

## 11 RNS510-MFD3 Interface manual\_v111202

This screen is used in many Volkswagen and Skoda car types, including the 2011 passat, GOLF, tiguan, and Skoda some types. The feature of this Head unit is that it has 4 buttons on either side of the screen.

this interface can insert 2AV and 1 RGB navigation and one reverse camera video onto the monitor.

The features of this interface:

1. A daughter board is used to insert video onto the screen, this solution is proven to be compatible with all version of VW 4-key Head units, no matter which year, which software version, VDO or Continental" brands.
2. OBD programming is not necessary when installing a reverse camera. This interface offers reverse signal by a CAN box.
3. Use steering wheel keys to switch inputs and MMI control for installed devices.
4. Ultra-reliability comes from car-specific components which works well from -40~+85C.
5. High quality video processor to give good video performance.



### 1.System connection

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The diagram illustrates the following connections:

- DIP**: A blue arrow points to the top of the head unit.
- Navi RGB**: A yellow arrow points to the top connector.
- AV1/2**: A yellow arrow points to the middle connectors.
- camera**: A yellow arrow points to the bottom connector.
- power**: A yellow arrow points to the bottom-most connector.

Additional callouts include:

- 3 keys for color tuning.**: Points to a set of three red-tipped wires.
- Sound in/out [from Below to top] AV2-in, AV1-in Audio-out**: Points to the audio connection area.
- This ribbon connects the daughter board inside.**: Points to a black ribbon cable.

The daughter board is installed as in the picture:

- The below socket+cable should be connected to main board.
- The top socket should be inserted by OEM ribbon to screen.
- All socket and ribbon are "EXACT-FIT", it is not necessary to modify anything.

CAN connection: Can wires are printed on VW HU's top label.

VW CAN box to Car wire connection

1. Red with Fuse -----Constant 12V
2. Brown -----GND
3. Blue=CAN+ ----- Car label's CAN+
4. Gray=CAN- ----- Car label's CAN-

#### 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.

**Green:** reverse signal wire[=12V when in reverse], it can be used:

- To give reverse signal to interface box, also giving power to camera[max.1A]
- When giving power to camera, a 100u capacitor is necessary on this wire to filter the noise on camera long wires.
- When only give reverse signal to interface, and camera is powered elsewhere, do not add capacitor.

**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.

Note: when the interface is not connected, this monitor can still work because the inserted daughter board is not cut of the video signals.

### 3. OEM keys to switch.

- The automatic reverse signal can be generated by CAN box, its output green wire=12V when in reverse state. Which can also be used to power on a reverse camera.
- The user can also use the other key pad, to make interface switch: car video → inserted RGB → inserted AV1 → inserted AV2 → car video....



- **The return key**, will switch the interface
- When In AV 1, AV 2, the Left, Right will pop out the MMI icons.
- **The down key**, will execute the MMI operation.

### 4. Interface Settings:

The interface has 3 side keys which can be used to setup the parameters.

- 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.
- When the menu key is pressed twice, the HPOS, VPOS menu will be shown, the installer can adjust the values to make the image fit into the center of the screen.

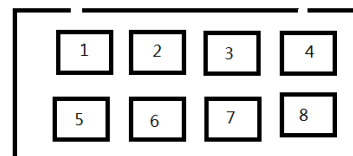
**The programming of IR code:**

- 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.
- Or: the installer can just connect the Gray wire of the 6Pin power input connector to the ir sensor of a DVD player, in this way, when the user press the ir key, the IR code is also delivered to the interface on gray wire, this can also prog the code.
- The programming of AV2 is the same as above.

**DIP switch setting:**

DIP	=ON [DIP=Down side.]	=OFF
1	RGB enabled	RGB disabled.
2,	AV1 for DVD enabled	AV1 disabled
3	AV2 for Tuner or extra video enabled	AV2disabled
4	RGB=HD RGB	RGB=Normal NTSC
5	This is reverse camera trigger wire go to CAM when Green wire= 12V], inserted camera video and OEM parking video will be both displayed.	go to car video when Green wire= 12V this is for the case when the car has OEM camera or no camera installed.
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: no function, leave both UP as default.	

**5. CTRL port**



Ctrl port signal definitions:

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 3<sup>rd</sup> 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 NTSC resolution [400X240,480X240] of navigation is allowed.
2	sync amplitude in RGB-navi port	3~5Vpp with 5K ohm impedance Sync should be NTSC composite with negative polarity.
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