Interface Wi-Fi

v.1.1

CODE: **INTW**

EN

Edition: 4 from 28.05.2015

Supersedes the edition: 3 from 05.12.2013

CONTENTS

Features:

- wireless connection via Wi-Fi
- 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
- communication in the 2.4GHz band compliant with the IEEE 802.11b/g/n
- Empfängerempfindlichkeit -97dBm
- Senderleistung 17dBm
- data encryption: WEP, WPA, WPA2
- assigning a static or dynamic IP address (DHCP server)
- configured with the PowerConfig program
- power supply via the “SERIAL’” socket”
- cooperation with the PowerSecurity software
- optical indication
- warranty - 5 years from the production date

1. General description.

The Wi-Fi interface is designed for wireless connection between power supply units of the PSBEN or EN54 series with a PC in the Wi-Fi network. 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 or remote control of the relay output.

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.

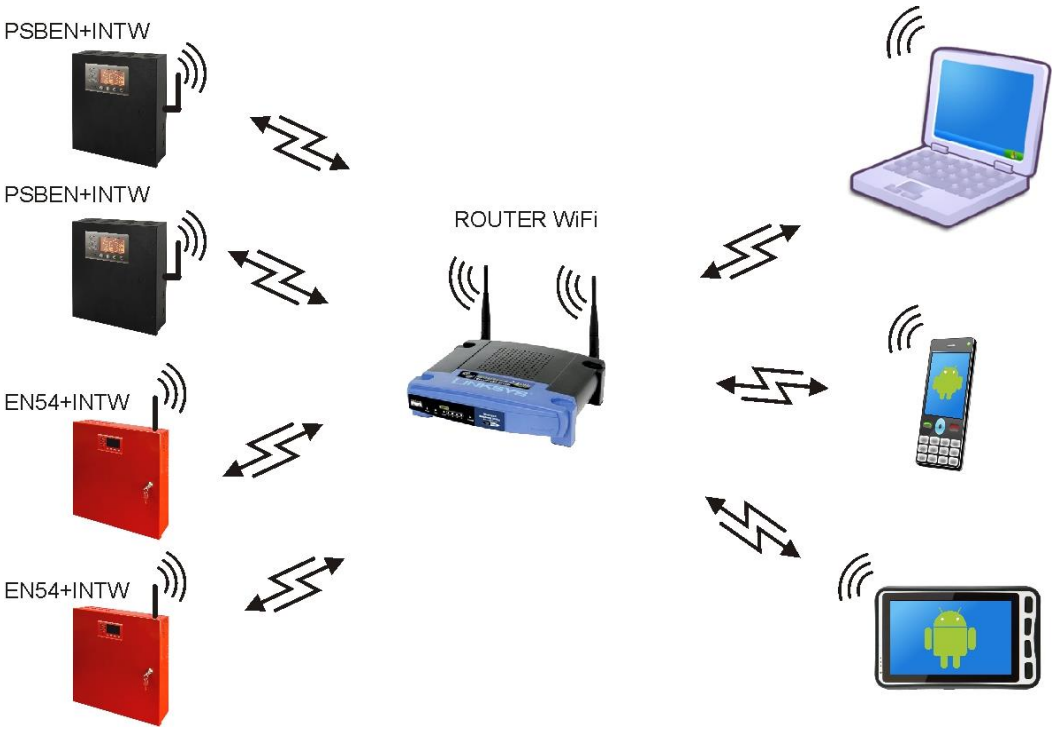


Fig. 1. Schematic diagram of Wi-Fi network communication.

The “one-to-one” communication involves a single Wi-Fi interface connected to a single PSU. A selected location for mounting the interface is provided inside the enclosure of the power supply unit. Therefore, the power supply units fitted with Wi-Fi interfaces can be freely arranged within the network without additional communication cables. The role of the access point controlling the data flow is done by a Wi-Fi router.

2. Components arrangements.

The picture below shows the arrangement of the most important components and connectors of the Wi-Fi interface

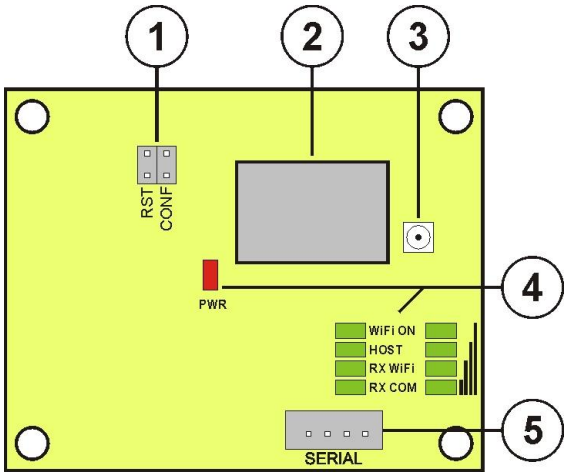


Fig.2. The interface view.

Table 1. Description of the components.

Component No.	Description
1	**Jumpers** **RST** – restarts the interface **CONF** – interface configuration mode
2	**Wi-Fi Radio Module**
3	**U.FL antenna socket**
4	**LEDs** – optical indication: **PWR** – supply's voltage **WiFi ON** – indication of turning on the radio system **HOST** – indication of link establishment **RX WiFi** – indication of receiving data via Wi-Fi **RX COM** – indication of receiving data from the power supply .ıl – radio signal level
5	**SERIAL socket** for connection with the power supply

3. Wi-Fi interface configuration.

3.1 Introductory information.

The Wi-Fi interface parameters can be configured to adapt to the actual operation. The configuration is done with „PowerConfig” program.

The „PowerConfig” program can be downloaded at:
http://www.pulsar.pl/pliki/PowerConfig.exe

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

The information in the following sections describe "step by step" how to configure the Wi-Fi interface.

3.2 STEP 1 – The interface installation.

To configure the Wi-Fi interface, make a connection between the interface and the dedicated "INTC" PC interface.

The connections are shown in the figure below.

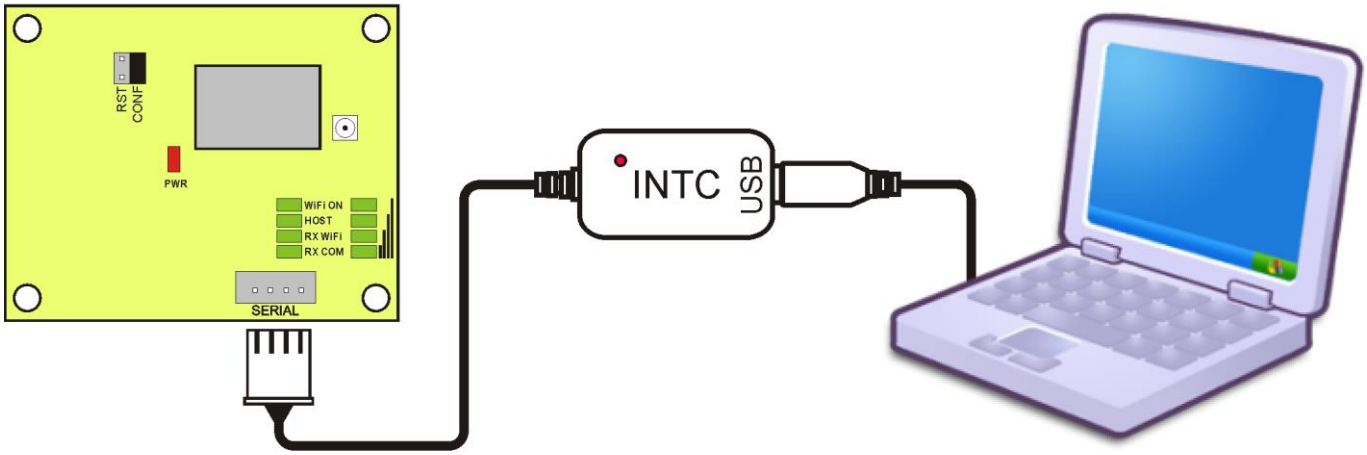
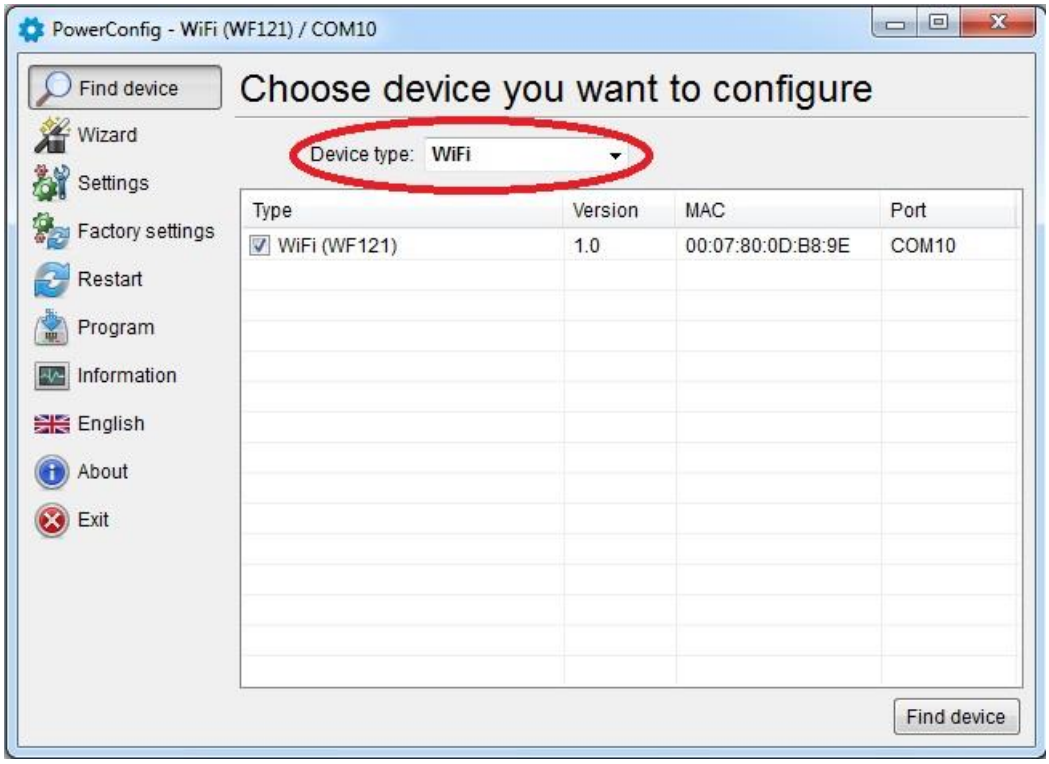


Fig.3. Connecting Wi-Fi interface to the PC.

To work properly, the "INTC" programmer requires installing the appropriate drivers in the operating system of the computer. Once connected to computer USB port, the interface will be automatically detected by the operating system and the driver installation will follow. If the drivers are not detected by the system, it is suggested to download them from PULSAR website at: http://www.pulsar.pl/pliki/CDM v2.12.00 WHQL Certified.exe or from the chipset manufacturer's web site at: http://www.ftdichip.com/FTDrivers.htm

After installing the Wi-Fi interface to the PC, the PWR LED should go on to indicate voltage supply. Then, put the "CONF" jumper on to enter the interface configuration mode. The RX WiFi and RX COM LEDs will blink alternately.

Run the configuration program "powerconfig" which enables the connection of the interface and its appropriate configuration. After starting the program, choose the "WiFi" in the "Module type" and then press the "Search" button.

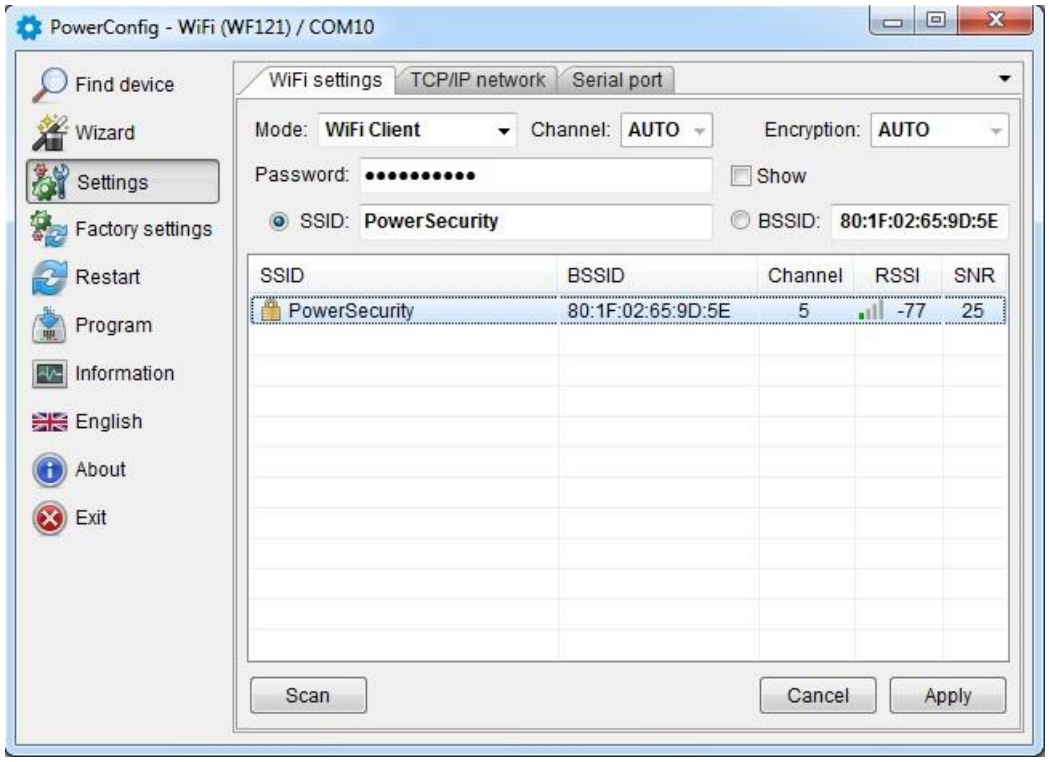


The connected module will be displayed in the window. To access the module configuration, check the field under "Type" ☑ WiFi (WF121).

The menu buttons on the left side will be activated.

3.3 STEP 2 – The Wi-Fi 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 "WiFi interface Settings" from the top tab menu. This window allows to enter the parameters of Wi-Fi network gor interface connection.



Select the Wi-Fi operation mode of the interface by setting the "WiFi client" option. In the "SSID" field, enter the network ID (name) and a password in the "Password" field if the network is password protected.

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

If the network is within range, it can be selected for interface connection after the scan. To do this, press the "Scan" button at the bottom of the window. After pressing the button, the scan is performed and all networks within range are displayed. When choosing a network for interface connection, enter the password if required.

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

3.4 STEP 3 – The TCP/IP Network settings.

In the "Network TCP / IP" tab, set the IP address for the Wi-Fi communication.

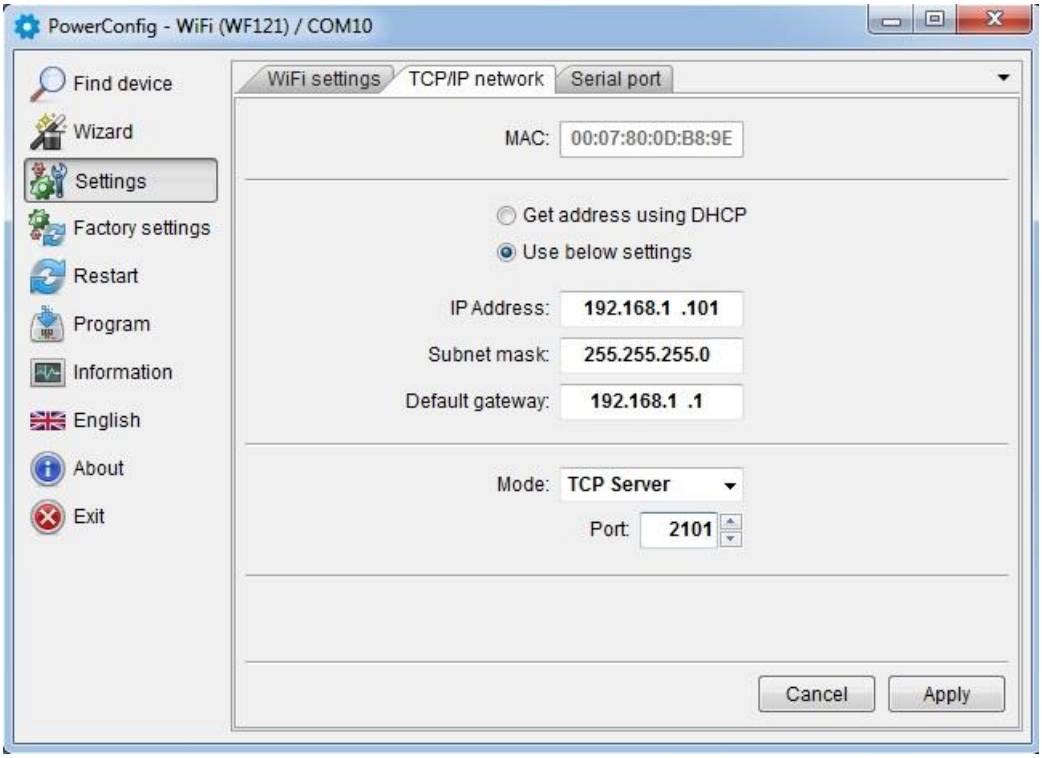


Fig.4. The TCP/IP Network settings.

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

3.5 STEP 4 – Setting the serial port parameters.

In the „Serial port” tab, set the parameters responsible for the communication between Wi-Fi interface and the PSU as shown in the picture below.

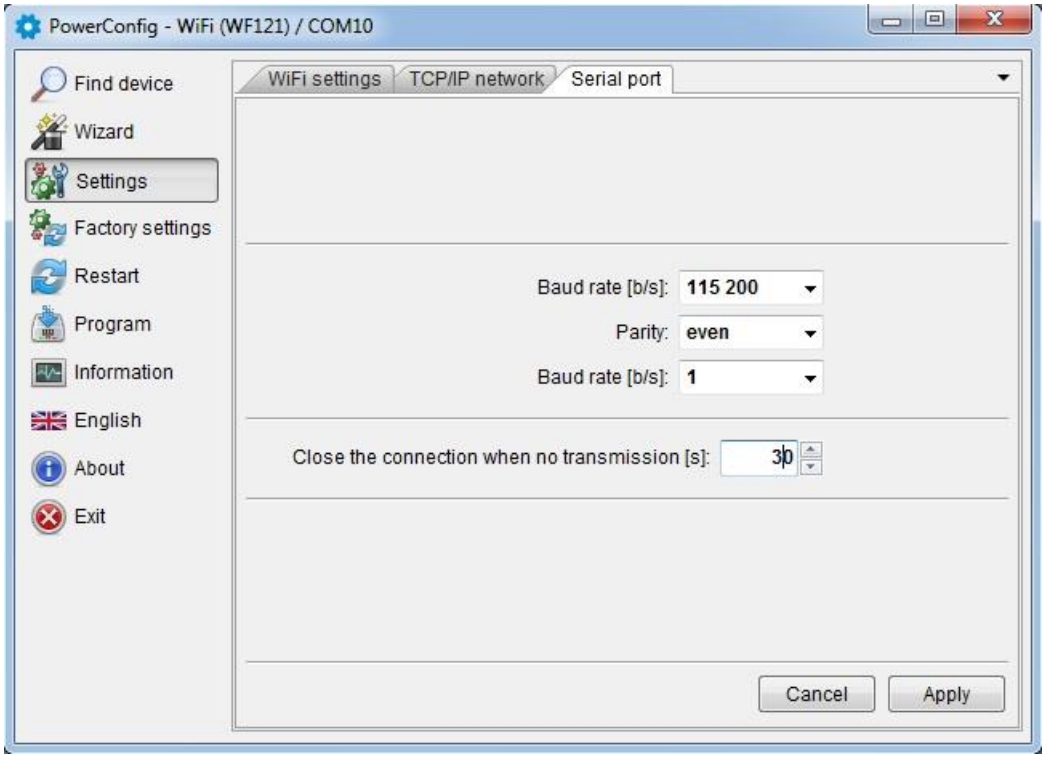


Fig.4. The serial port settings.

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.

Remove the „CONF” jumper before connecting to the WiFi interface.

4. Installation.

1. Make a hole for antenna in the side of the PSU's enclosure.
2. Before mounting the cabe gland in the opening, insert the Wi-Fi antenna and tighten the nut to seal the connection.
3. Mount the cable gland in the PSU enclosure paying attention not to damage the antenna.
4. Install the Wi-Fi interface in a designated area of the power supply.
5. Carefully connect the antenna cable into the U.FL. slot of the Wi-Fi interface (see Fig. 2 [3]).
6. Connect the interface with the power supply using the cable included in the kit.

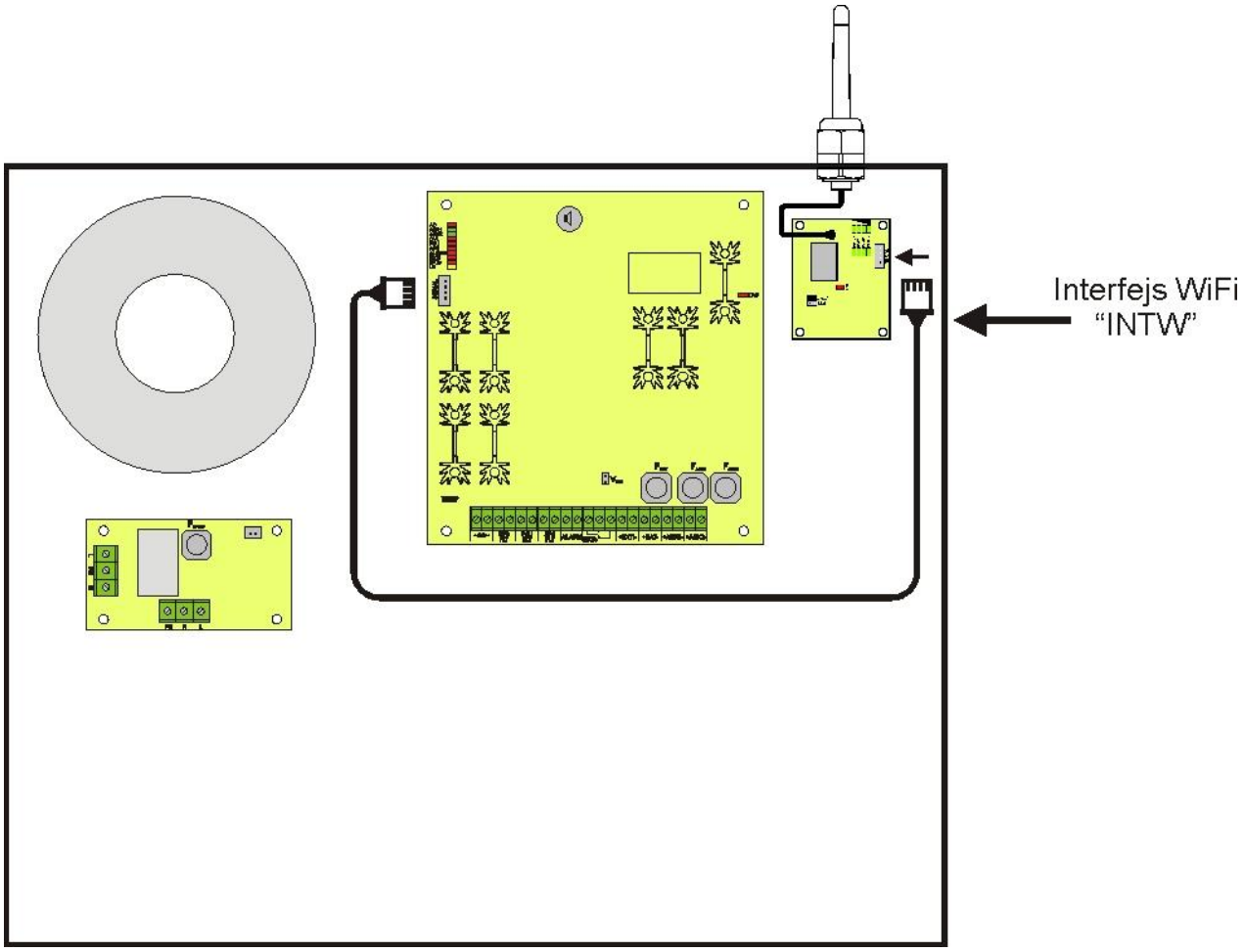


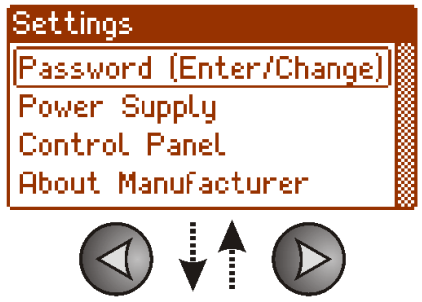
Fig.5. Connection diagram of the Wi-Fi interface.

5. Configuration of power supplies.

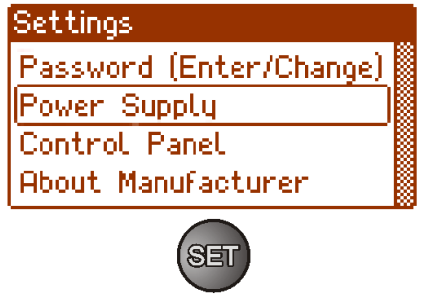
5.1 Configuration of power supplies of the PSBEN series with LCD display

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.

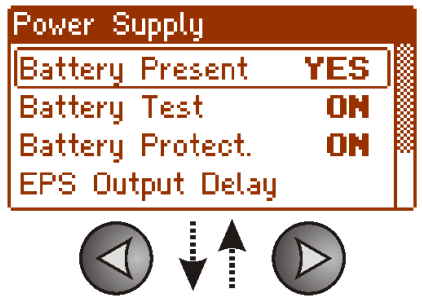
- use the „<” or „>” buttons to display the **PSU** menu



- press the „SET” button”

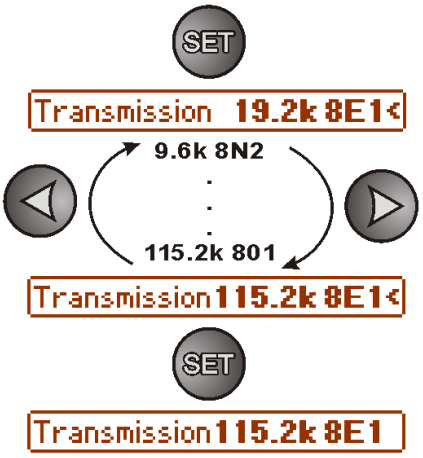


- use the „<” or „>” buttons to display the **Transmission** menu
(The **Transmission** menu is at the bottom of the screen)



- 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)

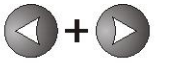


- confirm by pressing the "SET" button

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

The PSU fitted with LED display 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.

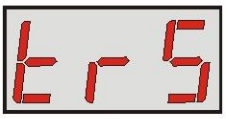
- simultaneously press the „<,>” rightmost and leftmost buttons



- The „tSt” parameter will be displayed

- press the right arrow „>”

- The „trS” parameter will be displayed



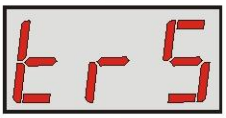
- press „OK.”

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

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

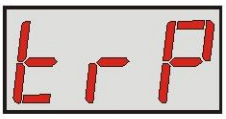
- confirm by pressing „OK.”

- The „trS” parameter will be displayed again



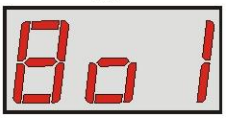
- press the right arrow „>”

- The „trP” parameter will be displayed again



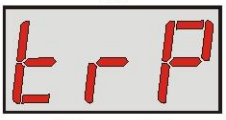
- press "OK"

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



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

- confirm by pressing „OK.”

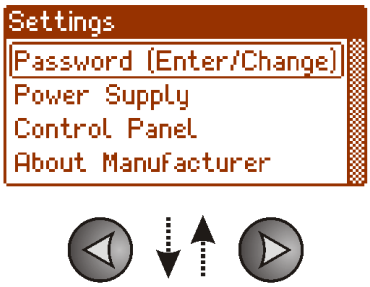


- Simultaneously press the „<,>” rightmost and leftmost buttons to complete the configuration procedure

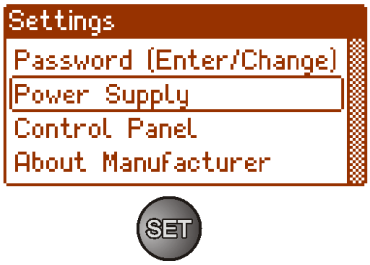
5.3 Configuration of power supplies of the EN54 series with LCD display

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.

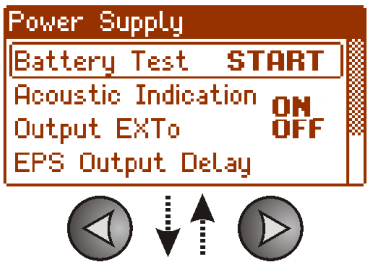
- use the „<” or „>” buttons to display the **PSU** menu



- press the „SET” button”



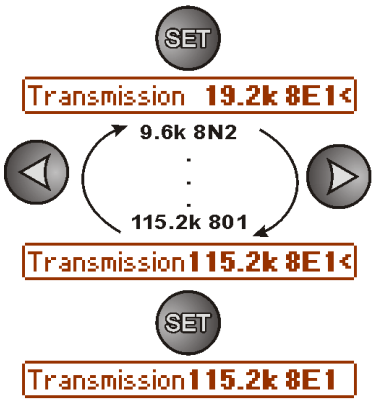
- use the „<” or „>” buttons to display the **Transmission** menu
(The **Transmission** menu is at the bottom of the screen)



- 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)

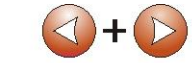
- confirm by pressing the "SET" button



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

The PSU fitted with LED display 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.

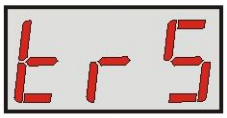
- simultaneously press the „<,>” rightmost and leftmost buttons



- The „tSt” parameter will be displayed

- press the right arrow „>”

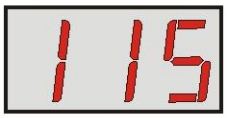
- The „trS” parameter will be displayed



- press „OK”

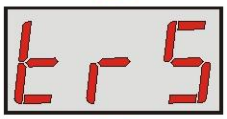
- The information about the transmission speed will be displayed

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



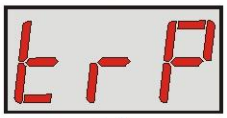
- confirm by pressing „OK”

- The „trS” parameter will be displayed again



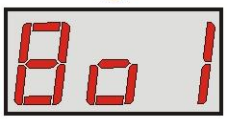
- press the right arrow „>”

- The „trP” parameter will be displayed



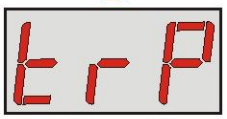
- press „OK”

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

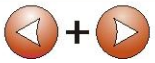


- use the „<” or „>” buttons in order to set the „8E1” parameter

- confirm by pressing „OK”



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



6. Configuring the connection in the PowerSecurity program.

For further configuration, the PowerSecurity program is required. The program can be downloaded at:
http://www.pulsar.pl/pliki/PowerSecurity.exe

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

1) Run the PowerSecurity.exe program.
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.

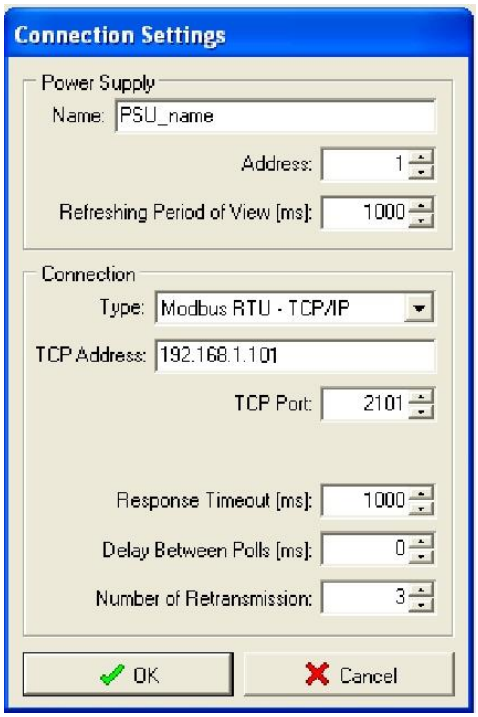


Fig. 6. The connection configuration window.

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	**192.168.1.101** PSU network address. *Each Ethernet interface in the network has a unique address.*
TCP port	**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.

Confirm the settings by pressing the "**OK"** button**.**

3) Once the connection configuration is loaded, the window with a „preview” tab is displayed. Press the  icon in the 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.

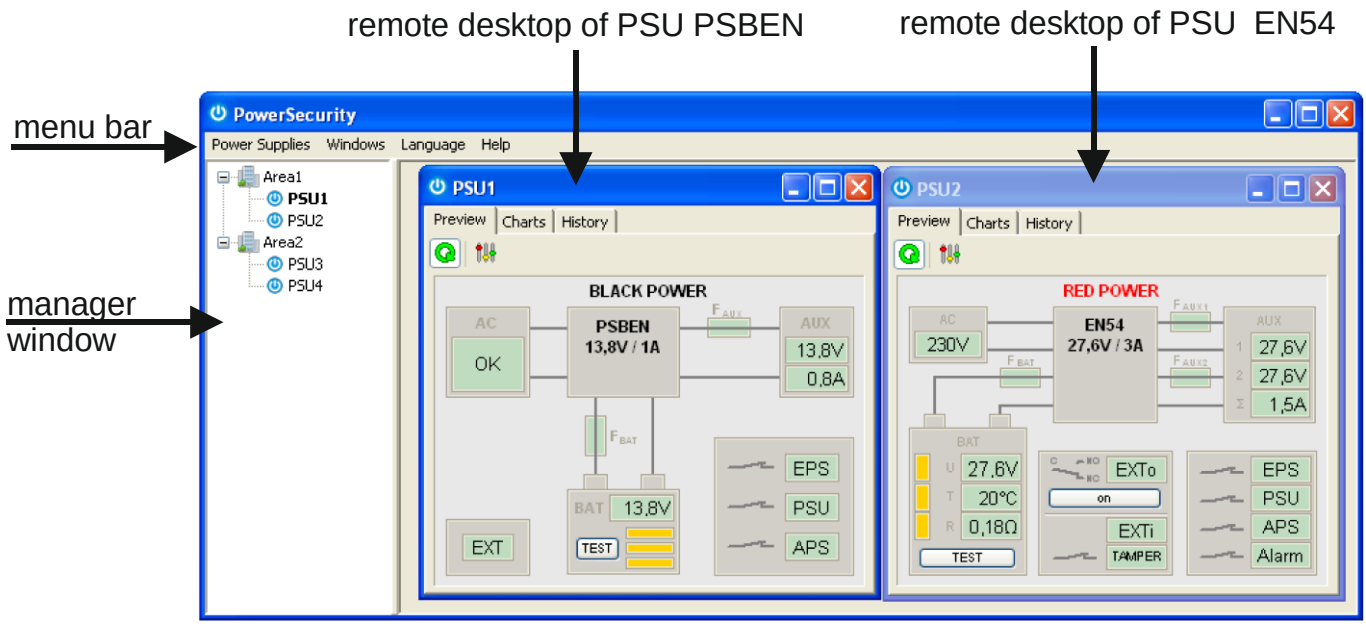


Fig. 7. The preview window of the PSU of the PSBEN (left) and EN54 series (right).

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	5V from the ”SERIAL” socket of the PSU
Current consumption	max 210mA
Frequency	2,4GHz IEEE 802.11 b/g/n
The receiver sensitivity	-97dBm
Transmitter power	17dBm
TTL transmission speed	max 115200 bauds, parity checking
TTL transmission speed	max 11Mbps
Encoding	WEP, WPA, WPA2
Indication (LED lights):	WiFi_ON, HOST, RX_WiFi, RX_COM, the signal level
Operating conditions	temperature -10 °C ÷ 40 °C relative humidity 20%...90%
Dimensions (LxWxH)	63 x 50.2 x 24 [mm] + antenna
Net / gross weight	0,10kg / 0,13kg
Storage temperature	-20ºC...+60ºC
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.

WARRANTY

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

Pulsar
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Tel. (+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