FN_FORD4　NAVI +Interface Installation manual_v20150302

Product Type:　FN_Ford4，[with internal navigation]　　FV_Ford4　[Video interface without internal navigation]

This interface Can be used on all Ford/mustang models with 4.3 inch screens.　Including Mustang, focus, Escape, Edge, explorer, fusion. It may be used to insert touch navigation and reverse camera pictures. The LCD is 4.3inches, but it is 480X272(~15% more pixels than normal NTSC resolution in home,which is just 400X240, or 480X240).　So it has a clear display for navigation and reverse camera.

- For 8-inch Sync system like the pictures here: → please use fosp's FN_Ford_Sync, which is a plug-and-play solution for adding navigation.
- For 4-inch sync system which already has a reverse camera, please use Fosp's FN_FORD4_PnP, this model does not need to open the monitor.

The following are the features:

- ✓ This kit has a daughter board to insert video onto ford OEM4.3 inch screen, it has very good compatibility and work on all Ford 4.3inch system. Reverse camera, navigation can be inserted.
- ✓ can insert navigation video onto all 4.3 ford screens, capacitive touch panel is used which is not hurting the brightness and picture quality while touch is offered.
- ✓ OEM keys is used to switch the video source,
  - Audio key to switch,
  - CD/Radio key to go back to OEM picture.
  - Reverse signal is automatically generated.
  - OEM speaker to give navigation sound.
  - One harness connected behind CD to give the power and control to added navigation and camera.

- ✓ Internal navigation module is used which simplifies the system wiring.
- ✓ The CAN box is used to generate reverse signal, so camera installation is easy and just plug-and-play.
- ✓ The installer can also buy standard MHL to HDMI cable to mirror the phone onto the car screen. Both iPhone and Android phones can be mirrored.

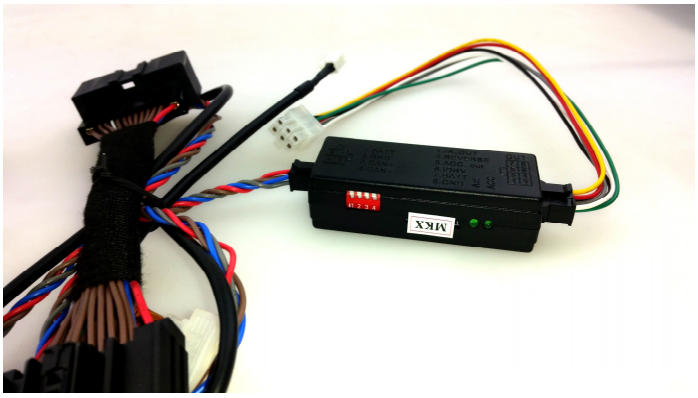
1. DIP settings On CAN box:

The CAN box is used to set the car type, so the power cable to interface box has necessary voltage.

- The DIP4

  Set DIP4 ON/OFF to fit the CAN box for different cars. Correct DIP4 will make the interface switch when the Voice or menu key is pressed long. The LED will not be blinking if DIP4 is set wrong.

  DIP123 are not used.
- This CAN box will make 12V on green wire on reverse.
- The DIP1,2,3 has no function inside.



2. DIP settings On interface box:

DIP	Down side（=ON）	Up side（=OFF）
1	RGB input enabled	RGB input disabled
2,3	AV1/2 input enabled	AV1/2 input disabled
4	RGB input= VGA resolution 800X480	RGB input=1080p input with separate H.V sync. This mode is suggested when FOSP's HDMI dongle is connected, this conversion cable can be further connected to HDMI mirror dongle or MHL to HDMI conversion cable.
5	AV4 video is selected when green wire goes to 12V.[this is for the case aftermarket camera is installed]	Car oem picture is selected when green wire = 12V.
6	Set to ON once for IR programming.	Set to OFF for normal use.
DIP78	The DIP7 and DIP8 are not used inside.	

The 6PIN power connector signal definition between the Can box and interface box:

[only for reference, the user does not need to modify:]

YELLOW：power supply of 12V BATT。

RED：generated ACC（=12V when key in ignition state）： when=12V， the interface works. This wire is automatically generated by can box.

BLACK： Ground to Chassis。

GREEN： reverse trigger signal [when =12V the reverse video is enabled], this wire can generate 1A max, which is enough to power up a camera.

this wire can also be used to give power to reverse camera. It can offer 1A in reverse mode.

WHITE： Can box generated switch signal wire, when>2V, this interface switches。[max.25V]

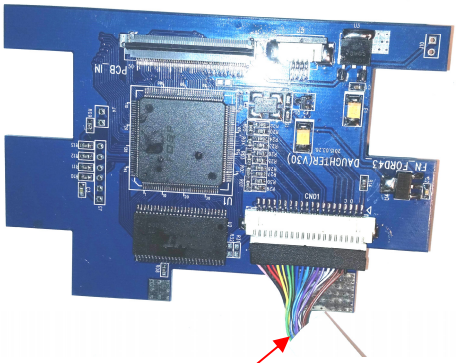
GRAY： CAN box's communication with interface on sharing control signal to DVD/TV on this wire.

[if we do not need to idrv to control DVD/TV/iPOD, this wire may be cut off.]

this wire is also the IR-input wire when programming the remote data for connected DVD/TV.

3. System connections:

The daughter PCB is installed just behind LCD, while the touch added on the front.

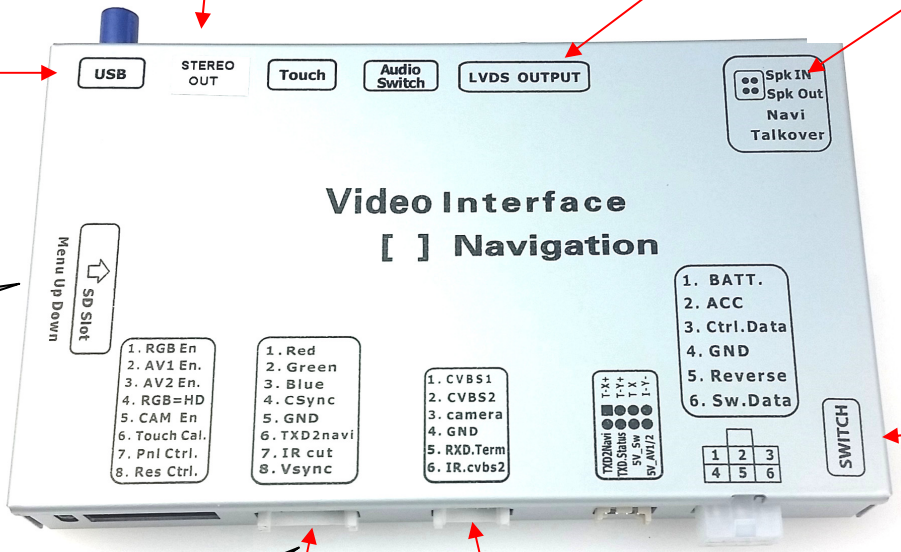


the LVDS cable connects the daughter PCB, which is inserted inside the LCD.

MP5 stereo output

MP5 file storage

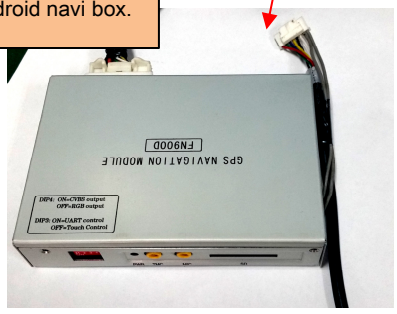
SD card for map



RGB input for :

FOSP HDMI to 720P RGB converter.

Or FOSP standalone Android navi box.



External CVBS inserted to interface by this jack:

Yellow: AV1's video input.

White: AV2's video input

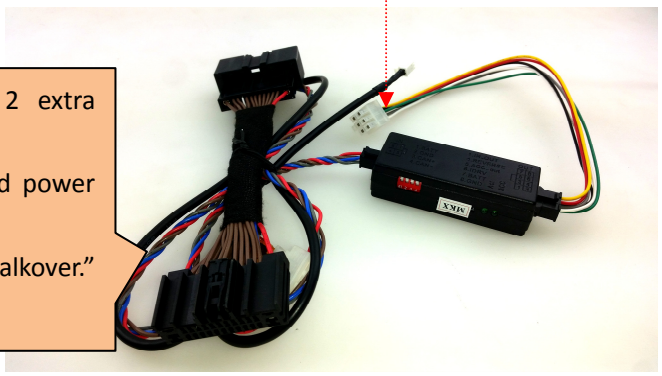
Red: reverse video input.

Gray: IR output to control DVD/TV in inserted video mode.

This harness should be inserted behind CD, the 2 extra connectors:

1: for CAN box which generate all control signals and power supply for the navigation/camera.

2: the other 2X2 connector can be connected to "navi talkover." for audio insertion by OEM speaker.



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. This wire carries PDC values from the can box to interface box.

Reverse camera installation：

When the driver goes to R, the green wire from can box will become 12V, this wire can power on a camera, also it will force the interface into reverse picture display.

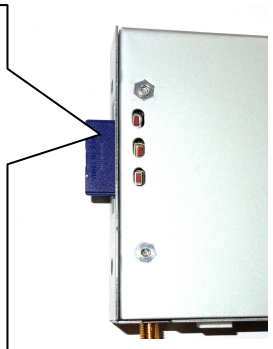
- When DIP5 of interface =OFF[UP state], the interface assumes that the car has OEM camera, and the OEM picture will be displayed.
- When DIP5 of interface =ON[Down state], the interface assumes that the car has NO-OEM camera, and the inserted video will be displayed. The driver may press the switch key[NAVI key], the interface will switch from inserted camera picture to OEM picture.[this situation assumes that the CAR has OEM PDC picture.]

4. the 3 side key buttons

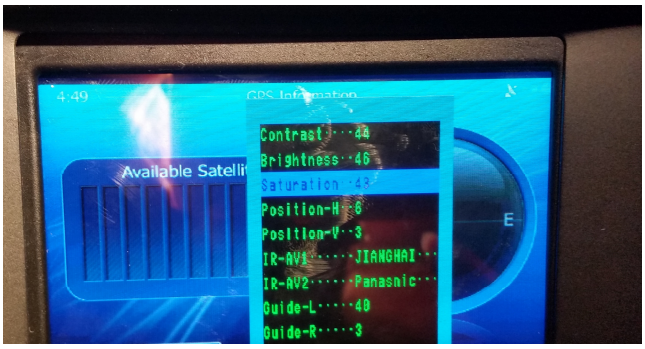
The input box has 3 side keys, the installer may use it to tune the picture display, and touch function for the connected DVD or other devices.

The 3 keys are : menu, +, -. The first 5 options has separate state memory. The modification of one input is different not affecting others.

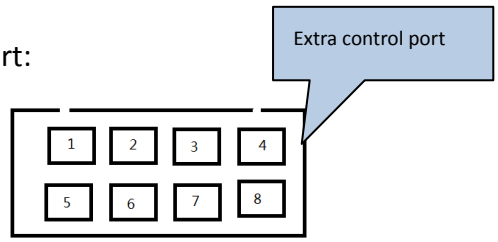
- The 3 side keys are : menu, +,- respectively. When menu is press, OSD strings will pop up on screen, and the installer may adjust the best video effect. The +/- will change the value.
- The brightness/contrast/saturation tunes the color of the current video input.
- The position H,position V set the 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.

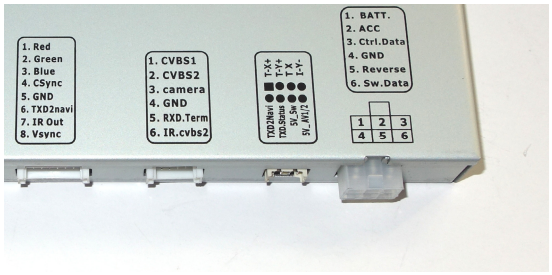


- The "Guide-L……", "Guide-R……", options are not used in this product.



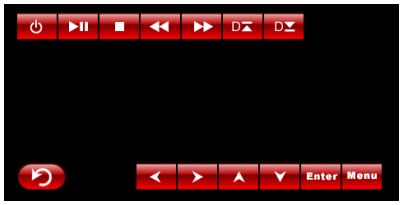
5. Extra control port:





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.

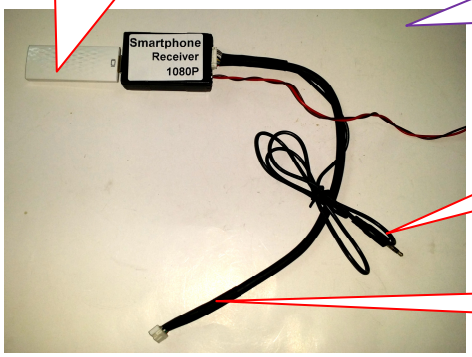
The 5th pin in the Video input port（RXD.Term）:

This interface can work in terminal mode, a 3rd developer or installer can send commands into this pin. E.g. when he sends “switchInput 1\r”,the interface will switch into RGB navi, “switchInput 2\r”,the interface will switch into AV1, when he sends“Help\n”， the interface will tell a list of available commands. This Pin works in 11.5K baud rate and it losts all sent commands when drops power.

7. How smartphone image mirrored:

- The FOSP smartphone receiver has an HDMI connector for dongle, and convert it into RGB 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.

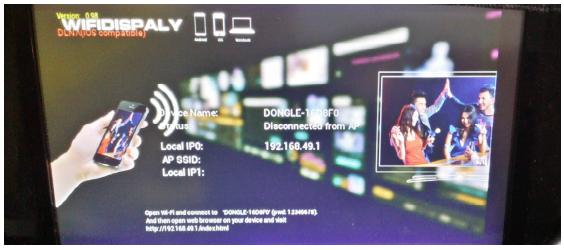
Smartphone Dongle

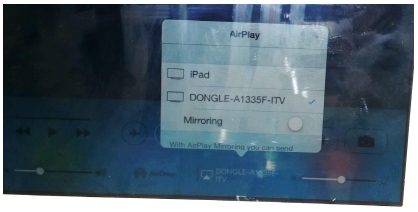


To the AUX sound input of the car, the installer can also leave it, and use the phone's speaker as sound output.

To RGB connector of interface.

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



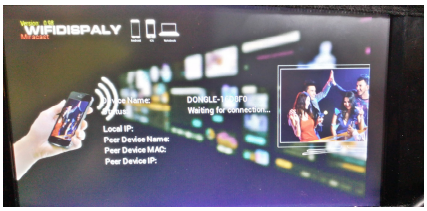


when left-top corner shows:

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

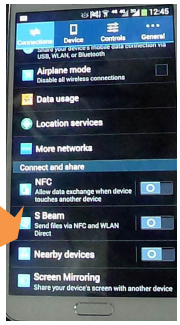
The user should enable the iOS device's wifi, find the dongle, and connect it.

Then he scratch the buttom 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:

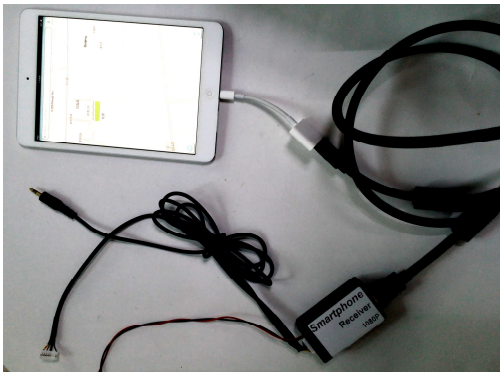
- MiraCast or EZcast, it means the android phone can be mirrored.

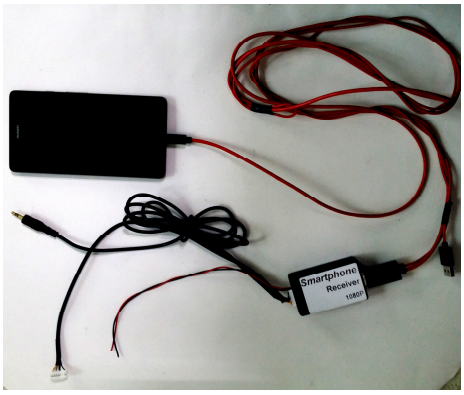


When using the Android phones: the user need to enable the wifi, just start the miracast the phone.[the name maybe different from android 4.1, 4.2, or 4.3]. also It is different from different phone brand.

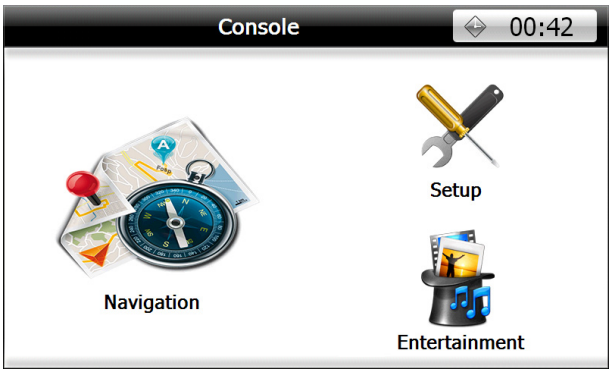
Just enable the screen mirroring, then the phone's display will be mirrored onto car screen.

- The installer can also get the display from the smartphone in the wire way, the below picture shows, the FOSP 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.





8. Manual of the navigation function



When the navigation started, the left pictue would be shown, the Icons are : navigation, Setup and Entertainment.

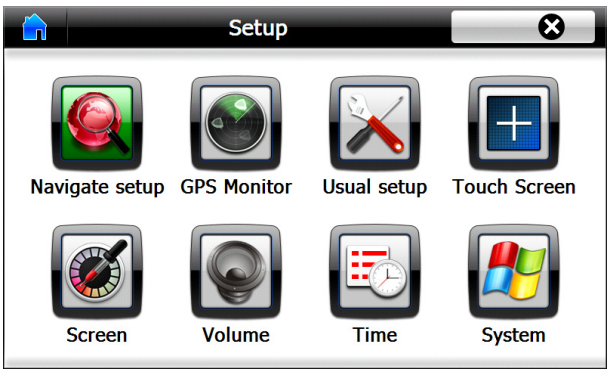
When the user click the navigation icon, the following result would be shown:

1) In normal situations, the user will get to the navigation pictures if the navigation icon is clicked.

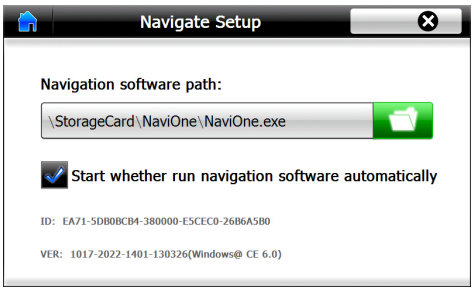
2) if there is no SD card in the SD slot while powering up, touch calibration picture will be shown, the installer should keep on touching the cross till it disappears. This is a shortcut way to perform the calibration.

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→.

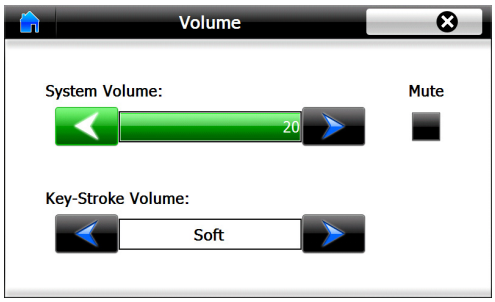
2） GPS Monitor：this is the option to check the GPS antenna status. It is also helpful to locate some problems:

- 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.

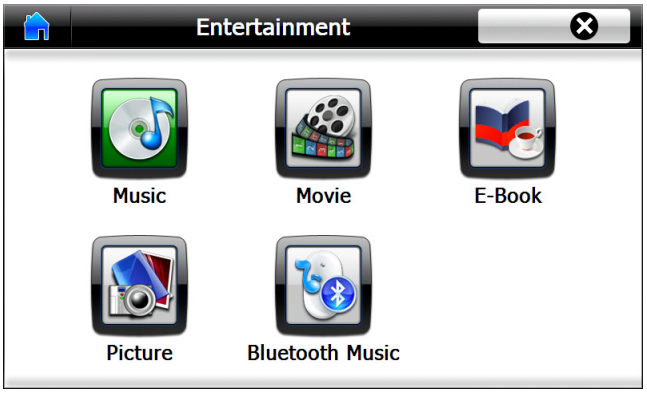
5） Volume：



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

The keystoke: 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。

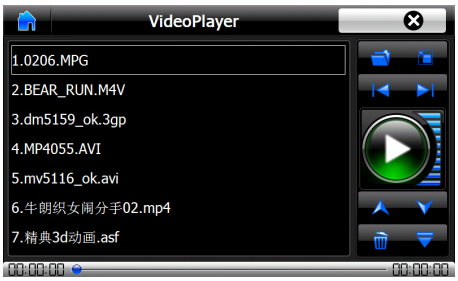


When the Entertainment icon is clicked the left picture will be shown.

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



9. 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 moudule 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