USERS GUIDE

D16





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Preface

Dear Users, to ensure better performance of your e-bike, please read through the D16 product introduction carefully before using it. We will use the brief words to inform you of all the details (including hardware installation, setting and normal use of the display) when using our display. Meanwhile, the introduction will also help you solve possible confusion and barriers.

1. Appearance, Size and material

1.1 Main materials and colors

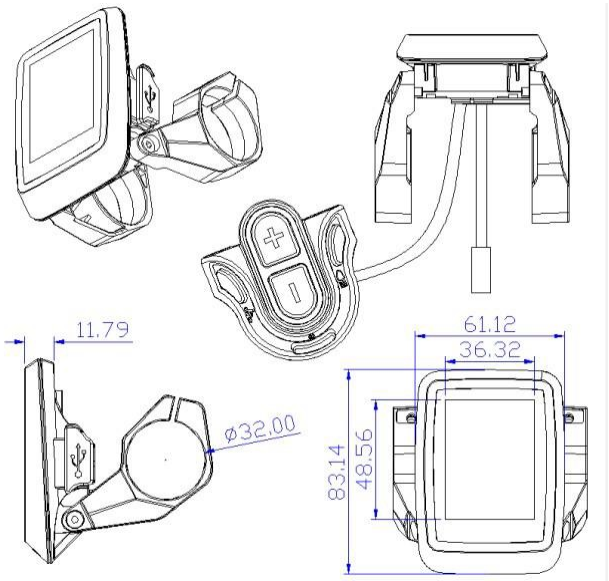
The product adopts the combination of black PC + ABS plastic housing. No sharp angle in appearance. The appearance effect is black leather texture treatment. The Working temperature scope of housing material is -20˚C-- 60 ˚C, and can ensure normal use and good mechanical performance of the products.

The screen is 2.4 "TFT color dot matrix LCD.

The buttons are separated from the display independently.

The protection grade is IP66. The strength is in accordance with the thrust > 250N. The vibration grade is in accordance with IEC regulation. The material of the parts complies with the RoHS, Reach certification requirements.The display complies with CE certification requirements. The tightening torque of the locking screws is 1N.m.

Physical drawing and dimensions: (Unit: mm)



2. Function Summary & Button definition

2.1 **Function Summary**

D16 provides you with a variety of functions and displays to meet your riding needs.

Display content list as follows:

◆capacity of the battery

◆Real-time Speed

- ◆ Mileage data (ODO, single trip, single trip time, max speed, average speed, average power, Instantaneous power consumption, motor power, riding power, remaining distance and riding frequency)
- ◆PAS level
- ◆6km/h walk assist
- ◆ Turn on/off headlight, brightness control automatically (According to the light intensity of the external environment)
- ◆USB charging function, output voltage/max output current: 5V/1A
- ◆Wireless function (Optional)
- ◆ Setting functions: Single trip distance Clearance, Backlight Setting, Speed unit, Power Unit; Factory reset, wireless status and name(Optional), Automatic shutdown time and customized data showing setting function.
- ◆Read only information:

  Motor firmware version number, motor hardware version number, motor serial number, wheel diameter, odometer;

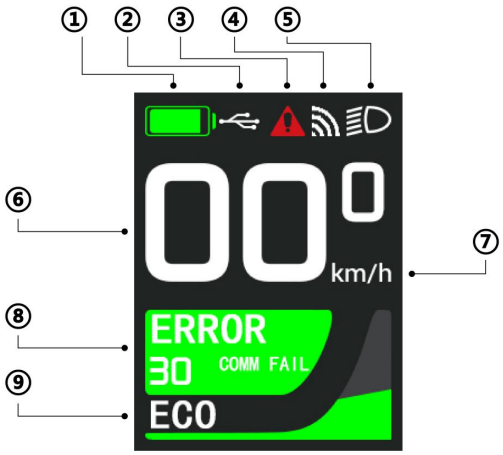
  Battery firmware version number, battery hardware version number, battery serial number, battery voltage, battery cycle times, battery SOH;

  Display firmware version number, display hardware version number and display serial number;
- ◆ Automatic control of backlight brightness (According to the light intensity of the external environment)
- ◆Error code
- ◆Multi set up parameters

Standard parameters of D16 Display:

- ◆▶According to EN 15194:2017 Standard
- ◆▶Wireless function meets the requirements of RED certification (Only for the display with wireless function)
- ◆▶Display Supports ADST function (For details, please refer to "*ADST programming tool full function (Standard Version) operation manual*")
- ◆▶Communication protocol: *"Ananda new European standard display controller v11.0 protocol_ Version 1.3.4"* and above, (The latest version from Ananda shall prevail and be compatible with previous versions)
- ◆▶Match with wide voltage battery including 24V/36V/48V
- ◆▶The maximum working current is 50mA

2.2 **Normal Display Figures**



D16 Normal display interface

① This area shows the current battery remaining power, including the power progress bar mode and grid mode, and the figure shows the progress bar mode.

② This area shows USB status indication

③ This area shows fault status indication

④ This area shows wireless status indication

⑤ This area shows headlight status indication; Including automatic headlight mode and manual headlight mode

⑥ This area shows real-time speed

⑦ This area shows speed unit

⑧ This area shows trip mileage

⑨ This area shows PAS level

2.3 Button definition

Button unit is connected to the bottom of display via lead cable

Button description:

- On/Off button: button, Replace with word "Switch"
- Plus button: + button, Replace with word "Plus";
- Minus button: –button, Replace with word "Minus";
- Headlight button: button, Replace with word "Headlight";
- Walk button: button, Replace with word "Walk";

Please note: the “on/off” button is used as the “Mode” button, which is replaced by the word "Mode"; the “on/off” button is also used as the “Confirm” button, which is replaced by the word "Confirm".

3. Note for users


Be care of the safety use. Don't attempt to release the connector when battery is on power.


Try to avoid hitting.


Don't split the waterproof sticker to avoid affecting the waterproof performance


Don't modify system parameters to avoid parameters disorder.


Make the display repaired when error code appears.

4. Installation Instruction

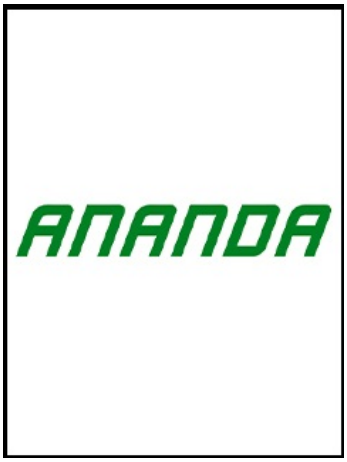
Fix the display onto the handlebar and adjust to an appropriate visual angle. Power off the E-bike, plug the connector of the display with the connector corresponding to the controller to complete the installation.

5. Normal Operation

5.1 On/Off

- When the battery has output current, the display turned on. If long press the battery Switch button, the battery will be turned off, and the display will automatically shut down at the same time, and the system will be shut down.
- When the battery has output current, the display turned on. If the display is turned off first and then the battery is turned off, and the system is turned off.
- When the battery has output current, if the display has been turned on, press and hold the display switch button for 2 seconds, and the display will be closed. If the display is not turned on, press and hold the display switch button for 1 second to turn on the display.
- If the system is not used for several minutes (the specific time can be set in the instrument parameter setting / automatic shutdown time setting item), the display will sleep automatically, and the display dormant current is less than 6 mA.
- If the system has not been used for 30 minutes, the battery and the whole system will turn off automatically
- After the display is powered on, the "ANANDA" start-up interface is displayed first, and then the main interface is entered. In the main interface, the display can enter the locking interface through wireless control. When shutting down, the "ANANDA" shutdown interface will be

displayed first, and then the system will be shut down.



Start-up interface



Main interface



Shut down interface



Locking interface

5.2Real-time speed/Trip mileage display interface

After the display is turned on, the current speed can be refreshed in real time on the main interface, and the mileage related data can be viewed at the same time.

Short press "MODE" button to switch and display mileage data content in the following order: Odometer → Single trip distance → Single trip time → Single trip max speed → Single trip average speed → Single trip average power → Instantaneous power → Motor power → Riding power → remaining distance → Riding frequency.



Real-time speed and Odometer display

5.3 6km/h Walk assist mode

You can enter the 6km/h walk assist mode in the main interface.

Press and hold the "WALK" button to activate the walk mode and light up the walk mode sign. After pressing the "WALK" button, you can perform 6km/h assistant function; if you release the "WALK" button, the function will be invalid and exit the walk mode



Walk assist interface

The walk assist mode can only be used when the user is pushing the E-bike. Do not use it when riding.

5.4 Headlight On/Off

You can turn on or off the headlight in the main interface

Automatic mode (default mode): In manual mode, press and hold "HEADLIGHT" button to switch to automatic mode

The display automatically controls the headlight on and off by sensing external light. The light will turn on when the exterior light is dark, and turn off when the exterior light is bright.

Manual mode: In automatic mode, long press the "HEADLIGHT" button to switch to manual mode. In this mode, when the headlamp is off, press the "HEADLIGHT" button to turn on the headlight; when the headlight is on, press the "HEADLIGHT" button to turn off the headlight.



Manual mode



Automatic mode

5.5 PAS Level

You can switch the PAS levels in the main interface. Short press the "PLUS" button to increase the PAS level, and short press the "MINUS" button to decrease the PAS level. The motor output power can be changed by increasing or decreasing the PAS level of E-bike.

The range of PAS level is 0-5 levels. The 0 level is no output power, and the 5 level is the highest output power level of the motor. The default start up level is level 1. When 0-5 level is selected, "OFF", "ECO", "TOUR", "SPORT", "TURBO" and "BOOST" are displayed respectively. "WALK" is displayed in walk assist mode.



OFF level



ECO level



TOUR level



SPORT level



TURBO level



BOOST level



WALK assist mode

5.6 Battery Power display

In the main interface, the battery power display is refreshed in real time.

The battery content supports two display modes: progress battery power bar mode (in case of successful communication between battery and display) and battery power grid mode (in case of communication failure or no communication between battery and display). The display mode of power progress bar is prior to the grid mode, and can be automatically switched according to the communication status between battery and display. The power progress bar display mode shows the real-time proportion of battery SOC content, and the grid mode displays the real-time power content of current battery (0 ~ 5 grids). When the remaining power of the battery is less than 20%, it is shows in red, and flashes when it is less than 10%.

When the battery is sufficiently charged, the current power status will be displayed in the green grid or the percentage of green progress bar. When the battery is low power, the current state of battery will be displayed in the red grid or the percentage of red progress bar, indicating that the battery is under voltage and needs to be charged immediately.

With battery communication, the delay time from power on to normal showing of the display is 1 second; without battery communication, the delay time from power on to normal showing of the display is 3 seconds; the display and battery communication interruption delay 5 seconds to switch to the controller power , Switch to battery power immediately after communication resumes.



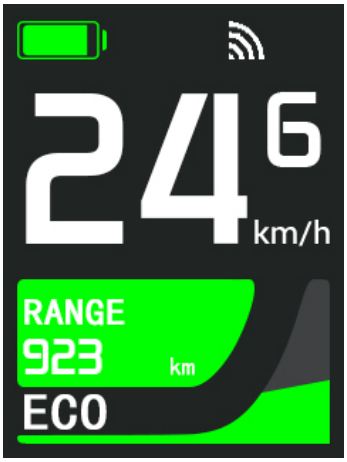
Battery grid mode



Battery progress bar mode

5.7 Wireless mode display

When the wireless function is activated. If the wireless is connected after power on, the wireless function indicator will be displayed in the interface. If the wireless is disconnected, the wireless indicator will not show in the interface. The display is shown as the figure below



Wireless mode indicator

5.8 USB Charging

Plug in the device that needs charging when display is off. After turn on the display, the battery will charge the device through the display, and the USB charging logo on the interface will be light up.

After the device that needs USB charging is plugged in at the power on state, long press the "PLUS" button in the main interface to activate the USB charging function. If charging is in progress, the USB charging logo on the display interface will light up.



USB Charging indicator

5.9 Error Code

In the main interface, if there is an electrical fault in the E-bike electronic control system, the latest fault code will be displayed in real time, and the red " " mark will be displayed in the upper column.

When the E-bike founds fault in electric control system, the display will shows error code automatically. Only after the fault is eliminated, the fault code can be cleared. At the same time, the

"⚠" logo showed in the upper column will disappear synchronously.

Please check the attached table 1 for detailed definition of error code



Error code display interface

6. User Settings

In the information interface, press and hold the "PLUS" and "MINUS" button at the same time to enter the setting interface. Short press the "CONFIRM" button in the setting menu to enter the sub option. In the final option menu, short press the "confirm" key to confirm the current option. After selecting the "Return" option, press the "CONFIRM" key to return to the previous menu. Long press the "CONFIRM" button in any setting menu to directly return to the main interface.

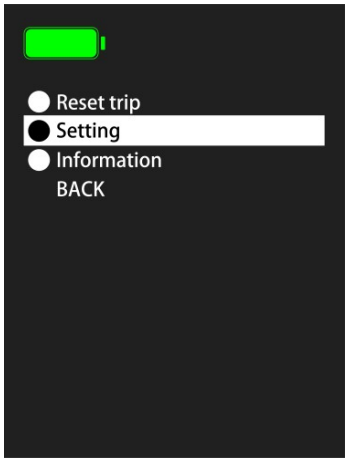
The setting interface is divided into four levels of sub options. For details of setting menu contents, please refer to attached table 2:

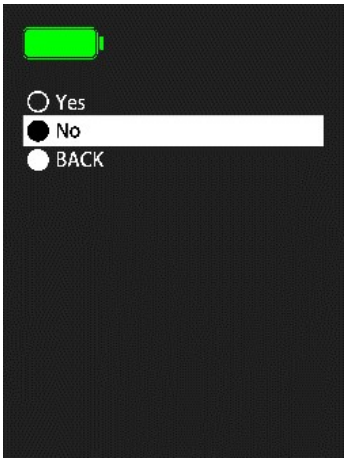
6.1 Single trip distance clearance

Short press the "MINUS" or "PLUS" button to switch to the "Reset trip" option. Select the "Yes" option, and then short press the "CONFIRM" button to clear the relevant data of single trip.

Short press "CONFIRM" button on the "Return" option to return to the previous interface. Long press "CONFIRM" button to return to the main interface.

The default value is "No".





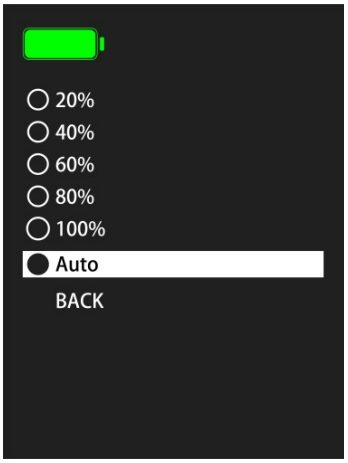
Single trip clearance interface

6.2 Backlight Setting

Short press the "MINUS" or "PLUS" button to switch and select the backlight level. Short press the "CONFIRM" button to confirm the currently selected backlight level.

Short press the "CONFIRM" button on the "Return" option, to return to the previous interface. Long press "CONFIRM" button to return to the main interface.

Default setting is “Auto”.



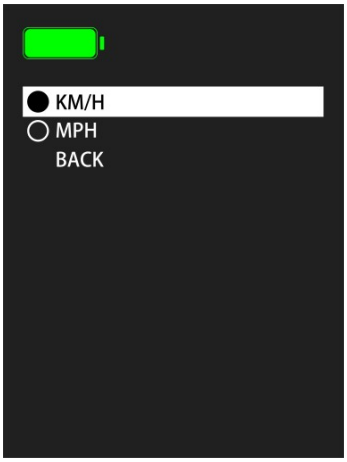
Backlight setting interface

6.3 Speed unit setting (Metric / Imperial)

Short press the "MINUS" or "PLUS" button to select the speed unit option. Short press the "CONFIRM" button to confirm the currently selected speed unit.

Short press the "CONFIRM" button on the "Return" option, to return to the previous interface. Long press "CONFIRM" button to return to the main interface.

Default setting is “KM/H”.



Speed unit setting interface

6.4 Power unit setting

Short press the "MINUS" or "PLUS" button to select the power unit option. Short press the "CONFIRM" button to confirm the currently selected power unit.

Short press the "CONFIRM" button on the "Return" option, to return to the previous interface. Long press "CONFIRM" button to return to the main interface.

Default setting is “Ah”.



Power unit setting interface

6.5 Factory reset setting

Short press the "MINUS" or "PLUS" button to select the reset option. Select "Yes" option, and then short press the "CONFIRM" button to reset and clear all data back to the factory settings.

Short press the "CONFIRM" button on the "Return" option, to return to the previous interface. Long press "CONFIRM" button to return to the main interface.

Default setting is “No”.



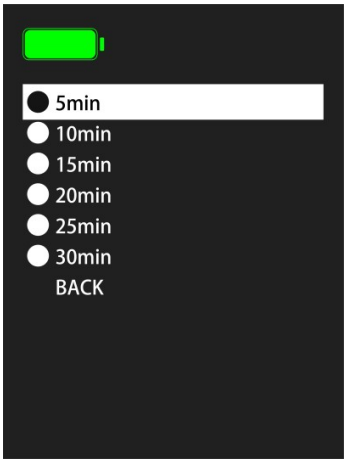
Factory reset setting interface

6.6 Automatic shutdown time setting

Short press the "MINUS" or "PLUS" button to select the automatic shutdown time option. Short press the "CONFIRM" button to confirm the currently selected automatic shutdown time.

Short press the "CONFIRM" button on the "Return" option, to return to the previous interface. Long press "CONFIRM" button to return to the main interface.

Default setting is “5min”.



Automatic shutdown time setting interface

6.7 Customized data showing setting

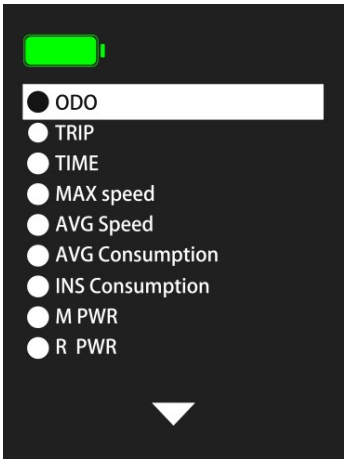
Short press the "MINUS" or "PLUS" button to select the customized data showing setting function.

After selecting the option to be shown, press the "CONFIRM" button to determine whether the current option is selected. The symbol "○" in the front means not showing this option, and the symbol "●" indicates to show this option.

Short press the "CONFIRM" button on the "Return" option, to return to the previous interface. Long

press "CONFIRM" button to return to the main interface.

Default setting is shows all the options.



Customized data showing setting interface

6.8 Wireless setting

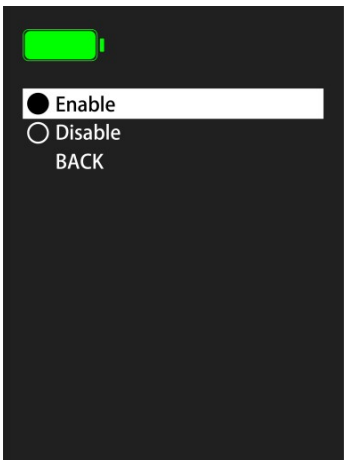
Short press the "MINUS" or "PLUS" button to select the wireless setting to check the status or name of the wireless.

In the wireless status option, select the "Enable" option, and then short press the "CONFIRM" button to set the wireless function. Select the "Disable" option, and then press the "CONFIRM" button to disable the wireless function.

After the state changes, the display needs to be restarted to take effect.

Short press the "CONFIRM" button on the "Return" option, to return to the previous interface. Long press "CONFIRM" button to return to the main interface.

Default setting is “Enable”. The wireless name is a read-only value and cannot be modified by the customer.





Wireless setting interface

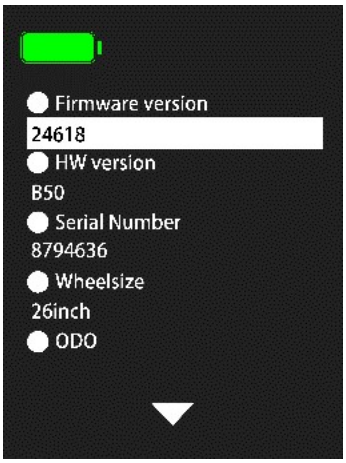
7. Read-only information

In order to make users know more about our walk assist E-bike system, the display supports to view the parameters of the walk assist E-bike system.

7.1 Motor read-only information

Short press the "MINUS" or "PLUS" button to select the read-only information option of the motor to be viewed.

Short press the "CONFIRM" button on the "Return" option, to return to the previous interface. Long press "CONFIRM" button to return to the main interface.

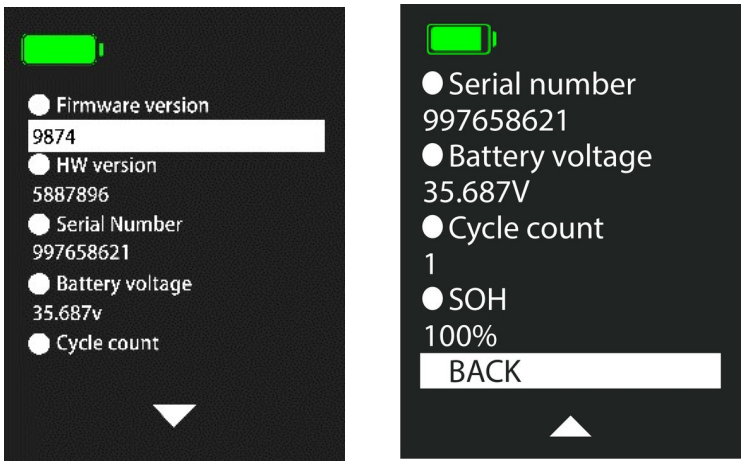


Motor read-only information interface

7.2 Battery read-only information

Short press the "MINUS" or "PLUS" button to select the read-only information option of the battery to be viewed.

Short press the "CONFIRM" button on the "Return" option, to return to the previous interface. Long press "CONFIRM" button to return to the main interface.



Battery read-only information interface

7.3 Display read-only information

Short press the "MINUS" or "PLUS" button to select the read-only information option of the display to be viewed.

Short press the "CONFIRM" button on the "Return" option, to return to the previous interface. Long press "CONFIRM" button to return to the main interface.

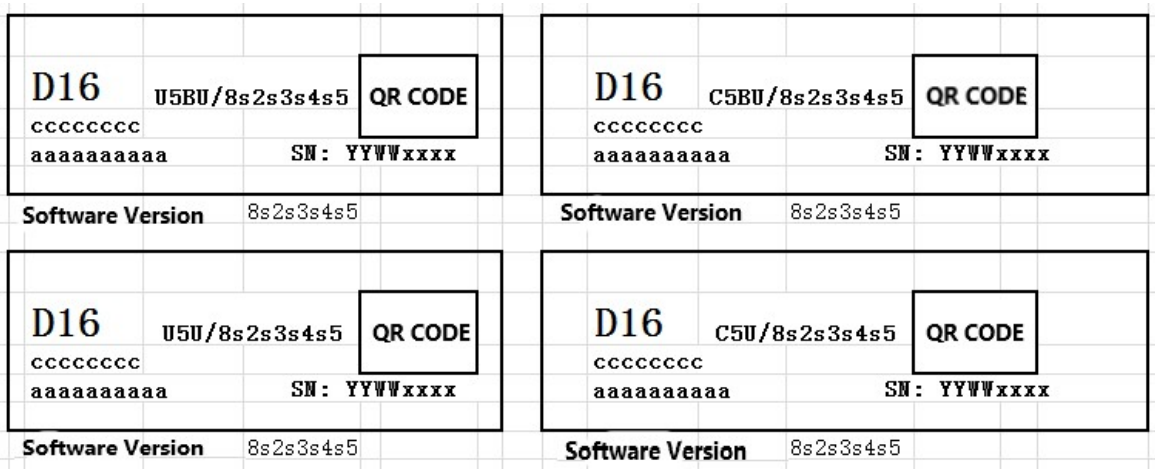


Display read-only information interface

8. Display printing code

If customer has special requirements, print the code according to the customer's requirements

If the customer has no special requirements, the code printed according to the requirements of Ananda Drive Techniques (Shanghai) Co., Ltd.



9. FAQ

Q: Why can't turn on the display?
A: Please check whether the battery is turned on or the leakage lead wire is broken

Q: How to deal with the error code display?
A: Contact the e-bike maintenance station in time.

10. Quality assurance and warranty scope

I, Warranty Information:

1, King-Meter will be responsible for all faults arising during normal operation that are caused by a quality defect.

2, The warranty time is 24 months from the day the display leaves the factory.

II, The following are not covered by warranty:

1, Shell opened.

2, Connector damaged.

3, After display out of factory, the shell is scratched or damaged.

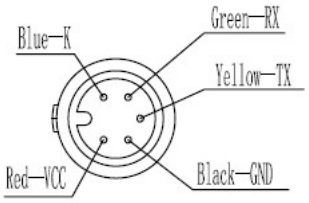
4, Lead wire of display scratch or break.

5, The fault or damage is caused by the force majeure (such as fire, earthquake, etc.) or natural disasters (such as lighting, flooding, etc.)

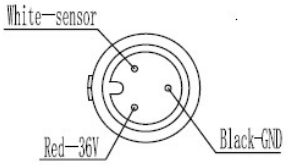
6, Product exceeded warranty period.

11. Circuit Diagram and wire sequence

Standard connector wire sequence:



Connecting end with controller



Connecting end with buttons

Standard connector wire sequence table

Standard Wire	Color of standard Wire	Function
1	Red (VCC)	Display power wire
2	Blue(K)	Power control wire of controller
3	Black(GND)	Instrument Ground wire
4	Green(RX)	Data receiving wire of display
5	Yellow(TX)	Data transmission wire of display

Note: waterproof connector is used for the lead wire of some products, so the user can't see the color of the lead wire in the harness.

Appendix 1: Error code definitions

Error Code	Definition
21	Current abnormal
22	Throttle fault
24	Motor Hall signal fault
25	Brake abnormal
28	Other faults
30	Communication failure
31	Switch button sticky
32	Display working voltage abnormal
33	Display self-check failure
34	6km Walk assist button sticky

Appendix 2： Detail contents of setting menu

Level 1 menu	Level 2 menu	Level 3 menu	Level 4 menu
Reset trip	Yes	-	
	No	-	
Setting	Brightness	20%	-
		40%	-
		60%	-
		80%	-
		100%	-
		Auto	-
	Speed unit	KM/H	-
		MPH	-
	Consumption unit	Ah	-
		Wh	-
	Factory reset	Yes	-
		No	-
	BT	Status	Enable
			Disable

		Name	text
	Auto-off	5min	-
		10min	-
		15min	-
		20min	-
		25min	-
		30min	-
	Available Function	-	
Information	Motor	Firmware version	value
		HW version	value
		Serial number	value
		Wheel size	value
		Odometer	value
	Battery	Firmware version	value
		HW version	value
		Serial number	value
		Battery voltage	value
		Cycle count	value
		SOH	value
	Display	Firmware version	value
		HW version	value
		Serial number	value