SPHERIK

SEL-SES Display

User Manual

Product name and model

E-bike Intelligent LCD display
Model: Spherik SEL et SES

Specifications
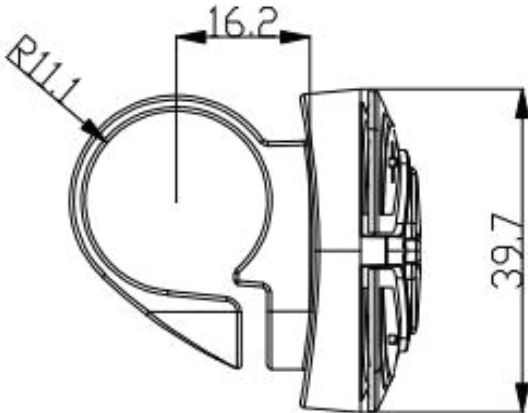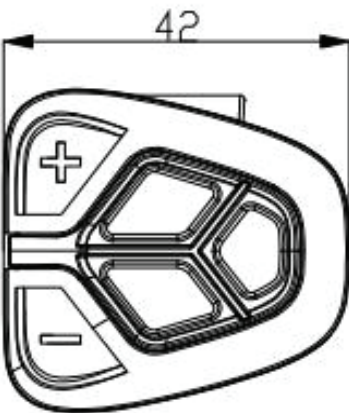
- 24V/36V/48V Power Supply
- Rated working current: 10mA
- The maximum working current: 30mA
- Off-state leakage current: <1μA
- Operating temperature: -20℃~ 60℃
- Storage temperature: -30℃~ 70℃

Appearance and Size

Product appearance and dimensional drawing (unit: mm)
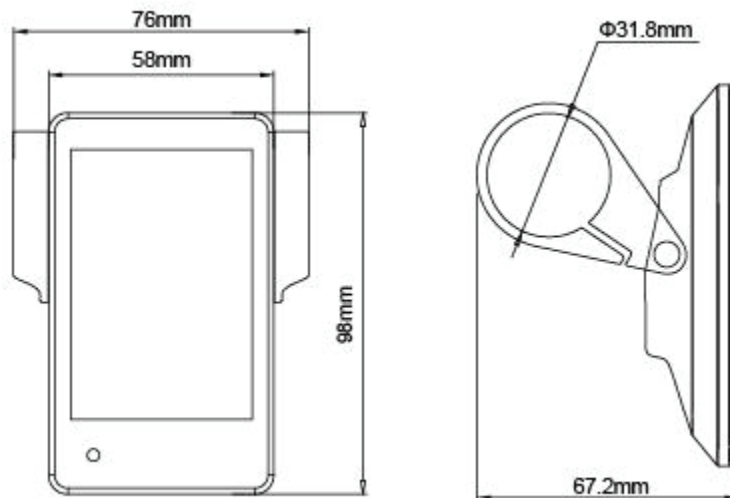
Remote appearance and dimensional drawing (unit: mm)

42

16.2

R11.1

39.7

Function Summary:

**SPHERIK SEL-SES has many functions to meet riders' needs.
The indication elements are as follows:**

●Battery info-graphic and battery percentage

●Motor Power

●Power Assist level

●Speed indication (incl. current speed, Max. speed and Avg. speed)

●ODO and trip distance

●The push-assist function

●Trip time

●Backlight On/Off

●Error code indication

●Cadence (**optional**)

●USB port

●Range (**optional**)

●Various Parameters Settings (*e.g., wheel diameter, speed limit, battery bar settings, assist level, controller limited current, password enable/disable, etc.*)

●Recover Default Settings

General Operation

◆Switching the E-bike System On/Off

To switch on the E-bike system and provide the power supply to the controller, hold the On/Off button on the remote for 1 second.

To switch off E-bike system, hold the On/Off button for 2s. The E-bike system no longer uses the battery power.

When E-bike system is switched off, the leakage current is less than 1 μA.

■**When the E-bike is parked for approx. 10 minutes, the E-bike system switches off automatically.**

◆Display Interface

After switching on the E-bike system, the display shows Current Speed and Trip Distance by default.

Press "i" button to switch between the indication functions below:

ODO (km) →MAX. Speed (km/h) → AVG. Speed (km/h) →Trip Time (Min.) →ODO (km).

*Finally, it cycles back to ODO (km) again.

Display Indication Cycle Interface

◆Switching Push-assistance Mode On/Off

To activate the push-assistance function, press and hold the "-" button. After 2 seconds , E-bike is activated to go at a uniform speed of 6 Km/h while the screen displays 🚲

The push-assistance function is switched off as soon as you release the "-" button. The E-bike system stops the power output immediately.
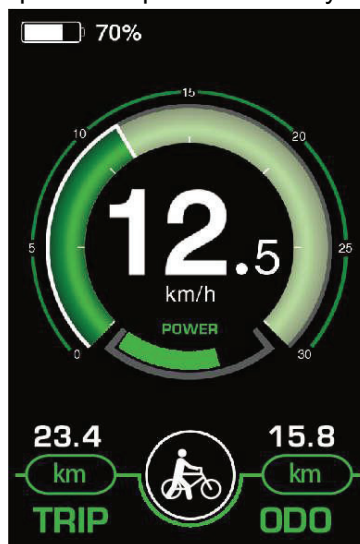
Push-assistance Mode

■**Push-assistance function may only be used when pushing the E-bike. Be aware of danger of injury when bike wheels do not have ground contact while using the push-assistance function.**

◆Switching the Lighting On/Off

To switch on E-bike front light or rear light, briefly press the " 🔦 " button on the remote. The display backlight brightness is automatically reduced while the screen displays 🔦 . Likewise, press the " 🔦 " button again, the bike front light and rear light can be switched off and display backlight recover its brightness.

 *If E-bike front light or rear light is independent of " 🔦 " button, the " 🔦 " button can only be used to switch on/off the display backlight.

Switching the Lighting On/Off Interface

◆Assist Level Selection

Press "+" or "-" button to change the E-bike system assist level and change the motor output power. The default assist level ranges from level "0"to level "5", The output power is zero on Level "0". Level "1" is the minimum output power. Level "5" is the maximum output power. When you reach "5", press the "+" button again, the interface still shows "5", and blinks at"5"to indicate the power maximum. When you are in level "0", press the "-" button again, the interface still shows "0"and blinks at "0" to indicate the power minimum. The default value is level "1".
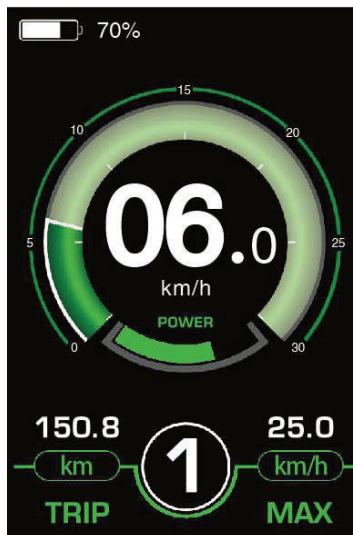
Assist Level '**1**' Interface

◆Battery Indicator

The battery percentage info-graphic indicates current battery power.The battery frame is full of a specified color such as green color or white color when the battery is in high voltage. When the battery is in low voltage, battery frame will flash at the frequency of 1HZ to give a notice that the battery needs to be recharged immediately.

Flash in low voltage
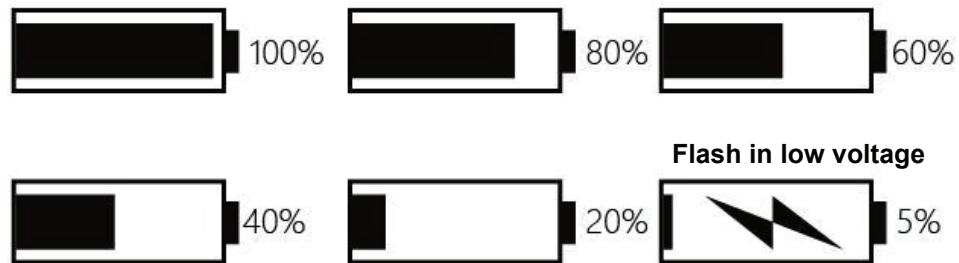
Battery SOC Indication Interface

◆Motor Power Indicator

The motor power can be read via the interface below(bottom green rim).
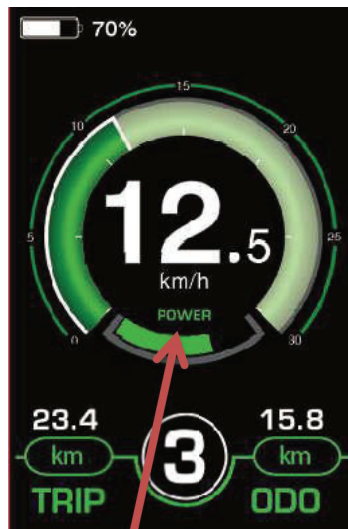
Motor Power Indication Interface
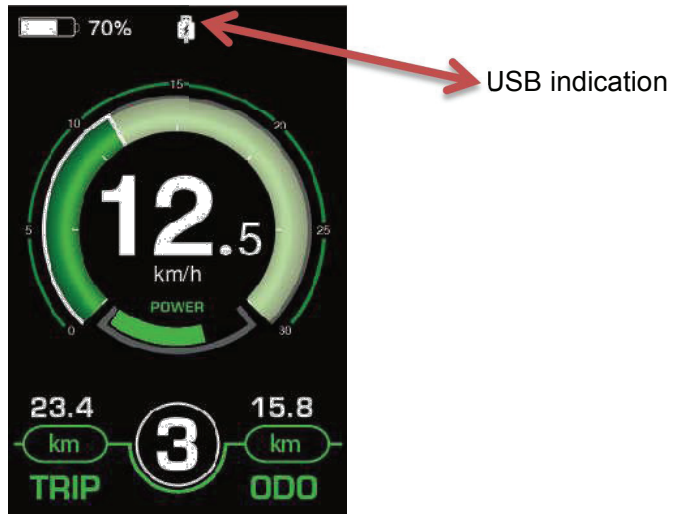
◆USB connection indication (optional)

When a USB external device is inserted into the display, the USB connection indication is shown as follows:

With the USB connection, it is possible to operate and charge most devices whose power supply is possible via USB (e.g., various mobile phones). Using a matching USB cable, connect the USB port of external device to the USDB port of the display.

USB Connection Indication Interface

◆**Error Code Indication**

The components of the E-bike system are continuously and automatically monitored.
When an error is detected, the respective error code is indicated in text indication area.
Refer to detailed definition of the error codes in **Attached list 1**.
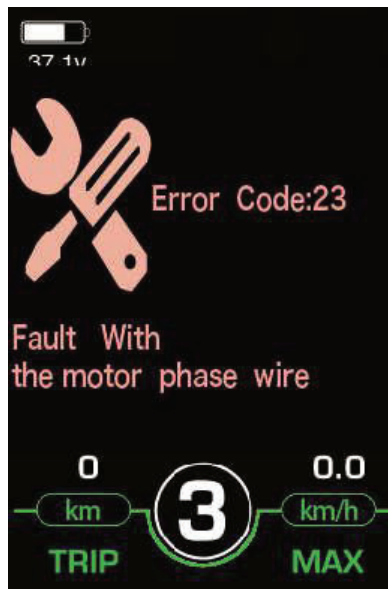
Error Code Indication

■**Have the display inspected and repaired when an error code appears. Or else, you will not be able to ride the bike normally. Please always refer to an authorized bicycle dealer.**

DisPlay Setting

Press the On/Off button to switch on the display.
To access Setting page, hold both the "+" button and the "-" button for 2s.
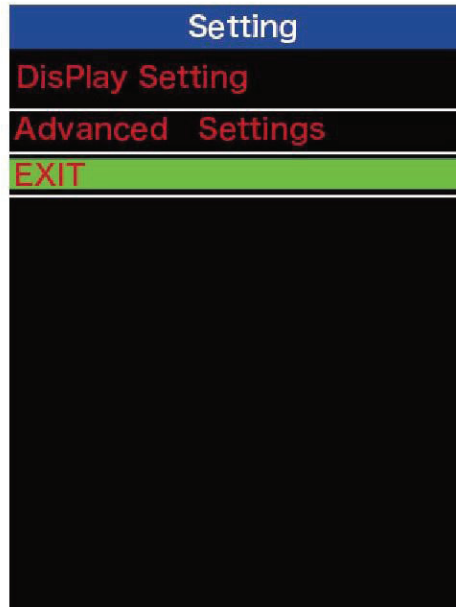
Setting interface

■**All the Settings are operated in the case of a parked E-bike.**

◆Trip Distance Clearance

Trip Reset represents trip distance clearance setting.

To clear trip distance, press the "+" button or the "-" button to select Yes or No. Yes represents clearing a single ride distance. No represents not clearing a single ride distance.

To store a changed setting, briefly press the "i" button to confirm.

Trip Distance Clearance Settings Interface

◆Unit km/mile Conversion

Toggle Unit represents unit settings.

To toggle the unit, press the "+" button or the "-" button to choose the desired unit and press the "i" button to confirm The default unit is "Metric (km)".
To store a changed setting, briefly press the "i" button to confirm.

DisPlay Setting		DisPlay Setting	
Toggle Unit	Metric	Toggle Unit	Imperial
LCD Luminance	100%	LCD Luminance	100%
Dormancy	5Min	Dormancy	5Min
SOC View	Voltage	SOC View	Percent
TRIP Reset	NO	TRIP Reset	NO
AL Sensitivity	3	AL Sensitivity	3
Password	>	Password	>
BACK		BACK	

Mile and Kilometer Toggling Interface

◆Backlight Brightness Settings

LCD Luminance represents backlight brightness. 100% is the highest brightness. The less the percentage, the lower the backlight brightness.

To change the backlight brightness, press the "+" button or the "-" button to choose the desired percentage.

To store a changed setting, briefly press the "i" button to confirm.

DisPlay Setting	
Toggle Unit	Metric
LCD Luminance	100%
Dormancy	5Min
SOC View	Voltage
TRIP Reset	NO
AL Sensitivity	3
Password	>
BACK	

Backlight Brightness Settings Interface

◆Auto-off Time Settings

Dormancy represents display auto-off time settings.

To change display automatic shutdown time, press the "+" button or the "-" button to choose the desired duration. The default auto-off time is 5 minutes.

To store a changed setting, briefly press the "i" button to confirm.

Auto-off time settings

◆SOC View Settings

SOC view represents 2 display methods of remaining battery capacity. One is by the percentage and the other is by the Voltage value. Press the "+" button or the "-" button to choose the desired display method. The default view method is by the percentage.

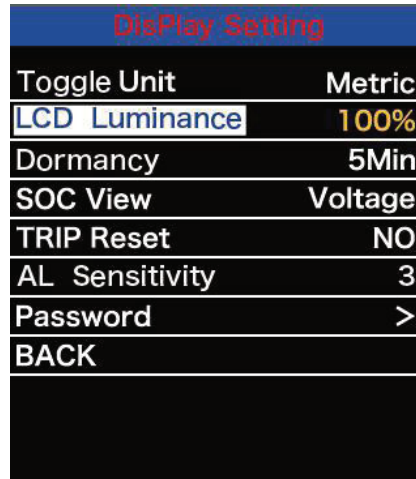To store a changed setting, briefly press the "i" button to confirm.

SOC View Settings

◆AL sensitivity

AL sensitivity represents Ambient Light Sensor settings. The sensitivity of AL sensor ranges from 1 to 5. The default value is 3. It can help with adjusting the screen brightness as per the ambient light conditions automatically. When you ride the bike at night or in a place where there is a lack of light, the display backlight and bike light will be turned on automatically. Press +/- button to choose the desired sensitivity value.

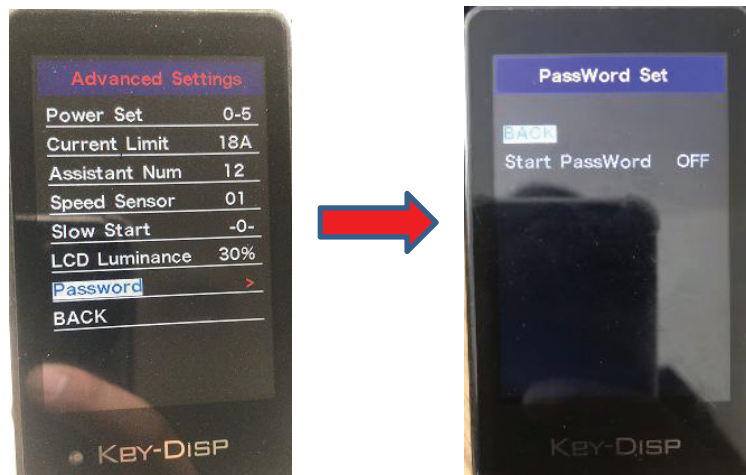To store a changed setting, briefly press the "i" button to confirm.

AL sensitivity settings

◆Power-on Password Settings

To access the power-on password setting page, select '**Password**' in the menu and press "i" button to confirm.

PassWord Set means power-on password settings. Power-on password is a 4-digit code. The default password is '**1212**'.
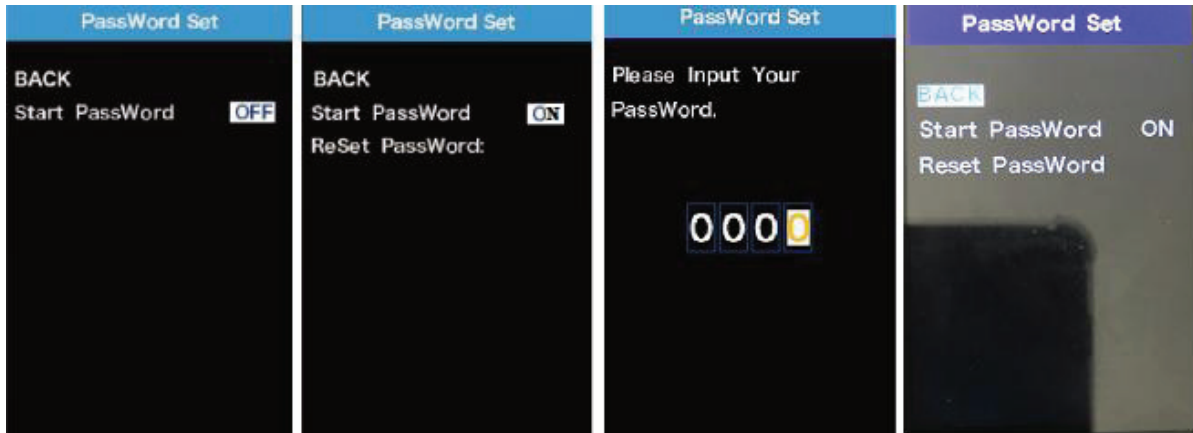

Password Setting Interface

1.Power-on Password Disable/Enable

To enable or disable **Start PassWord** settings, press the "+" or the "-" button to select ON or OFF. ON means enabling a power-on password while OFF means disabling a power-on password. The default value is OFF.

To enable a power-on password, choose ON and press "i" button to confirm and input the current password or default password'1212'. Press the "+"or the "-"button to change the number and press the "i"button to confirm digits one by one until the correct password*(current password or default password'1212')* is completed.

To disable the current password, choose OFF and press "i" button to confirm and input the current password correctly. The screen displays 'PassWord Canceled Successfully'. ***Then the display password is restoring the default code '1212'.**

Password Enable/Disable Settings Interface

2.Power-on Password Reset

From the last interface above, press the "+" or the "-" button to select '**Reset PassWord**' and press the "i" button to confirm to access power-on password reset interface. There are 3 pages for setting up a new password:

In the **first** page, please enter the current password or default password '1212' correctly.

Then it moves to the **second** page for inputting a new password. Press the "+" or the "-" button to increase or decrease the number and then press the "i" button to confirm digits one by one until a new 4-digit password is completed.

Finally, it comes to the **third** page and reenter the new password again for confirmation. The screen displays ' PassWord Reset Successfully'

When switching on the E-bike system next time, please enter the new password to power on.
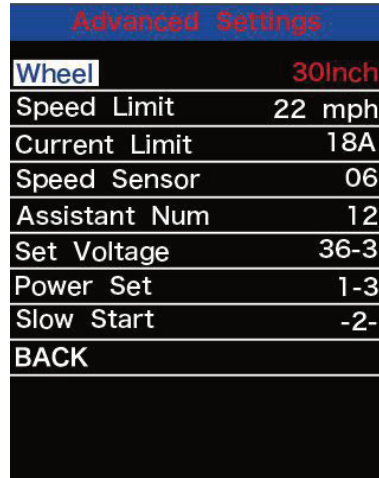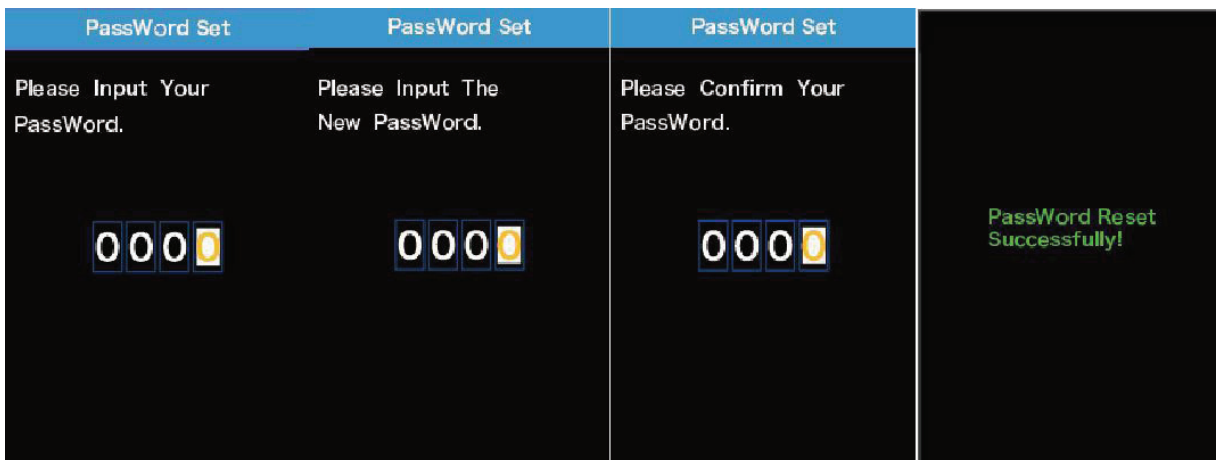

Password Change Interface

Advanced Settings

After **DisPlay Setting** is done, Press Back to return to Setting page.

Press **UP/DOWN** button to choose Advanced Settings and press "i" button to enter Advanced Settings page.

◆Wheel Diameter Settings

Wheel represents wheel diameter settings. To change basic settings, press the "+" or the "-" button to increase or decrease until the desired value is displayed. The default value is 26 inch.

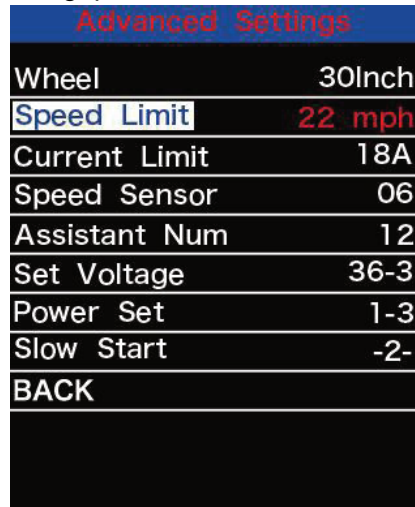To store a changed setting, press the "i" button to confirm.

Wheel Diameter Settings Interface

◆Speed-limit Settings

Speed Limit represents the limited speed settings. When the current speed is faster than speed limit, the E-bike system will be switched off automatically. Speed limit range is 12Km/h to 40Km/h. The default value is 25Km/h.

To change basic settings, press the "+" or the "-" button to increase or decrease until the desired value is displayed. Press the "i" button to confirm.

To store a changed setting, press the "i" button to confirm.

Speed limit settings interface

◆Controller Over-current Cut Settings

Current Limit represents controller over-current cut settings. The current value can be changed from 7.0A to 25.0A. The default value is 15A.

To change basic settings, press the "+" or the "-" button to increase or decrease the value of the current.

To store a changed setting, press the "i" button to confirm.

Advanced Settings	
Wheel	30Inch
Speed Limit	22 mph
Current Limit	18A
Speed Sensor	06
Assistant Num	12
Set Voltage	48-2
Power Set	0-5
Slow Start	-2-
BACK	

Current Limit Settings Interface

◆Speed Sensor

Speed Sensor represents speed sensor settings.

To change speed sensor settings, press the "+" or the "-" button to select the quantity of magnet heads on the e-bike spoke (the range is from 1 to 15). The default value is 1.

To store a changed setting, press the "i" button to confirm.

Advanced Settings	
Wheel	30Inch
Speed Limit	22 mph
Current Limit	18A
Speed Sensor	01
Assistant Num	12
Set Voltage	48-2
Power Set	0-5
Slow Start	-2-
BACK	

Speed Sensor Settings

◆**Power Assistant Sensor Settings**

Assistant Num represents PAS magnet quantity settings. The value is from "5" to "24" which refers to the number of PAS magnets in working condition. The default value is 12.

To change the sensitivity of power assist sensor, press the "+" or the "-" button to choose the desired number of PAS magnets.

To store a changed setting, press the "i" button to confirm.

PAS Sensitivity Settings

◆**Battery Power Bar Settings**

Set Voltage represents voltage settings. 5 bar voltage values must be entered one by one. For example, "1-" is the first bar voltage value and its default value is 41.2V.

To set battery power bar, press the "+" or the "-" button to increase or decrease the voltage values.

To store a changed setting and access the next bar voltage setting, press the "i" button.

In the same manner, after 5 voltage values are entered completely, press the "i" button to confirm.
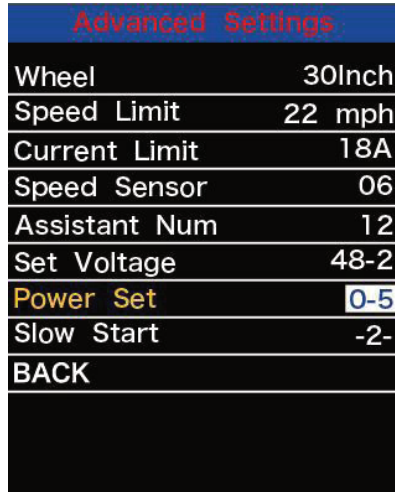

Battery Voltage Settings Interface

◆Power Assist Level Settings
Power Assist Level Mode Options

Power Set represents power assist level settings. In assist level mode settings, there are 8 modes for your choice：0-3, 1-3, 0-5, 1-5, 0-7, 1-7, 0 -9, 1-9. The default mode is 0-5.

To change power assist level mode, press the "+" or the "-" button to choose the desired mode.

To store a changed setting, press the "i" button to confirm and access power assist level ratio settings automatically.

Power Assist Level Mode Option Interface
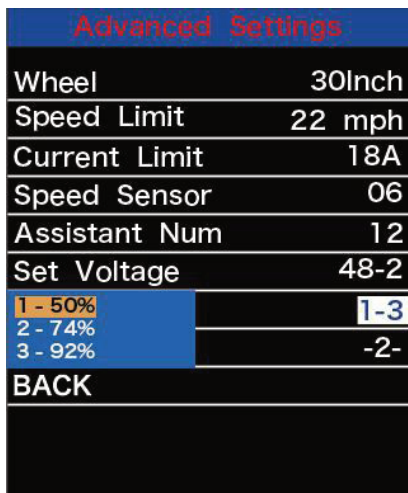
Power Assist Level Ratio Settings

To change the ratio of a certain power assist level, press the "+" button or "-" button to choose the desired ratio value, and then press the "i" button to confirm.

For example, the ratio range is "45-55 percent" for level "1"; percentage can be changed and the default ratio value is 50 percent.

To store a changed ratio setting, press the "i" button and move to the next level ratio setting.

After ratios of all power assist levels were input, press the "i" button to confirm.

Please refer to power assist level ratio default values in **Attached list 2**.

Power Assist Level Ratio Settings Interface

◆Slow Start-up Settings

Slow start represents slow start-up settings. It is a time duration before you get power assistance when applying pedal power. The range is "1-4". "4" is the slowest. The default value is "1".

To change slow start up settings, press **+/-** button to choose the desired value. And press the **i** button to confirm.

Slow Start-up Settings

◆Exit Settings

In the settings state,

1. Briefly press the "i" button is to confirm and store a changed setting but stay within current setting menu.

2. Hold the "i" button for 1 second is to store a changed setting and exit current setting menu and return back to display start-up interface.

3. Hold the "-" button for 1 second is to cancel the setting operations without storing a change and return back to display start-up interface.

■If there is no setting operations in one minute; the display will exit the settings state.

Quality Assurance and Warranty Scope

Ⅰ **Warranty**

（1）The warranty will be valid only for products used in normal usage conditions.
（2）The warranty is valid for 24 months after the shipment or delivery to customers

Ⅱ **The following cases do not belong to our warranty scope.**

1. The display is demolished.

2. The damage of the display is caused by wrong installation or operation.

3. Shell of the display is broken when the display is out of the factory.

4. Wire of the display is broken.

5. The fault or damage of the display is caused by the force majeure (e.g., fire, earthquake, etc.).
6. Beyond Warranty period.

Connection Layout

Connector wire sequence
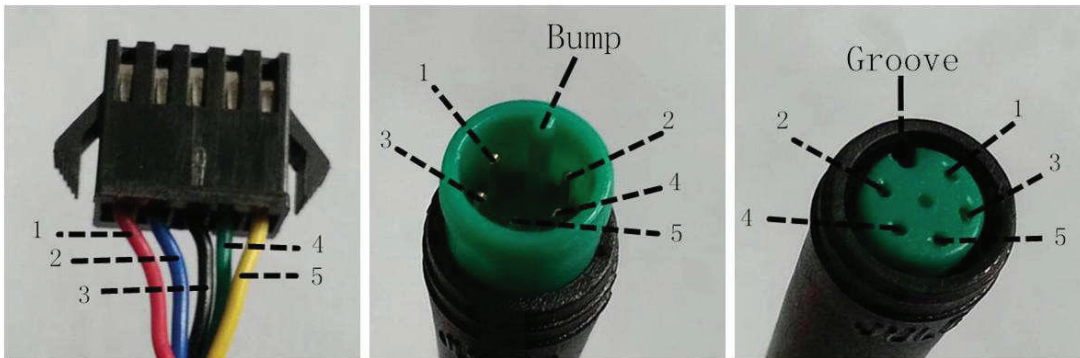
Connector to controller   Display end

Connection wire end
to display end

wire sequence table

Wire	Color	Function
1	Red（VCC）	+
2	Blue（K）	Lock
3	Black（GND）	-
4	Green（RX）	RX
5	Yellow（TX）	TX

■**Some displays have wire connection with water-proof connectors, users can not see the color of lead wires in the harness.**

Warnings：

◆Use the display with caution. Don't attempt to release or link the connector when battery is on.

◆Try to avoid hitting the display.

◆Don't modify system parameters to avoid parameter disorder.

◆Make the display repaired when error code appears.

THIS MANUAL INSTRUCTION IS A GENERAL-PURPOSE VERSION. SOME OF THE VERSIONS FOR THE DISPLAY SOFTWARE WILL BE DIFFERENT FROM SPECIFICATION TO SPECIFICATION. PLEASE ALWAYS REFER TO AN ACTUAL VERSION

Attached list 1：Error code definition

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

Attached list 2：Power assist level ratio default value table

Level PAS Level mode	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%