

Display Specification

09/2018

Product : Middle Type Intelligent LCD Display

Model : APT12LCD800S –UART -5S

Abbreviation : 800S-UART

Client :

Customer audit :

Supplier : Tianjin APT Science and Technology Co., Ltd.
1001, Building 5 HuaDing, No.1 HuaKe 3
Road, Binhai hi-tech Industrial Development
Zone, Tianjin, China
TEL:+86 22 26345859
FAX:+86 22 83719955

Email : yzhao@aptdevelop.com

1 . Product Name

The Middle type intelligent LCD Display, model number as APT12LCD800S-UART-5S.

2 . Supplier Tianjin APT Science and Technology Co., Ltd.

3 . Electrical Parameters

- ◇ 24V/36V/48V/52V battery output
- ◇ Rated operating current : 10mA
- ◇ Max operating current : 30mA
- ◇ Off leakage current < 1uA
- ◇ Output controller working current: 50mA
- ◇ Operating temperature : -30 ~ 70 °C
- ◇ Storage temperature : -40 ~ 70 °C

4 . Dimensions & Materials

Display shell is ABS, transparent window is made with high strength Acrylic with stiffness equals as the tempered glass.

Dimensions : L90mm * W54mm * H13.3mm

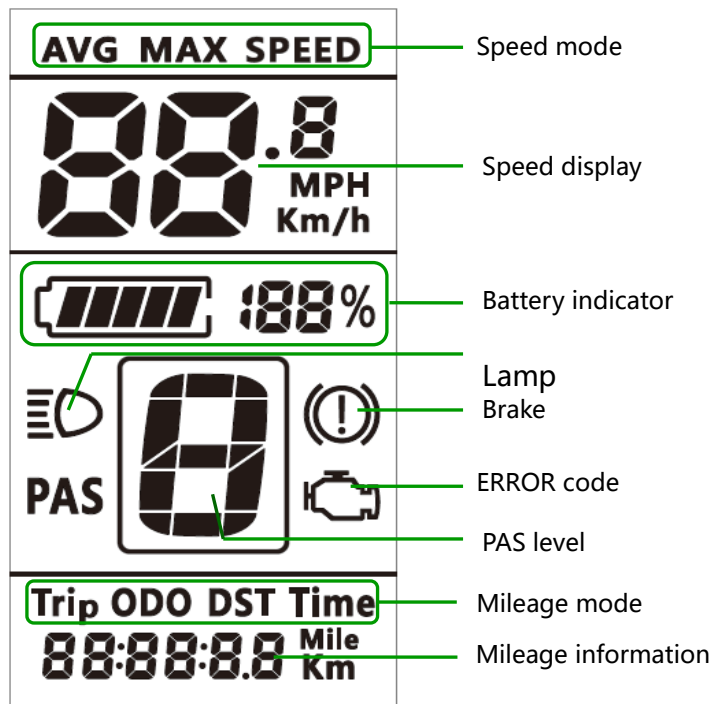


5 . Features

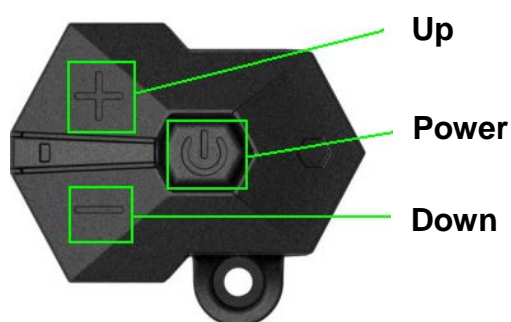
- ◇ Suitable for low temperature, Max -30 °C.
- ◇ Ergonomic external button design, easy to operate.
- ◇ Speed display: AVG SPEED, MAX SPEED, AVERAGE SPEED(Real-time).
- ◇ Kilometer/ Mile : Can be set as per customers' habits.
- ◇ 9-level Assit : Up to users' habit.
- ◇ Mileage indicator : Max trip distance(max 99,999.9)/ Odometer /Riding time
- ◇ Parameter settings: Multiple parameters can be set through computer USB port, including Assist level / Wheel diameter / Voltage / Speed limit, etc. For detailed, pls refer to separate computer parameter setting files.

6 . LCD instructions

LCD display shown as below:



7 . Function Description

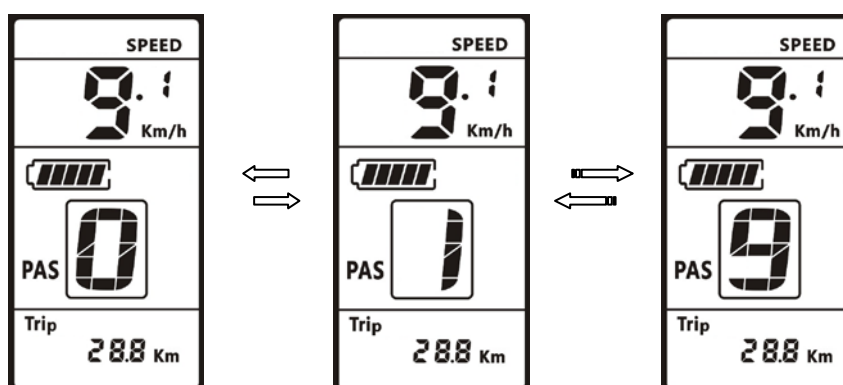


7.1 Power On/Off

Press and hold **Power** button for 1 second, then display will work and controller power supply turn on. During the working mode, if press and hold **Power** button for 1 second, then display will stop and controller output will be cut off. If no further action to display within 5 minutes(could be set), display will cut off automatically and power output cut off.

7.2 Assist level selecting

Short press **UP/DOWN** button to change the assist level. Top assist level is 9, 1 is the lowest, when display turn on, automatically it will be level 1. 0 level is without any assistance.

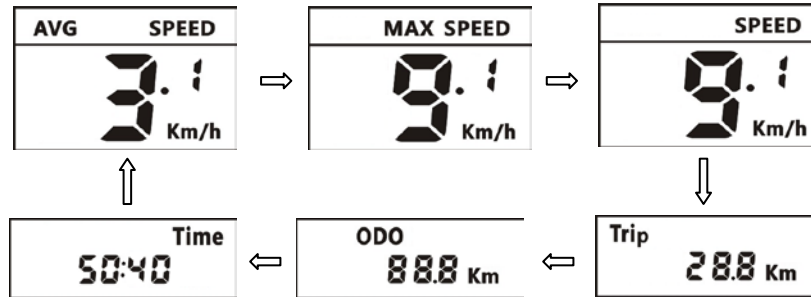


Assist operation manual

7.3 Speed mode switch& Mileage mode switch

Short press **POWER** button can switch change the speed mode & mileage mode, data sequence is as:

Average Speed->Max Speed->Actual Speed->Single Trip->ODO-> Time.

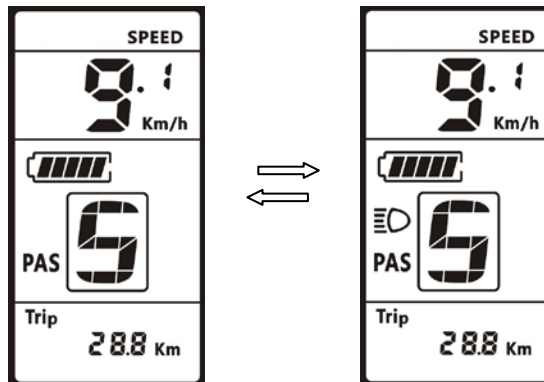


Speed Mode & Mileage mode Interface

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

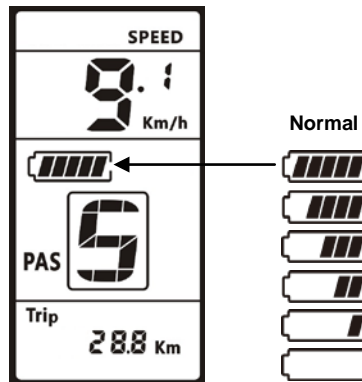
7.4 Headlight/backlight On/Off

Press and hold **UP** button for 1 second , then headlight/backlight will turn on, if press **UP** button for 1 second again, then display backlight/headlight will turn off.



7.5 Battery Capacity Indication

5 bars in display to show battery capacity, if battery under voltage, then no bar in display, then battery needs to be charged immediately.

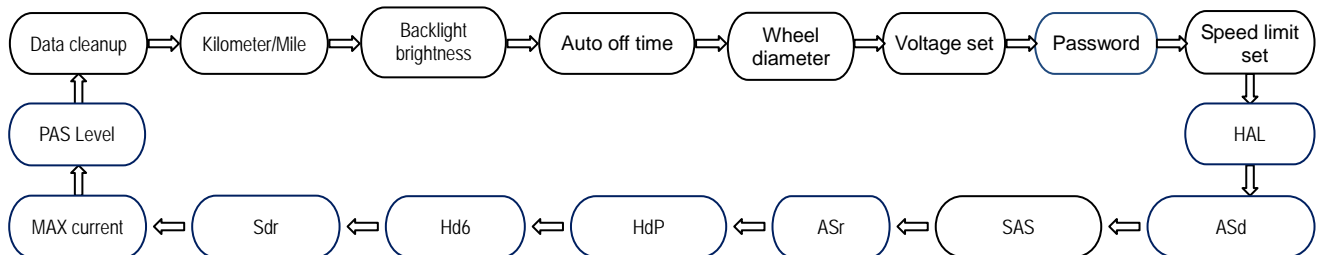


7.6 Parameter Setting

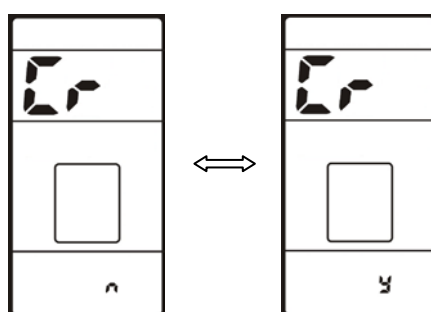
When system turn on, double press **POWER** button (press interval <0.3 second) can get into parameter setting state, under this, parameter could be set. And double press **POWER** button (press interval <0.3 second) to exit. In parameter setting state, when flashing, press **UP/DOWN** buttons to adjust parameters, short press **POWER** button to switch parameter items.

*The display will automatically exit parameters setting state if no operation for 10 seconds.

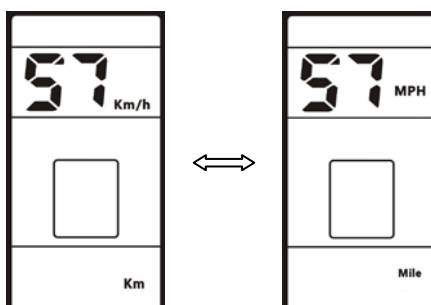
The order of parameters is as follows.



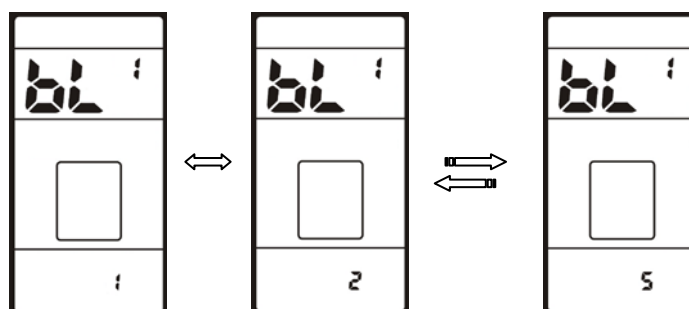
◇ **Data cleanup** : The location of speed displays symbol Cr , press **UP/DOWN** button to change **no** or **yes**.



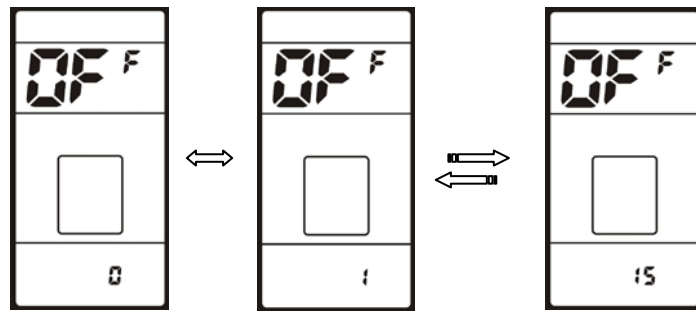
◇ **Kilometer / Mile** : The location of speed displays symbol **S7**, press **UP/DOWN** button to change between **km/h / MPH (Km / Mile)**.



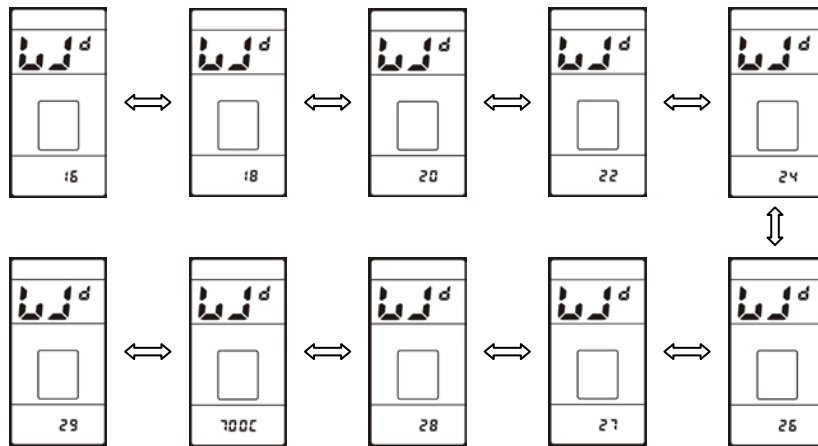
◇ **Backlight brightness** : The location of speed displays symbol **bl1**, press **UP/DOWN** button display symbol **1~5** to change the brightness of the backlight. 1-darkest, 5-brightest.



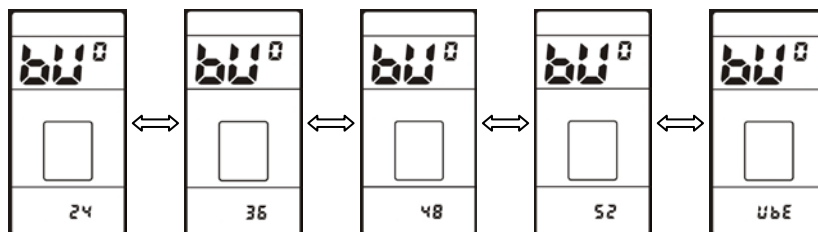
◇ **Auto off time** : The location of speed displays symbol **OFF**, press **UP/DOWN** button to change the value from **0** to **15**, the number represent delay time (minutes) before display shutdown automatically.



◇ **Wheel diameter:** The location of speed displays symbol **Wd**, press **UP/DOWN** button to change between **16/18/20/22/24/26/27/28/700C/29**, value represents the diameter of the wheel (inch). Wrong value for wheel diameter will cause speed & mileage abnormal.

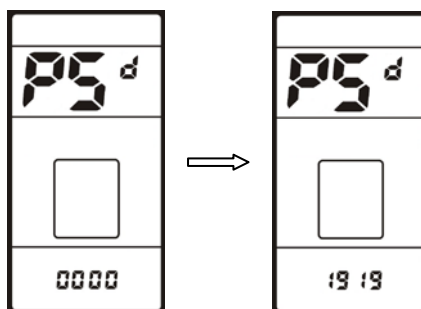


◇ **Voltage Setting :** The location of speed displays symbol **bU0**, press **UP/DOWN** button to switch between **24V/36V/48V//52V/UbE**, **UbE** means user-defined voltage setting, this parameter can be set through computer.

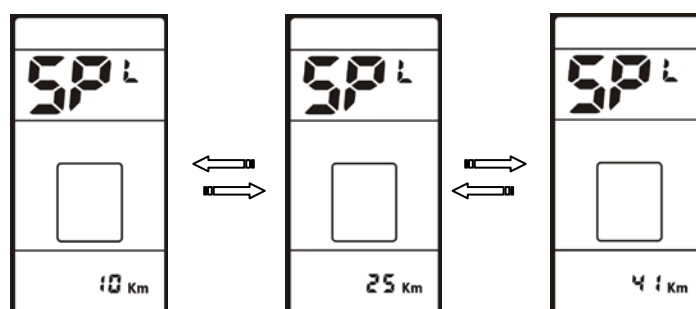


◇ **Password/Speed Limit Setting :** The location of speeds displays symbol **PSd**, require to input passwords, press **UP/DOWN** buttons to change the password value (0~9), short press **POWER** button

to switch the password item, password is 4 digits, the default password is "1919". Press **POWER** button when password adjustment is completed. Display will return to the **Voltage set** item if the password is incorrect. Correct password will enter the **Speed Limit Setting** item.

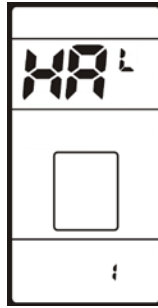


◇ **Speed Limit Setting** : The location of speed displays symbol **SPL**, the location of mileage displays speed limit value, the default value is **25km/h**. Press **UP/DOWN** buttons to modify the value, the value can be set from 10 to 41km/h. Short press **POWER** button to enter the next item.

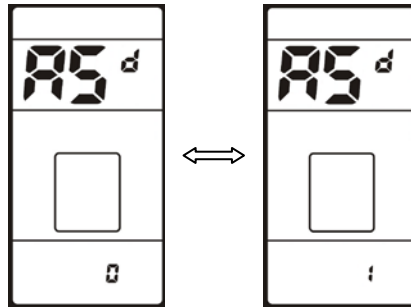


The maximum speed is restricted by the motor and controller, probably couldn't reach the setting value.

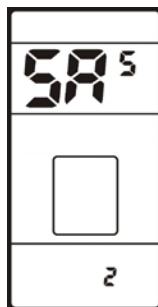
◇ **Magnetic Pole numbers of speed sensor** : The location of speed displays symbol **HAL**, the location of mileage displays magnetic pole number, press **UP/DOWN** buttons to modify the value. When setting finished, short press **POWER** to enter next setting.



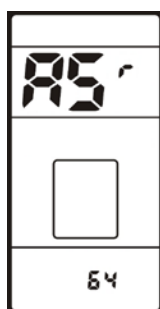
◇ **Direction of speed sensor:** The location of speed displays symbol **ASd**, press **UP/DOWN** button rotate display symbol **0/1**, 0 indicates forward, 1 indicates backward. When setting finished, short press **POWER** to enter next setting.



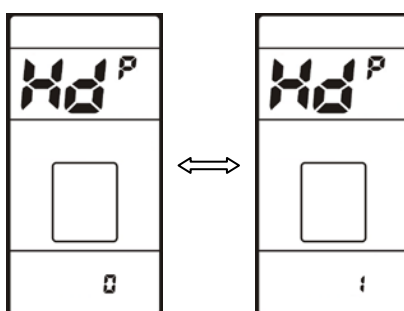
◇ **Power Assistance Start Over Set Magnet Qty:** The location of speed displays symbol **SAS**, the location of mileage shows pole number, press **UP/DOWN** buttons to modify the when power assistance start after certain qty of magnet. When setting finished, short press **POWER** to enter next setting.



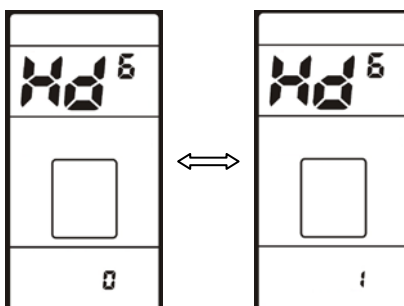
◇ **Assistance level:** The location of speed displays symbol **ASr**, the location of mileage shows assistance level value, press **UP/DOWN** buttons to modify the value. When setting finished, short press **POWER** to enter next setting.



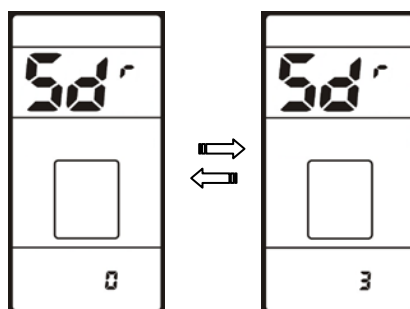
- ✧ **Throttle set** : The location of speed displays symbol **HdP**, press **UP/DOWN** button shows symbol **0~1** to change the throttle OFF or ON. When setting finished, short press **POWER** to enter next setting.



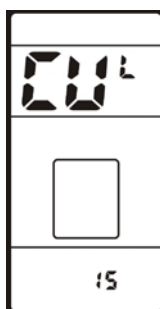
- ✧ **Throttle 6KM set** : The location of speed displays symbol **Hd6**, press **UP/DOWN** button shows symbol **0~1** to change the throttle 6km OFF or ON. When setting finished, short press **POWER** to enter next setting.



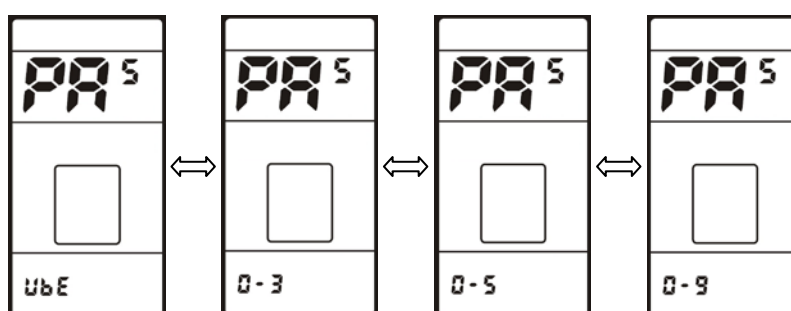
- ✧ **Slow startup parameters**: The location of speed displays symbol **Sdr**, the location of mileage displays value, press **UP/DOWN** button to modify the value.




✧ **MAX Current Limit set:** The location of speed displays symbol **CUL**, the location of mileage displays current limit value, the default value is **15A**. Press **UP/DOWN** button to modify the value. When setting finished, short press **POWER** to enter next setting.



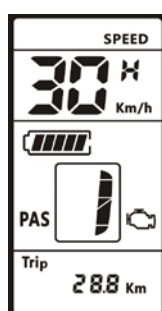
✧ **Range of assist level setting:** The location of speed displays symbol **PAS**, the location of mileage displays assist range, the default is **UBE**. Press **UP/DOWN** button to change the value from **0-3** to **UBE**.



8 . Error Code definition

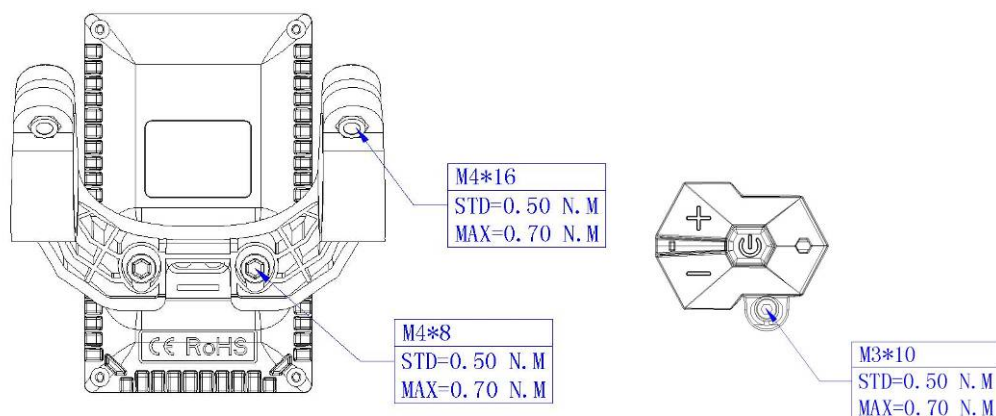
800S-UART gives warning message when E-bike error, LCD display  icon and the error code in speed position area, error code is from 21 E~30 E, the error codes definition as below table:

Error Code	Error description	Handle
0x21	Current abnormal	/
0x22	Throttle error	Check turn to connect.
0x23	Motor phase lost	/
0x24	Motor hall error	Check the hall connection
0x25	Brake error	Check the brake connection.
0x30	Controller communication error	/



9 . Assembly Instructions

Please pay attention to the screw's torque value, damaged caused by excessive torque is not within the warranty.

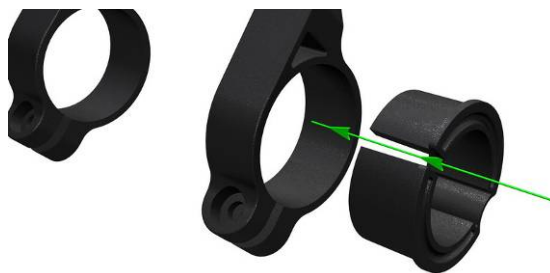


There are 2 directions for the clamp installation, forward or backward.

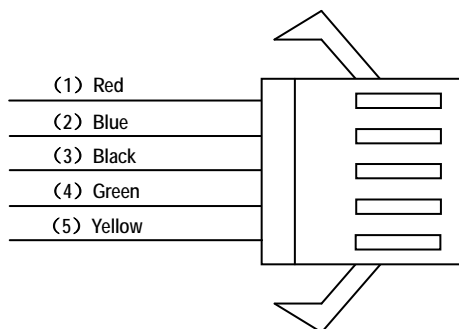
Different assembly methods will need different cable length.



Clamps suit for 3 sizes of handlebar, 31.8mm, 25.4mm, 22.2mm, there are adaptor rings for 25.4mm and 22.2mm, adaptor ring must be assembled with the required directions, pay attention to the green arrow below.



10 . Output Wire Instructions



- 1、 Red wire : Anode(24V/36V/48V/52V) ;
- 2、 Blue wire : Power cord to the controller ;
- 3、 Black wire : GND ;
- 4、 Green wire : RxD (controller -> display) ;

5、 Yellow wire : TxD (display -> controller) ;

11 . Assistance Level Instructions

Assist level can be customized, the highest level is 9, common used assist level see the table below:

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

12 . Certification

CE / IP65 (water proof) / ROHS.