

TORP controller

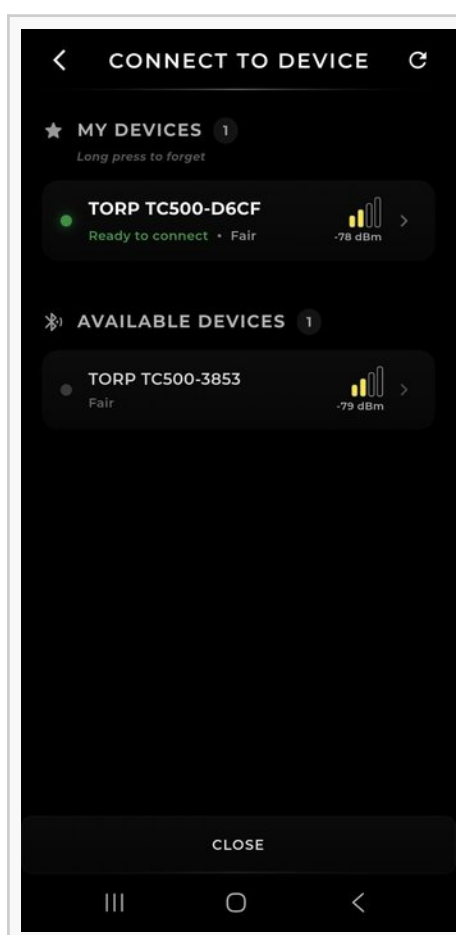
App Manual

Complete guide to connecting, configuring and getting the most out of the TORP Controller app for your bike.

GETTING STARTED

Connecting to the App

Available on Android (Google Play) and iOS (App Store)



How to connect

1. Download the TORP Controller app from the Google Play Store (Android) or App Store (iOS).
2. Open the app and allow the required permissions: location and media.
3. Accept the Terms & Conditions.
4. Turn your bike on.
5. The app automatically scans and detects your controller via Bluetooth.
6. Select your controller from the device list. Your Bluetooth ID (e.g. TORP TC500-D6CF) is on the label on the side of your controller and controllers box.

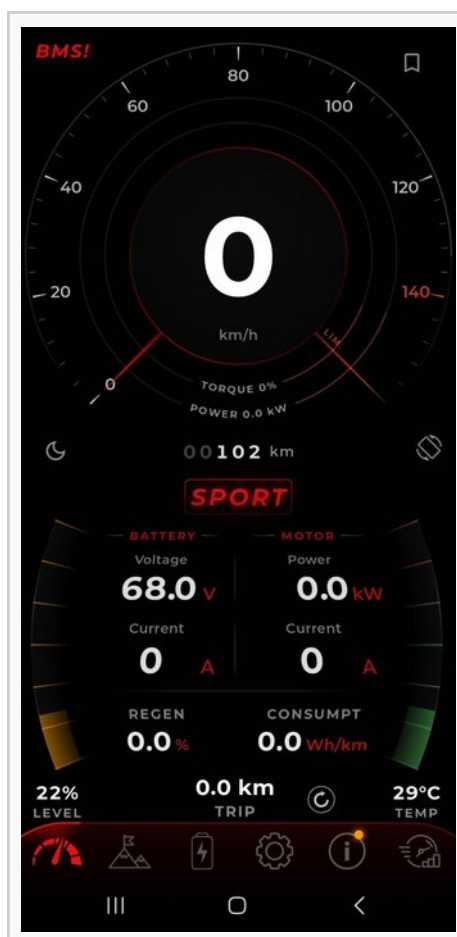
⚠ Calibrate before first ride. Repeat after every firmware update.

We recommend riding with Dashboard screen active. The app monitors your controller in real time and helps our support team detect issues faster.

DASHBOARD SCREEN

Gauge

Your real-time riding dashboard



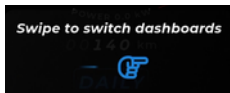
What you see on this screen

The Gauge screen shows all live riding data, warnings and errors.

View toggle: Tap the phone toggle icon to switch between horizontal and vertical view.



★ **NEW** Switch dashboards: Swipe to select between three different dashboard designs.



★ **NEW** Dark/Light mode: Tap the dark mode icon to switch to light mode.



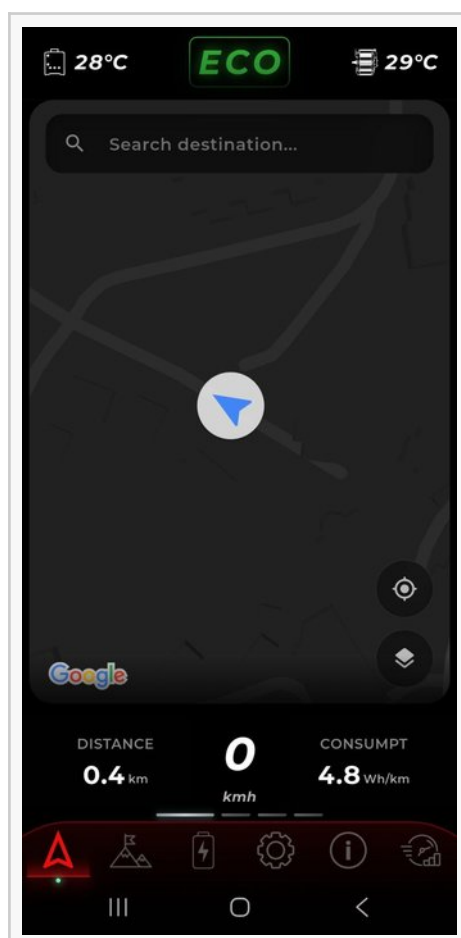
Layout toggle on the 3rd dashboard: Slide the bars at the bottom of the screen to switch between the numerical and graph views.



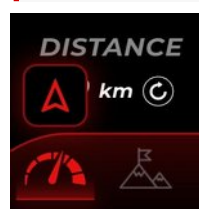
#	Feature	Description
1	Ride Mode	Active mode badge: SPORT (red) or ECO (green), or DAILY (blue).
2	Temperature	Battery temperature and motor temperature.
3	Speed	Live speed in km/h or mph. Set your preferred unit in the Info screen.
4	RPM bar	Revolutions per minute.
5	Battery %	State of charge.
6	Warnings & Errors	Active warnings and errors appear on this screen. See below for the full list and resolutions.

7	Motor & Battery	Live motor power (kW), motor current (A), battery voltage (V) and battery current (A).
8	Trip Info	Distance, regen % and Wh/km consumption.
9	GPS Navigation ★ NEW	Tap the arrow (navigation) icon in the bottom nav bar. The map replaces the Dashboard screen with a destination search bar, your live position, basic performance data and directions. See more below.

DASHBOARD SCREEN - GPS NAVIGATION OVERLAY ★ NEW



GPS navigation: tap the gauge icon to open the GPS navigation feature; by clicking on a location icon above it.



DASHBOARD SCREEN - REFERENCE

Warnings

Warnings allow riding to continue - power may be gradually reduced

All warnings appear on this screen. Connect the app before riding so active warnings are immediately visible.

Warning	Description & action
KICKSTAND	Kickstand is lowered. Lift it to start riding.
CRASH SENSOR	Crash sensor triggered (fall detected). Turn the bike off, wait a few seconds, then turn back on.

Limit warnings - power gradually reduces

These appear when a component approaches its thermal or electrical limit. Power is reduced to protect the system.

Warning	Description & action
TEMP CONTROLLER	Controller temperature at limit. Power reduces until it cools down.
TEMP MOTOR	Motor temperature rising. Power reduces gradually. Adjust the limit in Settings screen → Motor Temp Cutoff.
MOTOR TEMP SENSOR	Motor temperature sensor not connected. Power is limited as a precaution.
LOW VOLTAGE	Battery nearly drained or voltage sagging under acceleration. Power reduces gradually.
LOW REGEN	The battery is nearly full. Regenerative braking is reduced automatically.
BATTERY TEMP	Battery temperature at limit. Power will be reduced.
BMS TEMP	BMS discharge MOSFETs overheated. Power gradually reduces.

Temperature limits: always use the preset default values. Setting limits too high can permanently damage the motor or battery.

DASHBOARD SCREEN - REFERENCE

Cutoff Errors

Cutoff errors stop the bike - action required before continuing

Error	Description & action
CUTOFF LOW VOLTAGE	The battery was completely drained. Charge the battery.
OVERVOLTAGE	Battery voltage above 90V. Check your battery setup.
UNDERVOLTAGE	Voltage dropped below the controller setting. Charge the battery.
OVERCURRENT	Motor current exceeded the permitted limit. Contact customer support
CONTROLLER OVERTEMP	The controller overheated. Wait for it to cool before continuing.
MOTOR OVERTEMP	The motor overheated. Wait for it to cool before continuing.
PHASE FET	Controller phase in short-circuit. Contact TORP support immediately.
HALL SENSOR	Hall Sensor not connected or faulty. Check the wiring.
THROTTLE PROBLEM	Throttle wiring issue detected and resolved. Turn the bike off and on again.
THROTTLE #1	Throttle signal rises too fast — throttle (+) shorted on GND (-).
THROTTLE #2	Throttle not connected. Throttle (+) wire may be broken.
THROTTLE #3	Throttle (+) and GND (-) shorted together.
THROTTLE #4	Throttle GND (-) not connected or broken.
THROTTLE #5	Throttle (+) shorted on signal wire.
CUTOFF THROTTLE	Throttle activated while turning the bike on. Fix: (1) release throttle before powering on · (2) re-calibrate · (3) check wiring.
CUTOFF BATTERY TEMP	The battery overheated. The bike stops until it cools down.
HALL DISCONNECTED	Hall sensor disconnected during riding. Check the wiring.
CUTOFF BMS TEMP	BMS MOSFET temperature reached its limit. The bike stops until it cools.
WATER IN CONNECTOR	Water in main connector (HW 1.4+). Turn off immediately, disconnect and dry the connector. Contact support.

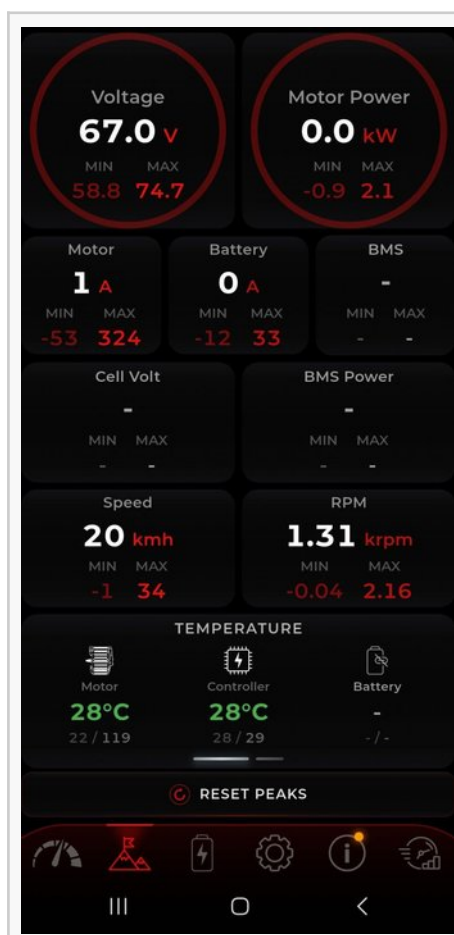
WATER IN CONNECTOR: turn off the bike and disconnect the main connector. Do not ride until fully dried. Contact our support team.

Need help? Contact us at www.torpmotors.com → Contact Us.

PEAK SCREEN

Peaks

Minimum, live and maximum values recorded during your current ride session



Parameters tracked

- Voltage (V) and Cell Volt (V)
- Motor current (A), Battery current (A), BMS current (A)
- Power (kW) and BMS Power (kW)
- Speed (km/h) and RPM (krpm)
- Motor, controller and battery temperature (°C)
- Wh Consumption and session Uptime

★ **NEW** Tap Peaks navigation icon to change between different view designs. Card view displays each parameter as a tile with MIN / LIVE / MAX. List view shows the same data in a compact scrollable table.



Tap RESET PEAKS at the bottom of the screen to clear all recorded session peaks and start fresh.

BATTERY SCREEN

Battery Info

Full battery cell diagnostics - requires stock SurRon battery and BMS



What this screen shows

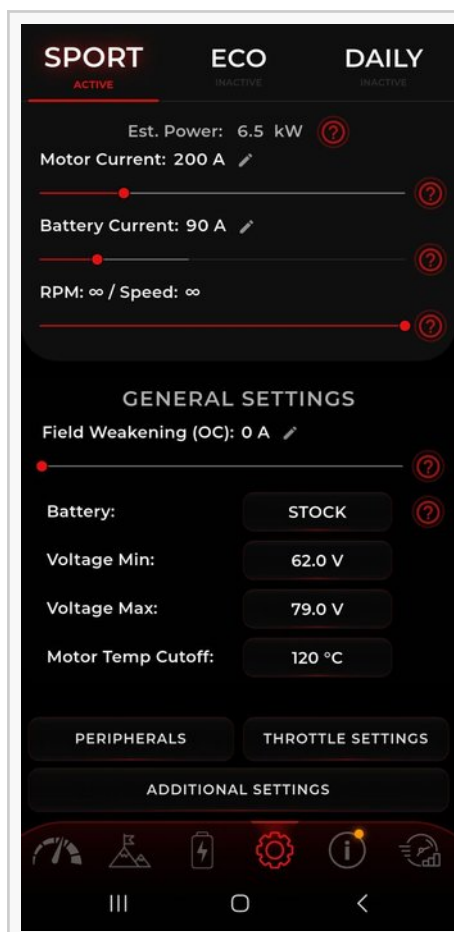
- **Cell Voltage chart** - Bar chart of each cell. Evenly aligned bars = healthy battery.
- **SOC / Voltage / Current** - Live state of charge (%), pack voltage (V) and current (A).
- **Temperatures** - Battery, charger and BMS temperatures in real time.
- **Max & Min Cell** - Largest and smallest individual cell voltages. Smaller gap = healthier.
- **Data Quality** - Quality of the BMS communication (GOOD / POOR).
- **BATTERY INFO button** - Opens full stats: charge cycles, estimated mileage, errors and cell temperature log.

Battery screen not available with an aftermarket battery; SOC may not display correctly (10-20% difference).

SETTINGS SCREEN

Controller Settings

Tune power, speed, voltage and general settings for your setup



Ride Mode tabs - SPORT and ECO

Each tab has its own Motor Current, Battery Current and Speed/RPM settings configured independently. The active tab is highlighted in green.

Using the settings screen on the Torp display, it's possible to set a 3rd "DAILY" mode as well (see Torp display manual).

- **Est. Power** - Calculated automatically from current and voltage. Read-only. See realistic value in the "Peaks" screen.
- **Motor Current** - Controls torque -most noticeable at lower speeds.
- **Battery Current** - Controls max power - most noticeable at medium/higher speeds.
- **RPM / Speed** - Maximum speed limit. Choose ∞ for no limit.

General Settings

- **Field Weakening** - Increases top speed. Keep at recommended Torp app value to minimise risk.
- **Battery** - Select your battery type to set optimal voltage limits automatically.
- **Voltage min / max** - Voltage thresholds for your battery. Use preset values or contact your battery manufacturer.
- **Motor temp cutoff** - Temperature at which power starts reducing to protect the motor. It's recommended to use preset values.

Field Weakening

General Settings

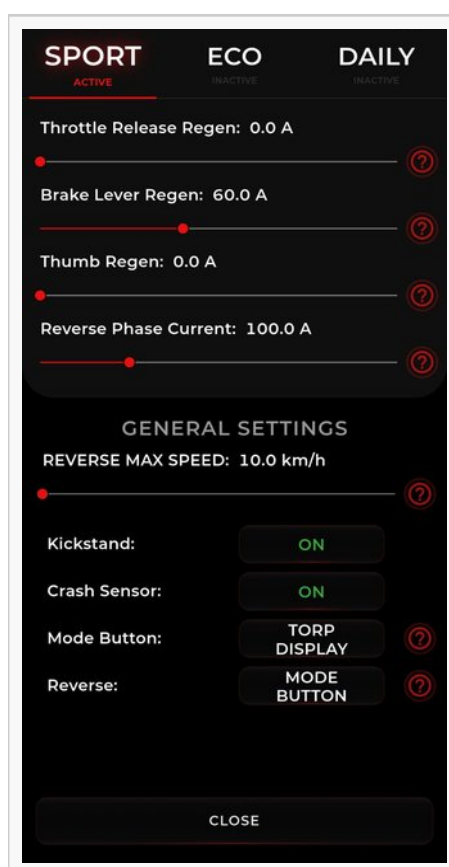
ADVANTAGES	Higher top speed and more torque at high speed.
DISADVANTAGES	Reduced range and increased motor temperature.
GUIDANCE	Keep at Torp app's recommended value to minimise risk. Red-zone values can cause overheating. If Field Weakening is enabled, power limiting starts 10°C earlier than the Motor Temp Cutoff value.

SETTINGS SCREEN - SUBSCREEN

Peripherals

Regen braking, reverse, kickstand, crash sensor and mode button settings

Access via Settings screen→ PERIPHERALS button at the bottom. The sub-screen has the same SPORT/ECO(DAILY) tabs at the top. Regen values are set per mode independently. Switch between tabs at the top to configure each mode.



Regen settings (per mode tab)

- **Throttle release regen** - Strength of regen when the throttle is released. Also applies a small dead zone to the throttle.
- **Brake lever regen** - Regen when the brake lever is pressed. Only works with stock brakes that have a sensor.
- **Thumb regen** - Regen activated by the Torp thumb throttle purchased separately..

General Settings

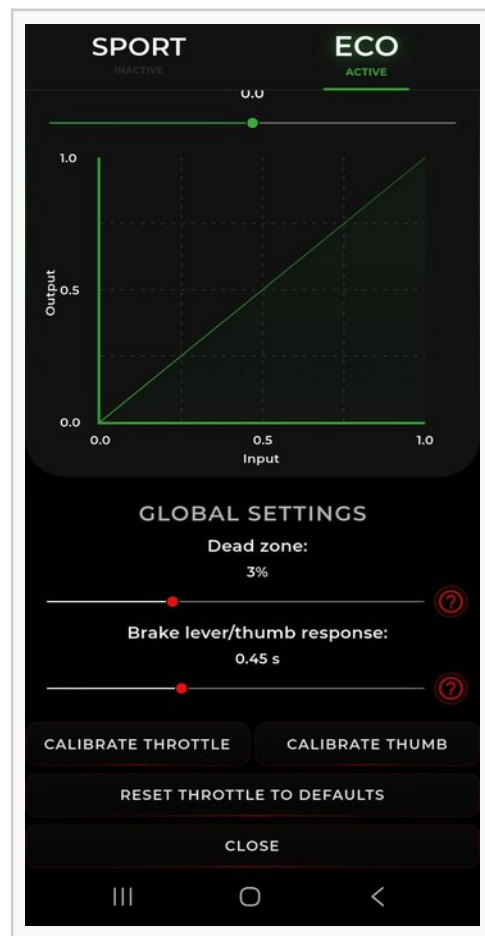
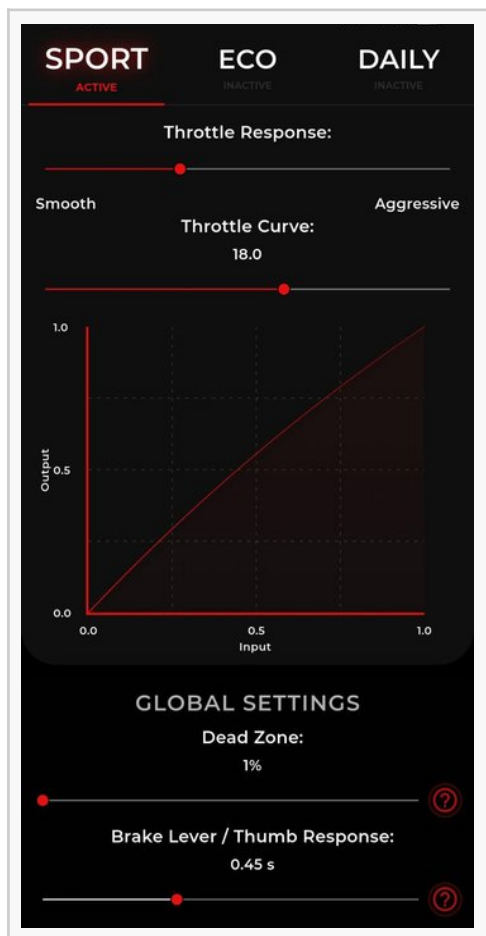
- **Kickstand** - Enable or disable the kickstand sensor input.
- **Crash Sensor** - Enable or disable the crash sensor.
- **Mode Button** - NONE: Sport mode only. BUTTON: use the stock handlebar button. TORP DISPLAY: use display "M" button or tap mode name on Dashboard screen.
- **Reverse** - OFF / MODE BUTTON / THUMB THROTTLE / TORP DISPLAY. Sets which input activates reverse.

SETTINGS SCREEN - SUBSCREEN

Throttle Settings & Calibration

Set throttle response, calibrate the throttle and Torp thumb regen throttle

Access via Settings screen → THROTTLE SETTINGS. The SPORT/ECO tabs at the top control Throttle Response and Throttle Curve per mode. Global Settings apply to all modes.



Per-mode (SPORT / ECO / DAILY)

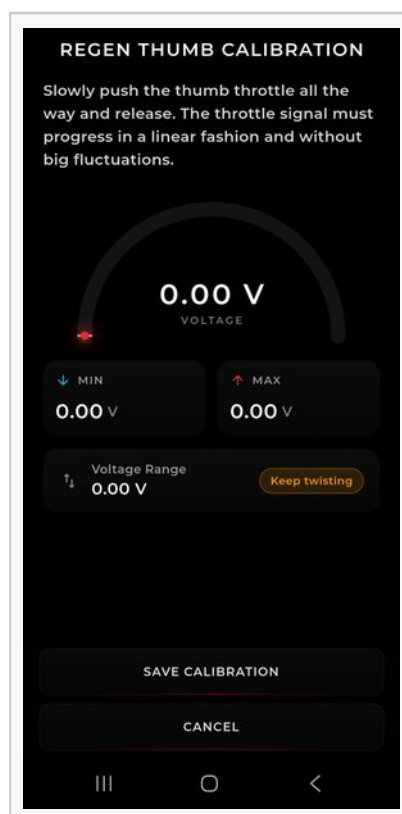
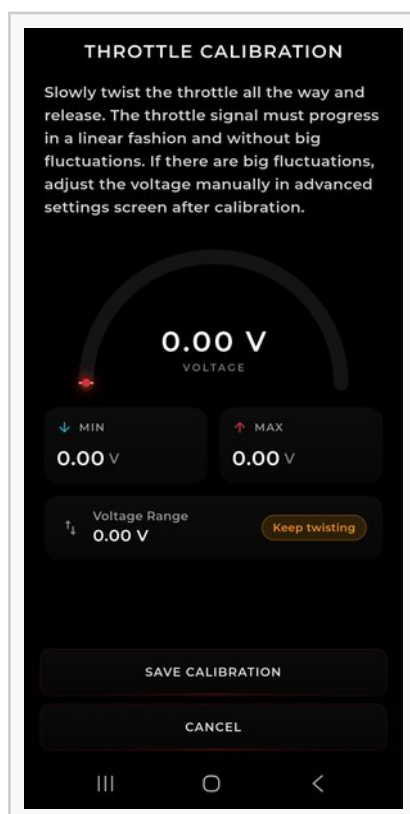
- **Throttle response** - Aggressiveness of the throttle. Slide right for a more aggressive response.
- **Throttle curve** - Degressive (right): power builds fast even at low throttle; best for trial/jumps. Linear (0%): simple and predictable. Exponential (left): gentle at low throttle, strong at high - ideal for beginners.

Global Settings (all modes)

- **Dead zone** - Range of throttle twist that the controller ignores.
- **Brake lever/thumb response** - How quickly regen ramps when the brake lever is pressed.
- **Calibrate Throttle** - Required on first install or after switching throttle brand.
- **Calibrate Thumb** - Calibrate the thumb regen throttle before first use.
- **Reset to Defaults** - Resets all throttle settings to factory defaults.

Throttle & Thumb Calibration

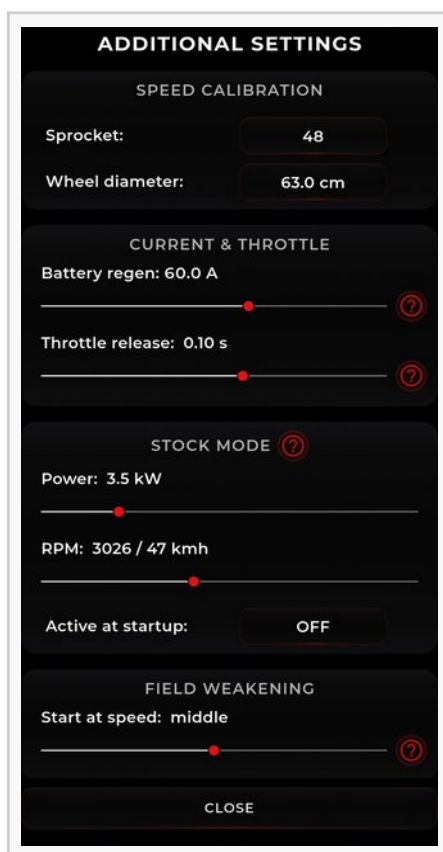
Both wizards work the same way: slowly twist the throttle (or push the thumb throttle) all the way to its maximum, then release. The app records the voltage range. Tap SAVE CALIBRATION when done.



SETTINGS SCREEN - SUBSCREEN

Additional Settings

Access via settings screen → ADDITIONAL SETTINGS. This screen also contains Speed Calibration.



Speed Calibration

- **Sprocket** - Enter your sprocket tooth count for accurate speed display.
- **Wheel diameter** - Wheel diameter in cm - include the tyre for correct calculation.

Current & Throttle

- **Battery regen** - Max current flowing into the battery during regen. Increase for consistent regen at all speeds.
- **Throttle release** - How fast the throttle signal drops to zero after release. Decrease for snappier feel.

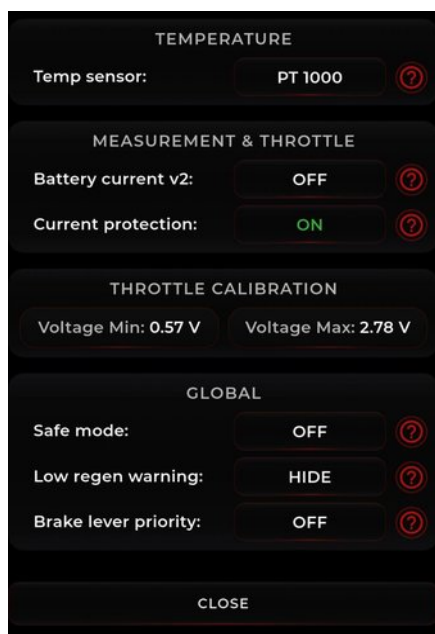
Stock Mode

- **Power & RPM** - Sets the output level when Stock Mode is active.
- **Active at startup** - If ON, the bike starts in Stock Mode every time.

Activating Stock Mode: hold M on the Torp Display for 3 seconds. **Exit via:** Torp Display (hold M 6s) · brake lever (5 quick presses + long hold on 6th) · tap "STOCK" label on the Dashboard screen.

Field Weakening

- **Start at speed** - Sets the speed at which FW activates. Set to "Late" for best motor efficiency.



Temperature

- **Temp sensor** - Select the correct sensor type for your motor. See the table on the next page.

Measurement & Throttle

- **Battery current v2** - More precise battery current measurement. Most noticeable above 20 kW.
- **Current protection** - Protects against throttle overcurrent. Disable only if Throttle errors 3 or 5 occur.

Throttle Calibration

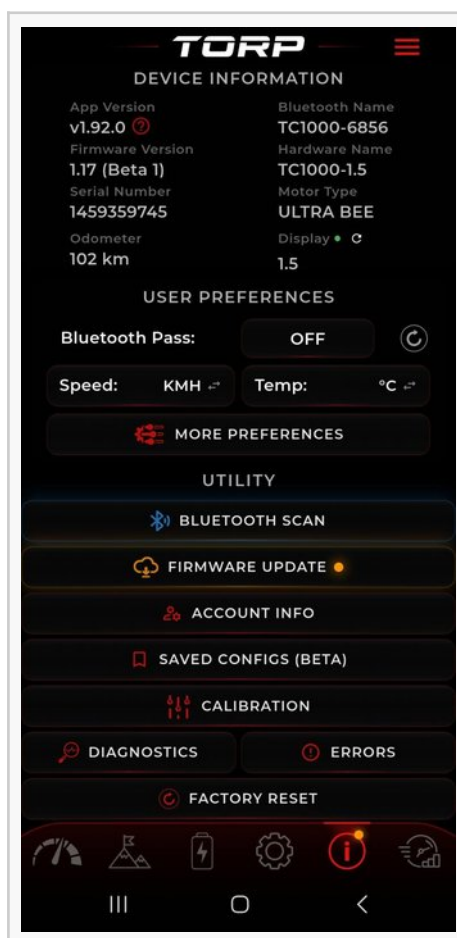
- **Voltage Min / Max** - Fine-tune throttle voltage range manually if fluctuations occur after calibration.

Global

- **Brake lever priority** - Brake takes priority over throttle. If both pressed simultaneously, the bike stands still.
- **Safe mode** - Emergency ride-home mode. Bypasses sensor errors and safety limits. Limits: 250A phase current, 3 kW. Use with extreme caution. To exit it, turn the bike off/on.
- **Low regen warning** - Disable to hide the Low Regen warning on Dashboard screen.

INFO SCREEN

App Settings



Device Information

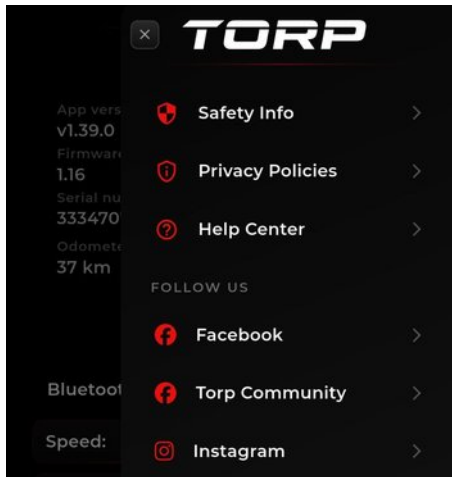
- **App version** - Installed app version. Tap ? to see the full firmware and app update history.
- **Bluetooth name** - Your controller ID (e.g. TC500-D6CF). Use this to identify your device in the list.
- **Firmware version** - Current controller firmware version.
- **Hardware name** - Hardware revision of your controller (e.g. TC500-1.4).
- **Serial number** - Unique controller serial number. You can also find it on the sticker on the side of the controller.
- **Motor type** - Motor model detected by the controller.
- **Odometer** - Total distance ridden with this controller.

User Preferences

- **Bluetooth pass** - Optional password for extra pairing security. Found on the controller label and box.
- **Speed / Temp units** - Toggle between KMH/MPH and °C/°F. In case you use Torp display, you can set desired units on its settings screen.
- ★ **NEW More Preferences** - Additional display preferences.

Utility

- **Bluetooth Scan** - Manually scan for and connect to your controller.
- **Firmware Update** - Check for and install controller and display firmware updates.
- ★ **NEW Account info** - shows the account the controller is currently registered to. From here, the controller can also be transferred to another user.
- ★ **NEW Saved configs** - Save and restore your bike setup. See more below.
- **Calibration** - Run the throttle and motor calibration wizard. Required on first use and after every firmware update.
- **Diagnostics** - Full technical overview of controller parameters - useful for diagnosing errors.
- **Errors** - All controller errors recorded since the last battery disconnect.



- **Factory Reset** - Resets all settings to factory defaults. Recalibration required afterwards.

Contact

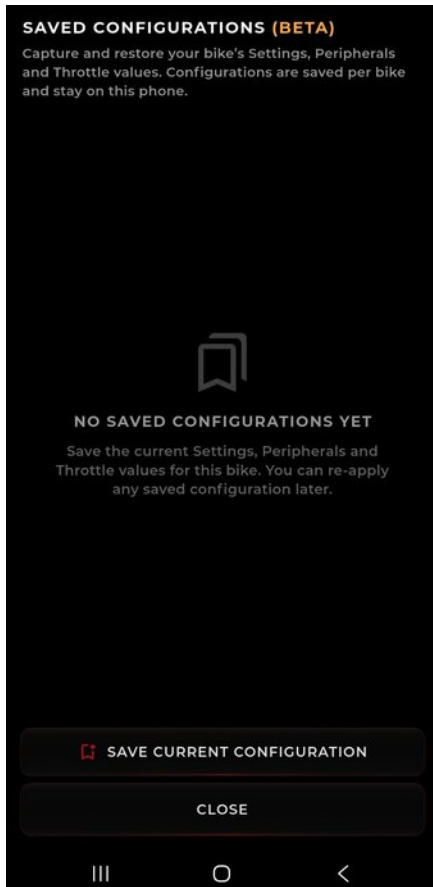


- **Safety Info** - Important safety guidelines, warnings, and recommendations for proper product use.
- **Help Center** - Get quick answers to the most common questions, or download installation and feature manuals.
- **Facebook / Instagram** - Follow us for the latest news, product updates, and content.
- **Torp Community** - Join our Facebook community, where Torp riders help each other, share experiences, and stay updated with all our latest news and updates.

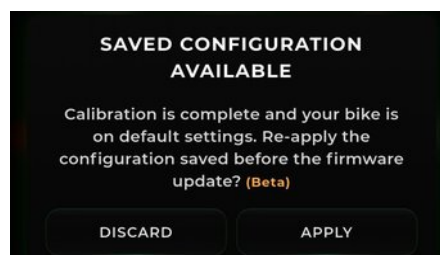
INFO SCREEN - SAVED CONFIG

★ NEW

Save and restore bike configurations



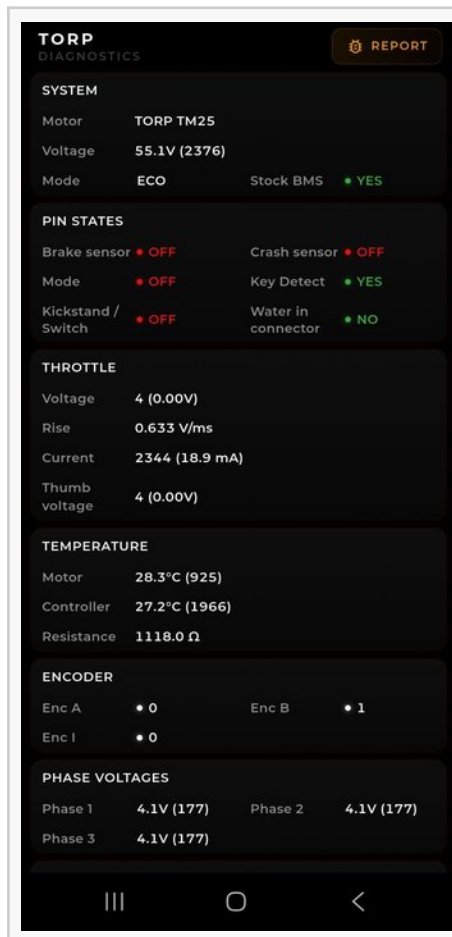
- **Automatic restore after calibration** - After calibration, for example after a firmware update, the app automatically offers to restore the last configuration, even if it was not manually saved. Configurations are saved per bike and stored on the phone.



- **Manual save** - Users can manually save the current bike configuration, give it any name they want, and restore it later by tapping save current configuration.
- **Saved values** - Saved configurations include key Settings, Peripherals, and Throttle values, such as battery, performance, regen, calibration, and brake settings.
- **Different setups** - Useful when testing different setups or switching parts. For example, riders can save separate configurations for different batteries and restore the correct setup after changing the battery.

INFO SCREEN - DIAGNOSTICS

Full system, throttle, temperature and encoder readings



What Diagnostics shows

- **System** - Motor type, live voltage, active mode and Stock BMS detection.
- **Pin States** - Binary state of brake sensor, crash sensor, mode button, key detect, kickstand and water-in-connector sensor.
- **Throttle** - Live throttle voltage (ADC raw + V), rise rate (V/ms), current draw (mA) and thumb throttle voltage.
- **Temperature** - Motor and controller temperature in °C with raw ADC values, plus sensor resistance (Ω).
- **Encoder** - Encoder A/B/I channel states (0 or 1).
- **Phase Voltages** - Live voltage reading on each of the three motor phases.

★ NEW

Tap REPORT (top-right) to generate a diagnostic report you can send directly to our support team.

Temperature Sensor Compatibility

Motor	Sensor type
Light Bee / X260	KTY 84/130
TORP TM25 / TM40 / TM50 / TM50Pro	PT 1000
Ultra Bee	KTY 84/130
Talaria MX3 / MX4	KTY 84/130
SOTION Light Bee 13kW	NTC 10K at 25°C · $\beta = 3380$ K
SOTION Ultra Bee 16kW	NTC 10K at 25°C · $\beta = 3380$ K
SOTION Talaria 12kW	NTC 10K at 25°C · $\beta = 3380$ K

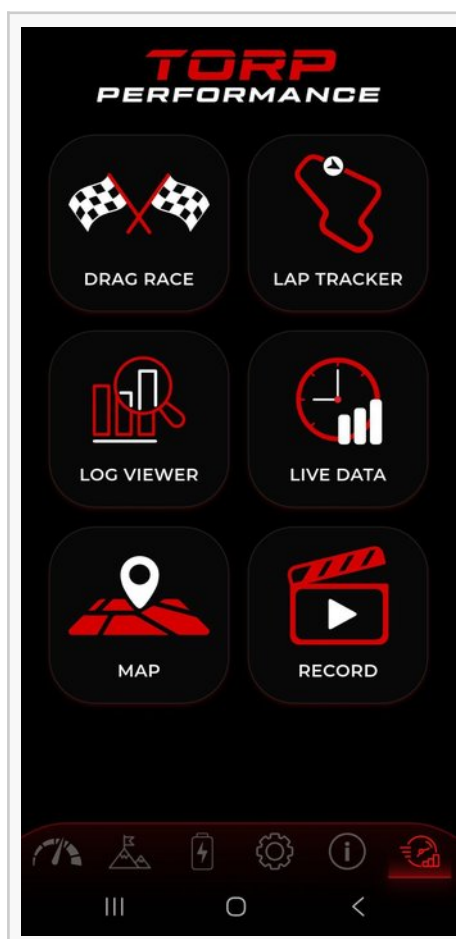
If motor temperature is not reading correctly: use SENSORLESS rather than DISABLED. SENSORLESS estimates temperature; DISABLED turns off all thermal protection.

SENSORLESS Temperature Monitoring is a unique TORP feature designed to help protect your motor when the stock temperature sensor is faulty or unreliable. Stock sensors can fail and are often difficult to replace, leaving the motor without proper protection. Unlike the stock sensor, which reads stator winding temperature, TORP Sensorless uses an advanced algorithm to estimate rotor and magnet temperature in real time - often the critical source of overheating. It provides added motor protection without needing the stock sensor.

PERFORMANCE SCREEN

TORP Performance

Track, analyse and optimise your ride performance



Features on this screen

- **Drag Race** - Measure and analyse acceleration runs. Set Autosave ON to keep a history and compare setups between rides.
- **Lap Tracker** - GPS-based automatic lap recording. Measures lap times and compares performance across sessions. MY TRACKS shows previous routes; SETTINGS configures lap detection sensitivity.
- **Log Viewer** - Detailed charts of voltage, current, speed, power and more for every recorded ride. Works in landscape mode - rotate your phone for the best experience.
- **Live Data** - Real-time FOC (Field-Oriented Control) monitoring of D/Q current and voltage. Landscape mode recommended. Best for advanced tuning and diagnostics.
- **Map** - Replay your ride on a satellite map with controller and motor data overlaid at every GPS point.
- **Record** - Record your ride as video with live telemetry data burned into the footage.

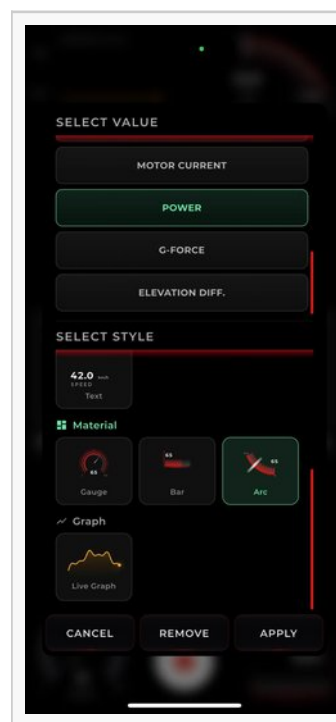
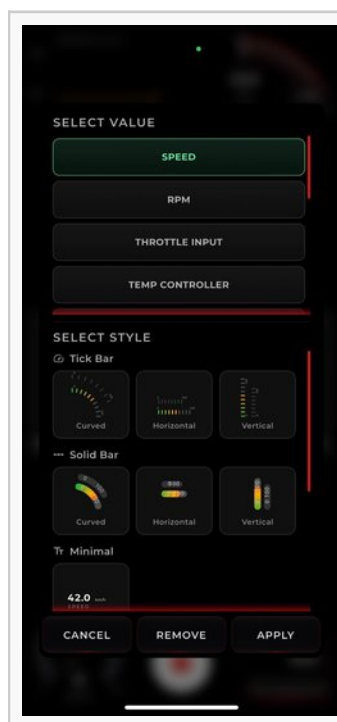
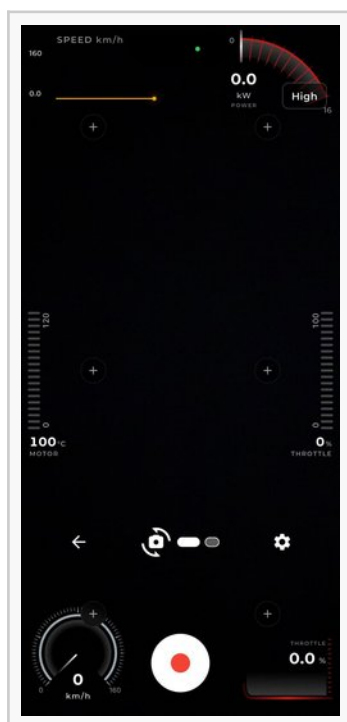
★ NEW

PERFORMANCE SCREEN - RECORD

Telemetry Video Recorder

★ **New** - record your ride as video with live controller data overlaid on the footage

The Record feature combines your phone camera with live controller data. Speed, power, RPM and motor current are overlaid directly on the video in real time.



Recording view

Camera feed fills the screen. Tap the red circle to start/stop recording. Live gauges overlay at the corners: Speed arc (bottom-left), RPM (bottom-right), Power kW (top-left), Motor current bar (right edge). Use the camera flip icon to switch cameras.

Layout editor

Tap the settings gear to enter edit mode. You can add or remove widgets anytime using the + icon. H = horizontal bar · V = vertical bar. Tap the pencil to rename/configure. Tap X to close and save the layout.

Gauge Style

Choose the visual style for overlaid gauge widgets: Tick Bar, Solid Bar, Minimal (text only) or Material (round dial). Each style has up to 4 layout variations. Tap APPLY to save.

SETUP GUIDE

Battery Setup

Configure the correct battery type before your first ride

Go to Info screen → Controller Settings and select your Battery Type. The controller automatically sets the optimal voltage limits for the selected battery.

Battery Type	Min Voltage	Max Voltage	Notes
Stock SurRon Light Bee / Segway X260	48 V	67.2 V	Stock battery
Custom 60V battery	48 V	67.2 V	Custom 60V
Custom 66V battery	52 V	73.6 V	Custom 66V
Custom 72V battery	56 V	80 V	Custom 72V
Custom 80V battery *TC500 1.X supports max 72V battery	66 V	92.4V	Custom 80V

Other batteries: fully charged voltage must not exceed 92.4V and minimum voltage must not fall below 36V.

Need help? Contact us at torpmotors.com/contact