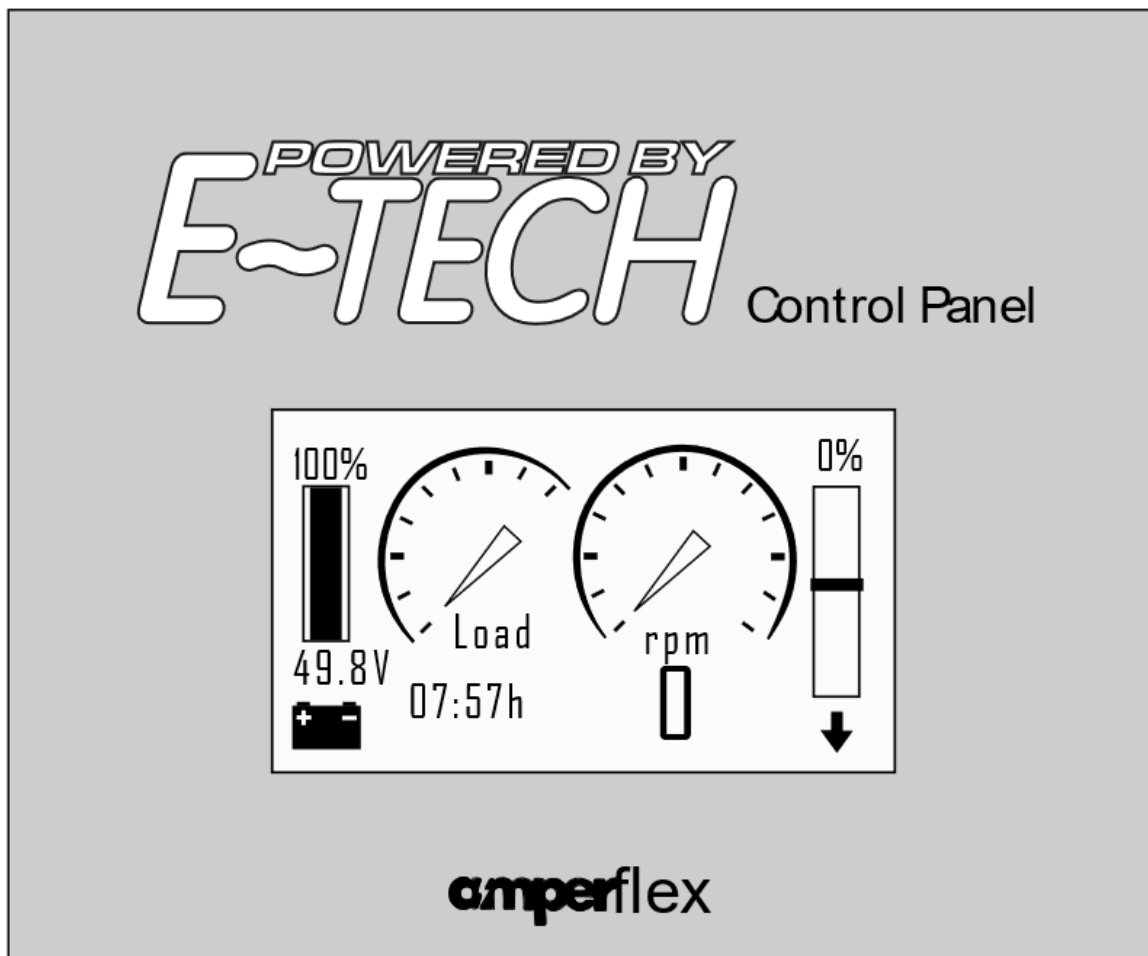


E-TECH CONTROL PANEL MANUAL



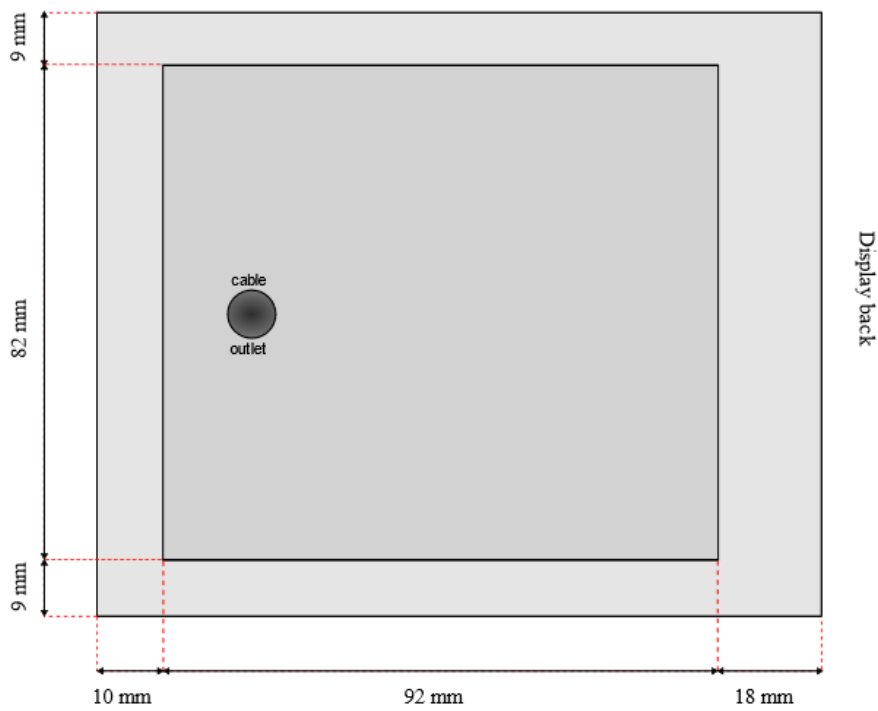
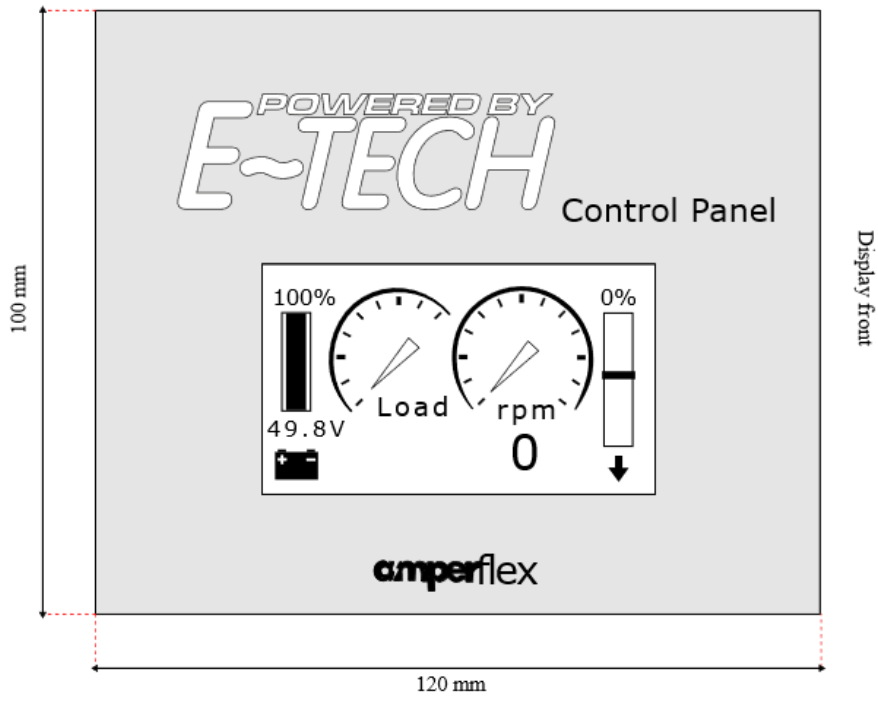
E-Tech display user manual
outboard and inboard drives
complete systems:
-Installation
-Functions
-Schemes

ELECTRIC DRIVES
E~TECH

Version: 02.003A.02.2021

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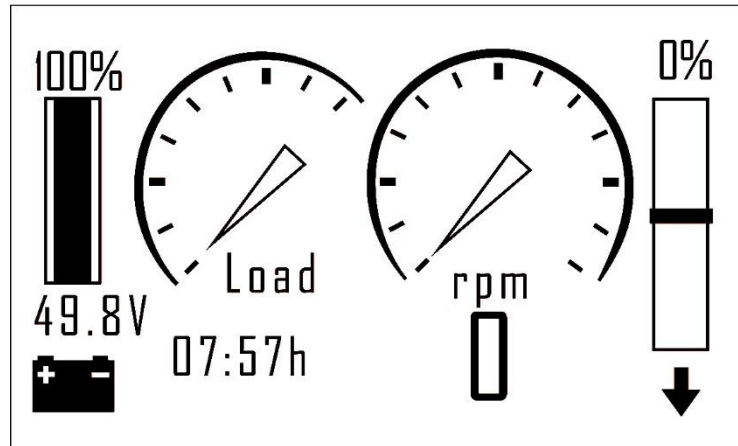
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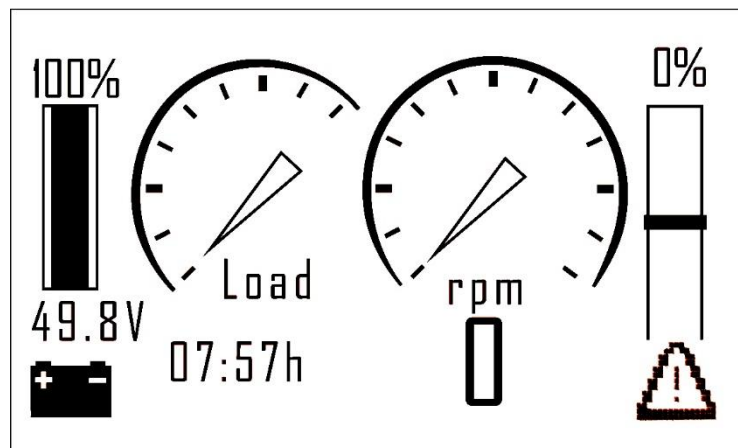
E-TECH CONTROL PANEL INFORMATION

Control panel display is responsible for showing information to the user. This device cannot change the settings of the engine, controller or any other element of the system. Follow this manual carefully to understand all the information shown on the display.

1. Display ready status / main screen view

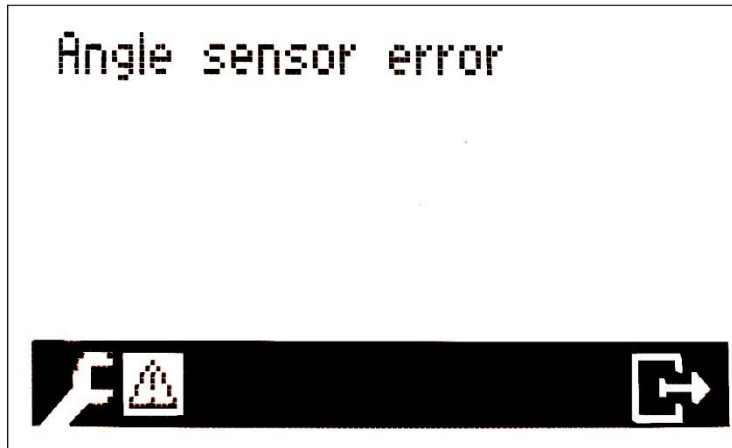


This display status shows basic information, about your E-TECH system. Bar on the left side shows the battery level and battery voltage. Bar on the right shows the throttle position. Load and Rpm indicators show current load and rpm. The time below Load indicator, indicate remaining time before fully discharging the battery (this value will change accordingly to the Load value).

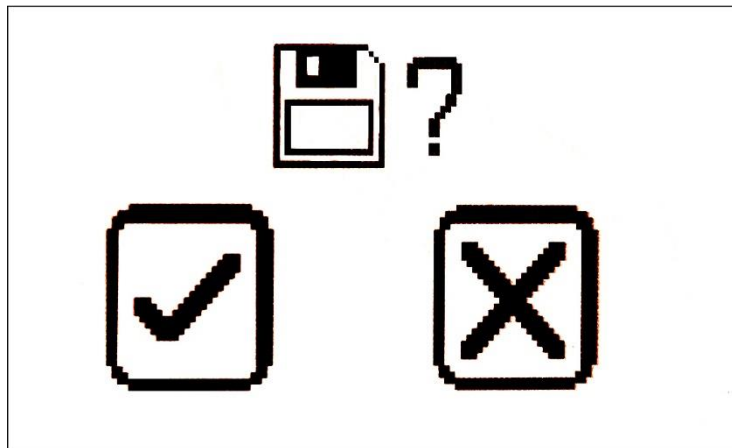


Occasionally warning triangle will be displayed, to see the warning please touch the triangle and hold it for 1 second. Warning message will be shown as shown below.

Warning message sample.



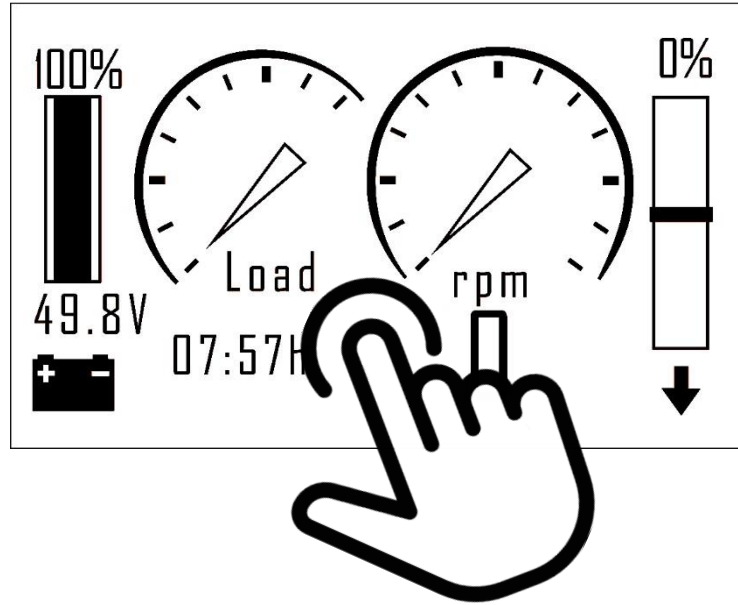
After viewing the message, the message will disappear if problem was fixed. If you cannot fix the problem by following instruction below please contact E-TECH.



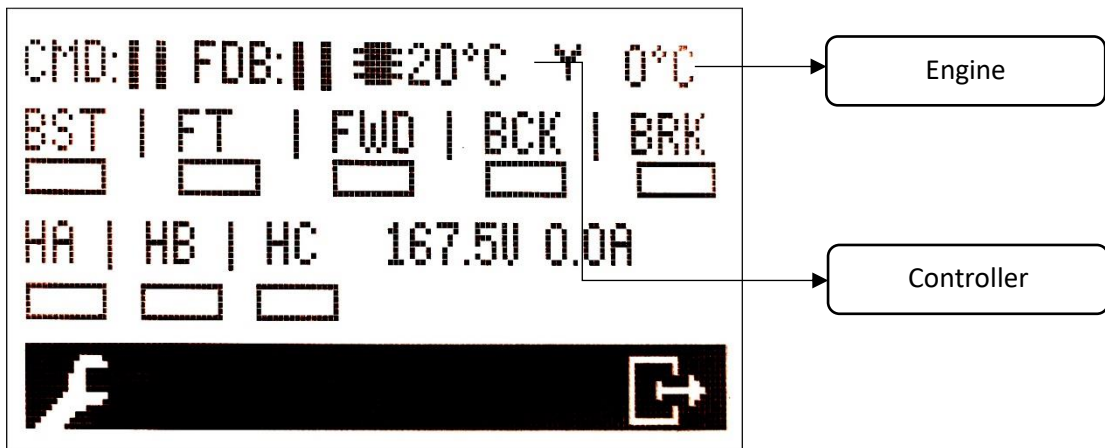
Every step can be saved or canceled. To save the settings please touch the ✓ button. To cancel touch the X button.

1.1. Display engine status

In order to get more detailed information about your E-TECH motor please open the engine status view. While on the main screen view (display ready status) touch and hold display for 1 second as shown below.



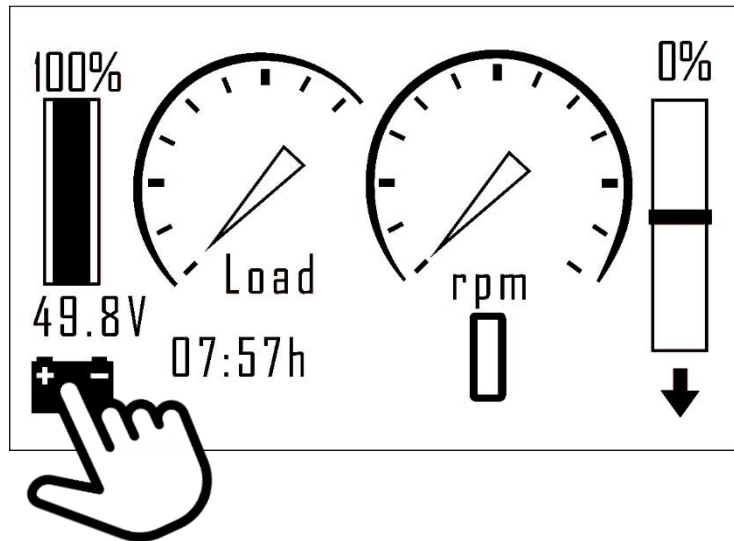
After touching the middle-bottom of the screen, a new screen will be displayed. This is the engine details view.



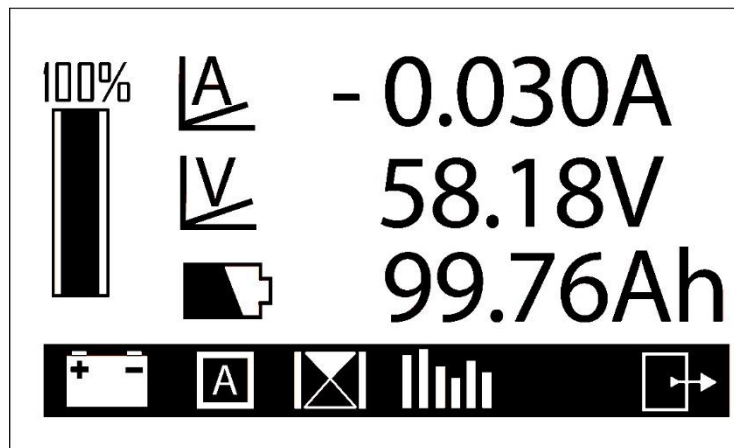
This view allows you to read current load, hall sensors positions, controller and engine temperatures. Voltage shown in this view is not the battery voltage!

1.2. Shunt details view

In order to get more detailed information about battery please open shunt details view. While on the main screen view (display ready status) touch and hold display for 1 second as shown below.



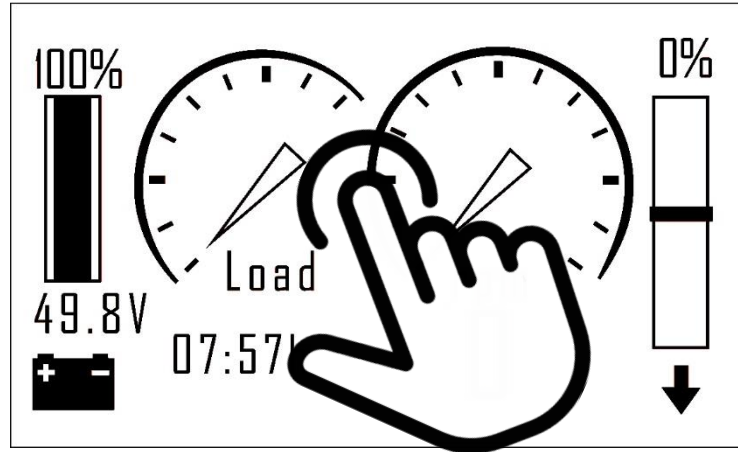
After touching the battery icon, a new screen will be displayed. This is a shunt details view.



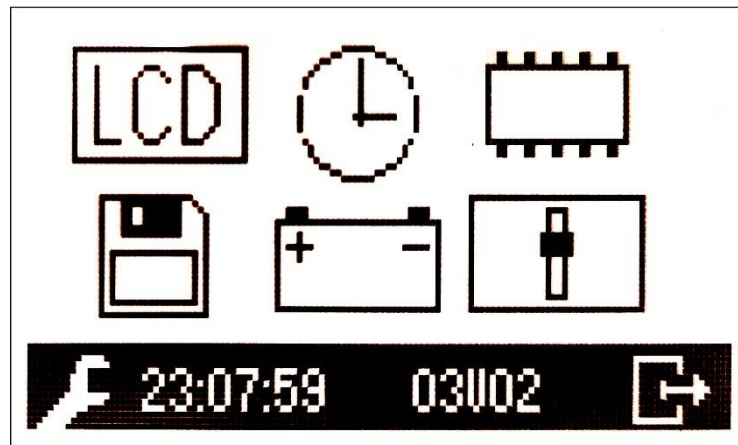
In shunt details view you can check current battery power input, battery voltage and battery capacity. If battery is charging the battery icon will change to the plug icon and current battery power input will show the charging current.

2. Display setup view

In order to open display setup view, while on the main screen view (display ready status) touch and hold the display for 5 seconds, as shown below.



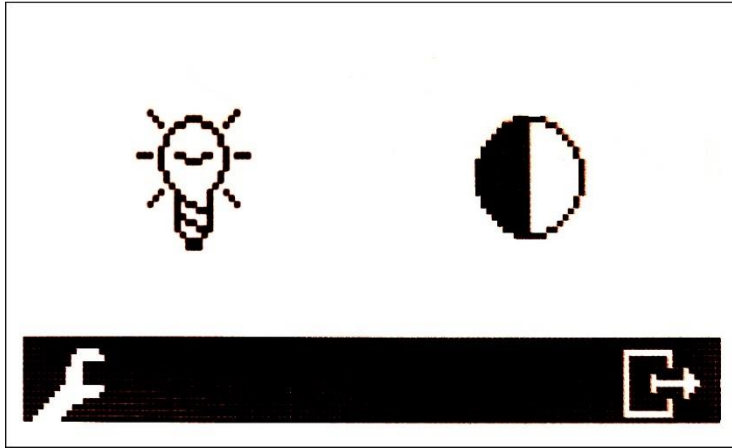
After touching the screen in the central point (while on the main screen view), a new screen will be displayed. This is a display setup view.



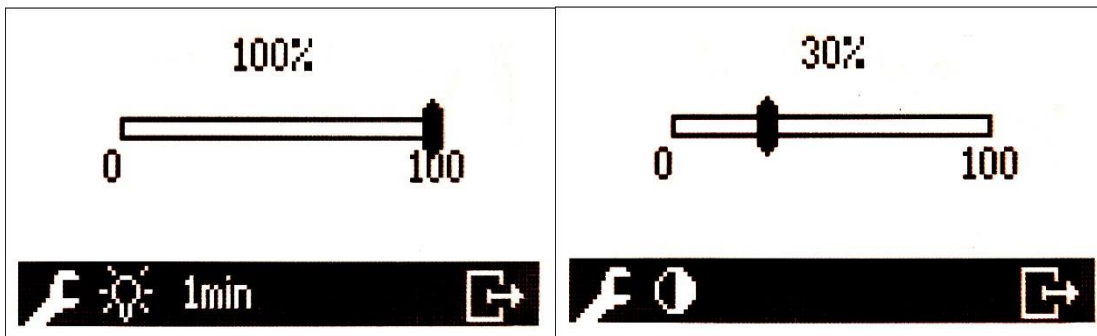
In this view you can change the display settings. More information about these function, can be found below.

2.1. LCD setup

LCD setup view can be viewed after touching LCD icon, while in **display setup view** (please use this link to navigate to [display setup view](#) chapter).



This view allows you to view the brightness and contrast settings.



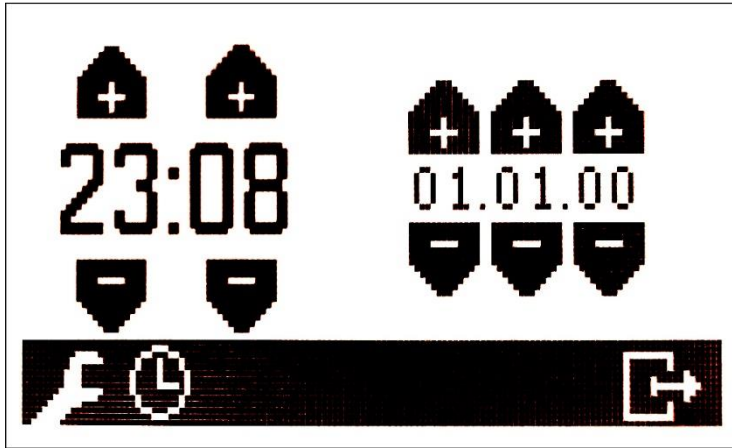
Brightness is programmed always to stay at 100% level, and it should not be changed by the user.

Contrast should be set in such a way that icons will be visible without any unwanted marks.

NOTE: Increasing contrast can decrease the response speed of the display, if that happens please lower the contrast to the level that won't affect the display's response speed.

2.2. Clock setup

Clock setup view can be viewed after touching the Clock icon, while in **display setup view** (please use this link to navigate to [display setup view](#) chapter).

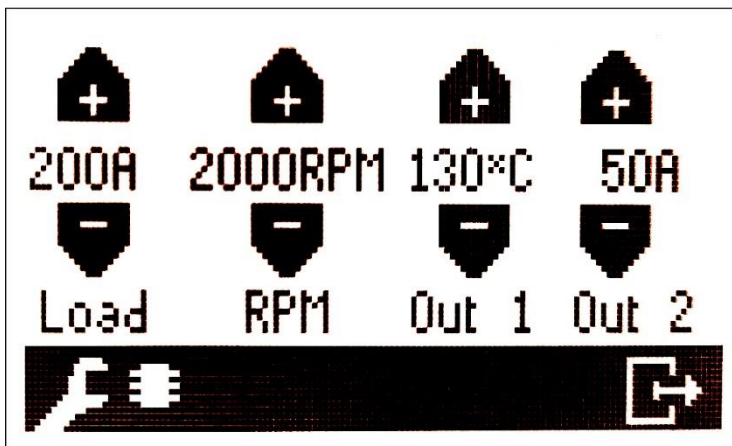


This view allows you to change the time and the date.

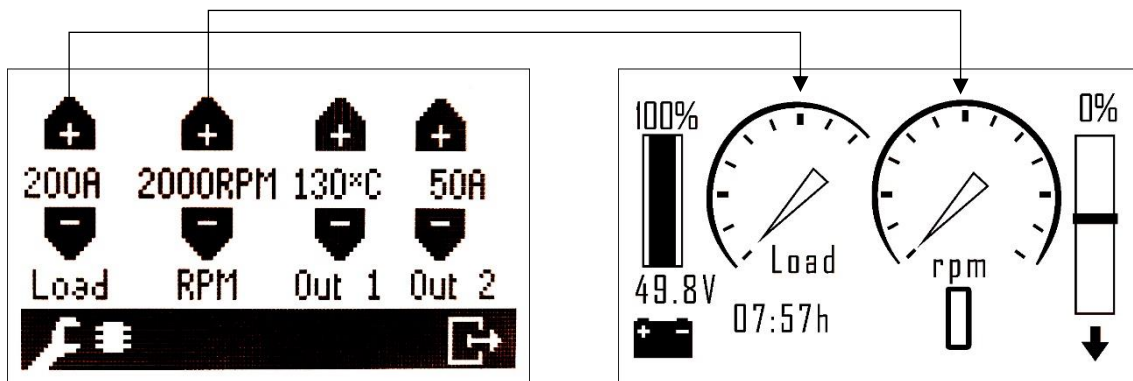
2.3. Controller setup

Controller setup view can be viewed after touching the Controller icon, while in **display setup view** (please use this link to navigate to [display setup view](#) chapter).

NOTE: this will not affect the controller setting, it will only affect the display readings from the controller and display temperature warning level. !DO NOT CHANGE ANY OF THE FOLLOWING WITHOUT CONSULTATION WITH E-TECH!



In this view you can change the display reading from the controller. Changing any of the following will affect the **main screen view** (please use this link to navigate to [Display ready status, main screen view](#) chapter).



Graphic controller setup view and its effect on main screen view .

Load is the battery maximum current value and it is responsible for adjusting the readings of Load indicator on the main screen view.

RPM is the maximum RPM value and it is responsible for the RPM indicator on the main screen view.

Out 1 is the maximum temperature for the motor. If the motor will reach 130C temp. the display will reduce motor power until motor temperature falls under 120C temp.

NOTE: Changing this parameter by the user might lead to warranty being voided. If the overtemperature error will appear, user should immediately reach the closets shore, turn the motor off and contact local E-TECH agent or contact manufacturer.

Out 2 is an empty parameter (Out 2 might serve a programmed purpose later on)

2.4. Saving setup

Save setup view can be viewed after touching a disk icon while in **display setup view** (please use this link to navigate to [display setup view](#) chapter).

This setup allows you to change the saving parameter. This allows you to change between 5 minutes and 15 minutes saving settings cycle.

5 minutes is a recommended saving cycle.

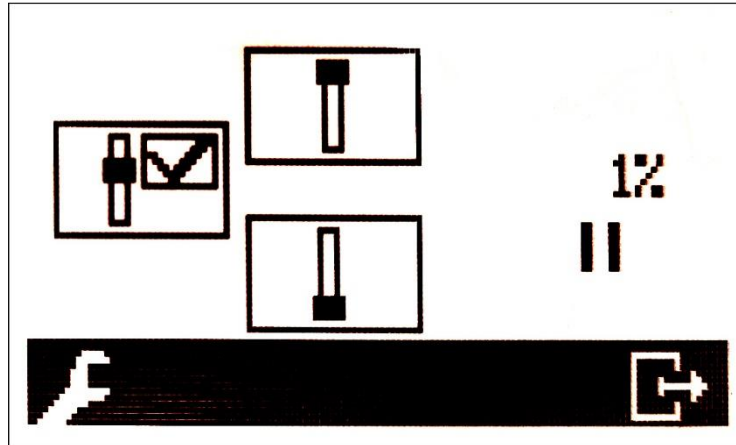
2.5. Battery

Battery setup view can be viewed after touching Battery icon while in **display setup view** (please use this link to navigate to [display setup view](#) chapter).

More on that in **Battery details view** chapter (please use this link to navigate to [Battery details view](#) chapter).

2.6. Throttle

Throttle setup view can be viewed after touching the Throttle icon while in **display setup view** (please use this link to navigate to [display setup view](#) chapter).



This is the throttle setup view. Changing this parameter will affect display recognition of the throttle position. If the left icon throttle is unmarked throttle bar icon on [display setup view](#) will not appear.

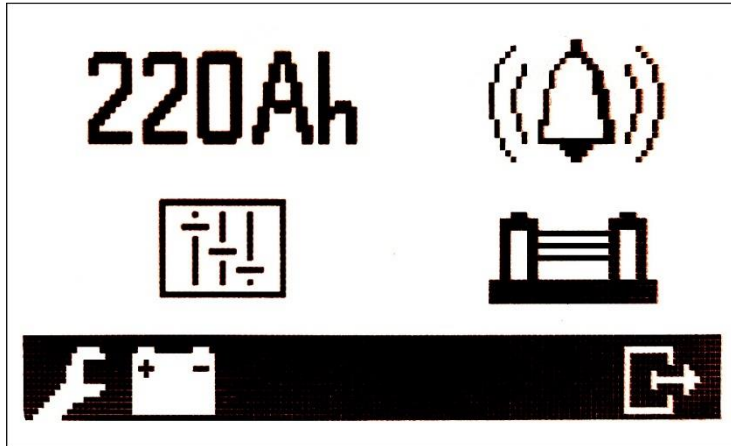
To set the maximum throttle position please move throttle into maximum position and choose one of the throttle positions shown in the display forward or backward.

Note: you need to adjust both top throttle positions: forward and backward in order to get accurate readings.

This way you can adjust display readings. If your system includes two separate motors turning in opposite directions this function will allow you to setup the display correctly.

3. Battery details view

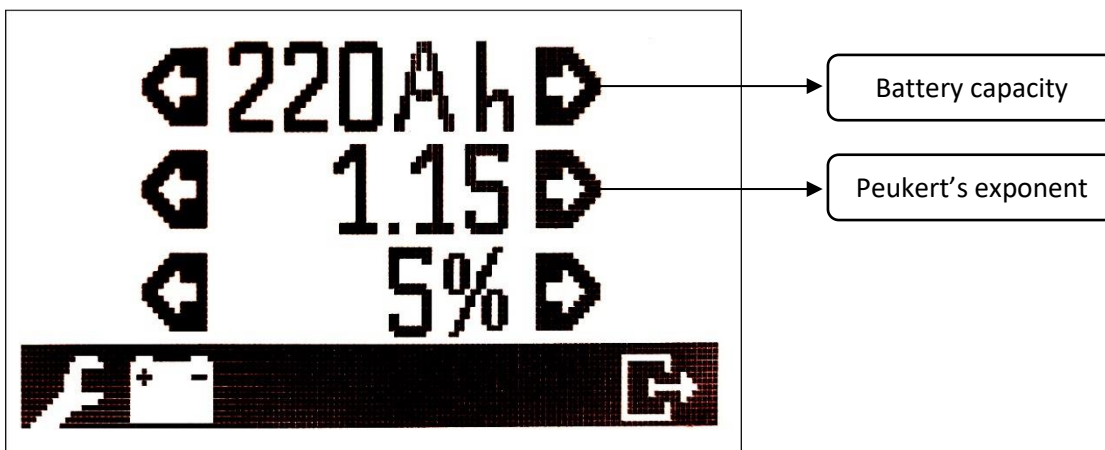
Battery details view can be viewed after touching the Battery icon while in **display setup view** (please use this link to navigate to [display setup view](#) chapter).



This is the battery details view. More information about these functions below.

3.1. Battery capacity

Battery capacity view can be viewed after touching the **220Ah** icon while in **display setup view** (please use this link to navigate to [display setup view](#) chapter or this link to navigate to [Battery details view](#) chapter).



This view allows you to setup the correct battery capacity. Please read your battery capacity on the battery label and adjust it correctly here. Other two parameters should stay on the default level.

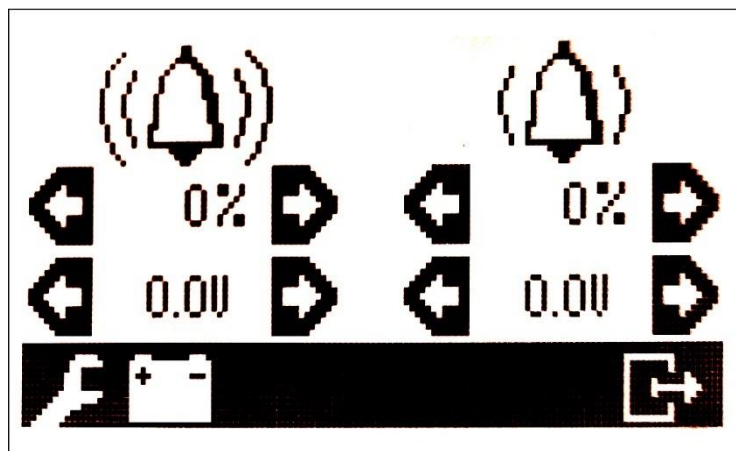
NOTE: Changing the battery capacity parameter will change the battery level readings on the display and show that battery level is at the maximum. ONLY ADJUST THIS

SETTING WHEN BATTERIES ARE FULLY CHARGED AND DISCONNECTED FROM THE CHARGER.

NOTE: AFTER UPDATING THIS PARAMETER YOU CANNOT MOVE THE THROTTLE FOR 5 OR 15 MINUTES, DEPENDING ON THE SAVING SETUP! (PLEASE NAVIGATE TO [SAVING SETUP](#)). YOU CAN STILL TURN OFF THE CONTROLLER USING IGNITION KEY.

3.2. Alarms settings

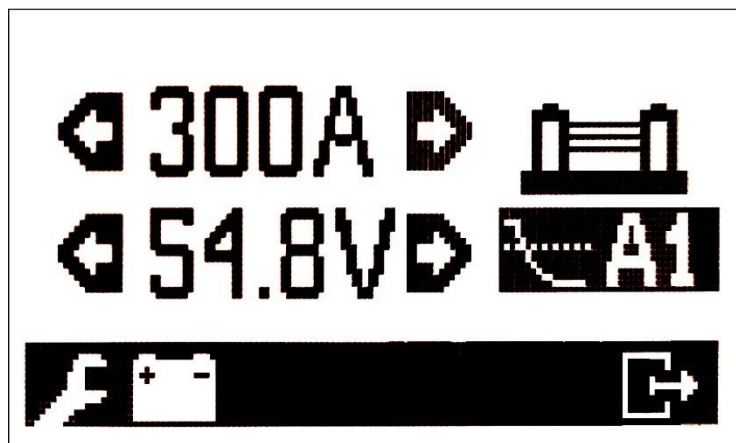
Alarms settings view can be viewed after touching the Bell icon while in **display setup view** (please use this link to navigate to [display setup view](#) chapter or this link to navigate to [Battery details view](#) chapter)



You can set up the percentage or voltage warning alert here. You can setup 2 different alarms. If the battery level will drop below alarm level, display will start beeping and warning triangle will appear on the main screen.

3.3. Battery details - shunt

Battery shunt details view can be viewed after touching the shunt icon while in **display setup view** (please use this link to navigate to [display setup view](#) chapter or this link to navigate to [Battery details view](#) chapter).



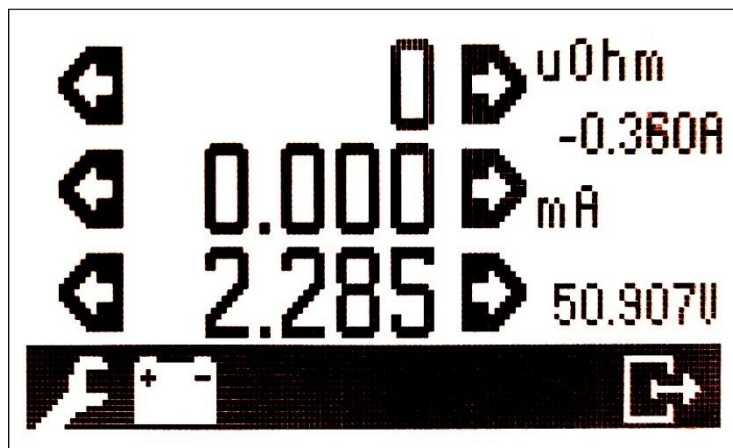
Ampere value should be adjusted accordingly to the system, do not change this value without consulting it with E-TECH. Usually ampere value is 200A for motors up to 7kW and 300A for motors 10kW and above. Other readings like internal and/or controller readings are used when your controller is not equipped with a shunt.

Note: All new controllers are equipped with shunt.

The voltage shown here is not meant for the user. This is not a battery voltage level.

3.4. Battery details – shunt calibration

Shunt calibration details view can be viewed after touching the slide switch icon while in **display setup view** (please use this link to navigate to [display setup view](#) chapter or this link to navigate to [Battery details view](#) chapter).



NOTE: BEFORE THAT STEP PLEASE FOLLOW THE INSTRUCTIONS ABOVE FOR BATTERY DETAILS – SHUNT.

First parameter is responsible for adjusting the display to achieve more accurate micro ohms readings. *This parameter shouldn't be changed without E-TECH's support. Please keep the default values.*

Second parameter is responsible for adjusting the display to achieve more accurate readings. *This parameter shouldn't be changed without E-TECH's support. Please keep the default values.*

Third parameter is responsible for adjusting the display to achieve more accurate readings. Please check the voltage on your batteries using voltmeter and adjust this parameter accordingly. To speed up the process you can use battery icon in order to add 5V every time.

4. Trouble shooting

Customers may read error codes in PC software or Android Devices. To be able to program the controller read the following instructions carefully. A Bluetooth connection is needed to download the programmers App.

For Android follow the link:

<https://kellycontroller.com/wp-content/uploads/cls/ACAduserEnglish-KLS.zip>

For PC follow the link:

<https://kellycontroller.com/wp-content/uploads/cls/Kelly-KLS-Configuration-Program.zip>

Using Kelly firmware you can read error codes. List of error codes and its meaning listed below:

1.3	● ●●●	Low voltage error	1. The controller will clear after 5 seconds if battery volts return to normal. 2. Check battery volts & recharge if required.
1.4	● ●●●●	Reserved	
2.1	●● ●	Motor did not start	Motor did not reach 25 electrical RPM within 2 seconds of start-up. Hall sensor or phase wiring problem.
2.2	●● ●●	Internal volts fault	1. Measure that B+ & PWR are correct when measured to B+ or RTN. 2. There may be excessive load on the +5V supply caused by too low value of Regen or throttle potentiometers or incorrect wiring. 3. Controller is damaged. Contact your dealer.
2.3	●● ●●●	Over temperature	The controller temperature has exceeded 100°C. The controller will be stopped but will restart when temperature falls below 80°C.
2.4	●● ●●●●	Throttle error at power-up	Throttle signal is higher than the preset “dead zone” at Power On. Fault clears when throttle is released.
3.1	●●● ●	Reserved	
3.2	●●● ●●	Internal reset	May be caused by some transient fault condition like a temporary over-current, momentarily high or low battery voltage. This can happen during normal operation.
3.3	●●● ●●●	Hall throttle is open or short-circuit	When the throttle is repaired, a restart will clear the fault.
3.4	●●● ●●●●	Angle sensor error	1. Speed sensor type error. Customers may set the correct sensor type through user program or App. Please download how to use Identification function instruction from the website (www.kellycontroller.com) 2. Incorrect wiring. 3. Speed sensor is damaged or defective. Or feedback signal is erratic.
4.1	●●●● ●	Reserved	
4.2	●●●● ●●	Reserved	
4.3	●●●● ●●●	Motor over-temperature	Motor temperature has exceeded the configured maximum. The controller will shut down until the motor temperature cools down.
4.4	●●●● ●●●●	Hall Galvanometer sensor error	1. Hall galvanometer device is damaged inside the controller. This error code is only valid for KLS-80801 controller.