

AUDI MMI 3G interface manual_v201010

This interface can insert video into AUDI MMI 3G screens (including Audi A4, A5, Q5, A6, Q7). 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.

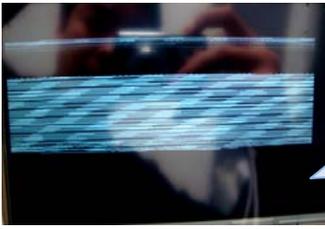


- ✓ The interface can be installed in AUDI MMI screens, with round-4Pin connector, the panel resolution can be 800X480(e.g.2010 year A6/Q5) or 400X240[e.g.A1/A4/A5/Q5 400X240].
- ✓ By using the MMI box, the user can use the MMI keys to control the DVD, TV tuner, iPod or added RGB navigation computer.
- ✓ 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.
- ✓ This interface pass the temperature check from -40~+85, And eMark certified.



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. 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	7UP, 8UP: the screen is 800X480 resolution in A6/Q7 cars 7UP, 8DOWN: the screen is 400X240 resolution in A1/A2/A4/Q5 cars. 7DOWN : the output timing is for is BMW-CIC, the installer only sees noise on AUDI monitor. He needs to set DIP7 up. 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.	

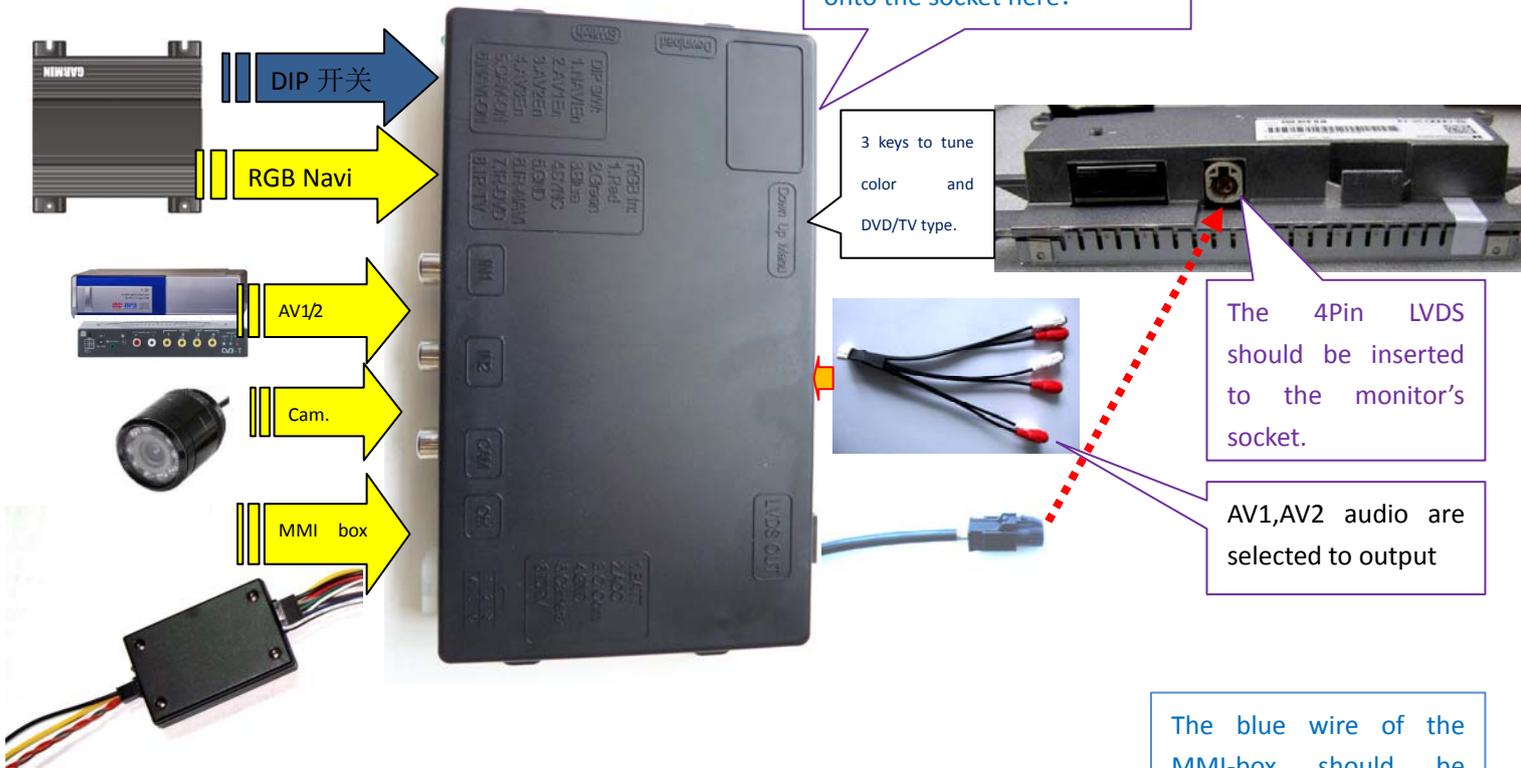


DIP4 is used to tell the RGB input resolution:

- 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.

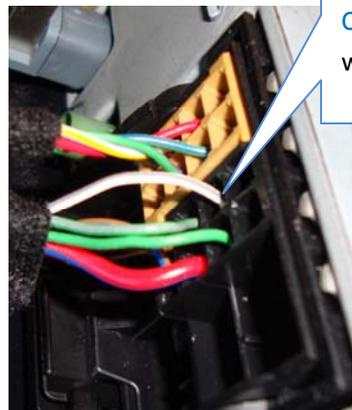


2. system connection:



3. MMI wires connection:

MMI box	To car wires
Twisted with gray	Not connected to anywhere
Twisted with blue	The white/Grey wire behind the CD like the picture here.
Big BROWN	Chassis ground
RED with Fuse	Car ACC [key ignition] This voltage can be found on fuse pad



The blue wire of the MMI-box should be wired here behind the CD. [onto the white wire with gray strip]

⚠ [MMI wires when wrongly connected will not damage anything, but only when connected correctly, the data LED will blink and the

interface switch correctly.]

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]

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.]

4. MMI operations:

- Press NAVI 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,
- **left,Right** rotation of the knob and arrow keys beside the knob :
 - After market navigation might be controlled in RGB input.
 - When in AV1, AV2, the user may control DVD,TV and iPOD with the knob while making selection on pop-up OSD.
 - 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



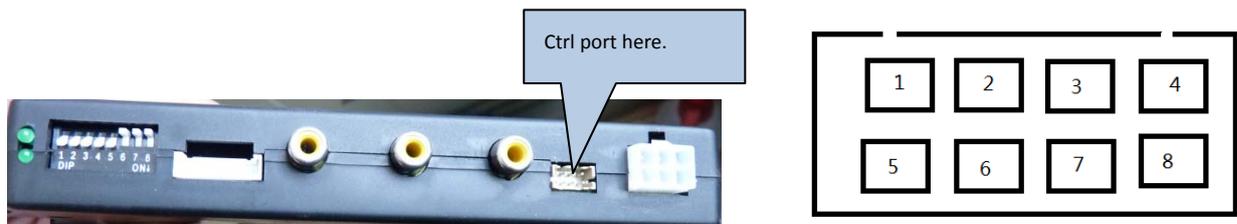
5. the 3 side key buttons

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.

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 ford cars have an AUX stereo input, which can be connected to the external audio input. If the installer needs to send 2 or more extra audio into the car speaker, one mechanical relay should be used to switch the sound. 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:	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.

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