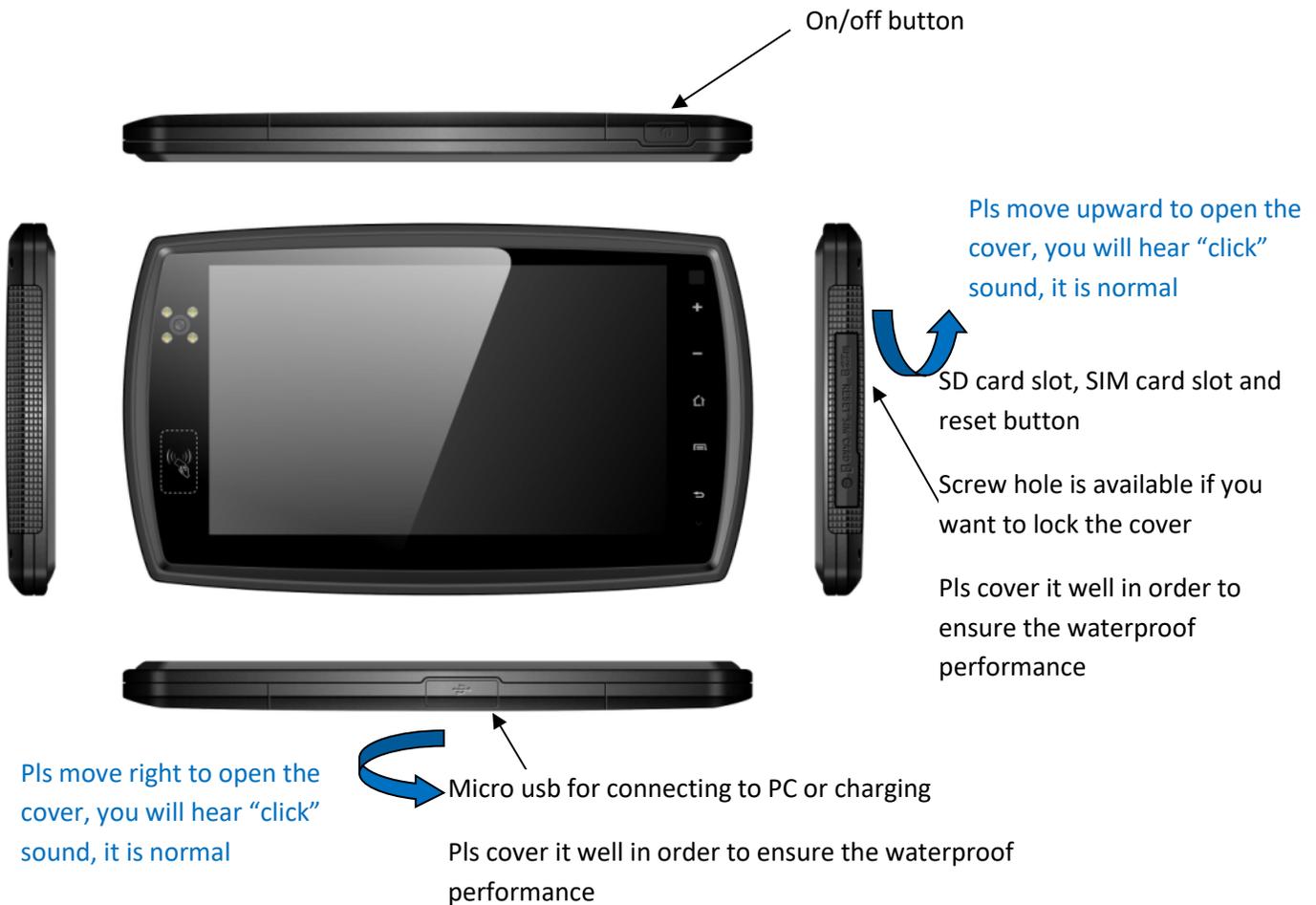# Quick Start Guide

Product introduction

CTFPND-9 has optional features (wifi, BT, GPS, 3G, back camera, front camera, RFID, lightsensor, gyroscope, accelerometer)

Highlights:
3G – pls insert the SIM card when the device if complete off
front camera – there are 6 IR LED around the camera. if you enable the flash function in front camera, then you will see the IR LED is on. In this case, the picture will be in black and white

On/off button

Pls move upward to open the cover, you will hear "click" sound, it is normal

SD card slot, SIM card slot and reset button

Screw hole is available if you want to lock the cover

Pls cover it well in order to ensure the waterproof performance

Pls move right to open the cover, you will hear "click" sound, it is normal

Micro usb for connecting to PC or charging

Pls cover it well in order to ensure the waterproof performance

Direction of SIM card and SD card
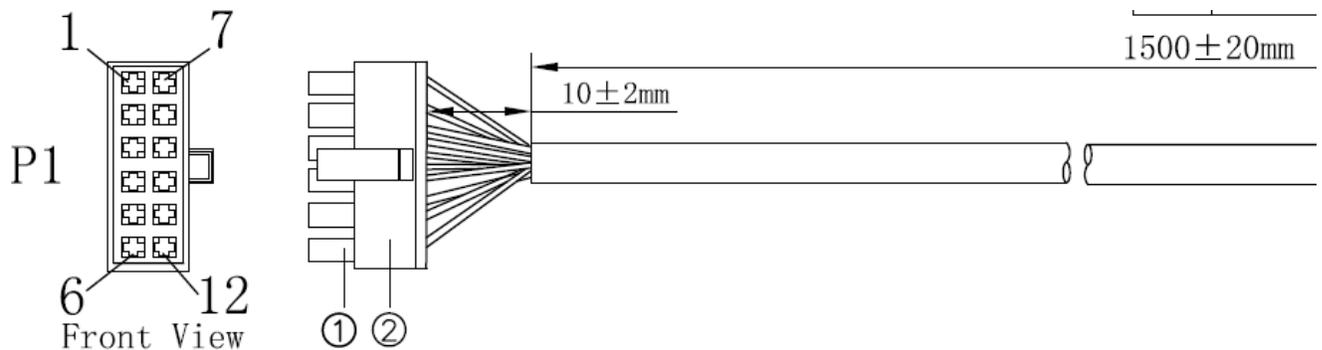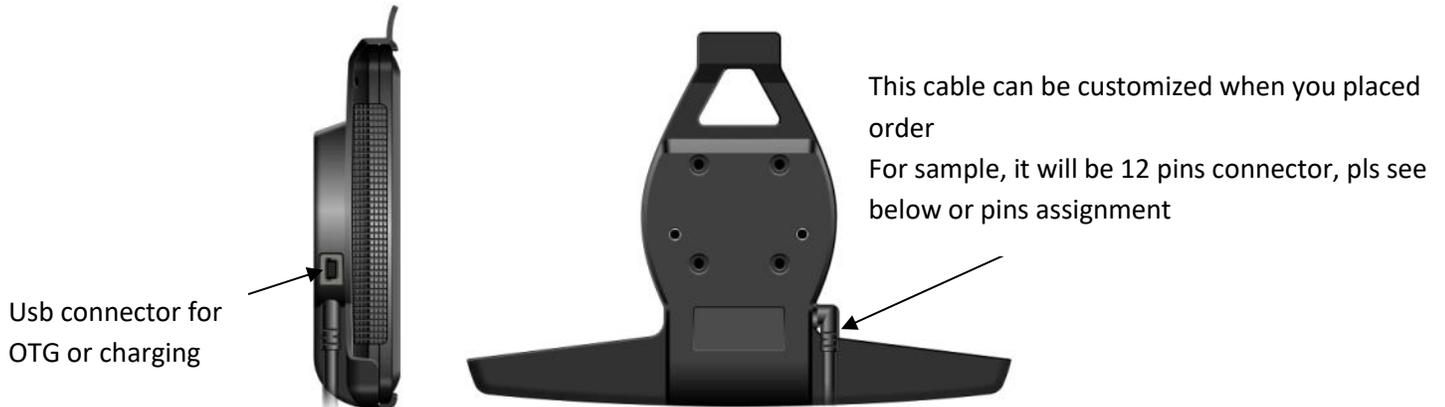
Interface

1. There is TTL serial port (Tx/RX) or OTG from 10 pin usb connector

10pin usb connector
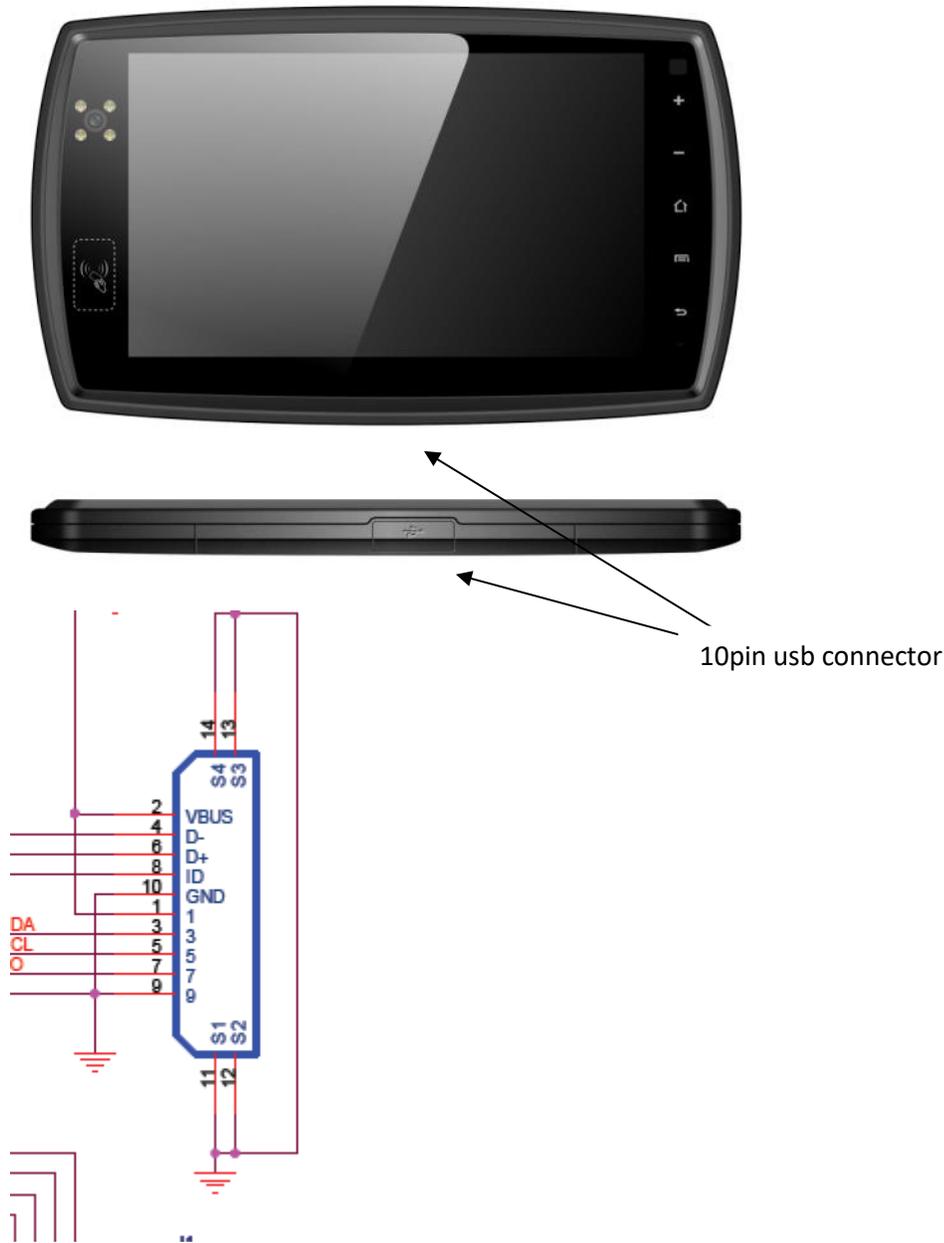
pls see the above schematics of our USB connector in our PND, it is 10 pin connector.
Pin 4 and 6 can be used for USB or TTL serial interface (Rx/Tx) and Pin 8 is ID pin which is used to distinguish for USB or serial interface.
if it is connected to GND, then the pin 4 and 6 will be Rx/Tx interface.
if it is connected to Vcc, then the pin 4 and 6 will be D- and D+.

2. There are Rs232 interface and OTG from cradle.

Highlights: OTG port from device (10pin usb connector) and cradle are sharing same pins. Only 1 OTG interface can be used.

This cable can be customized when you placed order
For sample, it will be 12 pins connector, pls see below or pins assignment

Usb connector for OTG or charging

Pin 1 – NOT connected
Pin 2 – GND (black)
Pin 3 – RXD (White)
Pin 4 – CTS in CTFPND-9(-B), NC in CTFPND-9-C (yellow)
Pin 5 – RTS in CTFPND-9(-B), NC in CTFPND-9-C (Orange)
Pin 6 – Ignition (Green), it can wake up device in sleep mode. See the software section for more details.
Pin 7 – Don't connect pls
Pin 8 – NOT connected
Pin 9 – cable shielding
Pin 10 – TXD (purple)
Pin 11 – car battery input (12-28V) (Red)
Pin 12 – NOT connected

Highlights: for RS232, it is master mode definition.
if you are using OTG with external device, you can only charge the device by 12V input.

Removing the cradle cable (12pin molex connector) if you don't want to use it.

1. you can find the rubber plug in our blackbox (see below picture).

2. open the cradle casing by screw driver

3. remove the 12pin molex cable from connector

4. put the rubber plug in the hole and close the cradle casing

Option for ignition control the power supply

If ignition is OFF, the power supply will cut. Customer uses their application to control the device to power off or sleep mode.

If ignition is ON, there is power supply and able to charge the device. so, when the engine is ON, the device will power on automatically.

If you want to try this feature, pls open the cradle. There are switch inside the cradle PCB. (only production batch >1642)
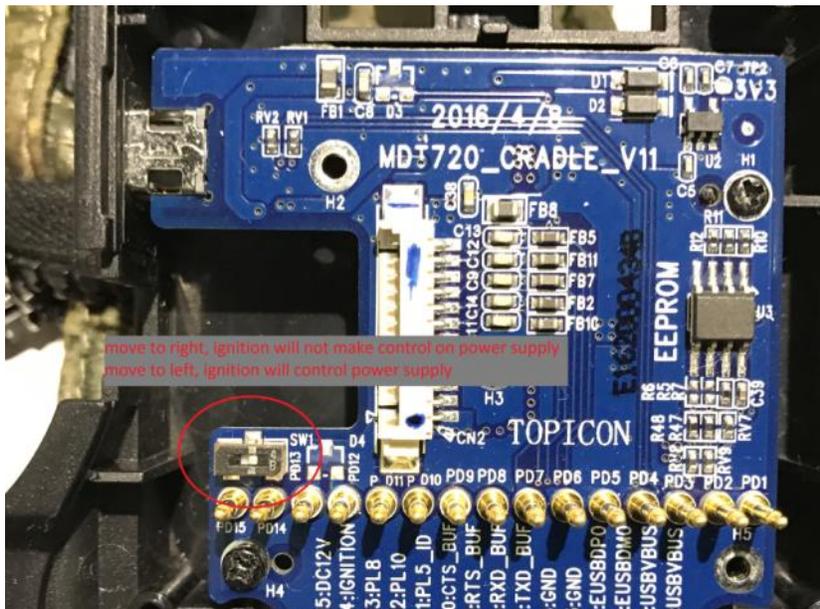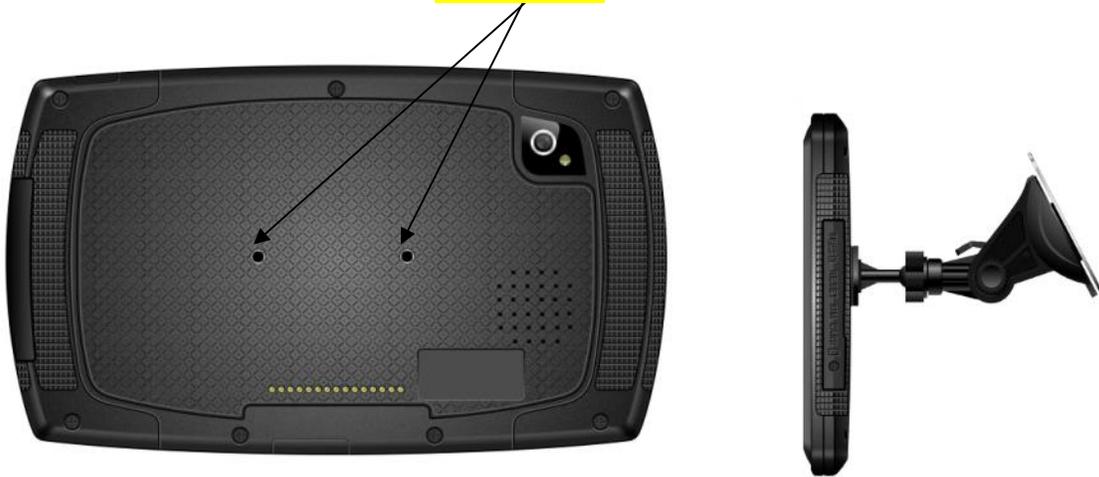
Device installation

There are few options

1. Directly attach mount to device (no cradle in this case)

2 screw hole at the back

Pls use M4 15mm screw if the mount thickness is 9mm.

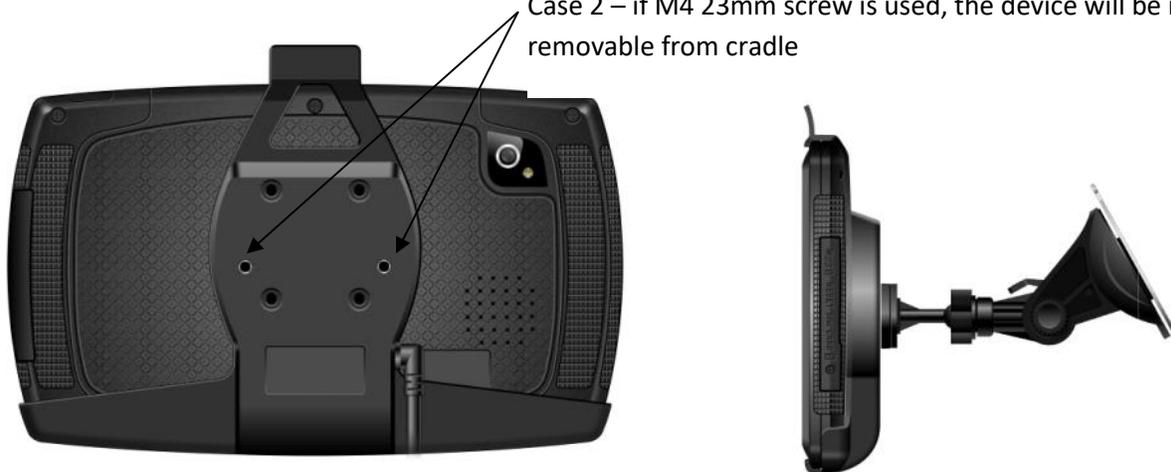<mark>Pls note that the screw hole depth is only 6mm. Long screw may damge the PCB inside</mark>

2. Cradle attached to car mount with different screw length

2 screw hole at the back

Case 1 – if M4 18mm screw is used, the device will be removable from cradle

Case 2 – if M4 23mm screw is used, the device will be not removable from cradle

Mount options:

There are many car mount options. You can use the 2 screw hole (black colour) or 4 screw hole (yellow colour) to attach the different mount system. ==The 4 screw hole depth is 5mm long only, pls prepare correct screw. Pls note that wrong screw length may damage the cradle.==
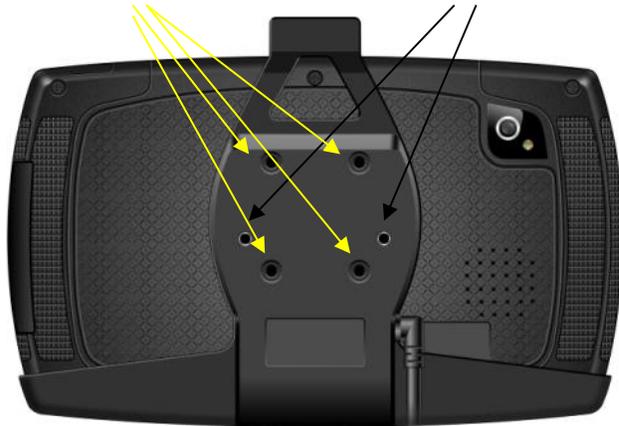
Option 1:

Low cost wind shield car mount

Low cost dash mount

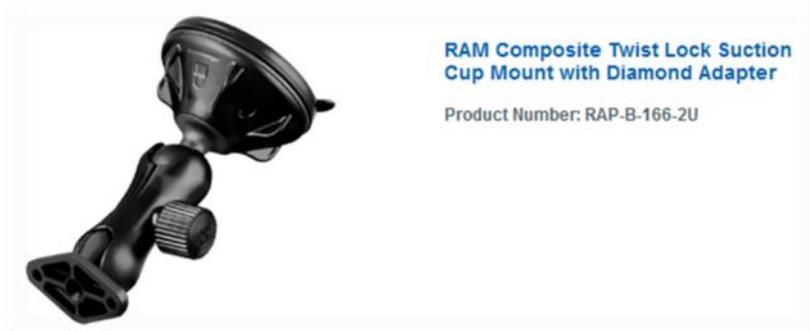We have strong tape on this mount but need to make screw to lock it on the dash board

Option 2:

Many mount option from RAM MOUNT

You can choose the mount you like from their website (www.rammount.com)

Example 1 (RAP-B-166-2U)

Example 2 (RAM-B-138-224-1U)

Example 3 (RAM-B-138U-A)

RAM Mount 1 Inch Diameter Ball Short Double Socket A Arm with 2.5 Inch Round Base and Diamond Adaptor (U)

Example 4 (RAP-B-138-AU)

Option 3:

You can also choose mount from HR (http://www.hr-autocomfort.de/)

There are 4 hole plate which you can lock in the cradle with 4 screw hole. then, you can choose the mount from HR.

Example 1 (1719/0)

Option 4:

Mounting solution from truck expert (ARAT)

Option 5:

There are other mount which can support this 2 screw hole and 4 screw hole at the back can be used. For my understanding, there are other mount company also use this 2 or 4 screw hole as standard.

Pls let know if you need other mounting system or solution.

New silicon sleeve

It can have more protection for the device.

1. It also support stylus. There are optional clip which you can install at the back of the sleeve.

2. There is new cradle (dock) to match the device with sleeve. This cradle can be used for the device with or without the sleeve.

Software support

We can provide serial port apk and NFC demo. Pls contact our Sales for details.

1. **Pls also see the software setting for serial port**

two serial ports are available on the device :
- one shares the the USB data pins of the mini A/B USB connector. Only TX and RX pins are available, voltage is TTL 3.3V.
- one is on the Pogopin interface (pins 3, 5, 6 and 7). TX, RX CTS and RTS are available, voltage is RS232.

On the software side, the tty devices corresponding to these ports are :
- for the RS232 port, /dev/user_external_tty
- for the TTL port, /dev/user_tty

In addition, one I2C port is available both on the USB and Procopin connectors.
- The I2C interface is accessible through /dev/user_i2c

2. **if your application want to read the ignition state, pls use below API.**

the 12V input is reported to the application as a key press (high level pressed, low level depressed)
in the java Android API, this key is KeyEvent.KEYCODE_TV_INPUT
A second way to access the ignition state is to register a broadcast receiver for the action
"hk.topicon.intent.action.IGNITION"
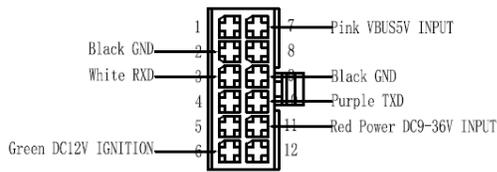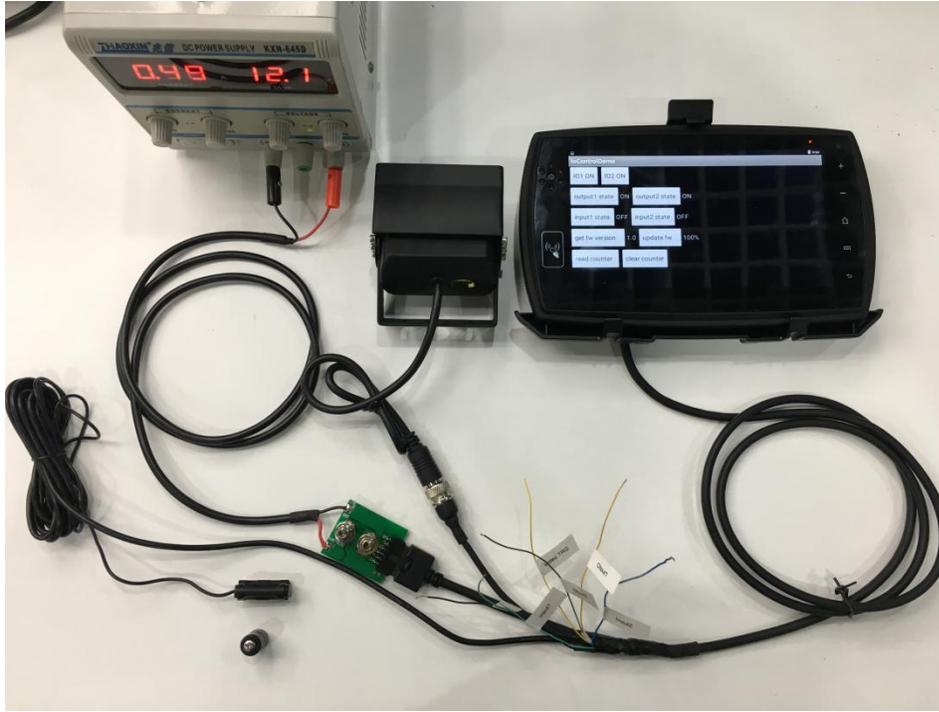The current ignition status is given by the extra boolean "state".
This intent is sticky, ie the application will be immediately notified of the current status at registration, even if no transition occurred.

Here is a code sniplet :
```
private static final String ACTION_IGNITION = "hk.topicon.intent.action.IGNITION";
private BroadcastReceiver mIgnitionReceiver = new BroadcastReceiver() {
      public void onReceive(Context context, Intent intent) {
        String action  = intent.getAction();
        if(!action.equals(ACTION_IGNITION))
           return;
        boolean state = intent.getBooleanExtra("state", false);
        if(state)
           Log.d(TAG, "ignition event is on");
        else
           Log.d(TAG, "ignition event is off");
     }
  };
```
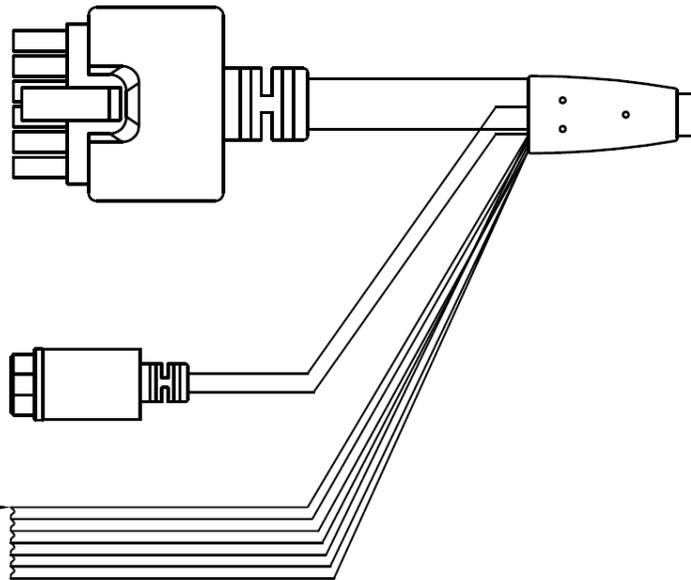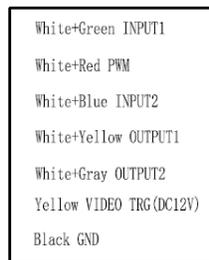
Video input function (only for CTFPND-9-C)

It can support only analog camera input (resolution 640x480). This is default function in CTFPND-9-C
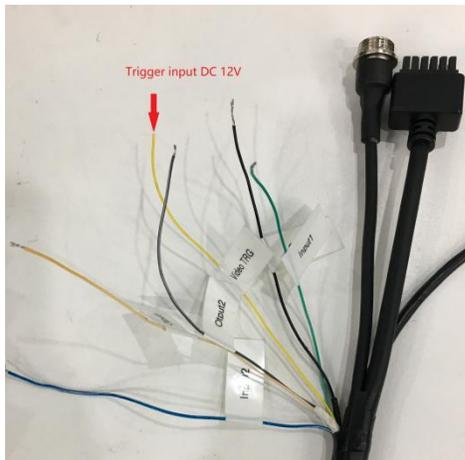


```
                1    7   Pink VBUS5V INPUT
Black GND       2    8
White RXD       3    9   Black GND
                4    10  Purple TXD
                5    11  Red Power DC9-36V INPUT
Green DC12V IGNITION  6  12
```

Front view C2

```
pin1
Brown Camera power DC12V OUTPUT        pin2 Black GND
        pin4 Orange CVBS
```

Front view C3

```
White+Green INPUT1
White+Red PWM
White+Blue INPUT2
White+Yellow OUTPUT1
White+Gray OUTPUT2
Yellow VIDEO TRG(DC12V)
Black GND
```

1. In CTFPND-9-C cradle (V17 cradle), we will have C3 connector for camera and some open wires (video trigger). This video trigger can support only 12-24V

2. For the camera connector (C3 in diagram), it can provide stable 12V power supply to camera if needed. If you want need 12V, we can connect another cable

3. From software side, we will make demo apk which can install in software for automatic pop up the video if trigger is high. We can also provide you the source code and API to make your own application.

Scanner

You can connect scanner to our CTFPND-9

1. Plug the special USB cable with marked "scanner" to the mini USB port of the scanner.

2. Plug the other end of the special USB cable with marked "MDT" to the CTFPND-9 cradle

3. Turn on the scanner
4. Inserted a USB flash drive or a memory card in the scanner.

5. When scanning is finished, the image is saved on the memory card or USB flash drive. Will show in the ES File Explorer in the Device