



# Installation manual

**Power supply for access control controllers**

**KDH-ZAS12/6/17**

 **KaDe**

Version 3.0 ENG 19.09.2022



## Warnings

**Read all of the following tips and regulations.** Failure to do so may result in damage to the device, electric shock, fire or serious injury.

**It is forbidden to carry and transport the device with mounted and attached batteries.** This can cause serious damage up to and including loss of operational safety.

**Installation and connections may only be made with the batteries removed.**

**When connecting the accumulator batteries, pay special attention to the compliance of their polarity with the description on the connector.**

**Do not obstruct the ventilation openings.** There should be free space around the sides of the device for proper ventilation. Failure to do so may result in damage to the device or shortens battery life.

**Install the device in a place where it will not be exposed to direct sunlight.**

**The device must be powered from the power network with a protective earthing terminal.**

**Before putting the device into operation, check the quality of all connections made.**

**The device may disrupt the operation of sensitive radio and television equipment located in the vicinity.**

**The device may only be serviced by the manufacturer's service or specialized units authorized by the manufacturer.**

## Handling packages, used products and batteries



The product packaging is made of materials that can be recycled (wood, paper, cardboard, plastics). Unnecessary packaging should be segregated and handed over to a waste recipient.



This marking placed on the product indicates that the product should not be disposed of with household waste after its working life, but should be handed over to a collection point for used electronic equipment. Used batteries are hazardous waste and must be disposed of. This will help to avoid harmful effects on human health and the environment

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## 1.1 Power supply description

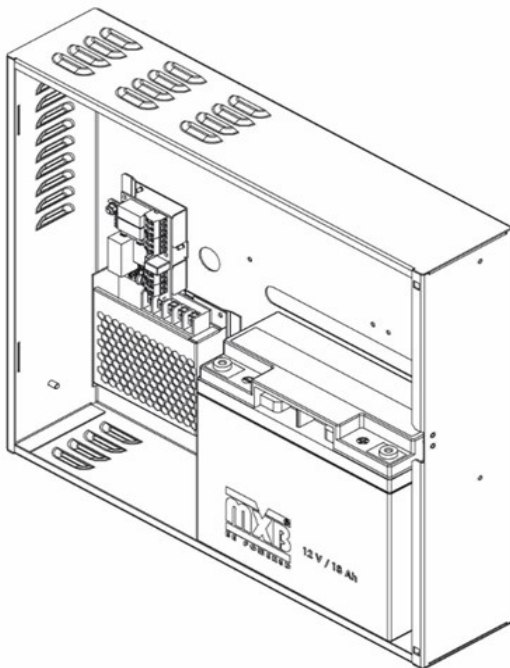
The power supply is intended for an uninterrupted supply of devices adapted to be supplied with voltage of 12V. The backup power source is a 12V VRLA lead-acid battery. The PSU is made in the form of a wall-mounted cabinet, in which the ZBM-12V6A PSU module is mounted, and there is space for a 12V 17 or 18Ah battery. This module takes care of the entire operation of the battery bank, protection of outputs, signaling, etc.

Two, permanently installed cables terminated with 6.3mm connectors are used to connect the battery bank. The connection to the 18Ah battery, which is equipped with screw terminals, is made through a transition element - a male 6.3mm connector with a  $\varnothing 6$ mm hole.

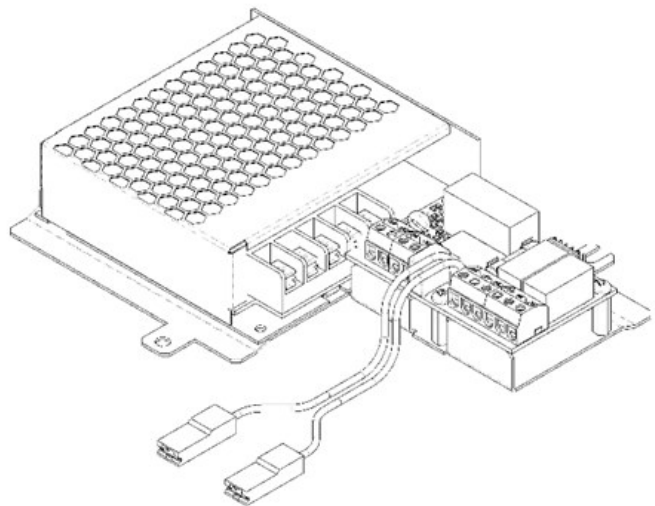
The current outputs of the PSU and its relay signaling outputs are connected by connectors equipped with screw terminals. The connection can be made both when the connector caps are already mounted in the power supply and after their removal.

[View of the power supplies and a list of parameters](#)

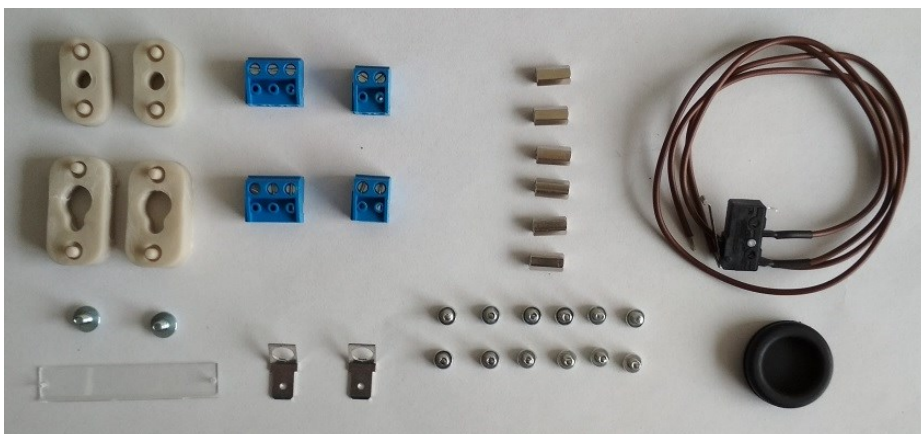
**Inside view of the power supply KDH-ZAS12/6/17**



**Power supply module ZBM-12V6A**



### Package content



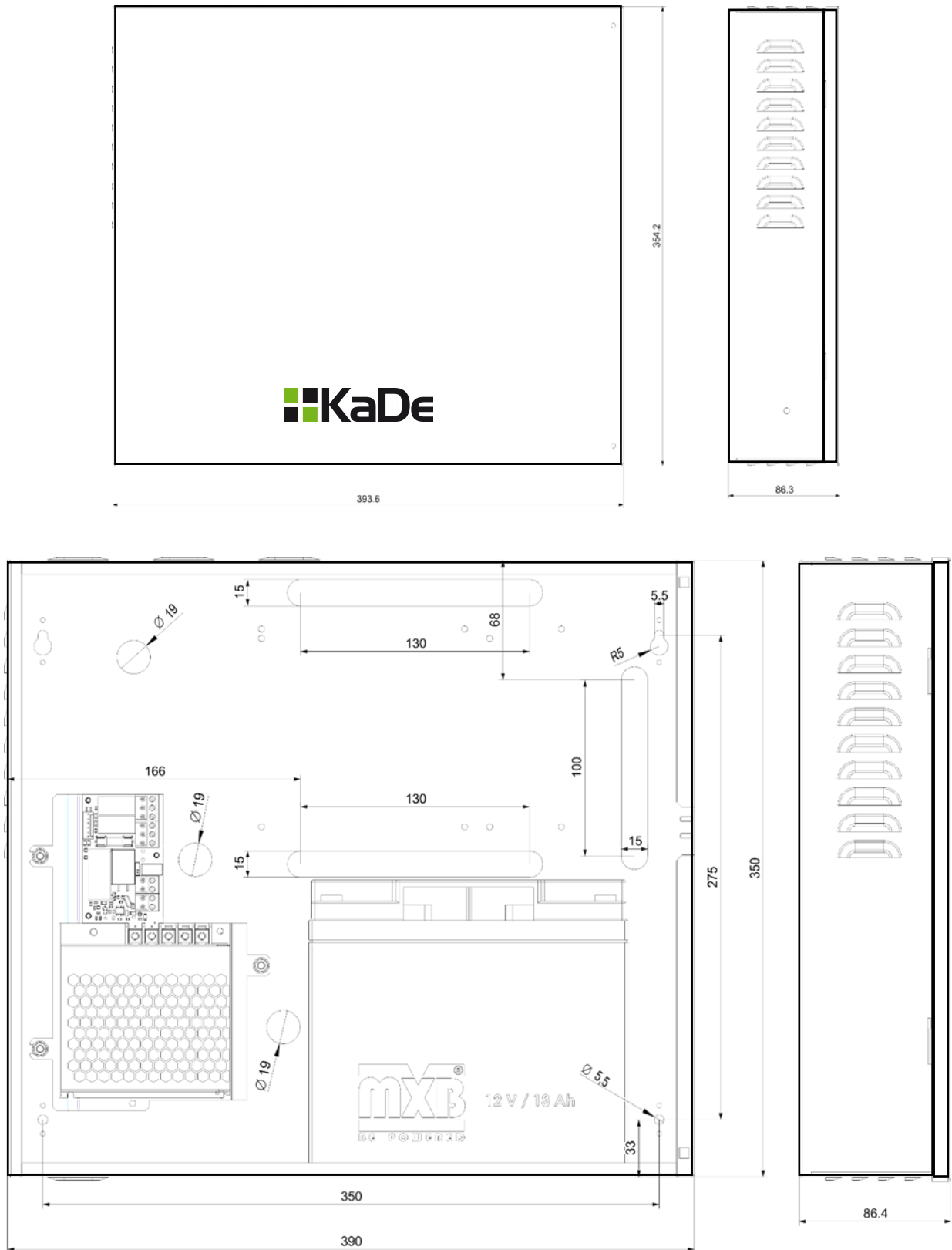
1. Spacers for the rear wall - 4 szt.
2. Connectors for the control module- 4 szt.
3. Metal brackets for controller and IN/OUT module- 6 szt.
4. Screws for brackets - 12 szt.
5. Door tamper - 1 szt.
6. Cable gasket 230VAC - 1szt.
7. Battery connectors 17/18Ah - 2szt.
8. Plastic connector cover 230VAC-1szt.

## 1.2 Technical specification

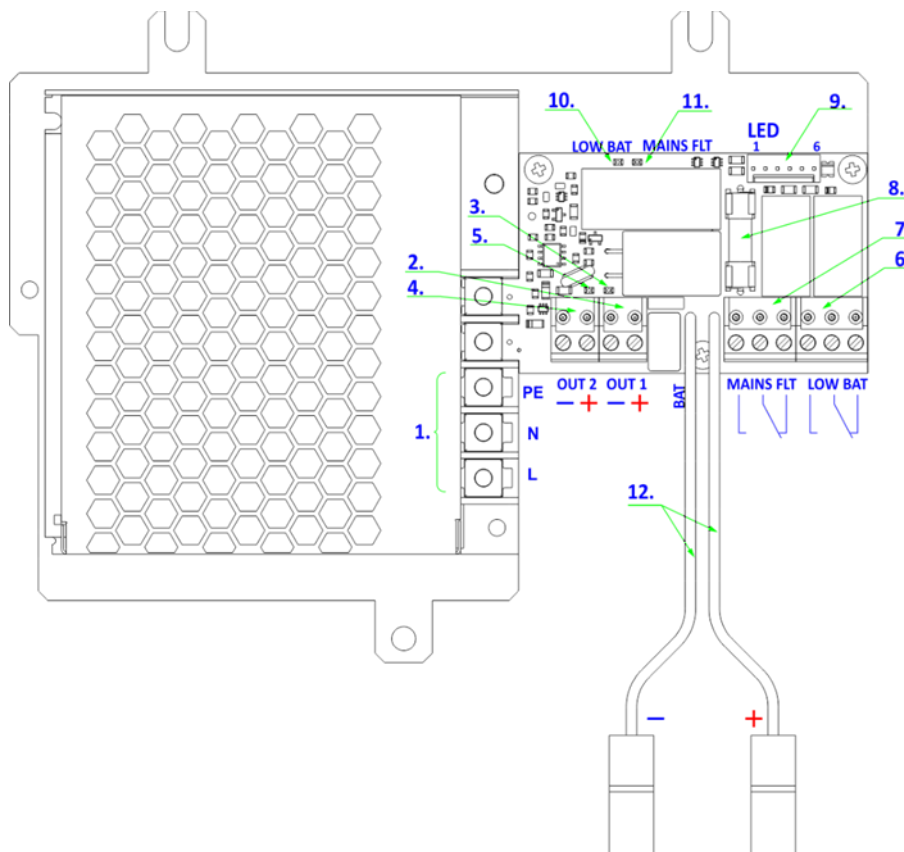
<b>Electrical parameters</b>	
<b>Power</b>	
Power voltage	110...240 V AC 50Hz
Power current	1.52 A
Power factor	0.58
Leakage current in the protective conductor	≤ 0.75 mA /240 V AC
Energy efficiency at nominal condition	89%
Inrush current (cold start)	5 A /240 V AC
<b>Output</b>	
Output NO.	2
Outputs protections:	polymer fuse
- OUT 1	4 A
- OUT 2	1.1 A
Output voltage	13.5... <u>13.6</u> ...13.7 V
Maximum output current Total, from both outputs at 25 ° C ambient temperature	5 A
Connection of outputs	Two connectors with screw terminals, ARK 130-2 type
<b>Battery management</b>	
Output protection	fuse 5x20mm 8.0AF
Battery capacity	18 Ah
Battery charging current limitation	~1 A
Floating operation voltage	13.5... <u>13.6</u> ...13.7 V
Low battery voltage indication	11.2... <u>11.4</u> ...11.6 V
Automatic disconnection of the discharged battery	10.5... <u>10.8</u> ...11.0 V
Power consumption from the battery for own needs	
- Battery connected	< 65 mA
Battery connection method:	1.5mm <sup>2</sup> /250mm ended connectors 6.3mm
- permanently connected cables	2 szt.
<b>Relay signaling outputs</b>	
Characteristics of outputs	
- NO. Relays Max. Capacity of relay contacts	2 relays, 30 V DC/1 A
- type of available contacts	3 contacts pair (NO i NC)
- active signaling state	relay not energized
Connection method	2 connectors with screw terminals, ARK 130-3 type
<b>Mechanical parameters</b>	
Dimensions	394 × 354 × 86 mm
<b>Conditions of use</b>	
Ambient temperature during operation	-25...+55°C
Storage temperature limit	-30...+85°C
Relative humidity (non-condensing)	30...80%
<b>Compliance with standards</b>	
Electromagnetic Compatibility	PN-EN 50130-4 PN-EN 61000-6-3
Bezpieczeństwo elektryczneElectrical safety	Class 1 EN 60950-1

### 1.3 Dimensions

The power supply is prepared for wall mounting. The figures below show the closed power supply with its dimensions and the spacing of the mounting holes.



## 1.4 Layout of basic elements of power supply module ZBM-12V6A



Nr	Description	Symbol
1.	230V power connector terminals	L, N, PE
2.	Output 1 terminals	OUT 1
3.	LED indicating voltage presence at the OUT1	
4.	Output 2 terminals	OUT 2
5.	LED indicating voltage presence at the OUT2	
6.	Low battery voltage signaling relay output	LOW BAT
7.	Mains power loss signaling relay output	MAIN FLT
8.	Battery fuse	
9.	Optional connector for external LED signaling	LED
10.	Low battery voltage indication LED (yellow)	LOW BAT
11.	Mains power loss LED (green)	MAIN FLT
12.	Cables for connecting the battery bank	BAT

## 1.5 Description of ZBM-12V6A power supply module signalling operation

The power supply is equipped with two relay outputs and four LED diodes placed directly on its printed circuit board. It is possible also to connect an external LED signaling, which repeats the signaling on the printed circuit board.

## 1.6 List of operation states

Symbol	State	Description
<b>Relay outputs</b>		
<b>MAINS FLT</b>	OFF ON	- no mains power or the power supply is damaged - Power is ON, power supply is OK
<b>LOW BAT</b>	OFF ON	- Low battery voltage - Battery voltage is OK
<b>LED indicators</b>		
<b>OUT 1 (G)</b>	OFF ON	- No voltage on OUT1 - Voltage on OUT1 is OK
<b>OUT 2 (G)</b>	OFF ON	- No voltage on OUT2 - Voltage on OUT2 is OK
<b>LOW BAT (Y)</b>	OFF ON	- Low battery voltage - Battery voltage is OK
<b>230Vac (G)</b>	OFF ON	- no mains power or the power supply is damaged - Power is ON, power supply is OK

## 1.7 Installation, connections and starting.

The power supplies are intended for installation as part of an installation by qualified personnel. The battery should not be present in the power supply during installation. Removal of the power supply module itself is not required. The PSU casing is prepared for running the power supply and load cables through the rear casing. The dedicated holes are shown in the drawing in pt. 1.2.

Before assembly, on the selected surface (e.g. wall with wall plugs), prepare 4 holes with a spacing of 350 × 275mm. In the two upper holes, appropriate screws should be screwed in (maximum head diameter 8mm), on which the power supply cabinet should be hung. Inserting the two bottom screws locks the cabinet. All screws can be tightened in this state.

The power supply must be connected to a fixed installation using a protective conductor and taking into account the L, N and PE markings. It is recommended to equip the installation with an overvoltage protection system. It is required to install in the supply circuits, apart from the power supply, an installation switch with a nominal current of at least 3A. This switch is only used to protect the mains supply cables against short-circuit and can be used for service and testing purposes - checking that the output voltage is maintained in the event of a mains power failure.

The power supply's transformer is equipped with its own fuse in the mains supply circuit. This fuse cannot be replaced, because its blown is a sign of serious damage.

The power supply is designed to work with a 12V battery, the so-called maintenance-free, which should be placed in the cabinet after mechanical and electrical assembly is completed. Pay particular attention to the polarity of the connection between the PSU module and the battery pack. **If the connection is incorrect, the battery circuit fuse will be damaged.**

*After making all the necessary connections (mains power supply, battery pack and possible loads - their connection is not necessary to check the operation of the power supply), the ability to maintain the output voltage can be checked. To do this, turn off the mains supply with a switch located in the mains supply line, apart from the power supply itself, and check the presence of voltage at the outputs of the power supply, which is indicated by LED diodes located on its printed circuit board. You can also use an ohmmeter to check the position of the MAIN FLT relay. The status of signaling is presented in the table below.*

	Power ON	Power OFF
LED MAIN FLT	ON	OFF
LED OUT 1	ON	ON
LED OUT 2	ON	ON
Relay MAIN FLT	ON *	OFF

*\*) The relay is ON when it has moved in relation to the drawing describing this output (the drawing shows the system of contacts in the OFF state of the relay).*

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