

Product Specification

11/2019

Product	LCD Display
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Mode	APT LCD 500S-U
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Abbreviation	500S-U
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Client

Customer

audit

Supplier	APT(Tianjin) Develop Co., Ltd.
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1001, Building 5 HuaDing, No.1 HuaKe 3 Road, Binhai hi-tech Industrial Development Zone, Tianjin, China

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Email	<u>yzhao@aptdevelop.com</u>
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1. Product Name

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

2. Suppliers

- ✧ APT (Tianjin) Develop Co., Ltd.
- ✧ Email : yzhao@aptdevelop.com apt@aptdevelop.com

3. Electrical Parameters

- ✧ 36V/48V/52V battery supply
- ✧ Rated operating current : 40mA
- ✧ Off leakage current < 1uA
- ✧ Max output current to controller : 100mA
- ✧ USB charging port : 5V 500mA
- ✧ Operating temperature : -20~70℃, Storage temperature : -30~80℃

4. Dimensions & Material

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

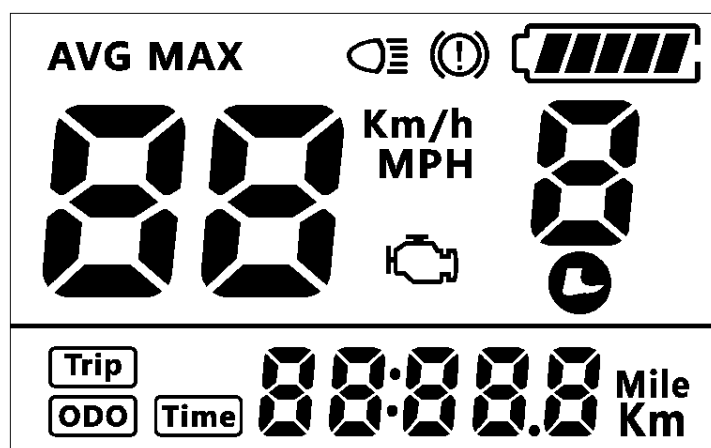


5. Features

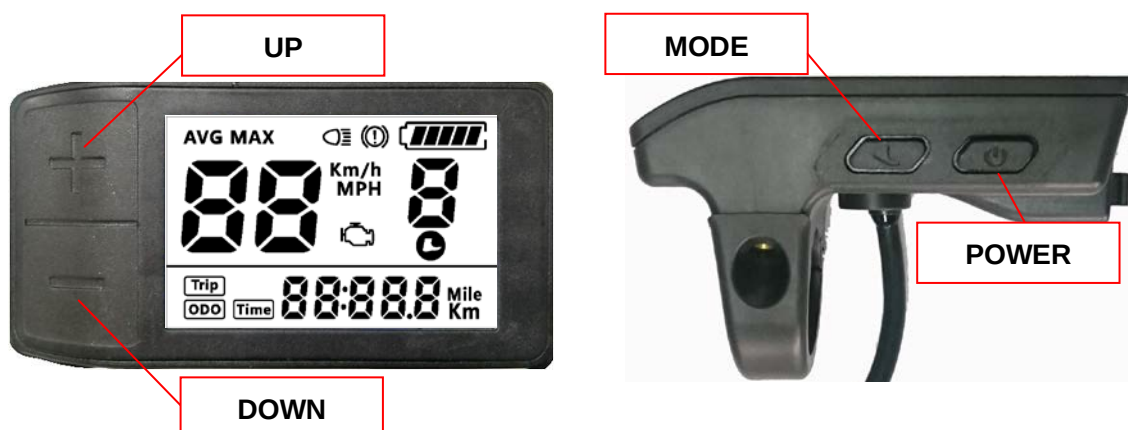
- ✧ Suitable for low temperature, Max -20℃.
- ✧ Ergonomic external button design, easy to operate.
- ✧ **Speed display:** AVG SPEED, MAX SPEED, SPEED (Real-time).

- ✧ **Kilometer / Mile:** Can be set according to customers' habits.
- ✧ **Smart battery indicator:** Provide a reliable battery indicator.
- ✧ **9-level Assist.**
- ✧ **Mileage indicator:** Odometer/Trip distance/Riding time.
- ✧ **Speed limit value indicator**
- ✧ **Error code indicator.**
- ✧ **USB charging port :** 5V/500mA
- ✧ **Software upgraded:** Software can be upgraded through UART.

6. LCD screen instructions



7. 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) .

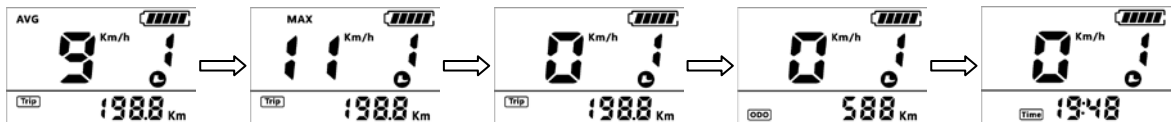
7.2 Assist level operating

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

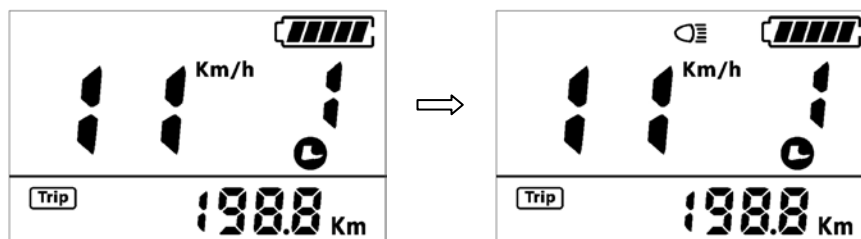


**If there is no operation for 5 seconds, display will return Speed (Real-Time) display automatically.

7.4 Headlight/backlight On/Off

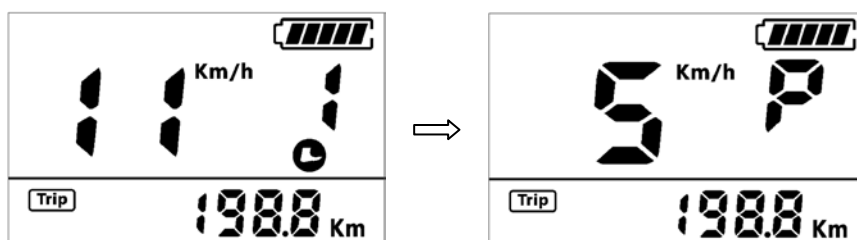
Press and hold **UP** button for 1 second can turn on/off the headlight.

*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.

8. Parameter setting

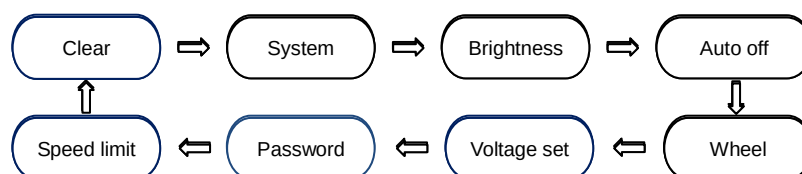
Press **MODE** button (press no less than 2second) can get into setting menus, press **UP/DOWN** buttons to change the parameter setting, and press **MODE** button can switch to next item. Press **MODE** (press no less than 2second) button will exit from menu.

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

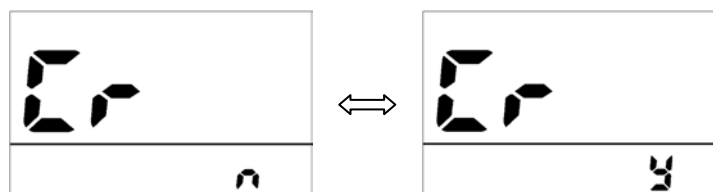
* For safety reasons, display can't get into MENU when riding.

* Display will quit MENU when start riding.

The order of parameters is as follow.

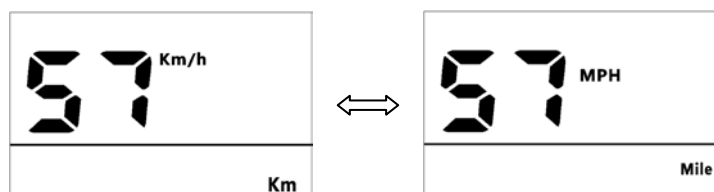


8.1 Clear(Cr): Press Up / Down button to change yes can reset several temporary data, temporary data include **AVG Speed / MAX Speed / Trip / Time**.

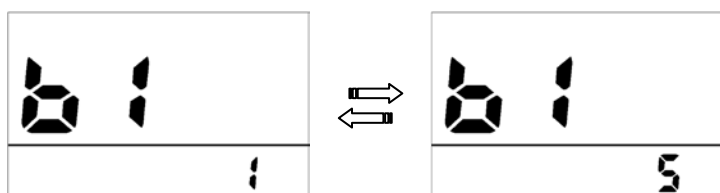


* These temporary data can't be erased by power off.

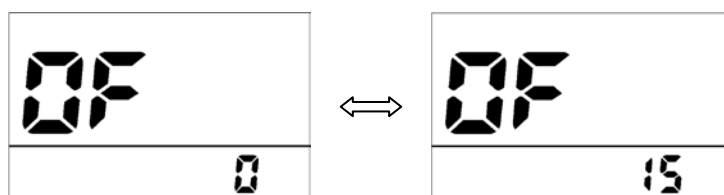
8.2 System (S7): Press Up / Down button to switch between Metric / Imperial.



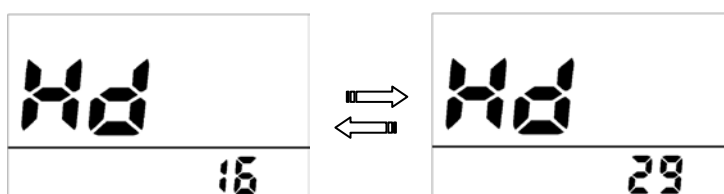
8.3 Brightness (b1): Press Up / Down button to change the brightness of the backlight, **1** is darkness **5** is brightness.



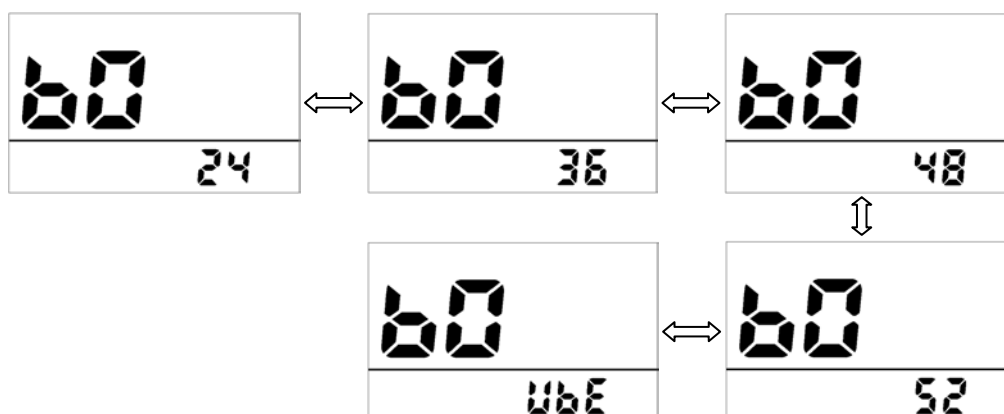
8.4 Auto off (OF): Press UP/DOWN button to change the auto power off time, from 0~15, the number represent time (minutes) to shutdown, OFF means disable auto off function, default value is 5 minutes.



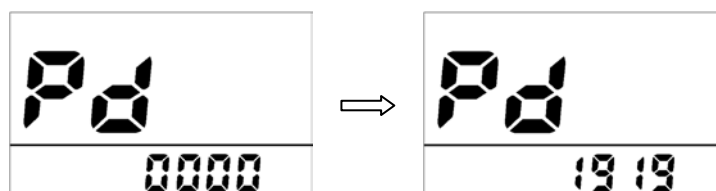
8.5 Wheel (Hd): Press UP/DOWN can change the wheel setting, optional wheel diameter is 16~29 inch.



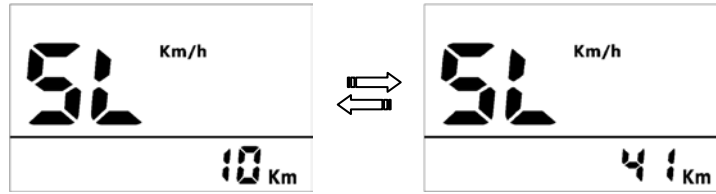
8.6 Voltage set(bO) : Press **UP/DOWN** button rotate display the symbol **24V/36V/48V/52V/UbE**, **UbE** means user-defined voltage setting, this parameter can be set through computer.



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



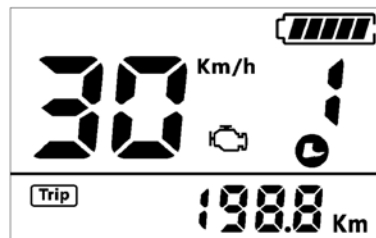
8.8 Speed limit (SL): Press UP/DOWN will change speed limit, range 10km/h~41km/h. Default value is 25km/h.



9. Error Code define

500S-U 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
0x21	Current protection	Check controller.
0x22	Throttle error	Check throttle and connection.
0x23	three-phase power error	Check three-phase power line connection
0x24	Hall error	Check the hall connection
0x25	Brake error	Check the brake connection.
0x26~99	Reserved	Please contact the controller's manufacturer for error definitions
0x30	Communication Error	Check the cable connection

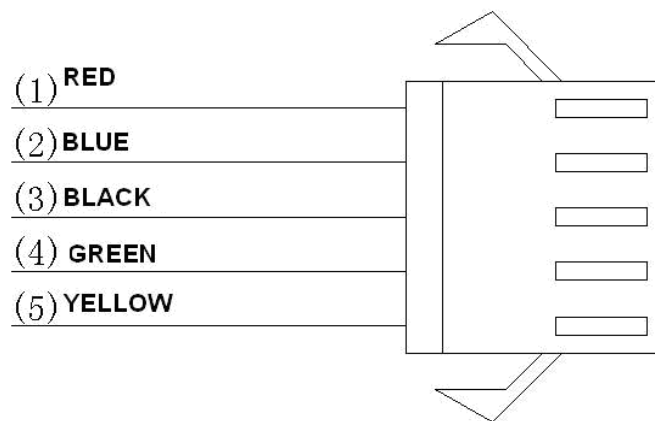


10. Assembly instructions

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



11. Connector descriptions



- 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)

12. 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	

13. Certification

CE / IP65 (water proof) / ROHS.