



Interface USB-RS485

v.1.0

CODE: **INTUR**

EN*

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Features:

- data conversion between the RS485 bus and the computer via USB
- galvanic isolation
- easy connection configuration
- power supply from the USB port of the PC
- cooperation with PowerSecurity program
- optical indication
- compact size
- warranty - 5 years from the production date

1. General description.

The USB-RS485 „INTUR” interface enables connection of the RS485 bus with the PC via USB port. The interface does not require external power supply for proper operation, since the power is drawn from the USB port of the PC. The connection is safe due to a built-in galvanic isolation. The interface is recognized by the operating system as a virtual COM port.

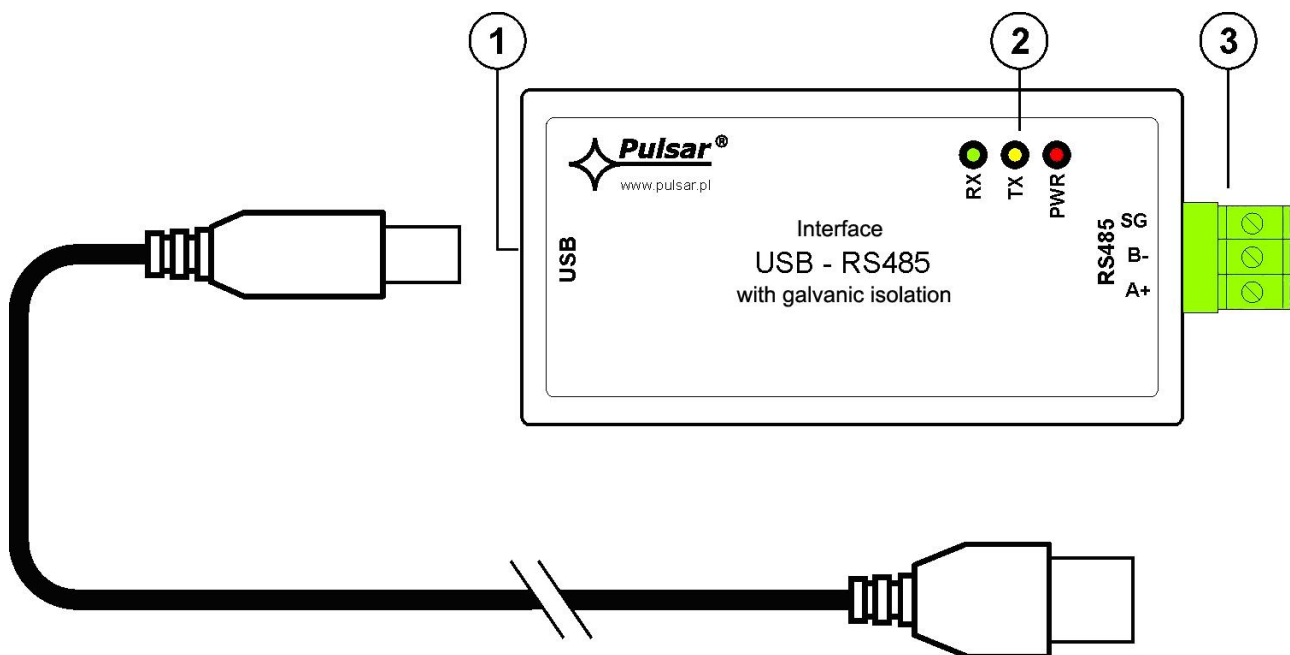


Fig. 1. The USB-RS485 interface.

Component	Description
[1]	USB port - for connection with a computer
[2]	LEDs – optical indication: PWR – supply voltage indication TX – data transmission RX – receiving data
[3]	Connector of the RS485 bus A+, B- - RS485 data transmission SG - signal ground

2. Operating system interface installation.

For proper operation, the USB-RS485 interface requires the correct drivers installed on the PC.

When connected to a free USB port on the computer, the interface will be automatically detected by the operating system and the drivers will be installed.

If the drivers have not been previously installed, you must download the appropriate instructions and complete the installation in accordance with the guidelines. All instructions and drivers are available on the chipset manufacturer's website at:

<http://www.ftdichip.com/Support/Documents/InstallGuides.htm>

The installation drivers can be downloaded at:

<http://www.ftdichip.com/FTDrivers.htm>

After installing the drivers, connect the USB-RS485 interface into the USB port of your computer. An additional COM port (e.g. COM5), configured with the interface and providing access to the RS485 interface, will be displayed. The assigned COM port can be checked in the Device Manager window (location: START > Control Panel > System > Hardware > Device manager).

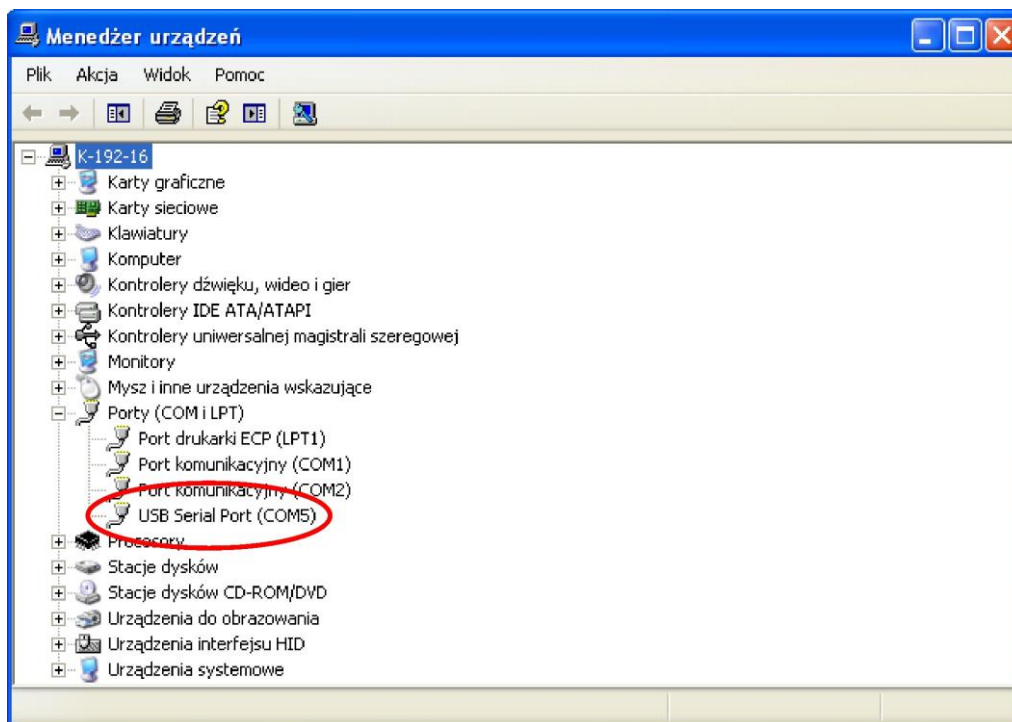


Fig. 2. The device manager window.

3. Connecting to the RS485 bus.

3.1 System structure in the RS485 bus.

Use a twisted-pair cable as a transmission wire of the RS485 bus. The "point-to-point" topology is recommended, while the "star" topology should be avoided. If the wires are long enough, it is recommended to use shielded cables to avoid errors during the communication and to lower the susceptibility to noise and radio interference. It is recommended to mount the terminal resistors at the ends of the bus with a resistance close to the impedance of the used cable, which is 120 Ohm.

The PSU network connected via the RS485 bus is presented in the figure below.

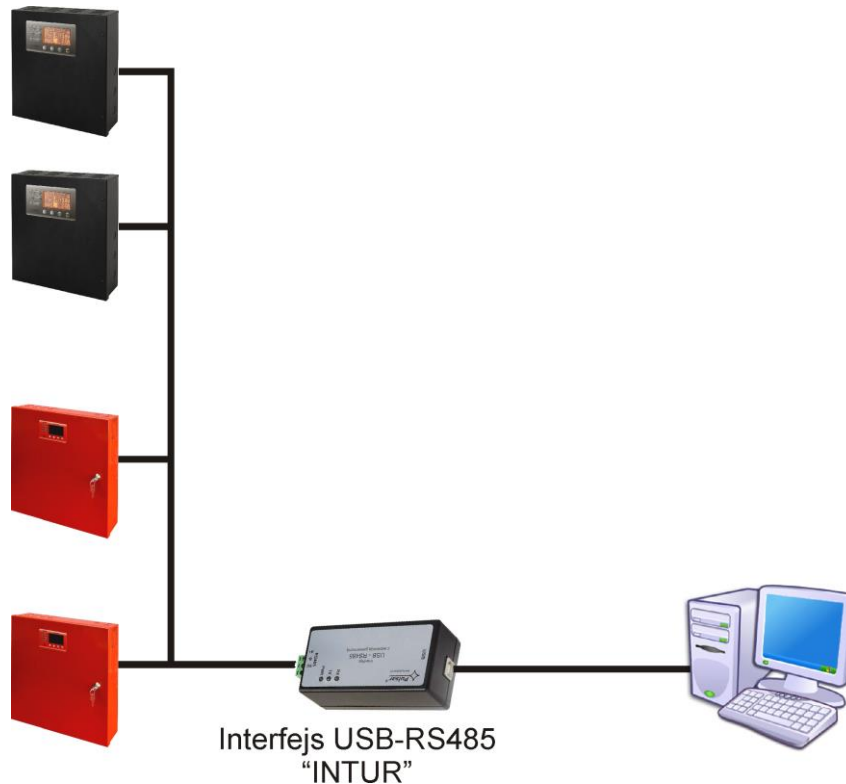


Fig. 3. The schematic diagram of the power supply units connected to the RS485 bus.

The connection with the RS485 bus uses the "RS485" connector. Connect the wires of the RS485 bus, marked and connected the same way as the rest of devices (A+ to A+, B- to B-), to the A+ and B- terminals of the connector

3.2 Connecting the interface to the bus.

- 1) Connect the RS485 bus cable to the RS-485 connector of the interface. Make sure that the cables are connected in the same way as other devices, i.e. A+ to A+, B- to B-. In case of shielded wires, the shield should be connected to the SG signal ground terminals.
- 2) Optionally, mount the 120 Ohm terminal resistors at the end of the RS485 bus.
- 3) Connect the interface to the computer via USB wire.
- 4) Run the PowerSecurity program.



The "PowerSecurity" program can be downloaded at:
<http://www.pulsar.pl/pliki/PowerSecurity.exe>

After installing and starting the program, create the power supply in the manager window. To do this, select the main group "Main group" with the mouse and then press the "Add" button and select the "New device" item. The configuration window will be displayed in the right part of the program window. The configuration must be carried out in accordance with the connection parameters and the interface used.

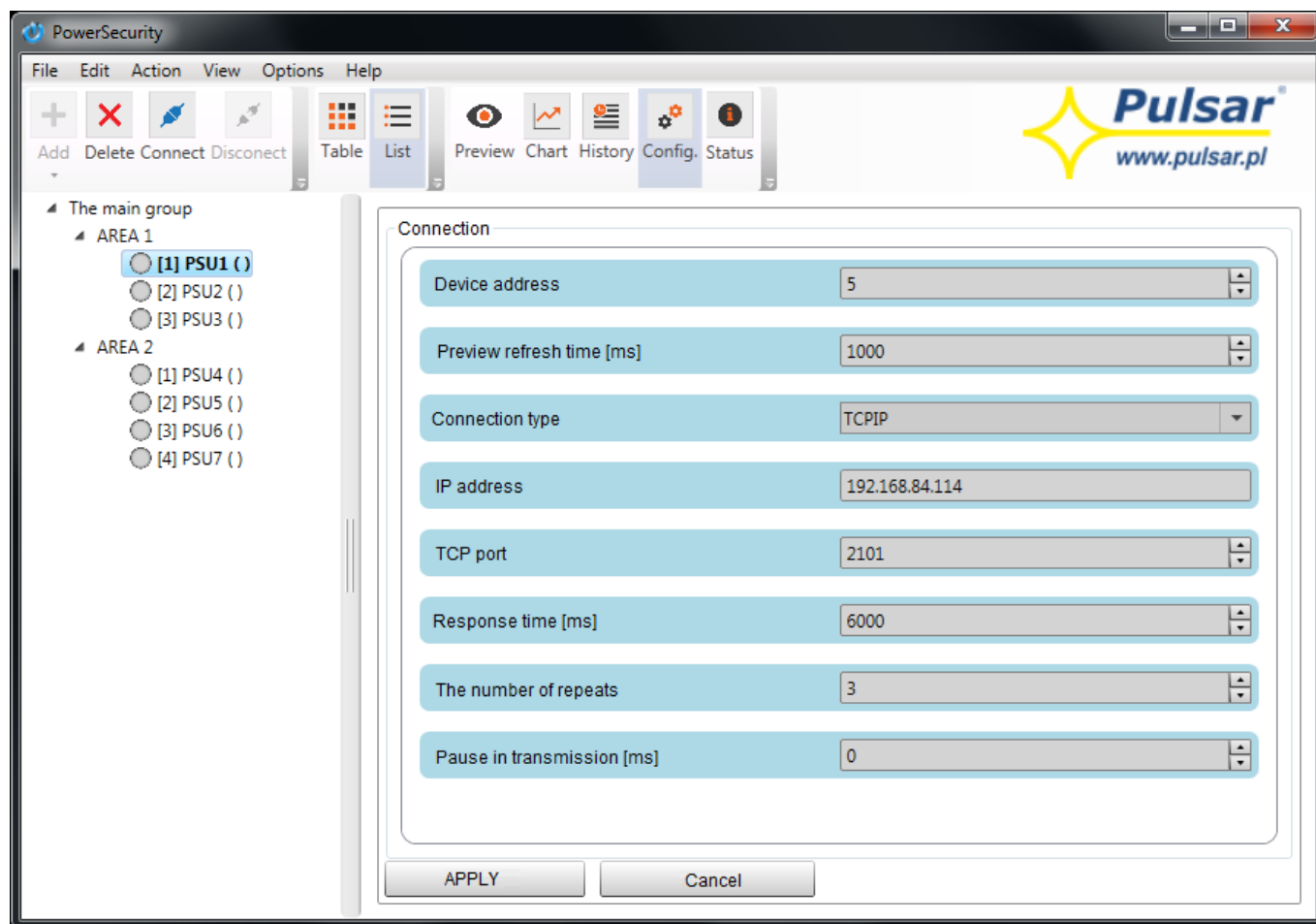


Fig. 4. Exemplary configuration of connection with the power supply.

PARAMETER	DESCRIPTION
Device address	1-247 ; address of the power supply in the RS485 bus.
Preview refresh rate [ms]	100 – 60 000ms ; refresh period of the parameters in the preview window. In the case of a larger number of supported power supplies, use longer times to reduce traffic on the bus.
Connection type	RTU ; communication in the RS485 bus
Port	AUTO ; the program automatically tries to find the virtual COM port to which the communication interface has been connected; COM1 ...COMx ; manual port selection.
RTU speed	AUTO ; the program automatically selects the communication speed to the power supply. 9600..115200 bps ; manual selection of the communication speed
Parity	Transmission parity check.
Response time [ms]	100 – 60 000ms ; time after which the command will be retransmitted. The parameter should be included in the case of Wi-Fi or Ethernet communication where additional delays may occur.
The number of repeats	0-100 ; the number of messages sent back to the power supply in case of communication problems. After the specified number of messages, the program will report an error.
Pause in transmission [ms]	0-100ms ; break between frames.

Once the connection is properly configured, open the preview window ("Preview" button) and then press the "Connect" button. After a few seconds, the preview window will display the parameters of the power supply, which will be refreshed according to the refresh rate defined in the connection configuration - "Refresh rate of the preview".

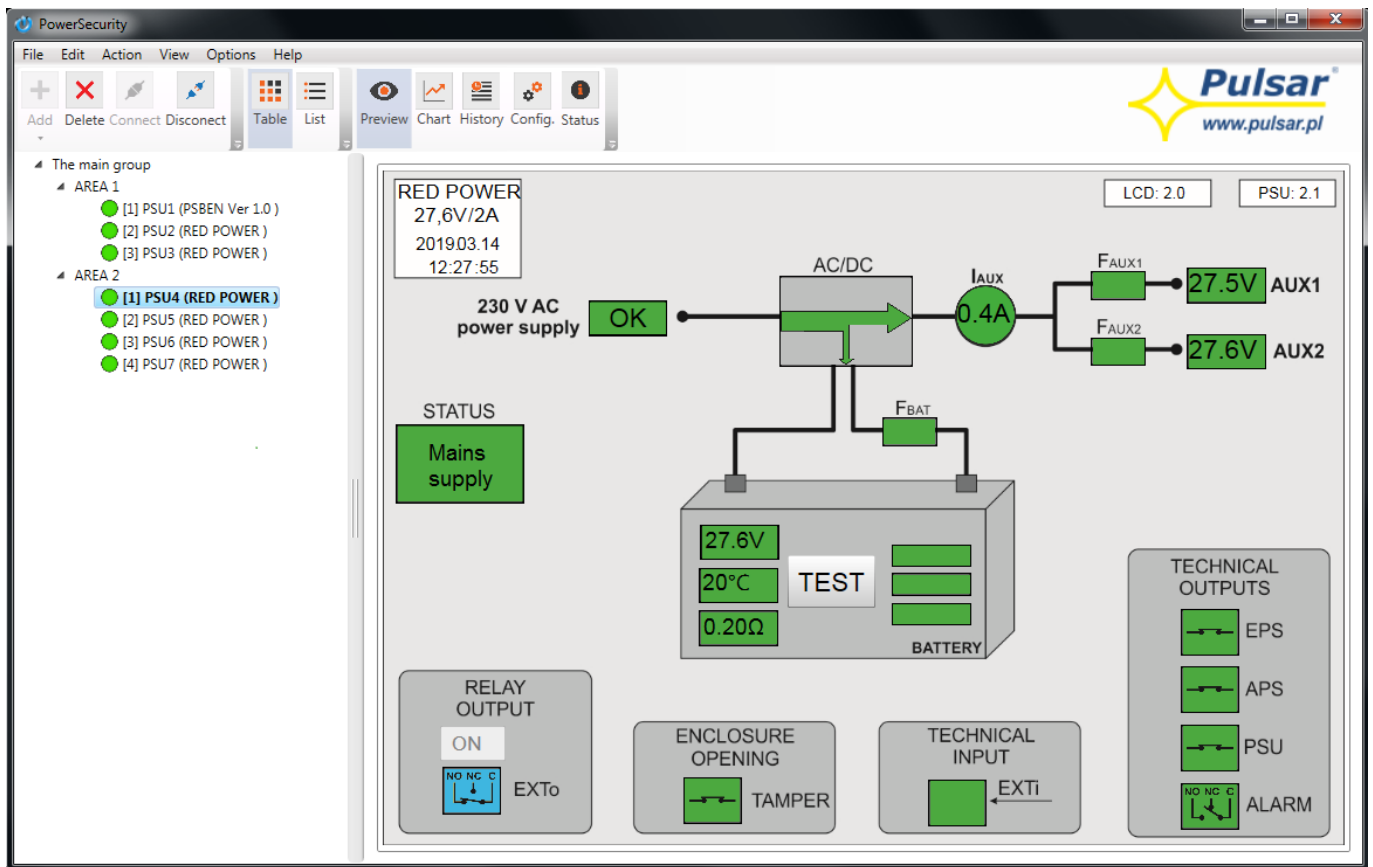


Fig. 5. Preview of the EN54 power supply.

4. Technical parameters.

Power supply	5 V DC from the USB port of the PC
Current consumption	Max. 25mA from the USB port of the PC
Transmission speed	Max. 115200 bauds, with parity check
Galvanic isolation between the RS485 interface and USB	1KV(DC), 700V(AC)
Optical indication	PWR – supply voltage indication (red LED) TX – data transmission (yellow LED) RX – receiving data (green LED)
Compatibility of the USB interface	USB 1.1 USB 2.0 (Full Speed)
USB cable length	1,7m
Protection class	IP20
Operating conditions	Temperature -10 °C ÷ 40 °C Relative humidity 20%...90%
Dimensions (LxWxH)	100 x 48 x 40 [mm]
Net/gross weight	0,14kg / 0,24kg
Storage temperature	-20°C...+60°C

WEEE LABEL

Waste electrical and electronic equipment must not be disposed of with normal household waste. According to the European Union WEEE Directive, waste electrical and electronic equipment should be disposed of separately from normal household waste.

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