

ABLogger v2.1

Quick Start Guide



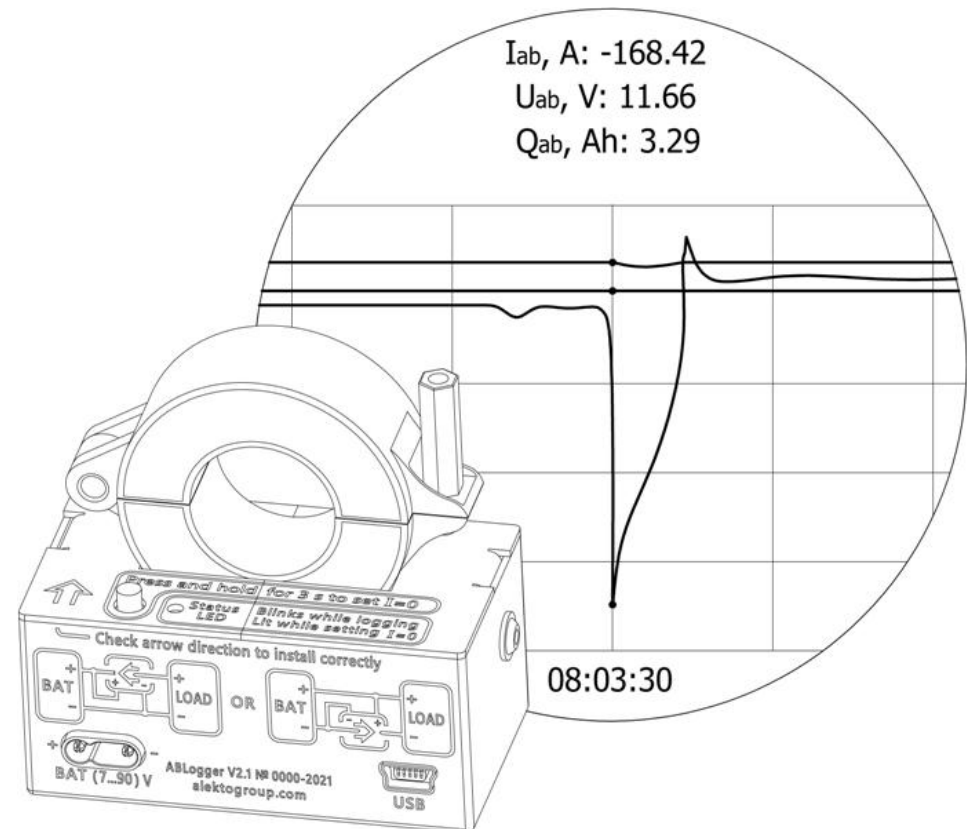
In case of problems or issues, visit alektogroup.com

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

- ABLogger is powered through its voltage measurement channel

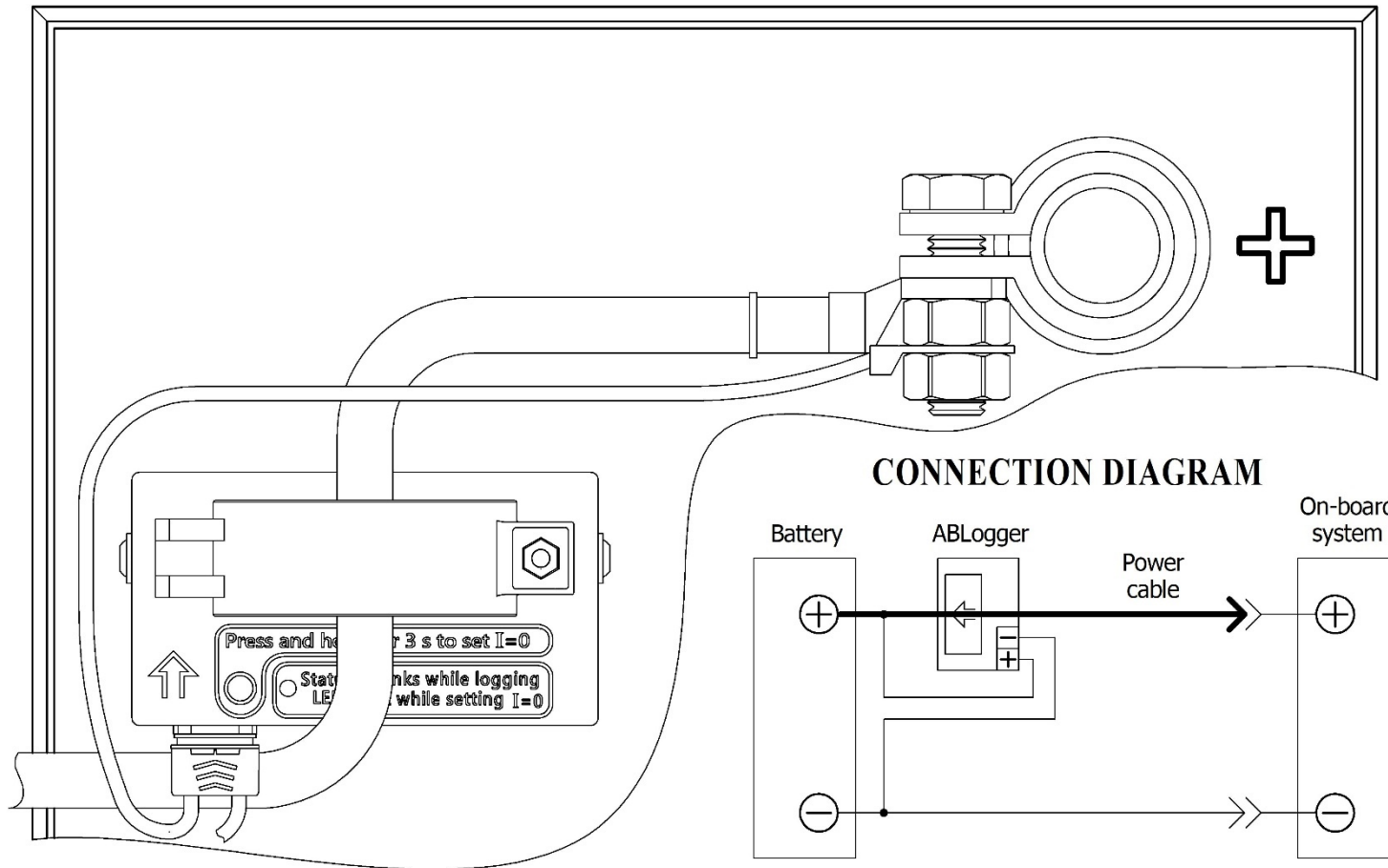
Parameter	Measurement range	Limits of intrinsic error
Measured current, I_{ab} $I_{nom}=300A$	from $0,01 I_{nom}$ to $0,05 I_{nom}$	$\pm 3\%$
	from $0,05 I_{nom}$ to $3 I_{nom}$	$\pm 2\%$
Measured voltage, U_{ab}	from $7 V$ to $95 V$	$\pm 0,2\%$

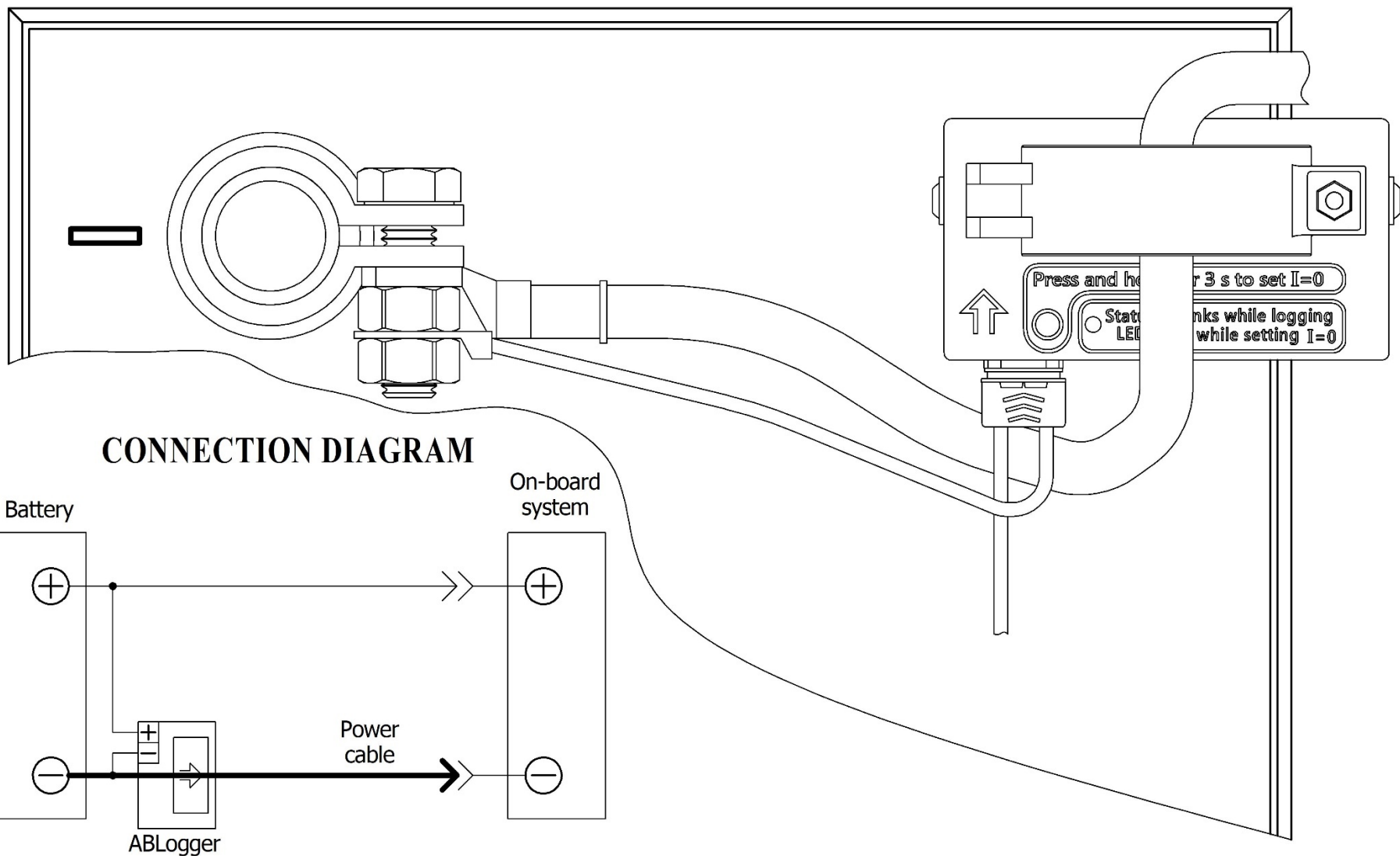
- No need to break the circuit while installing
- Current and voltage measurement channels
- Recording with time stamps included
- mini-USB interface for connection with PC
- Bundled software for visualization of measured data



1 Device Installation

- 1) Unscrew the screw fixing current sensor halves;
- 2) Route the power cable through the window of current sensor (arrows on sensor and device nameplate show current direction);
- 3) Fix current sensor halves with the screws;
- 4) Connect voltage measurement cable to both terminals of battery, then plug cable connector into power socket of ABLogger.



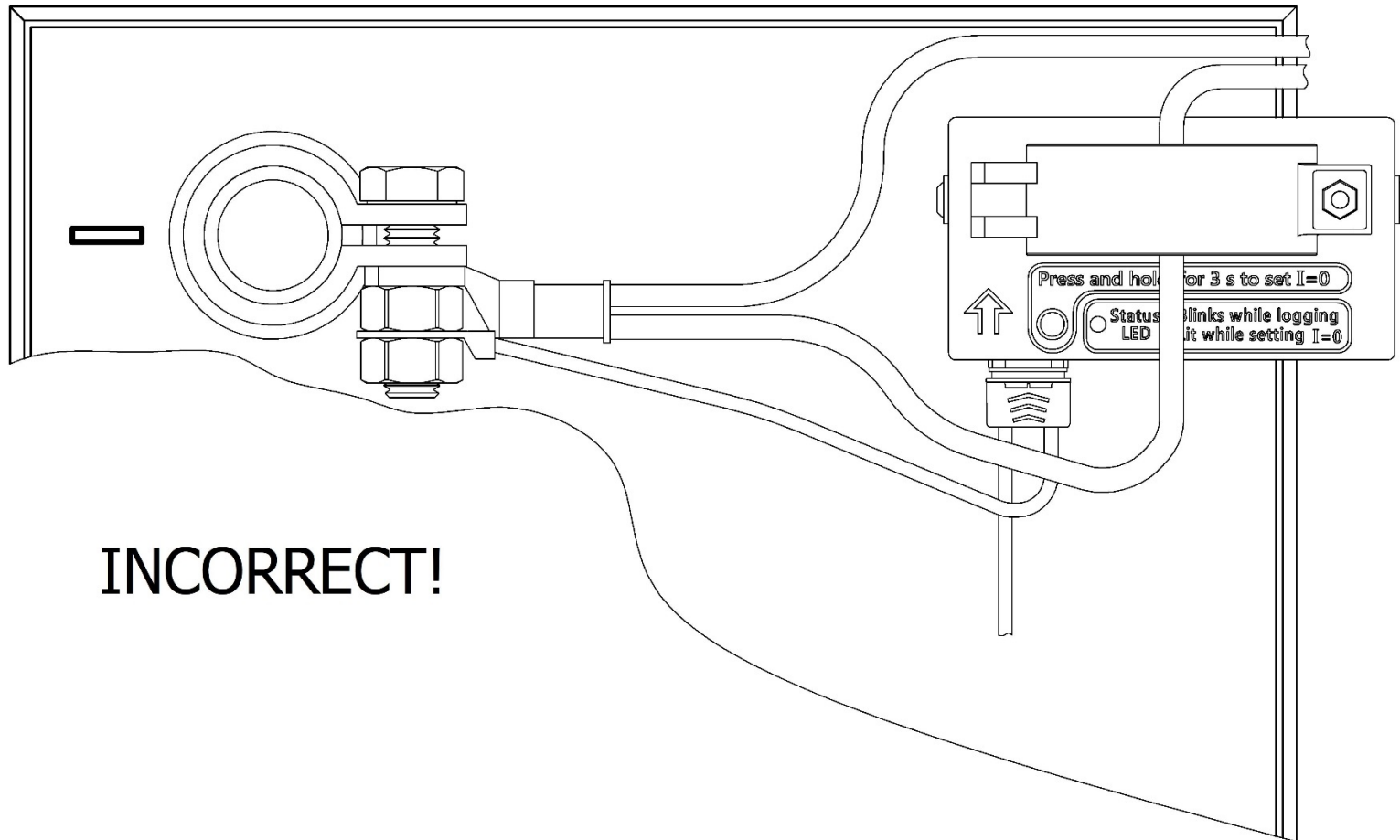


After ABLogger was installed on the vehicle, no more operations are required - it saves time and effort of the specialist. Owner can use his vehicle the way he usually does.

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

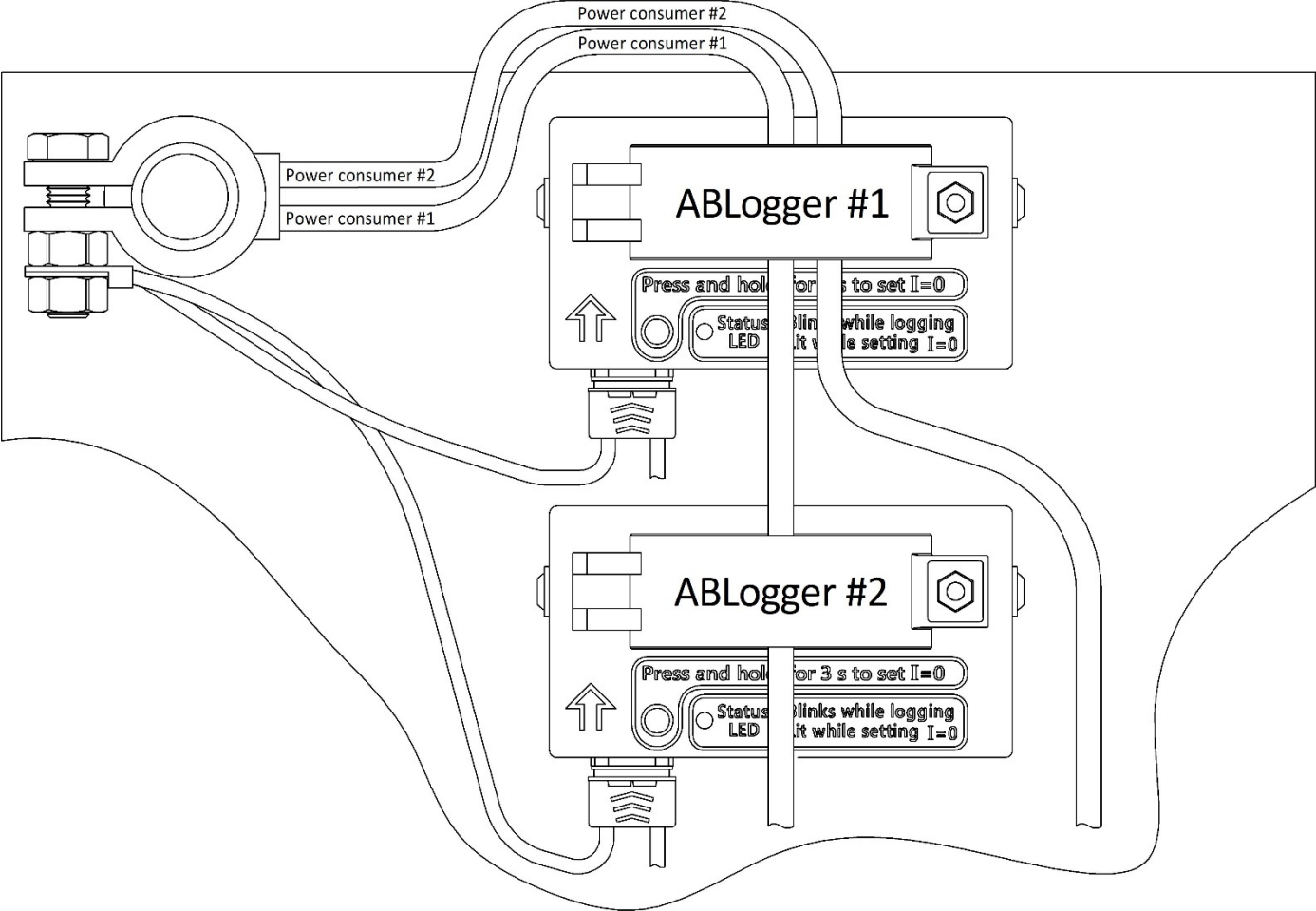
Very often, there are several cables connected to one battery terminal. If it is needed to check all power consumers in the system by using single ABLogger device, make sure that ALL power cables are routed through window of the current sensor. Otherwise, measurement results would be incomplete and/or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



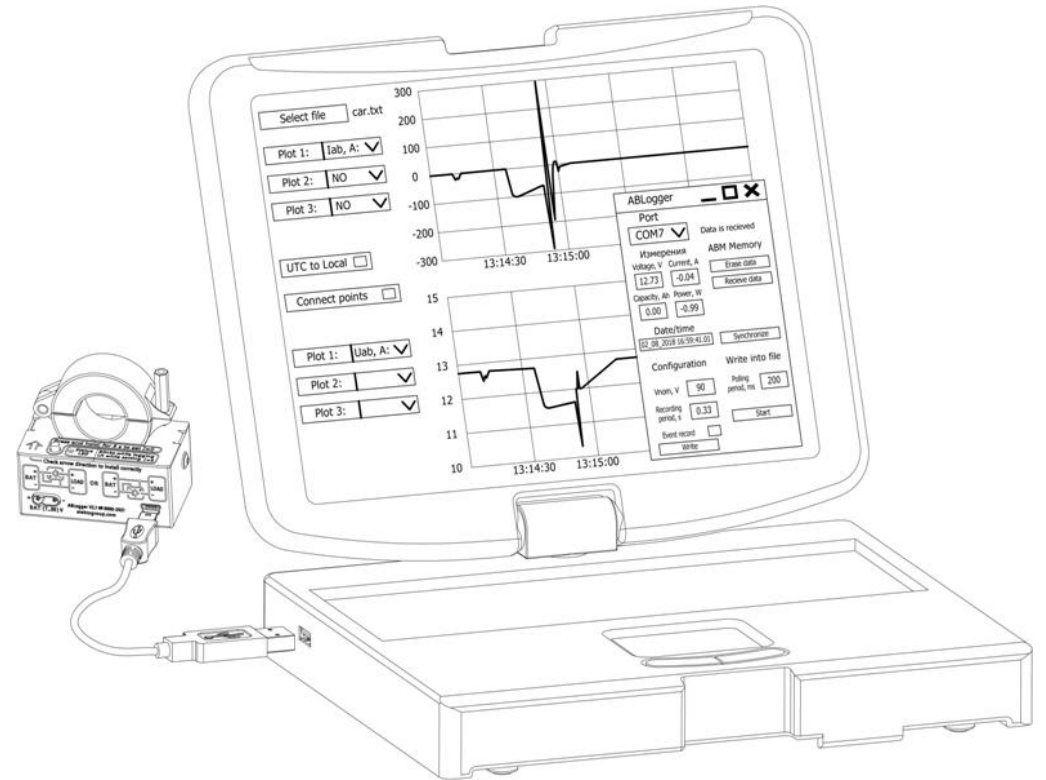
2 Software

The software for configuring the device and visualization of recorded data is 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!



2.1 ABLogger software

Software features:

- setting measurement data recording period;
- reading and deleting measurement data recorded to internal memory;
- viewing values of measured parameters in realtime;
- writing measured values into a file.

Note: *Recording period value should be set in interval from 0.1 sec to 5 sec. Longer interval means more logging time.*

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**
- 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 Windows Device Manager

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

2.1.1.2 Software installation

- 1) Unzip **ABLogger_Prog**
- 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 «Measurements» section

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

3) «Measurements» section:

«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 yielded capacity

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

4) «Configuratin» section:

«Unom, V» - ABLogger's voltage rating; «Recording period» - period of recording data into internal memory;

5) «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.

6) «Internal memory» section:

Press «Erase data» to erase all data stored in ABLogger's internal memory. Press «Recieve data» to read data from ABLogger internal memory and save it to .txt file.

7) «Record to file» section:

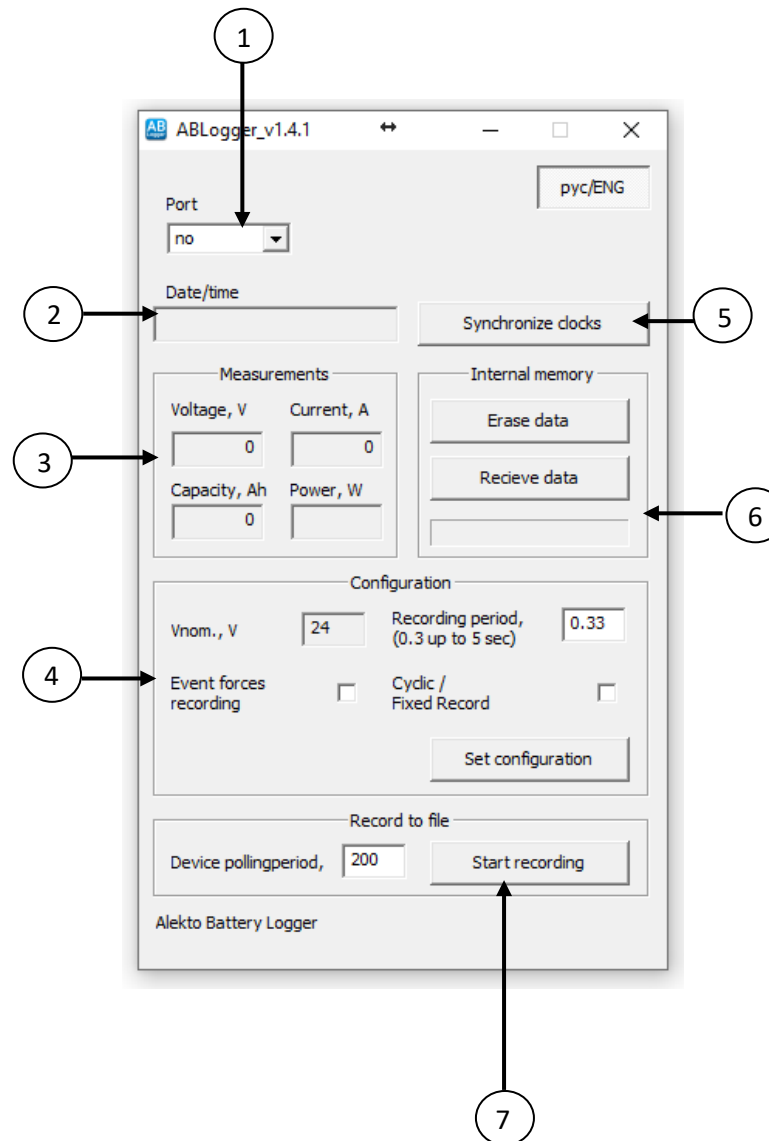
Press «Start recording» to write measured data into .txt file

```
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 «Stop recording» to stop recording.

In «Device polling period» field, inter the value of device polling period. This option only affects realtime logging (when ABLogger is connected to PC).

Note – saved file can be exported to **GraphViewer** 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 «**Stop recording**»
- 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**»

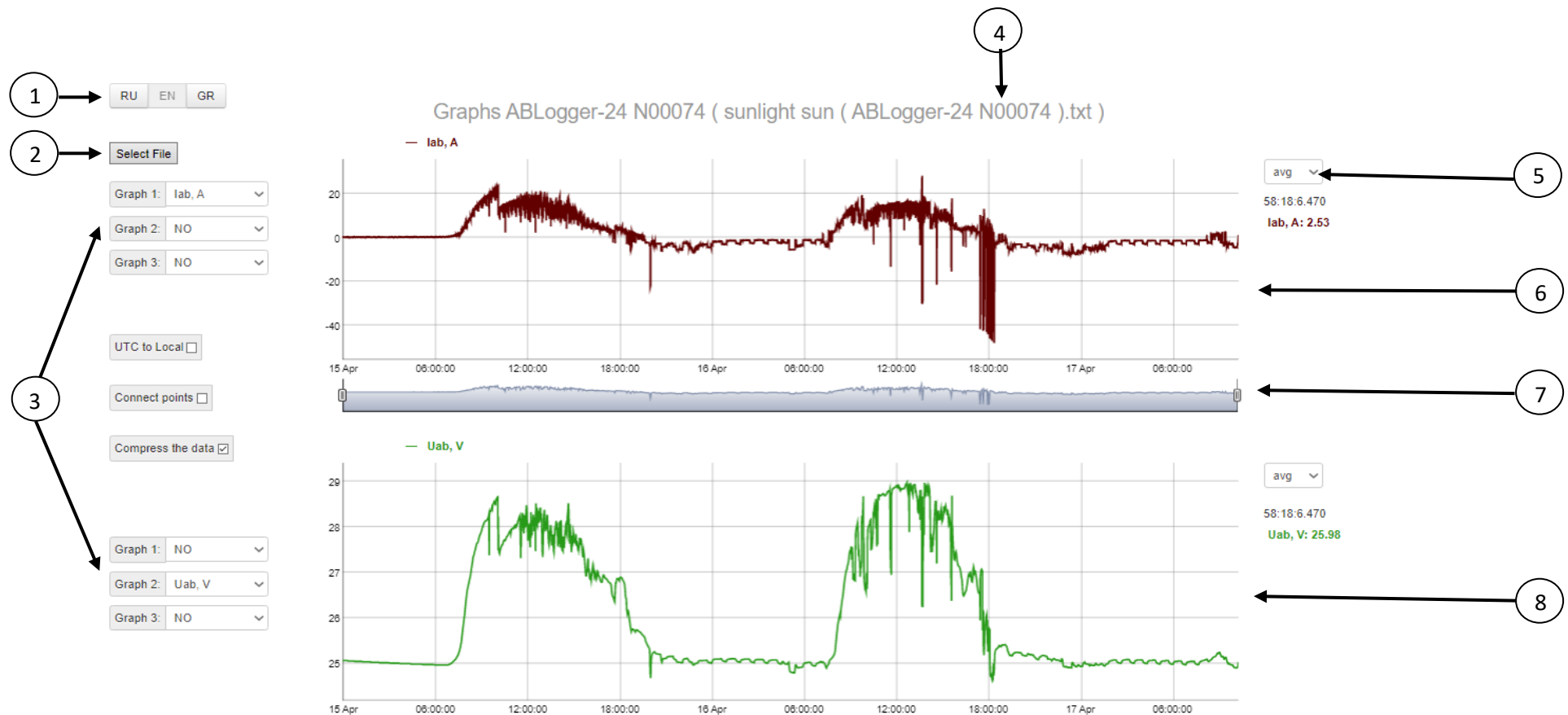
If battery voltage drops below minimal value, USB driver and ABLogger software errors may occur. In this case, it is needed to restore power and restart ABLogger software.

2.2 GraphViewer Software

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

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

2.2.2 GraphViewer interface

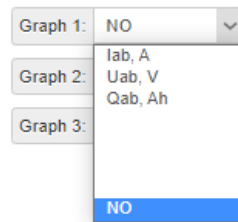


1) Language selection button

2) «Select file» button. Press it and then select .txt file saved using ABLogger software.

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

4) ABLogger’ serial number



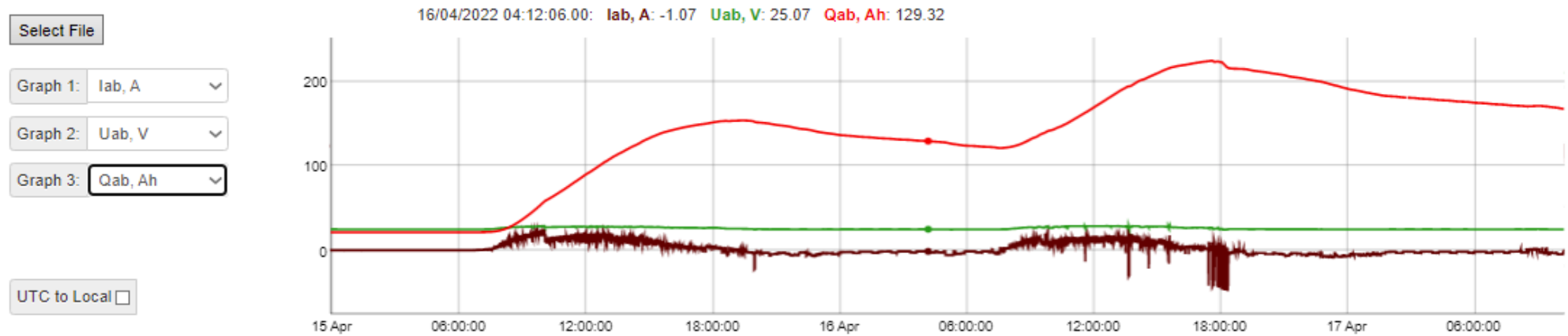
5) Value selector. Select “avg”, “min” or “max” to show average, minimal or maximal value from selected region in both windows

6) Window #1

7) Slider for plot scaling

8) Window #2

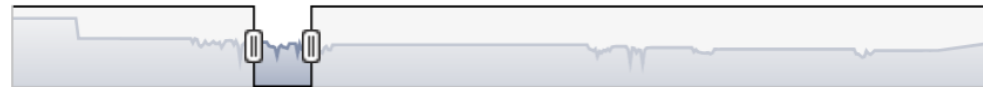
2.2.3 Plot adjustments



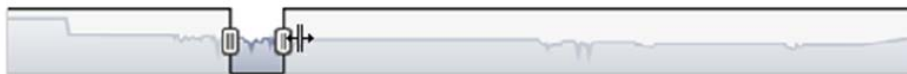
To display value measured at some point, drag cursor over this point. Depending on which value is selected in **Graph 1**, **Graph 2** and **Graph 3** dropdown lists, color for each plot will be assigned (**Graph 1** –brown; **Graph 2** – green; **Graph 3** – red)
Quantity value point under mouse cursor,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

Plot displayed region adjustment:

1) Using sliders



Slider cursor changes its look if it is over slider or plot region (limited by the sliders)



Hold LMB and drag sliders for extending or narrowing time interval of the plot

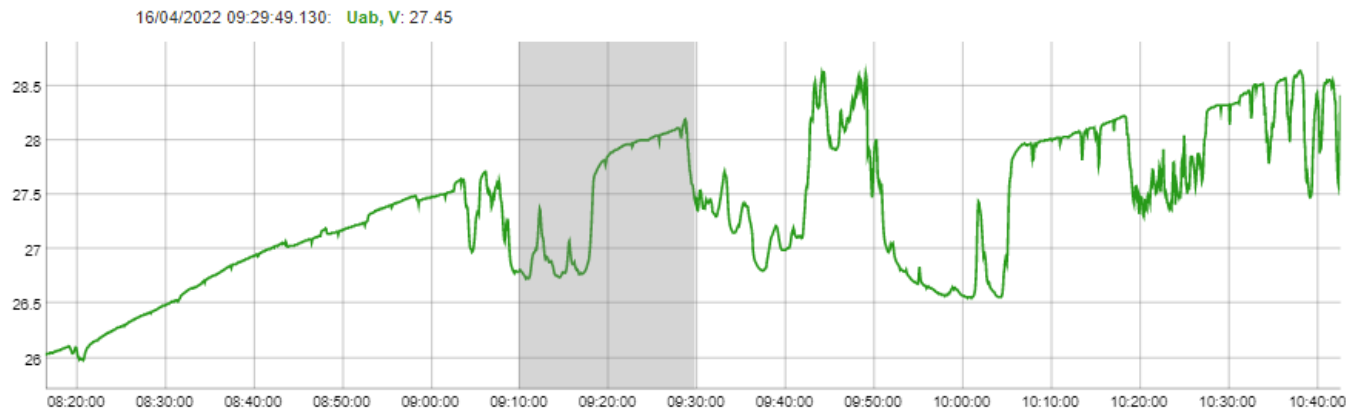


Hold LMB and move to navigate through plot region

2) Directly from plot windows



Scaling plot region (available in Window#2 only)



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

RU EN GR

Select File sunlight sun (ABLogger-24 N00074).txt

Graph 1: Iab, A

Graph 2: NO

Graph 3: NO

UTC to Local

Connect points

Compress the data

Graph 1: NO

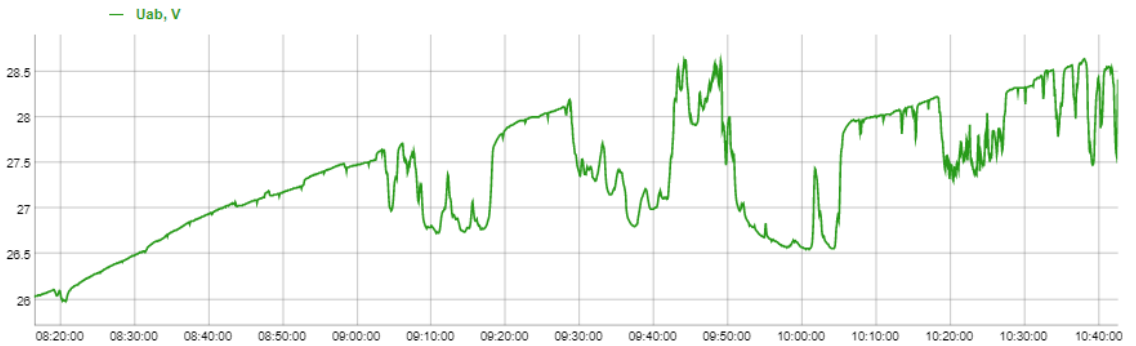
Graph 2: Uab, V

Graph 3: NO

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

Hold LMB and move plot in desired
direction

Graphs ABLogger-24 N00074 (sunlight sun (ABLogger-24 N00074).txt)



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.

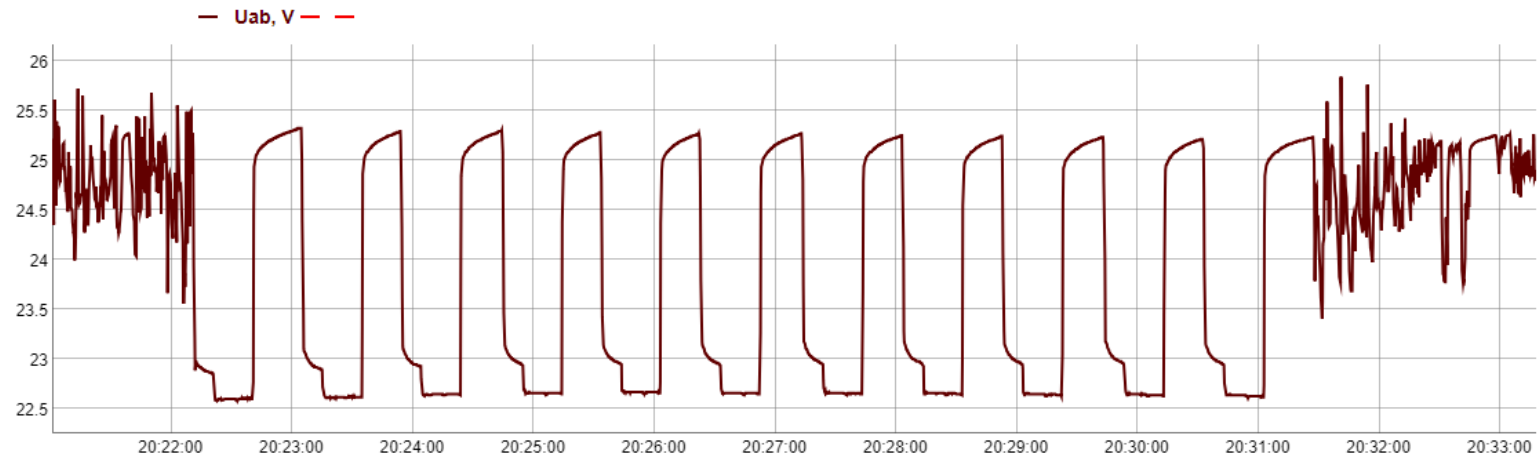
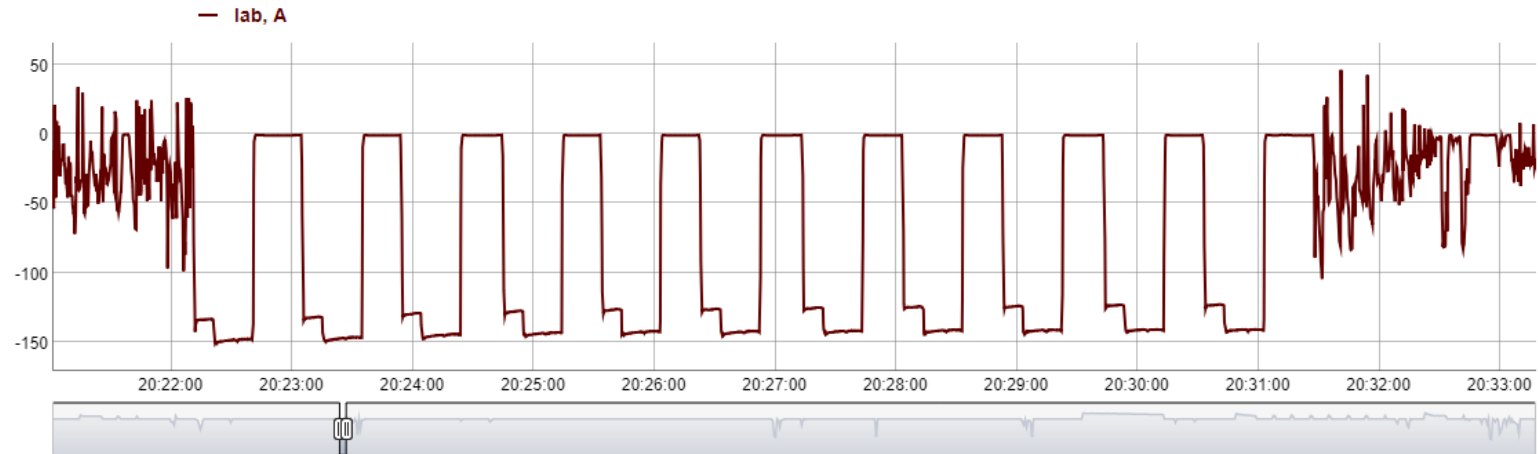


Application on electric vehicles intended for freight handling and lifting:

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

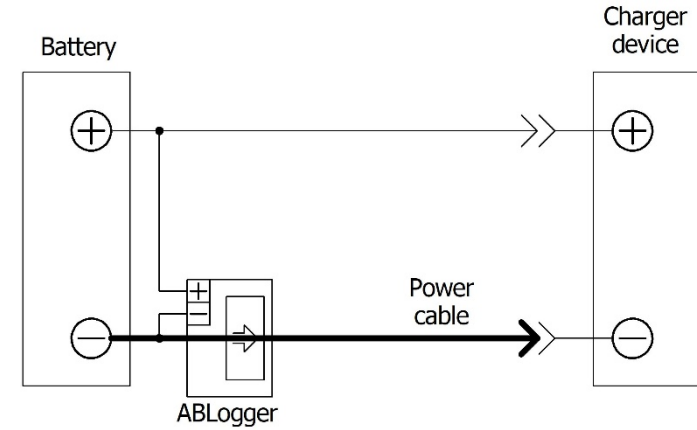
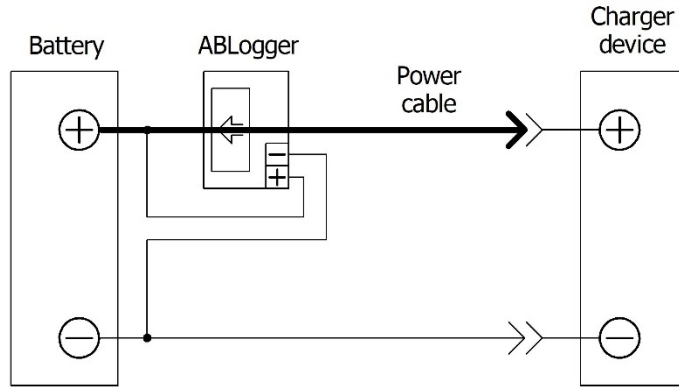
Let us provide an example of analyzing the behavior of electrical on-board system of the forklift while lifting and lowering a freight (at some load).

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



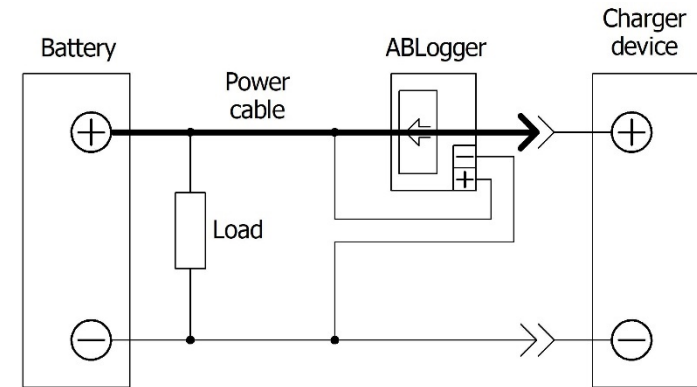
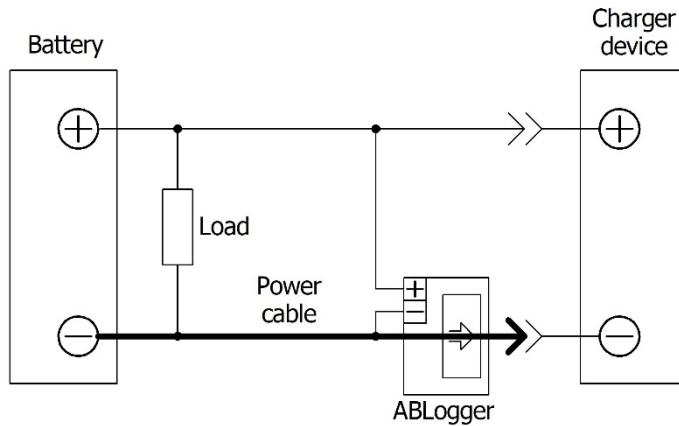
ABLogger can also be used for diagnostics of battery charger devices (even with a load)

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



Connection for checking charging modes

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



Application for charger device diagnostics:

Pallet jack's 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.

