The eBike Display

User's Manual

YL80C

Content

Product Name and Model

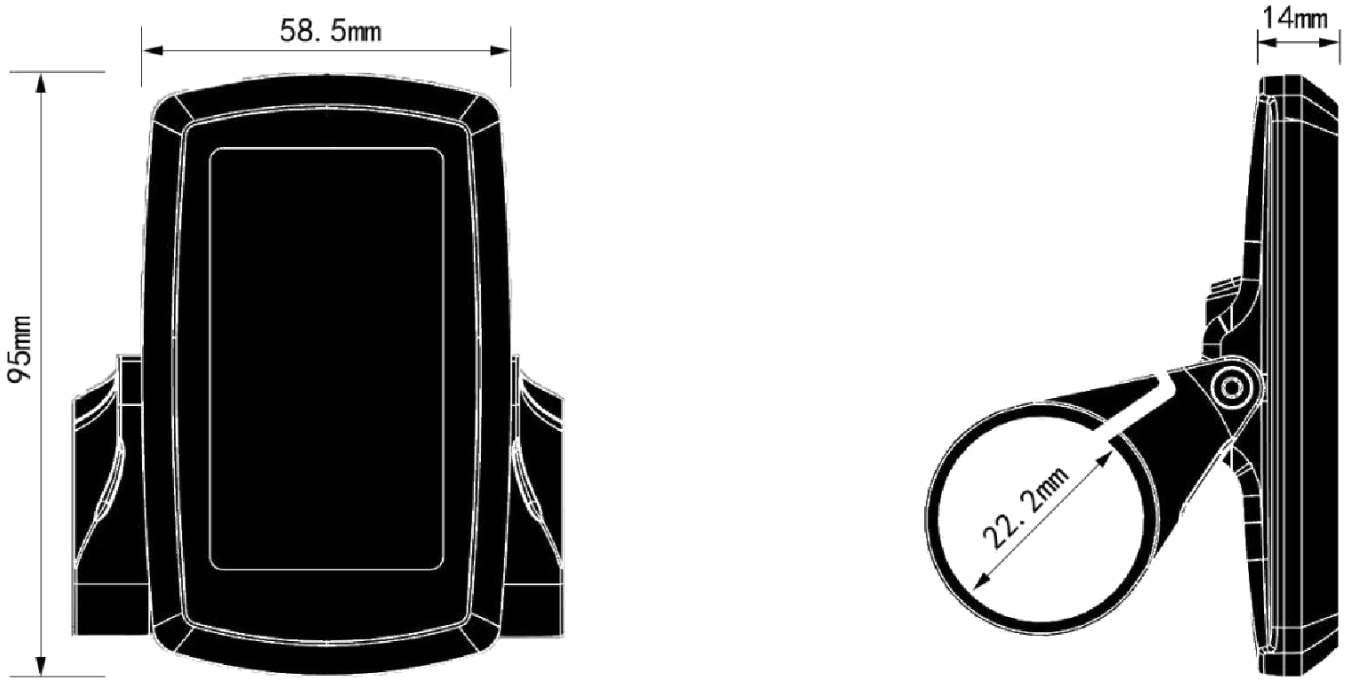
Intelligent Liquid Crystal Instrument for Electric Bicycle; Model: YL80C.

Specification Parameters

- ●24V/36V/48V power supply
- ●Rated working current of instrument 10mA
- ●The maximum working current of the instrument is 30mA
- ●Shutdown leakage current < 1uA
- ●The operating current supplied to the controller is 50mA
- ●Working temperature-20 ~ 60 ℃
- ●Storage temperature-30 ~ 70 ℃

Appearance Dimensions

◆**Physical Drawing and Dimensional Drawing (unit: mm)**



Physical Drawing and Dimensional Drawing

Functional Overview and Functional Area Distribution

◆Function Overview

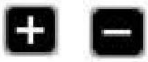
YL80C meters provide a variety of functions to meet your riding needs, including:

- ●Electricity Display
- ●Motor power indication
- ●Boost gear adjustment and indication
- ●Speed display (including real-time speed, maximum speed and average speed)
- ●Mileage display (including single mileage and total mileage)
- ●Assist in implementing control and display
- ●Backlight control and display
- ●Error Code Display
- ●USB Connection Indication (Option)
- ●Heart Rate Display (Option)
- ●A number of parameter settings (e.g. Wheel diameter, speed limit, battery power setting and assistance parameter setting, startup password setting, controller current limit setting, etc.)
- ●Default parameter recovery function

◆Functional Area Distribution

YL80C Functional Area Distribution Interface

◆**Button Definition**

There are five keys on the corresponding operation unit of YL80C instrument, of which the keys  are replaced by the words **"UP"** and **"DOWN"** respectively in the following instructions.

General Operations

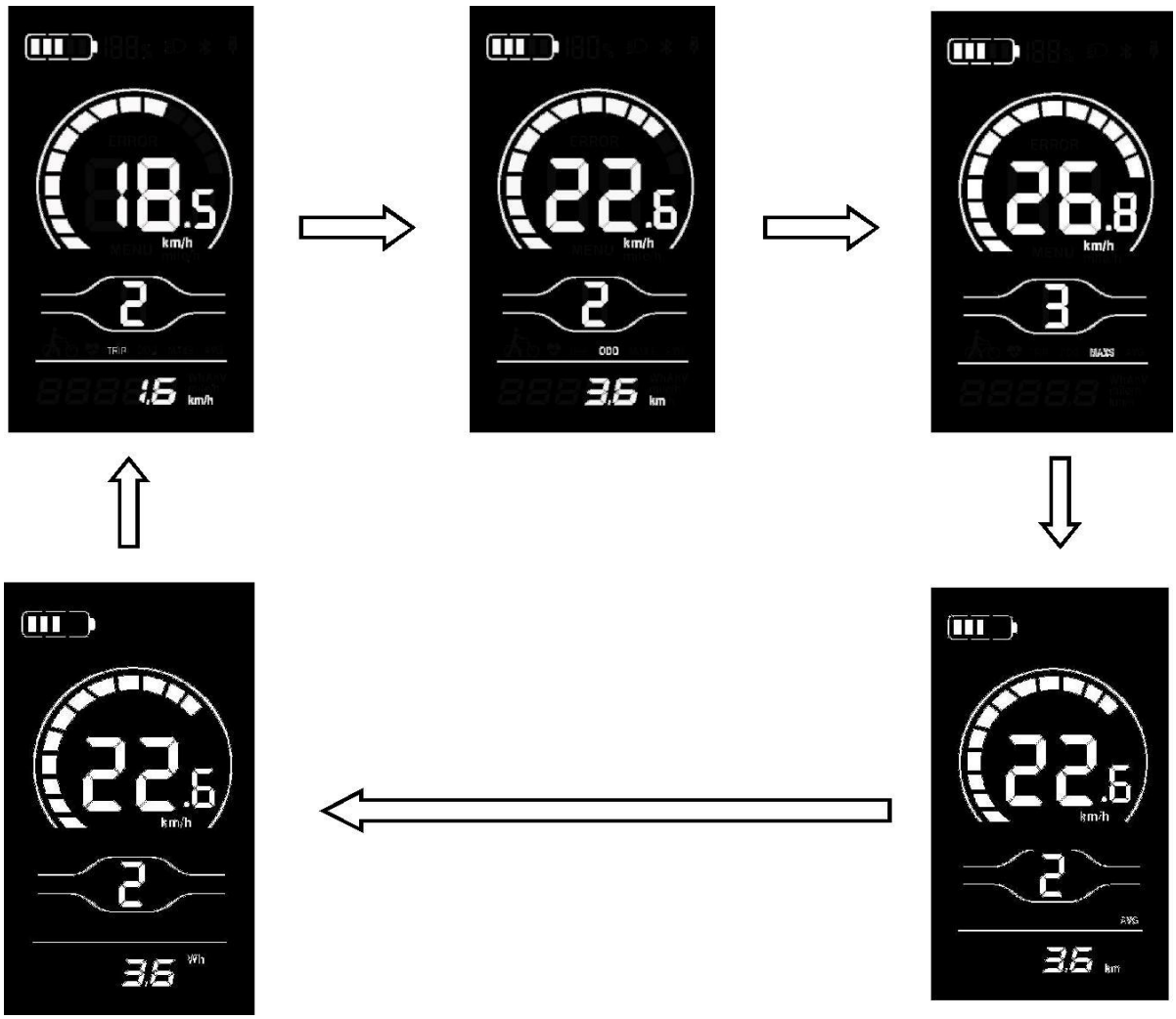
◆**Power On/Off**

After pressing the key  for a long time, the instrument starts to work and turns on the working power supply of the controller. In the startup state, the electric vehicle can be turned off by pressing the key for a short time. Source,in the shutdown state, the instrument no longer uses the battery power supply, and the leakage current of the instrument is less than 1uA.

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

◆**Display Interface**

After the instrument is turned on, the instrument displays the real-time speed and total mileage (km) by default. Press the **"i"** key briefly to display information switching between real-time speed (km/h), single mileage (km), total mileage (km), maximum speed (km/h), average speed (km/h) and riding power.

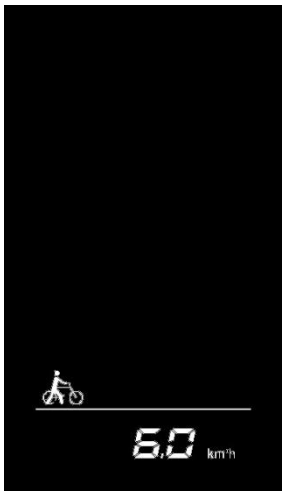


Display Interface Switch

◆**Assist in Implementation**

Press the **DOWN** button for a long time, and the electric vehicle enters the electric assistance pushing state. Electric vehicles run at a constant speed of 6 km/h. At the same time, the screen shows  .

Release the **DOWN** button and the electric vehicle will immediately stop power output and return to the state before the push.

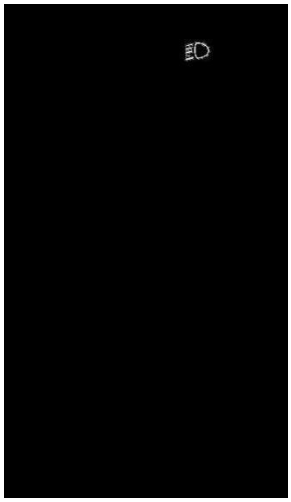


Helping to Promote Display Interface

◆The boosting function can only be used when the user pushes the electric vehicle, and should not be used in the riding state.

◆Turn the Backlight On/Off

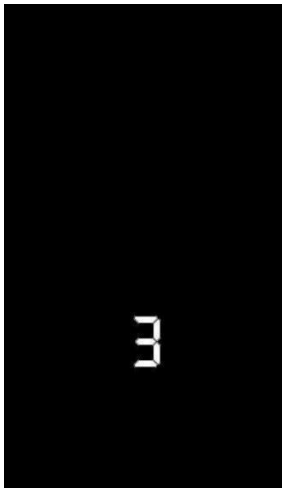
Press the headlight key briefly to dim the backlight of the instrument and notify the controller to turn on the headlight at the same time. When the external light is insufficient or driving at night, the headlights of the whole vehicle can be turned on. Press the headlight key again, the instrument backlight turns on and the controller is notified to turn off the headlight.



Open the Backlight Display Interface

◆Boost Gear Selection

Press the **UP/DOWN** button briefly to switch the assist gear of the electric vehicle, thus changing the output power of the motor. The default output power range of the instrument is 0-3 gears, 0 gears are 0 power output, 1 gears are the lowest power, and 3 gears are the highest power. When the 3rd gear is reached, press the **UP** button briefly again, and the interface will still display 3. The number 3 will remain unchanged, which is the highest grade. After the power downshift reaches gear 0, press the **DOWN** button briefly again, and the interface still displays 0. The number 0 remains unchanged, which is the lowest gear. The default gear for instrument startup is 1st gear.



Gear Switching Display Interface

◆**Electricity Display**

The five-segment display of battery power shows that when the battery voltage is high, the five-segment LCD is on, and when the battery is under-voltage, the outer frame of the battery flashes at a frequency of 1HZ, indicating the need to charge immediately.

Battery undervoltage flicker

Battery Charge Display Interface

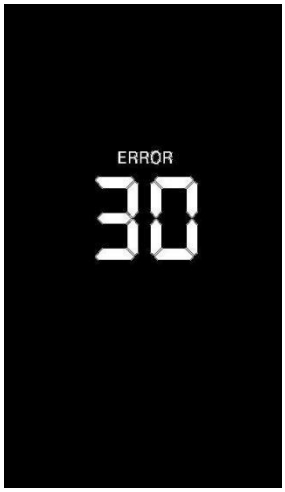
◆**Motor Power Indication**

The output power of the motor can be known through the instrument. The display mode is shown in the following figure.

Motor Power Display Interface

◆**Error Code Display**

When the electric control system of the electric vehicle fails, the instrument will automatically display the error code. See **Table 1** for the definition of the detailed error code.



Error Code Display Interface

■**When there is an error code in the display interface, please troubleshoot the fault in time. After the fault occurs, the electric vehicle will not run normally.**

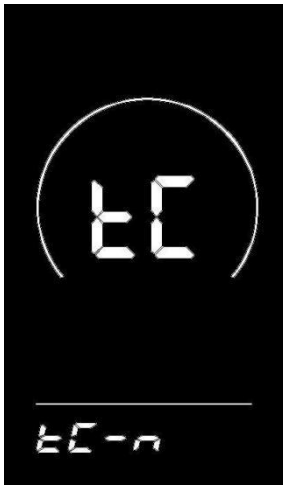
General Settings

Press the key for a long time to start the machine. In the startup state, when the vehicle is stationary, press and hold the **UP + DOWN** key for more than 2 seconds at the same time, and the instrument enters the normal setting state.

■**Each setting item needs to be made with the vehicle stationary.**

◆**Single Mileage Clear**

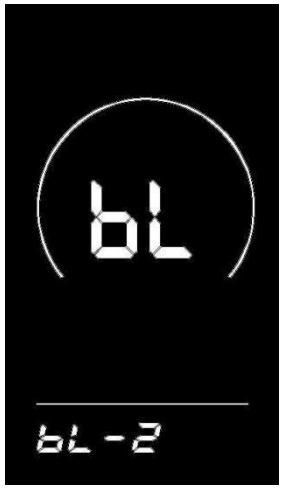
TC stands for clearing the single mileage. **Y/N** can be selected through the **UP/DOWN** key, and "**Y**" means clearing the mileage of a single ride. "**N**" means a single ride that is not cleared
Line mileage. Press the **"i"** key briefly to confirm and enter the backlight brightness setting state.



Single Mileage Clearing Operation Interface

◆Backlight Brightness

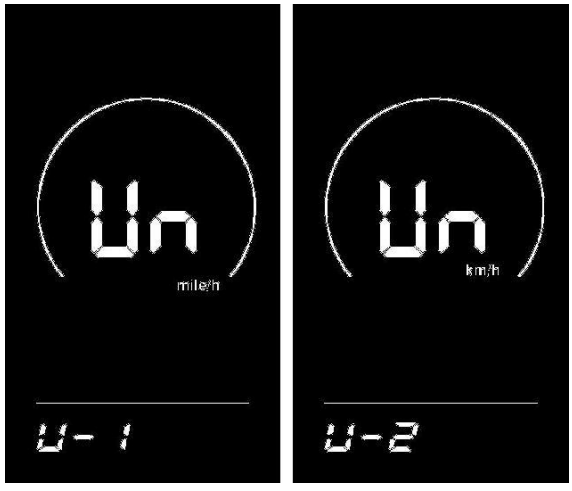
BL stands for backlight. Parameters 1, 2, 3 can be set to indicate backlight brightness, 1 is the darkest, 2 is the standard brightness, and 3 is the brightest. The default value of the instrument factory is 1. The backlight brightness parameter can be changed through the **UP/DOWN** key. Press the **"i"** key for a short time to confirm and enter the metric-imperial unit conversion setting state, and press the **"i"** key for a long time to confirm and exit the normal setting state.



Backlight Brightness Setting Interface

◆Conversion of Imperial and Metric Units

U for units, 1 for imperial system and 2 for metric system. Speed and mileage units can be converted through **UP/DOWN** key, short press **"i"** key to confirm, long press **"i"** key to confirm and exit the normal setting state. The default unit of the instrument is metric.



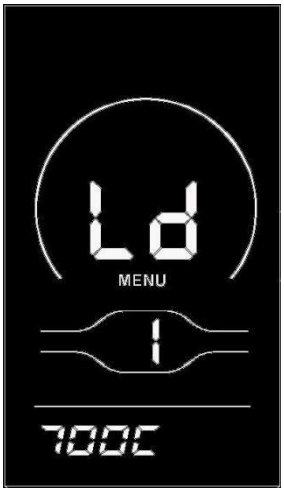
Imperial and Metric Unit Conversion Settings Interface

General Parameter Settings

Press and hold the **UP + DOWN** key for more than 2 seconds At the same time to enter the normal setting state. Press and hold the **DOWN + i** key for more than 2 seconds at the same time to enter the wheel diameter setting interface.

◆Wheel Diameter Settings

Ld represents the wheel diameter and can be set at 8-26, 700C, 28-30. Select the corresponding wheel diameter of the vehicle through **UP/DOWN** key to ensure the accuracy of instrument speed display and mileage display. The default wheel diameter value of the instrument factory is 26inch. Press the **"i"** key briefly to enter the speed limit setting interface.



Wheel Diameter Setting Interface

◆Speed Limit Settings

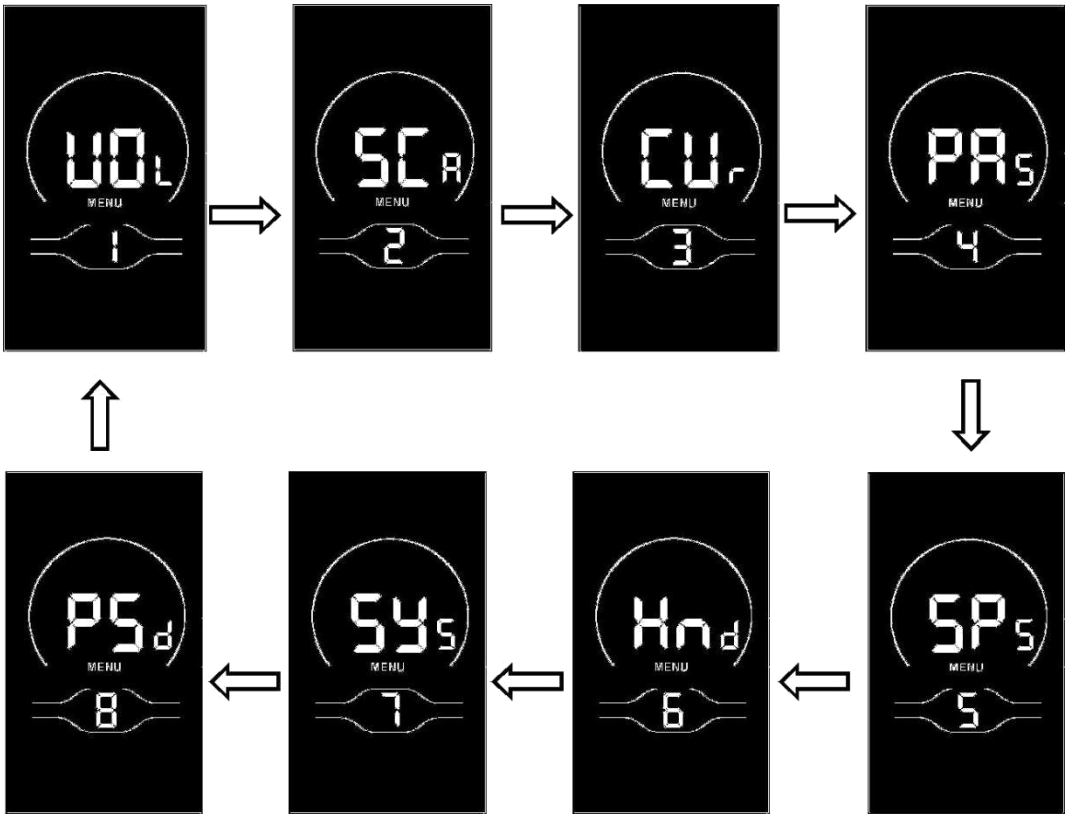
The default value of the highest riding speed of the instrument leaving the factory is 25Km/h. Changing this value can set the highest riding speed of the electric vehicle. When the electric power exceeds the set value, the controller will stop supplying power to the motor to protect the riding safety. LS indicates the speed limit. The optional range of the maximum speed setting value is between 12Km/h and 40Km/h, which can be added/subtracted through **UP/DOWN** key. Press the **"i"** key for a long time to confirm and exit the setting state.

Speed Limit Setting Interface

Personalization

In order to meet the personalized use requirements of customers, personalized settings are set up, including the battery power setting, power parameter setting, current limit value setting, power sensor setting, speed sensor setting, handle function setting, system setting and startup password setting of the instrument, with a total of eight settings. At the same time, press and hold the **UP + DOWN** key for more than 2 seconds to lift it to enter the normal setting state; Press and hold the **UP + DOWN** key again for more than 2 seconds at the same time to enter the instrument personalization item selection interface;

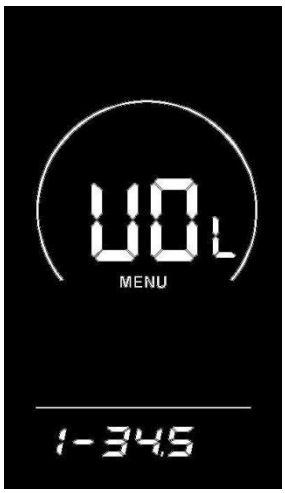
Select the content to be set through **UP/DOWN**, and press **"i"** to enter the corresponding setting interface.



Personalization Item Selection Interface

◆Battery Charge Setting

VOL represents voltage and requires 1 to 5 voltage values to be input one by one. Take the first electric quantity value as an example: "1" in the screen represents the first voltage and "34.5" is the first electric quantity value. Add/subtract settings are made through **UP/DOWN** key, press **"i"** key briefly to confirm and enter the next electric quantity setting interface; After the 5 electric quantity values are set, press the **"i"** key for a long time to confirm and return to the instrument setting item selection interface.



Battery Charge Setting Interface

◆Assist Parameter Setting (Option)

Boost Gear Selection

Eight modes are provided in the booster gear selection: 0-3, 1-3, 0-5, 1-5, 0-7, 1-7, 0-9, 1-9; Through **UP/DOWN** switching, press the **"i"** key briefly to confirm and enter the assistance proportion value setting interface in the corresponding mode. The instrument default mode is 0-5.

Booster Gear Selection Interface

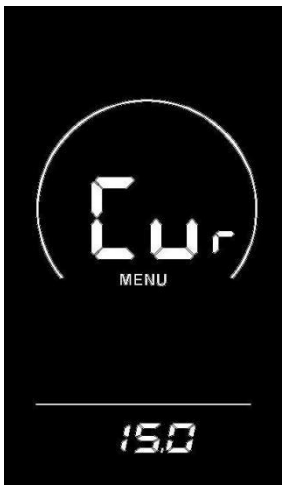
Assist Proportion Value Setting

By setting the value of the assistance ratio, the speed of each gear can be adjusted to meet the needs of different riders. Take 1st gear as an example, "45-55%" is the range of 1st gear assistance ratio, and "50%" is the default value of 1st gear, which is a settable value. Add/subtract settings are made through **UP/DOWN** key. Press **"i"** key briefly to confirm and enter the next assistance ratio setting, up to 9 can be set. After the setting is completed, press **"i"** key long to confirm and return to the instrument setting item selection interface. Please refer to **Schedule 2** for details.

Assist Proportion Value Setting Interface

◆Current Limit Value Setting (Option)

CUR represents current limit, which can be set in the range of 7.0-25.0 A, and the maximum current value of the controller can be changed through **UP/DOWN** key. Press the **"i"** key for a long time to confirm and return to the instrument setting item selection interface. The factory default value of the instrument is 15.0 A.



Current Limit Value Setting Interface

◆**Boost Sensor Settings (Option)**

Direction Setting of Assist Sensor

PAS stands for the booster sensor, and **run-F/b** is displayed on the screen. **run-F** stands for the forward direction and **run-b** stands for the reverse direction; Through the **UP/DOWN** key , press the **"i"** key briefly to confirm and enter the sensitivity setting of the power sensor. The factory default value of the instrument is forward.

Assist Sensor Direction Setting Interface

Assist Sensor Sensitivity Setting

SCN is displayed on the screen, which represents the sensitivity of the booster sensor. The setting range is 2-9, where 2 indicates the highest sensitivity and 9 indicates the lowest sensitivity; Add/subtract settings through **UP/DOWN** key, press **"i"** key briefly to confirm and enter the power sensor proportional parameter setting interface. The factory default value of the instrument is 2.

Assist Sensor Sensitivity Setting Interface

Setting of Magnetic Steel Number of Helper Disk

N-Represents the number of magnetic steels on the booster disk. The corresponding number of magnetic steels on the booster disk can be selected through the **UP/DOWN** key. Press the **"i"** key briefly to confirm and enter the booster sensor setting interface. The default number of disk magnets is 12.

Assist Disk Magnetic Steel Number Setting Interface

◆Speed Sensor Settings (Option)

SPS represents a speed sensor, which can be set according to the number of magnetic heads installed on the wheels of the electric vehicle, with a setting range of 1-15; Modify by pressing **UP/DOWN** key for a short time, press **"i"** key for a long time to confirm and return to the instrument setting item selection interface. The factory default value of the instrument is 1.

Speed Sensor Magnetic Steel Selection Interface

◆Turn Band Function Settings (Options)

Turn Handle Assisted Push Enable Setting

Hnd means the rotary handle, **HL** means the rotary handle assists in pushing, **HL-N** means the rotary handle has no assist in pushing function, and **HL-Y** means the rotary handle has assist in pushing function. When the rotary handle is turned, the instrument enters the assist in pushing mode; You can switch **Y/N** through **UP/DOWN** key, press **"i"** key briefly to confirm, if **N** is selected, you will enter the turning handle gear enable setting interface; Otherwise, return to the instrument setting item selection interface. The factory default value of the instrument is **N**.

Turn the Handle to Assist in Pushing the Setting Interface

Rotary Handle Gear Enable Setting

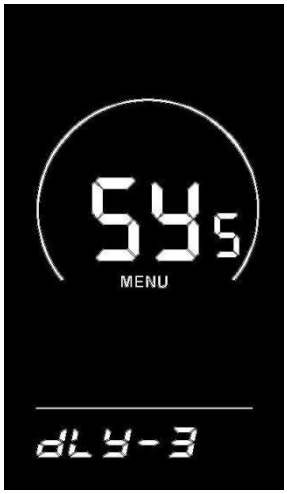
HF-Y means that the rotating handle is divided into gears, **HF-N** means that the rotating handle is not divided into gears. If the rotating handle is selected to be divided into gears, it means that when the rotating handle is rotated, the maximum speed can only reach the corresponding speed corresponding to the gear displayed on the instrument. If the rotating handle is selected not to be divided into gears, it means that when rotating the rotating handle, it is not limited by the gears displayed on the instrument and can reach the rated maximum speed. **Y/N** can be set through the **UP/DOWN** key, and the **"i"** key is briefly pressed to confirm and return to the enabling setting interface for the rotary handle to assist in pushing. Press the **"i"** key for a long time to confirm and return to the instrument setting item selection interface. The factory default value of the instrument is **N**.

Rotating Handle Gear Enable Setting Interface

◆System Settings (Options)

Electricity Delay Time Setting

dLY represents the power delay time, and the power delay time of 3/6/12s can be selected through **UP/DOWN** key. Press the **"i"** key briefly to confirm and enter the maximum speed limit setting interface. The instrument factory defaults to 3s.



Electricity Delay Time Selection Interface

Key Assisted Push Enable Settings

PUS represents the push enable of the key, **Y/N** can be switched through the **UP/DOWN** key, **Y** represents the enable, and **N** represents the non-enable; Press the **"i"** key briefly to confirm and enter the assist push speed setting. The factory default value of the instrument is **Y**.

Key Assists in Pushing Enable Setup Interface

Slow Start Settings

SSP stands for slow start, with an adjustable range of 1-4, and 4 stands for the slowest. You can select through the **UP/DOWN** key, press the **"i"** key for a long time to confirm and exit the setting. Instrument factory default 1.

Slow Start Setting Interface

◆Boot Password Settings

Press the **"i"** key to enter the password setting state, and the screen prompts **"P2"** to indicate the boot password. Press the **"i"** key to shift, add/subtract the input value through the **UP/DOWN** key, and press the **"i"** key to confirm after the 4-digit password is input. If the password is correct, enter the boot password enable setting interface, otherwise stay in the password input state. The default boot password is 1212.

Boot Password Input Setting Interface

Boot Password Enable

After inputting the password, enter the password enable interface, and select **Y/N** through the **UP/DOWN** key. **Y** indicates that the boot password is required and **N** indicates that the boot password is not required.

Press the **"i"** key briefly to confirm. If Y is selected, press the **"i"** key briefly to enter the password modification state, otherwise exit the password setting and return to the instrument setting item selection interface.

The default of instrument factory is **N**.

Password Enable Confirmation Interface

Switch-on Password Modification

The instrument displays P3. Press the **"i"** key briefly to shift, and add/subtract the input value through the **UP/DOWN** key. After modification, press the **"i"** key for a long time to save and confirm, and exit the setting interface. Restarting the instrument will display P1, 0000, and the instrument will not work normally until the correct password is entered.

Password Modification Interface

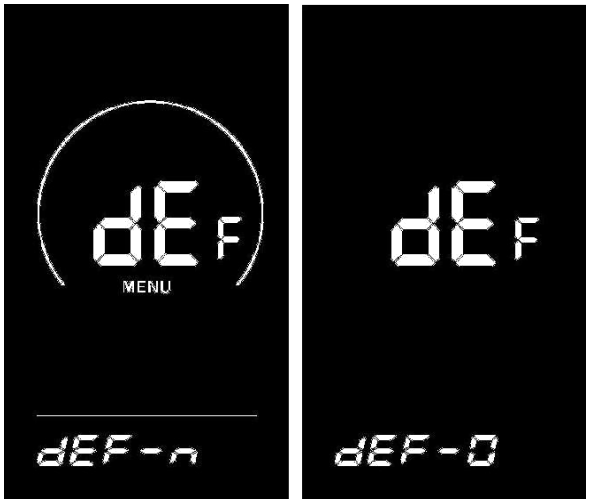
◆Exit Settings

In the setting state, pressing the **"i"** key briefly (within 2 seconds) is to confirm the input and save the current setting; Press the **"i"** key for more than 2 seconds to confirm the saving of the current setting and exit the current setting state; Press the **DOWN** key for more than 2 seconds to cancel the current operation and exit the setting, and do not save the current setting data.

■No operation is carried out within one minute, and the instrument automatically exits the setting state.

Restore Default Settings

dEF stands for restoring the default parameters, Press and hold the **UP + i** key for more than 2 seconds at the same time under the normal display interface, You can enter the interface of restoring default parameters. Switch **Y/N** through **UP/DOWN** key. **Y** indicates that the default parameters need to be restored and **N** indicates that the default parameters do not need to be restored. If **Y** is selected, the instrument will automatically start restoring the default settings and display **dEF-00** after pressing the **"i"** key for more than 2 seconds for confirmation. After restoring the default, it will automatically exit and return to the normal display interface.



Restore Default Settings Interface

Quality Commitment and Warranty Scope

I. Warranty Information:

1. The Company will be responsible for providing limited warranty during the warranty period for any failure caused by the quality problem of the product itself under normal use conditions.

2. The warranty period of the product shall be within 24 months after the instrument leaves the factory.

II. The following circumstances do not fall within the warranty scope

1. The shell is opened

2. Connector is damaged

3. After the instrument leaves the factory, the shell is scratched or damaged

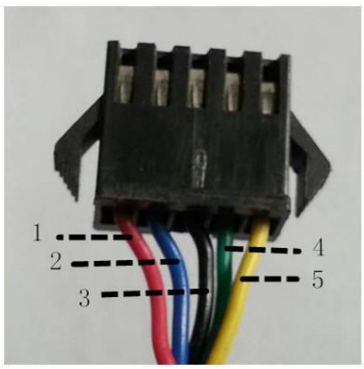
4. Scratches or ruptures of the instrument lead-out line

5. Failure or damage caused by force majeure (such as fire, earthquake, etc.) or natural disasters (such as lightning strike, etc.)

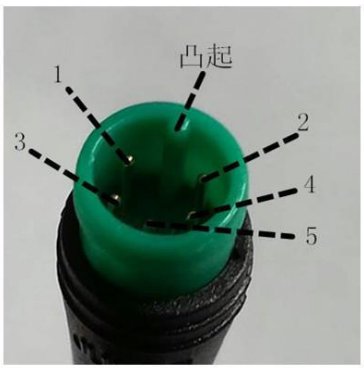
6. The product exceeds the warranty period

Lead Connection Diagram

Standard connector wire sequence



Connecting end with Controller



Instrument Outlet End

Switch Wiring

Table: Standard Connector Line Sequence Table

Line	Color	Functions
1	Red (VCC)	+
2	Blue(Kp)	Lock
3	Black(GND)	-
4	Green(RX)	RX
5	Yellow(TX)	TX

■The leads of some products use waterproof connectors, and users cannot see the color of the leads in the wiring harness.

Precautions

Pay attention to safety during use, and do not plug and unplug the instrument under the condition of power supply.

◆Try to avoid bumping on the instrument.

◆Regarding the background parameter setting of the instrument, please do not change it at will, otherwise normal riding cannot be guaranteed.

◆When the instrument cannot be used normally, it should be sent for repair as soon as possible.

Schedule 1: Error Code Definition Table

Error Code	Definition
21	Current Abnormality
22	Throttle Abnormality
23	Motor Abnormality
24	Motor Hall Signal Abnormality
25	Brake Abnormality
30	Communication Abnormality

Schedule 2: Boost Gear Proportion Default Value Table

Level / Level selection	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%