

CONV485USB
CONV485USB-I
version 2.5



CONV485USB-I

CONV485USB

Converter RS-485 / USB

OPERATING MANUAL

Rev: 2018-01-03



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Safety Information

! To ensure the device is installed and used safely, follow all instructions stated in this Manual.

Incorrect installation of the device may cause serious health hazard and can be life threatening.

The device has been manufactured according to the requirements of relevant EU directives.

The device must not be installed in explosive environments.

Information from the Manufacturer

All functions of the device are subject to modifications for the benefit of technical progress.

1. General information

The CONV485USB and CONV485USB-I converters enable connection of devices equipped with an RS-485 transmission port to a PC equipped with a USB universal serial bus.

The CONV485USB is intended for laboratory use and allows transmission with a rate of up to 230.4kbps. The converter is supplied from the PC's USB port.

The CONV485USB-I is intended for industrial and laboratory use and allows signal transmission at a range of up to 1,200m and a maximum rate of 115.2.4kbps. The device has galvanic separation between the USB side and the RS-485 port, and is supplied entirely from the PC's USB port. The converter can also be mounted on the 35 mm DIN rail.



The drivers supplied with the converter allow the converter to be installed as a serial COM port.

2. Information LEDs

CONV485USB has three LEDs inside the case:

- green – indicates presence of supply voltage; stays on when device is connected to PC,
- yellow (RxD) and blue (TxD) – during data transmission, these LEDs should blink.

CONV485USB-I has 4 LEDs:

- PWR1 (green) – indicates presence of supply voltage from USB port side,
- PWR2 (green) – indicates presence of supply voltage from RS-485 port side. Since the supply voltage is activated by the PC's software, the LED may come on with some delay.
- RxD (yellow) – indicates data transmission between devices and PC (RS-485 → USB),
- TxD (blue) – indicates data transmission between PC and devices (USB → RS-485),

3. Wiring installation to PC

The converter should be connected to PCs via a USB A/B cable. The standard 1.8m USB cable is included. The USB standard allows for a 5m cable. After connecting the converter to a computer, the green indication LED should come on (PWR1 LED in CONV485USB-I).



4. Wiring to RS-485 transmission line

The bus-bar cables should be connected to A(+) and B(-) terminals. In an industrial environment the shielded cable is strongly recommended. The shield should be grounded and connected to a reference potential. We recommend the use of digital data transmission cables, especially in the case of larger distances and higher transmission rates. For CONV485USB-I it is also recommended to use third wire GND connected between devices. The RS-485 standard allows connection to a total of 32 devices. The bus-bar may not be arranged into a star connection.

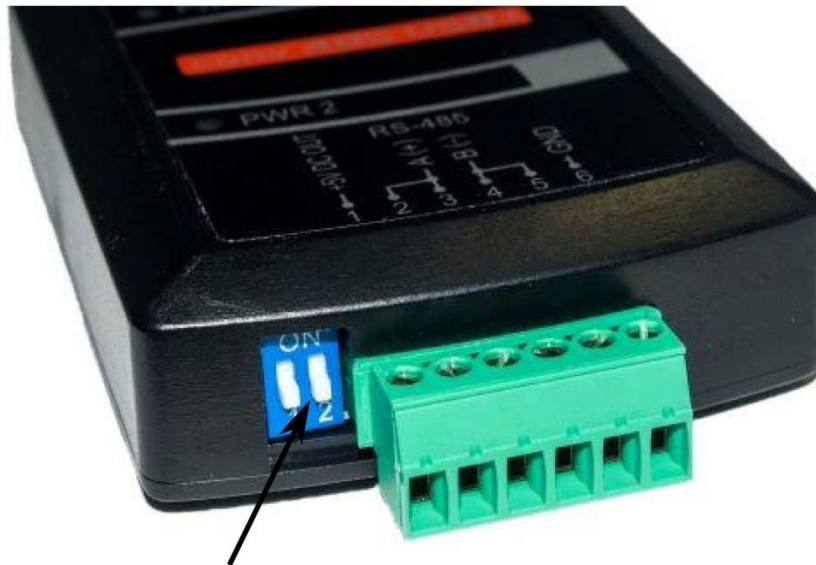
Terminal block in CONV485USB:

No.	Symbol	Specification
1	A(+)	Data input/output signal line
2	B(-)	Data input/output signal line

Terminal block in CONV485USB-I:

No.	Symbol	Specification
1	+5V DC OUT	Supply voltage output terminal
2	A(+)	Data input/output signal line
3	A(+)	Data input/output signal line
4	B(-)	Data input/output signal line
5	B(-)	Data input/output signal line
6	GND	Ground terminal for +5V power supply and A(+) and B(-) signal lines

The CONV485USB-I converter has DIP-switches for connection of terminating resistors. Termination should be connected only if the converter is installed on one end of the transmission line.



DIP-switch ON: RS485 termination connected

5. Drivers' installation via Internet (First start.)

Connect the converter to the PC computer with the USB A / B cable. The green LED should light on (in CONV485USB-I PWR1 diode). Drivers are installed automatically.

6. Manual driver installation

Connect the converter to the computer with the USB A / B cable. The green LED should light (in CONV485USB-I PWR1 diode).

The system will automatically detect a new device and open the installation wizard window. The CDM (Combined Driver Model) drivers downloaded from the www.metronic.pl website or the CD attached. NOTE: The drivers are compressed into a ZIP file. Before installation, unpack them.

7. Checking the installed drivers

In Device Manager menu, expand the Universal Serial Bus Controllers list - the USB Serial Converter should appear. To determine the COM port number under which the converter is "seen", expand the list of Ports (COM and LPT) in the Device Manager, where the USB Serial Port (COMx) will be visible, where x is the COM port number (e.g. COM3).

8. Driver uninstallation

To uninstall the CDM driver, click the right mouse button on *USB Serial Port (COMx)* and *USB Serial Converter* in *Device manager* and choose *Uninstall*.



9. Technical specification

CONV485USB:

USB:	
Standard:	In compliance with USB 1.1 and USB 2.0
RS-485:	
Baud rate:	300 bps .. 230.4 kbps
Maximal number of transmitters / receivers:	32 (limited line length and without terminating resistors)
Different output voltage (TxD):	Nominal: 3.3 V for $R_L=\infty$ Min.: 1.5 V for $R_L=54 \Omega$
Receiver input resistance (RxD):	12 k Ω
Minimal input voltage (RxD):	0.2 V
Acceptable voltage on A,B terminals:	+/-12 V (max)
Short-circuit protection:	Yes
Others:	
Power supply:	From USB port
Rated current:	35 mA (without load on RS-485 side)
USB / RS-485 galvanic separation:	No
Work temperature:	0 .. +50 °C
Store temperature:	-20 .. +60 °C
Dimensions (without terminals) length x width x height:	56mm x 31mm x 25mm
Weight:	About: 25g

CONV485USB-I:

USB:	
Standard:	In compliance with USB 2.0
RS-485:	
Baud rate:	300 bps .. 115.2 kbps
Maximal number of transmitters / receivers:	32
Different output voltage (TxD):	Nominal: 5 V for $R_L=\infty$ Min.: 1.5 V for $R_L=54 \Omega$
Receiver input resistance (RxD):	12 k Ω
Minimal input voltage (RxD):	0.2 V
Acceptable voltage on A,B terminals:	+/-12 V (max)
Short-circuit protection:	Yes
Line RS-485 terminating resistor:	220 Ω + 2 x 390 Ω , external
Others:	
Power supply:	From USB port
Rated current:	Max 350 mA (nominal work)
USB / RS-485 galvanic separation:	500 V
Work temperature:	0 .. +50 °C
Store temperature:	-20 .. +60 °C
Dimensions (without terminals) length x width x height:	93mm x 57mm x 21mm
Weight:	About 65g



10. Delivery contents

Converter	1 pc	
Six-position pin type screw terminal strip	1 pc	only CONV485USB-I
Two-position pin type screw terminal strip	1 pc	only CONV485USB
Mounting kit for 35 mm DIN rail	2 pcs	only CONV485USB-I
USB A/B cable 1.8 m	1 pc	
CD with installation software and full manual	1 pc	
Quick start guide	1 pc	



The device is compliant with the EMC requirements (electromagnetic compatibility of industrial devices), according to Directive 2004/108/EEC.

11. Entity launching the product on the EU market

Manufacturer: METRONIC AKP s.c.
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Sales Department: