

# PSBEN/LED series power supply unit

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

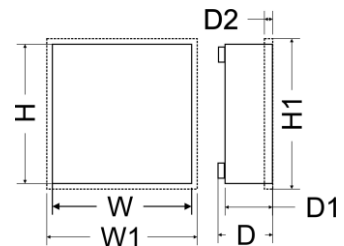


CODE: **PSBEN 10A12E** v.1.1/M

EN\*\*

TYPE: **PSBEN 13,8V/10A/65Ah/EN** buffer, switched mode power supply unit

**BLACK POWER**



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			PSBEN10A12E
	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

## 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 80%
- PSU current efficiency:
  - 5,41A – for grades 1, 2 \*
  - 2,16A – for grades 3 \*\*
  - 10A – 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 5,41A + 3A 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 compliant with the EN-50131 standard, the acceptable current efficiency amounts to:

**1. Output current 10A + 0,6A battery charge**

**2. Output current 9,1A + 1,5A battery charge**

**3. Output current 8,4A + 2,2A battery charge**

**4. Output current 7,6A + 3A battery charge**

**Total current of the receivers + battery: 10,6A 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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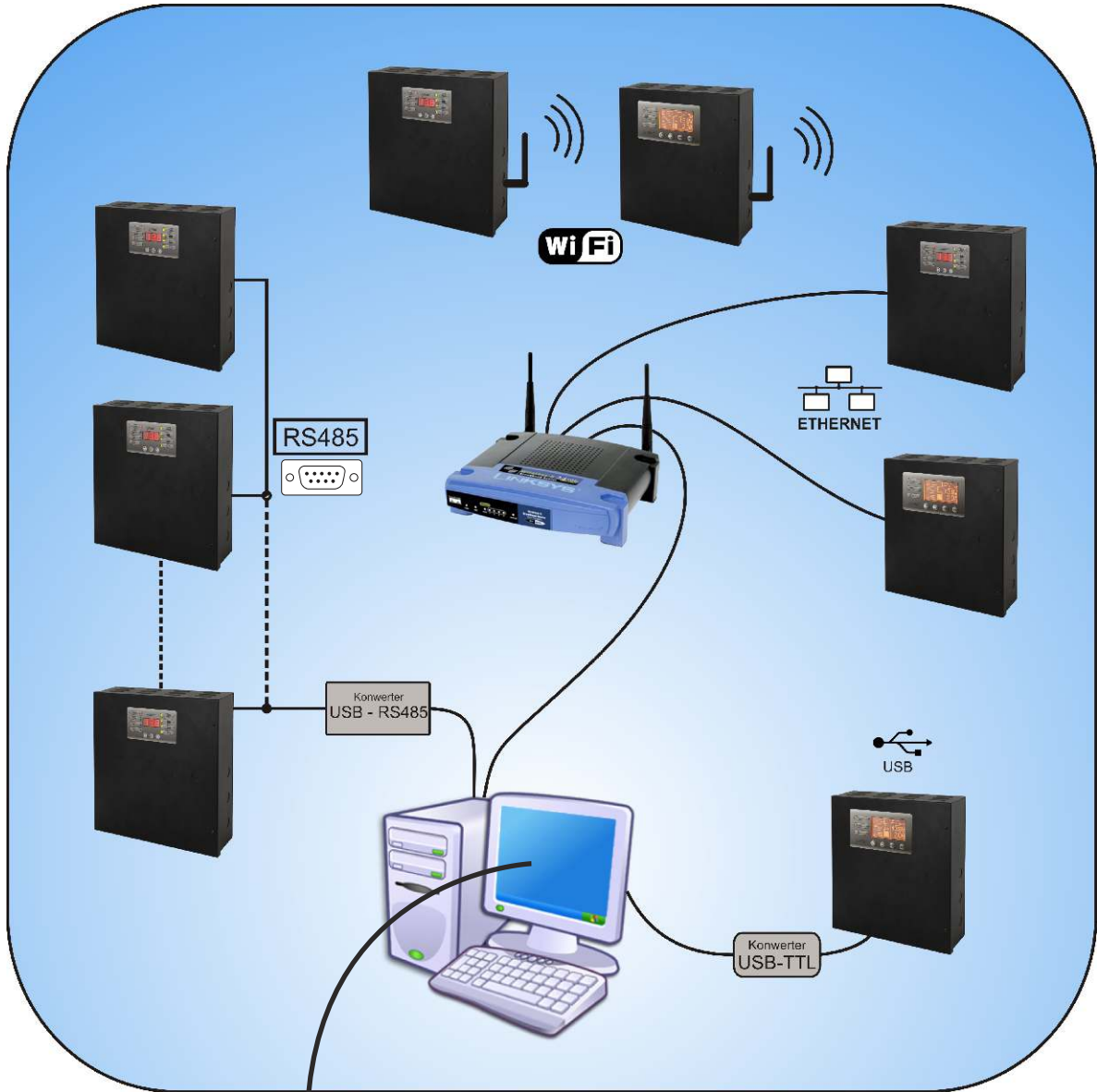
## Buffer, switched mode power supply unit 13,8V DC



SPECIFICATIONS	
PSU type	A, protection class 1+3, II environmental class
Mains supply	230V/AC 50Hz (-15%/+10%)
Current consumption	1,1 A
PSU's power	146W
Efficiency	80%
Output voltage	11,0V±13,8V DC – buffer operation 10,0V±13,8V DC – battery-assisted operation
Output current	<p>- for grades 1, 2:     I<sub>o</sub> = 5,41A + 3A battery charging</p> <p>- for grade 3:     I<sub>o</sub> = 2,16A + 3A battery charging - (connection with ARC required, compliant with 9.2 – EN 50131-1)     I<sub>o</sub> = 1,08A + 3A battery charging</p> <p>- for general use:     I<sub>o</sub> = 10A + 0,6A battery charging     I<sub>o</sub> = 9,1A + 1,5A battery charging     I<sub>o</sub> = 8,4A + 2,2A battery charging     I<sub>o</sub> = 7,6A + 3A battery charging</p>
Output voltage adjustment range	12V± 14,5V DC
Ripple voltage	120 mV p-p max.
Current consumption by the PSU systems during batter-assisted operation	I = 22mA
Battery charging current	0,6A / 1,5A/2,2A/3A –I <sub>BAT</sub> jumper selectable
Short circuit protection SCP	Electronic – current limitation and / or F <sub>BAT</sub> fuse failure in the battery circuit (requires fuse replacement) 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	T10A- current limiting, F <sub>BAT</sub> fuse (failure requires fuse-element replacement)
Deep discharge battery protection UVP	U<10,0 V (± 2%) – disconnection (-BAT) of the battery, configuration with jumper P <sub>BAT</sub>
Indication of opening the cover of the power supply or detachment from the ground	Micro switch TAMPER
Technical outputs: - EPS FLT; output indicating AC power failure  - APS FLT; output indicating battery failure - PSU FLT; output indicating PSU failure	<p>- type – electronic, max 50mA/30V DC, galvanic isolation 1500V<sub>RMS</sub> - time lag, approx. 5s/140s/17m/2h 20m (+/-5%)</p> <p>- type – electronic, max 50mA/30V DC, galvanic isolation 1500V<sub>RMS</sub></p> <p>- type – electronic, max 50mA/30V DC, galvanic isolation 1500V<sub>RMS</sub></p>
EXT IN technical input	Voltage 'on' – 10±30V DC Voltage 'off' – 0±2V DC Level of galvanic isolation: 1500V <sub>RMS</sub>
Optical indication:	<p>- LEDs on the PSU's pcb, - LED panel</p> <ul style="list-style-type: none"> <li>• output current readings</li> <li>• output voltage readings</li> <li>• failure codes with history</li> </ul>
Additional accessories (not included)	<p>- interface USB-TTL 'INTU'; communication: USB-TTL - interface RS485 'INTR'; communication: RS485 - interface USB-RS485 'INTUR'; communication: USB-RS485 - interface Ethernet 'INTE'; communication: Ethernet - interface WiFi 'INTW'; wireless communication: Wi-Fi - interface RS485-Ethernet 'INTRE'; communication: RS485- Ethernet - interface RS485-WiFi 'INTRW'; wireless communication: RS485-WiFi</p>
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	9,2/10,6 kg
Fitting battery	65Ah/12V (SLA) max. 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. Convectonal cooling.



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



**POWER SECURITY**



**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.**

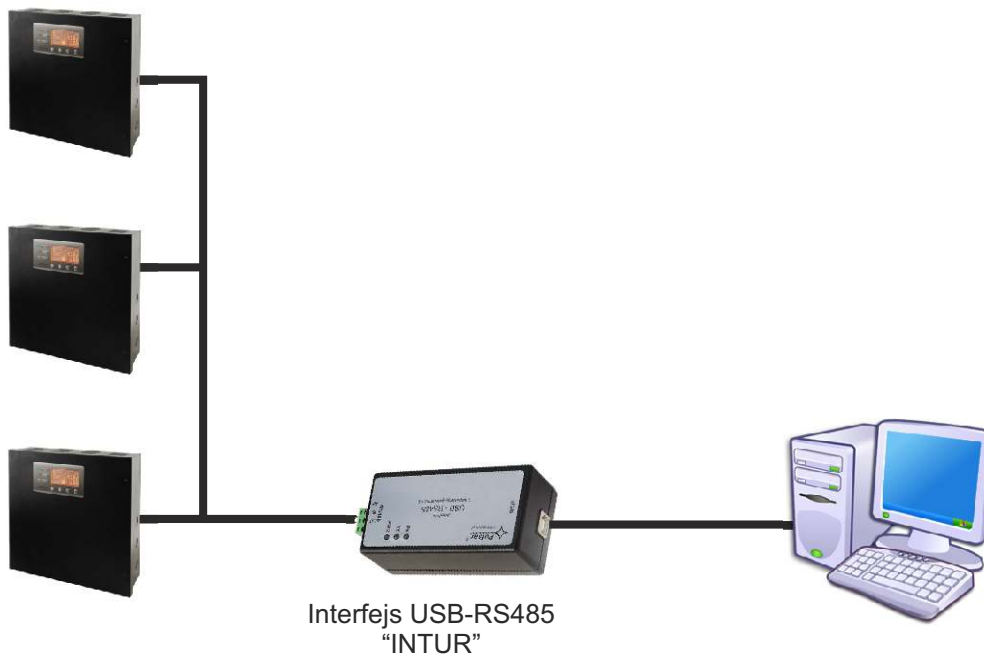
The easiest way of communication between the PSU and the computer is provided by the USB-TTL "INTU" interface. This interface allows direct connection between the computer and the PSU and is recognizable by the operating system as a virtual COM port.



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

**RS485 network communication.**

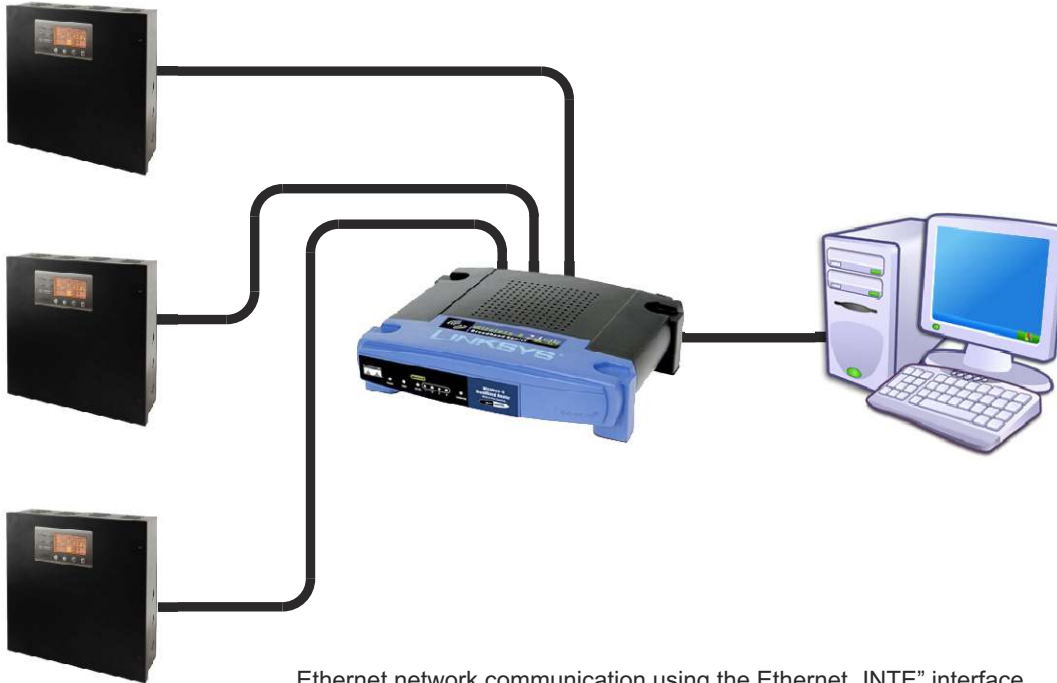
Another type of network communication is the RS485 communication using two-wire transmission path. To achieve this kind of data exchange, the PSU should be equipped with the additional RS485 TTL "INTR" interface, converting data from the PSU into the RS485 standard and the USB-RS485 "INTUR" interface,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



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

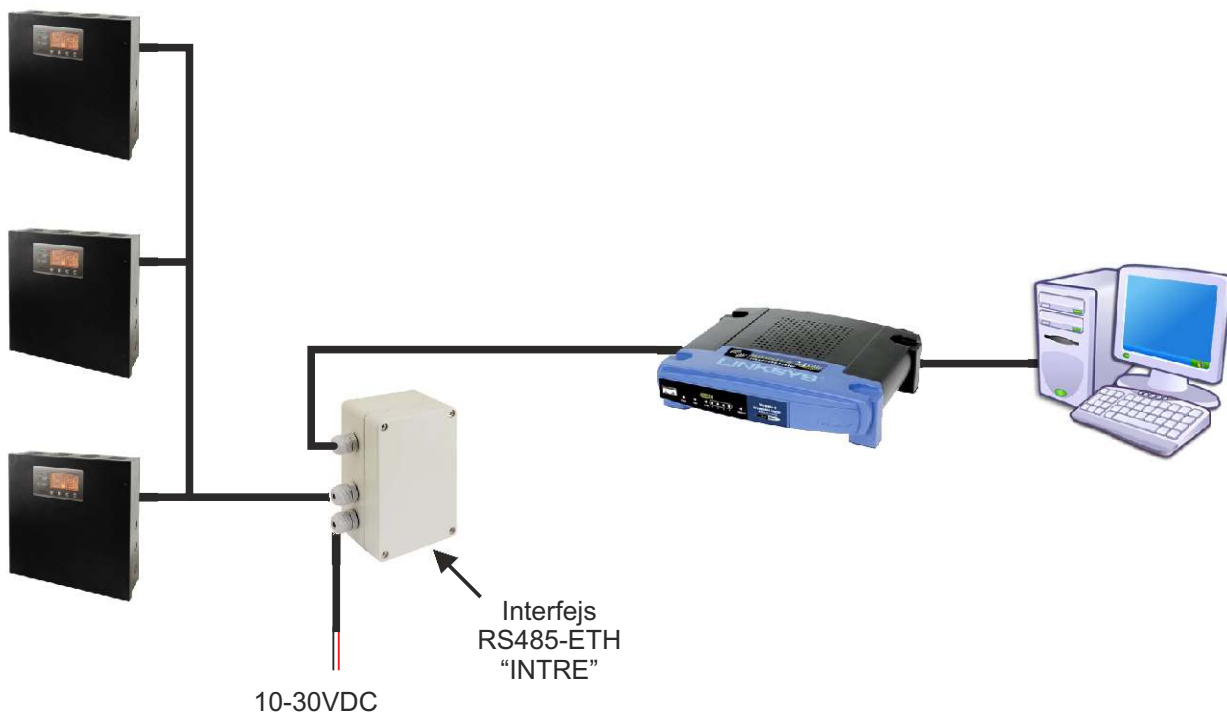
## ETHERNET network communication.

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.

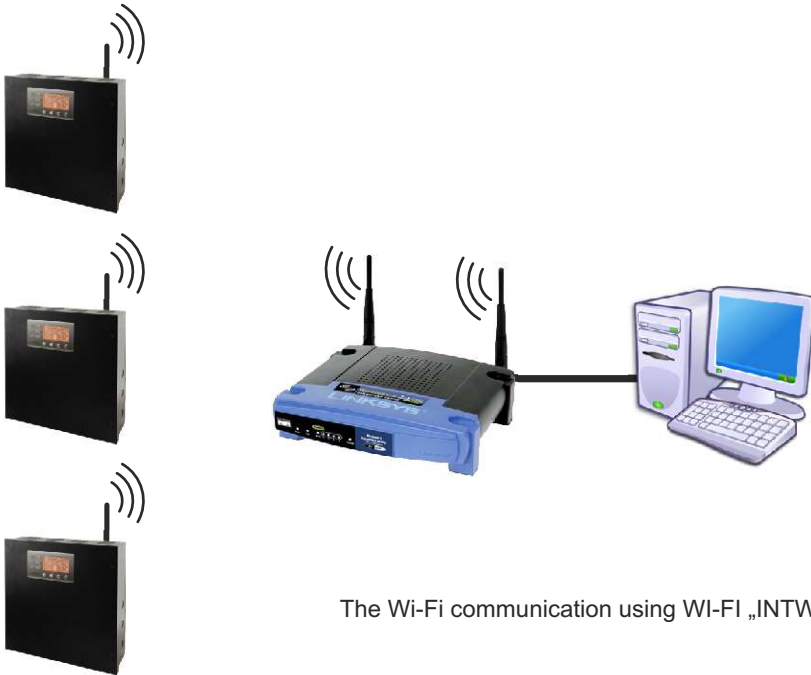
The RS485-WiFi „INTRE” interface is a device used to convert signals between the RS485 bus and the Wi-Fi network. For proper operation, the unit requires an external power supply in the range of 10÷30V DC e.g. drawn from a PSU of the PSBEN series. The physical connection of the interface takes place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



Ethernet network communication using the RS485 „INTRE” interface.

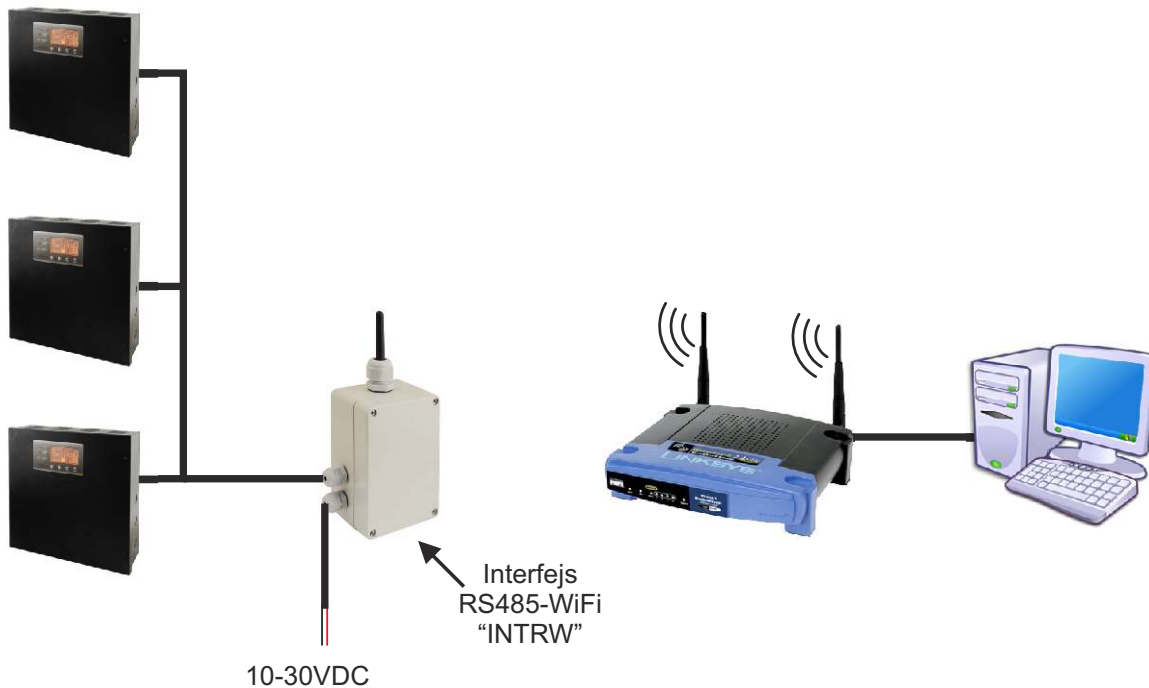
## The Wi-Fi wireless communication.

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/8x1A/65Ah/INTERFACE**
  - PSBEN 10A12E + LB8 8x1A (AWZ579, AWZ580)+65Ah+INTERFACE
- 2. Buffer power supply PSBEN 13,8V/2x12V/2x5A/65Ah**
  - PSBEN 10A12E + 2xRN500 (13,8V/12V)+65Ah