
Product Specification

12/2012

Product Middle install intelligent LCD Meter

Mode APT12LCD800U

Abbreviation 800U

Client

Customer

audit

Supplier Tianjin APT Development Co., Ltd.

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1 Product Name

1.1 The Middle install intelligent LCD Meter

1.2 Model:APT12LCD800U

2 Suppliers

2.1 Tianjin APT Development Co., Ltd.

2.2 Email : yzhao@aptdevelop.com apt@aptdevelop.com

3 Electrical Parameters

- ◇ 24V/36V battery supply
- ◇ Rated operating current : 10mA
- ◇ Max operating current : 30mA
- ◇ Off leakage current < 1uA
- ◇ Buzzer tone > 55db (20cm)
- ◇ Output current to the controller : 50mA
- ◇ Operating temperature : -20~60℃
- ◇ Storage temperature : -30~70℃

4 Dimensions & Material

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

4.2 Dimensions : host/L90mm*W54mm*H13.3mm





5 Features

5.1 Two-way serial communication, 5-way button, very easy to operate.

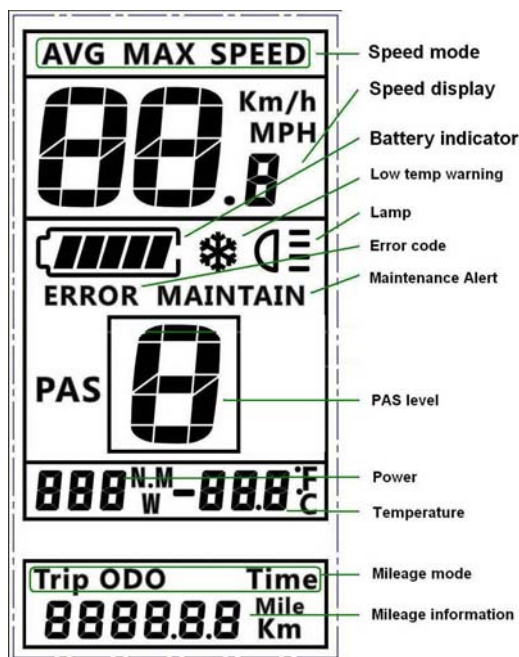
- ✧ **Speed display** : AVG SPEED, MAX SPEED, real time SPEED.
- ✧ **Kilometer / Mile** : Can be set according to customers' habits.
- ✧ **Smart battery indicator** : Provide a reliable battery indicator, it will not fluctuate with the motor on/off.
- ✧ **Automatic headlamps & background light** : 800U can automatically open/close the headlamps & backlight according to the external light.
- ✧ **Buzzer remind** : Built-in buzzer, sound alert in multi-state, such as Key tone / Low temperature warning / Low battery indicator / Failure warning...
- ✧ **Temperature display** : Indicate ambient temperature, indication range is -20°C ~ 50°C , higher than 50°C will display **HI**, lower than -20°C will display **Lo**.
- ✧ **Maintain remind** : 800U can indicate the maintain information according to the battery cycle times and the riding mileage(ODO). 800U can estimated the battery cycle life .
- ✧ **Low temperature warning** : 800U can alarm the user by LCD&BUZZER when the

temperature is below freezing.

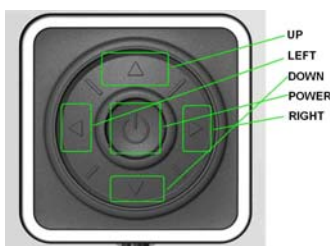
- ✧ **The brightness of the backlight adjustable** : 5-sections
- ✧ **9-level PAS** : 3-PAS/5-PAS/6-PAS/9-PAS optional
- ✧ **Power indicator** : Real-time battery output power indication
- ✧ **Mileage indicator** : Odometer/Trip distance/ Riding time
- ✧ **Error code indicator**
- ✧ **Parameter settings** : Multiple parameter can be set through computer USB port, including PAS level / Wheel diameter / Voltage / Speed limit / Magnetic steel / Number of halls...

6 LCD instructions

The figure of LCD display see below:



7 Functional Discription



7.1 Power On/Off

Press and hold **Power** button for 2 seconds can turn on/off the Meter. The Meter will automatically shut down when there is no operate & ride for 5 minutes.

7.2 PAS operating

Short press **UP/DOWN** button can change the PAS level. Top PAS level is 9, 0 for neutral.

7.3 Speed mode switch

Short press **LEFT** button can change the speed mode, **Speed->AVG Speed->MAX Speed**.

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

7.4 Mileage mode switch

Short press **RIGHT** button can change the mileage mode, Trip->ODO-> Time.

7.5 Headlight/backlight On/Off

Press and hold **UP** button for 2 seconds can turn on/off the headlight/backlight.

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

At the automatic light sensor mode, press and hold the **UP button can turn on the backlight / headlights. If automatic light sensor had opened the backlight / headlight, press and hold the **UP** button can not turn it off. First you should turn off the automatic sensor mode in meter settings, and then turn off the light manually.*

7.6 6km walk

Press and hold **DOWN** button for 2 seconds can get into 6km walk mode, out of the mode when release the button.

7.7 Data cleanup

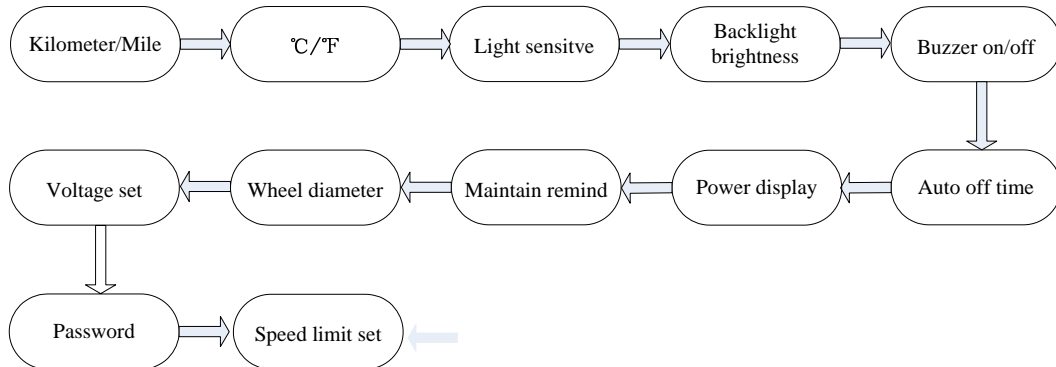
Press and hold **RIGHT** button for 2 seconds can cleanup the several temporary data, the temporary data include **AVG Speed / MAX Speed / Trip / Time**.

8 Parameter settings

Double press **POWER** button (press interval less than 0.3 second), the Meter get into parameter setting state, the current parameter flashing, short press **UP/DOWN** buttons to set the parameter values, short press **LEFT/RIGHT** buttons to switch the parameters, short press **POWER** button to exit the parameter setting state. The meter will automatically exit

the parameter setting state when there is no operation for 10 seconds.

The order of parameter settings are as follows



8.1 Kilometer / Mile : The location of speed display symbol **S7**, press **UP/DOWN** button rotate display the symbol **km/h / MPH (Km / Mile)**.

8.2 °C/°F : the location of speed display symbol **CF**, press **UP/DOWN** button rotate display the symbol **°C / °F**.

8.3 Light sensitive : The location of speed display symbol **bL0**, press **UP/DOWN** button display symbol **0~5**, **0** indicate automatic headlight/backlight OFF. **1~5** indicate automatic headlight/backlight ON. **1** indicates the brightest on (auto turn on the backlight at bright environment), **5** indicates the darkest on (auto turn on the backlight at dark environment).

8.4 Backlight brightness : The location of speed display symbol **bL1**, press **UP/DOWN** button display symbol **1~5** to change the brightness of the backlight.

8.5 Buzzer on/off : The location of speed display symbol **bEP**, press **UP/DOWN** button rotate display symbol **0/1**, **0** indicates buzzer off, **1** indicates buzzer on.

8.6 Auto off time : The location of speed display symbol **OFF**, press **UP/DOWN** button display symbol **1~9**, represent automatically shutdown delay time (minutes), default value is 5 minutes.

8.7 Power display : The location of speed display symbol **Pod**, press **UP/DOWN** button display symbol **0/1**, represent whether to show the power indicate on LCD.

8.8 Maintain remind : The location of speed display symbol **nnA(ma)**, press **UP/DOWN** button rotate display symbol **0/1**, **0** represent maintain reminding off, **1** represent maintain reminding on.

8.9 Wheel diameter : The location of speed display symbol **Wd**, press **UP/DOWN** button rotate display the symbol **16/18/20/22/24/26/700C/28/29**, value represents the diameter of the wheel (inch). Wrong wheel diameter setting will cause speed abnormal.

8.10 Voltage set : The location of speed display symbol **bU0**, press **UP/DOWN** button

rotate display the symbol **24V/36V/U_bE**, **U_bE** means user-defined voltage setting, this parameter can be set by computer.

8.11 Password/Speed limit set : The location of speed display symbol **PSd**, remind to input passwords, press **UP/DOWN** buttons to setup password value (0~9), press **LEFT/RIGHT** buttons to switch the password item, password is 4 digits, the default password is "1919". Press **POWER** button when password adjustment is completed. Meter will return to the **Voltage set** item if the password is incorrect. Correct password will enter the **Speed limit set** item.

8.12 Speed limit set : The location of speed display symbol **SPL**, the location of mileage display speed limit value, the default value is **25km/h**. Press **UP/DOWN** buttons to adjust the speed limit value, speed limit value can be adjust from 10 to 99km/h. Press **POWER** button to confirm when you finish the adjustment.

The maximum speed is restrict by the motor and controller, probably can't reach the set value.

9 Maintain reminded (This function is optional)

The meter can remind maintain information, according to mileage(ODO) and battery cycle times.

9.1 Meter will display symbol **MAINTAIN** when the ODO accumulated more than setting mileage (this parameter can be set by dealers), the mileage symbol will flash for 4 seconds when the meter power on, the buzzer beep for 2 seconds at the same time.

9.2 Meter will display symbol **MAINTAIN** When the battery cycle over setting times, the symbol of battery will flash for 4 seconds when the meter power on, the buzzer beep for 2 seconds at the same time.

You can shutdown maintain reminding message by parameter setting. Parameter setting ->Maintain reminded (MA) ->0

10 Error Code define

800U meter can give warning when E-bike has error, LCD display **error** icon and error code in speed position, display **Ex**, x=1~7, definition see the table below.

| Error Code | Error description | Handle |
|------------|-------------------------|---|
| 0x01 | Communication Error | Check the cable connection |
| 0x02 | Controller protection | Check three-phase power line. |
| 0x03 | three-phase power error | Check three-phase power line connection |
| 0x04 | Battery low | Charge the battery |
| 0x05 | Brake error | Check the brake connection. |
| 0x06 | Turn error | Check turn to connect. |

| | | |
|-----------|------------|---------------------------|
| 0x07 | Hall error | Check the hall connection |
| 0x08-0x0F | Reserved | |

11 Assembly instructions

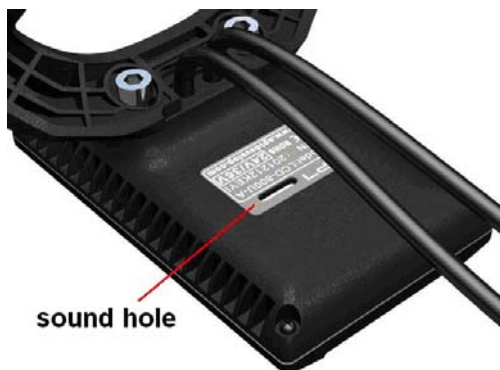
There are two installation methods for the clamp, forward or backward, according to user's demands.



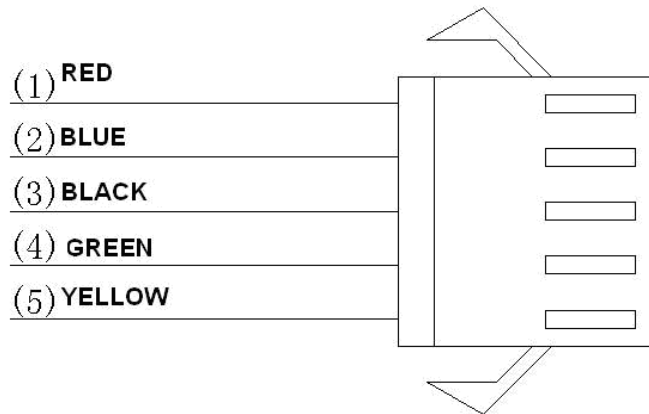
12 Warning

There is waterproof membrane inside the sound hole. Don't insert sharp object into the hole, it will causes waterproof failure.

Sun exposure may cause high temperature indicate, this is not meter's failure.



13 Output wire instructions



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

14 PAS level instructions

PAS level can be customized, the highest level is 9, common used PAS level see the table 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 | |

15 Certification

CE / IP65 (water proof) / ROHS.