FV_W222 Phone Mirror

+Interface Installation manual_v20140502

Product Type:

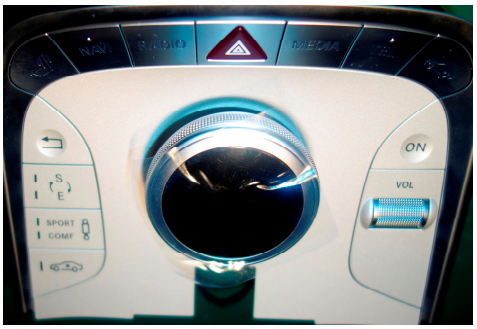
FN_W222， [with internal navigation

FV_W222 [Video interface without internal navigation]

This interface can insert video into 2014 S class monitors, phone mirror of Android/iOS, extern navigation, reverse image and TV video can all be inserted. The following are the features:

- ✓ Plug and play connectors make the installation simple and easy, the installer just make the power harness and LVDS cable inserted behind the CD, then work is done.
- ✓ East phone mirroring with iOS and Android phones with 1080P resolution: all displays on these smart phones can be mirrored onto the car screen, including navigation, web, games and so on, 1080P connection is used to guarantee the delivery image quality.

- ✓ The CAN box is used the generate reverse signal, so camera installation is easy and just plug-and-play.
- ✓ External navigation can be added, the knob is used to control the map, without the necessary of using extra touch panel onto the S class monitor:
  - (1) The OEM knob is used to control the map, the users just rotate or push the knob repeatedly, the selection of icon on map will change on map, and the user push will execute the selection. This operation has the OEM style.
  - (2) When in inserted map mode: the knob can go freely, while in the OEM mode, it can only be rotated in limited selection.
  - (3) The knob operation has no background operations.

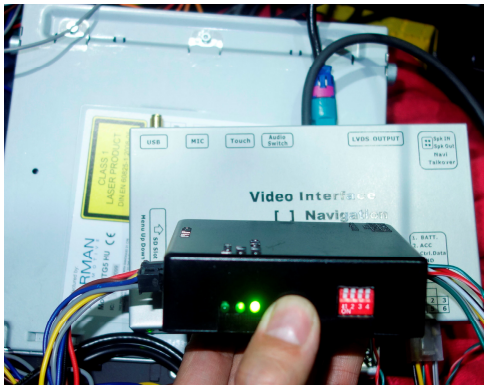


  - (4) An inserted cross display can also be displayed on map[when DIP1 on CAN box =DOWN], so when the user rotates the knob, the cross displayed will go left or right. Up/down push of the knob will make it go up or down. A push operate will execute a touch on the cross center. In this way, whatever aftermarket map can be supported. The knob will be freed in inserted map mode, and it will not have background operations onto the OEM radio.

- ✓ 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. User's operation：

NOTE: the CAN box has 4 DIPs like the picture here, it should be all OFF usually in normal use.



- The DIP1

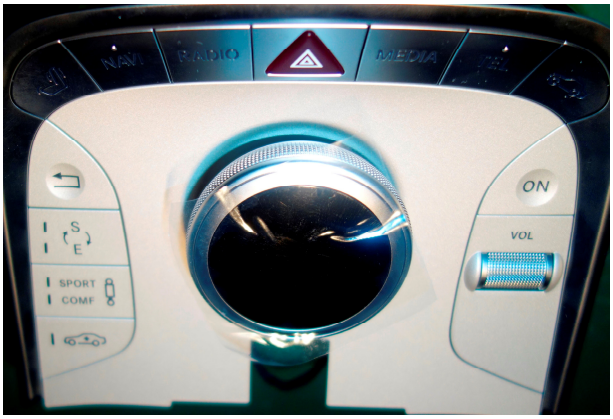
  DIP1=Down: it means a cross will be shown to make operations on map, so people rotate the knob, the cross with go over the picture, and people press the knob to make the touch operation.

  DIP1=Down: it means that no cross overlay will happen, people just use the knob, the map will show different highlighted icon when people make knob rotation.

- The DIP4 should be always OFF, down(=ON) set the can box into debug mode and the monitor will show black screen.
- The DIP2,3 has no function inside.

(1) General operations：

- The user may long press the Navi key to switch the input channel,from OEM to inserted TV or navigation.
- The user press the Radio/Media/Tel/ON key to go back to OEM picture.
- When in inserted navigation mode, people can rotate the knob, or up-push, or down push the knob to control the map.



(2) 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.]

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	This 2 DIPs are not used, leave it UP when in normal use.	

CAN box's 2Pin twisted signal definition：[only for reference, the user does not need to modify:]

Green/White twisted：touch UART TXD data wire, it is directly wired to the navigation module's UART so people can control the map.

Red/White twisted：interface's status report to the CAN box, so the can box knows when to generate the TXD and when to block the OEM touch data to CD unit.

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

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

WHITE： Can box generated switch signal wire, when=12V, 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:

（for interface without navigation inside, the Antenna, SD socket , and speaker will not be there）.

Navigation antenna

SD card slot for map.

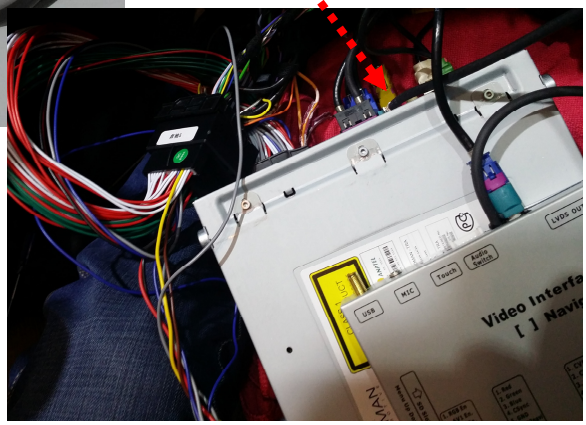
Touch Connector not used.

External RGB or smartphone connected here.

LVDS plug should be inserted onto the socket behind CD.

AV1/2

The OEM cable to monitor behind the OEM CD, should be inserted here.



This plug should be inserted behind CD so power and CAN data would be offered.

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.

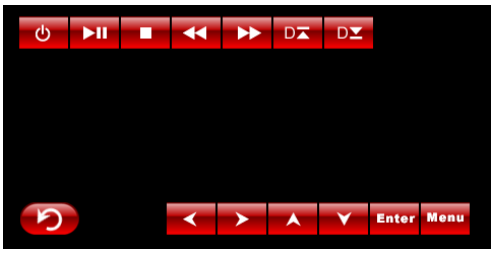
4. the 3 side key buttons

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 CTRL……ON": the installer can set ON/OFF to enable the parking guide line, which shows the safe zone when parking.
- The Guide L option set the left guide line's offset on screen, when the value changes, the left guide moves its location.
- The Guide R option set the Right guide line's offset on screen, when the value changes, the Right guide moves its location. With this combination, the guide line can always fits the car and show the safety area no matter whatever camera the installer uses.

- The IR-AV1,IR-AV2 option: When in AV1/2, the user can rotate the knob to pop up the icon on the image. When the user press the knob, the selected icon will generate the related IR code on the gray wire of the AV input wire, which can be connected to the TV's IR signal wire to control the related TV/DVD or other video resources.

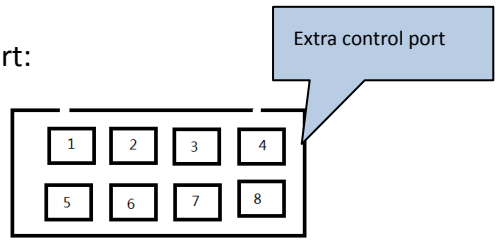


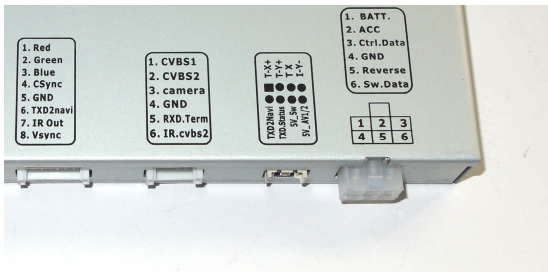
- The Last 2 Options: Size H, and Size V, are used to tune the picture size, in case an iPhone of android phone is connected, this option can be used to make the output nicely fit the screen size.

The programming of IR code:

- There are >10 types of DVD, NAVI, and Tuners' IR code are stored inside the interface. The installer just adjusts the options to select to wanted one, then it works. If the wanted type is not there, he may set the option to be "Prog" in the menu.
- When programming, switch the input to AV1, and set DIP6 down once, then the control icons will be shown, and one of the them will be blinking, which means the suitable IR code is wanted. The installer should now connect the hardware: connect the IR signal wire of the DVD to the gray-wire in the power cable of the interface[the IR input wire.], and press once the related IR key.
- Then the 2nd icon will be blinking, which means one IR code is read and another code is wanted, the installer just repeat the pressing till all code are read.
- When the last icons stops blinking. The installer should change the hardware: connect the IR output wire[RGB port's 7 pin wire] of interface to the DVD's IR signal wire. Then when the user rotates the knob or use the touch foil to generate the IR code, DVD will be controlled.
- The programming of AV2 is the same as above.

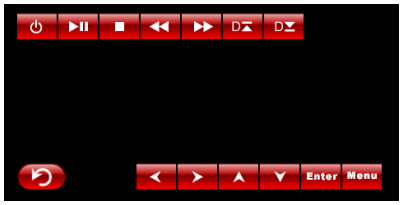
5. Extra control port:





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）:

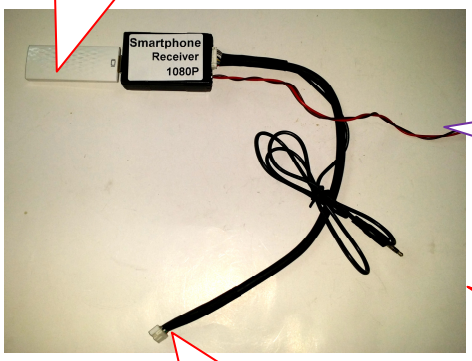
This interface can work in terminal mode, a 3rd developer or installer can send commands into this pin. E.g. when he sends “switchInput 1\r”,the interface will switch into RGB navi, “switchInput 2\r”,the interface will switch into AV1, when he sends“Help\n”, the interface will tell a list of available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

6. Parameters

No.	name	parameter
1	RGB map resolution	800X480 HD suggested.
2	Av1, , 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
11	USB	OTG function,1A output with surge of 3A.
12	Compatible with maps	Navione, navitel, Igo, Primo.sygic, etc.

7. How smartphone image mirrored：

Smartphone Dongle



- The FOSP 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.

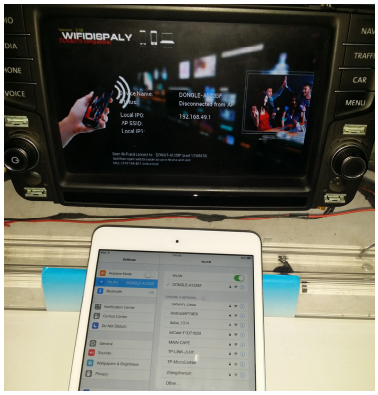
To the AUX sound input of the car, the installer can also leave it, and use the phone's speaker as sound output.

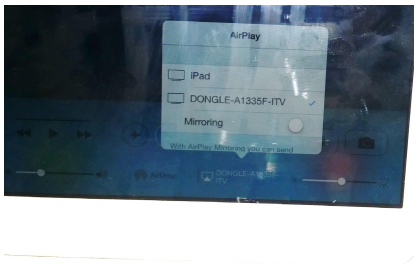
- the wirelss dongle has a key button to show the state：

when left-top corner shows:

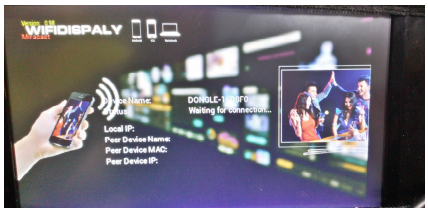
- **DLNA**[or AirPlay], it means iOS can be received.

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





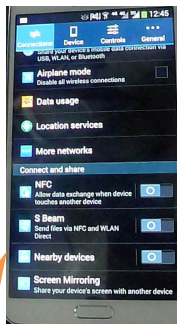
Then he scratch the buttom side of the iOS device, click the air Play function, and select the appropriate dongle, and enable the mirroring function and wait a little while. Then all the iOS shows will be mirrored.



When the left-top corner shows:

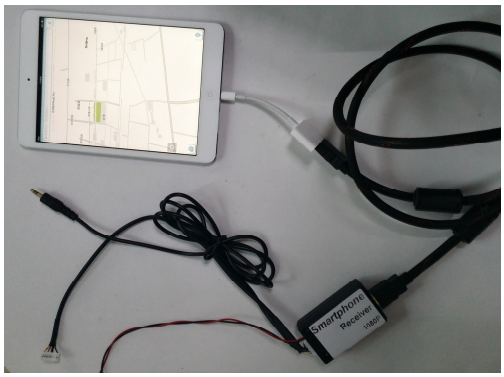
- MiraCast or EZcast, it means the android phone can be mirrored.

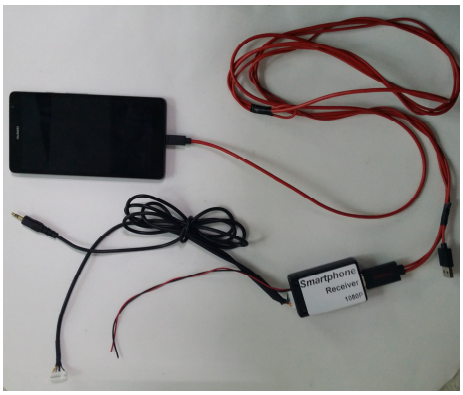
When using the Android phones： the user need to enable the wifi, just start the miracast the phone.[the name maybe different from android 4.1, 4.2, or 4.3]. also It is different from different phone brand.



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

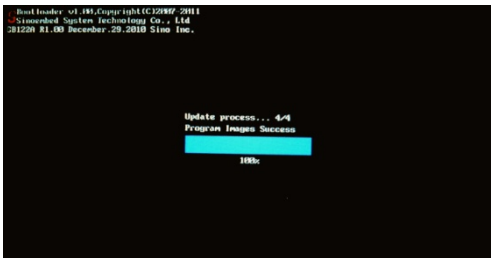
- The installer can also get the display from the smartphone in the wire way, the below picture shows, the FOSP smartphone receiver can also deliver the video input from iOS device with a standard apple HDMI cable, or from android device with a standard MHL to HDMI cable.





9. **Other interface for VW-series cars.**

7. simple manual about the navi module.



（1） How to update the module software：

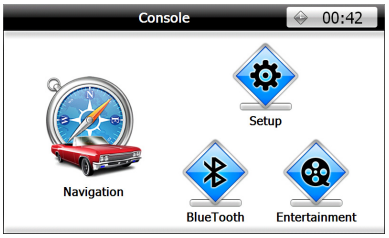
Copy the files that FOSP provides into a SD card.

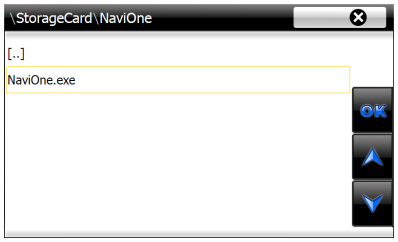
When the units power on, the users may see this picture. He just wait the start Up screen shown again.

（2） How to make a start up Logo:

Make a directory named YP_A5, and put all the file that fosp supplies for a boot.

The logo.BMP contains the logo. Please be sure it must be 800×480， BMP format, and 16 bit in color.





（3） The functions of the icons.

The left picture shows the start up picture, the user may go to each icon to get their respective function.

When the navigation map is inserted the first time, the user may click the navigation icon, and the right-side picture will show up, the user should select the *.exe file to run the map. All the other functions are self-explained in the menu.