

# FV\_Rover\_Jaguar\_MixCAM installation manual v121202

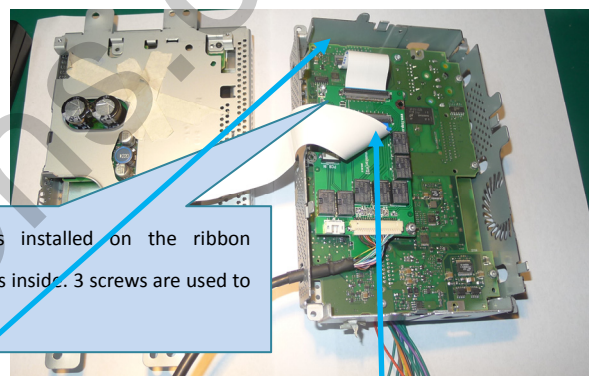
[Product type: FV\_Rover\_Jaguar\_MixCam]



This interface can insert High definition RGB navigation video, AV and reverse camera video onto Rover Jaguar cars, including discovery4,Evoque, Jaguar even including the Dual-view[the driver sees the navi, while passenger sees the DVD] Jaguar and Evoque car screens. This interface is updated from previous version by increasing to the compatibility with so many screens, and it can show reverse video together with the OEM PDC together.

The features are:

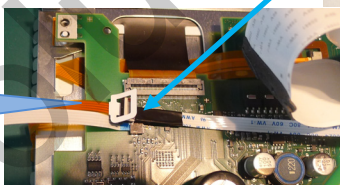
- Daughter board is used to switch the video,so whatever the status is(Radio, Navi,or factory display mode), the inserted video can be switched. Which is more accepted by reverse camera installation.
- OEM keys are used to control and switch the installed anvi and DVD. Reverse camera trigger signal is automatically generated by can bus, the PDC is displayed together with reverse video.
- Guaranteed digital video quality on screen by LVDS conversion, the improved compatibility has been verified to work with all Rover and Jaguar car screens since 2011, including 7-inch, 8-inch or dual view.



The daughter board is installed on the ribbon connecting the 2 big PCBs inside. 3 screws are used to fix it there.

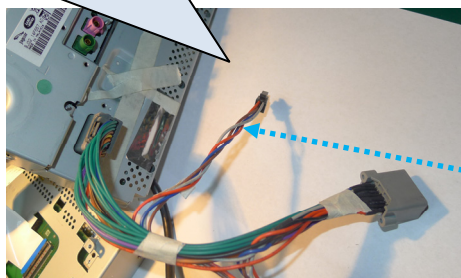
## 1. System connection

The 4P touch panel connector should also go through the daughter board thus touch is given to the installed navi as well.



3 keys for color tuning.

The CAN box which has OEM plug and socket can be inserted on the OEM power plug behind monitor, it can generate ACC, reverse trigger signal[big current with 12V which is also ok to supply a camera], and MMI control signals to interface.



## 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. See note2 on the end of this wire.



## 2. 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 [800X480 or VGA 640X480]	RGB=Normal NTSC [480X240]
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	<p><b>7=UP:</b> for 8-inch LCD, eg; Evoque</p> <p><b>7=Down:</b> for 7-inch LCD, eg; discovery4 and Jaguar.</p> <p><b>DIP8: Set DOWN to enable PDC displayed together with reverse camera. UP= for full screen reverse video.</b></p> <p>When DIP set wrong, the screen may show noise or black screen[not damage anything].</p> <p>Set DIP7 to correct position since 2 types of LCD needs different timing.</p>	



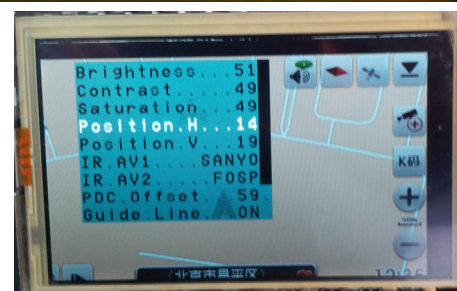
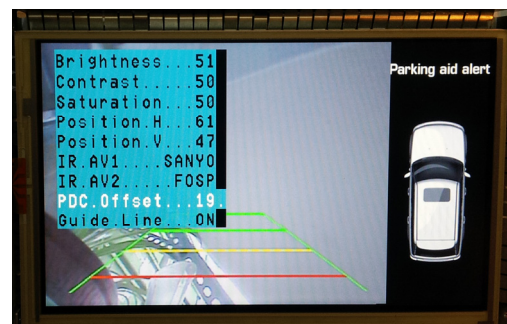
CAN box:

- ONLY dip3 Down= Rover
- ONLY dip4 Down= Jaguar
- DIP34 both Down=Evoque of Rover

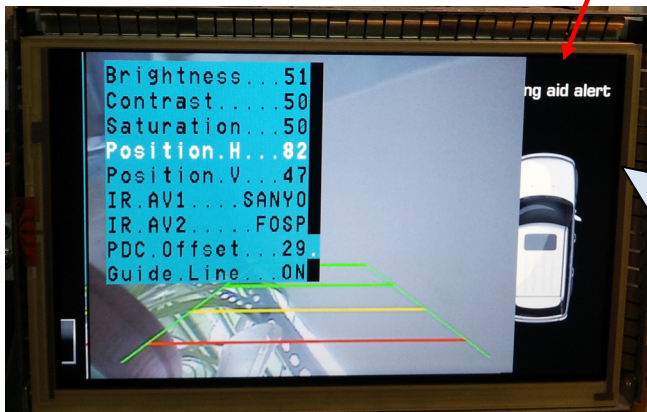
The CAN box needs re-insert the 4P power cord when DIP changed.

## 3. Interface Settings

- The 3 side keys are : menu, +, - respectively. When menu is pressed, 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 Position H, Position V are used to set the picture location on monitor.
- PDC offset: can be used to set the PDC picture centered on the right 1/4 screen.
- The Guide.Line option : when set to ON, guideline will be displayed when in reverse.



The OEM PDC obstacle picture will be displayed together with reverse video when DIP8=DOWN.  
The "PDC offset" option will make it centered on the right 1/4 screen.



When picture is shown like this, the installer needs to do:

1. Check DIP7=Up(8-inch) or Down(7-inch), wrong settings will make the picture has big shift in Horizontal and vertical direction.
2. Change the "POSITION H" value, so the left side of picture will be display according to screen left edge.
3. Change the "PDC offset" value to move the PDC obstacle show centered.
4. The DIP8 should be set to DOWN=enable PDC obstacle show in reverse.

### The programming of IR code:

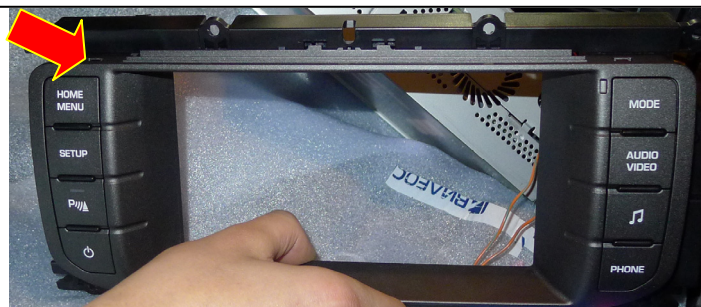
There are >10 types of DVD, NAVI, and Tuners' IR code are stored inside the interface. The installer just adjusts the options to select to wanted one, then it works. If the wanted type is not there, he may set the option to be "Prog" in the menu to program the interface to replace new remote controllers.

- 1) 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, which means the interface is waiting for an IR code. Then input one wanted IR code by using the gray wire of the power connector. [connecting the gray wire inside the power connector to the DVD or TV's signal wire inside the ir sensor. There are usually 3 wires inside the ir sensor: +5V, GND, IR signal.]
- 2) When one ir code is sent to the 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.
- 3) The programming of AV2 is the same as above.

When in normal use, please disconnect the IR sensor's signal wire from the gray wire in power connector, but reconnect it to the gray-wire-in RGB connector. The pin7 marked with IR-AV1/2. This is the IR output wire.

4.

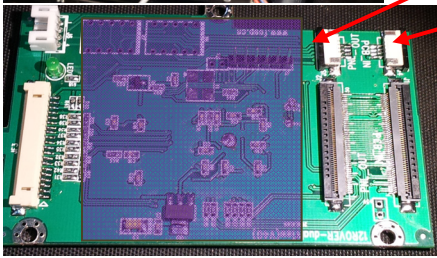
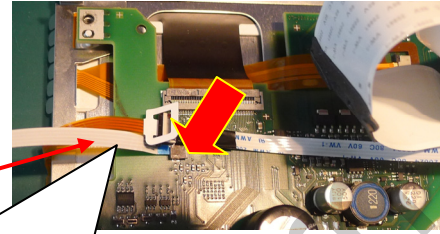
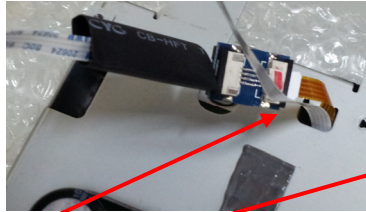
- Rover/Evoque: The user may press the MENU key any time to switch the inputs of interface.
- The American version of Evoque which has no navi, people use the **Audio** key to switch.
- The user may also use extra keypad to switch the inputs, in this case, the white wire of the 6P wire between CAN box and interface should be cut off.[suggested.]
- Jaguar: user presses the **NAV** key to switch the input. They arrow keys will pop up the MMI icons to control the installed device.
- For the dual-view, people can press the dual-view button to switch. 1/2"
- the reverse switch.



3 / 5

The installer does not need to wire another trigger signal for reverse. The CAN box will deliver a 12V volt on the green wire, which is used to trigger the interface also power up a camera.[max 1A]. the gray wire will carry the guide line value to the interface.

● touch to external NAVI:

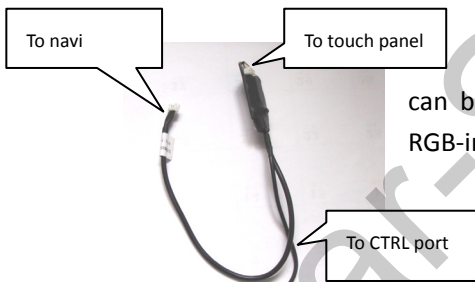


All rover/Jaguar cars has an OEM touch panel on display, which can be switched automatically to external navi.  
The installer needs to wire the "PNL-OUT" to the touch-panel.while PCB-In to the PCB socket. The daughter board has the relay to switch the 4 touch signals together with video switch.

5. 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.

One dedicated daughter board can be used, so people just touch the screen, the installed devices can be controlled by the icons, because the interface can generate IR code based on touch screen operations.



the CTRL port can be connected to the left touch cable, so DVD and other devices can be touch controlled. The internal switch makes the navi use touch panel when in RGB-input, and DVD uses the touch panel when in AV1 input.

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 sales people.

## 6. Parameters

No.	name	parameter
1	RGB video amplitude	0.7Vpp with 75 ohm impedance NTSC resolution [400X240,480X240] of navigation is allowed. Also HD navi: 800X480,640X480 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
10	Work temperature	-40 ~ +85C
11	dimensions	15.6 X 9.2 X 2.2 Cm