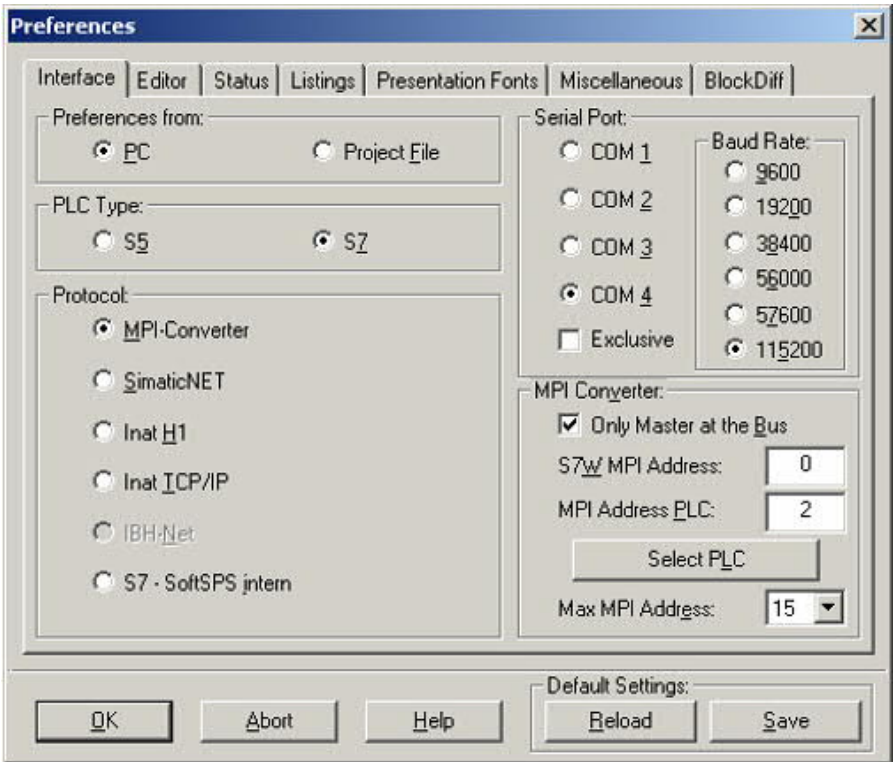
6.2.8 S7 for Windows v5.02

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.





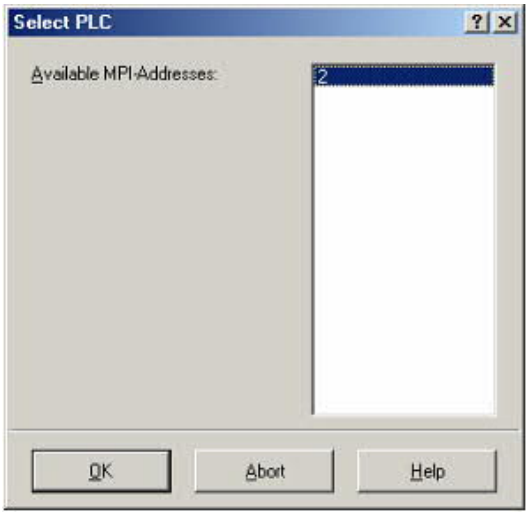
3. Choose the first registry card „Interface“ (standard) and set up the configuration data as descriped below:

=> 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

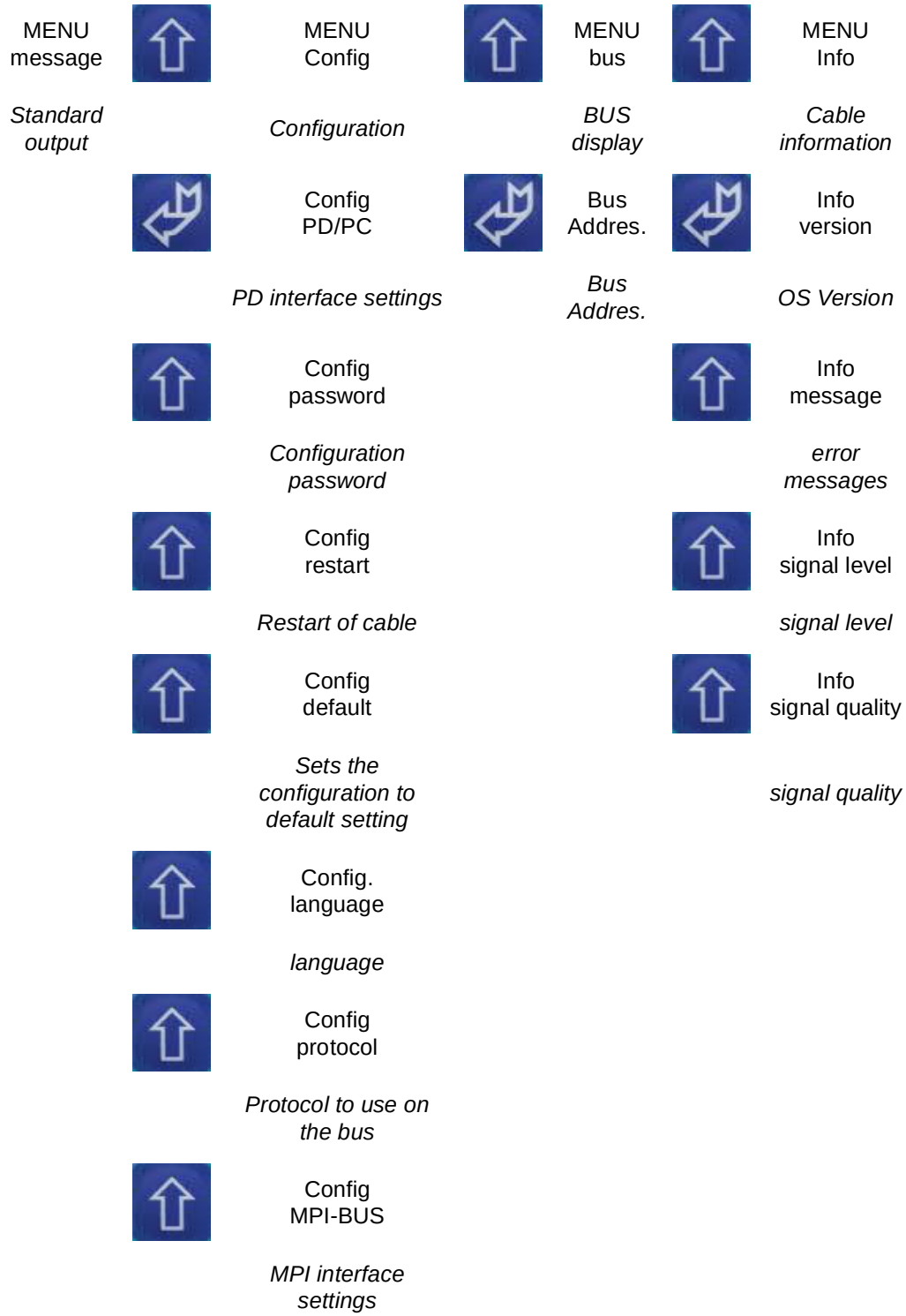
7.1 Keys and display

The menu message is explained in the chapter"Control elements". Furthermore, it assumes you are familiar with the functioning of the MPI-LAN cable. If this is not the case, please visit the chapter "Control elements" again.

7.1.1 Graphic representation

Press Enter to get to the menu of the cable. You can pressing in any menu the ESC-key, to change to the default display. The menu has the following structure:

Between message and config there are the menus "call" and "hang up" for the call using speed dial menu and hang up.



Config
Modem

Settings of the modem

Config
Data

PC-Config disable / enable

7.1.2 Config

With RIGHT or ENTER a Password request is displayed. The Standard Password is “0”.With ENTER you enter the following sub-menu where you could select the following sub-menus:

- o PG/PC
- o Password
- o Restart
- o Default setting
- o Language
- o Protocol
- o MPI-BUS
- o Modem
- o Data

• PG/PC:

- MPI-Accs

=> serial

Connect the PC over the serial line RS232
With UP/DOWN you select the following menu-points. With ENTER the selection is used:

19.2k baud rate 19200
38.4k baud rate 38400
57.6k baud rate 57600
115.2k baud rate 115200
Auto The MPI-Modem selects automatically the baud rate

=>MODEM

Connection to PC over the modem..
Press ENTER to set the modem as access point.

- PPI-Accs

=> serial

Connect the PC over the serial line RS232
With UP/DOWN you select the following menu-points. With ENTER the selection is used:

9.6k baud rate 9600
19.2k baud rate 19200

=>MODEM

Connection to PC over the modem..
With UP/DOWN you select the following menu-points. With ENTER the selection is used:

9.6k baud rate 9600
19.2k baud rate 19200

• Password:

Select this menu to determine the password of the configuration (Standard: "0")

• Restart:

restarts the cable

• Default setting:

Press the Enter key to reset the cable to the default settings.

• Language:

Select in this submenu the menu language. You can selet "German" and "English".

• Protocol:

Here you determine which type of protocol on the MPI bus is to be applied.

Select "Auto" to the cable take the protocol of PG

If you have problems on the bus with the protocol version "V 5.1", change the configuration

to "V5.0 Old". This is more stable than the "V5.1"

• MPI-BUS:

- Baudrate

With RIGHT or ENTER you enter the following sub-Menu, where the following selection is possible:

MPI-Baud
187.5k

With UP/DOWN you could choose between the following setting. with ENTER you select the value

12M, 6M, 3M, 1.5M, 500k, 187.5k, 93.75k, 45.45k, 19.2k, from PC (the baudrate which is transfered from PC)

- HSA

With RIGHT or ENTER you enter the following sub-menu , where you could select following menu-points:

HSA
31

With UP/DOWN you could choose between the following values. with ENTER you select the value:

126, 63, 31, 15

- local No

With RIGHT or ENTER you enter the following sub-menu, where you could select following menu-points:

local No
0A

With UP/DOWN the local station number is increased/decreased with one. With RIGTH/LEFT the station number is increased/decreased by 16. The local station number is displayed in hexadecimal.

• Modem:

With UP/DOWN you select the following menu-points:

=> Dial mode - dial by tone or pulse
=> Baudrate - Modem-baudrate over telephone line
=> Modemtype - select modemtype BZT or USA
=> Speaker - Speaker loudness
=> Busy identify - select busy identify on/off
=> Ring counter - automatic connection
=> Extension - use extension
=> Outline code - if extension then define the outline code

- Dialmode

With UP/DOWN you select the following menu-points, with ENTER your selection is used:

tone - dialing with tones
pulse - dialing with pulses

- Baud rate

With UP/DOWN you select the following menu-points, with ENTER your selection is used:

300, 1200, 2400, 4800, 7200, 9600, 12000, 14400, 16800, 19200, 21600, 24000, 26400, 28000, 31200, 33600, automatic (The Modem selects the appropriate baudrate by self.)

- Modemtyp

With UP/DOWN you select the following menu-points, with ENTER your selection is used:

D - Germany
USA - USA
Auto: Automatic Selection wich telephone type is used.

- Speaker

With UP/DOWN you select the following menu-points, with ENTER your selection is used:

Off - Speaker is off
Silent - Speaker is silent
Middle - Speaker is on normal Loudness
Loud - Speaker is at maximum Loudness

- Busy identify

With UP/DOWN you select the following menu-points, with ENTER your selection is used:

YES - busy identify is used
NO - busy identiy is NOT used

- Ring counter

With up / down can make the following settings, confirm with Enter.

Number of rings: With up / down can be increased / decreased the number of rings.The value range is 0 (no answer) to 9

- Extension

With up / down can make the following settings, confirm with Enter.

Yes: Extension unit operation is on
No: Extension unit operation is off

- Outline code

By up / down / left / right, the outline code will be defined. Press ENTER to save the setting.

• Data

Select "Disable" so that the cable ignore incoming configuration data from the PC.

(need to use "3M" and higher baud rates).

When "Enable" can be used only the maximum bus speed of the PC driver

7.1.3 Bus

Select the "BUS" to get into the submenu "Address" by pressing Enter. Since this Menu, using key up / down you can view the addresses of the connected stations

The menu "Address":
Adress
DA 020

In the second line the following letters describe the various stations:

Letter	Description
D	The MPI-Modem is connected directly to the PLC.
A	This station is active in the bus.
P	This station is passive in the bus, e.g. some OP's, FM modules and Profibus slaves.

7.1.4 Info

Version

In this menu you can determine which version of operating system, has the cable

Message

Displays error messages in the event of a malfunction.

Signal level

Shows you the level of the analog transmission.

Signal quality

Shows the quality of the signal at the analog and GSM transmission.

8 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

8.1 Language selection:

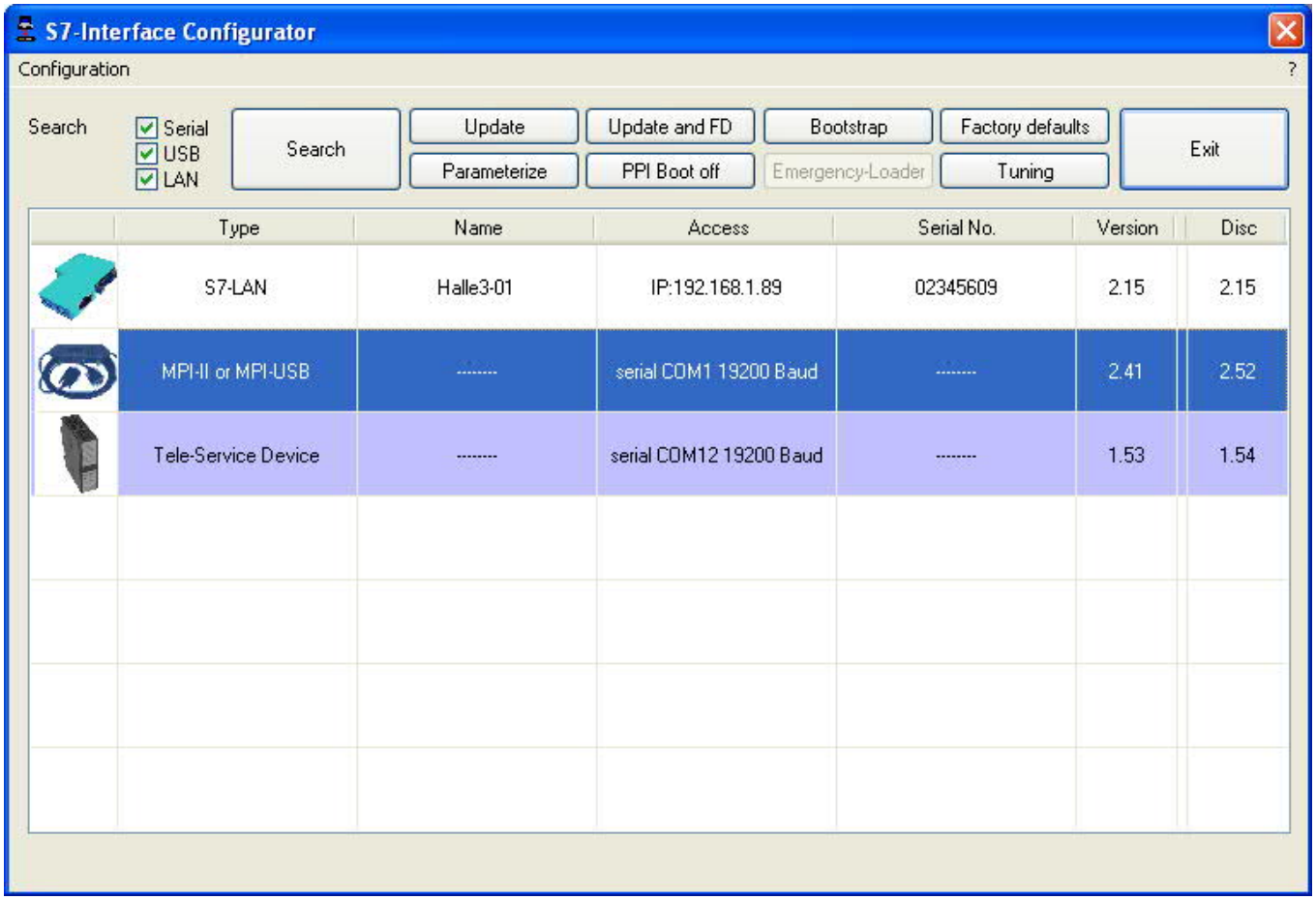
Select the menu **Configuration** to change the language permanently:

8.2 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.



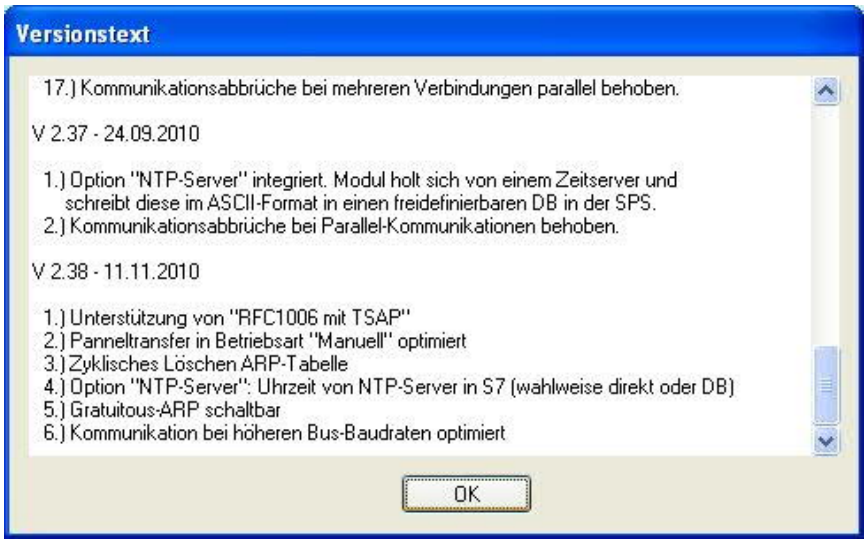
Below the buttons is a list of the found devices. In each line an image, the type of the device, name (if existing), interface, serial number (if possible) and the OS-version of the device is displayed. On the rightmost position the actual OS-version on the harddisk is displayed.

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.

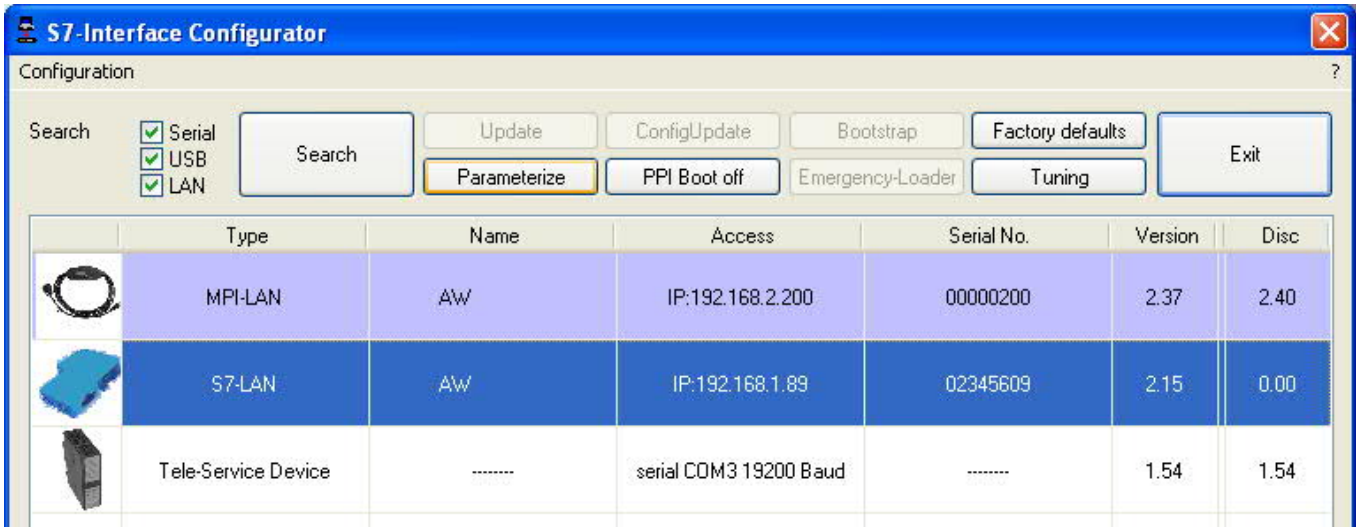
The button **Emergency-Loader** tries to repair LAN products which are in emergency-loader mode.

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

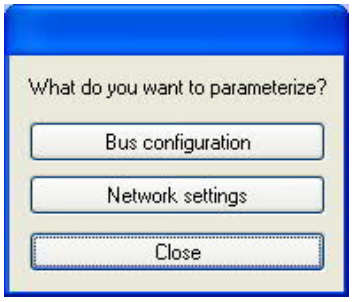
The button **Exit** leaves the application.

8.3 Bus configuration

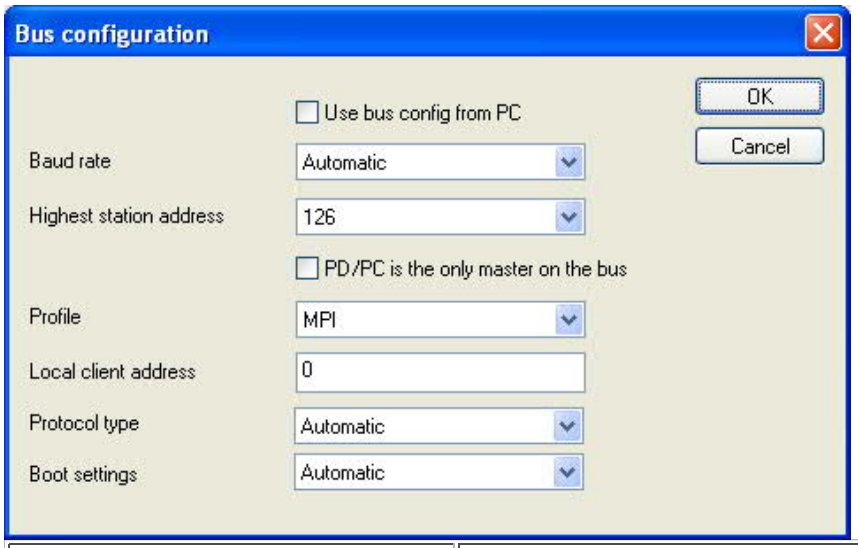
To parameterize the connection to the device, select a device and click "**Parameterize**".



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

8.4 Network settings

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

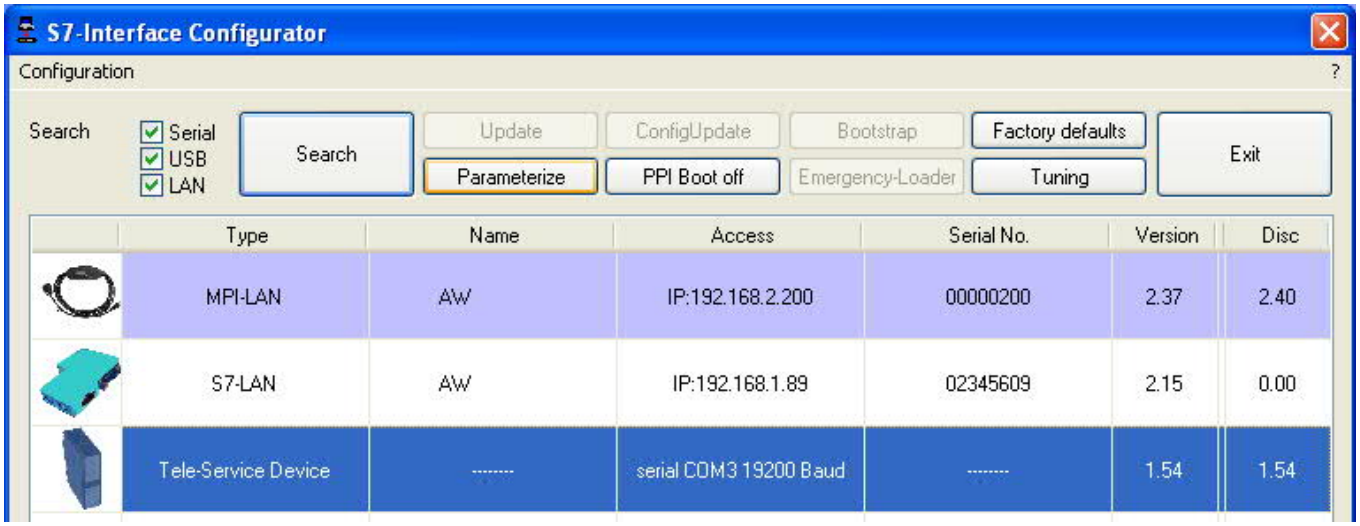
• Factory default	This button sets all over the network reachable devices to factory default.
• DHCP-client active	When set the device acts as DHCP-client.
• IP address	Here you could enter the IP Address over which the device is accessed in the network.
• Subnetmask	Here you could enter the Subnetmask 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:

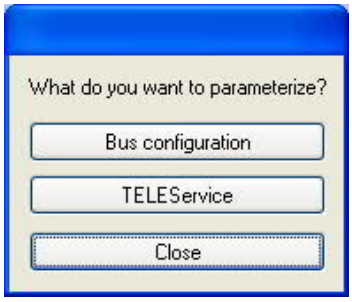
• DHCP-client active	*not set*
• IP Address	192.168.1.56
• Subnetmask	255.255.255.0
• Gateway address	0.0.0.0
• Device name	*empty*

8.5 Parameterize TELEService

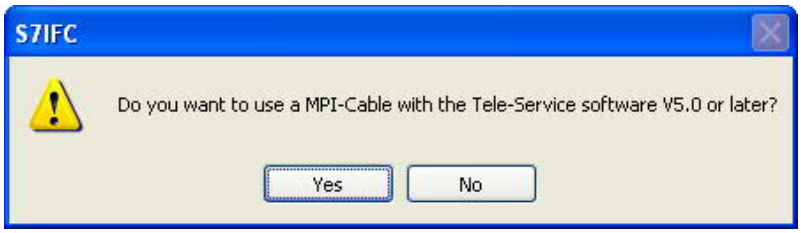
To parameterize the device, first click on the device, after that on "**Parameterize**".



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



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

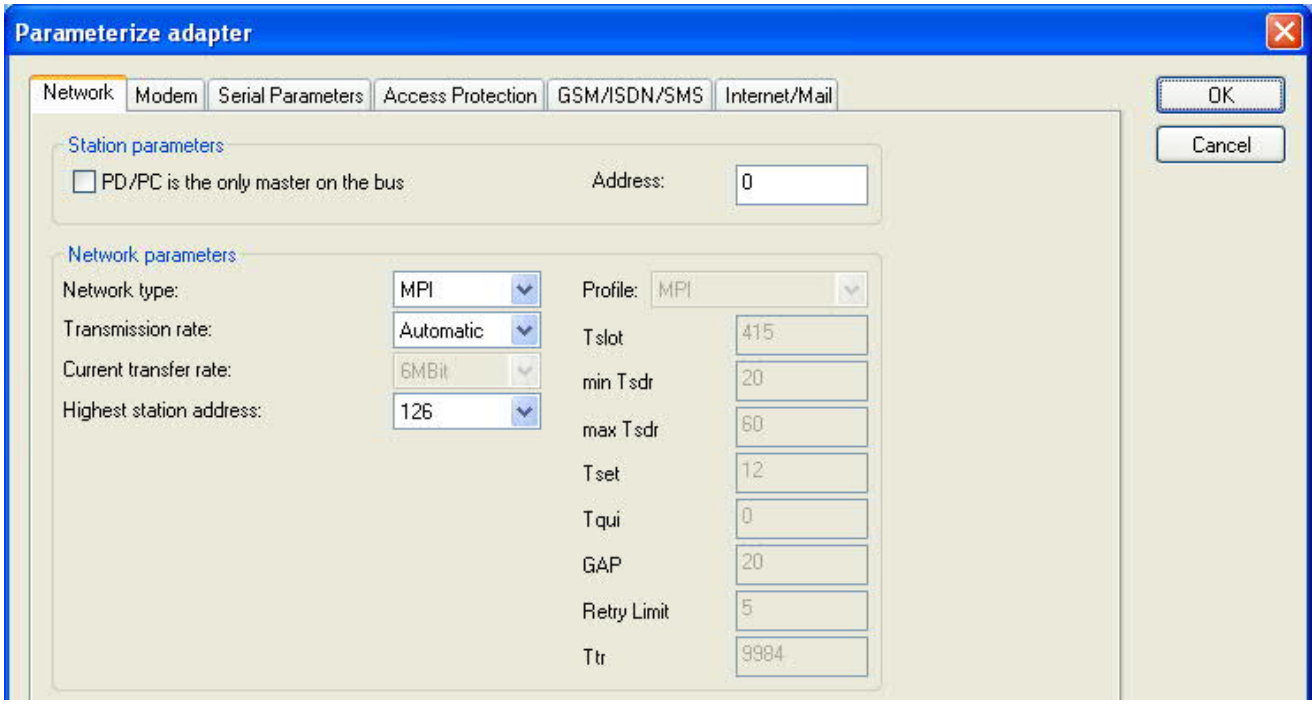


Depending on the version of your TELEService software choose **Yes** or **No**.

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

8.5.1 Index "Network":

Here you can configurate following:



Station related:

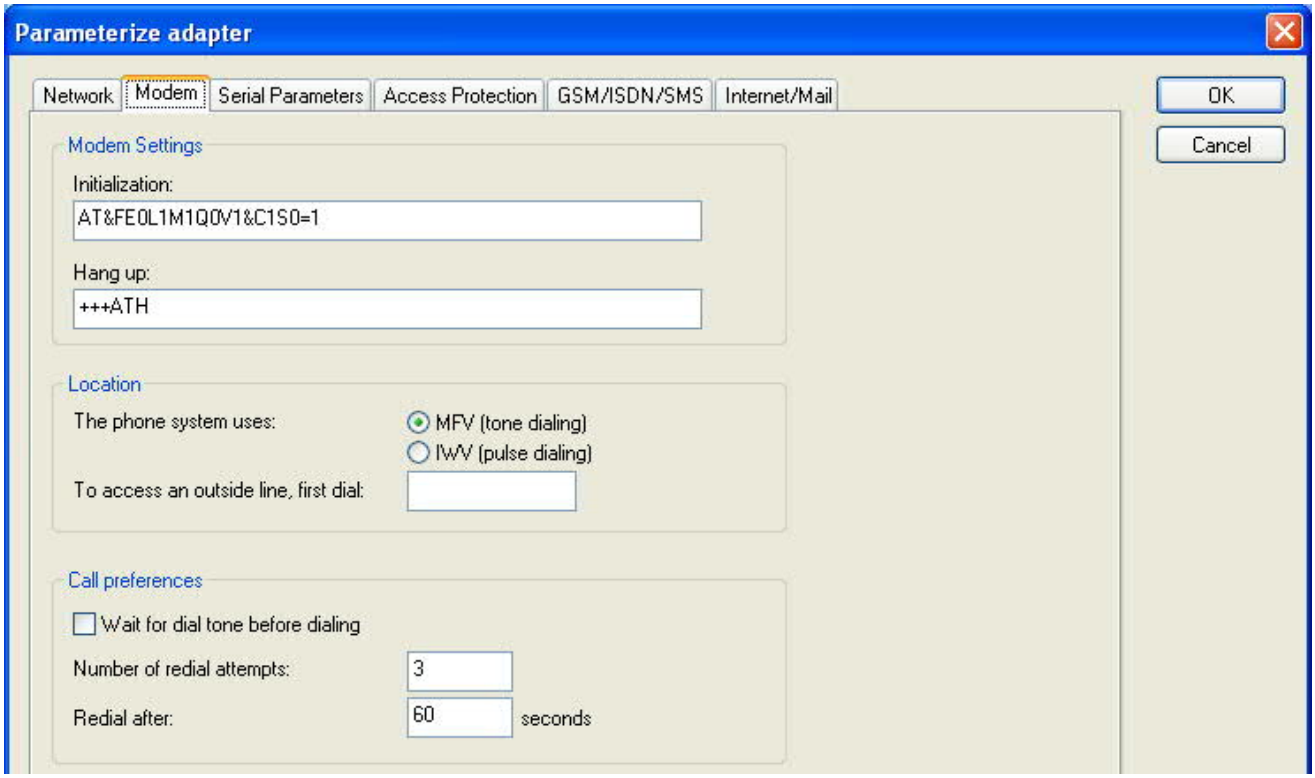
• **PD/PC is the only master on the bus**	The TS-Adapter is the only master on the MPI-bus (adapter must speak to all passive clients)
• **Address**	Which local station-address is used for the TS-Adapter. Please consider that a programming device has normally the number 0, operator panel have 1, CPU's 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)

8.5.2 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.

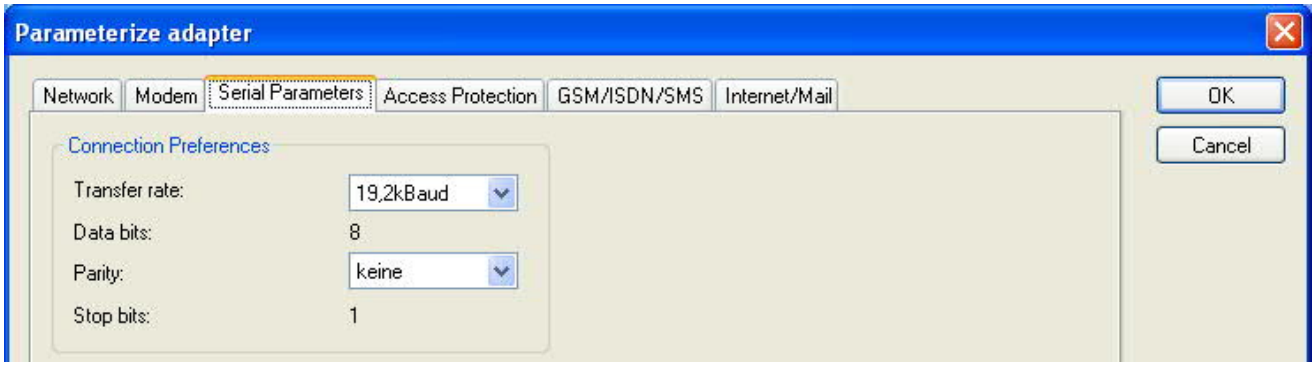
Call Preferences:

• **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.

8.5.3 Index "Serial parameter":

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

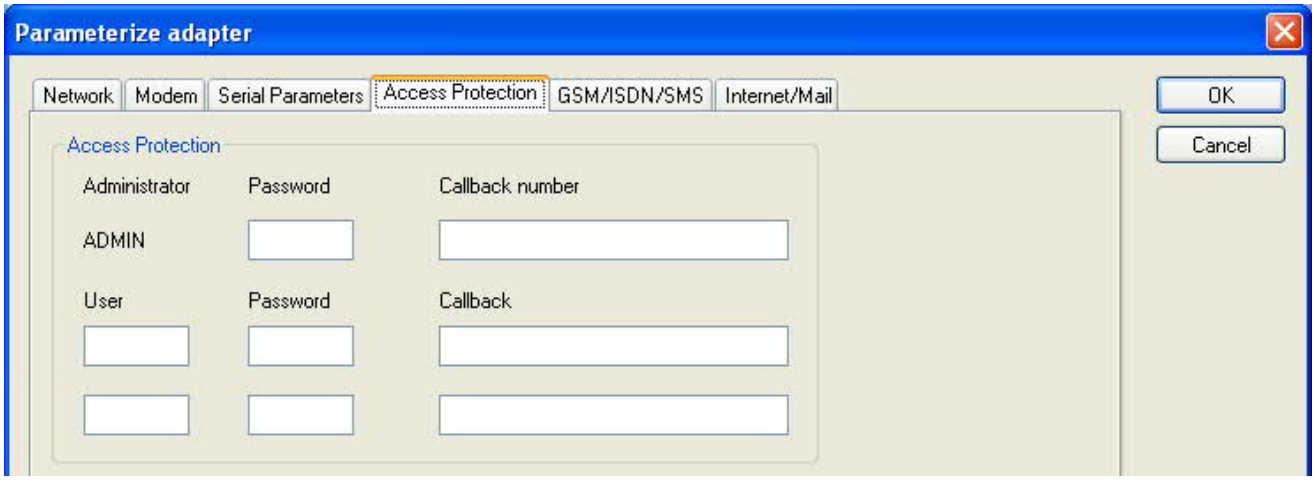


Connection Preferences:

• **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)

8.5.4 Index "Access Protection":

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



Access Protection:

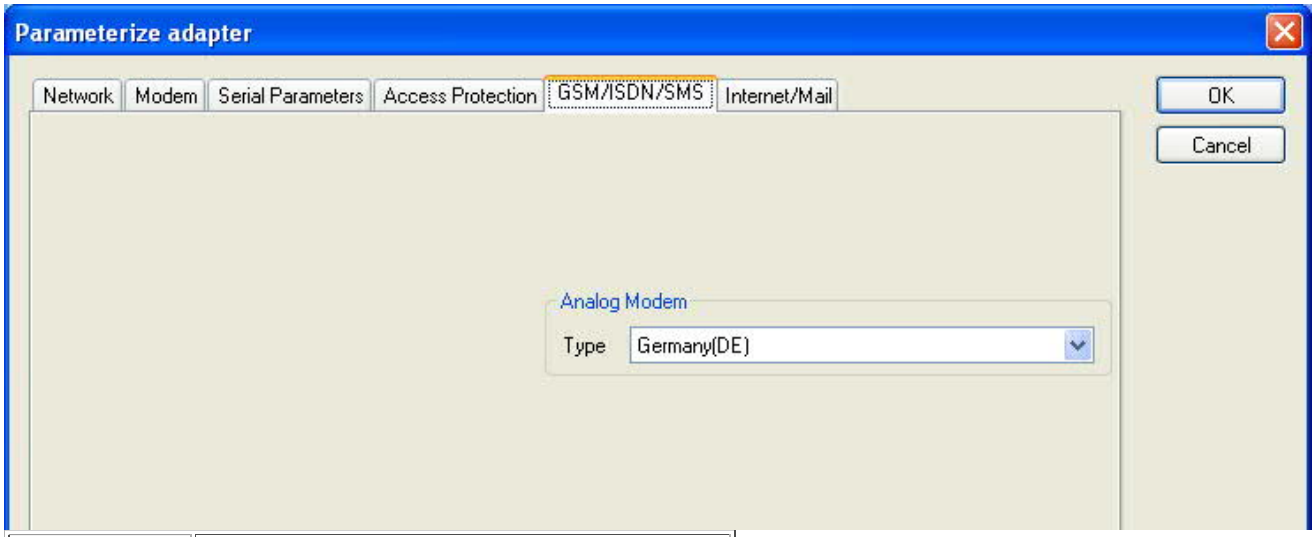
• The administrator can change the configuration over a telephone line. • The two user accounts can not change the configuration.
• The username is maximal 8 characters long. • Every user and the administrator should use a password which is used to login in the TELEService over a telephone-line.

• 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.

8.5.5 Index "GSM/ISDN/SMS":

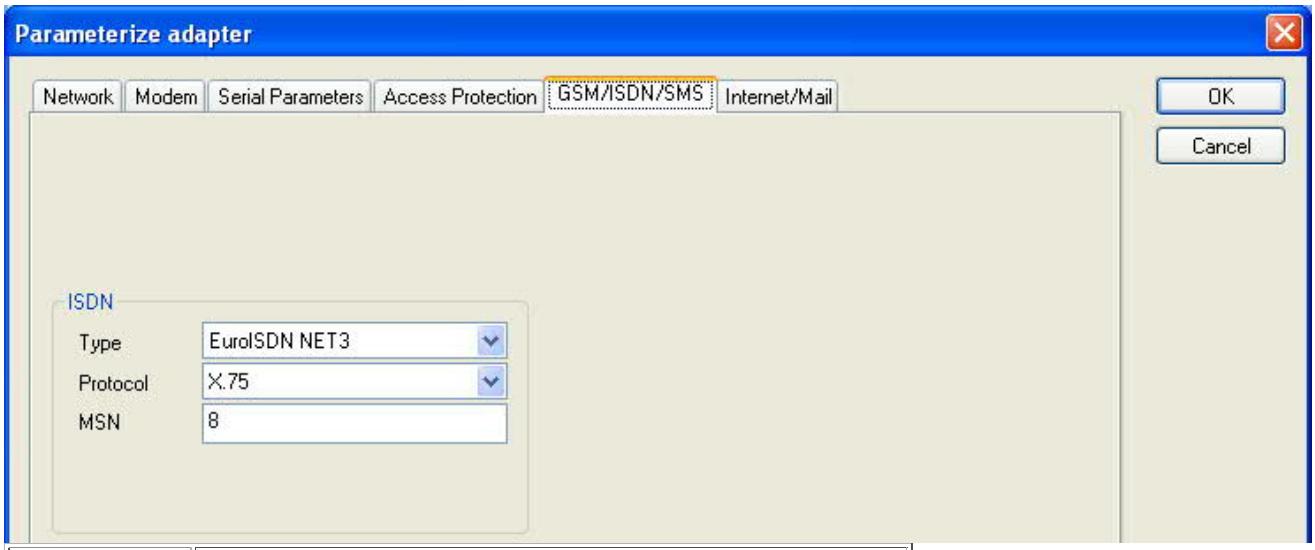
Information about the three different devices:

Analog Modem::



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

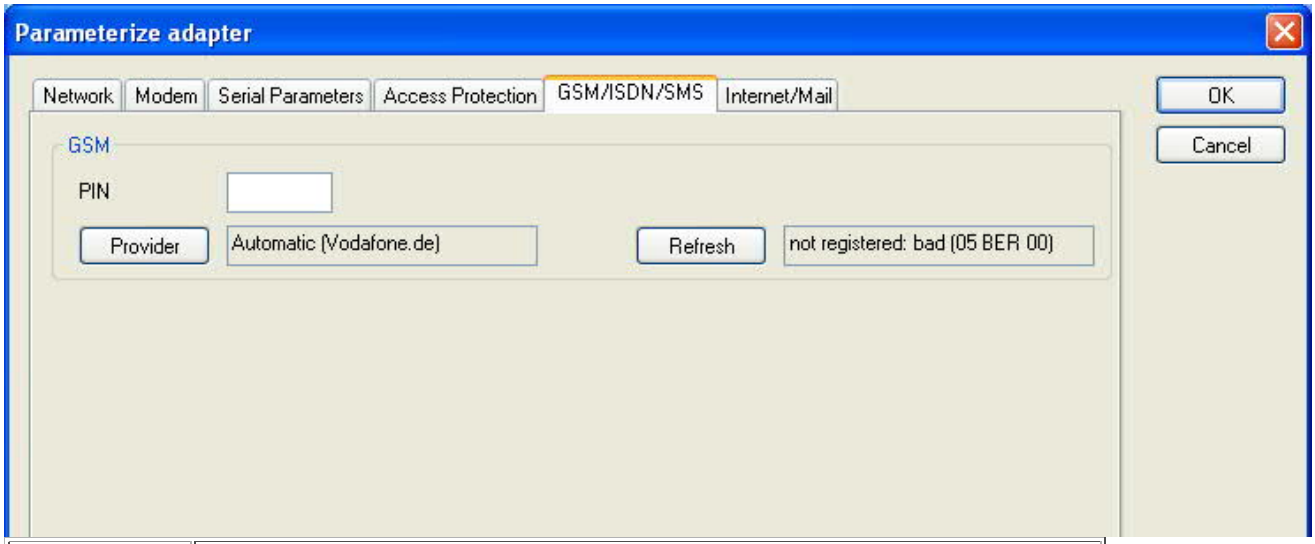
ISDN Modem:



• **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.

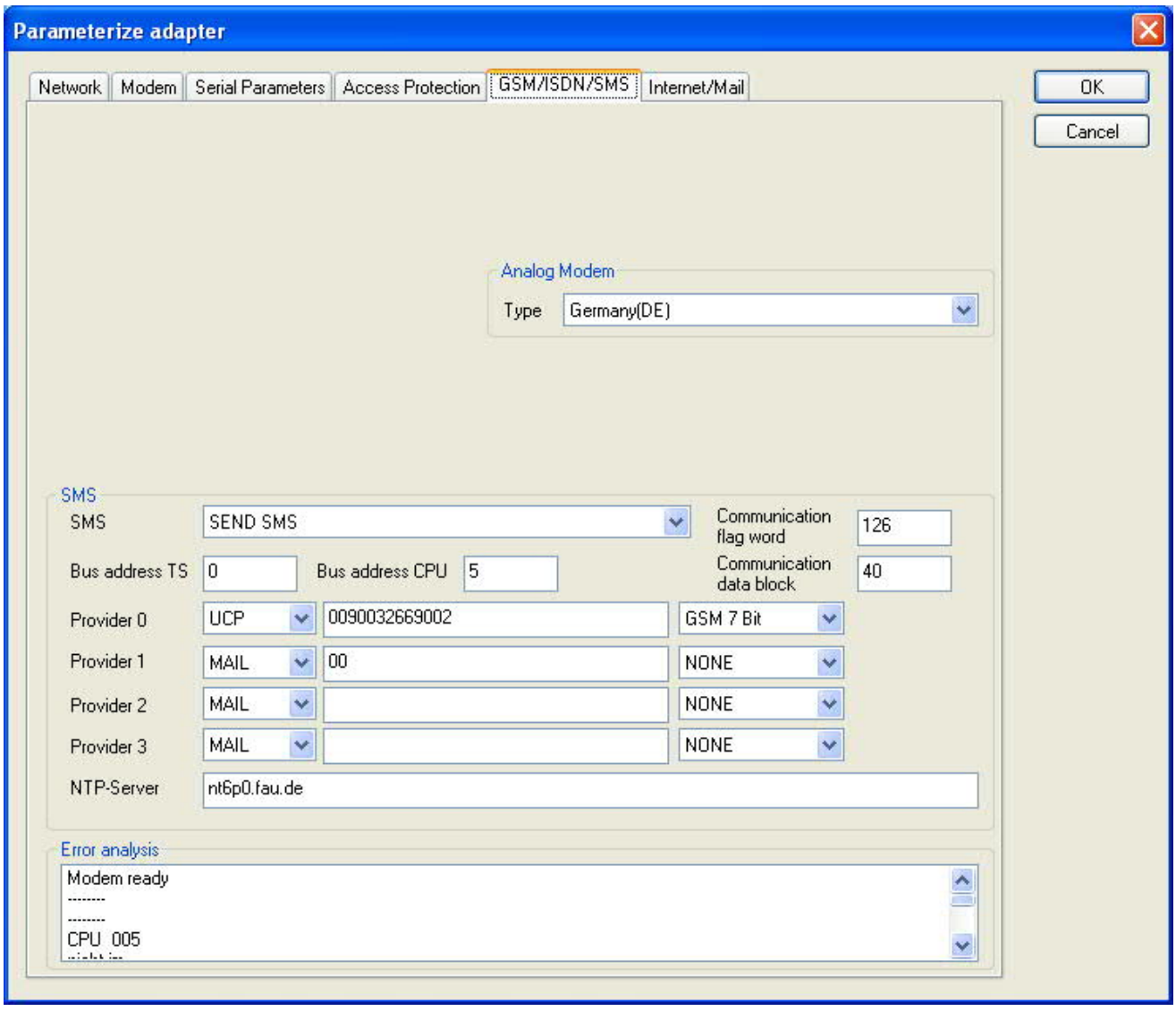
GSM Modem:



• **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)

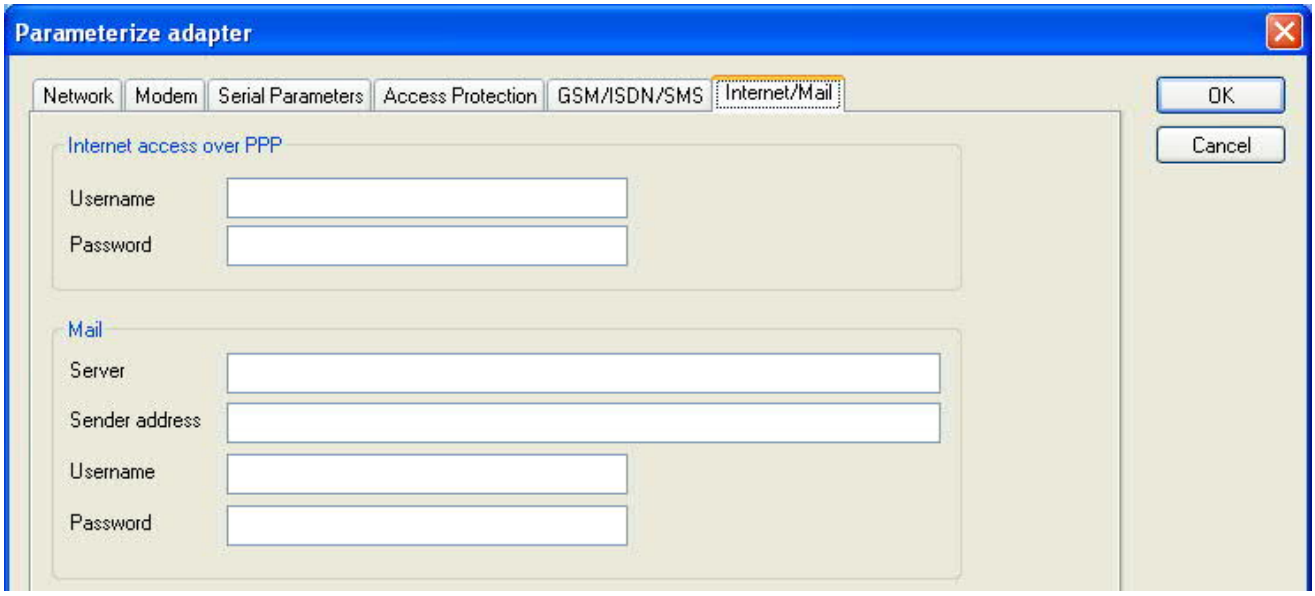
ErrCode 1E: FPGA has caused an interrupt although no data present.
(SD1=XXh,SD1=YYh,CPU=ZZZ,FC=UUh)

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.

8.5.6 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

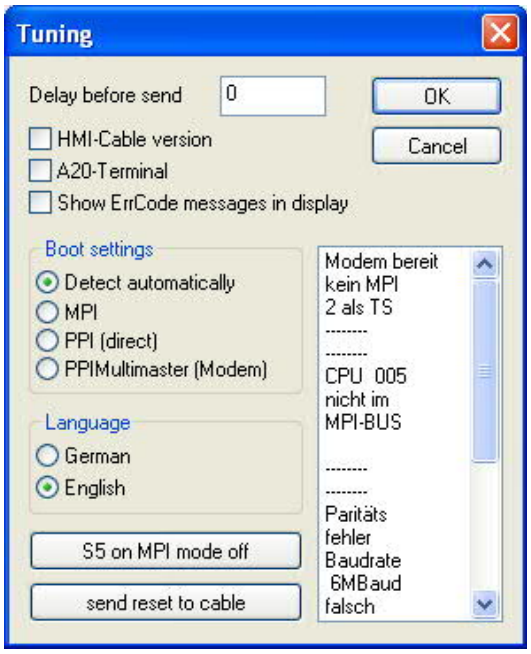
• **Password**	Userpassword for the Internet access

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

8.6 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:

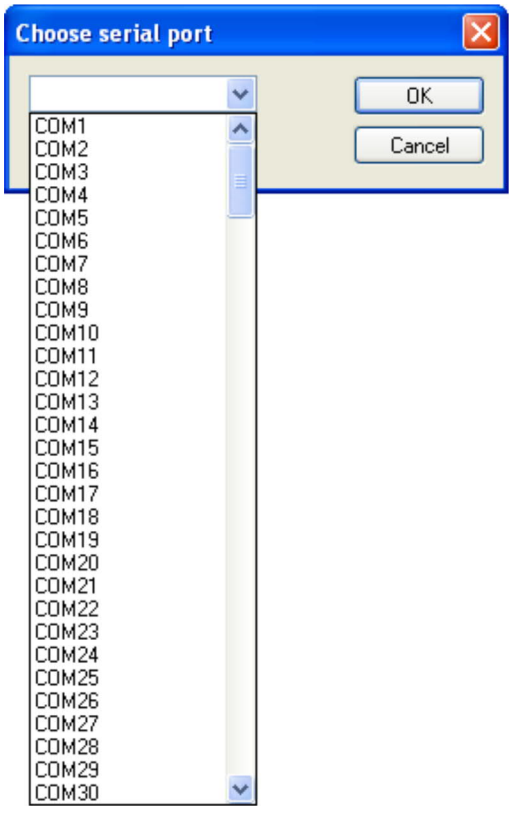
Shows some information about the status of the connection.

8.7 Factory defaults

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

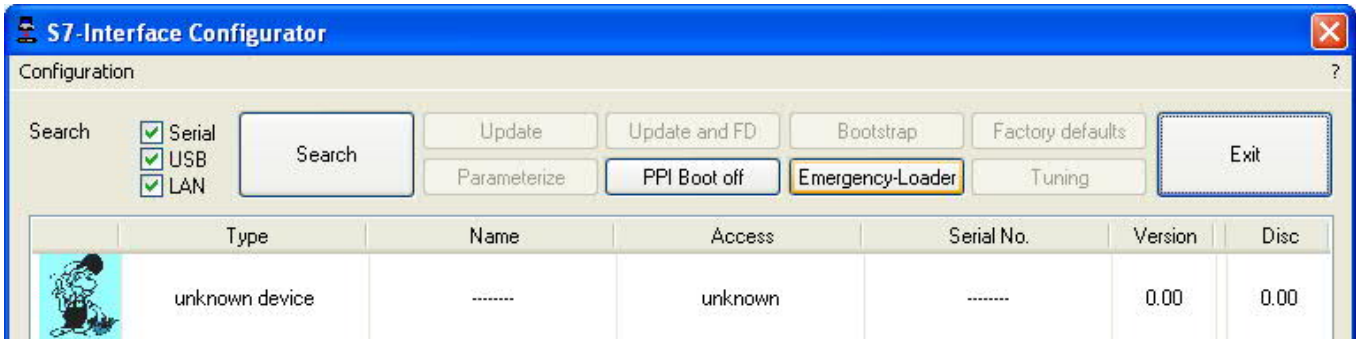
8.8 PPI Boot off

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:

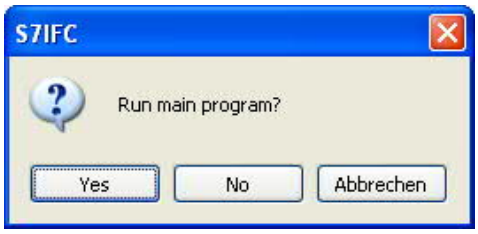


8.9 Emergency-Loader

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.

9 MPI cable manager

9.1 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

9.2 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".

9.3 Overview

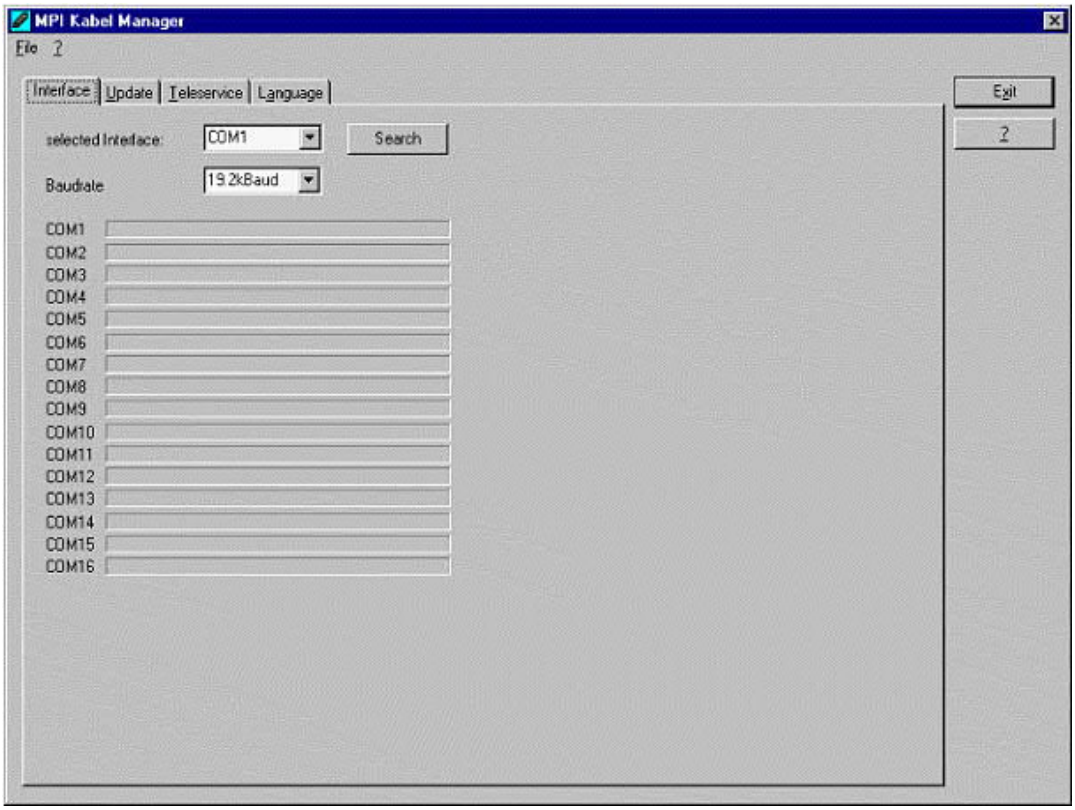
9.3.1 Language

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.

9.3.2 Interface



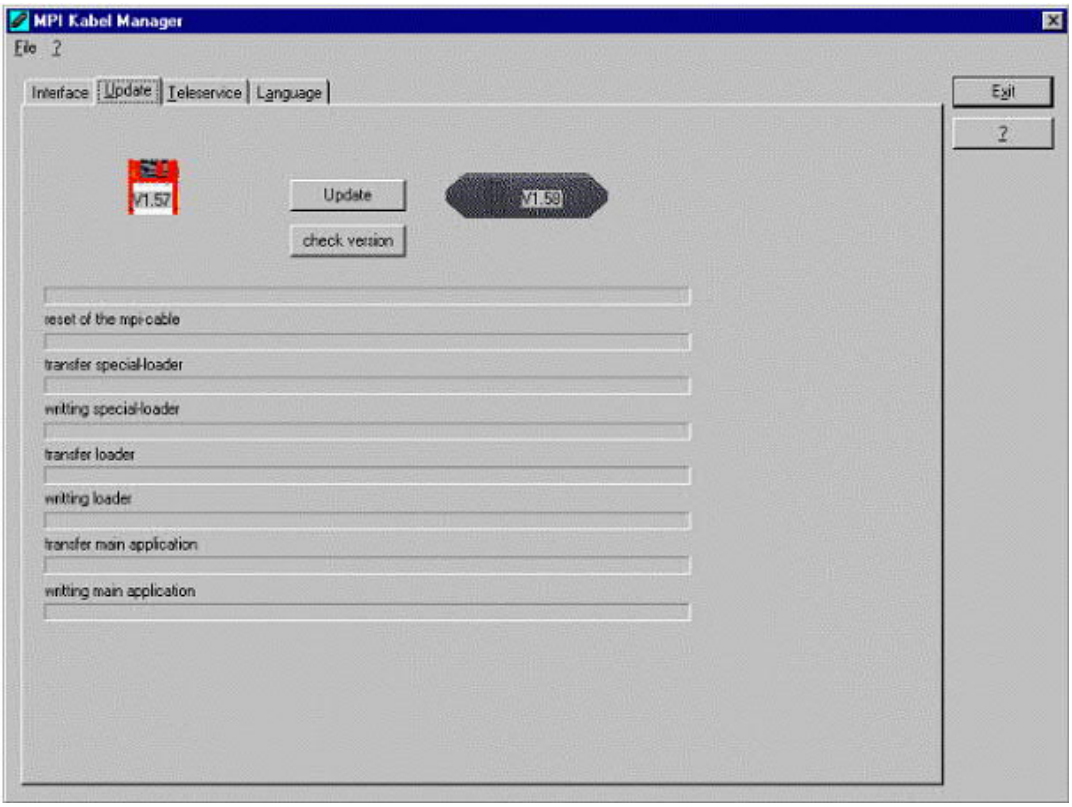
In „set interface“ you can choose the COM-port you device is connected at. Only the COM-port which was aktive at starting the MPI-Kabel-Manager are shown.

„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.

9.3.3 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.

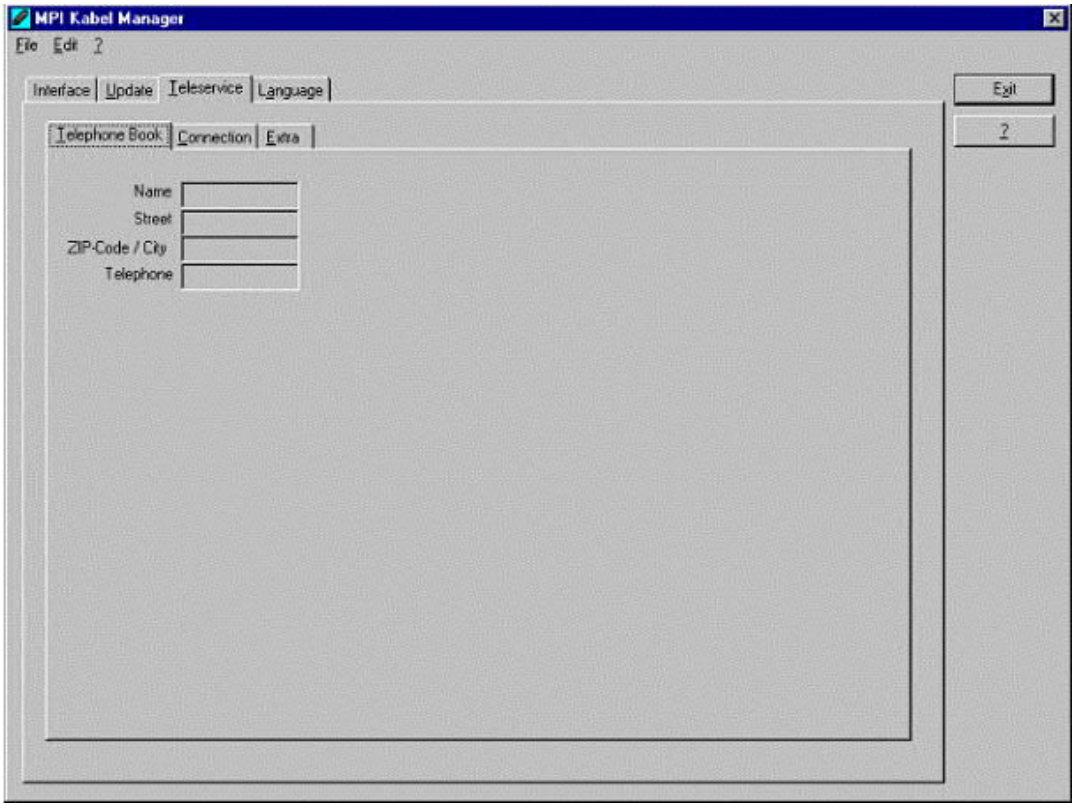
The symbol next to version check shows the running update.

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.

9.3.4 Teleservice

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



9.3.4.1 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

9.3.4.2 Connect

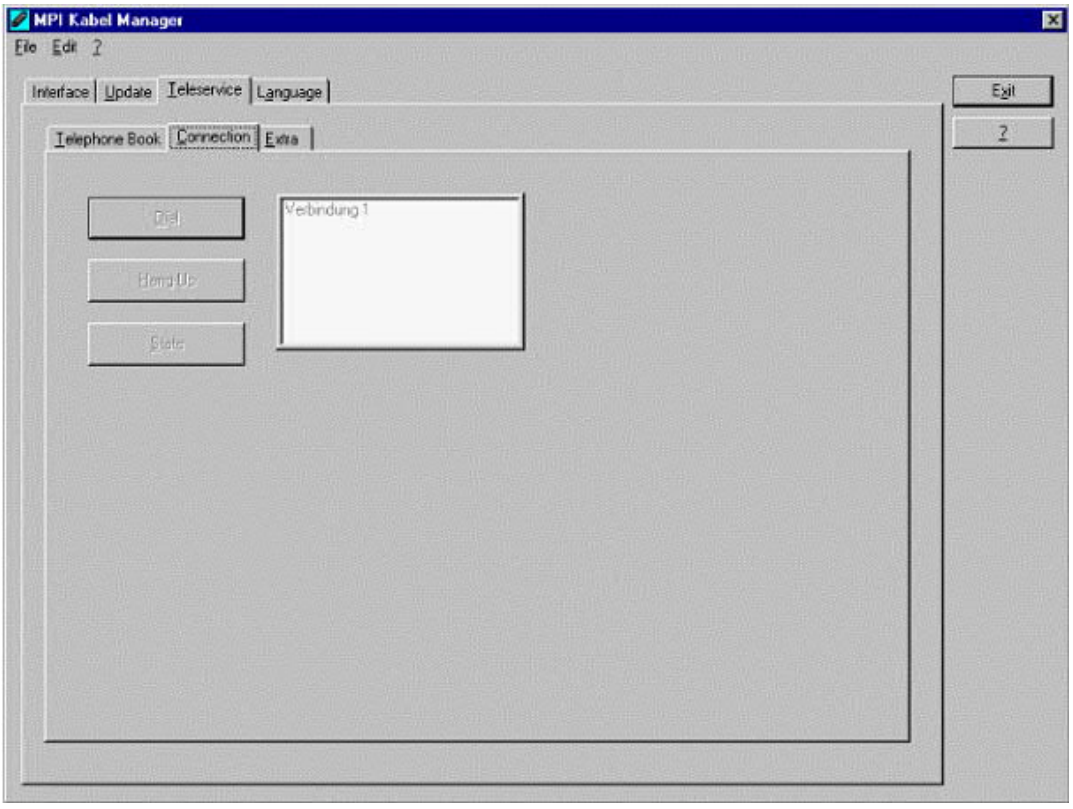
At the moment not implemented!

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.

9.3.4.3 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.

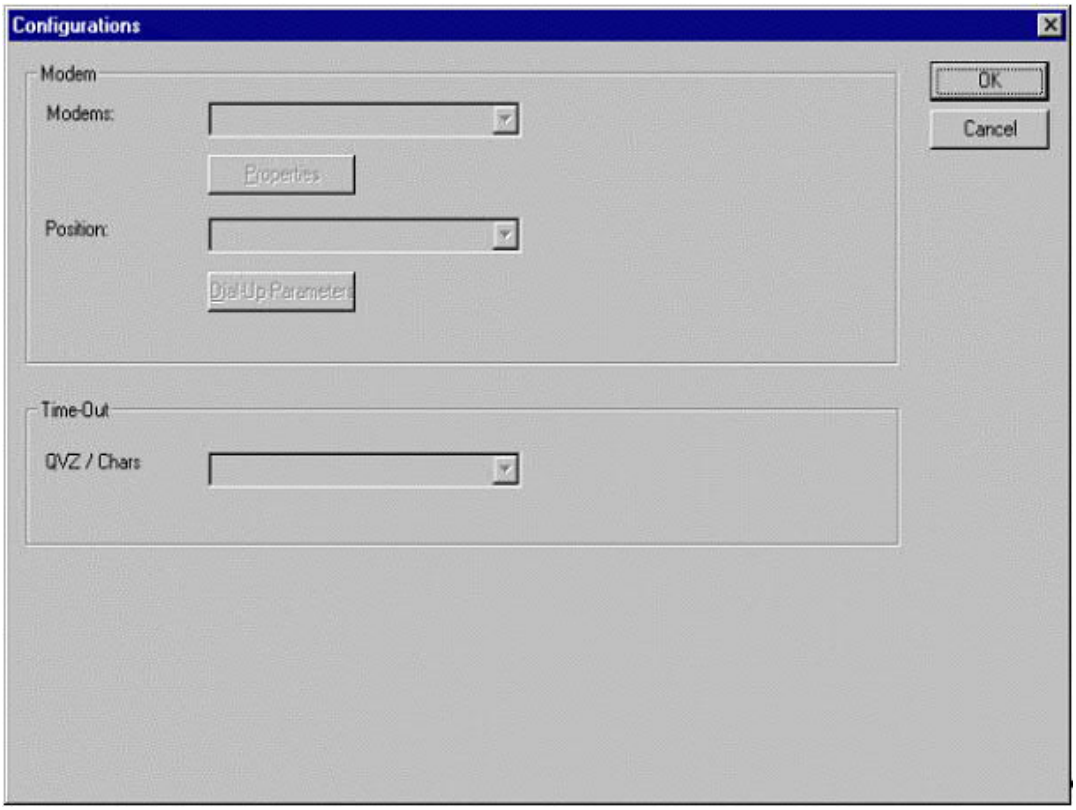
„SNDERR“ or „RCVERR“

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:

9.3.4.3.1 „Setup“

In the follwing dialog you could choose the used modem.



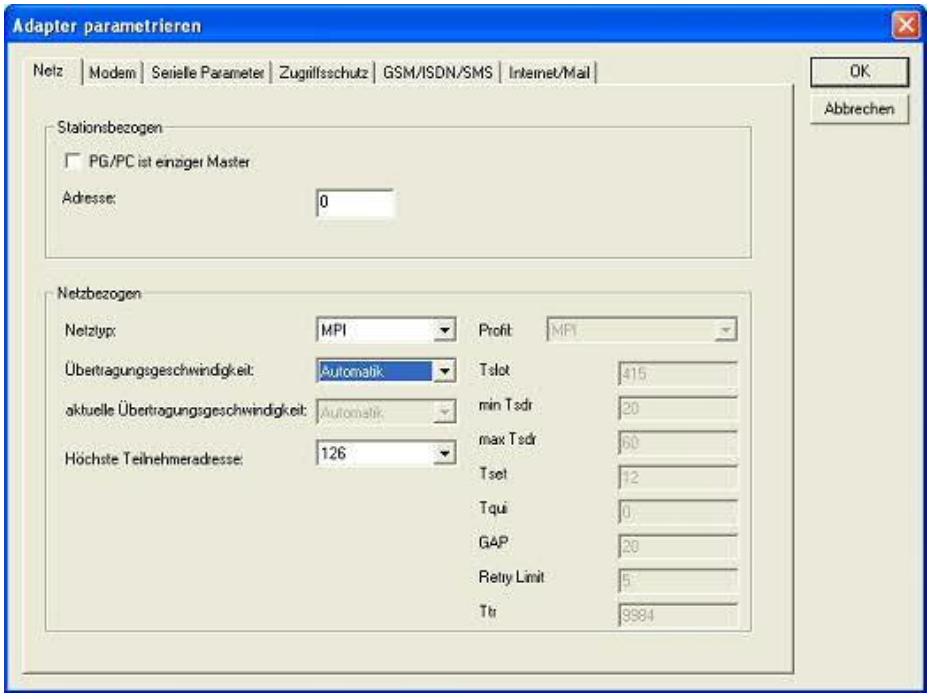
9.3.4.3.2 „TS-function“

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.

9.3.4.3.3 „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:

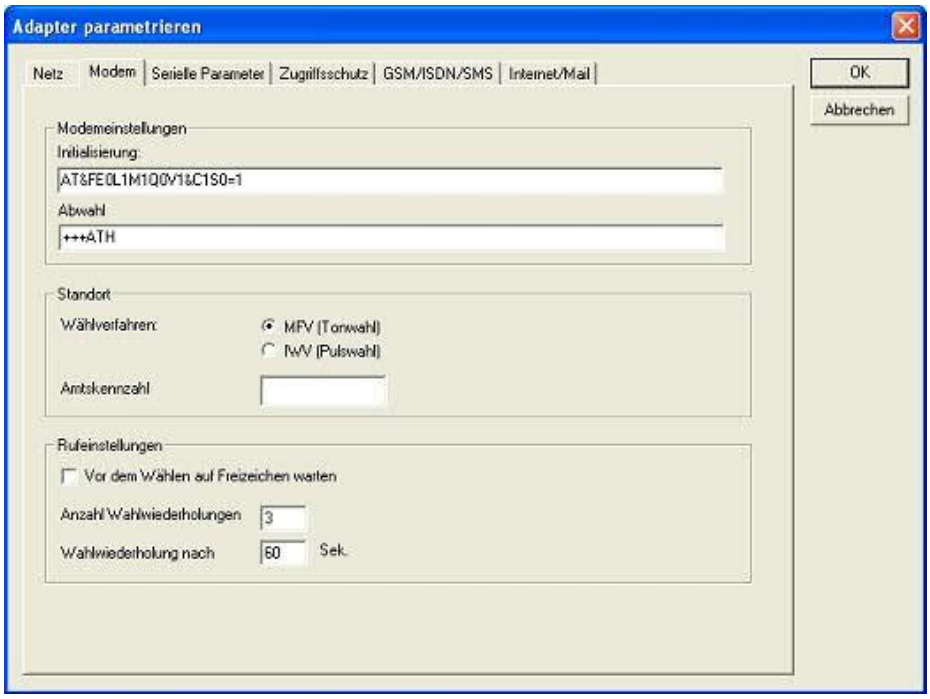
Here you can configurate following:

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

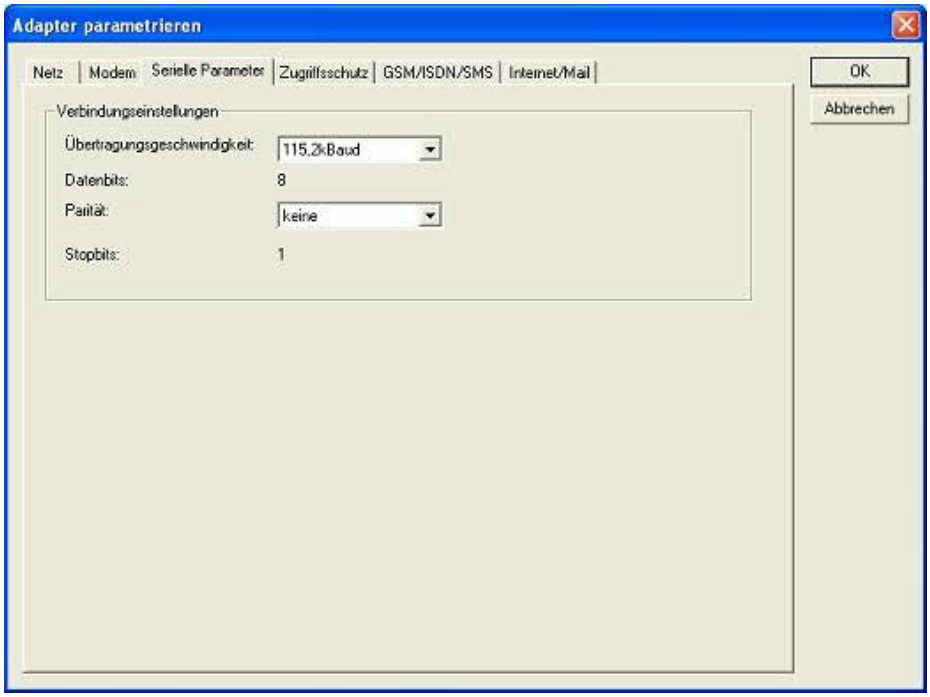
When you must a pre-call to establish a call outside your company, you could define it at Amtskennzahl.

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

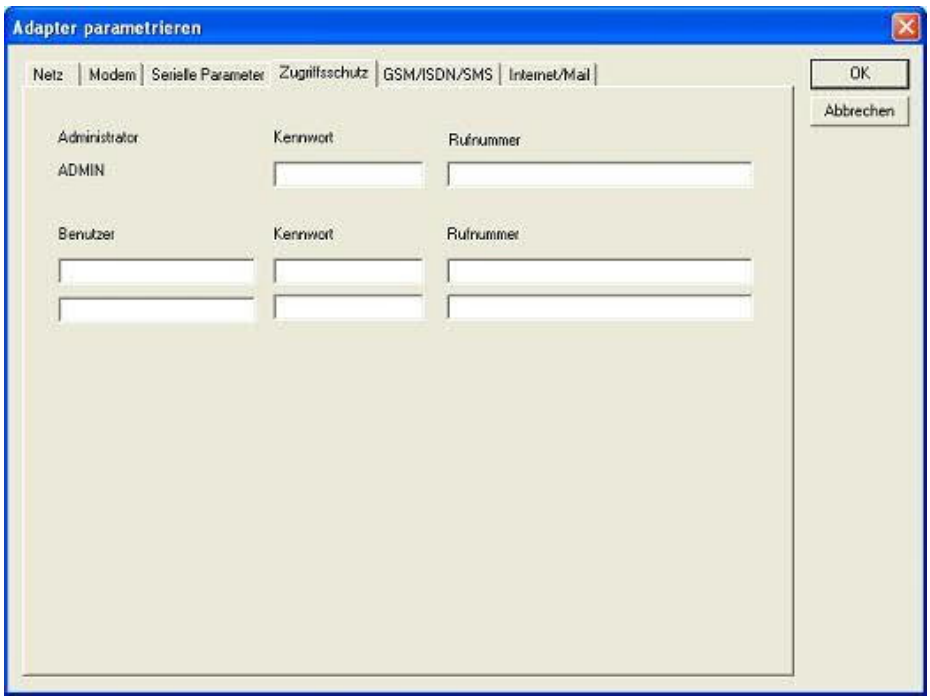


In this dialog the transfer-rate between modem and TS-Adapter is selected.
The transfer-rate could choosen between the follwing values:
2400, 4800, 9600, 19.2k, 38.4k, 57.6k and 115.2kBaud

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.

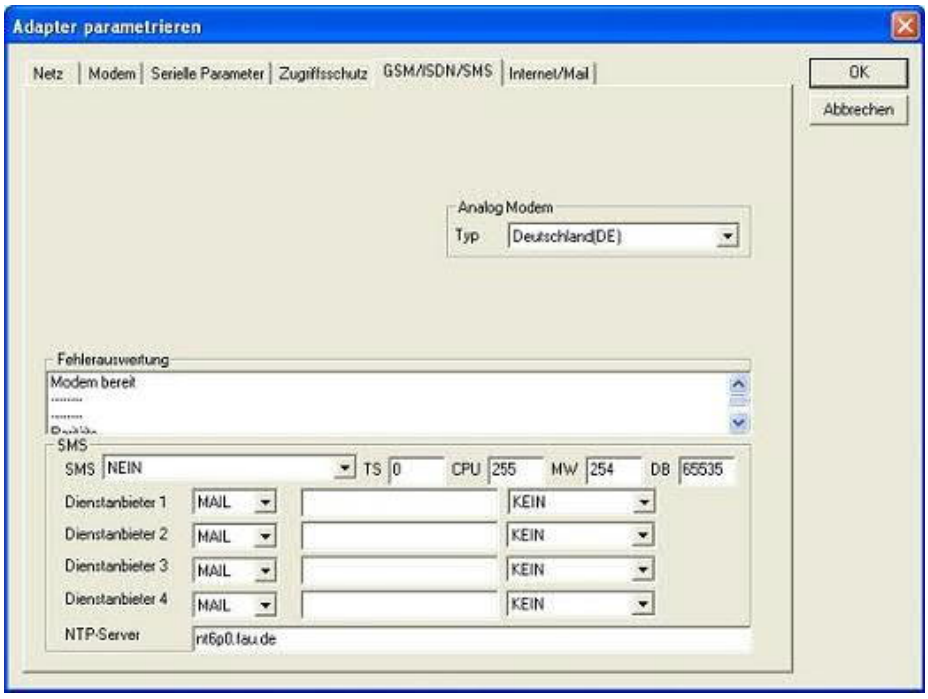
After 3 wrong retries the connection is hanged up, so you must call again (Not so with an original TS-adapter).

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.

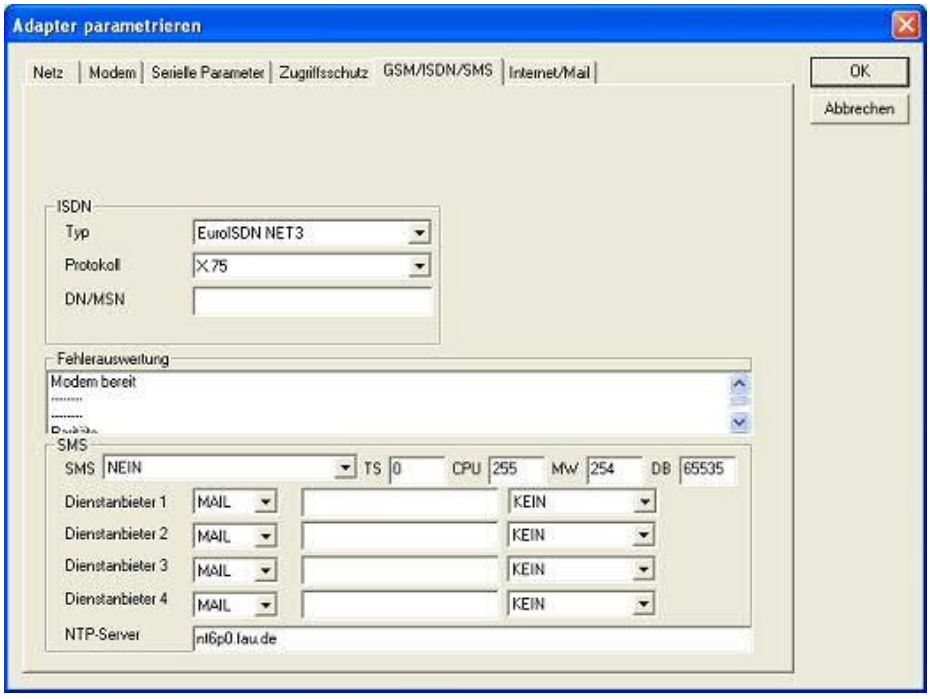
GSM/ISDN/SMS

Analog modem:



You could choose the Location of the Modem.

ISDN modem:



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

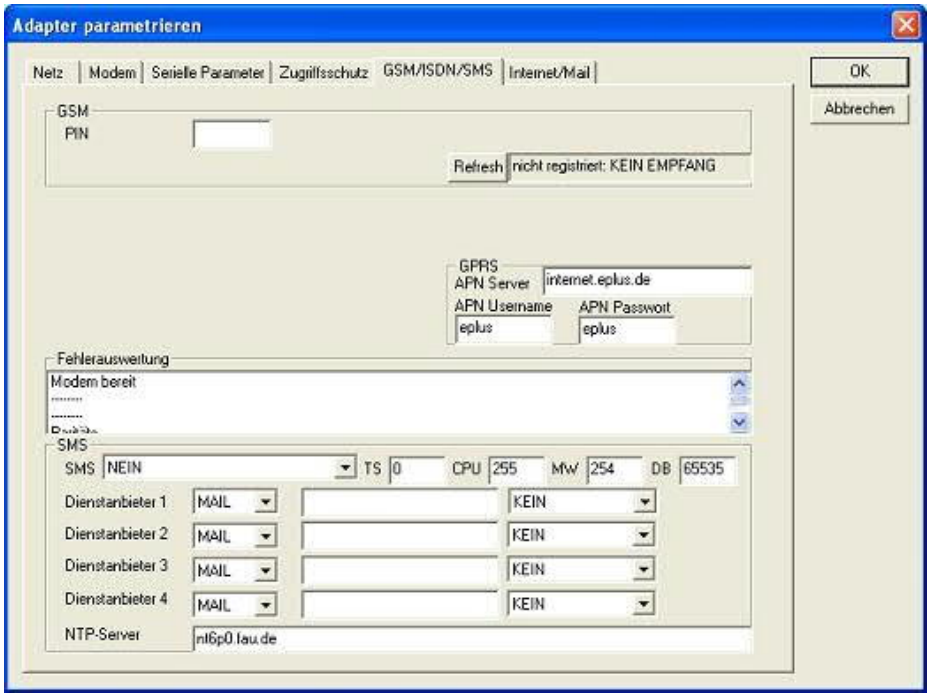
AT&T 5ESS
Nothern Telecom DMS-100
EuroISDN NET3 (Standard)
INS64
US NI-1
VN4

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!)

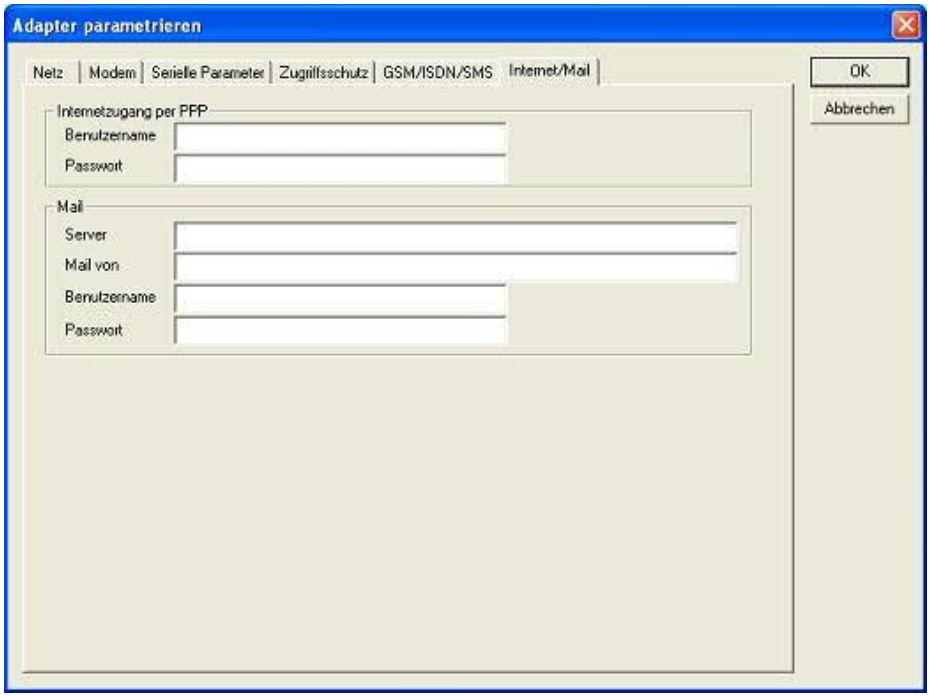
PLC: from this station-address the Flagword and Data-block is accessed for communication

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



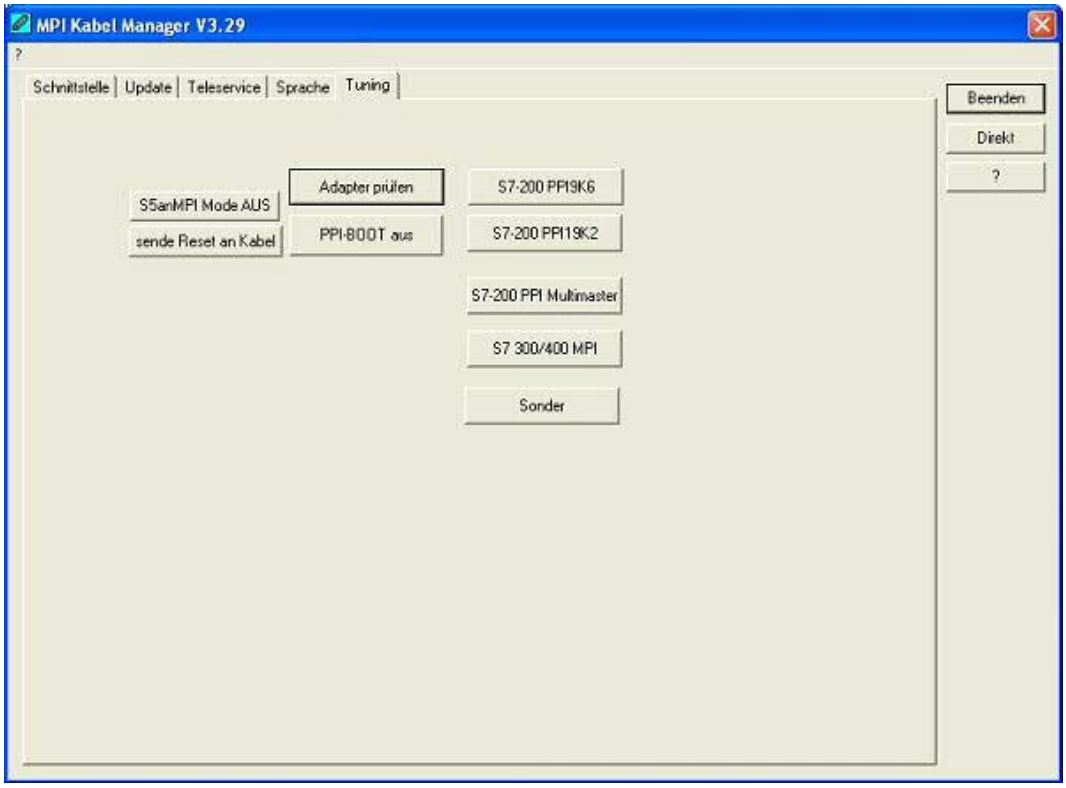
9.3.4.3.4 „Import parameter“

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

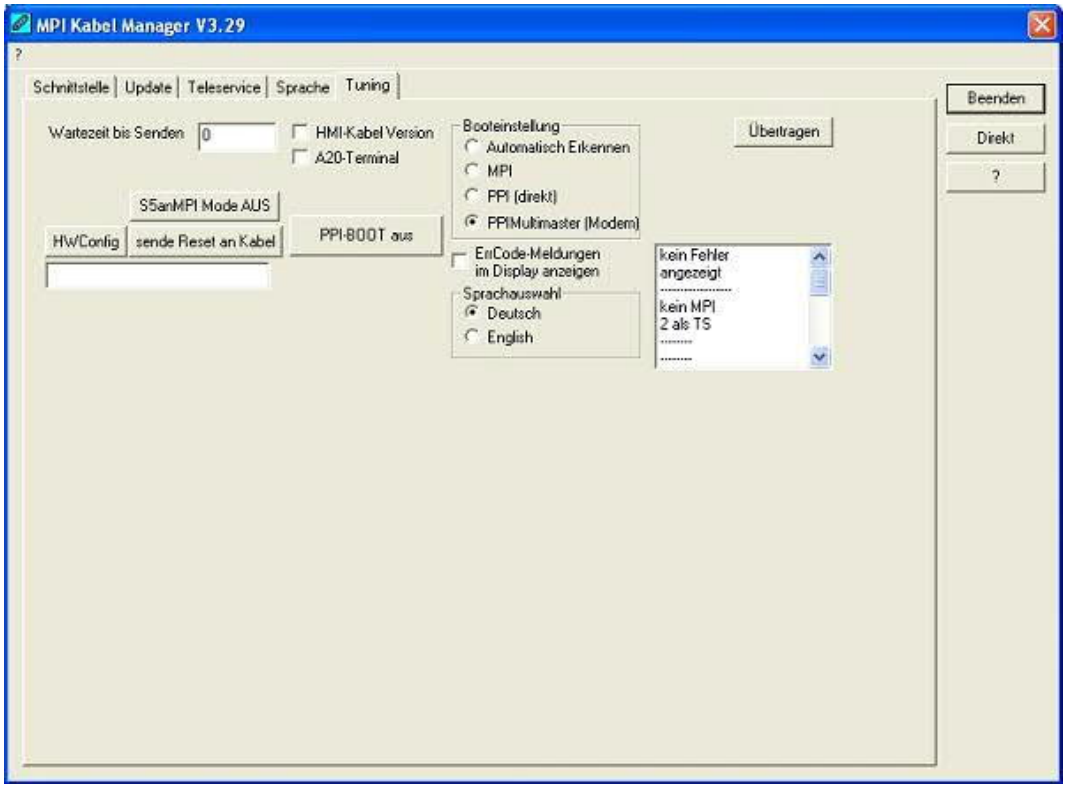
9.3.4.3.5 „Export parameter“

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

9.3.5 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).

10 Technical data

Supply voltage:	24V DC +/- 20%
Power consumption:	5 watt
Display:	expressive LCD-display 4 status-LEDs
Handling/Configuration:	integrated keypad
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 **others:** -
Integrated modem:	33K6-analogue modem GSM-modem
Operating temperature:	-30 - +55°C
Case:	powder coated metal case with mounting flange
Dimensions:	165 x 90 x 50 mm
Scope of delivery:	
	MPI / PPI - Profibusmodem MPI-conncting-cable 1m Power connector 3pins big For Analogue-version: telephone-cable TAE For GSM-version: magnetic base antenna

10.1 Pin assignment RS232

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

The cable is designed so that it can be directly connected to the PC. Optionally the end of the cable can be extended with a 1:1 extension cable up to 15m. A good quality of the extension cord must be respected.

10.2 Pin assignment MPI

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

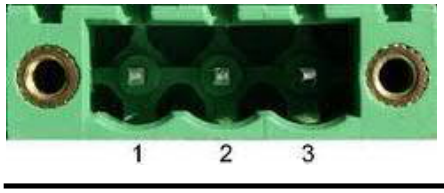
Note:
The shield is placed to the SUB-D plugs
In order that the cable recognize the direct participants, RTS-AS and M5V must be placed.

Observe:

please do not lengthen this side of the cable, because on this side of the cable 24V DC or 5V/DC power supply also be carried.

For a prolongation, please supply the cable with external power and only the signals Ltg_A and Ltg_B 1:1 lengthen. Add the shield on both sides to the SUB-D plug optionally insert termination resistors (on the bus-END).

10.3 pin assignment power supply



Pin number	Short form	Designation	Direction
1	P24V	24V DC voltage	input
2	PE	earthing	input
3	M24V	mass	input

10.4 Pin assignment RJ12

for the tele-service analog

Pin No.	Notation	Signalname	Direction
1	NC	Not Connected	
2	A’	continuing A-line	Out
3	A	A-line	In
4	B	B-line	In
5	B’	continuing B-line	Out
6	NC	Not Connected	