SMART MOTOR DEVICES

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Converter USB-RS485

User Manual

2026

1. Product designation

The converter USB-RS485 is designed to exchange data between a computer (connected via USB) and devices with RS-485.

2. Description and technical specifications

The converter is designed as a circuit board in a plastic housing and is suitable for DIN rail mounting. Connection to the computer is made via a USB (Type-C) connector. A terminal block with contacts for data lines A and B and ground GND is provided for connecting to RS-485 devices. When connected to a computer, the device is recognized by the operating system as a virtual COM port.

- Power supply of the converter – 5V, supplied via the computer's USB port;
- USB connection – Type-C;
- RS-485 connection – terminal block, contacts A, B, GND;
- RS-485 data direction – automatic detection;
- Maximum data transfer rate – up to 2 Mbit/s;
- LED indicators – power, data direction;
- Galvanic isolation between interfaces;
- Chip type – CH340;
- Operating temperature range – from -20°C to +70°C;
- Dimensions – 85 x 46 x 23 mm;
- Housing – plastic, with 35 mm DIN rail mounting.

The dimensions of the converter are shown in Fig. 1.

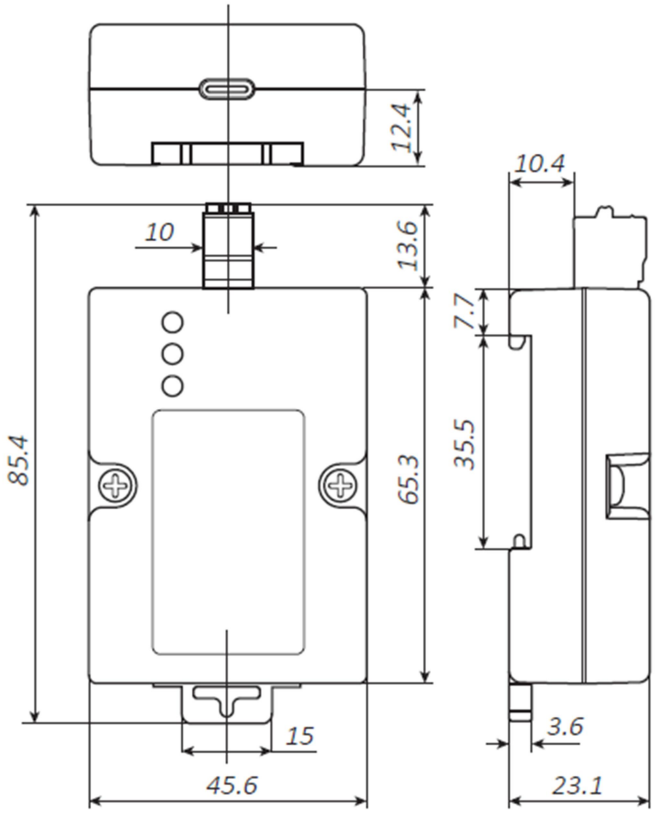


Fig. 1. Dimensions of the USB – RS-485 interface converter

3. LED indication

The converter housing features LED indicators that show the device status:

- Red indicator (PWR) – power supply voltage present on the converter.
- Yellow indicator (Tx) – data transmission from USB to the RS-485 port.
- Green indicator (Rx) – data reception from RS-485 to the USB port.

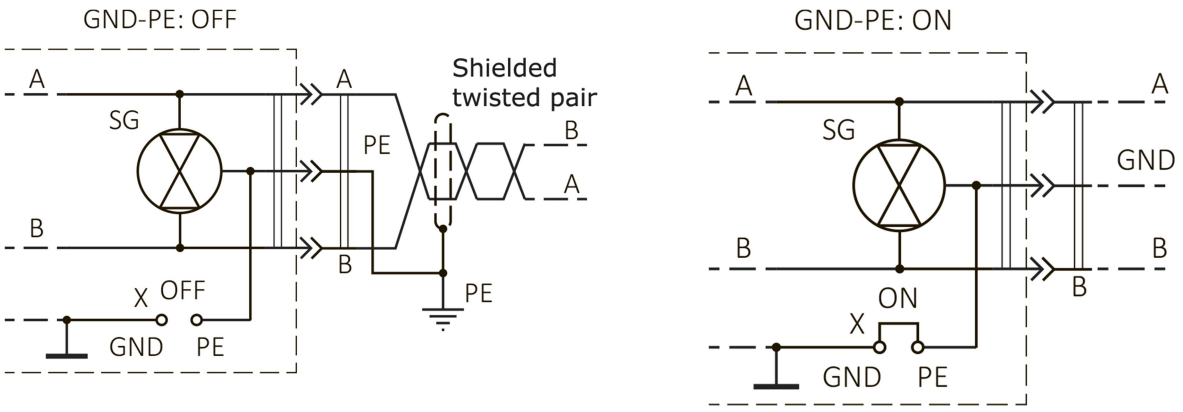
4. Connection to a computer

Connection to a computer is made via a standard USB Type-C connector. When first connect to a computer with a Windows operating system, drivers are usually installed automatically. If automatic driver installation does not occur, the driver can be installed manually. When connected to a computer, the device is recognized by the operating system as a virtual COM port; the port number is assigned automatically by the operating system and can be changed by the PC user if necessary.

5. Connection to the RS-485 interface

Connection to an RS-485 device is made via terminal block contacts A, B, GND. The wiring diagram is shown in Fig. 2.

To improve noise immunity, it is recommended to use a shielded twisted pair with grounding for connecting data lines A and B – see Fig. 2a. In the case of a short RS-485 line with no interference, it is permissible to connect protective earth (PE) and the interface signal ground (GND) inside the interface converter – see Fig. 2b. To do this, set the GND-PE jumper under the converter housing (see Fig. 3).



a – connection with isolated protective and signal grounds

b – connection with combined protective and signal grounds

Fig. 2 – RS‑485 interface connection diagram

At the end of the RS-485 line, it is recommended to install a 120 Ω termination resistor. The converter has a built-in termination resistor; no additional resistor is needed on the converter side. If the converter is installed in the middle of an RS-485 line and connected to a USB port of a computer that is not the master, remove the jumper under the housing to disable the built-in termination resistor (see Fig. 3).

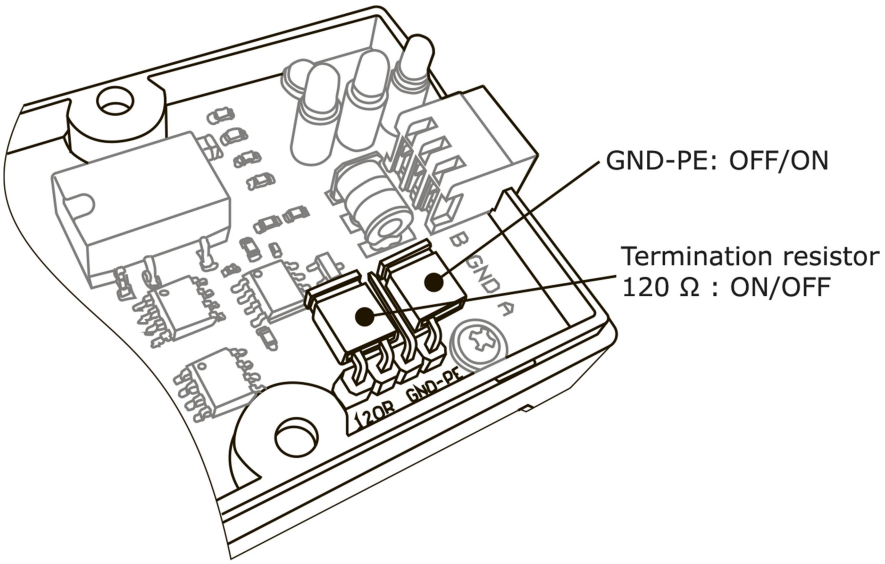


Fig. 3. Position of jumpers under the unit housing: 120 Ω termination resistor and protective earth (PE)

6. Delivery in complete sets

Converter USB – RS485 1 pcs

7. Manufacturer information

Smart Motor Devices adheres to the line of continuous development and reserves the right to make changes and improvements in the design and software of the product without prior notice.

The information contained in this manual is subject to change at any time and without prior notice.

8. Warranty

Any repairs or modifications are performed by the manufacturer or an authorized company.

The manufacturer guarantees the failure-free operation of the controller for 12 months from the date of sale when the operation conditions are satisfied.

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