

EAC

CE



**ELECTROCHEMICAL
POWER SOURCE ACTIVATOR**

AEAC-12V

Operation manual

Made in Russia

SAFETY SYMBOLS:

THERE ARE FOLLOWING SAFETY SYMBOLS USED THROUGHOUT THIS MANUAL AND ON THE PRODUCT TO PROVIDE SAFE USE AND MAINTENANCE OF THE PRODUCT.



THIS SYMBOL INDICATES THAT THE USER MUST REFER TO THE MANUAL FOR SPECIFIC WARNING INFORMATION TO AVOID PERSONNEL INJURY OR DAMAGE TO THE DEVICE.



“PROTECTIVE GROUND” SYMBOL IS PICTURED ON THE CASE OF THE DEVICE. GROUND WIRE HAS TO BE CONNECTED TO TERMINAL MARKED WITH THIS SIGN.

ACTIVATOR HAS BEEN CLASSIFIED AS CLASS «A» EQUIPMENT WHICH IS INTENDED FOR USE IN INDUSTRIAL ENVIRONMENT.

CAUTION! APPLICATION OF ACTIVATOR IN OTHER ENVIRONMENTS MAY CAUSE PROBLEMS TO ENSURE ELECTROMAGNETIC COMPATIBILITY DUE TO RADIATED AND CONDUCTED EMISSION.

Note. Manufacturer reserves the right to make minor changes in schematic and design without notice if it does not change specifications.

Electric schematic diagram is not included in this manual.

October 2016

Contents

Introduction.....	4
1 Safety Regulations	4
2 Description	5
2.1 Purpose.....	5
2.2 Technical characteristics	6
2.3 Design	8
2.4 Control terminal	9
2.5 Marking.....	9
2.6 Packing.....	10
3 Intended use	10
3.1 Before you begin	10
3.2 Preparing for operating with batteries	12
3.3 Information display	13
3.4 Display menu	13
3.5 Operating modes	16
3.6 Operating in «Auto mode».....	18
3.7 Operating in «Manual mode».....	20
3.8 Internal resistance measurement mode	25
4 Maintenance and repair	26
5 Transportation and Storage	27
6 Utilization (Recycling).....	28
7 Warranty.....	28
8 Certificate of acceptance	29
9 Certificate of packing.....	29
10 Repair data	30
Annex A.....	31

Introduction

This operation manual contains information relating to operation, maintenance, specification, packing, transportation and storage of the ELECTROCHEMICAL POWER SOURCE ACTIVATOR AEAC-12V (hereinafter - activator). This operation manual is meant to familiarize personnel with technical characteristics, operating principles and structure of activator.

1 Safety Regulations



**WARNING! MANUAL RULES MUST BE OBEYED TO PROVIDE SAFE USE!
ONLY QUALIFIED PERSONNEL WITH AWARENESS OF THE HAZARDS
INVOLVED SHOULD USE ACTIVATOR.**

TO PREVENT INJURIES, ELECTRIC SHOCK AND FIRE HAZARD:

- do not switch on activator, if it out of order, or there are doubts about its operability;
- do not use activator in dusty, high humidity, condensing or explosion hazard conditions
- in order to avoid explosive mixture generation, during charging process, it is necessary that room is equipped with suction-and-exhaust ventilation;
- do not open a case while in operation;
- do not use activator for purposes other than those described in the operations manual;
- serviced electrochemical power source (battery) must be placed on a rubber insulating mat;
- use insulated tools to connect measuring cable to battery terminals;
- avoid short circuit at battery terminals.
- avoid contacts between serviced batteries and external metal objects
- do not touch battery terminals during charging or discharging process.
- personnel must wear insulated protective clothing such as rubber gloves and boots as well as safety mask or glasses while operating on activator.
- if acid gets on the skin or clothes wash acid off with water, neutralize with household ammonia (10%) or sodium carbonate, next, wash the wound.

WHILE IN OPERATION, IT IS FORBIDDEN:

- to smoke;
- to cause an emergence of electric sparks;
- to wear clothing which has the ability to accumulate static charge.

2 Description

2.1 Purpose

2.1.1 Activator is a microprocessor-controlled device designed for testing and maintenance of electrochemical power sources (hereinafter - batteries), namely for charging, discharging, training (one or more «discharge-charge» cycles) and battery characteristics measurement. Measurable characteristics described in 2.1.2

2.1.2 Measurable characteristics:

- output voltage on the battery terminals;
- internal resistance;
- battery capacity.

2.1.3 Activator is applicable for maintenance of the following types of batteries with 6 V and 12 V of rated voltage:

- lead-acid accumulators and batteries with gell (GEL), absorbed (AGM) and liquid electrolyte laced with Sb, Ag, Ca-Ca and Ca+.

2.1.4 Activator control is carried out via on-activator buttons or remotely by using Ethernet interface and special software.

Special software offers the possibility to set testing algorithm and testing parameters or use templates. Testing results with charge and discharge diagrams included can be viewed, saved or uploaded to built-in SD-card.

2.1.5 If special software is used, activator is able to provide maintenance service to Ni-Cd, Ni-Mh and Li batteries with 1.8 V up to 18 V of rated voltage.

2.1.6 Activator is a steady state device supplied by AC mains with 220 V (230 V) of rated voltage and frequency of 50 Hz (60 Hz).

2.2 Technical characteristics

2.2.1 Technical characteristics and parameters are presented on tables 1, 2.

Table 1

Parameter designation	Range	Setting and measurement errors
Charge mode		
Charge current I_C	(1,0 – 30,0) A	$\pm(0,005 I_C + 0,1)$ A
Control step of charge current	0,1 A	
Charge voltage for $I_C \leq 28$ A for $I_C \leq 30$ A	(1,0 – 20,0) V (1,0 -18,0) V	$\pm(0,005 U + 0,05)$ V
Control step of charge voltage	0,1 V	
Discharge mode		
Discharge current I_D	(1,00 – 30,00) A	$\pm(0,005 I_D + 0,1)$ A
Control step of discharge current	0,01 A	
Input voltage for Built-in electronic load	(1 – 18) V	$\pm(0,005 U + 0,05)$ V
Maximum power dissipation of built-in electronic load, at least	400 W	
Resistance measurement ranges	9,999 m Ω 99,99 m Ω 999,9 m Ω 6000 m Ω	$\pm (0,05 R + 80 \text{ dgt.})$
Battery capacity	(0,1 – 9999,9) A·h	

Table 2

Technical characteristic	Value
Supply Voltage	(185 – 253) V
Supply Voltage Frequency	(47 – 63) Hz
Maximum power consumption	1200 V·A
Interface	IEEE 802.3 (Ethernet), 2 ports
Built-in micro-SD memory card	2 GB (4 GB)
Electromagnetic immunity	ГОСТ Р МЭК 61326-1-2014 (IEC 61326-1:2012, IDT)
Effect of radiation radio frequency fields at 3 V/m Voltage measurement error Current measurement error	$\pm(0,05 U + 0,5) V$ $\pm(0,05 I + 0,8) A$
Electromagnetic emissions	CISPR 11 Group 1- Class A
Safety requirements	ГОСТ IEC 61010-1-2014 (IEC 61010-1:2010, IDT) Basic insulation. Pollution degree 1. Overvoltage category II. Altitude up to 2000 m ГОСТ IEC 61010-2-030-2013 (IEC 61010-2-030:2010, IDT). Voltage capability in input instrument cables up to 50 V
Dielectric strength test	1,5 kV r.m.s. (50 Hz)
Degree of protection	IP20
Climatic Factors: - Operating temperature - Relative humidity at 25 °C - Air pressure	ГОСТ 15150, YXJI 4 (NF4) 5 °C to 40 °C 80 % 84 kPa to 106,7 kPa
Storage requirements: - Temperature range - Relative humidity at 30 °C	 – 25 °C to 55 °C 95 %
Overall dimensions	404 x 271 x 210 mm
Weight (without cables and terminals)	11,5 kg
Average lifetime	10 years
Mean time to failure	25000 h

2.3 Design

2.3.1 Activator consists of the functional units:

- adjustable current source;
- electronic load;
- control board;
- power supply;
- interface board;
- fan assembly.

2.3.2 Activator has a metal case. Coating is resistant to chemical exposure of acids and alkalis. Case consists of a foundation, a frame and a cover.

A power button, a protective conductor terminal, a fuse holder, connection sockets such as a measuring socket, «+» and «-» terminals, a power supply socket are foundation-fixed (Figure 2.1).



Figure 2.1

There are buttons holes and glass-protected display hole on the top side of the cover. Also, there is a hole for Ethernet sockets on the flank.

Interface board is placed on a frame-fixed plane with slots which provide an alignment between control buttons and their holes.

2.3.3 Outline drawing pictured in Annex A.

2.4 Control terminal

2.4.1 Activator control is carried out via control buttons and on-screen menu. Controls are placed below the display on the top side of the cover (Figure 2.2).



Figure 2.2 – Front panel

2.4.2 To navigate through menu, use marked buttons: «←» (left), «→» (right), «↑» (up), «↓» (down).

2.4.3 To confirm chosen operation, use unmarked central button.


2.5 Marking

2.5.1 There are following markings on the top of the foundation:

- trademark and manufacturer's mark;
- name and designation;
- serial number;
- degree of protection;
- charge/discharge current range;
- battery voltage;
- «Made in Russia» label;
- EAC mark;
- CE mark.

2.5.2 On the bottom of the case:

- power supply type designation (alternating current), Supply voltage frequency range;
- supply voltage range;
- maximum power consumption;

– sign 

- connection sockets, protective conductor terminal and power switch symbols; fuse

characteristics.

2.6 Packing

2.6.1 Activator is packed in a corrugated cardboard box. Inside of the box, there is individually packed operations manual combined with a passport.

3 Intended use

3.1 Before you begin

3.1.1 On receiving activator, check the package integrity, next, unpack the activator. Carry out a general visual check to be convinced of mechanical failures absence. Check the package contents according to table 3.

Table 3

Name	Quantity	Note
Activator	1	
«Electrochemical power source activator AEAC-12V» Operation manual	1	
Battery connection cable 47113964.4.150	1	
Power supply cable	1	
Terminals kit	2	Type1, Type3
Package	1	

3.1.2 Check that serial number of the activator is coincides with number in operations manual (Chapter 8).

3.1.3 It is necessary to warm-up activator for 4 hours under indoor conditions before operating.

3.1.4 Affix activator to a vertical surface by inserting M6 screws through holes on the foundation.

Mounting dimensions are given in Annex A.

When mounting, it is necessary to provide at least 30 cm of a clear space for ascensional ventilating.

3.1.5 Check for fuse presence at the fuse holder (6A, 250V fuse), make sure that the power button position is « O ».

3.1.6 Connect activator to mains socket outlet by using bundled power supply cable.



WARNING! ACTIVATOR MUST BE CONNECTED TO THREE-PIN SOCKET OUTLET. IN CASE OF USING UNGROUNDED SOCKET OUTLET, IT IS NECESSARY TO CONNECT THE PROTECTIVE CONDUCTOR TERMINAL TO A PROTECTIVE EARTH GROUND VIA WIRE BEFORE PLUGGING IN THE POWER SUPPLY CABLE.

3.1.7 Connect battery connection cable to the activator in accordance with color coding: red wire to «+» terminal, black wire to «-» terminal. Measuring cable (twisted pair) has to be connected to the measuring socket.

3.1.8 Switch on activator by switching the power button to position « I ». A backlight should light up in the power button. If this did not happen, make sure that there is voltage in mains and that the fuse is not blown.

3.1.9 After switching on, activator enters a standby mode with mode status «←→», view is illustrated at Figure 3.1.



Figure 3.1

3.2 Preparing for operating with batteries



WARNING! BEFORE YOU BEGIN, IT IS NECESSARY TO CHECK BATTERY FOR MECHANICAL DAMAGE.

BATTERY TERMINALS AND BATTERY CONNECTION CABLE TERMINALS SHOULD BE CLEANED FROM CONTAMINANTS BEFORE CONNECTING BATTERY TO ACTIVATOR.

CONNECTION/DISCONNECT BATTERY TO ACTIVATOR, ONLY IF ACTIVATOR IS IN «STANDBY» OR «DELTA» MODE, OR AFTER THE END OF THE OPERATION CYCLE. INDICATOR MUST DISPLAY “00.00 A” OF CURRENT VALUE AND ONE OF THE FOLLOWING SIGNS IN THE UPPER LEFT CORNER: «-», «END», «<->».

3.2.1 First, connect battery connection cable to battery terminals (directly or via using terminals kit). Observe the correct polarity:

- red wire with «+» marked terminal to positive battery terminal;
- black wire with «-» marked terminal to negative battery terminal.

Make sure the connections are reliable.

3.2.2 If the connection has been correctly established, battery voltage will be displayed (Figure 3.2)

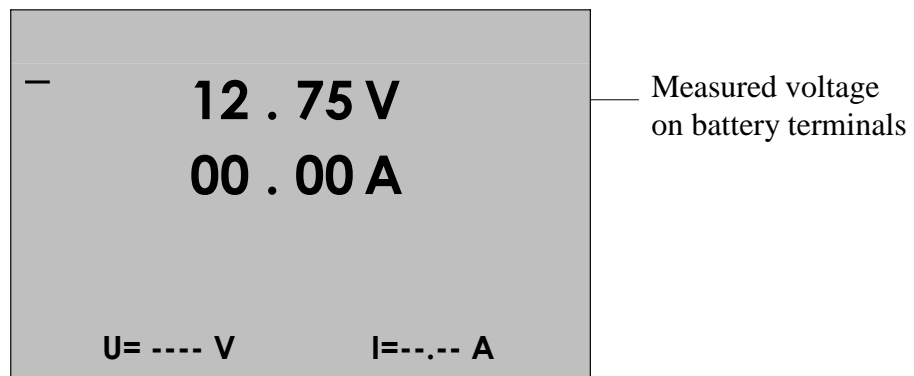


Figure 3.2

3.2.3 If this did not happen, check the connection between activator, battery and the cable.

3.3 Information display

3.3.1 After switching on, current survey window will be shown on the display. There is following information may be displayed:

D	– status symbol: «←→» - standby mode; «D» - discharge mode; «C» - charge mode; «END» - end of the operation cycle; « <→ » - «Delta» mode: emergency shutdown of charge mode in case of battery overheating
12.00 V	– measured voltage
25.00 A	– measured charge/discharge current value
0123.4 A·h	– current charge/discharge capacity*
U=10.50 V I=25.00 A	– setting current and voltage values

*capacity value is displayed, when activator is in charge and discharge mode.

3.4 Display menu

3.4.1 Menu structure is shown in Figure 3.3.

3.4.2 To navigate through display menu, use marked buttons: «←» (left), «→» (right), «↑» (up), «↓» (down).

To confirm chosen operation, use unmarked central button.

To return to the previous menu page, select and confirm «Return» command.

«Next» command is used for opening the next window. To perform «Next», press the «→» button.

«Start» command is used for starting the operation in selected mode. To perform «Start», press the «→» button.

«Back» command is used for getting back to the previous window. To perform «Back», press the «←» button.

«Edit» command is used for entering edition window. To perform «Edit», press the central button.

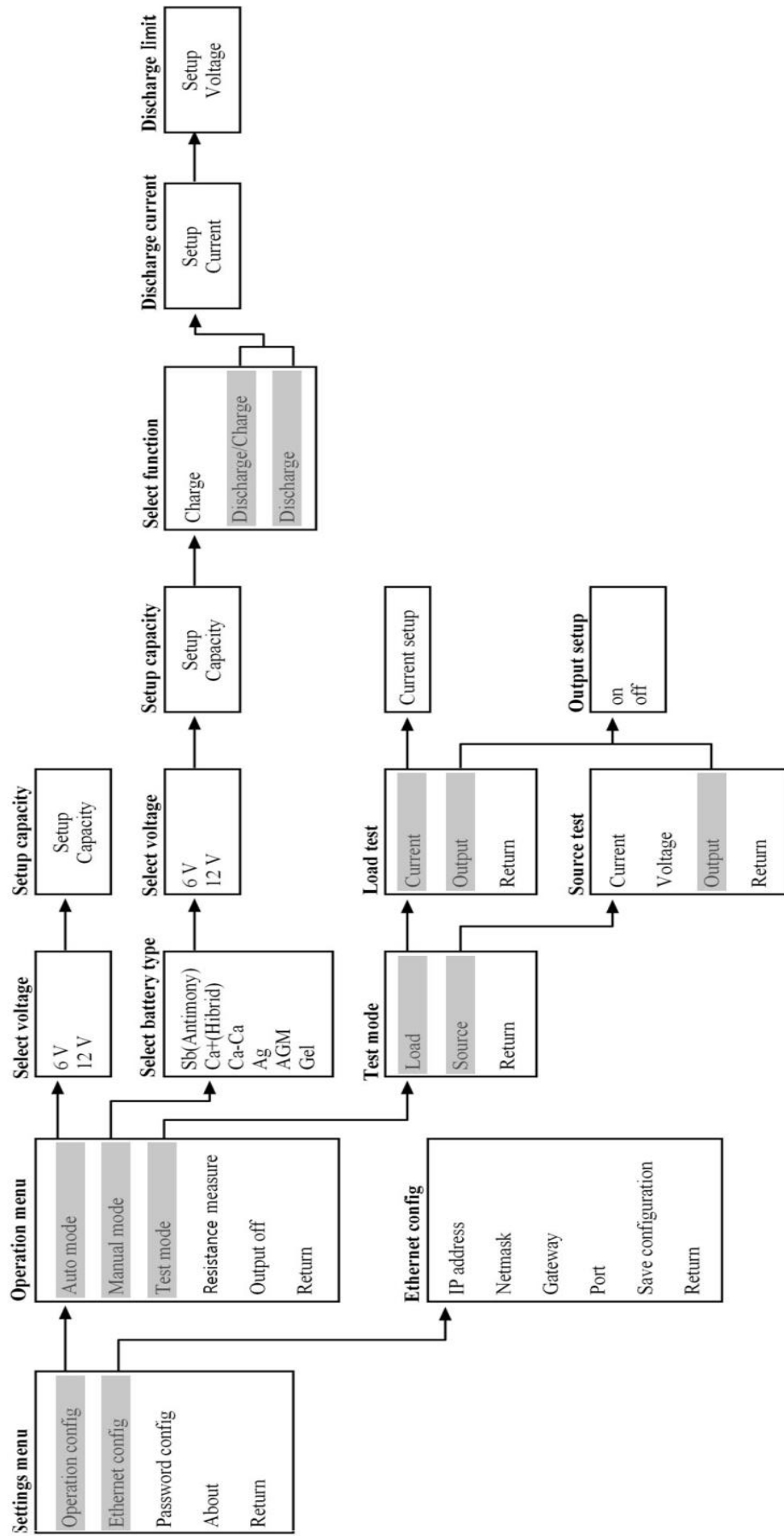


Figure 3.3 Menu structure

3.4.3 Main menu «**Settings menu**» is intended for configuring testing modes and activator control. Press central button to enter main menu.

Main menu consists of following commands (Figure 3.4):

- Operation config - for mode selection;
- Ethernet config - for Ethernet interface adjustment;
- Password config – Command opens the password setup window. Password is used for remote activator control. Press central button to exit password setup window;
- About – to view current firmware version;
- Return – choose this command for getting back to current readings window.

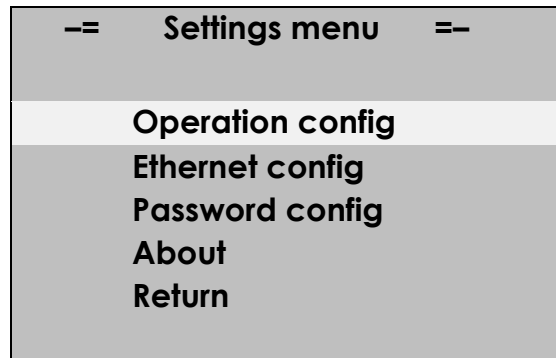


Figure 3.4

3.4.4 «**Operation config**» menu consists of following commands (Figure 3.5):

- Auto mode - for setting up the parameters automatically;
- Manual mode - for setting up the parameters manually;
- Test mode - to open service mode which is used **ONLY FOR SERVICE-RELATED PURPOSES**;
- Resistance measure - for internal resistance measurement;
- Output off – to stop operating in chosen mode;
- Return – for getting back to settings menu.

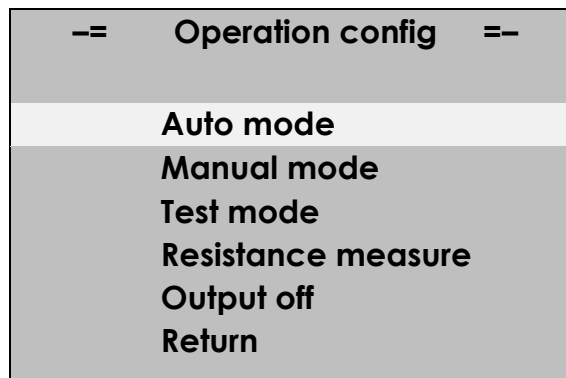


Figure 3.5

See chapter 3.5 for more detailed information about operating in «**Operation config**».

3.4.5 «**Ethernet config**» menu is intended for adjusting communication interface between activator and computer. This menu consists of following commands (Figure 3.6):

- IP address - for setting IP address value;
- Netmask - for setting subnet mask value;
- Gateway - for setting default gateway value;
- Port - for setting Port value;
- Save configuration – use this command to save entered values;
- Return - for getting back to settings menu.

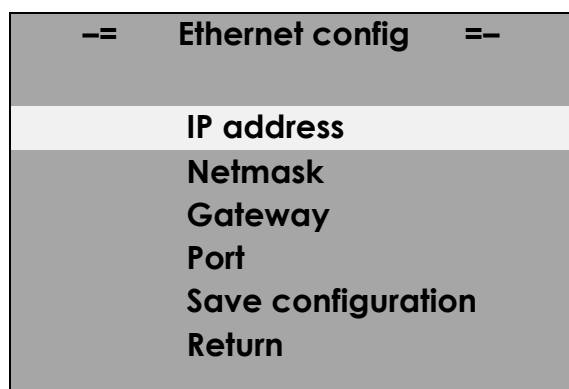


Figure 3.6

3.5 Operating modes

3.5.1 Operation manual should have given you practice at manipulating the front-panel control. There are following modes may be chosen in «**Operation config**» menu:

- «**Auto mode**» – automatic testing/training mode;
- «**Manual mode**» – manual testing/training mode;
- «**Resistance measure**» - battery resistance measurement.

3.5.2 «Auto mode»

«**Auto mode**» is an automatic mode which provides an execution of one «discharge-charge» cycle:

- for 12 V batteries - discharge to 10,5 V of voltage; DC current is 25 A;
- for 6 V batteries - discharge to 5,25 V of voltage; DC current value is calculated according to battery capacity;

- charge with stabilized voltage on the last stage; current is stepwise.

Charging process in «**Auto mode**» consists of 7 stages. Voltage and current values are calculated automatically according to setting voltage and battery capacity values.

If charging capacity has reached 115 % of entered rated value, or charging current is remaining constant for more than 2 hours during last stage, operating in this mode will be stopped automatically.

If battery parameters are unknown (unknown type or there are no markings), «**Auto mode**» is recommended.

3.5.3 «Manual mode»

«**Manual mode**» offers the possibility to set testing parameters of battery manually.

If «**Manual mode**» is selected, it is necessary to perform command execution sequence as shown on figure 3.7.

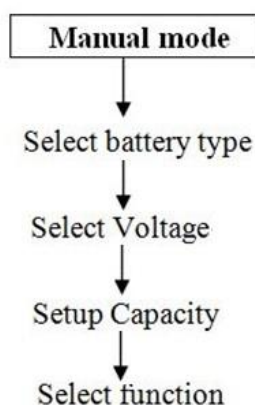


Figure 3.7

- **Select battery type** - command opens battery types list. It is necessary to select type in accordance with marking on the battery. There are following types:

- Sb (Antimony);
- Ca+(Hybrid);
- Ca-Ca;
- Ag («Silver»);
- AGM;
- GEL.

- **Select voltage** - for selecting of rated value of battery voltage (6 V and 12 V).

- **Setup capacity** - for setting battery capacity rated value (from 1,0 to 999,9 A·h)

- **Select function** - command is used for operation selecting.

There are 3 operations available:

- **Charge** – only charge;
- **Discharge/Charge** – training cycle;
- **Discharge** – only discharge.

3.5.4 In «**Manual mode**», discharge parameters must be set manually. Charge parameters are calculated according to set capacity value and battery type.

Charging process consists of 7 stages. If charging capacity has reached 115 % of entered rated value, or charging current is remaining constant for more than 2 hours during last stage, charging process will be stopped automatically.

3.5.5 In case of battery overheating, charging process will be stopped automatically. Activator will enter emergency shutdown mode «Delta» which is indicated as « **↔** ».

If this happened to lead-acid battery, it means that the battery is defective.

If this happened to Ni-Cd or Ni-Mh battery, it means that charging process is ended.

Note: Maintenance service to Ni-Cd and Ni-Mh battery is possible with special software.

3.5.6 More detailed information about operating in on-screen menu is considered below.

3.6 Operating in «Auto mode»

3.6.1 The following chapter describes the example of the execution of single «discharge-charge» cycle to a starter battery with 12 V rated voltage and 60 A·h rated capacity.

3.6.2 For starting out battery training procedure, it is necessary that operations described in chapters 3.1, 3.2 are performed.

3.6.3 To start operating in «**Auto mode**», it is necessary to get to the «**Settings menu**» by pressing central button.

Next, choose and confirm «**Operation config**».

After that, choose and confirm «**Auto mode**».

In opened «**Select voltage**» window, select «12 V» and get to the next window by pressing «**next**» (to perform «**next**», press the «**→**» button) (Figure 3.8).

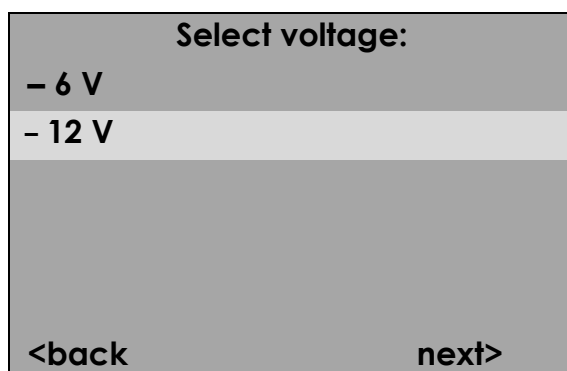


Figure 3.8

In «**Setup capacity**» window, perform «**edit**» by pressing central button.

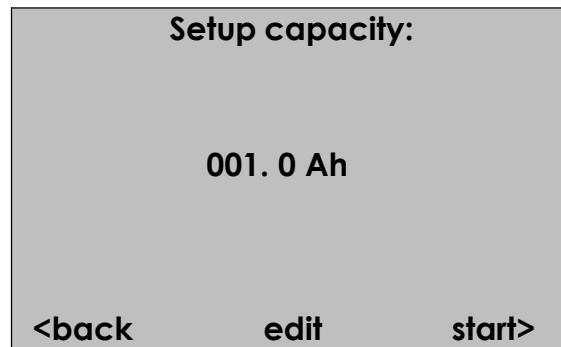


Figure 3.9

In opened editing window, enter a value «060.0»

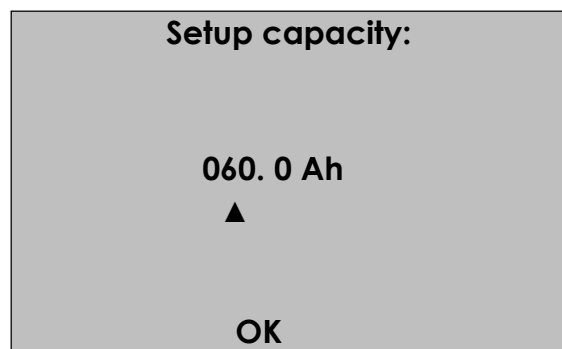


Figure 3.10

There are following buttons for entering values:

- «←» and «→» to select digit position;
- «↓» and «↑» to change the numbers from 0 to 9.

To confirm entered value of rated capacity, perform «**OK**» by pressing central button. Display will look as shown on Figure 3.9, with «060.0 Ah» capacity value.

To start testing in «**Auto mode**», perform «**start**» by pressing the «→» button.

3.6.4 After the start, activator will execute procedures described in 3.5.2. The display will look as shown on Figure 3.11.

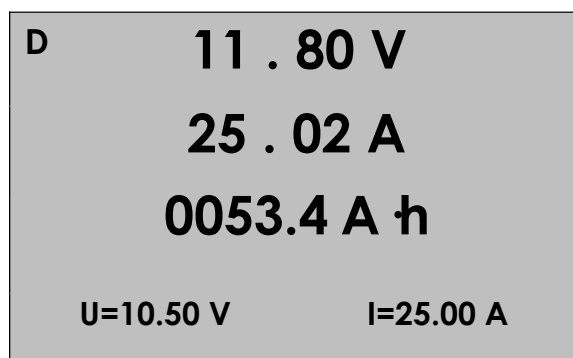


Figure 3.11

3.6.5 If forced shutdown is needed, it is necessary to perform following command execution sequence:

«**Settings menu**» → «**Operation config**» → «**Output off**»

After that, current readings window will be displayed.

3.6.6 Before unplugging the battery, make sure that activator status is «**→**», «**END**» or «**←→**».

3.7 Operating in «Manual mode»

3.7.1 In «Manual mode», testing parameters must be set manually. Commands execution sequence must be performed as shown in chapter 3.5.3.

3.7.2 The following chapter describes the example of the execution of single «discharge-charge» cycle to a starter «Ca-Ca» battery with 12V of rated voltage and 60 A·h of rated capacity.

3.7.3 For starting out battery testing procedure, it is necessary that operations described in chapters 3.1, 3.2 are performed.

3.7.4 To start operating in «Manual mode», it is necessary to get to «**Settings menu**» by pressing central button.

Next, choose and confirm «**Operation config**».

After that, choose and confirm «**Manual mode**».

3.7.5 In «**Select battery type**» window, it is necessary to select «Ca-Ca» and get to the next window by pressing «**next**» (to perform «**next**», press the «**→**» button) (Figure 3.12).

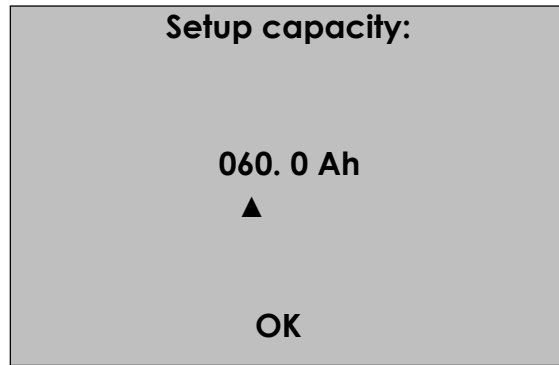


Figure 3.15

There are following buttons for entering values:

- «←» and «→» to select digit position;
- «↓» and «↑» to change the numbers from 0 to 9.

To confirm entered value of rated capacity, perform «**OK**» by pressing central button.

Display will look as shown on Figure 3.14, with «060.0 Ah» capacity value.

To get to the next window, perform «**next**>» by pressing the «→» button.

In the «**Select function**» window, choose «**Discharge/Charge**». This function provides discharge-charge training cycle (Figure 3.16).

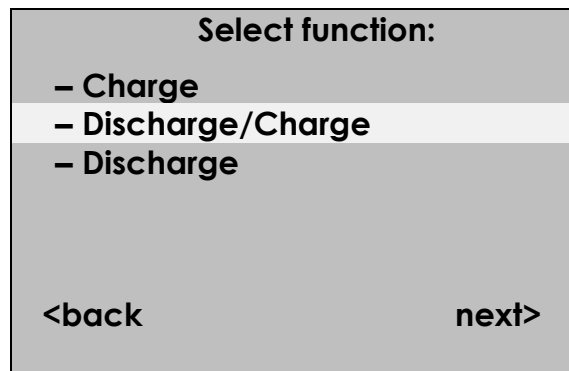


Figure 3.16

To get to the next window, perform «**next**>» by pressing the «→» button.

In the «**Discharge current**» window (Figure 3.17), perform «**edit**» by pressing central button.

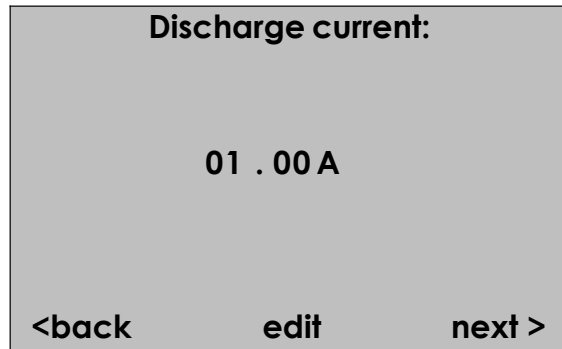


Figure 3.17

For setting discharge current value 25 A, enter «25.00» in the “**Setup current**” editing window (Figure 3.18).

Note: To check reserve capacity of starter batteries, it is recommended to set 25 A of discharge current and 10,5V of discharge voltage.

In case of using another types of batteries, it is necessary to set discharge parameters in accordance with specifications.

There are following buttons for entering values:

- «←» and «→» to select digit position;
- «↓» and «↑» to change the numbers from 0 to 9.

To confirm entered current value, perform «**OK**» by pressing central button.

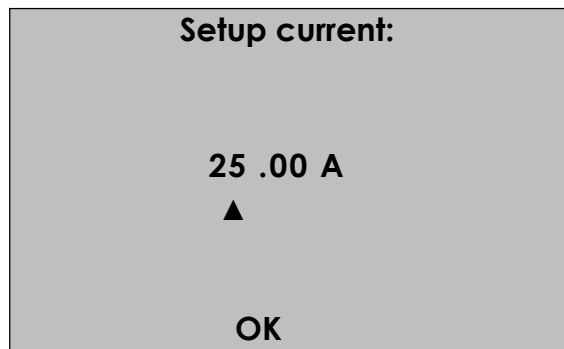


Figure 3.18

Display will look as shown on Figure 3.17, with “25.00 A” current value.

To get to the next window, perform «**next**>» by pressing the «→» button.

In the «**Discharge limit**» window (Figure 3.19), perform “**edit**” by pressing central button.

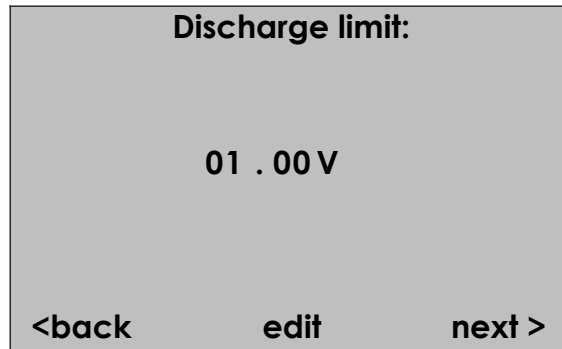


Figure 3.19

For setting discharge voltage value, enter «10.50» in the «**Setup voltage**» editing window (Figure 3.20).

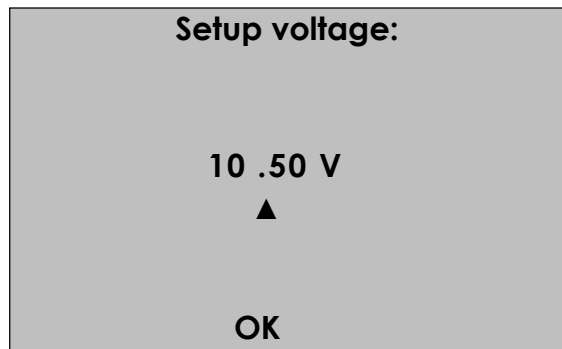


Figure 3.20

There are following buttons for entering values:

- «←» and «→» to select digit position;
- «↓» and «↑» to change the numbers from 0 to 9.

To confirm entered value of discharge voltage, perform «**OK**» by pressing central button. Display will look as shown on Figure 3.19, with «10.50 V» voltage value.

To get to the next window, perform «**next**>» by pressing the «→» button.

After that, «**Results of settings**» window will be displayed. This window allows checking entered parameters once again (Figure 3.21).

3.7.6 If it is necessary to correct some values, perform “back” by pressing the «←» button.

3.7.7 If the parameters are correct, start the discharge-charge cycle by pressing “start” (the «→» button).

Testing procedure will start, current readings window will be displayed.

Note: Training cycle may lasts for 2 up to 24 hours depending on selected mode, battery type, capacity and condition.

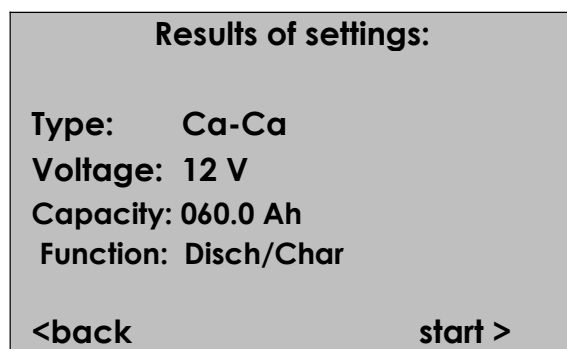


Figure 3.21

3.7.8 After the automatic shutdown, status will be changed to «**END**».

If activator has switched to «Delta» mode, status will be changed to «**↔**».

3.7.9 If forced shutdown is needed, it is necessary to perform following command execution sequence:

«**Settings menu**» → «**Operation config**» → «**Output off**»

After that, current survey window will be displayed. Activator status will be changed to «**-**».

3.7.10 Make sure that activator status is «**-**», «**END**» or «**↔**» before unplugging the battery.

3.8 Internal resistance measurement mode

3.8.1 To measure battery internal resistance, it is necessary that operations described in 3.1, 3.2 are performed.

MAKE SURE THAT ELECTRICAL CONNECTION BETWEEN THE BATTERY AND BATTERY CONNECTION CABLE IS RELIABLE ENOUGH. IF IT IS NOT, MEASUREMENT MAY BE DONE INCORRECTLY.

3.8.2 To start measurement, get to the «**Settings menu**» by pressing the central button.

Next, choose and confirm «**Operation config**».

After that, choose and confirm «**Resistance measure**».

3.8.3 Activator will start measurement. Display will look as shown on Figure 3.22.

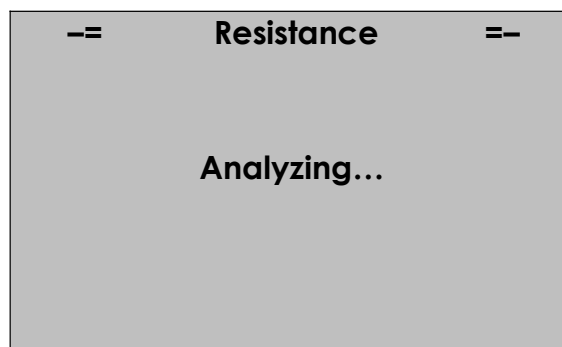


Figure 3.22

3.8.4 After the end of measuring, internal resistance value will be displayed in «**Result**» window (Figure 3.23).

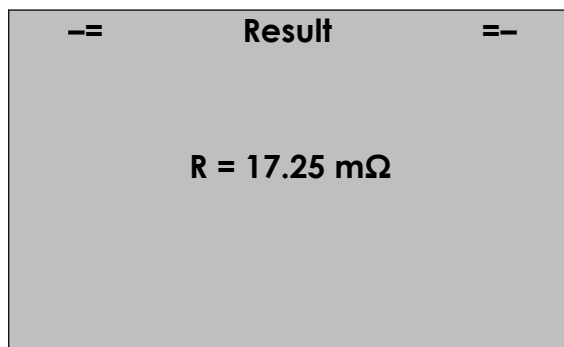


Figure 3.23

3.8.5 To exit from resistance measurement mode, press central button.

4 Maintenance and repair

4.1 Maintenance must be carried out by staff personnel.

4.2 It is recommended to perform maintenance inspection at least once a month.

Power off activator, pull out the power supply cable.

Remove a dust from the case of activator.

To clean outer surfaces of activator, use cleaning cloth moistened with water or nonabrasive cleaning substance.

4.3 It is recommended to remove the dust from printed circuit boards at least once per every three months.

For this purpose, take off the cover and clean activator by using compressed air.

4.4 If it is necessary to replace the fuse, make sure power button position is « O ».

If it is, unplug the power supply cable from socket outlet.

The fuse holder is located on the lower part of the case.

To remove the fuse, rotate the fuse holder counterclockwise by using a flat-head screwdriver.

Use the correct amperages when changing fuse. 6 A, 250 V, 5 x 20 mm sized fuse is required.

4.5 The manufacturer eliminates all occurring problems and issues.

4.6 If support is required, make a request at the official website: <http://www.alektogroup.com/>.

5 Transporting and storage

5.1 Before commissioning, activator should be stored in storehouses and packed into distribution packing. Storage conditions for activator:

- Ambient Air Temperature..... 5 °C up to 40 °C;
- Relative Humidity at 25 °C up to 80 %

5.2 Storage conditions for activator without packing:

- Ambient Air Temperature10 °C up to 35 °C;
- Relative Humidity at 25 °C up to 80 %.

5.3 The presence of a dust, acid fumes, alkaline fumes, aggressive gases and other harmful admixtures which cause corrosion should not exceed the contents of the corrosion-active substances for type I atmosphere (ГОСТ 15150-69).

5.4 Activator, packed in accordance with 2.6, should be transported in a transport container in closed vehicles of any type.

Activator should be disposed in heated hermetically-sealed holds in case of air transporting.

5.5 Values of climatic and mechanical effects on activator during transportation should be in limits:

- Ambient Air Temperature – 25 °C to 55 °C;
- Relative Humidity at 30 °C up to 95 %;
- Atmospheric pressure, kPa (mm Hg)..... 84-106 (630-800).

6 Utilization (recycling)

6.1 Activator contains no harmful substances and components, which are hazardous for the environment and health.

6.2 Utilization (recycling) of activator is executed at the customer's option.

7 Warranty

7.1 Manufacturer ensures a compliance with specification, if the customer is adhering to operational environment, storage and transportation requirements.

7.2 Warranty operational period is not less than 18 months from date of putting in operation.

7.3 Warranty does not apply to battery connection cable and terminals kit.

7.4 If activator is fail, customer should declare about a problem to the manufacturer during the warranty period to the following address:

644046, Russia, Omsk-46, 5736
«Firm «Alektro-Electronics», Ltd.
Prospekt K. Marksa 41.
e-mail: market@alektogroup.com

8 Certificate of acceptance

Electrochemical power sources activator AEAC-12V № _____
is manufactured, accepted and admitted as serviceable according with specification.

Responsible for production acceptance

Personal signature

Interpretation of the signature

Seal

Year, month, date

9 Certificate of packing

Electrochemical power sources activator AEAC-12V № _____ is packed by
«Firm «Aleкто-Electronics», Ltd., according to the requirements, stipulated by the valid engineering
data.

Packager

Personal signature

Interpretation of the signature

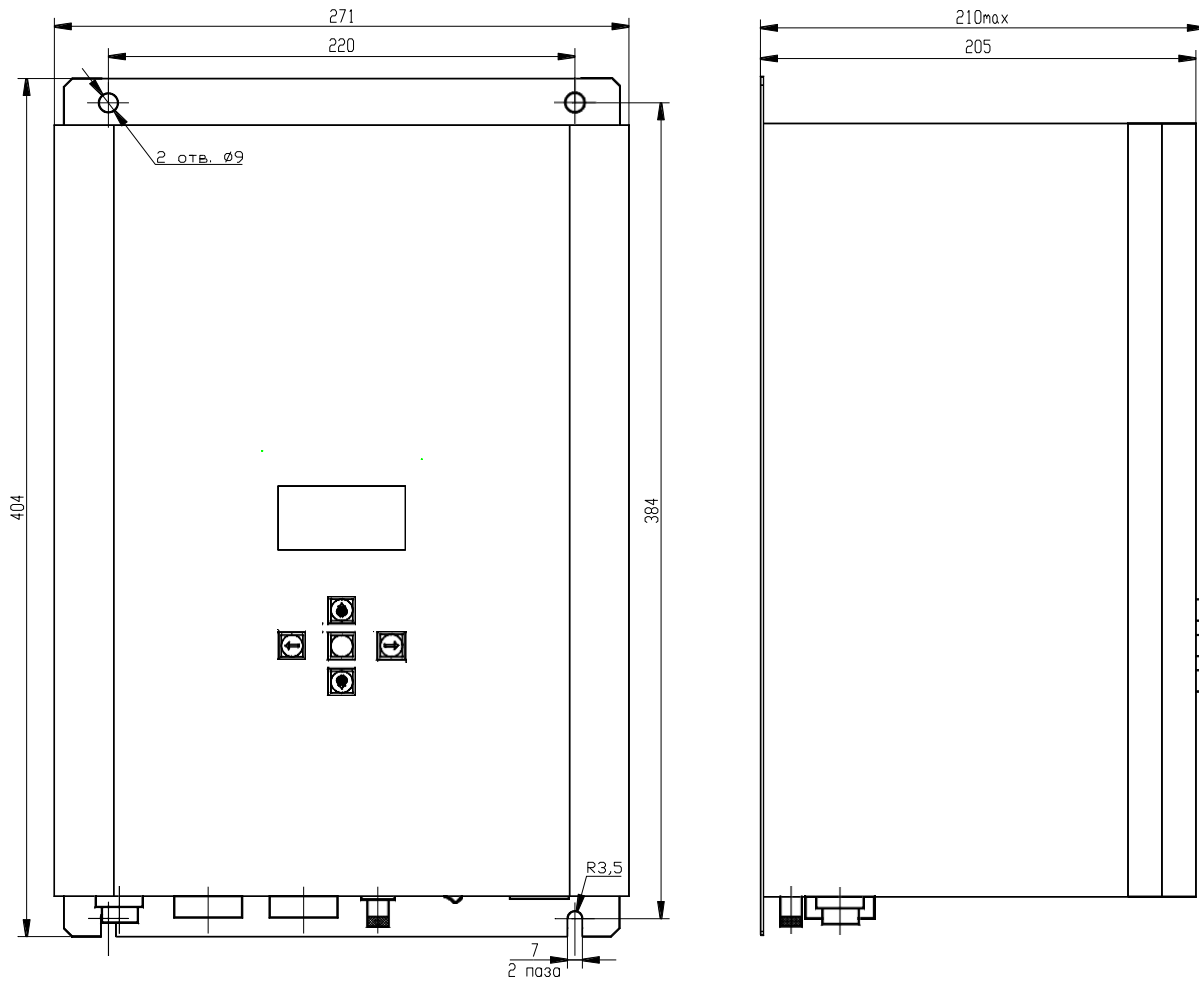
Year, month, date

10 Repair data

Repair date	Defect description	Repair description	Personal staff signature

Annex A

Outline drawing





ТАМОЖЕННЫЙ СОЮЗ ДЕКЛАРАЦИЯ О СООТВЕТСТВИИ

Заявитель Общество с ограниченной ответственностью «Фирма «Алекто-Электроникс»,
ОГРН: 1025500988040

Место нахождения: Российская Федерация, 644046, Омская область, город Омск, проспект К. Маркса, дом 41. Фактический адрес: Российская Федерация, 644046, Омская область, город Омск, проспект К. Маркса, дом 41. Телефон: +7(3812) 30-36-75, факс: +7(3812) 31-00-33, адрес электронной почты: sog1@alektogroup.com

в лице Директора Суркова Андрея Юрьевича

заявляет, что Активатор электрохимических источников питания. Модель: АЕАС-12V
Продукция изготовлена в соответствии с ТУ 4218-017-47113964-2014 «Активатор электрохимических источников питания АЕАС-12V.Технические условия»

Изготовитель Общество с ограниченной ответственностью «Фирма «Алекто-Электроникс»
Место нахождения: Российская Федерация, 644046, Омская область, город Омск, проспект К. Маркса, дом 41. Фактический адрес: Российская Федерация, 644046, Омская область, город Омск, проспект К. Маркса, дом 41.

Код ТН ВЭД ТС 9030 89 300 0, серийный выпуск

Соответствует требованиям Технический регламент Таможенного союза ТР ТС 004/2011 "О безопасности низковольтного оборудования"; Технический регламент Таможенного союза ТР ТС 020/2011 "Электромагнитная совместимость технических средств"

Декларация о соответствии принята на основании Протокола испытаний 1510604703E/45005/TR/16 от 16.03.2016 г. Испытательная лаборатория TUV Nord Baltik, Рига, Латвия;
Протокола испытаний LEITC-TR-15-130 от 22.12.2015 г. Испытательная лаборатория Latvian Electronic Equipment Testing Center, Рига, Латвия

Дополнительная информация Схема декларирования: 1д.
Руководство по эксплуатации 23670983.2.001РЭ.

Декларация о соответствии действительна с даты регистрации по 11.04.2021 включительно



А. Ю. Сурков

(инициалы и фамилия руководителя организации-заявителя или физического лица, зарегистрированного в качестве индивидуального предпринимателя)

Сведения о регистрации декларации о соответствии:

Регистрационный номер декларации о соответствии: ТС № RU Д-RU.AB29.B.22492

Дата регистрации декларации о соответствии 12.04.2016

EU Notified Body number 1409
ES Notificēta institūcija

CERTIFICATE OF CONFORMITY Nr. LVD/EMC 105/01
ATBILSTĪBAS SERTIFIKĀTS

- 1. Assessment regulations:** 2006/95/EC Electrical equipment designed for use within certain voltage limits.
Novērtēšanas normatīvi „Elektroiekārta, kas paredzēta lietošanai noteiktās sprieguma robežās”
2000. gada 30. maija LR MK noteikumi Nr. 187.
- LVS EN 61010-2-030:2011 used in conjunction with
- LVS EN 61010-1:2011.
- 2004/108/EC Electromagnetic compatibility.
„Noteikumi par iekārtu elektromagnētisko saderību”
2006. gada 20. jūnija LR MK noteikumi Nr. 483.
- LVS EN 61326-1:2013.

- 2. Test report references:** LVD Test Reports No. 1510604703E/45005/TR/16 16.03.2016.
Testēšanas pārskata atsauces from
EMC Test Reports No. LEITC-TR-15-130 22.12.2015.

- 3. Product name, model / type:** Electrochemical power source activator, model: AEAC-12 V
*Produkta nosaukums,
modelis / tips*

- 4. Class and the essential characteristics:** 220-230 V~, 47-63 Hz, 1200 VA, IP20, Class I.
Klase un būtiskie raksturlielumi

- 5. Manufacturer, address:** “Firm “Alektō-Electronics”, Ltd., Prospekt K. Marksa 41, Omsk-46,
Ražotājs, adrese 644046, Russia.

- 6. Applicant's name, address** “Firm “Alektō-Electronics”, Ltd., Prospekt K. Marksa 41, Omsk-46,
*Sertifikāta saņēmēja nosaukums,
adrese* 644046, Russia.

- 7. Notes:**
Piezīmes
- Certificate consists of 1 page.
 - Certificate recipient is responsible for this certificate and the product technical documentation keeping period of 10 years, as well as on the labeling of the CE marking.
 - The certificate is issued to a particular product with the provision that manufacturer will not make any changes in the product.
 - Certificate is not valid without test reports and technical documentation approved by TE “TUV NORD Baltik” Ltd.

Date of issue:
Izsniegšanas datums

22.03.2016.

Certificate is valid until:
Sertifikāta derīguma termiņš

Igors Svīksa
Procurist of „TUV Nord Baltik”, Ltd.
(TE SIA „TUV Nord Baltik” prokūrists)



Marina Lupane
Head of Certification Bureau
(Sertifikācijas biroja vadītāja)



Tehnisko ekspertu SIA „TUV Nord Baltik”
Reģ. Nr. 40003121062, Sāremas iela 3, Rīga, LV-1005.
tel. 67370391, fakss 67820303
E-pasts: info@tuv-nord.lv, http://www.tuv-nord.lv



№ 000248

Εταιρεία Περιορισμένης Ευθύνης με την επωνυμία
"ALEKTO-SYSTEMS ΕΤΑΙΡΕΙΑ ΠΕΡΙΟΡΙΣΜΕΝΗΣ ΕΥΘΥΝΗΣ"

«ALEKTO-SYSTEMS Ε.Π.Ε.»

Δρόμος, ΚΟΥΝΑΒΩΝ 30, Ηρακλείο,

τ.κ. 71307 Κρήτη Ελλάδα

ΑΦΜ: 997790089GR

Τηλ.: +30 697 460 6383

e-mail: dzebar@abv.bd



EC Declaration of Conformity

In accordance with EN ISO/IEC 17050-1:2010

№: 37/LN/GR/15

We, ALEKTO-SYSTEMS Ε.Π.Ε. declare that the product:

ELECTROCHEMICAL POWER SOURCE ACTIVATOR

Models: **AEAC-12V**

is in conformity with **Directive 2006/95/EC (LVD)** and **Directive 2004/108/EC (EMC)**.

For the evaluation of the compliance with these Directives, the following standards or standardized documents were applied:

	Standard №	Title	Date
LVD	LVS EN 61010-2-030	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-030: Particular requirements for testing and measuring circuits (IEC 61010-2-030:2010)	2011
	LVS EN 61010-1	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements (IEC 61010-1:2010)	2011
EMC	LVS EN 61326-1	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements (IEC 61326-1:2012)	2013

Test report references:

	Test report №	Date	Testing laboratory
LVD	1510604703E/45005/TR/16	16.03.2016	TUV Nord Baltik, Ltd., LVD Laboratory
EMC	LEITC-TR-15-130	22.12.2015	LEITC, Ltd.

Certificate of conformity references:

	Certificate №	Date	Notified body
	LVD/EMC 105/01	22.03.2016	TUV Nord Baltik, Ltd., Certification Bureau. Notified Body № 1409.

Conformity assessment body:

Name	Address
TUV Nord Baltik, Ltd., LVD Laboratory.	3 Saremas Street, Riga, Latvia, LV-1005.
LEITC, Ltd.	Azenes Street 12-4, Riga, Latvia, LV-1048.
TUV Nord Baltik, Ltd., Certification Bureau.	3 Saremas Street, Riga, Latvia, LV-1005.

The CE marking was affixed in:16.

Person responsible for making this declaration:

Name, Surname: Lubomir Nikolov

Position / Title: Director

Signature:

Date: **31 March, 2016**

ALEKTO SYSTEMS Ε.Π.Ε.
ΕΜΠΟΡΙΑ & ΕΠΑΝΑΦΟΡΤΙΣΗ ΜΠΑΤΑΡΙΩΝ
& SERVICE ΑΥΤΟΚΙΝΗΤΩΝ
ΟΔΟΣ ΚΟΥΝΑΒΩΝ - ΓΙΟΦΥΡΟΣ ΗΡΑΚΛΕΙΟΥ
ΑΦΜ 997790089 ΔΟΥ Α' ΗΡΑΚΛΕΙΟΥ



Heraklion, Crete, Greece