USER MANUAL

EN

Edition: 1 from 06.09.2021

Supersedes edition:

Power supplies
HPSDC series

v1.0

Multi-output power supply units HPSDC series

Features:

- supply voltage ~200 - 240 V
- available versions with **4, 8 or 16 outputs** protected with fuses
- high efficiency **(up to 86%)**
- adjustable output voltage **12 - 15V DC**
- LED optical indication
- **FPS technical** output of fuse activation indication
- protections:
  - SCP short circuit protection
  - OVP overvoltage protection
  - surge protection
  - OLP overload protection
  - antisabotage protection: unwanted enclosure opening
- warranty – 2 years from production date

TABLE OF CONTENTS:

1. Technical description.

1.1. General description.

HPSDC series stabilized power supplies are designed to supply power to HD cameras or other devices requiring stabilized voltage of **12 V DC**. Output voltage is adjusted with a potentiometer within the range of **12 - 15 V DC**. The PSU features 4, 8 or 16 outputs (depending on the model), protected independently by glass fuses.
A failure (an overload, a short circuit) in the output circuit will result in blowing of the fuse Fn and disconnection of the corresponding AUXn output from the power supply. The power supplies are equipped with short-circuit, overload, overvoltage and overcurrent protection. They are mounted inside a metal enclosure equipped with a signalling panel and a microswitch indicating the opening of the door (lid).

Table 1. Parameters of power supplies:

Model	Number of outputs	Output voltage AUX	Output current max.
HPSDC-12V4x1A	4	12 V (12 – 15 V)	4 A
HPSDC-12V8x1A	8		7 A
HPSDC-12V16x1A	16		15 A

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1.2. Block diagram (Fig. 1).

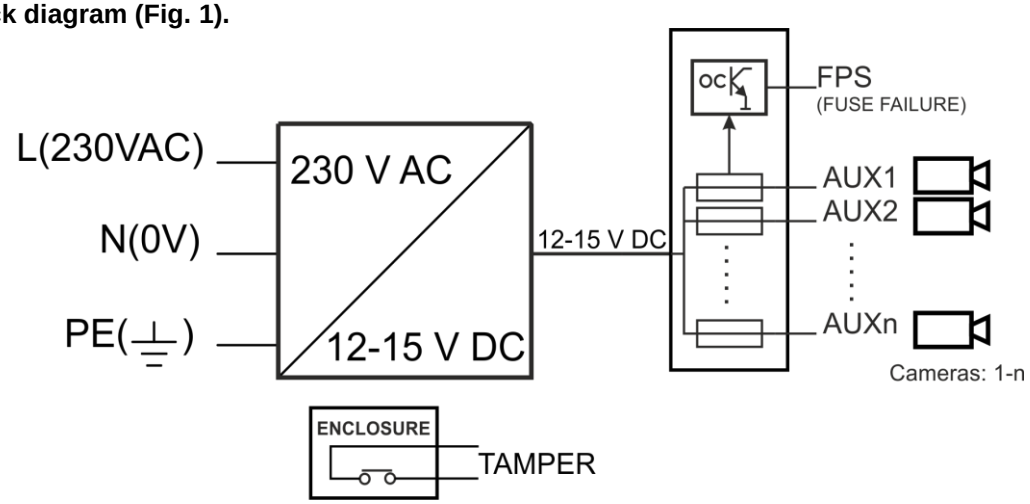

Fig. 1. Block diagram of PSU.

1.3. Description of PSU components and connectors.

Table 2. Elements and connector of PSU (see Fig. 2a, 2b, 2c).

Element no.	Description
[1]	**L1…Ln** (green) LEDs (indicating presence of voltage at each output of the PSU)
[2]	**F1…Fn** glass fuse in AUX (+) circuits
[3]	**AUX1…AUXn** outputs
[4]	**LED (red) indicating failure of one of the outputs (fuse activation) AUX1 - AUXn**
[5]	**FPS output indicating failure of one of outputs, relay type**
[6]	**L-N** power supply connector 230 V AC, ⏚ **PE** protection connector
[7]	Main fuse
[8]	Optical indication connector LED
[9]	**V_{ADJ} potentiometer, output voltage adjustment 12 – 15 V DC**

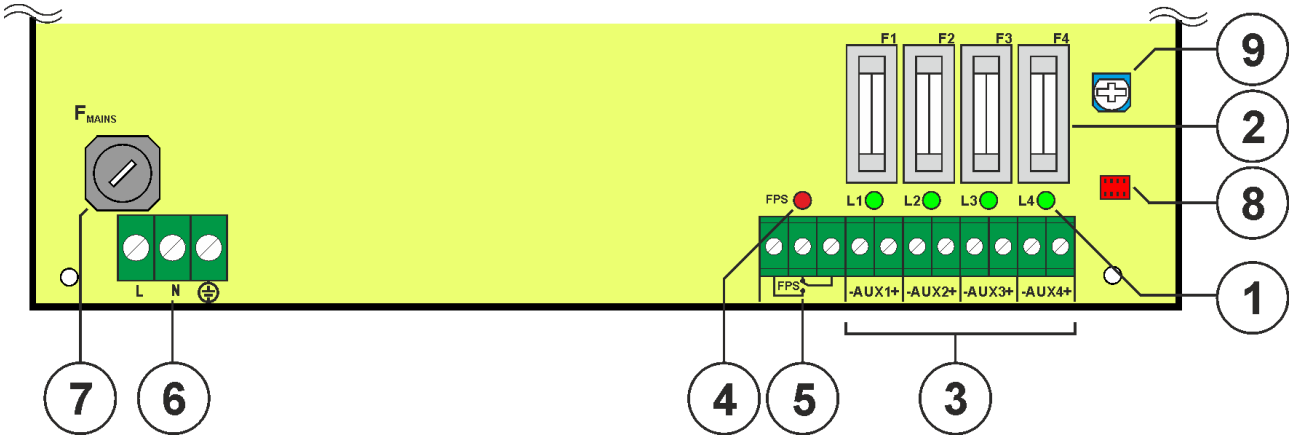

Fig. 2a. View of power supply module HPSDC-12V4x1A

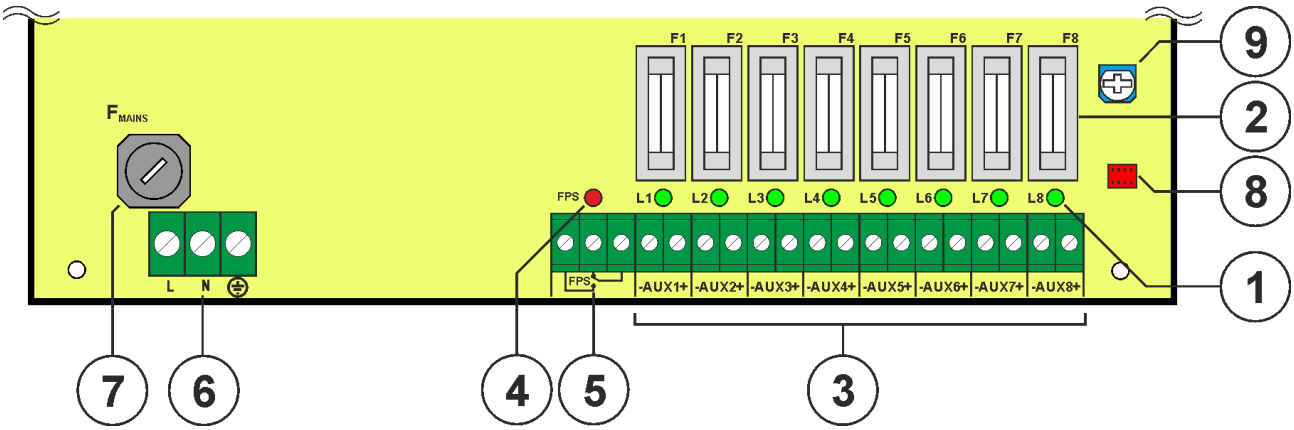

Fig. 2b. View of power supply module HPSDC-12V8x1A

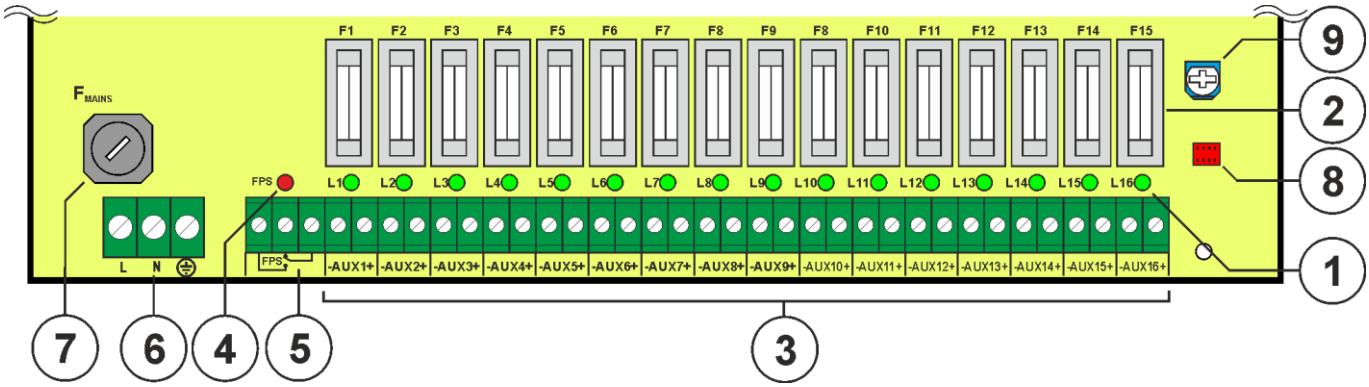

Fig. 2c. View of power supply module HPSDC-12V16x1A

Table 3. View of PSU (see Fig. 3).

Element no.	Description
[1]	PSU module
[2]	Cable ellipse opening
[3]	**TAMPER;** microswitch of antisabotage protection (NC)

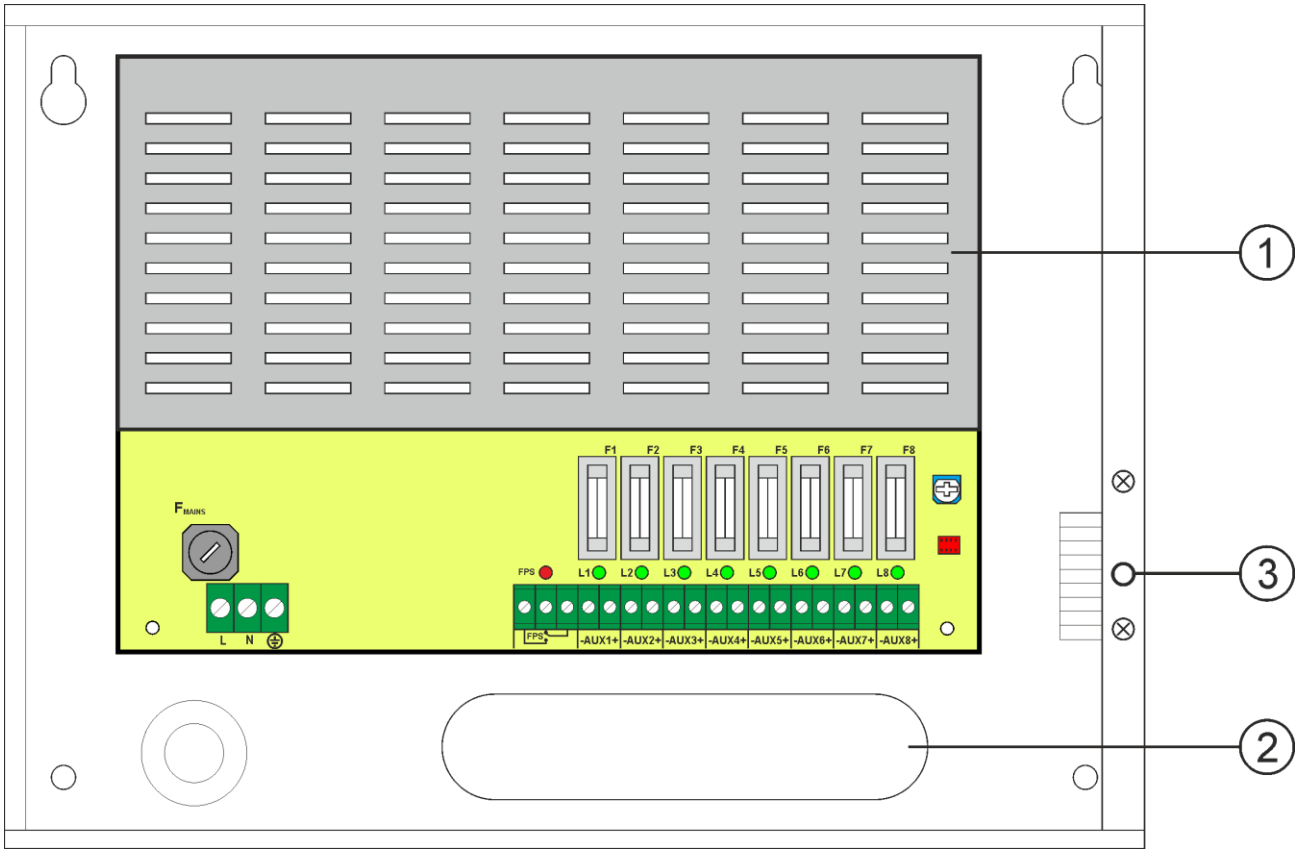

Fig. 3. View of PSU

1.4. Specifications.

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

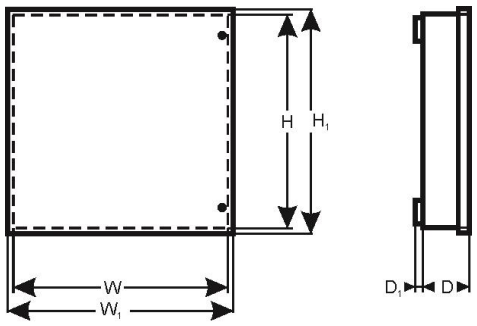

Table 4. Electrical parameters.

Model	HPSDC-12V4x1A	HPSDC-12V8x1A	HPSDC-12V16x1A
Supply voltage	~ 200 – 240 V		
Current consumption	0,5 A	0,8 A	1,6A
Ripple voltage	50mV p-p max.	50mV p-p max.	100mV p-p max.
Power frequency	50/60 Hz		
Inrush current	40 A	50A	60A
PSU power	48 W max.	84 W max.	180 W max.
Output current	4x1 A (**Σ I = 4A max.**)	8x1 A (**Σ I = 7A max.**)	16x1 A (**Σ I = 15A max.**)
Efficiency	86%	86%	85%
Output voltage (factory setting)	12 V DC		
Adjustment range U_{AUX}	12 – 15 V DC		
Short circuit protection SCP	4x F 1A glass fuse fast blow	8x F 1A glass fuse fast blow	16x F 1A glass fuse fast blow
Type of glass fuse	F1A...F2A		
Overload protection OLP	105 – 150% PSU power, automatically recovered		
Surge protection	varistors		
Over voltage protection OVP	>19V (activation requires disconnecting the load or supply for about approx. 1 min.)		>19V (automatic recovery)

Protection in 230V circuit	Glass fuse T3,15A	Glass fuse T5A
LED operation indication	- LEDs on PCB of power supply unit - LED indicators on power supply's cover (see section 3.1)	
Technical output FPS – fuse failure	relay: 1 A@ 30 V DC /50 V AC,	
Connectors	Power supply: 0,5 – 2,5 mm^2 (AWG 26 – 12) AUX outputs and technical outputs: 0,5 – 2,5 mm^2 (AWG 26 – 12)	
Notes	Convectional cooling	Forced cooling (fan)

Table 5. Mechanical parameters.

	HPSDC-12V4x1A	**HPSDC-12V8x1A**	**HPSDC-12V16x1A**
Enclosure dimensions (WxH) [±2mm]	270x200	270x200	300x258
Enclosure dimensions (W_1xH_1xD_1+D) [±2mm]	275x205x67+8	275x205x67+8	305x263x77+8
Mounting (WxH)	237x170	237x170	267x226
Net/gross weight	1,7 / 1,8 [kg]	1,8 / 1,9 [kg]	2,7 / 2,8 [kg]
Enclosure	Steel sheet DC01 0,7mm		
Closing	screwed (at the front), (lock assembly possible)		
Notes	Enclosure does not adjoin assembly surface so that cables can be led.		

Table 6. Operation safety.

Protection class EN 62368-1	I (first)
Protection grade EN 60529	IP20
Electrical strength of insulation: **- between input 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**	 100 MΩ, 500 V DC

Table 7. Operating parameters.

Operating temperature	-10ºC...+40ºC
Storage temperature	-20ºC...+60ºC
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.

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

As power supply is designed for a continuous operation and is not equipped with a power-switch, therefore, an appropriate overload protection in power supply circuit should be provided. 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.

CAUTION!
Before installation, cut off 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.

It is required to install an installation switch with a nominal current of min. 6 A in the power supply circuits outside the power supply unit.

1. Mount the PSU in a selected location and connect the wires.
2. Connect power cables (~230 V AC) to L-N clips of PSU. Connect ground wire to clip marked by earth symbol ⏚.
   Use a three-core cable (with a yellow and green protection wire ⏚). Lead the power cables to the relevant terminals of the power supply via an isolation conduit.

Shock protection circuit shall be done with a particular care: yellow and green wire coat of power cable should be connected to terminal marked with the grounding symbol on PSU enclosure. Operation of PSU without the properly made and fully operational shock protection circuit is UNACCEPTABLE! It can cause damage to equipment or an electric shock.

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3. Switch on 230 V supply. The LEDs on the PCB and on the lid of PSU should light up (see Section 3.1).
4. Check output voltage and adjust if necessary using potentiometer.
5. Disconnect the PSU from the mains and make the rest of the connections - connect wires to the AUX1...AUXn connectors. If necessary, connect the wires from devices (control panel, controller, siren, etc.) to the PSU technical outputs FPS (fuse failure indication output).
6. Once the tests and control operation have been completed, close the enclosure.

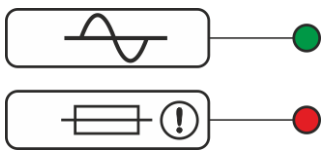
3. Operating status indication.

The power supply unit features LED status indication:

3.1 Optical indication.

The power supply unit features LED status indication. Presence of voltage at each output of the PSU is indicated by the green LED nearby each outputs fuse. Failure (fuse damage) is indicated by shutting down green LED nearby appropriate outputs fuse on the PSU module and illuminating the red LED FPS. Status of the PSU (fuse damage AUX1 ÷ AUXn) can be remotely controlled via the FPS technical output.

In addition, there is an additional indication on the lid of the power supply:



LED green AC:
- **on – PSU is supplied with 230 V**
- **off – no 230 V power**

LED red FPS:
- **off – no failure**
- **on – indicates fuse failure**

4. Technical output.

The PSU features a relay type output indicating FPS fuse failure.
Caution! In Fig. 4 set of contacts shows a potential-free status of relay, which corresponds to power supply failure.

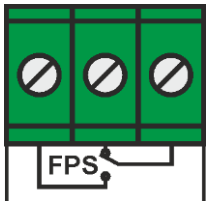


Fig. 4 Technical output diagram

5. Operation and use.

5.1. Overload or short circuit of the PSU module output.

The AUX1÷AUXn PSU outputs are protected against short circuit by glass fuses. Activation of the protection (glass fuse blowing) is indicated by shutting down green LED nearby appropriate outputs fuse on the PSU module and illuminating the red LED FPS. In case of damage, replace the fuse (compatible with the original). As a precaution, it is possible to use fuses with a higher current (up to 2 A) and a fast blow characteristic (F), which will increase the current-carrying capacity of the given output. However, this does not affect the overall current capacity of the power supply.

5.2. Operation of the PSU OVP system.

If the OVP system is activated, the output voltage is automatically cut off. Operation can be resumed after disconnecting the PSU from 230 V after approx. 1 minute.

6. 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 the case of significant dust rate, its interior is recommended to be cleaned with compressed air.

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

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