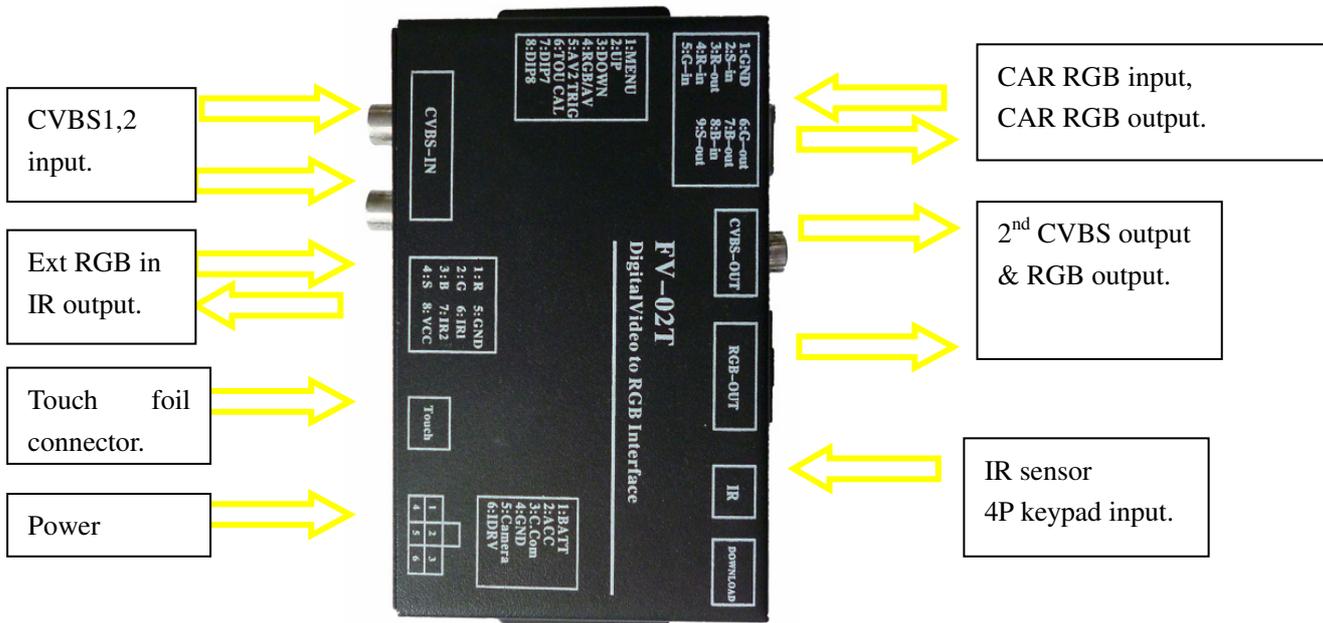# VL2-RGB04 Touch Converter User's Manual V20110722

✧ **This converter has CVBS/RGB inter-conversion circuit with digitized 16 mega dynamic video memory. It can convert CVBS into RGB, and RGB into CVBS.**

✧ **CVBS and RGB outputs are supported, and selected by DIP。**

✧ **Icons can be generated onto the video output stream, thus people can touch to control whatever DVD and media player on a car screen.**

✧ **the installer can set Brightness/Contrast by DIP.**

✧ **this unit has been tested inside automotive working range, with -40°~ +85°temperature, and power reliability cycles. It is an upgrade version from the VL2-RGB03 with simplified hardware, easy installation, combined function and ultra-reliability.**

1.system connection

| CVBS1,2 input. |
| Ext RGB in IR output. |
| Touch foil connector. |
| Power |

| CAR RGB input, CAR RGB output. |
| 2nd CVBS output & RGB output. |
| IR sensor 4P keypad input. |

2. Applications

1、DVD-Touch while this converter works in CVBS-in,CVBS-out mode, icons can be generated onto the video, people can touch the icons to control DVD or media devic, without searching for remote controller inside a car.
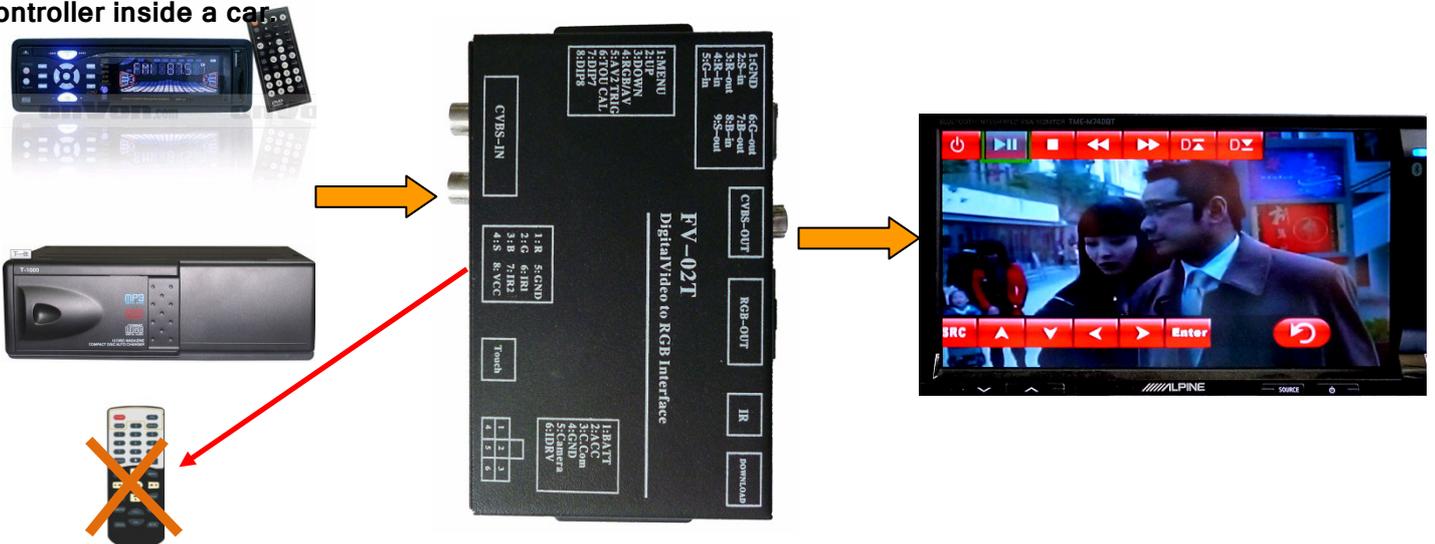
Settings on the interface in this mode：

② DIP settings：DIP4 set to off,（output = CVBS），DIP7、DIP8 set to off to disable car-RGB and ext-RGB inputs.

② Connection：connect the AV to this converter's CVBS1。 The CVBS-OUT to screen.

③ OSD settings：use the DIP1,2,3[=menu,up,down]，get to IR.IN1,then get to the matching DVD brand like Sanyo,alpine（the user can also select DVD.PROG,to program it. See "how to program the IR code"）

③ Calibrate and touch: the installer can calibrate the touch screen, so the interface remember the coordinates of whatever touch foil installed, then he can touch the icon to send out the ir code to the media device.

2、video converter

This interface can convert CVBS into RGB, and RGB into CVBS.
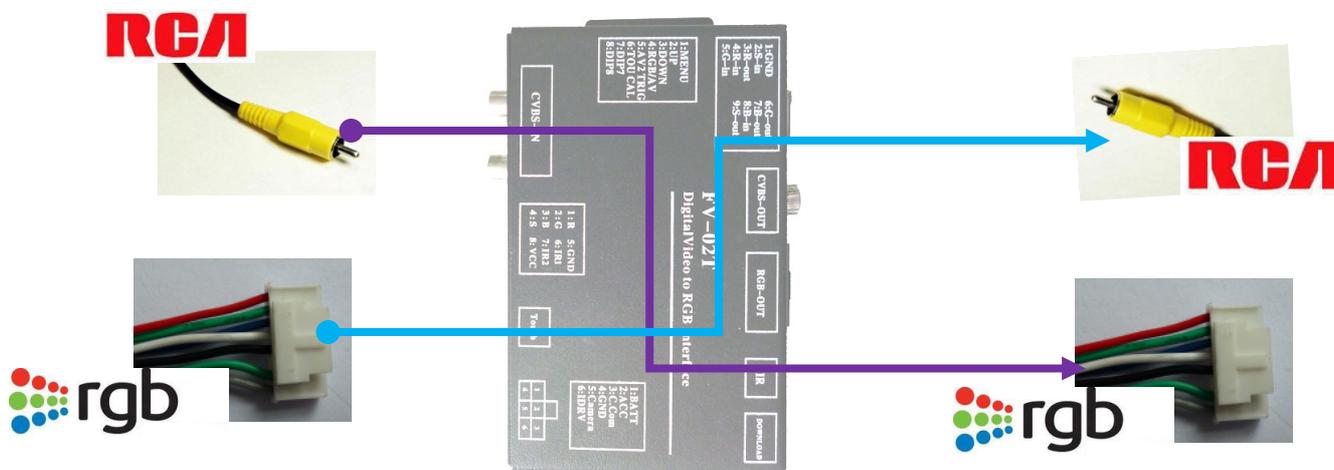
CVBS to RGB Converter:
1) DIP settings：DIP4 set to on（output=RGB）。
2) Connection：connect video into the CVBS1 of this converter, and RGB-OUT to a car screen.
3) When power up, this converter starts in CVBS1→RGB converting, If DIP7、DIP8 are off （Car-RGB、ext-RGB are off） then the input stays in CVBS1.
4) The installer can also set the OSD "Green wire:---AV1", so when green wire=12V, the video input can be set to CVBS1,CVBS2, or RGB。(the green wire has higher priority than DIP7 DIP8).

RGB to CVBS converter:
1) DIP settings：DIP4 set to off（output=CVBS）。
2) Connection：connect RGB into the input of this converter, and CVBS-OUT to a car screen.
3) When power up, this converter starts in RGB→CVBS converting.
4) The installer can set the OSD "Green wire:---RGBin", so when green wire=12V, the video input is selected be set to RGB。(the green wire has higher priority than DIP7 DIP8).

3、universal steering wheel controller.

This converter can generate icons on the CVBS which go throught it, when the universal can box is connected, the user can push steering keys to select the icon and execute the IR operations, thus remote controllers are not needed inside a car. This CAN-Box needs to ordered sperately.
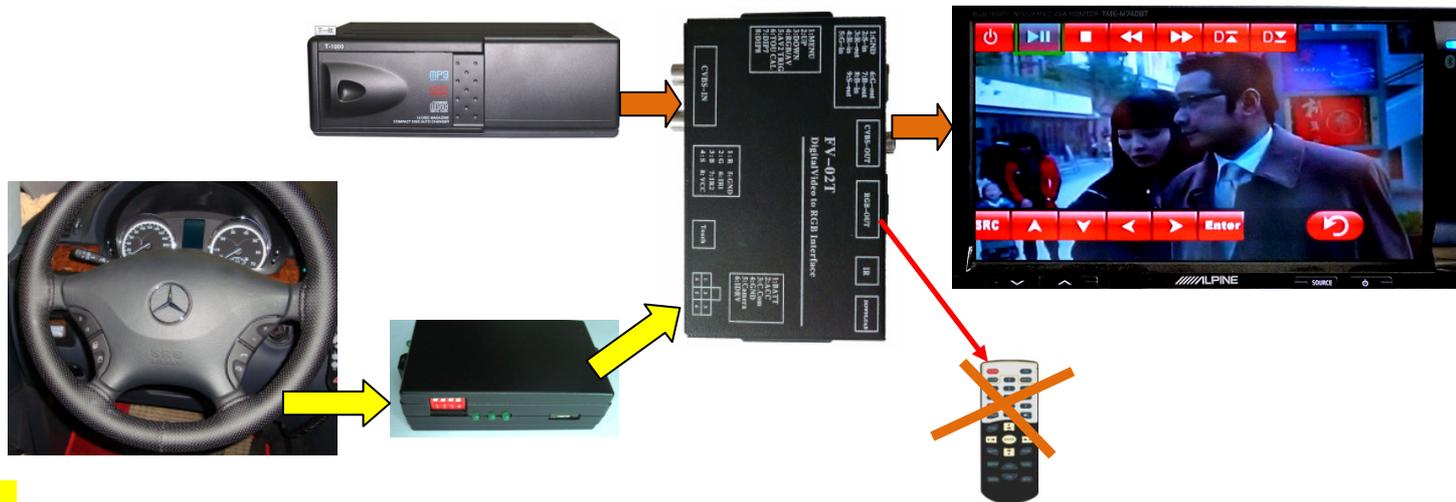
3 .Power input Pins.

Pin #	function
1 Yellow	BATT（+12V）
2 RED	ACC（+12V）
3 Gray	data communication wire with CAN bus, the installer should not modify it.
4 Black	GND.
5 Green	Trigger wire when get to 12V, the triggered input can be selected in OSD to be CVBS1, CVBS2, or RGB.
6. White	Switching wire, when >3V the converter switches the source.

DIPSettings.

DIP	DOWN side（=ON）	UP side（=OFF）
1 MENU	Menu key	
2 UP	UP key	
3 DOWN	Down key, the DIP123 can set the OSD parameters.	
4 RGB/AV	Output = RGB（480*234）	Output = CVBS
5 ext RGB input	Ext RGB input=NTSC（480*240）	Ext RGB input =VGA HD RGB（800*480）
6 calibration	Go down twice to go to IR programming. Go down 6 times to go to touch foil calibration.	
7 CAR RGB	CAR RGB enabled	CAR RGB disabled when switching
8 RGB_EN	ext RGB enabled	ext RGB disabled when switching

4. Installer operations

a) Select the output mode：if the user wants CVBS for the screen, DIP4 needs to be OFF. If the screen needs RGB signals, DIP4 needs to be off.

b) Select the input sources: if there is only one video sources like DVD, then the OSD menu needs to

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set "Green wire…..AV1" like the picture is showing, when the green wire is connected to ACC, the AV1 is selected. If there are multiple inputs, the DIP78 may be also needs to set.

✦ Input switch：if the green wire is not fixed to 12V, the user pushes the switch button, the video will be selected: CAR RGB→AV1→AV2→Ext RGB→Car RGB..

✦ Picture tuning：the DIP123 are MENU、 UP、DOWN, the installer can use these 3 DIPs to tune color. The menu has another page, which has "H Postion","V position", people can adjust to get the perfect image location on screen.

✦ Touch foil calibration

A. Touch calibration

When a touch panel is connected, since the physical property may be different, it needs to be calibrated.

1、 Then DIP6 should should go down 6 times, then a cross will be shown on screen like this.

2、 Then installer hit the center of the cross "+".

3、 The cross will go to another location, it will disappear when all points are calculated.

4、this touch to IR conversion is only valid in AV1、AV2 input. When in ext.RGB input, the 4Pin touch panel signal is switched to the touch-out port.

✦ IR code programming：

A、this conversion box has >10 kinds of DVD and TV tuner codes inside.so the installer just needs to select the OSD brand in the side menu. He can also select "PROG" to program it. When he select None, it means the IR output function is disabled.
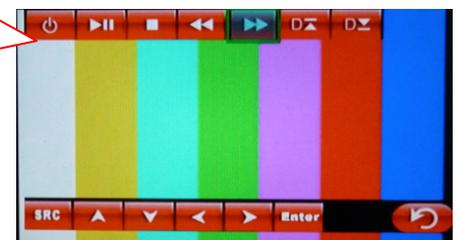
The installer sets "IR.IN1…PROG" in OSD menu,he can put DIP6 down 2 times then the icons will be shown with one of them blinking, the installer can press one remote key toward the IR port of the box, the blinking will be moved to another one.

The installer can keep on pressing relative keys till all icons are programmed.

When the installer switches into AV2, he can program in the similar way.

B. Hardware connection

the Pin7 of the RGB-in like the picture here can generate IR output, it should be connected to the IR signal wire of the DVD's IR sensor.

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Parameters：

#	name	value
1	Video amplitude of Av1、Av2 ,Cam	0.7Vpp @75 Ω
2	Sync amplitude	3~5Vpp @5KΩ, Negative sync.
3	Ext. RGB input resolution	800*480, 640*480 or 480*234
4	RGB output resolution	480*234
5	Power consumption	2.88W [0.24A @12V]
6	Standby current（Acc=0）	< 10UA
7	Trigger voltage（green and white wire）	>5Vtrigger
8	Work temperature	–40 ~ +85C
9	Work voltage range	7~20V（normal：12V）