User Guide
eBus Coupler USB

- eBus transceiver for writing and reading eBus data (physical layer OSI 1)
- Galvanic isolation between the eBus and the PC interface via optocoupler
- eBus input reverse polarity protection
- LED indictors for “USB Power”, “eBus Power” and “Activity”
- Top hat rail enclosure for control cabinet installation
- Screw terminals for eBus connection
- Small footprint in control cabinet
- Simple installation

1 Introduction

Before beginning with the installation of the eBus Coupler USB and putting it into operation, please read the installation and operating instructions carefully, in particular the section regarding safety.

2 Product Description

The eBus Coupler provides read and write access to the eBus. Thus with appropriate software it is possible to analyze all of your home heating system data and provide it with new operating data.

The E-Service eBus Coupler provides galvanic isolation between the eBus and the PC USB interface. The Coupler’s enclosure is designed for mounting on a top hat rail (DIN rail) within a control cabinet. The eBus interface is reverse polarity protected. Therefore it is not necessary to observe signal polarity when connecting to the eBus.

On the software side there is always a virtual serial interface (COM port) available. The appropriate driver is available via our website in the “Download” area.

The eBus Coupler input power is provided by the PC via the USB interface (5VDC). On the Coupler’s front panel there are LED indicators for “PWR” (eBus input power) and “Aktiv” (eBus activity). In the area of the eBus terminals there is a green LED which indicates the presence of an eBus.

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3 Technical Specifications

eBus

Interfaces:	Transreceiver (read and write) for eBus conforming to the "eBus Specification, physical Layer OSI1 V1.3.1 Stand 3/2007, eBus Interest Group"
Data rate:	Serial, 2400 Baud, fix (8-N-1), 8-bit UART mode (RS232)
Switch threshold:	Adjustable via trimmer; adjustment range: 7-14V Low active bus: HIGH => 15-24 VDC, LOW => 9-12 VDC
Input:	2-pole, bipolar input (marking: A and B)
Switch threshold:	12V, switch threshold for high-low recognition 12V
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eBus voltage:	7-24 VDC, nominal 18V, power consumption max. 10 mA

USB Interface

Connector:	USB receptacle, Type B
Interface:	USB 1.1, FTDI 232RL Chip
Input voltage:	5 VDC (+/-5%), USB Bus supplied
Power consumption:	USB Bus: max. 90mA
Isolation:	Galvanic separation between the PC and the eBus interfaces min. 500VDC between the PC interface and the eBus

Supply voltage

Input voltage:	9-32 VDC
Current:	max. 500mA

Environmental

Protection type:	IP20
Class:	III
Operating temperature:	0°C to +60°C
Humidity:	10 to 92% (non-condensing)
Dimensions:	35 x 90 x 70mm (WxHxL)

4 Conformance

EN 50090-2-2
EN 61000-4-2, ESD
EN 61000-4-3, HF
EN 61000-4-4, Burst
EN 61000-4-5, Surge
EN 61000-6-1, Störfestigkeit
EN 61000-6-3, Störstrahlungen
RoHS

5 LED Indicators

The module provides different LED indicators. The following illustrates their functions.

Indicator	Designation	Function
LED Green or Yellow (front plate)	USB Power	Indicator for input voltage, eBus Coupler connected to PC
LED Green Terminal area	eBus Power	Indicator for the eBus, eBus Coupler connected to eBus
LED Red	Active	Blinks when there is activity on the eBus

6 Adjusting the eBus Coupler Switch Threshold

The signal level of the eBus is dependent on various factors, such as line length, number and power consumption of the bus devices and can vary within a given range. To make it possible to achieve good data recognition our eBus Coupler is provided with an adjustable trimmer. The trimmer is located in the input terminal area and is recessed. With help of the supplied small screwdriver it is possible to make an adjustment.

To do the adjustment we recommend to perform an evaluation of the received data for example using the debug output window in IP-Symcon or via a terminal program. To do the adjustment, carefully insert the small screwdriver in the number 8 opening in the terminal area and turn it left or right in small increments. The eBus Coupler is correctly adjusted when the sync characters "AA" are properly received in your evaluation software.

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The red “Active” LED on the front panel blinks when data are received and sent.

7 Software

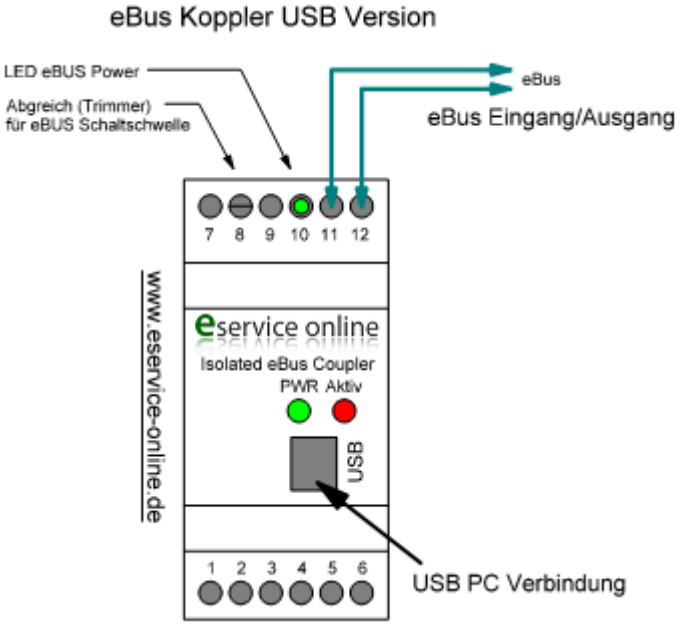
We recommend to use the current FTDI driver. The use of drivers with “Beta” status is not recommended. After installing the FTDI driver, the eBus Coupler is available software wise as a serial bus coupler (COM port). Please do not forget to set the baud rate to 2400. Evaluation software is not within the scope of delivery for this product.

For evaluation of the eBus data, there are various projects available in the Internet. We would like to recommend the IP-Symcon Forum (http://www.ip-symcon.de/wiki/EBus_Adapter) or the eBus Wicki page of the eBus Friends. (http://ebus.webhop.org/)

8 Connection Plan

8.1 Connection eBus (Module Top Side)

7 = not connected
8 = Trimmer for signal level
9 = not connected
10 = LED indicator for eBus
11 = eBus
12 = eBus



8.2 Connection (Module Bottom Side)

1 – 6 = not used

9 Operating Requirements

The operation of the device may only be as prescribed for the voltage and ambient conditions. The device can be operated in any position. It is designed for use only in dry and dust free environments. In the case of condensation, an acclimation time of up to two hours is required before the device is operated. Modules and components do not belong in the hands of children! The module may be only be put into operation under the supervision of a qualified electrician. In commercial businesses, the accident prevention regulations of the association of the professional cooperative for electrical systems and equipment must be observed. Do not operate the module in an environment in which flammable gases, vapors or dust are present or may be present.

10 Mounting

The mounting place must be protected against moisture. The module may only be used in dry indoor rooms or in protected outside areas. The device is designed for fixed installation within a switching cabinet.

11 Disposal Note

Do not dispose of this device in the household waste. Electronic devices must be disposed of of in accordance with directives for disposing of waste electrical and electronic equipment via at local collection points for electronic waste material.

12 Safety Instructions

When using products that come into contact with electrical voltage, the valid VDE regulations must be observed, especially VDE 0100, VDE 0550/0551, VDE 0700, VDE 0711 and VDE 0860

- All final or wiring work must be carried out with the power turned off.
- Before opening the device, always unplug or make sure that the unit is disconnected from the mains.
- Components, modules or devices may only be put into service if they are mounted in a contact proof housing. During installation they must not have power applied.
- Tools may only be used on devices, components or assemblies when it is certain that the devices are disconnected from the power supply and electrical charges stored in the components inside the device have been discharged.

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- Live cables or wires to which the device or an assembly is connected, must always be tested for insulation faults or breaks.
- If an error is detected in the supply line, the device must be immediately taken out of operation until the faulty cable has been replaced.
- When using components or modules it is absolutely necessary to comply with the requirements set out in the accompanying description specifications for electrical quantities.
- If the available description is not clear to the non-commercial end-user what the applicable electrical characteristics for a part or assembly are, how to connect an external circuit, which external components or additional devices can be connected or which values these external components may have, a qualified electrician must be consulted.
- It must be examined generally before the commissioning of a device, whether this device or module is basically suitable for the application in which it is to be used.
- In case of doubt, consultation with experts or the manufacturer of the components used is absolutely necessary.
- For operational and connection errors outside of our control, we assume no liability of any kind for any resulting damage.
- Kits should be returned without their housing when not functional with an exact error description and the accompanying instructions. Without an error description it is not possible to repair. For time-consuming assembly or disassembly of cases charges will be invoiced.
- During installation and handling of components which later have mains potential on their parts, the relevant VDE regulations must be observed.
- Devices that are to be operated at a voltage greater than 35 VDC / 12mA, may only be connected by a qualified electrician and put into operation.
- Commissioning may only be realized if the circuit is built into a contact proof housing.
- If measurements with an open housing are unavoidable, for safety reasons an isolating transformer must be installed upstream or a suitable power supply can be used.

13 Warranty

E-SERVICE guarantees that the goods sold at the time of transfer of risk to be free from material and workmanship defects and have the contractually assured characteristics. The statutory warranty period of two years begins from date of invoice. The warranty does not extend to the normal operational wear and normal wear and tear. Customer claims for damages, for example, for non-performance, fault in contracting, breach of contractual obligations, consequential damages, damages for tort and other legal grounds are excluded. Excepting to this, E-SERVICE accepts liability for the absence of a guaranteed quality resulting from intent or gross negligence. Claims made under the Product Liability Act are not affected. If defects occur for which the E-SERVICE is responsible, and in the case of replacement goods, the replacement is faulty, the buyer has the right to have the original purchase price refunded or a reduction of the purchase price. E-SERVICE accepts liability neither for the constant and uninterrupted availability of E-SERVICE or for technical or electronic errors in the online offer.

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