

Electric Bike Display

**EMMO
TROBIC PRO
User's Manual**

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1. Product name and model

LCD display for e-bike;

2. Specifications

- 36V/48V power supply
 - Rated working current 15mA
 - Maximum working current 30mA
 - Leakage current at power-off <1uA
 - Working current at the supply controller end 50mA ■
- Working temperature -20~60◆
- Storage temperature -30~70◆

3. Appearance and dimensions



Fig. 3-1 Picture of Display



Fig. 3-2 Picture of Display Buttons

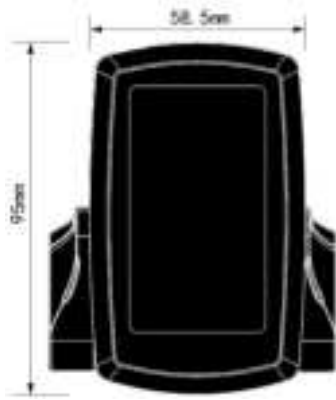


Fig. 3-3 Front View of Display Dimensions



Fig. 3-4 Side View of Display Dimensions

4. Function overview and functional area layout

4.1 Function overview

Display provides a variety of functions to meet your riding needs, including:

- Battery level indicator
- Motor power indicator
- Assist level adjustment and indication
- Speed indicator (including real-time speed, maximum speed and average speed)
- Distance indicator (including trip distance and ODO)
- Push assistance control and indication
- Headlight control and indication
- Error code indicator
- USB connection indicator (reserved)
- Heart rate indicator (reserved)
- Bluetooth connection indicator (reserved)
- Custom parameter setting (e.g., wheel diameter, speed limit, battery level, assist level, power-on password, controller current limit, etc.)
- Reset function

4.2 Functional area layout

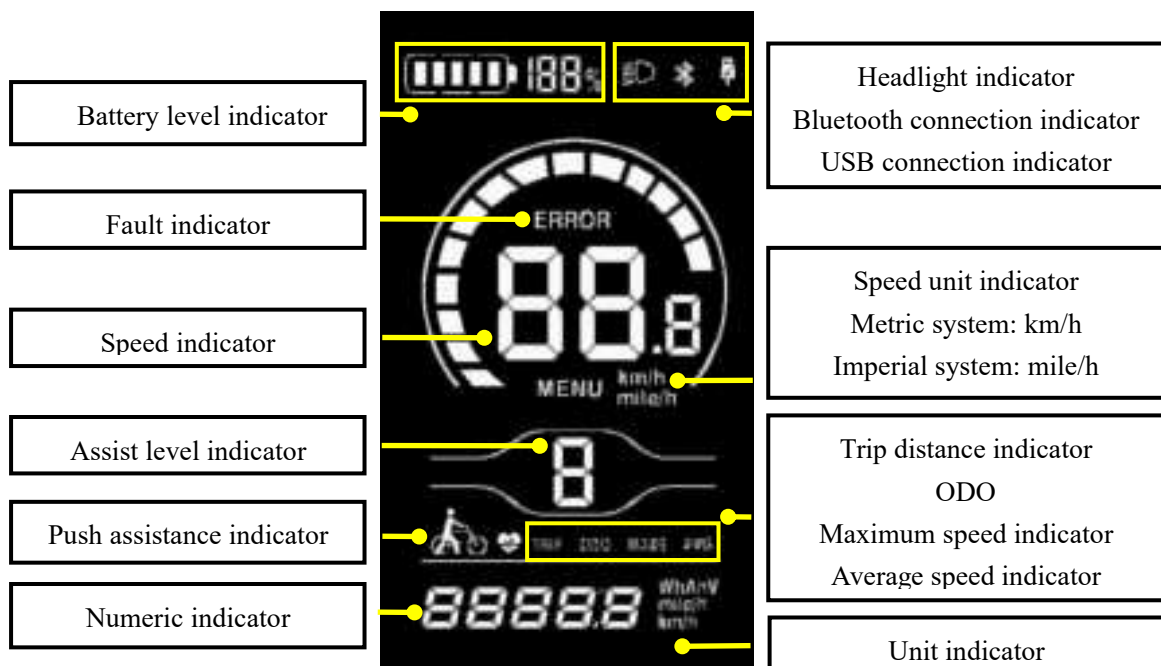









Fig. 4-1 Functional Area Layout Interface of Display

4.3 Button definitions

There are five buttons on the operating unit of display, i.e., the on/off button , plus button , minus button , headlight button  and switching button .


5. General operation

5.1 Power on/off

By pressing and holding the button , the display will start to work and the working power supply of the controller will be turned on. In the power-on state, by pressing the button , your e-bike will be powered off. In the power-off state, the display will no longer use the battery power, and its leakage current will be less than 1uA.

■ If your e-bike is not used for more than 10 minutes, the display will be automatically powered off.

5.2 Display interface

After the display is turned on, the display will show the real-time speed (km/h) and the trip distance (km) by default. By pressing the button , the information displayed will be switched between the trip distance (km), ODO (km), maximum speed (km/h), average speed (km/h) and riding power.

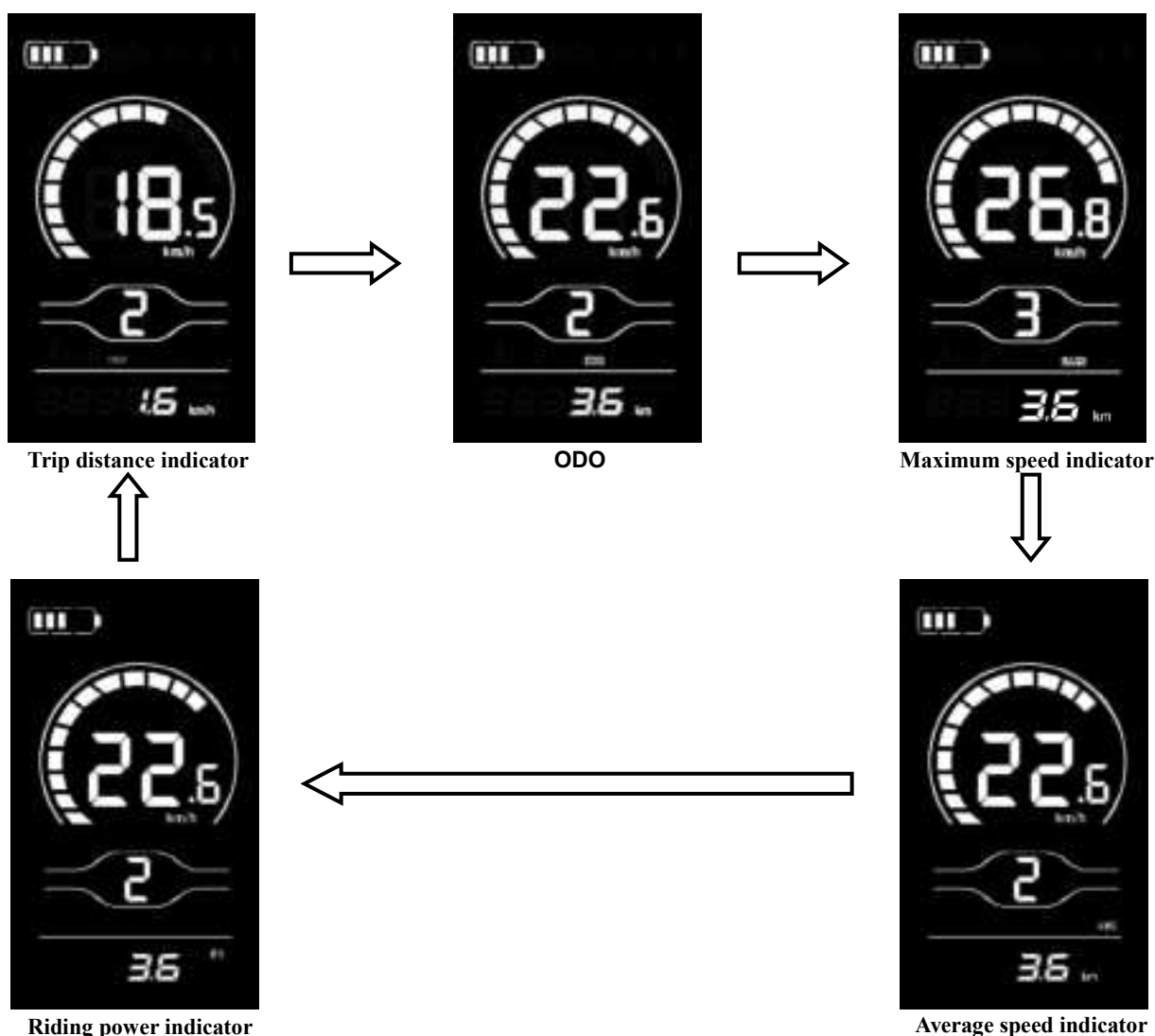





Fig. 5-1 Display Interface Switching

5.3 Push assistance

By pressing and holding the button , the electric push assistance mode will be enabled. Your e-bike will run at the constant speed of 6km/h. The display will show . By releasing the button , your e-bike will immediately stop power output and return to the state before push assistance.

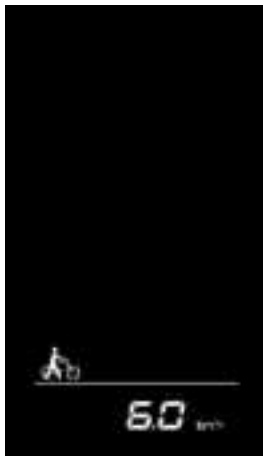




Fig. 5-2 Push Assistance Indicator Interface

■ The push assistance function can only be used when you are pushing your e-bike. Please do not use it during riding.

5.4 Headlight on/off

By pressing the button , the controller will turn on the headlights and the display backlight will turn dark; by pressing the button  again, the controller will turn off the headlights and the display backlight will resumes the luminance.

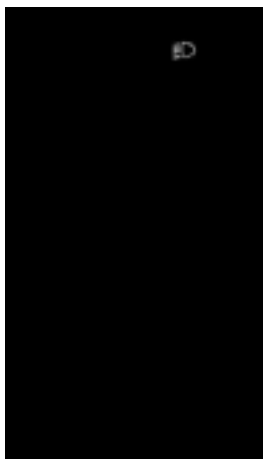


Fig. 5-3 Backlight-on Indication Interface

5.5 Assist level selection


By pressing the button , the e-bike assist level will be switched to change the motor output power.



Fig. 5-4 Assist Level Switching Interface

5.6 Battery level indicator

The battery level indicator consists of five segments. When the battery is fully charged, the five segments will be all on. In case of undervoltage, the outline of the battery indicator will flash, which means the battery has to be charged immediately.



Full battery level indication

4-segment indication

3-segment indication

2-segment indication

1-segment indication



Undervoltage flashing

Fig. 5-5 Battery Level Indicator Interface

5.7 Motor power indicator

The display can indicate the output power of the motor, as shown in the figure below.

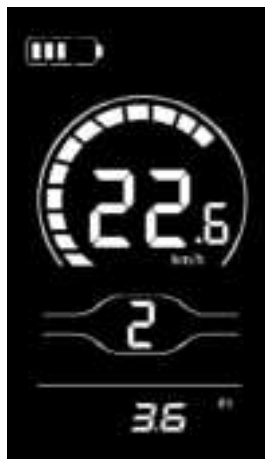


Fig. 5-6 Motor Power Indicator Interface

5.8 Error code indicator

When a fault occurs in the electronic control system of your e-bike, the display will automatically indicate the error code. Detailed definitions of error codes are shown in **Schedule 1**.

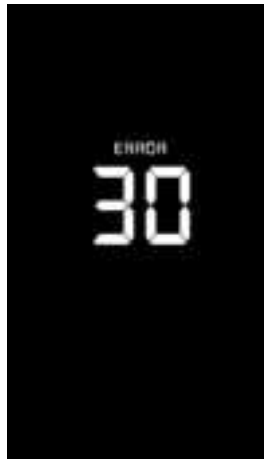


Fig. 5-7 Error Code Indicator Interface

- When an error code appears on the display interface, please conduct troubleshooting in time. Otherwise, your e-bike will not work normally.

6. General setting

- All parameters can only be set when your e-bike stops.

The steps for general setting are as follows:

In the power-on state, when the display shows the speed of 0,

- (1) Press and hold the buttons **+** and **-** at the same time for more than 2 seconds to enter the selection interface of general setting options;
- (2) Press the button **+/-** to switch the selection interface of general setting options, and press the button **i** to enter the parameter modification interface;
- (3) Press the button **+ / -** for parameter selection;
- (4) Press the button **i** to save the parameter and return to the selection interface of general setting options;
- (5) Press and hold the button **i** to save the parameter and exit the selection interface of general setting options.

The following selection interfaces of general setting options are available:

6.1 Trip distance reset

tC refers to the trip distance reset item. tC-n means not to reset the trip distance, and tC-y means to reset the trip distance.

Press the button **i** to enter the parameter modification interface. Press the button **+/-** for parameter selection.

Press the button **i** to save the parameter and return to the selection interface of general setting options.

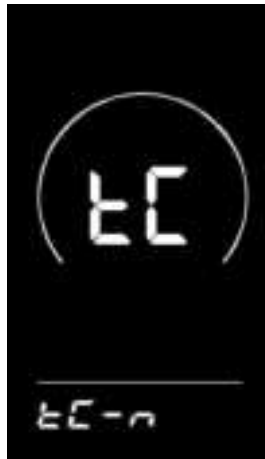


Fig. 6-1 Trip Distance Reset Interface

6.2 Backlight luminance setting

bL refers to the backlight luminance setting option. Parameters bL-1, bL-2 and bL-3 are available, which represent the backlight luminance, 1 for the minimum luminance, 2 for the standard luminance and 3 for the maximum luminance.

Press the button **i** to enter the parameter modification interface. Press the button **+/-** for parameter selection.

Press the button **i** to save the parameter and return to the selection interface of general setting options.



Fig. 6-2 Backlight Luminance Setting Interface

6.3 Metric/imperial system setting

Un refers to the metric/imperial system setting option. U-1 represents the imperial system, and U-2 represents the metric system.

Press the button **i** to enter the parameter modification interface. Press the button **+/-** for parameter selection.

Press the button **i** to save the parameter and return to the selection interface of general setting options.



Fig. 6-3 Imperial System Setting Interface












Fig. 6-4 Metric System Setting Interface

7. General parameter setting

The steps for general parameter setting are as follows:

In the power-on state, when the display shows the speed of 0,

- (1) Press and hold the buttons  /  at the same time for more than 2 seconds to enter the selection interface of general setting options;
- (2) Press and hold the buttons  and  at the same time for more than 2 seconds to enter the selection interface of general parameter setting options;
- (3) Press the button  to switch the function, and press the button  to enter the parameter modification interface;
- (4) Press the button  for parameter selection;
- (5) Press the button  to save the parameter and enter the next selection interface of general parameter setting options;
- (6) Press and hold the button  to save the parameter and exit the selection interface of general parameter setting options.

7.1 Wheel diameter setting

Ld refers to the wheel diameter setting option. Available parameters include: 8-26, 700C, 28-30 inches.




Press the button  to enter the parameter modification interface. Press the button  to select the wheel diameter corresponding to your e-bike (to ensure the accuracy of the speed and distance indication of the display). Press the button  to save the parameter and enter the next selection interface of general parameter setting options.



Fig. 7-1 Wheel Diameter Setting Interface

7.2 Speed limit setting

LS refers to the speed limit setting option. By modifying this value, you can set the maximum riding speed of your e-bike. The selectable range of the maximum speed setting value is 12km/h-40km/h.

Press the button **i** to enter the parameter modification interface. Press the button **+**/**-** to select the maximum riding speed. Press the button **i** to save the parameter and enter the next selection interface of general parameter setting options.



Fig. 7-2 Speed Limit Setting Interface

8. Custom setting

In order to meet the individual requirements of customers, custom setting options are available, including: battery level setting of the display, assistance parameter setting, current limit setting, assistance sensor setting, speed sensor setting, handlebar function setting, system setting and power-on password setting, totally eight setting options. **Not all protocols support the custom setting options of display . Some protocols only support part of the setting options.**

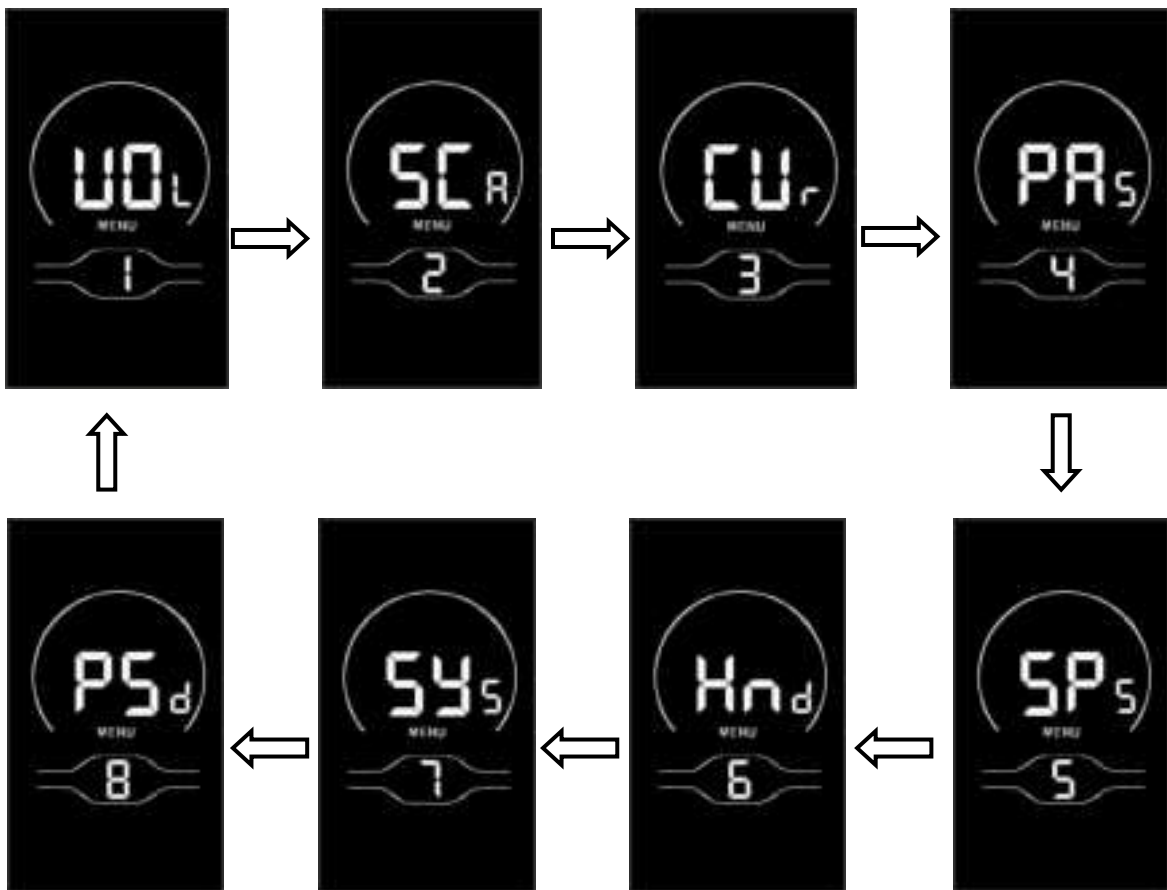


Fig. 8-1 Selection Interface of Custom Setting Options

The steps for custom setting are as follows: in the power-on state, when the display shows the speed of 0,

- (1) Press and hold the buttons **+** and **-** at the same time for more than 2 seconds to enter the selection interface of general setting options;
 - (2) Press and hold the buttons **+** and **-** at the same time for more than 2 seconds to enter the selection interface of custom setting options;
 - (3) Press the button **+/-** to switch the function, and press the button **i** to enter the parameter modification interface;
 - (4) Press the button **+/-** for parameter selection;
 - (5) Press the button **i** to save the parameter and enter the next parameter setting interface; or press and hold the button **i** to save the parameter and return to the selection interface of custom setting options; or press and hold the button **-** for more than 2 seconds to cancel the current operation without saving the current data and return to the selection interface of custom setting options;
 - (6) Press and hold the button **i** to save the parameter and exit the selection interface of custom setting options.
- If no operations are performed within one minute, the display will automatically exit the setting interface.

8.1 Battery level setting

VOL refers to the battery level setting option. You'll be required to input the voltage values of sections 1-5 one by one.

Press the button **i** to enter the parameter modification interface. Take the first battery level value of 36V as an example. "1" shown on the display means the first voltage value, and "31.5" means the first battery level value. Press the button **+/-** to change the value, and press the button **i** to confirm the setting and enter the battery level parameter setting interface of the next section. After the 5 battery level values are all set, press the button **i** to confirm the settings and return to the selection interface of custom setting options.

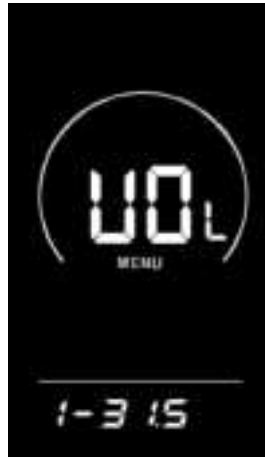


Fig. 8-2 Battery Level Setting Interface

8.2 Assistance parameter setting (option)

SCR refers to the assistance parameter setting option. Press the button **i** to enter the parameter modification interface.

8.2.1 Assist level selection

The assist levels available for the display include: levels 0-3, levels 1-3, levels 0-5, levels 1-5, levels 0-7, levels 1-7, levels 0-9 and levels 1-9.

Press the button **+/-** to switch the level. Press the button **i** to confirm the level mode and enter the 8.2.2 assistance ratio setting option, or press and hold the button **i** to confirm the setting and return to the selection interface of custom setting options.



Fig. 8-3 Assist Level Selection Interface

8.2.2 Assistance ratio setting option

By setting the assistance ratio, the speed of each level can be adjusted to meet the needs of different cyclists. Refer to **Schedule 2** for details.

Taking level 1 as an example, "45-55%" refers to the assistance ratio range of level 1, and "50%" is the default value of level 1, which is adjustable.

Press the button **+**/**-** to modify the parameter. Press the button **i** to confirm the setting and enter the parameter setting interface of the next level. After the parameters of all levels are set, press the button **i** again to return to the selection interface of custom setting options.



Fig. 8-4 Assistance Ratio Setting Interface

8.3 Current limit setting

CUR refers to the current limit setting option. The current limit can be set in the range of 7.0-25.0A.

Press the button **i** to enter the parameter modification interface. Press the button **+**/**-** for parameter selection.

Modify the maximum current of the controller and press the button **i** to save the setting and return to the selection interface of custom setting options.

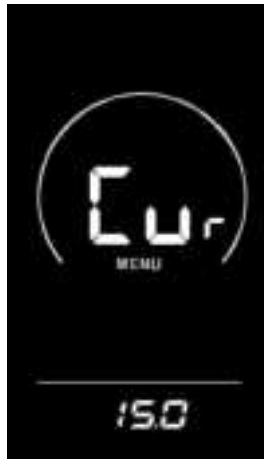


Fig. 8-5 Current Limit Setting Interface

8.4 Assistance sensor setting (option)

PAS refers to the assistance sensor setting option. Press the button **i** to enter the parameter modification interface.

8.4.1 Assistance sensor direction setting

run refers the assistance sensor direction setting option. Run-F/b is displayed on the screen. run-F represents the forward direction, and run-b represents the backward direction.

Press the button **+/-** to select an assistance sensor direction. Press the button **i** to confirm the parameter and enter the 8.4.2 assistance sensor sensitivity setting option, or press and hold the button **i** to confirm the parameter and return to the selection interface of custom setting options.



Fig. 8-6 Assistance Sensor Direction Setting Interface

8.4.2 Assistance sensor sensitivity setting

SCN refers to the assistance sensor sensitivity setting option. The setting range is 2-9, where 2 means the maximum sensitivity and 9 means the minimum sensitivity.

Press the button **+/-** to select the assistance sensor sensitivity. Press the button **i** to confirm the parameter and enter the 8.4.3 steel magnet number setting option for assistance magnetic disk, or press and hold the button **i** to confirm the parameter and return to the selection interface of custom setting options.



Fig. 8-7 Assistance sensor sensitivity setting interface

8.4.3 Steel magnet number setting for assistance magnetic disk

n- refers to the steel magnet number setting option for assistance magnetic disk. The setting range is 5-9, 12, 24.

Press the button **+**/**-** to select the corresponding number of steel magnets for assistance, and press the button **i** to confirm the parameter and return to the selection interface of custom setting options.



Fig. 8-8 Steel Magnet Number Setting Interface for Assistance Magnetic Disk

8.5 Speed sensor setting

SPS refers to the speed sensor setting option, which can be set according to the number of magnetic heads installed on the wheels of your e-bike. The setting range is 1-15.

Press the button **i** to enter the parameter modification interface. Press the button **+**/**-** for parameter selection.

Press the button **i** to confirm the parameter and return to the selection interface of custom setting options.

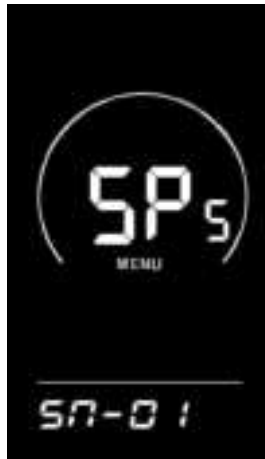



Fig. 8-9 Steel Magnet Selection Interface for Speed Sensor

8.6 Handlebar function setting (option)

Hnd refers to the handlebar function setting option. Press the button  to enter the parameter modification interface.

8.6.1 Handlebar push assistance enable setting

HL refers to the handlebar push assistance enable setting. HL-N means that the push assistance function of the handlebar is enabled, and HL-Y means that the same is disabled, which means by turning the handlebar, the push assistance mode will be on.





Press the button  to select a parameter. If you select HL-Y, press the button  to confirm the parameter and return to the selection interface of custom setting options. If you select HL-N, press the button  to confirm the parameter and enter the 8.6.2 handlebar assist level enable setting option, or press and hold the button  to confirm the parameter and return to the selection interface of custom setting options.



Fig. 8-10 Handlebar Push Assistance Setting Interface

8.6.2 Handlebar assist level enable setting

HF-Y refers to the handlebar assist level enabling option. HF-N means that the assist level function of the handlebar is disabled. If HF-Y is selected, it means that when you turn the handlebar, the maximum speed can only reach the value corresponding to the assist level shown on the display. If HF-N is selected, it means that when you turn the handlebar, your e-bike can reach the rated maximum speed without being restricted by the assist level shown on the display.



Press the button  to select the handlebar assist level status, and press the button  to confirm the parameter and return to the selection interface of custom setting options.



Fig. 8-11 Handlebar Assist Level Enable Setting Interface

8.7 System setting (option)

SYS refers to the system setting option. Press the button **i** to enter the parameter modification interface.

8.7.1 Battery delay time setting

dLY refers to the battery delay time setting option. There are 3 parameters available for the battery delay time: 3s/6s/12s. Press the button **+**/**-** for parameter selection. Press the button **i** to confirm the parameter and enter the

8.7.2 button push assistance enable setting option, or press and hold the button **i** to confirm the parameter and return to the selection interface of custom setting options.

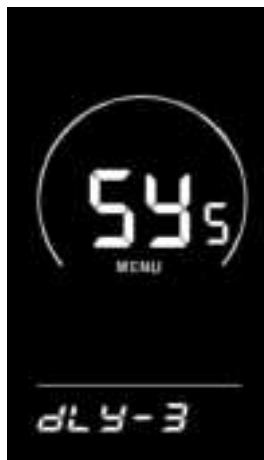


Fig. 8-12 Battery Delay Time Selection Interface

8.7.2 Button push assistance enable setting

PUS refers to the button push assistance enable setting interface. Y represents enable and N represents disable.

Press the button **+**/**-** for parameter selection, and press the button **i** to confirm the parameter and return to the selection interface of custom setting options.

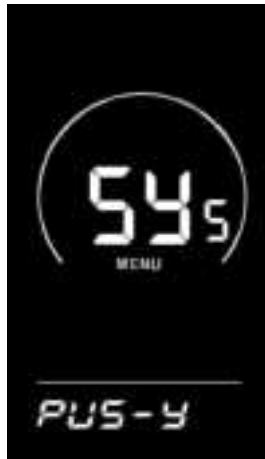


Fig. 8-13 Button Push Assistance Enable Setting Interface

8.8 Power-on password setting (option)

PSd refers to the power-on password setting option.

P2 represents the power-on password setting option. The default power-on password is: 1212. Press the button **i** to enter the power-on password setting interface. Press the button **+/-** for parameter selection, and press the button **i** to move the cursor. After the 4-digit password is input, press the button **i** to confirm the parameter. If the password is correct, the display will enter the 8.8.1 power-on password enable setting option; otherwise, it will stay in the password input interface.

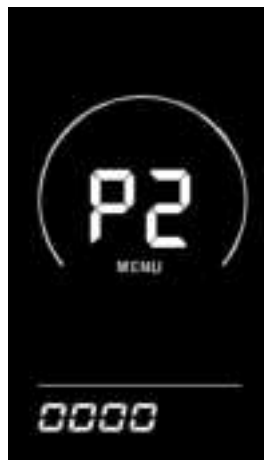


Fig. 8-14 Power-on Password Input Setting Interface

8.8.1 Power-on password enable setting

By inputting the password, you can enter the password enable setting option. PSd-Y means that a power-on password is required, and PSd-N means that no power-on passwords are required.

Press the button **+/-** for parameter selection.

If you select PSd-N, press the button **i** to confirm the parameter and return to the selection interface of custom setting options. If you select PSd-Y, press the button **i** to enter the 8.8.2 power-on password modification setting option, or press and hold the button **i** to confirm the parameter and return to the selection interface of custom setting options.



Fig. 8-15 Password Enable Confirmation Interface

8.8.2 Power-on password modification setting

P3 refers to the power-on password modification setting option. Press the button **i** for cursor movement and the button **+/-** for parameter selection. After the modification, press and hold the button **i** to save and confirm the parameter and return to the selection interface of custom setting options. If the display is rebooted, it will show P1, 0000, and it will not work normally until you enter the correct password.

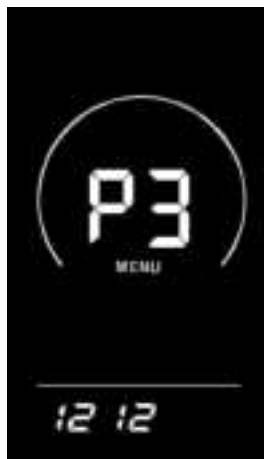


Fig. 8-16 Password Modification Interface

9. Restore default settings

dEF refers to the setting option of restoring default parameters. dEF-Y means that the default settings need to be restored, and dEF-N means that there is no need to restore the default settings. In the normal display interface, press and hold the buttons **-** and **i** at the same time for more than 2 seconds to enter the restore default settings interface. Switch the parameter by pressing the button **+/-**. If you choose Y, press and press the button **i** to confirm the parameter. The display will indicate dEF-0 and automatically start to restore the default settings. After the restoration is completed, it will automatically exit and return to the normal display interface.



Fig. 9-1 Interface of Restore Default Settings

10. Quality commitments and warranty scope

10.1 Warranty information:

- For the faults caused by the quality of the product under normal use, the Company will be responsible for providing limited warranty during the warranty period.

- The warranty period of the product is within 12 months from delivery.

10.2 Non-warranty scope

- The enclosure is opened
- The connector is damaged
- The enclosure is scratched or damaged after delivery
- The outgoing line of the display is scratched or broken
- Faults or damage caused by force majeure (such as fires, earthquakes, etc.) or natural disasters (such as lightning strikes, etc.)
- The warranty period has expired

11. Outgoing line connection diagram

11.1 Wiring sequence of standard connector

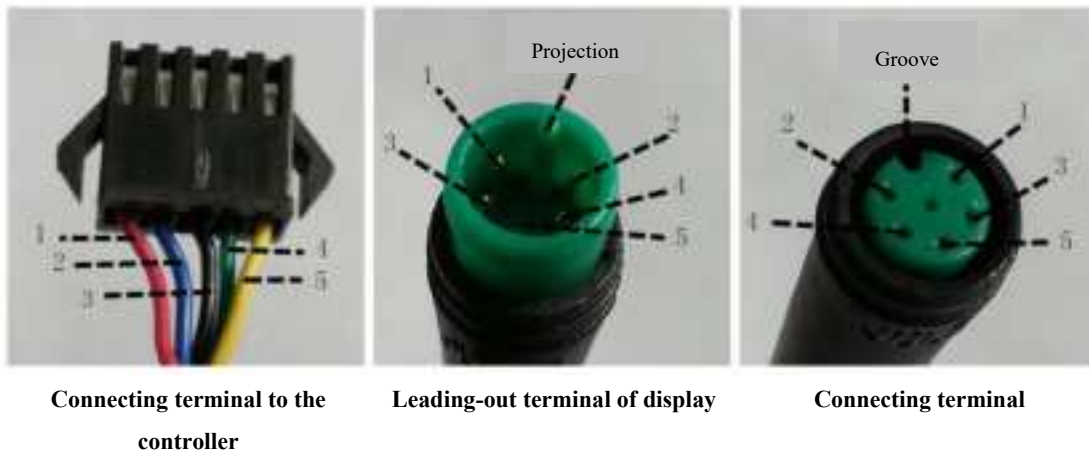


Fig. 8-1 Outgoing Line Connection Diagram

Table 8-1 Wiring Sequence of Standard Connector

Standard wiring sequence	Standard wire color	Function
1	Red (VCC)	Power cord of display
2	Blue (Kp)	Power control line of controller
3	Black (GND)	Ground wire of display
4	Green (RX)	Data receiving line of display
5	Yellow (TX)	Data transmission line of display

■ The outgoing lines of some products adopt waterproof connectors, and users cannot see the outgoing line color inside the wire harnesses.

12. Considerations

Please use safely, and do not plug or unplug the display when it is powered on.

◆ Please avoid bumping as far as possible.

◆ Please do not alter the background parameter settings of the display at will, otherwise normal riding cannot be guaranteed.

◆ If the display fails to work normally, it should be repaired as soon as possible.

◆ Due to product upgrades of the Company, part of the displayed contents or functions of the product you bought may be different from the manual, depending on the actual model.

Schedule 1 Error Code Definitions

Fault codes for protocols				
Fault code	Fault description		Fault code	Fault description
E001	Controller failure		E004	Handlebar failure
E002	Communication failure		E005	Brake lever failure
E003	Hall element failure		E006	Default phase of motor
Fault codes for protocols				
Fault code	Fault description		Fault code	Fault description
E021	Abnormal current		E024	Hall element failure
E022	Handlebar failure		E025	Brake failure
E023	Default phase of motor		E030	Communication failure

Schedule 2: Assist Level Ratio Default Values

Assist level selection \ Assist level	1	2	3	4	5	6	7	8	9
0-3/1-3	50%	74%	92%	—	—	—	—	—	—
0-5/ 1-5	50%	61%	73%	85%	96%	—	—	—	—
0-7/ 1-7	40%	50%	60%	70%	80%	90%	96%	—	—
0-9/ 1-9	25%	34%	43%	52%	61%	70%	79%	88%	96%