

Digital Display

USER MANUAL
VERSION - V1.0



5inch

IPS Display

Multi CAN

Device Support

1000 nits

Brightness

ABOUT THE MANUAL

This manual introduces the functions, installation, settings, and safety instructions of the 3Shul Display. It is designed for:

1. Vehicle owners who operate the display
2. Installers responsible for mounting and wiring
3. Service technicians maintaining the unit

Please read carefully before use and keep this document for future reference.

LEGAL / WARRANTY / DISCLAIMER

This manual is intended to guide the proper installation, configuration, and use of the 3Shul Display. The product should only be used as an electric vehicle display unit. Any unauthorized modifications, misuse, or improper installation will void the warranty. 3Shul Motors is not liable for damages caused by incorrect usage, power supply mismatches, or environmental exposure beyond rated specifications. Warranty details and after-sales support are available at 3shulmotors.com/support. This product includes a 1-Year Limited Warranty.

SAFETY & HANDLING PRECAUTIONS

Electrical Safety → Operate only with 5 V DC input, avoid incompatible voltages, and always use rated cables/fuses.

Installation Safety → Mount securely to prevent vibration or disconnection, ensure clear rider visibility, and waterproof if outdoors.

Environmental Conditions → Recommended range -10 °C to 60 °C. Avoid prolonged direct sunlight, dust, or moisture exposure.

General Handling → Do not disassemble, clean only with a soft dry cloth, and use original or approved accessories.

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1.1 Introduction

The 3Shul Display is a next-generation smart dashboard for electric motorcycles, scooters, and e-bikes. It provides real-time riding data including speed, battery level, remaining range, trip distance, and motor/controller temperature — all on a high-brightness (1000 nits) screen clearly visible even in direct sunlight. It also supports vehicles with more than one motor controller, on-board acceleration testing, and cloud-connected ride data logging.

1. Real-time speedometer (KMPH / MPH).
2. Battery monitoring: voltage, charge percentage, estimated range.
3. Ride statistics: odometer, trip, and since-start data.
4. Temperature monitoring: motor and controller, for every connected motor controller.
5. Three display modes/themes: M1 (green), M2 (blue), M3 (red).
6. Compact design: 132 × 89 × 29.5 mm, only 350 g.
7. 1000 nits brightness for outdoor visibility.
8. Works with single- and multi-motor vehicles.
9. Wi-Fi for firmware updates and cloud ride-data sync; Bluetooth for compatible battery management
10. (BMS) and tyre-pressure (TPMS) sensors.

1.2 Key Features

1. Lightweight and rugged, designed for EV dashboards.
2. Compatible with motorcycles, scooters, and e-bikes — single or multi-motor.
3. Three ride modes (M1 / M2 / M3), each with independently adjustable motor power, battery current, and regen braking.
4. Traction control with an adjustable slip-sensitivity threshold.
5. Cruise control indicator on the dashboard when cruise control is engaged.
6. Wheelie assist support on compatible vehicles.
7. Notification panel for quick access to brightness, theme, display mode, traction control and Wi-Fi, plus live fault alerts.
8. Guided throttle & brake calibration wizard for twist or thumb throttle, with regen braking and reverse mode support.
9. Built-in DragON performance meter — times 0–40, 0–60, 0–100 as well as 1/8-mile and 1/4-mile runs, with best-run tracking.

1.2 Key Features

10. Real-time performance graphs for live telemetry.
11. Ride data logging with an on-board storage gauge and cloud sync for later review.
12. Bluetooth pairing with compatible battery management systems (BMS) and tyre-pressure sensors (TPMS) for extra battery and tyre data.
13. Over-the-air firmware updates via Wi-Fi.
14. Stylish UI combining performance and functionality.

1.3 Product Highlights

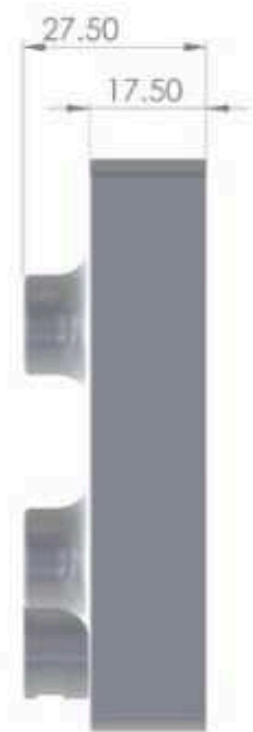
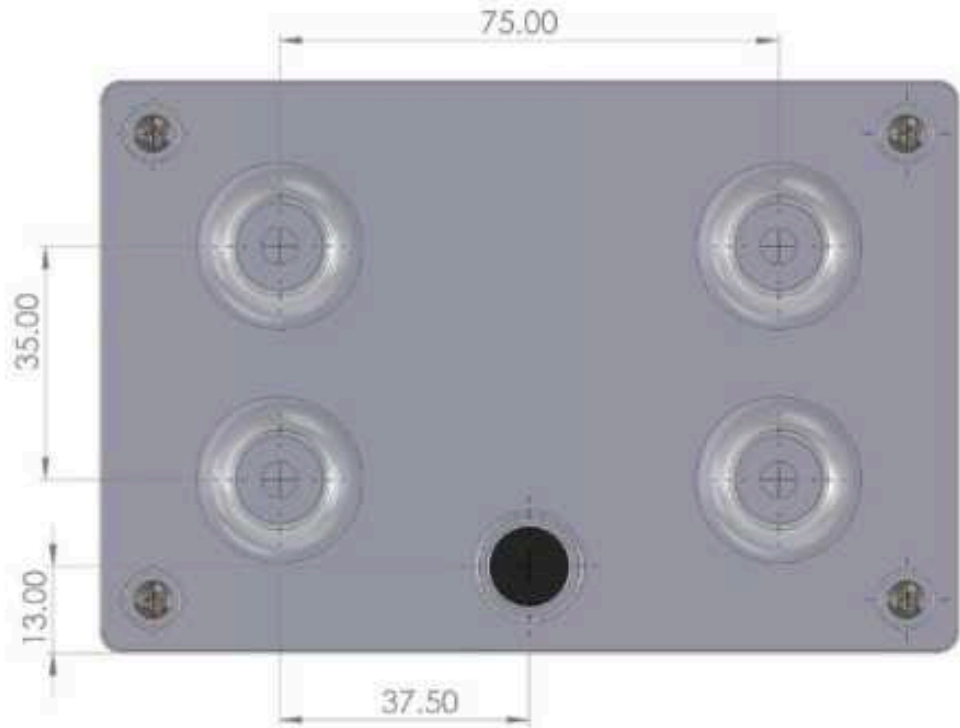
1. Sunlight-readable, high-brightness display.
2. Compact and rugged, built for two-wheeler dashboards.
3. Reads and combines data from every connected motor controller.
4. Simple Wi-Fi updates — no cables needed.
5. Automatic brightness and automatic day/night theme switching.

1.4 Key Features

1. 1 × 3Shul Display unit
2. Mounting bracket and screws
3. Power connection cable (5V)
4. Quick-start guide

2.1 Dimensions

Specification	Value
Power Input	5V DC
Dimensions	132 X 89 X 29.5 mm
Weight	350 g
Display Brightness	1000 nits
Operating Temperature	-10°C to 60°C
Storage Temperature	-20°C to 70°C
Screen Type	High-resolution LCD (sunlight-readable)



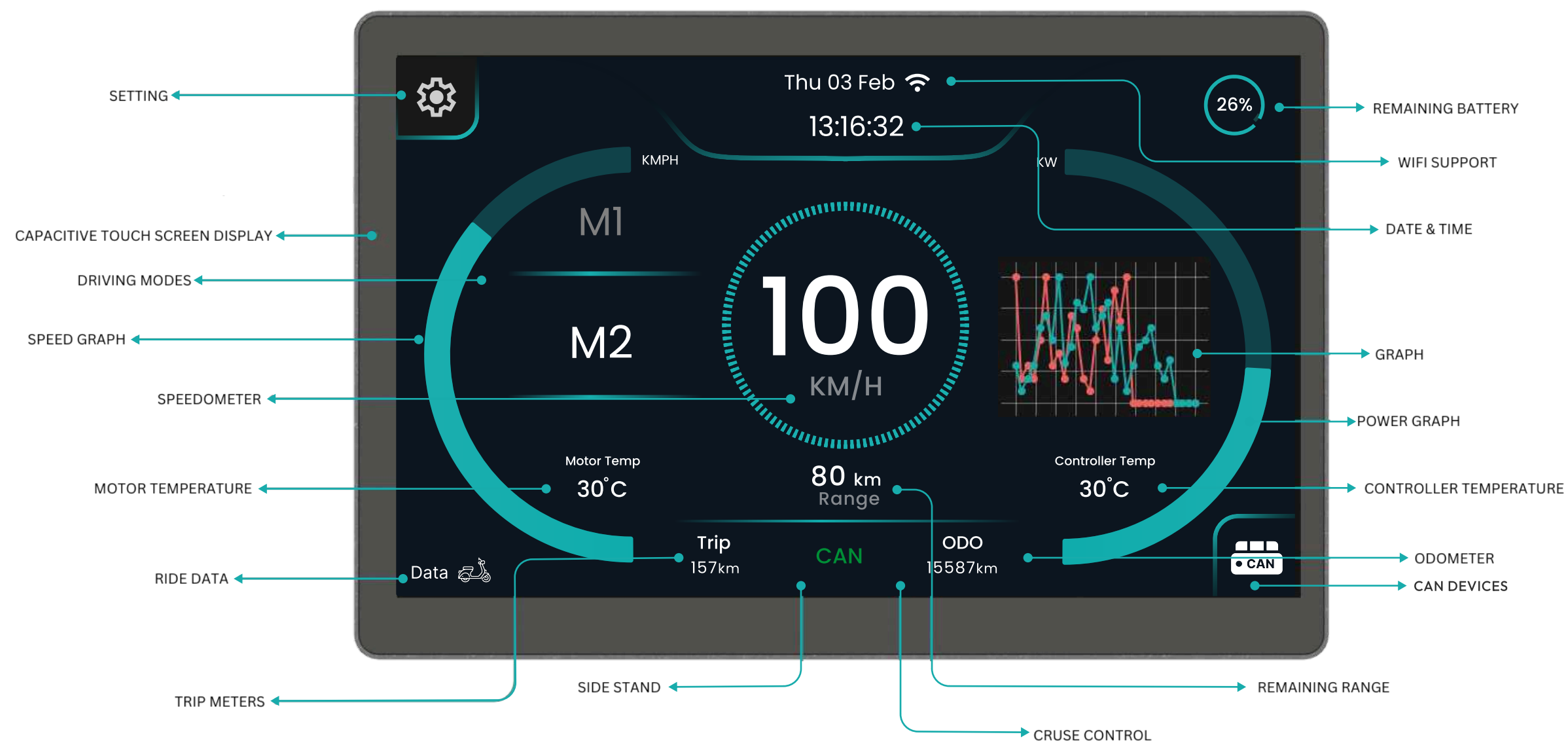
3.1 Unpacking & Inspection

- Unpacking** Open package, confirm accessories, check for damage.
- Mounting** Fix on handlebar/dashboard using bracket, ensure clear view tighten securely.
- Wiring** Connect to 5 V supply, check polarity/insulation, waterproof if outdoors.
- First Power-Up** Turn ignition ON → display boots → splash screen → main UI.
- Navigation** Use buttons/touch (model-dependent) to adjust brightness, units, themes.

4. DISPLAY MODES & DATA VIEWING

The home screen shows live ride data pulled directly from the vehicle's motor controller(s): speed, power, battery percentage, motor and controller temperature, range, trip and odometer, plus status icons for Wi-Fi, connected controllers, and cruise control.

SR	Mode	Description
01	M1 (Green)	Focus on range & efficiency.
02	M2 (Blue)	Balanced view: speed, battery, trip.
03	M3 (Red)	Highlights speed, RPM, power usage.

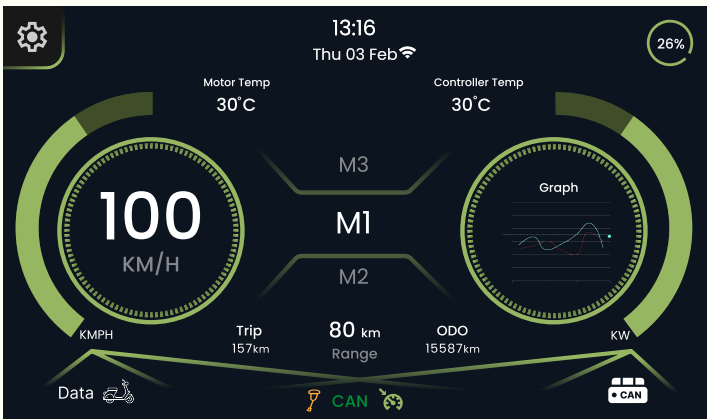
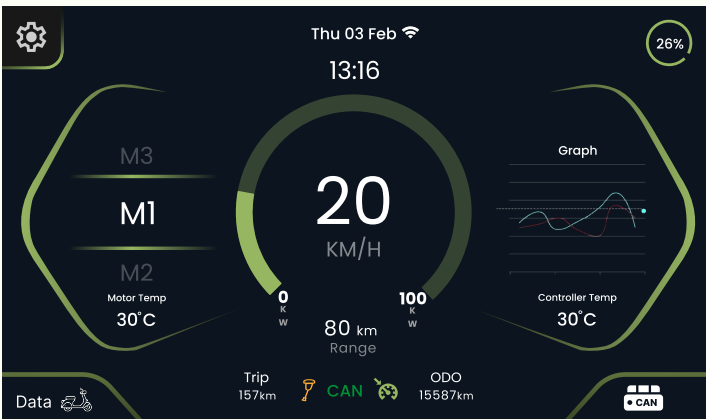
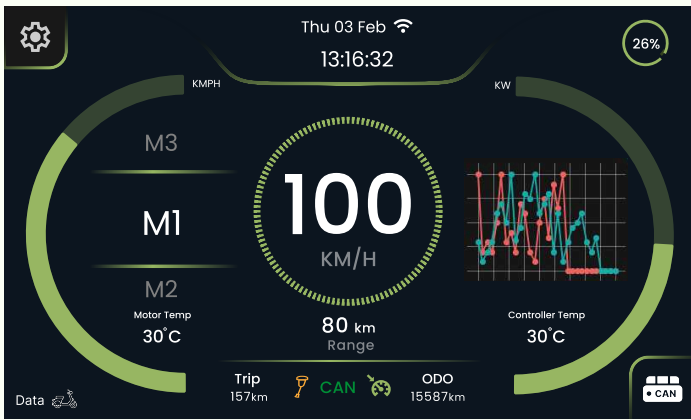


5. Themes (M1 / M2 / M3)

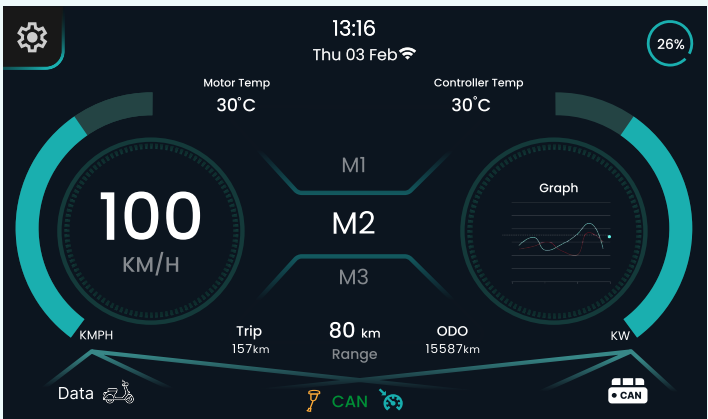
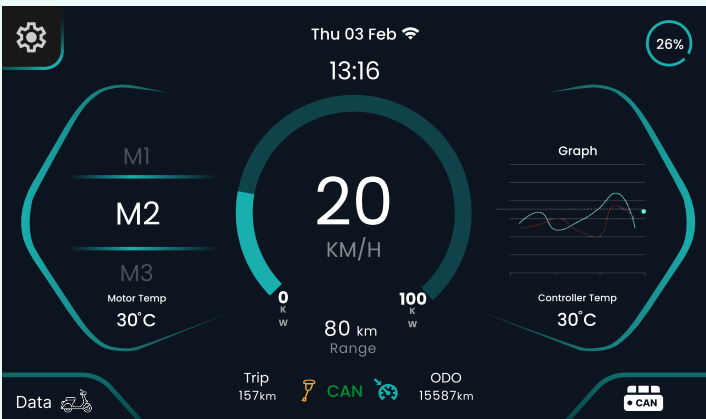
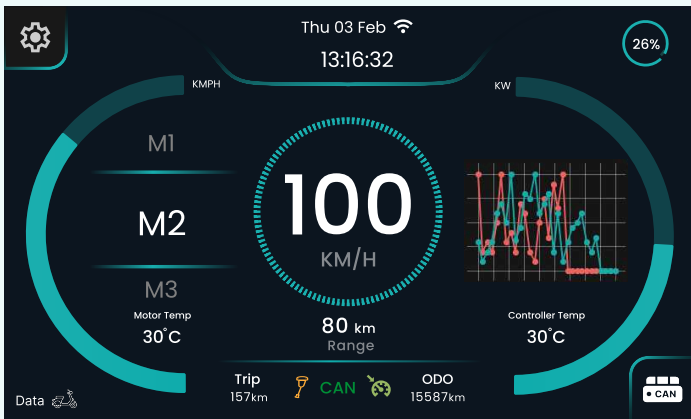
Independently of which mode/theme (M1/M2/M3) is active, the colour scheme can be set to Light or Auto (day/night, based on ambient light) from the Display Setting screen. Preview a theme before applying it.

SR	Mode	Description
01	M1 (Green)	Focus on range & efficiency.
02	M2 (Blue)	Balanced view: speed, battery, trip.
03	M3 (Red)	Highlights speed, RPM, power usage.

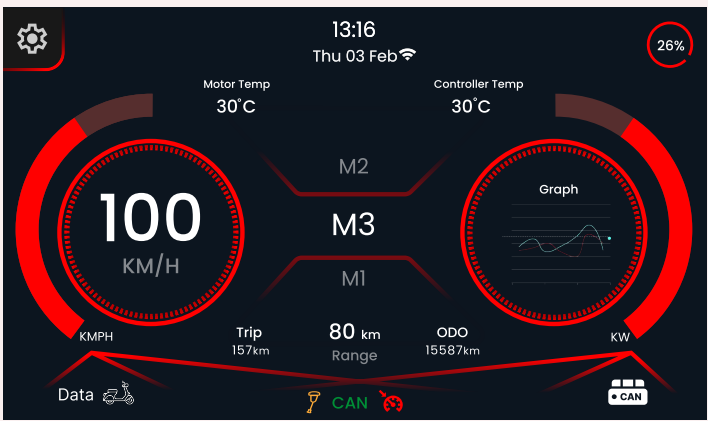
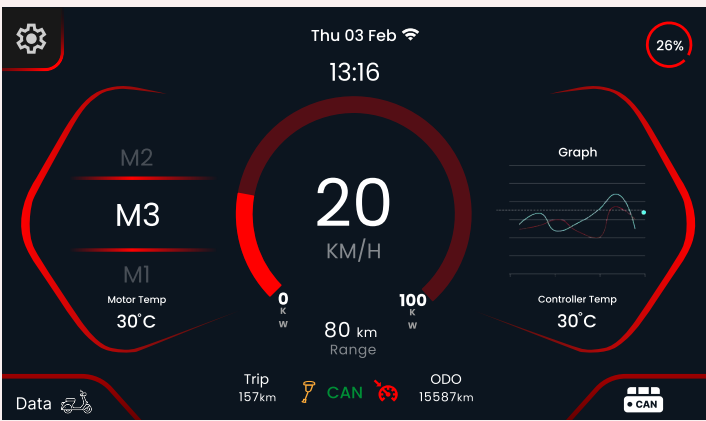
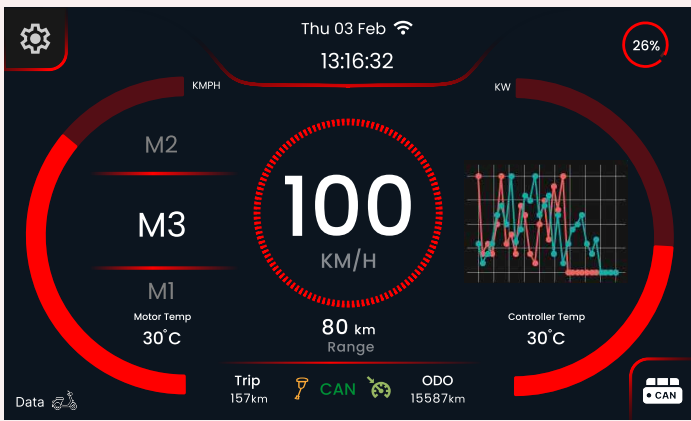
M1 Theme



M2 Theme



M3 Theme



6.1 Main Settings Screen

The Main Settings Screen acts as the control hub for all configuration menus. From here, the rider can access:

1. Display Settings

2. Mode Settings

3. Wi-Fi Settings

4. System Settings
5. Vehicle Settings

6. Mode Throttle Setting

7. Calibration Settings

8. About Device

In addition, a swipe-down notification panel (control centre) gives quick access to the following without entering the Settings menu:

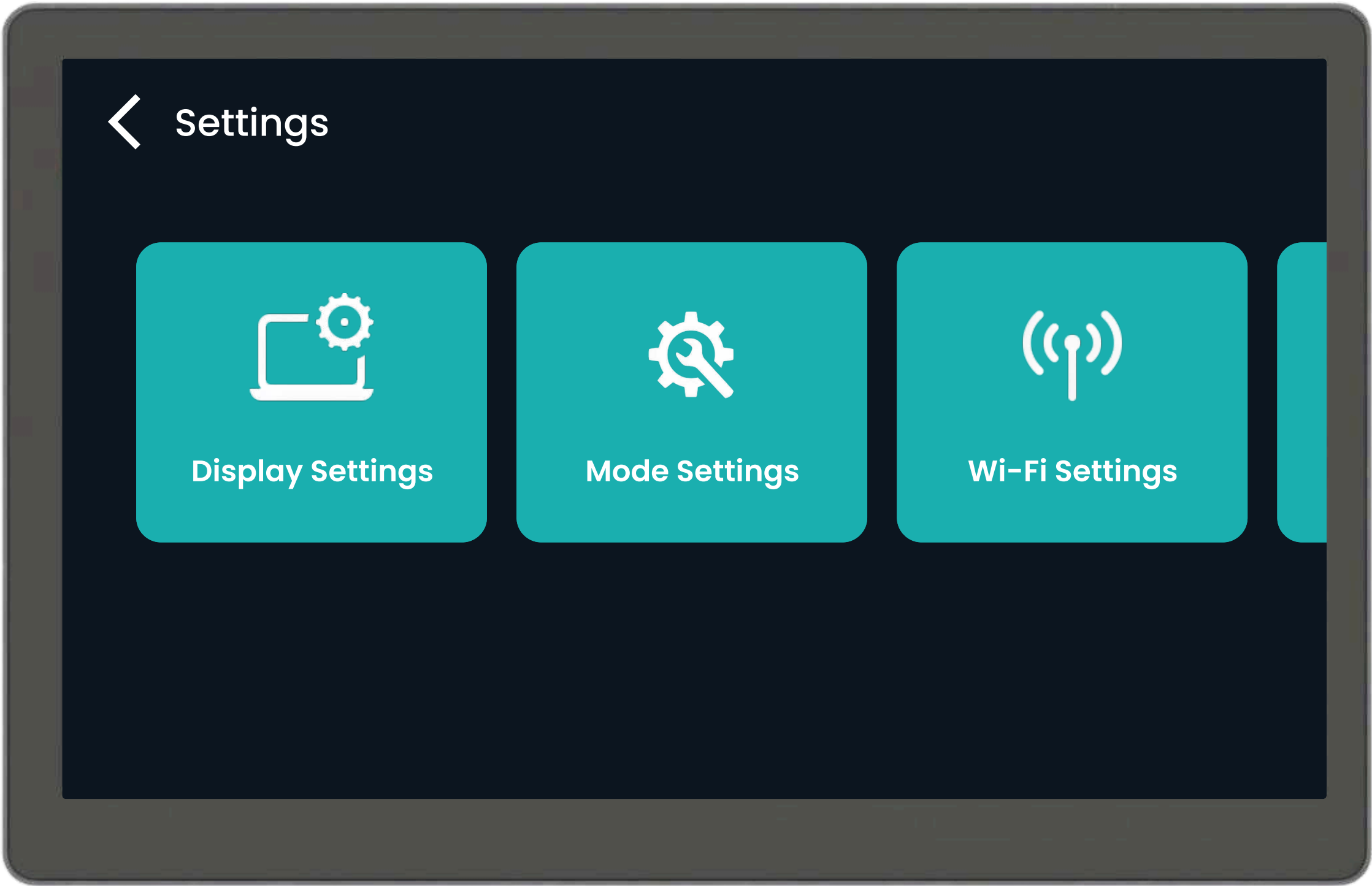
1. Brightness and Auto-Brightness

2. Colour theme (Light / Auto)

3. Dashboard mode (M1 / M2 / M3)
4. Traction control on/off

5. Wi-Fi on/off

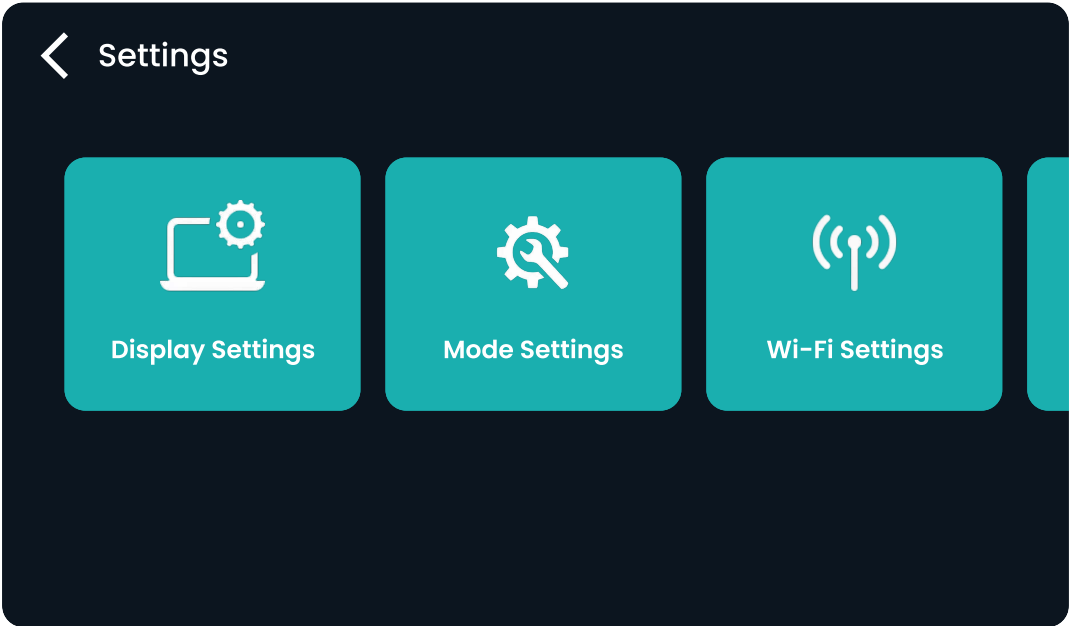
6. Live fault and status alerts



6.2 Display Setting Screen

This menu allows the rider to adjust the visual appearance and basic UI preferences of the display.

- **Brightness** → Adjust for environment, with an Auto-Brightness option.
- **Temp Unit** → °C / °F.
- **Reset Trip** → Clear trip data.
- **Theme** → Light, Auto.
- **Dashboard Mode** → Choose M1 / M2 / M3.
- **Preview** → View theme before applying.

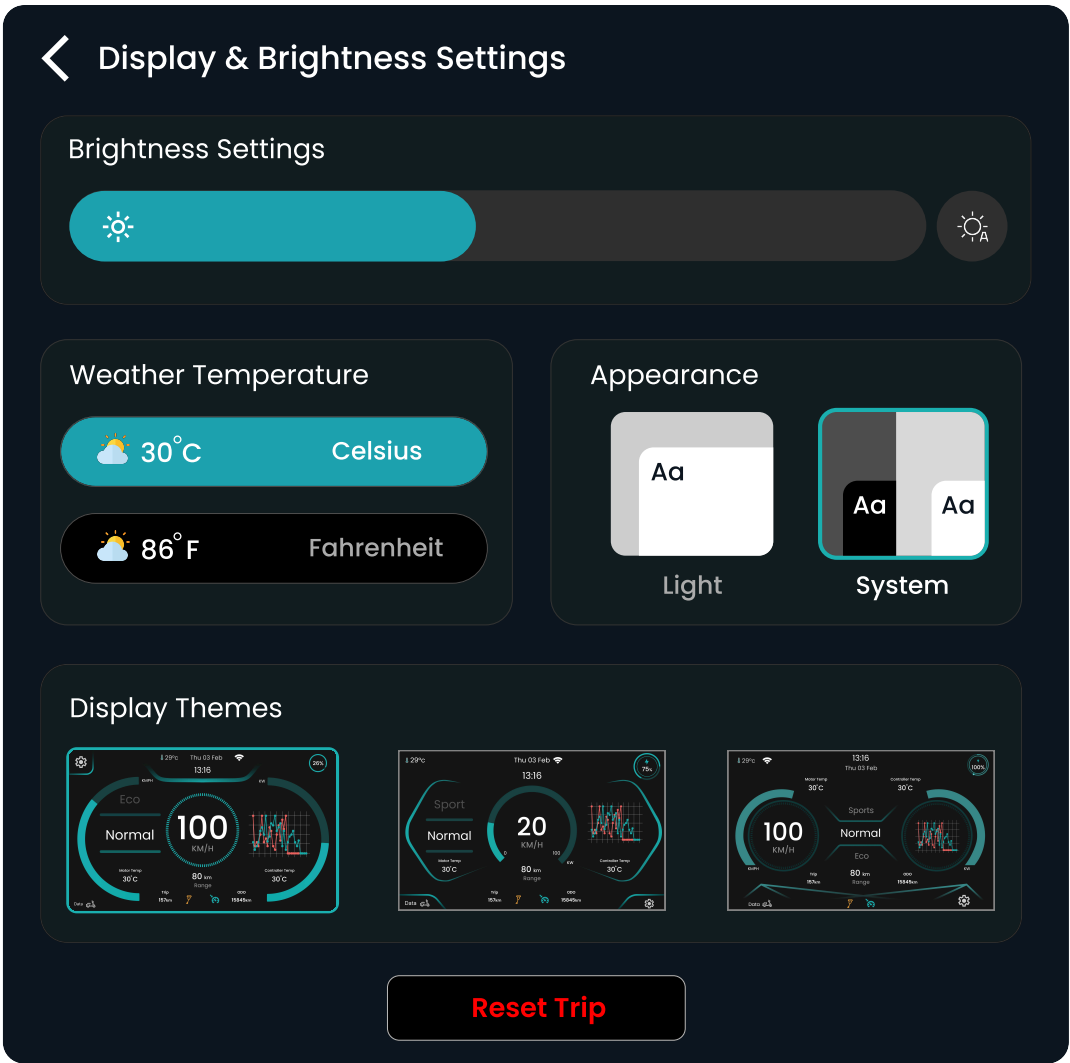


6.3 Mode Setting Screen

Set performance limits per mode. Each mode has three sliders:

- **M1 (Green)** → Motor Current, Battery Current, Regen Braking
- **M2 (Blue)** → Motor Current, Battery Current, Regen Braking
- **M3 (Red)** → Motor Current, Battery Current, Regen Braking

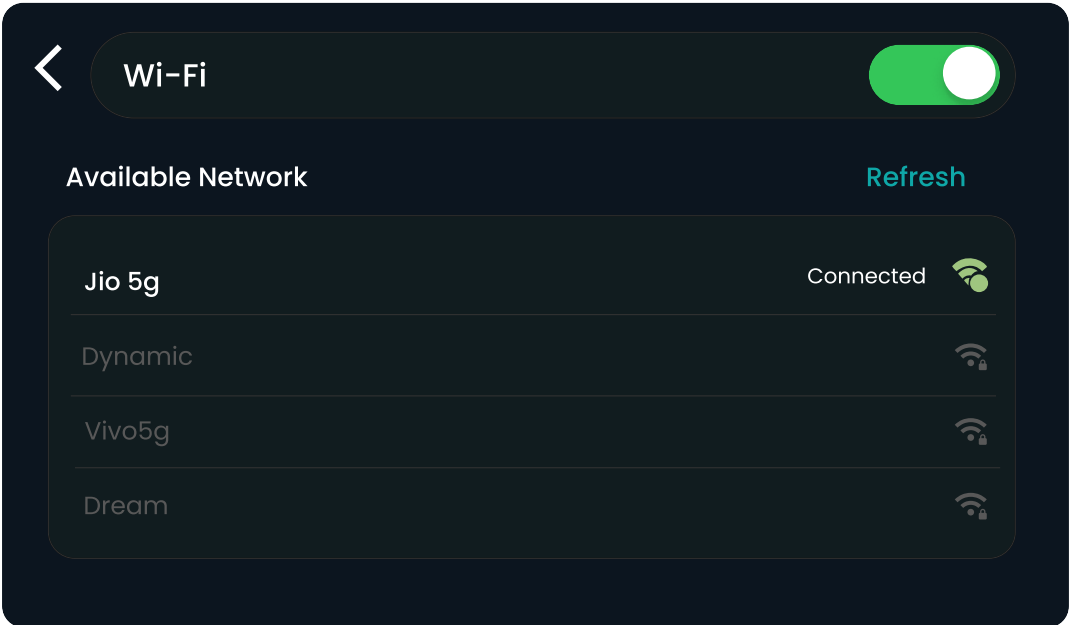
On vehicles with more than one motor controller, these limits are applied to every connected controller.



6.4 Wi-Fi Setting Screen

The Wi-Fi menu enables the display to connect with wireless networks for updates or connected services.

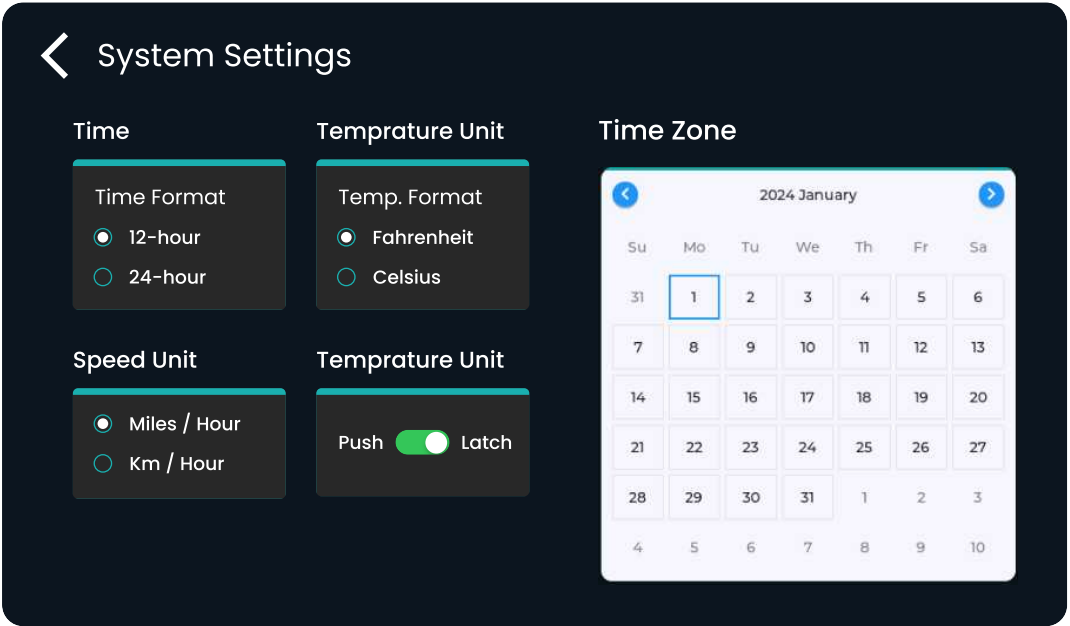
- **Scan Networks** - Shows a list of up to 5 available Wi-Fi networks.
- **Save Networks** - Save credentials for quick reconnection.
- **Auto-Connect** - Automatically connects to the last used network when in range.



6.5 System Setting Screen

This screen provides system-level preferences.

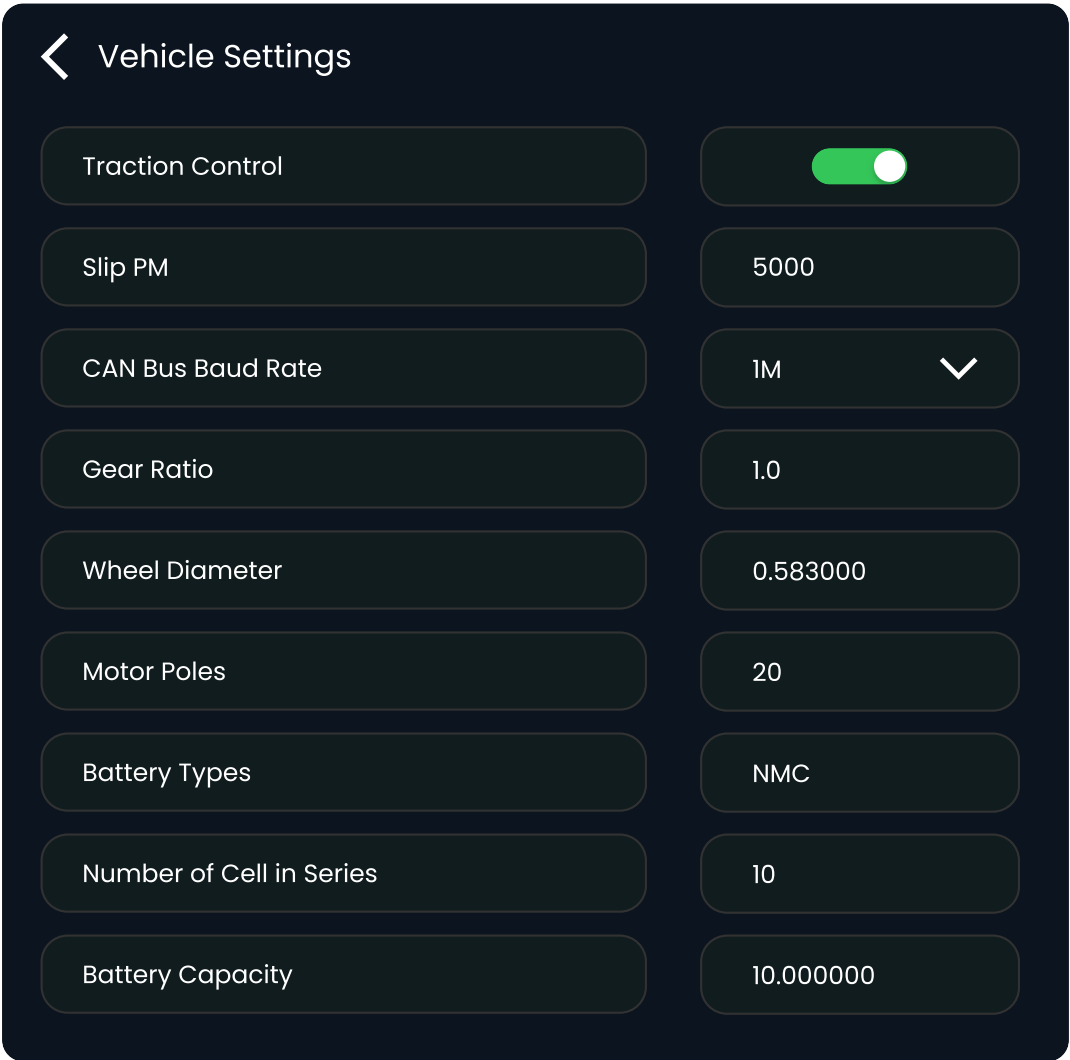
- Time Format → 12h / 24h
- Speed Unit → KMPH / MPH
- Calendar → View & configure
- Throttle Mode → Push or Latch behaviour for the motor/brake control



6.6 Vehicle Setting Screen

This menu configures parameters specific to the vehicle setup.

- CAN Bus ID → Unique ID for communication
- Baud Rate → Set CAN speed
- Gear Ratio → For accurate calculations
- Wheel Diameter → Correct speed & distance
- Motor Poles → Accurate RPM readings
- Battery Type → For accurate charge estimation
- Cells in Series → Number of series cells in the battery pack
- Battery Capacity (Ah) → Used for range estimation
- Traction Control → Enable/disable, with an adjustable slip (max RPM difference) threshold
- Battery Capacity (Ah) → Enable CAN-driven wheelie control on supported vehicles

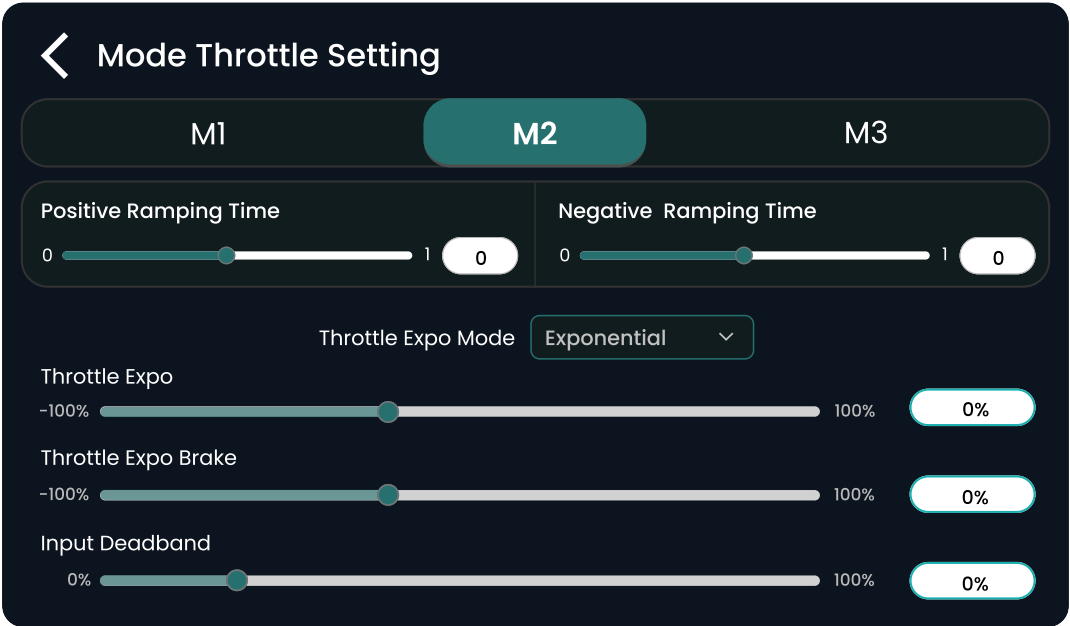


6.7 Mode Throttle Setting Screen

Fine-tune throttle response per riding mode (M1 / M2 / M3).

Configurable Parameters:

- **Positive Ramp** → Throttle rise
- **Negative Ramp** → Throttle fall
- **Expo Mode** → Curve type
- **Throttle Expo** → Sensitivity
- **Brake Expo** → Brake curve
- **Deadband** → Neutral zone
- **Throttle Enable** → Turn throttle input on/off
- **Regen Braking** → Off-Regen, Thumb Throttle, Reverse Mode



6.8 Calibration Settings Screen

6.8.1 START — Prepare for calibration

Configurable Parameters:

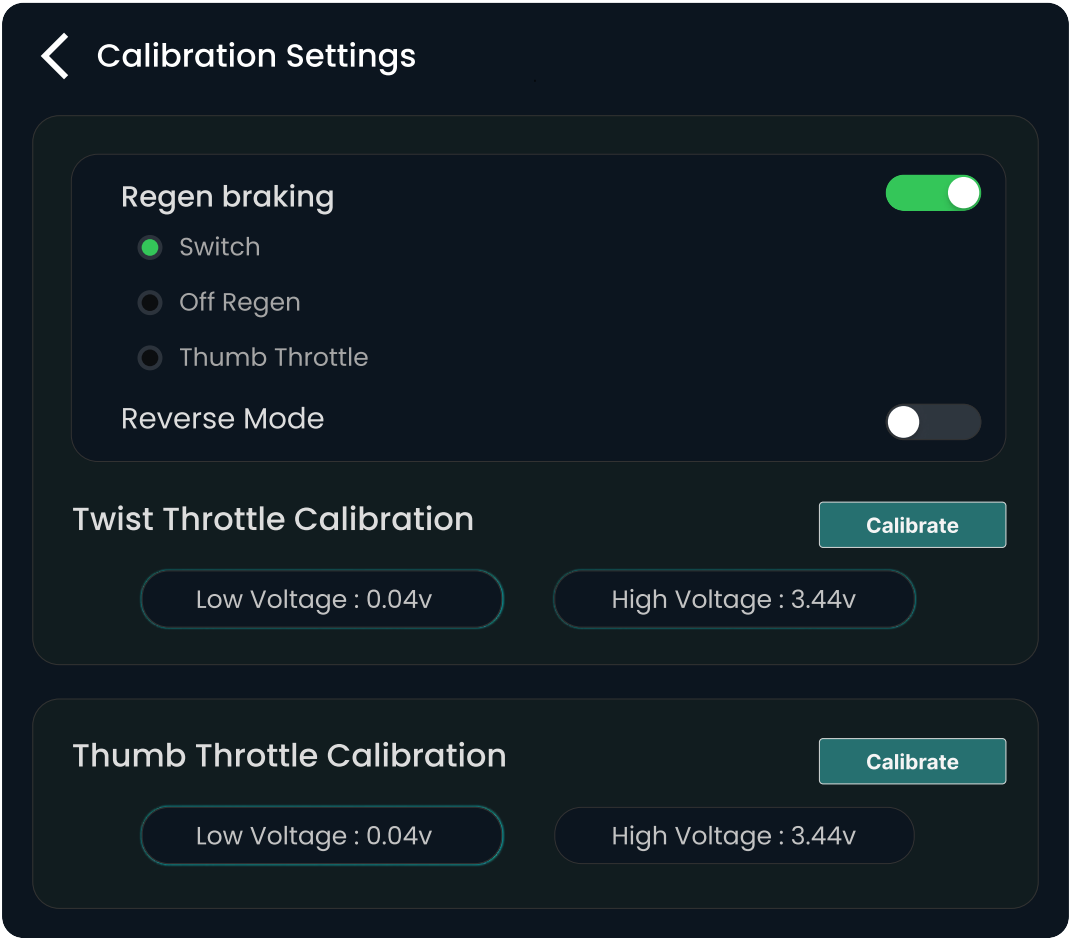
- Park safely; controller ON.
- Wheel off ground; motor idle.
- Throttle returns to zero.
- Button: Continue

6.8.2 RELEASE — Set Low Voltage

- Release throttle completely.
- Wait for stable reading; tap Continue to capture.
- “Current Voltage” shows live value.
- Button: Continue

6.8.3 THROTTLE — Set High Voltage

- Hold throttle fully open.
- Keep steady 2s; tap Continue to capture.
- Verify live reading.
- Button: Continue



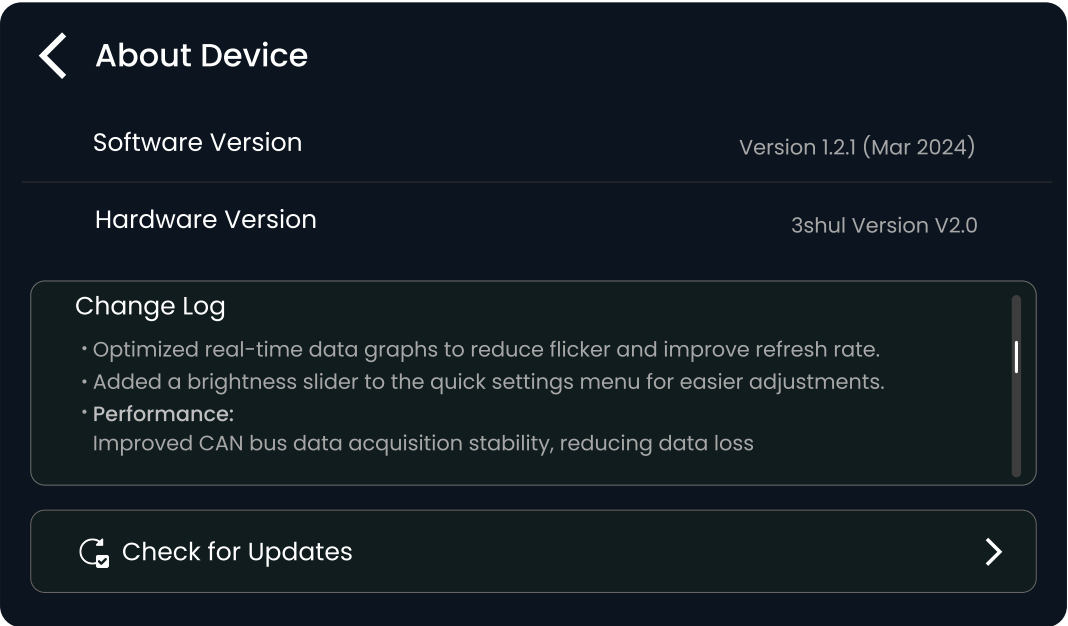
6.8.4 FINISH — Save

- Review Low / High values.
- Tap Save to apply.
- Recalibrate after any throttle/wiring change.

6.9 About Device

The “About Device” screen shows the current firmware version, along with device and cloud-account management functions.

- **Firmware Version** → Shows the currently installed display firmware version.
- **Cloud Sync API Key** → Enter your account key to enable ride-data cloud upload (used by the Data Logger, Section 6.11).
- **Firmware Update** → Checks for and applies new firmware over Wi-Fi, with an on-screen progress indicator; the display will let you know if Wi-Fi drops, no update is available, or an update fails, so it is always safe to retry.
- **Update Notification** → Displays a message when a new update is available.
- **Factory Reset** → Restore the display to its factory default settings.



6.10 Graph Screen

The rider can analyze motor performance using graph views.

Available Graph Types:

- Input Current vs. Motor Current
- ID vs. IQ
- Live telemetry values (visualize efficiency & performance in real time)

6.11 Ride Data Screen

The ride data screen provides detailed trip statistics.

- **Since Start Data** → Cumulative data since ignition/start.
- **Trip Data** → Distance and performance data for a single trip.
- **Last Ride Summary** → Duration, distance, energy used, average/top speed, and any fault recorded during the most recently completed ride.
- **Reset Option** → Clear stored trip data manually.

6.12 Data Logger Screen

Records ride data for later review and analysis.

- **Live Storage Gauge** → Shows how much on-board log storage is used (MB / %).
- **Cloud Sync** → Uploads logged rides to the 3Shul cloud once Wi-Fi is connected and an API key is set (see About Device, 6.8).
- **Sync Frequency** → Control how often logs are uploaded.

6.13 Battery & Tyre Sensor Pairing (BLE)

Pair compatible Bluetooth sensors to see extra data alongside the main dashboard.

- **Battery Management System (BMS)** → Pair a supported JBD, ANT, or Daly BMS to view per-cell battery voltage and temperature.
- **Tyre Pressure (TPMS)** → Pair supported tyre-pressure sensors to view live tyre pressure.

7. Maintenance Tips

1. Clean display with soft, dry cloth — no liquids or solvents.
2. Avoid dropping or impacts.
3. Periodically check for firmware updates — updates often include CAN bus stability and telemetry accuracy improvements.
4. Inspect cables & connectors every 6 months.
5. Re-calibrate the throttle after any replacement or wiring change.
6. Store indoors if unused for long periods.

Specification	Value
Power Input	5V DC
Dimensions	132 X 89 X 29.5 mm
Weight	350 g
Display Brightness	1000 nits
Operating Temperature	-10°C to 60°C
Storage Temperature	-20°C to 70°C
Screen Type	High-resolution LCD (sunlight-readable)

SR	Issue	Solution
01	Display not powering on	Check wiring/polarity, ensure 5V supply
02	Data not updating	Inspect all connectors, restart display
03	Wi-Fi not connecting	Rescan, re-enter credentials, check password
04	Inaccurate speed/distance	Recheck wheel diameter and gear ratio settings
05	Screen hard to read	Increase brightness, use Light/Auto theme
06	Motor controller not detected (0 devices shown)	Check CAN bus wiring/connectors and confirm the controller is powered
07	Traction control not activating	Confirm it is enabled and the slip threshold is set in Vehicle Setting
08	DragON timer not starting	Ensure the vehicle is stationary and the throttle is fully released before arming a run
09	Ride data not syncing to the cloud	Confirm Wi-Fi is connected and the account API key is entered in About Device
10	BMS or TPMS sensor won't pair	Confirm the sensor is powered, within Bluetooth range, and is a supported JBD, ANT, or Daly BMS / TPMS model



Thank You!

Thank You for choosing 2Shul Motor. Tougher,
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