

Unicont SPb Ltd

**Power supply unit
PS-303**

Technical Documentation

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St. Petersburg
2011

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1. General Information

The PS-303 power supply unit (PSU) is designed to supply stabilized 12 V or 24 V to various shipboard and commercial consumers. A load transfer function is integrated into the PSU, which ensures that in case of a failure in the main power supply it will switch over to an external battery or to an emergency DC network.

2. Delivery Set

- | | |
|-----------------------------|---------|
| 1. Power supply unit PS-303 | 1 piece |
| 2. Operation manual | 1 piece |

3. Technical Data

There are different versions of the PS-303 power supply units, and input and output voltage and current values for different PSU versions are shown in the electrical data table (Table 1).

Input voltage	110/220 50 Hz, 24 V, 12 V, depending on the model (see the electrical data table)
Load transfer	Automatic load transfer from input #1 to input #2 in case of a voltage failure at input #1 (relay contacts)
Output voltage	24 V, 12 V DC (see the electrical data table)
Load rated current	4 to 27.5 A (see the electrical data table)
Number of terminals for loads	2 terminals
Protection	From a short circuit or another overload, (with fuses for the main and backup networks)
Rated power:	50 to 350 W (see Table 1)
Efficiency	85 %
Indication	Green LED supplied from the main network (input #1) and red LED supplied from the backup network (input #2)
Dimensions	499 x 710 x 169 mm
Gland type	MG 16 (similar to PG 13.5)
Operating temperature	-20 to +55 °C
Storage temperature	-60 to +70 °C
Weight	4 kg
Protection class	IP 22

Table 1 Electrical data of different versions of the PS-303

	Version	Main supply, input #1	Backup supply, input #2 (V)	Output voltage, (V), DC	Output current, (A)	Galvanic isolation / stabilization of input #1 and #2)		Connection diagrams (Fig. 3)
						Input #1	Input #2	
1	PS-303-A2-2	220 V 50/60 Hz	24	24	4.2	+	+	Figure 4
2	PS-303-A2-2			24	6.5	+	-	Figure 4
3	PS-303-A2-2			24	12.5	+	-	Figure 4
4	PS-303-A2-1			12	8.5	+	+	Figure 8
5	PS-303-A1-1		12	12	12.5	+	-	Figure 5
6	PS-303-A1-1			12	25	+	-	Figure 5
7	PS-303-22-1	24 V	24	12	8.5	+	+	Figure 10
8	PS-303-22-2			24	4.2	+	+	Figure 6
9	PS-303-22-2			24	14.6	+	-	Figure 6
10	PS-303-21-1		12	12	27.5	+	-	Figure 7
11	PS-303-21-1			12	12.5	+	-	Figure 7
12	PS-303-11-1			12 V	12	4.1	-	-

It is advisable to use the KMPVe (2x1.0) cable or an equivalent to connect to the PS-303 input and output.

4. Description and Functionality of the PS-303 PSU

The PS-303 has two inputs, i.e. input #1 for the main network and input #2 for the backup one, two terminals for the loads, and light emitting diodes indicating power supply from the main network or from the backup one (see Figure 1).

Voltage from input #1 comes to the voltage conversion and stabilization module, and then the stabilized voltage goes to the load output via the contacts of the relay having responded to that voltage.

Voltage from input #2 comes to the voltage conversion and stabilization module; in some versions such a module is not available (Table 1). The stabilized voltage (or input #2 voltage) is supplied to the contact of the relay switching the supply networks and stays there in such condition until the relay responds to it. If voltage in the main network fails, the relay responds (trips), and the converted backup circuit (input #2) starts feeding the load.

The network connected to input #1 is considered the main power supply of the PS-303, and the network connected to input #2 is considered the backup one.

The LEDs indicate which power supply input network is currently used by the load.

The PS-303 is protected from a short circuit in the load circuit with two fuses. If the short circuit protection has been activated, switch the PSU off, eliminate the cause of the short circuit, replace the fuses and switch the PSU on again.

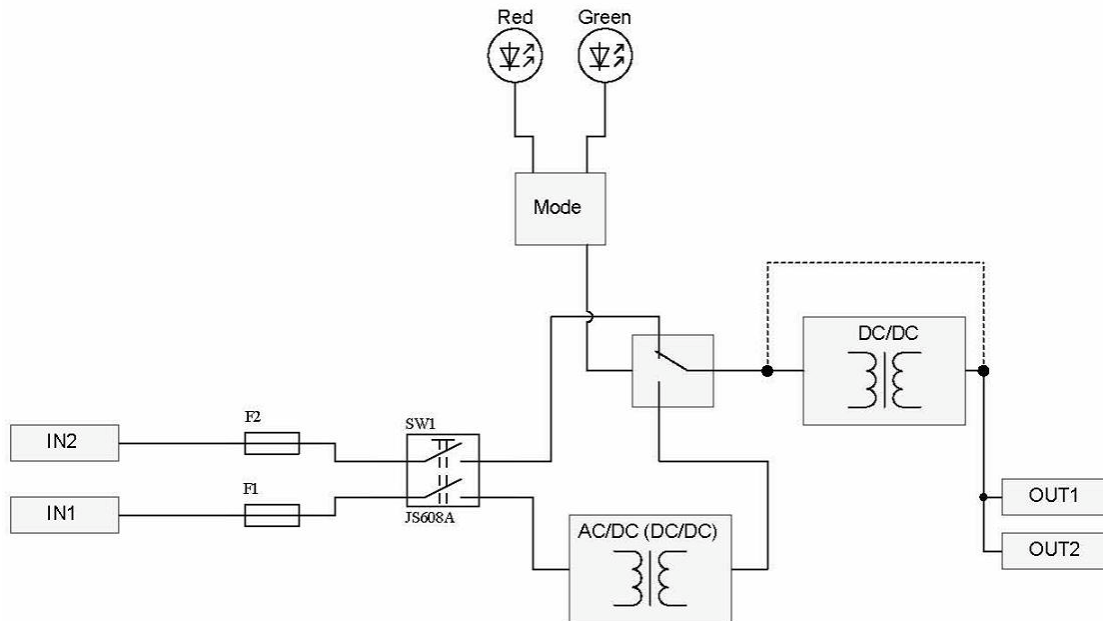


Figure 1 PS-303 structural diagram

5. Installation and Connection

1. Mount your PS-303 on a vertical bulkhead or on a mounting panel, marking the holes and taking into account the dimensions as per the drawing (see Figure 2). Special fixing holes are provided on the outside of the PSU enclosure.

2. **This paragraph is applicable only to power supply units designed for the main supply of 110 or 220 V AC.** Check if the shipboard power supply meets the requirements of this Operating Manual (110 or 220 V AC). The PSU input-power factory setting is 220 V 50/60 Hz. If the main power supply of the PSU is going to be 110 V 50/60 Hz, 110 V should be selected on the power block of the PSU. To do that, move the voltage switch from 220 V to 110 V (right to left). The voltage switch is on the right side of the power block, where the PCB is (Figure 1). Unscrew the four bolts on the PCB sides, switch the power and place the PCB back.

3. Connect cables from external devices and power sources to the PSU terminals as shown in the respective connection diagrams (Figure 4, Figure 5, Figure 6, Figure 7, Figure 8, Figure 9, Figure 10) (check with Table 1).

4. Ground the PSU enclosure using the M5 grounding bolt.

5. Energize the PSU with the power switch located on the side wall of the enclosure.

6. Check the PSU in operation (energize the devices connected to the outputs of your PSU and make sure they work) and cover the enclosure.

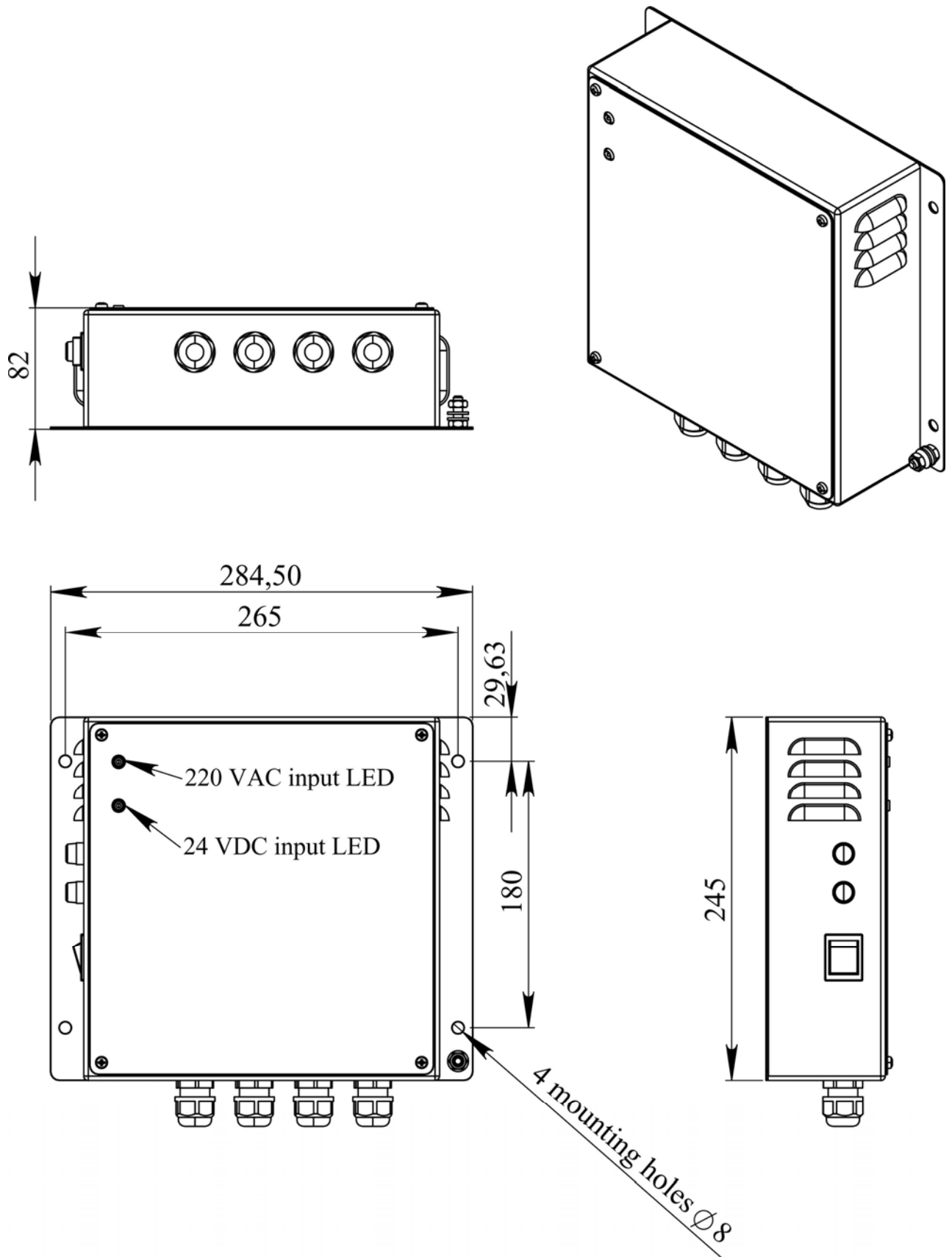


Figure 2 PSU installation drawing



Figure 3 Voltage switch

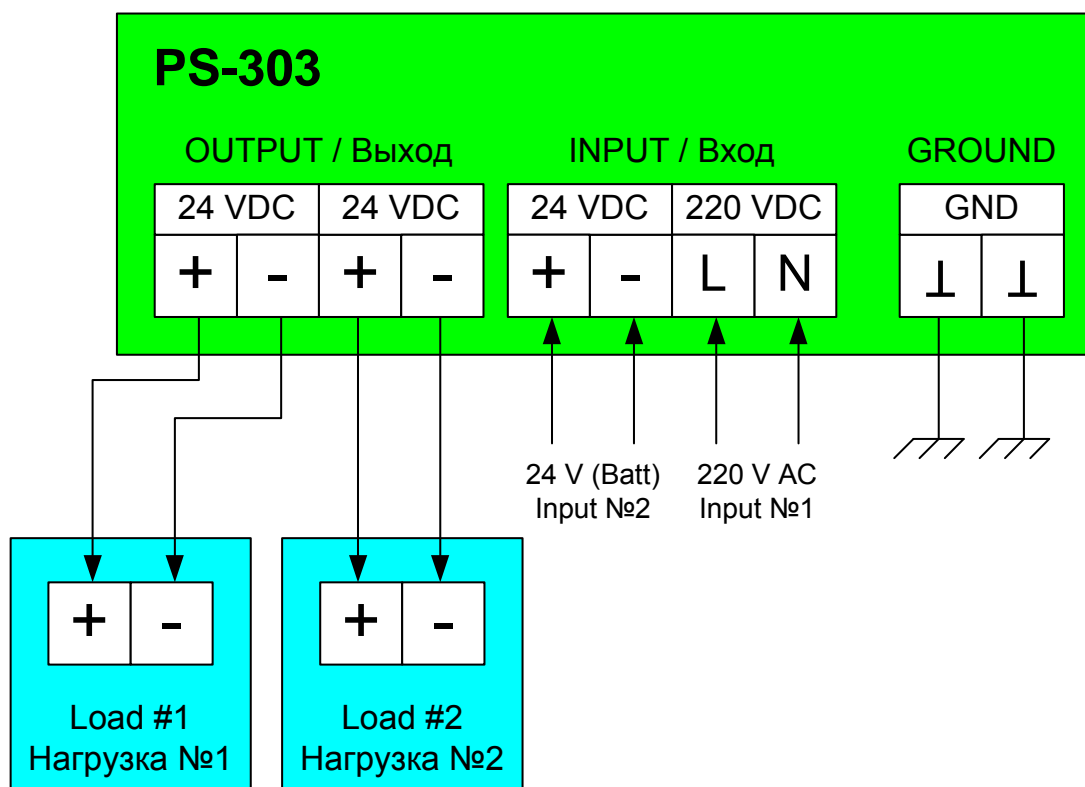


Figure 4 PS-303 connection diagram (220/24-24).

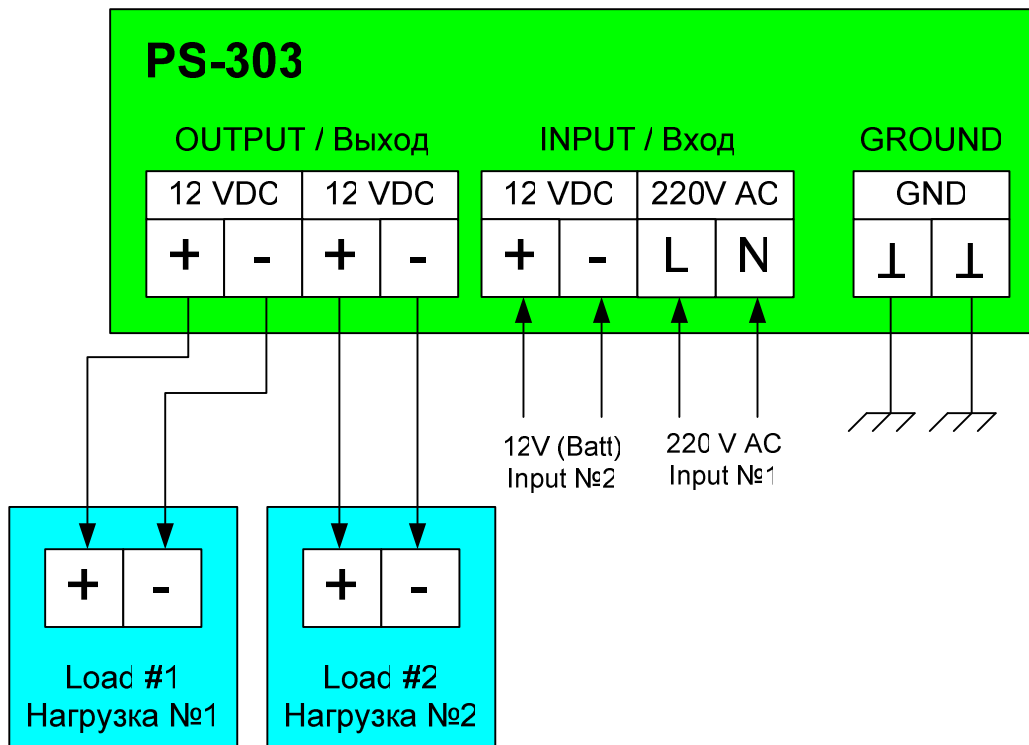


Figure 5 PS-303 connection diagram (220/12-12).

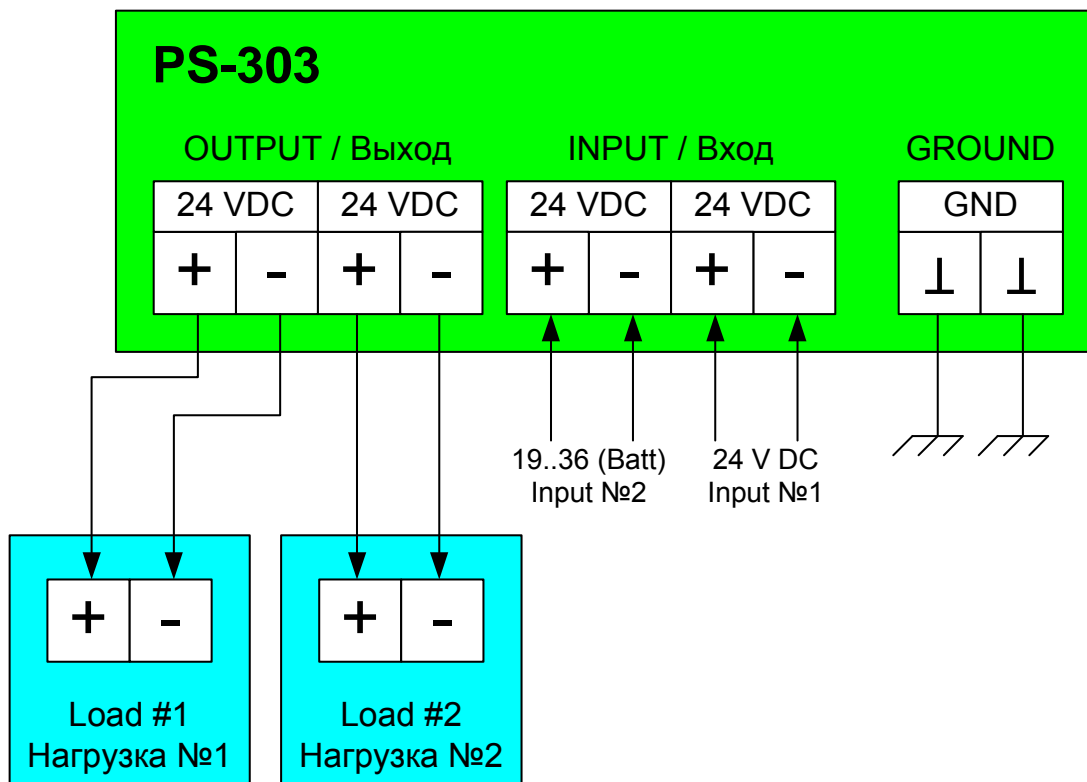


Figure 6 PS-303 connection diagram (24/24-24).

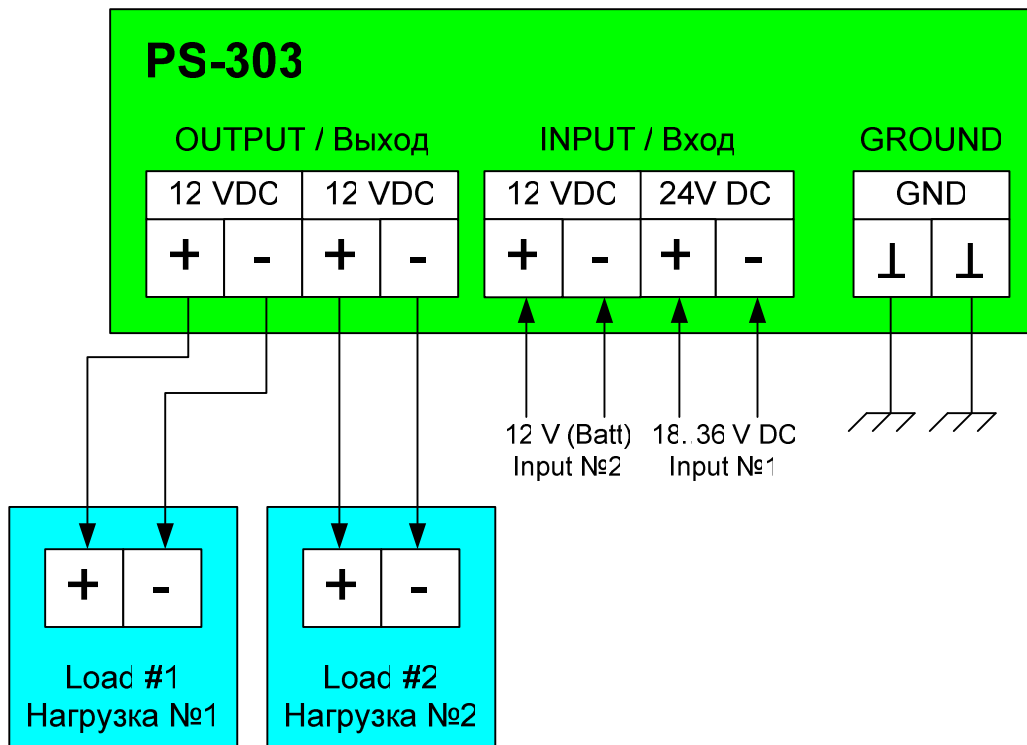


Figure 7 PS-303 connection diagram (24/12-12).

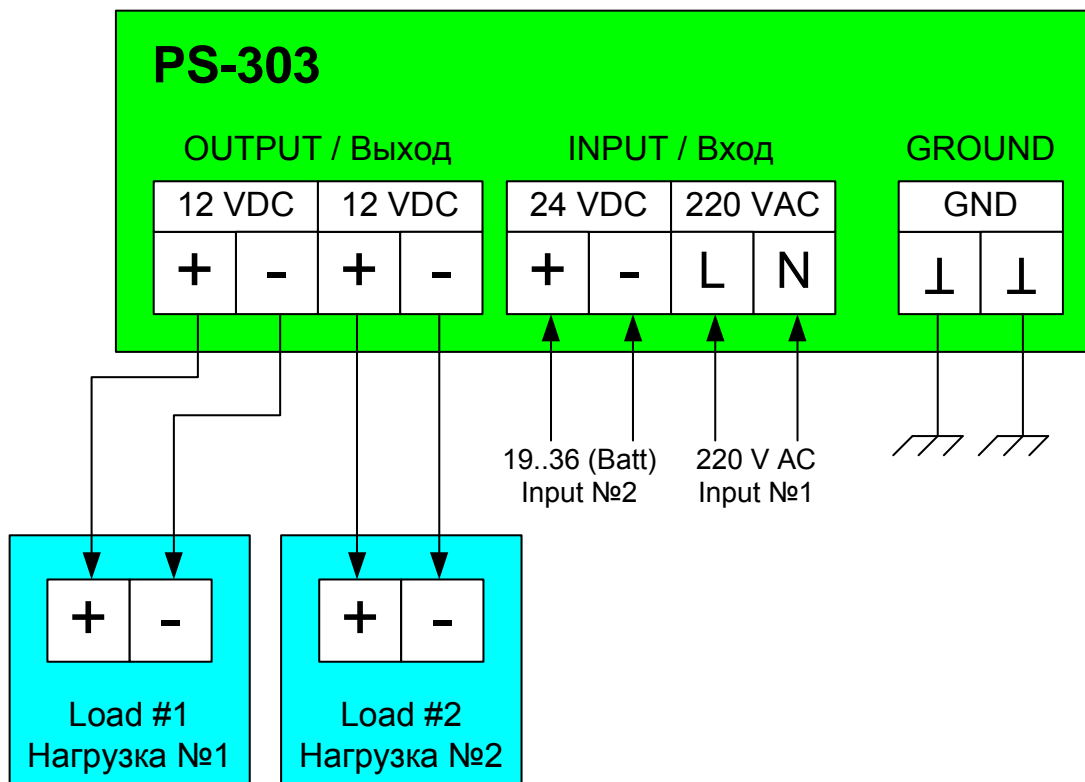


Figure 8 PS-303 connection diagram #3 (220/24-12).

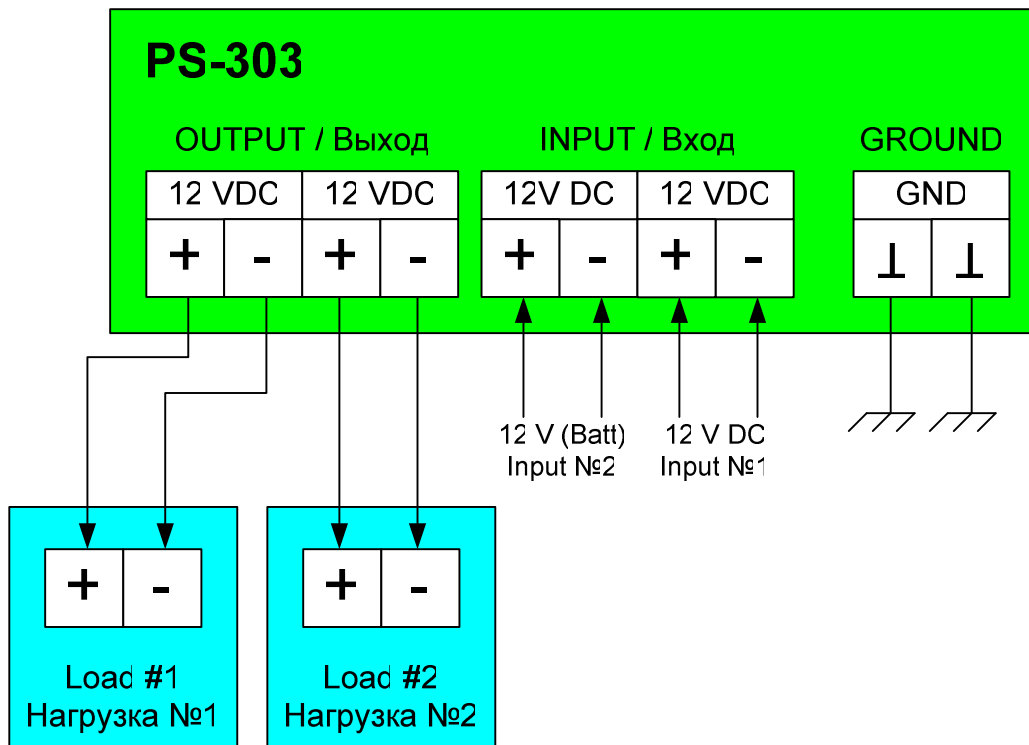


Figure 9 PS-303 connection diagram #3 (12/12-12).

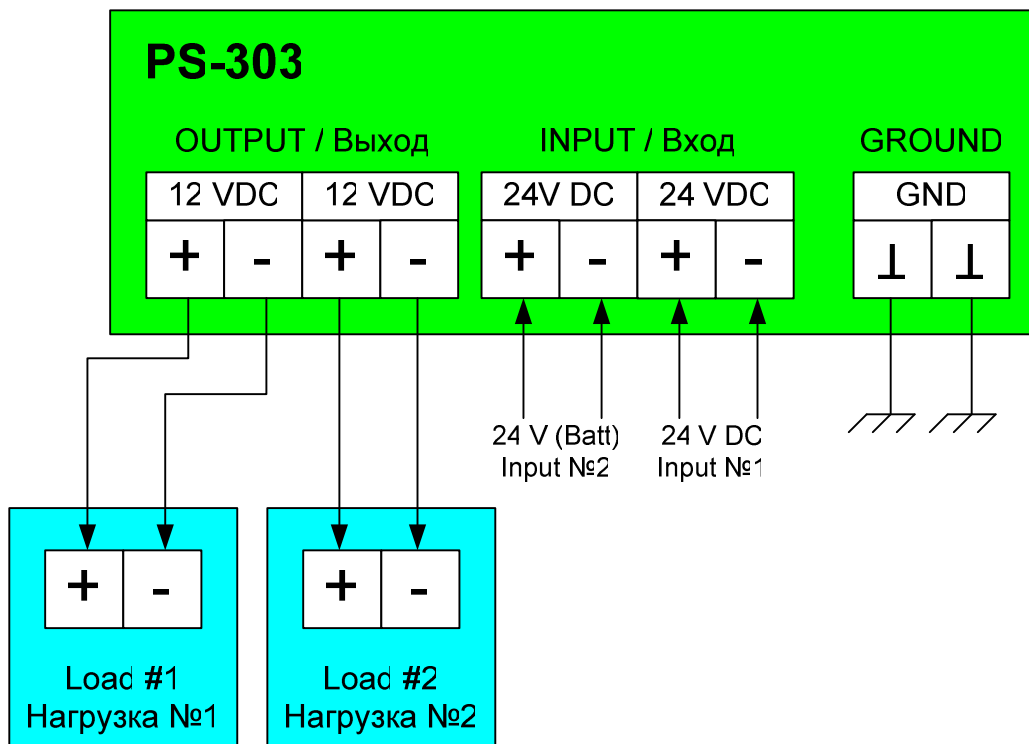


Figure 10 PS-303 connection diagram #3 (24/24-12).

6. Transportation and Storage

The battery charger shall be stored in heated space at air temperature of +5 °C to +35 °C (maximum values of -60 °C to +70 °C), at relative humidity of air not exceeding 95 % at temperature of +25 °C and content of dust, oil, moisture and aggressive admixtures in the air not exceeding the norms envisaged by GOST 12.1.005-88 for the working zone of production areas.

The device shall be transported in transport container of the manufacturer in closed transport.

Means of transport:

- automobile and railway closed transport (covered wagons, universal containers)
- by air (in pressurized and heated bays of airplane)
- by sea (in dry service spaces).

The device shall be transported in accordance with the transport regulations in force for the particular transport.

During handling operations and transportations strictly observe the requirements of handling marks on boxes and do not allow bumps and impacts which can affect preservation and serviceability of the device.

Packed devices shall be reliably secured in vehicles.

After storage in stores or transportation at temperature below +10 °C the devices shall be unpacked only in heated spaces after keeping them unpacked in under normal climatic conditions for 12 hours.

7. Warranty

The manufacturer guarantees the unit PS-303 complies with this manual provided that the operation, transportation and storage conditions are adhered to during the warranty period.

The unit's warranty period expires 24 months from the date of its shipping from the manufacturer's storehouse.

Within the warranty period, the owner is entitled for a free repair, or a replacement of a separate part, provided that the malfunction occurred through the manufacturer's fault.

Warranty repair is provided if the unit is submitted with the manufacturer's label and a legible serial number available on it, as well as this operating manual.

The manufacturer is not responsible and cannot guarantee the unit's operation:

1. After the warranty period is over;
2. In case of the failure to observe the unit's operation, transportation, storage and installation rules and conditions;
3. If the unit is in an unmarketable condition, or has a damaged body, and other causes beyond the manufacturer's control;
4. If self-made electrical devices were used.
5. If there was an attempt to repair the unit by a person who is not an authorized representative of the manufacturer.

If the owner loses this operating manual or the manufacturer's label with a serial number, the manufacturer shall not provide their copies, and the owner shall be divested of the right for a free repair during the warranty period.

Upon the warranty expiry, the manufacturer shall facilitate the repair of the unit at the owner's expense.

Note: in case of warranty repair, the unit's disassembling from the installation site and its delivery to the manufacturer's service center are done at the owner's expense.

Visit the manufacturer's website www.unicont.spb.ru (section "support/warranty") to find:

- forms to fill in claims,
- full warranty description;
- full description of the warranty service rendering procedure.

The manufacturer service center's address and contact details:

Unicont SPb, Ltd.

Bld. 26E Kibalchich Str., Saint Petersburg, 192174, Russia

tel.: + 7 (812) 622 23 10, +7 (812) 622 23 11

fax: +7 (812) 362 76 36

e-mail: service@unicont.spb.ru

8. DATE OF PACKING

Power supply unit PS-303 №
 name of article designation serial number

Packed Unicont SPb Ltd., Russia.
 Manufacturer

according to the requirements of the current technical documentation.

_____ signature _____ clarification of signature
 post

_____ year, month, day

9. ACCEPTANCE DETAILS

Power supply unit PS-303 №
 name of article designation serial number

was manufactured and accepted in accordance with the regulatory requirements of the state standards and applicable technical documentation, and is suitable for operation.

Quality control representative

Stamp _____ clarification of signature
 here signature

_____ year, month, day

10. DATE OF COMMISSIONING

Power supply unit PS-303 №
 name of article designation serial number

The unit has been put into operation.

Date of installation: _____

Place of installation: _____

Person in charge of installation: _____