ИСО 9001

EAC

DC-DC POWER CONVERTER MODULE

MP 24/12V

User's Manual

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The purpose of this User's Manual is to provide a basic understanding of principles and rules of operation of MP 24/12V DC-DC Power Converter Module.

Only the personnel who have studied this manual are allowed to operation activities. All activities on mounting, start-up, programming, and testing shall be performed in compliance with the requirements of the regulatory documentation in force at the place of operation.

1 Description and Operation

1.1 Purpose

1.1.1 MP 24/12V DC-DC Power Converter Module (hereinafter referred to as the MP) is designed to supply power to equipment of fire and intrusion alarm systems that require 12 V dc.

1.1.2 MP is intended for round-the-clock operation with specified output parameters when cooperating with RIP-24 battery backed power supplies. The actual list of RIP-24 can be found at http://bolid.ru/production/reserve/rip/.

1.1.3 The design of the MP doesn't imply operating it in ex-hazardous and flammable premises.

1.1.4 The MP provides protection against short circuit failures with recovering output voltage automatically after repairing the failures.

1.1.5 The MP provides protection against reverse polarity of input voltage with further restoration of performance.

1.2 Specifications

Table 1

No.	Parameter	Value
1.2.1	Input DC voltage range	20 through 30 V
1.2.2	Rated output voltage	(12.6 ± 0.6) V
1.2.3	Load current	0.5 A permanently 0.8 A for a time up to 2 min
1.2.4	Current consumed by the module itself	8 mA max
1.2.5	Power consumed from the input power supply at maximum load current	7 W max
1.2.6	Ripples of the output voltage (peak-to-peak) at rated load current	50 mV max
1.2.7	Enclosure protection degree as per GOST 14254-2015	IP20
1.2.8	Resistance to mechanical exposure as per OST 25 1099-83	Arrangement Category III
1.2.9	Vibration exposure: - Frequency range - Max acceleration	 1-35 Hz; 0.5 g
1.2.10	Environmental category as per OST 25 1099-83	O3
1.2.11	Operating temperature range	Minus 30 through +50 °C
1.2.12	Relative humidity	93 %
1.2.13	MP weight	0.1 kg
1.2.14	MP overall dimensions	55×38×20 mm
1.2.15	MTBF in the quiescent mode	40,000 hours
1.2.16	Survival probability	0.975 after 1,000 hours
1.2.17	Expected service life of MP	10 years

1.2.18 MP is ready to operate within one second upon input power supply turning on.

1.2.19 As to immunity to man-made radio disturbance, the MP meets the requirements for Test Severity Level II as per GOST R 50009.

1.2.20 MP passes the industrial interference standards prescribed for Class ‘Б’ equipment as per GOST R 30805.22.

1.2.21 The MP design provides its fire safety in case of emergency operation and upon the breach of operational regulations in accordance with GOST 12.1.004-91.

1.3 Standard Delivery

The standard delivery for MP is shown in Table 2.

Table 2

Item	Quantity, pcs
MP 24/12V DC-DC Power Converter Module	1
MP 24/12V Operations Manual	1
Fasteners (woodscrew and wall plug)	2
Package	1

1.4 Measuring Instruments, Tools, and Accessories

While mounting, commissioning, and maintaining the product, please use the instruments, tools, and accessories shown in Table 3.

Table 3

Instrument	Specifications
Digital multimeter	AC/DC voltage up to 500 V, AC/DC current up to 10 A, resistance up to 20M Ohm
Flat head insulated screwdriver	SL2.5 × 75 mm
Cross slot insulated screwdriver	PH1 × 75 mm
Side-cutting pliers	160 mm
Pliers	160 mm

1.5 Marking and Sealing

Every MP has a marking applied to its enclosure base. The marking contains the name of the device, its decimal number, factory number, the year and quarter of production, and conformity marks.

1.6 Packaging

An MP along with accessory kit and operation documentation is packed in a separate cardboard box.

2 Intended Use

2.1 Operating Restrictions

The MP shall be operated in premises protected against exposure to atmospheric precipitation and mechanical damage. The MP design doesn’t provide its operation in explosion and fire hazardous premises.

2.2 Preparing for Use

2.2.1 Safety precautions:

Regularly check grounding of the battery backed power supply that operates along with the MP.

2.2.2 Design

The MP is assembled within a plastic case. The housing is composed of the base and the cover. There is a lightpipe brought onto the cover that transmits the light from the LED providing indication of MP operating. On the base there is the MP board installed, being secured by the latches of the case base.

2.2.3 Mounting

2.2.3.1 Installation, mounting, and maintenance shall not be carried out until the equipment is disconnected from power. Installation and maintenance shall be carried out by professionals qualified for Accident Prevention of Class II or higher.

2.2.3.2 Installation and Preparing for Use

Install the module at a place convenient for arranging power lines (on walls or other structures at places protected against atmospheric precipitations and mechanical damage). The overall and mounting dimensions are shown in Appendix A.

2.2.4 Wiring the MP

Connect input power that shall be between 20V and 30V to the XT1 terminal of the MP (see Appendix B) observing polarity.

The top side of the MP board is marked with terminal's signs and polarity of connection.

XT1 (BLUE) is marked as INPUT,

XT2 (GREEN) is marked as OUTPUT.

(Location of the terminals and their purpose are also shown on the stick label on the rear side of the product).

Connect the load to the XT2 terminal. The load current shall not exceed 0.5 A.

2.3 Operating the MP

To be admitted to work with the equipment, the personnel are obliged to have studied this manual and to have a certificate of verification of knowledge on accident prevention regulations.

2.3.1 Turn on the external power of the power supply. The LED HL1 on the MP board (see Appendix B) shall turn on with green indicating the presence of output voltage.

2.3.2 In the event of a short circuit failure the HL1 indicator on the MP board (see Appendix B) turns off. After repairing the overload the MP automatically recovers its operability.

2.3.3 In the event of a fault (output voltage is off or its value is out of range specified in the para 1.2.2), the MP shall be sent for repair.

2.3.4 Extreme Situation Actions

Warning!
If sparks, fire, smoke, or smell of burning is found at the installation site of the product, the product must be de-energized and sent for repair

2.3.5 Possible problems and ways to repair them are shown in Table 4.

Table 4

Fault	Probable Cause	Solution
The MP failed to turn on	Faulty electrical wiring	Repair the faulty wiring
	Reverse polarity of the input voltage	Provide correct polarity for the input voltage

3 Maintenance

3.1 General

The MP shall be maintained according to a planned preventive strategy which provides annual scheduled maintenance.

3.2 Safety Precautions

The product shall be maintained by personnel qualified for the Electrical Safety of Level II or higher.

3.3 Maintenance Procedures

Annual maintenance works are carried out by service company employee and include:

1) Visual checking of the MP conditions;

2) Checking output voltage when the load is connected as per 1.2.2 – 1.2.3 of this manual and performance of the external indicator.

3) Verifying the MP is secured reliably and external installation wires and contact joints are in proper conditions.

3.4 Checking Operability

Full inspecting of MP operability can be conducted only by the manufacturer or in special laboratories.

1) Turn the MP on as discussed in 2.3.1.
2) Measure the output voltage of the MP. The output voltage value shall be within the range indicated in 1.2.2.
3) Ensure the HL1 indicator is healthy (see Appendix B for the layout).

The MP is considered to be operational if requirements 3.4-2), 3.4-3) have been met.

3.5 Technical Examination

Technical examination is not applicable for this equipment.

3.6 Preservation

Preservation is not applicable for this equipment.

4 Repair

ATTENTION!

The manufacturer accepts no claims unless a malfunction report is applied

4.1. An equipment fault resulted from consumer's not observing rules of mounting and operation is not a reason for claims and warranty repair.

4.2. Repair of faulty equipment is to be conducted by the manufacturer or in authorized repair centers. The product shall be sent for repair in compliance with Company Standard QMS 8.5.3-2015, which can be found online at our website **https://bolid.ru/support/remont/**.

Attention!

The equipment shall be submitted for repair being assembled and clean and along with all the parts listed in the documentation.
Claims are accepted only if a reclamation report describing the failure is applied to the submitted equipment.

4.3. An equipment fault resulted from consumer's not observing rules of mounting and operation is not a reason for claims and warranty repair.

4.4. Claims shall be submitted to the following address:

NVP BOLID, #4 Pionerskaya Str., Korolyov, Moscow Region, 141070, Russia

Phone/fax: +7 (495) 775-71-55 (PBX) E-mail: info@bolid.ru.

4.5. In case of any issue related to use of the product, please contact the technical support: +7 (495) 775-71-55 or e-mail support@bolid.ru.

5 Storage

Storage in a transport container is permitted in unheated warehouses at ambient temperatures minus 30 through +50 °C and relative humidity up to 95 % at +35 °C.

Storage in the consumer package is permitted only in heated premises at temperatures +5 through +40 °C and relative humidity up to 80% at +20 °C.

6 Transporting

The equipment can be transported in a transport container at ambient temperatures minus 50 through +50 °C and relative humidity up to 95 % at +35 °C.

7 Disposal

The product can be disposed of considering that there are no toxic components in it.

The content of precious materials: doesn't require accountability for storage, retirement, and disposal (Clause 1.2 of GOST 2.608-78).

The content of non-ferrous metals: does not require accountability for retirement and further disposal.

8 Manufacturer Warranty

8.1 The manufacturer guaranties the product meets with technical requirements stated in the manuals if the user follows the instructions for transportation, storage, installation, and usage.

8.2 The warranty period is 18 months since putting the product into operation but no more than 24 months from the manufacturer's date of production.

9 Certification Information

9.1. MP 24/12V DC-DC Power Converter Module meets the requirements of Technical Regulations of Custom Union TR CU 020/2011 and is covered by the conformity declaration: ЕАЭС № RU Д-RU.PA01.B.34473/21.

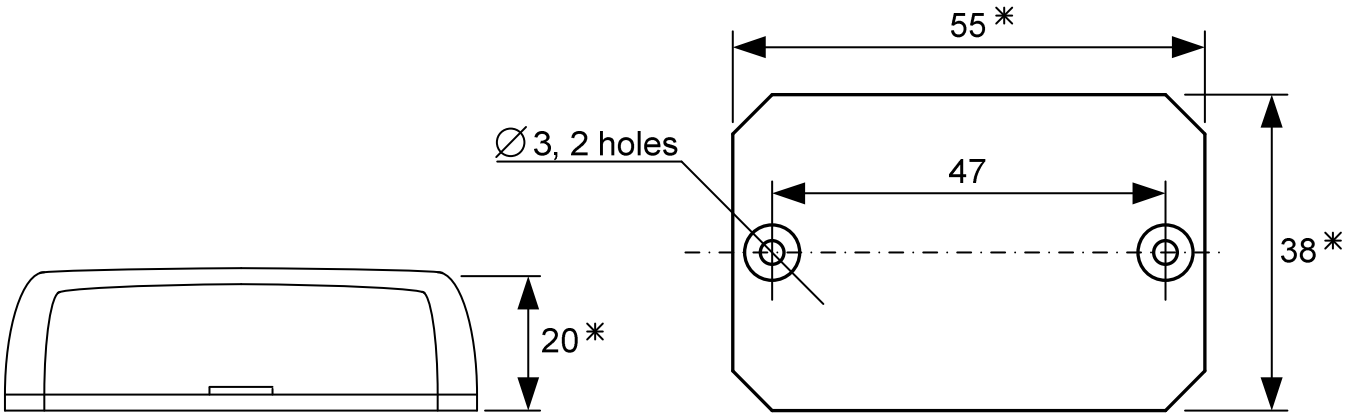
9.2. MP 24/12V DC-DC Power Converter Module is a component of Intrusion and Panic Alarm System, which is covered by the certificate of conformity of transport safety technical arrangements with requirements for their functional properties No. МВД РФ.03.000971.

9.3. MP 24/12V DC-DC Power Converter Module is a component of Access Control System, which is covered by the certificate of conformity of transport safety technical arrangements with requirements for their functional properties No. МВД РФ.03.000972.

9.4. Production of MP 24/12V is awarded with the conformity certificate GOST R ISO 9001. The certificate can be found at the website **http://bolid.ru** in the section ABOUT COMPANY.

Appendix A

Overall and Mounting Dimensions of MP



Note: ✳ - reference dimensions

Appendix B

Layout of Connection and Indication Elements