ERC Quick Guide

Documentation

Scan the QR code to access the further documentation:

This quick guide is intended solely as a brief summary of the most important information.

Intended use and proper use

This product information contains important details for the following hardware variants: **STEU-R-1A-110-00** and **STEU-R-1A-110-01**. It relates to the products **EEBUS Relais Converter S** (1-04-01380) and **EEBUS Relais Converter C** (1-04-01381).

The EEBUS Relais Converter (ERC) is intended for use with a smart meter gateway with control functionality (e.g. SMGWplus from PPC AG). The ERC receives control commands via the EEBUS protocol and converts them into relay circuits to control consumers and generation facilities as part of load management in accordance with Section 14a of the German Energy Industry Act (EnWG) and Section 9 of the German Renewable Energy Sources Act (EEG). The device is intended for mounting on a DIN rail and the connections must be covered.

⚠ **NOTE:** The ERC must only be used for the applications described in the complete product documentation and only in conjunction with third-party devices and components recommended or approved by PPC. If the device is not used in accordance with this product information, the intended protection will be compromised. The correct and safe operation of the product requires proper transport, storage, installation and assembly, as well as proper operation and maintenance.

The EEBUS Relais Converter C (1-04-01381) is intended solely for **operation in compliance with certification requirements**.

A permanent internet connection must be ensured for the operation of the **EEBUS Relais Converter S** (1-04-01380), particularly for firmware updates. Further information can be found in the further documentation.

Functional description and control concepts

The ERC executes commands from a control unit and is not equipped with its own control logic. EEBUS communication is enabled via the RJ45 Ethernet interface; control commands are routed to the four potential-free switching outputs via monostable changeover relays.

The relay functions comply with the VDE FNN control concepts for controllable consumer devices and power generation plants. The output of a power generation plant can be controlled in stages via relays S1, S2 and W3 (seeFigure 1).

Concurrently, the operation of controllable consumer devices (e.g. heat pumps and wall boxes) can be controlled via relay W4 (seeFigure 2).

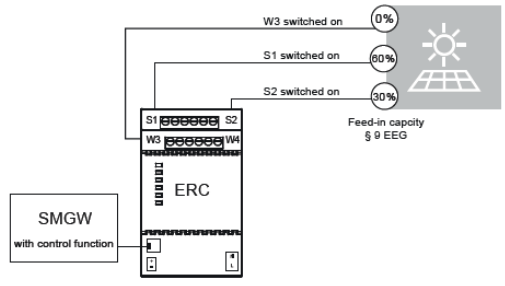


Figure 1 : EEG control concept

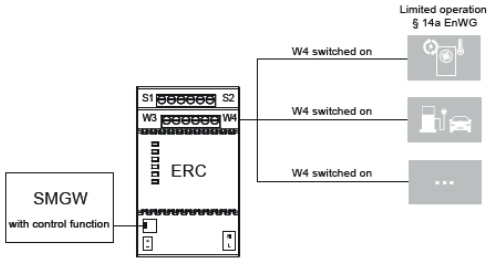


Figure 2 : EnWG control concept

Safety

These instructions are intended exclusively for qualified electricians. Installation and commissioning must only be carried out by qualified electrical engineers in accordance with the applicable safety regulations.

The most important safety instructions are listed below. Further safety instructions can be found in the further documentation.

⚠ **DANGER**
Electric shock due to high touch voltage
Failure to comply will result in death or serious injury. *Install, connect and operate the device strictly in accordance with the instructions. Install and connect the device only when it is de-energised. The mounting location must be vibration-free and within the permissible temperature range*.

WARNING
Improper operation
Failure to comply may result in malfunctions or damage to the device. *Select a vibration-free mounting location. Observe the permissible ambient temperature. Protect the unit from direct sunlight and extreme temperature fluctuations. Do not operate the device at altitudes above 2,000 m above sea level.*

WARNING
Danger due to lack of protection and inadequate fire safety
Failure to comply may result in electric shock, fire or damage to the device. *Ensure degree of protection IP30 at the mounting location. Install the device only on a TS 35 DIN rail within a suitable enclosed control cabinet made of fire-resistant material.*

WARNING
Risk of personal injury or damage to property due to failure to comply with standards and regulations
Failure to comply may result in personal injury or damage to property. *Observe all applicable standards, regulations and accident prevention guidelines when carrying out any work.*

CAUTION
Device damage due to overvoltage is possible
Failure to comply may result in malfunctions or damage to the communication interface. *Use only shielded Ethernet cables and connect them correctly.*

Mounting

Snap the device onto a 35 mm DIN rail:

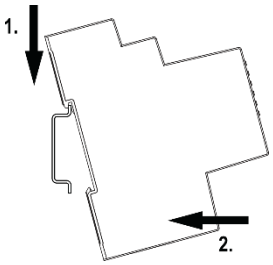


Figure 3 : Installation

Installation

WARNING
Risk of electric shock when working on live parts
Working on live parts can result in death or serious injury. *Before carrying out any work, disconnect the device from the power supply, secure it against being switched on again and check that accessible parts are de-energised.*

WARNING
Electric shock due to insufficient insulation distances
Failure to comply may result in death, serious injury or damage to the device. *Check the insulation distances and increase them if necessary. At ventilation slots, maintain a minimum distance of 3 mm from accessible SELV/PELV circuits and from conductive, unearthed parts. Safety extra-low voltage (SELV) may only be switched, if SELV is connected to all switching contacts.*

To install the device, carry out the following steps:

- Connect the Ethernet cable to the SMGW, LAN (switch) or end device (e.g. ripple control receiver).
- Connect the relay to the end device (e.g. wallbox) (see Figure 4).
- Supply power to the device.

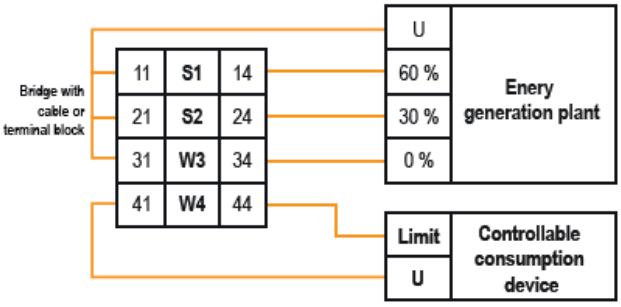


Figure 4 : Connecting the relays to the end device

Commissioning

The following steps are required to commission the ERC:

- Pairing between the ERC and the SMGW
- Entering the nominal power (PVmax) of the power generation plant
- Adjusting the network configuration, if necessary

For **ERC S**: You can carry out both steps via the ERC Webinterface. Please refer to the further documentation for details.

Technical data

Technical Specifications	
Nominal voltage	230 VAC (± 15 %), 50 Hz
Power consumption	4 W
Current output	5 V DC / max. 1 W
Protection class	II
Overvoltage category	III
Degree of protection	IP30
Mains connection	SL-SMT 5.08HC/03/90G 1.5SN BK RL TB
Interfaces	1x Ethernet RJ45
Relays	4x CO relays Monostable changeover relays 6 mm², with plastic-collared ferrule, DIN 46228-4: 2.5 mm² max. 250 VAC, switching current max. 6 A
Operating temperature	-25 °C … +55 °C
Relative humidity	0 … 95 %, non-condensing
Weight	140 g
Ambient conditions Altitude	≤ 2000 m
Flammability class	V2
Dimensions (W x H x D)	90 mm x 54 mm x 70 mm, 3 modules

Product overview

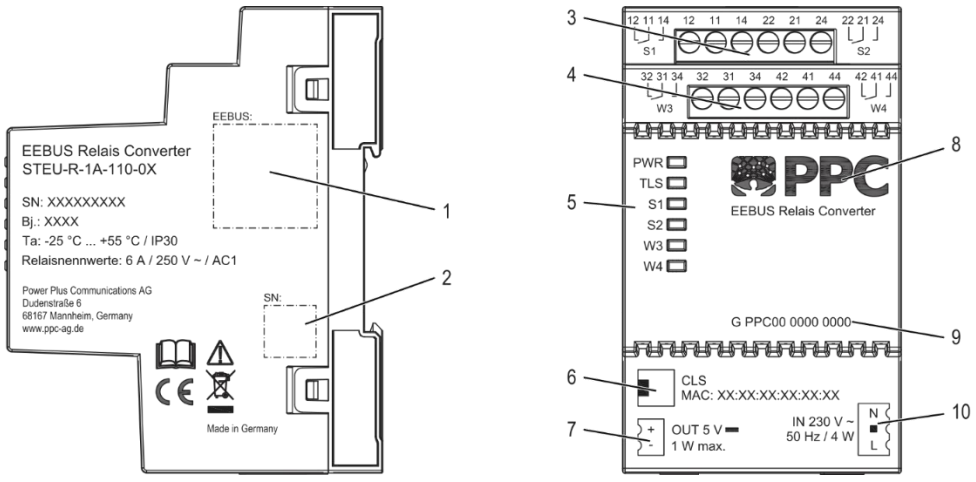


Figure 5: Product overview

1	EEBUS QR code	6	RJ45 Ethernet port
2	Data Matrix code – serial number	7	Accessory power supply output (5 V)
3	Relay connections S1 (12, 11, 14), S2 (22, 21, 24)	8	Product name and product type
4	Relay connections W3 (32, 31, 34), W4 (42, 41, 44)	9	Manufacturer-independent serial number (HUID)
5	Status LEDs	10	Power supply input

Interfaces

Interfaces		Type	Use	Direction
CLS		Ethernet RJ45; Maximum cable length: 30 metres	Designed for connection to a CLS port on an SMGW	
Power supply input			For the ERC's power supply: IN: L (phase); N (neutral)	In
Power supply output			For the switch's power supply: OUT: 5 V; earth	Out
S1	12	Relay type: changeover	Normally closed contact	Passive
	11		Common contact	
	14		Normally open contact	
S2	22	Relay type: changeover	Normally closed contact	
	21		Common contact	
	24		Normally open contact	
W3	32	Relay type: changeover	Normally closed contact	
	31		Common contact	
	34		Normally open contact	
W4	42	Relay type: changeover	Normally closed contact	
	41		Common contact	
	44		Normally open contact	

LED status indicators

The **STEU-R-1A-110-00** and **STEU-R-1A-110-01** devices have a total of 6 LEDs, which indicate the following statuses:

Designation	Colour	Status
All LEDs	Green, 3x blinking	Power on process or restart after firmware update
PWR	Green	Power supply OK
	Off	No power supply
	Green blinking	Firmware update is running
TLS	Green	Ethernet connection OK
	Off	No Ethernet connection and no software signalling
	Green blinking	Ethernet activity
S1 S2 W3 W4	Green	S1: Relay 1 energised S2: Relay 2 energised W3: Relay 3 energised W4: Relay 4 energised
	Off	S1: Relay 1 not energised S2: Relay 2 not energised W3: Relay 3 not energised W4: Relay 4 not energised

Disposal

This product is subject to the Waste Electrical and Electronic Equipment (WEEE) Directive and, as a B2B product, must not be disposed of via the public recycling system and has to be returned to Power Plus Communications AG for proper disposal.

Complies with RoHS.

Declaration of Conformity

Simplified EU Declaration of Conformity
Power Plus Communications AG hereby declares that the devices of types **STEU-R-1A-110-00 and STEU-R-1A-110-01** comply with Directives LVD 2014/35/EU and EMC 2014/30/EU and RoHS 2011/65/EU.

EU Declaration of Conformity
The full text of the EU Declaration of Conformity is available at the following web address:

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