

ENVO Flex Display User Manual

Product	LCD Display
Mode	APT LCD 500S
Abbreviation	500S

1. Product Name

- ✧ LCD display
- ✧ Model : APT LCD 500S

2. Electrical Parameters

- ✧ 36V/48V battery supply
- ✧ Rated operating current : 40mA
- ✧ Off leakage current < 1uA
- ✧ Max output current to controller : 100mA
- ✧ Operating temperature : -20~70℃, Storage temperature : -30~80℃

3. Dimensions & Material

- ✧ Product shell is ABS, transparent window is made with high strength Acrylic.
- ✧ Dimensions : host/L79mm*W40mm*H18mm

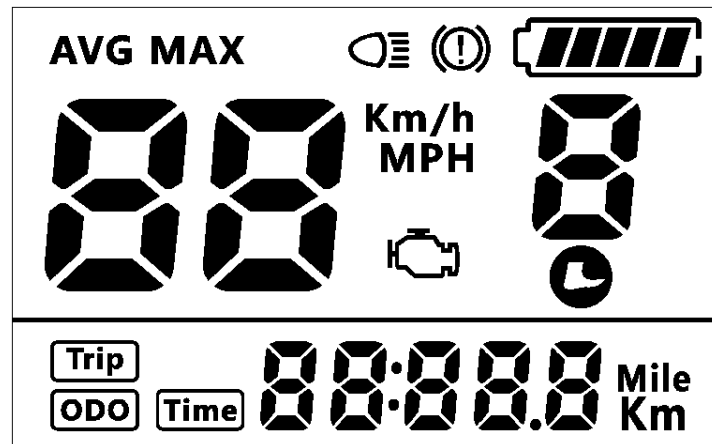


4. Features

- ✧ Suitable for low temperature, Max -20℃.
- ✧ Ergonomic external button design, easy to operate.
- ✧ **Speed display:** AVG SPEED, MAX SPEED, SPEED (Real-time).
- ✧ **Kilometer / Mile :** Can be set according to customers' habits.
- ✧ **Smart battery indicator :** Provide a reliable battery indicator.
- ✧ **9-level Assist :** UBE/3-level/5-level/9-level optional.
- ✧ **Mileage indicator:** Odometer/Trip distance/Riding time.
- ✧ **Speed limit value indicator**

- ✧ **Error code indicator.**
- ✧ **Software upgraded:** Software can be upgraded through UART.

5. LCD screen instructions



6. Functional Description



7.1 Power On/Off

Press and hold **Power** button for 1 second can turn on/off the display. The Display can automatically shut down when there is no operate & ride for X minutes (X could be 0~9) .

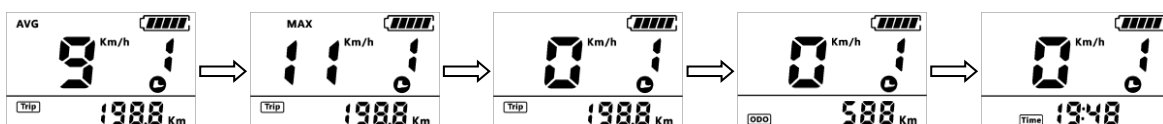
7.2 Assist level operating

Short press **UP/DOWN** button can change the assist level. Top assist level is 9, 0 for neutral. Level quantities can be adjusted according to the customer requirements.



7.3 Speed & Mileage mode switch

Short press **MODE** button can change the speed and mileage mode, AVG SPEED→MAX SPEED→TRIP→ODO→TIME.

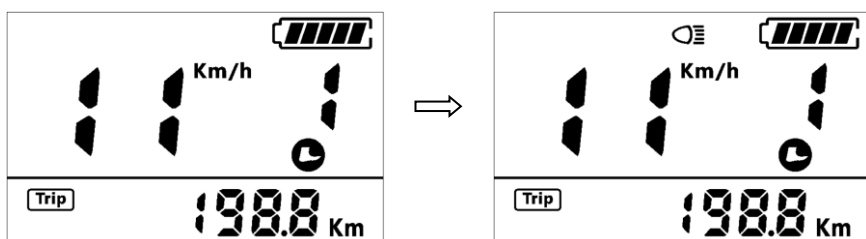


**If there is no operation for 5 seconds, display will return Speed (Real-Time) display automatically.

7.4 Headlight/backlight On/Off

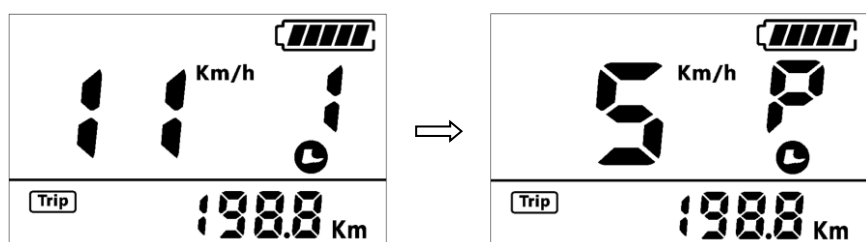
Press and hold **UP** button for 1 second can turn on/off the headlight.

*The motor does not work when the battery voltage is low, Display still can keep the headlight on for a while when E-bike is in riding.



7.5 Walking mode (6km)

Press and hold **DOWN** button for 2 second can get into walking mode, out of the mode when release the button.



* This feature needs to be supported by controller.

7. Parameter setting

Press **MODE** button (press no less than 2second) can get into setting menus, press **UP/DOWN** button to change the parameter setting, press **MODE** button can switch to next

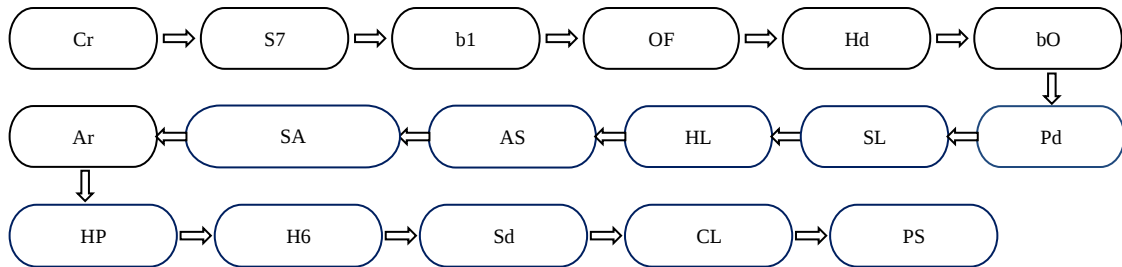
item. Press **MODE** (press no less than 2second) button will exit from menu.

* Display will automatically quit menu when there is no operation for 10 seconds.

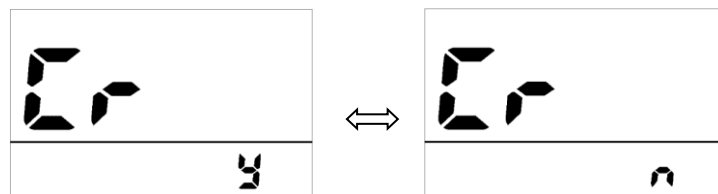
* For safety reasons, display can't get into MENU when riding.

* Display will quit MENU when start riding.

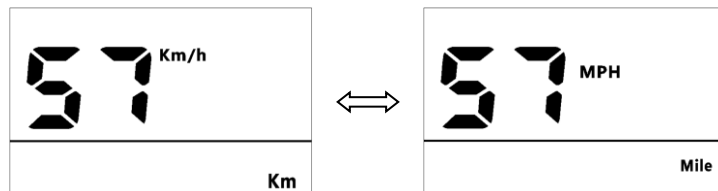
The order of parameters is as follow.



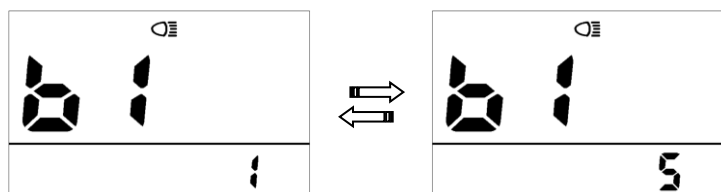
8.1 Data cleanup(Cr): Press Up / Down button to change no or yes.



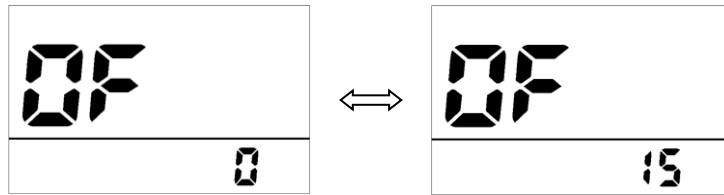
8.2 System (S7): Press Up / Down button to switch between Metric / Imperial.



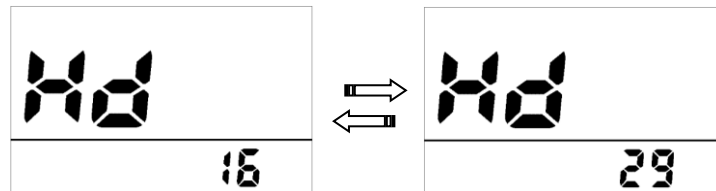
8.3 Brightness (b1): Press Up / Down button to change the brightness of the backlight, 1 is darkness 5 is brightness.



8.4 Auto off (OF): Press UP/DOWN button to change the auto power off time, from 0~15, the number represent time (minutes) to shutdown, OFF means disable auto off function, default value is 5 minutes.



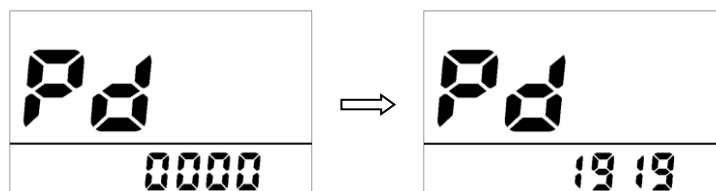
8.5 Wheel (Hd): Press UP/DOWN can change the wheel setting, optional wheel diameter is 16~29 inch.



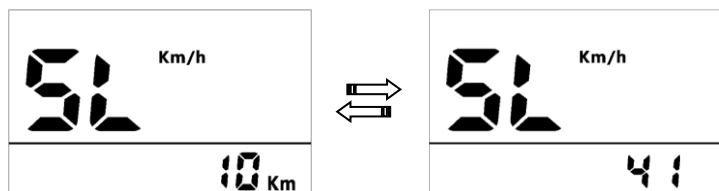
8.6 Voltage setting (bO): Press Up / Down button to switch between 36V/48V/UbE, UbE means user-defined voltage setting, this parameter can be set through computer.



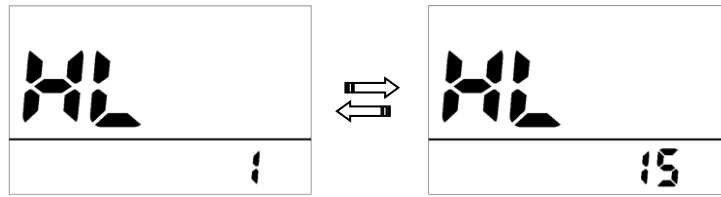
8.7 Password (Pd): Press M button can get into the advance setting menu, default password is '1919'.



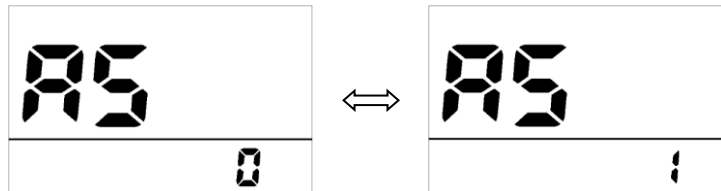
8.8 Speed limit (SL): Press UP/DOWN will change speed limit, range 10km/h~41km/h. Default value is 25km/h.



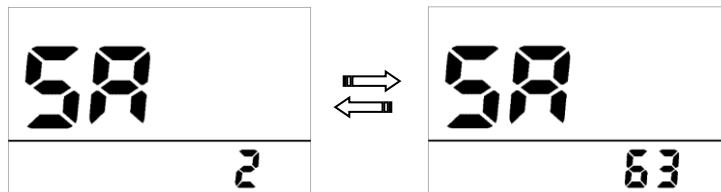
8.9 HALL (HL): Press UP/DOWN will change magnetic pole number, range 1~15. It is magnetic poles number of speed sensor, default is 1 or 6. Mismatch will cause speed error.



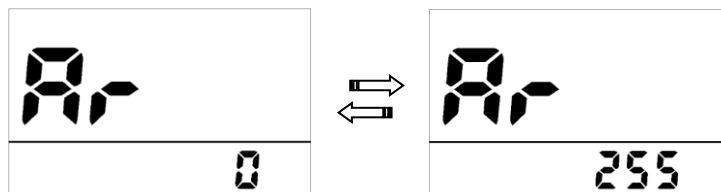
8.10 Direction of speed sensor (AS): Press UP/DOWN button rotate display symbol **0/1**, 0 indicates forward, 1 indicates backward.



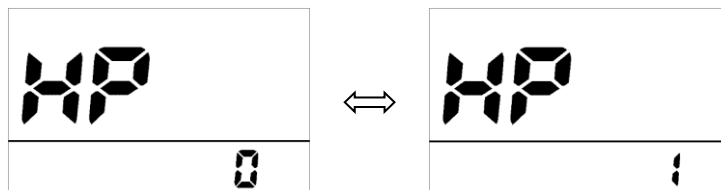
8.11 Power Assistance Start Over Set Magnet Qty (SA): Press UP/DOWN button to modify the when power assistance start after certain qty of magnet.



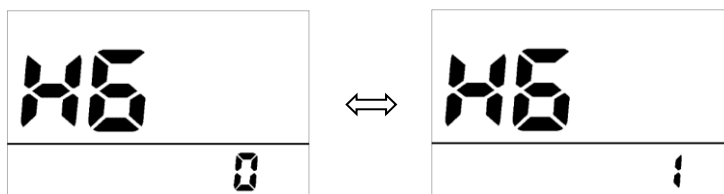
8.12 Assist ratio (Ar): Press UP/DOWN button to modify the value.



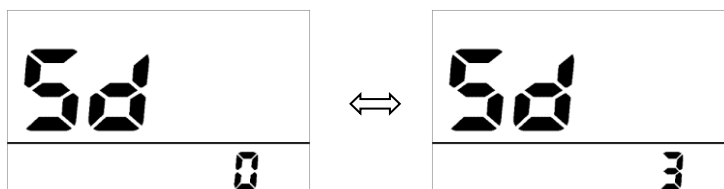
8.13 Throttle set(HP): Press UP/DOWN button shows symbol **0~1** to change the throttle OFF or ON. 0 – reach speed limit, 1 - speed is restricted by assist level.



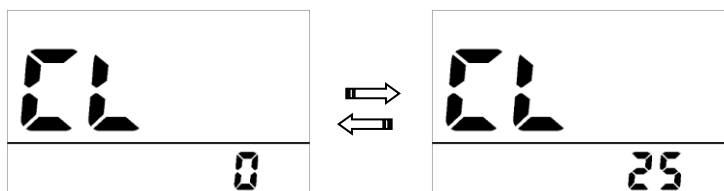
8.14 Throttle 6KM set(H6): Press UP/DOWN button shows symbol **0~1** to change the throttle 6km OFF or ON. It change the throttle's action, 1 - walking mode (6km/h), 0 - max speed (Associated with section 8.13).



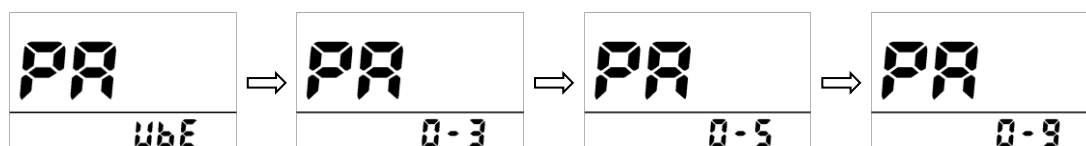
8.15 Slow startup parameters (Sd): Press UP/DOWN button to modify the value.



8.16 MAX Current Limit set (CL): Press UP/DOWN button to modify the Current value, Default value is 15A.



8.17 Assist levels (PA): This parameter can customize assist levels, options are UBE/3/5/9.



8. Error Code define

500S can show warning message,  icon shows on the screen, and show error code at the bottom of the screen, error code is from 01 E~0nE, and the definition see the table below.

Error Code	Error description	Handle
0x04	Throttle turn back fault	Check throttle and connection.
0x05	Throttle error	Check throttle and connection.
0x06	Under voltage protection	Charge the battery
0x07	Overvoltage protection	Charge the battery
0x08	Hall error	Check the hall connection
0x09	three-phase power error	Check three-phase power line connection
0x10	The controller is overheated	Stop using 10 minutes to restart
0x11	Motor overheating	Stop using 10 minutes to restart

0x12	Sensor error	Check the sensor connection
0x13	battery temperature abnormality	Stop using 10 minutes to restart
0x14	Motor temperature sensor is abnormal	Check the sensor
0x15	Controller temperature sensor failure	Check the sensor
0x21	Speed sensor fault	Check the sensor
0x22	BMS Communication Error	Check the cable connection
0x23	Headlight error	Check the cable connection
0x24	Headlight sensor error	Check the cable connection
0x25	Torque signal error	Contact the supplier
0x26	Torque sensor speed error	Contact the supplier
0x30	Communication Error	Check the cable connection



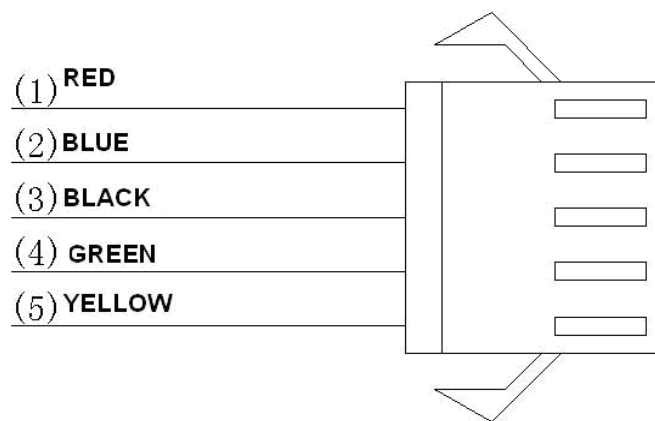
9. Assembly instructions



M4*10

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

10. Connector descriptions



- 1、 Red wire : Anode(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)

11. Assist 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	
0	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.