



ABLogger

Quick Start Guide

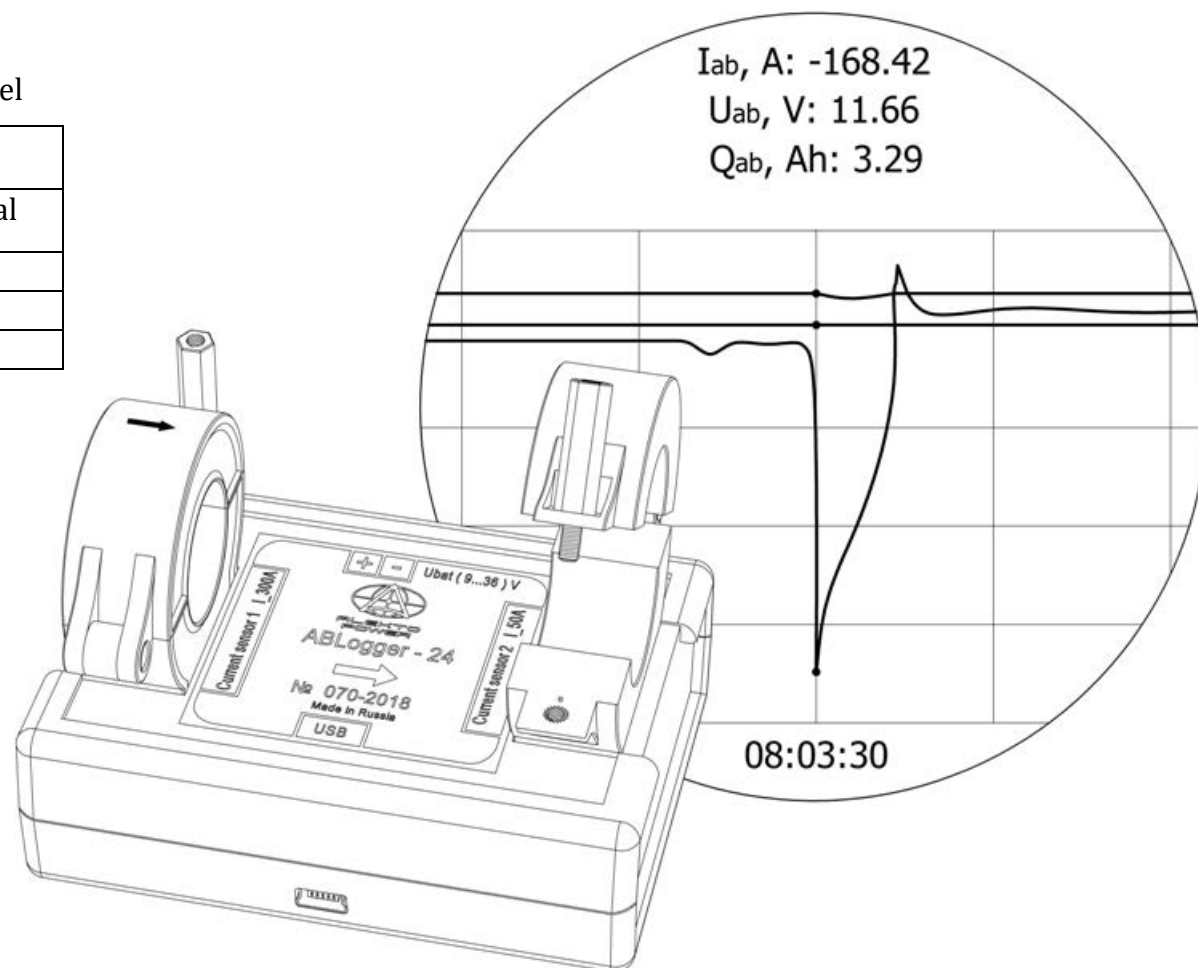
In case of problems or issues, visit
alektogroup.com

ABLogger is the device intended for condition monitoring of battery charging devices and electrical systems equipped with a battery (vehicle electrical on-board systems, alternative power sources).

ABLogger is powered through its voltage measurement channel

Device type	Supply voltage, V		
	Nominal	Minimal	Maximal
ABLogger-24	24	8,4	43,2
ABLogger-48	48	16,8	72
ABLogger-72	72	36	108

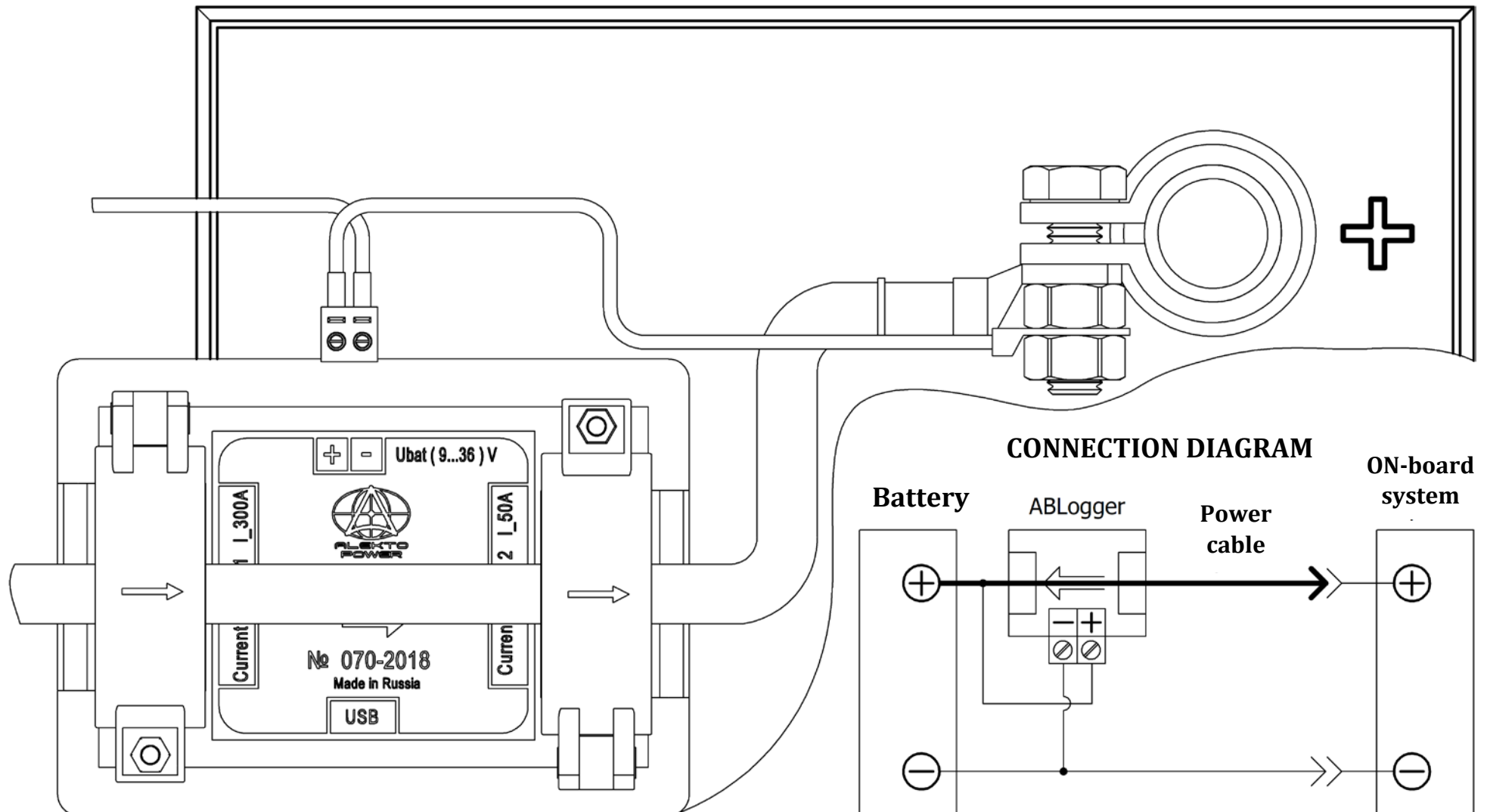
- No need to break the circuit while installing
- Battery charge and power consumption calculations
- Current measurements up to ± 300 A (two channels: 300 A and 50 A); Voltage measurements
- Up to 48 hours of measured data records with time stamps included
- USB interface for connection with PC
- Bundled software for visualization of measured data

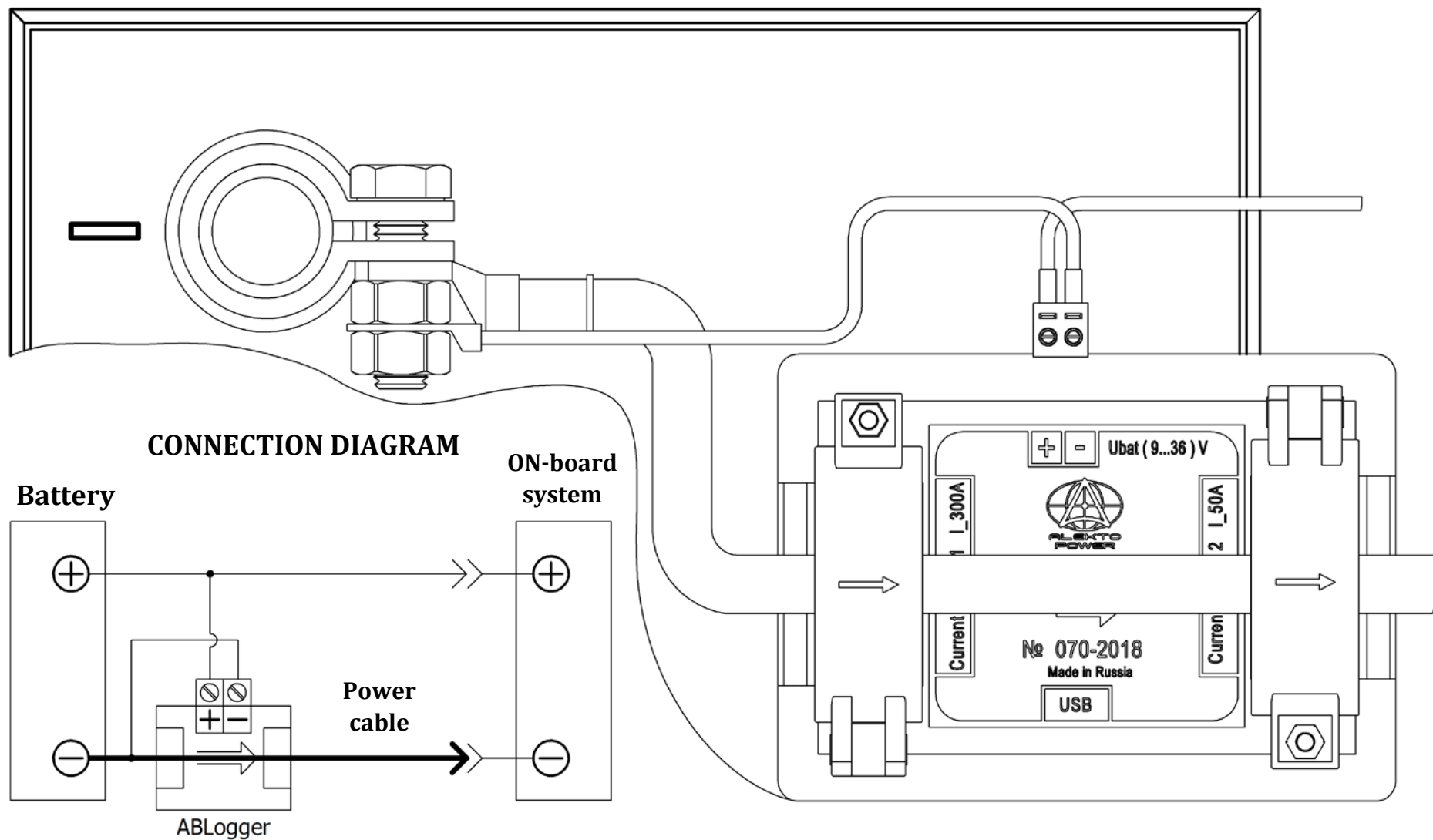


1 Device Installation

- 1) Unscrew the screws fixing current sensors halves;
- 2) Route the power cable through the windows of current sensors (arrows on both sensors and device nameplate show current direction);

- 3) Fix current sensor halves with the screws;
- 4) Connect voltage measurement cable to both terminals of battery (RED cable should be connected to "+" terminal), then plug cable connector into power socket of ABLogger.



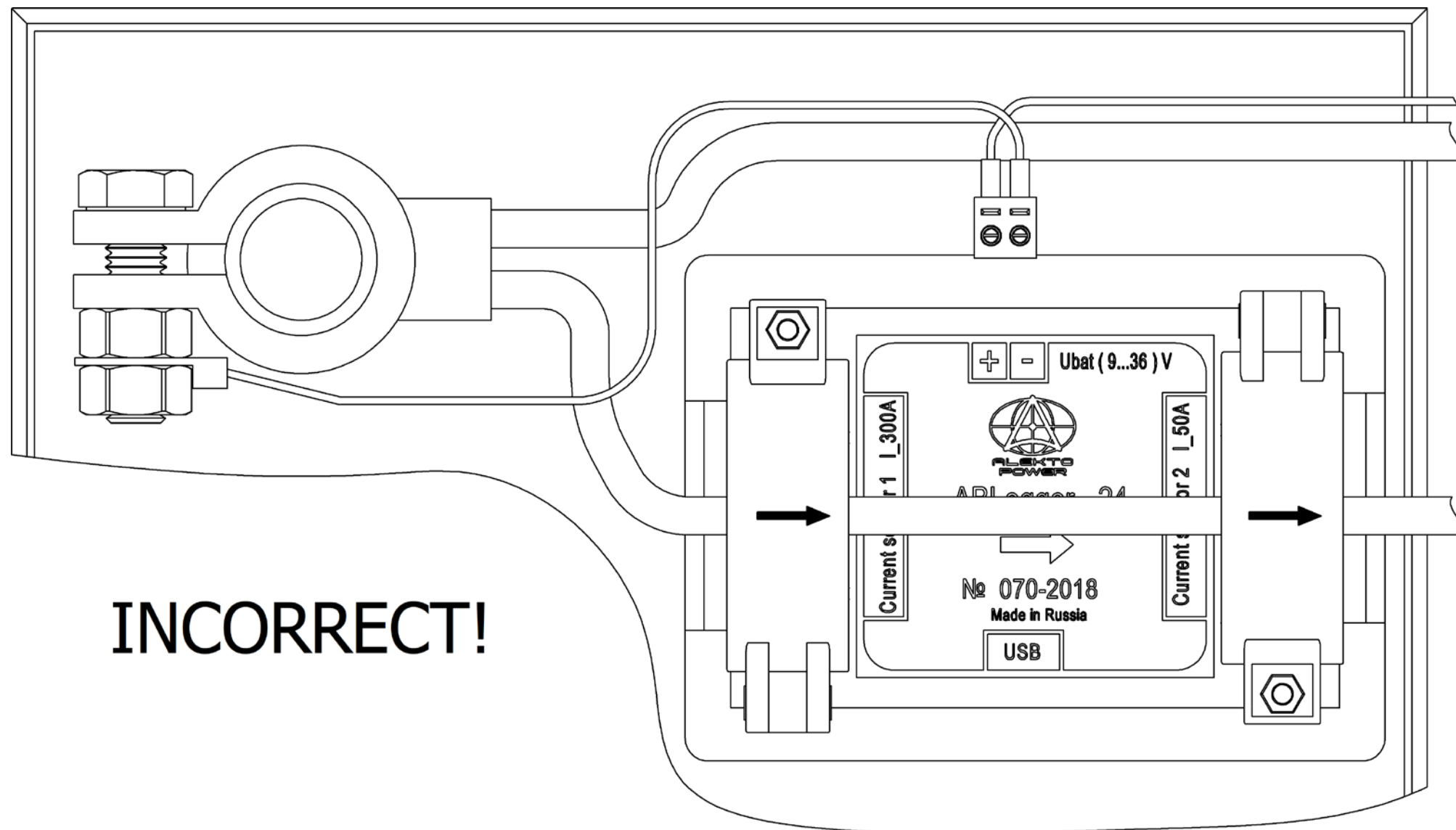


After ABLogger was installed on the vehicle, no more operations are required - it saves time and effort of the specialist. Owner can use his vehicle the way he usually does.

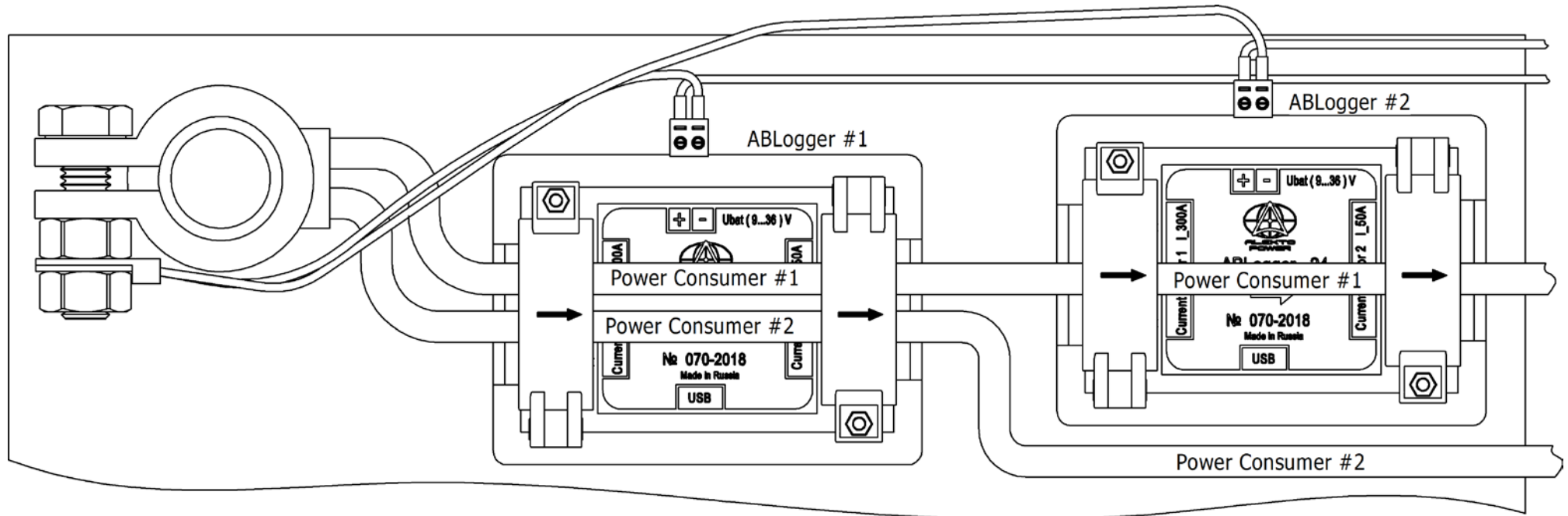
After 48 hours (or earlier) specialist reads data recorded by ABLogger. Data can be processed any time later.

Very often, there are several cables connected to one battery terminal. If it is needed to check all power consumers in the system by using single ABLogger device, make sure that ALL power cables are routed through windows of both current sensors. Otherwise, the measurements would be incomplete and/or inaccurate.

Incorrect way to connect ABLogger in order to check all power consumers is shown below.



Sometimes, it is needed to check whole system as well as its individual parts. In this case, it is possible to use several ABLogger devices. Such example is shown below: ABLogger #1 is checking both power consumer #1 and #2; power consumer #1 is being checked by ABLogger #2.



2 Software

The software for configuring the device and visualization of recorded data is on CD from the bundle. Latest version is available on <http://alektogroup.com>

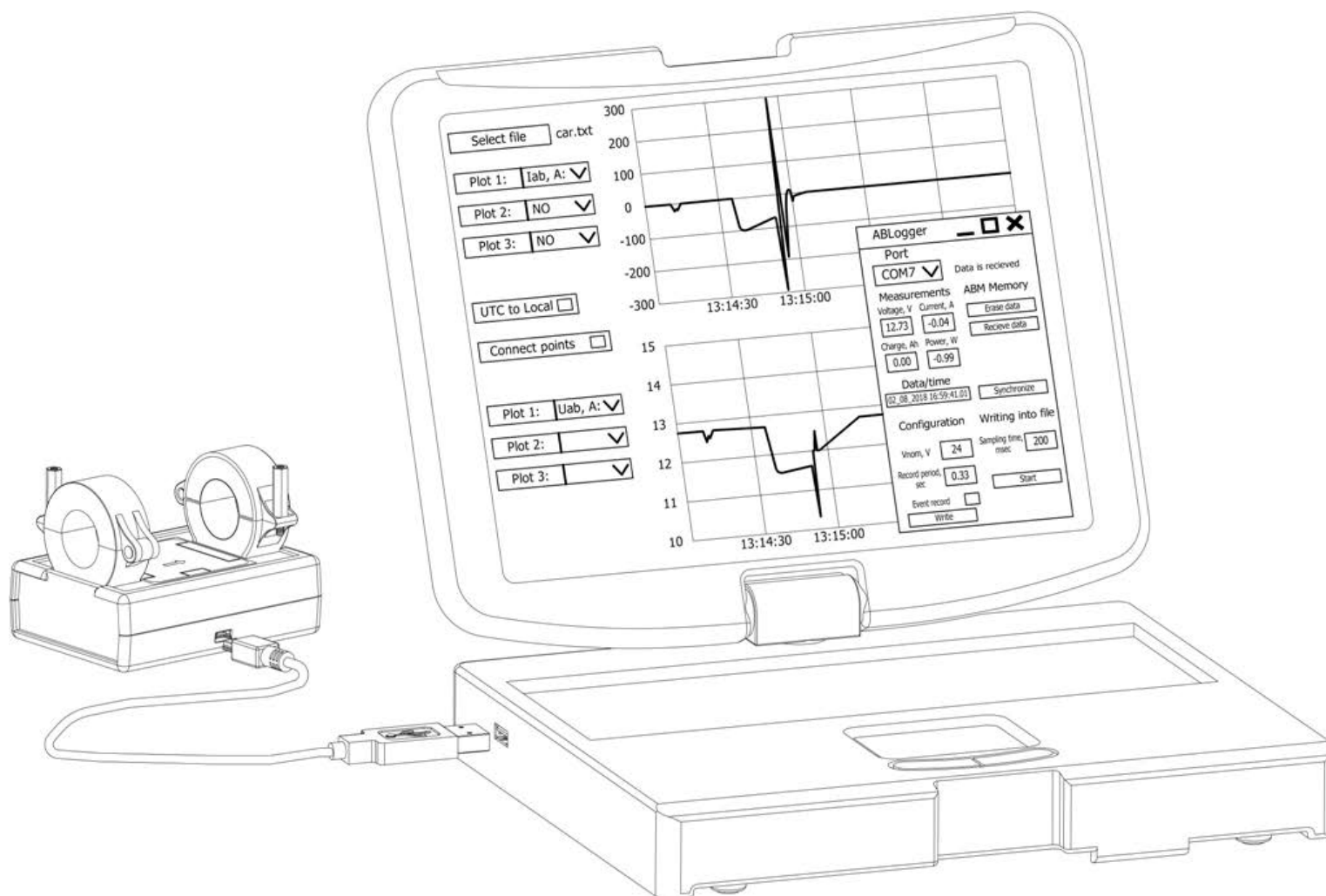
Use USB - Mini-USB cable to connect ABLogger to PC.

After ABLogger is connected, OS will detect virtual COM port.

Measured data is not being recorded to ABLogger internal memory while ABLogger is connected to PC!



ABLogger should not be connected to PC while engine starts!



2.1 ABLogger software

Software features:

- setting measurement data recording period;
- reading and deleting measurement data recorded to internal memory;
- viewing current values of measured parameters;
- synchronizing ABLogger clock with PC clock ;
- writing measured values into a file

Note: Recording period value should be set in interval from 0.3 sec to 5 sec. If 0.33 sec recording period is set (0.33 sec is default value), internal memory would be enough to store measurement information recorded in 48 hours. **After 48 hours, newer data will be written over older data.**

2.1.1 Software installation

2.1.1.1 Driver installation

- 1) extract **en.stsw-stm32102.zip**
and then run **VCP_V1.4.0_Setup.exe**
- 2) Drivers will be installed in:
C:\ProgramFiles(x86)\STMicroelectronics\Software\Virtualcomportdriver
- 3) Connect ABLogger to PC by using **USB – Mini-USB cable**
- 4) When ABLogger is connected to PC, OS should detect virtual COM port and install drivers automatically. When drivers are installed, new COM port should be visible in Device Manager

Note: If systems fails to install drivers automatically, select “Browse my computer for driver software” and select driver directory manually

2.1.1.2 Software installation

- 1) Copy **ABLogger.exe** from **ABLogger_Prog** folder on bundled CD
- 2) Run **ABLogger.exe**

2.1.2 Software uninstallation

Delete ABLogger.exe from your PC

2.1.3 Software interface

1) «Port» dropdown list

Select port assigned to ABLogger device. If correct port is selected, current values of measured and calculated quantities should be displayed in «Измерения» section

2) Section «Measurements»:

«**Voltage, V**» - Measured value of voltage;

«**Current, A**» measured value of current. Positive value refers to charge current; negative value refers to discharge current.

«**Capacity, Ah**» - calculated value of battery capacity. Positive value refers to capacity stored by the battery; negative value refers to expended capacity (by the load).

«**Power, W**» - calculated value of power consumed by the load (negative value) or by the battery (positive value).

3) «Date/time» - time and date according to ABLogger clock.

4) Section «Configuratin»:

«**Vnom, V**» - nominal value of battery voltage for ABLogger device you connected; «**Recording period**» - period of recording data into internal memory; Checkbox «**Event forces recording**»

Sets minimal value of current which forces ABLogger to start recording;

Press «**Set**» to set ABLogger configuration.

Note – default value of current on which ABLogger starts recording is **0,5 A**.

5) Section «Internal memory »:

Press «**Erase data**» to erase all data stored in ABLogger internal memory.

Press «**Recieve data**» to read data from ABLogger internal memory and write them to .txt file.

6) «**Synchronize clock**» button. Press it to synchronize ABLogger clock with PC clock. It is preferable to synchronize clock every time you connect ABLogger to PC. If several ABLogger devices are used, their clocks must be synchronized as well.

7) Section «Writing into file».

Press «**Start recording**» to write measured data into .txt file

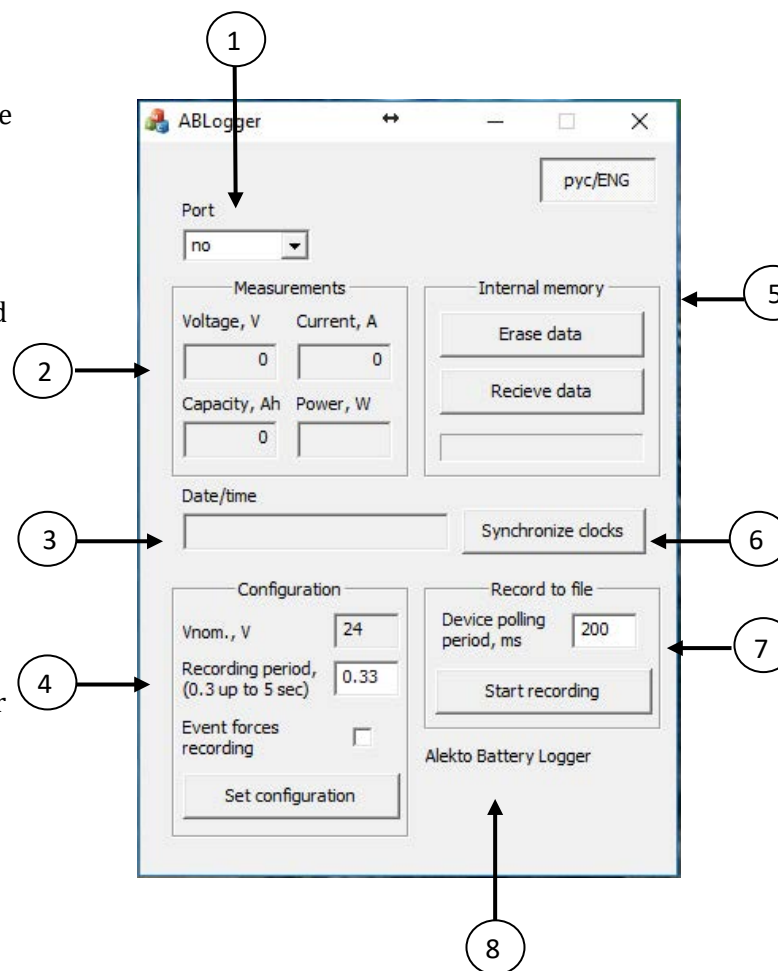
time	Iab, A	Uab, V	Qab, Ah
24_05_2018 06:43:19,19	38,43	12,84	0,00
24_05_2018 06:43:19,38	41,82	12,97	0,00
24_05_2018 06:43:19,56	42,12	13,04	0,00
24_05_2018 06:43:20,21	43,59	13,15	0,01
24_05_2018 06:43:20,40	44,45	13,27	0,01
24_05_2018 06:43:20,59	44,17	13,38	0,02
24_05_2018 06:43:21,13	43,68	13,49	0,02
24_05_2018 06:43:21,42	42,38	13,66	0,02
24_05_2018 06:43:21,61	40,88	13,71	0,03
24_05_2018 06:43:22,15	42,37	13,94	0,03

Press «**Start recording**» again to stop recording.

In «**Device polling period**» field, inter the value of device polling period. Data displayed in «Измерения» section are refreshed with same period.

8) ABLogger serial number

Note – saved file can be exported to **GraphView** or **MS Excel**.



2.1.4 To write measured values into file:

- 1) Install ABLogger device;
- 2) Run the engine or electrical system;
- 3) Connect **ABLogger** to PC by using **USB – Mini-USB cable**
- 4) Select port assigned to ABLogger device
- 5) Press «**Start recording**». Now data is recording. To stop recording, press «**Start recording**» again.
- 6) Open saved file in GraphViewer

2.1.5 Follow these steps to read logged data:

- 1) Connect **ABLogger** to PC by using **USB – Mini-USB cable**. It is not necessary to uninstall ABLogger from the system.
- 2) Select port assigned to ABLogger device
- 3) Press «**Recieve data**» button. Wait while data are being copied from ABLogger internal memory to PC.
- 4) Open saved file in GraphViewer

2.1.6 To delete data from ABLogger internal memory, follow **steps 1-3 from 2.1.5**, then press «**Erase data**»



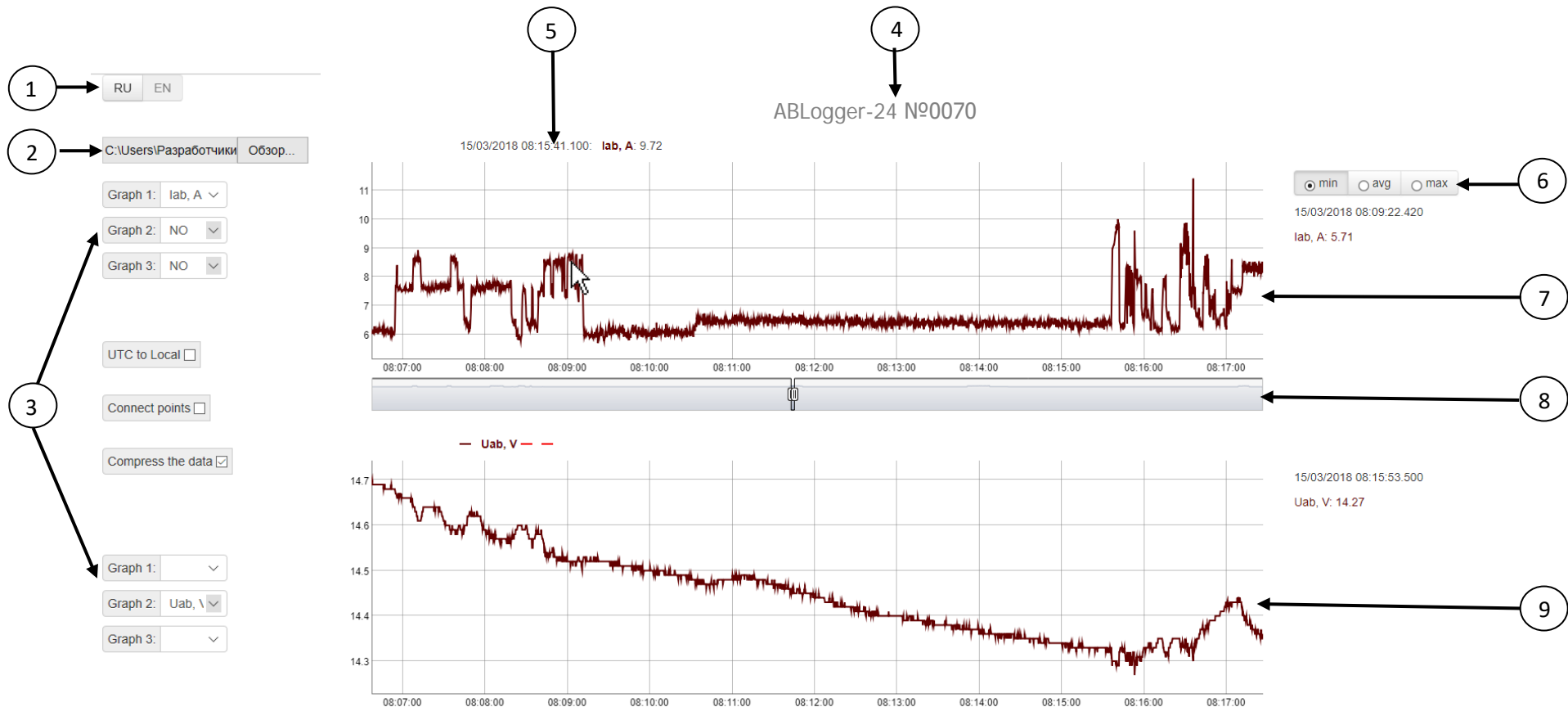
If battery voltage drops below minimal value, USB driver and ABLogger software errors may occur. In this case, it is needed to restore power and restart ABLogger software.

2.2 GraphView Software

GraphView software is intended for visualization of measurement data recorded by ABLogger.

Copy GraphView folder to your PC and then run **GraphViewr.htm** (it will be opened in browser set by default).

2.2.2 GraphView interface

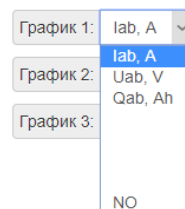


1) Language selection button

2) «Обзор» button. Press it and then select file saved in ABLogger software.

3) «Graph» dropdown list. Select quantity to build plot for. If no graph is needed, select “NO”.

4) ABLogger serial number



5) Date and values of quantities presented on the plots.

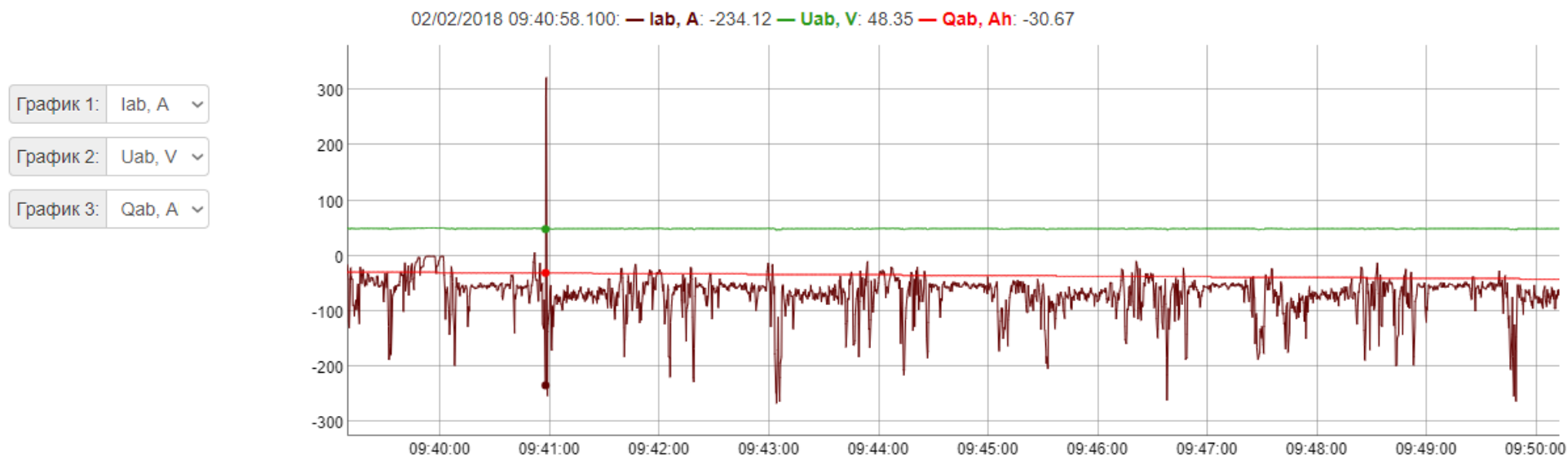
6) Value selector. Select “avg”, “min” or “max” to show average, minimal or maximal value from selected region in both windows

7) Window #1

8) Slider for plot scaling

9) Window #2

2.2.3 Plot adjustments



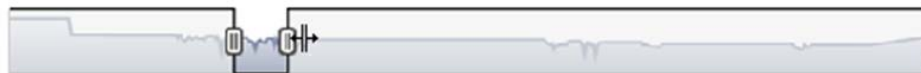
To display value measured at some point, drag cursor over this point. Depend on which value was selected in **График 1**, **График 2** и **График 3** **dropdown lists**, **color for each plot will be assigned** (**График 1** –brown; **График 2** – green; **График 3** – red)
Quantity value at the point, time and date are displayed above the plot

Plot displayed region adjustment:

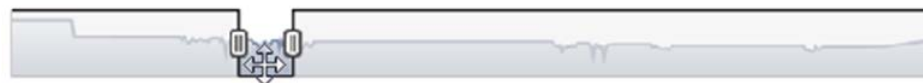
1) Using sliders



Depend on where cursor is pointed, it looks different:

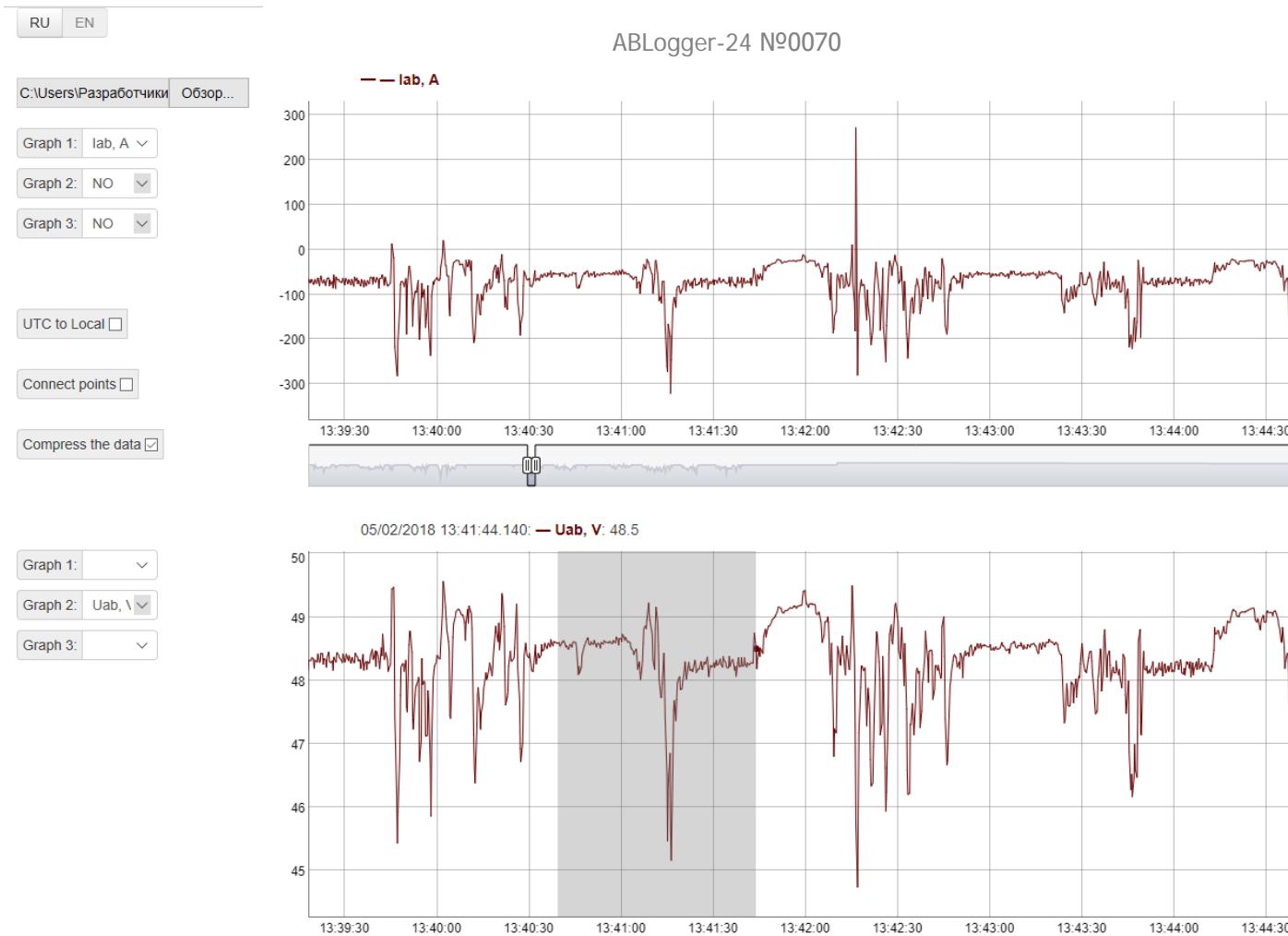


Hold LMB and drag cursor for extending or narrowing time interval on the plot.



Hold LMB and move cursor to move time interval on the plot.

2) Directly from windows



Scaling plot region (available in Windows #2 only)

Select plot region you need: hold LMB, drag cursor in some direction and release LMB.

RU

EN

C:\Users\Разработчики

Обзор...

Graph 1: lab, A

Graph 2: NO

Graph 3: NO

UTC to Local

Connect points

Compress the data

ABLogger-24 №0070



Moving displayed region of the plot
(available for Window #1 only)

Hold LMB and move plot in the direction you need

Graph 1:

Graph 2: Uab, V

Graph 3:



Note: plots in both windows are being changed simultaneously.

Applications

Application on a vehicle equipped with combustion engine

When ABLogger was installed on vehicle equipped with combustion engine, the results are helpful to establish the type of battery the system should be used with, check condition of the battery and alternator on-load; analyze behavior of power consumers in various modes of vehicle systems operation.

On the plot below, it is visible that voltage at the output of regulating relay is about 14 V. It means that the system is intended to be used with hybrid (Ca+) battery installed.

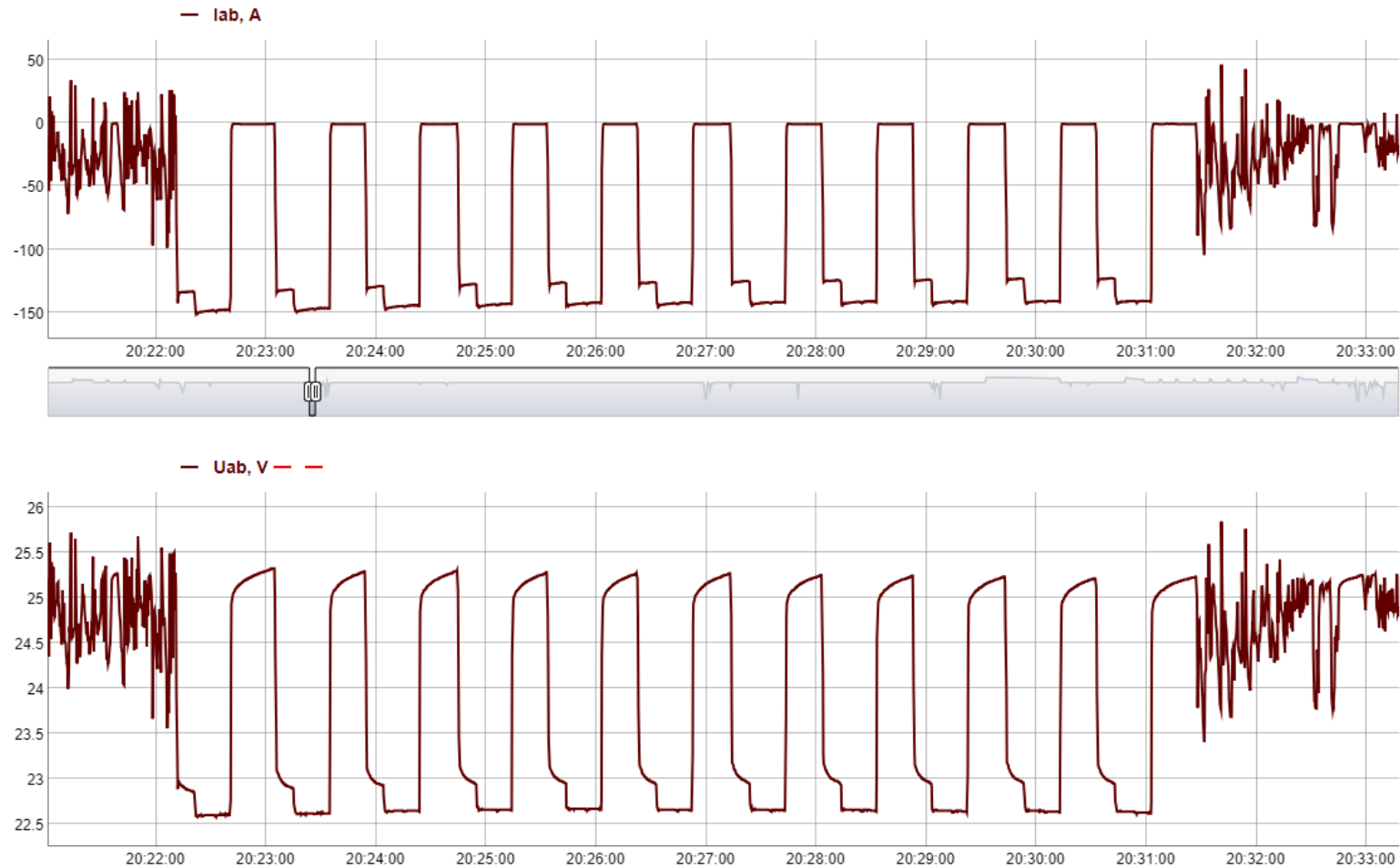


Application on electric vehicles intended for freight handling and lifting:

When ABLogger was installed on electric vehicle intended for freight handling and lifting, the results are helpful to check condition of the battery and brake energy recovery system; analyze behavior of power consumers in various modes of operation.

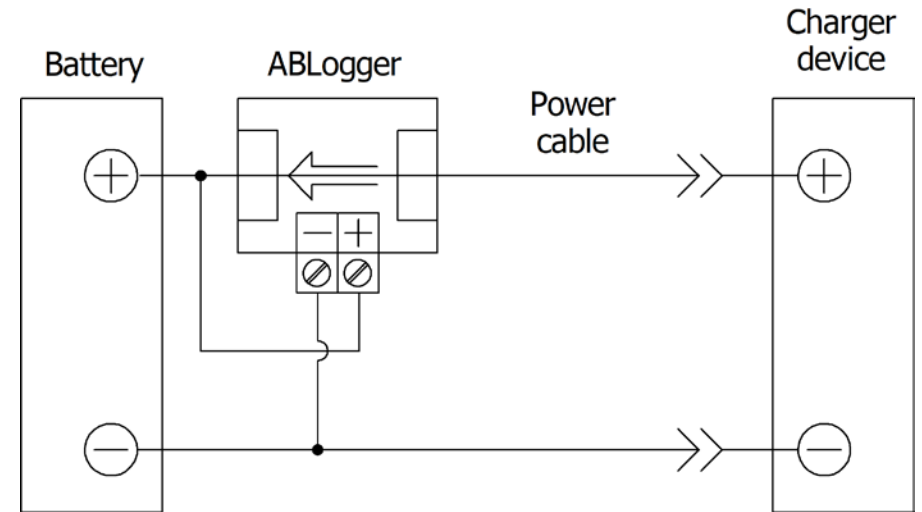
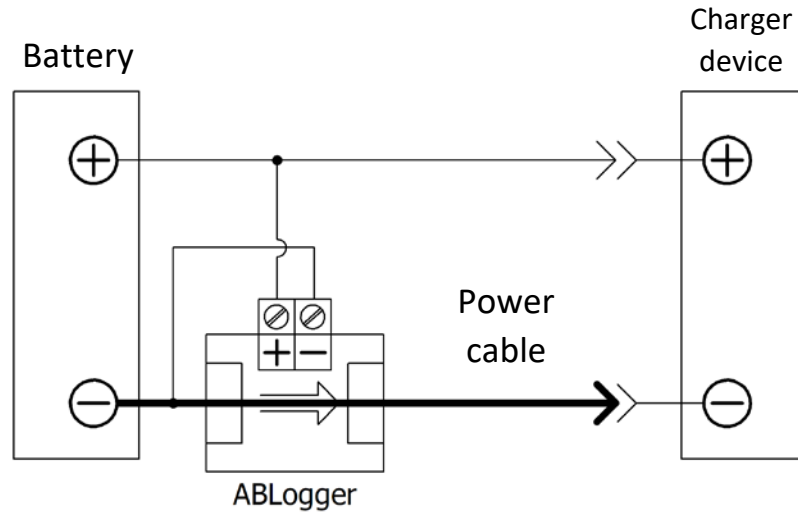
Let us analyze the behavior of electrical on-board system of the fork lift while lifting and lowering a freight (at some load).

Voltage on the battery (rated voltage – 24V) stays above 20,4V when loaded. The system is in operable condition.



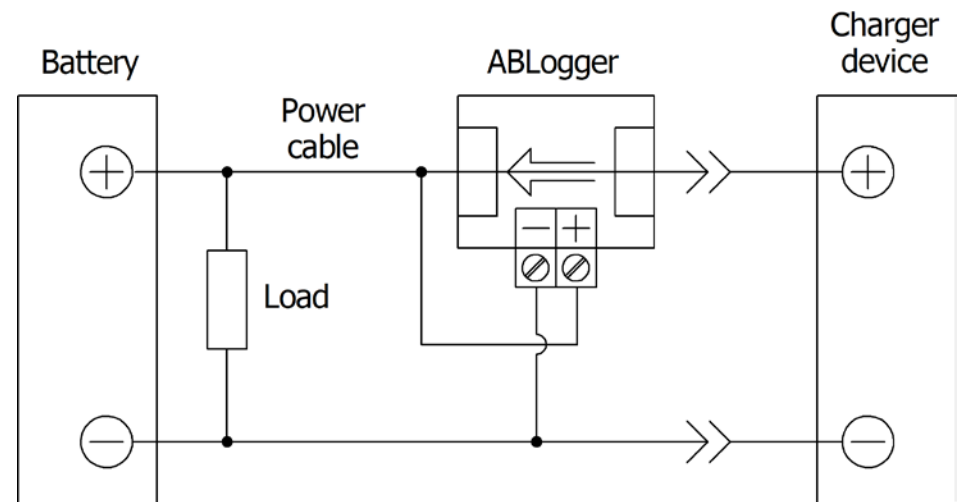
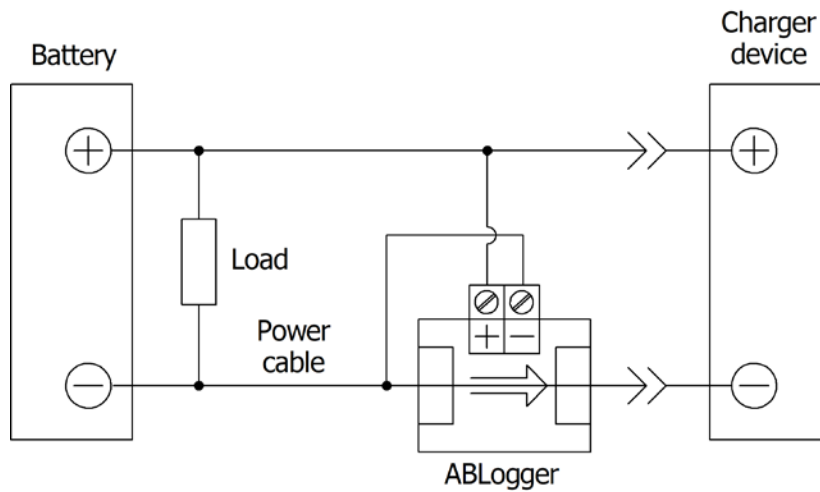
ABLogger can also be used for diagnostics of battery charger devices (even with a load)

Connection for checking charge voltage value(s) (if charger provides several charging stages)



Connection for checking charging modes

Note – charging modes checking results are right only if the battery was discharged before test



Application for charger device diagnostics:

Pallet jack battery charger diagnostics:

Voltage on the battery (rated voltage – 24V) exceeds 31,2 V during charging. The battery is being overcharged. The charger is faulty.

