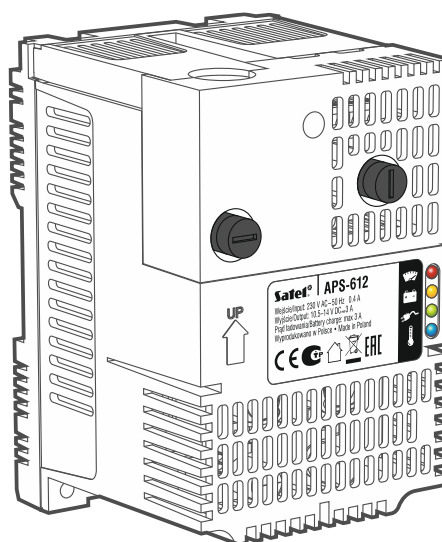


Power supply **APS-612**

Firmware version 3.00

EN



CE

aps-612_en 10/23

Satel®

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IMPORTANT

The device should be installed by qualified personnel.

Prior to installation, please read carefully this manual in order to avoid mistakes that can lead to malfunction or even damage to the equipment.

Changes, modifications or repairs not authorized by the manufacturer shall void your rights under the warranty.

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The following symbols may be used in this manual:



- note,



- caution.

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The APS-612 switching power supply is designed for powering 12 VDC devices. It is provided with a connector for integration with SATEL devices. The power supply meets the requirements of EN 50131 Grade 3.



If the power supply is to be integrated with the devices specified below, make sure their firmware version is at least:

- INT-ADR – v. 2.02,
- INT-E – v. 5.01,
- INT-IORS – v. 2.01,
- INT-O – v. 2.01,
- INT-ORS – v. 2.01,
- INT-PP – v. 2.01.

If the alarm system is to meet the standard requirements for Grade 3, the device connected to the power supply must also comply with the standard requirements for Grade 3 (e.g. INT-E, INT-O or INT-PP).

1. Features

- Nominal output voltage (according to IEC 38): 12 VDC.
- Precision output voltage control.
- Output current:
 - 3 A – power output,
 - 3 A – battery charging.
- Automatic switchover to backup power source (battery) in the event of main power source failure.
- Battery charging system.
- Battery status supervision (no battery, low battery, too high internal resistance of the battery).
- Low battery disconnect.
- Ability to work without a battery connected.
- Connector for integration with SATEL devices.
- Set of DIP-switches for configuration of the power supply settings.
- 4 LED indicators:
 - power output status,
 - battery status,
 - AC power status,
 - operating temperature.
- 4 OC outputs to indicate the following troubles:
 - AC power loss,
 - no battery, low battery or too high internal resistance of the battery,
 - power supply overload,
 - too high operating temperature.
- Audible signaling of troubles.
- Short-circuit protection of AC power circuit and battery charging circuit.

- Short-circuit and overload protection of the power output.
- Input interference filter.
- Suitable for mounting in enclosures, as well as in distribution switchboards on 35 mm DIN rail.

2. Description

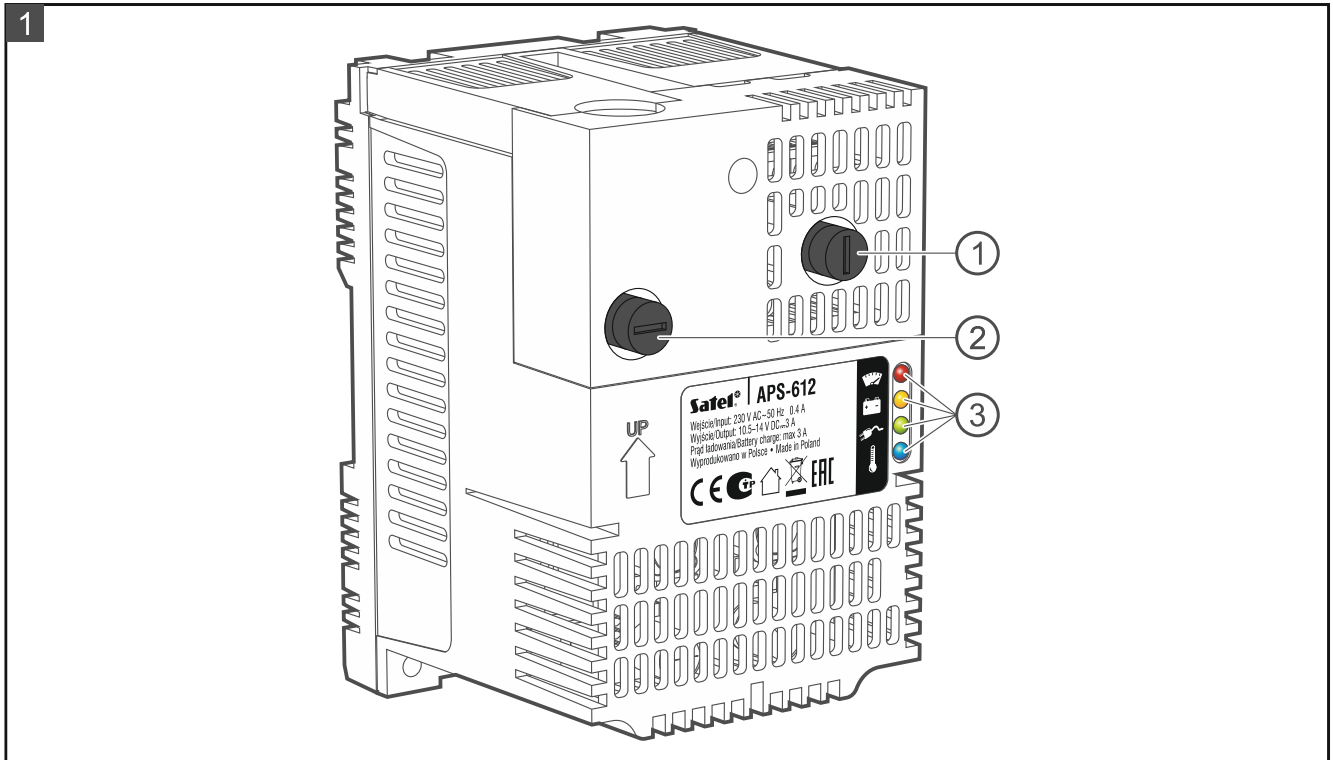


Figure 1 shows the power supply enclosure.

① F2 slow-blow fuse (T 3.15 A) – battery charging circuit protection.

② F1 fast-blow fuse (F 1 A) – AC circuit protection.

③ LEDs to indicate the power supply status:



– red LED – power output status:

OFF – output OK (current consumption below 3 A),

flashing – output overload (current consumption above 3 A).



– yellow LED – battery status:

ON – battery OK or the battery testing mode disabled,

flashing – low battery (battery voltage below 11.5 V or too high internal resistance of the battery),

OFF – no battery or blown F2 fuse.



– green LED – AC power status:

ON – AC power OK,

flashing – no AC power or blown F1 fuse.



– blue LED – operating temperature:

OFF – temperature OK (below 75°C),

flashing – temperature too high (above 75°C), which may result in damage to the power supply.

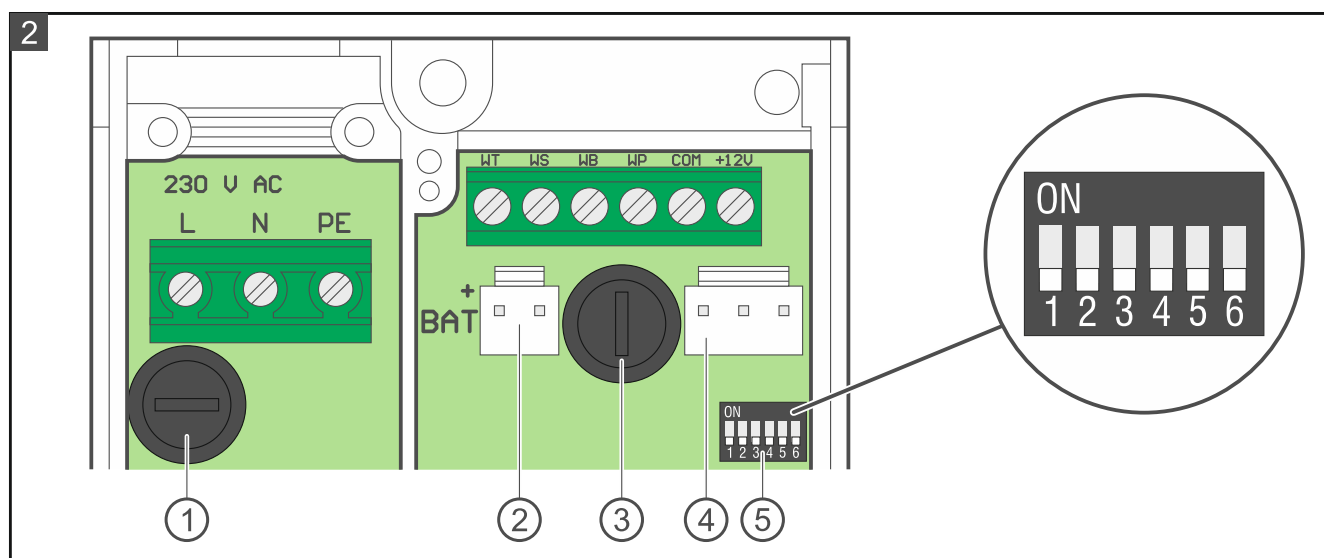
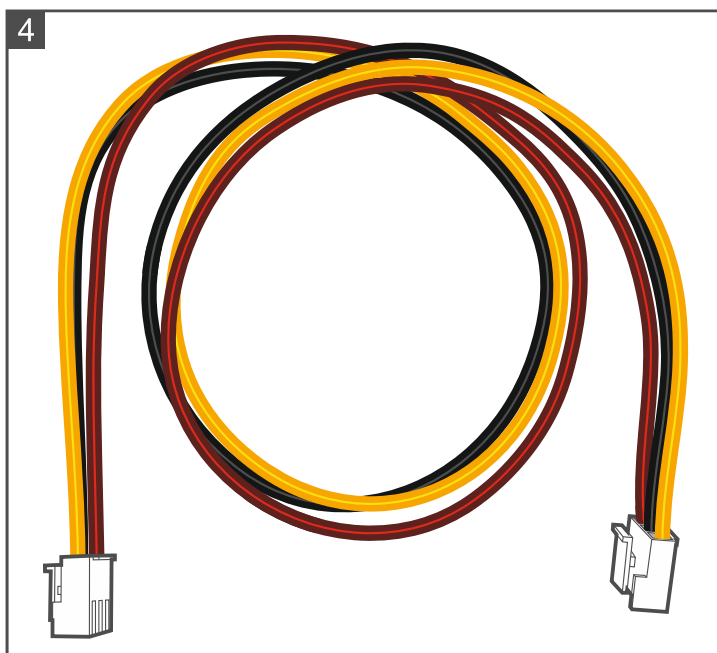
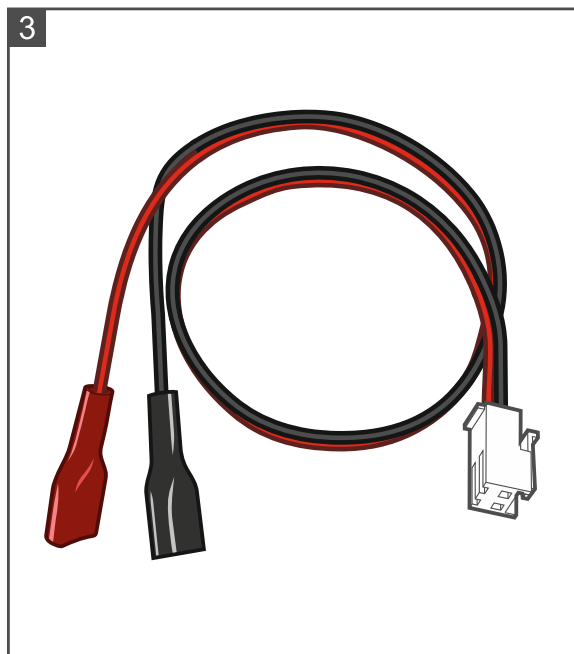


Figure 2 shows the part of the electronics board visible after the cover is removed.

- ① F1 fast-blow fuse (F 1 A) – AC circuit protection.
- ② battery connector. The wires are included in the set (Fig. 3).
- ③ F2 slow-blow fuse (T 3.15 A) – battery charging circuit protection.
- ④ connector for integration with a SATEL device provided with a connector of the same type. It is used to power the device and send information about the power supply status. The connecting cable is included in the set (Fig. 4).
- ⑤ DIP-switches. Used to configure the power supply (see: “Configuration”).



Description of terminals

- L** – terminal for connecting phase conductor.
- N** – terminal for connecting neutral conductor.
- PE** – terminal for connecting protective conductor.
- WT** – OC type output signaling high operating temperature.

- WS** – OC type output signaling 230 VAC power loss.
- WB** – OC type output signaling low battery (voltage below 11.5 V or too high internal resistance of the battery).
- WP** – OC type output signaling power output overload (current consumption above 3 A).
- COM** – common ground.
- +12V** – +12 VDC power output.

Outputs

In the normal state, the OC type output is shorted to common ground (0 V). In the active state (trouble signaling), the output is disconnected from common ground (high impedance).

As required by Grade 3, the power output is protected against overvoltage. This is to protect the devices connected to the power supply. The output overvoltage may be caused e.g. by installing devices with power on or by unprotected inductive elements in the installation, like relays, etc. It may result in blowing the fuse in the battery charging circuit or switching the power supply to the emergency mode.

3. Configuration

Use DIP-switches to configure the power supply settings.



The switch 6 must be set in OFF position.

Switch 1 – audible trouble signaling: ON=enabled / OFF=disabled.

Switch 2 – battery test: ON=enabled / OFF=disabled.

Switch 3 – battery charging current: ON=1 A / OFF=0.5 A.

Switches 4 and 5 – AC power failure reporting delay: see table below.

Switch	AC power failure reporting delay			
	3 s	60 s	600 s	1800 s
4	OFF	ON	OFF	ON
5	OFF	OFF	ON	ON



It is recommended that you activate the battery testing mode for continuous monitoring of the emergency power supply. The battery test has no effect on the +12V power output voltage (it remains stable).

The AC power failure reporting delay set in the power supply will be ignored, if the power supply is integrated with an expander that has been identified as an expander with power supply. The delay must be programmed in the expander settings.

4. Installation



Disconnect power before making any electrical connections.

Do not use batteries other than the recommended ones.

Do not connect deeply discharged battery to the power supply (with voltage across unloaded terminals below 11.5 V).

The used batteries must not be discarded, but should be disposed of in accordance with the existing rules for environment protection.

The power supply should be permanently connected to the 230 VAC mains power. Before you make the cabling, familiarize yourself with the electrical installation of the facility. Make sure that the circuit you choose for powering will be always alive. The power circuit should be protected with a proper safety device. The owner or user of the alarm system should be instructed on how to disconnect the power supply from the mains (e.g. by indicating the power circuit breaker).


As the emergency power source, use a 12 V sealed lead-acid battery or other 12 V battery with similar charging characteristics. Match the battery capacity to the current consumption of the connected devices. If the battery is to meet the requirements of the EN 50131 standard for Grade 3 / Grade 2, read section "Standard requirements for battery".



The minimum battery capacity must be 7 Ah. If the capacity is lower, the power supply will report a trouble when the battery testing mode is started.

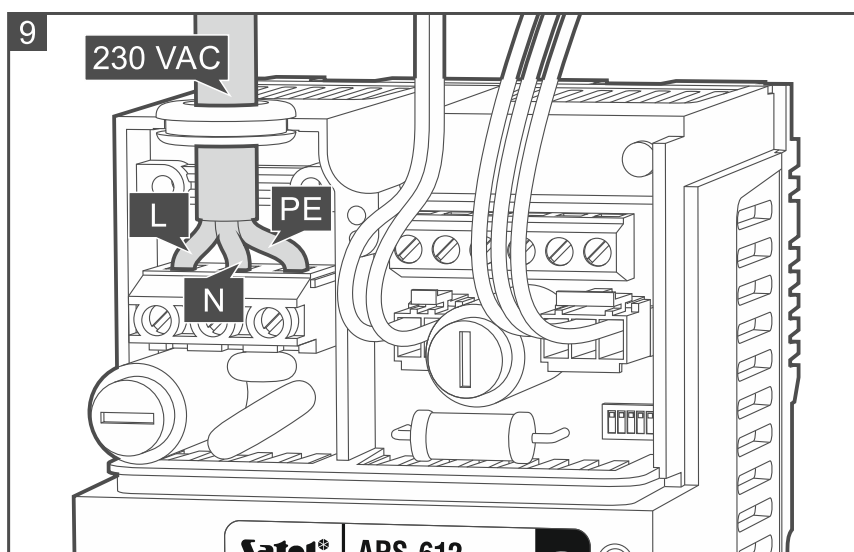
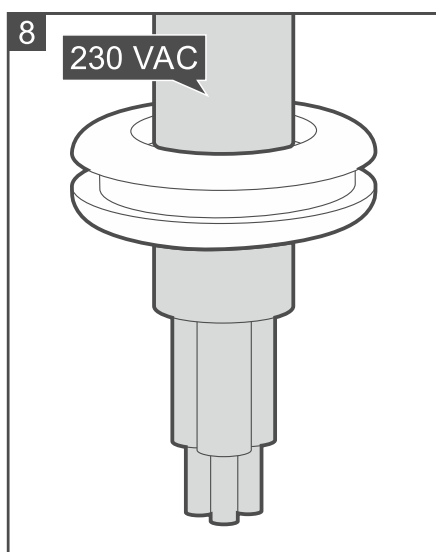
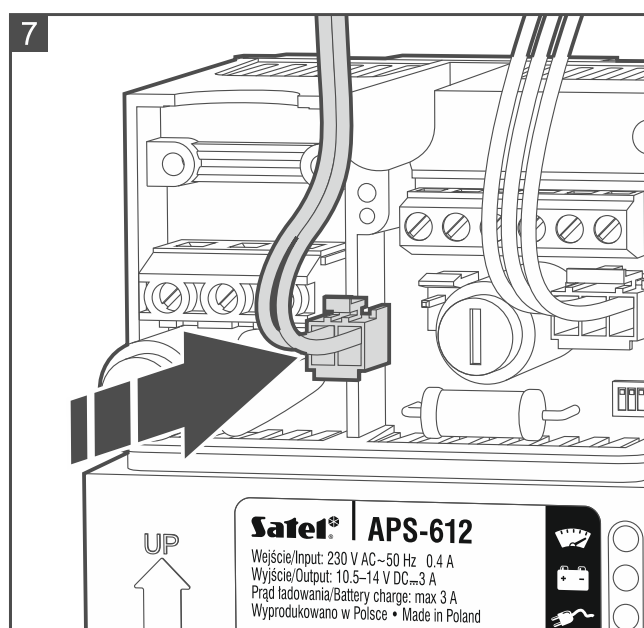
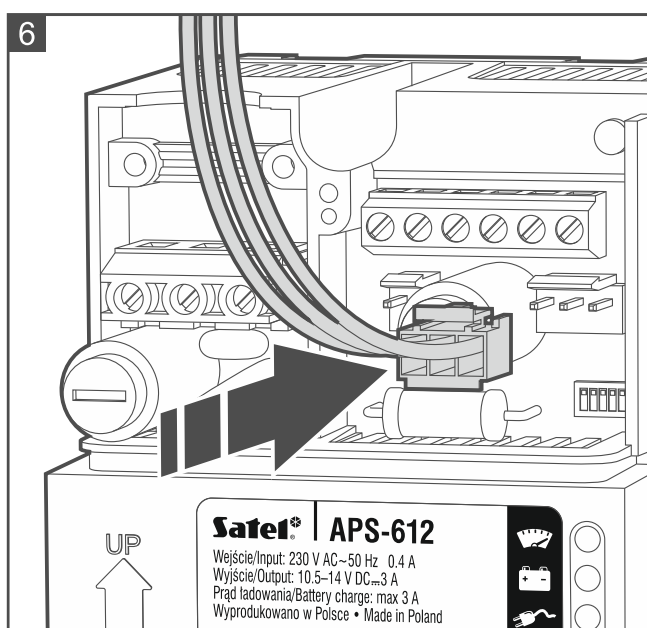
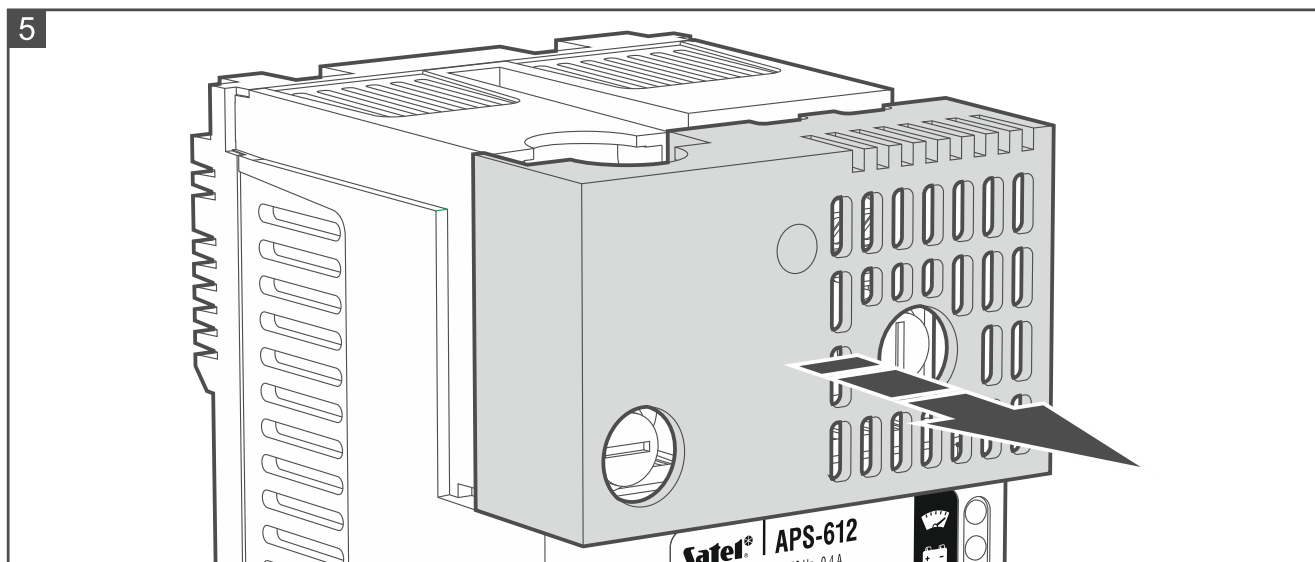
If there is no mains power and the battery voltage drops to 10.5 V, the power supply will turn off to protect the battery against deep discharge and damage.

Before you proceed to installation, estimate the current consumption by all devices which are to be powered from the APS-612 power supply. The sum of currents consumed by these devices must not exceed 3 A.

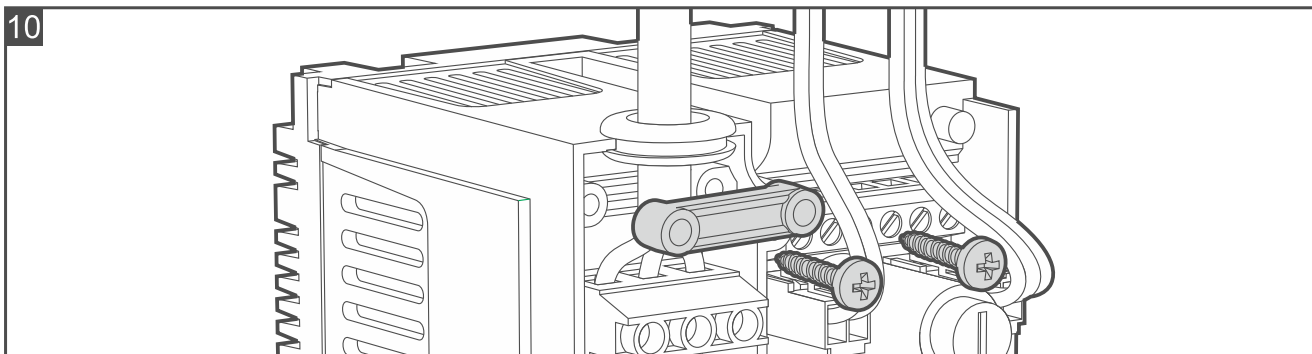
1. Remove the cover of power supply terminals (Fig. 5).
2. Use the DIP-switches (see Fig. 2) to configure the power supply.
3. If the connector for integration is to be used, connect to it the cable shown in Fig. 4 (Fig. 6).
4. If screw terminals are to be used for powering the devices, screw the wires to +12V and COM terminals.
5. Connect the battery wires (Fig. 3) to the connector on the electronics board (Fig. 7).
6. You can connect e.g. LEDs to the trouble signaling outputs or you can connect these outputs with control panel zones.
7. Run the 230 VAC power cable through the cable gland (Fig. 8).
8. Screw the 230 VAC power wires: phase conductor to L terminal, neutral conductor to N terminal, and protective conductor to PE terminal (Fig. 9).
9. Screw the element fastening the 230 VAC power cable (Fig. 10).
10. Replace the cover of power supply terminals (Fig. 11) and fasten it with a screw (Fig. 12).
11. Connect the battery: battery positive to red wire, negative – to black.
12. Turn on 230 VAC power. When the AC power is present, the power supply will signal it with a single beep sound and the  LED turning ON.



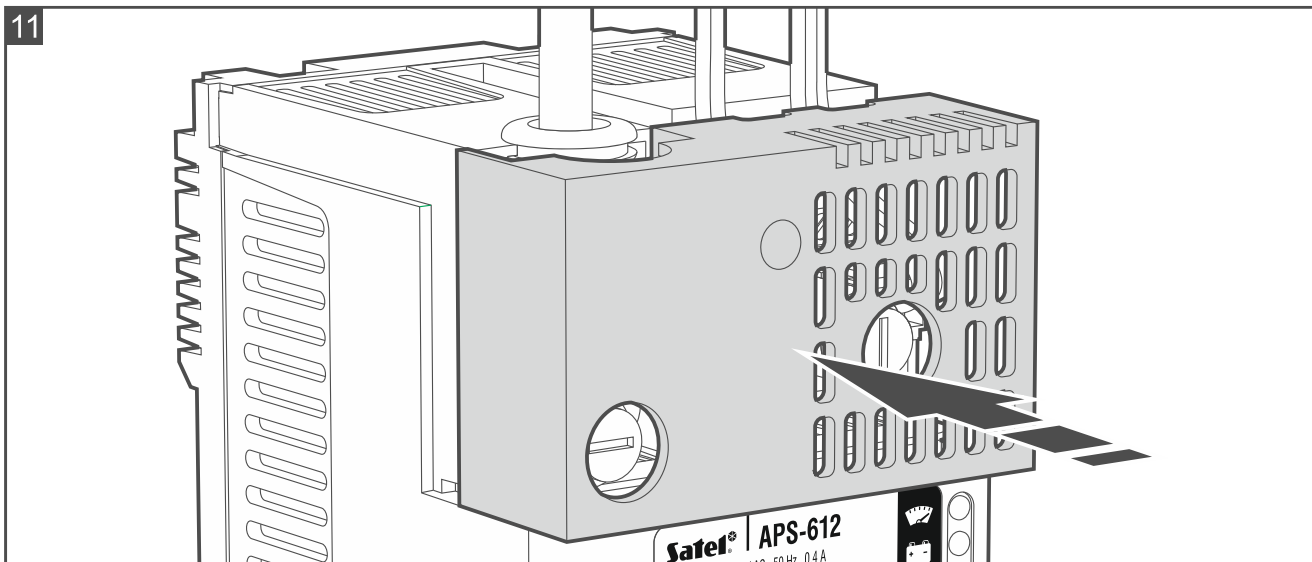
If no LED is turned ON after powering on, this may suggest that the power output has been shorted to common ground or there has been a voltage spike. The power supply enters the emergency mode then.



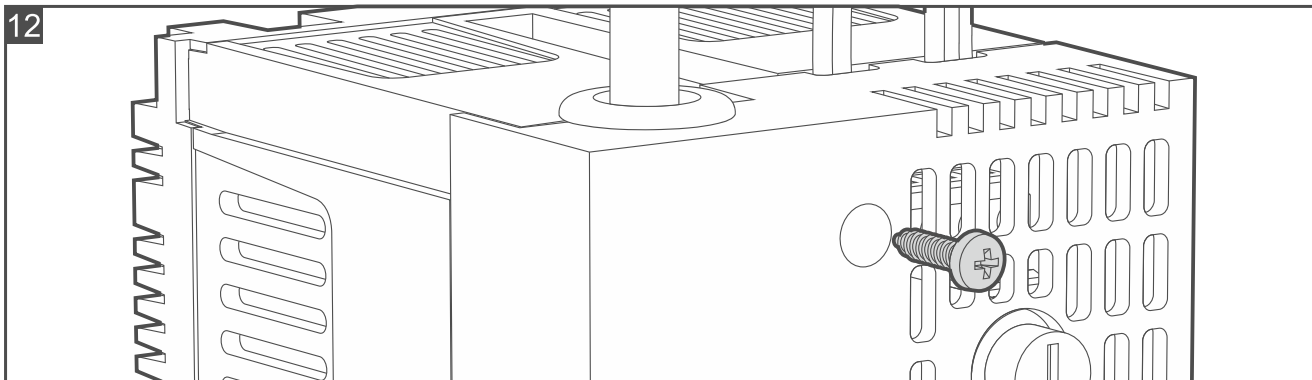
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5. Standard requirements for battery



If the alarm system is to meet the standard requirements for Grade 3, the power supply battery should ensure 30 hours of device operation. The power supply should be able to charge the battery to 80% in 24 hours.

If the alarm system is to meet the standard requirements for Grade 2, the power supply battery should ensure 12 hours of device operation.

See table below for information on what current should be used for charging batteries of different capacities according to Grade 3 or Grade 2 requirements.

Battery capacity	Charging current	Power supply output current
Grade 3		
90 Ah	3 A	3 A
60 Ah	3 A	2 A
30 Ah	3 A or 1.5 A	1 A
Grade 2		
18 Ah	3 A or 1.5 A	3 A
12 Ah	1.5 A	2 A
7 Ah	1.5 A	1 A

6. Battery testing

After starting the power supply, provided that the battery testing mode is enabled and a sufficiently charged battery is connected, the  LED should go on. The battery is checked every 4 minutes. A full battery test cycle is up to 12 minutes. If the battery voltage drops below 11.5 V, the  LED will start flashing and the WB output will be activated (optionally, the trouble may be audibly signaled).

7. Specifications

Power supply type (according to EN 50131).....	A
Supply voltage	195...265 VAC
PF (Power Factor Correction)	up to 0.98
Efficiency	up to 90%
Nominal output voltage (according to IEC 38)	12 VDC
Actual output voltage	13.8 VDC
Output current:	
supply	3 A
battery charging (selectable)	1.5 A / 3 A
Current consumption of power supply circuits	80 mA
Battery failure voltage threshold	11.5 V \pm 10%
WS, WB, WP, WT outputs (OC type).....	50 mA
Security grade according to EN 50131	Grade 3
Environmental class.....	II
Operating temperature range.....	-10...+55°C
Enclosure dimensions.....	78 x 122 x 84 mm
Weight.....	525 g