Modular
Battery Solutions

MANUAL Configuration GUI

Confidential

Version 20210304

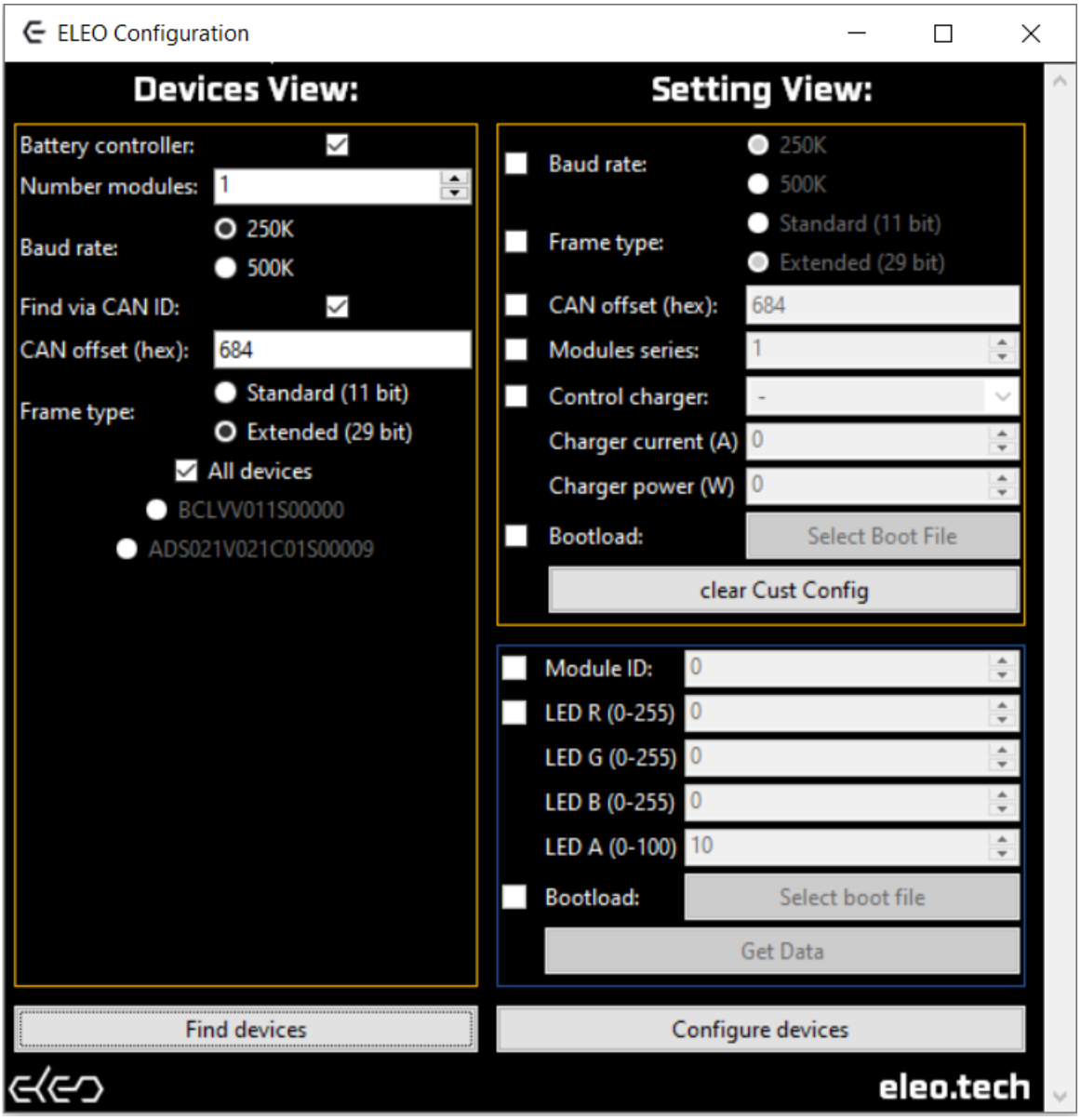
Prerequisites

The GUI has been tested on a windows 8.1 machine and windows 10 machine. The program assumes there is a **Peak CAN dongle** connected for communication with the batteries.

Before being able to use the GUI, certain Peak drivers will need to be placed in the respective folder on the machine running the GUI. Information regarding this can be read in the Installation_details.txt document.

After this the ELEO_Configuration_V_x_x_x_Customer.exe GUI can be started.

GUI overview



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Using the GUI

Finding modules

Before initializing the batteries, the batteries need to be found. There are 2 ways of searching for batteries connected on the CAN bus.

1. The easiest way to find modules if the CAN ID is known to:
   In the devices view specify if a battery controller is present and the number of modules, select the baud rate of the modules. Press the “Find via CAN ID” check box, enter the CANOFFSET ID (in hex, see CAN Mapping) and frame type, finally press the find devices button.
   After a short delay a list of battery controller and module serial numbers should appear. If not all the battery modules are found or another error occurred, an error message will be displayed.
2. If the CAN ID is not known modules can be found after doing a power cycle. This method only works when being directly connected to the battery CAN bus.
   Make sure the batteries are powered off, specify if a battery controller is present and the number of modules in the devices view, select the baud rate of the modules, make sure “Find via CAN ID” is unselected, press the find modules , quickly power the battery modules (window of 3 seconds).
   After a short delay a list of battery IDs should appear. If not all the battery modules are found or another error occurred, an error message will be displayed.

Configuration options

Once all devices have been found, either all devices can be configured at once or a single module can be configured by unselecting the checkbox “All devices” and selecting one of the devices. Depending on this choice different configuration options become available in the “Setting view”.

By selecting the checkbox in front of a configuration parameter in the setting view the specified configuration parameter can be updated or left unchanged. Multiple parameters can be updated at once. It is important to note that when new software needs to be uploaded, then this should be the only configuration active.

When all the correct configuration parameters have been selected the “Configure modules” button can be pressed. This will update the configuration parameters to the selected modules. In the terminal the progress of updating can be seen.

All modules

By selecting the “All devices” checkbox the following parameters can be configured.

- Baud rate, the baud rate can be set to 250kB or 500kB by pressing the respective radio button.
- Frame type, either the standard 11 bit frame type can be used or the extended 29 bit frame type can be selected by selecting the respective radio button.

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- CAN offset (hex), the CAN offset can be set. The CAN offset will correspond to the CANOFFSET in the CAN mapping and subsequent CAN IDs will be automatically assigned dependent on the number of devices that are being configured.
- Modules series, determines how many modules are electrically positioned in series. Depending on this configuration different current limits and charging currents are set. The number of modules in parallel is automatically assumed from the number of modules in series and the total number of modules.
- Control charger, by selecting the Control Charger checkbox a TC charger, Delta-Q or Zivan charger can be controlled by the battery pack itself. In order to control the charging, the battery pack needs to know the maximum power and current that the charger can provide. The batteries will then determine the charging current and voltage based on number of modules connected, the configuration of the modules series setting, the max power of the charger, the max current of the charger and the maximum current the batteries can handle during charging. If the battery pack should not operate a charger the no charger option "-" should be selected instead. In this case the current and power do not have to be set.
- Bootload, if a new module software update is required the new software can be flashed by using the GUI. First of all, a file has to be selected using the "Select boot file" button. This will open a file explorer in which the .bin file to upload, can be selected. Once the file is selected, the modules can be configured. A pop up will show that the process should **not** be aborted. This pop up has to first be acknowledged by pressing "ok". The modules will then start booting new software and the progress can be seen in the terminal. Note that this process can take several minutes for multiple modules. The modules will be updated using BOOT_RX and BOOT_TX CAN IDs (see CAN mapping). Make sure no other CAN messages are being sent on these IDs. This setting only updates software on all the battery modules. The battery controller has to be individually booted by selecting the single device option.
- Clear Cust Config, clears the customer configuration to factory settings for all devices.

Single device

By selecting a single device in the devices view, different parameters can be set.

- Module ID, the module id can be set by selecting a value with 0 being the lowest value. Typically, the module ID will be automatically set when configuring all the modules at once and thus this option should rarely be touched.
- LED, The LED of a battery or battery controller can be set using the led configuration option. Values for the RGB should be between 0 and 255. The brightness of the led can be set using the A value which is a value between 0 and 100 (this is only a temporary setting during configuration to identify a module).
- Bootload, instead of booting multiple modules at a time also a single module or battery controller can be booted. See the "all modules" section for an explanation on uploading new software.
- Error values and configuration settings stored by the module and battery controller can be retrieved by pressing the 'Get Data' button. The data values will instantly be displayed in the terminal. Additionally a file will be stored in a folder relative to the GUI location called "Logging_Data". This file contains the retrieved data for the respective module.

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