

# FV\_BMW\_6Pin interface manual

Product type: FV\_BMW-6Pin, Ver:20120416

This interface can insert video into BMW F20, BMW F30 screens (including All BMW 6Pin connector screen, e.g. 1,3,5,7 series starting from 2012). It can insert 1 RGB High definition video and 2AV and 1 reverse camera video or iPod video onto the screen, the following are the features.



BMW-1Series, installed RGB

- ✓ BMW OEM plug and socket are used, the installer does not need to cut any wires or open the monitor to install the interface, the OEM knob can be used to control the installed device, by re-generating IR control data from the interface.
- ✓ The OEM radar picture can be displayed onto the installed camera signal by overlaying on the right side of screen.
- ✓ This one interface box fits both BMW F20(1-series), and F30(BMW 3,5,7 series) car screens, the installer only needs to change the DIP8 position to fit the car.
- ✓ CAN bus decoding is used, so the installer does not need to wire any extra wires to generate switching, reverse and guideline signals.
- ✓ This interface pass the temperature check from -40~+85, And eMark certified.

F30: Installed HD navigation

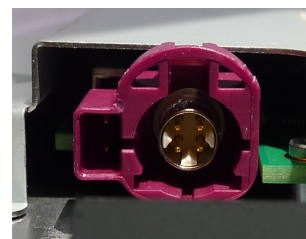


F20: Installed Camera +Guideline+OEM radar picture



## Attention :

- F20, F30 screens are in 2012 BMW 1, 3, 5, 7 series cars, it has 4P+2P connector together. The total monitor has only one connector.
- Year (2009~2012) version has a 4P round+6Pin flat connector to deliver power, in this case, the FOSP FV-BMW-CIC, or FV-BMW-CIC2 can be used.
- Before 2009' s BMW, 10P square connector is used, [BMW M-ASK, CCC], Please use FV-BMW-CCC.

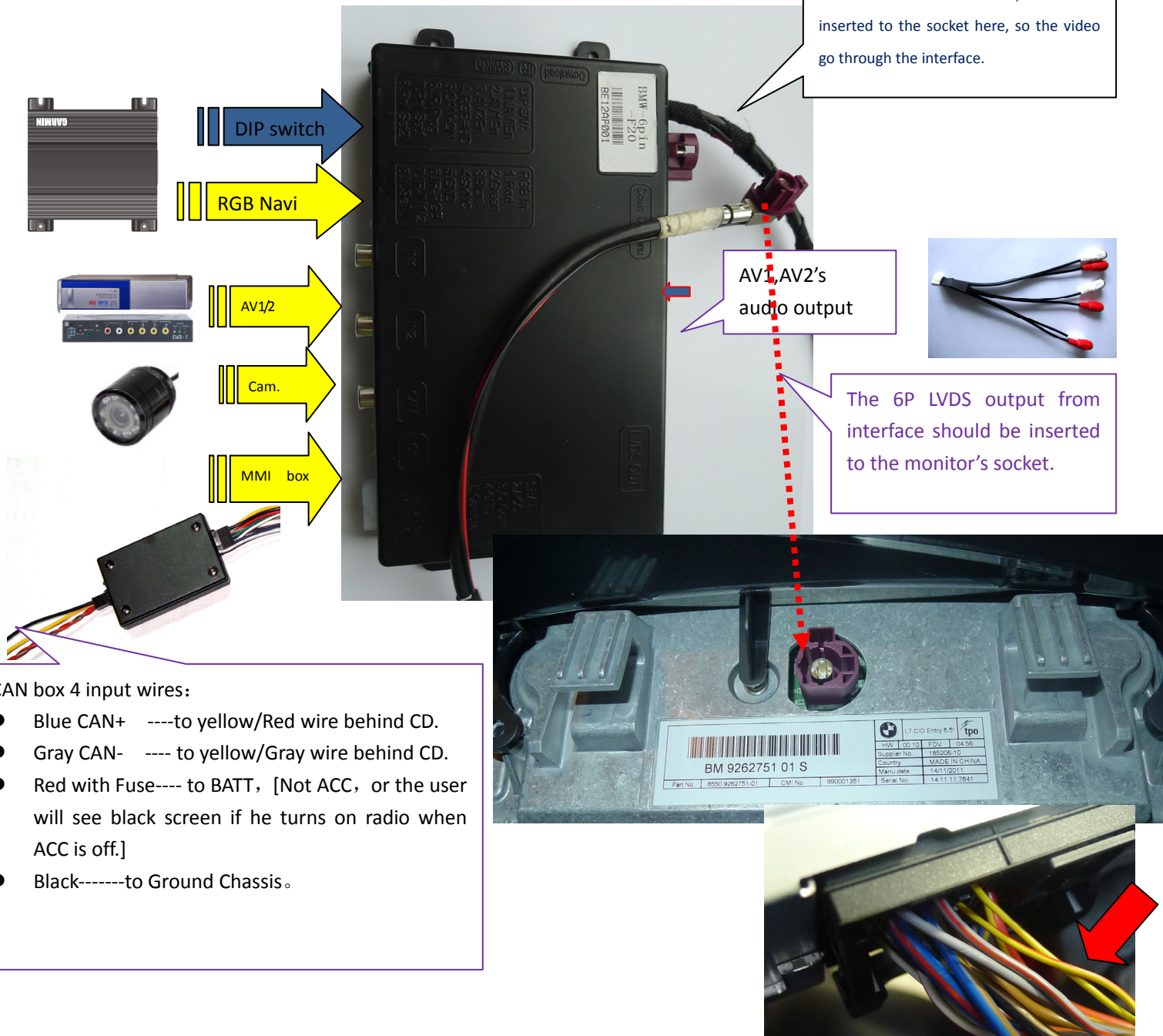


## 1. DIP settings

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= NTSC resolution 400[or 480]X240.
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, and to ON 5 times for touch panel calibration.	Set to OFF for normal use.
<b>DIP</b>	The screen is BMW-F30 screen. [BMW 3,5,7 series, F30 screens.]	
<b>7, 8</b>	The screen is BMW-F20 screen, [BMW 1 series, F20 screen].	



## 2. system connection:



### 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.

**BLACK:** Ground to Chassis.

**GREEN:** Can box generated reverse trigger signal [when =12V the reverse video is enabled]

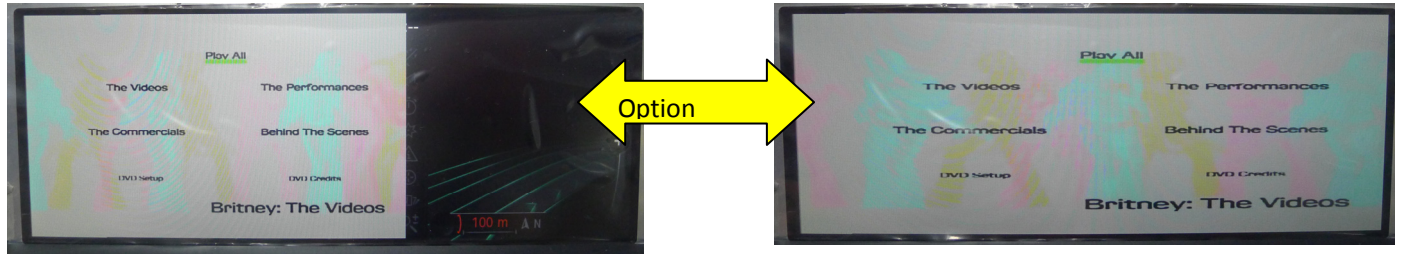
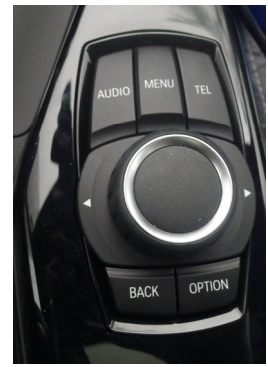
**WHITE:** Can box generated switch signal wire, when=12V, this interface switches. [max.25V]

**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.]

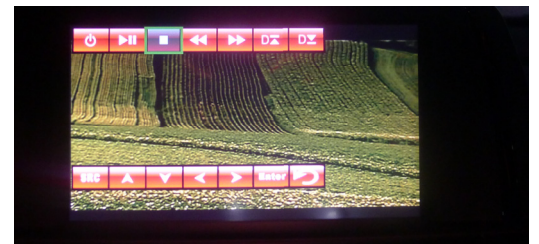


### 3. operations:

- menu: when pressed long, the interface will switch among the enabled inputs of RGB, AV1, AV2.
- Audio: when pressed, the video will always go back to OEM picture.
- Option: when the screen is 24:9, that is BMW 3, 5, 7 series), this button when pressed will toggle the display mode among 16:9 and 24:9.



- The rotation of knob: when rotated, the MMI icons will pop up, and the user can select the wanted function to control the installed DVD or TV.
- Right-Push of the knob: when the icons pop up, the user right-push the knob will execute the selected icon and IR code will be sent out.

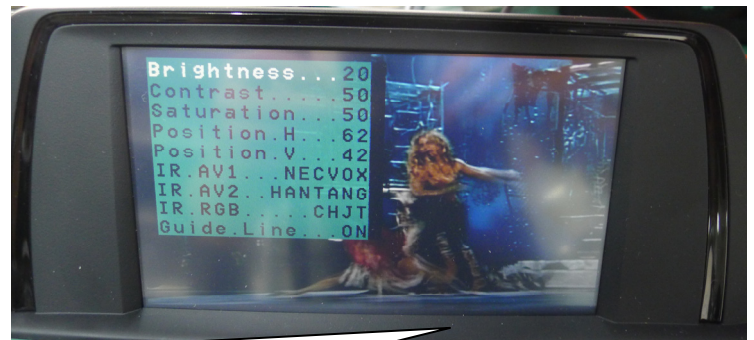


### 4. the 3 side key buttons

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 , and it does not affecting other inputs.



- 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 H position,V position sets 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 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.

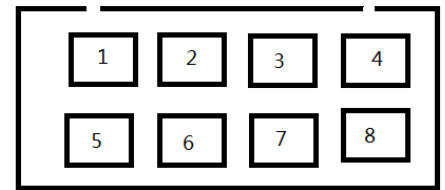
The last option: "Guide Line.....ON": the installer can set ON/OFF to enable the parking guide line, which shows the safe zone when parking.



### 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 gray wire of the 6P power connector is the same as IR-data wire, it can be connected to ir sensor-signal to program IR as well.
- The programming of AV2 is the same as above.

### 5. The Ctrl port.



The **Ctrl port** has 8 pins, it is not necessary for the installers to use it in most cases, however it can be used for installer's convenience in case many more extra devices are installed.

Pin 1, Pin2	+5V output voltage for sound switch relay when AV1 is selected, 0V when AV2 selected.	This pin can pull the relay with +5V. [max output=2A, while most mechanical relay only needs 0.1~0.3A.]
Pin3:	constant +5V when the unit is working.	max 2A output.
Pin 4,8	GND	It is tied to GND inside.
Pin 5:	data bus for touch screen	Pin5,6 should NOT be connected to GND, because it will halt the CPU inside. Leave it open for normal use.
Pin 6:	clock bus for touch screen.	
Pin 7	+5V output voltage for touch screen switch relay, when in inserted video mode, this pin=5V, when in original car video mode, this pin=0V.	For imported cars which needs touch screen for installed navigation computer, this voltage can be used to switch the original touch screen. max 2A output.

## 6. 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 in VGA mode, the Hsync and Vsync should be combined by a 74HC86 to make a Composite sync.[Xor operation], it can be XOR with '1' to get inverted to negative polarity.
3	RGB resolution	NTSC-RGB navigation, that is. 320X240,400X240,480X240 Or VGA resolution[640X480 or 800X480]
4	Av1,Av2, cam video	0.7Vpp with 75 ohm impedance NTSC/PAL/SECAM automatic switch
5	IR RGB, IR_AV1 output	3.3V digital infrared control code with 4 data bytes [machine code1,machine code 2, user code, verification code]
6	Normal Power consumption	2.4W [0.2A @12V]
7	Standby current	< 10uA
8	Reverse trigger threshold	>5V trigger
9	Ctrl port Pin1,2 and Pin7: Output voltage	Relay pull voltage for Audio and touch screen selection 5V volts.
10	Ctrl port Pin1,2 and Pin7: Current	2A. Tested to have no damage when short-circuit to GND for 2 minutes. Leave it open when do not use.
11	Work temperature	-40 ~ +85C