"Activator" Software
Version 2.8

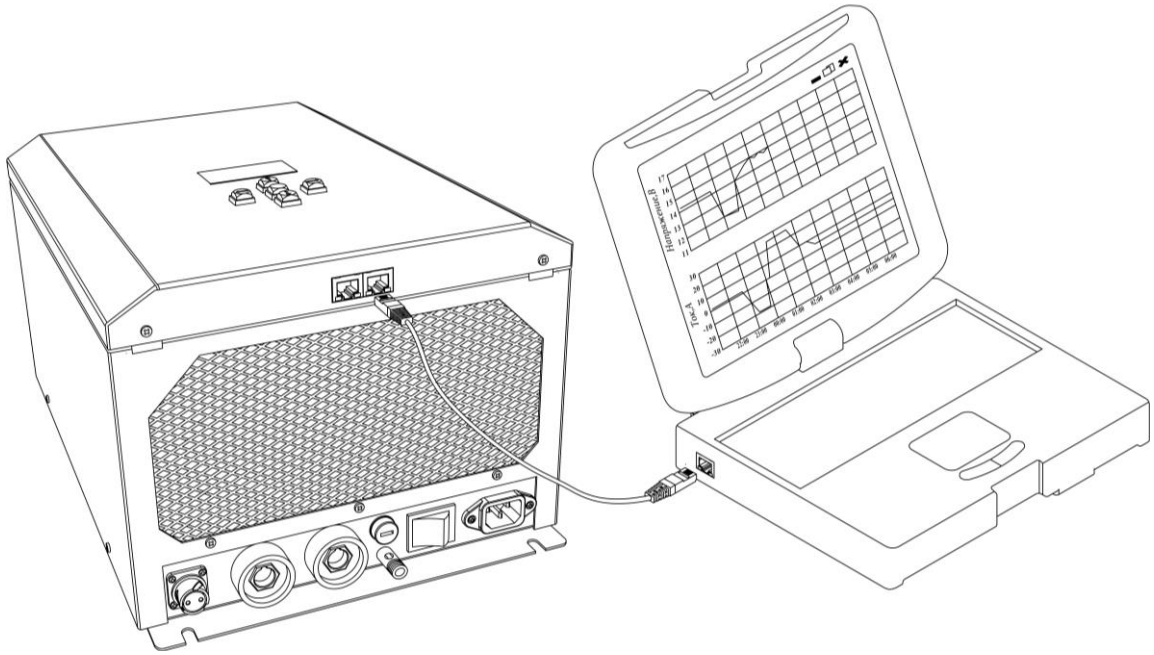
Quick Start Guide

AEAC-12V is not intended for
using by unqualified personnel
Before operating, it is necessary to review
with AEAC-12V operation manual

In case of problems or issues, visit
www.alektogroup.com
To update the software, please contact manufacturer

Upper level software (hereinafter Software) is intended for easier construction of testing programs for electrochemical power sources (hereinafter batteries) and remote control of Electrochemical power source activator AEAC-12V (hereinafter Activator).

Main features:
-Manual battery testing program construction or possibility of using templates
-Viewing and saving of testing results and charge/discharge plots
-Remote control of testing program execution



The software is done as web application based on client-server architecture.
The software does not require to be installed by user, but Silverlight plugin (download it on Microsoft website) is required.
The list of browser software and operating systems which support Silverlight is listed on Silverlight download webpage.

1 First time switching ON

Before switching ON the Activator for the first time, it is necessary to:
1) Warm-up Activator for 4 hours under indoor conditions before operating;
2) Affix the Activator to a vertical surface; provide at least 30 cm of clear space around the Activator.
3) **Check for fuse presence at the fuse holder** (6A, 250V fuse), make sure that the power button position is « O ».

Warning

Obey safety precautions!

If the Activator is installed in wrong arrangement, DAMAGE to the device or personnel injury may be occurred. Connect the Activator to AC mains and turn ON by pressing power button ONLY if all operations described in this chapter are performed.

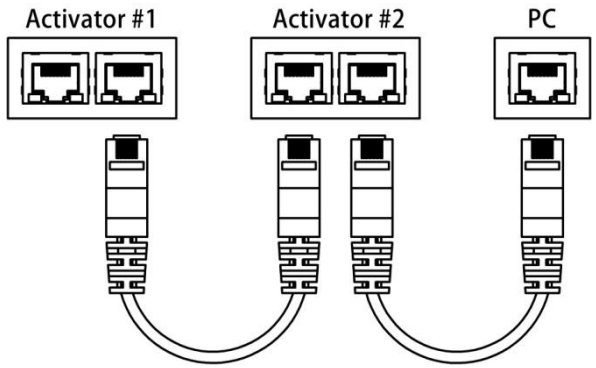
Note *– Additional information about first time switching ON and connecting batteries to the Activator is available in AEAC-12V Operation manual.*

2 Connecting the Activator to PC

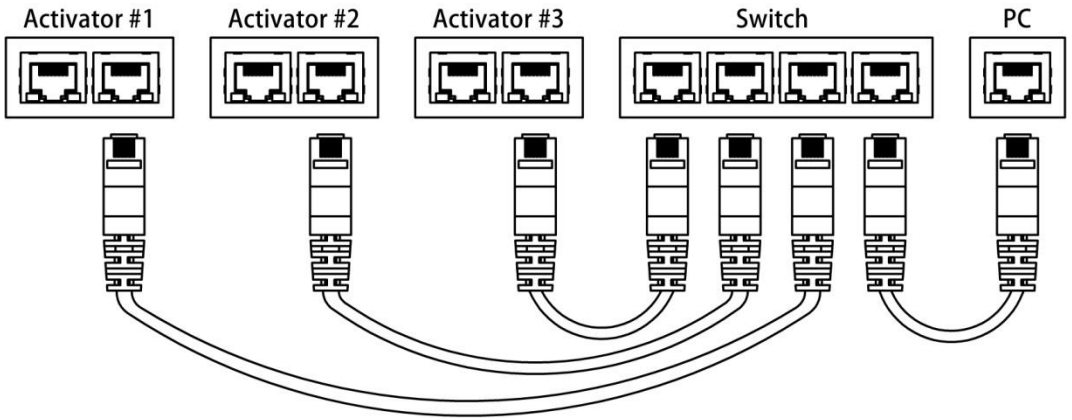
Connect one connector of the bundled (or similar) Ethernet cable to the Ethernet port of the Activator. Connect another Ethernet cable connector to PC's Ethernet port. If the connection is established correctly, green lightning in Ethernet sockets of PC and Activator must ring up.

If it is necessary to connect several Activators to one PC, it is recommended to use Switch device for parallel connection. There is also a possibility to connect several Activators in series.

Series connection



Parallel connection



3 Establishing connection between the Activator and PC

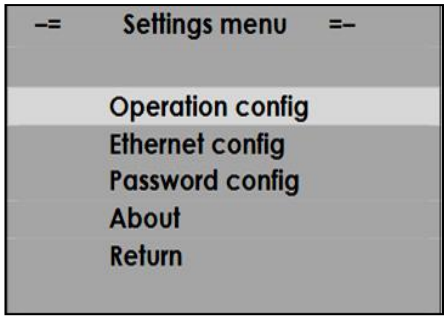
For establishing connection between the Activator and PC, contact your system administrator

OR

Set IP address of the Activator different to IP addresses used in your local network (Find out these IP addresses at first)

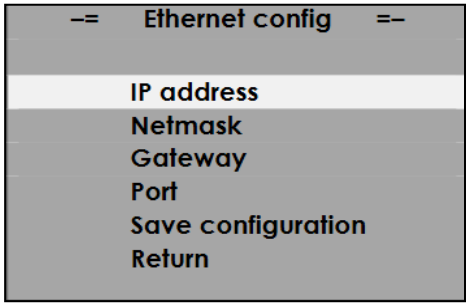
To configure Activator network settings:

1) Get to the "**Settings menu**"

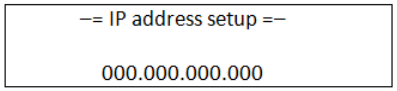


Note *– To get to the Settings menu, press* ***central*** *button.*

2) Select "**Ethernet config**"

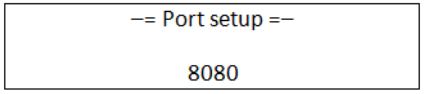


3) Select "**IP address**"



Set IP address value different to used in local network.

4) Select "**Port**"



Set Port number value or do not change it.

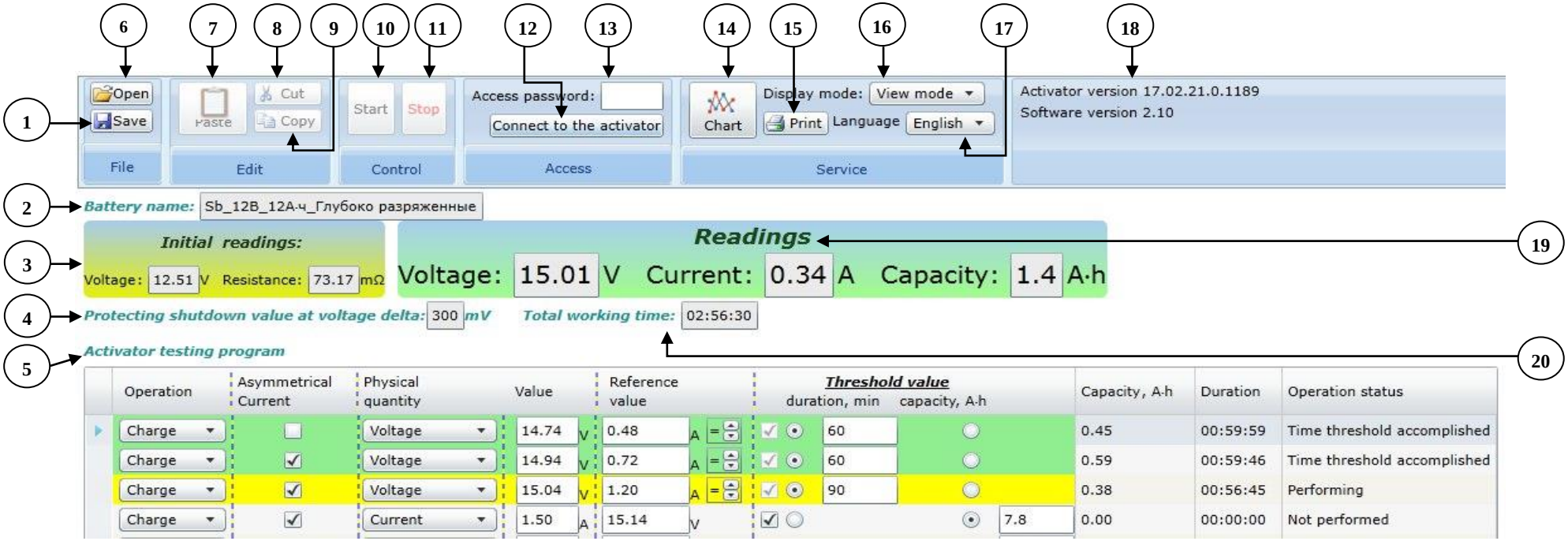
Note *–confirm entered value or to exit from menu, press central button*

If configuring is done, the Software is ready for launching.
To launch the Software, run Silverlight-compatible browser software and enter IP address and Port values you have set before as **http://xxx.xxx.xxx.xxx:yyyy/** (**x** – IP Address digit, **y** – Port number digit). If IP and Port values are entered right, "**Activator**" Software main window will be displayed.

4 Operating modes

The Software has two modes: "**View mode**" and "**Edit mode**".

4.1 View mode



1) "**Save**" button. Press it to save testing results and charts.

2) "**Battery name**" field. Enter unique name of testing program here.

3) "**Initial readings**" window is intended for displaying battery parameters before testing.

4) "**Safety shutdown value at voltage delta**" field – constraint. ***Note*** *– for battery with 12 V of rated voltage, recommended delta value is 300 mV.*

5) "**Testing program**" is the battery testing algorithm which can be generated according to battery condition and entered values of capacity and voltage; it can be also created manually by User.

6) "**Open**" button. To view testing results and list of operations, click this button and select needed activator file.

7) "**Paste button**" is unavailable in "**View mode**".

8) "**Cut button**" is unavailable in "**View mode**".

9) "**Copy button**" is unavailable in "**View mode**".

10) "**Start**" button is active, if "**Connect to the activator**" procedure is performed. Press "**Start**" for starting battery testing program.

11) "**Stop**" button is active, if "**Connect to the activator**" procedure is performed. Press "**Stop**" for stopping battery testing program.

12) "**Connect to the activator**" button. If entered password is correct, press this button to transmit testing program to the activator. After this, "**Start**" and "**Stop**" buttons are available.

13) "Access password" field. To connect to the Activator, enter the right password.

14) "**Chart**" button. Click it to view voltage vs time, current vs time charts.
Note *– to view charts in semitransparent window, put mouse cursor over "**Chart**" button.*

15) "Print button". Press it to print charts and list of operations.

16) "**Display mode**" dropdown list. Click it to select "**View mode**" or "**Edit mode**".

17) "**Language**" dropdown list. Click it and select language. English and Russian languages are available.

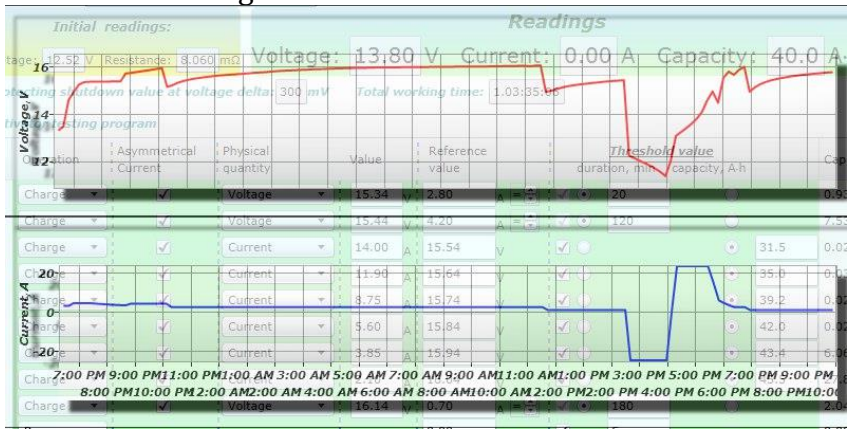
18) In "**Activator version**" and "**Software version**" strings, Activator's firmware and upper level software versions are shown.

19) In "**Current readings**" window, currently measured battery parameters are displayed.

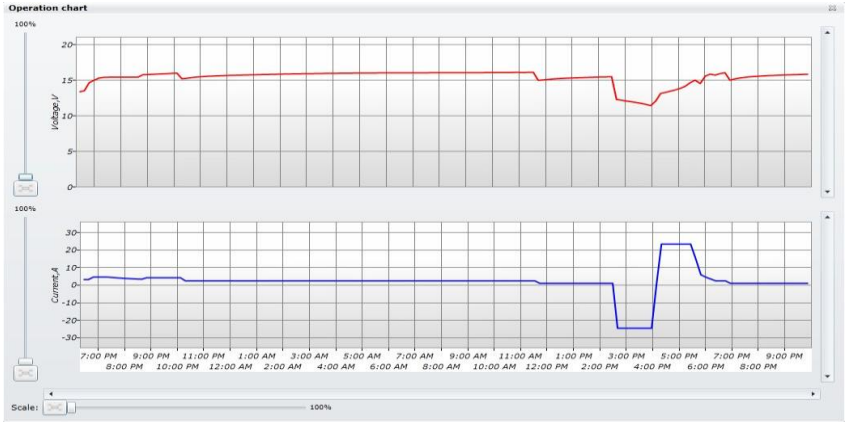
20) "**Total working time**" shows overall time of execution of the testing program.

4.1.1 Operating with charts

Put mouse cursor over “**Chart** ” button to view semitransparent window with voltage and current charts.

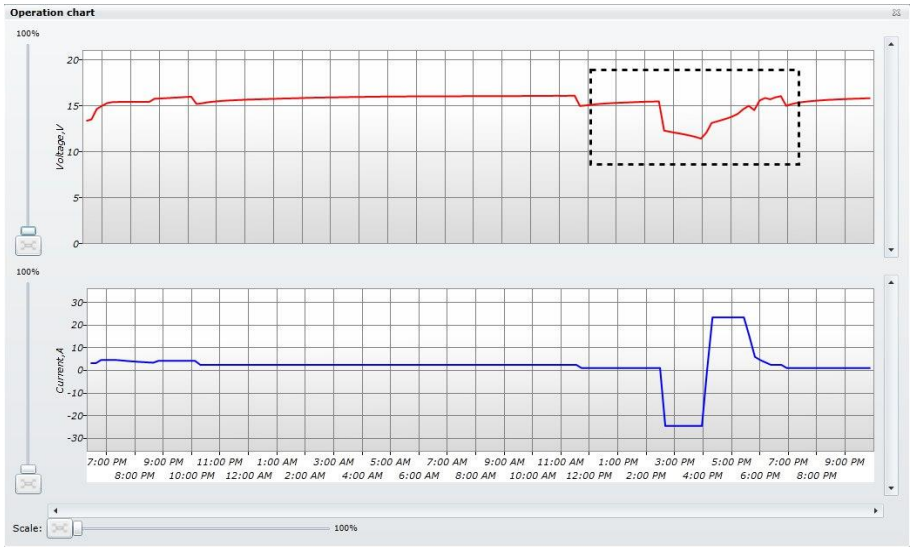


Press “**Chart**” to view charts. To zoom, move sliders on left and bottom sides of the window.

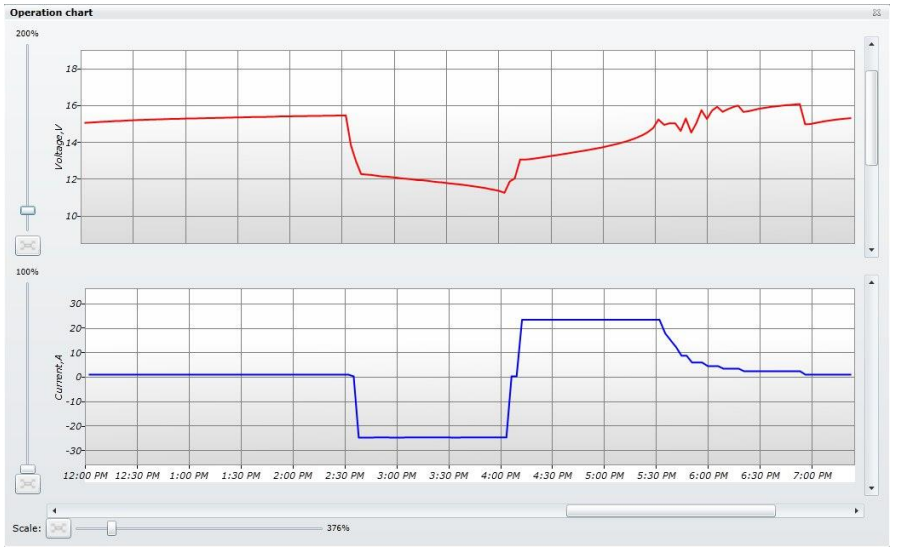


If it is necessary to take a closer look of some chart’s segment, press and hold right mouse button, select needed segment and release mouse button.

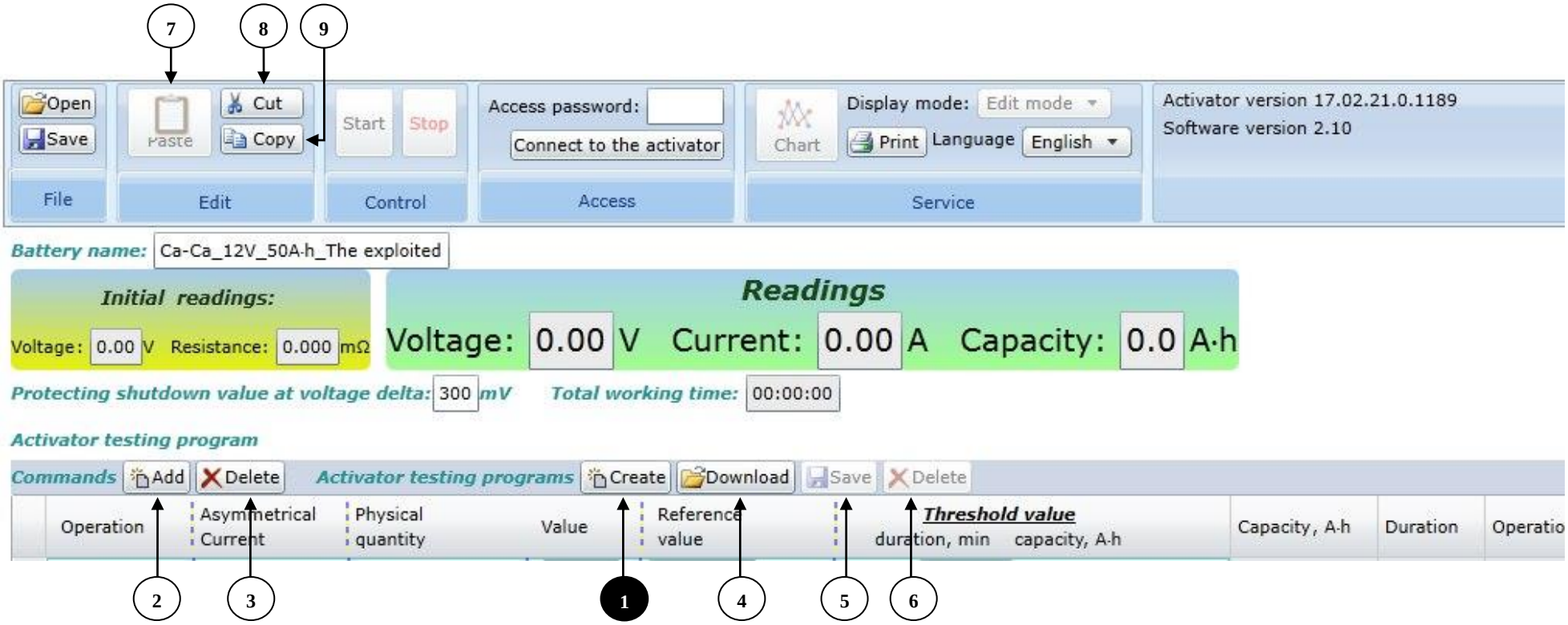
Before



After



4.2 Edit mode

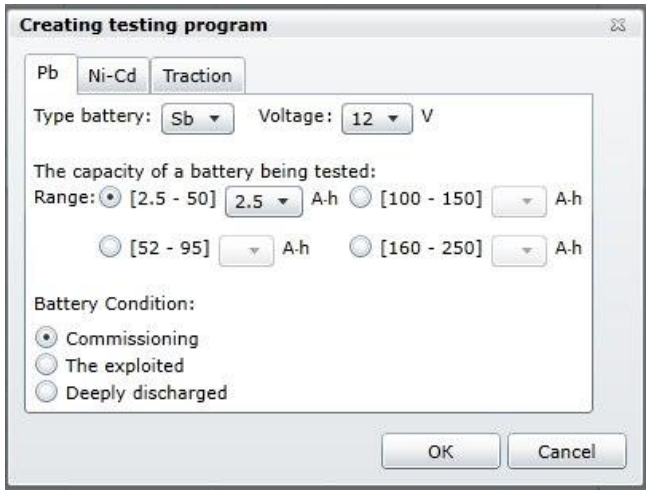


"Edit" mode is intended for creating and adjusting of testing programs.

1) Press "**Create**" button to open "**Creating testing program**" window. In this window, following parameters are changeable:
- Battery type
- Rated voltage
- Rated capacity
- Battery condition

Note *– if there is no needed capacity value in the list, select next higher value.*

Note *– to test Li batteries, it is recommended to contact* ***Alekto*** *at first.*



If all parameters are set according to battery manufacturing data, press "**OK**" to create testing program. New-formed testing program can be modified by adding operations (or editing existing) and launched with or without changes.

2) Press "**Add**" to add one of following operations: "**Discharge**", "**Charge**" or "**Pause**".

"Discharge" operation

Operation	Asymmetrical Current	Physical quantity	Value	Reference value	Threshold value duration, min	Threshold value capacity, A·h	Capacity, A·h	Duration	Operation status
Discharge		Current	0.00 A	0.00 V			0.00	00:00:00	Not performed

In "**Value**", enter discharge current value. The battery will be discharging by current of entered value.

In "**Reference value**" field, set voltage value to which the battery will be discharged.

"Charge" operation (by current)

Operation	Asymmetrical Current	Physical quantity	Value	Reference value	Threshold value duration, min	Threshold value capacity, A·h	Capacity, A·h	Duration	Operation status
Charge	☑	Current	0.00 A	0.00 V			0.00	00:00:00	Not performed

In "**Value**" field, set current value by which the battery will be charging.

In "**Reference value**", set voltage value to which the battery will be charging.

If "**Charge**" command is selected, "**Physical quantity**" dropdown list is active. Depending on settings in "**Physical quantity**", charge operation is charge by current or charge by voltage.

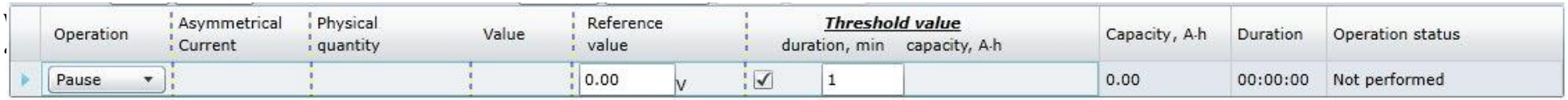
“Charge” operation (by voltage)

In “**Value**” field, set voltage value to which the battery will be charging.

In “**Reference value**”, set current value by which the battery will be charging

After the launch, “**Duration**” timer activates. This timer counts operation’s execution time. “**Capacity, A·h**” is calculated according to time value displayed in “**Duration**” column separately for each command.

“Pause” operation



“**Threshold value**” is the additional parameter available for “**Pause**” operation. It is possible to set from 1 to 600 minutes of “**Pause**”.

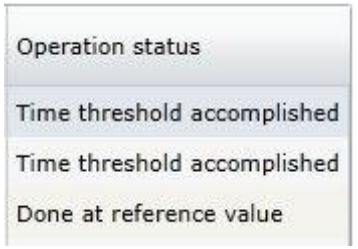
If voltage at the battery terminals will reach the “**Reference value**”, execution of “**Pause**” operation will be stopped automatically.

***Note** - if “**Reference value**” for “**Pause**” operation is **0.00 V** (default value), execution of “**Pause**” will be stopped after “**Threshold value**” time.*

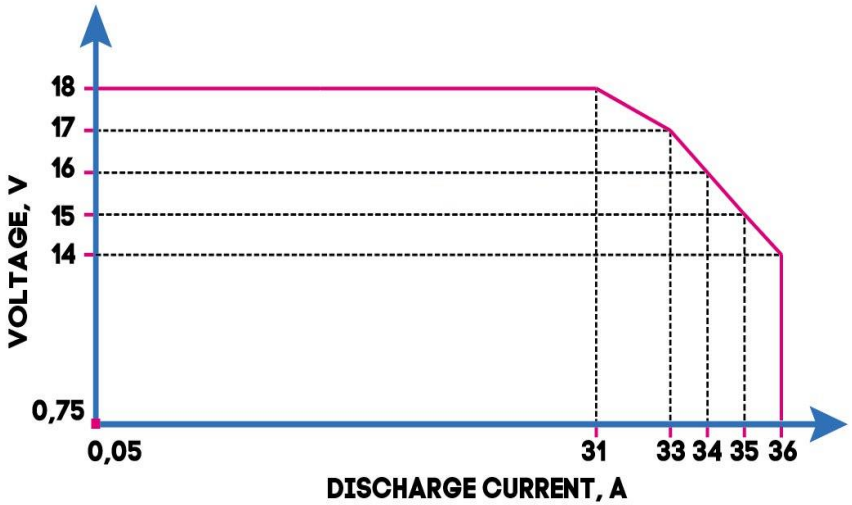
“**Pause**” operation is also useful for battery’s internal resistance measurement. To measure battery internal resistance remotely, delete all operations in testing program; after that add “**Pause**” operation; set 1minute in “**Threshold value**” field; press “**Start**”. After the end of measurement, measured values of voltage and internal resistance will be displayed in “**Initial readings**” window.

It is possible to set from 1 to 600 minutes of threshold time or set threshold capacity (available in “**Discharge**”, “**Charge**” **by voltage**). In “**Charge**” by current, threshold time is the only available threshold.

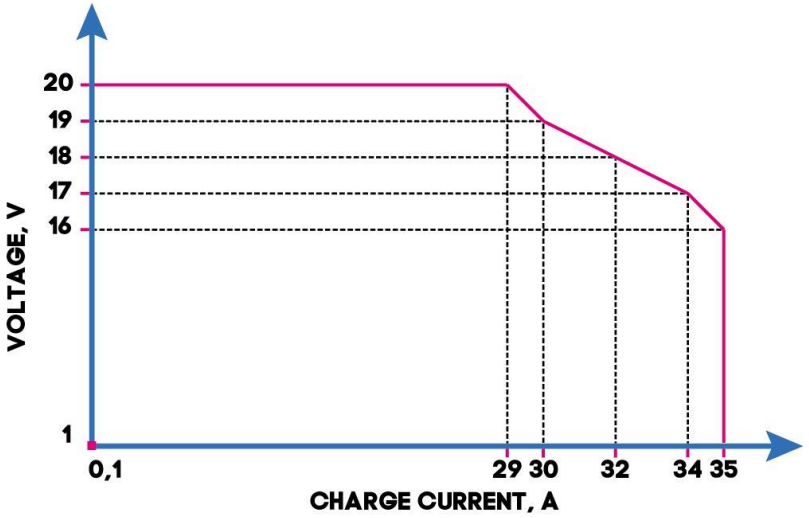
***Note** – in “**Operation**” status column, status of the execution is displayed.*



There are voltage and current limits for "Discharge" operation:



There are voltage and current limits for "Charge" operation:



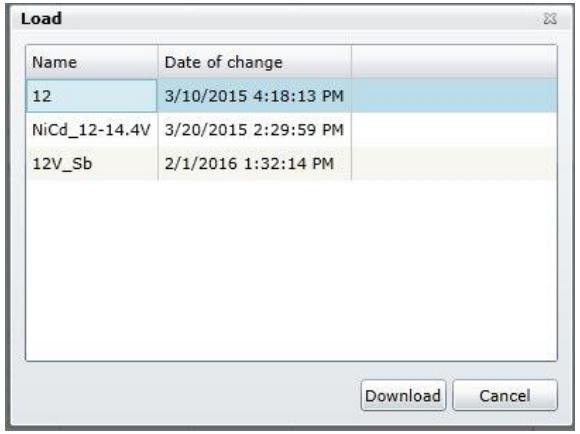
3) Press "**Delete**" to delete selected operations.

Note *– to select more than one operation, hold "**Ctrl**" button and select operations by clicking them.*

4) "**Download**" button. Press it to view the list of testing programs saved in Activator's memory. In appeared window, press "**Download**" to download selected testing program. It is helpful to save testing programs and use them for similar batteries repeatedly.

5) "**Save**" button. Press it to save testing program that you have created.

6) "**Delete**" button. Press it to delete testing program.



7) "Paste" button. Press it to paste operations from clipboard.

8) "Cut" button. Press it to delete selected operations from testing program with placing them to clipboard.

9) "Copy" button. Press it to copy selected operations to clipboard.

5 Errors and solutions

Problem: current exceeds the maximum value.	**Solution:** set lower current value according to charts presented in 4.2.
Problem: voltage exceeds the maximum value.	**Solution:** set lower voltage value according to charts presented in 4.2.
Problem: voltage is below the minimum value.	**Solution:** set higher voltage value. Minimum possible value is 0,5V.
Problem: power overload.	**Solution:** set current and voltage values according to charts presented in 4.2.
Problem: ≥ previous value (Discharge operation)	**Solution**: in "**Discharge**" operation, voltage must decrease on every next discharge step. Set lower voltage value.
Problem: ≤previous value (Charge operation)	**Solution:** in "**Charge**" operation, voltage must increase on every next charge step.
Problem: entered value contains non-digit symbols.	**Solution**: delete all non-digit symbols. Only digit symbols are allowed.
Problem: Battery name contains incorrect symbols.	**Solution:** Symbols +, =, [,], :, ;, ", ,, /, ?, «space», \\, *, <, >, | - are forbidden to be used in "**Battery name**" field.
Problem: password is incorrect.	**Solution:** enter the correct password.
Problem: Fix errors in testing program.	**Solution:** Correct values in highlighted columns.
Problem: Incorrect file name.	**Solution:** Enter correct file name and then save the file.
Problem: incorrect capacity value.	**Solution:** Enter capacity value from 0.1 to 65000 Ah.
Problem: Connection is lost. Activator continues operating offline.	**Solution:** refresh the page or relaunch browser software.
Problem: Error during receiving data from Activator.	**Solution:** Turn Activator OFF, then turn it ON. Relaunch browser software.
Problem: Error during downloading testing programs from Activator. ***Note*** *– this error also happens if there are no testing programs saved in Activator's memory*	**Solution:** Turn Activator OFF, then turn in ON.

Problem: Error during saving list of operations.	**Solution:** Turn Activator OFF, then turn it ON.
Problem: Error during saving list of operations.	**Solution:** Turn Activator OFF, then turn it ON and retry saving.
Problem: Error during transmitting data to Activator. ***Note*** *– most probably it happened because of line fault*	**Solution:** Relaunch browser software and retry data transmitting.
Problem: Operation stopped because of hardware error.	**Solution:** Turn Activator OFF, then turn it ON.
Problem: Low voltage at the battery terminals.	**Solution:** Make sure that there is reliable electrical contact between battery terminals and connection cable terminals; make sure that cable terminals are reliably connected to the activator.

IF IT IS IMPOSSIBLE TO FIX PROBLEMS AND ISSUES, PLEASE CONTACT MANUFACTURER!