# Product Specification

## 03/2019

| | |
|---|---|
| **Product** | TFT LCD Display |
| **Mode** | APT TFT560C |
| **Abbreviation** | 560C |

Onlineshop: www.atmparts.eu

# 1． Product Name

✧ TFT LCD display

✧ Model : APT TFT 560C

# 2． Suppliers

✧ APT(Tianjin) Develop Co., Ltd.

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

# 3． Electrical Parameters

✧ 2.2inch IPS screen

✧ 24V/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℃

# 4． Dimensions & Material

✧ Product shell is ABS+PC, transparent window is made with PC.

✧ Dimensions : host/L 68*W 40mm*H 16mm

# 5. Features

✧ Suitable for low temperature，Max -20℃.

✧ High-contrast 2.2inch IPS colorful 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 customers' habits.

✧ **Smart battery indicator :** Provide a reliable battery indicator.

✧ **5-level Assist** .

✧ **Mileage indicator :** Odometer/Trip distance/Riding time/Range/Power.

✧ **Speed limit value indicator**

✧ **Error code indicator.**

✧ **Software upgraded :** Software can be upgraded through UART.

# 6. TFT screen instructions
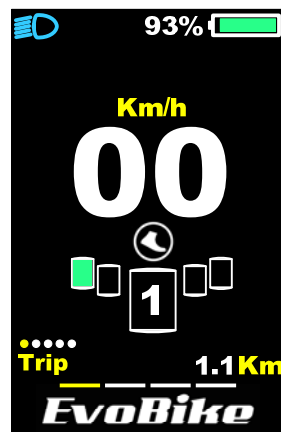


# 7. Functional Description
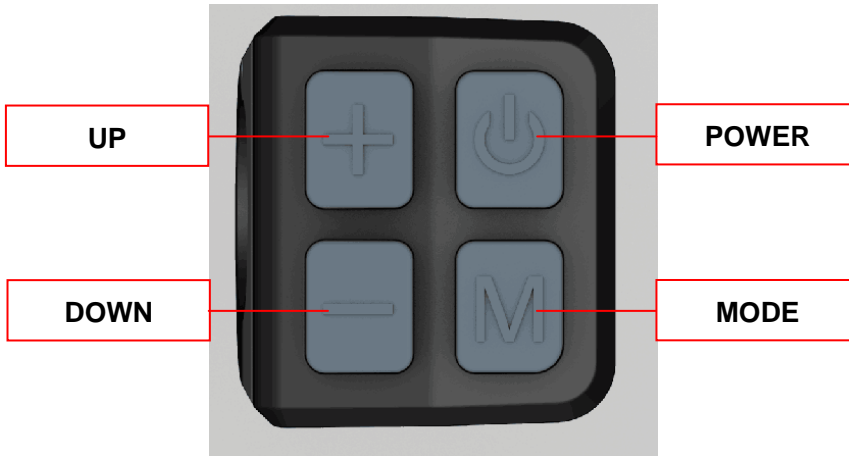
## 7.1 Power On/Off

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）.

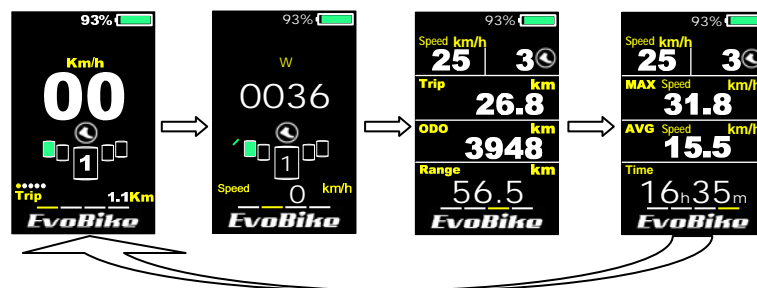*If the display has been set password power on, you need to input the right password before start.

## 7.2 Assist level operating

Short press UP/DOWN button can change the assist level. Top assist level is 5, 0 for neutral.
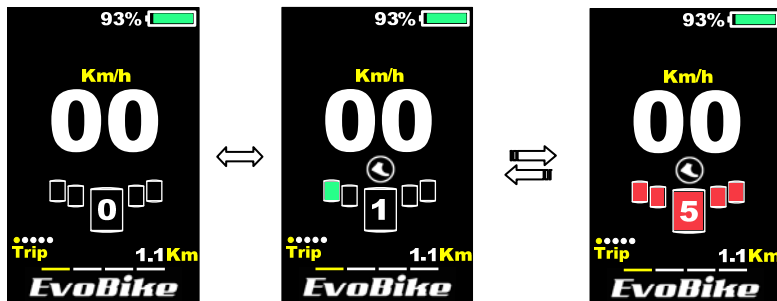


## 7.3 Speed & Mileage mode switch

Short press POWER button can change interface，such as the power, speed and mileage mode.



Short press M button can change mileage mode, Trip→ODO→Time →Range→Power.

| Trip | 1.1 Km | ⇒ | ODO | 2 Km | ⇒ | Range | 20.8 Km |
|------|--------|---|-----|------|---|-------|---------|
| | | | Power | 36 W | ⇐ | Time | 00h07m |

## 7.4 Headlight 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.
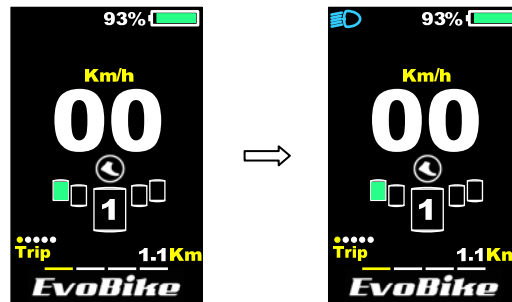
## 7.5 Walking mode (6km)

Press and hold DOWN button for 2 second can get into walking mode, out of the mode when release the button.
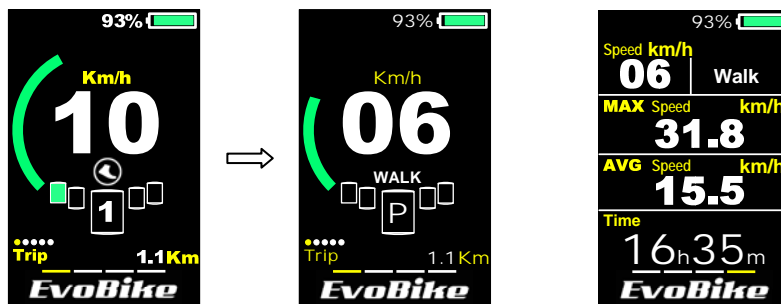
* This feature needs to be supported by controller.

## 7.6 Data cleanup ←Commissioning period

Several temporary data can be reset in MENU, temporary data include **AVG Speed / MAX Speed / Trip / Time**.

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

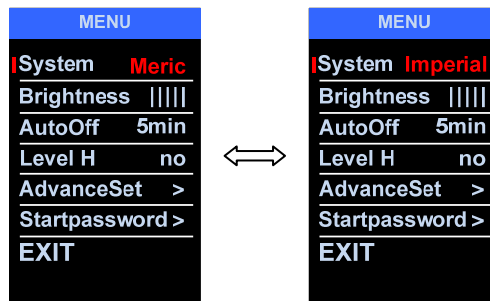# 8. Parameter setting

Double press POWER button (press interval less than 0.3 second) can get into setting menus, press UP/DOWN buttons to change the parameter setting, press POWER button can switch to next item. Double press POWER button will exit from menu or in the menu "Exit".
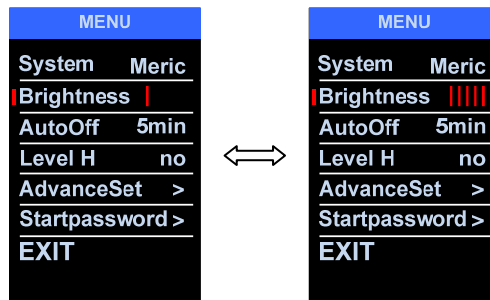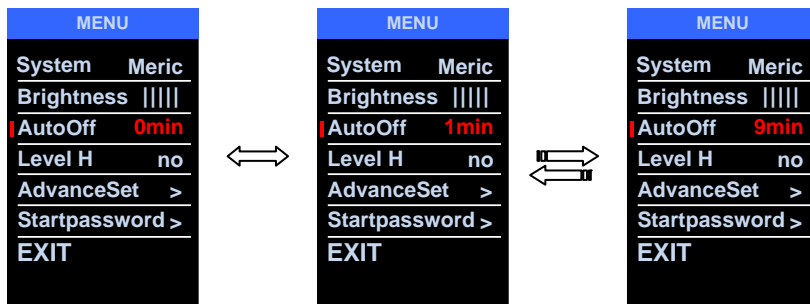
The orders of parameters are as follow.

| MENU | | AdvanceSetting | |
|---|---|---|---|
| **System** | **Meric** | **Battery** | **36V** |
| **Brightness** | ||||| | **Wheel** | **27 inch** |
| **AutoOff** | **5min** | **Speedlimit** | |
| **Level H** | **no** | | **25 km/h** |
| **AdvanceSet** | **>** | **Assistlevels** | **5** |
| **Startpassword >** | | **BACK** | |
| **EXIT** | | **EXIT** | |

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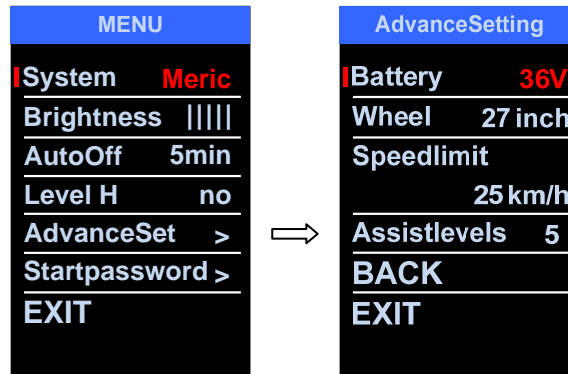
**8.1  System** : Press Up / Down button to switch between Metric / Imperial.

| MENU | | MENU | |
|---|---|---|---|
| System | Meric | System | Imperial |
| Brightness | ||||| | Brightness | ||||| |
| AutoOff | 5min | AutoOff | 5min |
| Level H | no | Level H | no |
| AdvanceSet | > | AdvanceSet | > |
| Startpassword > | | Startpassword > | |
| EXIT | | EXIT | |

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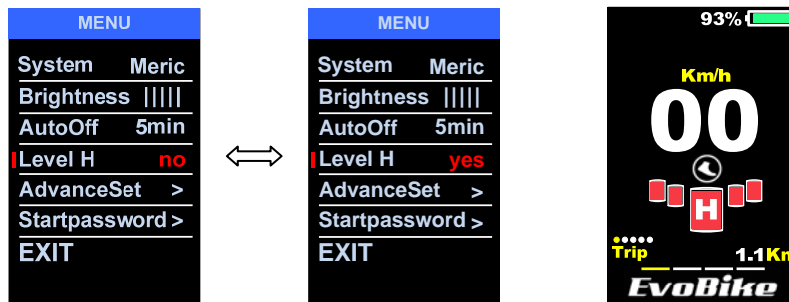**8.2  Brightness** : Press Up / Down button to change the brightness of the backlight, Ɩ is darkness，||||| is brightness

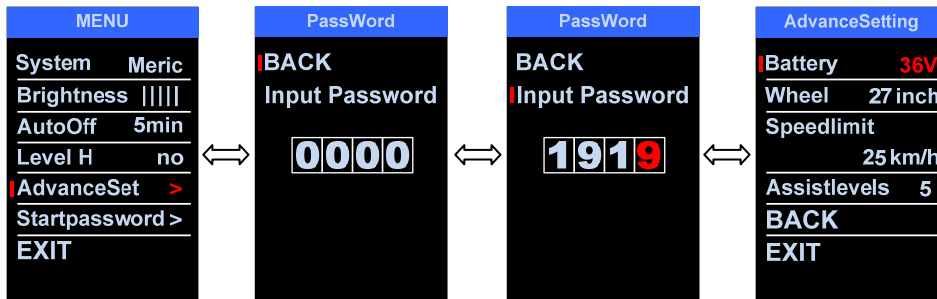| MENU | | MENU | |
|---|---|---|---|
| System | Meric | System | Meric |
| Brightness | Ɩ | Brightness | ||||| |
| AutoOff | 5min | AutoOff | 5min |
| Level H | no | Level H | no |
| AdvanceSet | > | AdvanceSet | > |
| Startpassword > | | Startpassword > | |
| EXIT | | EXIT | |

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**8.3  Auto off :** Press UP/DOWN button to change the auto power off time, from 0 to 9, the number represent time (minutes) to shutdown.

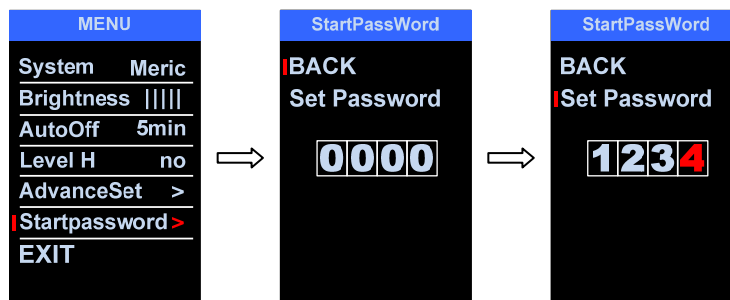| MENU | | MENU | | MENU | |
|---|---|---|---|---|---|
| System | Meric | System | Meric | System | Meric |
| Brightness | ||||| | Brightness | ||||| | Brightness | ||||| |
| AutoOff | 0min | AutoOff | 1min | AutoOff | 9min |
| Level H | no | Level H | no | Level H | no |
| AdvanceSet | > | AdvanceSet | > | AdvanceSet | > |
| Startpassword | > | Startpassword | > | Startpassword | > |
| EXIT | | EXIT | | EXIT | |

**8.4 Level H**: Press UP/DOWN button to select **yes** or **no**, choose **yes** will activate Level H, Level H will be no speed limit. Level H can be selected only in MEMU.
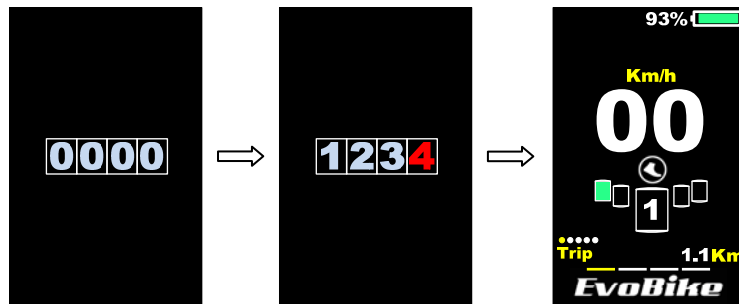
| MENU | | MENU | |
|---|---|---|---|
| System | Meric | System | Meric |
| Brightness | ||||| | Brightness | ||||| |
| AutoOff | 5min | AutoOff | 5min |
| Level H | no | Level H | yes |
| AdvanceSet | > | AdvanceSet | > |
| Startpassword | > | Startpassword | > |
| EXIT | | EXIT | |

**8.5 Advance setting** : Press POWER button can get into the advance setting menu, default password is '1919'.

| MENU | | PassWord | PassWord | AdvanceSetting | |
|---|---|---|---|---|---|
| System | Meric | BACK | BACK | Battery | 36V |
| Brightness | ||||| | Input Password | Input Password | Wheel | 27 inch |
| AutoOff | 5min | | | Speedlimit | |
| Level H | no | 0000 | 1919 | | 25 km/h |
| AdvanceSet | > | | | Assistlevels | 5 |
| Startpassword | > | | | BACK | |
| EXIT | | | | EXIT | |

**8.6 Start password** : Press POWER button get into the Sartpassword setting menu. You can input right password before power on, password is accorded to your setting. The initial password value is 0000.
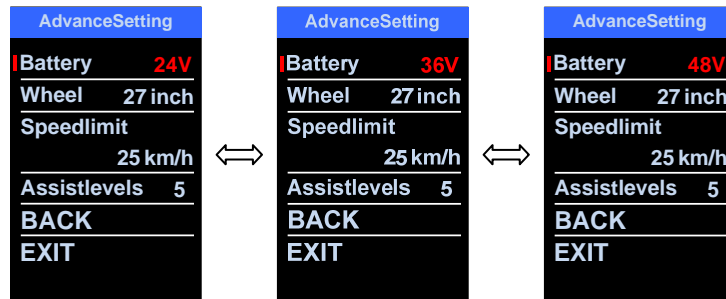
| MENU | | StartPassWord | StartPassWord |
|---|---|---|---|
| System | Meric | BACK | BACK |
| Brightness | ||||| | Set Password | Set Password |
| AutoOff | 5min | | |
| Level H | no | 0000 | 1234 |
| AdvanceSet | > | | |
| Startpassword | > | | |
| EXIT | | | |

**8.7 Advance setting** : Press POWER button can get into the advance setting menu, default password is '1919'.
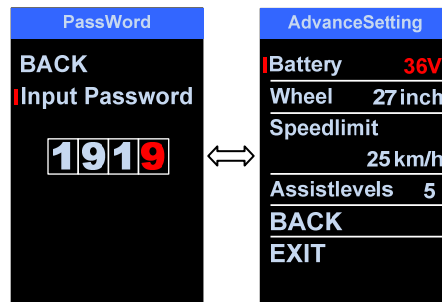


**8.8 Battery :** Press UP/DOWN will change battery voltage setting, optional value is 24V/36V/48V.
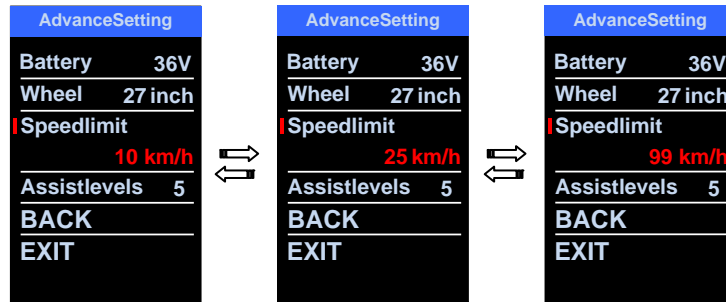


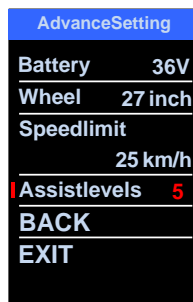**8.9 Wheel** : Press UP/DOWN can change the wheel setting, optional wheel diameter is 10 ~ 30 inch.
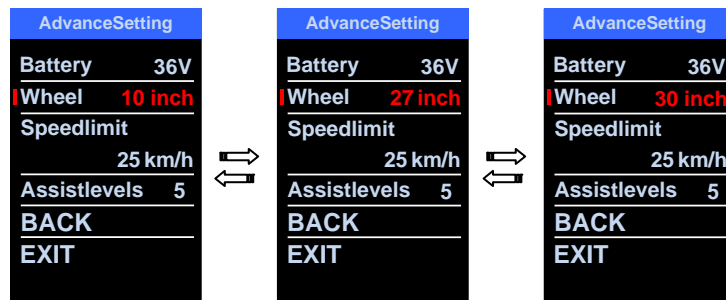


**8.10 Speed limit** : Press UP/DOWN will change speed limit, range 10km/h~99km/h.

Default value is 25km/h.



**8.11 Assist levels** : Option is only 5.



# 9.    Error Code define

560C can show warning message, Error icon shows on the screen, and show error code at the bottom of the screen, error code is from 04H~30H, definition see the table below.

| Error Code | Error description | Error display |
|---|---|---|
| 0x01 | Normal | No error |
| 0x03 | Brake signal | No error |
| 0x04 | Throttle on high position | Display **04H** on LOGO position |
| 0x05 | Throttle error | Display **05H** on LOGO position |
| 0x06 | Low voltage protection | Display **06H** on LOGO position |
| 0x07 | High voltage protection | Display **07H** on LOGO position |
| 0x08 | Motor's hall sensor error | Display **08H** on LOGO position |
| 0x09 | Phase line of motor error | Display **09H** on LOGO position |
| 0x10 | Controller over temperature | Display **10H** on LOGO position |
| 0x11 | Motor over temperature | Display **11H** on LOGO position |
| 0x12 | Current sensor error | Display **12H** on LOGO position |
| 0x13 | Battery's temperature sensor | Display **13H** on LOGO position |
| 0x14 | Motor's temperature sensor error | Display **14H** on LOGO position |
| 0x15 | Controller's temperature sensor error | Display **15H** on LOGO position |
| 0x21 | Speed sensor error | Display **21H** on LOGO position |
| 0x22 | BMS communication error | Display **22H** on LOGO position |

| 0x23 | Head light error | Display **23H** on LOGO position |
|------|------------------|----------------------------------|
| 0x24 | Head light sensor error | Display **24H** on LOGO position |
| 0x25 | Torque sensor error-Torque | Display **25H** on LOGO position |
| 0x26 | Torque sensor error-speed | Display **26H** on LOGO position |
| 0x30 | Communication error | Display **30H** on LOGO position |
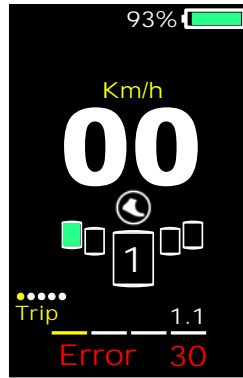


# 10. Assembly instructions

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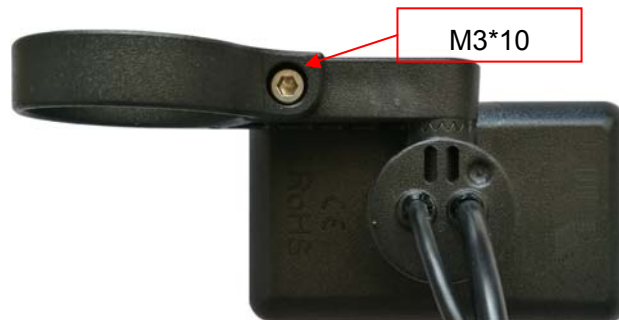


# 11. Connector descriptions



(1) RED
(2) BLUE
(3) BLACK
(4) GREEN
(5) YELLOW
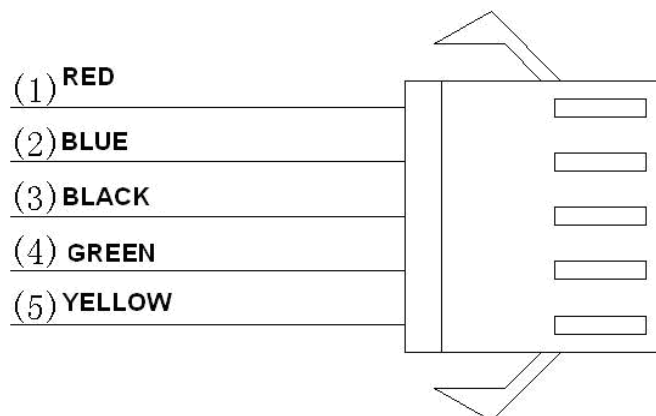
1、 Red wire :　　Anode(24v/36v/48V)

2、 Blue wire :　　 Power cord to the controller

3、 Black wire :　 GND

4、 Green wire :　RxD (controller -> display)

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

# 12. Assist level instructions

Assist level can be customized, the highest level is 5, common used assist level see the table below:

| 5 level | |
|---------|---------------|
| 0 | No power assist |
| 1 | |
| | |
| 2 | |
| | |
| 3 | |
| | |
| 4 | |
| | |
| 5 | |

# 13. Certification

CE / IP65 (water proof) / ROHS.