Handbücher/Manuals
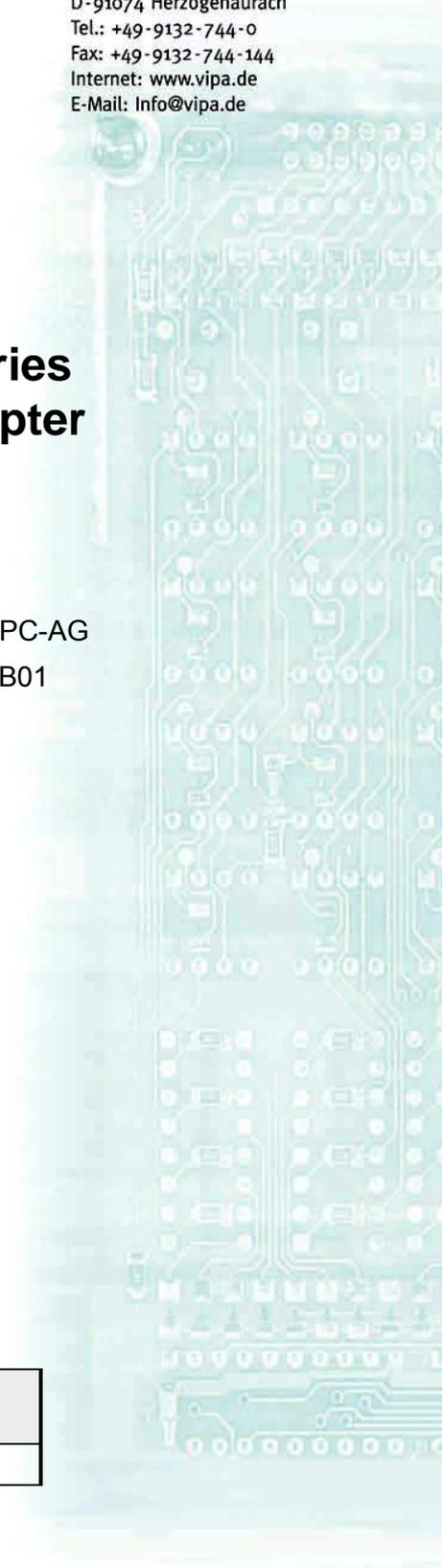
Manual

VIPA Accessories
RS232-MPI adapter
950-0KB01

Order No.: VIPA HB158E_PC-AG
Reference: RE_950-0KB01
Rev. 08/25

This manual is relevant for:

Product	Order number	as of state:	
		HW	SW
RS232-MPI adapter	VIPA 950-0KB01	01	V115

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Disclaimer of liability

The contents of this manual were verified with respect to the hard- and software.

However, we assume no responsibility for any discrepancies or errors. The information in this manual is verified on a regular basis and any required corrections will be included in subsequent editions.

Suggestions for improvement are always welcome.

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About this manual

This manual describes the PC-AG adapter with RS232-MPI link from VIPA. Here you may find every information to operate the adapter between PC and CPU.

Overview

Chapter 1:   Hardware description

In this chapter the hardware of the RS232-MPI adapter is more described. The chapter closes with the technical data.

Chapter 2:   Deployment

Here the deployment and the firmware update of the RS232-MPI adapter are described.

Contents

User considerations

Objective and contents	This manual describes the RS232-MPI adapter from VIPA. It contains a description of the structure, the deployment and the technical data.
Target audience	The manual is targeted at users who have a background in automation technology.
Structure of the manual	The manual consists of chapters. Every chapter provides a self-contained description of a specific topic.
Guide to the document	The following guides are available in the manual: • an overall table of contents at the beginning of the manual • an overview of the topics for every chapter
Availability	The manual is available in: • printed form, on paper • in electronic form as PDF-file (Adobe Acrobat Reader)
Icons Headings	Important passages in the text are highlighted by following icons and headings:

Danger!
Immediate or likely danger.
Personal injury is possible.

Attention!
Damages to property is likely if these warnings are not heeded.

Note!
Supplementary information and useful tips.

Safety information

Applications conforming with specifications

The System RS232-MPI adapter is constructed and produced for:
- VIPA CPUs 11x, 21x, 31x, 51x und S7-300/400 from Siemens
- communication and process control
- industrial applications
- operation within the environmental conditions specified in the technical data

Danger!
This device is not certified for applications in
- in explosive environments (EX-zone)

Documentation

The manual must be available to all personnel in the
- project design department
- installation department
- commissioning
- operation

The following conditions must be met before using or commissioning the components described in this manual:

- Modification to the process control system should only be carried out when the system has been disconnected from power!

- Installation and modifications only by properly trained personnel

- The national rules and regulations of the respective country must be satisfied (installation, safety, EMC ...)

Disposal   **National rules and regulations apply to the disposal of the unit!**

Chapter 1   Hardware description

Overview   In this chapter the hardware of the RS232-MPI adapter is more described. The chapter closes with the technical data.

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Safety Information for Users

Handling of electrostatic sensitive modules

VIPA modules make use of highly integrated components in MOS-Technology. These components are extremely sensitive to over-voltages that can occur during electrostatic discharges.

The following symbol is attached to modules that can be destroyed by electrostatic discharges.

The Symbol is located on the module, the module rack or on packing material and it indicates the presence of electrostatic sensitive equipment.

It is possible that electrostatic sensitive equipment is destroyed by energies and voltages that are far less than the human threshold of perception. These voltages can occur where persons do not discharge themselves before handling electrostatic sensitive modules and they can damage components thereby, causing the module to become inoperable or unusable.

Modules that have been damaged by electrostatic discharges can fail after a temperature change, mechanical shock or changes in the electrical load.

Only the consequent implementation of protection devices and meticulous attention to the applicable rules and regulations for handling the respective equipment can prevent failures of electrostatic sensitive modules.

Shipping of modules

Modules must be shipped in the original packing material.

Measurements and alterations on electrostatic sensitive modules

When you are conducting measurements on electrostatic sensitive modules you should take the following precautions:

• Floating instruments must be discharged before use.

• Instruments must be grounded.

Modifying electrostatic sensitive modules you should only use soldering irons with grounded tips.

Attention!

Personnel and instruments should be grounded when working on electrostatic sensitive modules.

Properties

Overview

The PC may be connected via RS232 to the MPI interface of the CPU by means of the PC-AG-Adapter. Here no slot is occupied in the PC, this means the adapter is suitable for computers, which are not expandable like e.g. notebooks.

To connect a PC there is a RS232 interface integrated (plug). The connection of the CPU happens by the cable of the adapter with a MPI plug on its end.

In the connected condition the adapter is power supplied by the MPI slot.

The installation of a driver is not necessary.

Note!

Maximally <u>one</u> PC-AG adapter may be connected to your PC!
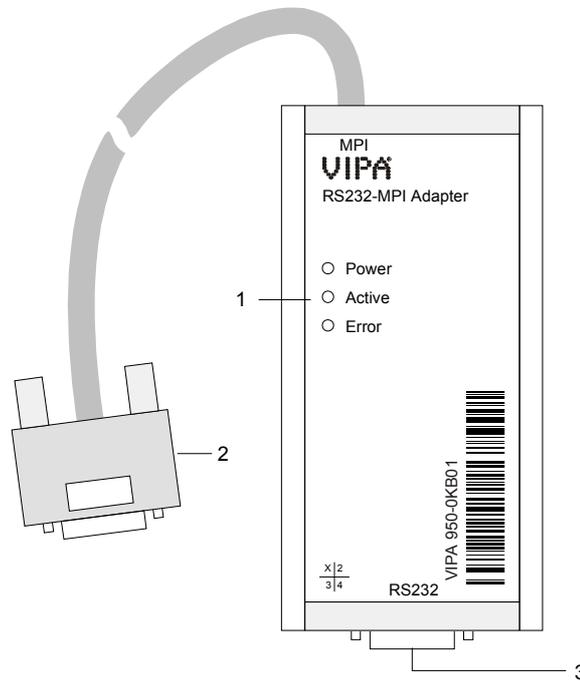
Properties

- PC-AG adapter with RS232-MPI link
- RS232 interface (19200 ... 115200bit/s)
- Cable with RS485 plug (up to 1.5Mbit/s)
- Automatic bus profile recognition
- Compatible to WinPLC7 from VIPA and Siemens SIMATIC manager

Order data

Type	Order number	Description
RS232-MPI	VIPA 950-0KB01	RS232-MPI adapter

Structure

RS232-MPI
adapter
950-0KB01

[1]   LEDs
[2]   Cable with MPI plug to connect the CPU
[3]   RS232 plug to connect the PC

Components

**LEDs**   For diagnostics the PC-AG adapter has 3 LEDs integrated:

Power green	Active green	Error red	Meaning
○	○	○	PC-AG adapter is not power supplied.
●	○	○	PC-AG adapter has started up and ready for communication.
●	●	○	PC-AG adapter communicates via MPI interface.
☼	○	○	- PC-AG adapter is starting up. - Firmware is transferring.
☼	○	○	Firmware is flashed.
●	–	☼	RS232 bus transfer rate could not be recognized.
☼	–	☼	An error has occurred, which requires a restart of the PC-AG adapter. Disconnect the adapter from the MPI jack of the CPU and reconnect it.

on: ●   off: ○   flashes (1Hz): ☼   flashes (8Hz): ☼   irrelevant: –

**MPI plug
(RS485)**

The PC-AG adapter hat a cable integrated with a 9pin plug on its end. By connecting the plug to the MPI jack of your CPU, the PC-AG adapter is power supplied.

The 9pin plug has the following assignment:
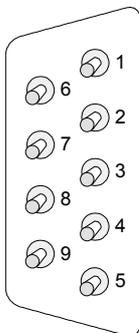
Pin	Assignment	Description
1	n.c.	not used
2	M24V	Ground power supply PC-AG adapter
3	RxD/TxD-P (Line B)	Data line B (In-/Output)
4	RTS_AS	RTS output signal of the CPU. The signal is "1", as soon as the CPU sends.
5	M5V	Reference potential of the MPI interface for the signals RTS_AS.
6	n.c.	not used
7	P24V	24V power supply PC-AG adapter
8	RxD/TxD-N (Line A)	Data line A (In-/Output)
9	RTS_PG	RTS output signal of the PC-AG adapter. The signal is "1", as son as the PC-AG adapter sends.

RS232 interface

For the connection of the PC-AG adapter to your PC, there is a RS232 interface integrated at the PC-AG adapter. With this plug your PC may be connected to the adapter by means of an external RS232 extension cable. Please regard when using a RS232 extension cable that the lines are designed 1:1.

The 9pin plug has the following assignment:
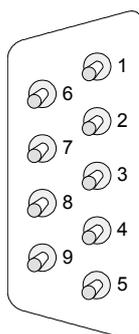
Pin	RS232
1	CD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

Note!

Since the PC-AG adapter has two 9pin plugs, the correct connection is to be regarded. Consider also here the correct labeling of the respective interface.

Please regard when using a RS232 extension cable that the lines are designed 1:1.

Technical Data

**RS232-MPI
adapter**

Electrical Data	VIPA 950-0KB01
Power supply	DC 24V (18V ... 30V) via MPI interface
Power consumption	30mA (max.)
Interfaces	
to AG	RS485
- Transfer rate	up to max. 1.5MBit/s
to PC	RS232
- Transfer rate	19200, 38400, 57600, 115200Bit/s
EMC	
Noise emission	Limit value class B according to EN55022
Noise immunity on signal lines	2 kV (according to IEC 61000-4-4; burst; length > 3m)
ESD/Burst	according to IEC 61000-4-2 / IEC 61000-4-4 (to level 3)
Shockproof	according to IEC 60068-2-6 / IEC 60068-2-27 (1G/12G)
Radio interference level	according to IEC 61000-6-4
Environment conditions	
Operating temperature Storage temperature Relative humidity	0 ... +60°C -25 ... +70°C 5 ... 95% without condensation
Dimensions and Weight	
Degree of protection Dimensions (WxHxD) Length MPI cable Weight	IP20 53 x 100 x 28mm 1.2m 145g

Chapter 2   Deployment

Overview   Here the deployment and the firmware update of the RS232-MPI adapter are described.

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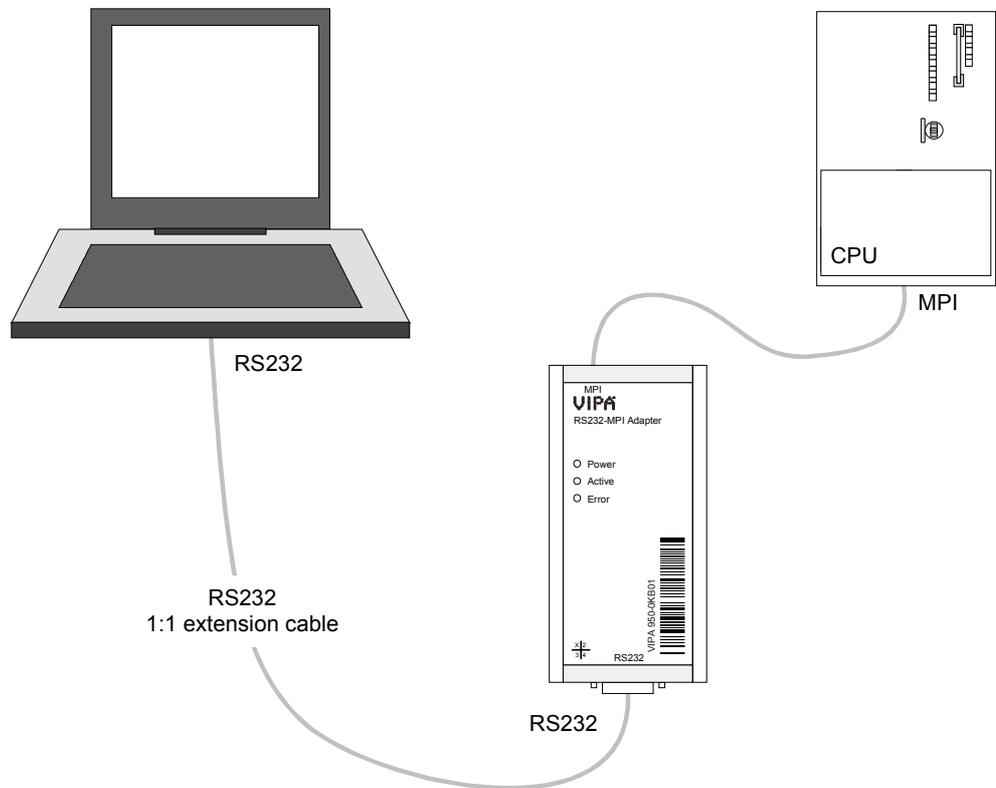
Establishing a connection

Overview

There is no additional driver necessary for operation. Connect the RS232 interface of your PG-AG adapter by means of a RS232 extension cable to the RS232 interface of your PC.

Please regard when using a RS232 extension cable that the lines are designed 1:1.

Connect the MPI jack of your CPU to the mounted MPI cable of the PC-AG adapter.

As soon as the power supply of the CPU is switched on, the adapter is power supplied via MPI and it shows the ready state by the "Power" LED.

Now the adapter is ready for communication.

RS232

CPU

MPI

MPI
VIPA
RS232-MPI Adapter

O Power
O Active
O Error

VIPA 950-0KB01

RS232

RS232
1:1 extension cable

RS232

Hardware precondition

For the deployment of the PC-AG adapter a pc is necessary, which has a RS232 interface (COM port) integrated.

Software precondition

For the deployment of the PC-AG adapter a Windows® operating system and a SPS software package is necessary, which supports the interface of the *PC Adapter MPI*.

Setting the PLC programming software

Overview   The PC-AG adapter may be used with each PLC programming software, which supports the interface *PC Adapter MPI*.

Suitable PLC programming software is e.g. WinPLC7 from VIPA or the Siemens SIMATIC manager. In the following the deployment with these two software packages is described.

**Deployment with
WinPLC7
from VIPA**

- Attach the PC-AG adapter via RS232 to your PC and connect the MPI cable to your CPU.
- If not already happen switch the power supply of the CPU on.
- Start WinPLC7 with your project on your PC.
- Set at the toolbar above "Target: RS232".
- Click to ▄▄▄ . A dialog window for setting the serial interface is opened.
- Choose the according COM interface, to which the PC-AG adapter is connected.
- Adjust the data transfer rate of the RS232 interface (COM-Port). The PC-AG adapter supports every data transfer rate.
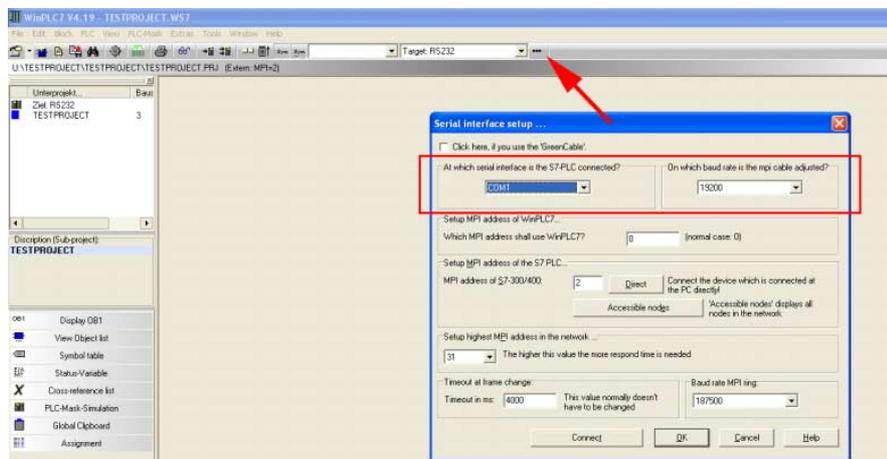
Setting the
MPI address

If you know the MPI address of your CPU - CPUs of VIPA are delivered with address 2 - the MPI address may be entered at "MPI address of S7-300/400" and a connection may be established by the button [Connect].

If you do not know the MPI address, a connection to the direct to your PC via PC-AG adapter attached CPU may be established by [Direct].

With the button [Accessible nodes] each via MPI reachable station is listed in a dialog window. Here the MPI address of the CPU, direct attached with the PC-AG adapter, is emphasized represented.

More about this may be found in the online help of WinPLC7.

Deployment with Siemens SIMATIC manager

- Attach the PC-AG adapter via RS232 to your PC and connect the MPI cable to your CPU.
- If not already happen switch the power supply of the CPU on.
- Start the Siemens SIMATIC manager with your project on your PC.
- Set at **Extras** > *Set PG/PC interface* as *Interface parameter assignment* "PC Adapter (MPI)".
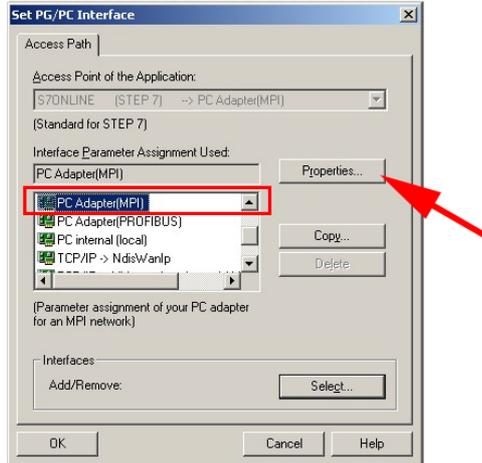
- Click to [Properties].
- Enter your MPI parameters at the register "MPI".
- Choose to the register "Local connection".
- Choose the according COM interface, to which the PC-AG adapter is connected.
- Adjust the data transfer rate of the RS232 interface (COM-Port). The PC-AG adapter supports every data transfer rate.
- Confirm your input with [OK].

Installation of the PC adapter if it does not exist

If the *PC-Adapter (MPI)* is not listed, it may be added with [Select].

Choose at *Selection* "PC-Adapter" and click to [Install-->].
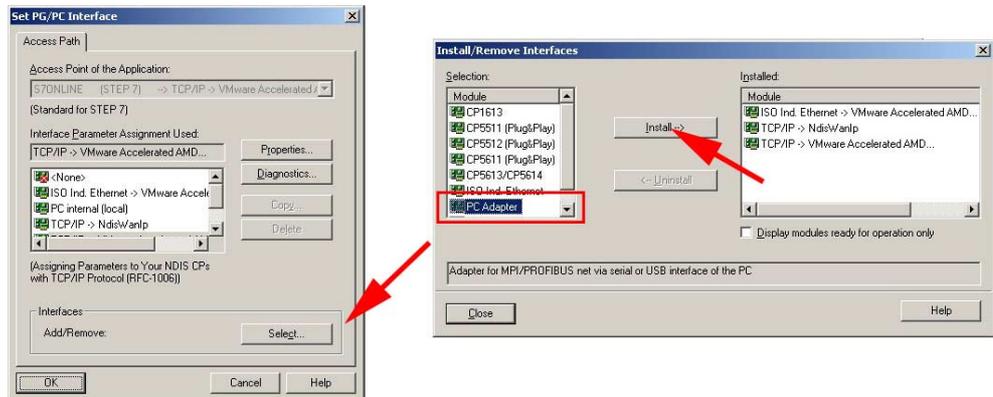
More about this may be found in the online help of the Siemens SIMATIC manager.

Firmware update

Overview

By means of an update software there is the opportunity to execute a firmware update of your adapter.
Since the adapter gets its power supply by the MPI interface of the CPU and the firmware is transferred to the PC-AG adapter by the PC via the PC connection, the PC-AG adapter is to be connected between CPU and PC.
The update takes approx. 1 minute.

Attention!

When installing a new firmware you have to be extremely careful. Under certain circumstances you may destroy the PC-AG adapter, e.g. if the power supply is interrupted during the update. In this case please call the VIPA hotline!

Preparation

- Call www.vipa.de and navigate at "Service" to the area "Firmware updates".
- At "Firmware for PC-AG-Adapter" the newest firmware for the PC-AG adapter may be found, if available.
- Download this to your PC.
- Navigate at "Service" to the area "Software", download the updater software for the PC-AG adapter to your PC and unzip the file.

Proceeding

- Attach your PC to the adapter.
- Connect the MPI interface of your CPU to the MPI cable mounted at the PC-AG adapter.
- Switch on the power supply of the CPU. The adapter is now power supplied via MPI and it shows the ready state by the "Power" LED.
- Start the downloaded Tool *Updater.exe* at your PC.
- Set the corresponding COM interface and click to [Connect]. The "Power" LED on the adapter flashes with 1Hz.
- Click to [Browse] and navigate to the downloaded firmware file.
- Start the transfer with [Write].

Display behavior

The proceeding of the firmware update is shown at the PC as a moving line.

During the transfer of the firmware file into the PC-AG adapter the "Power" LED blinks with ca. 1Hz. At this time the update may be interrupted.

As soon as the LED flashing increases to 8Hz, the data are internally flashed (takes approx 10s). This procedure may and also the power supply should not be interrupted.

After the update each LED shortly switch on and the PC-AG adapter is rebooted.

M. Stich