

# P850C Manual



**1<sup>st</sup> August 2020**

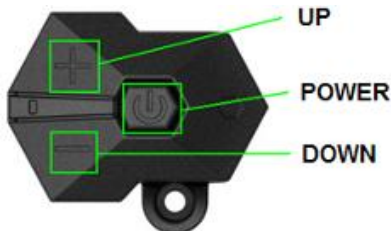
## 1. Features

- ✧ Suitable for low temperatures - Max -20°C.
- ✧ High-contrast 3.2inch IPS colour matrix screen.
- ✧ Ergonomic external button design, easy to operate.
- ✧ **Speed display** : AVG SPEED, MAX SPEED, SPEED(Real-time).
- ✧ **Kilometer / Mile** : Can be set according to your requirements
- ✧ **Smart battery indicator** : Provides a reliable battery indicator.
- ✧ **9-level Assist** : 3-level/5-level/9-level optional.
- ✧ **Mileage indicator** : Odometer/Trip distance/ Clock/ Riding time.
- ✧ **Power/Current indicator** : real time power indicator, digital or analogue or Current.
- ✧ **Error code indicator.**
- ✧ Light sensor (Optional )
- ✧ **Software upgradeable** : Software can be upgraded through UART.
- ✧ **USB charging port** : 5V/500mA

## 2. TFT screen instructions



## 3. Usage Description



### 7.1 Power On/Off

Press and hold the **Power** button for 1 second to turn the display on/off. The Display will automatically shut down when it isn't in use. You are able to set this between 1 and 9 minutes.

\*If the display has been set to require a password to power on, you will need to input the right password at the start.

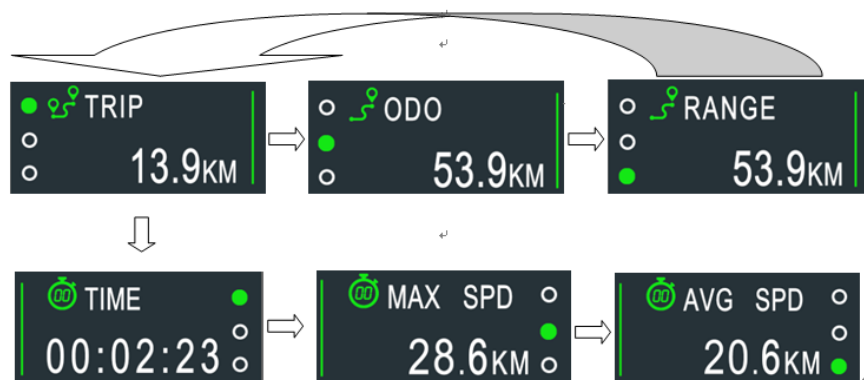
### 7.2 Assist level operating

Short press **UP/DOWN** button to change the assist level. Top assist level is 9, 0 for no assistance. Level amounts can be adjusted according to your requirements via the settings menu (advanced area) or USB programming kit.



### 7.3 Speed & Mileage mode switch

Short press **POWER** button to change the speed and mileage mode,  
TRIP→ODO→RANGE→TRIP→TIME→MAX SPEED→AVG SPEED



\*Range needs smart BMS support.

\*\*If there is no operation for 5 seconds, the display will return to the Speed (Real-Time) display automatically.

### 7.4 Headlight/backlight On/Off

Press and hold the **UP** button for 1 second to turn on/off the headlight, and the screen will switch to the corresponding mode (only if integrated headlight is fitted).

\*The motor will stop operating when you battery gets too low to ensure your battery is not damaged. However, for a while the light will still operate so that you can safely pedal home without motor assistance.



Daytime mode

night mode

## 7.5 Walking mode (6km)

Press and hold **DOWN** button for 2 seconds to select walking mode. Walking mode provides a small amount of power to help you push your bike along if walking.



\* This feature needs to be supported by controller.

## 7.6 Data cleanup

Press and hold **UP** & **DOWN** buttons together for 1 second to reset your ride statistics such as **AVG Speed / MAX Speed / Trip / Time**. These are not erased by power off.

## 4. Settings menu

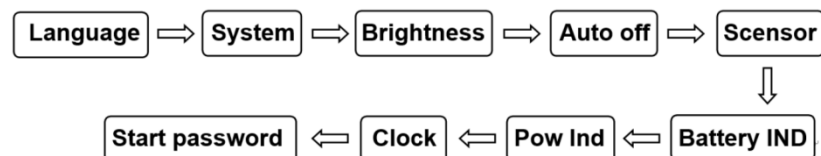
Double press the **POWER** button (press interval less than 0.3 seconds) to enter the setting menus, press **UP/DOWN** buttons to change the parameter setting, press **POWER** button to switch to the next item. Double press the **POWER** button to exit from the menu.

\* Display will automatically quit the settings menu when there is no operation for 30 seconds.

\* For safety reasons, you can't enter the settings menu when riding

\* Display will quit the settings menu when you start riding.

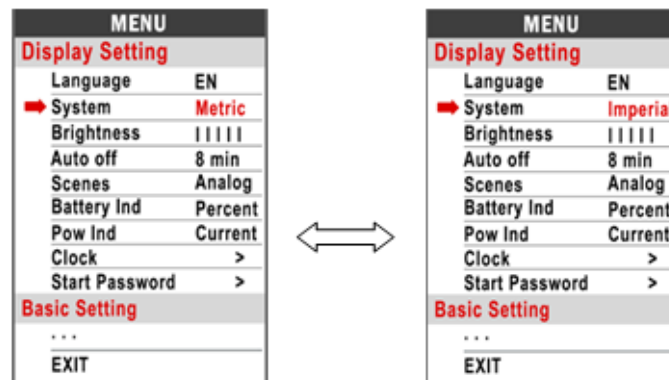
The order of parameters are as follows.



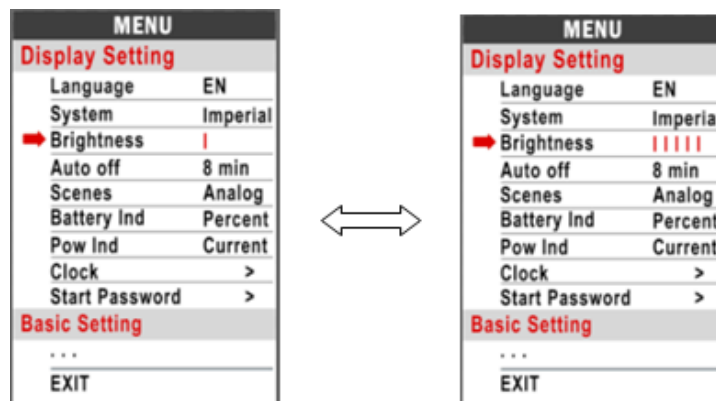
**8.1 Language:** Default EN , Un adjustable

| MENU                   |         |
|------------------------|---------|
| <b>Display Setting</b> |         |
| → Language             | EN      |
| System                 | Metric  |
| Brightness             |         |
| Auto off               | 8 min   |
| Scenes                 | Analog  |
| Battery Ind            | Percent |
| Pow Ind                | Current |
| Clock                  | >       |
| Start Password         | >       |
| <b>Basic Setting</b>   |         |
| ...                    |         |
| EXIT                   |         |

**8.2 System :** Press Up / Down button to switch between Metric / Imperial.

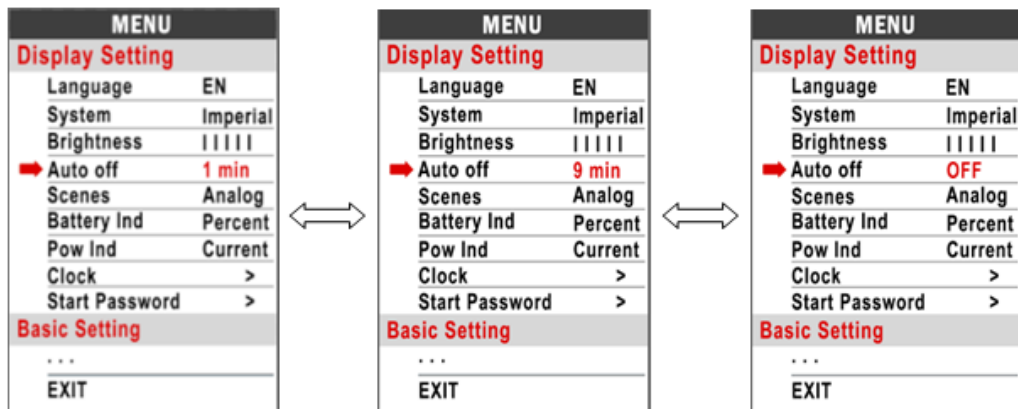


**8.3 Brightness :** Press Up / Down button to change the brightness of the backlight, | is dark, ||||| is very bright, default value is |.

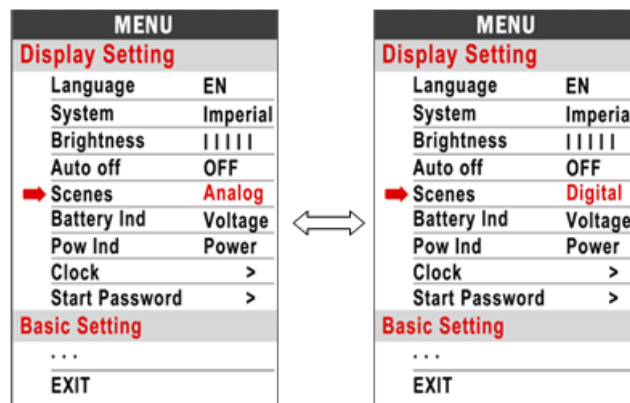


Note : You can set the brightness independently between Daytime mode and Night mode.

**8.4 Auto off** : Press UP/DOWN button to change the auto power off time, from 1 to 9/OFF. The numbers represent minutes. When off is selected, the screen will only turn off when the on/off button is pressed. By default, this is set to 5 minutes.

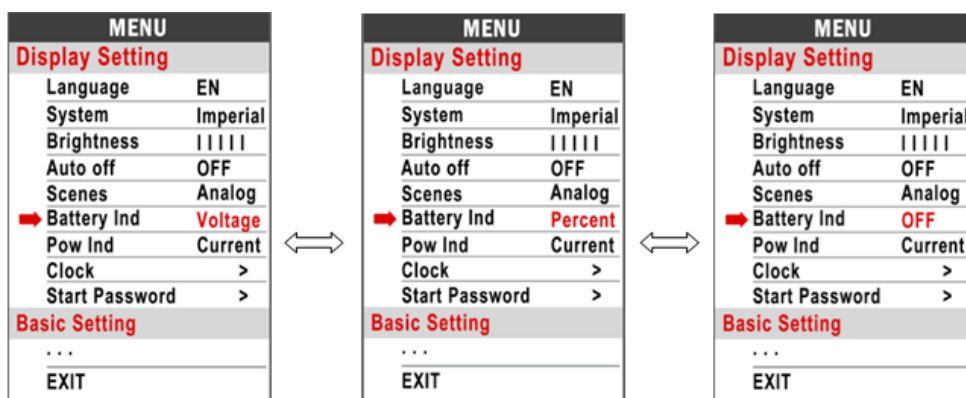


**8.5 Scenes** : Analogue only



**8.6 Battery Ind** : Press UP/DOWN button to change the battery indicator, Voltage / Percentage / OFF.

\*Accurate percentage needs a specialist battery





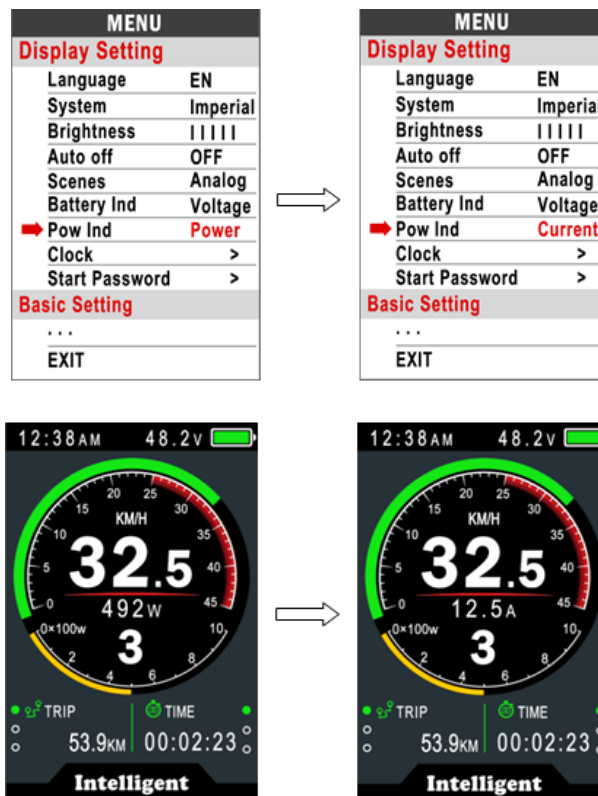
Voltage

Percentage

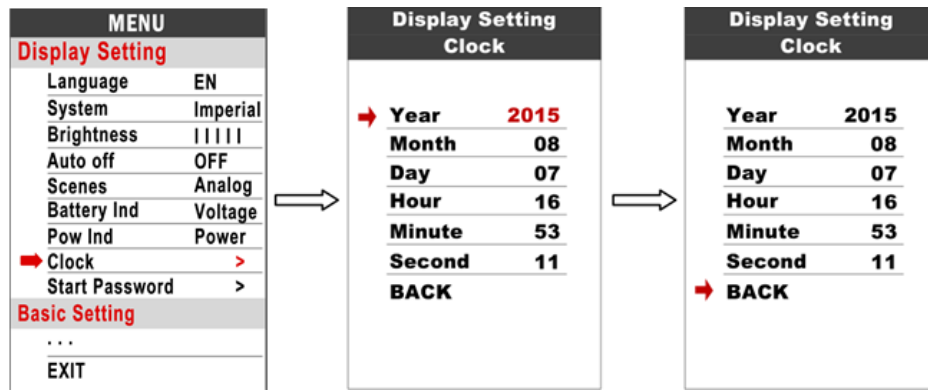
OFF

**8.7 Pow Ind :** Press UP/DOWN button to change the Power indicator, Power / Current.

\* This data represents the power output of the battery (not motor).

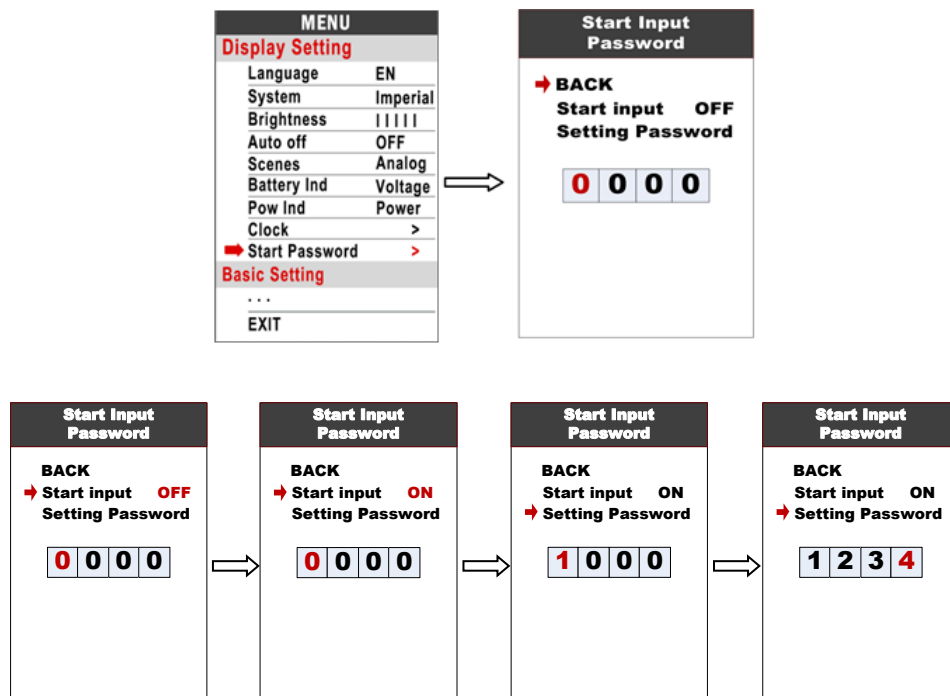


**8.8 Clock :** Clock setting, press POWER button get into the clock setting menu, press the UP/DOWN button to set Year/Month/Day/Hour/Min/Sec.

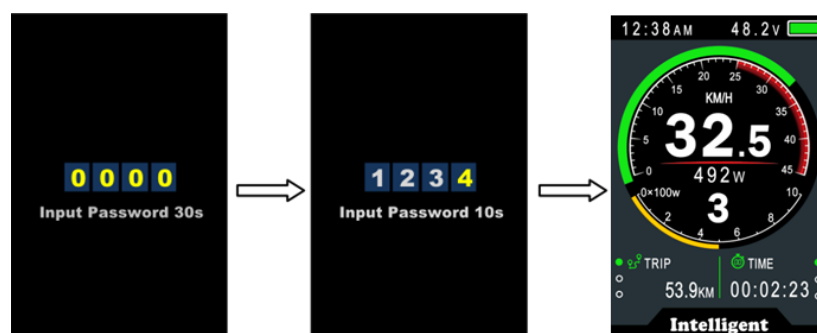


Note : There is a battery inside the screen to ensure the clock keeps time even when display is powered off. This battery is charged when the screen is turned on. If you don't use your bike for a very long period of time, it can go flat.

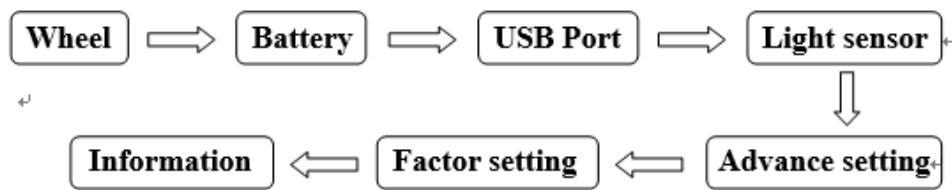
**8.9 Start password** : Press the POWER button to get into the password setting menu. If you had set Start input ON, you must enter the correct password before powering on.



You need to input the right password within 30 seconds at power up, or the display will power down.

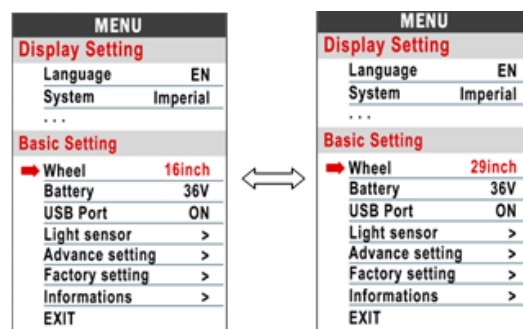


## Basic Settings

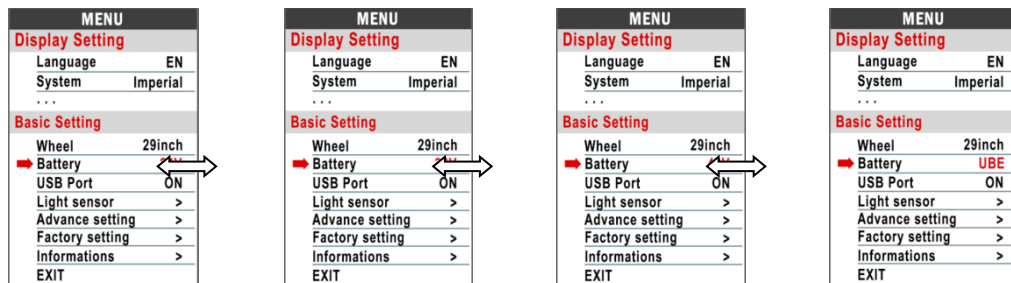


\*Press the DOWN button to move the red arrow to **Wheel**, press POWER button to show all items of the Basic Setting.

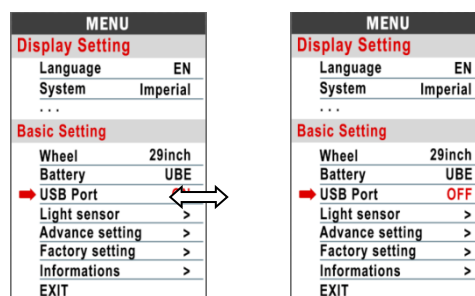
**8.10 Wheel :** Press UP/DOWN to change the wheel size setting. The wheel diameter optionals are 16/18/20/22/24/26/27/27.5/28/29/30/31 inch,



**8.11 Battery :** This option is not set for a Bafang motor.

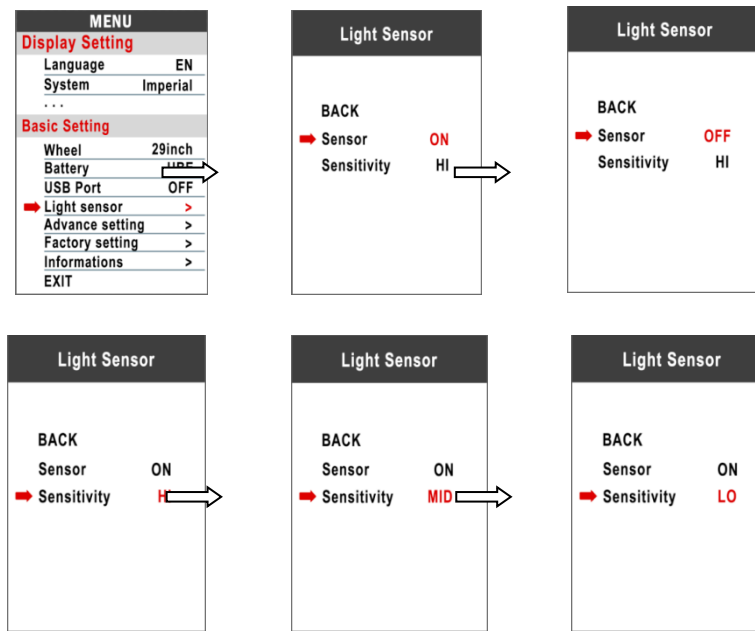


**8.12 USB Port:** press **UP/DOWN** level, select **OFF/ON**. When off is selected, the USB port is disabled.

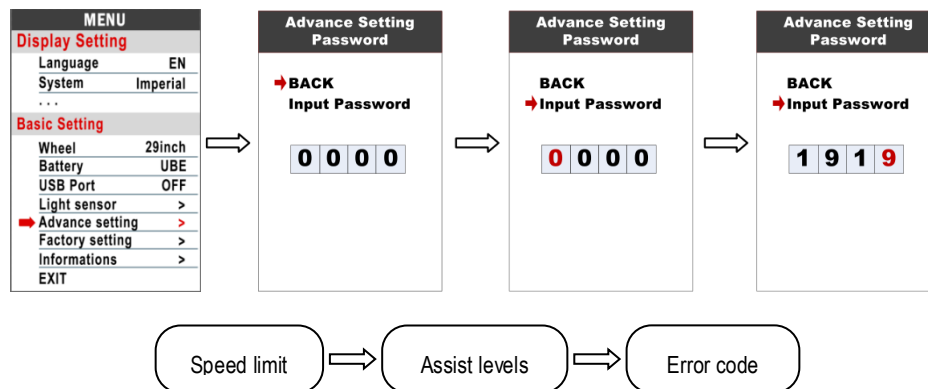


**8.13 Light sensor:** Press **switch Button** to adjust the light sensor options. Press the **UP/DOWN** button to select **OFF/ON**. The sensitivity can then be sent using **UP/Down** to high, medium or

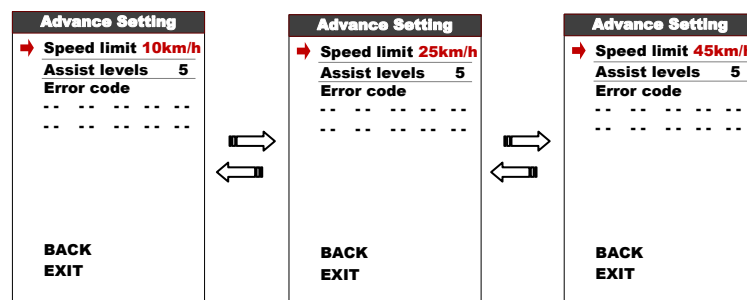
low.



**8.14 Advance setting** : Pressing the POWER button allows you to get into the advance setting menu. The default password is '1919'.

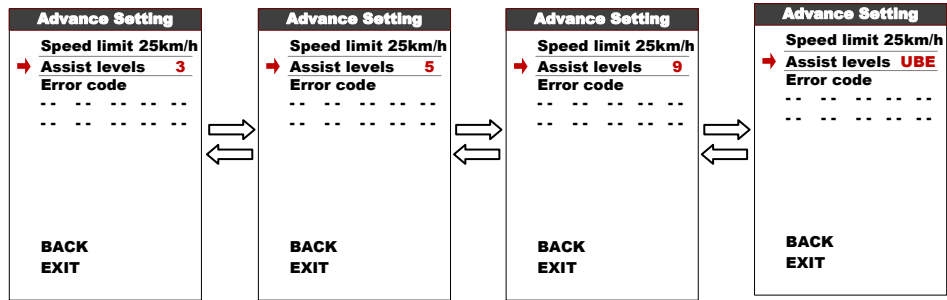


**8.15 Speed limit** : Pressing UP/DOWN will change speed limit. The allowable options are 10km/h~45km/h. The default value is 25km/h. Please note that the UK legal limit on roads is 25KPH or 15.5MPH.

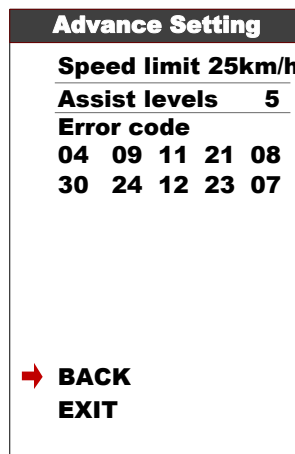


\*The speed limit and current limit are restricted by controller and motor.

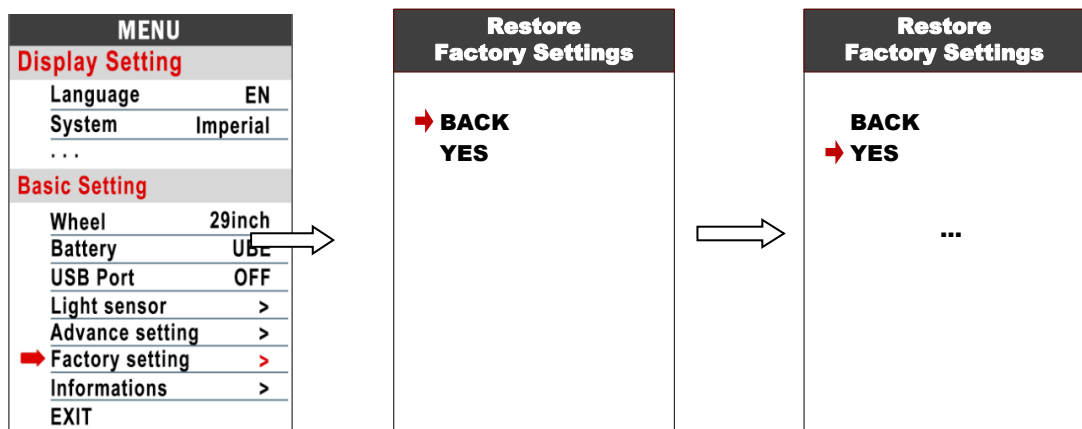
**8.16 Assistance levels :** This setting allows you to customise the assistance levels, options are 3/5/9/UBE, UBE represent factory default settings.



**8.17 Error code :** This displays the last 10 error codes.



**8.18 Factory setting :** Press the POWER button to Restore Factory setting - setting YES will restore all parameter to factory defaults.



**8.19**

**8.20 Information** : Shows information about your ebike.

| MENU                   |          |
|------------------------|----------|
| <b>Display Setting</b> |          |
| Language               | EN       |
| System                 | Imperial |
| ...                    |          |
| <b>Basic Setting</b>   |          |
| Wheel                  | 29inch   |
| Battery                | UBE      |
| USB Port               | OFF      |
| Light sensor           | >        |
| Advance setting        | >        |
| Factory setting        | >        |
| ➔ Informations         | >        |
| EXIT                   |          |

| Information    |            |
|----------------|------------|
| <b>Speed</b>   |            |
| AVG            | 15.4 Km/h  |
| Max            | 32.4 Km/h  |
| <hr/>          |            |
| <b>Mileage</b> |            |
| Trip           | 9999.9 Km  |
| ODO            | 99999.9 Km |
| Range          | 59.9 Km    |
| ➔ <b>BACK</b>  |            |
| Product Infor  |            |
| Battery Infor  |            |

**8.21 Product info** : This shows the hardware and software versions.

| Information    |            |
|----------------|------------|
| <b>Speed</b>   |            |
| AVG            | 15.4 Km/h  |
| Max            | 32.4 Km/h  |
| <hr/>          |            |
| <b>Mileage</b> |            |
| Trip           | 9999.9 Km  |
| ODO            | 99999.9 Km |
| Range          | 59.9 Km    |
| ➔ <b>BACK</b>  |            |
| Product Infor  |            |
| Battery Infor  |            |

| Product Information         |         |
|-----------------------------|---------|
| <b>Version</b>              |         |
| Hardware ver.               | 2.0     |
| Software ver.               | 1.0F-V1 |
| <hr/>                       |         |
| <b>Product Informations</b> |         |
| Date                        |         |
| Serial No                   |         |
| ➔ <b>EXIT</b>               |         |

**8.22 Battery info** : This area shows: Voltage, Current, Avg Current, Cycle times, Capacity, Remaining Capacity , Full Charge Capacity , Temperature, Max Tempt, Min Tempt , Relate ChgSta , Absolute ChgSta , Max Uncharge Times , Last Uncharge Times , CorVolt-1.

\*This information needs to be supported by battery communication.

| Information            |            |
|------------------------|------------|
| <b>Speed</b>           |            |
| AVG                    | 15.4 Km/h  |
| Max                    | 32.4 Km/h  |
| <hr/>                  |            |
| <b>Mileage</b>         |            |
| Trip                   | 9999.9 Km  |
| ODO                    | 99999.9 Km |
| Range                  | 59.9 Km    |
| ➔ <b>BACK</b>          |            |
| Product Infor          |            |
| ➔ <b>Battery Infor</b> |            |


  

| Battery Information  |         |
|----------------------|---------|
| Voltage              | 42.0V   |
| Current              | -1536mA |
| Avg Current          | -1536mA |
| Cycle times          | 278     |
| Capacity             | 90%     |
| Remaining Capacity   | 8192mAh |
| Full Charge Capacity | 8192mAh |
| ➔ <b>NEXT PAGE</b>   |         |
| <b>EXIT</b>          |         |

| Battery Information |         |
|---------------------|---------|
| Temperature         | -35.5°C |
| Max Tempt           | 0.9°C   |
| Min Tempt           | -0.9°C  |
| Relate ChgSta       | 99%     |
| Absolute ChgSta     | 99%     |
| Max Uncharge Times  | 257 h   |
| Last Uncharge Times | 257 h   |
| CorVolt-1           | 097mV   |
| ➔ <b>EXIT</b>       |         |

## 5. Error Codes

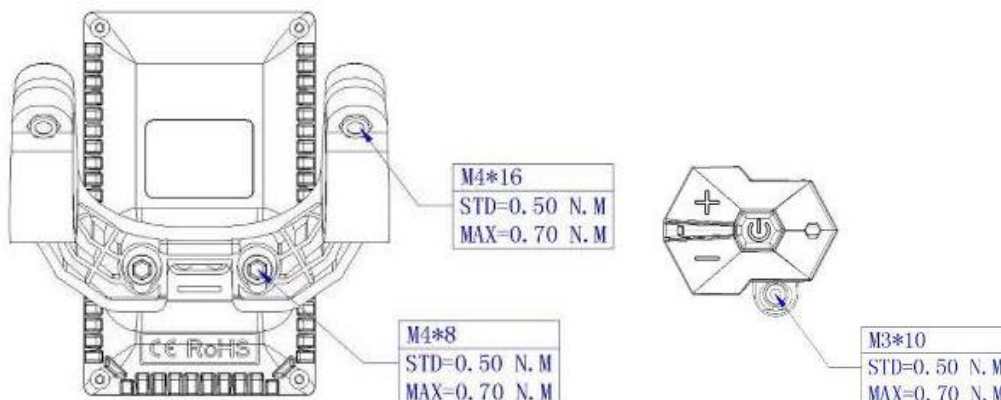
850C can show warning messages. The  icon shows that there is an error code, displayed on the bottom of the screen.

| Error Code | Error description                     | Error display                       |
|------------|---------------------------------------|-------------------------------------|
| 0x01       | Normal                                | No error                            |
| 0x03       | Brake signal                          | No error                            |
| 0x04       | Throttle on high position             | Display <b>04H</b> on LOGO position |
| 0x05       | Throttle error                        | Display <b>05H</b> on LOGO position |
| 0x06       | Low voltage protection                | Display <b>06H</b> on LOGO position |
| 0x07       | High voltage protection               | Display <b>07H</b> on LOGO position |
| 0x08       | Motor's hall sensor error             | Display <b>08H</b> on LOGO position |
| 0x09       | Phase line of motor error             | Display <b>09H</b> on LOGO position |
| 0x10       | Controller over temperature           | Display <b>10H</b> on LOGO position |
| 0x11       | Motor over temperature                | Display <b>11H</b> on LOGO position |
| 0x12       | Current sensor error                  | Display <b>12H</b> on LOGO position |
| 0x13       | Battery's temperature sensor error    | Display <b>13H</b> on LOGO position |
| 0x14       | Motor's temperature sensor error      | Display <b>14H</b> on LOGO position |
| 0x15       | controller's temperature sensor error | Display <b>15H</b> on LOGO position |
| 0x21       | Speed sensor error                    | Display <b>21H</b> on LOGO position |
| 0x22       | BMS communication error               | Display <b>22H</b> on LOGO position |
| 0x23       | Head light error                      | Display <b>23H</b> on LOGO position |
| 0x24       | Head light sensor error               | Display <b>24H</b> on LOGO position |
| 0x25       | Torque sensor error-Torque            | Display <b>25H</b> on LOGO position |
| 0x26       | Torque sensor error-speed             | Display <b>26H</b> on LOGO position |
| 0x30       | Communication error                   | Display <b>30H</b> on LOGO position |



## 6. Assembly instructions

Please pay attention to the screw's maximum torque value. Damage caused by over tightening of the bolts is not covered by warranty.



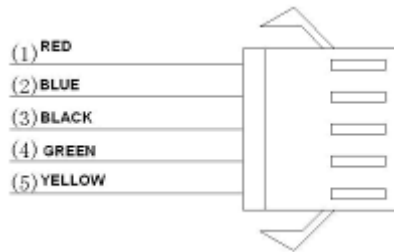
There are 2 options for the clamp installation, forward or backward.



The clamps suit 3 sizes of handlebar - 31.8mm, 25.4mm and 22.2mm. There are optional rubber spacer rings for 25.4mm and 22.2mm handlebars. When using the rubber spacers, pay attention to the green arrow below.



## 7. Connector descriptions



- 1、 Red wire : Anode(24v/36v/48V)
- 2、 Blue wire : Power cord to the controller
- 3、 Black wire : GND
- 4、 Green wire : RxD (controller -> display)
- 5、 Yellow wire : TxD (display -> controller)

## 8. Assistance level instructions

The assistance levels can be customised. The highest level is 9, commonly used assistance levels are shown below.

| 3 level | 5 level | 9 level |                 |
|---------|---------|---------|-----------------|
| 0       |         | 0       | No power assist |
|         | 1       | 1       |                 |
|         |         | 2       |                 |
| 1       | 2       | 3       |                 |
|         |         | 4       |                 |
|         | 3       | 5       |                 |
| 2       |         | 6       |                 |
|         | 4       | 7       |                 |
|         |         | 8       |                 |
| 3       | 5       | 9       |                 |

## 9. Certification

CE / IP65 (water proof) / ROHS.

## 10. Specifications

- ✧ 3.2inch IPS screen
- ✧ 24V/36V/48V battery supply
- ✧ Rated operating current : 40mA
- ✧ Max operating current : 100mA (36V battery, with USB equipment changed)
- ✧ USB charging port : 5V 500mA
- ✧ Off leakage current < 1uA
- ✧ Max output current to controller : 100mA
- ✧ Operating temperature : -20~70°C, Storage temperature : -30~80°C
- ✧ Product shell is ABS, transparent window is made with high strength Acrylic.
- ✧ Dimensions : host/L92mm\*W60mm\*H14mm

## 11. Dimensions & Material

- ✧ Product shell is ABS, transparent window is made with high strength Acrylic.
- ✧ Dimensions : host/L92mm\*W60mm\*H14mm

