



**ELECTROCHEMICAL
POWER SOURCE ANALYZER
AEA30V**

Made in Russia

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NOTE: AEA30V could be manufactured with insignificant engineering changes that are not described in operation manual. These changes don't influence at AEA30V specification and operation. The operation manual doesn't contain an electrical schematic diagram.

CAUTION! AEA30V IS A CLASS-A EQUIPMENT APPLIED IN INDUSTRIAL ENVIRONMENT. APPLICATION OF THE ANALYZER IN OTHER ENVIRONMENT MAY CAUSE PROBLEMS TO ENSURING ELECTROMAGNETIC COMPATIBILITY DUE TO RADIATED AND CONDUCTED EMISSION.

This operation manual contains information relating to operation, maintenance, specification, packing, transportation and storage of the AEA30V Analyzer (hereinafter designated “AEA30V”). This operation manual is meant to familiarize staff with technical characteristics, operating principle and structure of the AEA30V.

There are following abbreviations and designations in this manual:

Battery – electrochemical power source

DCV – direct current voltage

1 Safety

Only qualified, service trained personnel should use the AEA30V. Personnel have to read this manual before operating.

Operating personnel must not remove AEA30V covers or shields.

There is electrolyte solution inside of the batteries to be tested. Released electrolyte is harmful to the eyes and skin and may also be toxic. To avoid the electrical shock and chemical injury of skin and eyes, personnel have to wear isolating rubber cloth such as gloves and boots as well as safety mask and glasses.

2 Description and operation

2.1 Function

AEA30V is a portable device which measures internal resistance and output voltage at the terminals of battery. By the battery is meant an electrochemical power source with maximum voltage value of 30 V.

- AEA30V is applying for rejecting a single-type batteries according with specified parameter of conformance.
- The additional function of AEA30V is determination a CCA of starter batteries (Cold Cranking Amperes)
 - AEA30V supports micro SD cards and equipped with USB interface to connect with PC.
 - AEA30V is a portable device with four AA size 1.5 V batteries power source
 - According with IEC 60529 standard a protection degree code of the AEA30V case is IP32.
 - A metal case of AEA30V is stable towards acids and alkalis.
 - Parameters of mechanical and environmental effects under the operating conditions are covered with group 4 according with GOST 22261-94. Herewith:
 - Ambient Air Temperature - 10 to 55 °C;
 - Relative Humidity at 35 °C..... 98 % (non condensing)

2.2 Declaration conformity data

The Conformity Declaration CU TR 020/2011 “Hardware electromagnetic compatibility” was registered by the Institution of electric equipment certification ООО ФИРМА «СИБТЕХСТАНДАРТ» (FIRMA «SIBTEHSTANDART», Ltd) 19.02.2015. Validity up to 18.02.2020.

2.3. Specification

2.3.1 DCV measurement range: 0.3 to 30.0 V. Measured value is indicated as a four-digit number with decimal point.

2.3.2 Measurement range of battery's impedance: 0.006 to 6 Ω . Full range divided into subranges: 0.06 Ω ; 0.6 Ω ; 6 Ω . Resistance measurement mode includes such parameters as: complex impedance value, real and imaginary part of the impedance.

Range is selected automatically depending on value of measured resistance. A measurement result is indicated as a four-digit number with sign and decimal point and expressed in m Ω (milliohms).

2.3.3 Measurement accuracy:

Range:	Accuracy \pm (% of reading value + dgt.):
0.300 to 9.999 V	\pm (0.5 % + 20 dgt.)
10.0 to 30.0 V	\pm (0.5 % + 8 dgt.)
0.006 to 6 Ω	\pm (5 % + 80 dgt.)

2.3.4 Measurement range of angle between vector values of complex impedance and its real part: - 90 to 90° with resolution 0.01°.

2.3.5 Test signal frequency range within 20 to 1000 Hz, with resolution 1 Hz. It is possible to set from 1 to 4 test frequency value.

2.3.6 Measurement delay («MD» mode): 0.5 to 9.5 s., with resolution setting step 0.5 s

2.3.7 Rejection threshold level («TRG» mode) is set within 0.7 to 30.0 V, with resolution 0.1 V

2.3.8 CCA is determined within 100 to 2000 A, with resolution 1 A.

2.3.9 Capacity of embedded memory card 2 Gb (4 Gb optional).

2.3.10 External interface – USB 2.0, with mini USB connector type.

2.3.11 Power source voltage range: 4 to 6 V

2.3.12 Maximum power consumption: 0.6 W

2.3.13 AEA30V conforms to requirements of the GOST 12.2.091 (IEC 61010-1:2001). Type of insulation – basic insulation. Pollution degree – 2. Measurement category – III. Maximum input voltage – 50 DCV.

2.3.14 AEA30V conforms to the electromagnetic compatibility requirements according with GOST R 51522 (IEC 61326-1:2005): electromagnetic emission requirements for grade «A» equipment according with GOST R 51318.11-2006 (CISPR 11:2004); electromagnetic immunity requirements for portable test/measurement equipment regulations.

Effect of radiated radio-frequency electromagnetic field at 3 V/m:

Range:	Accuracy \pm (% of reading value + dgt.):
0.300 to 9.999 V	\pm (3 % + 180 dgt.)
10.0 to 30.0 V	\pm (3 % + 180 dgt.)
0.006 to 6 Ω	\pm (5 % + 280 dgt.)

2.3.15 Ambient Air Temperature: – 10 to 55 °C

2.3.16 Operating time to failure: at least 50 000 hours

2.3.17 Useful lifetime: more than 7 years

2.3.18 Overall dimensions: no more than 190x119x38 mm

2.3.19 Weight is no more than 0.7 kg (without batteries)

2.4 Structure

AEA30V consists of such main parts as:

- front-panel with OLED display's cover glass and holes for buttons;
- back-panel;
- circuit boards with mounted display and navigation buttons;
- side-panel with mounted input jacks for connecting with test leads plug;
- side-panel with supply-section screw stopper;

Analyzer circuit board is fixed by back-panel's guide rails and side-panels. Side-panels are mounted with back and front panels with self-tapping screws. Self-tapping screws are able to be sealed.

The appearance of the AEA30V is illustrated at the figure 2-1.

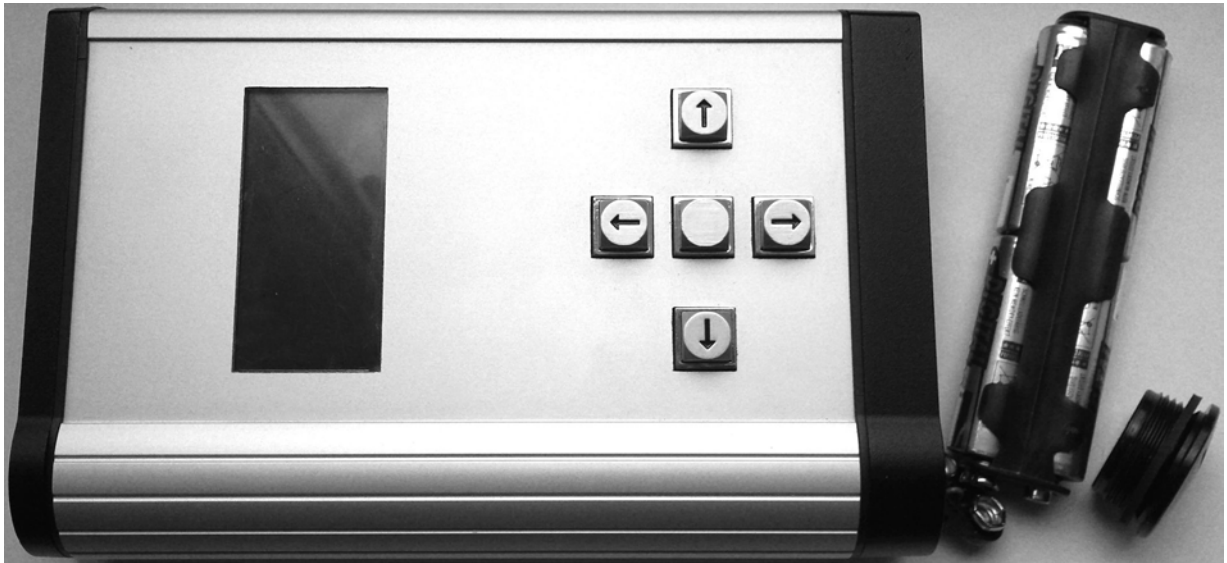


Figure 2-1

2.5 Control elements

2.5.1 There are such elements mounted on the side-panel as tumbler switch, input jacks for test leads, mini USB interface port (Figure 2-2).

2.5.2 Navigation buttons are used to control a mode of AEA30V operation. Navigation buttons are placed under the display (Figure 2-3).



Figure 2-2

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

2.5.4 The central unmarked navigation button is used to acknowledge chosen operation mode.



Figure 2-3

2.6 Marking and Sealing

2.6.1 The following information is marked on AEA30V back-panel:

- manufacturer's mark;
- name and designation;
- AEA30V serial number;
- software version;
- rated DCV value;
- values and units of measured parameters;
- test signal frequency range;
- marking of tumbler switch, input jacks, mini USB interface port;
- inscription «Made in Russia»;
- CU TR mark (in the presence of registered Conformity Declaration).

2.6.2 A sealing is executed with a bitumen mastic №1 (according to GOST 18680-73) which is applied on two out of six screws fastening panels to each other.

2.7 Packing

2.7.1 AEA30V is delivered in distribution packaging.

2.7.2 A packing note is enclosed in the transport container.

2.7.3 AEA30V is packaged into individual packing. Conservation type is conformed to «B3-10» according with GOST 9.014-78.

The operation manual with combined passport is inserted inside of the individual packing.

3. Intended use

3.1 Preparation

3.1.1 Check integrity of packing after deriving AEA30V. Unpack it. Take out the AEA30V, make external examination, and be convinced of visual mechanical failures absence. Check completeness of delivering according to table 1.

Table 3-1

Name and nomenclature	Quantity	Note
AEA30V	1	
Operation manual	1	
Test leads	1	Set of 2 leads, one black, one red
Battery-case	2	Set of 2 cases, primary and reserve
AA battery type	4	LR6 alkaline battery
Distribution packaging	1	

3.1.2 Check the correspondence of serial number on a back-panel with number which is presented in the operation manual.

3.1.3 It is necessary to warm-up AEA30V for 4 hour under indoor conditions before operating under winter conditions.

3.1.4 Make following steps to install batteries:

- unscrew a battery-case screw stopper;
- insert 4 AA-batteries into a battery-case; keep the battery polarity according with marking on the battery-case (Figure 2-1).
- insert the battery-case with AA-batteries into the supply section;
- connect terminal block with battery-case connector;
- install and screw a battery-case screw stopper.

3.1.5 Shift the tumbler switch to power the AEA30V. Start of operating begins with default measuring mode (DCV) and the «U» sign is highlighted at the main menu; screen image is illustrated at the Figure 3-1.



Figure 3-1


3.1.6 Connect test leads to the input jacks according with color marking: the red connectors to the red jacks, and the black connectors to the black jacks (Figure 3-2).



Figure 3-2

3.2 DCV measurement mode

3.2.1 DCV is a default measuring mode of the AEA30V. This mode is loaded immediately after switching of the AEA30V (Figure 3-1). This mode is applied for measuring of output battery voltage.

3.2.2  DO NOT EXCEED THE MAXIMUM PERMISSIBLE INPUT VOLTAGE (30 V) TO THE MEASUREMENT TERMINAL. THIS COULD RESULT IN INJURY OR DAMAGE TO THE UNIT.

Connect test leads to battery terminals according with color marking: the red test probe to the positive battery terminal, and the black test probe to the negative battery terminal. To ensure correct measurement, it is necessary to keep reliable connection between both probe needles and battery terminal (Figure3-3).



Figure 3-3

3.2.3 Read the DCV value directly from display (Figure 3-4).



Figure 3-4

3.3 Impedance measurement mode

3.3.1 There are two modes of impedance measurement:

- «M» - Impedance Measurement;
- «MD» Impedance Measurement Delay.

3.3.2 The «MD» mode enables manual adjusting of measurement delay. It is applied when additional time is required to keep reliable connection of the test leads. Default value of the measurement delay is 4 seconds. To change measurement delay value, Use a «Setting menu». Operation with «Setting menu» is described below (chapter 3.5).

3.3.3 Use navigation buttons «→» and «←» to choose a required mode. (Figures 3-5, 3-6)



Figure 3-5



Figure 3-6

To accept the selection, press the central navigation button.

Acceptance of one of the «M» or «MD» modes leads to opening a submenu. The submenu is illustrated at the Figure 3-7.



Figure 3-7

3.3.4 To carry out measurements in the «M» mode, primarily connect test probes to battery terminals. Then press the central navigation button to start measure.

«M» mode measurement process is accompanied with filling of the scale on the AEA30V display (Figure 3-8).



Figure 3-8

3.3.5 To carry out measurements in the «MD» mode, primarily press the central navigation button to start measure. Then connect the test probes to battery terminals in the course of predetermined delay time.

Delay process is accompanied with filling of the scale on the AEA30V display (Figure 3-9) following which a measurement result is screened on the AEA30V display.



Figure 3-9

3.3.6 Measurement results are displayed as a table on two screens:

– screen «Z-R» contents measured values of Complex Impedance (Z) and Real part (R) of impedance (Figure 3-10);

– screen «X-A» contents measured values of Imaginary part of impedance (X) and Angle between vector values of complex impedance and its real part (Ang) (Figure 3-11).

Use «←» and «→» navigation buttons to choose a required screen.

The image shows a monochrome LCD screen displaying a table of measurement results. At the top, it shows 'U = 12.95 V' and a battery icon. The table has three columns: 'F, Hz', 'Z, mΩ', and 'R, mΩ'. The rows represent frequencies of 20.00, 100.0, 500.0, and 1000.0 Hz. At the bottom, there are four buttons labeled 'Z-R', 'X-A', 'SAVE', and 'EXIT'.

F, Hz	Z, mΩ	R, mΩ
20.00	53.20	49.86
100.0	40.34	39.34
500.0	32.84	32.58
1000.	30.37	30.32

Figure 3-10

The image shows a monochrome LCD screen displaying a table of measurement results. At the top, it shows 'U = 12.95 V' and a battery icon. The table has three columns: 'F, Hz', 'X, mΩ', and 'Ang, deg'. The rows represent frequencies of 20.00, 100.0, 500.0, and 1000.0 Hz. At the bottom, there are four buttons labeled 'Z-R', 'X-A', 'SAVE', and 'EXIT'.

F, Hz	X, mΩ	Ang, deg
20.00	-18.56	-20.42
100.0	-8.934	-12.79
500.0	-4.133	-7.229
1000.	-1.756	-3.313

Figure 3-11

Note: Default frequency values of test signals are 20 Hz, 100 Hz, 500 Hz, 1000 Hz. It is possible to change the values and quantity (from 1 to 4 values) in «Setting menu». Operation with «Setting menu» is described below (chapter 3.5).

3.3.7 To proceed a next measuring, press the central navigation button.

3.3.8 If a battery is connected with reversed polarity, the error notification will be displayed (Figure 3-12).

Connect test leads to the battery terminals adhering to polarity and repeat the measurement.

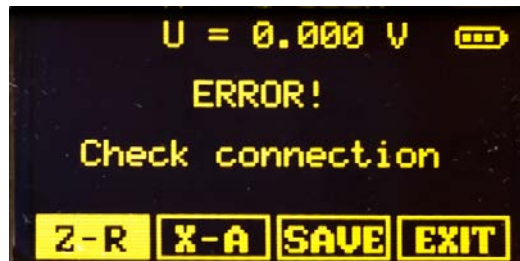


Figure 3-12

3.3.9 If a battery resistance exceed $6\ \Omega$, the notification «Impedance is over $6\ \Omega$ » will be displayed (Figure 3-13). It is impossible to measure such batter with AEA30V.

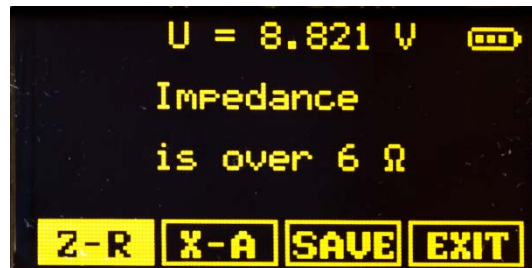


Figure 3-13

3.3.10 To save measurement results to micro SD memory card, choose the «SAVE» icon at the menu with navigation button «→» and confirm the selection with pressing central navigation button (Figure 3-14).

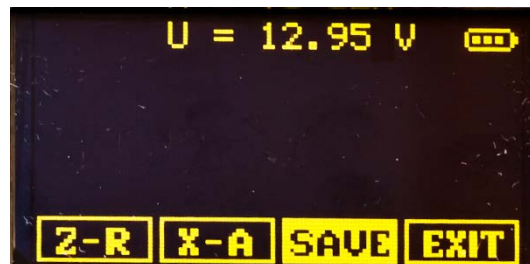


Figure 3-14

After the confirmation a «Enter Prim number» screen will be appeared (Figure 3-15).

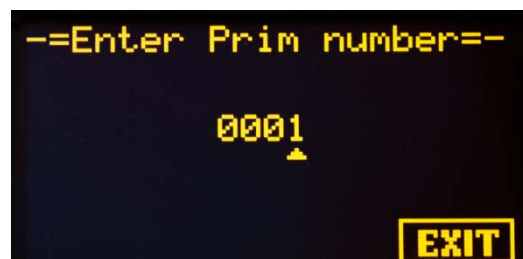


Figure 3-15

Enter a sequence number of the battery or a single-cell battery number «Prim number».

To select a digit order, use «←» and «→» navigation buttons; to select a required digit from 0 to 9, use «↓» and «↑» navigation buttons.

To confirm the entered number, press the central navigation button. After the confirmation a «Enter Sec number» screen will be displayed (Figure 3-16).

Use the operation sequence above, to enter a battery cell number «Sec number».

In case of a single-cell battery, enter the default 0001 number.

After the entry confirmation, a save procedure is finished and AEA30V will return to measurement mode.

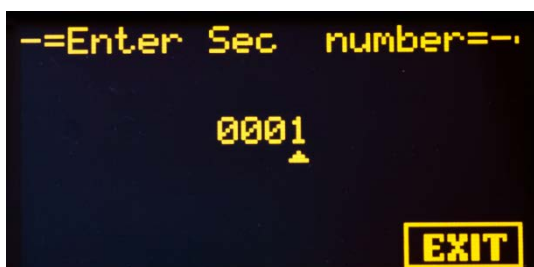


Figure 3-16

To cancel a save procedure without entry of sequence numbers, select the «EXIT» icon at the menu with navigation button «→» and press the central navigation button.

A saved data is intended to transfer from AEA30V to PC. It is possible to export saved data to «MS Excel» software for further data processing and making recommendation for battery maintenance.

3.3.11 To exit from Impedance measurement mode to the main menu, select the «EXIT» icon at the menu with navigation button «→» and press the central navigation button.

3.4 «TRG» mode

3.4.1 «TRG» is a procedure for rejecting single-type batteries according with specified parameter of conformance

Use a «→» navigation button to select the «TRG» (TRIGGER Measurement) at the menu (Figure 3-17).



Figure 3-17

Confirm the selection with pressing central navigation button. A screen image after the confirmation is illustrated at the Figure 3-18.



Figure 3-18

3.4.2 Connect test leads to battery terminals. Press the central navigation button to confirm a start of rejection procedure. A screen image after the confirmation is illustrated at the Figure 3-19.



Figure 3-19

3.4.3 If the measured DC voltage value exceeds a predetermined threshold level (threshold level is determined in the «Setting menu» chapter 3.5.5), the impedance measurement will be proceeded and results will be displayed (Figure 3-10; Figure 3-11). The battery is recognized as effective to use.

3.4.4 If a measured DC voltage value is below of a predetermined threshold level, the impedance measurement won't be proceeded and notification «FAIL» with measured DC voltage value are displayed (Figure 3-20). The battery is recognized as defective.

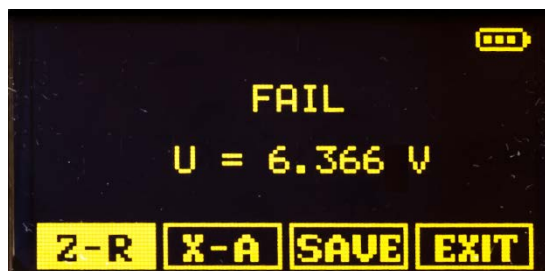


Figure 3-20

3.4.5 To continue the rejection procedure, connect test leads to battery terminals. Press the central navigation button to confirm a start of rejection procedure.

3.4.6 To exit from «TRG» mode, select the «EXIT» icon at the menu with navigation button «→» and press the central navigation button.

3.5 Operations with «Setting menu»

3.5.1 Navigation

To proceed into «Setting menu», select the DCV mode (Figure 3-1) and press the «↓» navigation button.

«Setting menu» screen is illustrated at the Figure 3-21.

To select an appropriate menu item use navigation buttons «↓» or «↑».

To confirm the selection, press the central navigation button.



Figure 3-21

3.5.2 «Frequency» menu

«Frequency» menu is intended for setting of test-signal frequency values.

A test signal frequency range within 20 to 1000 Hz, with resolution 1 Hz. It is possible to set from 1 to 4 test frequency value: F1, F2, F3 and F4 (Figure 3-22).

To select an appropriate menu item use navigation buttons «↓» or «↑».

To confirm the selection, press the central navigation button.



Figure 3-22

A screen of frequency setting is illustrated at the Figure 3-23.

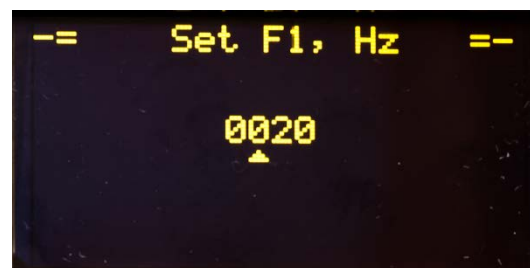


Figure 3-23

To set an appropriate frequency value use navigation buttons:

- to select a digit order – «←» and «→» buttons;
- to select a required digit from 0 to 9 – «↓» and «↑» buttons.

To confirm the frequency value, press the central navigation button.

After the confirmation a screen image will be returned at the «Set Frequency» menu (Figure 3-22).

Only integer values are possible to set. A unit of a setting value is Hz.

Note: In case of setting the «0000 Hz» value, measurements for such frequency values won't be proceed and results will be displayed as illustrated at the Figure 3-24.

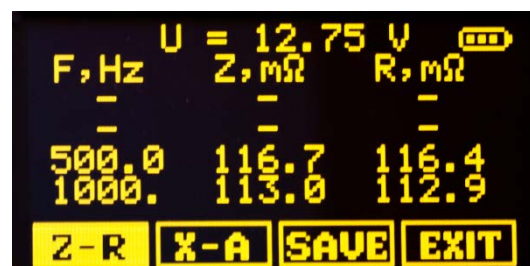


Figure 3-24

Figure illustrates the case when F1 and F2 frequency values were not proceeded.

To exit from «Frequency» menu to the «Setting menu», select the «Return» item with navigation button «↓» and press the central navigation button (Figure 3-25).

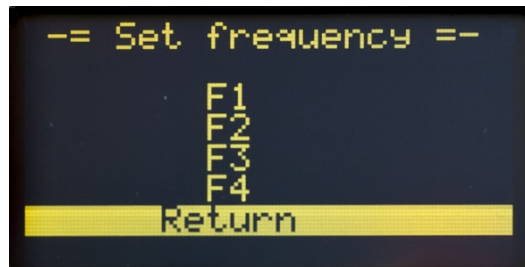


Figure 3-25

3.5.3 «CCA Mode» menu

«CCA Mode» menu is intended to enable (disable) of the additional function – CCA determination (Figure 3-26). There are two types of CCA determination standards: DIN and EN.



Figure 3-26

To enter the «CCA Mode», press the central navigation button, then a menu of the function condition will be appeared (Figure 3-27).



Figure 3-27

To select an appropriate condition, use navigation buttons «←» and «→».

To confirm the selection, press the central navigation button.

To exit from «CCA Mode» menu to the «Setting menu», select the «Return» item with navigation button «↓» and press the central navigation button.

3.5.4 «Delay» menu

«Delay» menu is intended for setting of a measurement delay value (Figure 3-28).



Figure 3-28

When the «Delay time» menu is confirmed, a delay setting menu will be available. (Figure 3-29).



Figure 3-29

Measurement delay range within 0.5 to 9.5 s., with resolution setting step 0.5 s. To set an appropriate delay time value use navigation buttons:

- to select a digit order – «←» and «→» buttons;
- to select a required digit from 0 to 9 – «↓» and «↑» buttons.

To confirm the selection, press the central navigation button.

After the confirmation a screen image will be returned at the «Measure delay» menu (Figure 3-28).

To exit from «Measure Delay» menu to the «Setting menu», select the «Return» item with navigation button «↓» and press the central navigation button (Figure 3-30).



Figure 3-30

3.5.5 «Trigger» menu

«Trigger» menu (Figure 3-31) is intended for determination of a threshold level (a minimal DC voltage value when measurement is proceeded).



Figure 3-31

To enter the «Level» menu, press the central navigation button, then a threshold level setting menu will be available (Figure 3-29).



Figure 3-32

Rejection threshold level is set within 0.7 to 30.0 V, with resolution 0.1 V. To set an appropriate threshold level value use navigation buttons:

- to select a digit order – «←» and «→» buttons;
- to select a required digit from 0 to 9 – «↓» and «↑» buttons.

To confirm the selection, press the central navigation button.

After the confirmation a screen image will be returned at the «Trigger level» menu (Figure 3-31).

To exit from «Trigger level» menu to the «Setting menu», select the «Return» item with navigation button «↓» and press the central navigation button (Figure 3-33).



Figure 3-33

3.5.6 «About» menu

«About» menu contents information about:

- software version;
- hardware version;

Press the central navigation button to view (Figure 3-34).



Figure 3-34

Press the central navigation button repeatedly to exit from «About» menu to the «Setting menu».

3.5.7 «Setting menu» exit

To exit from the «Setting menu» to main menu, select the «Return» item with navigation button «↓» and press the central navigation button (Figure 3-35).

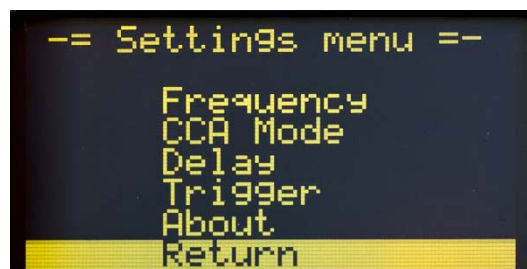


Figure 3-35

3.6 CCA determination

3.6.1 Default condition of the CCA determination (Cold Cranking Amperes of a starter battery) – disable.

To enable the function Use an instruction according with chapter 3.5.3.

3.6.2 Then carry out the Impedance measurement of a starter battery according with chapter 2.2.4.

3.6.3 To view a CCA determination result, select the «EXIT» item with navigation button «→», then repeatedly press the «→» navigation button (Figure 3-36).

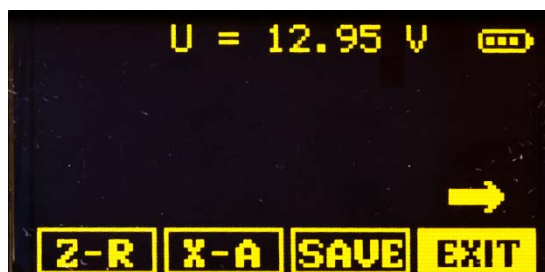


Figure 3-36

A CCA determination result will be displayed as illustrated at the Figure 3-37.



Figure 3-37

To exit from the CCA screen, press the «←» navigation button.

3.7 AEA30V switch-off

3.7.1 Shift the tumbler switch to switch-off the AEA30V. A display will be switched-off.

3.7.2 There is an automatic shutdown function, which is applied to extend AA-batteries lifetime.

If the AEA30V is unavailable during 3 minutes, it will be switched-off. To switch-on the AEA30V, shift the tumbler switch to the default position and then shift it repeatedly.

3.8 USB interface operation

3.8.1 Switch-on the AEA30V and connect to the USB interface of the PC (laptop, tablet computer etc.) with a USB-miniUSB cable (the cable isn't enclosed to the AEA30V).

AEA30V is determined by software device as an external hard drive.

3.8.2 Read the data.txt from hard drive.

Data.txt contents a tabular data of the whole of measurements:

Date	Time	PrimNumb	SecNumb	Voltage	F	Z	R	X	A
------	------	----------	---------	---------	---	---	---	---	---

Date – year, month;

Time – hours, minutes, seconds;

PrimNumb – battery number;

SecNumber – battery cell number;

Voltage – direct current voltage between battery terminals (V);

F – test signal frequency value (Hz);

Z – complex impedance value of a battery (mΩ);

R – real part of battery impedance (mΩ);

X – imaginary part of battery impedance (mΩ);

A – angle between vector values of complex impedance and its real part (degrees).

To unplug the AEA30V from device use a «safely remove device» function if it is possible.

4 Maintenance and repair

4.1 There is a three segments AA-battery voltage indicator at the upper-right corner of a display (Figure 3-1). When a 3-rd indicator segment is disappeared, it means that AA-batteries voltage is low. In this case it is required to replace AA-batteries.

Instruction of AA-battery-replacement is described at the chapter 3.1.4.

4.2 The manufacturer eliminates all defects originating during operation excepting of AA-batteries.

4.3 If a technical support is required, make a request at the official web-page: <http://www.alektogroup.com/>.

5 Transportation and Storage

5.1 Before commissioning AEA30V should be stored in storehouses and packed into distribution packing.

Storage conditions for AEA30V:

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

5.2 Storage conditions for AEA30V in without packing:

- Ambient Air Temperature 10 to 35 °C;
- Relative Humidity at 25 °C up to 80 %.

5.3 The presence of a dust, steams of acids and alkalis, aggressive gases and other harmful admixtures resulting corrosion should not exceed the contents of the corrosion-active agents for the atmosphere of a type 1 (GOST15150-69).

5.4 AEA30V should be transported in transport container in the closed vehicles of any type. AEA30V should be disposed in heated hermetic bays in case of air transporting.

5.5 Values of climatic and mechanical effects on AEA30V at transportation should be in limits:

- Ambient Air Temperature - 25 to 55 °C;
- Relative Humidity at 30 °C up to 95 %;
- Atmospheric pressure, kPa (mm Hg) 84-106 (630-800).
- Vibration is defined as group 4 GOST 22261.

6 Utilization (recycling)

AEA30V contains no harmful substances and components, which is hazardous for the environment and people health.

Utilization of AEA30V is executed at the discretion of consumer.

7 Warranty and insurance arrangements

7.1 Manufacturer ensures a compliance of AEA30V with specification, in case of adherence to operational environment, storage and transportation requirements by the customer.

7.2 Warranty operational period is not less than 18 months from the date of AEA30V implementation.

7.3 Warranty storage period is 6 months starting with the date of AEA30V production.

7.4 In case of AEA30V spoilage the consumer should declare about problem to the manufacturer during the warranty period to the following address:

644046, г. Омск-46, а/я 5736, ООО «Фирма «Алекто-Электроникс»,

«Firm «Alektto-Electronics», Ltd, p/b 5736, Omsk-46, Russia, 644046;

tel: (3812)30-36-75; (3812) 31-00-33.

e-mail: market@alektogroup.com

8 Certificate of acceptance

Electrochemical power sources AEA30V analyzer № _____ 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 AEA30V analyzer № _____ is packed by «Firm «Alektro-Electronics», Ltd according to the requirements, stipulated by the valid engineering data.

Position

Personal signature

Interpretation of the signature

Year, month, date

10 Repair data

Repair date	Defect description	Repair description	Personal staff signature

Annex 1 EC Declaration of Conformity

Alekto-Electronics, Ltd.

Omsk-46, Prospekt K.Marksa, 41;
tel: (3812)30-36-75, (3812)30-37-65;
Fax: (3812) 30-36-75.



EC Declaration of Conformity

We, Alekto-Electronics, Ltd., declare that the product:

ELECTROCHEMICAL POWER SOURCE ANALYZER

Model: AEA30V

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

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

LVD: EN 61010-1:2010

EMC: EN 61326-1:2013
EN 55011
EN 61000-4-3
EN 61000-4-8
EN 61000-4-2

Person responsible for making this declaration

Name, Surname: Surkov Andrey

Position/ Title: Director

Signature: _____



Russian Federation

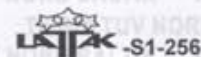
Annex 2 EC Certificate of Conformity

Tehnisko ekspertu SIA "TUV Nord Baltik"

Tālr.: +371 67370391, fakss: +371 67820303
Klijānu ielā 23, Rīgā, LV 1012, Latvijā
E-pasts: info@tuv-nord.lv, http://www.tuv-nord.lv



EU Notified Body number 1409
ES Notificēta institūcija



CERTIFICATE OF CONFORMITY No. LVD/EMC058/01

ATBILSTĪBAS SERTIFIKĀTS

1. Assessment regulations:
Novērtēšanas noteikumi

2006/95/EC Electrical equipment designed for use within certain voltage limits
„Elektroiekārta, kas paredzēta lietošanai noteiktās sprieguma robežās”
2000. gada 30. maijā LR MK noteikumi Nr. 187 „Iekārtu elektrodrošības
noteikumi”

EN 61010-1:2010

2004/108/EC Electromagnetic compatibility

„Elektromagnētiskā savietojamība” Pielikums II,
2006. gada 20. jūnijā LR MK noteikumi Nr. 483 „Noteikumi par iekārtu
elektromagnētisko saderību” 2.2. nodaļa

EN 61326-1:2013

EN 55011

EN 61000-4-3

EN 61000-4-8

EN 61000-4-2

2. Test report references:

Testēšanas pārskata atsauces

LVD Test Report No. 1401604703E/45010/TR/14

from/ 04.04.2014.

EMC Test Report No. LEITC-TR-14-39(01)

na 07.04.2014.

3. Product name, model / type:

Produkta nosaukums,
modelis / tips

ELECTROCHEMICAL POWER SOURCE ANALYZER, mod. AEA30V

4. Class and the essential characteristics:

Klase un būtiskie raksturlielumi

4 - 6 VDC, 0.6 W, Class III, IP32

5. Manufacturer, address:

Ražotājs, adrese

„Aleko-Electronics”, Ltd., prospekt K. Marksa 41, Omsk, Russia 644046

6. Applicant's name, address

Sertifikāta saņēmēja nosaukums,
adrese

„Aleko-Electronics”, Ltd., prospekt K. Marksa 41, Omsk, Russia 644046

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 design with the provision that manufacturer makes design changes upon agreement with user and upon approval of TE “TUV Nord Baltik” Ltd.

- Certificate is not valid without test reports and technical documentation approved by TE “TUV Nord Baltik” Ltd.

Date of issue:

Izsniegšanas datums

28.04.2014.

Certificate is valid until:

Sertifikāta derīguma termiņš

Head of Certification:

Sertifikācijas vadītājs



Jeļena Kovaļova



Certificate No. LVD/EMC058/01