FV-Benz-172 installation manual_ver.1107020

This interface can insert RGB-navigation or CVBS video signals onto Benz-A172 car screens. And it has these features:

- Original Knob to switch the inputs, and control installed DVD or other resources.
- All connectors are plug-n-play, people do not need to cut any wires.
- The touch screen for navigation can be used to control installed AV devices like DVD etc.
- The IR output can be programmed.

This product has 2 types:　FV-Benz172-NAVI（with internal navigation module），and FV-Benz172（withOUT internal navigation module）。For other types of Benz cars, for example,2011-before E，C，S，GLK, please use FV-BENZ567，for 2011 S-class，please use FV-BenzS-4P。

1. System connection

The video output of interface should be inserted to the socket behind monitor。

The monitor's video plug should be inserted here.

3 keys for color tuning

AV1，2 audio input/output

Long push to switch: Car→ RGB→ AV1→ av2→Car....

AV1，AV2，CAM video can be inserted to the video input。
RGB input Pin6，7 has IR output which can be connected to external AV devices, so remote controllers will not be used in car.

The 4 power input wires should be connected this way：
Car Black   --------CANbox gray
Car Black/white---CANbox blue
Car Brown--------CANBox Brown
Car Brown/Red---CANbox Red

2．DIP switch setting:

DIP	=ON [DIP=Down side.]	=OFF
1	RGB enabled，FV-Benz172-NAVI should be ON.	RGB disabled.
2,	AV1 for DVD enabled	AV1 disabled
3	AV2 for Tuner or extra video enabled	AV2disabled
4	RGB=HD RGB [800X480 or VGA 640X480]	RGB=Normal NTSC [480X240]，FV-Benz172-NAVI should be OFF
5	This is reverse camera trigger wire go to CAM when Green wire= 12V]	go to car video when Green wire= 12V
6	IR programme when once to ON Touch calibration when get to ON >5 times.	OFF for normal work.
7,8	7=UP,8=UP: 7inch screen with 800X480 resolution	
	7=UP,8=DOWN: 6inch screen with 480X240 resolution FV-Benz172-NAVI should be stay 7OFF,8On.	

The signal definition of 6P on interface from CAN box：

Yellow：constant power of 12V。

black：GND of chassis。

RED[ACC]：when the monitor works, this wire=12V，otherwise=0V[Max 2A for other devices.]

Green：reverse signal wire[=12V when in reverse], it can be connected to reverse wire to trigger video into CAM。

White wire：switch signal wire, when =12V or 5V, this interface switches.

Gray wire：CAN bus control data to interface, it is used to pop up the control icons. See note2 on the end of this wire.

2．Interface Settings

- 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 DVD/TUNER/NAVI is to set the IR code output to the installed device, so people use original knob to control
- 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 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. Point the IR remote controller to the IR port of interface, the blinking icon will be moved to the next one. Which means one code is programmed. Repeat this step until all icons are programmed.

➢ The programming of AV2 is the same as above.

When the menu key is pressed twice, the menu of "H Pos" and "V Pos" will be shown, the installer can adjust the values to make the image fit into the center of the screen. *VPOS=42，HPOS=1 is the suggested value.*

When in AV1 input, and the DVD type of AV1 is not set to be "None", the user can touch the screen or use the knob to control installed DVD.

(1) When the knob is pushed horizontally left or right, these icons will be shown, the user can go to the selected icon, and push the knob to execute the IR command.

(2) The user can also touch the touch-panel to make this operation.

The installation needs to calibrate the interface for touching when in AV1, he needs to make DIP6 go down 5 times, then a cross will be shown on screen, the user may touch the cross center, till the cross disappears.

4. The demolition process

Step 1; take the wind outlet out, be careful that there are 2 hooks inside

The interface can be installed inside the feet stand on the other side of the driver, the aluminum piece can be a heat sink to the interface as well.

Step 2: then the long plastic trim on top and bottom side of the screen can be taken down, so the total monitor can be taken out, there are enough space for the interface behind the monitor.

It is not necessary to work on other locations of the car.

5. The navigation module operations for FV-Benz-172-NAVI

The internal navigation is at the below part of the interface, while the top part is a normal interface.

SD card of navi. Map.

Navi Antenna

Ext. Speaker

4-wire Touch Panel.

stereo out navi

USB media storage

RGB port already used by internal module, Pin78 are IR outputs.

The audio has 2 ways of output, one is by the small speaker, which gives the sound independently, the other is use the stereo audio output, and use the car's AUX input, the second way is good when there is a USB disk connected to the navi module, the ARM CPU inside can play MP3/MP4/MP5 files with 8G USB reading capability.

✧ <mark>Operations</mark>

● When the interface box is firstly installed inside a car, it needs to be touch calibrated: pull the SD card out of the module, and power on the interface box and goes to the RGB input, then we see a cross on the screen.-->

Click on the cross till it disappears, then the computer knows the physical property of coordinates, and all user operations can go on smoothly.
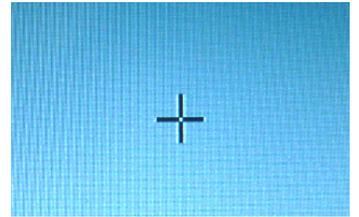
● After the calibration, the installer needs go to the "Setup" of the navi-computer：

> The installer needs go to the "Setup"
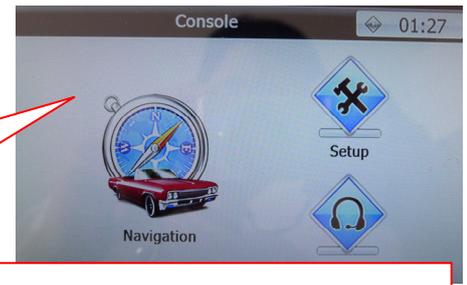
> Inside the Settings, we can：
> ● "Navigation set", we can set the route of the navigation file。
> ● "General Settings", we can se the language to be English or other 10.
> ● "Touch Screen" we can calibrate the touch screen again.
> ● "Screen", we can adjust the brightness/ Contrast of the RGB output.

● When customer's dedicated navigation software is used, it should be set in the "Navigation Setup" menu. Like this picture is showing here.

● Then the installer can go back to the main screen, and click on the Navigation icon to start that function.

> User can also click on "Entertainment", to play the multimedia files inside the SD/USB card.。

<mark>Note：</mark> the navigation GPS uses Com2, baud rate at 9600bps。

✧ <mark>Firmware update of the navigation computer.</mark>

The navigation computer already been tuned before shipped, the installer can update the firmware. Most installer change the resolution of the total computer module. From normally 480X234 of NTSC. to be HD of 800X480.

The installer can contact Fosp's resellers for a zip file（480234.rar or 800480.rar）unzip one of them into the empty SD card, and power on the module, then the software can be flashed

like the steps below.

1、Copy the unzipped file onto the Root directory of the SD card like the picture here，do not modify any file name.

2、insert this SD card onto the navigation module, and power on it. Then the flashing process starts automatically.

3、when flash is over, the touch calibration cross will be shown, then the installer can take out the SD card, and insert the map SD card, and starts the calibration and normal functions.
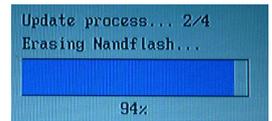
6. CTRL port

There is a 8-pin extra CTRL port on the interface, which the installer does not need to use in normal situation. For experienced users, this port may be used to get extra functions.

Pin 1,2	+5V output voltage for sound-switch-relay, when AV1 is selected=5V, 0V when AV2 selected. Max 3A.	
3:	Constant +5V	Max .2A
4，8	Ground	
5:	Dedicated control bus for camera。	Should not be connected to GND, otherwise CPU will halt.
6:		
7	+5V output when in interface mode, 0V when in Car mode.	

Note2:

There is a gray wire between the can box and interface box, which is used to deliver control data, so that multimedia icons will pop out and be executed. This wire can also deliver terminal-mode control data. So a 3rd party computer can control this interface.[terminal mode like: to directly go to RGB input, to AV1 input, AV2 input,reverse camera input], to get the full implementation of fosp interface terminal mode operations, please contact fosp sales people.

4. Parameters

No.	name	parameter
1	RGB video amplitude	0.7Vpp with 75 ohm impedance
2	sync amplitude in RGB-navi port	3~5Vpp with 5K ohm impedance,Sync should be NTSC composite with negative polarity. When VGA is in, put Hsync and Vsync together by XOR(74HC86).
3	Av1,Av2, cam video amplitude	0.7Vpp with 75 ohm impedance
4	Av1,Av2, cam standard	NTSC/PAL/SECAM automatic switch
5		
6	Normal work Power consumption	2.4W [0.2A @12V]
7	Standby current	< 5mA
8	Standby start	10 seconds after the users switch off the CD unit.
9	Reverse trigger threshold	>5V trigger
10	Work temperature	-40 ~ +85C
11	dimensions	15.6 X 9.2 X 2.2 Cm

Computer module	
Main Freq.	500MHz+250MHz DSP
CPU type.	Sirf Atlas V
RAM	64MB DDR2(compatible 128M)
ROM	64MB(max. 8GB)
Map	SD（including SDHC）
OS	WINCE6.0 CORE
Audio	MP3/PCM/WMA
Video types supported.	mp4、mpeg、mpg、asf、wmv、mov、avi、3gp、3g2、k3g、m4v、mqv、wm、divx、mkv、ogm、wvx、mpv
Video performance	QVGA >25 frames/sec.

GPS parameter	
Chipset	Internal equivalent to Sirf IV
Frequency	1.575GHZ
Channels	64 Channels
Sensitivity	-161dBm
Loc precision	10m, 2D RMS 5m, 2D RMS, WAAS enable
Speed	0.1m/s
Data update	1HZ
Max loc height.	18,000m
Max rate.	515m/s
GPS Ant.	External.
Antenna gain	27dB
Antenna volt.	3.3V±5%

7. other related products.

（1） the interfaces
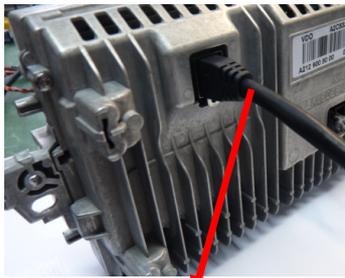
FV-Benz567

2011year before C，GLK，E，S and many other benz models, use this connector for video. The Benz567 fits them all.
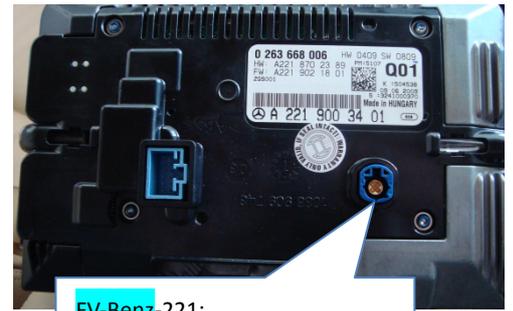
FV-Benz-221:

The 2011 year Benz S class starts with 4P video like A172 but with different data format. The FV-Benz-221 fits it.

（2） Benz C180，C200 replacing monitor：FOSP has a specific monitor for the Mercedes C class, it uses 6-inch high definition LCD(with navigation, reverse video and DVD inside) to replace the original 5inch LCD(it has only display of the car air con data and radio data.), while keeping all mechanical dimension and sizes to be the same, and installation connectors the same.

The replacing monitor keeps all the original data the same, and displayed on the big monitor although it is replaced.

（3） The FOSP's GLK replacing monitor has the same feature as above.

（3）Mercedes RSE monitor.
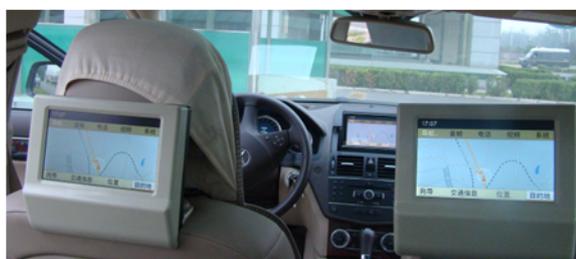
Fosp's RSE monitor can convert the car original LVDS signal into RSE signal, one extra video can also be displayed.