

FN_Ford_Sync navigation module Installation Manual _v20141210

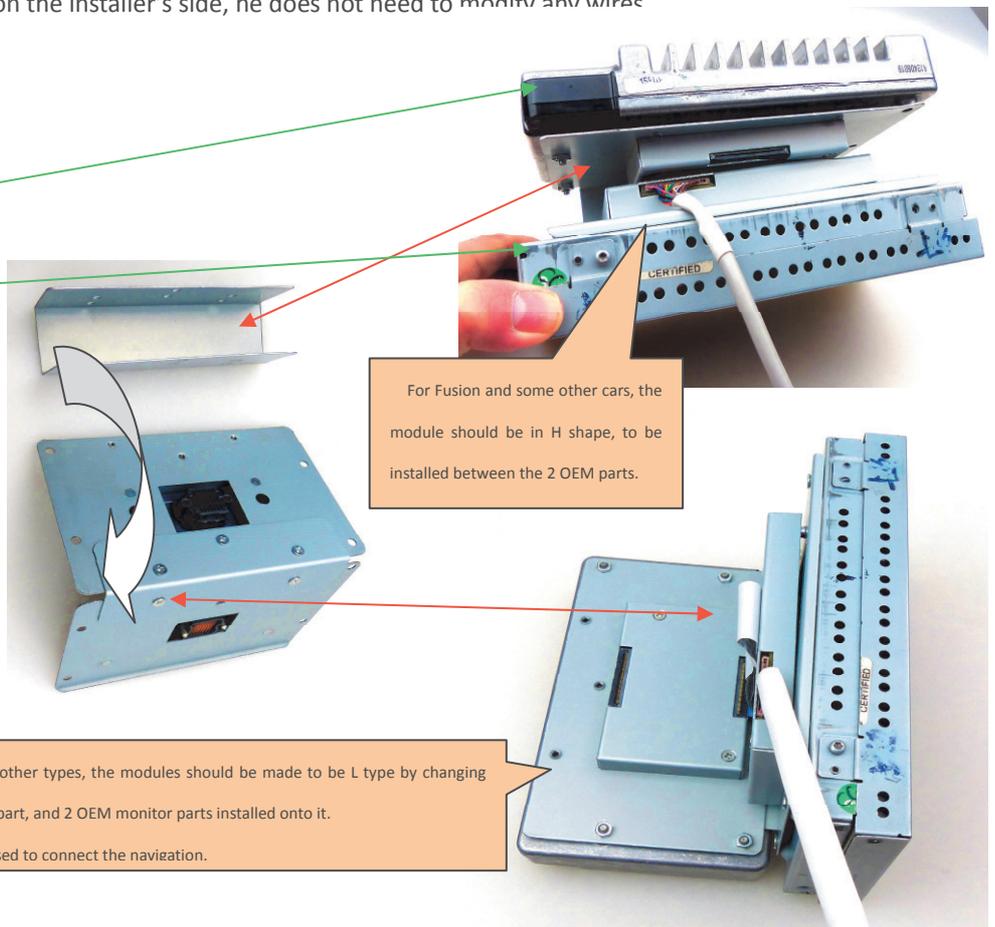
This interface with internal digital navigation module inside can insert high definition navigation, CVBS and reverse camera video onto Ford 8-inch car screens. It has completely plug and play installation structure, the installer does not need to open the monitor or modify anything. The internal digital navigation module can drastically reduces the installation work.



[All ford LCD which has such a starting screen, such as Exploerer, Smax,Kuga,Fusion etc. can be installed with this navigation module]

The features of this module are:

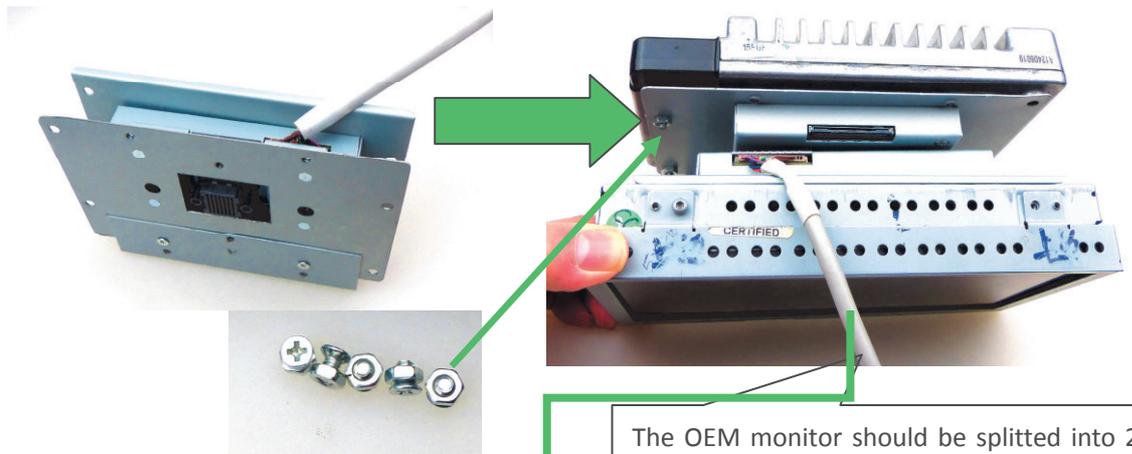
- This navigation +interface can fit all ford screens with Sync system, the installer does not need to open the monitor or modify anything OEM. This internal digital navigation parts insert picture clearly onto the Screen.
- OEM keys are used to switch the inputs, the OEM touch panel is used to control the navigation. The installer does not need to cut or modify any wire since the CAN bus uses OEM harness connectors.
- 2 types of installation way offered in this one package, so the installer can make this product fit onto all ford Sync Systems.
- The internal navigation module has MP5 function, the newest CPU with DSP inside is ultra fast compared with any other competitor so far, it sends stereo sound out on the 3.5mm AUX jack, the independent sound processing makes media sound and navi sound output together while Navigation has talk-over dunction.
- The internal navigation module can also be changed to: Android module This module has the same size, and can be directly replaced on the installer's side, he does not need to modify any wires



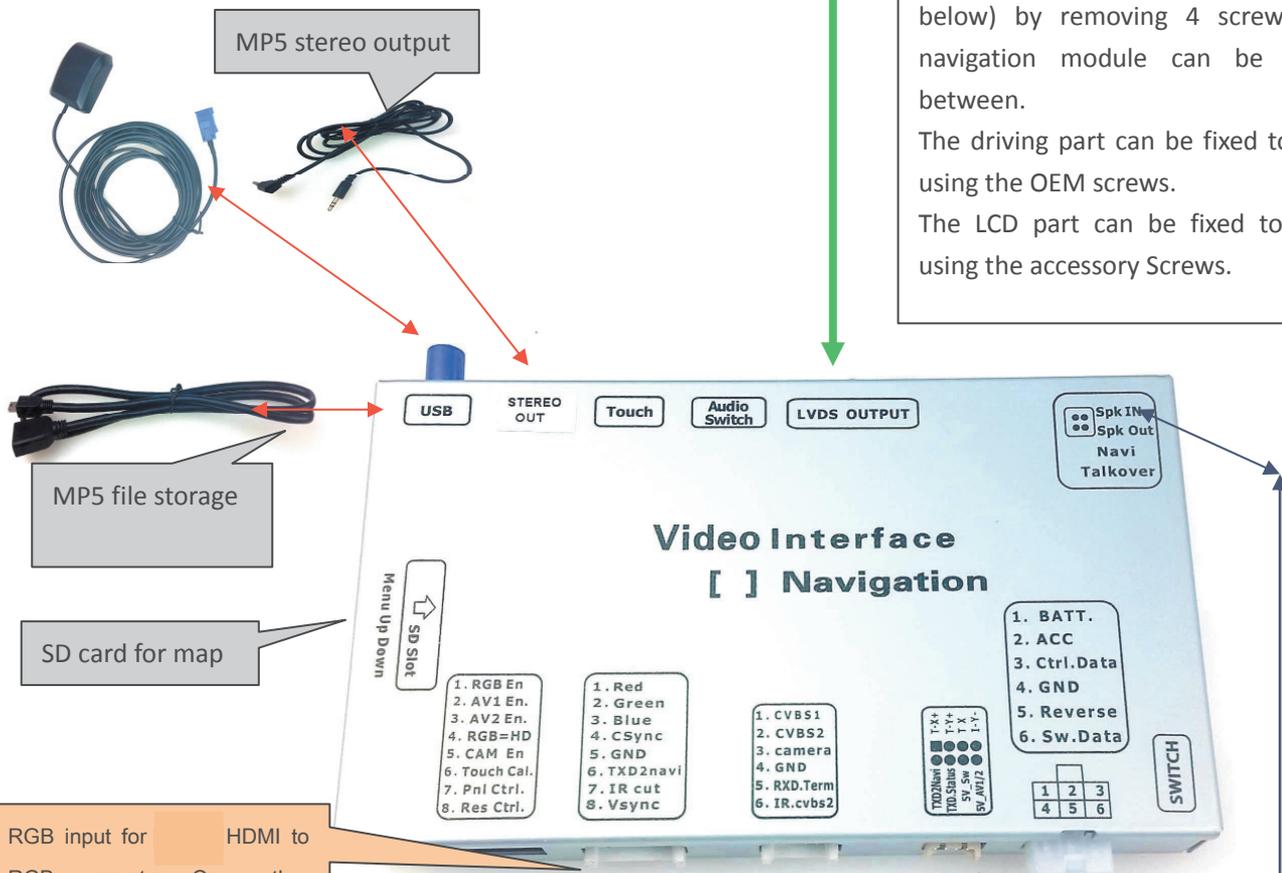
For Fusion and some other cars, the module should be in H shape, to be installed between the 2 OEM parts.

For Kuga and other types, the modules should be made to be L type by changing one connection part, and 2 OEM monitor parts installed onto it.
The cable is used to connect the navigation.

1. System connection

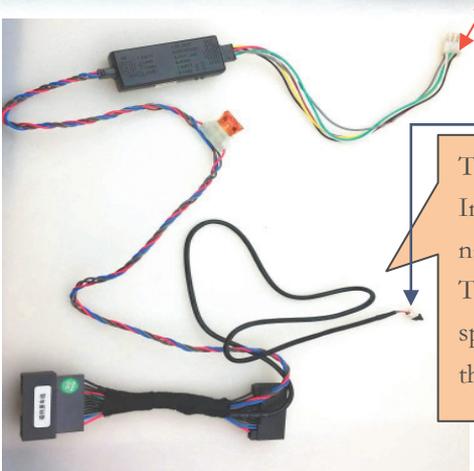


The OEM monitor should be splitted into 2 parts(let's say: driving part and LCD part in below) by removing 4 screws. And this navigation module can be inserted in between.
 The driving part can be fixed to module by using the OEM screws.
 The LCD part can be fixed to module by using the accessory Screws.

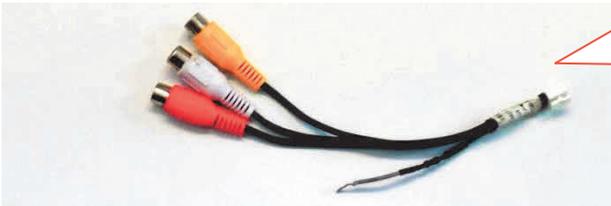


RGB input for HDMI to RGB converter. Or another RGB navigation module.

This harness should be inserted behind the CD to give power to the navigation and read the CAN signals for switching and reverse.



To give sound to OEM speaker: Insert this connector to the navigation socket as the arrow says. The installer can also use the tiny speaker to make sound, in this case, the small cap should be removed.



External CVBS inserted to interface by this jack:

- Yellow: AV1's video input.
- White: AV2's video input
- Red: reverse video input.
- Gray: IR output to control DVD/TV in inserted video mode.

The Wire Description of 6p to interface: [all these signals are generated by CAN box, the installer does not need to modify in normal situations]

Yellow: constant power of 12V.

Black: to GND.

Red: ACC (key power): When screen is on the line voltage is 12V and when it is off the line voltage is 0V.

Green: Reverse signal wire [=12V when in reverse] or 1A, with auto switch for reverse. It can also be connected to the reverse light to trigger reverse video.

White: switch signal wire, when the call-off key pressed, the interface switches.

Gray: CAN box dedicated data signal to the interface box.

2. Input switch:



1) The installer can make this external switch connected to the SWITCH socket, and press this keypad to switch.

2) The user can also long press the "Voice" key to make a switch. [long press].

The DIP4 is used to select the car type.

For Edge, Raptor and new Explorer, the DIP4 should=UP.

For Edge, new Fusion, the DIP4 should=DOWN.

The DIP123 can be ignored.

when the installer found the Voice is not working, he may change the DIP4, also he needs to re-insert the power input of the CAN box to make it take effect.



3) Reverse: CAN box automatically generates the reverse voltage on the green wire. Since most of the Ford cars has OEM reverse camera, the DIP5 should be set to =UP, so that the OEM camera picture will be seen when in reverse.

2. DIP settings:

| DIP | =ON side (DOWN) | =OFF side (UP) |
|-------|---|--|
| 1 | RGB Enabled | RGB disabled |
| 2, | AV1 enabled | AV1 disabled |
| 3 | AV2 enabled | AV2 disabled |
| 4 | RGB=High definition RGB The recommended definition for this interface: 800X480] | RGB input=1080p input with separate H.V sync. This mode is suggested when HDMI dongle is connected, this conversion cable can be further connected to HDMI mirror dongle or MHL to HDMI conversion cable. |
| 5 | Reverse signal (green wire=12V) switch to CAM video | Reverse signal (green wire=12V) switch to OEM video |
| 6,7,8 | No function, set to =UP as default. | |

4. the 3 side key buttons

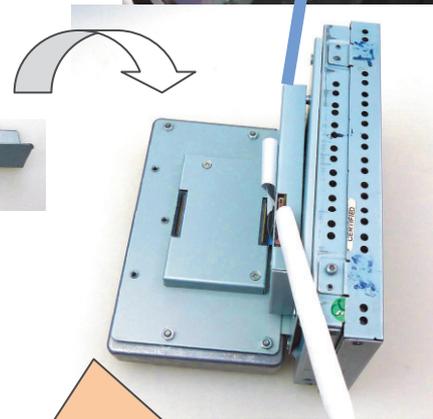
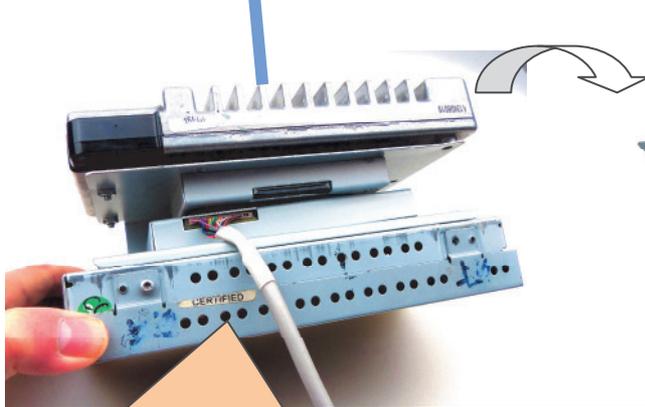
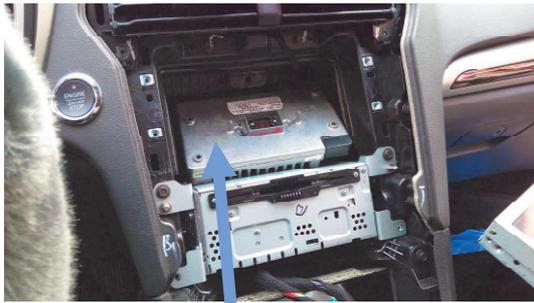
The input box has 3 side keys, the installer may use it to tune the picture display, and touch function for the connected DVD or other devices. The 3 keys are : menu, +, -. The first 5 options has separate state memory. The modification of one input is different not affecting others.



- The 3 side keys are : menu, +,- respectively. When menu is press, OSD strings will pop up on screen, and the installer may adjust the best video effect. The +/- will change the value.
- The brightness/contrast/saturation tunes the color of the current video input.
- The position H,position V set the image position on screen.
- The DVD/TUNER/NAVI is to set the IR code output to the installed device, so people use original knob or touch screen to control the installed device in AV1/2 mode. Left/right push will pop up the MMI icons, and push will execute the selected icon.
 - When set to "none", the control icons will not pop out
 - When set to "Prog", the installer can use DIP6=Down to program the IR code into the interface, so extra new devices can be controlled.

- The Size H, Size V option: fine tunes the picture size horizontally and vertically, to make the picture fit the screen.
- The Guide L, Guide R option: set the left guide, right guide line's offset on screen, when the value changes, the guide Line location moves horizontally on screen.
- The Guide CNT option: set the guide line display on/off on screen. since most of the Ford cars has already OEM camera, this option should be set =OFF.

5. Changing the H and L shape connection part.

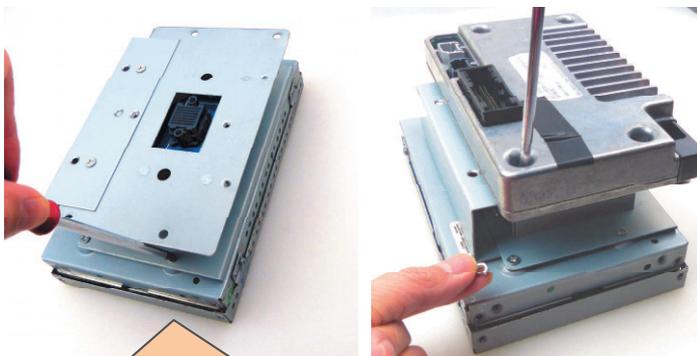


For Fusion and some other Ford, the depth is not enough, so we should make the module into H shape and fix the 2 monitor parts onto it.

For Kuga and other ford, the Height is not enough in car, so the module should be in L shape.[change the center piece to be L from H].

Attention:

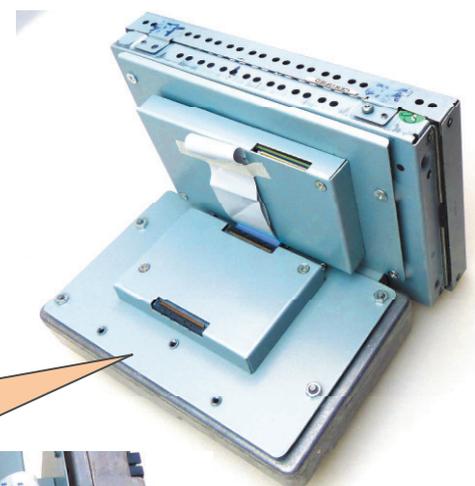
The OEM driving part is rotated 180 degrees when changing from H shape. The installers can not make any mistake because the screws hole are different from H and L.



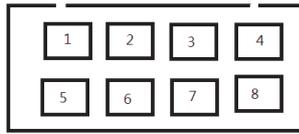
The LCD part is fixed to this navigation module by using 4 screws in the accessory.
The Driving part is fixed by using the OEM screws.

when changing the H and L connection part, some attention should be paid to the ribbon connecting both PCBs.

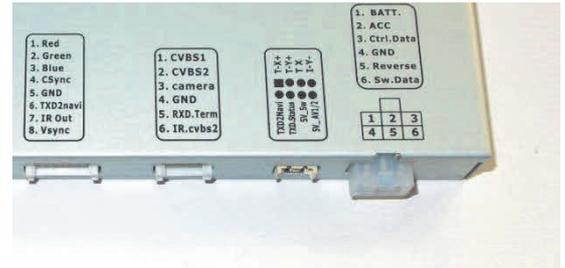
- Make sure the ribbon is not loose or out.
- There are 2 sockets on this PCB, either sockets is OK for the ribbon. To make things simple,the installer may use always the socket closest and re-wind extra ribbon by using glue type.



5. Extra control port:



This interface has released a lot of hidden functions, so the 3rd party can use it for various usages.



The Extra control port close to the power connector:

- (1) the 4-pin in the up row: touch screen 4Pin input, when in DVD or TV, the touch foil can be switched and connected to these 4Pin, so the controller inside can read the touch operation and location and generate the IR code for DVD etc.
- (2) the 5th Pin(TXD2Navi): the input pin to take external control data for internal navi, to replace the touch control.
- (3) the 6th Pin (TXD.Status): the interface tells the outside its internal status.
- (4) the 7th Pin (5V_SW) : this pin can output 5V with 1A max, which is enough for a relay pull, when in inserted video this pin=5V, when in OEM video, this pin=0V.
- (5) the 8th Pin (5V_AV1/2): this pin can output 5V with 1A max, which is enough for a relay pull, when in AV1/2 video this pin=5V, otherwise this pin=0V. it can be used to switch the 4Pin touch so one touch foil is shared by navi, and DVD/TV.



6. Manual of the navigation function



When the navigation started, the left picture would be shown, the icons are : **navigation**, **Setup** and **Entertainment**.

When the user click the navigation icon, the following result would be shown:

- 1) In normal situations, the user will get to the navigation pictures if the navigation icon is clicked.
- 2) if there is no SD card in the SD slot while powering up,

touch calibration picture will be shown, the installer should keep on touching the cross till it disappears. This is a shortcut way to perform the calibration.

- 3) If the installer needs to upgrade the OS firmware, he should insert the upgrade SD card, then power it up, he will see this kind of re-flashing pictures and wait till the calibration cross is shown.
- 4) If the installer uses a new SD card with a different map, he will see a picture asking to re-location the exe file like the picture here→.



When the **Settings** icon is clicked, the left side picture will be shown, the respective function of the icons are listed below.

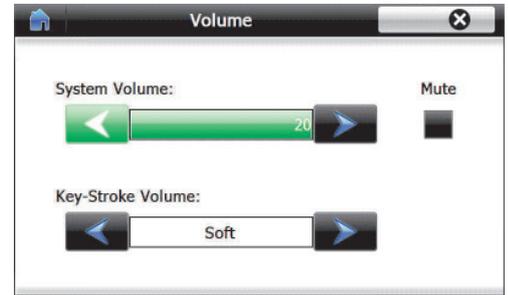


- 1) Setup: this picture is used to locate the exe file in the SD card, the installer should click the “folder” icon to select the wanted exe, like the picture here→.
- 2) GPS Monitor: this is the option to check the GPS antenna status. It is also helpful to locate some problems:
 - When in the map, the GPS reception always=0, the installer can check this icon, if it is NOT=0, it means he should set the COM port on the map, which should be Com2. The baud rate is automatical inside this module.
- 3) Usual setup: the user can change the operation language.
- 4) Screen: there are some options like color, picture location and size inside this icon, all these functions are not valid if the module is embedded inside the interface.

5) Volume:

This option is used to set the output volume of navigation sound.

The keystroke: this option can be used to toggle the sound effect of touch screen feedback, when set to Off, the user will not get the touch screen click sound.



6) Time: the system time of the module, the installer usually does not need to care about this, it will be automatically updated when GPS sensors get the location.



When the Entertainment icon is clicked the left picture will be shown.

the multimedia sound comes out from the 3.5 Aux Jack, which should be connected to the AUX of the car for hi-fidelity sound.



The multimedia files should be stored in an external USB storage device with this extension cable→.



The default player screen of movie and music is like this, the user can touch the touch panel to execute the wanted function→.



7. Parameters

| No. | name | parameter |
|-----------------------------|---|---|
| 1 | RGB map resolution | 800X480 HD suggested. |
| 2 | Av1,AV2 , cam video | 0.7Vpp with 75 ohm impedance NTSC/PAL/SECAM automatic switch |
| 3 | GPS antenna | 5V active antenna from the golden finger connector. |
| 4 | Reverse Control wire | >5V will force into camera mode. All these wires can tolerate 12V for <10 seconds. |
| 5 | Normal Power consumption | 4.8W |
| 6 | Standby current | < 10uA |
| 7 | Reverse trigger threshold | >5V trigger |
| 8 | Work temperature | -40 ~ +85C |
| 9 | Size | 15.2 * 9 * 2.1CM |
| 10 | Working temperature | -40~+85C. |
| 11 | USB | OTG function,1A output with surge of 3A. |
| 12 | Compatible with maps | Navione, navitel, Igo, Primo.sygic, etc. |
| 14 | The HDMI resolution input from RGB port | Compatible with 800X600, 1024X768, 1280X720, 720P, 1080P. etc. Auto recognition software inside. |
| Navigation module parameter | | |
| 1 | CPU | SiRFatlasVI (800M Cortex A9 + 300M DSP) |
| 2 | RAM | 256 MB DDR3 |
| 3 | FLASH | 128MB |
| 4 | Storage of map | SD card |
| 5 | OS | WINCE6.0 CORE |
| 6 | Audio supported | ape flac aac wav mp3 wma ogg |
| 7 | Video supported | rmvb mp4 3gp mov avi divx xvid wmv mpg rm flv mkv |
| 8 | Video decoder. | QVGA>25 frame/sec |
| | | |
| | | |

8. How smartphone image mirrored:



- The smartphone receiver has an HDMI connector for dongle, and convert it into RGB-1080p or 720p, for the video interface.
- The RED/BLACK should be wired to ACC/GND of the interface box for power supply.
- The DIP4 of interface should be stay OFF, and DIP1 should stay ON.

To RGB connector of interface.

To the AUX sound input of the car, the installer can also leave it, and use the phone's speaker as sound output.

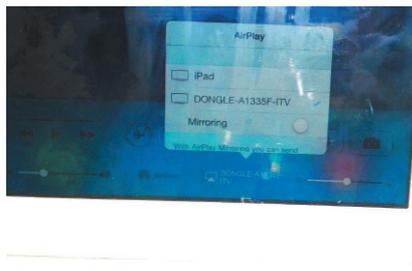
- the wireless dongle has a key button to show the state:



when left-top corner shows:

- **DLNA**[or AirPlay], it means iOS can be received.

The user should enable the iOS device's wifi, find the dongle, and connect it.

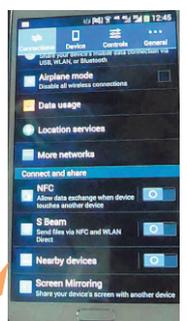


Then he scratch the bottom side of the iOS device, click the air Play function, and select the appropriate dongle, and enable the mirroring function and wait a little while. Then all the iOS shows will be mirrored.



When the left-top corner shows:

- **MiraCast or EZcast**, it means the android phone can be mirrored.



When using the Android phones: the user need to enable the wifi, just start the miracast the phone.[the name maybe different from android 4.1, 4.2, or 4.3]. also It is different from different phone brand.

Just enable the screen mirroring, then the phone's display will be mirrored onto car screen.

- The installer can also get the display from the smartphone in the wire way, the below picture shows, the smartphone receiver can also deliver the video input from iOS device with a standard apple HDMI cable, or from android device with a standard MHL to HDMI cable.

