

## User Guide

### eBus Coupler USB Iso

- eBus transceiver for writing and reading eBus data (physical layer OSI 1)
- Galvanic isolation for eBus and the PC interface via optocoupler
- eBus input reverse polarity protection
- LED indicators for “USB Power”, “eBus Power” and “Activity”
- Top hat rail case for switchboard assembly
- Screw terminals for eBus connection
- Easy switchboard installation
- Color of Coupler case: green



## 1 Introduction

Before you start assembling the **eBus Coupler USB** and put the device into operation, please read this assembly and operating instructions carefully to the end, especially the section referring to the safety notes.

## 2 Product Description

The eBus Coupler provides read and write access to a eBus network. Thus you will be able to analyze all data of your home heating system with appropriate software and feed your heater control bus system with new operating data.

The eBus Coupler provides galvanic isolation among the eBus and the PC Ethernet interface. The eBus interface is reverse polarity protected. Therefore it is not necessary to observe signal polarity when connecting to the eBus. The case of the Coupler is designed for mounting in a control cabinet.

The eBus Coupler is equipped with an USB interface for transferring data to and from a computer. A software-based virtual serial interface (COM-Port) is available at all times. An appropriate driver is available for download at the download section of this product on our webpage.

Power for the eBus Coupler is provided via USB interface of the computer. LEDs at the front panel of the Coupler indicate “PWR” (eBus input power) and “Data” (eBus activity). A green LED at the eBus terminal indicates the availability of an eBus. An external power adapter (which is not included in the scope of delivery) is required to operate the eBus Coupler. We recommend the use of one of our 12V or 24V DIN rail power supplies.

### 3 Technical Specifications

#### eBus

Interfaces: Transreceiver (read and write) for eBus conforming to the "eBus Specification, physical Layer OSI1 V1.3.1 last revised 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

eBus voltage: Nominal 18V, max. 24V, max. 10mA

#### USB Interface

Connector: USB port, Type B

Interface: USB 1.1, FTDI 232RL Chip

Input voltage: 5 VDC (+/-5 %), USB Bus supplied

Current: max. 90mA

Power consumption: USB Bus: max. 90mA

Isolation: Galvanic separation between the PC and the eBus interfaces  
min. 500VDC among the PC interface and the eBus

### 4 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)

### 5 Conformity

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, Fault-free operation

EN 61000-6-3, Stray radiation

RoHS

### 6 LED Indicators

The module status will be displayed by various LEDs. Please refer to the following table for their functions:

Indicator	Designation	Function
LED green or yellow (front plate)	USB Power	Power Indicator, Coupler is connected to PC.
LED green (terminal area)	eBus Power	Flashes when there is activity on the eBus.
LED red	Active	Indicator for the eBus, eBus Coupler is connected to eBus.

### 7 Adjusting the eBus Coupler (Switch Threshold)

The signal level of the eBus depends on various factors, such as line length, number and power consumption of the bus devices and can vary within a given range. To achieve high data recognition this eBus Coupler is equipped with an adjustable trimmer. This trimmer is recessed in the input terminal. Adjustments can be made by using the provided screwdriver.

For adjustments we recommend performing an evaluation of the data received, for example by using a terminal program (e. g. "Putty <http://www.chiark.greenend.org.uk/~sgtatham/putty/>). To perform an adjustment carefully insert the provided screwdriver in the opening numbered 8 in the terminal area. Then turn the screwdriver to the left or to the right in small increments. The eBus Coupler is correctly adjusted when the sync characters "AA" are properly received in your evaluation software. The red "Active" LED on the front panel will blink when data were received and sent.

### 8 Software

We recommend the use of 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). Also

set baud rate to 2400, if not already done so. Evaluation software is not included in the scope of delivery for this product.

In order to evaluate eBus data we recommend the IP-Symcon Forum ([http://www.ip-symcon.de/wiki/EBus\\_Adapter](http://www.ip-symcon.de/wiki/EBus_Adapter)) or the eBus Wicki page of eBus Friends (<https://www.dokuwiki.org/dokuwiki#>). We also recommend the eBus integration for FHEM (<http://www.fhem.de>) or the eBus service for Linux.

This eBus coupler is not supported by Vaillant vrDIALOG software. An example for reading eBus data (VWMon by Alexey Ozerov) can be found at <http://baublog.ozerov.de/waermepumpe/vwmon-datenlogger-fuer-die-vaillant-waermepumpe/>

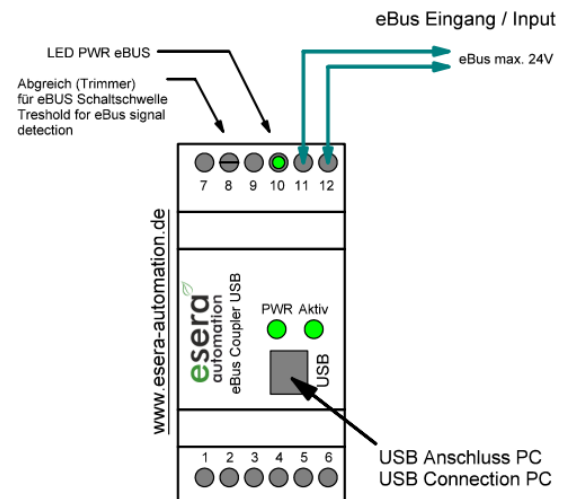
## 9 Connection Plan

### 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

### Connection (Module bottom side)

- 1 – 6 = not used



## 10 Operating Requirements

The operation of the assembly group can take place only on condition of observing the required voltage and the ambient conditions. The operating position of the device is irrelevant. The device is meant to be used in dry areas free of dust.

Should condensed water build up within the sensor, an acclimatization period of at least 2 hours must be met. The components can be operated only under the supervision of an electrically skilled person. Assembly groups and components do not belong into the hands of children.

In industrial facilities, the accident prevention regulations of the federation of industrial professional associations for electrical installations and equipment must be observed.

Do not operate the components in an environment with inflammable gases, vapors or dusts or in an environment where such gases, vapors or dusts may occur.

## 11 What type of heating do you have?

We plan to set up an eBus database for heaters, eBus couplers and evaluation software for our customers. Within this database it is possible to quickly find out which heaters are already successfully analyzed with our eBus couplers. Please send an e-mail to [ebus@esera-automation.de](mailto:ebus@esera-automation.de) with the following information: your heating system (type, manufacturer), used eBus coupler (USB, Ethernet or serial) and the evaluation software / hardware. We reward your feedback with a 5,00 € coupon for your next purchase.

## 12 Assembly

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

## 13 Disposal Note

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



## 14 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.
- 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.

## 15 Warranty

ESERA-Automation (E-SERVICE GmbH) 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, ESERA-Automation 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 ESERA-Automation 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. ESERA-Automation accepts liability neither for the constant and uninterrupted availability of ESERA-Automation or for technical or electronic errors in the online offer.

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