



Interface ETHERNET

v.1.1

CODE: **INTE**

EN*

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Features:

- connection to the ETHERNET network via the RJ45 connector
- Permission of the Scientific and Research Centre for Fire Protection - National Research Institute for use with power supplies of the EN54 series in fire alarm systems
- compliance with the IEEE 802.3 standard
- 10/100Mbps transmission speed
- full-duplex or half-duplex operation (auto-negotiation)
- assigning a static or dynamic IP address (DHCP server)
- galvanic isolation between the Ethernet interface and the power supply
- configured with the free PowerConfig program
- power supply via the „SERIAL” socket
- cooperation with the freeware PowerSecurity
- optical indication
- warranty - 5 years from the production date

1. General description.

The ETHERNET network interface is a device used to connect power supplies of the PSBEN or EN54 series to a PC via the Ethernet connection. The PowerSecurity software enables remote monitoring of parameters through a cyclical preview of the current status of the power supply, reading the event log and diagrams of currents and voltages and performing remote battery test.

2. Components arrangement.

The figure below shows the distribution of the major components and connectors of ETHERNET interface.

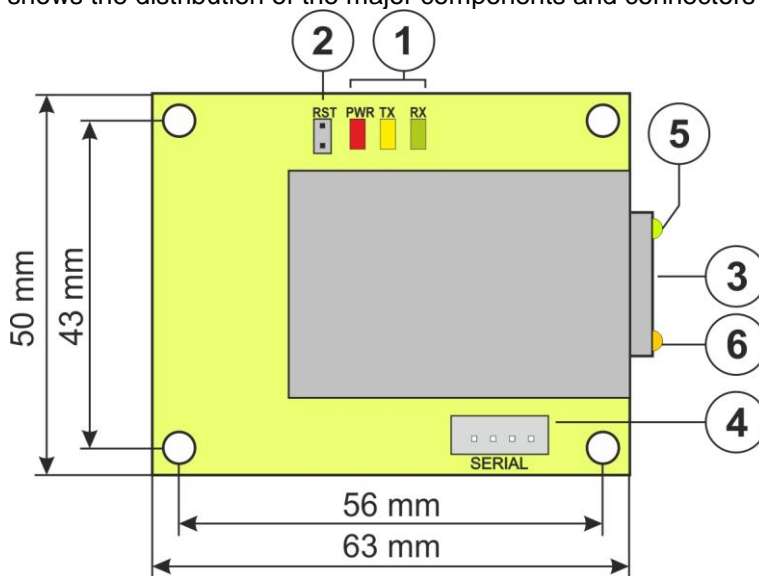


Fig.1. The interface view.

Table 1. Description of the components.

Component no.	Description
[1]	LED lights – optical indication: PWR – supply voltage TX – transmitting data RX – receiving
[2]	RST button – resetting the interface settings
[3]	RJ45 socket
[4]	SERIAL socket for connection with the power supply
[5]	Green LED light – Ethernet connection indication
[6]	Yellow LED light – Operating status indication

3. Installation.

The Ethernet interface should be mounted inside the enclosure of the PSU. The connection between the power supply with Ethernet interface and the router should be made with a twisted pair with RJ45 connectors. The role of the access point controlling the data flow is done by a router connected to a PC via Ethernet cable.

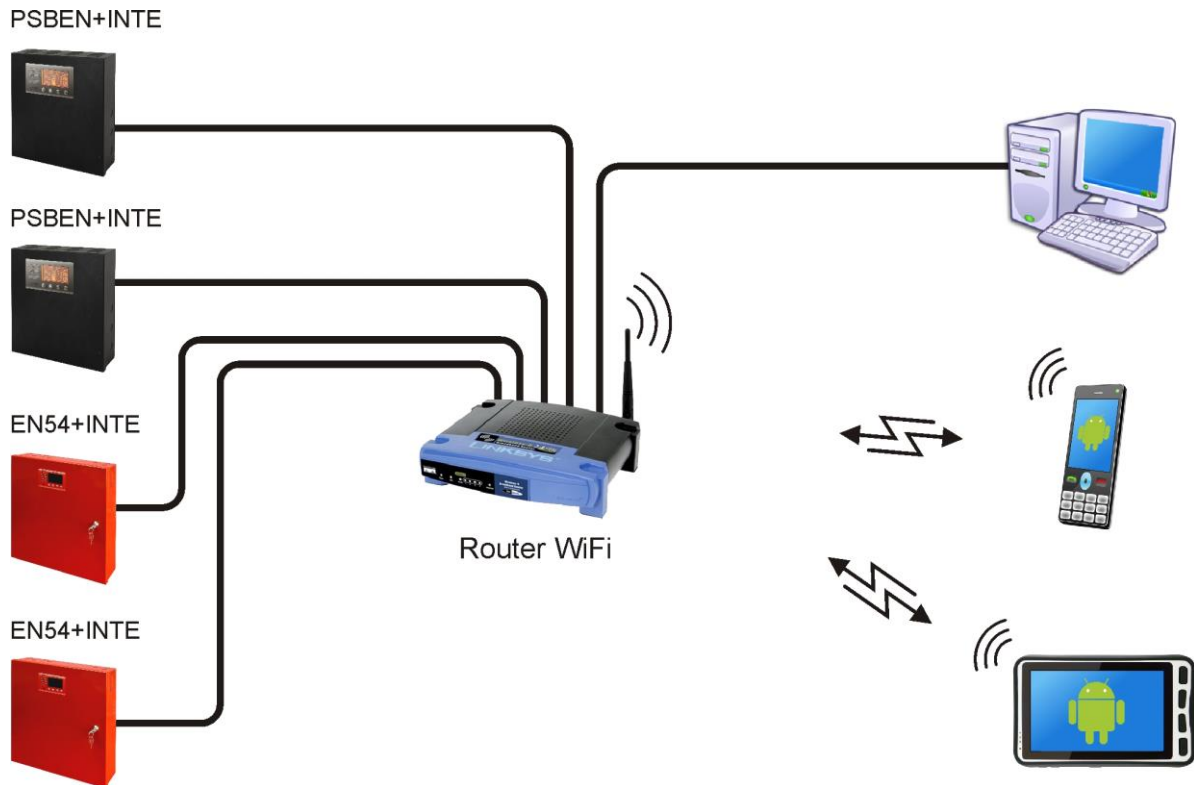


Fig.2. Schematic diagram of Ethernet network communication.

Interface installation:

1. Install the Ethernet interface in the enclosure of the PSU.
2. Connect the „SERIAL” sockets on the interface module and on the PCB of the power supply using the included cable.
3. Plug the RJ45 connector of the twisted pair into the Ethernet interface. Plug the other end of the twisted pair to the router "LAN" socket.
4. The router ("LAN" socket) should be connected to the network card of the computer using a RJ45 - RJ45 cable.

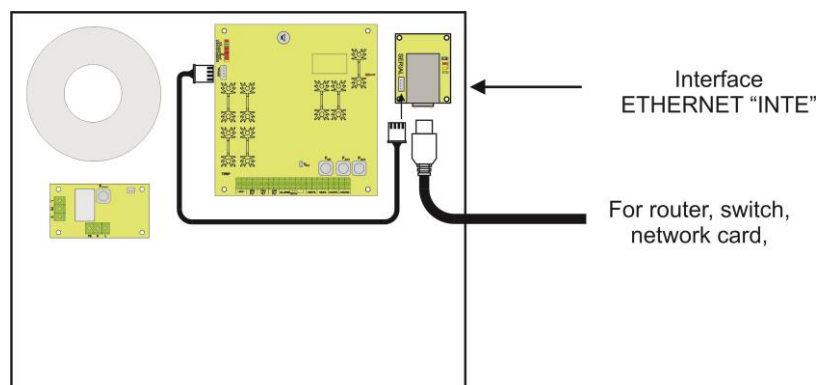


Fig.3. Connection diagram of the INTE interface.

4. Ethernet interface configuration.

4.1 Introductory information.

Ethernet interface parameters can be configured to adapt to the actual operation. Configuration is done using the „PowerConfig” program.

The „PowerConfig” program is available on:

<http://www.pulsar.pl/pliki/PowerConfig.exe>

A newly purchased Ethernet interface is supplied in basic configuration (factory settings) which is not adapted for correct operation of the system.

Since the communication with the interface uses a network cable, there is a need for proper configuration of the router in order to establish a connection with the interface. The most convenient solution is to own a separate router or to restore the factory settings of already owned router (if possible).

The information included in the following subsections show „step by step” how to configure the Ethernet interface.

4.2 STEP 1 - Restoring the factory settings.

Router:

In order to restore the factory settings of the router, check the device’s manual and perform the appropriate actions following the manufacturer’s instructions. In most cases it is enough to find the reset button on the rear side of the enclosure and hold it for approximately 5 seconds. After releasing the reset button, wait about 1 minute for the correct initialization of the router.

Ethernet interface INTE:

In order to restore the factory settings of the interface, turn off the power, put the "RST" jumper on and turn on the power. The factory settings will be restored after 3 seconds. The jumper must be removed before performing further operations.

4.3 STEP 2 – Network interface search.



For proper IP address change, it is recommended to turn off the firewall of the antivirus program for the time of configuration process.

Run the „ PowerConfig” program. Make sure that the INTE Ethernet module is powered and connected to the router via a network cable.

In the "Module type" field choose the "Ethernet" and the search method.

When the "UDP broadcast" is selected, the program will search for all the interfaces on the subnet. If, in turn, the "TCP unicast" is selected, the program will search for interface with the address from the "IP Address" field.

If the interface is configured with an identification code, then it must be entered in the "Code" field.

After selecting the search method, press the "Search" button.

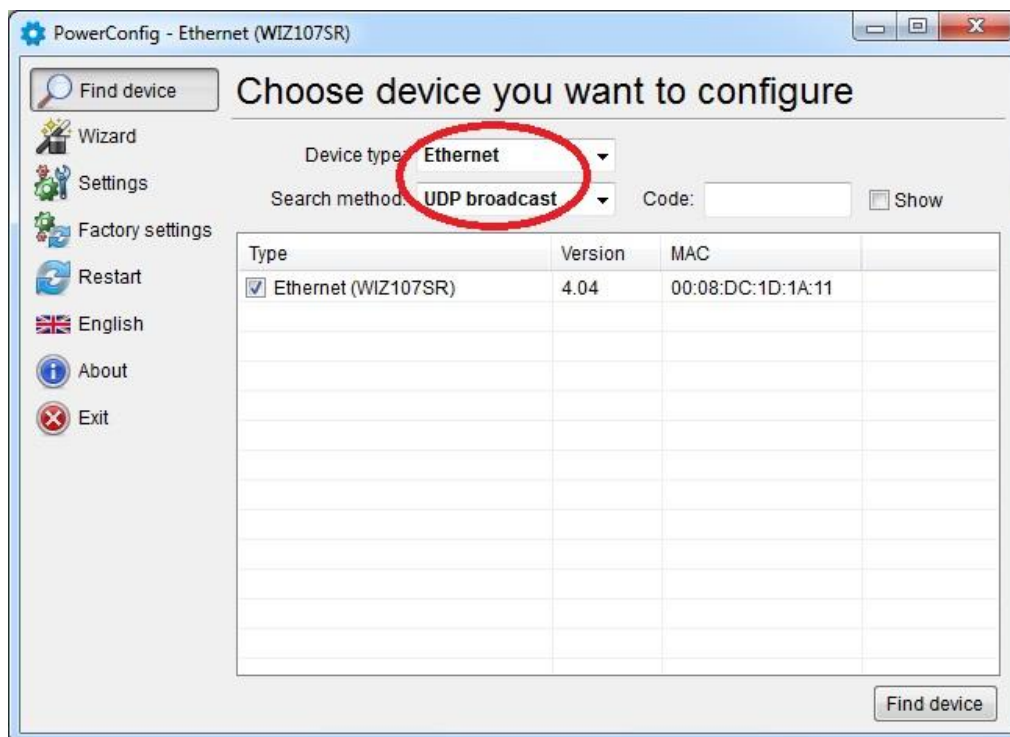


Fig. 4. Window of the „PowerConfig” program – network interface search.

Once the search process is finished, all the NTE interfaces available on the network will be displayed in the program window. Identification of the interface that should be configured is done by comparing the MAC address from the list with the address placed on the INTE interface.

The MAC address of the INTE interface is located on a sticker below the bar code as a 12 digit number.

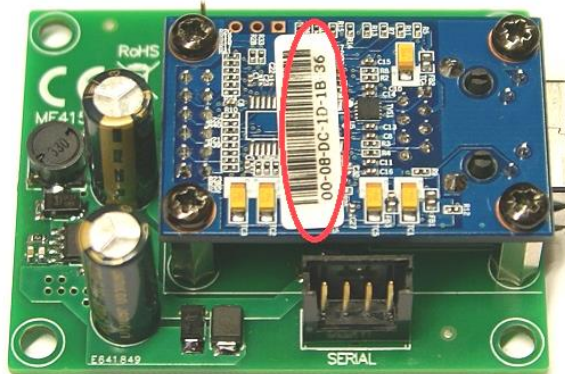


Fig. 5. The MAC address on the INTE interface module.

To access the module configuration, check the field under "Type" Ethernet (WIZ107SR). The menu buttons on the left side will be activated

4.4 STEP 3 – The TCP/IP Network settings.

Press the "Settings" button from the menu on the left side of the PowerConfig program window. A window will be displayed in the right part of the screen. Choose the "Network TCP / IP" from the top tab menu. This window allows setting the IP address for Ethernet communication.

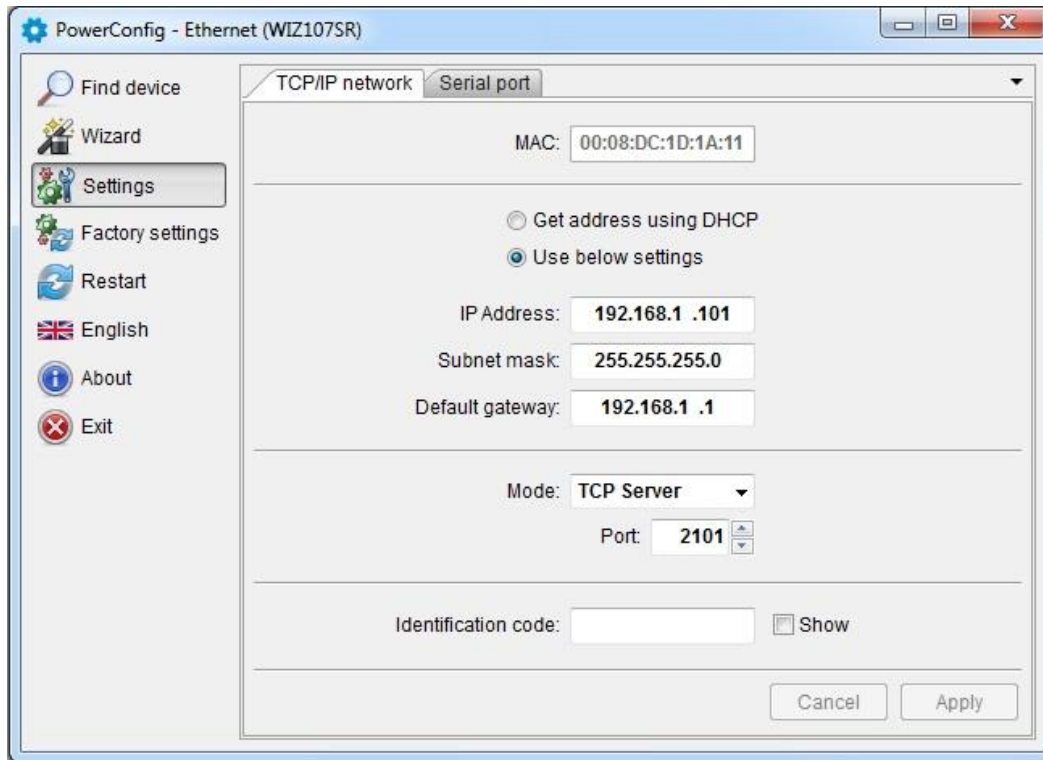


Fig. 6. The TCP/IP Network settings.

There are two options:

"Get an address using DHCP" - automatic IP address assignment (setting is not recommended); After selecting this option, the IP address will be automatically assigned by a router each time the interface module is turned on.

„Use the settings below ” – assign a static IP address (**recommended setting**); When selecting this option, type the available network address for interface identification. In the next fields, enter the port number and subnet mask if required.



Before setting the network IP address, make sure it is not used by any device on the network.

The next parameters to be set in the "TCP/IP Network" tab are the "TCP Server" operation mode and the port number – 2101 by default.

To increase security, the INTE interface module offers the possibility to assign an identification code to use when searching for network modules. If the code is assigned, it then must be entered in the „Code” field each time the search is performed.

Once the settings are entered, press the **“Apply” button**.

4.5 STEP 4 – Setting the serial port parameters – the “Serial port”.

In the "Serial port" tab, set the parameters responsible for the communication between Ethernet interface and the PSU as shown in the picture below.

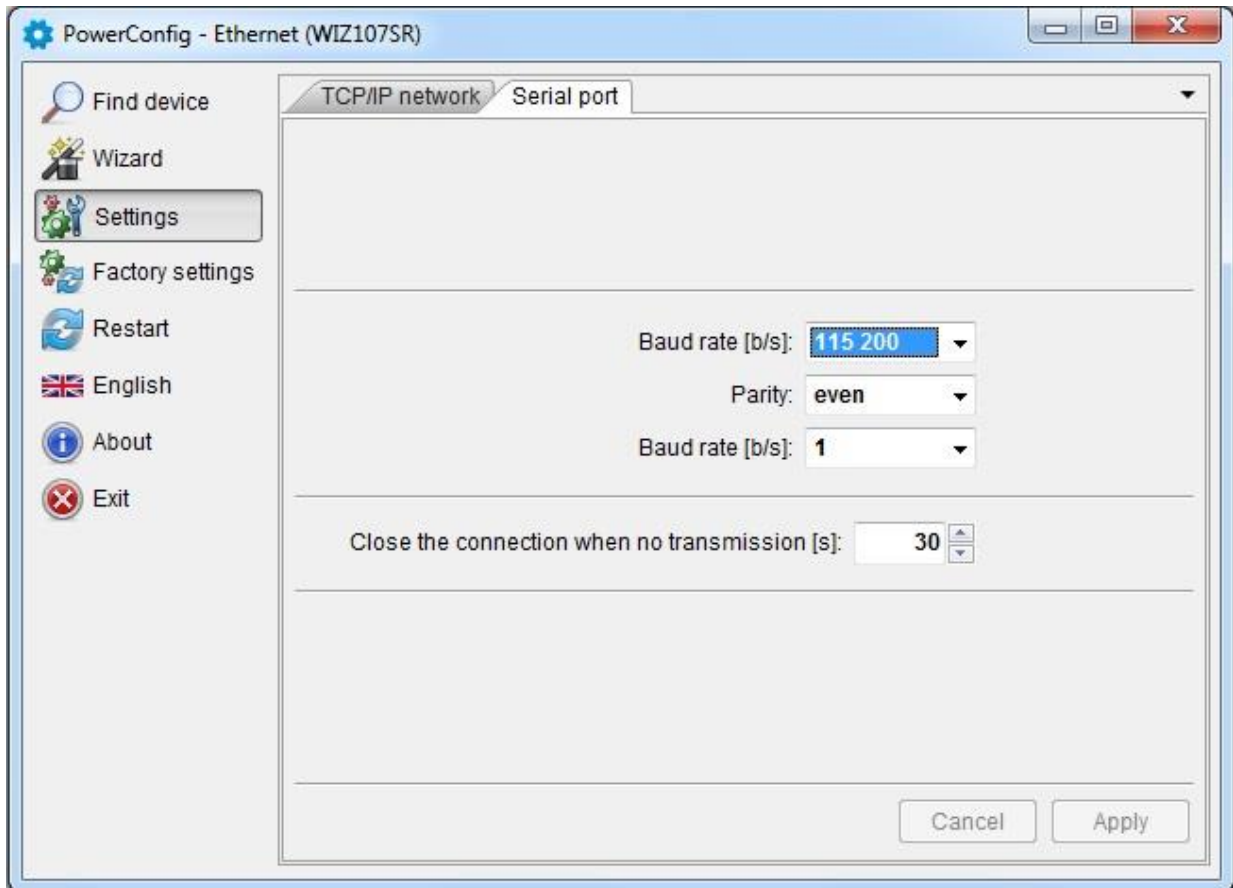


Fig. 7. Setting the serial port communication parameters.

If the PSU does not support the 115 200 baud communication speed or other communication parameters are set, enter the parameters in the „COM port settings” window so that they match the parameters set in the power supply.



The maximum available communication speed supported by a given power supply unit and other communication parameters should be checked in the PSU menu, see Chapter 5.

Once set, press the “**Apply**” button.

Once all the above settings (steps 1-4) are entered, restart the module by pressing the "Restart" in the PowerConfig or disconnect the power supply.

5. PSU configuration.

5.1 Configuration of power supplies of PSBEN series with LCD display.

The PSU is fitted with LCD display, which enables setting the communication parameters of the serial port from the LCD panel. To enter the setup mode, press the „SET” button from the main screen.

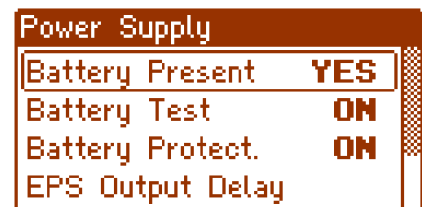
- use the „>” or „<” buttons to display the **PSU** menu



- press the „SET” button



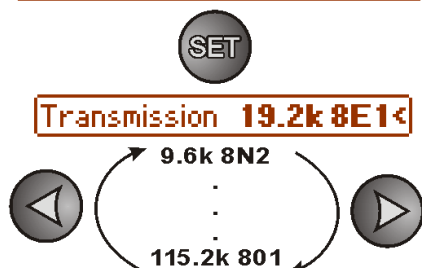
- use the „>” or „<” buttons to display the **Transmission** menu
(The **Transmission** menu is at the bottom of the screen)



- press the „SET” button, the prompt will appear at the end of the line



- use the „>” or „<” buttons to set the **115.2k 8E1**
(if the PSU does not support this speed, choose other maximum speed available)



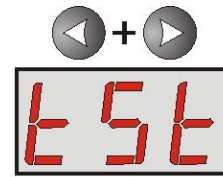
- confirm by pressing the "SET" button



5.2 Configuration of power supplies of PSBEN series with LED display.

The PSU is fitted with LED display, which enables setting the communication parameters of the serial port from the LED panel. To enter the setup mode, simultaneously press the „<,>” rightmost and leftmost buttons on the LED panel.

- simultaneously press the „<,>” rightmost and leftmost buttons



- The „tSt” parameter will be displayed

- press the right arrow „>”



- The „trS” parameter will be displayed

- press „OK”



- The information about the selected transmission speed will be displayed

- use the „<” or „>” buttons in order to set the transmission speed,



- confirm by pressing „OK.”



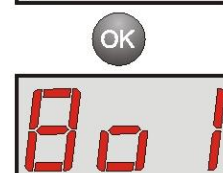
- The „trS” parameter will be displayed again

- press the right arrow „>”



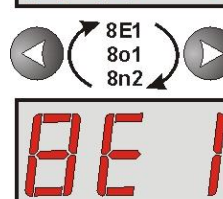
- The „trP” parameter will be displayed

- press „OK”



- The information about the selected parity of the transmission will be displayed

- use the „<” or „>” buttons in order to set the „8E1” parameter



- confirm by pressing „OK.”



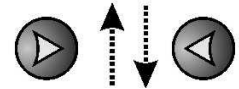
- Simultaneously press the „<,>” rightmost and leftmost buttons to complete the configuration procedure



5.3 Configuration of power supplies of EN54 series with LCD display

The PSU is fitted with LCD display, which enables setting the communication parameters of the serial port from the LCD panel. To enter the setup mode, press the „SET” button from the main screen.

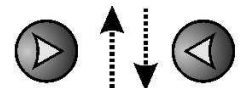
- use the „>” or „<” buttons to display the **PSU** menu



- press the „SET” button



- use the „>” or „<” buttons to display the **Transmission** menu (The **Transmission** menu is at the bottom of the screen)



- press the „SET” button, the prompt will appear at the end of the line



- use the „>” or „<” buttons to set the **115.2k 8E1** (if the PSU does not support this speed, choose other maximum speed available)



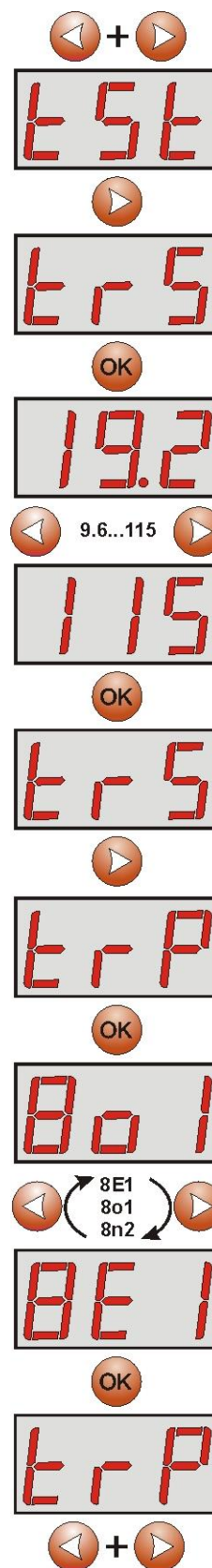
- confirm by pressing the "SET" button



5.4 Configuration of power supplies of EN54 series with LED display

The PSU is fitted with LED display, which enables setting the communication parameters of the serial port from the LED panel. To enter the setup mode, simultaneously press the „<,>” rightmost and leftmost buttons on the LED panel.

- simultaneously press the „<,>” rightmost and leftmost buttons
- The „tSt” parameter will be displayed
- use the „<” or „>” buttons in order to display the „trS” parameter
- The „trS” parameter will be displayed again
- press „OK”
- The information about the transmission speed will be displayed
- use the „<” or „>” buttons in order to set the required transmission speed,
- confirm by pressing „OK”
- The „trS” parameter will be displayed
- press the right arrow „>”
- The „trP” parameter will be displayed
- Press “OK”
- The information about the selected parity of the transmission will be displayed
- use the „<” or „>” buttons in order to set the „8E1” parameter
- confirm by pressing „OK.”
- in order to return to the main menu, simultaneously press the „<,>” rightmost and leftmost buttons



6. Configuring the connection in PowerSecurity program.

For further configuration, the PowerSecurity program is required. The program is available on: <http://www.pulsar.pl/pliki/PowerSecurity.exe>


It is an executable file, which does not require installation.

- 1) Run the PowerSecurity.exe.
- 2) Choose the Power Supplies > New Power Supply option from the menu bar. The "Configuration of connection" window, that allows configuring the settings, will be displayed.

Fig. 8. The connection configuration window.

PSU	Description
Name	PSU's name The name that should be assigned individually to each PSU.
Address	1 ÷ 247; Address of another PSU depending on the type of interface.
Refresh period of the preview [ms]	100 ÷ 60 000ms; Refresh period of the parameters in the preview window.

CONNECTION	
Type	Modbus RTU – TCP/IP - connection type depending on the type of interface.
TCP Address	e.g. 192.168.1.101 PSU Ethernet network address. <i>Each Ethernet interface in the network has a unique address.</i>
TCP port	e.g. 2101
Response time [ms]	100 ÷ 60 000ms; - The response time from the power supply interface.
The interval between the transmissions [ms]	0 - The minimal interval between transmissions.
The number of retransmissions	3 - The number of retransmissions after which the program reports a connection error.

- 3) Once the connection configuration is loaded, the window with a „preview” tab is displayed. Press the  icon in the upper left corner to connect with the PSU. As a result, the window will display current parameters of the PSU, automatically updated on the basis of a preset refresh cycle.

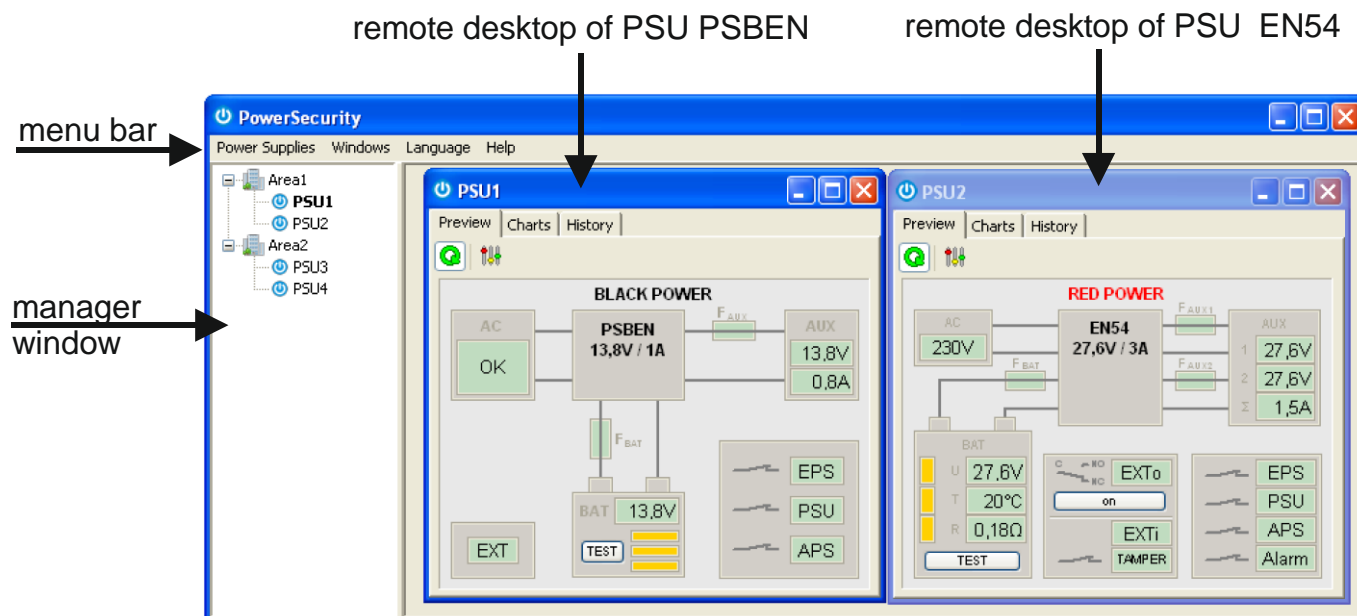


Fig. 9. Remote desktop windows of the power supplies: PSBEN (left) and EN54 (right).

More information on the "PowerSecurity" program can be found in the manual which can be downloaded at: <http://www.pulsar.pl/pl/opisy/PowerSecurity.pdf>

7. Technical parameters.

Power supply	5 V from the „SERIAL” socket of the PSU
Current consumption	max 0,95 W
TTL transmission speed	max 115200 bauds, parity checking
LAN Transmission speed	10/100Mbps (auto-negotiation)
Indication (LED lights):	Tx, Rx, PWR
Operating conditions	temperature -10 °C ÷ 40 °C relative humidity 20%...90%
Dimensions (LxWxH)	63 x 50 x 24 [mm]
Net / gross weight	0,05kg / 0,07kg
Storage temperature	-20°C...+60°C
Others	Permission of the Scientific and Research Centre for Fire Protection - National Research Institute for use with power supplies of the EN54 series in fire alarm systems.

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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