TORP TC1000 CONTROLLER.

User Manual for Surron Ultra Bee

INTRODUCTION.

The TC1000 controller is compatible with:

- SurRon Light Bee/Segway X260:
  - Stock SurRon Light Bee/Segway X260 motor
  - Torp Motor TM25
  - Torp Motor TM40/TM40 PRO
  - Sotion 13kW (Hall/Encoder without PWM pin)
- SurRon Ultra Bee:
  - Stock SurRon Ultra Bee motor
  - Torp Motor TM50/TM50 Pro
  - Sotion 16kW (Hall/Encoder)
- Talaria MX3/MX4/MX5
  - Stock Talaria MX3/MX4/MX5 motor
  - Sotion 12kW (Hall/Encoder)

TC1000 controller is compatible with both versions of the stock display (L1 E & the off-road version). Both speed and the distance are displayed on it. For the additional options, like battery monitoring and settings, you will have to use your smartphone or buy a Torp Display, that is sold separately.

This is a plug&play controller that needs no previous knowledge of electronics and programming for installation and setup. Everything needed for a successful installation is included in the box.

IMPORTANT:
While Torp products are designed for ease of installation, we highly recommend enlisting the services of a qualified professional for installation. This ensures that all components are connected correctly and functioning as intended. Improper installation may lead to damage to the product and could result in the voiding of the warranty. Ensuring a professional installation not only safeguards the integrity of the product but also maintains your warranty coverage.

Torp controllers and engines are non-stock SurRon/Talaria/Segway parts. Installing non-stock parts on your motorcycle will transform it from a stock to a non-stock bike. This modification may render the motorcycle non-compliant with road safety regulations, potentially making it illegal for street use. It's your responsibility to be aware of and adhere to all relevant local laws and regulations. Modifications may also affect insurance coverage and warranties.

Keep in mind that Torp d.o.o. is not in any way responsible for any damages or injuries that might occur during the use of their products. Also, Torp d.o.o. is not liable for any legal implications regarding the use of our products on your vehicle.

THE BOX CONSISTS OF:

- TC1000 controller
- Wiring harness
- 5 phase screws with washers
- 2 hex keys and 12 bolts
- 6 stickers
- Heat sink
- Short instructions

Use only tools and screws that came with the controller. **Using the tools and screws that were not included in the parcel, not following these instructions, or not using the circuit breaker, can cause serious damage to you and your bike, and voids your 2-year warranty.**

THE SILVER STICKER

On the side of each Torp controller box and on the controller itself, you'll find a silver sticker displaying essential identification details:

- Serial Number
- Bluetooth Password
- Bluetooth Name
- Model
- Hardware Version

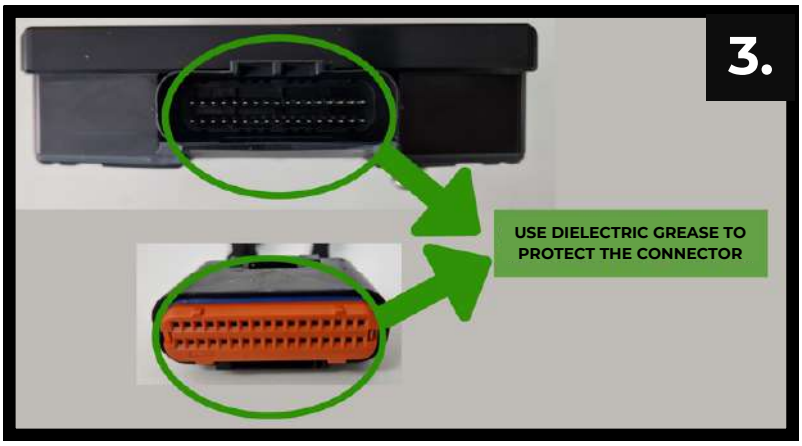
You'll need the Bluetooth password to calibrate your controller before the first use, and the serial number to access support from the Torp team. Please ensure that you do not remove the sticker from the controller, and keep this information securely stored.

All the settings and diagnostics are managed through an intuitive and easy-to-use smartphone app for Android and iOS. The users can use their smartphone as a display during the rides and to set up all the controller's features through the app.

INSTALLATION.

Before starting with the installation unplug the battery.

Now you can start removing the stock SurRon controller and lower the skid-plate that covers the wiring.



Step 3:
Before installing the controller on the bike, apply dielectric grease to the main connector for additional protection from dirt and moisture.
See next page for instructions.

Don’t apply dielectric grease on the terminals or other parts of controller!

HOW TO APPLY THE DIELECTRIC GREASE TO THE MAIN CONNECTOR.

1.

2. SQUEEZE ALL THE DIELECTRIC GREASE FROM THE PACKAGE AND SPREAD IT EVENLY ON THE PINS

3.

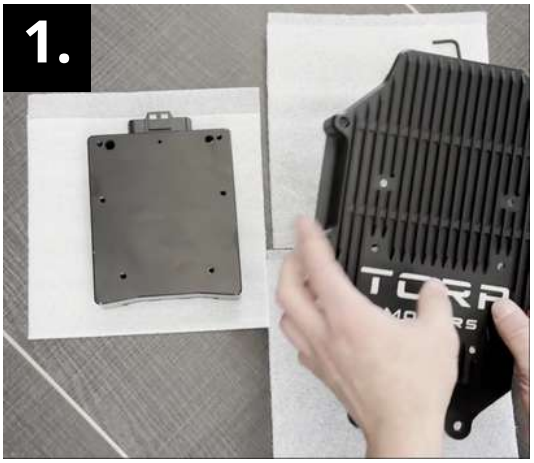
MAKE SURE THAT THE CONNECTOR IS PRESSED UNTIL YOU HEAR A CLICK!

If you ever need to unplug the main connector in the future (and dielectric grease was previously applied) first clean off the old grease with alcohol contact cleaner and once dry, reapply the dielectric grease.

INSTALLATION.

FOR MOUNTING THE CONTROLLER ON THE HEAT SINK
you will need:
- 6 M5x12 bolts
- A smaller hex key

STEP 1:
Rotate the controller so its front side faces down, and then position the heat sink on the back side.

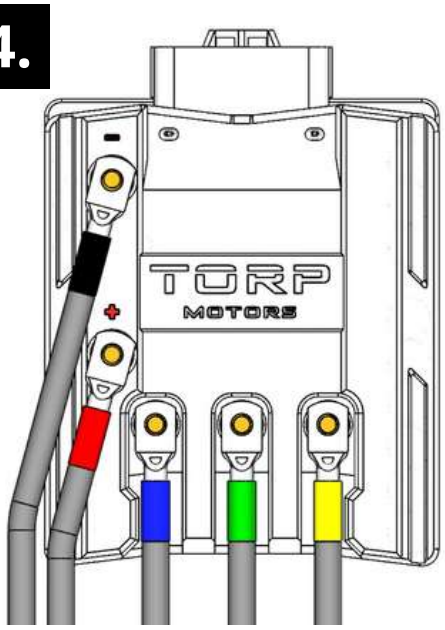


STEP 2:
Insert each bolt in one hole and fasten them by using a smaller hex key.

STEP 3:

There are 5 bolts with washers already on the controller. Remove them from the controller and start connecting the controller to the phase motor wires.

4.



DON`T MESS THIS ONE UP!

STEP 4:

Connect the power and phase motor wires as shown in the picture using the bolts with washers that you have removed from the controller in the previous step:

Power Wires:

-The red battery wire to the positive (+) electrode

-The black battery wire to the negative (-) electrode

Phase Motor Wires:

-The Blue motor wire to the letter B

-The Green motor wire to the letter G

-The Yellow motor wire to the letter Y

STEP 5:

Use a larger hex key to fasten the bolts with washers. **The Torque that should be used is between 4 and 4.5 Nm! Only tools included in the package must be used for installation! The use of the electric fasteners is not allowed as they can damage the controller.**

Any damage caused by not tigtening the bolts enough or exceeding the max torque of 4.5 Nm and/or using tools different from the ones included in the package, is not covered by warranty!

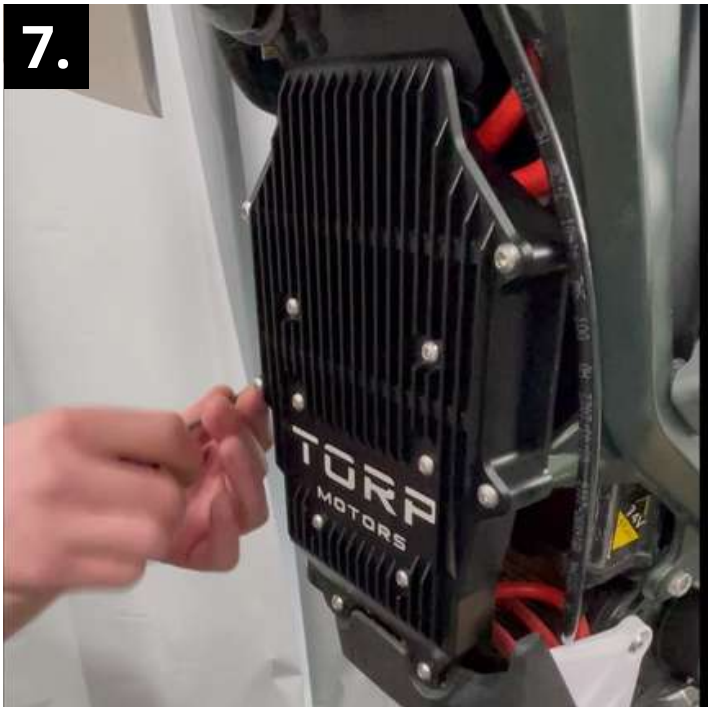
STEP 6:

Connect three smaller connectors to the bike's wiring, in the same way the stock controller has been connected. Click sound indicates secure connection.

There are also 2 more connectors with a cap on it, to which the Torp Display and Thumb throttle are connected.

STEP 7:
Once everything is connected, find the best way to fasten the lid back to the bike using:

- Large hex key
- 4 M6x40 (2 go on each side)
- 2 M6x12 (bottom two holes)



STEP 8:
Put the battery back to the frame.

CONNECT THE CONTROLLER TO THE APP for further setup.

HOW TO CONNECT?

To connect the TC1000 controller with the Torp Controller App, first go to the Google Play Store (Android) or AppStore (IOS) and download the App to your smartphone.

-Allow the App to access the phone's location, photos and media and accept the Terms & Conditions.

-Put the key into the ignition and turn on your bike.

-The App will automatically detect your controller.

-Choose your controller from the list. The Bluetooth ID can be found on the label on the side of the controller.

-Now you are connected and can start setting up your controller.

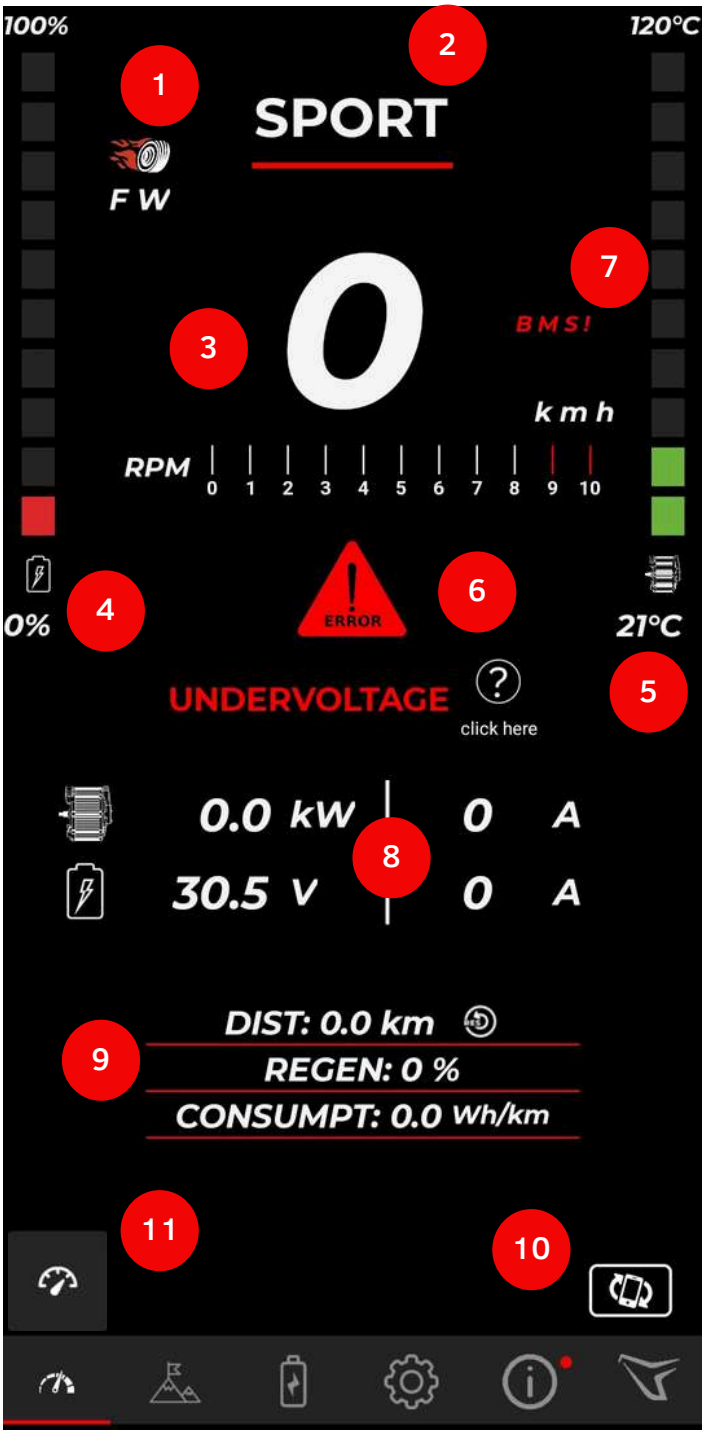
IMPORTANT: After the installation make sure to calibrate the throttle and motor! Go to the 5th screen of the Torp App and click the CALIBRATION button. Then follow the setup Wizard. CALIBRATION must be repeated after each firmware update!

We suggest you always ride with the app set to the 1s screen. This is how the Torp Controller App will be able to recognize potential errors which will help our support team with detecting and solving any problems that might occur with the controller.

THE APP OVERVIEW.

1st Screen: GAUGE

The TC1000 controller is compatible with the stock SurRon display, where you will be able to track your speed and distance. However, we recommend using your smartphone as the display during the rides.
The first screen serves as a gauge, showing all your riding information in real time. Here are also displayed all the potential errors and warnings.



1-Field Weakening: Field Weakening is displayed while riding.
2-Current Mode (Eco/Sport/Daily): Shows the active ride mode. To switch between modes, go to Settings, set the Mode Button to "Display," and tap on the mode text to toggle between modes.
3-Speed and Rotation per Minute (RPM): Check how fast you go. Speed is displayed either in kmh or mph. Use the 5th screen of the app to set the preferred unit.
4-State of Charge (SOC): Check the state of charge of your battery.
5 - Motor Temperature: Monitors the current temperature of your motor.
6-Warnings & Errors: All Warnings and Errors are displayed here.
7-BMS!: There is a problem with BMS communication. Please check the wiring!
8-Motor and Battery: Real-time display of motor power, motor current, battery voltage, and battery current.
9-Predict your Trip: Check the distance you have passed, the amount of regenerated energy, and the consumption of the battery. You can plan your trip based on this information.
10-Layout-Press this button to change the layout of the first screen of the App. You can choose between the portrait and landscape layout.
11-Original UI Design: Click to switch to the original design of the first screen of the Torp App.

THE LIST OF WARNINGS AND ERRORS

Connect to the controller with the Torp App to see the Warning and Error messages on the 1st screen in the app.

-KICKSTAND: Your kickstand is lowered. Lift it to start riding.
-CRASH SENSOR: Crash sensor activates in case of a fall. Turn the bike off and turn it back on after a few seconds to continue riding.

LIMIT:

-TEMP CONTROLLER: The temperature of the controller has reached the top limit value. The power will be gradually reduced.
-TEMP MOTOR: The temperature of the motor is rising. To prevent overheating, the power will be gradually reduced. The motor temperature limit is set in the “Motor Temp Cuttoff” settings on the "Settings" screen.
-MOTOR TEMP SENSOR: Motor temperature sensor is not connected. Power is limited.
-LOW VOLTAGE: The battery is almost drained or there is a voltage sag due to the acceleration. The power will be gradually reduced.
-LOW REGEN: The battery is nearly full. The regen will be reduced.
-BATTERY TEMP: Battery temperature has reached limit values so the power will be reduced.
-BMS TEMP: Discharge mosfets in BMS have overheated. Power will be gradually reduced.

CUTOFF:

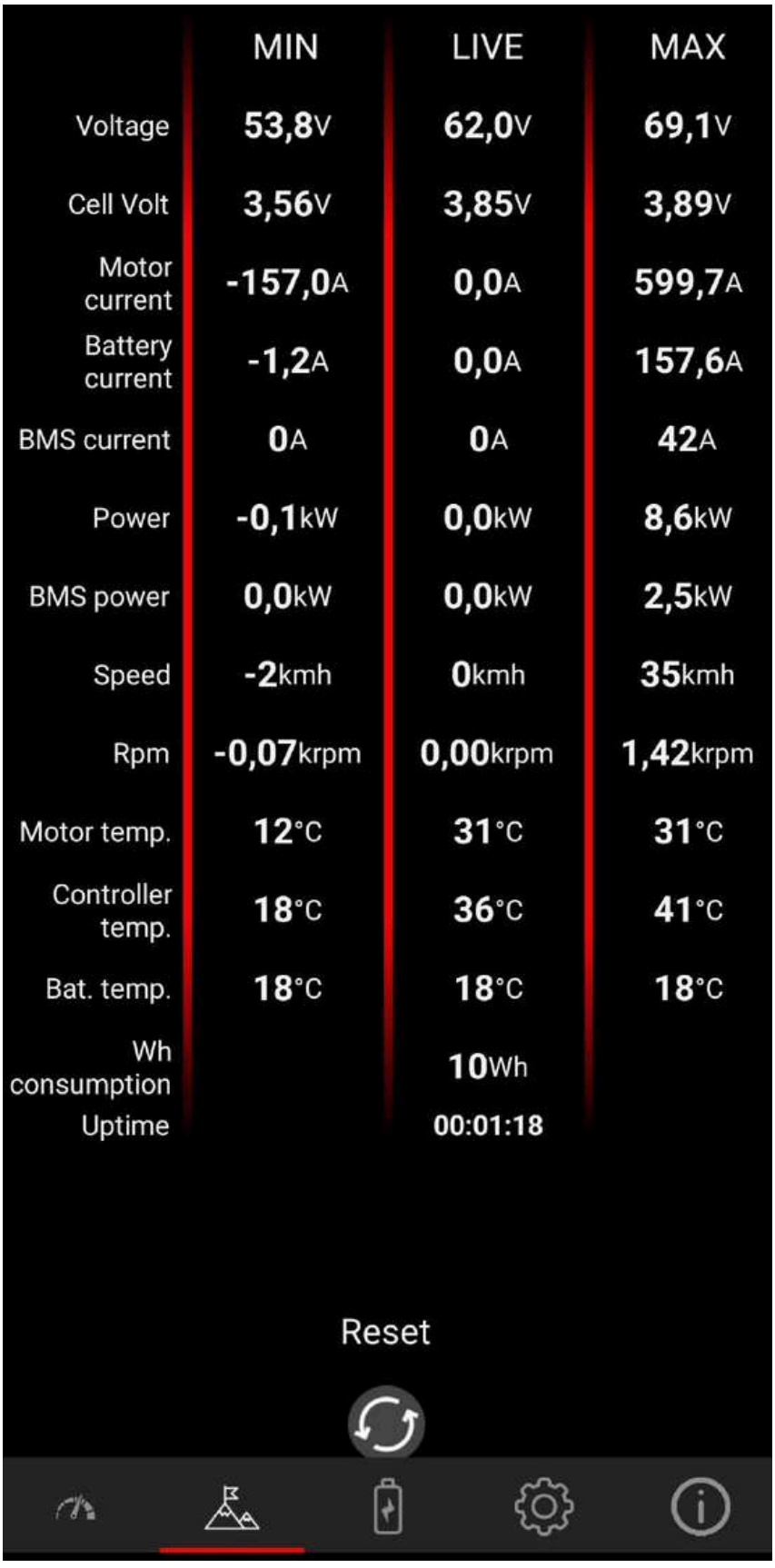
-CUTOFF LOW VOLTAGE: The battery is completely drained and the bike will not start. You can set the cutoff value in Voltage Min setting in the App (3rd Screen). Charge the battery to continue riding.

-OVERVOLTAGE: Battery voltage is above 90V.
-UNDERVOLTAGE: Battery voltage dropped under the values set in the controller`s settings. Charge the battery.
-OVERCURRENT: Motor Current is above permitted limit.
-CONTROLLER OVERTEMP: Controller has overheated. Wait for it to cool down to continue riding.
-MOTOR OVERTEMP: Motor has overheated. Wait for it to cool down to continue riding.
-PHASE FET: Controller`s phase is in short-circuit. Contact the manufacturer.
-HALL SENSOR: Motor Hall Sensor connector is not connected, or there is a problem with the Hall Sensor itself. Check the wiring.
-THROTTLE PROBLEM: The problem with a throttle wiring was detected, which has been solved in the meantime. Turn your bike off and on again to continue riding.
-THROTTLE #1: Throttle ADC rises too fast. Throttle plus(+) short on gnd(-).
-THROTTLE #2: Throttle not connected. Probably throttle plus(+) wire is broken.
-THROTTLE #3: Throttle plus(+) and gnd(-) shorted.
-THROTTLE #4: Throttle gnd(-) not connected or broken.
-THROTTLE #5: Throttle plus(+) shorted on signal.

-**CUTOFF THROTTLE:** The throttle has been activated while the bike is being turned on.
-1st solution: Release the throttle when turning on the bike;
-2nd solution: Re-calibrate the throttle; (see the "Setting up the Throttle" section of this document);
-3rd solution: Check the wiring.
-**CUTOFF BATTERY TEMP: The battery** has overheated. The bike will stop until it cools down.
-**HALL DISCONNECTED:** The Hall sensor disconnected during the ride. Check the wiring.
-**CUTOFF BMS TEMP:** The BMS mosfet temperature has reached the limit. The bike will stop until it cools down.
-WATER IN CONNECTOR (works with HW version 1.4 and higher): Water entered the main connector. Turn off the bike immediately, disconnect the main connector, and dry it out. Contact support team.

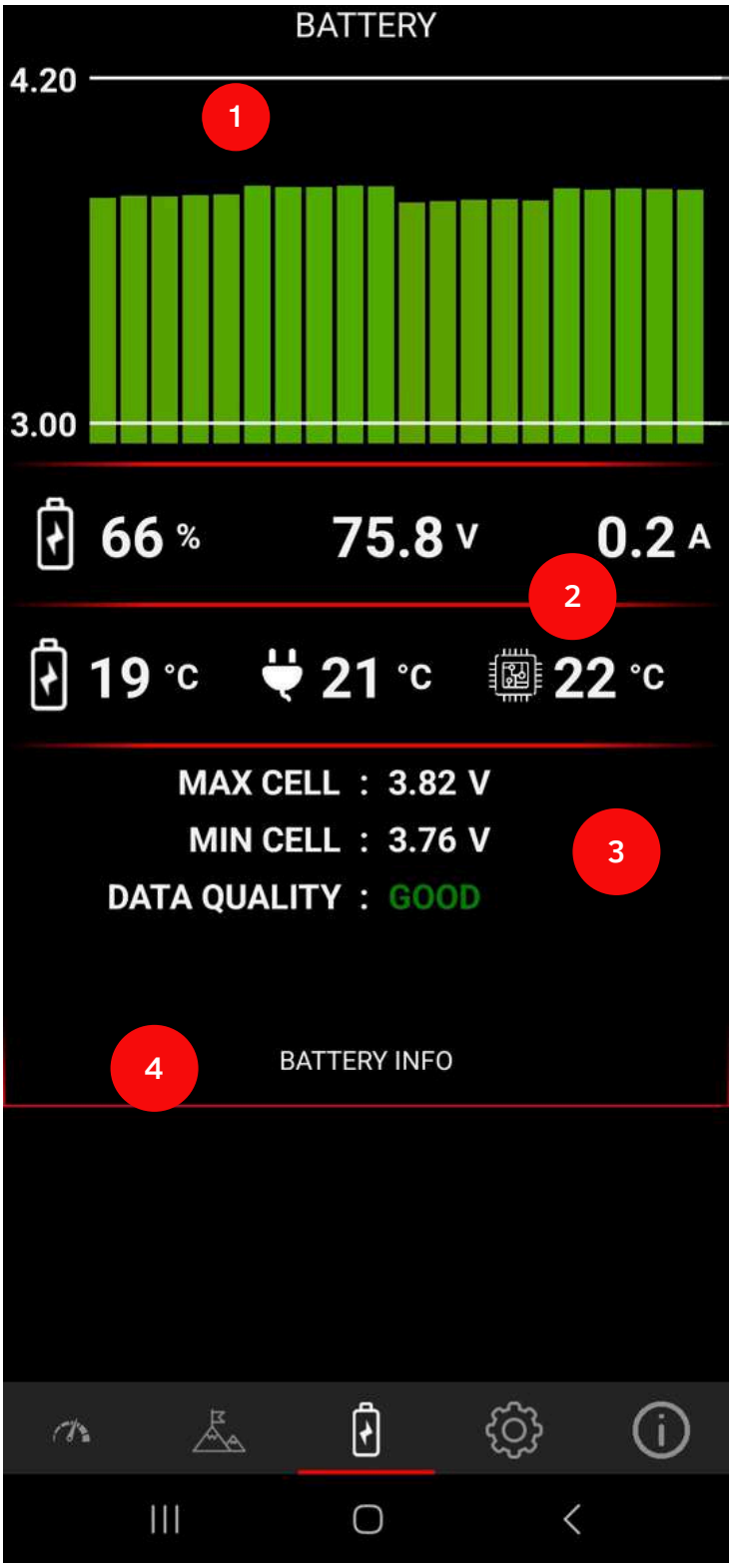
2nd Screen: PEAKS

Check all the minimal and maximal values that occurred during your ride.



3rd Screen: BATTERY INFO

You will be able to see all the functions of this screen only with the stock SurRon battery and stock BMS. It also works with the bypassed battery but with a limited display of data (battery current, cycles, and SOH will not be displayed correctly).
Use this screen to determine the health of your stock SurRon battery. The screen shows you the state of health of each of the battery cells and can serve as a useful tool to check the health of the battery or to determine the cause of battery malfunctions.



1 - Battery Cell Voltage: Check the voltage of each battery cell. The more the columns are aligned, the healthier the battery.

2- Battery Overview: Check the SOC, battery voltage, battery current, battery temperature, charging MOSFET temperature, and discharging MOSFET temperature in real-time.

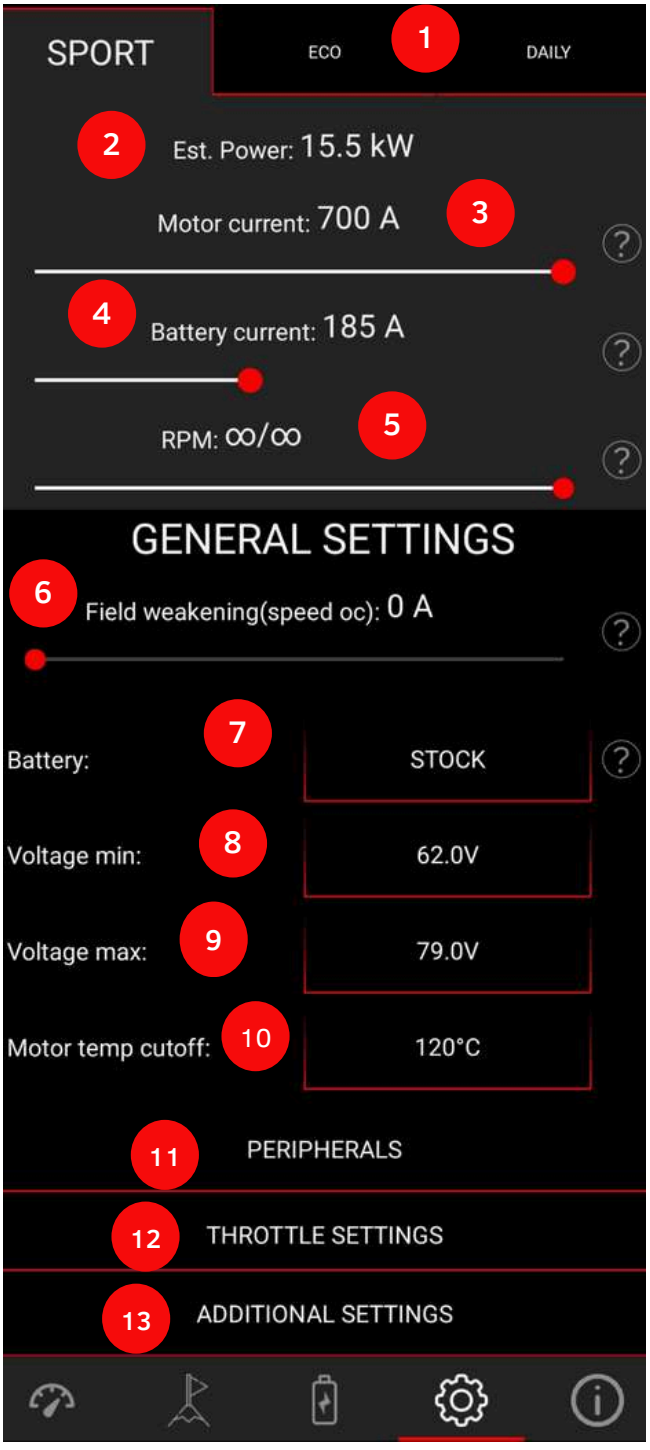
3-Min & Max Battery Cell Voltage: Minimal and maximal battery cell voltage. Lesser the difference, healthier the battery. Data quality indicates the quality of the BMS communication.

4-Battery Info: Check the current stats of battery cells, charge cycles, battery estimated mileage, including errors, warnings, battery cell temperature,...

4th Screen: CONTROLLER SETTINGS

Before your first ride you should tune your controller according to your riding preferences and the battery you are using.
The app allows the user to enter certain values that can potentially harm the battery, motor or other parts. We suggest you to use the settings that have been preset in the app by default.

Note that the TC1000 controller is not an original SurRon/Segway part, therefore you are using it strictly at your own risk. The damages that are caused by using the controller are solely your responsibility.



1-Sport / Eco /Daily Mode: You can switch between modes using Torp Display or by pressing the mode button on the handlebar of your bike.

Set the parameters in a tab according to the chosen mode (Sport/Eco/Daily).

2-Estimated Power: Approximate power estimate sets itself automatically, according to the chosen settings. It is calculated by taking into account the battery current, motor current, and voltage (voltage is set according to the battery type). For exact values check the 2nd screen.

3-Motor Current: Motor Current affects the torque of the motor. It is most noticeable at a lower speed.

4-Battery Current: Battery Current affects the maximum power. It also affects torque, which is most noticeable at medium and higher speeds.

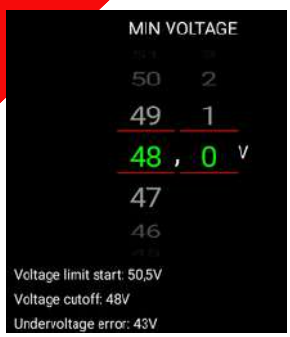
5-RPM/Speed: Set the maximum speed limit. In case you choose ∞ your speed is not limited.

6-Field Weakening: This option will increase the top speed of your bike, but it comes with its own set of advantages and disadvantages:

- Advantages: more speed, more torque on high speed
- Disadvantages: less range, increased motor temperature.

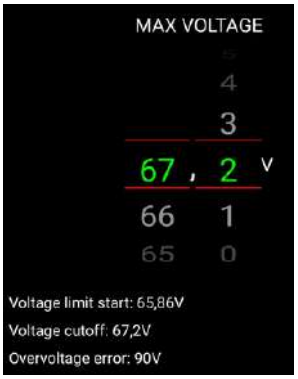
We recommend setting the current to below 50 A to minimize potential drawbacks.
Setting the Field Weakening to red-zone values can lead to overheating and potential motor failure, so please adjust carefully.

7-Battery Type: TC1000 controller is compatible with:
-stock Surron Ultra Bee
-custom 72V battery and,
-custom 80V battery
Select the battery you use and the Controller will set the minimal and maximal voltage to the optimal values. The selected Battery Type affects the limits that can be set within the App. The controller is compatible with a max 22S battery setup.



8-Min Voltage: Minimal and maximal voltages are set automatically, according to the battery type you choose from the menu above. You can also customize the voltage values for each Battery Type, but we recommend you use the controller within the limits of preset values.
Customize the settings carefully: setting the “Min Voltage” too low may cause the battery to over-discharge. As the battery voltage reaches the “Voltage Cutoff” value, power output will gradually decrease. When voltage falls between the “Voltage Limit Start” and “Voltage Cutoff” thresholds, power will be restricted. If the voltage continues to drop, falling between the “Voltage Cutoff” and “Undervoltage Error” levels, the bike will stop, and a "Voltage Cutoff" warning will display. Should the voltage fall below the "Undervoltage Error" threshold, an "Undervoltage Error" message will appear on the app's main screen, and the bike will be unable to operate.

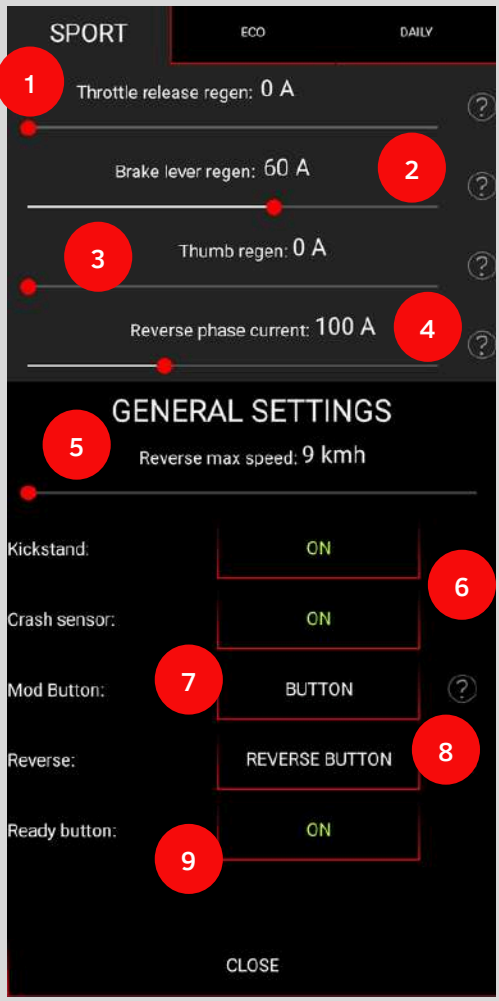
9-Max Voltage: Max Voltage affects the regen. If the voltage of the battery is between the "Voltage limit start" value and the "Voltage cutoff" value, the regen is reduced. If the voltage of the battery is above the "Voltage cutoff", the regen is automatically disabled. If the battery voltage is above 90V, the "Overvoltage error" is displayed and the bike stops.



10 - Motor Temperature Cutoff: Set the maximum temperature at which you want the controller to begin limiting power to protect the motor. The controller will gradually reduce power as the motor approaches this maximum temperature, with the threshold temperature displayed at the bottom of the screen. Note that if you enable the “Field Weakening” option, power limiting will start 10°C earlier than with "Field Weakening" disabled. Setting the motor temperature to red-zone values can lead to overheating and potential motor failure, so please adjust carefully.

11-Subscreen: PERIPHERALS

Here you will find the settings for Throttle release regen, Brake lever regen, Thumb regen, and Reverse, as well as other stock SurRon Ultra Bee features (Kickstand, Crash sensor, Mode button and Ready button).



1-Throttle release regen: It defines the strength of the regenerative braking that is activated when the throttle is released. With this setting a small dead zone is applied to the throttle.

2-Brake lever regen: It adjusts the strength of the regen, which is activated when the brake is pressed. This option can only be used on stock brakes that have a sensor.

3-Thumb regen: Adjust the strength of the regen that is activated when the thumb throttle is pressed.

4-Reverse phase current: Adjust the strength of the torque when you go in reverse.

5-Reverse max. speed: Use the slider to set the max reverse speed. This setting is the same for all three modes.

6-Kickstand&Crash sensor: Use these options to activate or deactivate Kickstand and Crash sensors.

7-Mode button: Select how you want the mode button to be activated:

-NONE: No switching between modes. Sport mode is always active

-BUTTON: Use the stock mode button to switch between modes

-TORP DISPLAY: Use the Torp display or the first screen of the Torp App to switch between modes. To change modes, press the "M" button on the display or tap the mode text at the top of the 1st screen of the Torp App. The Daily mode can be activated using this option.

8-Reverse: Use different options to activate the reverse option:

-REVERSE BUTTON: Use the stock SurRon Ultra Bee reverse button to activate reverse.

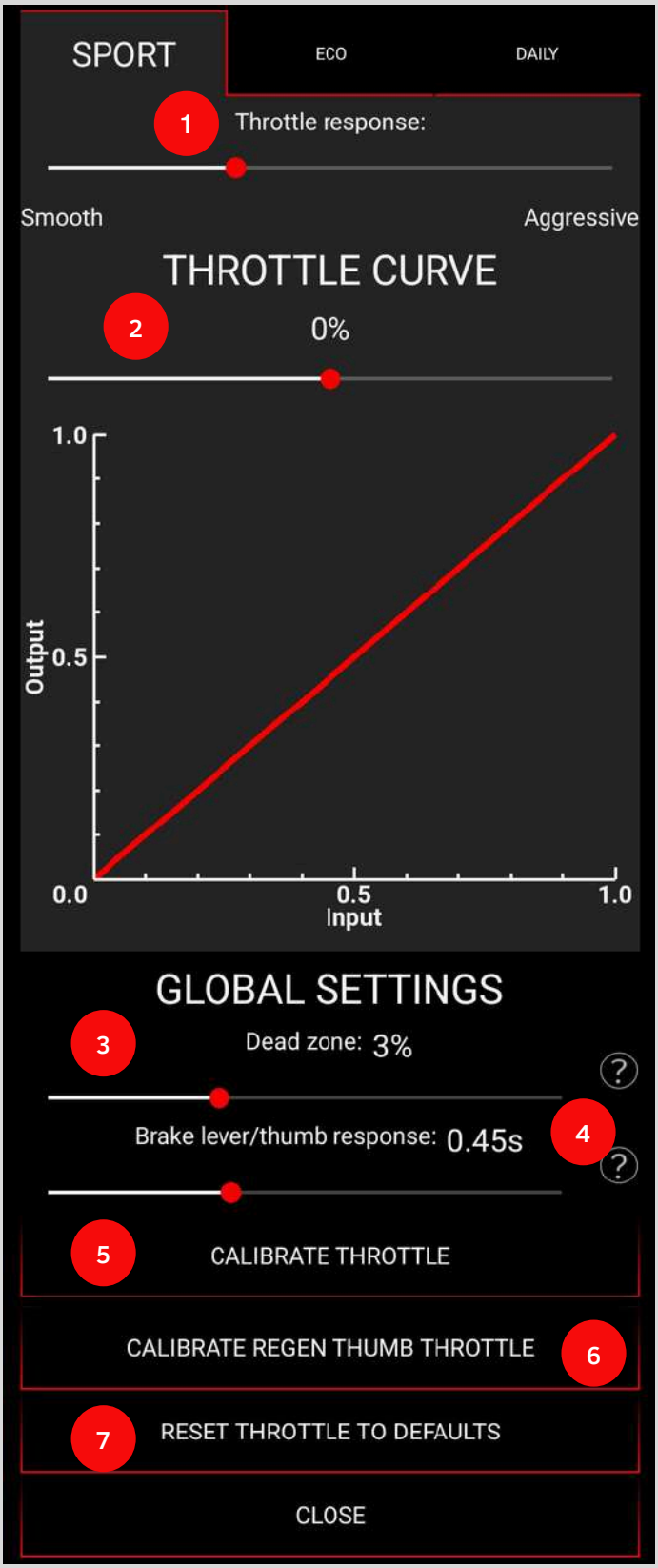
-THUMB THROTTLE: Thumb throttle can be used both for the reverse and regeneration

-TORP DISPLAY: Press & hold the “down” button on display to activate reverse.

9**-Ready button:** Turn the ready button on and off

12-Subscreen: THROTTLE SETTINGS

Set the throttle response according to your preferences and calibrate the throttle.



1-Throttle Response:
Use the slider to adjust the throttle response. Slide the slider to the right, for a more agresive throttle response.

2-Throttle Curve: Slide the slider and adjust the throttle input and output values, which affect the throttle behavior.
-Slide right for the Degressive Throttle curve: As you increase the throttle, the power output grows faster. This means the bike responds more quickly even when a little throttle is used. This setting is recommended for high-powered treil rides and jumps.
-0% for a Linear Throttle Curve: This type of curve is simple and provides a predictable throttle response.
-Slide Left for the Exponential Throttle curve: Choose this setting for better control and sensitivity at high throttle levels, while keeping a gentle power delivery at low throttle levels. It offers precise control with a small throttle and strong power boosts at the higher throttle. This setting avoids sudden power jumps, making the bike easier to handle. It's perfect for beginners.

3-Dead Zone:
Set the range of the throttle twist that will be ignored by the controller.

4-Brake lever response:
Adjust the brake lever regen response. Slide the slider to the right for a smoother regen response.

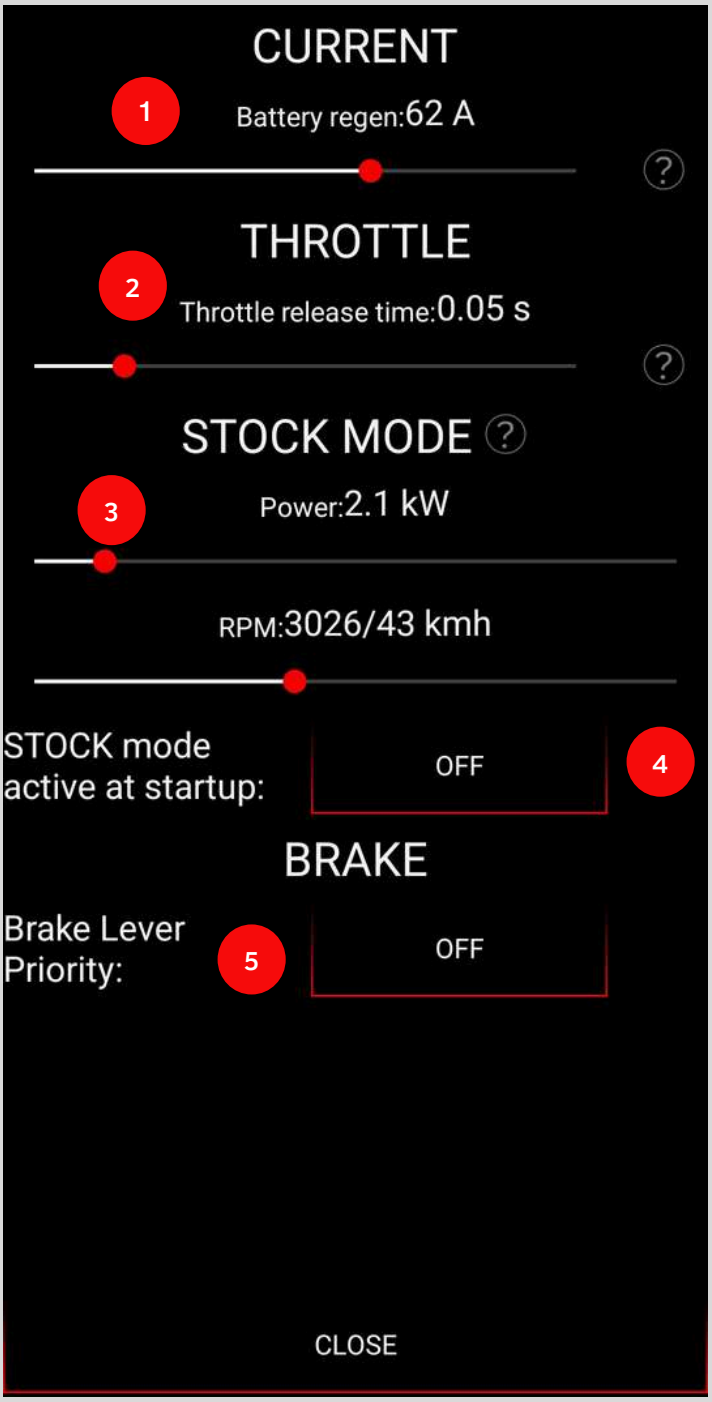
5-Calibrate Throttle:
Throttle calibration is required after the controller is installed for the 1st time or in case you have switched the stock SurRon throttle for another brand.

6-Calibrate regen thumb throttle: Calibrate the thumb regen throttle before the 1st use.

7-Reset throttle to defaults: Press to reset your throttle to default settings

13-Subscreen: ADDITIONAL SETTINGS

Fine-tune your controller.



1-Current-Battery regen:
It limits the max amount of current flowing back into the battery during regeneration. Adjust it based on your battery and its charging power capabilities. To have the same regen at low and high speeds, adjust the slider to higher A.

2-Throttle-Throttle release time:
The time from when the throttle lever is released until the value drops to 0. Reduce it if you want a quicker throttle release response.

3-Stock mode-Power and RPM:
The STOCK mode is used to activate stock power permanently, until deactivated. You can check if you're in Stock Mode by looking at the bike's display or the first screen of the Torp app. Activate it using the Torp Display by holding the “M” button for 3 seconds or by enabling “Stock mode active at startup”..

How to exit Stock mode:

Using the Torp Display
Hold the "M" button for 6 seconds to exit Stock Mode.
Using the Brake Lever
Quickly press the brake lever 5 times and hold it slightly longer on the 6th press.
Note: This method works only within a few minutes after the bike is powered on.
Using the Torp App
Tap the "Stock" label on the app's first screen to exit Stock Mode.

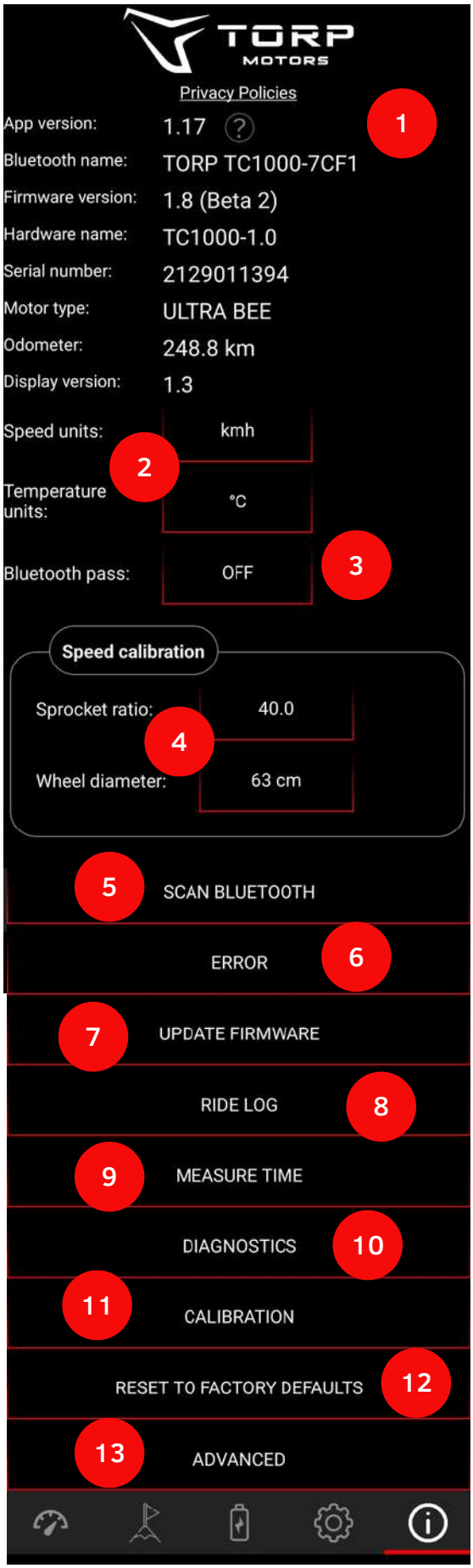
Use the sliders to set the desired power output or speed.

4-Stock mode active at startup:
In case you have STOCK mode activated on startup, you can exit using the first screen of the APP by pressing the “STOCK” text.
You can also deactivate it with a brake lever: In the 1st minute after the startup press the brake lever quickly 5 times, followed by a long press on the 6th attempt.

5-Brake-Brake lever priority:
By enabling this feature the brake (sensor) will take priority over the throttle (default stock SurRon behavior). BEWARE: In case you are twisting the throttle and pressing the brake lever at the same time, the bike will stand still. Once you release the brake, the bike will take off.

5th Screen: APP SETTINGS

Use this screen to identify your controller and to adjust the general settings. This screen is also useful in case of controller malfunctions, since it allows you to share errors and ride logs with Torp support team.



1-General Information:

Check the App and Controller Firmware versions and update them in case there is a newer version available. The App can be updated through the Play Store or App Store (depending on whether you are using Android or iOS). The Firmware can be updated by pressing the "UPDATE FIRMWARE" button. You can also see the identification parameters of your controller, like Bluetooth name, Hardware name, and Serial number, as well as the version of the display. Click on the "?" for more information on all update history (Firmware, App, and Display).

2-Speed and Temperature Units:

You can choose between Metric and US Standard units. The chosen units will be applied to other sections of the App.

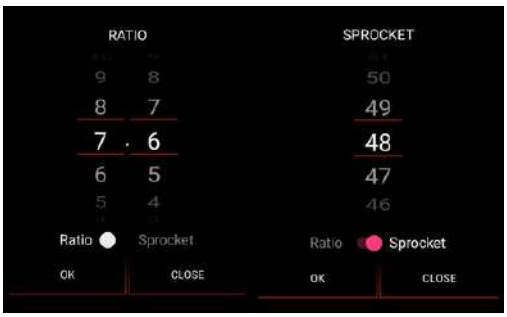
3-Bluetooth Pass:

In case you want additional protection for your controller, enter a Bluetooth password, which can be found on the controller`s label, which is located on the side of the controller and on the original box. The Bluetooth pass will be required every time you connect to the App with a new device.

4-Speed calibration:

-Sprocket ratio: Change the sprocket tooth count or ratio. This function comes in handy in case you are using sprockets that are not the same size as the stock Surron/Segway sprockets. This option will affect the displayed speed, both on the stock LCD and in the App.

-Wheel Diameter: Choose the values that correspond to your wheel. Wheel diameter will affect the displayed speed. The wheel diameter must always be measured with taking the tire into the account.



5-Scan Bluetooth:
Use it to search and connect to your device.

6-Error: The list of all controller errors since the last time it was disconnected from the battery. This list is useful in determining the causes for controller malfunctioning.

7-Update Firmware: Check whether a new Firmware update for the controller or display is available. In case it is, you will see a red dot. Press the button to update.

8-Ride log: You can check your ride on the map or send your ride-log file with all the stats to the chosen email address or social media accounts.

9-Measure Time: Measure the acceleration of your e-bike.

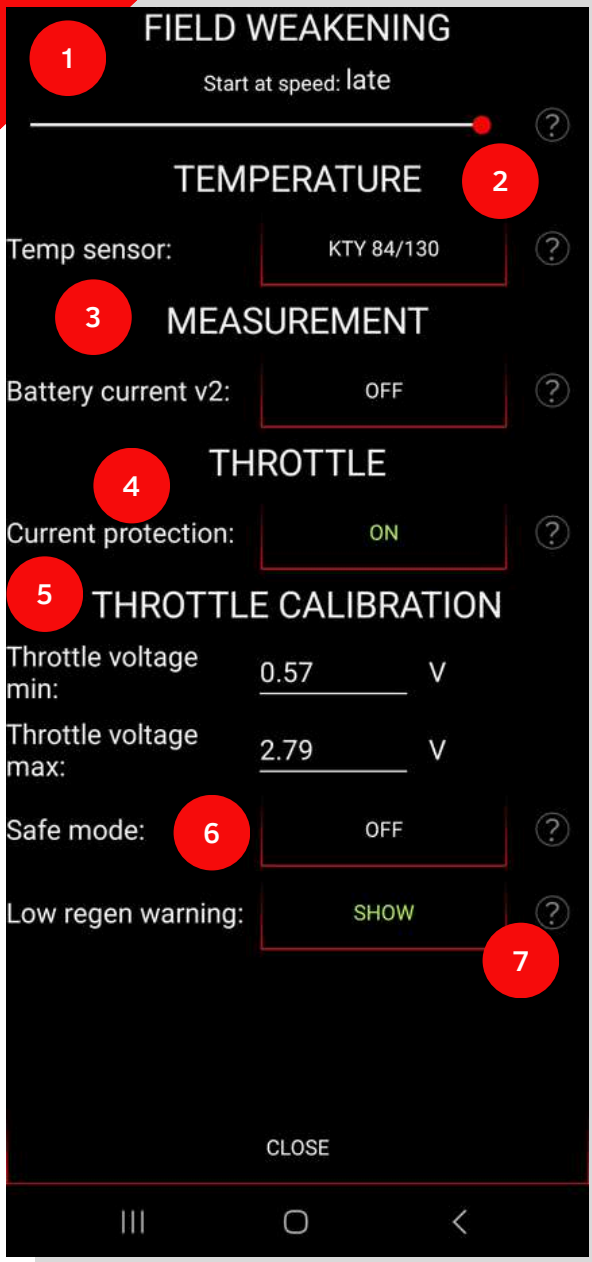
10-Diagnostics: An overview of all technical characteristics of the Controller that can help with determining the cause of potential errors.

11-Calibration: IMPORTANT: Calibration must be done before each first use of the controller and after each firmware update! Click on the calibration button and follow the wizard to calibrate the motor and throttle.

12-Reset to Factory Defaults: Reset your controller to the factory settings. By pressing this button you will lose all the settings you have made previously. After you reset your controller to the Factory Defaults, you will need to re-calibrate the throttle and motor.

13-Advanced: Press this button for some additional settings regarding CURRENT, FIELD WEAKENING, TEMPERATURE SENSOR, and THROTTLE.

13-Subscreen: ADVANCED



1-Field weakening: Set at which speed the FW is activated. It impacts motor efficiency and FW performance. For max efficiency set it to "late".

2-Temperature: You can choose with a range of Temperature sensors:

- NTC 10K at 25°C
- PTC 1K at 100°C
- NTC 100K at 25°C
- KTY 83/122
- KTY 84/130
- PT 1000
- SENSORLESS
- DISABLED

List of the temperature sensors compatible with supported motors:

- LIGHT BEE/x260 - KTY 84/130
- TORP TM25 / TM40 /TM50 / TM50Pro - PT 1000
- ULTRA BEE - KTY 84/130
- TALARIA MX3 - KTY 84/130
- TALARIA MX4 - KTY 84/130
- SOTION LIGHT BEE13KW - NTC 10K at 25°C and beta coefficient 3380 K
- SOTION ULTRA BEE16KW - NTC 10K at 25°C and beta coefficient 3380 K
- SOTION TALARIA 12KW - NTC 10K at 25°C and beta coefficient 3380 K

In case the motor temperature is not working properly you can set the temperature sensor to SENSORLESS. You can also DISABLE the temperature sensor but we recommend the SENSORLESS option instead.

3-Measurment: Battery current v2: on / off / V2 is a new and more precise method for measuring battery current. The difference is most noticeable at higher power levels above 20 kW.

4**-Throttle -Current protection**: Some throttles might consume more current than expected. If throttle errors 3 or 5 arise, this might be the reason. Disabling this option will also deactivate the short-circuit on the throttle handle.

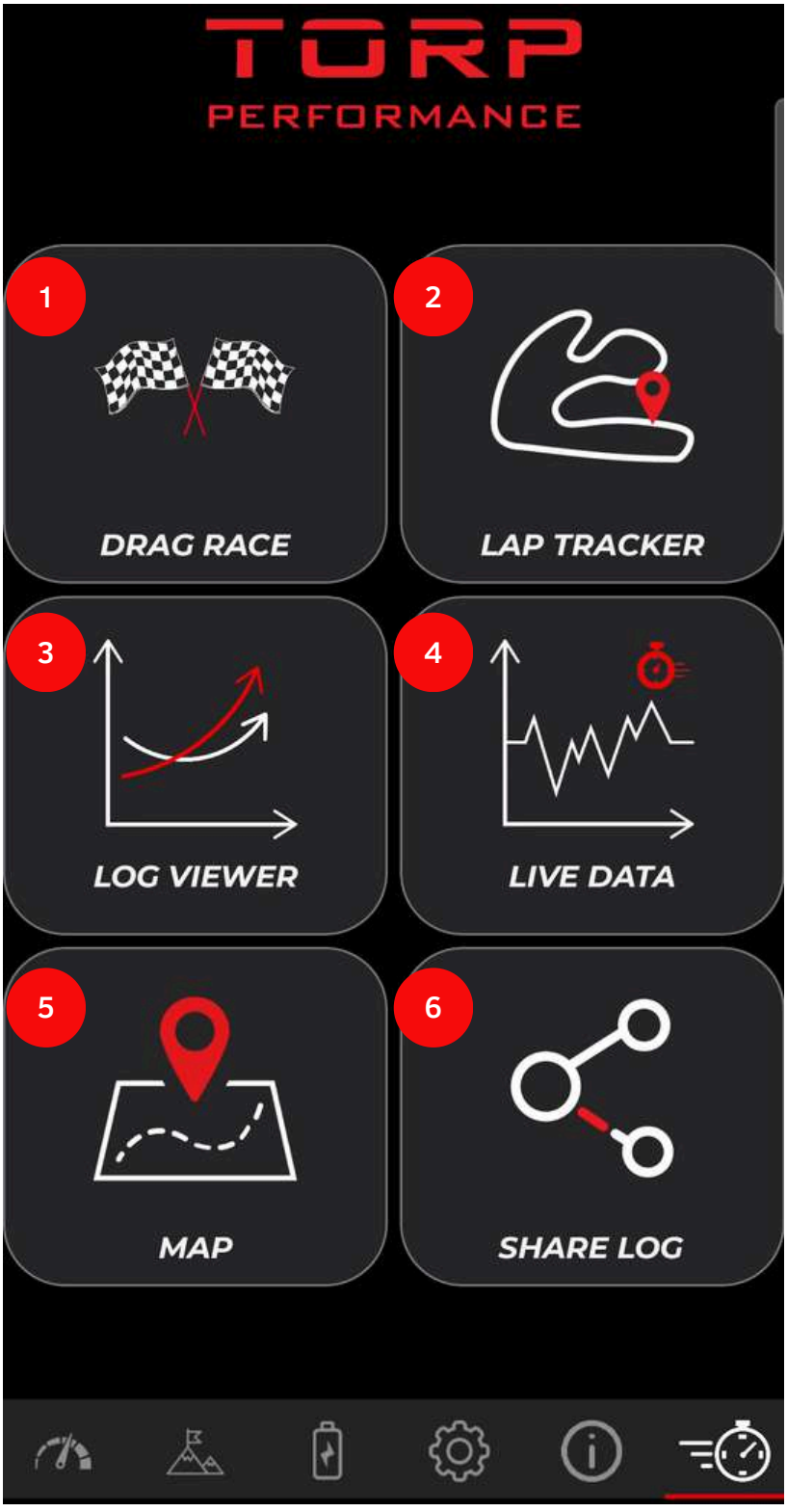
5-Throttle voltage min and max: Set these values in case you are experiencing some problems with the throttle.

6-Safe mode: Safe mode is used if a malfunction of the temperature sensor, encoder or HALL sensor occurs. Use this mode only to return home or to a nearby service center. Safe mode bypasses some errors and warnings for uninterrupted riding, even if issues are detected. Use with caution, as it turns off safety checks and could drain the battery due to no minimum voltage limit.
Limits in safe mode:
- Phase current: 250A
- Power: 3kW

7-Low regen warning: If this is disabled, the "Low regen warning" will not be displayed on the 1st screen of the App.

6th Screen: TORP PERFORMANCE

This screen is your ultimate tool to track, analyze, and optimize your bike's performance.



1-Drag race:
Analyze acceleration, set personal bests, and test different setups to optimize your ride. Set auto save to ON, to keep the history.

2-Lap tracker:
Lap tracker automatically draws your track using GPS data, making it easy to create your tracks, measure lap times, analyze performance, test different setups, and compare results. Set auto save to ON if you want laps to automatically continue measuring as you ride, or OFF if you prefer a prompt after each lap requiring manual confirmation.

3-Log viewer:
Dive deep into your ride data with detailed charts, tracking key parameters such as battery voltage, motor current, battery current, speed, power, and more.

4-Live data:
Monitor your controller and motor in real-time with in-depth insights, perfect for fine-tuning.

5-Map: Retrace your ride on an interactive map with detailed insights into controller and motor parameters at every point along your route.

6-Share log: Download your ride logs for advanced analysis. Open the log files in Excel to explore and interpret data.

ADDITIONAL SETTINGS.

SETTING UP THE CONTROLLER ACCORDING TO THE BATTERY TYPE

Before using the Controller, you should fine-tune its settings according to the Battery you are using. The TC1000 Controller supports*:
-SurRon Stock 60V Battery
-Custom 60V Battery
-Custom 66V Battery
-Custom 72V Battery
-Custom 80V Battery

The app will adjust the parameters to optimal values based on your Battery Type. You can adjust Motor and Battery Current according to how much torque you prefer. You can also customize the voltage values for each Battery Type, but we recommend you use the controller in the limits of preset values.

*A Torp Controller can be also used with other batteries, but you should keep in mind that in this case, the voltage of the fully charged battery should not be above 92,4V, and minimal battery voltage should not be less than 36V. The TC1000 is not compatible with the 88V battery.

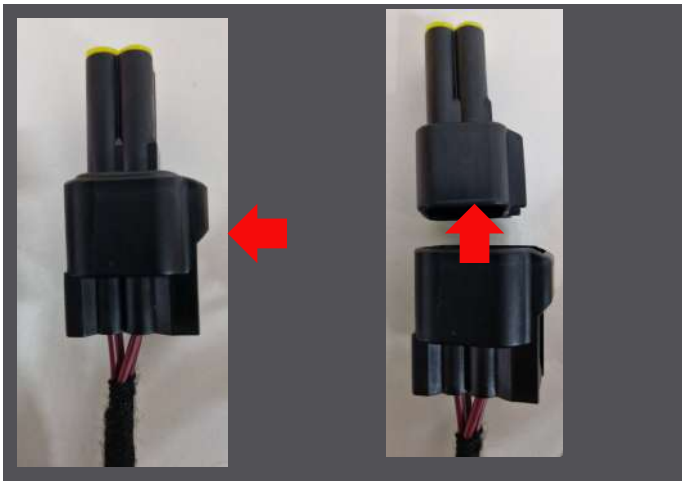
TORP DISPLAY.

*Find a full-color Torp display manual below.

Torp Display allows you to track your controller and battery data in real-time and to switch between the riding modes and reverse. Additional options will be added through regular firmware updates.

INSTALLATION

First, remove the protective cap from the connector by pressing firmly to its side and pulling it out of the connector.



The Torp Display is being installed directly to the controller`s wiring harness, as shown on the photo.

TORP DISPLAY AS A MODE BUTTON

To use the Torp Display as a MODE BUTTON, you should go to the Settings Screen in the Torp App (4th screen), go to the PERIPHERALS and tap on the MODE BUTTON option at the bottom of the screen. There you should choose TORP DISPLAY as your mode button option.

MAIN PAGE

BATTERY VOLTAGE

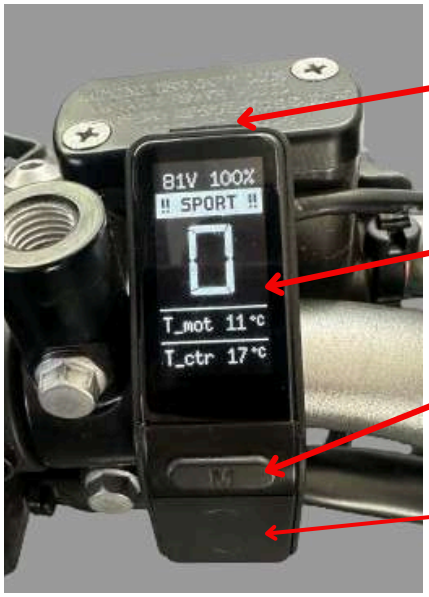
BATTERY STATE OF CHARGE

CURRENT MODE

CURRENT SPEED

EFFICIENCY

TRIP (KILOMETERS/ MILES FROM STARTUP)



SELECT/ CHANGE BUTTON

MAIN PAGE

MODE BUTTON

MAIN PAGE BUTTONS (up and down arrows)

TORP DISPLAY FUNCTIONALITIES

Use the up and down arrows on the display to move through the screen of the display, and the ON/OFF button for changing the sub screen.
Use the M button to change modes. Make sure that the Torp display is set as a Mode button in the Torp app.

TORP DISPLAY SETTINGS SCREEN

Once you reach the settings section you would like to change, hold the ON/OFF button on the top of the display to select the item to change. By tapping the ON/OFF button change the settings off the selected item.
Here you can set up your preferred speed units (mph/kmh), temperature units (°C/°F), mode button modes and mode change button.

MODE BUTTON MODES

To use 3 modes (Eco, Sport and Daily) instead of 2, hold ON/OFF button until you reach the 2/2 page. Choose number 3 by taping the ON/OFF button.

MODE CHANGE BUTTON

To change the modes with the up and down arrows, instead of the M button, hold ON/OFF button until you reach “M” an tap the ON/OFF button. Once set, use the “M” button to change the screen.

!!STOCK MODE!!

Stock mode allows you to ride your bike in the stock configuration. This option is functional with the Torp Display. To activate it, you should hold the MODE button on the Torp Display for 3 seconds until the STOCK sign appears. To deactivate it, hold the MODE button for 6 seconds.

BAUD RATE

The CAN BAUD RATE should be set automatically to 500K.

REVERSE

Navigate to the 4th screen of the Torp app > Peripherals > Reverse and select the Torp Display. Two sliders will appear at the same screen where you can set up reverse phase current and reverse max speed. Hold the down button and twist the throttle.

TORP FULL-COLOR DISPLAY.

TORP FULL COLOR DISPLAY FUNCTIONALITIES

Use the +/- buttons to change pages on the display, the M button to change modes, and the ON/OFF button for changing the sub screen (from 1/2 to 2/2).
Make sure that the Torp display is set as a Mode button in the Torp app.

TORP DISPLAY SETTINGS SCREEN

Here you can set up your preferred speed units (mph/kmh), temperature units (°C/°F), mode button modes and mode change button, color theme, brightness and baud rate.
Once you reach the item you would like to change in the settings screen by tapping the ON/OFF button, hold the ON/OFF button to change the item.

MODE BUTTON MODES

To use 3 modes (Eco, Sport and Daily) instead of 2, tap the ON/OFF button until you reach the Modes. Choose 3 modes by holding the ON/OFF button.

MODE CHANGE BUTTON

To change the modes with the +/- buttons, instead of the M button, tap ON/OFF button until you reach Mode change, then hold the ON/OFF button. Once set, use the “M” button to change the screen.

3 s to activate
6 s do deactivate

!!STOCK!! MODE

Stock mode allows you to ride your bike in the stock configuration. This option is functional with the Torp Display. To activate it, you should hold the MODE button on the Torp Display for 3 seconds until the STOCK sign appears. To deactivate it, hold the MODE button for 6 seconds.

BAUD RATE

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REVERSE

Navigate to the 4th screen of the Torp app > Peripherals > Reverse and select the Torp Display. Two sliders will appear at the same screen where you can set up reverse phase current and reverse max speed. Hold the down button and twist the throttle.

For additional support contact us through the support form located in the contact section of the official Torp website, or click on this link.

Our team will get back to you with the solution as soon as possible.

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