

BMW_CIC interface installation manual _v201011

This interface can insert video into BMW CIC screens(including BMW 5 series,3 series,7 series,X5, X6). 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.

- ✓ The interface can be installed in BMW CIC screens, super wide screen or normal, (super wide is 24: 9 screen in BMW 3,5,7,Z4,X5 series with 1246X480 resolution), and a not so popular version X5 (400X240 resolution).
- ✓ By using the BMW CAN box, the user can use the iDrv keys to control the DVD, TV tuner, iPod or added RGB navigation computer. The user may also set the display ratio to be 24:9 or 16:9 when on wide screen.
- ✓ Dedicated protection circuit is used inside the video connector, so even when the installer has a wrong connection on the video connector[even when connecting video pin to 12V], nothing will be damaged on the computer, display and interface.
- ✓ 1G Hz bandwidth video cable is used from the interface to the display, so stable and clean video is guaranteed and this interface has good compatibility on many screens.
- ✓ Dedicated trigger wire for reverse camera with max 1A output, which eliminated the necessity of searching power for reverse camera elsewhere inside a BMW car.
- ✓ This interface pass the temperature check from -40~+85, And eMark certified.



This interface is compatible with 5-series,3-series,7-series,X5, X6, Z4 wide screens. And offer 2 display modes of 24:9 and 16:9.



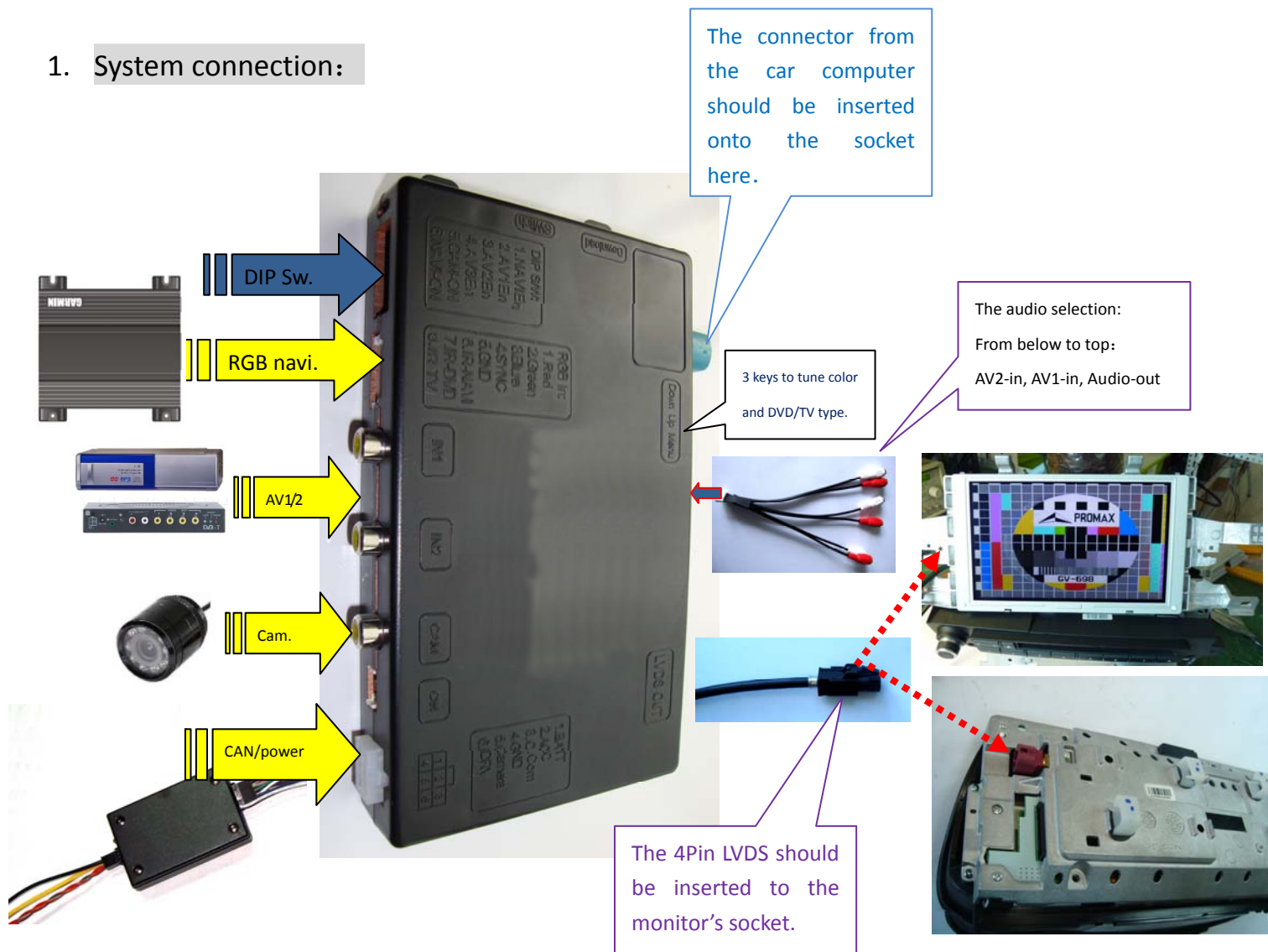
There is a narrow resolution panel in 5-series, and X5 cars [e.g. 2011 year's 523 and X5].



There user may operate in this way with the interface:

- Press NAVI (2011 type: MAP) key to switch the input.
- Press option key to switch between 24:9 and 16:9 display modes
- With idrv knob the inserted DVD,TV can be controlled.

1. System connection:



2. CAN wires connection:

[Behind the BMW CIC screen, there is a flat connector, BATT,GND, and CAN wires are there. The 4 input wire of the CAN box should be connected there, like the table shown below.

Name	BMW original wire color	The 4-wire CAN box input
CAN -	Twisted yellow[pin.6]	Twisted with gray
CAN +	Twisted black[pin.5]	Twisted with blue
GND	Brown/Black [Pin.3]	Big BROWN
BATT[13.8V]	Pink[Pin.1]	RED with Fuse
<p>✧ [CAN wires when wrongly connected will not damage anything, but only when connected correctly, the data LED will blink and the interface switch correctly.]</p> <p>✧ CAN box generates ACC according to the CAN data action. it will sends ACC out and show the Power LED whenever the can bus is active with data running.</p>		



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

YELLOW: power supply of 12V, it can be ACC or BATT.

RED: ACC (=12V when key in ignition state): when=12V, the interface works.

BLACK: Ground to Chassis.

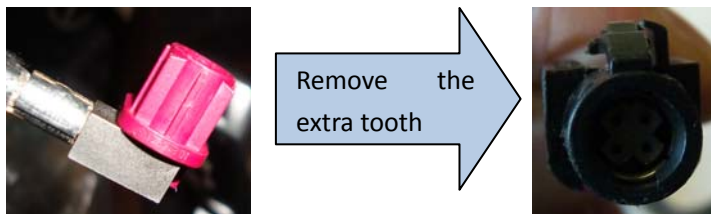
GREEN: reverse video trigger signal [when =12V the reverse video is enabled], this signal is generated inside the CAN bus with max output of 1A current, this can be used directly to power a camera.

WHITE: 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.]

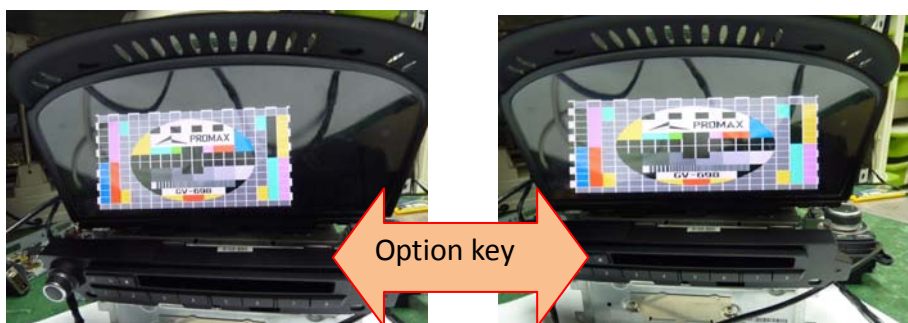
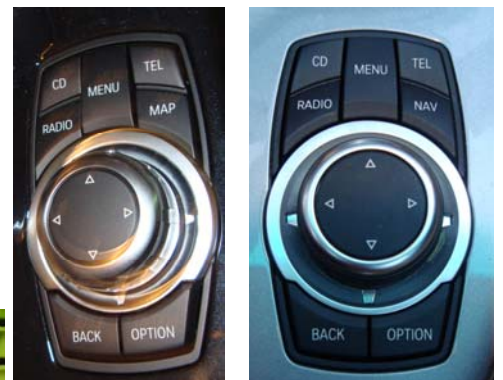
Video connector extra-tooth removal:

When the original plug is inserted into interface, or interface's plug is inserted into monitor's socket, there may be small extra-tooth conflict because of the car type deviation, in this case, please remove the extra small tooth, then the inserting process will be very easy and smooth.



3. BMW user control:

- Press NAVI or MAP key: the video interface will switch the input: car video→inserted RGB→ inserted AV1→ inserted AV2→ car video
- Press CD: video image will go back to car CD,
- Press RADIO: video image will go back to car Radio,
- Press Option (when in inserted video by interface):



- **UP,Down,left,Right** arrow keys ,and **BACK** key:
 - After market navigation might be controlled in RGB input.
 - When in AV1, AV2, the user may control DVD,TV and IPOD with the iDrv knob with the pop up OSD.
 - The user needs to press the knob to execute the selected icon, or press **BACK** key. **Back** is preferred for no background operation.



- When people do not want to use this pop-up OSD, he may set the DVD type to “none” by press the 3 side keys on the interface .
- The installer can also set the DVD type to be programmable by press the side keys of the interface box and set the DVD type to “Prog.”
- The installer can also cut the gray wire off [between the CAN box and interface] to remove the original knob control functions.

➤ Automatic reverse image display:

The Green wire between the CAN box and interface is a generated camera trigger wire. When the CAR goes to reverse state, the green wire=12V, otherwise=0V. this wire can also be used to power a reverse camera, so the installer do not need to find the trigger and power signal elsewhere. [one 1u/50V capacitor is added on the green wire to filter wire noise in case camera is taking power there.]



Another way: the connector to the reverse lamp has trigger signal on the yellow-with-white strip wire. This wire should be connected to the interface's green wire for automatic reverse video display.

4. 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. Attention: see the picture below to see wrong settings of this DIP.	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 computer video is selected when green wire goes to 12V. [this is for the case original camera is installed]
6	This DIP should set to OFF. The installer can set it to ON so touch screen can be used for inserted DVD or TV. Since this BMW interface already use the knob to control it, the touch is not necessary.	
DIP 7, 8	<p>7DOWN, 8UP: the screen is BMW CIC super wide screen in 5, 3, 7series cars [the resolution is 1264X480, in this mode, the user can use the option key on idrv to switch 24: 9 and 16: 9 display modes]</p> <p>7DOWN, 8DOWN: the screen is BMW CIC X5[only a few such cars].</p> <p>7UP : the output timing is for Audi, the installer only sees red screen on BMW monitor. He needs to set DIP7 down.</p> <p>Note: Wrong DIP settings will not damage anything, if wrong image is found, just reset the DIP, it is not necessary to reboot the interface.</p>	

DIP4 is used to tell the RGB input resolution:

- If the RGB is getting VGA resolution while DIP4 is set to UP=NTSC resolution, then left picture here is displayed.
- If the RGB is getting NTSC resolution while DIP4 is set to DOWN=VGA resolution, then right picture is displayed.
- The installer only needs to set the DIP the same as input resolution, then image gets OK. No reboot is needed.
- DIP4 is only effect to RGB input, not to AV or camera input.

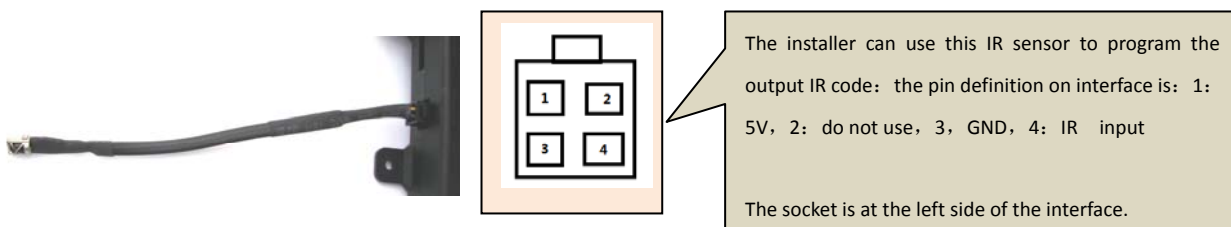


5. the 3 side key buttons

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, +, -**.



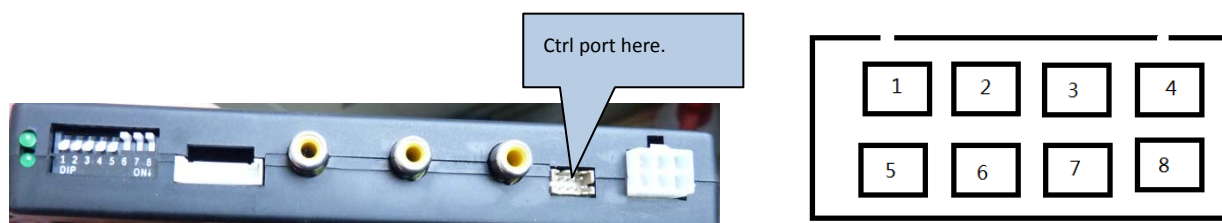
- ◆ When **menu key** pressed 1st time: the left OSD options will be shown, when pressed 2nd time: the right OSD options will be shown, when pressed 3rd time, the osd window will disappear.
- ◆ The user may use the **+/- key** to go to the edit mode of each item, and use menu-key again to go down to the next item.
- ◆ The DVD, TUNER, NAVI items mean the IR output of RGB, AV1, AV2 input respectively, there are already many types of DVD, TV tuner and NAVI brands programmed inside.
The installer may also set it to be "PROG" if the video source brand is not listed inside. Then he may pull the DIP6 DIP down to program the IR code. [by press the remote key pad toward the RGB port. When DIP6 got pulled down, the icons are shown, when one key is received, one icon gets blinking to acknowledge the reception of one key.]



The installer may also set it to be "NONE" if he does not want the icons to pop out when people control it. In this case, the user may still touch the left-top corner [power icon] to tuner off the device, and he may also use the left-button corner, [SRC icon] to switch the input.

- ◆ The H POS, V POS items mean the image location on monitor, different video players like DVDs may send out video with different amplitude, different image location although it is PAL or NTSC. These 2 options will give the installer the convenience of adjusting image perfectly centered in a couple of seconds.

6. 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. [max output=2A, while most mechanical relay only needs 0.1~0.3A.]	All cars have an AUX stereo input, which can be connected to the interface's audio output. This pin can pull the relay with +5V.
Pin3:	constant +5V when the unit is working.	max 2A output.
Pin 4,8	GND	It is tied to GND inside.
Pin 5: Pin 6:	data bus for touch screen clock 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 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.	

7. 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