



PSUPS10A12CR

v.1.3

PSUPS 13,8V/12V/10A/17Ah

**Buffer power supply for up to 8 HD cameras and DVR
with recorder space**

EN

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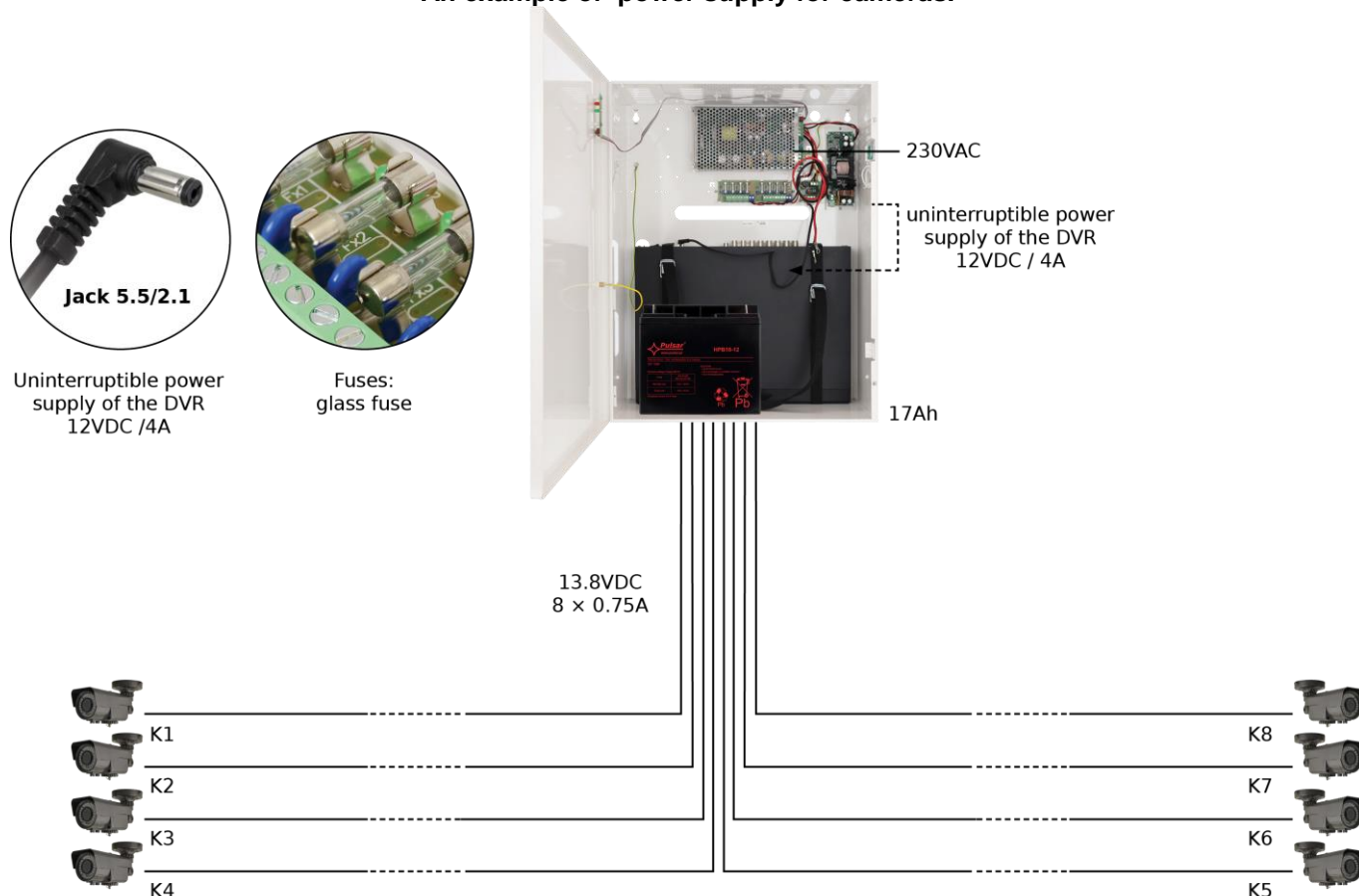
GREEN POWER CCTV



Features:

- DC 13,8 V uninterruptible power supply of HD cameras
- DC 12 V uninterruptible power supply of the recorder
- fitting battery 17Ah/12 V
- recorder space 380 x 320 x 65
- wide range of mains supply ~200-240 V
- high efficiency 80%
- 8 outputs protected by 1 A glass fuses for powering HD cameras
- 12 V/4 A output dedicated to supply the recorder
- battery charge and maintenance control
- battery output protection against short circuit and reverse polarity connection
- battery charging current 1 A
- approximate backup time: 1h 30min
- deep discharge battery protection (UVP)
- LED indication
- enclosure construction is compliant with requirements of the General Data Protection Regulation GDPR (the possibility of installing two locks with different codes)
- protections:
 - SCP short-circuit protection
 - OLP overload protection
 - OVP over voltage protection
 - OHP overheat protection
 - surge protection
 - against sabotage
- warranty – 2 years from production date

An example of power supply for cameras.



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1. Technical description.

1.1. General description.

A buffer PSU is intended for an uninterrupted supply to CCTV system devices requiring stabilized voltage of **12 V DC (+/-15%)**. The PSU has two circuits: first **4 A/12 V DC** for supplying the recorder and **5 A/13,8 V DC** for both cameras. Current efficiency of the PSU amounts to:

Output current 5 A + 4 A recorder + 1 A battery charging
Total current of the receivers + battery 10 A max.

In case of 230 V mains power loss, 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 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 power supply unit is placed in a metal enclosure (color RAL 9003) with space 17Ah/12 V batteries and a recorder. **The enclosure construction is compliant with the requirements of the General Data Protection Regulation GDPR (the possibility of installing two locks with different codes)**. The enclosure is equipped with a micro-switch indicating unwanted opening of the door (faceplate).

1.2. Block diagram (fig. 1).

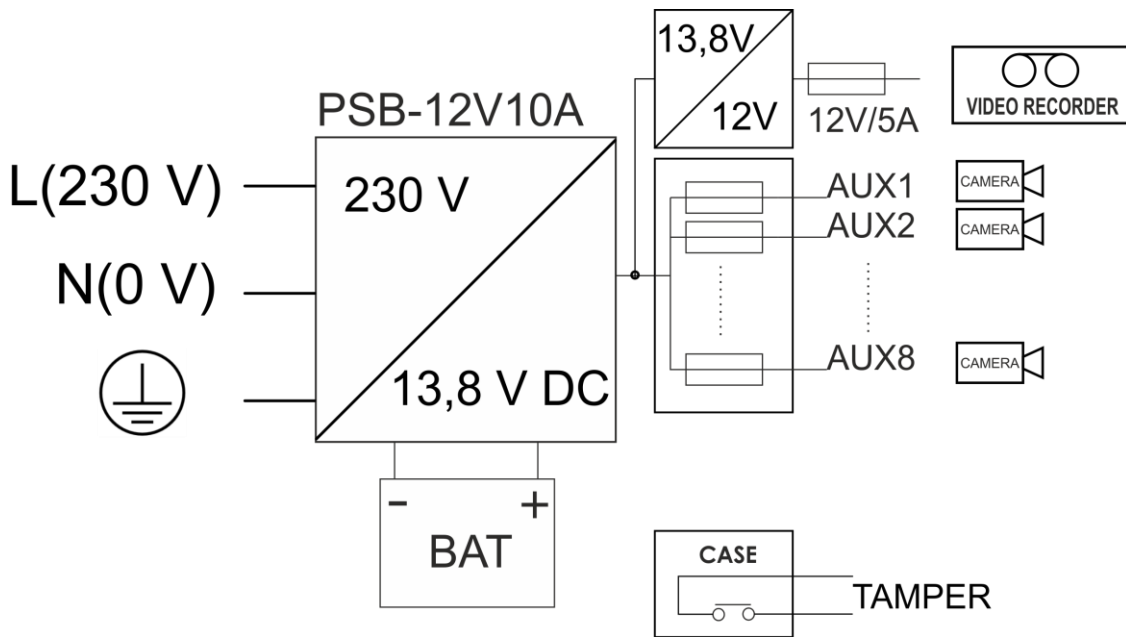


Fig.1. Block diagram of the PSU.

1.3. Description of PSU components.

Table 1. Description of components and connectors module LB8

Component no. [Fig. 2]	Description
①	F1÷F8 glass fuses
②	L1÷L8 LED voltage indication at the outputs
③	AUX1 ÷ AUX8 independently protected outputs IN1-, IN2- power supply inputs of the fuse module

Table 2. Description of components and connectors

Component no. [Fig. 3]	Description
①	F _{AUX} glass fuses
②	⏏ protection connector
③	AUX – output IN – power supply inputs, output filter

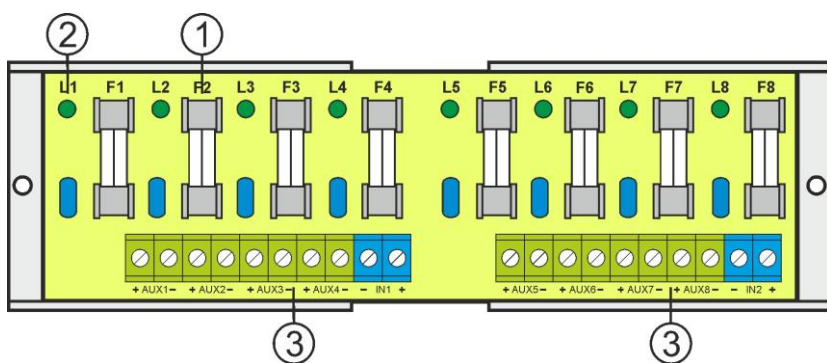


Fig.2. The view of the fuse module LB8.

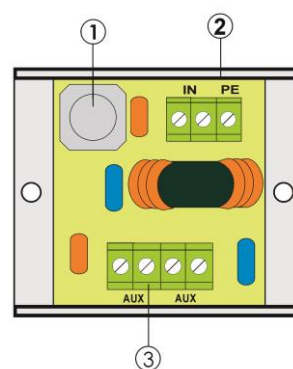


Fig.3. Output filter.

Table 3. Description of the module's components and connectors.

Component no. [Fig. 4]	Description
①	PSU module
②	Connectors of PSU: L-N 230 V power connector, ⏏ protection connector
③	green LED indicates DC power
④	P1 potentiometer, output voltage adjustment
⑤	Battery outputs: red: +, black: -
⑥	TAMPER, contact of tamper protection (NC)
⑦	Fuse module LB8
⑧	DC/DC 50SE-SEP converter
⑨	Output filter
⑩	Cable for supplying recorder there is plug DC 2,1/5,5

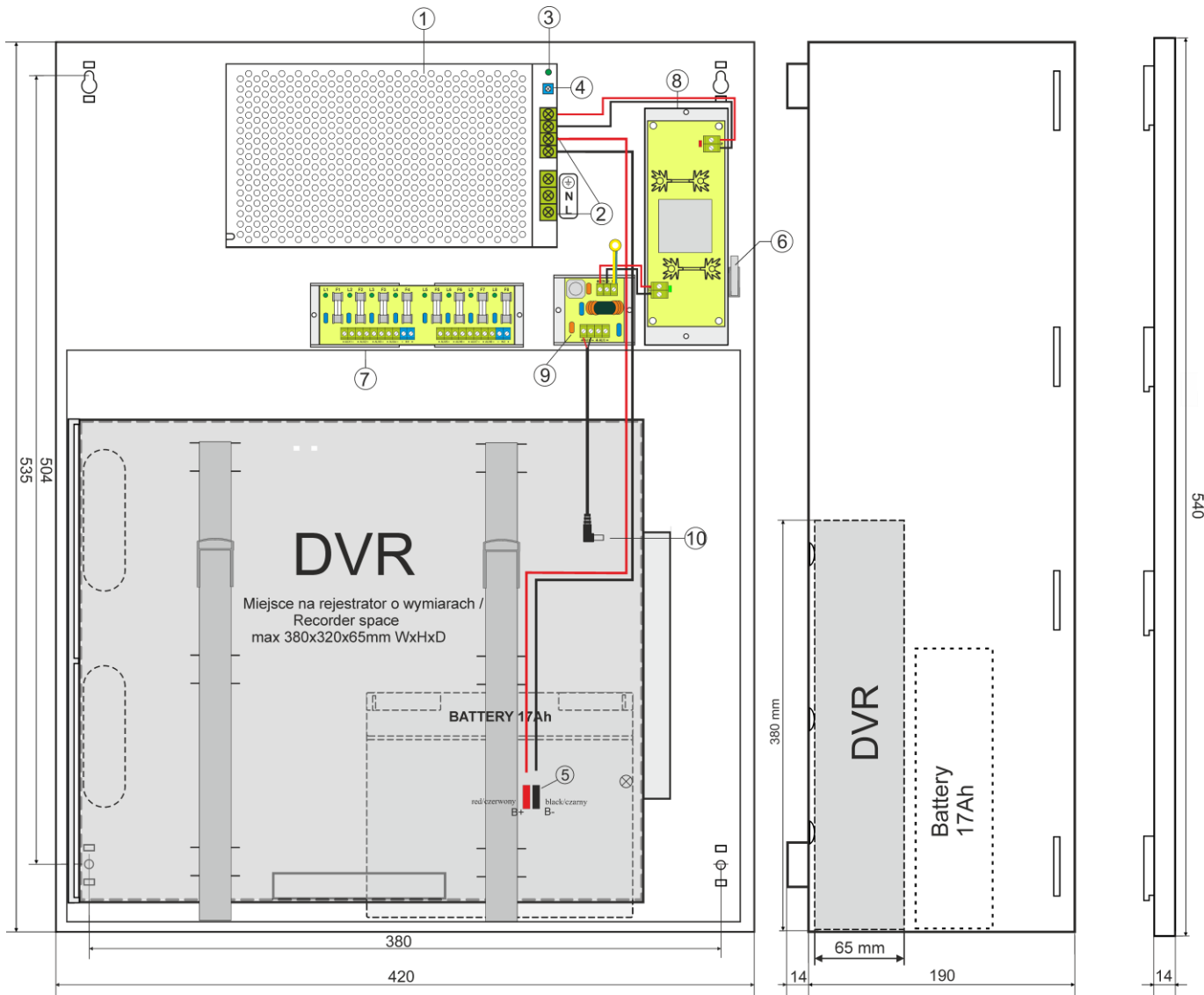


Fig.4. The view of the PSU.

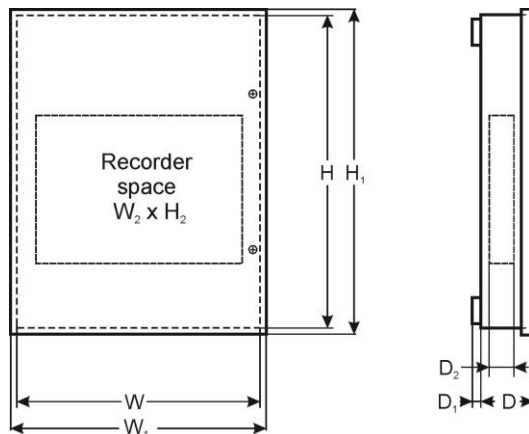
1.4. Specifications:

- electrical specifications (tab. 4)
- mechanical specifications (tab. 5)
- operation safety (tab. 6)
- operating specifications (tab. 7)

Table 4. Electrical specifications.

Mains supply	~200-240 V; 50Hz
Current consumption	1,3 A
PSU's power	138 W
Efficiency	80%
Output voltage – fuse base for fuse strips 8x	11 - 13,8 V DC – buffer operation 9,5 - 13,8 V DC – battery-assisted operation
Output voltage – recorder	12 V DC maintained regardless of the state of battery charge
Output current	5 A + 4 A recorder + 1 A battery charging Total current of the receivers + battery 10 A max.
Output voltage adjustment range	12-14V DC
Ripple voltage	120mV p-p max.
PSU current consumption	0,25 A
Battery charging current	1A
Approximate backup time	1h 30min
Short-circuit protection SCP - circuit of cameras	STRIP LB8: 8x F 1 A glass fuse, Output filter 1x F 5 A
Overload protection OLP	105% ÷ 150% of the PSU power, automatic recovery
Short-circuit protection SCP - circuit of recorder	F5 A melting fuse in the filter

Battery circuit protection SCP and reverse polarity connection	glass fuse 10 A
Surge protection	varistors
Over voltage protection OVP	>19 V (automatic recovery)
Deep discharge protection UVP	$U < 9,5 \text{ V } (\pm 5\%)$ – disconnection of battery terminal
Sabotage protection: - TAMPER output indicating enclosure opening	- micro-switches, NC contacts (enclosure closed), 0,5 A @ 50 V DC (max.)
Optical indication: front panel of the PSU - AC OK.; LED indicating AC power status - DC OK.; LED indicating the DC supply at the PSU output	- red, normal status: permanently illuminated, failure: off - green, normal status: permanently illuminated, failure: off

**Table 5. Mechanical specifications.**

Dimensions	$W=420, H=535, D+D_1=193+14$ [+/- 2mm] $W_1=425, H_1=540$ [+/- 2mm]
Dimensions of recorder compartment	$W_2=380, H_2=320, D_2=65$ [+/- 2mm]
Dimensions of battery compartment	180 x 170 x 80 mm (WxHxD) max
Fixing	See Fig. 3
Net/gross weight	8,33 / 9,06 [kg]
Enclosure	Steel plate DC01 1,0mm, colour RAL 9003
Closing	Cheese head screw x 2 (at the front) The possibility of installing two locks with different codes.
Connectors	Mains supply: $\Phi 0,63-2,50$ (AWG 22-10) Outputs for cameras: $\Phi 0,63-2,50$ (AWG 22-10) Recorder outputs: power cord 55cm, terminated with the DC 5,5/2,1 plug Battery outputs: $\Phi 6/2,5\text{mm}^2$ TAMPER output: wires
Notes	Enclosure does not adjoin assembly surface so that cables can be led. Forced cooling - built-in fan.

Table 6. Operation safety.

Protection class EN 62368-1	I (first)
Protection grade EN 60529	IP20
Electrical strength of insulation: - between input (network) circuit and output circuits of 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	100M Ω , 500 V DC

Table 7. Operating specifications.

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 insolation	unacceptable
Vibrations and impulse waves during transport	According to PN-83/T-42106

2. Installation.

2.1 Requirements.

Buffer PSU is to be mounted by a qualified installer, holding relevant permits and licenses (applicable and required for a given country) for 230 V interference and low-voltage installations. 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. PSU shall work in a vertical position that guarantees sufficient convectional air-flow through ventilating holes of the enclosure.

The power supply load balance should be done before installation:

Output current 5 A + 4 A recorder + 1 A battery charging*

Total current of the receivers + battery 10 A max.

As 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 (most frequently through separating and assigning an appropriate fuse in the fuse-box). The electrical system shall follow valid standards and regulations.

2.2 Installation procedure.



Before installation, cut off the voltage in 230 V power-supply circuit. To switch power off, use an external switch, in which distance between contacts of all poles in disconnection state is not less than 3mm.

1. Mount the PSU in a selected location and connect the wires.
2. Connect the power cables (~230 V) to L-N terminals of PSU.

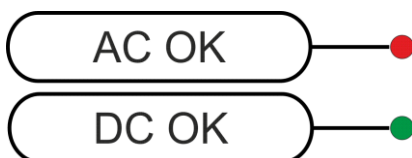


Shock protection circuit shall be performed with a particular care, i.e. yellow and green wire coat of power cable shall stick to one side of terminal - marked with "⊕" symbol on PSU enclosure. Operation of PSU without properly made and fully operational shock protection circuit is UNACCEPTABLE! It can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

3. Connect ground wire to terminal marked with symbol (power supply module connector). Connect ground wire to clip marked by earth symbol (⊕). Use a three-core cable (with a yellow and green (⊕) protection wire) to make the connection. Lead cables to the appropriate clips through insulating bushing of connection board.
4. Mount the recorder in a designated area of housing.
5. Connect power supply of DVR (by default, device is equipped with a cable terminated with DC 2.1/5.5 plug).
6. Connect camera cables to **AUX1...AUX8** connectors of the LB8 modules.
7. Connect batteries.
8. Connect power (~230 V).
9. Check PSU output voltage:
 - PSU voltage without load should amount to U=13,8 V DC.
10. Check PSU operation indicator: green LED (on power supply module).
11. After installing and checking proper working, enclosure can be closed.

3. Operating status indication.

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



RED LED:

- on – PSU supplied with 230 V voltage
- off – no 230 V mains supply

GREEN LED:

- on – DC voltage at the AUX output
- off – no DC voltage at the AUX output

4. Operation and use.

4.1 Overload or short circuit of the PSU output (SCP activation).

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 once the failure (overload) is over.

4.2 Overload or short circuit of the recorder's module or CCTV camera module

The modules of the recorder and CCTV cameras are protected against a short circuit by fuses (fuse-elements). In case of fuse replacement, use a replacement of the same parameters, in conformity with specific norms and power balance.

4.3 Battery-assisted operation.

The power supply is equipped with deep discharge battery protection (UVP). If the voltage at the battery terminals drops below 9,5 V during battery-assisted operation, the batteries will be disconnected.

4.4 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 dust, clean the interior 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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