# Embedded Computer
# User Manual

## Safety Maintenance:

Please maintain your system properly to make sure its service life and reduce the damage risk.

- It should be avoid the humidity and extreme temperature when being used.
- Avoid prolonged exposure of the unit to direct sunlight or strong ultraviolet light.
- Do not drop the unit or let it be in any place with severe shock/vibration.
- Please avoid the collision as the LCD screen is very easy to be scratched. Do not use any sharp object to touch the screen.
- To clean the outside, please turn off the power, unplug the power cord, wipe with slightly damp soft cloth. When cleaning the screen, please wipe with the lint free soft cloth.
- Never attempt to disassemble or repair the machine, otherwise the unit may be damaged.
- Do not place the unit or accessories together with other flammable liquids, gases, or other explosive materials to avoid danger.

YP-01190118

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# 1. Production Description

## 1.1 Brief Introduction

- 7" 16:10 multi point capacitive touch screen，1280x800 physical resolution.
- Intel Atom Z8350 1.44G , 2G DRAM , 32G Emmc, Intel HD Graphic 400;
- Windows 10 32-bit;
- RS232x4/GPIO（4 input，6 output）/LANx2/USB2.0/USB3.0/HDMI interface;
- Micro SD（TF）card storage，mini SIM card slot.

## 1.2 Optional Functions

- 3G/4G (built-in)
- Wi-Fi 802.11 b/g/n & Bluetooth 4.0（built-in）
- PoE（built-in）

## 1.3 Basic Parameters

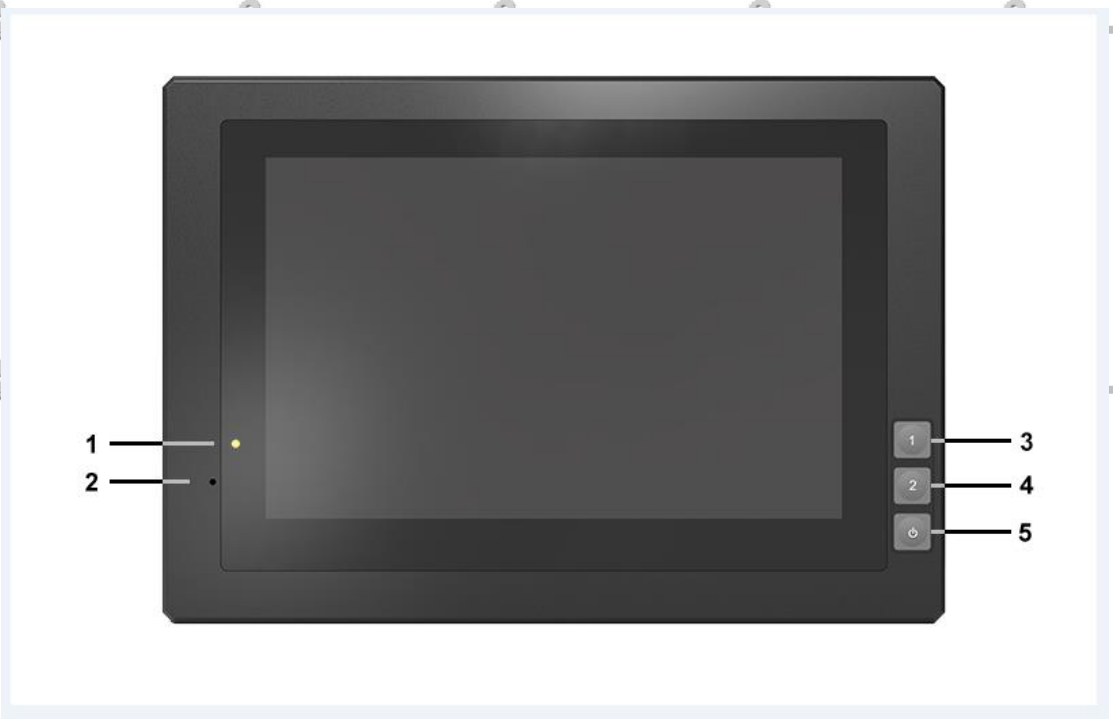
| Configuration | Parameters |
|---|---|
| Display | 7″ |
| Touch panel | Capacitive |
| Physical Resolution | 1280×800 |
| Brightness | 400cd/m² |
| Contrast | 800:1 |
| Viewing Angle | 160°/160°（H/V） |
| System Hardware | CPU： Intel Atom Z8350 1.44GHz<br>ROM：32GB Emmc<br>RAM： 2GB LPDDR3 |

| | | |
|---|---|---|
| | GPU： Intel HD Graphic 400<br>OS：Windows 10 32-bit (Optional) | |
| Interfaces | SIM card | 1.8V/2.95V，mini SIM |
| | TF card | 1.8V/2.95V, up to 64G |
| | USB | USB host 2.0×2 (support USB 3.0) |
| | GPIO | Input×4, Output×6（See section "3. Extended Cable Definition" for details.） |
| | HDMI output | HDMIv1.4 |
| | LAN | 100M×2 |
| | Serial Port | COM3 COM4 COM5 COM6 |
| | Ear Jack | 1 |
| Optional Function | Wi-Fi | 802.11a/b/g/n 2.4GHZ |
| | Bluetooth | Bluetooth 4.0 2402MHz~2480MHz |
| | 3G/4G | （See section 1.4 for details.） |
| | GPS | External |
| | PoE | 25W |
| Multimedia | Audio | MP3/AAC/AAC+/WAV/FLAC/APE/ AMR/MP4/MOV/F4V…etc. |
| | Video | Encode: 1080p30 H.264 BP/dual 720p encoding |
| | | Decode: 1080p30 + D1 |
| Input Voltage | DC 9~36V | |
| Power Consumption | Overall ≤ 10W<br>Standby < 5W | |
| Working Temperature | -10℃~50℃ | |
| Storage Temperature | -30℃~70℃ | |
| Dimension（LWD） | 206×144×30.9mm | |
| Weight | 790g | |

## 1.4 3G / 4G Support Parameter & Switch

| | | |
|---|---|---|
| Band (Different versions support different bands) | **Version 1** China/India | FDD LTE: Band 1/Band 3/ Band 8<br>TDD LTE: Band 38/Band 39 /Band 40/Band 41<br>DC-HSPA+/HSPA+/HSPA/UMTS: Band 1/Band 5/Band 8/Band 9<br>TD-SCDMA: Band 34/Band 39<br>GSM/GPRS/EDGE: 1800 /900 |
| | **Version 2** EMEA/South America | FDD LTE: Band 1/Band 2 /Band 3/Band 4 /Band 5 /Band 7/Band 8/Band 20<br>WCDMA/HSDPA/HSUPA/HSPA+: Band 1/Band 2/Band 5/Band 8<br>GSM/GPRS/EDGE: 850/900/1800/1900 |
| | **Version 3** North America | LTE: FDD Band 2/Band 4/ Band 5/Band 12 /Band 13/Band 17<br>WCDMA/HSDPA/HSUPA/HSPA+: Band 2/Band 4/Band 5 |
| **Data Transmission** | LTE | LTE-FDD<br>Max 150Mbps(DL)/Max 50Mbps(UL)<br>LTE-FDD<br>Max 130Mbps(DL)/Max 35Mbps(UL) |
| | DC-HSPA+ | Max 42 Mbps(DL)/Max 5.76Mbps(UL) |
| | WCDMA | Max 384Kbps(DL)/Max 384Kbps(UL) |
| | TD-SCDMA | Max 4.2 Mbps(DL)/Max2.2Mbps(UL) |
| | EDGE | Max 236.8Kbps(DL)/Max 236.8Kbps(UL) |
| | GPRS | Max 85.6Kbps(DL)/Max 85.6Kbps(UL) |

## 2. Structure Function Explanation



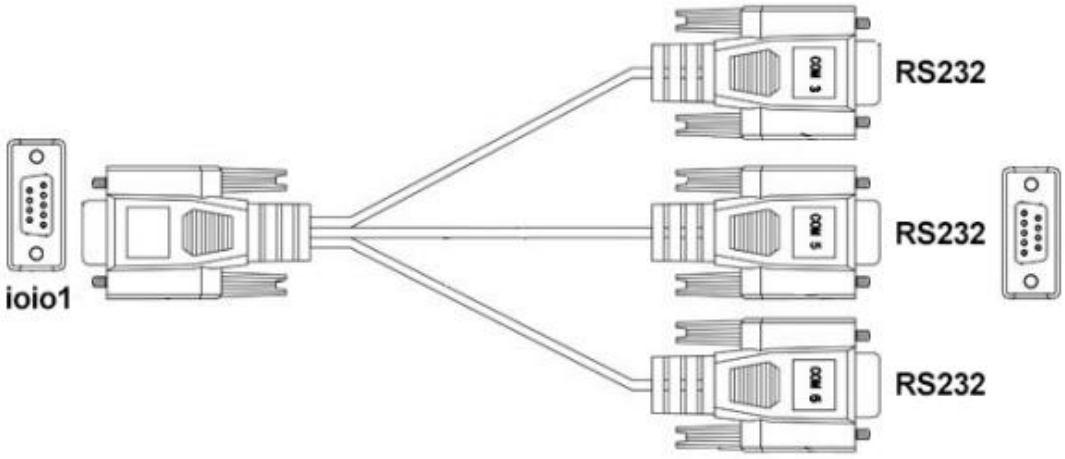

1. Power indicator
2. Reset & burn button
3. User-definable button1 (F1)
4. User-definable button2 (F2)
5. Power on/off button

1. Mini SIM card slot.
2. Micro SD slot
3. IOIO 1: (RS232 standard interface, connecting with DB9 standard cable to convert to 3×RS232 ports).
   IOIO 2: (RS232 standard interface, connecting with DB9 optional cable to

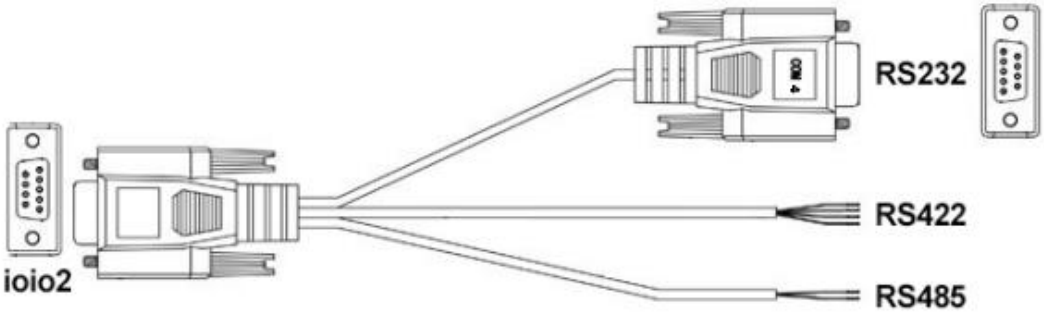
convert to 1×RS232, 1×RS422 and 1×RS485 ports).

4. GPIO (For extended cable definition, please refer to "3. Extended Cable Definition").
5. HDMI output.
6. USB Host×2.
7. 100M LAN.
8. 100M LAN, POE function for optional.
9. Ear jack.
10. Power interface.

## 3. Extended Cable Definition

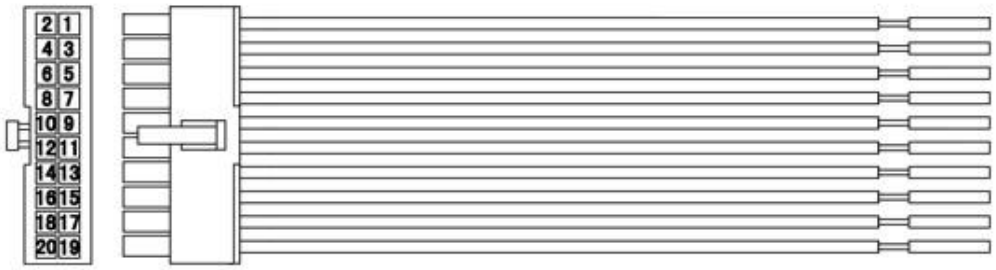



DB9 standard cable




DB9 optional cable

| Item | | | Definition |
|---|---|---|---|
| Com 3 RS232 | | | COM3 |
| Com 4 RS232 | | | COM4 |
| Com 5 RS232 | | | COM5 |
| COM 6 RS232 | | | COM6 |
| RS422 | Red A | White Z | COM5 |
| | Black B | Green Y | |
| RS485 | Red Positive Pole | | COM6 |
| | Black Negative Pole | | |
| Note: RS232 and RS422 are alternative for COM5.<br>RS232 and RS485 are alternative for COM6.<br>It should match with standard cable when using IOIO 1; Otherwise there is a risk of short circuit. | | | |




**GPIO**

| No. | Item | Definition | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | Gpio Interface | Gpio Input | **2** | | **4** | | **6** | **8** |
| | | | Gpio_57 | | Gpio_82 | | Gpio_87 | Gpio_92 |
| | | | Yellow | | Yellow | | Yellow | Yellow |
| | | Gpio Output | **10** | **12** | **1** | **3** | **5** | **7** |
| | | | Gpio_93 | Gpio_191 | Gpio_9 | Gpio_171 | Gpio_174 | Gpio_175 |
| | | | Blue | Blue | Blue | Blue | Blue | Blue |
| | | Gpio GND | **13** | | | | | |
| | | | Black | | | | | |

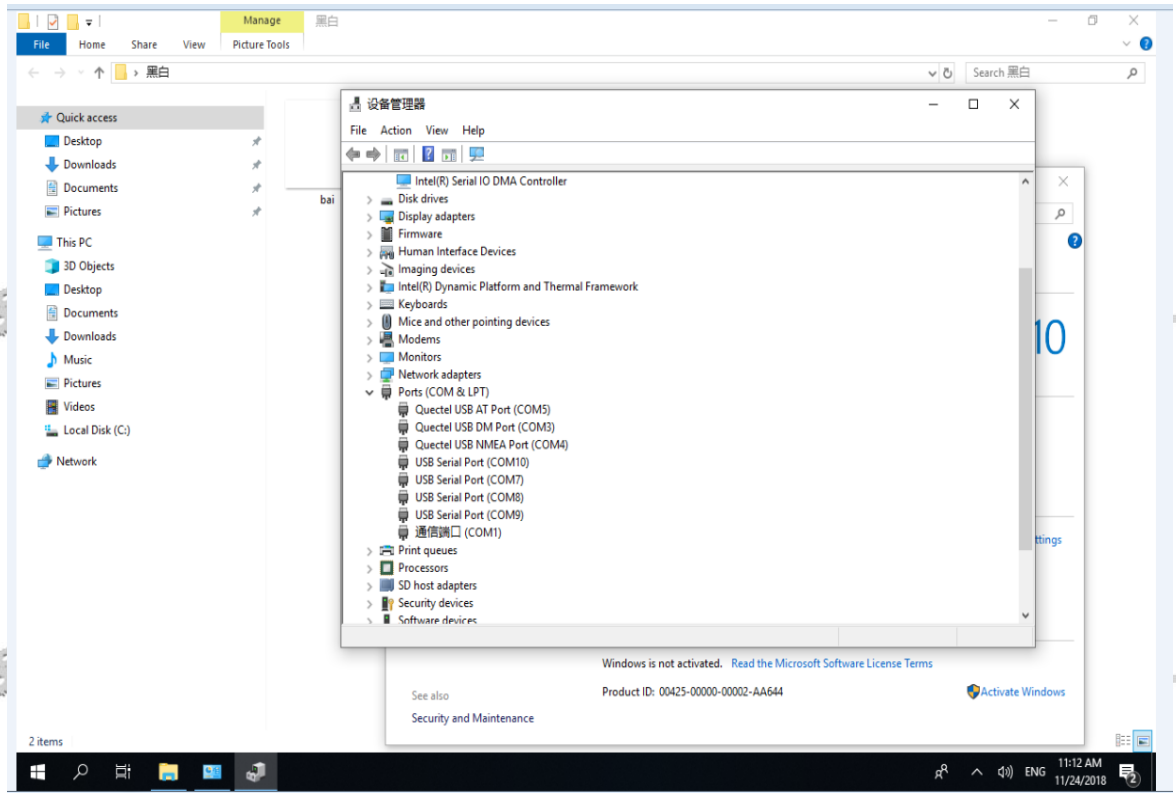
## 3-1 Serial Port

The COM port serial will change bases on the installation order of the 3G/4G device and the FTDI USB serial port device, which affect the serial port access of RS485/RS422.

The following figure shows the serial port identifier after installing the 3G/4G driver first and then installing the USB serial port driver.

COM7/COM8/COM9/COM10 show as USB Serial Port.

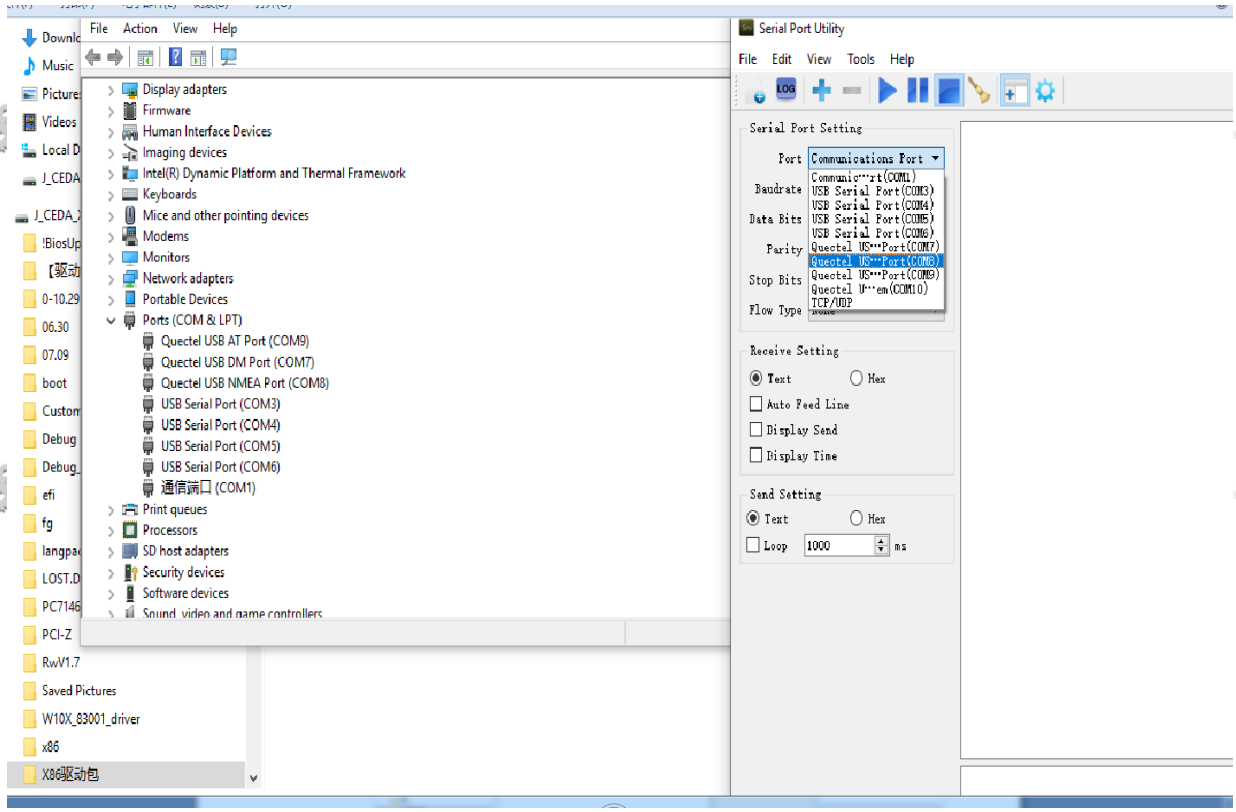
COM3/COM4/COM5/COM6 show as Quectel USB AT Port (3G/4G serial port). COM6 is Modem data serial port.




The following figure shows the serial port identifier after installing the USB serial port driver first and then installing the 3G/4G device.

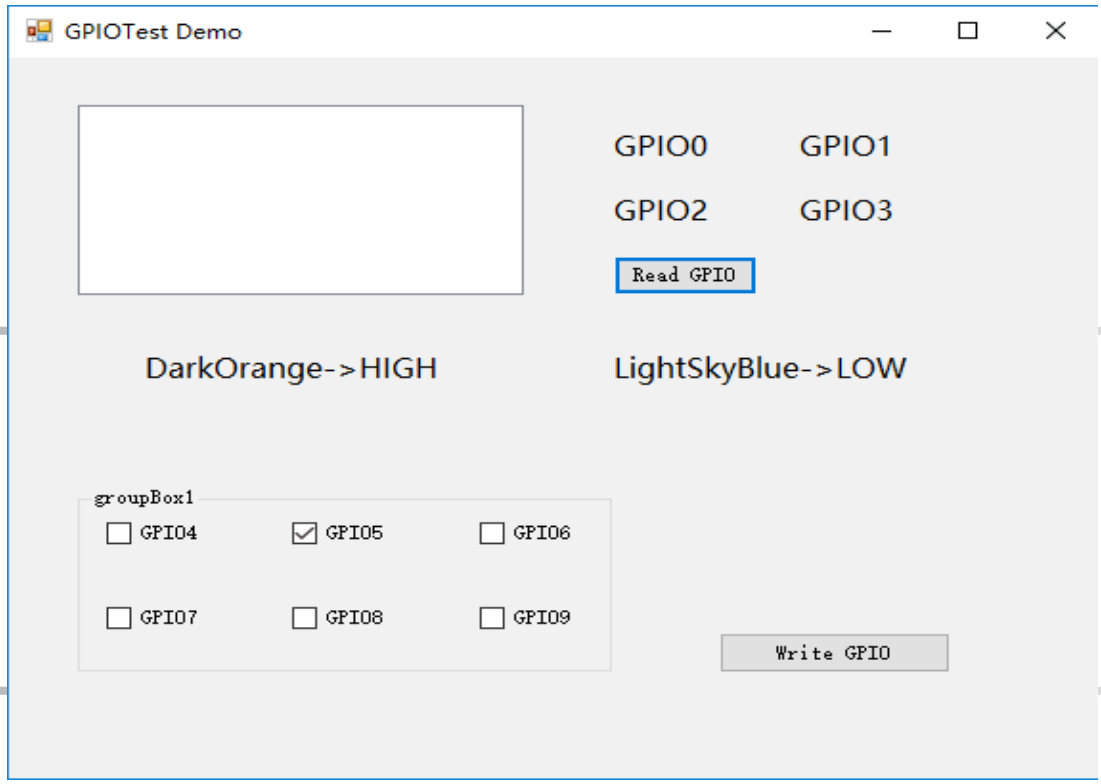
COM3/COM4/COM5/COM6 show as USB Serial Port.

COM7/COM8/COM9/COM10 show as Quectel USB AT Port (3G/4G serial port). COM10 is Modem data serial port.


File Action View Help
Display adapters
Firmware
Human Interface Devices
Imaging devices
Intel(R) Dynamic Platform and Thermal Framework
Keyboards
Mice and other pointing devices
Modems
Monitors
Network adapters
Portable Devices
Ports (COM & LPT)
Quectel USB AT Port (COM9)
Quectel USB DM Port (COM7)
Quectel USB NMEA Port (COM8)
USB Serial Port (COM3)
USB Serial Port (COM4)
USB Serial Port (COM5)
USB Serial Port (COM6)
通信端口 (COM1)
Print queues
Processors
SD host adapters
Security devices
Software devices
Serial Port Utility
File Edit View Tools Help
Serial Port Setting
Port
Baudrate
Data Bits
Parity
Stop Bits
Flow Type
Receive Setting
Text
Hex
Auto Feed Line
Display Send
Display Time
Send Setting
Loop
1000
ms

## 3-2 GPIO Interface

1. GPIO interface as shown below.




（GPIO0-GPIO3 is input port，GPIO4-GPIO9 is output port.）

For the implement and assess method, please see "GPIOTest demo " in CD coming with the device for details.

# 4. Memory Card Instructions

- The memory card and the card slot on the device are precision electronic components. Please align to the position accurately when inserting the memory card into the card slot to avoid of damage. Please slightly push the upper edge of the card to loosen it when removing the memory card, then pull it out.
- It is normal when the memory card getting hot after long time working.
- The data stored on the memory card may be damaged if the card is not used correctly, even the power is cut off or the card is pulled out when reading data.
- Please store the memory card in packing box or bag if not used for a long time.
- Do NOT insert the memory card by force to avoid of damage.

# 5. Operation Guide

## Basic Operation

- Soft keyboard

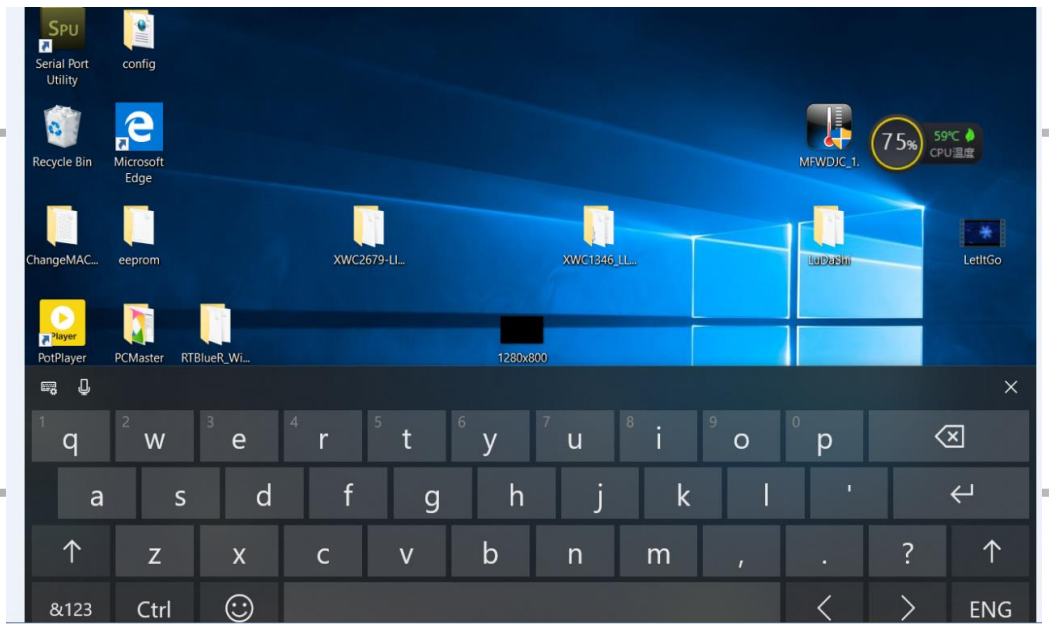



Figure1

- Network settings: Network Connections shown as Figure2. Make sure the MAC address shown on the screen should be match with the one labeled on the rear of device as the device has two LAN ports.

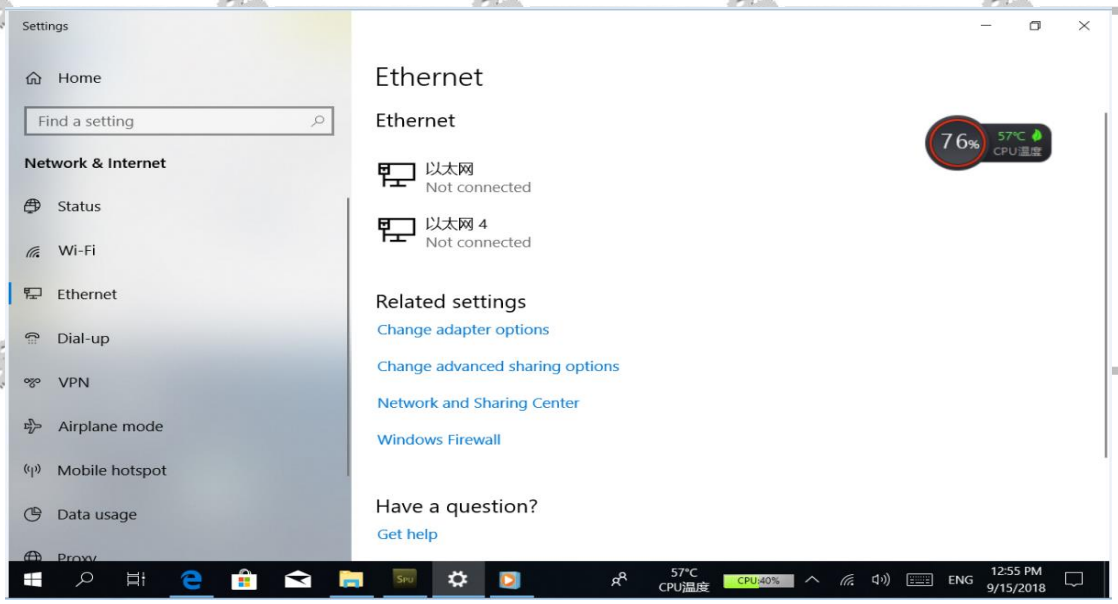



Figure 2

- Wi-Fi connection shown as Figure 3

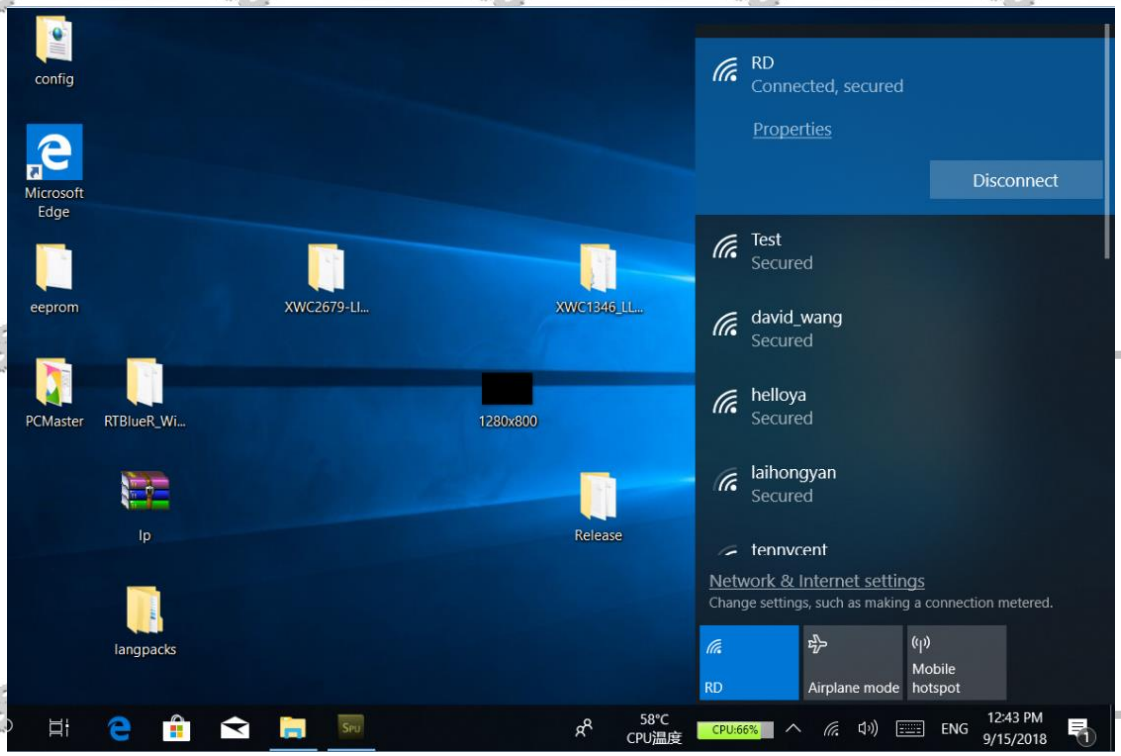



Figure 3

- Application of SIM Card (Please note the device should be restarted after SIM card inserted) shown as Figure 4.

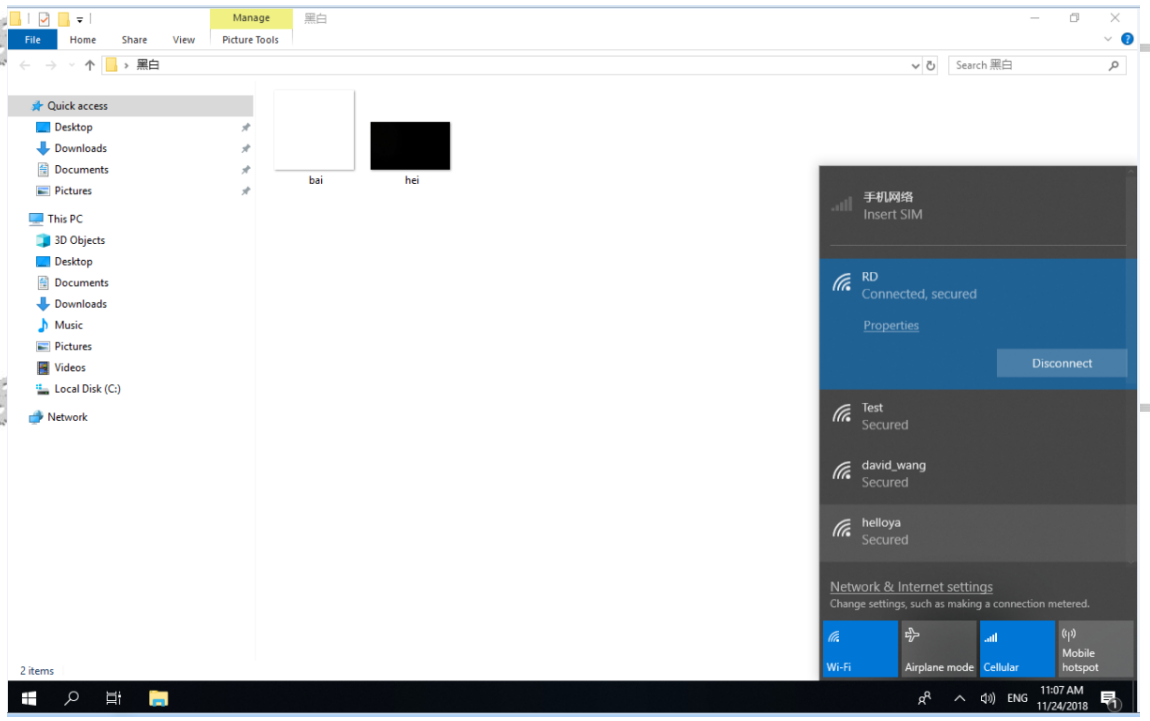



Figure 4

- Browser shown as Figure 5.

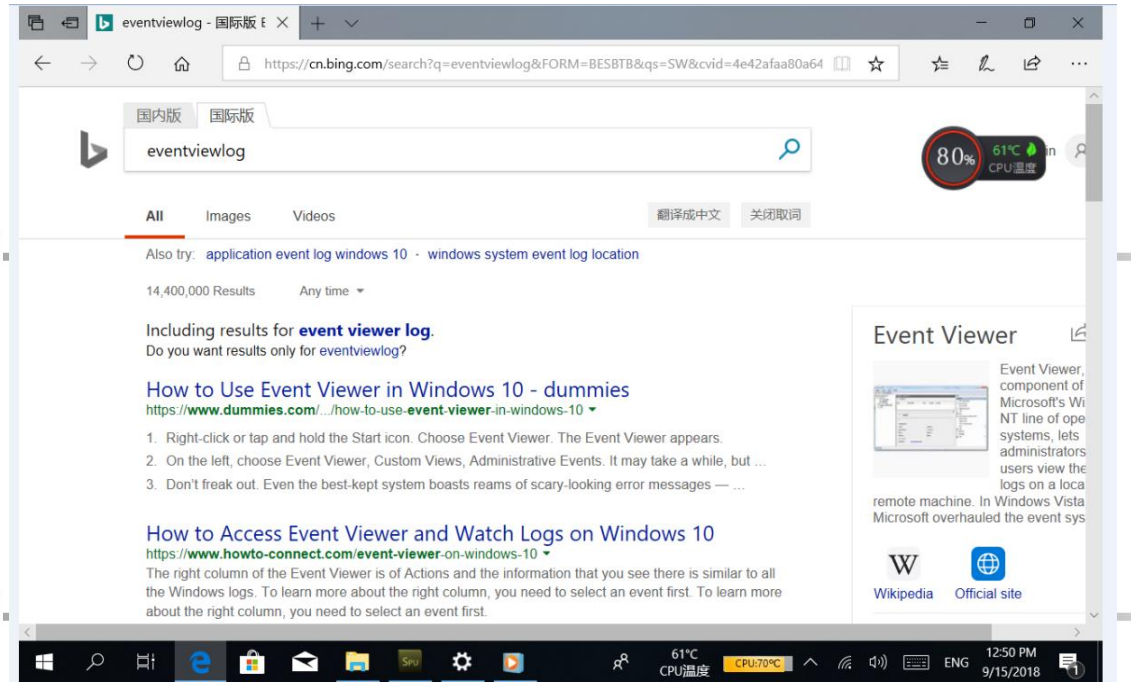



Figure 5

- Application of Bluetooth：Bluetooth Manager shown as Figure 6.

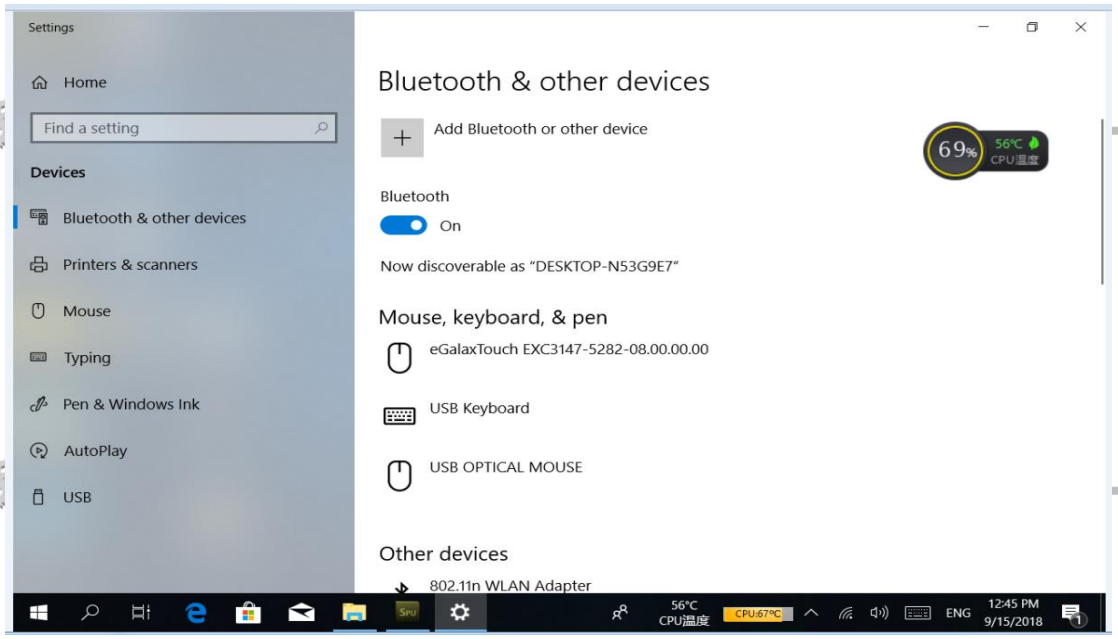



Figure 6

- Multimedia shown as Figure 7

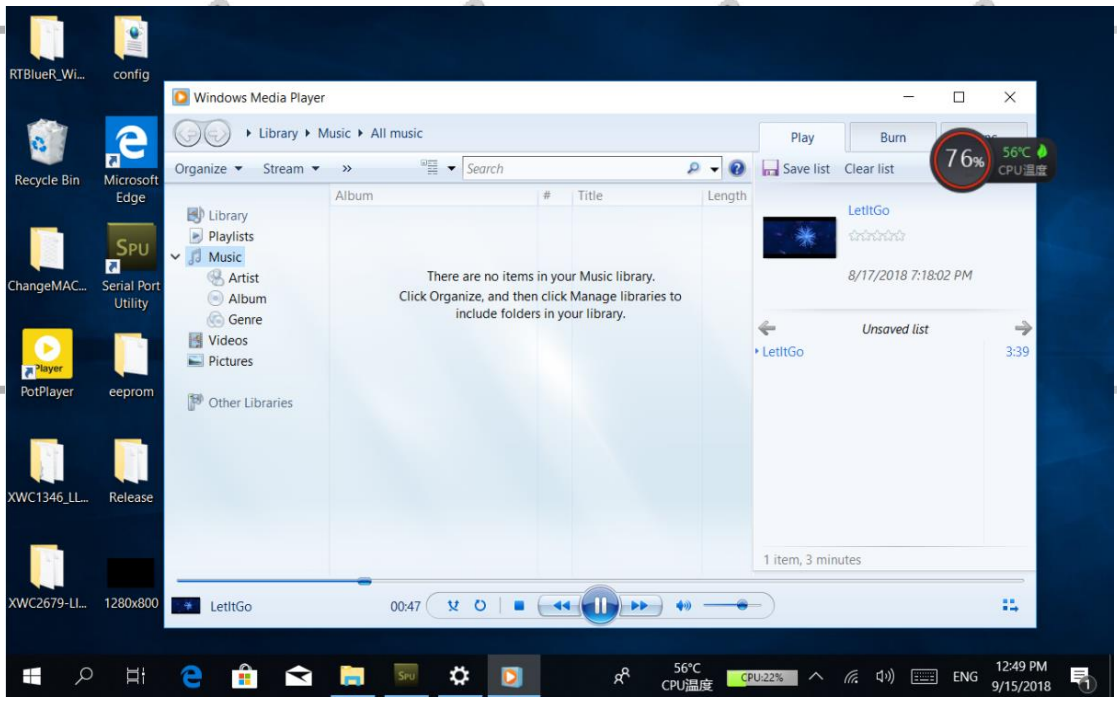



Figure 7

- Brightness settings shown as Figure 8.

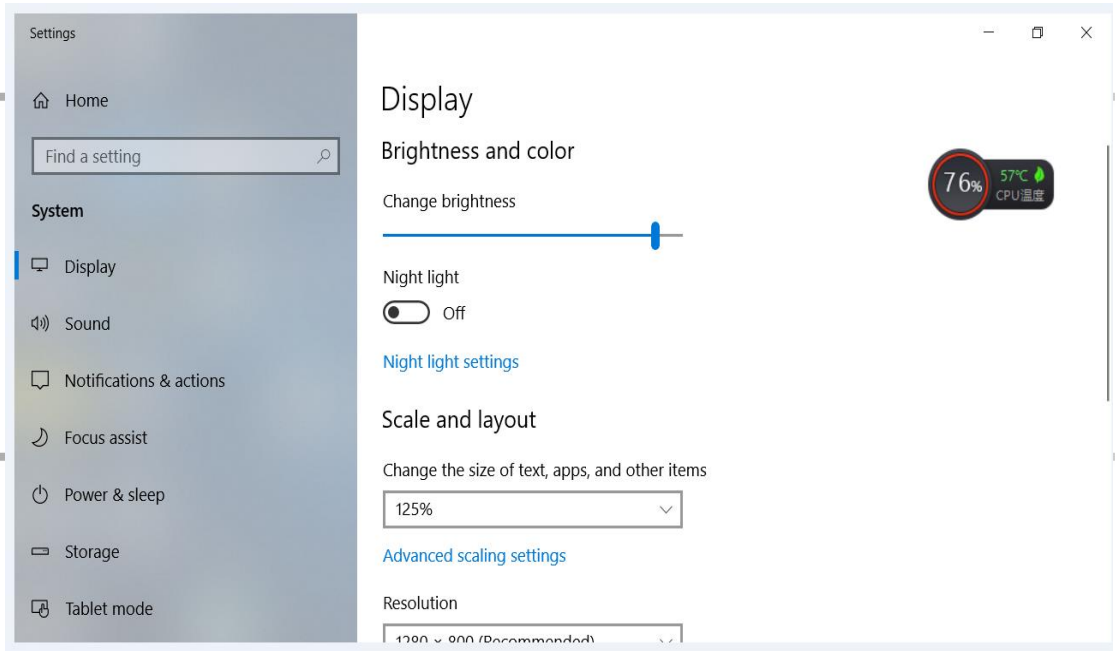
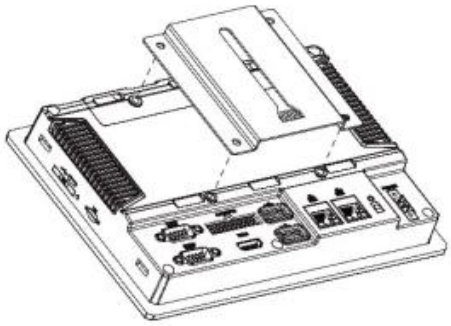
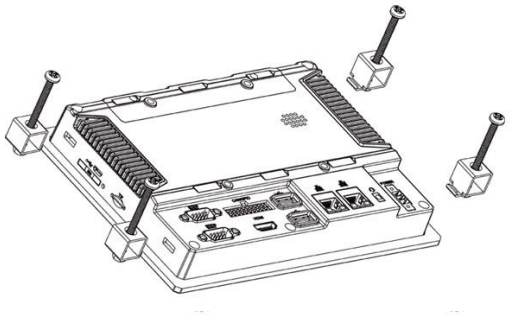



Figure 8

# 6. Mounting Methods



VESA 75mm rail slot



Embedded mount

# 7. Accessories

## Standard Accessories:

1. DC12V adapter----------1piece
2. GPIO cable----------1piece
3. DB9 cable（RS232x3）----------1piece
4. CD drive----------1piece
5. Fixed screw---------- 4pieces
6. User Manual----------1copy

## Optional accessories：

1. DB9 cable（RS232x1，RS485，RS422）----------1piece
2. Micro TF Card----------1piece
3. 75mm VESA rail slot----------1piece

# 8. Trouble Shootings

**Power Problem**

**Cannot boot up**

1. Wrong cable connection

   Connect Extended cable with device first, and connect the AC end of DC adapter with DC input port of Extended cable, then the other end of DC adapter connect with power plug socket.

2. Bad connection

   Check every connection and socket of power source.

**Screen Problem**

1. No picture on screen.
2. The application reaction time is too long and cannot be activated when clicked.
3. The image appears delay or still when switching.

**Please restart your system if the device has any problem as described above.**

4. Display screen is misty

   Please check whether the display screen surface has dust filth or not. Please simply wipe with clean and soft cloth.

5. HDMI problem

   Incorrect responding to the touch click on screen when connect with HDMI.
   It is recommended to operate with mouse, the incorrect responding can't calibrate at present.

**Note: Due to constant effort to improve products and product features, specifications may change without notice.**