

User Guide eBus Coupler Serial (RS232)

- eBus transceiver for writing and reading eBus data (physical layer OSI 1)
- Serial RS232 interface
- Galvanic isolation for eBus and the PC interface via optocoupler
- eBus input reverse polarity protection
- LED indicators for “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 Serial 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 Serial provides read and write access to the eBus network. Thus with appropriate software it is possible to analyze all of your home heating system data and provide it with new operating data.

The eBus Coupler Serial provides galvanic isolation among the eBus and the PC serial interface. A built-in software filter ensures that only payload data will be transmitted via Ethernet. This filter significantly reduces the load of data being transferred.

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 RS232 serial 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 on our webpage (<https://www.esera.de/shop/en/products/ebus/142/ebus-coupler-to-ethernet>).

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 Interface

Interfaces:	Transceiver (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, 8-bit UART mode (RS232, 2400, 8,N,1)
Switch threshold:	Adjustable via trimmer; adjustment range: 7-14V Low active bus: HIGH (1) => 15 - 24 VDC, LOW (0) => 9 - 12 VDC
Input / Connection:	2-pole, bipolar input (marking: A and B) Screw terminals (up to 2.5 mm ² wire cross section)
eBus voltage:	7-24 VDC, nominal 18V, current consumption max. 10 mA

Serial Interface (V24 Standard)

Connector:	D-Sub, 9-pin male
Interface:	RS232 UART level (+/- 3-12 V)
Connecting cable:	Null modem cable (Article number 43004; available in the ESERA Online Shop)

Supply voltage

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

Environmental conditions

Protection type:	IP20
Protection class:	III
Temperature,operation:	0 °C to +60 °C
Humidity:	10 to 92 % (non-condensing)
Dimensions:	35 x 90 x 70 mm (WxHxD)

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, interference immunity
EN 61000-6-3, interference radiation
RoHS

4 Display LED

The module has various display LEDs. In the following the function of the displays:

Display	Designation	Function
LED PWR, green (front plate)	USB Power	Display for supply voltage, Bus coupler connected to PC
LED Data, green	Data	flashes during eBus activity lights up permanently when no eBus signal is connected
LED green in the clamping area	eBus Power	Power indicator for eBus connection

5 Calibration eBus coupler (switching threshold)

The signal level of the eBus is variable within a certain range due to various factors, such as line length, number and current consumption of the bus participants, etc. To ensure good data recognition in your system environment, our eBus coupler is equipped with an adjustment controller.

The adjustment knob is located in the area of the eBus input terminal. With the help of the small screwdriver supplied, an adjustment is possible.

For the adjustment, we recommend an evaluation of the received data, e.g. via debug output window (e.g. in IP-Symcon) or a terminal program. For adjustment, insert the screwdriver carefully into the opening in the connector panel with the number 8 and turn it to the left in small steps or to the right. The eBus coupler is correctly calibrated if the Sync characters "AA" in your evaluation software are correctly can be received. The "Data" LED on the front panel flashes when data is received and sent.

6 Software

The eBus Coupler Serial operational settings are: 2400 Baud, 8 data bits, no parity and 1 stop bit. 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) 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.

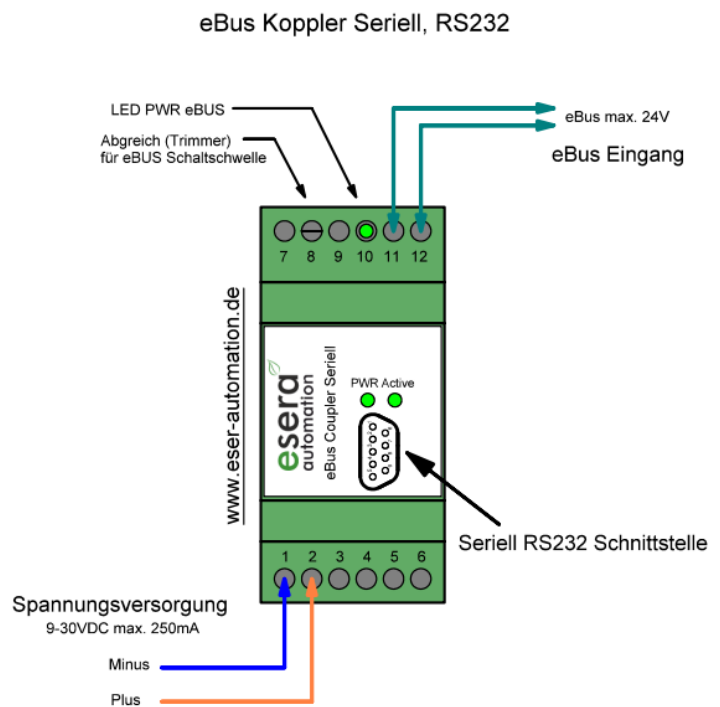
This eBus coupler is not supported by Vaillant vrDIALOG software. An example for reading eBus data (VWMon by Alexey Ozerov) can be found at <http://baublog.ozerov.de/waermepumpe/vwmon-datenlogger-fuer-die-vaillant-waermepumpe/>

7 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

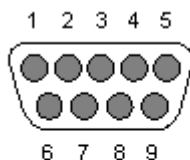
7.1 Connection Input Power (module top side)

- 1 = Negative
- 2 = Positive
- 3 – 6 = not connected



8 Pinout of the RS232 Interface

The 1-Wire eBus Coupler provides a D-SUB 9-pin male connector as data interface for connection to a computer. The following figure illustrates the pinout of this connector.



- Pin 2 - Daten-Eingang (RxD)
- Pin 3 - Daten-Ausgang (TxD)
- Pin 5 - Masse (GND)

9 Operating conditions

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.

10 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.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.

11 Assembly

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.

12 Disposal Note

Do not dispose of 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.



13 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.
- After installing the required tests according to DGUV / regulation 3 (German statutory accident insurance, https://en.wikipedia.org/wiki/German_Statutory_Accident_Insurance) must be carried out.

14 Warranty

ESERA 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 secondary contractual obligations, consequential damages, damages resulting from unauthorized usage and other legal grounds are excluded. Excepting to this, ESERA GmbH 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.

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