ELECTRIC BIKE INSTRUMENT PANEL

USER MANUAL

YL81F

Table of contents

1. Product Name and Model.

Electric Bike Smart LCD Display; Model: YL81F

2. Specifications and Model.

- 36V/48/52V
- Rated operating current of the instrument　15mA
- Maximum operating current of the instrument　30mA
- Turn off machine leakage current<1uA
- Provides controller side working current　50mA
- Operating temperature-20~60°C
- Storage temperature-30~70°C

3. Appearance and dimensions.

image 3-1 YL81F Instrument physical image.

image 3-2 K5 Button physical image.

image 3-3 K6 Button physical image.

image 3-4 YL81F Instrument front view dimension diagram.

image 3-5 YL81F Instrument side view dimension diagram.

4. Function overview and functional area distribution.

4.1 Function overview

YL81F instrument offers a wide range of functions to cater to your cycling needs, including:

- Battery Level Display
- Assist Level Adjustment and Indication
- Speed display (including real-time speed, maximum speed, average speed)
- Mileage display (including one-way mileage and total mileage.)
- Pedal Assist Control and Indication
- Headlight Control and Indication
- Error Code Display
- Motor Power Display (optional)
- USB connection prompt (optional)
- Cruise control indication (optional)
- Bluetooth connection indication (optional)
- Personalized parameter setting (for example, wheel diameter, speed limit, battery power setting, auxiliary parameters, startup password, controller current limit and other parameters)

4.2 Functional area distribution.

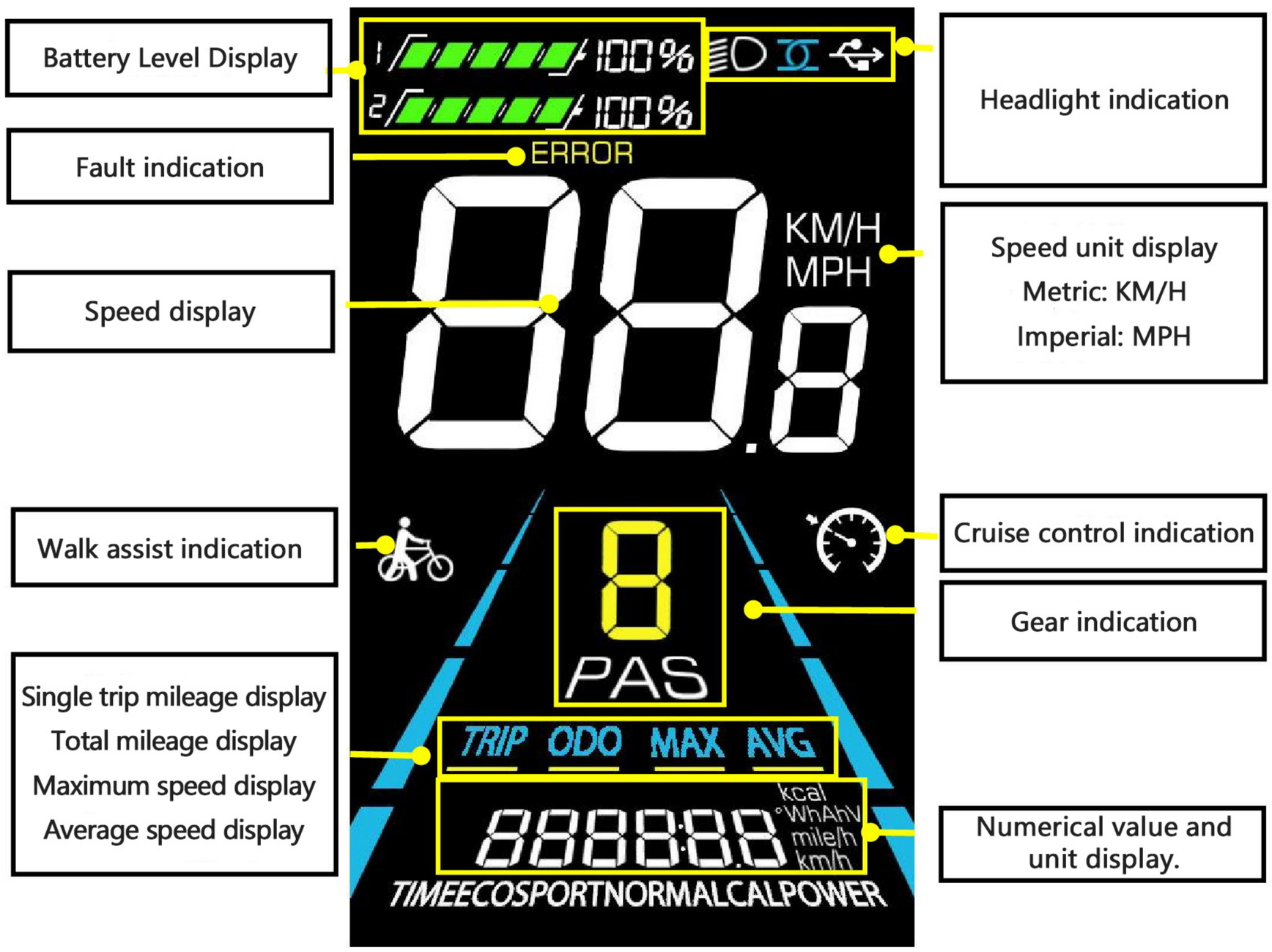


image 4-1 YL81F Functional area distribution interface.

4.3 Button definitions

The operating unit corresponding to the YL81F instrument has five buttons:
Power On/Off Button ,Increase Button ,Decrease Button ,Headlight Button ,
Switch Button ,

5. Basic operations

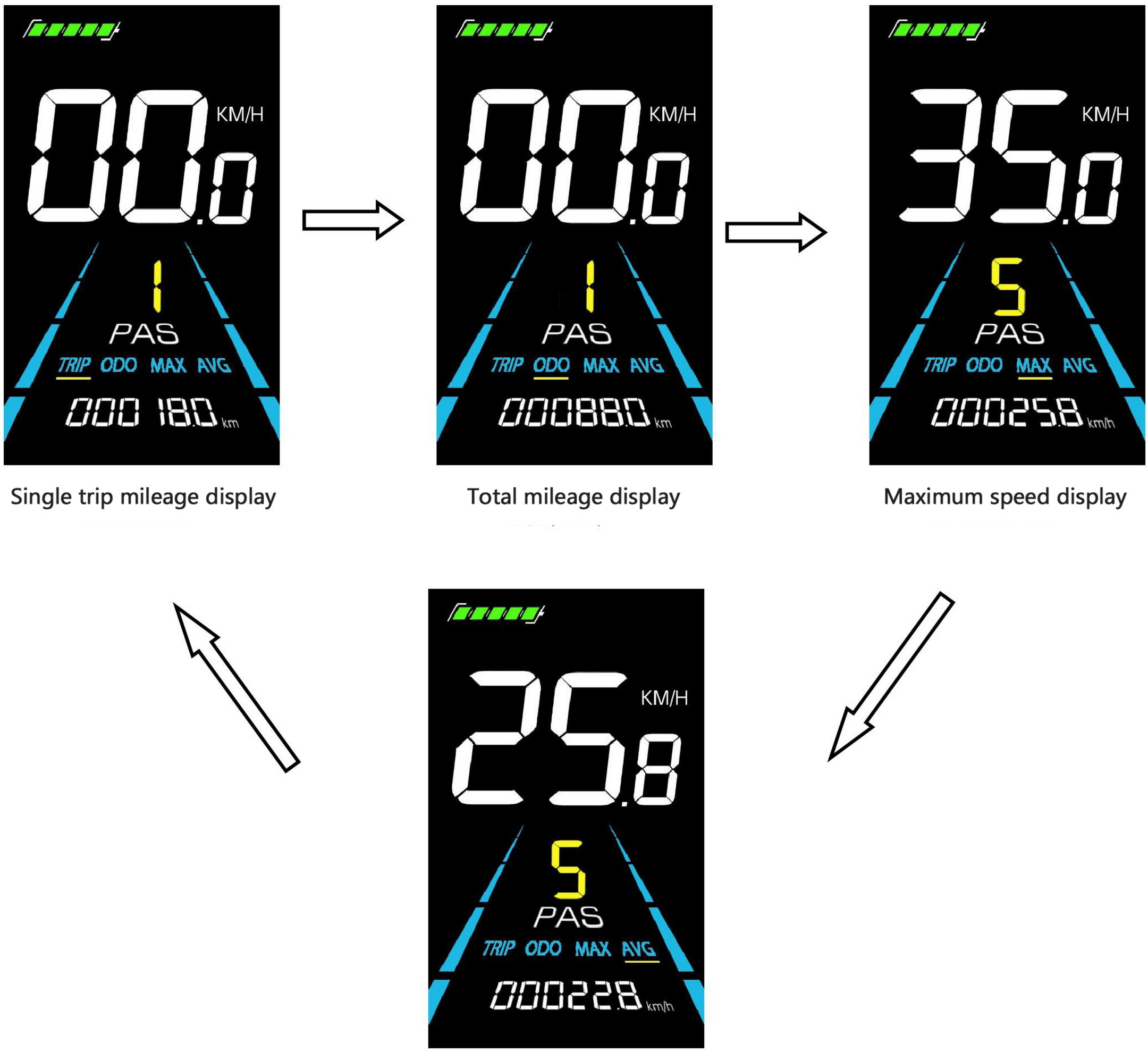
5.1 Power on / Power off

After a long press of the ⏻ button, the instrument starts operating and connects to the controller's power supply. In the powered-on state, a long press of the ⏻ button can turn off the electric bicycle's power. In the powered-off state, the instrument no longer draws power from the battery, and the instrument's leakage current is less than 1uA.

⚠**If the electric bicycle is not used for more than 10 minutes, the instrument will automatically shut down.**

5.2 Display interface switch

After the instrument is powered on, it defaults to displaying real-time speed (km/h) and total mileage (km). A short press of the i button allows you to toggle between displaying information for total mileage (km), single trip mileage (km), maximum speed (km/h), and average speed (km/h).



Single trip mileage display

Total mileage display

Maximum speed display

Average speed display

image 5-1 Display interface switch

5.3 Assisted walking.

A long press of the − button puts the electric bicycle into electric assist walking mode. The electric bicycle travels at a constant speed of 6 kilometers per hour. At the same time, the screen displays . Releasing the − button will immediately stop power output from the electric bicycle and return it to the state before electric assist walking.

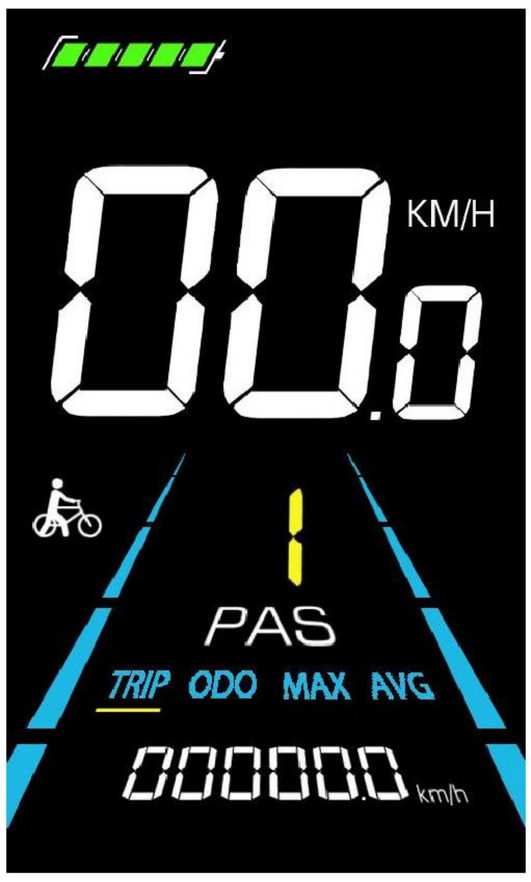


image 5-2 Assisted walking display interface.

⚠ **The assisted walking function can only be used when the user is pushing the electric bicycle. Please do not use it while riding.**

5.4 Turn on / Turn off headlights.

A short press of the button activates the controller to turn on the headlights, causing the instrument backlight to dim. Another short press of the button will deactivate the controller and turn off the headlights, restoring the instrument backlight brightness.

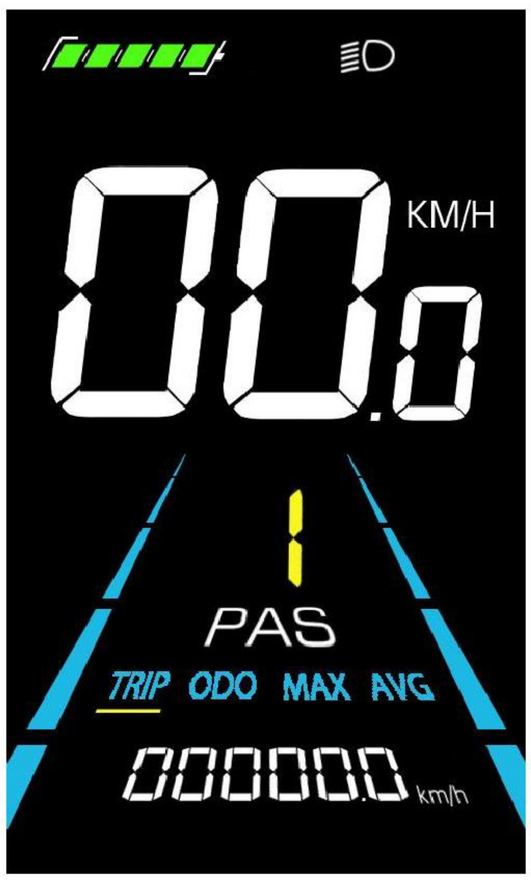


image 5-3 Turn on the headlight display interface

5.5 Electric assist level selection.

Short press the ⊕ / ⊖ button to switch between electric bicycle assist levels, thereby changing the motor's output power.

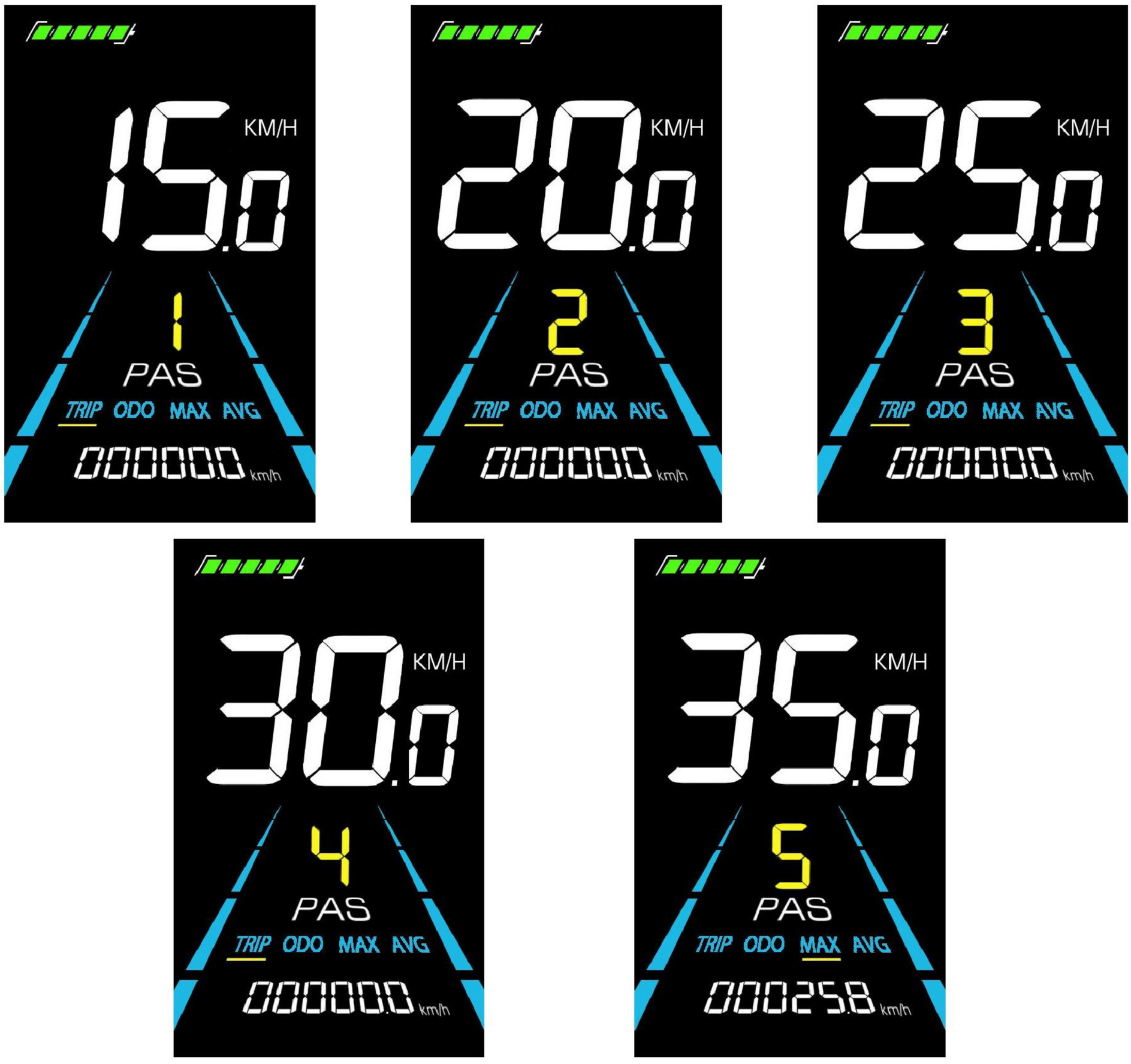
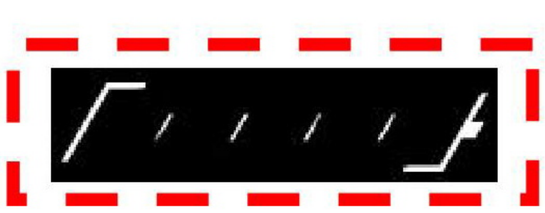


image 5-4 Gear level switching display interface.

5.6 Battery level display.

The battery level is displayed in five segments. When the battery is fully charged, all five indicator lights are lit. When the battery is under-voltage, the outer border of the battery indicator blinks, indicating the need for immediate charging.

Full battery level display | Four-bar battery level display | Three-bar battery level display | Two-bar battery level display | One-bar battery level display



Battery under-voltage flashing.

image 5-5 Battery level display interface.

5.7 Error code display.

When the electric bicycle's electronic control system experiences a malfunction, the instrument will automatically display an error code. For detailed definitions of error codes, (please refer to Appendix1.)

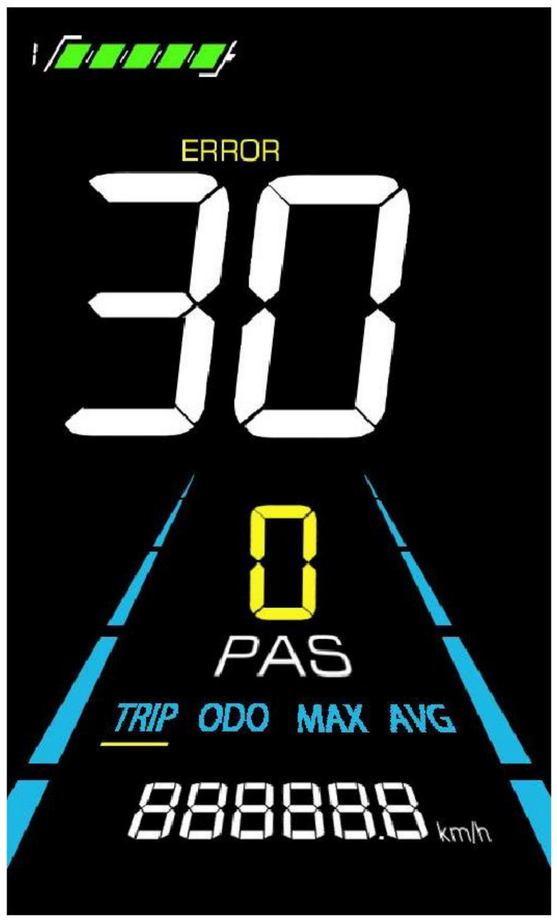


image 5-6 Error code display interface.

⚠ **When an error code appears on the display interface, please promptly troubleshoot the issue. The electric bicycle will not operate correctly when a fault occurs.**

6. Personalized parameter settings.

⚠ **All settings should be adjusted when the vehicle is stationary.**

The steps for customizing parameter settings are as follows:
When the instrument is in the powered-on state and the speed is displayed as 0,

Simultaneously press and hold the + − button for more than 2 seconds to enter the personalized parameter setting item selection interface.

Short press the + / − button to switch between personalized parameter setting items.Short press the i button to enter the parameter modification state.

Use the + / − button to select parameters. Long press + for incremental adjustment, long press − for decremental adjustment.

Short press the i button to save the parameter settings and return to the personalized parameter setting item selection interface.

Long press the i button to save the parameter settings and exit the personalized parameter setting item selection interface.

The personalized parameter setting item selection interface includes the following options:

6.1 Backlight brightness setting.

01P is the backlight brightness setting option, where 00 represents the dimmest and 03 represents the brightest setting.
Short press the i button to enter the parameter modification state, then use the + / − button to select the parameter, and finally, short press the i button to save the parameter settings and return to the personalized parameter setting item selection interface.

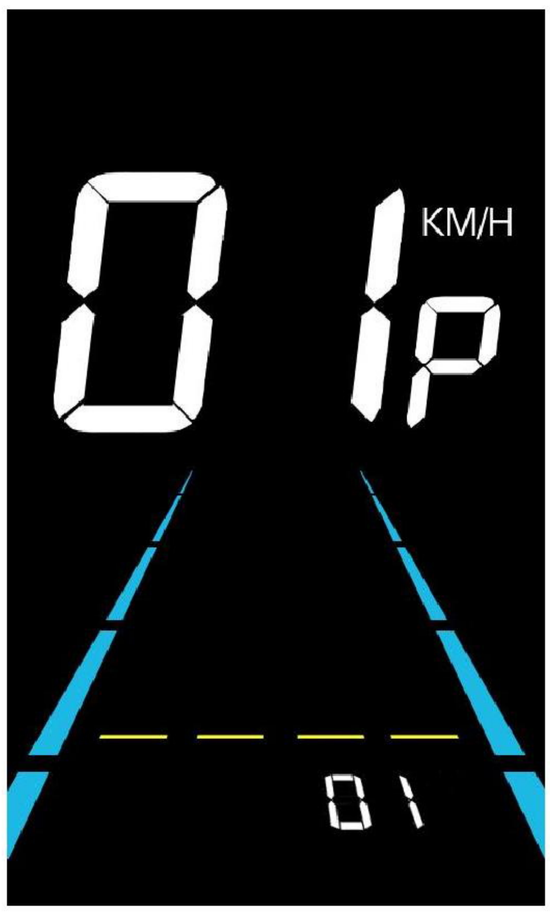


image 6-1 Backlight brightness setting interface.

6.2 Metric unit and Imperial unit settings.

02P is the setting option for metric and imperial units, where 00 represents metric units, and 01 represents imperial units.
Short press the i button to enter the parameter modification state, then use the + / − button to select the parameter, and finally, short press the i button to save the parameter settings and return to the personalized parameter setting item selection interface.

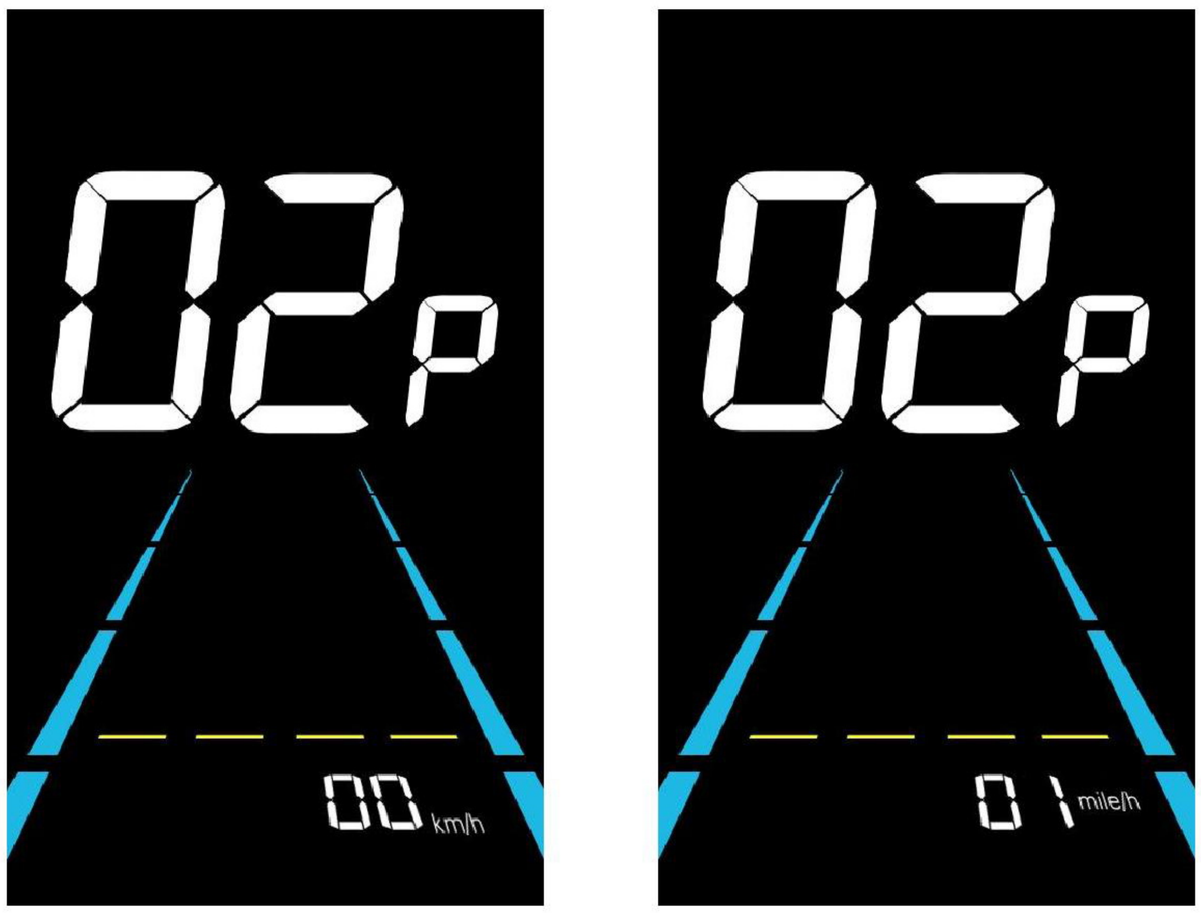


image 6-2 Metric unit and Imperial unit settings interface.

6.3 Rated voltage setting.

03P is the setting option for rated voltage, and it can be configured within the range of 24V, 36V, and 48V.

Short press the i button to enter the parameter modification state, then use the + / − button to select the parameter, and finally, short press the i button to save the parameter settings and return to the personalized parameter setting item selection interface.

image 6-3 Backlight brightness setting interface.

6.4 Auto shutdown time setting.

04P is the setting option for auto shutdown time. To conserve the electric vehicle's power for extended range, this instrument has an automatic shutdown feature if there is no operation for a long time. You can set the auto shutdown time within the range of 1 to 60 minutes, with 00 representing no auto shutdown. The default factory setting is usually 10 minutes for auto shutdown.

Short press the i button to enter the parameter modification state, then use the + / − button to select the parameter, and finally, short press the i button to save the parameter settings and return to the personalized parameter setting item selection interface.

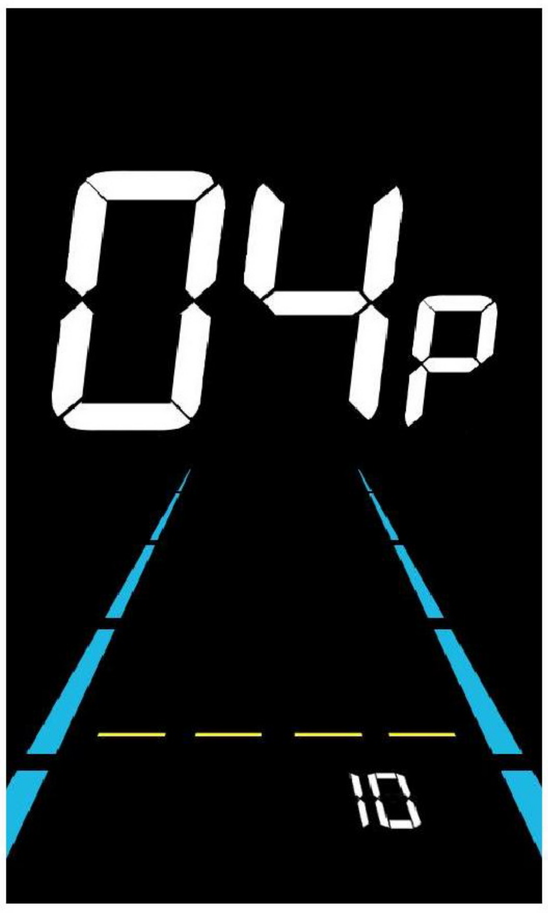


image 6-4 Auto shutdown time setting interface.

6.5 Electric assist level range setting.

05P is the setting option for the electric assist level range. The instrument offers a range of assist levels to choose from： 0~3 levels, 1~3 levels, 0~5 levels, 1~5 levels, 0~7 levels, 1~7 levels, 0~9 levels, 1~9 levels.

Short press the i button to enter the parameter modification state, then use the + / − button to select the parameter, and finally, short press the i button to save the parameter settings and return to the personalized parameter setting item selection interface.

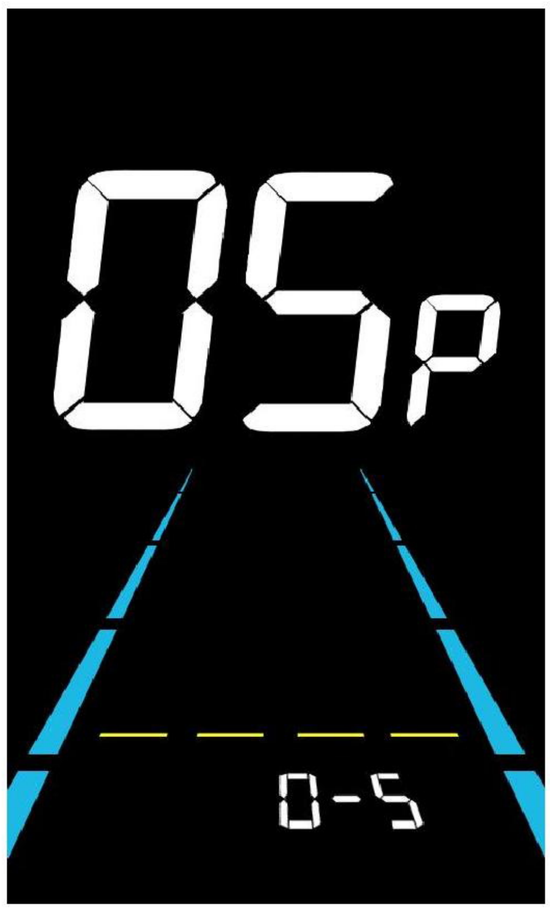


image 6-5 Electric assist level range setting interface.

6.6 Wheel diameter setting.

06P is the setting Wheel diameter, the instrument allows you to adjust the Wheel diameter within the range of 1 to 50 inches.

Short press the i button to enter the parameter modification state, then use the + / − button to select the parameter, and finally, short press the i button to save the parameter settings and return to the personalized parameter setting item selection interface.

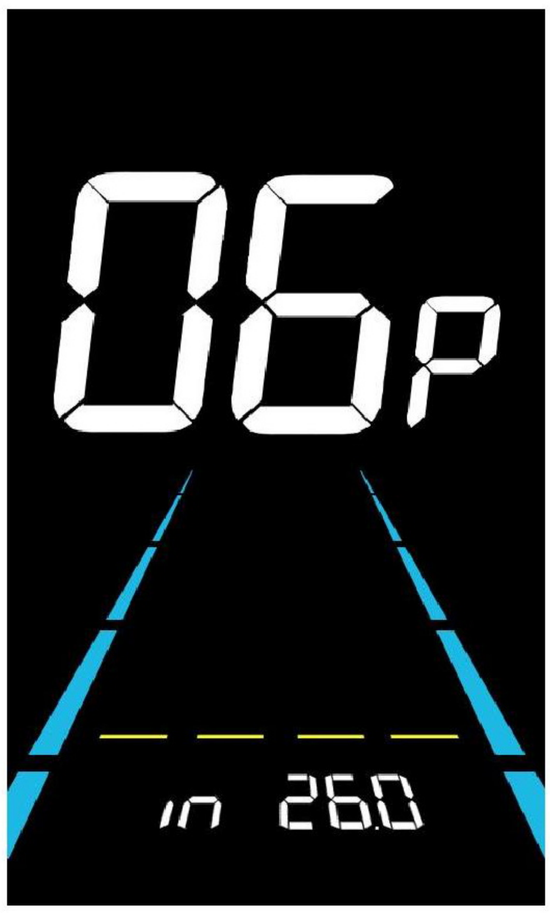


image 6-6 Wheel diameter setting interface.

6.7 Speed sensor magnet count setting.

07P is the setting option for the speed sensor magnet count, and the instrument allows you to adjust the number of speed sensor magnets within the range of 1 to 255 pieces.
Short press the i button to enter the parameter modification state, then use the + / − button to select the parameter, and finally, short press the i button to save the parameter settings and return to the personalized parameter setting item selection interface.

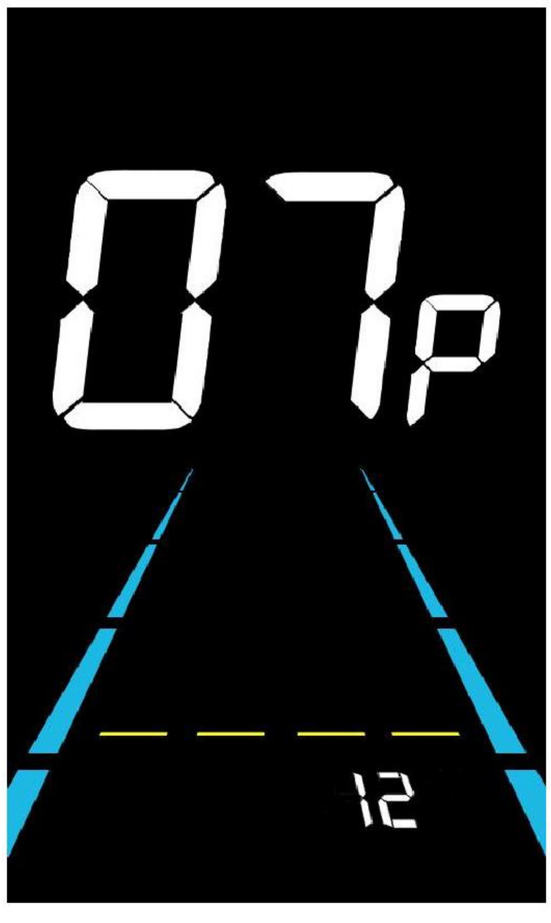


image 6-7 Speed sensor magnet count setting interface.

6.8 Speed limit setting.

08P is the setting option for speed limit, and the instrument allows you to adjust the speed limit within the range of 1 to 100 km/h. （Please note that the maximum adjustable speed limit may vary depending on different protocols.）
Short press the i button to enter the parameter modification state, then use the + / − button to select the parameter, and finally, short press the i button to save the parameter settings and return to the personalized parameter setting item selection interface.

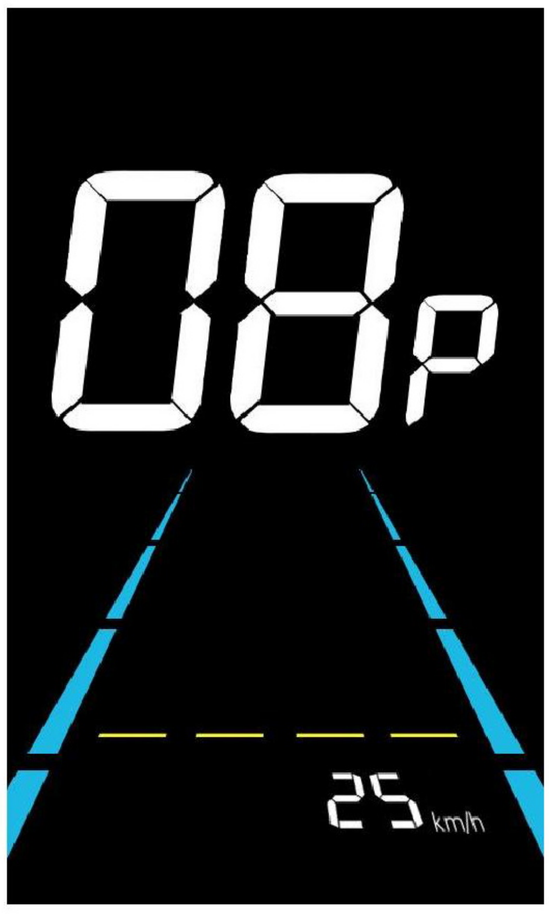


image 6-8 Speed limit setting interface.

6.9 Startup mode setting.

09P is the setting option for startup mode, and the instrument offers the following startup options:00: Zero startup，01: Non-zero startup.
Short press the i button to enter the parameter modification state, then use the + / − button to select the parameter, and finally, short press the i button to save the parameter settings and return to the personalized parameter setting item selection interface.

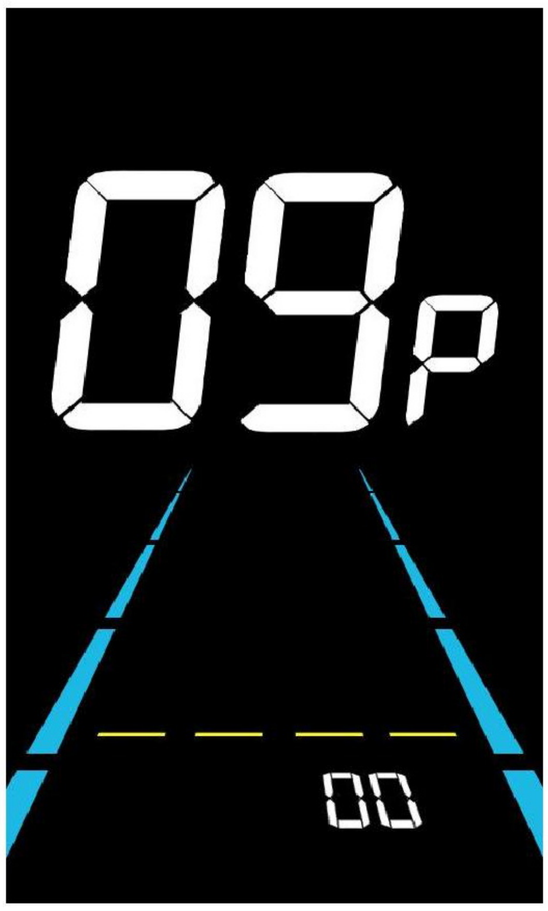


image 6-9 Startup mode setting interface.

6.10 Drive mode setting.

10P is the setting option for drive mode, and the instrument offers the following drive modes to choose from:00: Pedal assist drive，01: Electric drive，02: Coexistence of pedal assist and electric drive。
Short press the i button to enter the parameter modification state, then use the + / − button to select the parameter, and finally, short press the i button to save the parameter settings and return to the personalized parameter setting item selection interface.

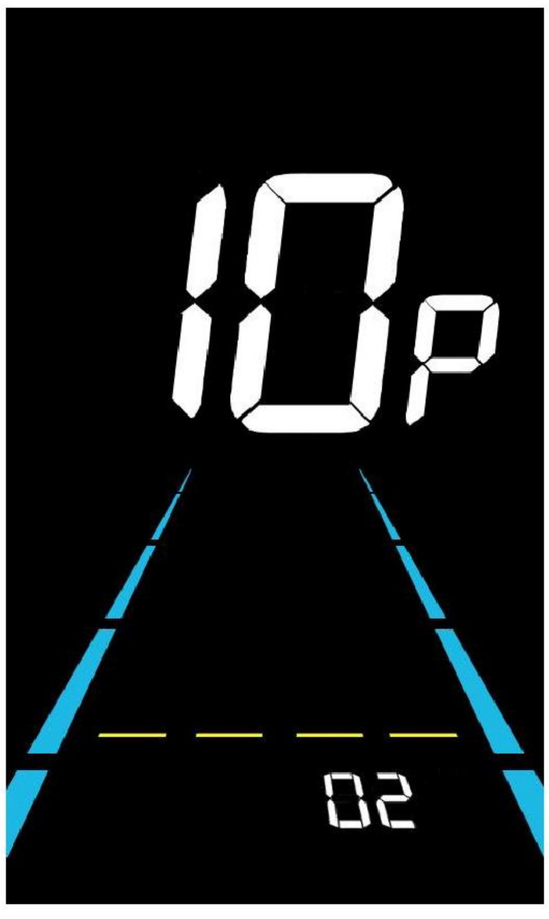


image 6-10 Drive mode setting interface.

6.11 Assist sensitivity setting.

11P is the setting option for assist sensitivity, which determines how sensitive the controller is to the passage of magnetized assist sensor magnets. It controls when the motor starts based on the number of magnets passing the sensor. The instrument allows you to adjust the assist sensitivity within the range of 1 to 24.
Short press the i button to enter the parameter modification state, then use the + / − button to select the parameter, and finally, short press the i button to save the parameter settings and return to the personalized parameter setting item selection interface.

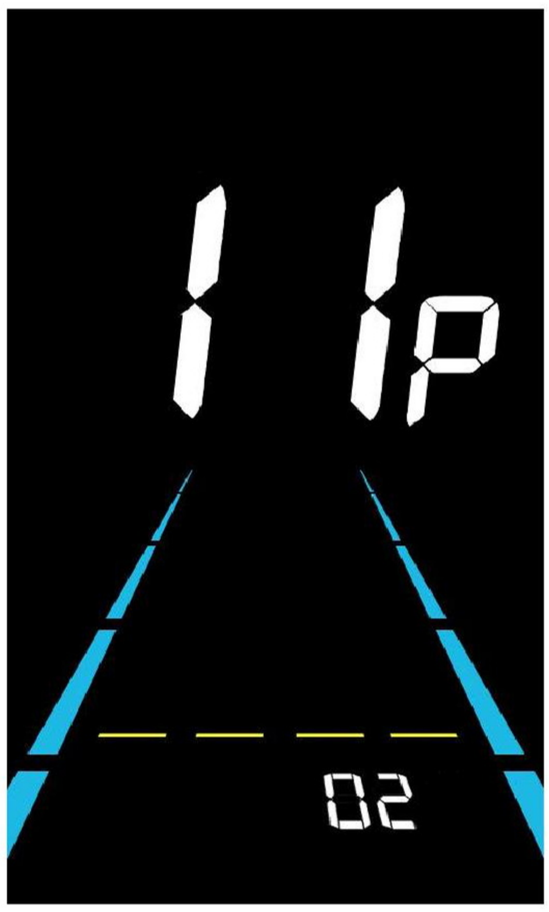


image 6-11 Assist sensitivity setting interface.

6.12 Assist startup strength setting.

12P is the setting option for assist startup strength, which represents the relative strength of the PWM (Pulse Width Modulation) signal output by the controller during assist startup. It can be adjusted within the range of 0 to 5, with 0 being the weakest and 5 being the strongest.
Short press the i button to enter the parameter modification state, then use the + / − button to select the parameter, and finally, short press the i button to save the parameter settings and return to the personalized parameter setting item selection interface.

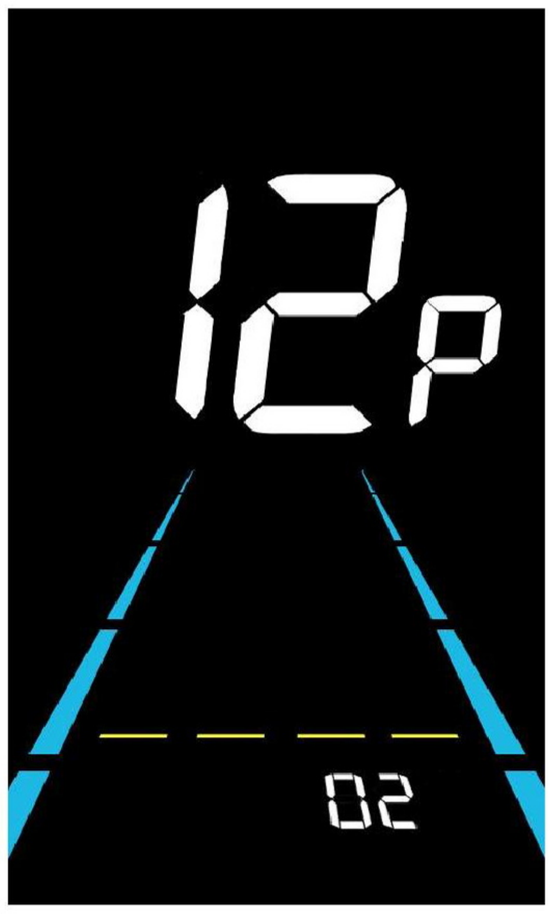


image 6-12 Assist startup strength setting interface.

6.13 Assist sensor magnet quantity setting.

13P is the setting option for the assist sensor magnet count, and the instrument allows you to adjust the number of assist sensor magnets within the range of 5, 8, 12 pieces.
Short press the i button to enter the parameter modification state, then use the + / − button to select the parameter, and finally, short press the i button to save the parameter settings and return to the personalized parameter setting item selection interface.

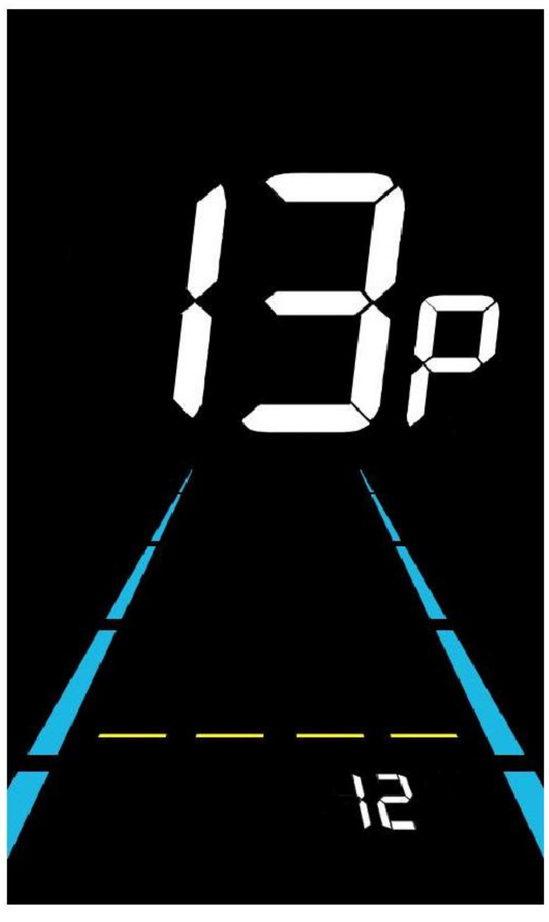


image 6-13 Assist sensor magnet quantity setting interface.

6.14 Controller current limit setting.

14P is the setting option for controller current limit, and the instrument allows you to adjust the controller current limit within the range of 1 to 50A.
Short press the i button to enter the parameter modification state, then use the + / − button to select the parameter, and finally, short press the i button to save the parameter settings and return to the personalized parameter setting item selection interface.

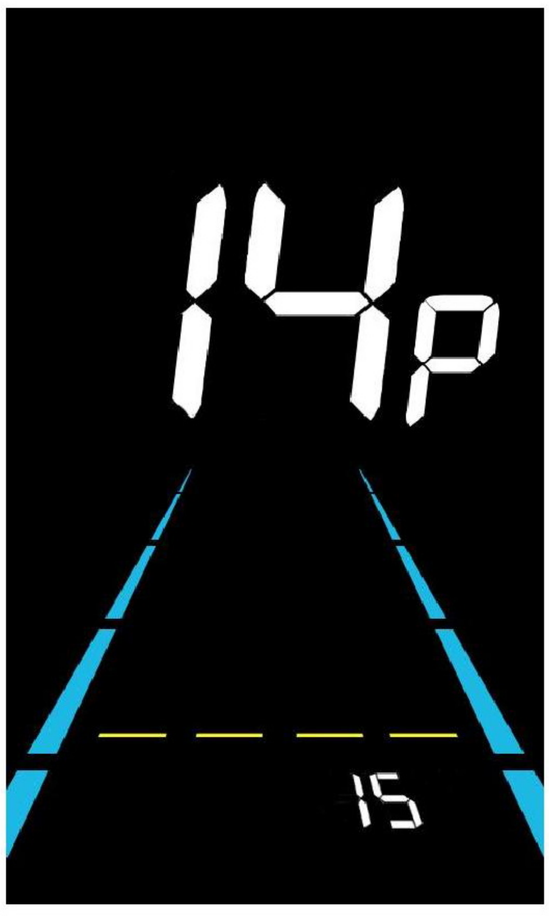


image 6-14 Controller current limit setting interface.

6.15 Battery under-voltage value setting.

15P is the setting option for battery under-voltage value, and you can adjust the under-voltage value based on the current rated voltage.
Short press the i button to enter the parameter modification state, then use the + / − button to select the parameter, and finally, short press the i button to save the parameter settings and return to the personalized parameter setting item selection interface.

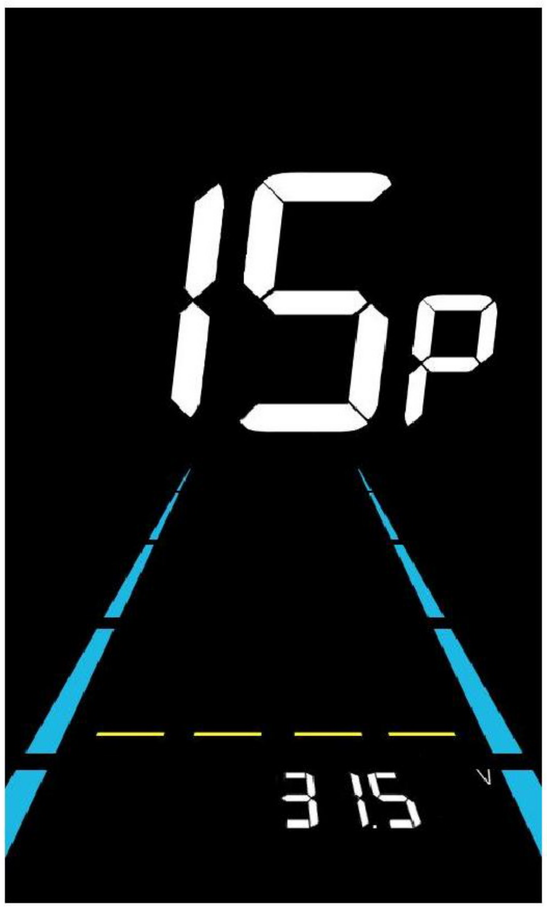


image 6-15 Battery under-voltage value setting interface.

6.17 Controller auto-cruise setting.

17P is the setting option for controller cruise control, and the instrument offers the following options:00: Disable cruise control.01: Enable cruise control.
Short press the i button to enter the parameter modification state, then use the + / − button to select the parameter, and finally, short press the i button to save the parameter settings and return to the personalized parameter setting item selection interface.

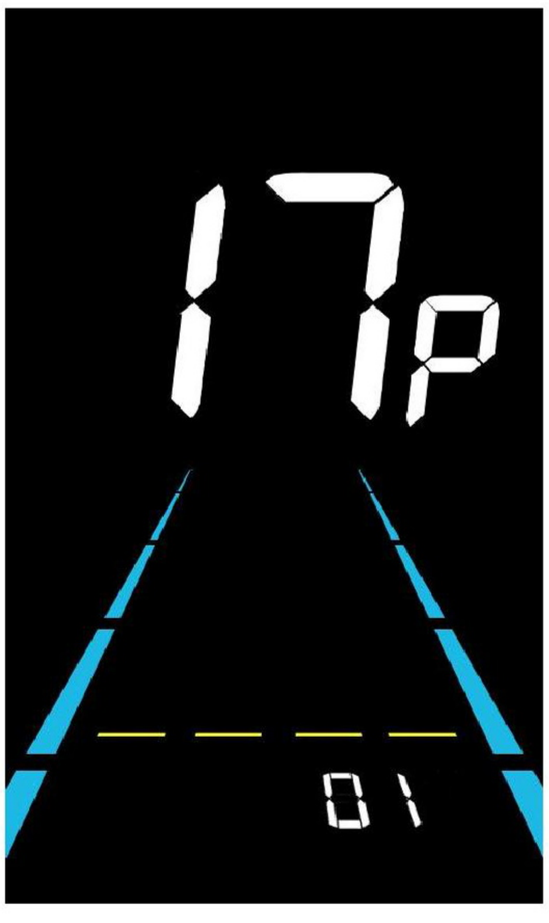


image 6-17 Controller auto-cruise setting interface.

6.18 Assist push setting(6km/h).

18P is the setting option for assist push walking, and the instrument offers the following options:0: Disable assist push function. 01: Enable assist push function.
Short press the i button to enter the parameter modification state, then use the + / − button to select the parameter, and finally, short press the i button to save the parameter settings and return to the personalized parameter setting item selection interface.

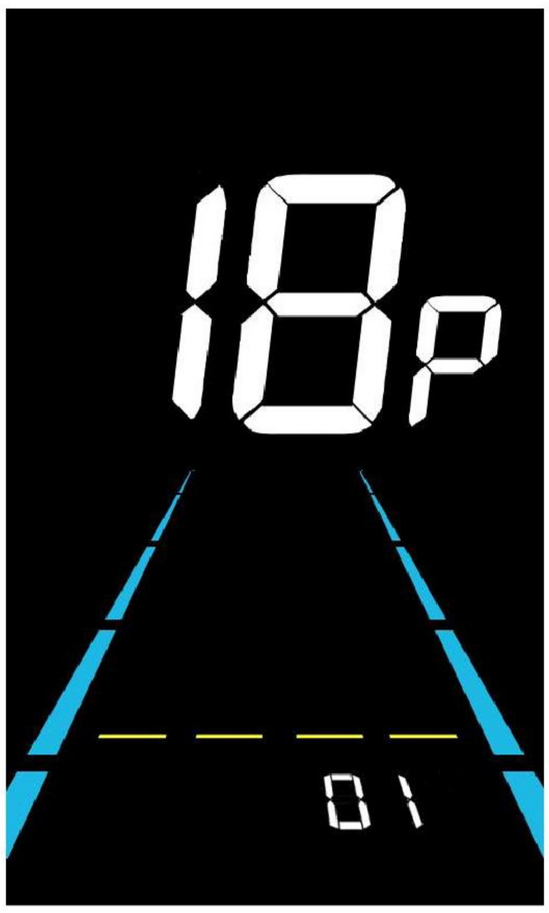


image 6-18 Assist push setting(6km/h) interface.

7. Resetting the single trip mileage.

The instrument can record both single trip mileage and total mileage. Single trip mileage is not automatically cleared when the instrument is turned off. If you want to clear the single trip mileage, you need to do it manually. The total mileage on the instrument cannot be cleared.
The procedure to clear single trip mileage is as follows:

When the speed of the main interface is 0, press and hold the − and i keys simultaneously for more than 2 seconds to clear the mileage for a single time. The main interface will flash during the clearing process.

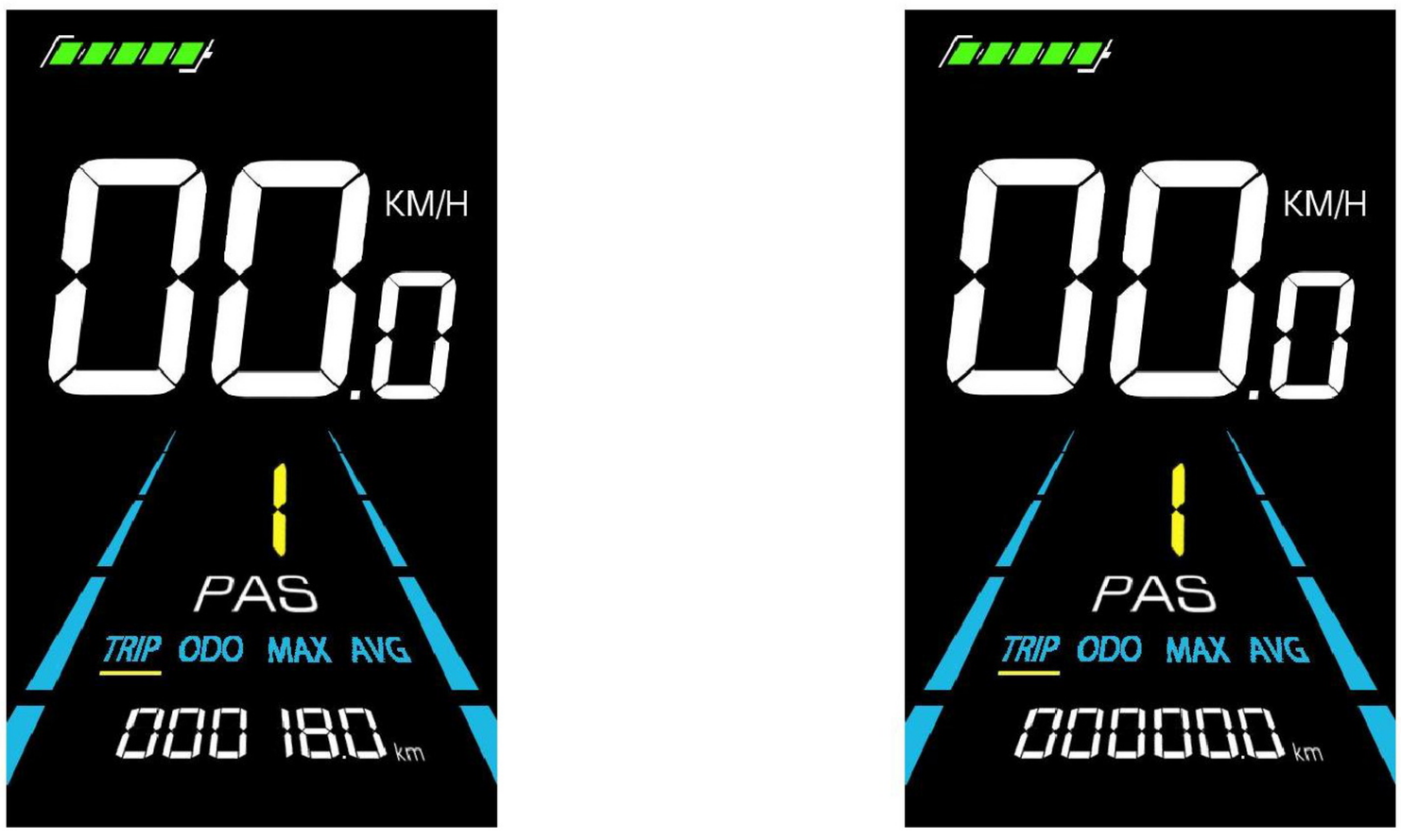


image 7-1 Resetting the single trip mileage interface.

Appendix 1: Error code definition table1.

Common Protocol 1 and Protocol 2 error codes:				
Error codes.	Error names.		Error codes.	Error names.
E001	Controller malfunction.		E004	Throttle malfunction
E002	Communication failure		E005	Brake lever malfunction
E003	Hall sensor failure		E006	Motor phase loss

Appendix 2: Error code definition table2.

Customize YL-02(LKLS) protocol error code:		
Error codes.	Code meaning	Code meaning
Error05	Brake malfunction	Check if the brake is properly engaged; consider replacing the brake lever.
Error06	Battery under-voltage	Charge the battery.
Error07	Motor malfunction	Inspect the power lines for loose connections.
Error08	Throttle malfunction	Check if the throttle is properly engaged; inspect throttle linkage, and if it's normal, consider replacing the throttle.
Error09	Controller malfunction	Check the controller Hall connection.
Error10	Communication reception failure	Check if the instrument cable is properly connected.
Error11	Communication transmission failure	Check if the instrument cable is properly connected.