v.LiNK Video-inserter
CI-VL2-RLINK

Compatible with
Dacia, Fiat, Opel, Smart and Renault
with RLink or MediaNav system

Video-inserter with 2 video inputs + rear-view camera input and CAN control

Product features

- **Video-Inserter for factory monitors**
- **2 CVBS video-inputs (NTSC only) for after-market devices (e.g. DVD-Player, DVB-T tuner, …)**
- **Built-in audio-switch (no audio-insertion)**
- **Rear-view camera CVBS video-input (NTSC only)**
- **Automatic switching to rear-view camera input by engagement of reverse gear**
- **Activatable parking guide lines for rear-view camera (not all vehicles)**
- **Video-in-motion (ONLY for connected video-sources)**
- **Compatible with Factory Rear-View Camera**

Contents

Legal Information

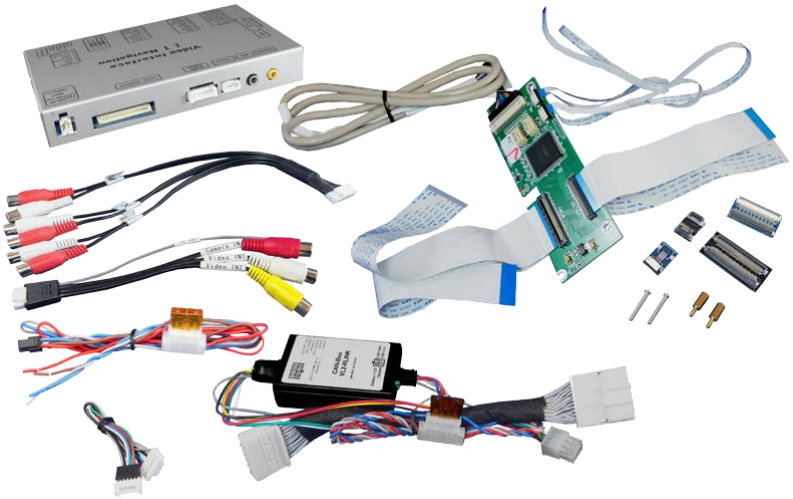
By law, watching moving pictures while driving is prohibited, the driver must not be distracted. We do not accept any liability for material damage or personal injury resulting, directly or indirectly, from installation or operation of this product. This product should only be used while standing or to display fixed menus or rear-view-camera video when the vehicle is moving, for example the MP3 menu for DVD upgrades.

Changes/updates of the vehicle's software can cause malfunctions of the interface. We offer free software-updates for our interfaces for one year after purchase. To receive a free update, the interface must be sent in at own cost. Labour cost for and other expenses involved with the software-updates will not be refunded.

1. Prior to installation

Read the manual prior to installation.
Technical knowledge is necessary for installation. The place of installation must be free of moisture and away from heat sources.

1.1. Delivery contents



Take down the serial number of the interface and store this manual for support purposes:

_____

1.2. Checking the compatibility of vehicle and accessories

Requirements

Brand	Compatible vehicles	Compatible systems
Dacia	Dokker 2013-, Duster 2014-, Lodgy 2012-, Logan 2013-, Sandero 2012-	MediaNav
Fiat	Talento model year 2016-	MediaNav
Opel	Movano from about 2016-, Vivaro from about 2016-	Navi 50 (MediaNav), Navi 80 IntelliLink (Rlink)
Renault	Captur model year 2015-, Clio model year 2014-, Kangoo model year 2014-, Master model year 2015-, Megane model year 2013-, Trafic model year 2015, Twingo model year 2013- and other vehicles with	R-Link, MediaNav
Smart	ForTwo (C453/A453) from 09/2014, ForFour (W453) from 08/2014, Brabus Versions from 2016	Smart Media System (R-Link)

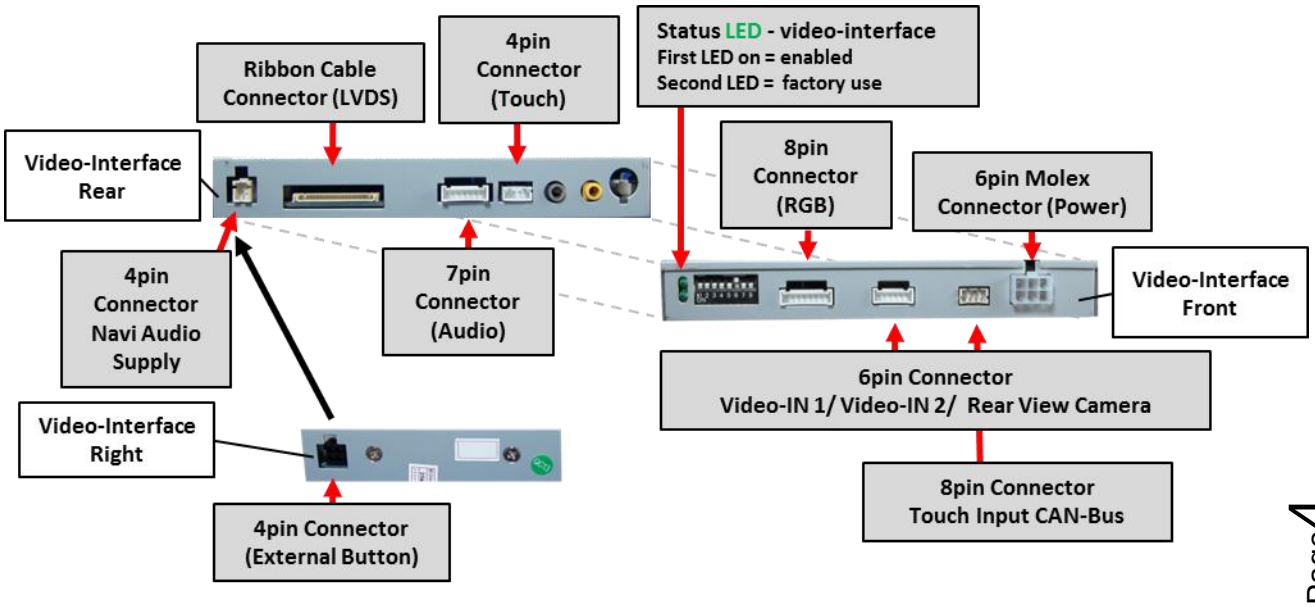
Limitations

Video only	The interface inserts ONLY video signals into the infotainment. For audio insertion factory-audio-AUX-input or a FM-modulator is required.
Video sources	NTSC-sources compatible only.
Factory rear view camera	*Automatic switch to factory rear view camera only while reverse gear is*

1.3. Boxes and connectors

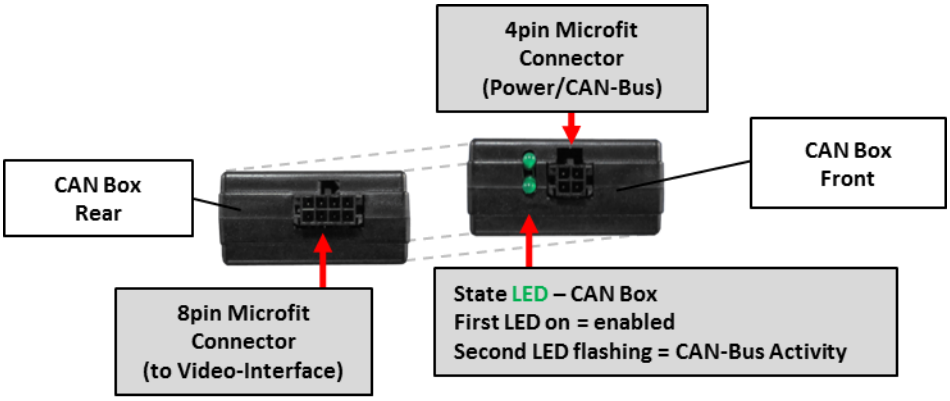
1.3.1. Video-interface

The video-interface converts the connected after-market sources video signals to an LVDS signal which is the inserted into the factory monitor by various trigger options.

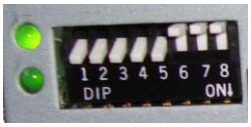


1.3.2. CAN-bus box

The CAN-bus box reads digital signals from the CAN-bus and converts them for the video-interface.



1.3.2.1. Dip-switch settings



Some settings must be selected by the dip-switches on the video-interface. Dip position down is ON and position up is OFF.

Dip	Function	ON (down)	OFF (up)
1	RGB-input	enabled	disabled
2	CVBS AV1-input	enabled	disabled
3	CVBS AV2-input	enabled	Disabled
4	RGB-input resolution	800x480	400x240 or 480x240
5	Rear-view cam type	after-market	factory or none
6	No function	-	set OFF
7	No Function	set OFF	
8			

See following chapters for detailed information.

1.3.2.2. Enabling the interface's video inputs (dip 1-3)

Only the enabled video inputs can be accessed when switching to the interface's video sources. It is recommended to enable only the required inputs for the disabled will be skipped when switching to the video-interfaces inputs.

1.3.2.3. RGB-video input signal selection for after-market navigation (Dip 4)

If an after-market RGB navigation or other RGB video source is connected, the source's RGB output signal must match the interface's RGB video input setting.

1.3.2.4. Rear-view camera setting (dip 5)

If set to OFF, the interface switches to factory LVDS picture while the reverse gear is engaged to display factory rear-view camera or factory optical park system picture.
If set to ON, the interface switches to its rear-view camera input CAM while the reverse gear is engaged.

1.3.2.5. Monitor selection (dip 7-8)

The dip-switches are out of function.

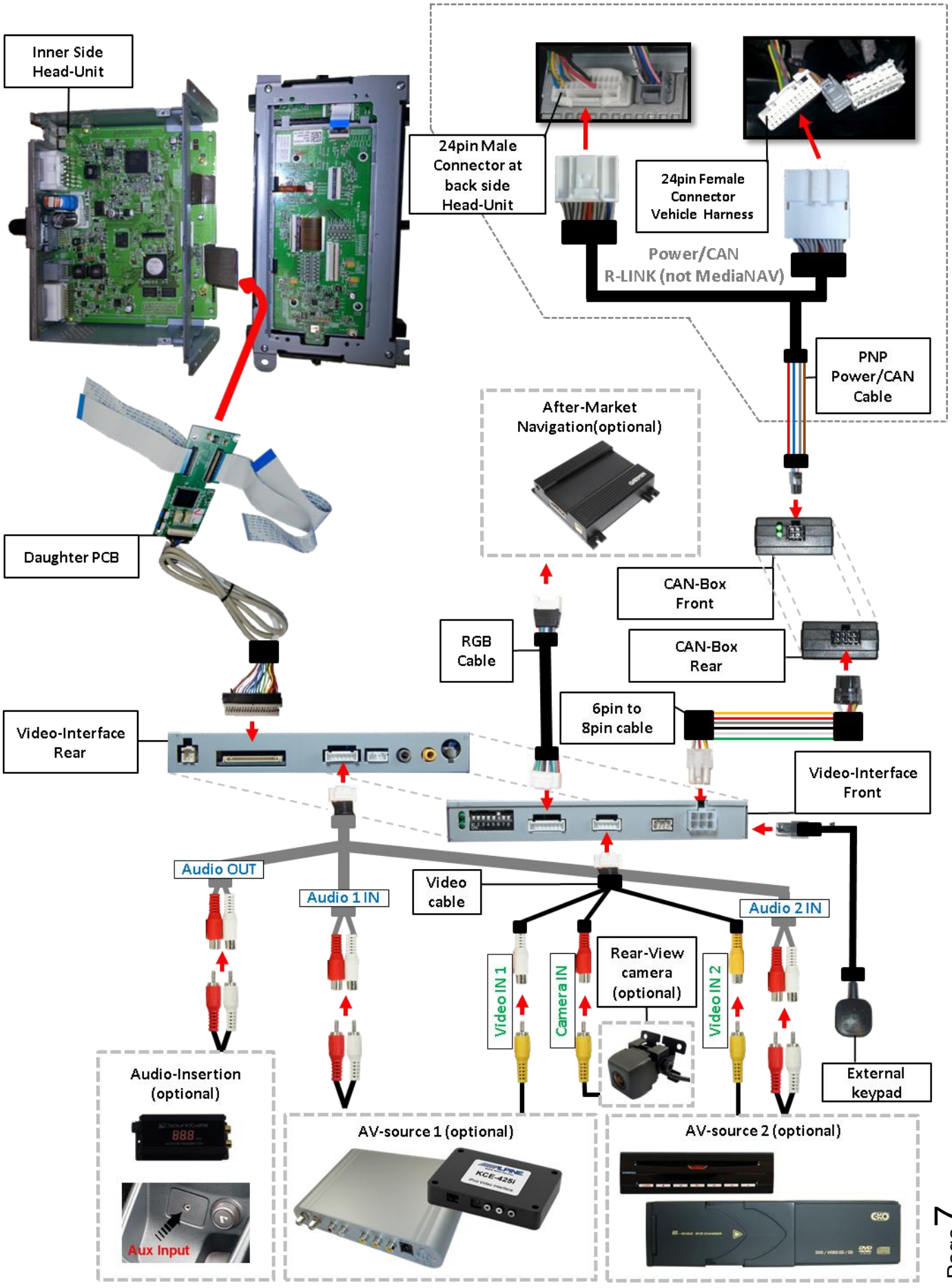
2. Installation

Switch off ignition and disconnect the vehicle's battery! The interface needs a permanent 12V source. If according to factory rules disconnecting the battery is to be avoided, it is usually sufficient to put the vehicle to "Sleep-Mode". In case it does not succeed, disconnect the battery with a resistor lead.
If power source is not taken directly from the battery, the connection has to be checked for being start-up proven and permanent.

2.1. Place of installation

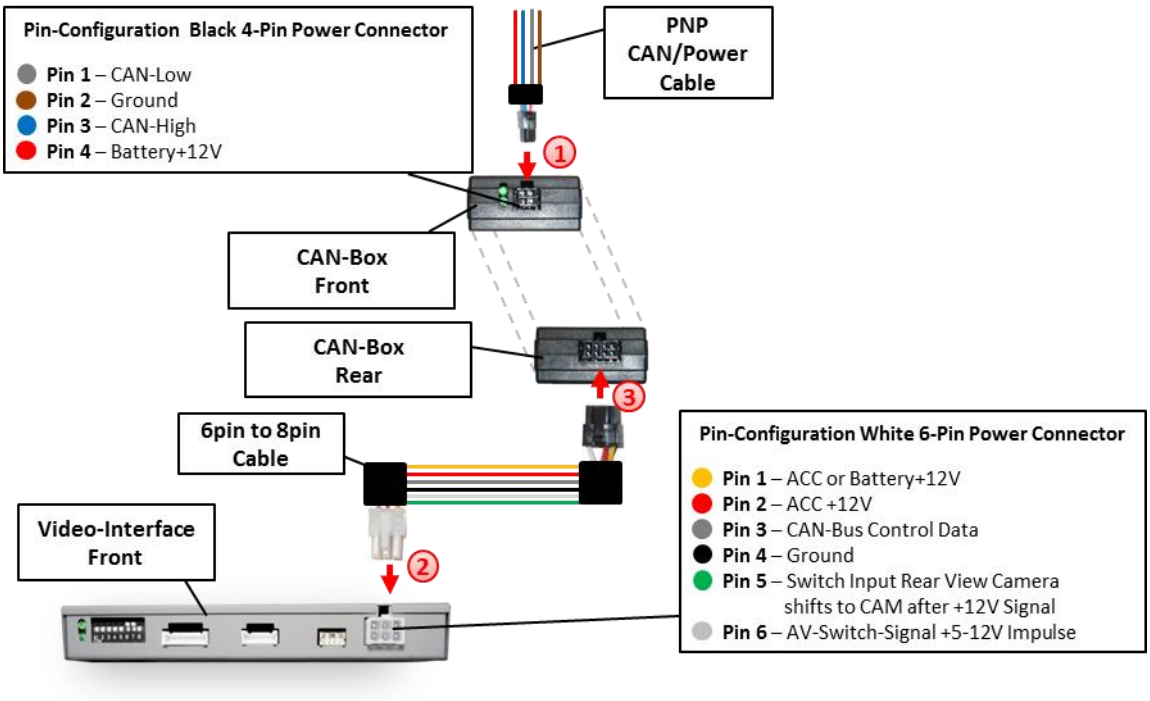
The interface is installed by ribbon cables to the monitor panel and at the rear of head-unit. For this purpose the housing of head-unit have to be opened.

2.2. Connection Scheme



2.3. Connecting video-interface and CAN-Box

The CAN-Bus Box reads digital signals from the CAN-bus and converts them for the video-interface. ACC +12V max. 0.5A (red of 6pin) and reverse gear +12V max. 0.5A constant signal (green of 6pin). Video-source switching (white of 6pin) as +12V impulse.



1. Connect the black female 4pin Micro-Fit connector of the PNP Can/Power Cable to the 4pin Micro-Fit connector of the CAN-box.

   Note: Check LEDs on CAN-box after reconnecting the battery, two must be on.

2. Connect the white female 6pin Molex connector of the 6pin to 8pin cable to the male 6pin Molex connector of the video-interface.

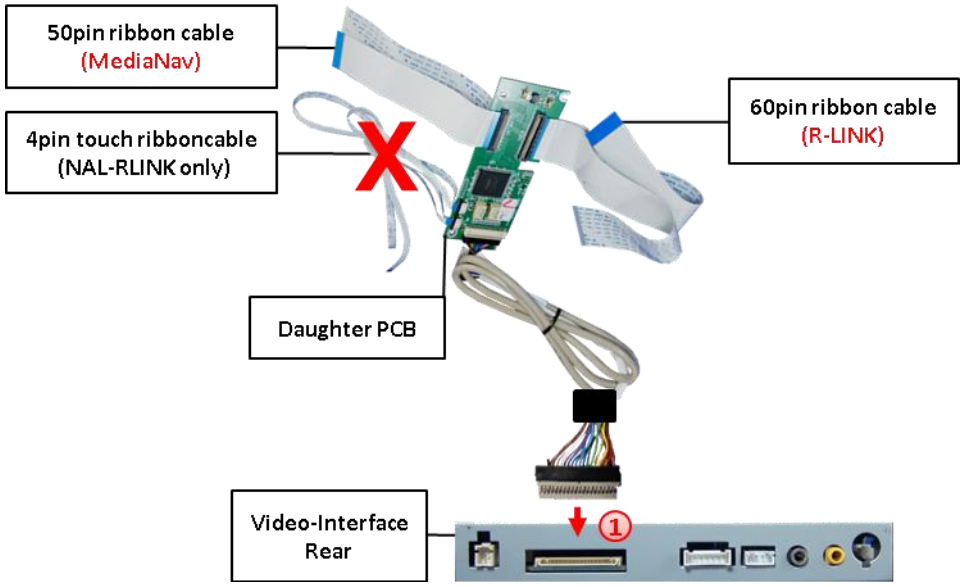
3. Connect the black female 8pin Micro-Fit connector of the 6pin to 8pin cable to the male 8pin Micro-Fit connector of the CAN-box.

   Note: Check LEDs on video-interface after reconnecting the battery, one must be on.

Note: The CAN-box is not compatible to all vehicles. If the CAN-box does not deliver ACC to pin2 of the video-interface or blocks the vehicle CAN, it is possible to install the system without CAN-box. In this case, see also the note in chapter “after-market rear-view camera”, how the interface is supposed to be connected without CAN-Box.

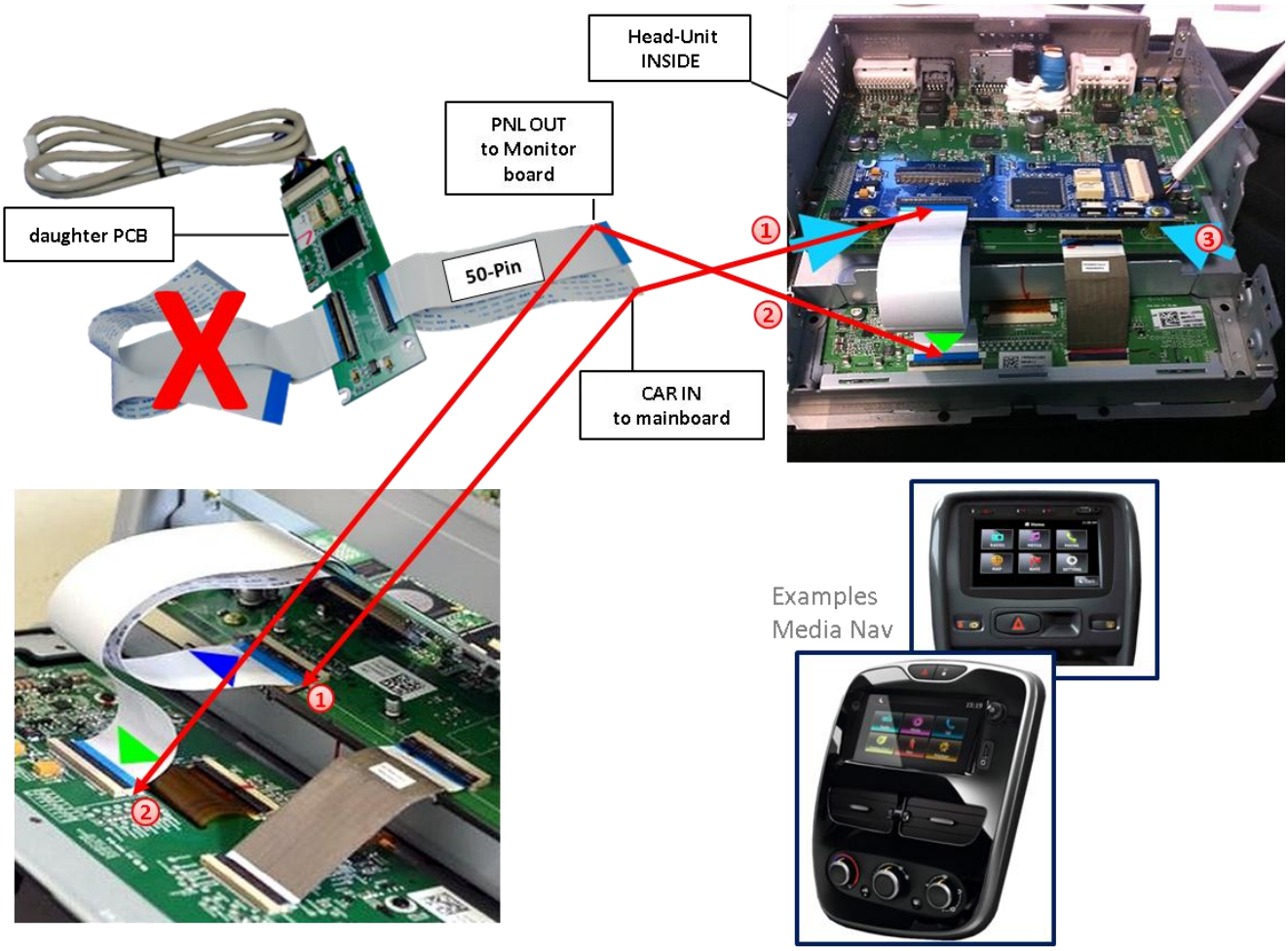
2.4. Installation of the Ribbon cables into the Monitor panel

Remove the factory monitor and open it`s housing. The external daughter PCB is built to be installed into the optical lead between the monitor panel and mainboard of the vehicles monitor. The daughter PCB is equipped with to different ribbon cable options to support two different monitor systems. Both 50pin Ribbon cables and both 60pin Ribbon cables are easily recognizable as they differ in size. Depending on the system, the two unneeded Ribbon cables have to be removed by unclipping the Ribbon cable base.



1. Connect the female 20pin connector of the daughter PCB to the male20pin connector of the 20pin cable and connect the second male 20pin connector opposite the cable to the female 20pin connector of the interface. Take care for installing the cable in the right direction as both connectors are identical. (Take notice of the wire`s caption “MONITOR SIDE” and “BOX SIDE”

2.4.1. Media Nav with 50pin Ribbon cable



1. Disconnect the optical leads housed between the monitor`s mainboard and the monitor-panel. Connect the daughter PCB's ribbon cable **CAR-IN** to the ribbon cable base of the monitor`s mainboard. For this procedure you may either use the original ribbon cable or the ribbon cable of the daughter PCB. Make sure that the connector pins of each pin connector are faced to the platinum before clipping them.

2. Connect the ribbon cable **PNL OUT** of the daughter PCB to the ribbon cable base of the monitor's platinum (take care again for a platinum faced installation of the connector pins!)

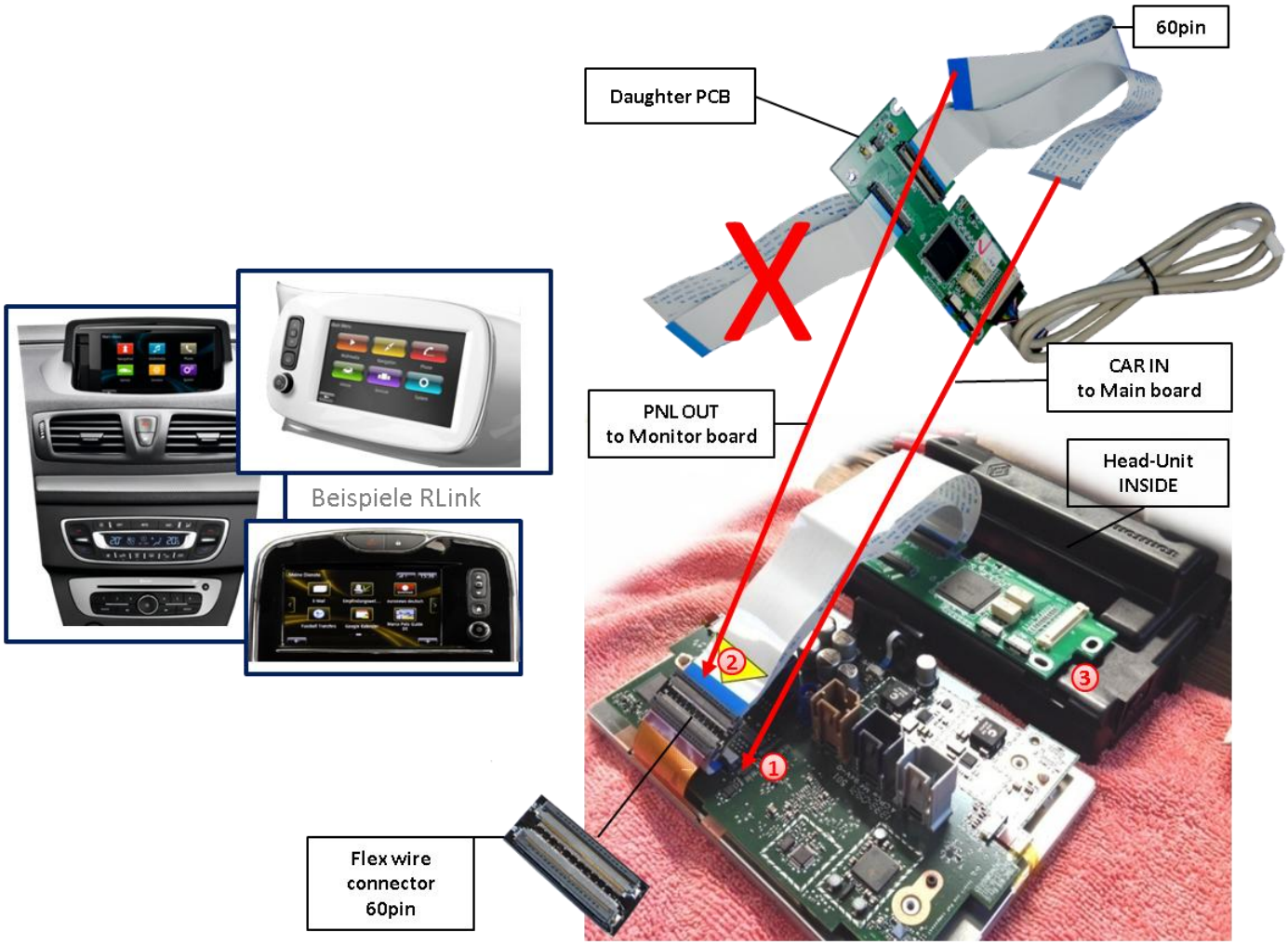
3. Carefully fix the daughter PCB to the mainboard of the monitor by using the enclosed spacers and screws

2.4.1.1. Warning notes, concerning the installation of ribbon cables:

1) The contacting ends of ribbon cables always have to be installed in a straight and precise 180° position to the connector. Each deviation from a perfect contact position will curse faulty contact and even danger of short circuit

2) The ribbon cable's contacting side always has to correspond to the contacting side of the connector, concerning the mounting position.

2.4.2. R-Link with 60pin Flex cable



1. Disconnect the Ribbon cable between the monitor's monitor panel and the monitor PCB. Connect the daughter PCB's ribbon cable **CAR-IN** to the ribbon cable base of the monitor panel. For this procedure you may either use the original ribbon cable or the ribbon cable of daughter PCB. Make sure that the connector pins of each pin connector are faced to the platinum before clipping them.

2. Connect the daughter PCB's ribbon cable **PNL OUT** to the ribbon cable base of the monitor panel's short original Flex cable, by using the enclosed pin connector (pay same attention to platinum faced installation of the connector pins!).

3. Carefully fix the daughter PCB to the monitor`s rear side by using the enclosed longer screws

2.4.2.1. Warning notes, concerning the installation of ribbon cables:

1) The contacting ends of ribbon cables always have to be installed in a straight and precise 180° position to the connector. Each deviation from a perfect contact position will curse faulty contact and even danger of short circuit

2) The ribbon cable's contacting side always has to correspond to the contacting side of the connector, concerning the mounting position.

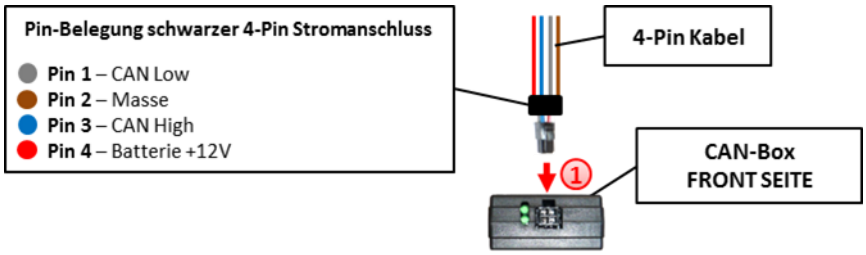
2.5. Connection to the head unit- Power and CAN

Depending on the system (MediNav or RLink) there`re to different Power-and Can connections required.

For the MediaNav installation the enclosed PNP harness is not usable

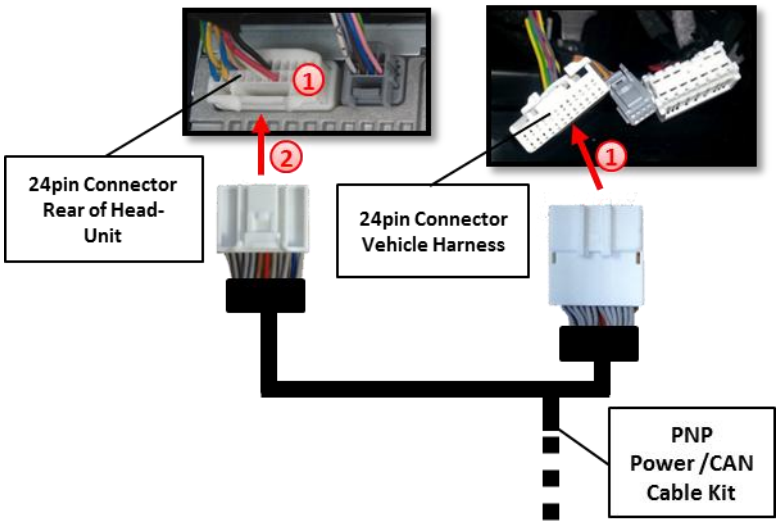
2.5.1. MediaNav with 50pin Ribbon cable

Remove the vehicle`s monitor. The PNP Power/CAN harness is not usable with the MediaNav system. Instead the enclosed 4pin cable with stripped ends has to be used. Use the 4pin cable diagram below.



1. Connect the stripped ends of the 4pin cable to Ground, Battery +12V, CAN high- and low, of the vehicle`s monitor harness, without cutting them.

2.5.2. R-Link with 60pin ribbon cable



1. Disconnect the 24pin connector of the vehicle harness at the rear of Monitor and connect it to the 24pin Connector of PNP Power/CAN Cable Kit.

2. Connect the 24pin-connector of PNP Power/CAN Cable Kit to the 24pin-connector at the Monitor`s Rear side.

   Attach the daughter PCB at the outer side of monitor. Please use the enclosed long screws for easier mounting.

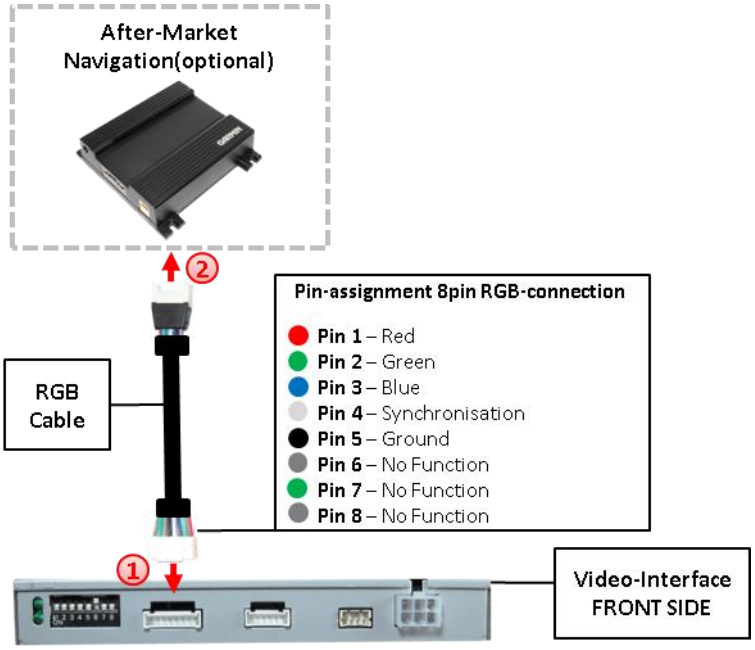
2.6. Connecting peripheral devices

It is possible to connect an after-market RGB navigation (or other RGB video source), 2 after-market AV-sources and an after-market rear-view camera to the video-interface.

Before final installation of the peripheral devices, we recommend a test-run of the interface. Due to changes in the production of the vehicle manufacturer is always the possibility of incompatibility.

Note: NTSC sources are compatible only.

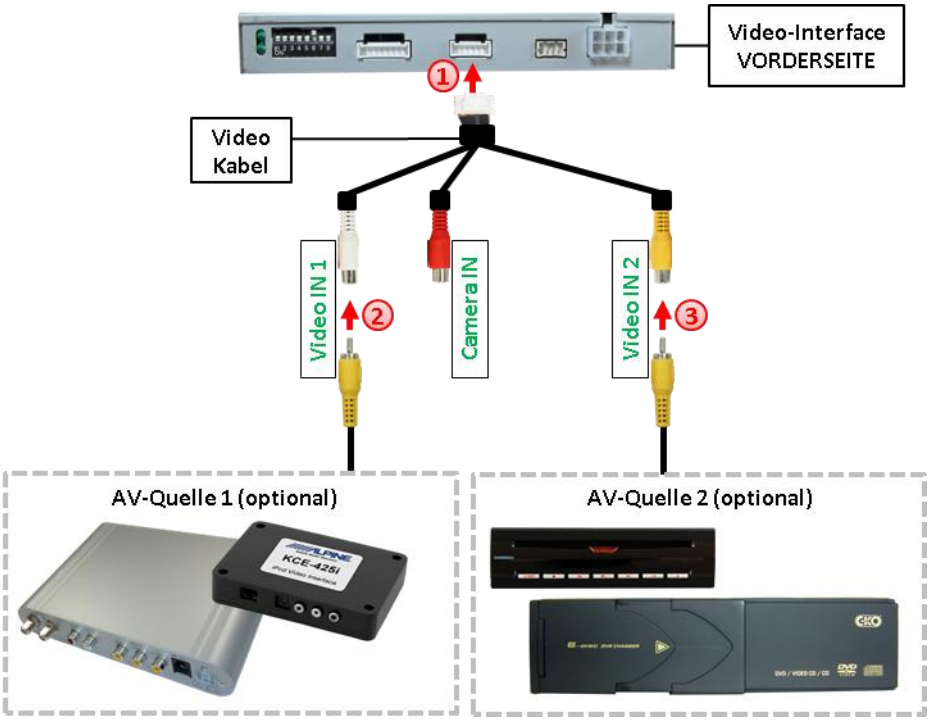
2.6.1. After-Market RGB navigation (NTSC only)



1. Connect the female 8pin connector of the RGB cable to the male 8pin connector of the video-interface. The loose grey wires have no function and have to be isolated.

2. Connect male 6pin connector of the RGB cable to the after-Market navigation (NTSC only).

2.6.2. Video-sources (NTSC only) to AV1 and AV2



1. Connect 6pin male connector of video cable to female 6pin connector of video-interface

2. Connect the male video RCA (NTSC only) of the AV1-source to the female RCA connector AV1 of the video-interface.

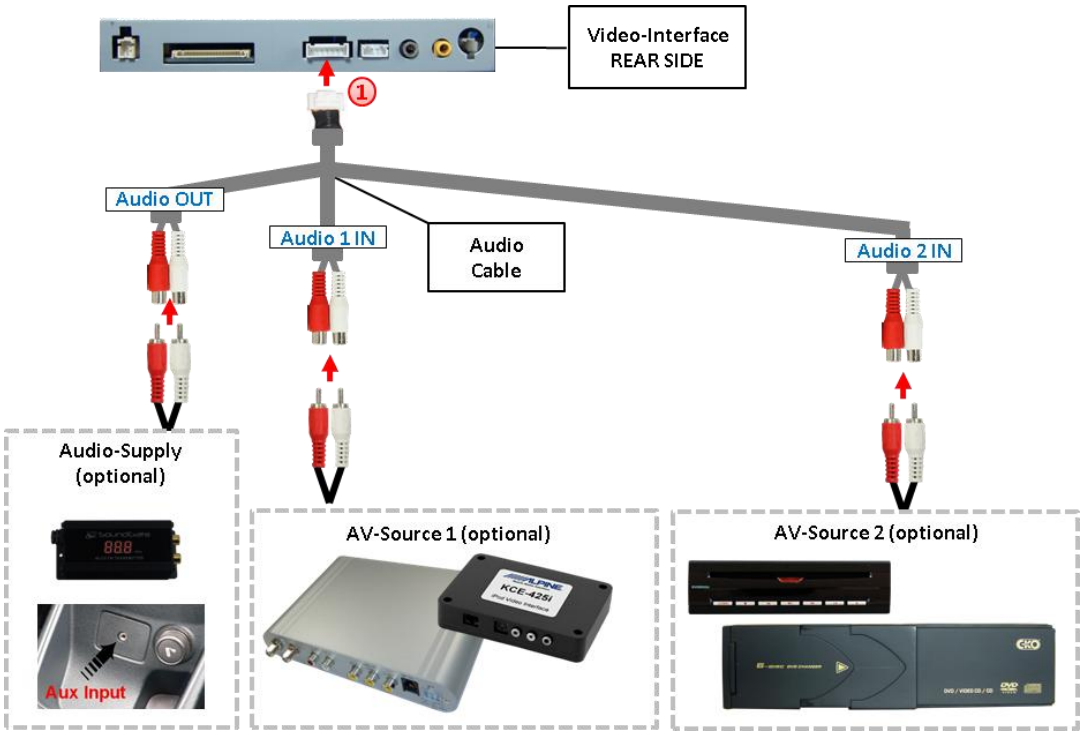
3. Connect the male video RCA (NTSC only) of the AV2 source to the female RCA connector AV2 of the video-interface.

2.6.3. Audio-switch and audio insertion

This interface can only insert video signals into the factory infotainment and switch audio signals. If an AV-source is connected audio insertion must be done by factory audio AUX input or FM-modulator to which the interface's sound-switch output is connected. By switching video-interface from AV1 to AV2, the audio signal is switched automatically parallel to the corresponding video signal by the interface's built-in audio-switch.
The inserted video-signal can be activated parallel to each audio-mode of the factory infotainment.

Audio pins	Definition
½	Audio input signal R/L of source AV2
¾	Audio input signal R/L of source AV1
5/6	Audio output signal R/L of factory audio AUX or FM-modulator
7	Ground

Note: If only one AV-source shell be connected, it's possible to connect the video output of the AV-source to the video input AV1 of the video-interface and the audio output of the AV-source directly to the point of audio-insertion (e.g. audio AUX input).



1. Connect the female 7pin connector of the audio cable to the male 7pin connector of the video-interface.
2. Connect the audio-RCA of the possibly existing factory AUX-input or the FM-modulator to the female RCA port AV-Out of the audio cable.
3. Connect the audio-RCA of the AV-source 1 to the female RCA port AV1 of the audio cable.
4. Connect the audio-RCA of the AV-source 2 to the female RCA port AV2 of the audio cable.

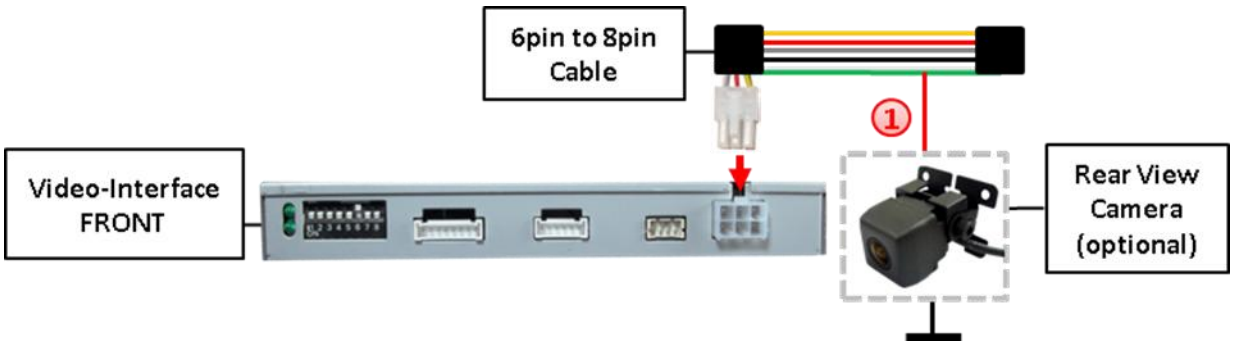
2.6.4. After-market rear-view camera

Some vehicles have a different reverse gear code on the CAN-bus which the included CAN-box is not compatible with. Therefore there is two different ways of installation. If the CAN-box can detect the reverse gear in the vehicle, the green wire of the 6pin to 8pin cable should carry +12V while the reverse gear is engaged.

Note: Do not forget to set dip5 of video-interface to ON before testing. NTSC cameras are compatible only.

2.6.4.1. Case 1: CAN-box supports reverse gear

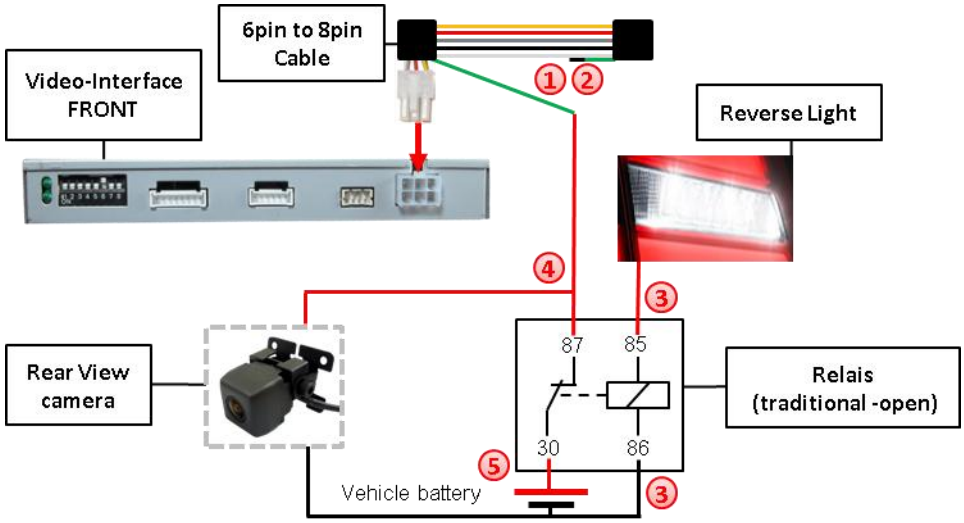
If the CAN-bus interface delivers +12V on the green wire of the 6pin to 8pin cable when reverse gear is engaged, the video interface will automatically be switched to the rear-view camera input CAM while the reverse gear is engaged.



1 Additionally, the +12V (max. 500mA) power supply for the rear-view camera can be taken from the green wire of the 6pin to 8pin cable.

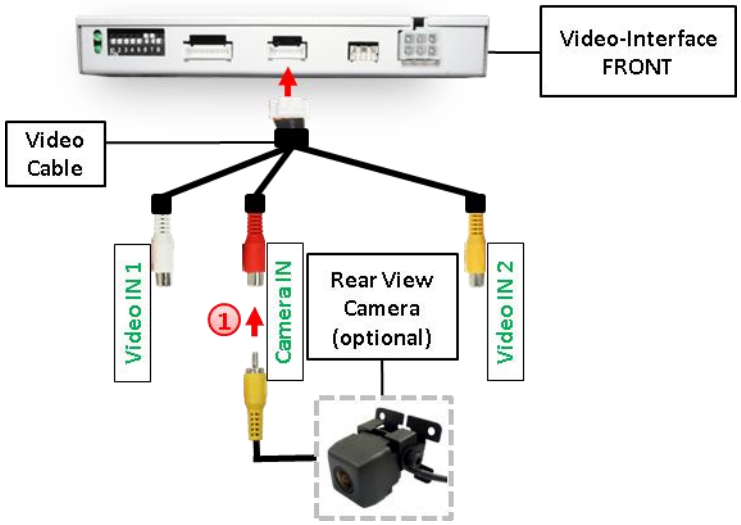
2.6.4.2. Case 2: CAN-box does not support reverse gear

If the CAN-bus interface does not deliver +12V on the green wire of the 6pin to 8pin cable when reverse gear is engaged (not all vehicles are compatible) an external switching signal from the reverse gear light is required. As the reverse gear light signal contains electronic interference, a normally open relay (e.g. AC-RW-1230 with wiring AC-RS5) or filter (e.g. AC-PNF-RVC) is required. Below schema shows the use of a relay (normally open).



1. Cut the green cable of the 6pin to 8pin cable close to the black 8pin connector.
2. Isolate the short end of the green wire (CAN-box side).
3. Connect reverse gear light signal/power to coil (85) and ground to coil (86) of relais.
4. Connect rear-view camera power and green wire (video interface side) of the 6pin to 8pin cable to output (87) of relay.
5. Connect permanent battery power to input (30) of relay.

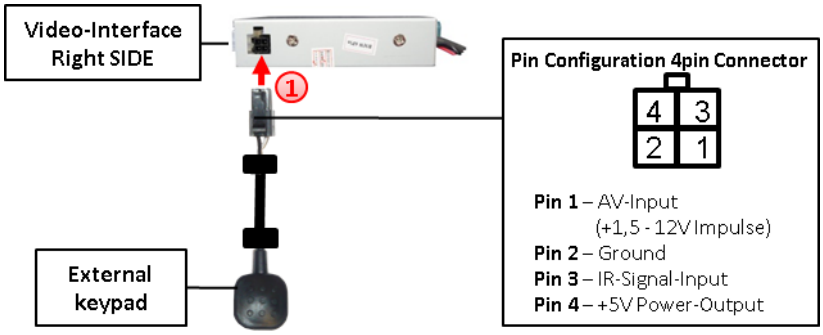
2.6.4.3. Video signal connection



1 Connect the video-RCA of the after-market rear-view camera (NTSC only) to the female RCA port of the video-interface which is labelled as CAM.

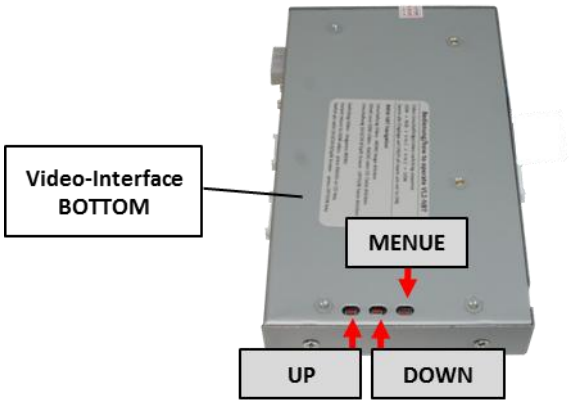
Note: Picture settings for CAM input must be done in AV2.

2.6.4.4. Connecting video-interface and keypad



1 Connect the female 4pin connector of the keypad to the male 4pin connector of the video-interface.

2.8. Picture settings and Guide Lines

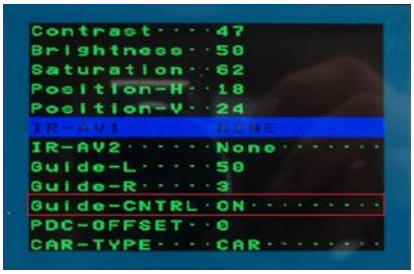


The picture settings are adjusted by the 3 buttons on the video-interface. Press the MENU button to open the OSD settings menu or to switch to the next menu item. Press UP and DOWN change the selected value. The buttons are embedded in the housing to avoid accidental changes during or after installation. Picture settings must be done separately for RGB, AV1 and AV2 while the corresponding input is selected and visible on the monitor. AV2 and CAM share the same settings which must be adjusted in AV2.

Note: The OSD menu is only shown when a working video source is connected to the selected video-input of the interface.

The following settings are available:

Brightness
Contrast
Saturation
Position H (horizontal)
Position V (vertical)
Guide CNTRL (ON



Note: In case the CAN-Box does not support the vehicle, guide lines cannot be used.

3. Interface operation

3.1. By VOL- button

Press VOL- on steering-wheel 2x quickly to switch the video source. Each repetition will switch to the next enabled input. If all inputs are enabled the order is:

Factory video → RGB-in → video IN1 → video IN2 → factory video →…

Inputs which are not enabled are skipped. If the audio cable is connected, when switching from video IN1 to video IN2, also the sound will be switched.

Switchover by vehicle buttons isn't possible in all vehicles. In some vehicles the external keypad must be used.

Note: The white wire of the 6pin cable can be used with a +5-12V pulse to switch the video-sources alternatively.

3.2. By keypad

Alternatively or additionally to the factory-infotainment-buttons the interface's keypad can be used to switch the enabled inputs.

4. Specifications

BATT/ACC range	7V - 25V
Stand-by power drain	<10mA
Power	0.3A @12V
Video input	0.7V - 1V
Video input formats	NTSC
RGB-video amplitude	0.7V with 75 Ohm impedance
Temperature range	-40°C to +85°C
Dimensions video-box	152 x 22 x 92 mm (W x H x D)
Dimensions CAN-box	73 x 22 x 45 mm (W x H x D)

5. FAQ – Trouble shooting Interface functions

For any troubles which may occur, check the following table for a solution before requesting support from your vendor.

Symptom	Reason	Possible solution
No picture/black picture (factory picture).	Not all connectors have been reconnected to factory head-unit or monitor after installation.	Connect missing connectors.
	No power on CAN-bus box (all LED CAN-bus box are off).	Check power supply of CAN-bus box. Check CAN-bus connection of CAN-bus box.
	CAN-bus box connected to CAN-bus in wrong place.	Refer to the manual where to connected to the CAN-bus. If not mentioned, try another place to connect to the CAN-bus.
	No power on video-interface (all LED video-interface are off).	Check whether CAN-bus box delivers +12V ACC on red wire output of 8pin to 6pin cable. If not cut wire and supply ACC +12V directly to video-interface.
No picture/black picture/white picture (inserted picture) but factory picture is OK.	No picture from video source.	Check on other monitor whether video source is OK.
	No video-source connected to the selected interface input.	Check settings dips 1 to 3 of video interface which inputs are activated and switch to corresponding input(s).
	LVDS cables plugged in wrong place.	Double-check whether order of LVDS cables is exactly connected according to manual. Plugging into head-unit does not work when the manual says to plug into monitor and vice versa.
Inserted picture totally wrong size or position.	Wrong monitor settings of video-interface.	Try different combinations of dips 7 and 8 of video-interface. Unplug 6pin power after each change.
Inserted picture double or 4 times on monitor.		
Inserted picture distorted, flickering or running vertically.	Video sources output set to AUTO or MULTI which causes a conflict with the interfaces auto detection.	Set video source output fixed to PAL or NTSC. It is best to set all video sources to the same standard.
	If error occurs only after source switching: Connected sources are not set to the same TV standard.	Set all video sources to the same standard.
	Some interfaces can only handle NTSC input.	Check manual whether there is a limitation to NTSC mentioned. If yes, set source fixed to NTSC output.
Inserted picture b/w.		
Inserted picture qual. bad.	Picture settings have not been adjusted.	Use the 3 buttons and the interface's OSD to adjust the picture settings for the corresponding video input.
Inserted picture size slightly wrong.		
Inserted picture position wrong.		
Camera input picture flickers.	Camera is being tested under fluorescent light which shines directly into the camera.	Test camera under natural light outside the garage.
Camera input picture is bluish.	Protection sticker not removed from camera lens.	Remove protection sticker from lens.

Symptom	Reason	Possible solution
Camera input picture black.	Camera power taken directly from reverse gear lamp.	Use relay or electronics to "clean" reverse gear lamp power. Alternatively, if CAN-bus box is compatible with the vehicle, camera power can be taken from green wire of 6pin to 8pin cable.
Camera input picture has distortion.		
Camera input picture settings cannot be adjusted.	Camera input picture settings can only be adjusted in AV2 mode.	Set dip 3 of video-interface to ON (if not input AV2 is not already activated) and connect the camera to AV2. Switch to AV2 and adjust settings. Reconnect camera to camera input and deactivate AV2 if not used for other source.
Graphics of a car in camera input picture.	Function PDC is ON in the interface OSD.	In compatible vehicles, the graphics will display the factory PDC distance. If not working or not wanted, set interface OSD menu item UI-CNTRL to ALLOFF.
Chinese signs in camera input picture	Function RET or ALL is ON (function for Asian market) in the interface OSD.	Set interface OSD menu item UI-CNTRL to ALLOFF or PDCON.
Not possible to switch video sources by OEM button.	CAN-bus interface does not support this function for vehicle.	Use external keypad or cut white wire of 6pin to 8pin cable and apply +12V impulses for AV-switching.
	Pressed too short.	For video source switching a longer press of about 2.5 seconds is required.
Not possible to switch video sources by external keypad.	SW-version of interface does not support external keypad.	Use OEM-button or cut white wire of 6pin to 8pin cable and apply +12V impulses for AV-switching.
Interface does not switch to camera input when reverse gear is engaged.	CAN-bus interface does not support this function for the vehicles.	Cut the green wire of the 6pin to 8pin cable and apply +12V constant from reverse gear-lamp signal. Use relay to "clean" R-gear lamp power.
Interface switches video-sources by itself.	CAN-bus interface compatibility to vehicle is limited.	Cut the grey wire of 6pin to 8pin and isolate both ends. If problem still occurs, additionally cut the white wire of 6pin to 8pin cable and isolate both ends.

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