



# ACCON-MPI-Modem ISDN User Manual

from HW 1 & SW 3.0

The best solutions for PLC

# 1 PREFACE

This manual is for project developers, users and assemblers who utilize the ACCON-MPI-Modem ISDN. It shows the user the handling of the ACCON-MPI-Modem ISDN and explains signaling functions. All necessary data for assembling should be provided to the assembler. © 1995 - 2009

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### **Note:**

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

Last update 2009-03-09. All technical changes reserved.

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## 2 TECHNICAL DESCRIPTION

The ACCON-MPI-Modem ISDN enables the remote maintenance of a PC via the MPI interface of a S7 controller. The connection is done via a telephone connection. The ACCON-MPI-Modem ISDN is an ACCON-MPI/TS-Adapter with an integrated modem. Due to the integrated modem, the remote maintenance adapter is a compact device which can be placed in every control cabinet. The ACCON-MPI-Modem ISDN uses the same communication protocol as the TS Adapter. Thus the device can be used with all software which supports this adapter. There is also an additional socket to connect a further station e. g. a control panel, to the bus plug of the ACCON-MPI-Modem ISDN. To use the ACCON-MPI-Modem ISDN with STEP 7 via a modem connection, you need the TeleService option package from Siemens.

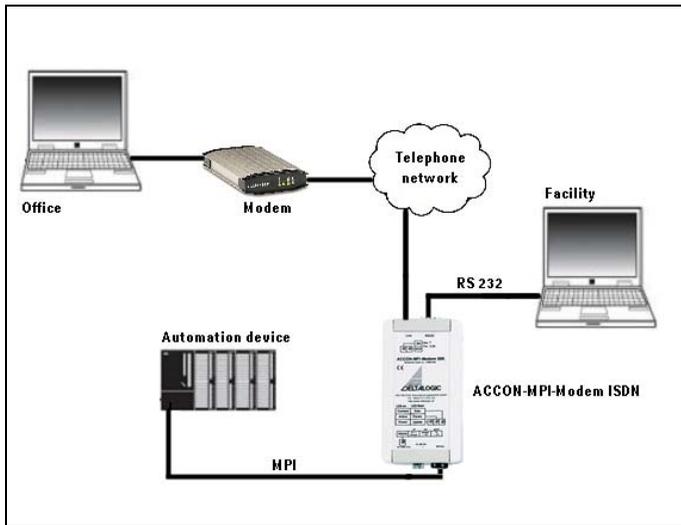


Figure 1: Build-up



*The functions »PG\_DIAL« and »AS\_DIAL« are not implemented.*



*The ACCON-MPI-Modem ISDN does not work with a S7-200 controller!*

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*FM35x modules cannot be parametrized with the ACCON-MPI-Modem ISDN!*

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**Features:**

- Compact design
- Quick commissioning
- Modem and TS Adapter combined in one single device
- Can be used as local programming adapter
- Assembly on a top hat rail

### **3 SCOPE OF DELIVERY**

- ACCON-MPI-Modem ISDN
- PC connection cable
- Top hat rail holder
- CD with the parametrization software ACCONfigurator
- Manual
- ISDN connection cable

Suitable accessories can be found on [www.deltalogic.de](http://www.deltalogic.de).

## 4 DEVICE DESCRIPTION

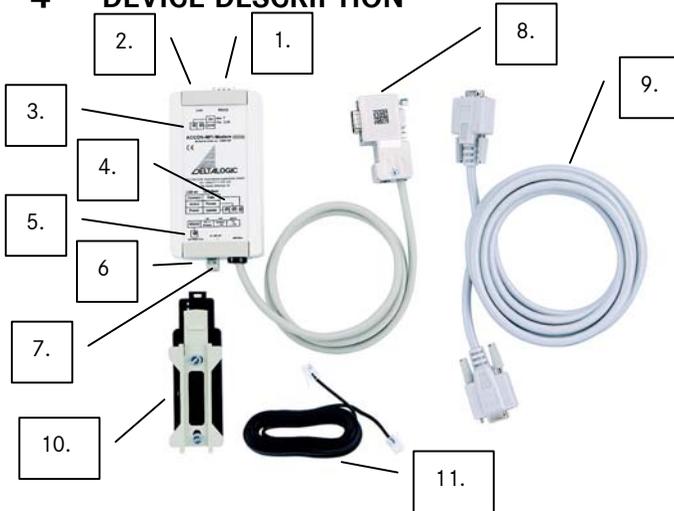


Figure 2: ACCON-MPI-Modem ISDN

- 1) RS232 interface for the communication with the PC
- 2) RJ11 socket for the ISDN connection cable
- 3) Modem LEDs
- 4) Status LEDs
- 5) RS232 LED
- 6) Switch to change between the different operating modes (microswitch)
- 7) Power supply socket for 24 VDC. Please keep the polarity in mind.
- 8) Bus plug with PG socket, switchable terminator and a 1,2 m connection line.
- 9) PC connection cable
- 10) Top hat rail holder
- 11) ISDN connection cable

## LED display

The six LEDs on the front side of the device inform about the operating state of the ACCON-MPI-Modem ISDN. So sources of error can be detected very quickly.

When the ACCON-MPI-Modem ISDN is connected to the PLC a connection with the MPI bus will be established if the initialization of the internal modem was successful. Then the Active LED lights. If not the initialization of the modem or the log in on the MPI bus does not work. The device can only accept incoming connections when the Active LED lights.

The LEDs can change to one of three possible states: ON, OFF, BLINKING

Status LED	Power/Update LED	Active/Param. LED	Connect/Data LED
Adapter has no voltage feed.	OFF		
Adapter has a 24 VDC voltage feed and is working	ON		
Firmware update being executed	BLINKING	ON	
Adapter is logged in on at the MPI bus	ON	ON	
Adapter is receiving parametrization	ON	BLINKING	
Adapter is connected to the PLC	ON	ON	ON
Adapter is transmitting data	ON	ON	BLINKING

Table 1: Status LEDs

Modem LED	OH LED (Off-Hook)	DCD LED (Data Carrier Detect)
A call is being put through	ON	
Connection to modem established	ON	ON

*Table 2: Modem LEDs*

	RS-232 LED
The ACCON-MPI-Modem ISDN works directly with the internal modem and can be connected to a telephone connection for remote maintenance. The RS232 interface does not have any function.	OFF
The internal modem is shut down and the RS232 interface can be used for the communication with the PLC (for parametrization or PC-Adapter).	GREEN
The internal modem can be used directly from a PC via the RS232 interface.	RED

*Table 3: RS-232 LED*

## 5 REQUIREMENTS FOR OPERATING

### Hardware requirements

If possible, put the ACCON-MPI-Modem ISDN directly on the MPI interface of the SIMATIC S7-300 or S7-400 controller. If not possible you have to use an external power supply for the ACCON-MPI-Modem ISDN.



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*Please keep in mind that the ACCON-MPI-Modem ISDN cannot be used with PROFIBUS!*

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### Software requirements

To use the ACCON-MPI-Modem ISDN as programming adapter you need SIMATIC STEP 7 from version 5.1. And for an access via a modem connection you need the TeleService options package from Siemens.

### Minimum clearance

The following minimum clearance has to be kept that

- you can assemble and disassemble the ACCON-MPI-Modem ISDN without disassembling other parts of the facility.
- there is sufficient space to connect all interfaces and connections to standard accessories.
- there is enough room for cable routings.

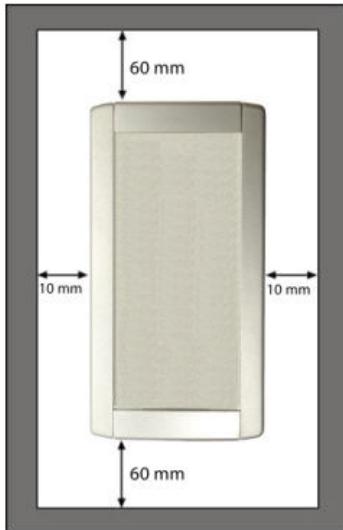


Figure 2: Minimum clearance

### Module assembly

A top hat rail holder is supplied.

## 6 COMMISSIONING

### Connection to the automation system

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

When the ACCON-MPI-Modem ISDN is connected to the PLC, the connection to the MPI bus will be established when the initialization of the internal modem has been successful. The Active LED should light after a short period.



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*If the Power LED does not light, either the modem did not answer to the initialization with »OK« or the ACCON-MPI-Modem ISDN was not able to log in on the MPI bus (perhaps wrong MPI address). At this time remote maintenance is not possible.*

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### Connection to the PC

The ACCON-MPI-Modem ISDN will be connected to the PC's RS232 interface via the supplied null modem cable. So the ACCON-MPI-Modem ISDN can be parametrized or used for the communication as a PC Adapter. You can change between the different modes via the microswitch.

#### **Internal: Modem operating in a telephone network (microswitch position: »Int.«)**

When the micro switch is in the »Int.« position, the ACCON-MPI-Modem ISDN works directly with the integrated modem. The RS232 LED is off and the RS232 interface has no function. The access on the connected PLC via TeleService is active.

#### **External: RS232 direct operating at a PG/PC (microswitch position: »Ext.«)**

When the micro switch is in the »Ext.« position, the ACCON-MPI-modem ISDN works with a locally connected PC Adapter or TS Adapter. The RS232 LED is green.

#### **Modem: Modem operating (microswitch position: »Mdm.«)**

When the microswitch is in the »Mdm.« position, the ACCON-MPI-Modem ISDN works as an external analog modem. The RS232 LED is red.

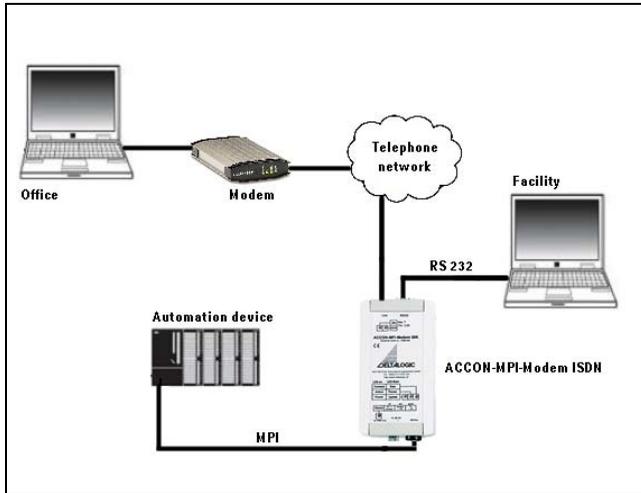


Figure 3: Build-up

### Local modem

If you have already installed an ISDN modem or ISDN card under Windows, you can mostly use it for the remote maintenance. Please you use the data transmission protocol X.75.

Example: Setting the local modem

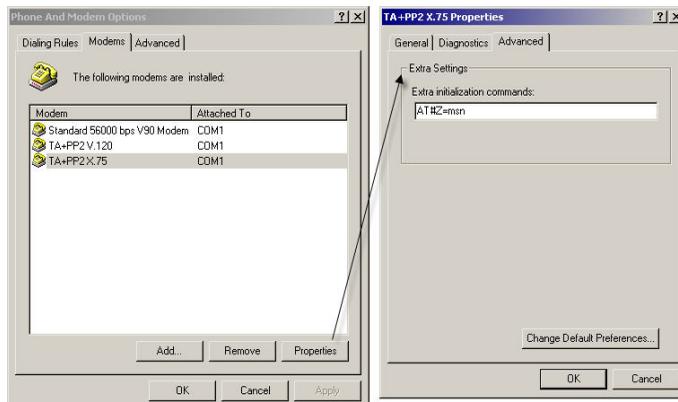


Figure 1: Phone and Modem Options



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*For call-back function of the TS adapter you have to define at the local modem a MSN(multiple subscribe number)for the data port. For this special AT command please look for your modem documentation.*

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### **Installation of the ACCON-MPI-Modem ISDN at the plan**

Assemble the ACCON-MPI-Modem ISDN in the switch cabinet remembering the minimum clearance.

If necessary energize 24 VDC to the power supply socket. Please keep the polarity in mind. Connect the ACCON-MPI-Modem ISDN to the telephone network via the ISDN connection cable. If the device is fed with voltage only the Power and RS232 LED should light green. If the RS232 LED is of or lights red then change the microswitch to »Ext.«.

Connect the ACCON-MPI-Modem ISDN to the RS232 interface of your PC or PG via the supplied null modem cable.

### **Parametrization with TeleService**

The settings of the ACCON-MPI-Modem ISDN are defined by the software with which the communication to the automation device is done.

In addition to the programming software STEP 7 you need TeleService from Siemens (from version 3.0) to administrate the connections.

### **Parametrization with TeleService**

Adjust the connection in the dialog **Set PG/PC Interface** as follows:

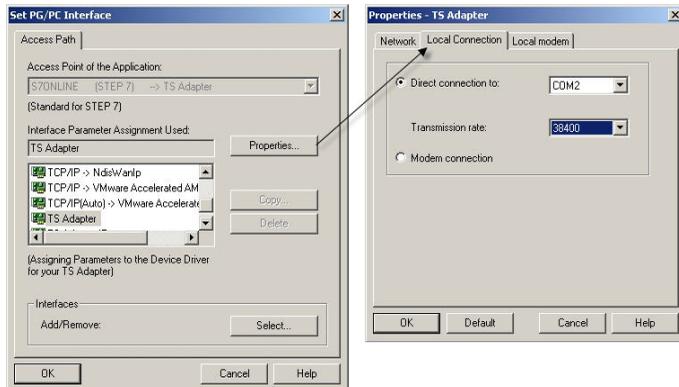


Figure 4: Set PG/PC Interface

Choose the PC's COM port to which the ACCON-MPI-Modem ISDN is connected to.

Via the menu **Options > Assign TS Adapter I/II parameters** in the TeleService software, you can define the following settings for the internal adapter and the internal analog modem.

Transmission rate from internal adapter to the modem:

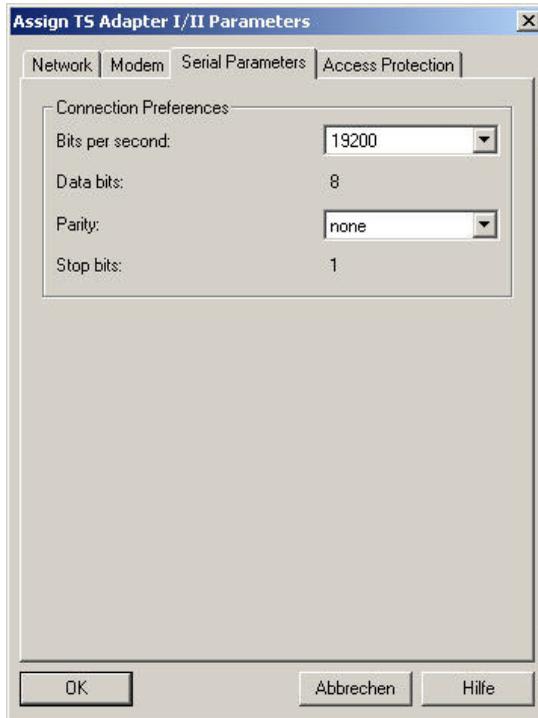


Figure 5: Serial parameters

## Modem settings / initialization string

### Setting the MSN with TeleService

When operating the ACCON-MPI-Modem ISDN with an ISDN connection for multiple devices with several terminal equipments, you have to assign the MSN (multiple subscribe number) to the internal modem module.

For that purpose you have to send the command »AT#Z=xxx« (replace xxx by the desired MSN) to the internal modem. The modem stores the MSN permanently but can be overwritten by a new MSN.

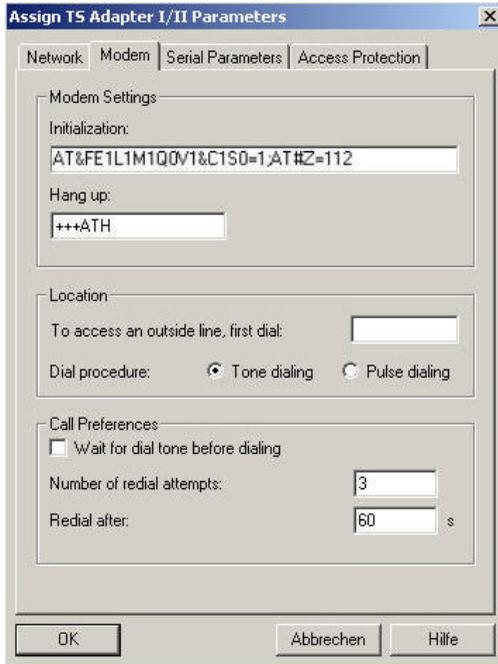


Figure 6: Set initialization string

The complete initialization string could look like the following:

**AT&FE1L1M1Q0V1&C1S0=1;AT#Z=112**

AT	Initiate modem commands
&F	Load modem factory defaults
E1	Echo of commands ON
L1	Sound volume level 1
M1	Speaker ON
Q0	Modem response ON
V1	Response in plain text

- &C1                      DCD signal shows available carrier
- S0=1                    Automatic call acceptance. The number 1 stands for rings until call acceptance e.g. S0=3 the modem accepts the call after 3 rings.
- #Z=112                 Adjust MSN

**Password protection and call-back**

Go to the tab »Access Protection«.



Figure 7: Access Protection

There you can create three different users including call-back number and password. The user »ADMIN« is the only one who has the right to change all settings in the adapter including the settings of the other users. The other two users can only change their own password and call-back number. If a call-back number is set, the ACCON-MPI-Modem ISDN always uses this number to call back if the respective user logs in.



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If you enter a wrong call-back number for the user »ADMIN« the ACCON-MPI-Modem ISDN cannot be parametrized via a remote connection any more. In this case you can only change the call-back number directly at the device (microswitch position »Ext.«)!

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Save the settings with »OK« in the adapter and answer the eventually appearing warning:

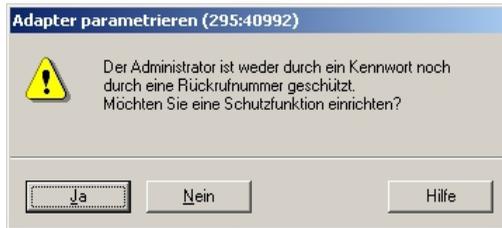


Figure 8: Parametrizing adapter, set access protection

**»The administrator is neither protected by a password nor by a call-back number. Do you want to set a protection function?«**

By clicking on »No« all settings will be stored in the adapter despite the warning. By clicking on »Yes« you get back to the settings.

Now the ACCON-MPI-Modem ISDN is parametrized. Change the microswitch to »Int.« and wait until the Active LED lights. If not the settings of the ACCON-MPI-Modem ISDN are incorrect (normally, wrong bus settings or init string) and remote maintenance is not possible.



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The parametrization can be done locally via the TeleService software (**microswitch position »Ext.«**) as well as via a telephone connection (**microswitch position »Int.«**).

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The ACCON-MPI-Modem ISDN is ready to operate when the Power LED as well as the Active LED is on.

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## 7 PARAMETRIZATION WITH ACCONFIGURATOR

Using ACCONfigurator it is possible to parametrize or update the ACCON-MPI-Modem ISDN at any PC without additional software e.g. TeleService. The program can be found on the DELTALOGIC Automatisierungstechnik-CD and on [www.deltalogic.de](http://www.deltalogic.de).

Go to **Adaptor/Product >...select** and choose ACCON-MPI-Modem ISDN. Connect the ACCON-MPI-Modem ISDN to your PC using any null modem cable.

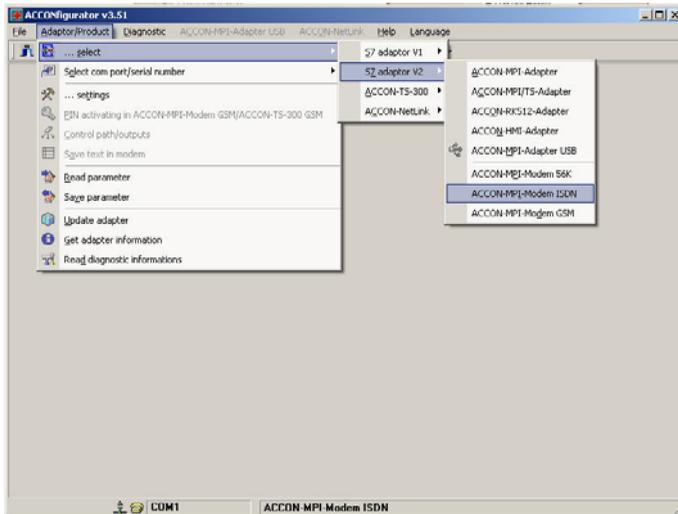


Figure 9: Select ACCON-MPI-Modem ISDN

Under **Adaptor/Product > Select com port/serial number** you can set the COM-Port to which the ACCON-MPI-Modem ISDN is connected to.

Via **Adaptor/Product > Read parameter** you can read out actual settings from the ACCON-MPI-Modem ISDN and enter changes. To store new settings in the device click on »Save/End«.

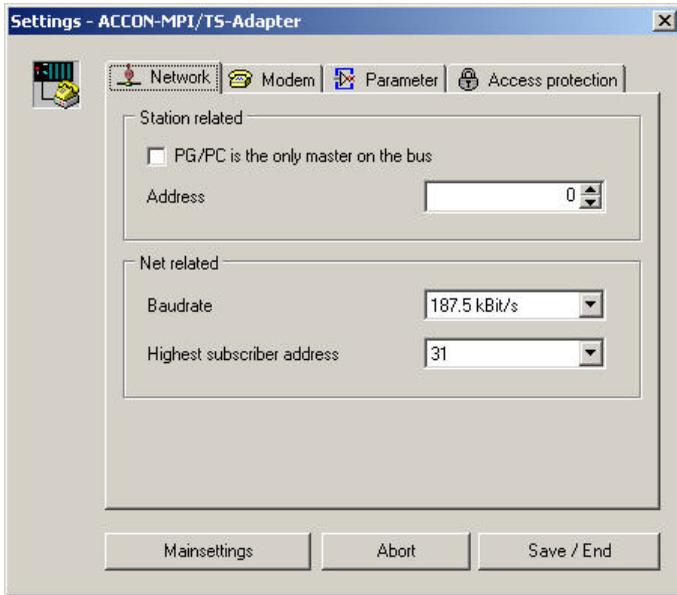


Figure 10: Settings TS Adapter, network

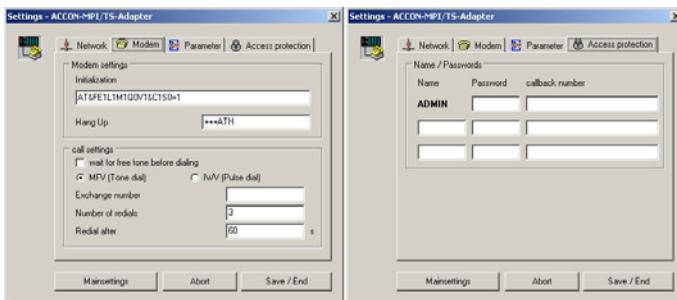


Figure 11: Settings TS Adapter modem and access protection

## 8 TECHNICAL DATA

Supported PLCs	S7-300, S7-400
Weight in kg	Ca. 0,24
Dimensions (W x H x D) in mm	135 x 67 x 30
MPI interface Type: Transmission rate: Line: Connection:	RS485, pot. separated 19,2 KBit/s or 187,5 KBit/s 1,2 m 9-pin SUB-D plug
Modem connection Type: Connection:	RS232, serial asynchronous RJ11 socket
Communication interface Type: Transmission rate: Connection:	Analog modem connection 19,2 KBit/s to 115,2 KBit/s Automatic detection! 9-pin SUB-D plug
Power supply	24 VDC $\pm$ 25 %
External power supply possible	Yes
Power consumption	Max. 100 mA
Protection type	IP 30
Electromagnetic compatibility (EMC) Transient emissions interference resistance on signaling lines interference resistance ESD  HF-radiance fields Grid-pound HF interferences	Class B according to EN55022 $\pm$ 2kV according to EN61000-4-4 $\pm$ 6kV contact discharge method EN61000-4-2 $\pm$ 8kV air discharge method EN61000-4-2 10V/m according to EN61000-4-3 10V according to EN61000-4-6
Climatic conditions Temperature operating Temperature storage/transport:	0° C to 60° C -20° C to 60° C

Relative humidity operating:	5 % to 85 % at 30° C (no bedewing)
Relative humidity storage:	5 % to 93 % at 40° C (no bedewing)
Specials Produced: Maintenance:	According to ISO 9002 Maintenance-free (no battery)

Table 1: Technical data

### Pin assignment

Pin	SUB-D plug PC	SUB-D plug MPI
1	DCD	n. c.
2	Rx	M24 VDC
3	Tx	DATA.B
4	DTR	RTS AS
5	GND	0V (M5 VDC)
6	DSR	n. c.
7	RTS	+24 VDC
8	CTS	DATA.A
9	RI	RTS PG

Table 2: Pin assignment

RJ11 Pins	Meaning
1 - left	SRB / Rx-
2 - left middle	STB / Tx-
3 - right middle	SRA / Rx+
4 - right	STA / Tx+

Table 3: Pin assignment

### Connection cable

PC to ACCON-MPI-Modem, during direct operating at the PC (supplied)

