

ALARM UNITS AU-106, AU-206

Operating manual

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INTRODUCTION

This operating manual is intended to describe the structure, operating principles, technical specifications and service of signaling units AU-106 and AU-206 type (hereinafter – the Product).

In addition to the instructions given in this document, the safety regulations and rules applicable in the field shall be observed.

Only those who have read and understood this document and those who have had special training shall be permitted to operate with the PSU according to the applicable regulations.

Terms and abbreviations:

TS – technical service;

CL –check list;

AU-106 – Alarm unit AU-106;

AU-206 – Alarm unit AU-206;

SB – storage battery;

LFSG – large fine-pored silica gel granular.

1 DESCRIPTION AND OPERATION OF THE PRODUCT

1.1 DESCRIPTION

The Product is designed for visual and sound announcement of alarm signals received from connected shipborne equipment which is equipped with an output to connect external alarm based on dry contact closing / opening or level of voltage supply.

1.2 MAIN TECHNICAL SPECIFICATIONS

1.2.1 The Product ensures:

- a. sound and light signaling if connected alarm is triggered;
- b. sound alarm disabling (mute);
- c. light alarm disabling if the alarm is switched off on the connected equipment;
- d. in case of failure (malfunction) alarm is actuated by forming a voltage level on the alarm circuit contacts (valid only for AU-106);
- e. in case of failure (malfunction) alarm is actuated by dry contacts closing (opening);
- f. AU-206 additionally ensures a connection of external signaling unit with 24 V DC power supply.

1.2.2 Technical specifications of the Product are represented in Table 1.

Table 1 – General technical specifications of the Product

Parameter	AU-106	AU-206
Rated input voltage DC, V	24 (9 to 36) ¹⁾	
Output voltage DC, V	–	24 ²⁾
Max. output power, W	2	3
Consumption current on «Relay» input, mA	5, max.	15, max.
Number of inputs, pcs.	1	5
Built-in protection	reverse polarity connection of power supply	– reverse polarity connection of power supply; – galvanic isolation.
Protection degree	IP22	
Operating temperature, °C	–15 to +55	
Limiting temperature, °C	–60 to +70	

¹⁾ Range of supply voltage is given in brackets.

²⁾ Output voltage value is equal to input voltage value.

1.3 OPERATION AND STRUCTURE OF THE PRODUCT

1.3.1 General description

The Product is produced in metal casing. Once the alarm signal is received from the connected equipment, the Product starts supplying short sound signals; mute button LED of AU-106 and alarm LED of AU-206 glow intermittently.

Once the mute button is pressed, sound alarm is deactivated. Light alarm continues operation until the cause of the alarm is removed.

If alarm re-activates on the connected equipment, the cycle of announcement repeats.

1.3.2 Controls and indication

Layout and description of the main functional elements, indication and controls of the Product are represented in Figures 1, 2 and in Table 2.

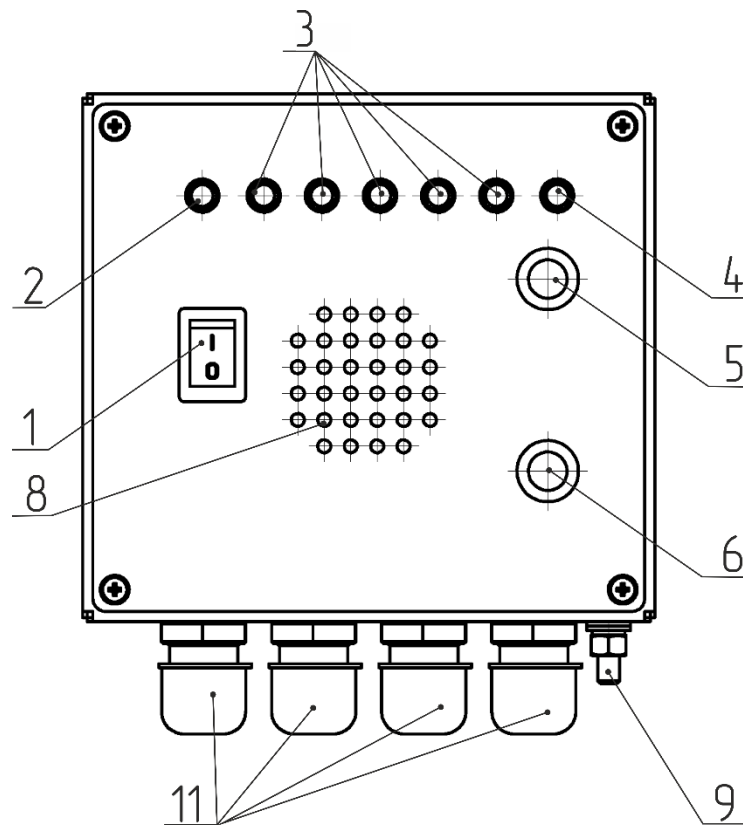


Figure 1 – Appearance of the AU-206

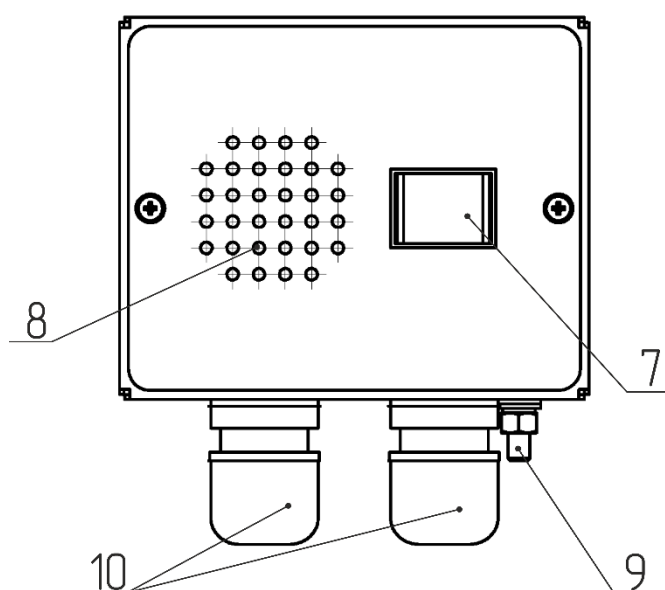



Figure 2 – Appearance of the AU -106

Table 2 – Description of the main functional elements, controls and indication of the Product

Num.	Element	Type, name	Description
1	Piano type switch	«ON / OFF»	To switch on / off the Product
2	LED	«Power»	Power indication, glowing green
3		«D1...D5»	Input status indication, LED is glowing yellow in case of alarm triggering
4		«Alarm»	Red signal of alarm. Once the alarm is triggered on a single input, light signal starts to blink. Once the alarm signal is muted, but triggering signal is still supplied on the input, Alarm LED is constantly glowing
5	Button	«Test»	Test of indicator's and sound alarm signal operability. When the button is being held pressed, all LEDs start to glow, sound alarm switches on
6		«Mute»	Sound signal muting
7		«MUTE»	
8	Technological holes of cone's acoustic panel	—	Sound alarm signal emission
9	Stud M5x15		The main element of Product grounding point
10	Cable gland (input)	MG-16	To connect the product to power supply; to connect controlled devices to the Product
11		MG-12	

1.3.3 AU-106 connection

The Product AU-106 has two inputs to connect outputs of different type alarms. «Relay» input is used to connect alarm based on dry contacts opening / closing.

«U» input is used to connect alarm based on voltage level formation.

JP2 and JP3 jumpers control operation modes of the Product, see Figure 3.

Jumper JP2 selects dry contacts alarm type, see Figure 4,a) or voltage, see Figure 4,б), jumper JP3 – failure signal type.

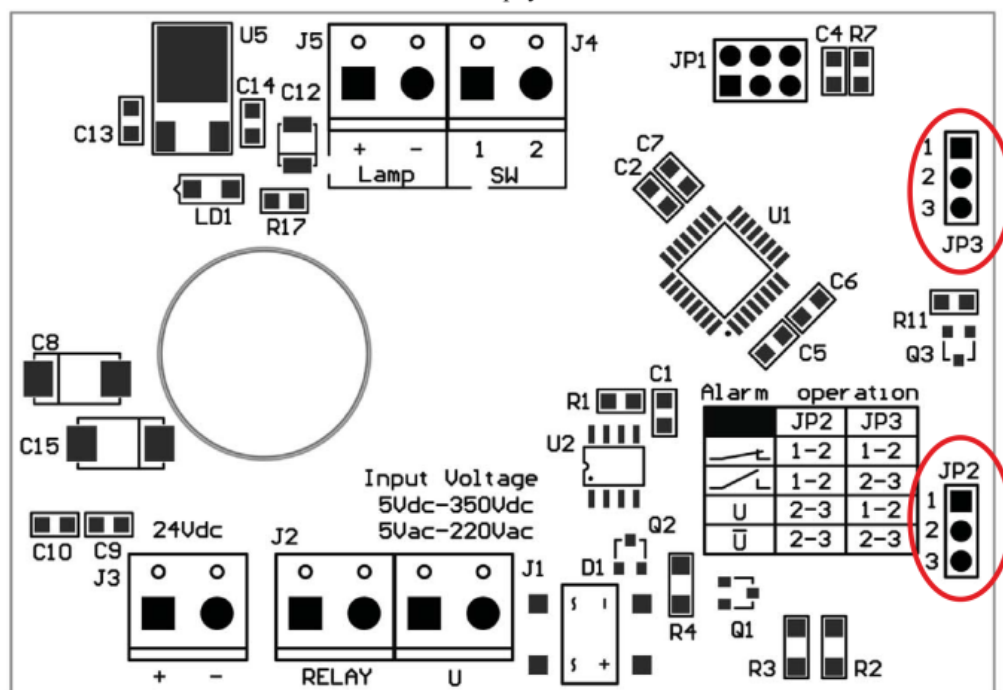


Figure 3 – Layout of connectors to set up operation modes of AU -106

Table 3 – Setting up operation modes of AU-106

№ pin JP2	№ pin JP3	Description
1 and 2	1 and 2	Dry contacts closing
1 and 2	2 and 3	Dry contacts opening
2 and 3	1 and 2	Voltage 5 V on input «U»
2 and 3	2 and 3	Voltage 0 V on input «U»

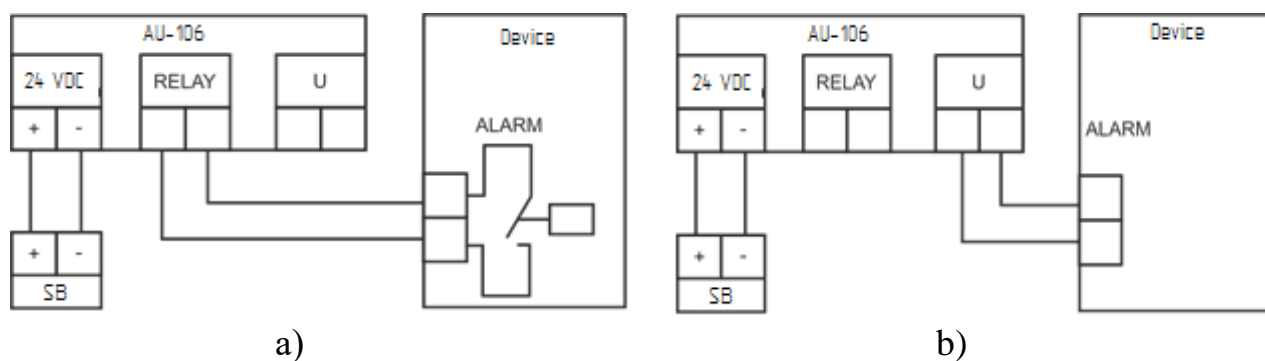


Figure 4 – Types of connection AU-106

1.3.4 Settings of AU-206

AU-206 is delivered from the manufacturer's plant with default settings according to which signaling units are activated if closing contacts signal is supplied to the Product inputs.

To change the operation mode of inputs provide the following steps:

- a. switch the Product power off;
- b. set up a jumper on pins 3 and 4 of connector «X4», see Figure 6;
- c. supply power to the Product;

d. make sure that the Product transferred to settings (configuration) mode – LEDs shall glow alternately representing the scrolling sign. Define current operation mode by direction of the scrolling sign:

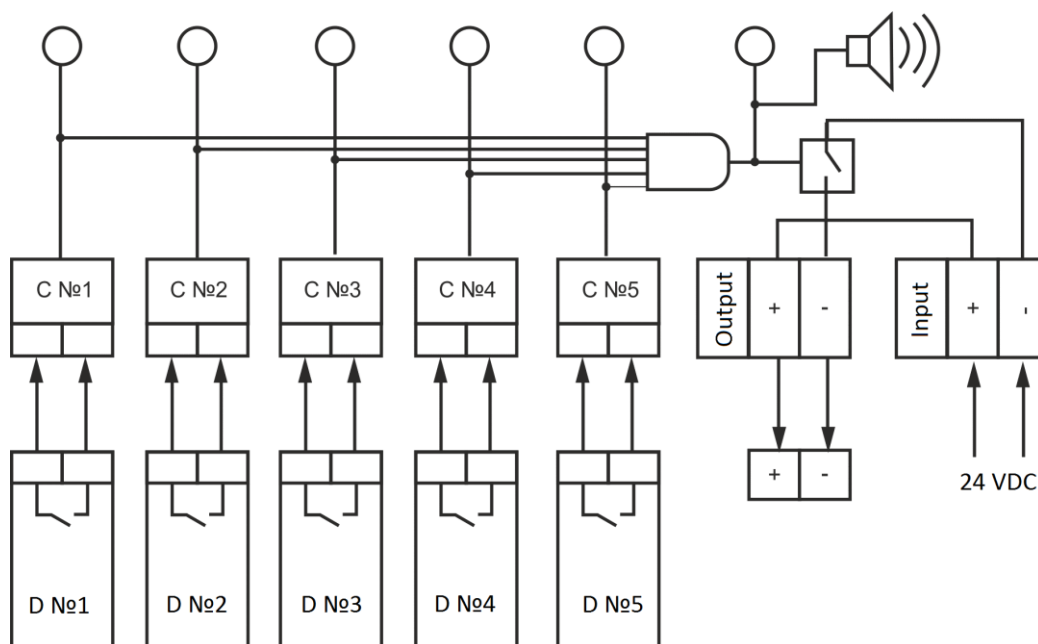
- directed to the left – the Product's actuation mode based on contacts closing;
- directed to the right – the Product's actuation mode based on contacts opening;

e. to change the mode press and hold button «Mute» until the relevant sound signal:

- single sound signal – means that contacts opening mode was selected;
- double sound signal – means that contacts closing mode was selected.

Sound signal which defines the type of the Product's activation mode is supplied only once when the button is pressed; then current selected mode can be defined by the direction of the scrolling sign;

- f. switch the power off;
- g. remove the jumper from connector «X4»;
- h. supply power to the Product;
- i. make sure that the Product operates properly, see Table 7.



D №1 to D №5 – external signal sources; C №1 to C №5 – ports to receive signals from external sources

Figure 5 – AU-206 connection diagram

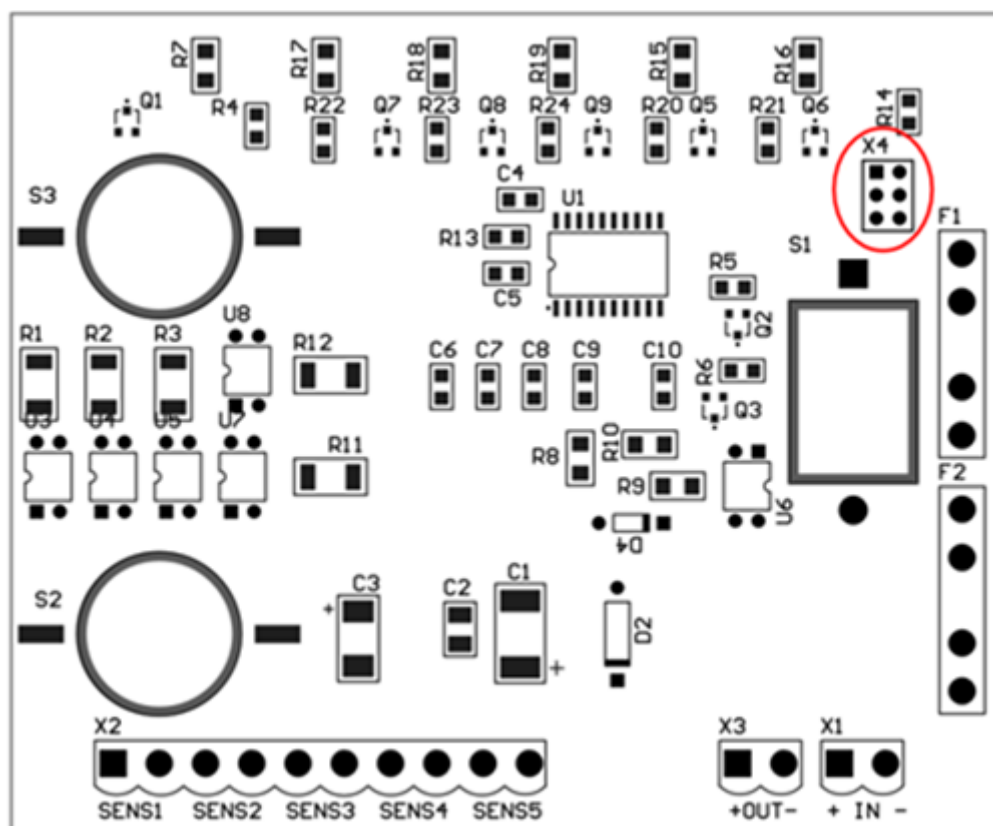


Figure 6 – Layout of connector «X4» on AU-206 card

The Product is equipped with «Test» button which ensures operability test of LEDs and sound alarm. Once «Test» is pressed and held, all LEDs are activated and sound alarm switches on. To transfer to normal operation mode, release «Test» button.

1.4 MEASUREMENT TOOLS, INSTRUMENTS AND APPLIANCES

Amount of consumables required for TS is represented in Table 4.

Table 4 – Amount of consumables required for TS

Name and identifier of consumables	Amount of consumables	Note
Cleaning cloth	0.10 kg	To clean surfaces of the unit
Rectified hydrolytic technical ethyl alcohol	0.01 l	1 To clean severe contamination from surfaces of the unit 2 To clean by rubbing surfaces with paint coating damage
Varnish	0.05 kg	To cover surfaces of the unit in case of paint coating damage
Abrasive cloth	0.06x0.06 m	To polish surfaces of the unit in case of paint coating damage

1.5 MARKING AND SEALING

The nameplates are located on the Product, where the user can find the name, serial number, date of manufacturing, weight, protection degree, rated input voltage and power consumption.

The sealing of the Product is not provided.

1.6 PACKAGING

At the time of delivery the Product is packed in a corrugated board box and in-ner packaging (air bubble film) ensuring its transportation and storage at the warehouse.

Transport packaging is also used as a returnable packaging for transportation of the Product to the repair location and back.

The sealing of transport packaging is not provided.

2 INTENDED USE OF THE PRODUCT

2.1 OPERATIONAL CONSTRAINTS

The Product's installation is provided in compliance with its outline and connection dimensions.

Caution! Distance between the installation site and magnetic compass shall not be less than 1 m!

Select the installation site in compliance with operational constraints (operating temperature and protection degree – IP).

Connect the Product to power mains in compliance with input voltage requirements.

2.2 USAGE PREPARATIONS

2.2.1 Safety features

While preparing the Product for operation, check it visually after unpacking; mechanical damage shall be absent.

Connection to power mains shall be provided only in compliance with input power requirements.

Before connecting the Product shall be switched off and have a proper grounding.

While using the Product the staff shall follow «The technical rules for operation of electric installation» and «Safety rules for operation of electric installation» while testing electrical circuits and insulation resistance.

2.2.2 Visual check procedure

Before switching the Product on, a user shall:

- observe visually the cable integrity and initial position of the controls on the Product's casing;
- check the absence of dust and dirt on the Product casing, clean with a soft cloth if necessary;
- check that cable connectors are securely connected to the Product.

2.2.3 Switching on instructions

While connecting the Product and preparing it for operation follow the steps below:

-
- connect de-energized power cable to input terminals;
 - transfer circuit breakers of main power switchboard to «ON» position;
 - transfer a piano type switch on the Product's casing to «ON» position (this step is valid only for AU-206).

Switching the Product off is carried out in the reverse order:

- transfer a piano type switch on the Product's casing to «OFF» position (this step is valid only for AU-206);
- transfer circuit breakers of main power switchboard to «OFF» position;
- disconnect de-energized power cable from the Product.

2.3 USAGE OF THE PRODUCT

To use the Product:

- switch on a circuit breakers of main power switchboard;
- transfer a piano type switch on the Product's casing to «ON» position (this step is valid only for AU-206).

3 TECHNICAL SERVICE

3.1 GENERAL DESCRIPTION

The TS shall be provided by the staff acquainted with its composition, structure and operation features.

In order to provide safe and reliable operation for the Product, the staff shall maintain a schedule of the TS:

- TS №1 (TS-1) – semi-annual TS;
- TS №2 (TS-2) – annual TS.

TS-1 and TS-2 shall be provided by the staff on the running equipment.

3.2 SAFETY FEATURES

While maintaining the TS, observe 4.2.

3.3 MAINTENANCE ROUTINE

The list of works for all types of TS is given in Table 5.

Maintenance routine procedure is given in CL, represented in Tables 6–9.

Amount of consumables required for the TS is shown in Table 4.

Table 5 – List of works by TS types

CL №	Work	Type of TS	
		TS-1	TS-2
1	Visual check of the Product	+	+
2	Product operability check	+	+
3	Insulation resistance check of power circuits	–	+
4	Test of output voltage conformance*	–	+
Note 1 «+» – work is obligatory. 2 «–» – work is not obligatory. 3 «*» – valid only for AU-206.			

Table 6 – CL № 1. Visual check of the Product

To be done	Routine	Man-hours per 1 Product
Visually examine the Product	1 check completeness and appearance of the Product; mechanical damage, paint defects must be absent; marking plates shall be present; legends are to be read easily 2 clean up the Product surfaces with clean cloth; 3 remove severe contamination, parts of corrosion, oil spots from the metal surfaces – using ethyl alcohol, avoiding its penetration inside the Product; all surfaces clean dry by clean cloth and dry up; 4 If varnish paint coating is damaged, polish it with sand paper, then clean with alcohol-soaked cloth, cover with varnish and dry up	1 person 5 mins
Check reliability of cable and bus connection to the Product	1 check that connectors and attaching screws are fastened tight; provide further fastening if needed; 2 check the cable integrity (mechanical damage shall be absent) within visibility	1 person 5 mins

Table 7 – CL № 2. Operability check of the Product

To be done	Routine	Man-hours per 1 Product
Operability check of AU-206	1 switch on power supply; 2 LED «Power» on the casing of AU-206 shall glow, and indicators «1... 5» shall switch on; 3 open contacts of alarm imitator and make sure that light and sound alarms are activated	1 person 5 mins
Operability check of AU -106	1 switch on power supply; 2 on the card of the product set a jumper JP2 to position 1 and 2, jumper JP3 to position 1 and 2, see Figure 3. Then close contacts of alarm imitator and connect the device to power supply 24 V DC; 3 open the contacts of alarm imitator and make sure that light and sound alarms are activated	1 person 5 mins

Table 8 – CL № 3. Insulation resistance check of power circuits

To be done	Routine	Man-hours per 1 Product
Insulation resistance check of power circuits	Using ohmmeter check insulation resistance between conductors and the Product's casing. Insulation resistance shall not exceed 1 MOhm	1 person 15 mins

Table 9 – CL № 4. Test of output voltage conformance

To be done	Routine	Man-hours per 1 Product
Test of output voltage conformance	Connect voltmeter to output contacts. Measure voltage on the output terminals. Voltage value shall not exceed the value represented in Table 1	1 person 15 mins

3.4 PRESERVATION

The Product and set of operational documents are stored in preserved condition in Manufacturer's packaging boxes.

The time of represervation – 2 years from the Manufacturer's commissioning.

The preservation is done in full terms, for 2 years, applying protection and packaging.

The represervation is done in heated rooms in the same order as the preservation.

The represerved Product and documents are placed in package.

4 CURRENT REPAIR OF THE PRODUCT

4.1 GENERAL DESCRIPTION

AU-206 operability is controlled by the LEDs on the casing. AU-106 operability is controlled by the method described in Table 7.

To provide diagnostics of the problems and defects, use information in Table 10.

If you cannot diagnose the problem, contact the Manufacturer's service centre.

4.2 SAFETY FEATURES

Any repair works must be provided by personnel examined and received proper qualifications in the area of the occupational safety.

Check grounding of the PSU before providing any repair works.

It is **PROHIBITED** to put a poster «DO NOT switch on! Under Operation!», when power supply switch is in OFF position.

Replacing damaged parts, boards, modules is **PROHIBITED** if power supply of the repaired unit is on.

Installation, aligning and repair works are **PROHIBITED** in the room, where less than 2 people are present.

4.3 CURRENT REPAIR

The list of malfunctions that can be eliminated by own employees is represented in Table 10.

The repair of other defects shall be provided only by the Manufacturer's specialists or authorized representatives.

Table 10 – The list of possible malfunctions and troubleshooting

Malfunction	Possible reasons	To be done
«Power» LED of AU-206 does not glow	No voltage supplied from the power source	Check power cable connection to the Product
		Provide the voltage
	Fuse malfunction	Replace the fuse
LEDs «D1 to D5» AU-206 does not glow	No voltage supplied from the power source	Provide the voltage
		Check power cable connection to the Product

5 STORAGE

The units must be stored in packaging inside areas complying with the required storage conditions (+ 5 °C to + 40 °C) with the concentration of dust, oil, moisture and aggressive impurities in the air within the required limits for the working areas of production facilities.

After storage or transportation of the device below + 10 °C, it must be un-packed only in heated premises and left in normal climate conditions for 12 hours be-forehand.

6 TRANSPORTATION

The Product must be transported in the Manufacturer's transportation package in closed means of transport.

Types of shipment:

- motor vehicle and railroad transportation in closed means of transport (covered cars, multipurpose containers);
- air transportation (in sealed and heated compartments);
- sea transportation (in dry service premises).

The units must be transported in compliance with transportation rules applicable for each means of transport.

During loading / unloading operations and transportation, the requirements indicated on warning labels on the boxes / packaging must be observed, and no impacts are permitted since they can affect the safety and performance of the Product.

Inside the means of transport, the packed device must be firmly secured / fastened.

7 DISPOSAL

New equipment, the parts of the Product damaged during operation, and any overage equipment must not be disposed as standard household wastes, since they contain the materials suitable for re-use.

Decommissioned and non-used components of the Product must be delivered to a special waste disposal center licensed by local authorities. You can also send an overage equipment / unit to the manufacturer for its further disposal.

Proper disposal of Product components allows avoiding possible negative environmental and health impacts, and it also allows for proper restoration of components with substantial energy and resources saving.

During operation and upon completion of its service life, the equipment is not hazardous for health and environment

This unit must be disposed according to the rules applied to electronic devices



Any products marked with a crossed trash bin must be disposed separately from standard house-hold wastes

ANNEX A (MANDATORY) OUTLINE AND INSTALLATION DIMENSIONS

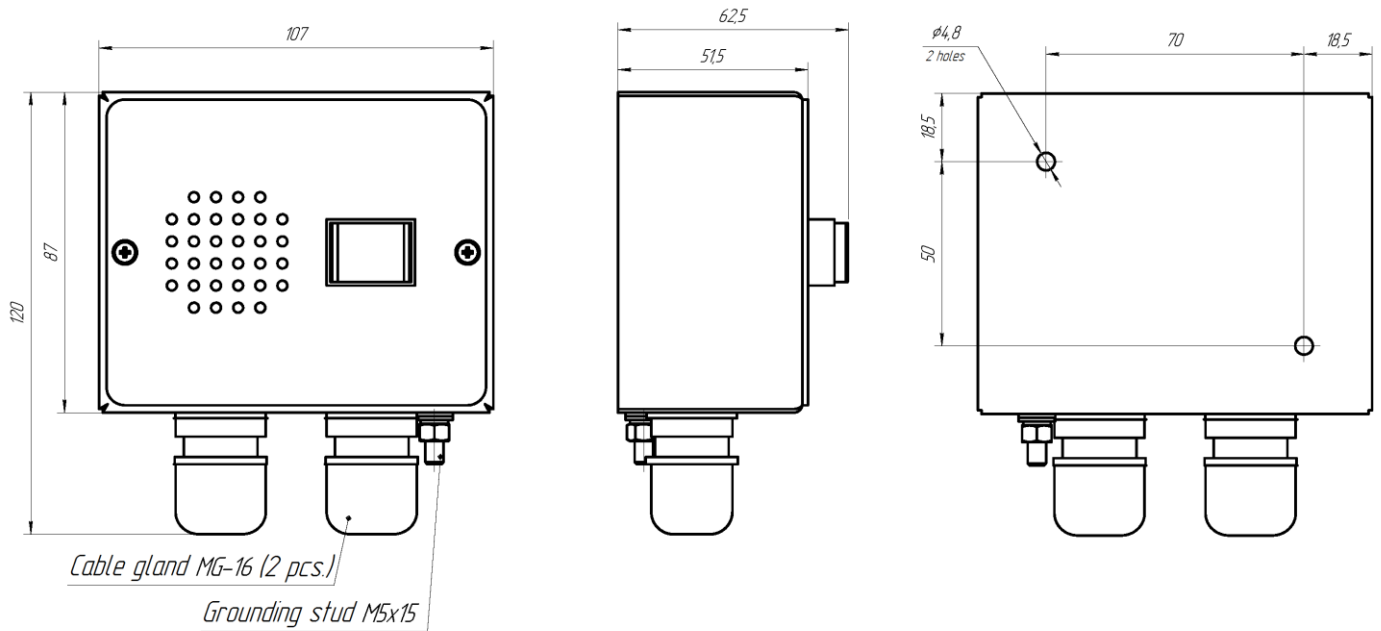


Figure A.1 – Outline and installation dimensions of AU-106

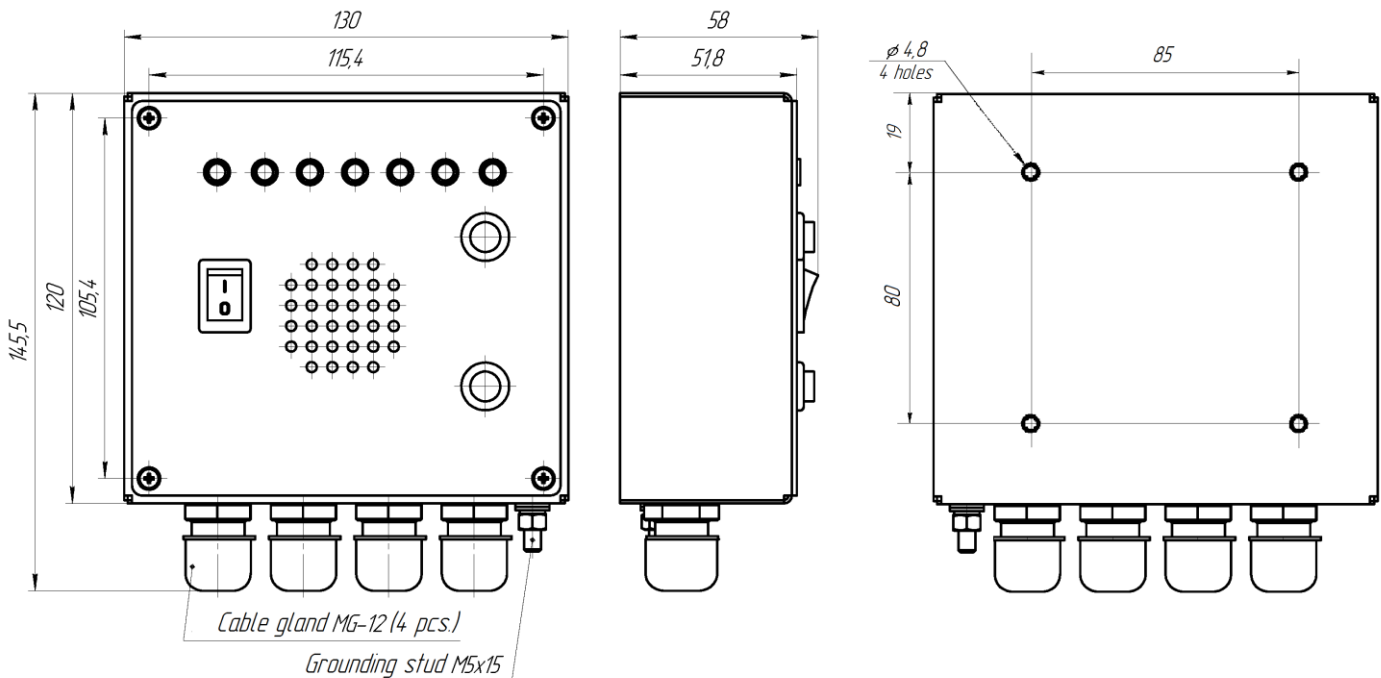


Figure A.2 – Outline and installation dimensions of AU-206