Pulsar®

USER MANUAL
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INTR-C
v.1.0

Interfaces
RS485-TTL EN54C-LCD

REACH® RoHS CE

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Features :

- power supply via „SERIAL" socketc
- permission of Scientific and Research Centre for Fire Protection - National Research Institute for use with power supplies of EN54C-LCD series
- connection of PSU of EN54C-LCD series with RS485 bus
- a possibility of connection of up to 247 interfaces to a RS485 bus
- communication speed up to 115200 bauds
- galvanic isolation
- half-duplex communication system
- cooperation with the PowerSecurity web application
- optical indication
- warranty: 3 years from production date

1. General description.

The RS485-TTL „INTR-C" interface is intended for cooperation with PSUs of the EN54C-LCD series. Interface enables connecting of PSU to RS485 bus remaining galvanic isolation. Communication in RS485 bus is due to a two-way channel, differential in a half-duplex system where transmitting and receiving data is alternate.

Construction of an RS485 bus enables implementation of a remote PSU monitoring system in the PowerSecurity application or in a master system, in accordance with the diagram below.
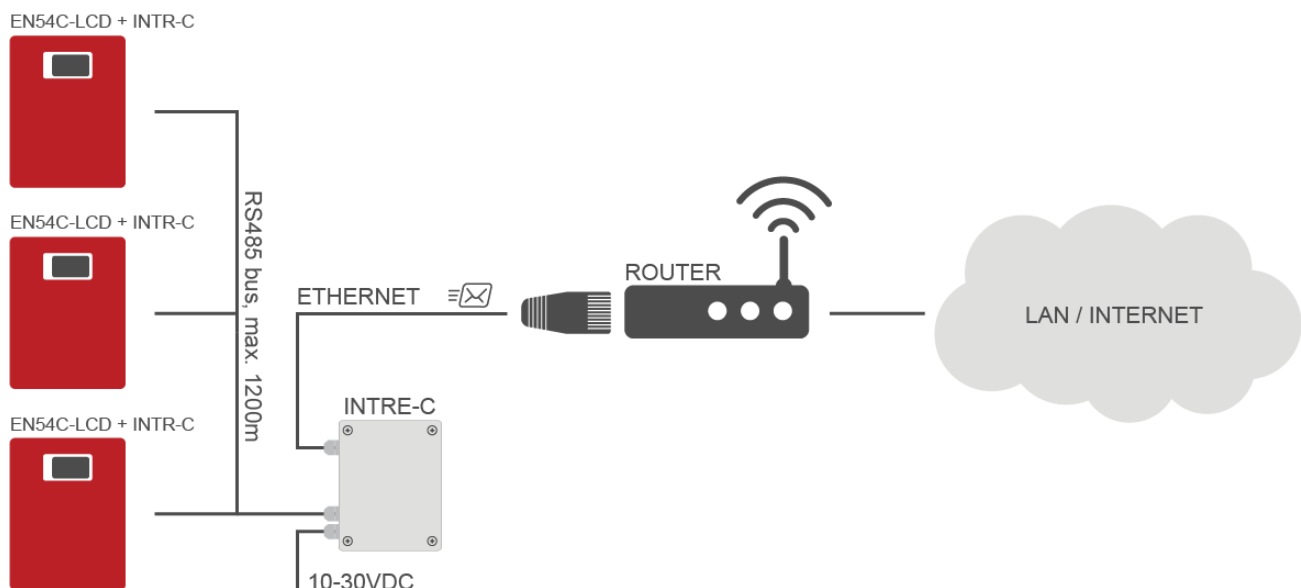

Fig. 1. A block diagram of a remote PSU monitoring system.

The diagram above shows PSUs connected to a RS485 bus ending with an INTRE-C Ethernet interface. Up to 247 INTR-C interfaces may be connected to a single RS485 bus.

2. Components arrangement.

The picture below shows the arrangement of the most important components and connectors of the RS485-TTL interface on the PCB.
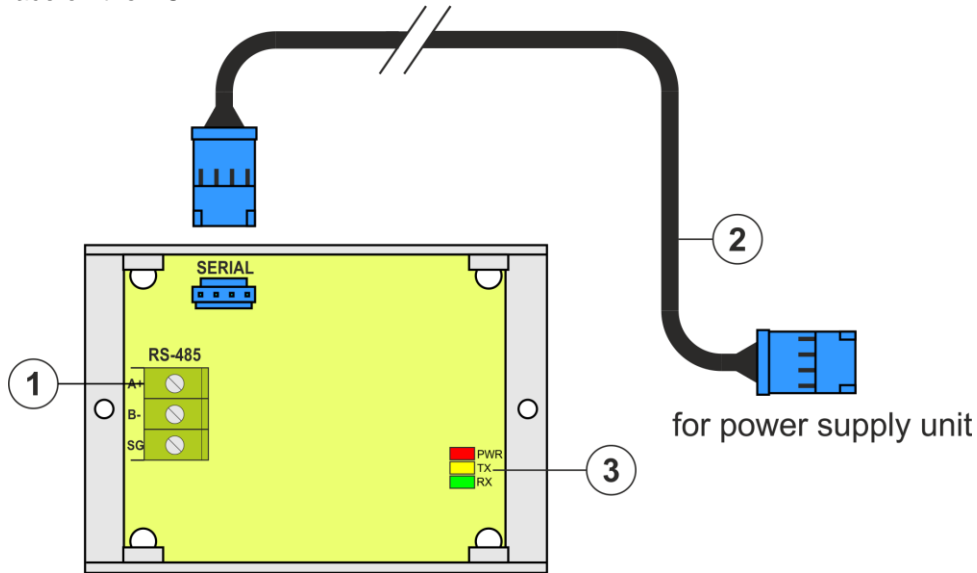
Fig.1. The interface view RS485-TTL.

Table 1. Description of the components.

Component no.	Description
[1]	**Connector of the RS485 bus** **A+, B-** – RS485 data transmission **SG** – signal ground
[2]	**TTL cable** – for connection with the power supply
[3]	**LEDs** – optical indication: **PWR** – supply voltage indication **TX** – data transmission **RX** – receiving data

3. Connection to 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.

A selected location for mounting the interfaces is provided inside the enclosure of the PSU. The connection with the power supply unit should use the additional TTL cable supplied with the interface. The TTL cable should be connected to the „SERIAL" sockets that are located both on the interface and the PCB of the PSU. The connection with the RS485 bus uses the "RS-485" connector located on the PCB of the interface. 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) Mount the RS485-TTL interface in a selected location of the PSU.
2) Connect the interface to the PSU using the additional TTL cable (included in the interface kit) and plugging it in the „SERIAL" sockets.
3) 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.
4) Optionally, mount the 120 Ohm terminal resistors at the end of the RS485 bus.
5) If communication is to be effected via the PowerSecurity web application through the Ethernet, an INTRE-C interface should be installed at the end of the bus.
6) Configure the connection in PowerSecurity program.

4. Specifications.

Power supply	3,3 V power through SERIAL outlet
Power consumption	0,15 W
RS485 transmission's speed	Max. 115200 bauds, with parity check
Galvanic isolation between the RS485 and TTL interface:	1 kV(DC), 700 V(AC)
Optical indication	PWR – supply voltage indication (red LED) TX – data transmission (yellow LED) RX – receiving data (green LED)
Operating conditions	humidity -10°C ÷ 40°C relative humidity 20%...90%
Dimensions (LxWxH)	63 x 50 x 20 [mm]
Net / gross weight	0,03kg / 0,09kg
Storage temperature	-20ºC...+60ºC
Other	Permission of Scientific and Research Centre for Fire Protection - National Research Institute for use with power supplies of EN54C-LCD series