Automations- und Steuerungstechnik GmbH

User manual

EIBWeiche
Serial/USB

The fast local buscoupler for the EIB

Order codes:
EIBWeiche Visualization serial: E001-B902101
EIBWeiche Visualization serial REG: E001-B902105
EIBWeiche Visualization USB: E001-B902102
EIBWeiche Visualisierung USB REG: E001-B902104

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This handbook describes also functions, which are options.
Only qualified persons are allowed to install our units.

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Contents

Highlights EIBWeiche

- Direct coupling to EIB (two-wire)
- Coupling to the PC over serial interface or USB (Windows 2000 and Windows XP)
- Small dimensions for the mobile application
- Programming of the EIB over ETS and Standard-Protocol or direct over USB
- Direct coupling to FIAVis (FIAVis Commander, OPCServer, FIAVis.VB)
- Direct coupling with the virtual Control-Panel EIB Control Platform (optional)
- Separate OPC-Server available (optional)
- Contained in the EIBDoktor-package as powerful EIB-Analysing-Tool
- Open protocol (OpenEIB) between PC and EIBWeiche for creating own applications with EIB-coupling

Fields of application for the EIBWeiche

- Programming the EIB-world via ETS
- Buscoupler for FIAVis data pool
- Server for the EIB-Control-Panel (simple local visualization)
- Buscoupler for external visualizations (serial or USB with direct driver-implementation / OPC)
- Error analysis with the EIBDoktor-package

Package contents of the EIBWeiche

- EIBWeiche-buscoupler
- Depending on the selected type of connection/version:
  - serial cable incl. PS2-connection-adapter
  - serial cable incl. wall power supply
  - USB connection cable
- Software (FIAVis and optional: EIBDoktor, OPC-Server, ASCII)
- Documentation

Introduction

The FIAVis Manager is the central to for creating EIBWeiche-FIAVis projects: with the FIAVis Manager the projection information is generated for the FIAVis data pool (and so FIAVis Visualizations, OPC-Server, etc).

The FIAVis Manager manages projects for:

- „CCEIBGW": the universal network-EIB Gateway
- „CCEIBSPS": the intelligent processing unit in the EIB incl. network-gateway functionality
- „EIBWeiche": the fast serial/USB buscoupler with simple protocol
- „EIBNet/IP-Router": connection over network to the EIB
- "OPC": connections using external OPC Servers.

The configuration of a FIAVis data pool as well as the parameterization of the process items and logic programs via FIAVis Manager is described in detail in the FIAVis user manual.

EIBWeiche-device connections and additional software-Tools/drivers (i.e. USB driver) are described in this manual.

Connecting the EIBWeiche

EIB-Weiche (serial)

EIB
Weiche

Phys. Adresse setzen

Fehler rück- setzen

Betriebs- art wählen

○ +5V Versorgung
○ Busspannung
○ Bustelegramm
○ Nack
○ Busy
○ Kollision
○ Standard
○ OpenEIB
○ FT1.2

25 SUB-D connector

9 SUB-D
- serial PC port

PS/2-connector
(power supply)

EIB connection

PS/2 Y-cable

Mouse or EIB-Weiche

PC

Keyboard or EIB-Weiche
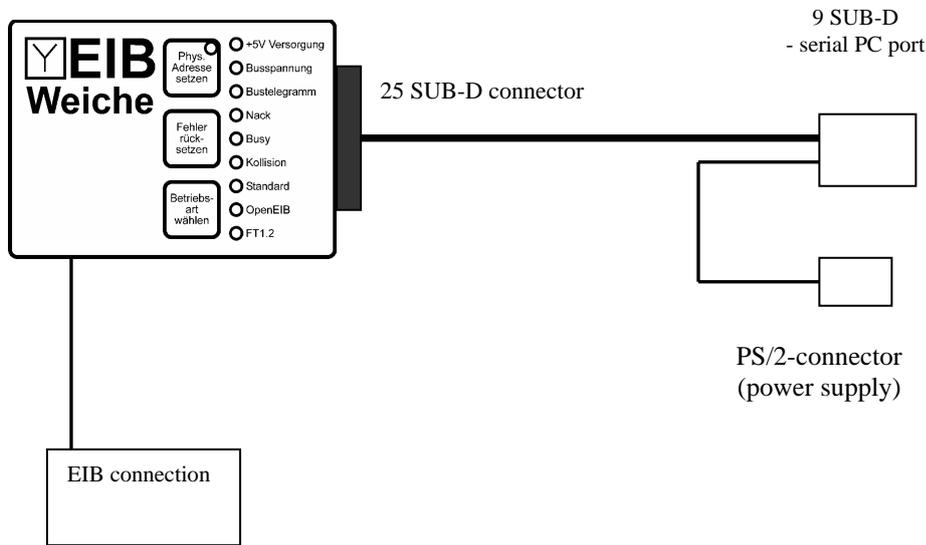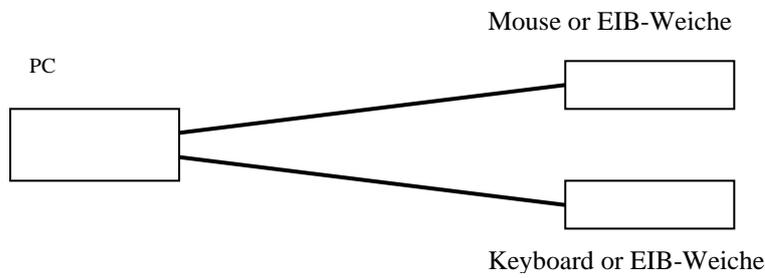
EIB-Weiche (serial REG)

Dimensions (W x H x D) (mm)	156 x 86 x 59
Power supply	85V AC – 230V AC
Temperature range	0°C – 50°C (in operation)
Protection class	IP40 (front, after installation)
Casing	DIN-rail mounted, 9TE

A1	**PGM**	Programming LED
A2	**PA**	Programming Button
A3	**EIB**	EIB/KNX 2-wire connector
A4	**RESET**	Reset Button
A5		Power supply 85V AC – 230V AC
		⏚ : Protective conductor **N**: Neutral conductor **L1**: Phase conductor
A6		RS-232 interface (alternative: **A10**)
		⊥: Ground **RX**: Receive **TX**: Transmit
A7	**PWR**	Power LED
A8	**BUS Fehler**	Error LED
A9	**BUS Tel.**	Telegram LED
A10	**RS232**	RS-232 interface, D-SUB connector (male), 9 pin (alternative: **A6**)

EIBWeiche (USB)

USB port PC

EIB Weiche

Phys Adresse setzen

Fehler rück- setzen

Betriebs- art wählen

○ +5V Versorgung
○ Busspannung
○ Bustelegramm
○ Nack
○ Busy
○ Kollision
○ Standard
○ OpenEIB
○ FT1.2

USB-connection

EIB- connection
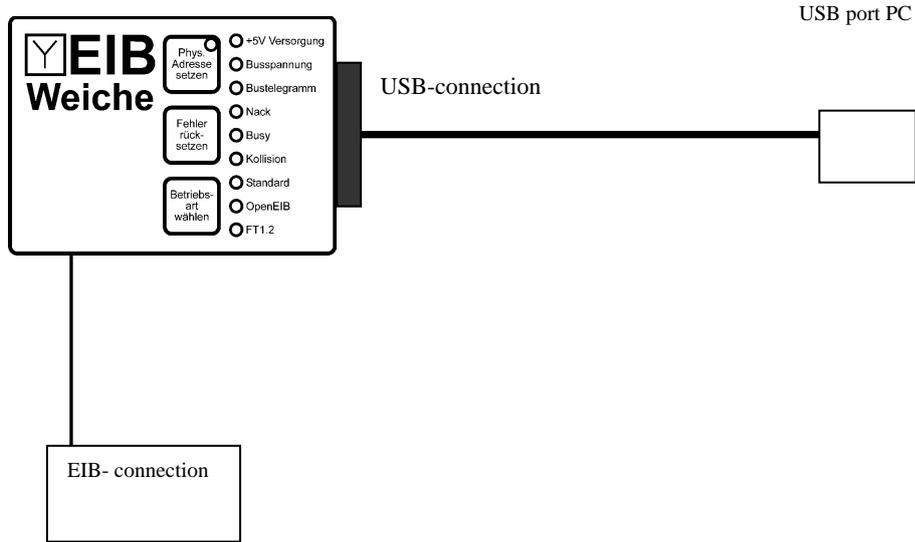
Description of the EIB-Weiche LEDs

EIBWeiche USB LEDs

+5V Versorgung (english: +5V power)

This LED is active as soon as the EIBWeiche is correctly connected to the PC.

Busspannung (english: bus voltage)

If the EIBWeiche is connected to the EIB, this LED has to be active constantly. If the LED is flashing, the EIB is not correctly connected to the EIBWeiche (f.e. not connected at all, or lines are swapped, or no voltage is on the EIB)

Bustelegramm (english: bus telegram)

This LED is flashing when an EIB telegram gets detected.

Nack

As soon as a bus telegram is received with a NACK(=NOT ACKKNOWLEDGE) state, this LED gets activated. To reset the LED display, push the button "Fehler Rücksetzen" (="reset error").
The EIBWeiche will of course work properly, even if this LED is active. The LED is just a simple error diagnosis for the connected EIB.

Busy

As soon as a bus telegram is received with a BUSY state, this LED gets activated. You can turn off the LED again by pressing the button "Fehler Rücksetzen" (="reset error"). If you have an high bus load (>50%), the busy LED will be flashing.
The EIBWeiche will of course work properly, even if this LED is active. The LED is just a simple error diagnosis for the connected EIB.

Kollision (english: collision)

As soons as a telegram collision or bus disturbances are detected, this LED gets activated. Please note that also the (dis-)connection of other bus devices can cause short bus disturbances! To reset the LED display, push the button "Fehler Rücksetzen" (="reset error").
The EIBWeiche will of course work properly, even if this LED is active. The LED is just a simple error diagnosis for the connected EIB.

USB

This LED can have three different states:
- LED off: the EIBWeiche is not connected to a PC, ort he USB drivers for the EIBWeiche are not installed on the PC yet.
- LED on: the EIBWeiche is connected to the PC, and the USB drivers are correctly installed. Currently no PC software is communicating with the EIBWeiche
- LED flashing: the EIBWeiche is in usage by a PC software right now.

Sicherheit (english: security)

If you have activated this mode by pressing the button "Betriebs-Art wählen" (="select mode"), nobody will be able to program EIB devices with the ETS. Therefore this mode acts like a version of an „EIBWächter" device.

Auto-Ack

If you have activated this mode by pressing the button "Betriebs-Art wählen" (="select mode"), the EIBWeiche will acknowledge every not acknowledged bus telegram, reducing bus load. Therefore this mode acts like a „EIB-Ack device".

EIBWeiche RS232

+5V Versorgung (english: +5V power)

This LED is active as soon as the EIBWeiche is correctly connected to the PC and the power supply/PS2 port.

Busspannung (english: bus voltage)

If the EIBWeiche is connected to the EIB, this LED has to be active constantly. If the LED is flashing, the EIB is not correctly connected to the EIBWeiche (f.e. not connected at all, or lines are swapped, or no voltage is on the EIB)

Bustelegramm (english: bus telegram)

This LED is flashing when an EIB telegram gets detected.

Nack

As soon as a bus telegram is received with a NACK(=NOT ACKKNOWLEDGE) state, this LED gets activated. To reset the LED display, push the button "Fehler

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The EIBWeiche will of course work properly, even if this LED is active. The LED is just a simple error diagnosis for the connected EIB.

Kollision (english: collision)

As soons as a telegram collision or bus disturbances are detected, this LED gets activated. Please note that also the (dis-)connection of other bus devices can cause short bus disturbances! To reset the LED display, push the button "Fehler Rücksetzen" (="reset error").
The EIBWeiche will of course work properly, even if this LED is active. The LED is just a simple error diagnosis for the connected EIB.

Standard (PC-protocol)

- LED on: the EIBWeiche is communicating with the PC using the standard PEI16 protocol and a 9600 baud rate.
- LED flashing: the EIBWeiche is communicating with the PC using the standard PEI16 protocol and a 19200 baud rate.

Please note: to use the EIBWeiche with the ETS software, you have to set the „standard" protocol.

You can select this protocol by pressing the button "Betriebs-Art wählen" (="select mode").

OpenEIB

- LED on: the EIBWeiche is communicating with the PC using the OpenEIB protocol.

Please note: to use the EIBWeiche with the EIBDoctor, you have to set the „OpenEIB" protocol.

You can select this protocol by pressing the button "Betriebs-Art wählen" (="select mode").

FT1.2

This mode is not supported.

Description of the EIB-Weiche LEDs (serial REG)

PWR

The LED **PWR** illuminates if the EIBWeiche is connected to the power supply.

PGM

The programming LED **PGM** illuminates if the EIBWeiche is in programming mode.

BUS Tel. (english: Bus telegram)

The LED **BUS Tel.** is flashing when an EIB telegram gets detected. If the LEDs **BUS Tel.** and **BUS Fehler** are **blinking alternately**, the EIBWeiche has no connection to the EIB/KNX bussystem.

BUS Fehler (english: Bus error)

Zeigt an, dass auf EIB/KNX-Seite eine Telegramm-Kollision oder eine Störung detektiert wurde. Auch das Abziehen oder Aufstecken von EIB/KNX-Geräten kann solche kurzen Störungen verursachen! Die Funktionalität der EIBWeiche ist nicht betroffen, es handelt sich um eine einfache Diagnose des EIB/KNX.

As soon as a telegram collision or bus disturbances are detected, this LED while flash. Please note that also the (dis-)connection of other bus devices can cause short bus disturbances! The EIBWeiche will of course work properly, even if this LED is active. The LED is just a simple error diagnosis for the connected EIB/KNX.

If the LEDs **BUS Tel.** and **BUS Fehler** are **blinking alternately**, the EIBWeiche has no connection to the EIB/KNX bussystem.

Installation Windows-USB driver (EIBWeiche USB)

On the delivered b+b-EIBTools-CD you find the USB-driver for Windows 2000, Windows XP and Windows Vista X86. Older Windows versions or 64 bit operating systems are not supported!

If the EIBWeiche is connected the first time to an USB-port of the PC, the Windows-Hardware-Installationassistent is opened. This assistant might ask for the installations folder of the USB driver. Here you have to specify the CD, folder „USB".

After successful installation of the driver, in the Windows device manager you can see the entry „EIBWeiche USB Geräte" -> „EIBWeiche USB" if the EIBWeiche USB is connected.

If you want to use the EIBWeiche USB with ETS2 (from Version 1.2) as programming device, so you have to install some more drivers. These ETS2-drivers are not required for the application as visualization-coupling (i.e. for FIAVis) or to use the ETS3.

The ETS2-USB-drivers can be installed over the b+b-EIBTools-CD installation program. Here a short description how to install the ETS2-drivers manually:

1. Install the Windows-USB-driver as described above (connect EIBWeiche USB to the PC)
2. Copy the files „ETS2DriverSwitch.exe", „PEI_USB32.dll" and „PEI_USB.dll" from the „Setup\bin\USB\ETS2" folder (from the CD) directly into the folder of the installed ETS2.
3. Start the file „ETS2DriverSwitch.exe" in the ETS2-folder (double-click) and select as interface „USB".

Now the ETS2-USB-driver is active, no matter if you have selected „COM1" or „COM2" in the ETS2, the communication will be handled over the USB interface. If you want to use a serial interface again, you can change the settings again with the „ETS2DriverSwitch.exe".

Setting the physical address of the EIBWeiche

The EIBWeiche has, like all EIB-devices, an own programming button (in the compact case labeled with „Phys. Adresse setzen"). With this button and an ETS-software you can change the physical address as usual.

On the b+b-EIBTools-Software-CD (is delivered with every EIBWeiche) you can also find a simple test application for EIBWeiche-devices, with which you can also change the physical address very easy.

For this go with the Windows-Explorer to the CD-folder „SDKs and more\OpenEib\OpenEib SDK\BIN". In this folder there is the file „OpenEibDemo.exe", which you can start directly from the CD (without installation) with a double-click.

The following window appears:
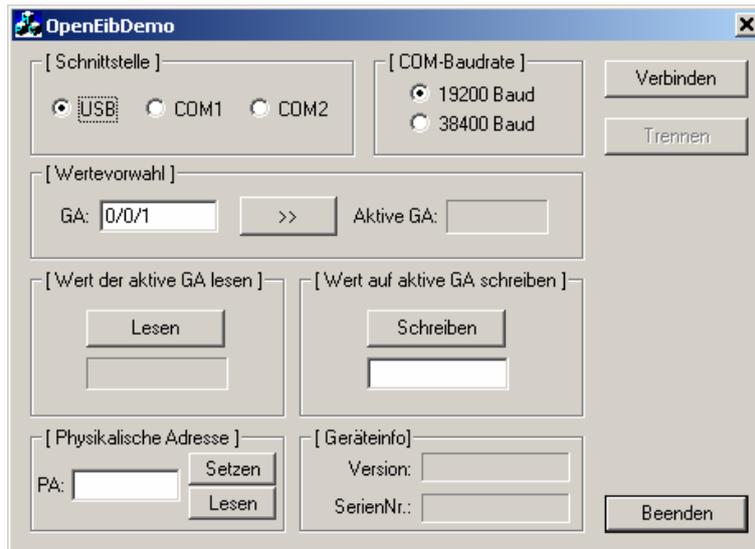
Now just select the interface (USB, COM1/2), and click on the button „Verbinden". So the area beneath is filled with the device infos (firmwareversion, serial number) and the actual phys. address:
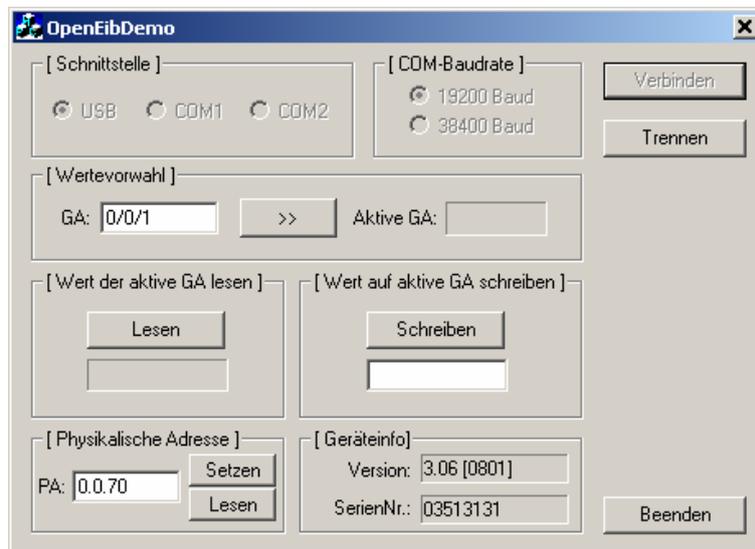
In the example the EIBWeiche has the physical address „0.0.70". If you want to change this address, you have to enter the new address and click on the button „Setzen".

With the help of the OpenEIBDemo-program you can also test, if reading and writing of group addresses over the EIBWeiche works: In „Wertevorwahl" enter the group address of a switch (EIS-type 0x10 = binary) and per „>>"-button activate the address. Now you can request/read per „Lesen" or „Schreiben" the value on the bus.

EIBWeiche quickstart „Step for step"

To make the access to the FIAVis-EIBWeiche world as easy as possible, here is a guidance that shows the most important steps of using an EIBWeiche and creating a project.

1. You need a PC with NT/2000/XP. Connect the EIBWeiche to the PC. If you have an USB-EIBWeiche, the Win2000/XP driver is automatically installed from the b+b-EIBTools-CD, if you connect the EIBWeiche the first time.

2. Test the communication between PC and EIBWeiche, while starting the tool „OpenEIBDemo" direct from CD (it is located in the folder „SDKs and more\OpenEib\OpenEib SDK\BIN"). With this tool you can establish a connection to the EIBWeiche and also directly configure the physical EIB-address.

3. Creating a project: Start the FIAVis Manager. At the first start an additional window appears, that remembers you to enter the license-number and to activate the FIAVis Base data pool. Follow these instructions! In the Manager-main window, where all available projects are listed, an EIBWeiche test project is already accessible. To create a new project, click with the right mouse button in the project tree and select in the following menu ‚New project'

4. A new project is created, you can choose the project name like you want (you can also change the name at any time, while you do a „slow" left click). The connection parameters of the EIBWeiche (USB/COMx) must be configured in the project settings (in the right Manager-window double click the settings, in the following window the settings then can be changed).

5. Now i.e. the EIB addresses to use must be defined. To do so you have to open the „EIB addresses configuration"-window of the project. For the definition of the EIB-process items you should use an existing ETS-project. All important address-data will be fetched by importing the ETS-project. From all available group addresses/objects from the list above select the data to use in your FIAVis project (list beneath). At some data items you have to reparametrize the EIS-types, the ETS contains no information about the type. Hint: you can also define group addresses manually without an ETS-project (button „Define Addr.").

6. The process item definition must now be transferred to the FIAVis data pool. For this select the project in the left tree and in the menu click on „Transfer data" or click on the „Transfer" button. In the following window you only have to press the start-button, the transfer begins. The projection data is saved in the „Data"-folder of the des FIAVis Base service and the connection to the EIBWeiche is opened.

7. You have created your first FIAVis project! You can now view and write the actual values of the process items, while pressing on the button "Values" in the „Transfer"-window. Please consider: many process items will first have no value („bad"), as long as the according address has been sent over the EIB one time. With the flag „Startup read" for EIB-addresses you can tell FIAVis to request the values automatically at the beginning (but also this action will take some time depending on the number of addresses).

8. Of course now also the FIAVis OPCServer is ready for use, or can create own visualizations with the FIAVis Designer, which base on the process items, or you can access process items over FIAVis.VB. The necessary steps are explained in the according user manual.