



# PSDCB09129C

v.1.1

**PSDCB 13,8V/9A/9x1A/17Ah**

**Buffer power supply for up to 9 HD cameras.**

EN

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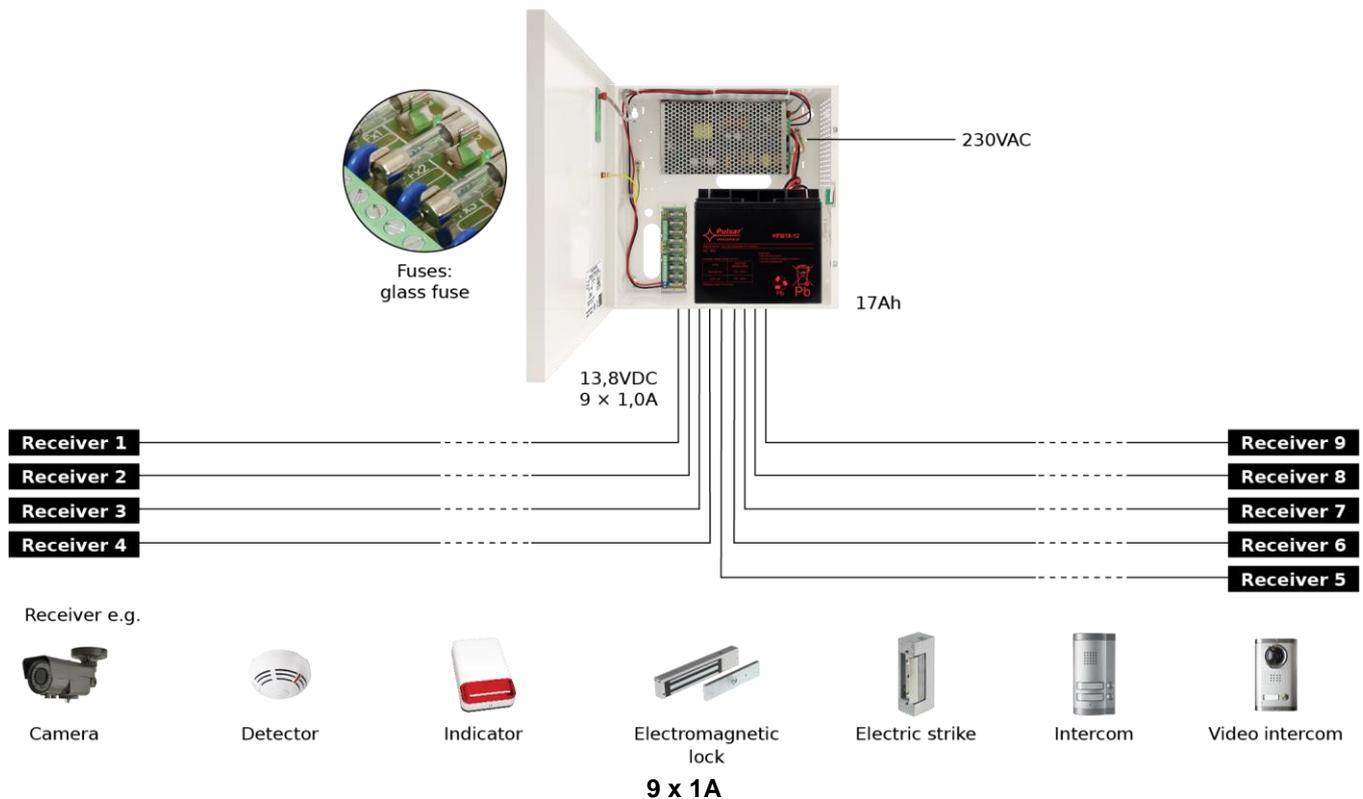
**GREEN POWER CCTV**



## Features:

- DC 13,8V/9A uninterruptible power supply
- 9 outputs, protected with 1A glass fuses
- fitting battery: 17Ah/12V
- wide range of mains supply: ~200 - 240 V
- high efficiency 87%
- battery charging and maintenance control
- excessive discharging (UVP) protection
- battery charging current 1A/4A changed with jumper
- Approximate backup time: 2h 30min
- battery output full protection against short-circuit and reverse polarity connection
- LED indication
- protections:
  - SCP short-circuit protection
  - OVP overvoltage protection
  - overvoltage protection
  - against sabotage
  - overload protection (OLP)
- warranty – 2 years from production date

### An example of power supply for HD cameras.



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**1. Technical description.**

**1.1 General description.**

A buffer PSU is intended for an uninterrupted supply to devices requiring stabilised voltage of **12 V DC (+/-15%)**. The PSU provides voltage of **U=13,8 V DC**. Current efficiency:

- 1. Output current 9x1 A + 1A battery charge**
- 2. Output current 9x0,66 A + 4 A battery charge**
- Total device current + battery: 10 A max.**

In case of power decay, a battery back-up is activated immediately.

The approximate backup time is given assuming that all output ports are used (using typical devices and 17Ah battery). The electricity consumption for own needs and the energy efficiency of the power intake track were taken into account. The exact description of how to perform the calculations can be found at: ["Approximate backup time - assumptions for calculations"](#).

The PSU is constructed based on the switch mode PSU, with high energy efficiency. The PSU is housed in a metal enclosure (colour RAL 9003) which can accommodate a 17Ah/12V battery. A micro switch indicates door opening (front cover).

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

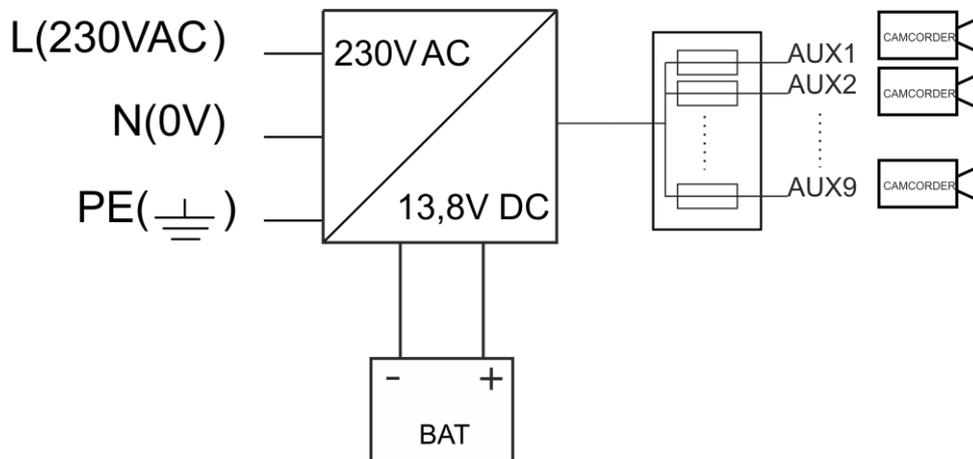


Fig.1. The block diagram of the PSU.

**1.3 Description of PSU components.**

**Table 1. Elements and connectors of the fuse block (tab. 1, fig. 2).**

Element no. [fig. 2]	Description
[1]	F1÷F9 glass fuses PTC
[2]	LED L1÷L9 signaling presence of output voltage DC
[3]	power supply output <b>AUX1÷AUX9</b> , shared terminal <b>COM (-)</b>

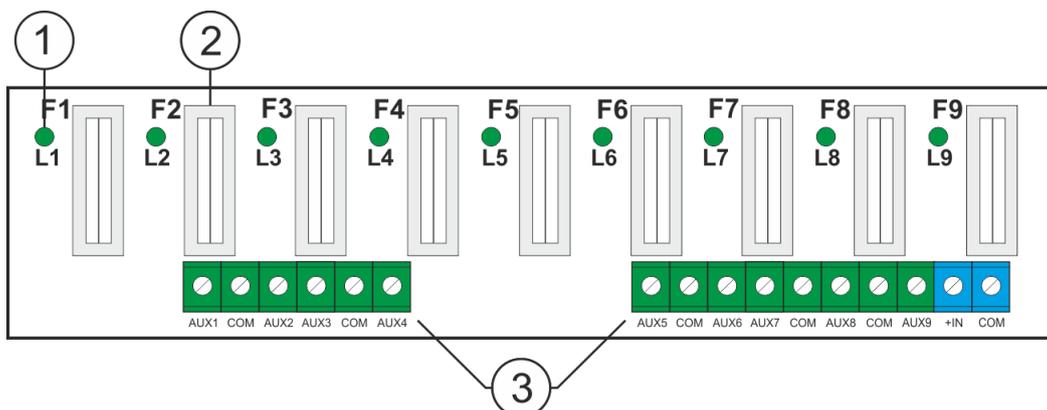


Fig. 2. The view of the fuse block LB9.

**Table 2. Description of PSU components and connectors (tab. 2)**

Element no. [Fig. 3]	Description
[1]	<b>P1 potentiometer</b> , output voltage adjustment
[2]	<b>PSU module</b>
[3]	<b>Selection jumper for charging current:</b>  Ibat =1A  Ibat =4A Description:  jumper installed,  jumper removed Factory settings: Ibat =1A (jumper installed)
[4]	<b>L-N power supply connector</b> ,  <b>PE protection connector</b>
[5]	Cable ellipse opening
[6]	<b>TAMPER</b> , contact of sabotage protection ( <b>NC</b> )
[7]	<b>BAT+/GND: battery outputs + BAT= red, GND= black</b>
[8]	Fuse module LB9

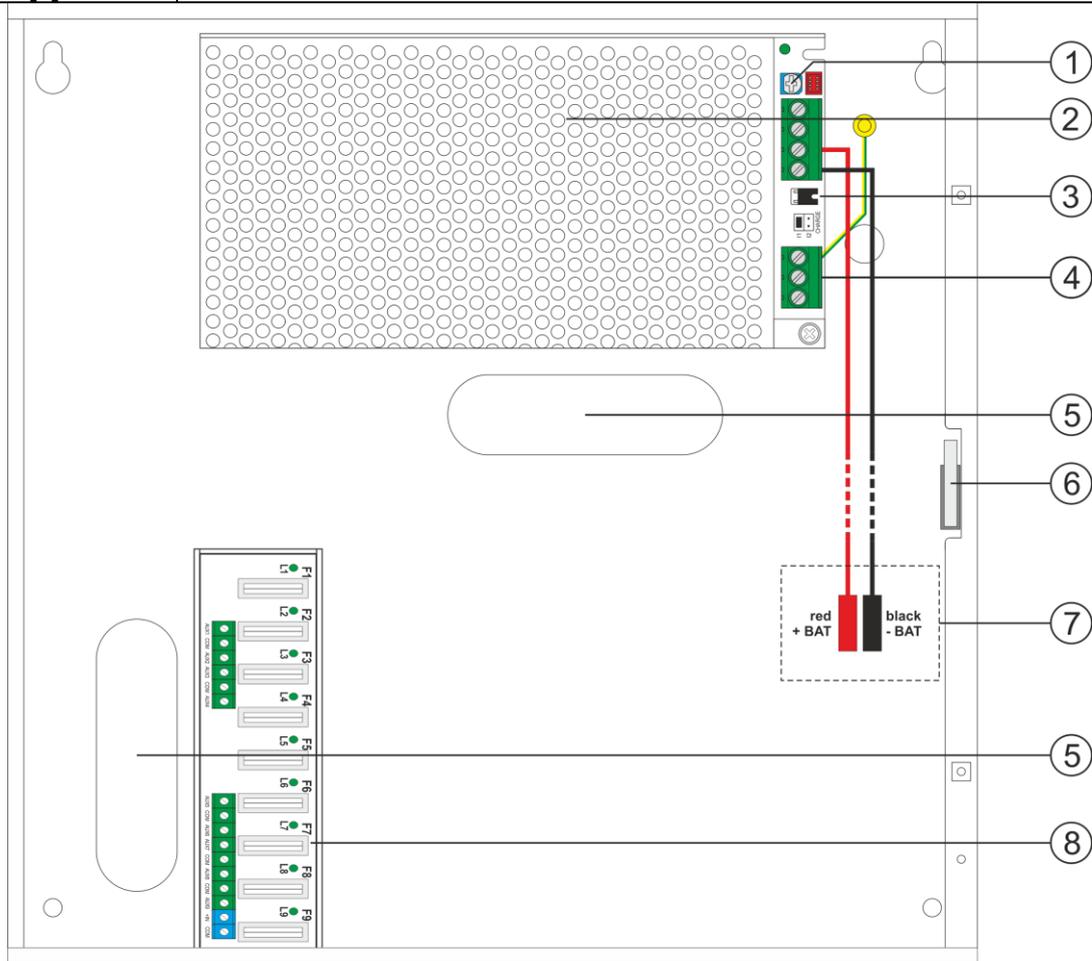


Fig.3. The view of the PSU.

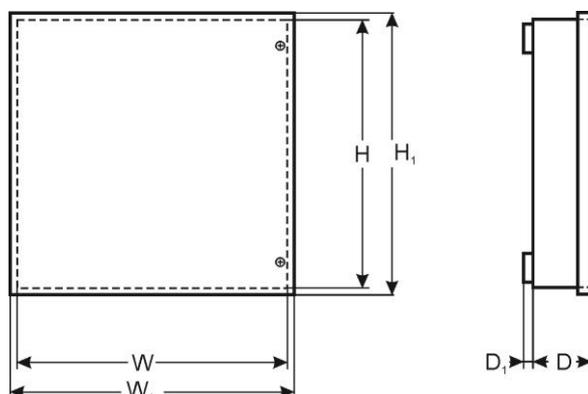
**1.4 Specifications:**

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

**Electrical parameters (tab. 3)**

Mains supply	~200 - 240 V
Current up to	1,3 A
Supply power	138 W
Efficiency	87%
Output voltage	11 - 13,8 V DC – buffer operation 9,5 - 13,8 V DC – battery-assisted operation
Output current	<b>9x1 A + 1 A battery charge</b> <b>9x0,66 A + 4 A battery charge</b>

Voltage adjustment range	13,5 – 14 V
Ripple	100 mV p-p max.
Battery charge current	1 / 4A ( $\pm 5\%$ )
Space for battery	17Ah/12V (SLA)
Approximate backup time	2h 30min
Short-circuit protection SCP	LB9 STRIP 9x glass fuse
Overload protection OLP	105 $\div$ 150% of power supply, automatic recovery
Battery circuit protection SCP and reverse polarity connection	glass fuse T10A/250V
Surge protection	varistors
Overvoltage protection OVP	>19V (automatic recovery)
Excessive discharge protection UVP	$U < 9,5V (\pm 5\%)$ – disconnect of connection battery
Tampering protection system: - TAMPER – indicating unwanted opening of the PSU's enclosure	- microswitch, NC contacts (enclosure closed), 0,5A@50 V DC (max.)
LED indication: - AC diode indicating AC power status - AUX diode indicating DC power status at PSU output	- red, normal status: permanently illuminated, failure: off - green, normal status: permanently illuminated, failure: off
F1÷F9	F 1A/250V



#### Mechanical parameters (tab. 4)

Dimensions	W=300, H=300, D+D <sub>1</sub> =105+8 [ $\pm$ 2mm] W <sub>1</sub> =305, H <sub>1</sub> =305 [ $\pm$ 2mm]
Fitting battery	185x170x90mm (WxHxD) max
Fixation	see figure 3
Net/gross weight	2.7 / 2.85 [kg]
Enclosure	Steel plate, DC01 0,7mm colour: RAL 9003
Closing	Cheese head screw x 2 (at the front), lock assembly possible
Connectors	Power supply: $\Phi 0,63$ -2,50 (AWG 22-10) Outputs $\Phi 0,41$ +1,63 (AWG 26-14), Battery output BAT: 6,3F-2,5 TAMPER output: wires
Notes	The enclosure does not adjoin the assembly surface so that cables can be led.

#### Operation safety (tab. 5)

Protection class EN 62368-1	I (first)
Protection grade EN 60529	IP20
Electrical strength of insulation: - between input and output circuits of the PSU - between input circuit and protection circuit - between output circuit and protection circuit	2500 V AC min. 1500 V AC min. 500 V AC min.
Insulation resistance: - between input circuit and output or protection circuit	100 M $\Omega$ , 500 V DC

#### Operating parameters (tab. 6)

Operating temperature	-10°C...+40°C
Storage temperature	-20°C...+60°C
Relative humidity	20%...90%, without condensation
Vibrations during operation	unacceptable

Impulse waves during operation	unacceptable
Direct insulation	unacceptable
Vibrations and impulse waves during transport	According to PN-83/T-42106

## 2. Installation.

### 2.1 Requirements.

The buffer PSU shall be mounted by a qualified installer with appropriate permissions and qualifications for 230 V AC installations and low-voltage installations (required and necessary for a given country). Unit should be mounted in confined spaces, in accordance, with normal relative humidity (RH=90% maximum, without condensing) and temperature from -10°C to +40°C. The PSU shall work in a vertical position that guarantees sufficient convective air-flow through ventilating holes of the enclosure.

**Before installation, prepare a PSU load balance:**

1. Output current 9x1 A + 1A battery charge
  2. Output current 9x0,66 A + 4 A battery charge
- Total device current + battery: 10 A max.**

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

### 2.2 Installation procedure.

#### 1. Before installation, cut off the voltage in the 230 V power-supply circuit.

2. Mount the PSU in a selected location and connect the wires.
3. Connect the power cables (~230 V) to L-N clips of the PSU. Connect the ground wire to the clip marked by the earth symbol PE (PSU module connector). Use a three-core cable (with a yellow and green PE protection wire) to make the connection. Lead the cables to the appropriate clips through the insulating bushing of the connection board.



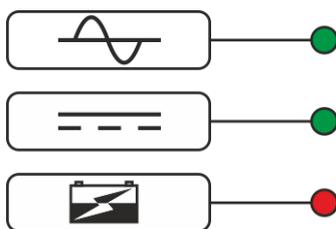
**The shock protection circuit shall be performed with a particular care, i.e. the yellow and green wire coat of the power cable shall stick to one side of the terminal - marked with '⊕' symbol on the PSU enclosure. Operation of the PSU without the properly made and fully operational shock protection circuit is UNACCEPTABLE! It can cause a device failure or an electric shock.**

4. Connect the receivers' cables to the **AUX1...AUX9** connectors on the LB9.
5. Connect the power (~230 V)
6. Connect the battery (mind the colours):
  - battery output (+V): BAT+ cable / red,
  - battery output (- V): BAT - cable / GND / black.
7. Check the PSU operation indicator: green LED.
8. Check the PSU output voltage:
  - the PSU voltage without load should amount to  $U=13,8$  V DC.
9. After installing and checking proper working, the enclosure can be closed.

## 3. Operating status indication.

### 3.1 LED indication of operating status.

The PSU is equipped with two diodes on the front panel:



#### Green LED AC:

- on – PSU is supplied with 230 V
- off – no 230 V power, battery-assisted operation

#### Green LED DC:

- on – presence of DC voltage in output of PSU
- off – no voltage in the output of the PSU

#### Rred LED CHARGE:

- off – no battery charging
- on – battery charging process

Moreover, PSU is equipped with LED indicating presence of voltage at PSU output, located on PCB of PSU module.

#### 4. Operation and use.

##### 4.1 Overload or short circuit of the PSU output (SCP on)

The **AUX1 ÷ AUX9** PSU outputs are protected against a short circuit by glass fuse. In case of fuse damage, the replacement of the same parameters is required.

In case of overload, the output voltage is automatically shut off, and so is the LED indicator. The restoration of the voltage takes place immediately after the failure (overload) is over.

##### 4.2 Battery-assisted operation.

In case of a main power outage, the device is immediately switched into a battery-assisted operation.



**The PSU is equipped with the discharged battery disconnection system. During the battery-assisted operation, reducing voltage below 9,5 V at the battery terminals will cause battery disconnection.**

##### 4.3 Maintenance.

Any and all maintenance operations may be performed following the disconnection of the PSU from the power supply network. The PSU does not require performing any specific maintenance measures, however, in case of significant dust rate, its interior is recommended to be cleaned with compressed air. In case of fuse replacement, use a replacement of the same parameters.



##### WEEE MARK

**According to the EU WEE Directive – It is required not to dispose of electric or electronic waste as unsorted municipal waste and to collect such WEEE separately.**



**CAUTION!** *The power supply module unit is adapted for a sealed lead-acid battery (SLA). After the operation period it must not be disposed of but recycled according to the applicable law.*

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