# PSBEN/LED series power supply unit

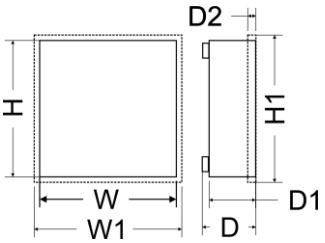
**Buffer, switched mode power supply unit 13,8V DC**

**EN****

CODE: **PSBEN 5012E** v.1.1/VI

TYPE: **PSBEN 13,8V/5A/65Ah/EN buffer, switched mode power supply unit**

BLACK POWER




CE

This product is suitable for the systems designed in compliance with the EN 50131-6 grade 1, 2 or 3 and II environmental class."

| Functional requirements | Requirements of EN 50131-6 | | | PSBEN5012E |
|---|---|---|---|---|
| | Grade 1 | Grade 2 | Grade 3 | |
| EPS network absence | YES | YES | YES | YES |
| Battery low voltage | YES | YES | YES | YES |
| Protection against full battery discharge | - | - | YES | YES |
| Battery fault | - | - | YES | YES |
| No battery charge | - | - | YES | YES |
| Output low voltage | - | - | YES | YES |
| Output high voltage | - | - | YES | YES |
| PSU fault | - | - | YES | YES |
| Surge protection | - | - | YES | YES |
| Short circuit protection | YES | YES | YES | YES |
| Overload protection | YES | YES | YES | YES |
| Output fuse activation | - | - | - | YES |
| Battery fuse fault | - | - | - | YES |
| EPS technical output | YES | YES | YES | YES |
| APS technical output | YES | YES | YES | YES |
| PSU technical output | YES | YES | YES | YES |
| Collective failure input | - | - | - | YES |
| Remote battery test | - | - | - | YES |
| Tamper resistance – enclosure opening | YES | YES | YES | YES |
| Tamper resistance – detachment from the mounting surface | - | - | YES | YES |

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**PSU features:**

- EN50131-6 compliance, 1÷3 grades and II environmental class
- mains supply of 230VAC
- uninterrupted voltage of 13,8VDC
- fitting battery: 65Ah/12V
- high efficiency 77%
- PSU current efficiency:
  - 4,1A – for grades 1 , 2 *
  - 2,16A – for grades 3 **
  - 5A – for general use ***

  (see: chapter 3.1)
- low level of voltage ripple
- microprocessor-based automation system
- intelligent management of PSU's output power level
- 'SERIAL' communication port with implemented MODBUS RTU protocol
- remote monitoring (option: Wi-Fi, Ethernet, RS485, USB)
- free program - 'PowerSecurity' for monitoring the PSU operation parameters
- load current control
- output voltage control
- output fuse status control
- dynamic battery test
- battery circuit continuity control
- battery voltages control
- battery fuse status control
- battery charge and maintenance control
- deep discharge battery protection (UVP)
- battery overcharge protection
- battery output protection against short circuit and reverse polarity connection
- jumper selectable battery charging current 0,6A/1,5A/2,2A/3A
- remote battery test (additional module required)
- START button for battery activation
- STOP button for disconnecting during battery-assisted operation
- optical indication – LED panel
  - output current readings
  - output voltage readings
  - failure codes with history
- optical indication of PSU overload OVL
- acoustic indication of failure
- adjustable times indicating AC power failure
- technical inputs/outputs with galvanic isolation
- EXT IN input of collective failure
- EPS technical output indicating AC power loss
- PSU technical output indicating PSU failure
- APS technical output indicating battery failure
- internal memory of PSU operating status
- protections:
  - SCP short circuit protection
  - OLP overload protection
  - OHP overheat protection
  - OVP over voltage protection
  - surge protection
  - against tampering: unwanted opening of the enclosure or detachment from the mounting surface
- convectional cooling
- warranty – 5 year from the production date

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**DESCRIPTION**

The buffer power supply is designed in accordance with the requirements of the EN 50131-6 standard, grade 1÷3 and II environmental class. It is intended for an uninterrupted supply of alarm system devices requiring stabilized voltage of 12V/DC (+/-15%).

Depending on a required protection level of the alarm system in the installation place, the PSU efficiency and the battery charging current should be set as follows:

* Grade 1, 2 - standby time 12h

**Output current 4,1A + 1,5A battery charge**

** Grade 3 - standby time 30h if the faults of the main power source are reported to the Alarm Receiving Centre - ARC (in accordance with 9.2 – EN 50131-1 standard).

**Output current 2,16A + 3A battery charge**

- standby time 60h if the faults of the main power source are reported to the Alarm Receiving Centre - ARC (in accordance with 9.2 – EN 50131-1 standard).

**Output current 1,08A + 3A battery charge**

*** General use – if the PSU is not mounted in an installation complaint with the EN-50131 standard, the acceptable current efficiency amounts to:

**1. Output current 5A + 0,6A battery charge**
**2. Output current 4,1A + 1,5A battery charge**
**3. Output current 3,4A + 2,2A battery charge**
**4. Output current 2,6A + 3A battery charge**
**Total current of the receivers + battery: 5,6A max.**

In case of power decay, a battery back-up is activated immediately. The PSU is housed in a metal enclosure (color: RAL 9005 - black) with battery space for a 65Ah/12V battery. It is fitted with micro switches indicating unwanted door opening (front panel) and detachment from the mounting surface.

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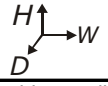
## Buffer, switched mode power supply unit 13,8V DC

| SPECIFICATIONS | |
|---|---|
| PSU type | A, protection class 1÷3, II environmental class |
| Mains supply | 230V/AC 50Hz (-15%/+10%) |
| Current consumption | 0,68 A |
| PSU's power | 78W |
| Efficiency | 77% |
| Output voltage | 11,0V÷13,8V DC – buffer operation<br>10,0V÷13,8V DC – battery-assisted operation |
| Output current | **- for grades 1, 2:**<br>**Io = 4,1A + 1,5A battery charging**<br>**- for grade 3:**<br>**Io = 2,16A + 3A battery charging -** (connection with ARC required, compliant with 9.2 – EN 50131-1)<br>**Io = 1,08A + 3A battery charging**<br>**- for general use:**<br>**Io = 5A + 0,6A battery charging**<br>**Io = 4,1A + 1,5A battery charging**<br>**Io = 3,4A + 2,2A battery charging**<br>**Io = 2,6A + 3A battery charging** |
| Output voltage adjustment range | 12V÷ 14,5V DC |
| Ripple voltage | 70 mV p-p max. |
| Current consumption by the PSU systems during batter-assisted operation | I = 20mA |
| Battery charging current | 0,6A / 1,5A/2,2A/3A – $I_{BAT}$ jumper selectable |
| Short circuit protection SCP | Electronic – current limitation and / or $F_{BAT}$ fuse failure in the battery circuit (requires fuse replacement)<br>Automatic return |
| Overload protection OLP | Program - equipment |
| Surge protection | varistors |
| Over voltage protection OVP | U>15,5V, disconnection of the output voltage, automatic return (AUX+ disconnection) |
| Battery circuit protection SCP and reverse polarity connection | F5A- current limiting, $F_{BAT}$ fuse (failure requires fuse-element replacement) |
| Deep discharge battery protection UVP | U<10V (± 2%) – disconnection (-BAT) of the battery, configuration with jumper $P_{BAT}$ |
| Indication of opening the cover of the power supply or detachment from the ground | Micro switch TAMPER |
| Technical outputs:<br>- EPS FLT; output indicating AC power failure | - type – electronic, max 50mA/30V DC, galvanic isolation 1500$V_{RMS}$<br>- time lag, approx. 5s/140s/17m/2h 20m (+/-5%) |
| - APS FLT; output indicating battery failure | - type – electronic, max 50mA/30V DC, galvanic isolation 1500$V_{RMS}$ |
| - PSU FLT; output indicating PSU failure | - type – electronic, max 50mA/30V DC, galvanic isolation 1500$V_{RMS}$ |
| EXT IN technical input | Voltage 'on' – 10÷30V DC<br>Voltage 'off' – 0÷2V DC<br>Level of galvanic isolation: 1500$V_{RMS}$ |
| Optical indication: | - LEDs on the PSU's pcb,<br>- LED panel<br>• output current readings<br>• output voltage readings<br>• failure codes with history |
| Additional accessories (not included) | - interface USB-TTL 'INTU'; communication: USB-TTL<br>- interface RS485 'INTR'; communication: RS485<br>- interface USB-RS485 'INTUR'; communication: USB-RS485<br>- interface Ethernet 'INTE'; communication: Ethernet<br>- interface WiFi "INTW'; wireless communication: Wi-Fi<br>- interface RS485-Ethernet "INTRE'; communication: RS485- Ethernet<br>- interface RS485-WiFi "INTRW'; wireless communication: RS485-WiFi |
| Operating conditions | 2nd environmental class, -10 °C÷40 °C |
| Enclosure | Steel plate DC01 1mm, colour RAL 9005 (black) |
| Enclosure dimensions | 400 x 370 x 178 (WxHxD) [mm] (+/- 2) |
| Net/gross weight | 8,5/9,8 kg |
| Fitting battery | 65Ah/12V (SLA) max.<br>380x185x165mm (WxHxD) max  |
| Closing | Cheese head screw x2 (at the front), lock assembly possible |
| Deklarations, warranty | CE, RoHS, 5 year from the production date |
| Notes | The enclosure does not adjoin the assembly surface so that cables can be led.<br>Convectional cooling. |



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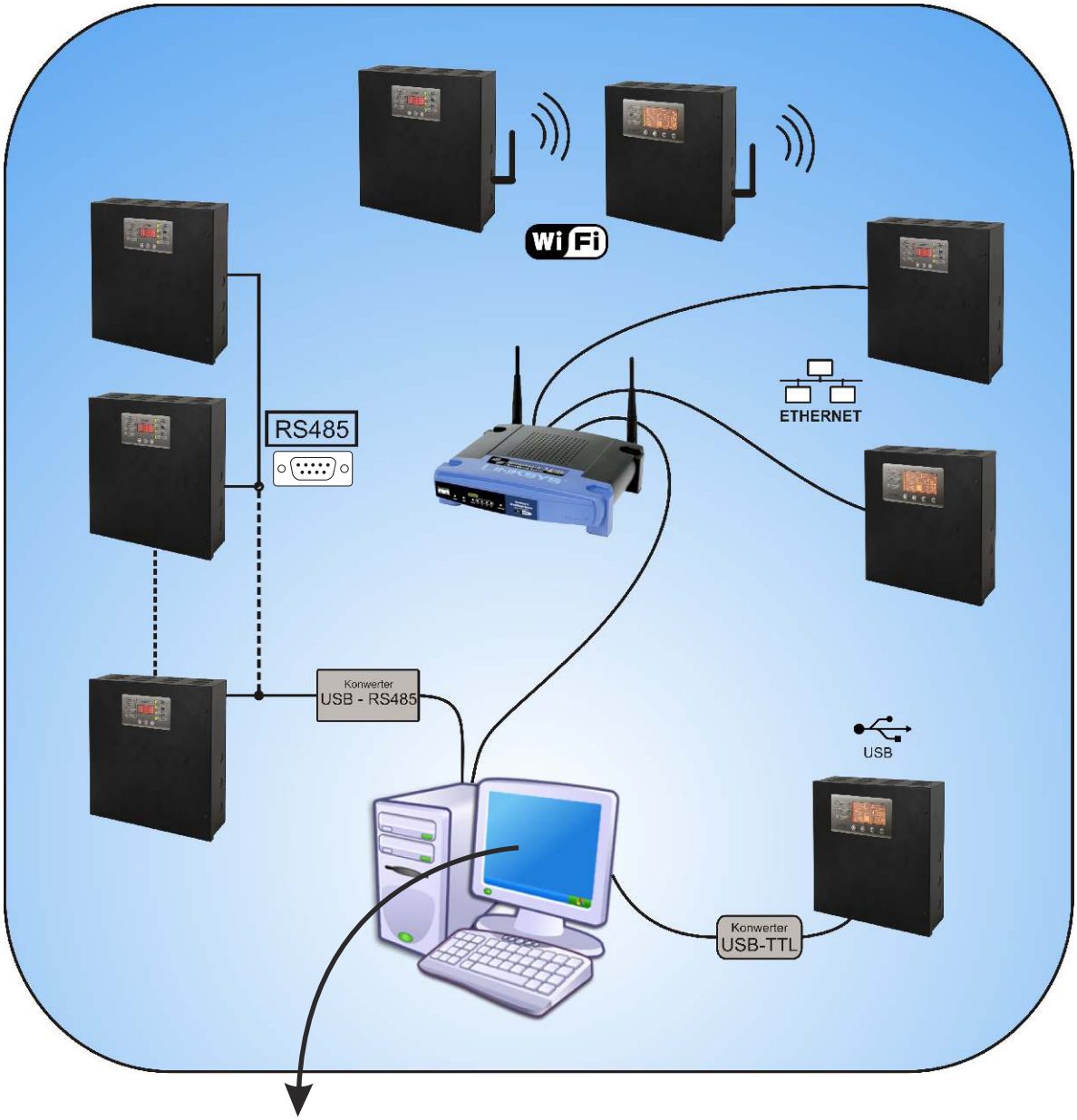
**Parameters remote control system.**
(additional modules required)




POWER SECURITY

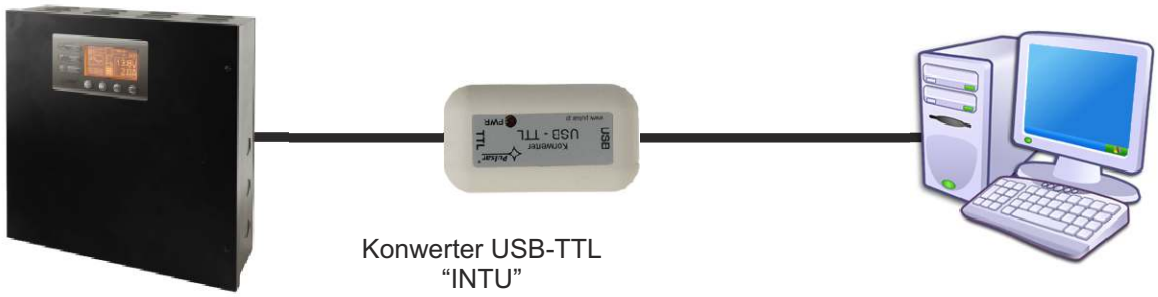

Tel. +48-14-610-19-40, fax: +48-14- 610-19-50, www.pulsar.pl, e-mail: sales@pulsar.pl

## Remote monitoring (options: Wi-Fi, Ethernet, RS485, USB).

The PSU has been adjusted to operate in a system that requires a remote control of the parameters in a monitoring centre. Transmitting data concerning PSU status is possible due to an additional, external communication module responsible for communication in Wi-Fi, Ethernet or RS485 standard. The USB –TTL interface enables the connection between the PSU and the computer.

**Communication via the USB-TTL interface.**

The easiest way of communication between the PSU and the computer is provided by the USB-TTL "INTU" interface. This interface allows direct connection between the computer and the PSU and is recognizable by the operating system as a virtual COM port.

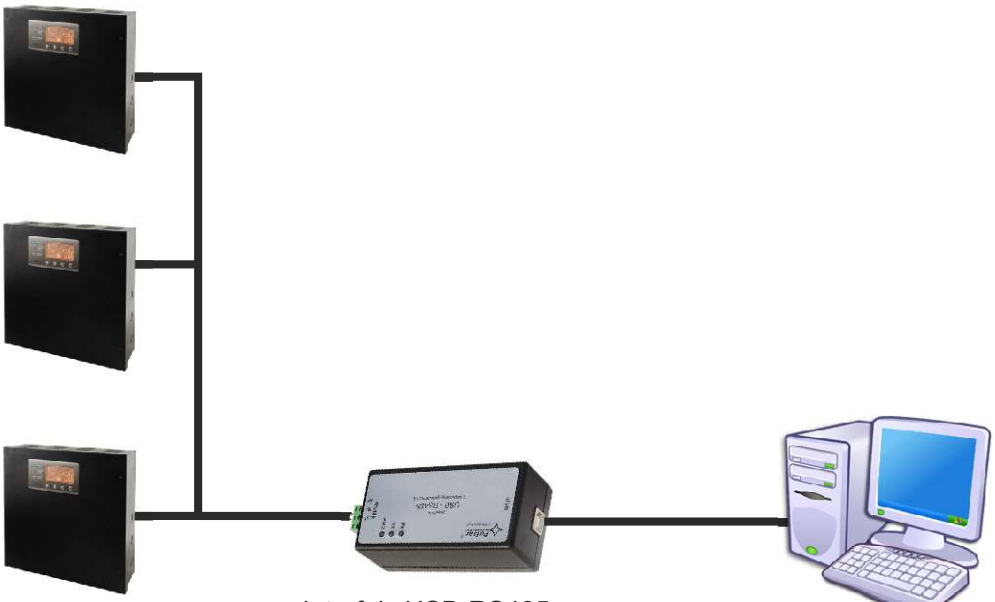



Konwerter USB-TTL
"INTU"

USB-TTL communication using the USB-TTL „INTU" interface.

**RS485 network communication.**

Another type of network communication is the RS485 communication using two-wire transmission path. To achieve this kind of data exchange, the PSU should be equipped with the additional RS485 TTL "INTR" interface, converting data from the PSU into the RS485 standard and the USB-RS485 "INTUR" interface, converting data from the RS485 network to the USB. Offered interfaces are galvanically isolated and protected against surges.

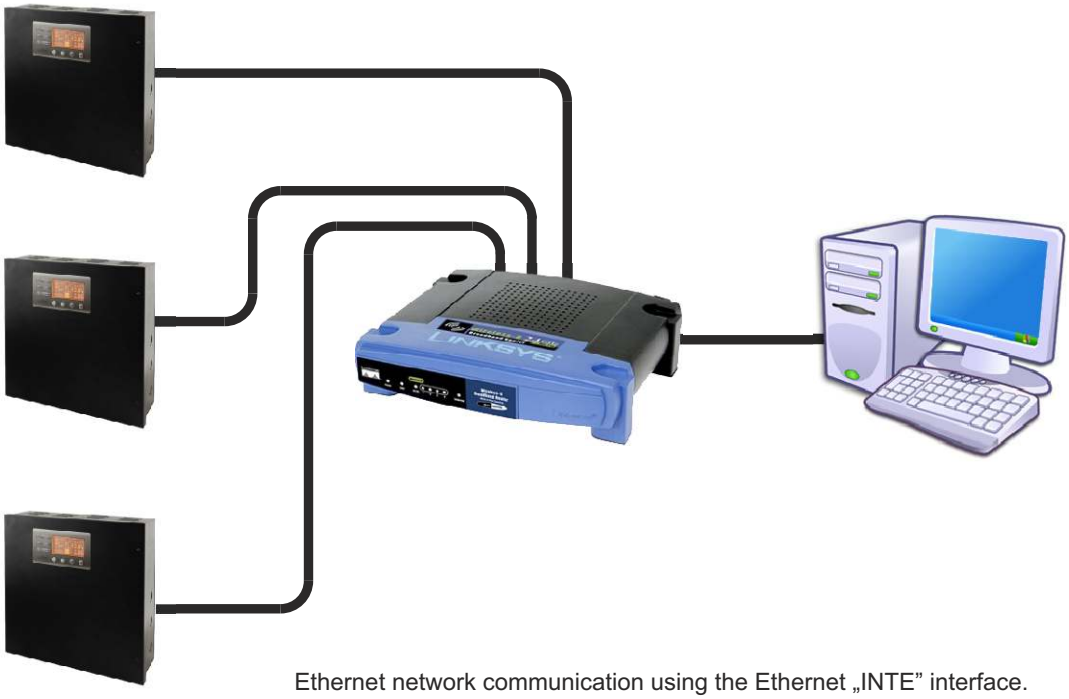


Interfejs USB-RS485
"INTUR"

Rs485 communication using the „INTR" and „INTUR" interfaces.

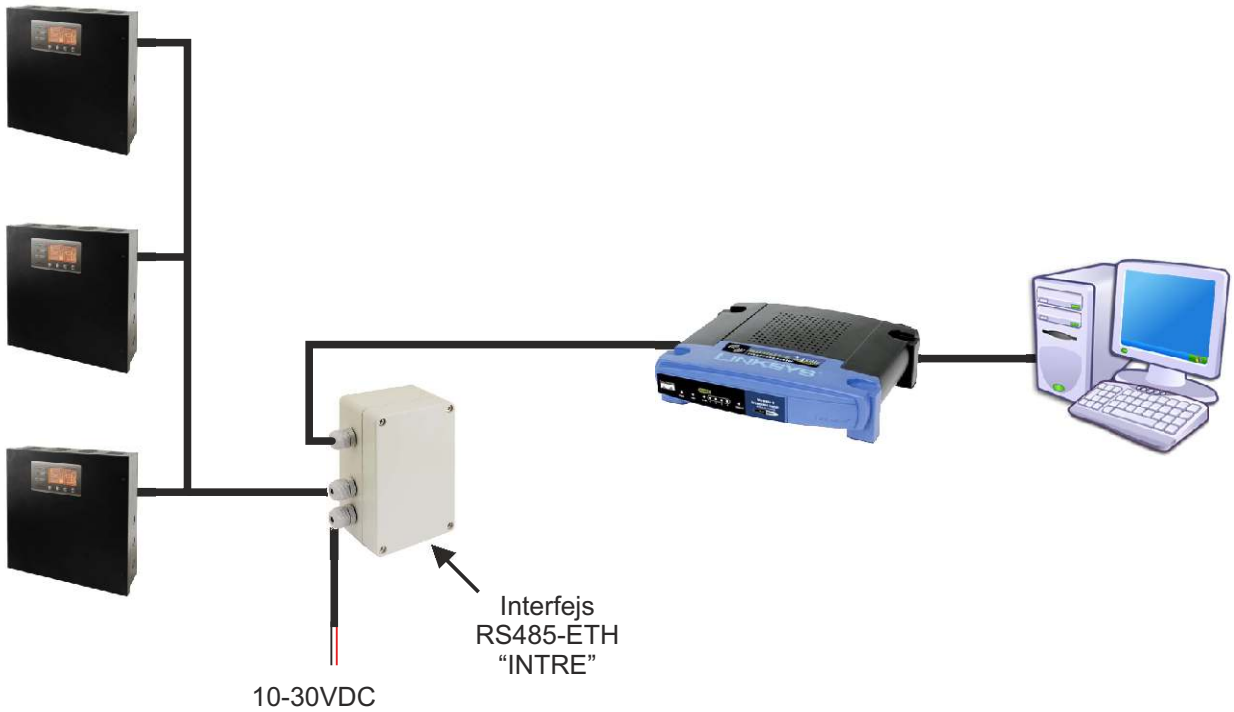
**ETHERNET network communication.**

Communication in the Ethernet network is possible due to the additional interfaces: Ethernet „INTE" and RS485-ETH „INTRE", according to the IEEE802.3 standard.
The Ethernet „INTE" interface features full galvanic isolation and protection against surges. It should be mounted inside the enclosure of the PSU.



Ethernet network communication using the Ethernet „INTE" interface.

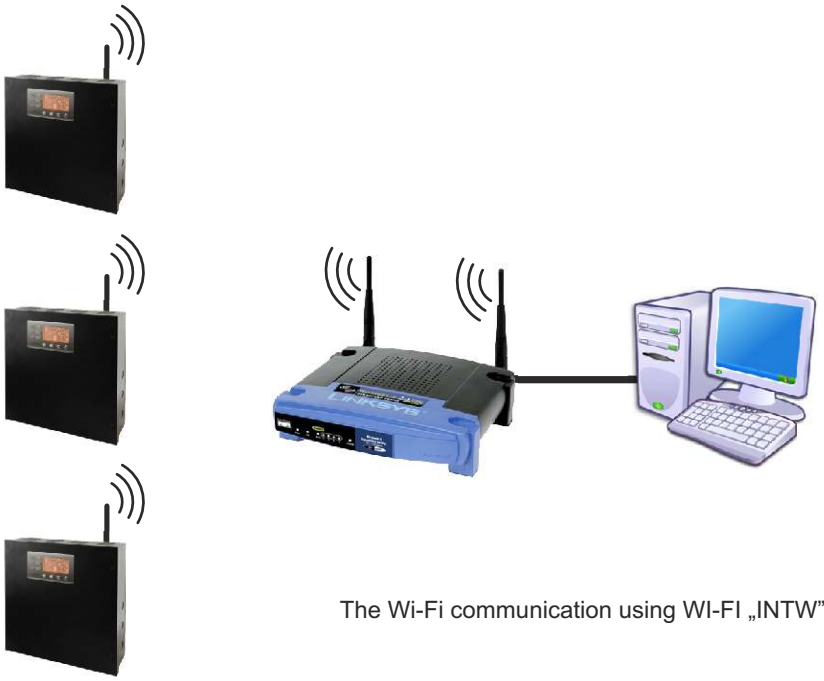
The RS485-WiFi „INTRE" interface is a device used to convert signals between the RS485 bus and the Wi-Fi network. For proper operation, the unit requires an external power supply in the range of 10÷30V DC e.g. drawn from a PSU of the PSBEN series.The physical connection of the interface takes place under galvanic isolation. The unit is mounted in a hermetic enclosure protecting against adverse environmental conditions.




Ethernet network communication using the RS485 „INTRE" interface.

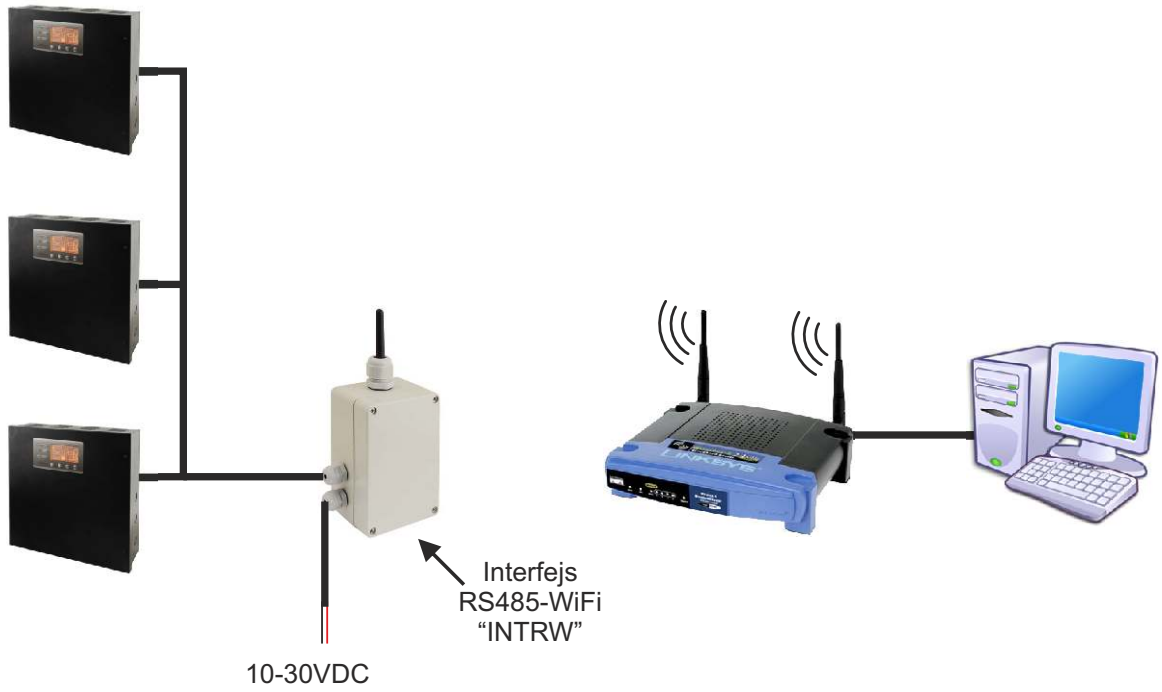
**The Wi-Fi wireless communication.**

The Wi-Fi wireless communication can be implemented on the basis of additional WI-Fi 'INTW' and RS485-WiFi interfaces, operating within 2,4GHz frequency band, according to the IEEE 802.11 bgn standard. The Wi-Fi "INTW" interface shall be mounted in a selected location inside the enclosure so that the antenna is exposed to the outside.



The Wi-Fi communication using WI-FI „INTW" interface.

The RS485-WiFi „INTRW" interface is a device used to convert signals between the RS485 bus and the Wi-Fi 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 series. The physical connection of the interface takes place under galvanic isolation. The unit is mounted in a hermetic enclosure protecting against adverse environmental conditions.




The Wi-Fi communication using the RS485-WIFI „INTRW" interface.

**OPTIONAL POWER SUPPLY CONFIGURATIONS:**

1. **Buffer power supply PSBEN 13,8V/5x1A/65Ah/INTERFACE**
   - PSBEN 5012E + LB8 5x1A (AWZ579, AWZ580)+65Ah+INTERFACE
2. **Buffer power supply PSBEN 13,8V/12V/65Ah/INTERFACE**
   - PSBEN 5012E + RN500 (13,8V/12V)+65Ah+INTERFACE
3. **Buffer power supply PSBEN 13,8V/12V/5x1A/40Ah/INTERFACE**
   - PSBEN 5012E + RN500 (13,8V/12V)+LB8 5x1A (AWZ579, AWZ580)+40Ah+INTERFACE