Interface
RS485-WiFi

v.1.0

CODE: **INTRW**

EN*

Edition: 2 from 05.12.2013

Supercedes edition: 1 from 06.01.2013

CONTENTS

1. General description. 3

2. Components arrangement. 3

3. Installation....4

3.1 Main guidelines. 4
3.2 Connection to the RS485 bus. 4
3.3 Installation of the interface. 4

4. Configuration of the RS485- WiFi interface. 6

4.1 Factory settings of the interface. 6
4.2 Introductory information. 6
4.3 STEP 1 - Restoring the factory settings. 7
4.4 STEP 2 – The IP address configuration. 7
4.5 STEP 3 – Setting the SSID for Wi-Fi network. 9
4.6 STEP 4 – Setting the communication mode. 14
4.6.1 WLAN/WAN network communication. 14
WLAN network communication: 14
WAN network communication: 15
TCP Sockets profile settings. 16
Setting the serial port parameters. 17
Settings in the PowerSecurity program. 18
4.6.2 Communication in the WLAN serial bridge mode. 19
The “Serial Bridge” profile settings – Client/Server. 20
Setting the serial port parameters. 21
Settings in the PowerSecurity program. 22

5. Configuration of power supplies. 24

5.1 Configuration of power supplies of the PSBEN series with LCD display 24
5.1.1 Setting the communication address 24
5.1.2 Setting the transmission parameters 25
5.2 Configuration of power supplies of the PSBEN series with LED display 26
5.2.1 Setting the communication address 26
5.2.2 Setting the transmission speed and parity of the transmission 27
5.3 Configuration of power supplies of the EN54 series with LCD display. 28
5.3.1 Setting the communication address 28
5.3.2 Setting the transmission parameters 29
5.4 Configuration of power supplies of the EN54 series with LED display 30
5.4.1 Setting the communication address 30
5.4.2 Setting the transmission speed 31
5.4.3 Setting the parity of the transmission 32

6. Technical parameters. 32

Features:

- operating in the Wi-Fi network
- compliance with the IEEE 802.11b standard
- full-duplex or half-duplex operation (auto-sensing)
- built-in web server for configuration
- data encryption: WEP, WPA, WPA2
- supports many popular protocols, including TCP, UDP, DHCP
- assigning a static or dynamic IP address (DHCP server)
- operation modes: TCP sockets, serial bridge
- power supply 10 ÷ 30V DC
- cooperation with the PowerSecurity software
- optical indication
- hermetic enclosure IP65
- warranty - 5 years from the production date

1. General description.

The RS485-WiFi is designed for converting signals between the RS485 bus and the WiFi network and is designed to work with power supply units of the PSBEN or EN54 series in the WLAN/WAN network. For proper operation, the unit requires an external power supply in the range of 10÷30V DC e.g. drawn from a PSU of the PSBEN or EN54 series. The unit is mounted in a hermetic enclosure protecting against adverse environmental conditions.

The transmission range of Wi-Fi network is approximately 30m inside buildings largely depends on its structure.
Before using a Wi-Fi communication system, make sure that the technical aspects of the site ensure sufficient stability of the connection.

2. Components arrangement.

The picture below shows the arrangement of the most important components and connectors of the RS485-WiFi interface.

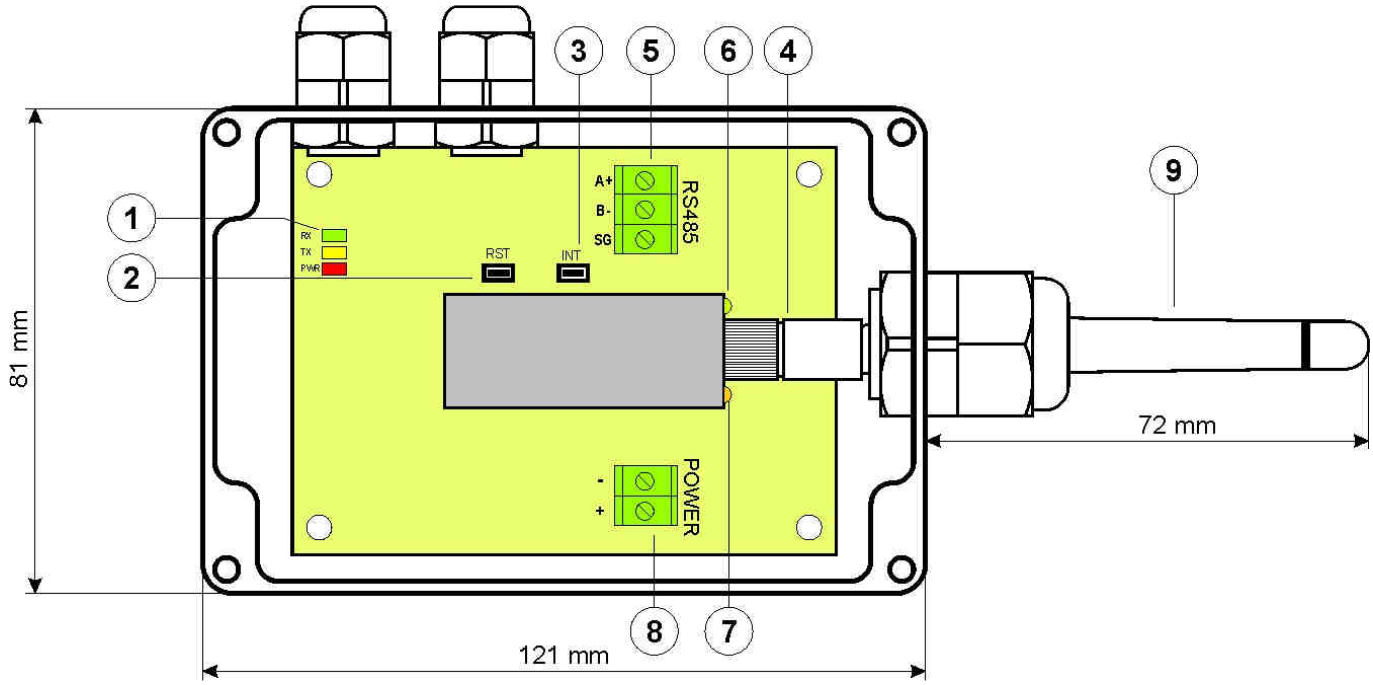


Fig.1. The view of the interface.

Table 1. Description of the components.

Component No.	Description
[1]	**LEDs** – optical indication: **PWR** – supply's voltage **TX** – data transmission **RX** – receiving data
[2]	**RST button** – reset the interface settings
[3]	**INIT button** – initialization of the interface
[4]	**RP-SMA antenna socket**
[5]	**RS485 hub connector** **A+, B-** - RS485 data transmission **SG** - signal ground
[6]	**Wi-Fi module.** **Green LED** – active network connection (transmitting or receiving)
[7]	**Wi-Fi module.** **Yellow LED** – active network connection
[8]	**Power supply connector 10÷30V DC**
[9]	**Wi-Fi antenna**

3. Installation.

3.1 Main guidelines.

When installing the RS485-ETHERNET interface, please follow the general rules that will help to avoid electromagnetic interferences and incorrect operation of the device:
- supply the interface with the power source of low ripple voltage
- The power cable should be as short as possible
- signal beams should be led at a minimum distance of 50 cm from each other, while the intersections between them should be done at an angle of 90 °
- interface installation site should be located at a considerable distance from the equipment generating large impulse disturbances, such as inverters, contactors, relays.

3.2 Connection to the RS485 bus.

The RS485-WiFi interface is connected to the RS485 bus via the „RS485" connector. Connect the wires of the RS485 bus to the A+, B- terminals of the connector. They are marked and connected the same way as the rest of devices (A+ to A+, B- to B-).

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.

3.3 Installation of the interface.

1. In the enclosure, mount the WiFi antenna bushing.
2. Lead the antenna through the bushing and carefully screw into the module connector. Screw the bushing nut tight to ensure proper sealing of the housing.
3. Lead the cable of the RS485 bus through the cable gland and the appropriate hole in the enclosure and then connect to the RS485 connector of the interface. The A+, B- cables should be connected the same way as the rest of devices, i.e. A+ to A+, B- to B-. In case of shielded wires, the shield should be connected to the SG signal ground terminal.
4. Optionally, mount the 120 Ohm terminal resistors at the end of the RS485 bus.
5. Lead the power supply cable through the cable gland and the appropriate hole in the enclosure and then connect it to the "Power" power connector. The power source should supply a voltage in the range of 10÷30V D e.g. drawn from a PSU of the PSBEN or EN54 series. The best solution is to use a PSU that is plugged into the RS485 bus and located close to the interface

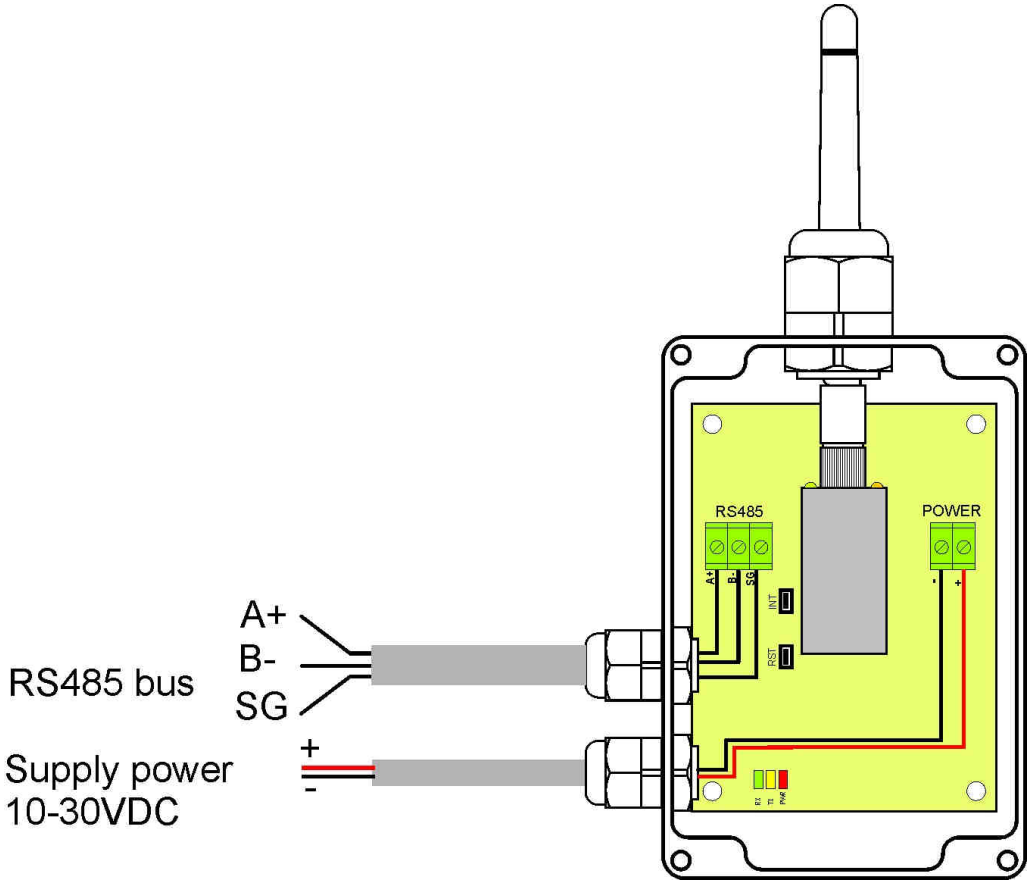


Fig.2. The view of the interface with a description of the wires.

4. Configuration of the RS485- WiFi interface.

4.1 Factory settings of the interface.

Login page:	Username - root Password - dbps
IP address	assigned automatically from the routers DHCP server
Network name (SSID)	No name
Connection with the Wi-Fi network	Connecting to any available WiFi network
Network security	No preset protection
Serial port communication parameters	No configuration

4.2 Introductory information.

The RS485-WiFi interface parameters can be configured to adjust them to the intended operation mode. The configuration is done via a web browser after proper logging with username and password.

The "Digi Device Discovery" program, which allows previewing the most important parameters of the interface at the initial stage of configuration, is also worth noting. The application indicates the modules connected to the router/switch and provides information about the assigned IP address and a unique MAC address.

The “Digi Device Discovery” is available on:
http://www.pulsar.pl/pliki/digi_discovery.exe

The configuration of the RS485-WiFi interface requires a minimum version of the connection, which is shown below.

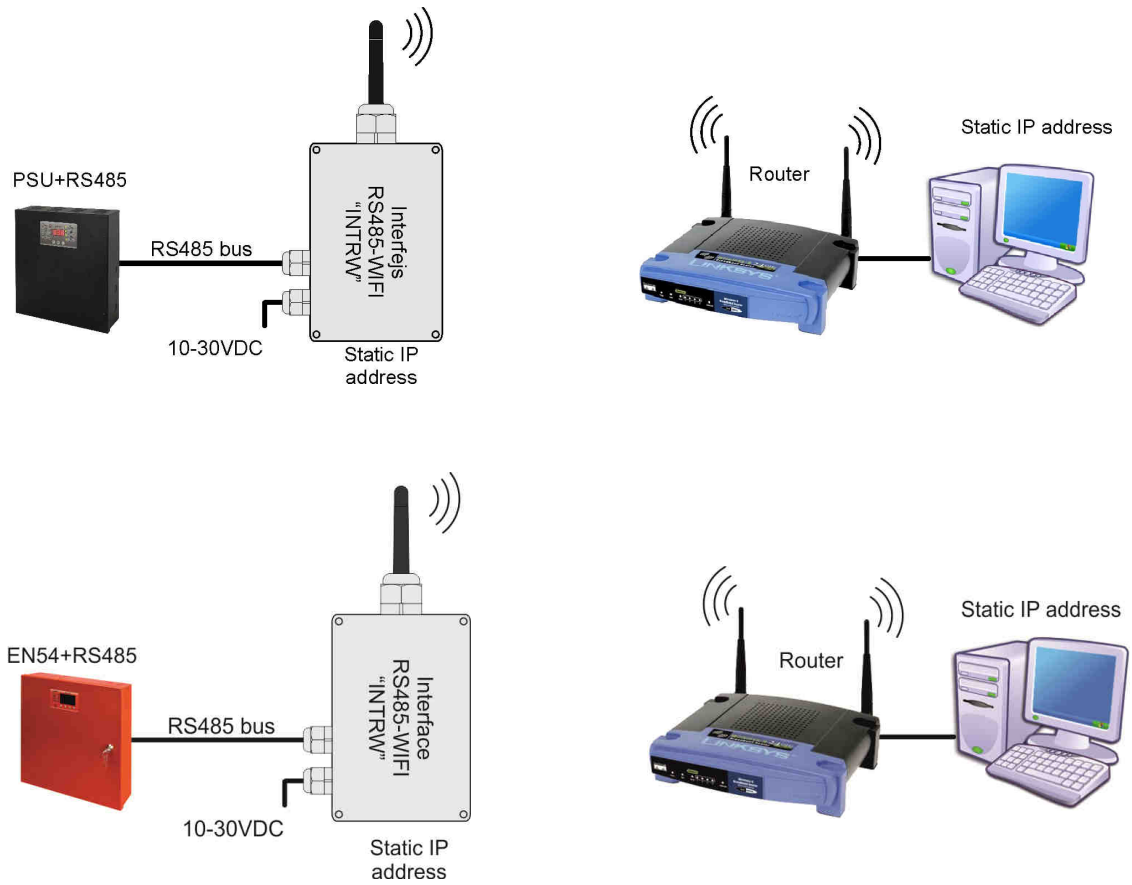


Fig. 3. The wiring diagram between the interface and the PC that enables performing the configuration.

The RS485-WiFi interface is supplied in basic configuration (factory settings) which is not adapted for correct operation of the system.

Since the communication with the interface is via radio, 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). If more Wi-Fi networks are available, it is suggested to reduce the power emitted by the RS485-WiFi interface in order to avoid communication interference. To do that, unscrew the antenna of the interface and place it near the router.

The configuration of the Wi-Fi interface in this manual is based on a wireless “LinkSys WRT54GL” Wi-Fi router.

4.3 STEP 1 - Restoring the factory settings.

Router:

To restore the factory settings of the router, To restore the factory settings of the router, check the manual of the device and perform appropriate actions according to 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. Initialization resets the router settings to the following values:

Address:	192.168.1.1
User name:	admin
User password:	admin

RS485-WiFi interface:

In order to restore the factory settings of the interface, press and hold the INIT button, then press and release the RESET button one time. Still holding the INIT button, wait approximately 20 seconds for the optical indication of the interface: yellow led blinking three times [7 – Fig.1] and then 5 more times. Proper initialization resets the interface settings, among others, to:

Address:	assigned automatically by the router
User name:	root
User password :	dbps

After restoring the factory settings of the router and the interface, the yellow LED of the interface [7 - fig.1] should be permanently illuminated, indicating proper logging into an available WiFi network. If the LED is blinking, disconnecting and reconnecting the power supply of the module might be necessary. If that does not help, restore the factory settings of the router and the interface once again.

4.4 STEP 2 – The IP address configuration.

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

If the yellow LED [7 - fig.1] is permanently illuminated, make sure whether the interface has logged to the proper router. To do that, run the „Digi Device Discovery” program with the

icon. After launching, the program will display the RS485-WiFi interface logged to the router. Identification of our module can be done by comparing the MAC addresses.

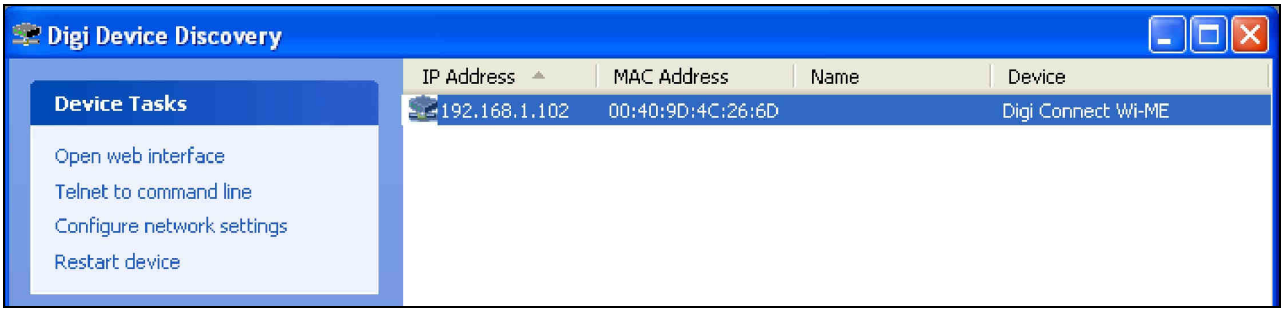


Fig. 4. The window of the “Digi Device Discovery” program showing a logged-in Ethernet interface.

The MAC address of the interface is located under the barcode of the DIGI module.

Fig. 5. The MAC address located on the DIGI module.

In order to facilitate the further use of the devices in the network, change the IP address assignment from automatic to manual. To do that, press the right mouse button on the line with the selected interface and choose „Configure network settings" option.

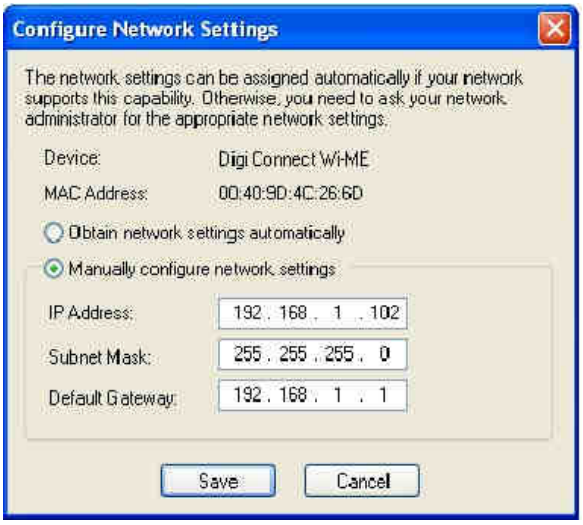


Fig. 6. The window of network settings.

In the settings window, select the „Manually configure network settings" option. From now on, the automatically assigned IP address will maintain the same on each connection; it may be left unchanged or changed. If changed, make sure that the new address is not already taken and there is no IP address conflict.

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

Confirm the changes by pressing the „Save" button. The " Digi Device Discovery" application will display the message about the need to restart the interface, which should be confirmed by pressing "OK". A reset progress window will be displayed.

4.5 STEP 3 – Setting the SSID for Wi-Fi network.

The configuration of the Wi-Fi interface in this manual is based on a wireless “LinkSys WRT54GL” Wi-Fi router.

Enter the network identifier, so that the RS485-WiFi interface will connect only with the designated router. To do that, log in to the router's configuration interface: open a web browser window and type the 192.168.1.1 in the address bar (default router address after the reset if not changed previously) and confirm by pressing the „ENTER” button. The page will be reloaded and the following window will be displayed:

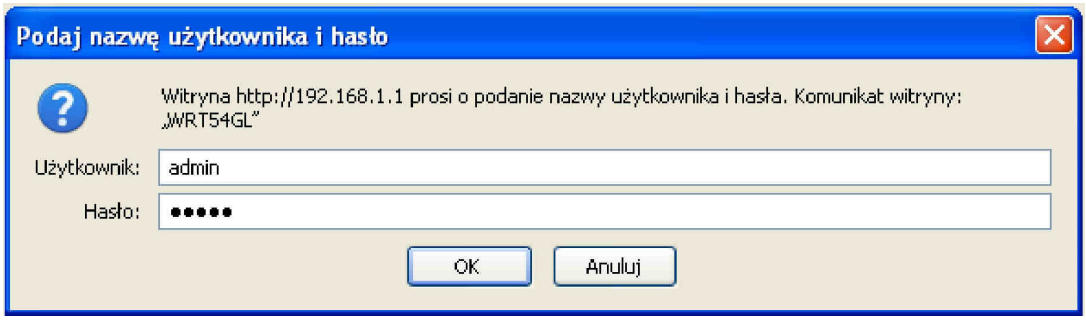


Fig. 7. The Wi-Fi router login window.

To access the router configuration, log in with:

Username: admin
Password: admin

Confirm by pressing the „Login” button. The adjustment window will be displayed.

Select the „Wireles” tab. Next, enter the SSID, which is the name of the network within which the Wi-Fi interfaces will be transmitting data to the computer. In the „Wireless Network Name” field, type any name e.g. „PowerSecurity”. All other settings should be left unchanged.

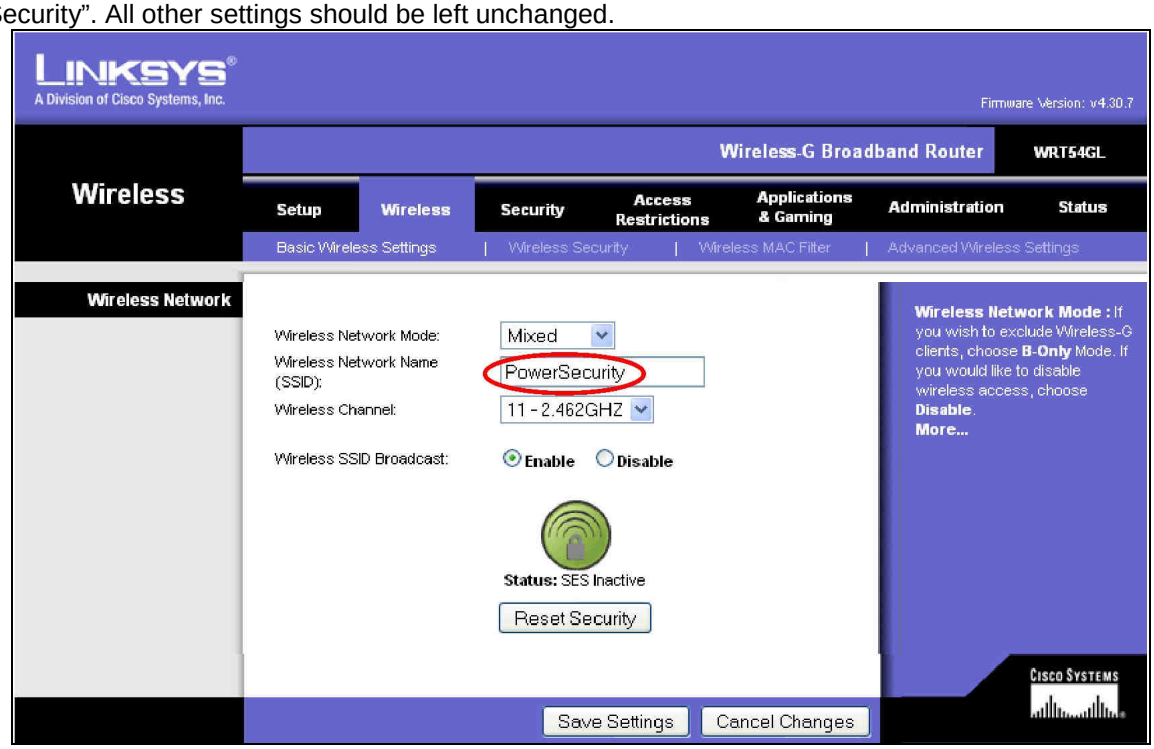


Fig. 8. The window of changing the network identifier.

Confirm the changes by pressing the „Save Settings” button and then confirm by pressing „Continue”. This will reset the router. Meanwhile, temporary network loss can be observed, which will be indicated by blinking of the yellow LED. After the reset of the router, the network connection will be restored and the interface will no longer indicate problems, which will be indicated by permanent illumination of the yellow LED.

Now, make the appropriate adjustments in the Wi-Fi interface configuration.

Return to the „Digi Device Discovery” and double-click the line of the chosen interface. The window of the default web browser will be displayed. Log in correctly to configure the Wi-Fi interface.

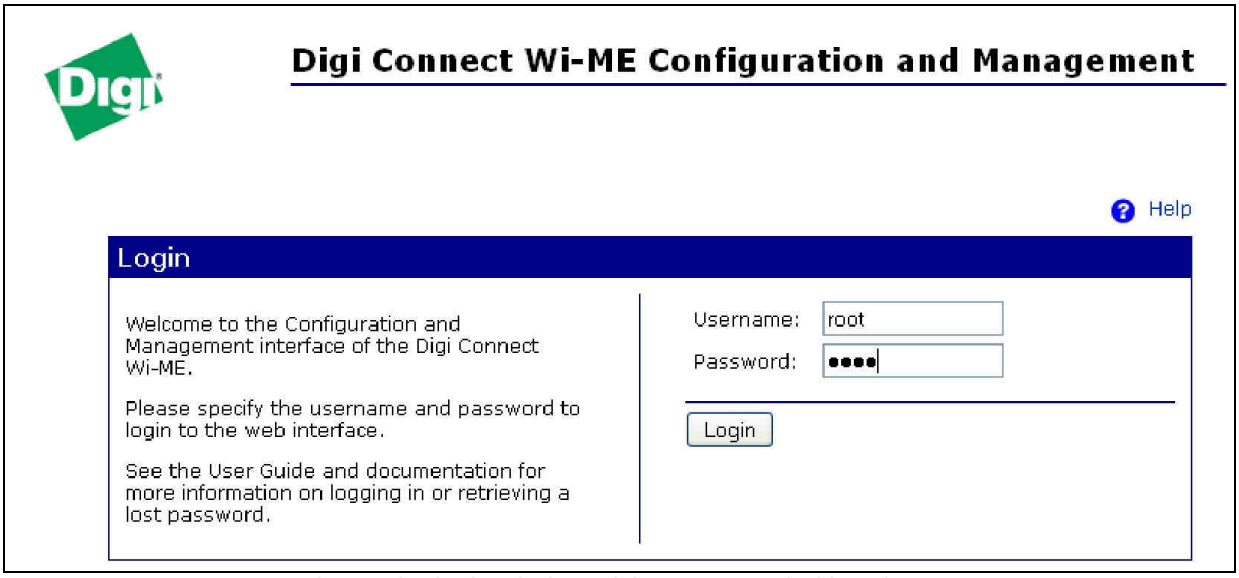


Fig. 9. The login window of the RS485-Wi-Fi interface.

Type:

Username: root
Password: dbps

Confirm by pressing the „Login” button. The adjustment window will be displayed.

Fig. 10. The interface configuration panel.

Choose the „Network” option from the „Configuration” group from the menu on the left side of the window. Choose the „WiFi LAN Settings” at the bottom of the next window. The following window will be displayed:

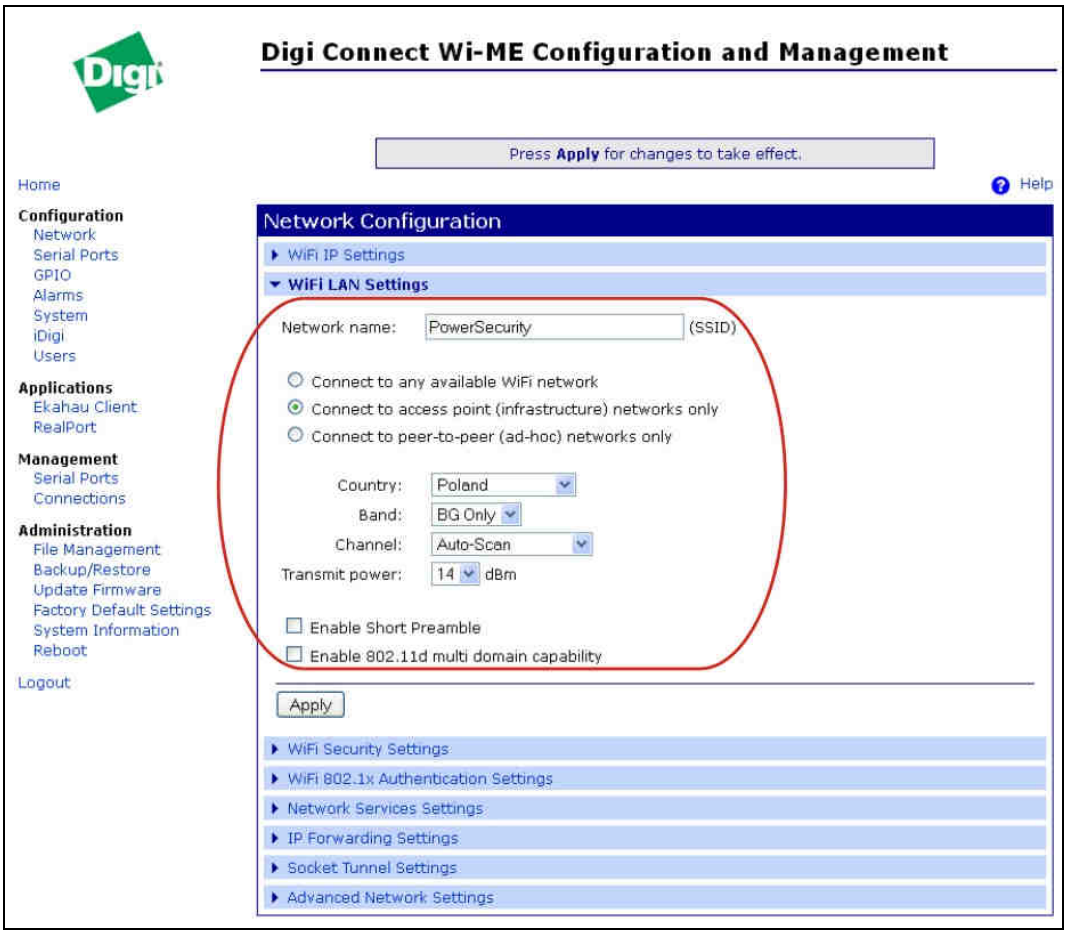
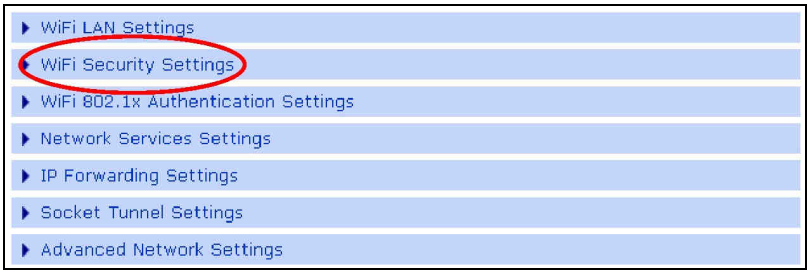


Fig. 11. The “Wi-Fi LAN Settings” window.

Type the SSID network identifier that has been used during router configuration. Type: „PowerSecurity”. in the „Network name” field. Configure the other settings as shown in the picture above and confirm by pressing the „Apply” button.

The „Apply” button cannot be omitted!

Choose the „WiFi Security Settings” tab at the bottom of the same window. Settings from this tab are responsible for the protection against unauthorized connections.



In the „Network Authentication” and „Data Encryption” tabs, choose this method of authentication and data encryption that is supported by the router. Mark the „WPA-PSK” and „TKIP” data encryption as they are supported by our router. The „Open system” option can be selected in both cases.

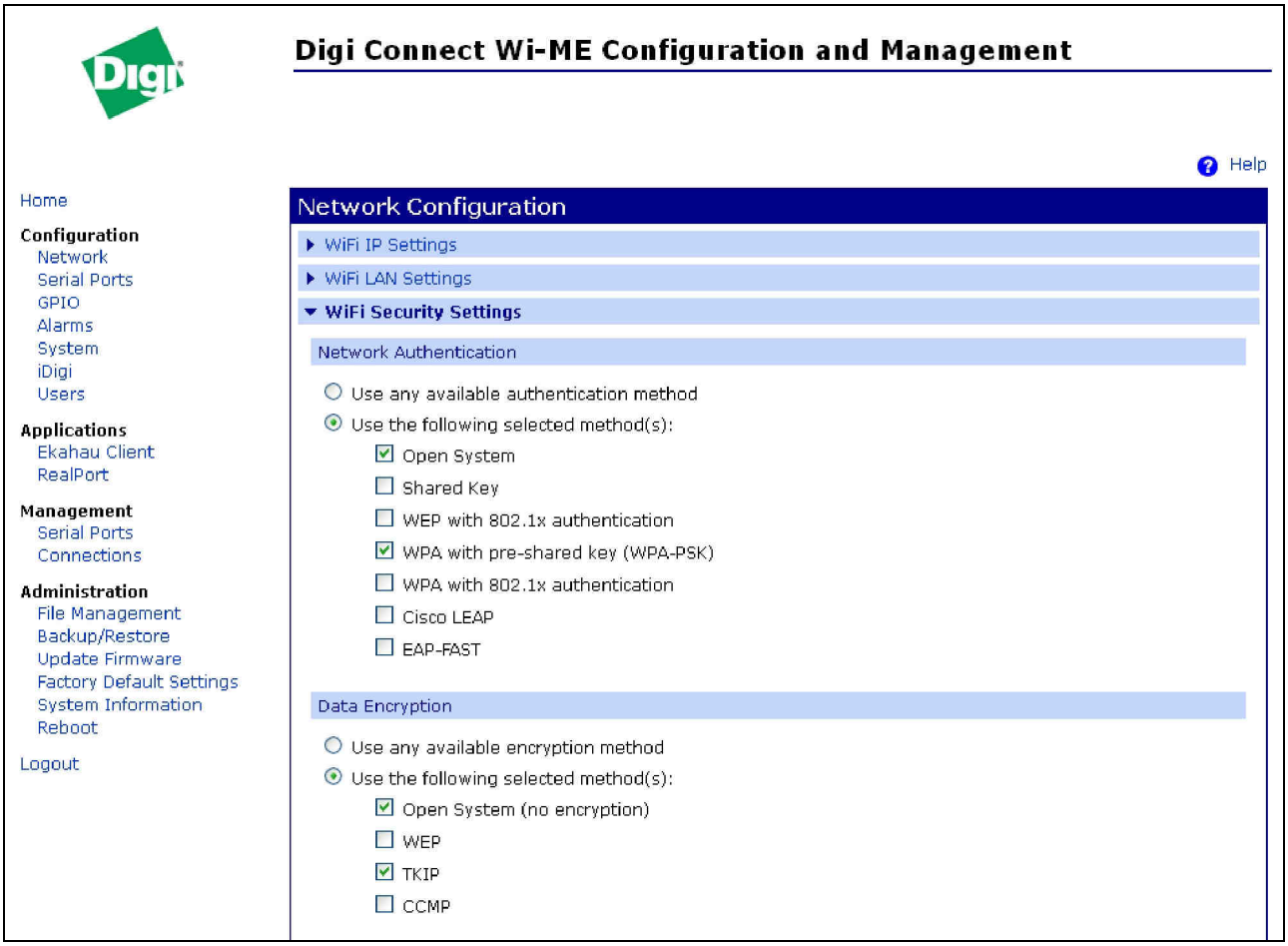
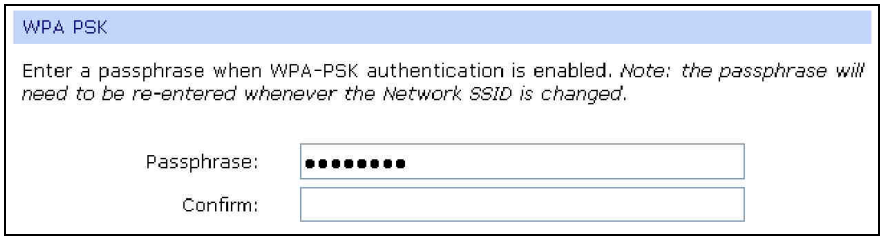


Fig. 12. The „WiFi Security Settings” window.

Next, in the „WPA PSK” section, enter any password in the „Passphrase” and „Confirm” fields. It will be used as a connection key.
Type password e.g.:

Passphrase: blackpower
Confirm: blackpower



Confirm by pressing the „Apply” button. The message informing about approved changes will be displayed. The interface has been reprogrammed. Reset the interface after reconfiguration of the router to make it operate accordingly to the modifications

To do that, switch to the router's configuration panel in the browser (router might require re-login to the page), choose the „Wireless” menu and the proper „Wireless Security” tab. Enter the same settings as in the picture below. They must be the same as the ones entered into the interface.

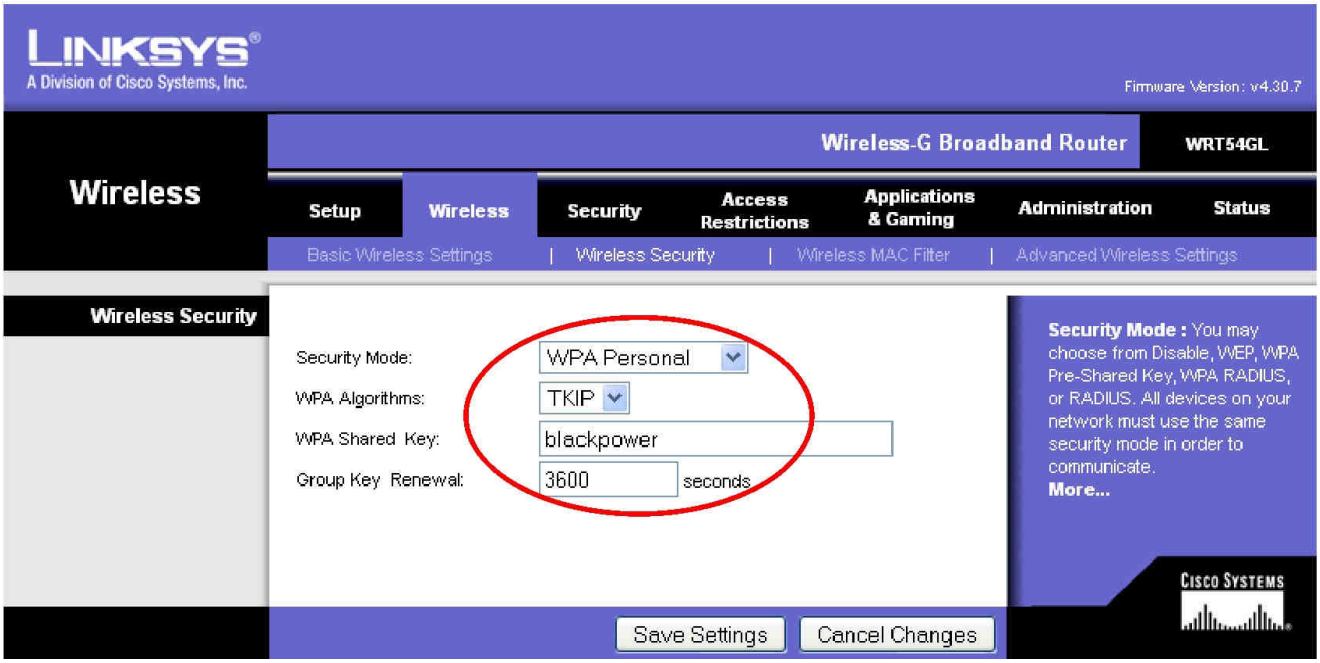


Fig. 13. The „Wireless Security” window.

Confirm the changes by pressing the „Save Settings” button and then confirm by pressing „Continue”.

The Wi-Fi interface can be reset now. To do that, press the „Reset” button on the module or simply disconnect the power supply for a few seconds. After the reset, the connection between the interface and the router should be back (the yellow LED is constantly illuminated).

4.6 STEP 4 – Setting the communication mode.

Communication with the RS485-WiFi interface is possible in various modes. The selection is made by choosing the appropriate profile in the web browser of the interface and configuring the appropriate parameters. The profile selection must be made on the basis of LAN connection between interfaces and power supply units taking part in the communication.

4.6.1 WLAN/WAN network communication.

WLAN network communication:
Schematic diagram of WLAN communication is shown in the figure below.

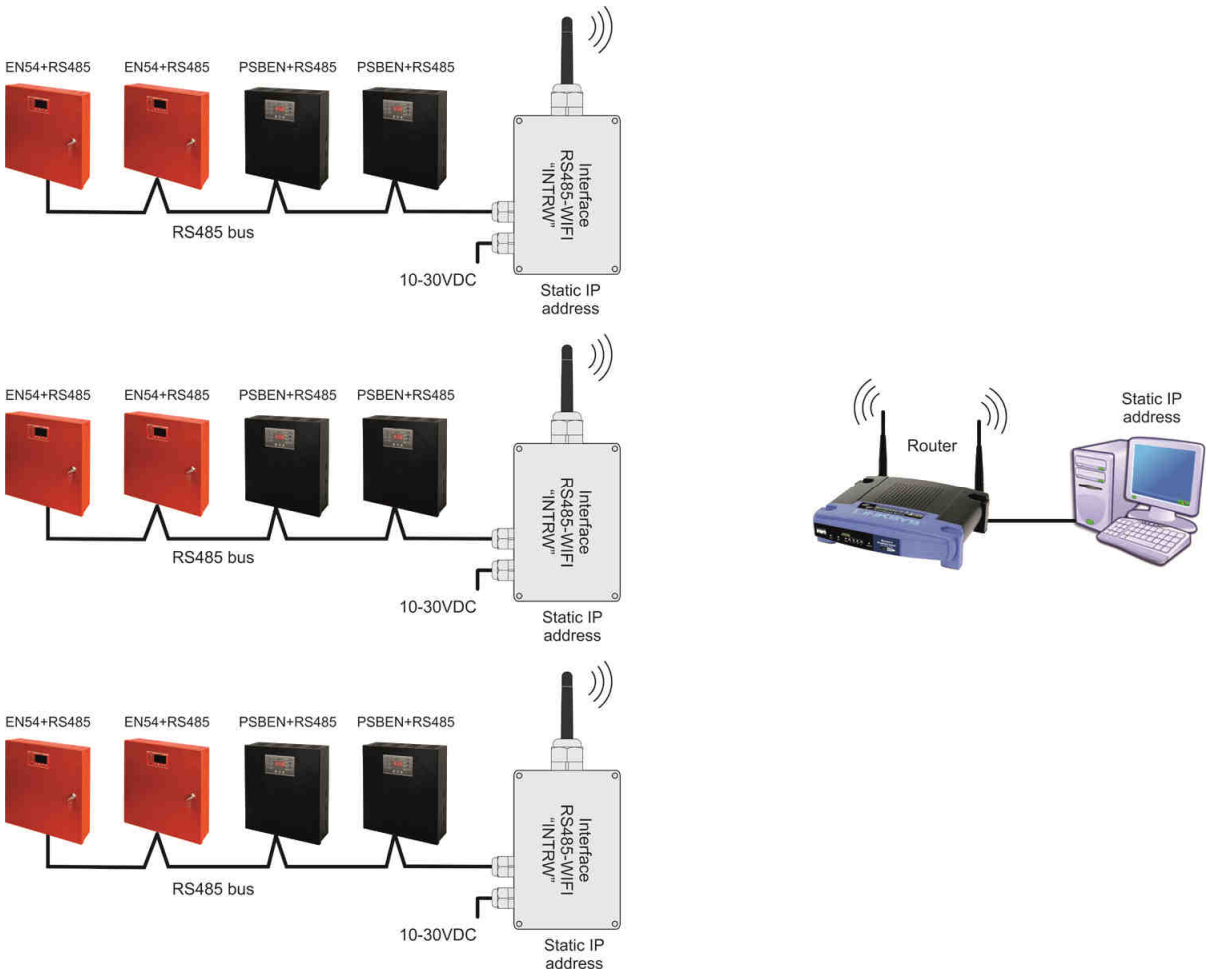


Fig.14. The schematic diagram of WLAN communication system.

The topology of the network is based on a wireless Wi-Fi router connected to another PSU segments (connected in the RS485 bus) via the RS485-WiFi interface. Each interface has a static IP address. Communication between the PC and the final PSU requires the IP address of the interface, the address of the PSU in the RS485 network and the number of the port responsible for the communication.

If this topology has been chosen, proceed to chapter “TCP Sockets profile settings” in order to configure the interface.

WAN network communication:

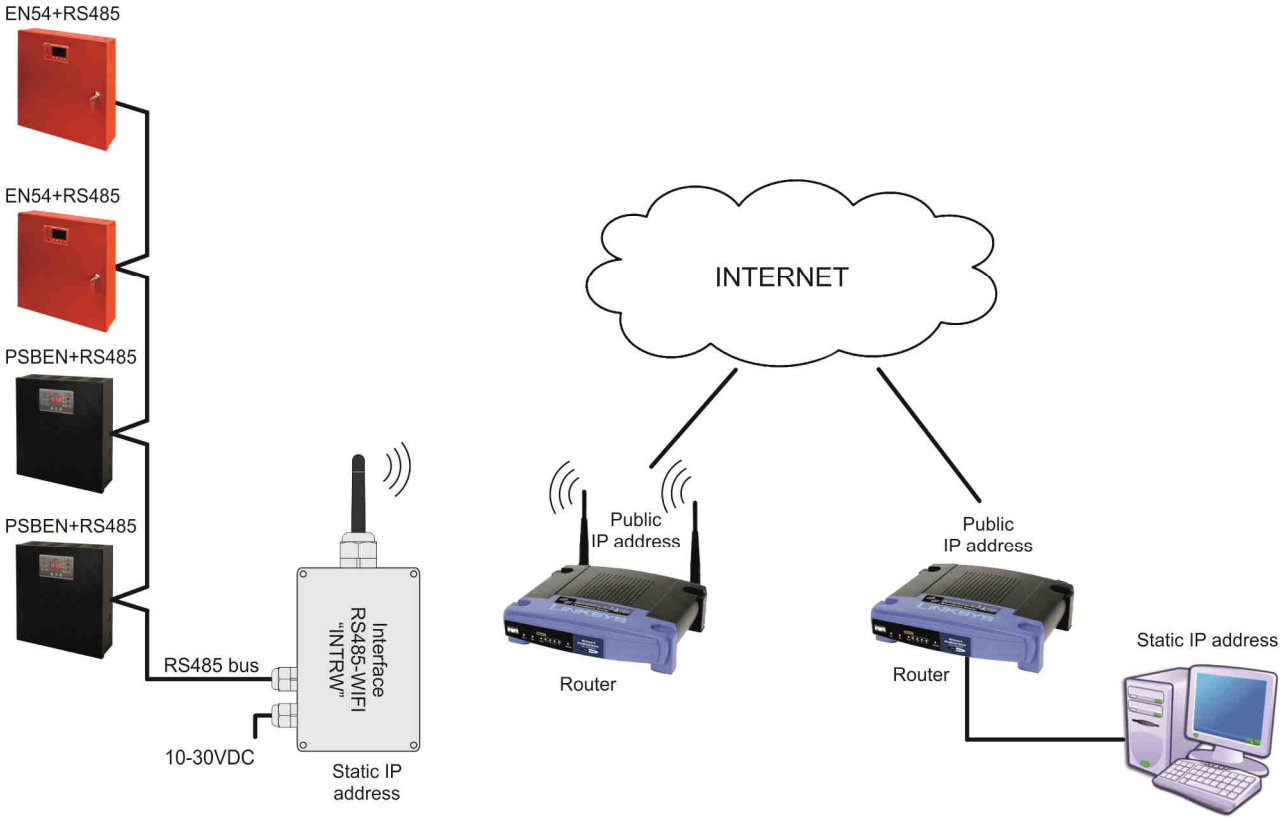


Fig.15. The schematic diagram of WAN communication system.

The communication between the PC and the final PSU is via the Internet using the public IP address of the router connected to the interface. Data from the router is redirected to the RS485-WiFi interface, connected to the RS485 bus, and then forwarded to the PSU on the basis of the bus address. This allows to establish communication with power supply units from different power systems.

The WAN communication requires an additional configuration of the router. To set the „Port forwarding" function, check the manual of the router and perform appropriate actions according to the manufacturer's instructions.
To configure the function of redirecting the connections, the IP address of the RS485-WiFi interface and the number of the port responsible for the communication are required.
After correct configuration of the router, proceed to "TCP Sockets profile settings" chapter in order to configure the interfaces.

TCP Sockets profile settings.

After logging in to the interface configuration page, select the “Serial Ports” option from the “Configuration” group and select the „TCP Sockets” profile from the „Select Port Profile” window. Confirm by pressing the „Apply” button.

Caution! *If the interface has been configured before, the “Serial Port Configuration” window with current profile will appear instead of “Select Port Profile” window. If so, click on the „Port 1” in the displayed window and then select the „Change profile…” at the top of the next window. The „Select Port Profile” window will be displayed and it will be possible to select the „TCP Sockets” profile.*

Go to the „TCP Server Settings” and enter the same settings as in the picture below.

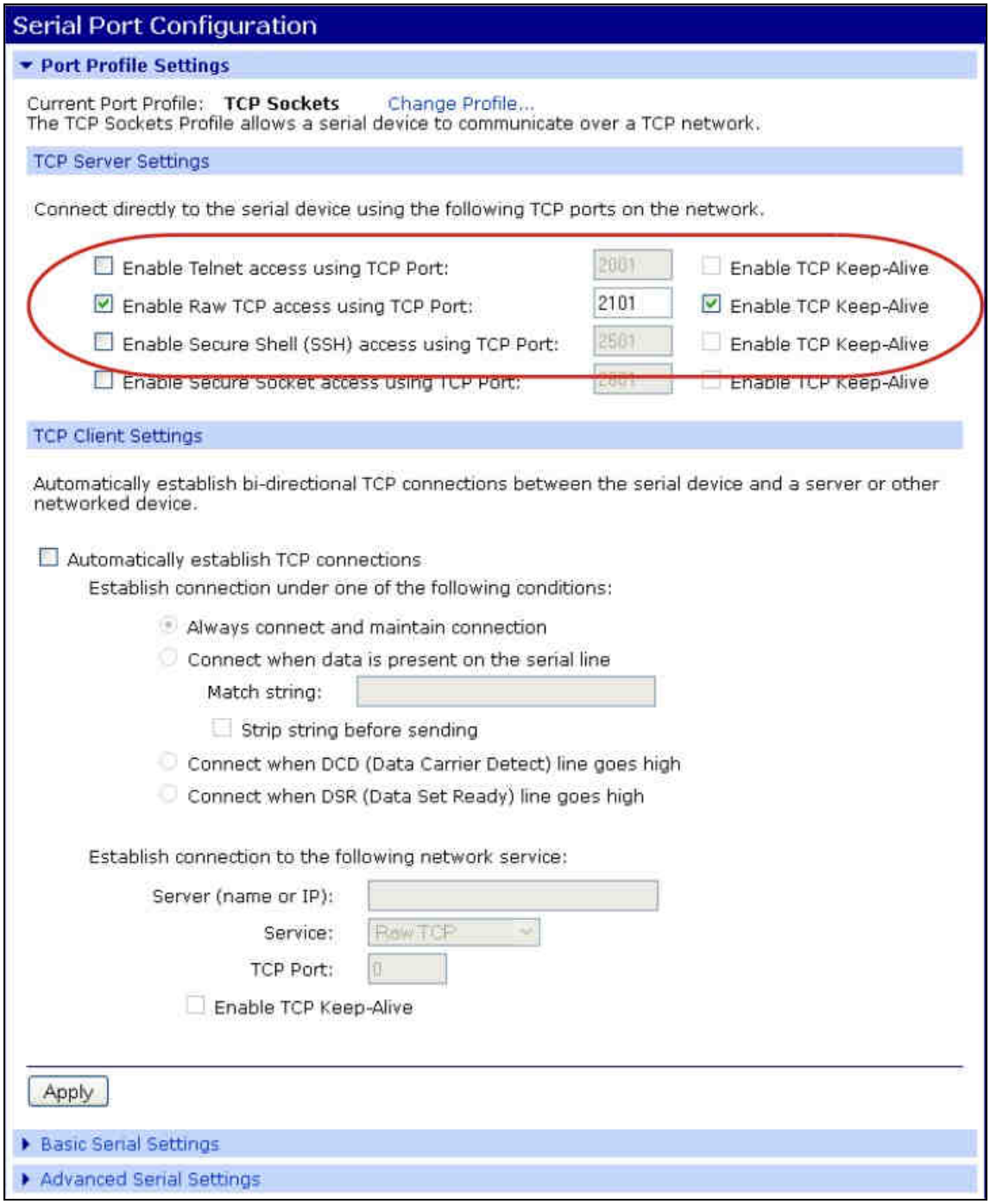


Fig. 16. The „TCP Sockets” profile settings.

Confirm by pressing the „APPLY” button.

If the port 2101 is already in use, choose another one, e.g. 2102. Use the same port number consistently.

Setting the serial port parameters.

Select the „Basic Serial Settings” tab at the bottom of the window and enter the same settings as in the picture below.

The power supply units of the EN54 series allow higher transmission speeds - instead of 19.2k 8E1 it can be set to 115.2k 8E1. The changed values apply to all settings.

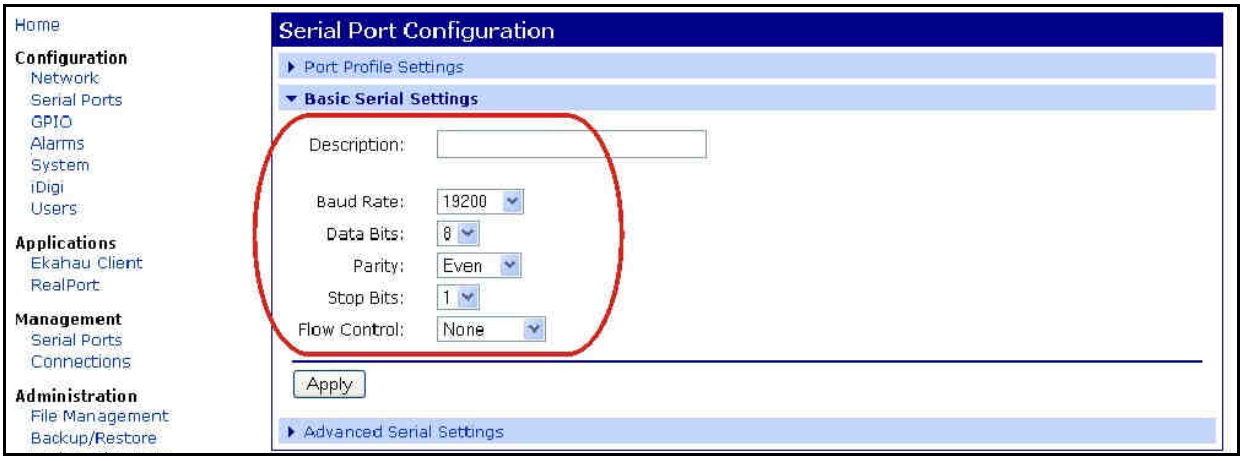


Fig. 17. The communication parameters of the serial port.

Confirm by pressing the „Apply” button. Next, choose the „Advanced Serial Settings” bar in the lower part of the window and enter the settings in the „TCP Settings” section as shown below. Confirm by pressing the „Apply” button.

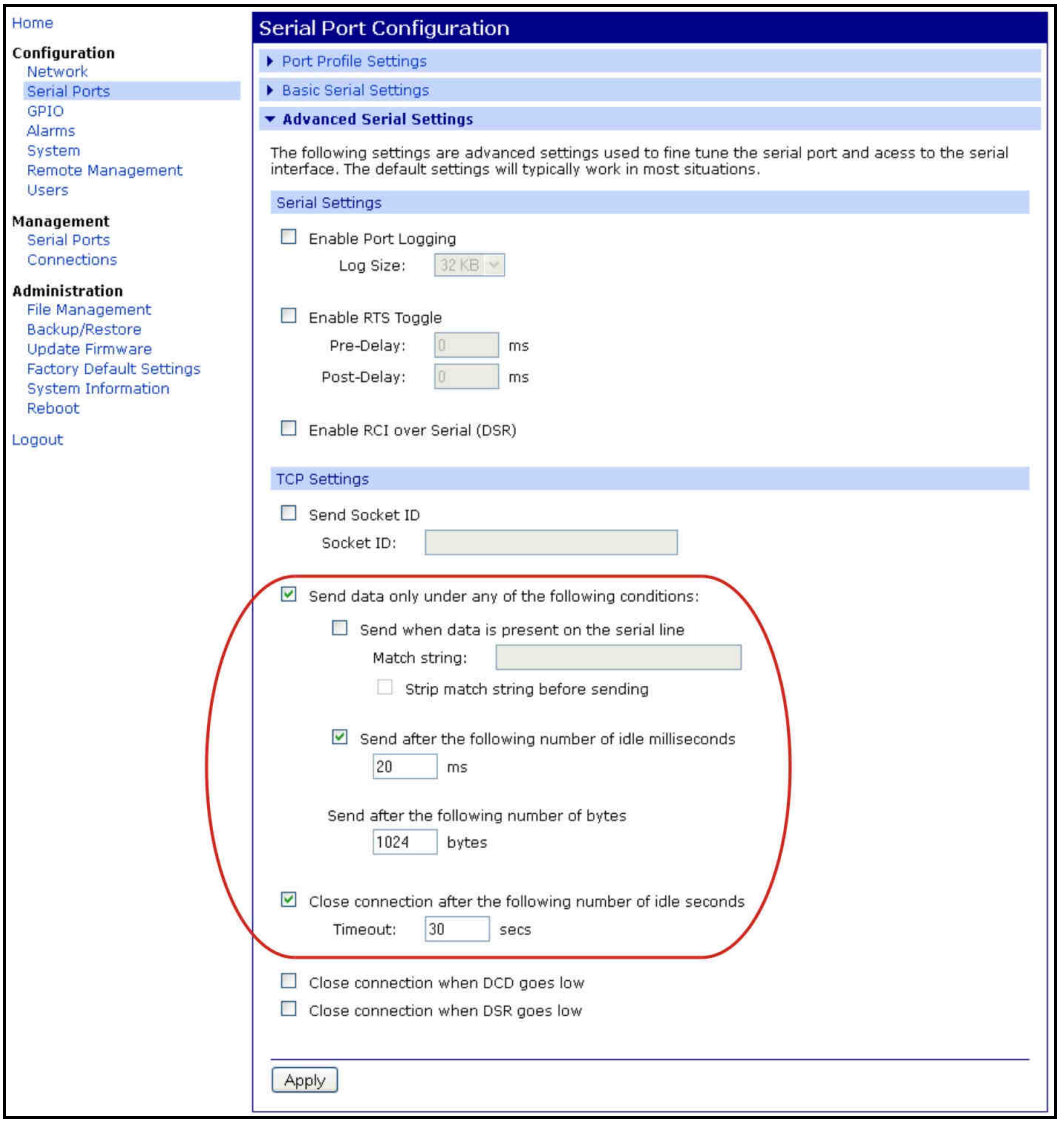


Fig. 18. Configuration of communication parameters of the serial port – the “TCP settings” tab.

Reset the RS485-WiFi interface by pressing the „RST” button on the module or simply disconnect the power supply for a few seconds. After the reset, the connection between the interface and the router should be back after approximately 30 seconds.

Settings in the PowerSecurity program.

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

The program is saved as an executable file and does not require installation. Run the PowerSecurity program and 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.

The following three parameters are of special importance:

- TCP address that indicates the interface located in a given segment of the network topology

Caution! If the connection is via a WAN use the public IP address of the router.

- The address in the „PSU” window indicating the power supply unit in the RS485 bus, connected to the segment addressed by the TCP
- The TCP port, the number of the port responsible for data transmission

Attention should be paid to the refresh period of the preview. It should be extended accordingly to the number of power supply units in the system in order to prevent communication interference.

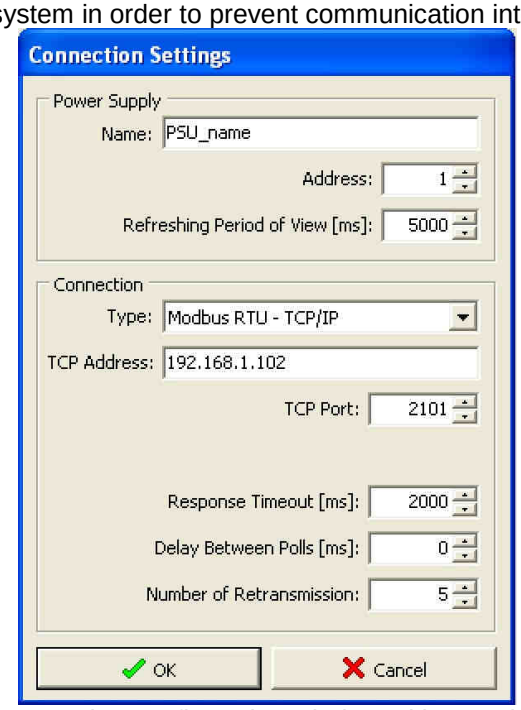


Fig. 19. The connection configuration window with sample settings.

PSU	**Description**
Name	The name that should be assigned individually to each PSU.
Address	The address of the PSU in the RS485 bus. *Caution! Addresses within same bus cannot be repeated.*
Refresh period of the preview [ms]	100 ÷ 60 000ms; Refresh period of the parameters in the preview window.

CONNECTION	
Type	Modbus RTU – TCP/IP
TCP address	The address of the RS485-WiFi interface in a WLAN network. *Caution. If the connection is via a WAN network, use the public IP address of the router.*
TCP port	2101 The number of the TCP port.
Response time [ms]	100 ÷ 60 000ms; The response time from the power supply
The interval between the transmissions [ms]	The minimal interval between transmissions.
The number of retransmissions	The number of retransmissions after which the program reports a connection error.

After loading the connection configuration, the ”Preview” tab will be displayed. Press the icon in the upper left corner to connect the power supply. Once the connection is established, the current parameters of the power supply, automatically updated according to the refresh cycle set during configuration, will be displayed.

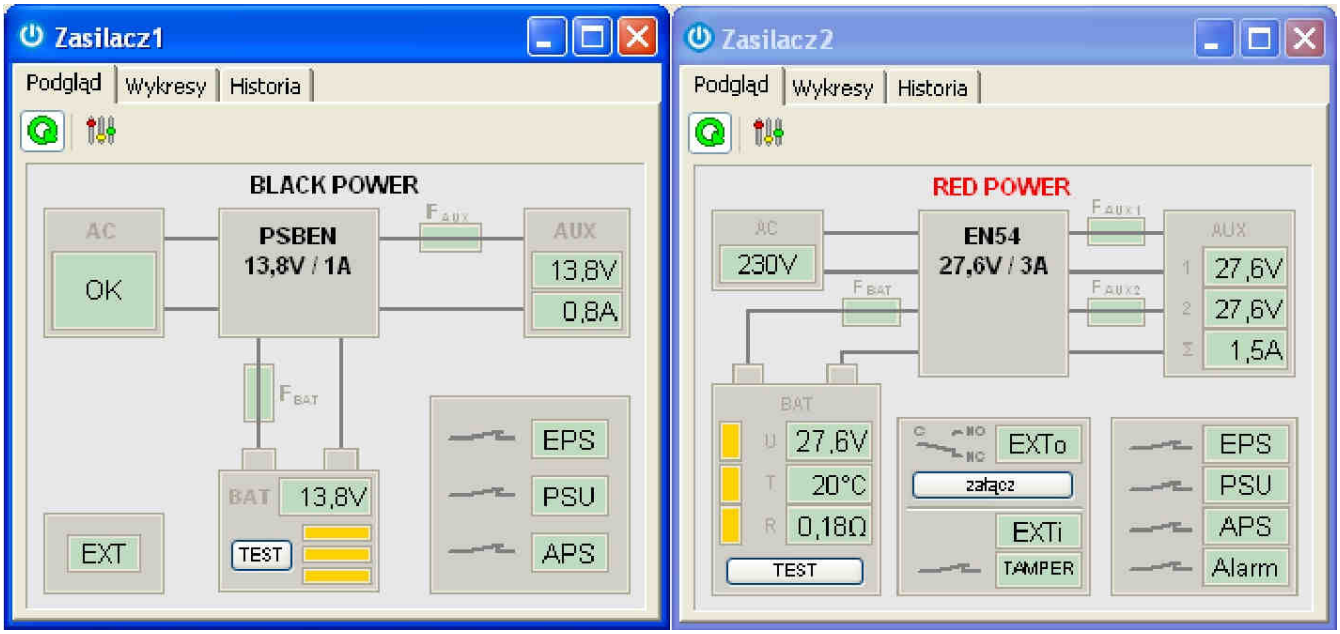


Fig. 20. The preview window of the PSU of the PSBEN (left) and EN54 series (right).

To establish the connection between the RS485-WiFi interface and any PSU connected to the RS485 hub, check whether the communication parameters of the power supply unit’s serial port are correct.

4.6.2 Communication in the WLAN serial bridge mode.

The schematic diagram of the communication system in the WLAN serial bridge mode is presented in the figure below

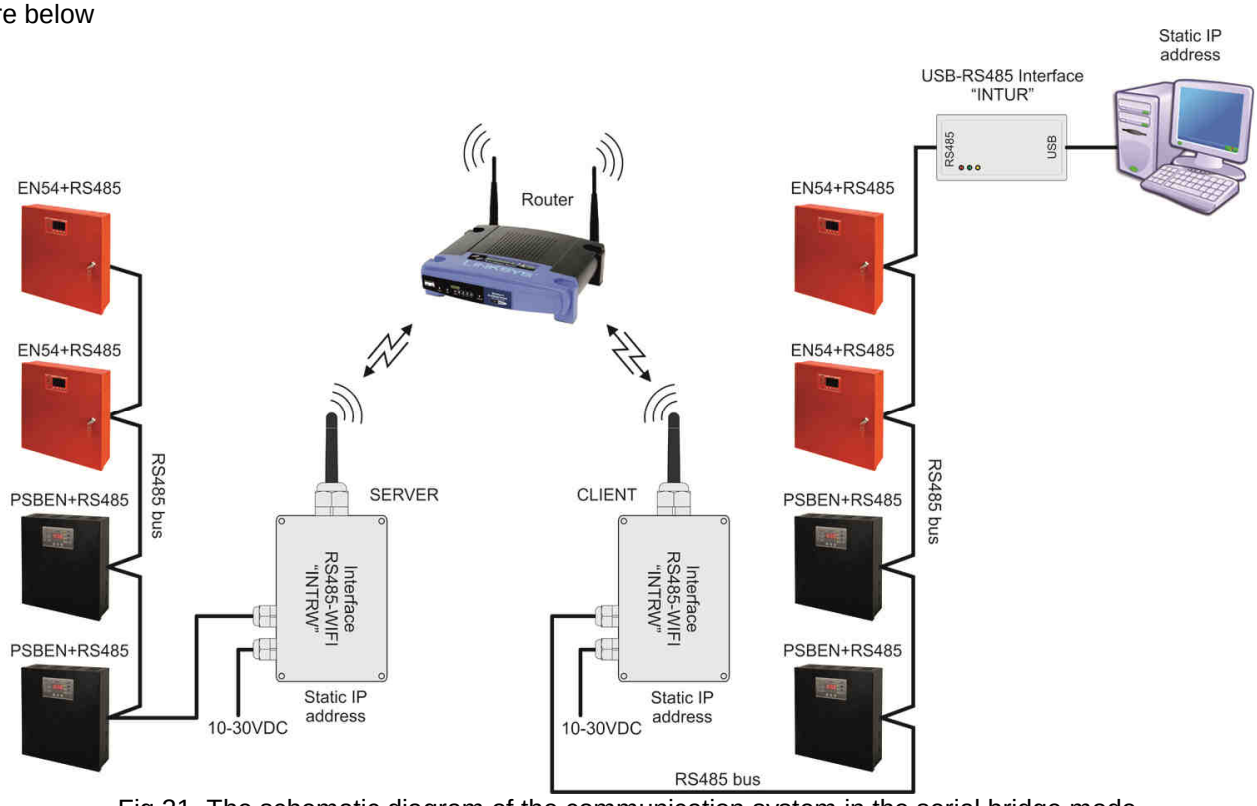


Fig.21. The schematic diagram of the communication system in the serial bridge mode.

The topology of the network is based on a wireless Wi-Fi router, which serves as a bridge between two segments of the RS485 bus. Each bus is connected to the RS485-WiFi interface, of which one is the Client and the

other is the Server. Each interface has a static IP address. Communication between the PC and the final PSU requires the address of the PSU in the RS485 bus.

The "Serial Bridge" profile settings – Client/Server.

To configure the interface, connect the switch/router to the computer as shown in the Fig. 3.

After logging in to the interface configuration page, select the "Serial Ports" option from the "Configuration" group and select the „Serial Bridge" profile from the „Select Port Profile" window. Confirm by pressing the „Apply" button. Configuration of the „Client" interface differs from the configuration of the „Server" interface and should be performed separately.

***Caution!** If the interface has been configured before, the "Serial Port Configuration" window with current profile will appear instead of "Select Port Profile" window. If so, click on the „Port 1" in the displayed window and then select the „Change profile…" at the top of the next window. The „Select Port Profile" window will be displayed and it will be possible to select the „Serial Bridge" profile.*

Configuration of the „Client" interface.

Configuration of the „Sever" interface.

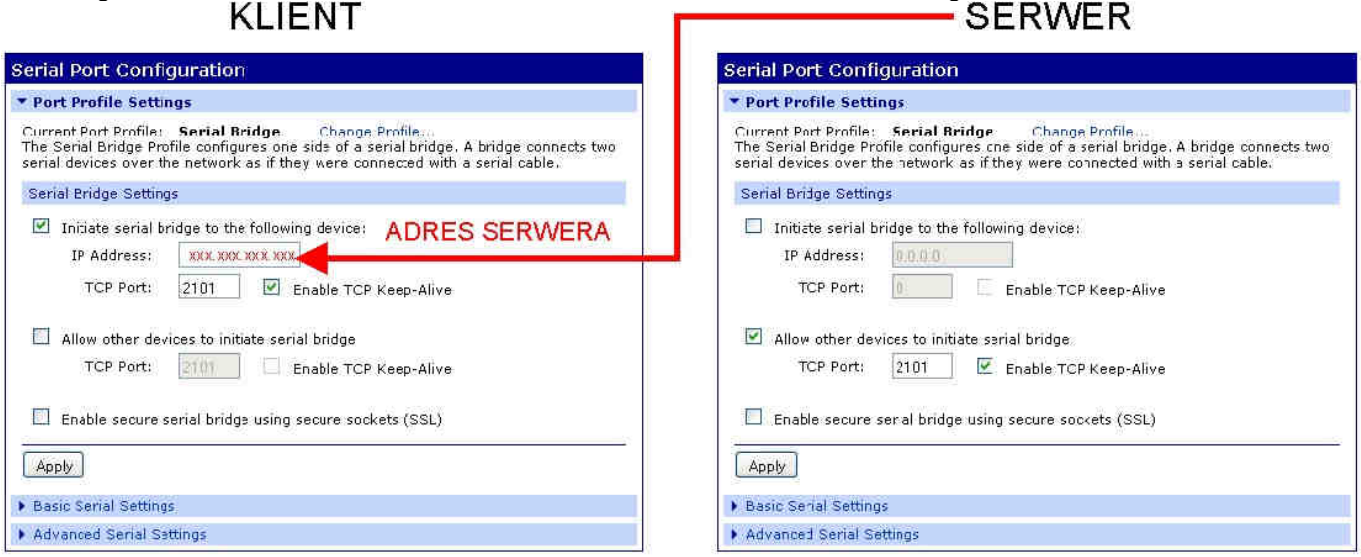


Fig. 22. The „Serial Bridge" profile settings for the Client" and „Server" interface.

In the „IP Address" field of the „Client" interface configuration type the real IP address of the „Server" interface. Confirm by pressing the „APPLY" button.

If the port 2101 is already in use, choose another one, e.g. 2102. Use the same port number consistently.

Setting the serial port parameters.

The settings described in this section should be applied to both RS485-WiFi interfaces. Select the „Basic Serial Settings" tab at the bottom of the window and enter the same settings as in the picture below.

The power supply units of the EN54 series allow higher transmission speeds - instead of 19.2k 8E1 it can be set to 115.2k 8E1. The changed values apply to all settings.

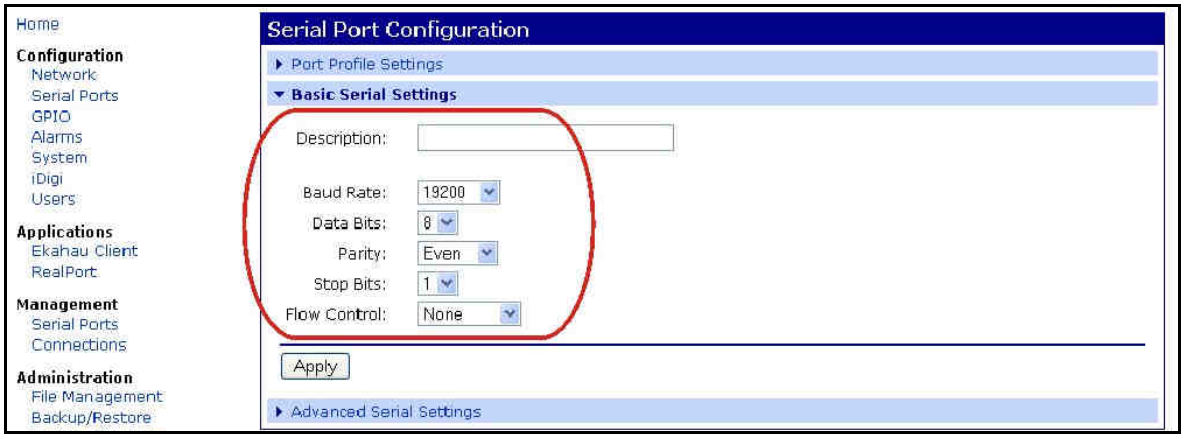


Fig. 23. The communication parameters of the serial port.

Confirm by pressing the „Apply" button.
Next, choose the „Advanced Serial Settings" bar in the lower part of the window and enter the settings in the „TCP Settings" section as shown below. Confirm by pressing the „Apply" button.

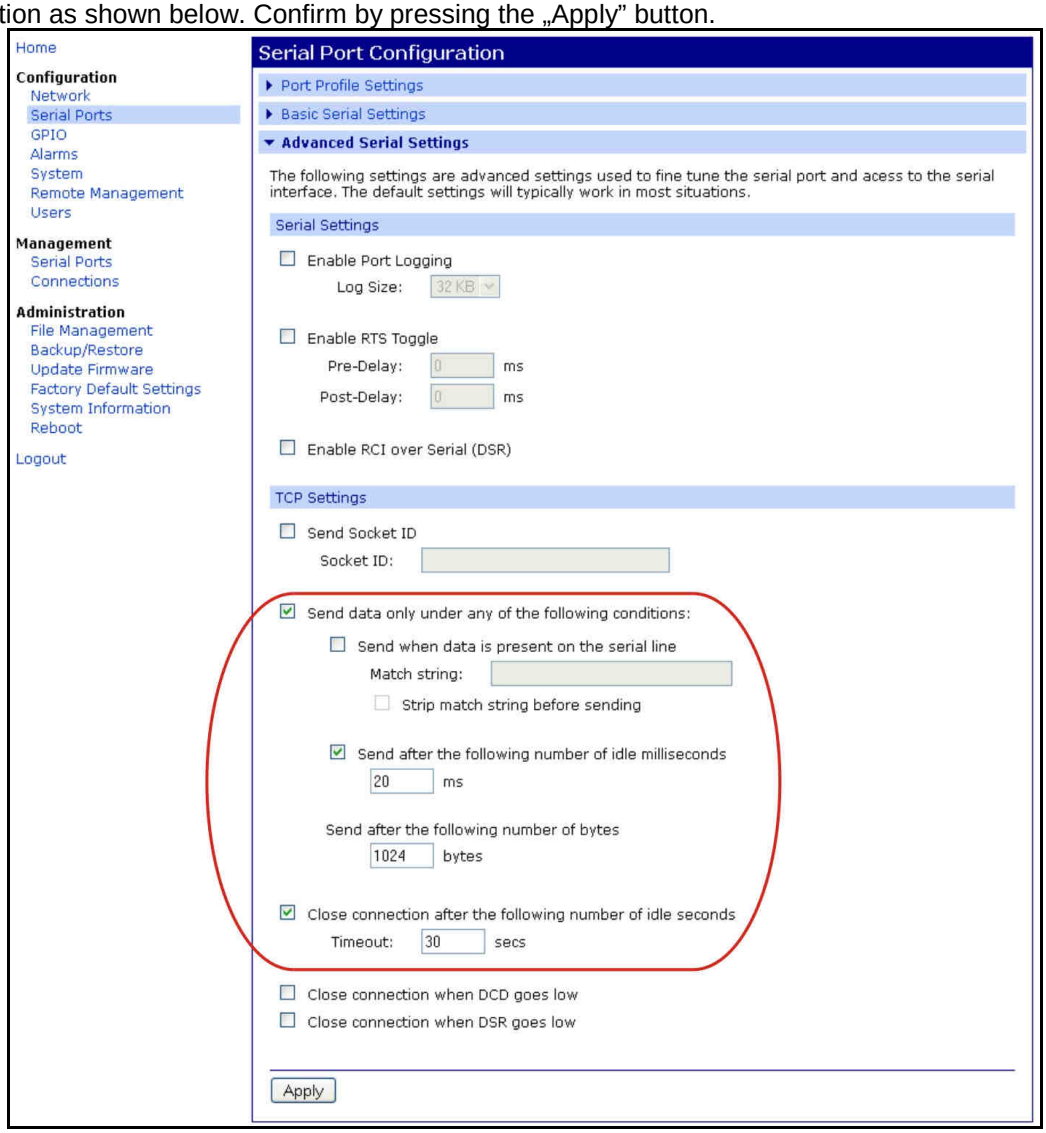


Fig. 24. Configuration of communication parameters of the serial port – the "TCP settings" tab.

Reset the RS485-WiFi interface by pressing the „RST” button on the module or simply disconnect the power supply for a few seconds. After the reset, the connection between the interface and the router should be back after approximately 30 seconds.

Settings in the PowerSecurity program.

For further configuration, the PowerSecurity program is required. The program is available on:
http://www.pulsar.pl/pliki/PowerSecurity.exe
The program is saved as an executable file and does not require installation. Run the PowerSecurity program and 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.
Attention should be paid to the refresh period of the preview. It should be extended accordingly to the number of power supply units in the system in order to prevent communication interference.

The power supply units of the EN54 series allow higher transmission speeds - instead of 19.2k 8E1 it can be set to 115.2k 8E1. The changed values apply to all settings.

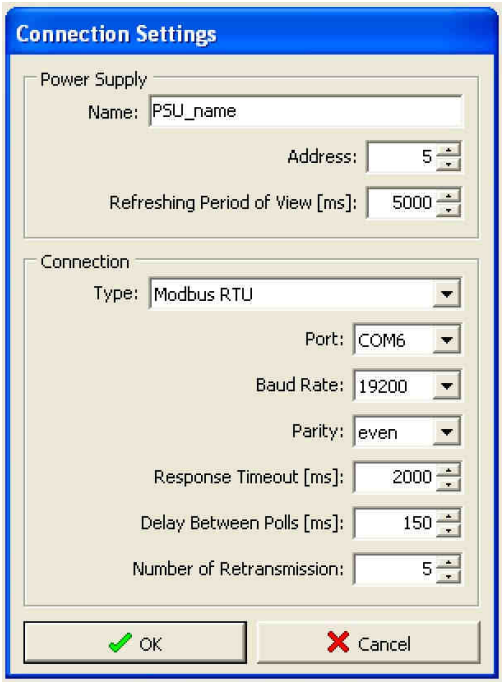


Fig. 25. The connection configuration window with sample settings.

PSU	**Description**
Name	The name that should be assigned individually to each PSU.
Address	The address of the PSU in the RS485 bus. *Caution! Addresses within same bus cannot be repeated.*
Refresh period of the preview [ms]	100 ÷ 60 000ms; Refresh period of the parameters in the preview window.

CONNECTION	
Type	Modbus RTU
Port	Enter the COM port number the same as assigned in the device manager, or select AUTO for automatic assignment.
Transmission speed	Max 19 200 bauds – PSU of the PSBEN series Max 115 200 bauds – PSU of the EN54 series
Response time [ms]	100 ÷ 60 000ms; The response time from the power supply
The interval between the transmissions [ms]	The minimal interval between transmissions.
The number of retransmissions	The number of retransmissions after which the program reports a connection error.

After loading the connection configuration, the ”Preview” tab will be displayed. Press the icon in the upper left corner to connect the power supply. Once the connection is established, the current parameters of the power supply, automatically updated according to the refresh cycle set during configuration, will be displayed.

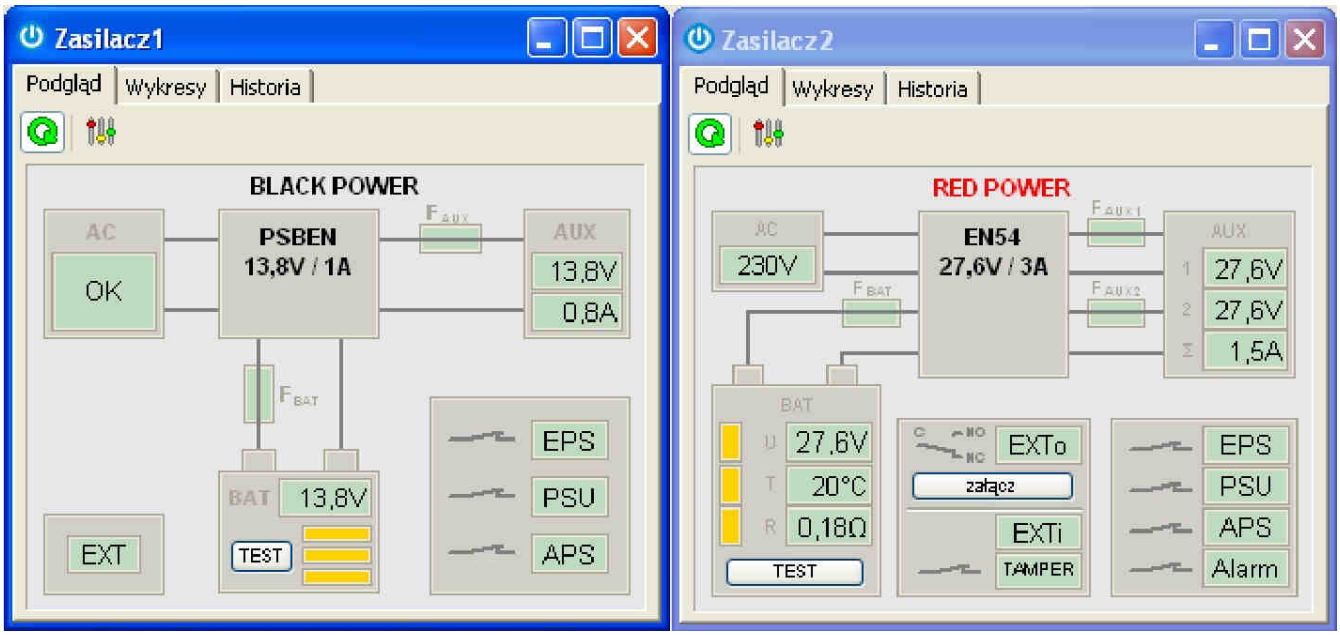


Fig. 26. The preview window of the PSU of the PSBEN (left) and EN54 series (right).

To establish the connection between the RS485-WiFi interface and any PSU connected to the RS485 hub, check whether the communication parameters of the power supply unit’s serial port are correct.

5. Configuration of power supplies.

Communication in the RS485 bus requires setting appropriate communication parameters in all devices and assigning of unique addresses. The configuration of power supplies of the PSBEN series uses a display located on the front panel of the enclosure. Depending on the display type - LED or LCD - the procedure for changing the settings is different.

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

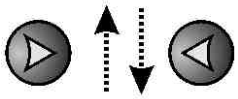
The PSU fitted with LCD display enables setting the communication parameters of the serial port from the LCD panel. To enter the setup mode, press the „SET" button from the main screen.

5.1.1 Setting the communication address

All power supplies are factory-set to address 1.

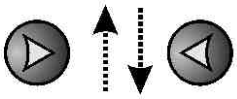
- enter the "Settings" menu of the PSU
(if the main screen is displayed, press the "SET" button

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



- confirm by pressing the „SET" button

- use the „<" or „>" buttons to choose the **Communication address**



- press the „SET" button

- the prompt will appear at the end of the line

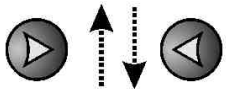
- use the „<" or „>" buttons to set the address from 1 to 247.

- confirm by pressing the „SET" button

5.1.2 Setting the transmission parameters

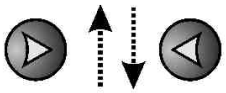
To enter the setup mode, press the „SET” button from the main screen.

- 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 **19.2k 8E1**

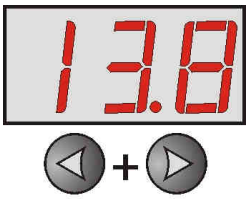
- confirm by pressing the "SET" button

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

5.2.1 Setting the communication address

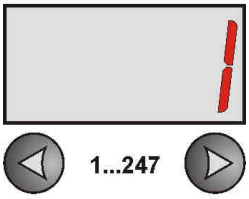
All power supplies are factory-set to address 1

– simultaneously press the „<,>” rightmost and leftmost buttons on the LED panel



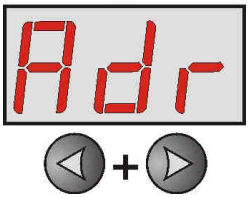
- press “OK” once the „Adr” parameter is displayed

- use the „<” or „>” buttons in order to set the address from 1 to 247



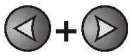
- confirm the selected address by pressing “OK.”

- in order to return to the main menu, simultaneously press the „<,>” rightmost and leftmost buttons



5.2.2 Setting the transmission speed and parity of the transmission

– simultaneously press the „<,>” rightmost and leftmost buttons on the LED panel



- The „Adr” parameter will be displayed

- press the right arrow „>”

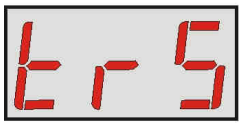
- The „trS” parameter will be displayed

- press „OK.”

- The display will show one of the two parameters: „9.6” or „19.2” informing about the selected transmission speed

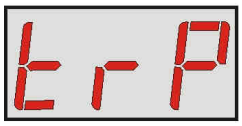
- use the „<” or „>” buttons in order to set the transmission speed to 19200, displayed as „19.2

- confirm by pressing „OK.”

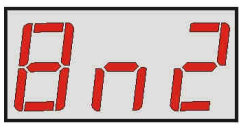


- The „trS” parameter will be displayed again

- press the right arrow „>”



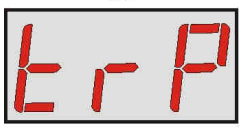
- press "OK." when „trP” is displayed



- The display will show one of the three parameters: „8n2”, „8E1” or „8o1”

- 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

5.3 Configuration of power supplies of the EN54 series with LCD display.

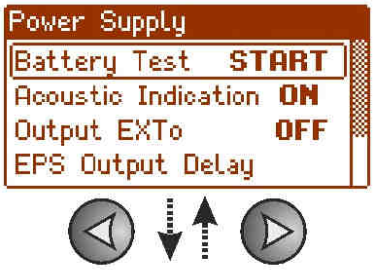
5.3.1 Setting the communication address

The PSU fitted with LCD display 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”.

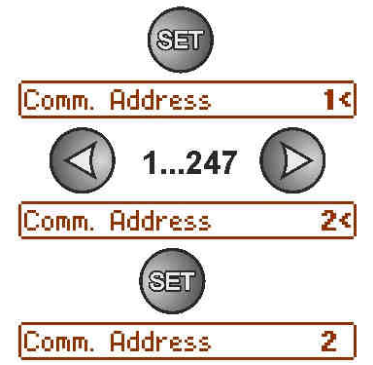
- use the „<” or „>” buttons to display the **PSU** menu

- press the „SET” button

- use the „<” or „>” buttons to choose the **Communication address**



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



- use the „<” or „>” buttons to set the address
  1÷ 247 – address of the PSU during the communication with the computer

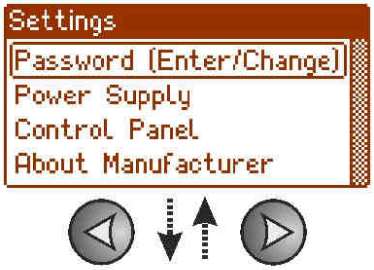
- confirm by pressing the „SET” button

5.3.2 Setting the transmission parameters

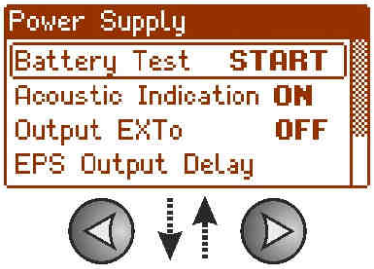
The power supply units of the EN54 series allow higher transmission speeds - instead of 19.2k 8E1 it can be set to 115.2k 8E1. The changed values apply to all settings.

The PSU fitted with LCD display 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

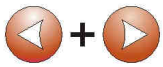
- use the „>" or „<" buttons to set the transmission speed
  - **9.6k 8N1**
  - :
  - **115.2k 8E1 (factory setting)**
  - :
  - **115.2k 801**

- confirm by pressing the „SET" button

5.4 Configuration of power supplies of the EN54 series with LED display

5.4.1 Setting the communication address

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



- The „tst” parameter will be displayed

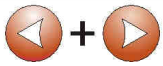
- use the „<” or „>” buttons to display the „Adr” parameter

- press „OK”

- The current address of the PSU will be displayed

- use the „<” or „>” buttons in order to set the address
  1÷ 247 – address of the PSU during the communication with the computer

- confirm by pressing „OK”

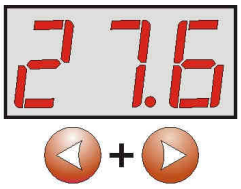


- in order to return to the main menu, simultaneously press the „<,>” rightmost and leftmost buttons

5.4.2 Setting the transmission speed

The power supply units of the EN54 series allow higher transmission speeds - instead of 19.2k 8E1 it can be set to 115.2k 8E1. The changed values apply to all settings.

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

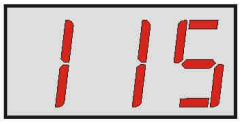


- The „tst” parameter will be displayed

- use the „<” or „>” buttons to display the „trS” parameter

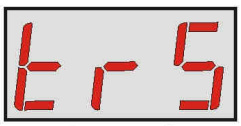
- press „OK”

- The information about the transmission speed will be displayed



- use the „<” or „>” buttons in order to set the required transmission speed
  - **9.6k**
  - **:**
  - **115.2k** (factory settings)

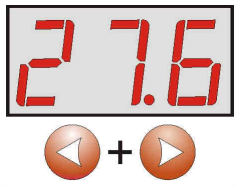
- confirm by pressing „OK”



- in order to return to the main menu, simultaneously press the „<,>” rightmost and leftmost buttons

5.4.3 Setting the parity of the transmission

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



- The „tst” parameter will be displayed

- use the „<” or „>” buttons to display the „trP” parameter

- press „OK”

- The information about the parity of the transmission will be displayed on the panel

- use the „<” or „>” buttons in order to set the required communication mode
  - **8N2**
  - **8E1** (factory setting)
  - **8O1**

- confirm by pressing „OK”

- in order to return to the main menu, simultaneously press the „<,>” rightmost and leftmost buttons

6. Technical parameters.

Power supply	10 ÷ 30V DC
Current consumption	130 ÷ 50mA
TTL transmission speed	max 115200 bauds, with parity check
Wi-Fi Transmission speed	max 11Mbps
Indication (LED lights):	Tx, Rx, PWR
Operating conditions	temperature -10 °C ÷ 40 °C relative humidity 20%...90% no condensation
Dimensions (LxWxH)	121(+72 antenna) x 81 x 60 [mm]
Net / gross weight	0,28kg / 0,39kg
Protection class	IP65
Storage temperature	-20ºC...+60ºC

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.

WARRANTY
5 years from the production date.
WARRANTY IS VALID only upon presentation of the original invoice.

Pulsar K.Bogusz Sp.j.
Siedlec 150, 32-744 Łapczyca, Poland
Phone (+48) 14-610-19-40, Fax. (+48) 14-610-19-50
E-mail: biuro@pulsar.pl, sales@pulsar.pl
http:// www.pulsar.pl, www.zasilacze.pl