# CAR-5N / CAR-5P Video to RGB Converter for CAR display

**Operation Manual**

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## *1. Introduction*

The CAR-5N/CAR-5P is the most valuable to convert video signal to RGB for car display. This converter box has a tuner that allows user to receive analog TV signal and also can connect input video signal through AV connectors. The CAR-5N is build with NTSC tuner and the CAR-5P is build with PAL/SECAM tuner. The user can simply choose the right solution to install in you car and enjoy the product on the car.

## *2. Features*

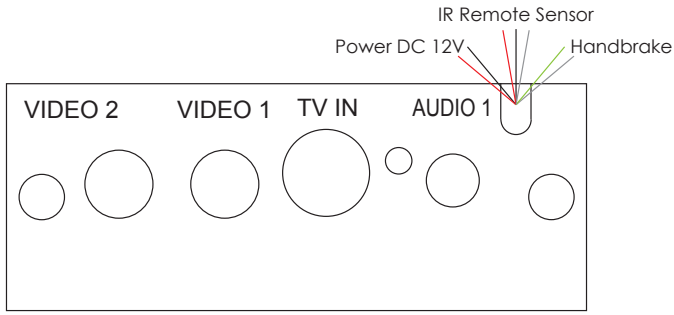
- Connect TV, DVD, and Reverse Camera to RGB for car display.
- Video/Audio sources switching between reverse camera / handbrake / RGB-bypass (Navigation system).
- Convert the video source to R/G/B/Sync or R/Gsync/B for car display.
- The system can auto detection the video input format (NTSC3.58 / NTSC4.43 / PAL-M / PAL / PAL-N / SECAM) and convert to RGB format.
- The CAR-5N is build with NTSC tuner (for USA) and the CAR-5P is build with PAL/SECAM tuner (for Europe).
- CAR-5N supports MTS (STEREO / MONO / SAP).
- CAR-5P supports multi-sound system (STEREO/MONO/DUAL A/DUAL B).
- TV channel auto scanning.
- Adjustments for Brightness / Contrast / Saturation / Hue through OSD menu.
- Output sync polarity can switch between positive and negative.
- IR remote control.
- Memory last selection of the TV channel.

## *3. Package Contents*

- Video to RGB converter box
- D-Sub 9-pin RGB bare wire.
- Remote Control
- Operation Manual

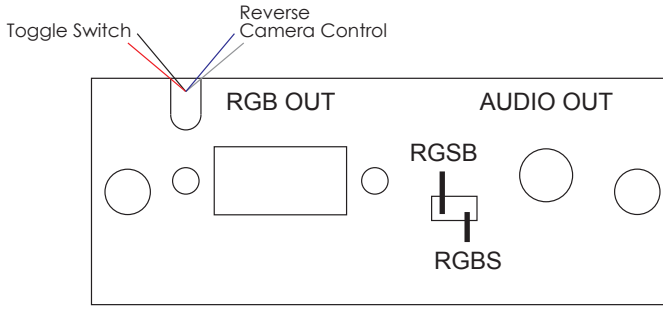
## 4. Operation Controls and Functions

### 4.1. Front Panel




1. Handbrake: These green and white wires are connected to the handbrake control signal. When handbrake up the system in short circuit status, when handbrake down the system in open circuit status.
   IR Remote Sensor: Connected to the IR Sensor.
   Power DC 12V: Connected to the power.
2. Audio 1: Connect the analog audio input port to the output port of your source (video 1) equipment.
3. TV IN: Connect the antenna jack to this unit.
4. Video 1: Connected to the video source.
5. Video 2: Connected to the reverse camera.

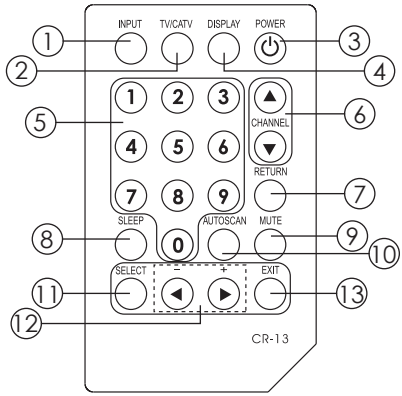
### 4.2. Rear Panel




1. Toggle Switch: These red and black wires are for the signal toggle control. When the toggle switch in short circuit status the input system will be RGB bypass mode (Navigation system input), when the toggle switch in open circuit status the input system will switch to video sources input (TV/video 1/ video 2).
   Reverse Camera: These blue and white wires are for the reverse camera control. When the power 12V provide to the control wires the camera switch on, when the control wires in open circuit the camera switch off.

2. RGB Out: Connected to the special RGB cable for car display. When the unit in standby mode the input will switch to Navigation system.
3. RGsB/RGBS switch: To switch between the Sync on Green (RGsB) and individual Sync (RGBS).
4. Audio Out: Connect the analog audio output port to the input port of the analog audio equipment.

## *5. Remote Control Operation*




① . INPUT: Input sources selection TV /VIDEO1 (Video)/VIDEO2 (Reverse Camera)/ Navigation system.
② . TV/CATV: Switch between Terrestrial TV systems and cable TV channel systems.
③ . POWER: Switch between power on and standby mode.
④ . DISPLAY: Display input source information.
⑤ . 0 ~ 9: Direct channel selection.
⑥ . CHANNEL ▲/▼: TV channel up/down selection.
⑦ . RETURN: Return to previously selected channel.
⑧ . SLEEP: Set a predetermined time for automatically turning off the unit (Sleep timer - 0 (OFF), 10, 20, ~ 120 minutes).
⑨ . MUTE: Mute sound output.
⑩ . AUTOSCAN: Scan the available channels and memories automatically.
⑪ . SELECT ▲/▼: Video Adjustments (brightness/contrast/saturation/hue/picture reset/fine tune (TV)).
⑫ . - / +: Volume adjustment.
⑬ . EXIT: To exit the select menu or when OSD disappear the [Exit] keypad become MTS function (multi-sound).

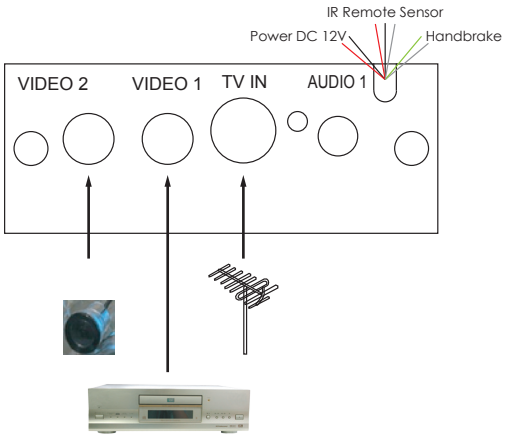
## 6. *Priorities of three controls*

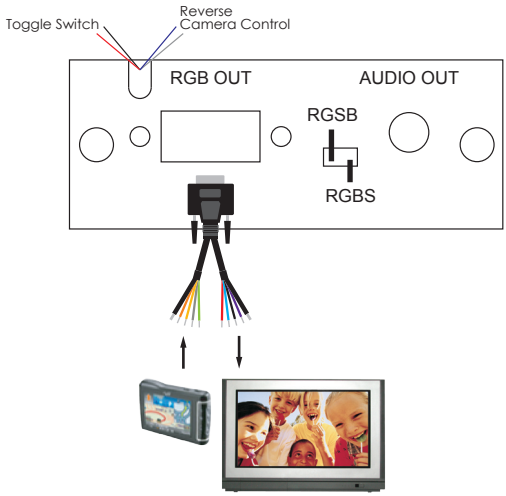
Priorities of the controls: Reverse Camera > HandBrake > Toggle Switch.
When the unit in standby mode the input will switch to Navigation system.

| | | | | |
|---|---|---|---|---|
| Highest Priority | Reverse Camera | | | |
| | ON (12v) | OFF (open) | | |
| Middle Priority | Handbrake | Handbrake | | |
| | * x | UP (ground) | | DOWN (open) |
| Lowest Priority | TOGGLE | TOGGLE | | TOGGLE |
| | X | CONVERT (open) | BYPASS (short) | x |
| **OUTPUT** | VIDEO2(Reverse Camera) | IR selection | Navi | Navi |

* ' x ' means when higher priority control active the unit will ignore the lower priority control.

## 7. *Connection and Installation*



## *8. 9-Pin D Females connector*

| Wire color | Pin configuration | Description |
|---|---|---|
| Gray | Pin1 | GND |
| Brown | Pin2 | Navigation bypass SYNC-in |
| Red | Pin3 | RED out |
| Yellow | Pin4 | Navigation bypass R-in |
| Green | Pin5 | Navigation bypass G-in |
| Blue | Pin6 | Green out |
| Purple | Pin7 | Blue out |
| Orange | Pin8 | Navigation bypass B-in |
| Black | Pin9 | Sync out |

## *9. Polarity Control*

In the factory mode the output sync polarity in negative mode. If the display with positive sync polarity please open the housing and remote the SW2 jumper to pin 1 & 2.

| Sync Polarity | Pin configuration in SW2 |
|---|---|
| Positive | Pin1 and Pin2 |
| Negative (Factory mode) | Pin2 and Pin 3 |

## *10. Appendix*

### *10.1. Specifications*

| | |
|---|---|
| Input port: | Video input 1: 1 Vp-p 75ohm RCA jack x 1 |
| | TV tuner input x 1 |
| | Audio input: x 1 |
| | Reverse Camera video input 2: 1vpp 75ohm, RCA jack |
| | RGBS Navigation: Pass through from DB9 female connector |
| Output port: | RGB: 0.7Vp-p 75ohm 9-pin D Females connector x1 |
| | Audio output: x 1 |
| | Sync level: 3vpp positive or negative polarity |
| | RGBS navigation: Pass through |
| Power Supply: | DC 12V |
| Dimensions (mm): | 192(W) x 77(D) x 30(H) |
| Weight(g): | 600 |
| Chassis Material: | Metal |
| Silk Skin Colo: | Black |
| Operating Temperature: | Operating from $0^{O}C$ ~ $70^{O}C$ |

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