



**PSU-S-12V/L-3.5A/9/PTC-TR-MC**  
**AWZ 825**  
v.2.2  
EN  
**Linear, stabilized power supply unit.**

Edition: 3 from the 04<sup>th</sup> September 2009  
Supersedes edition: 2 from the 30<sup>th</sup> June 2009



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## 1. Technical description.

### 1.1. General description.

Buffer power supply unit is designed for the supply of equipment requiring the stabilized voltage of **12V DC (11,0V÷14,0V DC)** and the total output current of **3.5A**. Basic power supply unit features:

- **nine outputs** protected independently by fuses: failure (short circuit) in any output circuit, triggers SCP protection and disconnects DC (+U) power supply circuit;
- **optical indication of operation** informs about the status of: outputs, AC supply;
- **protections:** short-circuit (SCP), overload (OLP), , overhear (OHP), overvoltage (OVP);
- **short-circuit protection:** automatic fuses (PTC)
- **overvoltage protection** for every output groups: A, B, C , in case of exceeding the threshold voltage at the output, the unit protects receivers by disconnecting the output. The system activation is indicated by red diode illumination placed on the unit board 3 x OVP (AovP, BovP, CovP);
- **output voltage adjustment: A, B, C.** In case of installation where occurs major voltage drops on the resistance of wires connected to receivers, it is possible to adjust voltage value with the use of P<sub>A</sub>,P<sub>B</sub>,P<sub>C</sub> voltage adjustment.
- metal casing (color RAL 9003) with LED signalization panel.

### Information about types:

Model	Description
<b>AWZ150 PSU-S-12V/L-1A/5/FTA-TR-MC</b>	12V/DC stabilized linear power supply unit with five independent outputs, protected by fuses. The total current capacity 1A@12V, with output voltage adjustment. Metal casing IP20 with a space for a LED signalization panel.
<b>AWZ250 PSU-S-12V/L-2A/5/FTA-TR-MC</b>	12V/DC stabilized linear power supply unit with five independent outputs, protected by fuses. The total current capacity 2A@12V, with output voltage adjustment. Metal casing IP20 with a space for a LED signalization panel.
<b>AWZ255 PSU-S-12V/L-2A/5/PTC-TR-MC</b>	12V/DC stabilized linear power supply unit with five independent outputs, protected by polymer fuses (PTC, automatic). The total current capacity 2A@12V, with output voltage adjustment. Metal casing IP20 with a space for a LED signalization panel.
<b>AWZ820 PSU-S-12V/L-3.5A/9/FTA-TR-MC</b>	12V/DC stabilized linear power supply unit with nine independent outputs, protected by fuses. The total current capacity 3,5A@12V, with output voltage adjustment. Metal casing IP20 with a space for a LED signalization panel.
<b>AWZ825 PSU-S-12V/L-3.5A/9/PTC-TR-MC</b>	12V/DC stabilized linear power supply unit with nine independent outputs, protected by polymer fuses (PTC, automatic). The total current capacity 3,5A@12V, with output voltage adjustment. Metal casing IP20 with a space for a LED signalization panel.

**1.2. Block diagram (fig.1).**

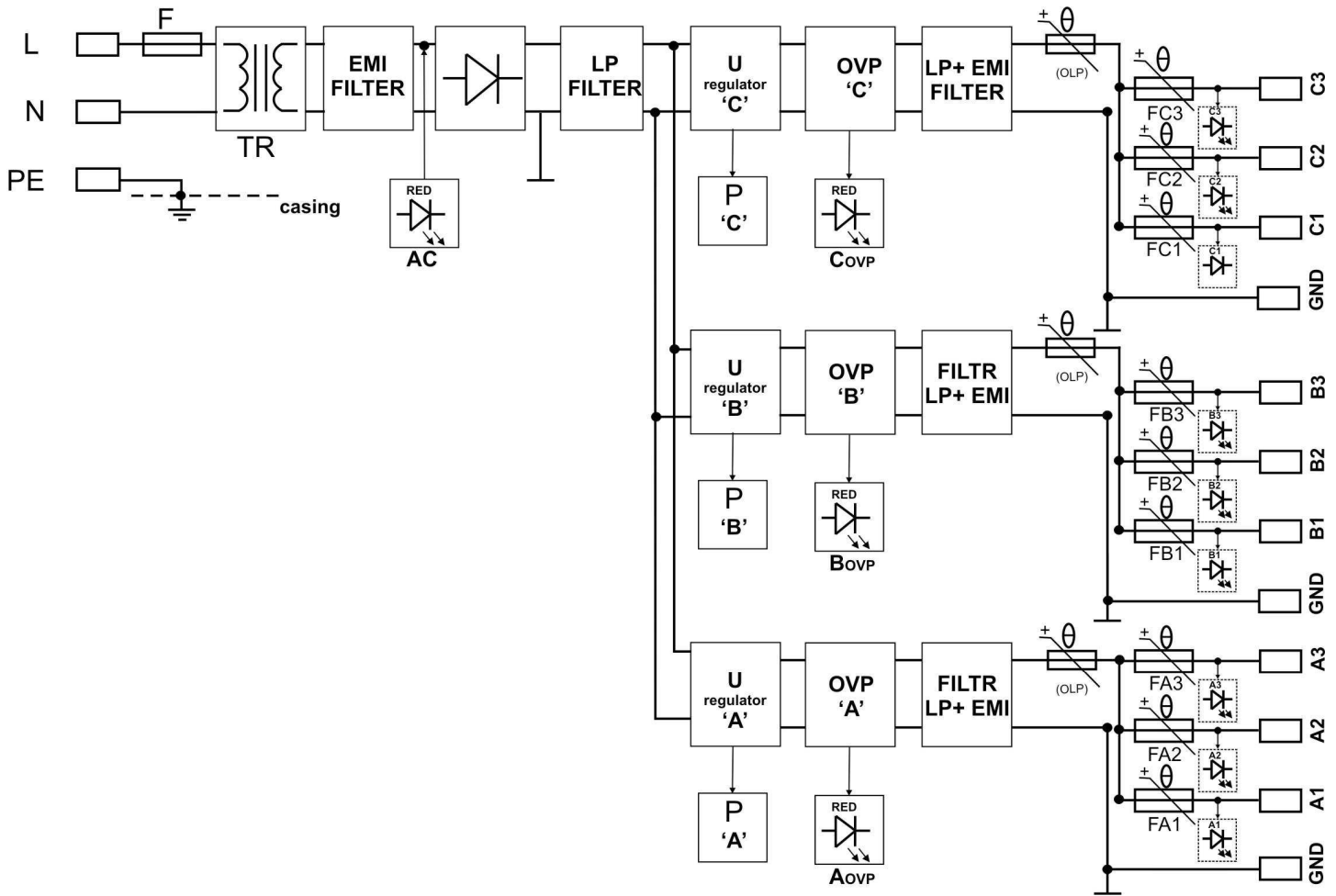



Fig.1. Block diagram of the power-supply unit.

**1.3. Description of elements and power supply connectors (tab.1, tab.2, fig.2).**

**Table 1.**

Element no [Fig. 2]	Description
[1]	<b>A1, A2, A3, B1,B2, B3, C1, C2, C3:</b> optical signaling of outputs status <b>AC:</b> AC supply signaling <b>AOVP, BOVP, COVP:</b> optical signaling of (PCB) overvoltage protection (OVP)
[2]	<b>FA1, FA2, FA3, FB1, FB2, FB3, FC1, FC2, FC3:</b> PTC fuses in the output circuit (DC)
[3]	<b>P: A, B, C voltage adjustments,</b> output voltage regulation for a particular group
[4]	<b>OUTPUTS of power supply unit</b> connector (Tab.2)
[5]	<b>F</b> fuse in the power supply circuit (230V/AC)
[6]	<b>L-N</b> power-supply connector 230V/AC, <b>PE-</b> shock protection connector 

Tab.1. Power-supply unit elements.

**Table 2.**

[4]	Description of power-supply unit outputs
<b>A1, A2, A3, B1, B2, B3, C1, C2, C3,</b>	DC supply outputs: +U
<b>GND (x3)</b>	DC supply output: -U (GND, common holder)

Tab.2. Power supply unit output terminals.

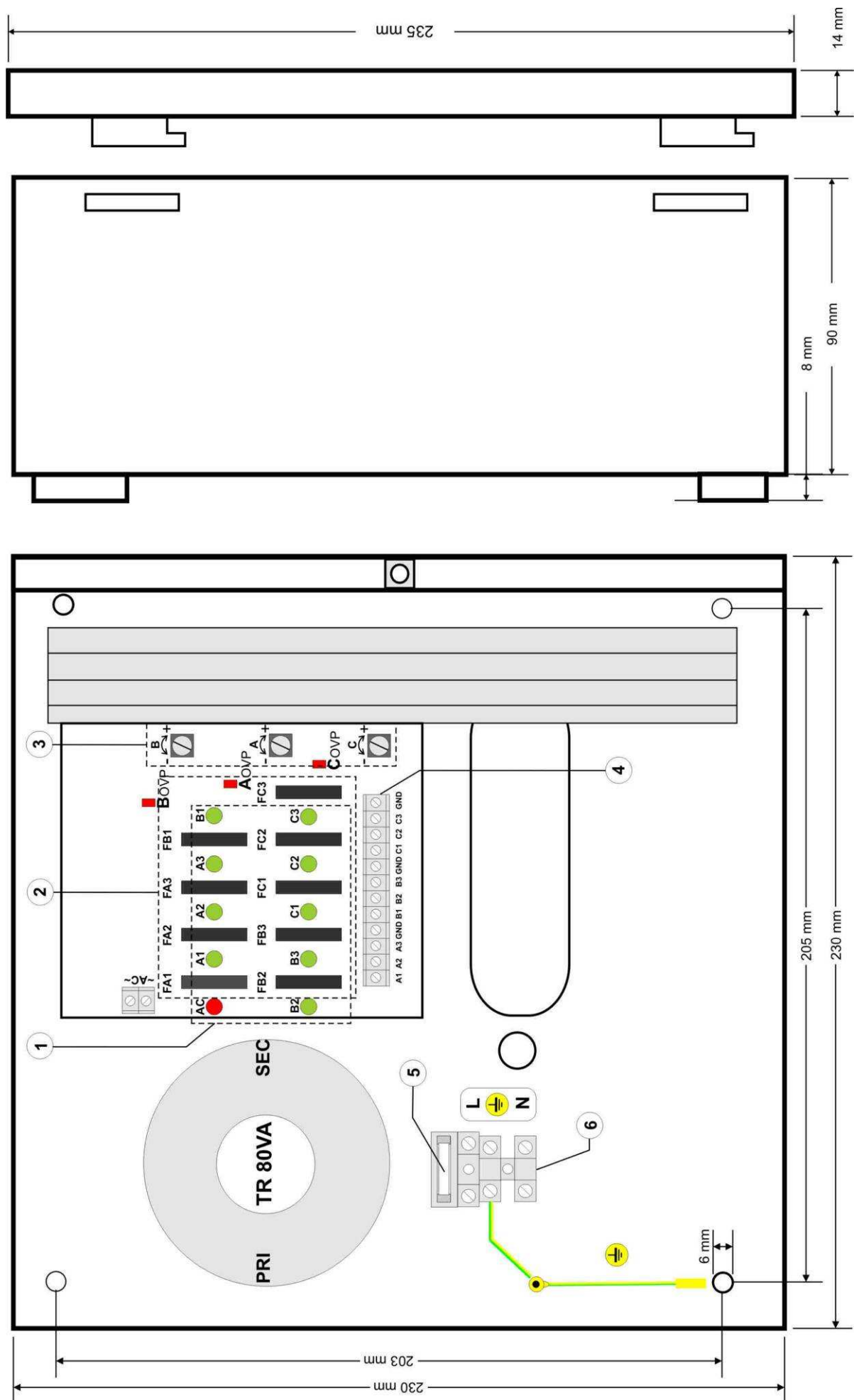


Fig.2. The view of the power-supply unit.

**1.4. Technical parameters:**

- electrical parameters (tab.3)
- mechanical parameters (tab.4)
- operation safety (tab.5)
- operation parameters (tab.6)

**Electrical parameters (tab. 3).**

Supply voltage	230V/AC (-15%/+10%)
Supply frequency	50Hz
PSU module power P	42W max.
Current consumption	0.5A/230V
Output voltage	12,0V DC nom.
Output voltage setting, escalation and keeping time	60ms/70ms/12ms
Voltage setting range	11,0V÷14,0VDC (-/+5%), 3x adjustment A, B, C
Voltage adjustment range	± 1%
Ripple voltage	<10 mVp-p max.
Output current	9x 0,4A for fuses PTC 0,5A ΣI= 3,5A max (total, uninterrupted)
Short-circuit protection SCP, OLP	9x 0, 5A limited via PTC fuse, reset requires load disconnecting or unit supply voltage for about 1 min.
Overload protection OLP	110%÷150% power supply power, limitation for three sections by PTC fuses, reset requires turn off the supply or load for about 1 min.
Overvoltage protection OVP	U>14,5V (-/+5 disconnecting output voltage of a particular group (A, B, C), automatic recovery
Optical indication: diodes 1÷5 (green)  diode AC (red)  diodes AOVP, BOVP, COVP (red) (on unit PCB)	- outputs status A1, A2, A3, B1, B2, B3, C1,C2, C3 normal status = lights failure status= does not light - supply status AC: normal status = lights failure status= does not light - OVP overvoltage protection status: normal status = lights failure status= does not light
Fuse F Fuse F A1÷F C3	T 1A/250V PTC 0,5A/ 50V

**Mechanical parameters (tab. 4).**

Casing dimensions	235 x 235 x 98 (230 x 230 x 90) (WxHxD)
Fixation	205 x 203 x Φ 6 WxH
Net/gross weight	3,0/3,2 kg
Casing color	RAL 9003
Closing	Cheese screw: at the front of the casing
Connectors	Supply 230Vac: Φ0,63-2,05 (AWG 22-12) DC outputs : Φ0,51- 2,05 (AWG 24-12)
Notes	The casing is distant from the assembly surface so that cables can be installed convection cooling

**Operation safety (tab.5).**

Protection class PN-EN 60950-1:2004	I (first)
Protection grade PN-EN 60529: 2002 (U)	IP20
Electrical strength of insulation: - between input (network) circuit and output circuits of power-supply (I/P-O/P) - between input circuit and PE protection circuit (I/P-FG) - between output circuit and PE protection circuit (O/P-FG)	3000 V/AC min. 1500 V/AC min. 500 V/AC min.
Insulation resistance: - between input circuit and output or protection circuit	100 MΩ, 500V/DC

**Operation parameters (tab.6).**

Operation temperature	-10°C...+40°C
Storage temperature	+5°C...+40°C
Relative humidity	30%...90%, without condensation
Vibrations during operation	Unacceptable
Impulse waves during operation	Unacceptable
Direct isolation	Unacceptable
Vibrations and impulse waves during transport	According to PN-83/T-42106

## 2. Installation.

### 2.1 Requirements.


The buffer power-supply shall be mounted by the qualified installer having appropriate (required and necessary for a given country) permissions and qualifications for connecting (operating) 230V/AC installations and low-voltage installations. The device shall be mounted in closed rooms, according to the environment class II, of the normal air humidity (RH=90% max. without condensation) and the temperature within the range from -10°C to +40°C. The power-supply shall operate in a vertical position so that free and convectional air flow through ventilating holes of the casing is guaranteed.

Before installation is started, the balance of the power-supply load shall be performed. During the normal operation, the sum of currents collected by receivers shall not exceed **I=3,5A (P=42W max.)**.


As the power-supply is designed for a continuous operation and is not equipped with a power-switch, therefore an appropriate overload protection in the power supply circuit shall be guaranteed. Moreover, the user shall be informed about the method of isolation of the power supply from the power voltage (usually through assignment and marking of an appropriate fuse in the fuse-box). The electrical system shall be made in accordance with valid standards and regulations.

### 2.2 Installation procedure.

#### 1. Before installation is started, the voltage in the 230V power-supply circuit shall be isolated.

2. The power-supply shall be mounted in a selected location and connection cords shall be lead.
3. Remove the power fuse protecting the power supply circuit.
4. The power cables (~230Vac) shall be connected to L-N terminals of the power supply. The earth conductor shall be connected to the terminal marked by the earth symbol . The connection shall be made by means of a three-core cable (with a yellow and green PE protection wire). The power cables shall be lead to appropriate terminals of the connection board through bushing.



The circuit of the shock protection shall be performed with a particular care, i.e. the yellow and green protection wire of the power cable shall be connected from one side to the terminal marked by the symbol of  in the casing of the power-supply. Operation of the power-supply without the properly made and fully operational circuit of the shock protection is UNACCEPTABLE!. It can result in failure of devices and electric shock.

5. Connect the conductors of consumers to: **A1, A2, A3, B1, B2, B3, C1, C2, C3** and **GND** x 3 (maintaining polarization).
6. As there are significant voltage drops at the resistance of power cables of receivers during installation, it is possible to adjust a voltage value by potentiometer
  - **A - outputs A1, A2, A3**
  - **B - outputs B1, B2, B3**
  - **C - outputs C1, C2, C3**
7. Insert the fuse into the power supply circuit and switch on power.
8. Check the optical signaling of the power supply.
9. After installation is completed and operation of the power-supply is checked, the casing can be closed.

### 3. The power supply unit operation indication.

The power-supply is equipped with the optical signaling of operation modes.

#### 3.1 Optical signaling (fig.3.).

- Green **LEDs A1....C3** indicate the power-supply mode at outputs: A1.....C3. If power supply is lost at the output (fuse blow), a correspondent LED stops lighting (A1 for A1 output, etc.).
- Red **LED AC** indicate the power-supply status. If power supply is lost at the input (fuse blow, no 230V/AC), LED stops lighting.
- Red LED's **AOVP, BOVP, COVP** (on unit PCB) indicates overvoltage protection status for a particular group: A, B, C. In case of protection activation, a correspondent LED lights (**AOVP** the group of A outputs etc.).

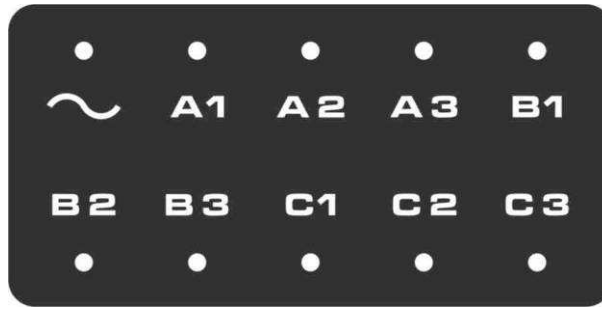


Fig.3. The view of LED panel.

#### 4. Service and operation.

##### 4.1 Procedure in case of short-circuit (activation of SCP) of the power supply output.

A1÷ C3 outputs have short-circuit protection through application of polymer fuses (automatic PTC). If the output is overload by 0,5A current, the output voltage is disconnected automatically. Voltage recovery at output does not require output load disconnection or 230V/AC supply for a period of about 1 min.

##### 4.2 Procedure in case of overload (activation of OLP) of the power supply output.

Sections A, B, C are equipped with the PTC protection based on polymer fuses. In case of overload of section with the current which exceeds value 1,6A, the overloaded section will be automatically disconnected. It is signalized by turnig off LED's of overloaded section. Return of output voltage require turning off the overloaded section or 230VAC supply for about 1 minute time.

##### 4.3 Maintenance.

All maintenance operations can be performed after the power supply is disconnected from the power network. As for the power supply, it is not necessary to perform any special maintenance operations, but if the power supply interior is significantly dusty, it shall be vacuum-cleaned by compressed air. In case of fuse replacement, the spare parts shall be the same as original ones.

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**WEEE MARK**  
The waste electric and electronic equipment shall not be discarded together with common home waste materials. According to the WEEE directive valid in EU, particular methods of utilization shall be applied for the waste electric and electronic equipment.

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**WARRANTY**  
24 months since the sale date, 36 months since the production date.  
THE WARRANTY IS VALID ONLY after presenting the invoice of the sale to which the claim refers.