

v.LiNK Video-inserter

VL2-MBN45

**for Mercedes Benz vehicles
generation NTG4.5-204 with
Comand Online, Audio50 APS or Audio 20
with 4pin HSD LVDS connector on the monitor**

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

Product features

- **Video-inserter for factory-infotainment monitors**
- **2 video-inputs for after-market devices (e.g. DVD-Player, DVB-T tuner, ...)**
- **Built-in audio-switch (no audio-insertion)**
- **Rear-view camera video-input**
- **Automatic switching to rear-view camera input on engagement of reverse gear**
- **Activatable parking guide lines for rear-view camera**
- **RGB-input for after-market navigation**
- **Video-in-motion (ONLY for connected video-sources)**
- **Compatible with factory rear-view camera**
- **AV-inputs PAL/NTSC compatible**

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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.

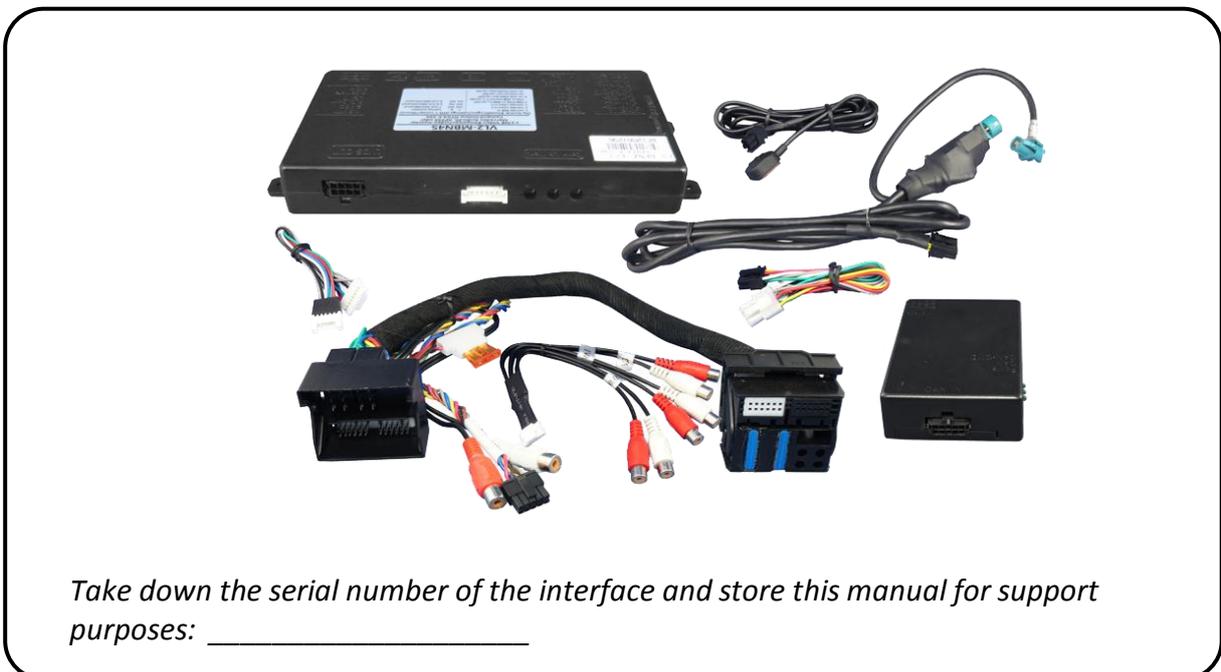
Changes/updates of the vehicle's software can cause malfunctions of the interface. We offer free software-updates for our interfaces for one year after purchase. To receive a free update, the interface must be sent in at own cost. Labor cost for and other expenses involved with the software-updates will 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



1.2. Checking the compatibility of vehicle and accessories

Requirements	
<i>Vehicle</i>	Vehicles generation NTG4.5
<i>Head-unit/monitor</i>	Comand Online NTG4.5, Audio20 NTG4.5 with 4pin HSD LVDS connector on the monitor
Limitations	
<i>Video only</i>	The interface inserts ONLY video signals into the infotainment. For sound use the possibly existing factory-audio-AUX-input or a FM-modulator (exception: Comand Online NTG4.5 without factory media-interface).

1.3. Dip-switch settings

With the video interface boxes dip-switches it is possible to select vehicle/navigation the interface is to be installed in (dip 7 and 8), to select the video signal of an optional connected after-market navigation (Dip 4), to dis- or enable the interfaces inputs (dip 1 to 3) and to preselect the type of camera which is (to be) installed (dip 5).



Dip position down is ON and position up is OFF.

1.3.1. Vehicle selection (dip 7-8)

Choose the vehicle/navigation/monitor the interface is to be installed to and set dip 7 through 8 according to the below table.

Vehicle/ Navigation	Dip 7	Dip 8
7"-monitor with resolution 800x480	OFF	OFF
5.8"- monitor with resolution 480x240	OFF	ON

1.3.2. Video signal selection after-market navigation(Dip 4)

To the video interface’s RGB-input it is possible to connect a RGB- or a VGA-video source. Set dip 4 according to table.

After-Market Navigation	Dip 4
VGA (RGB-Input Pin 4 H-Sync, Pin 8 V-Sync)	ON
RGB NTSC	OFF

Note: VGA-mode is only possible on the 7"-monitor.

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

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

Dip	Video-input	ON (down)	OFF (up)
Dip 1	RGB	enabled	disabled
Dip 2	Video IN1	enabled	disabled
Dip 3	Video IN2	enabled	disabled

1.3.4. Rear-view camera settings (dip 5)

Depending on whether no camera, after-market camera or factory camera shall be used, dip 5 must use different settings. If set to OFF, the interface switches to factory LVDS picture when the reverse gear is engaged to display factory rear-view camera or factory PDC picture.

Rear-view camera type	Dip 5
None	OFF
Factory	OFF
After-market	ON

Note: If the Can-bus does not work while connecting an after-market rear-view camera, cut the green cable of the 6pin to 8pin cable at the black 8pin connector and connect it to the reverse gear light (+12V). For this use a relay because the reverse gear light of the vehicle is clocked (relay AC-RW1230 and AC-RS5 optional available).

2. Installation

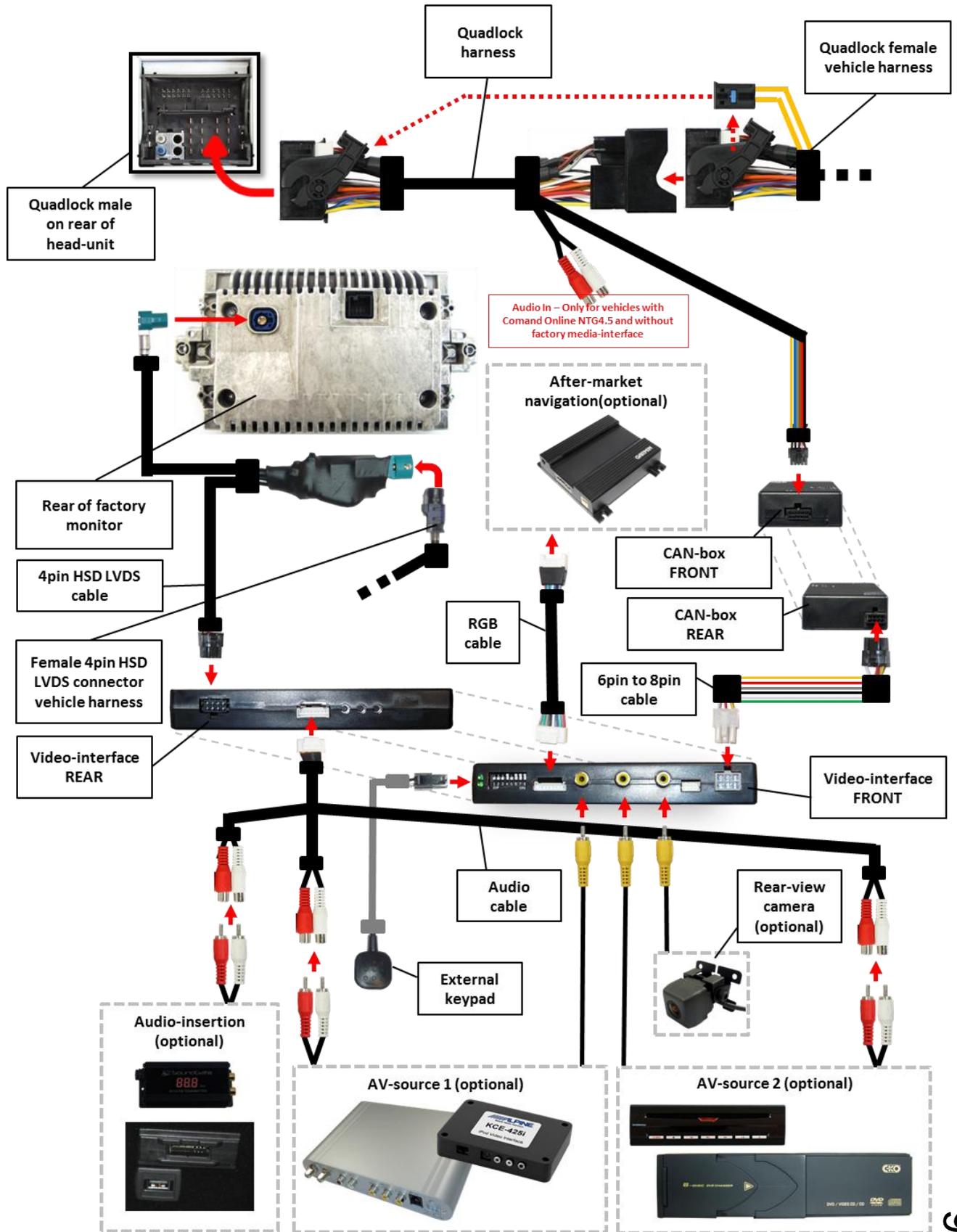
Switch off ignition and disconnect the vehicle's battery! The interface needs a permanent 12V source. If according to factory rules disconnecting the battery is to be avoided, it is usually sufficient to put the vehicle in sleep-mode. In case the sleep-mode does not show success, disconnect the battery 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.

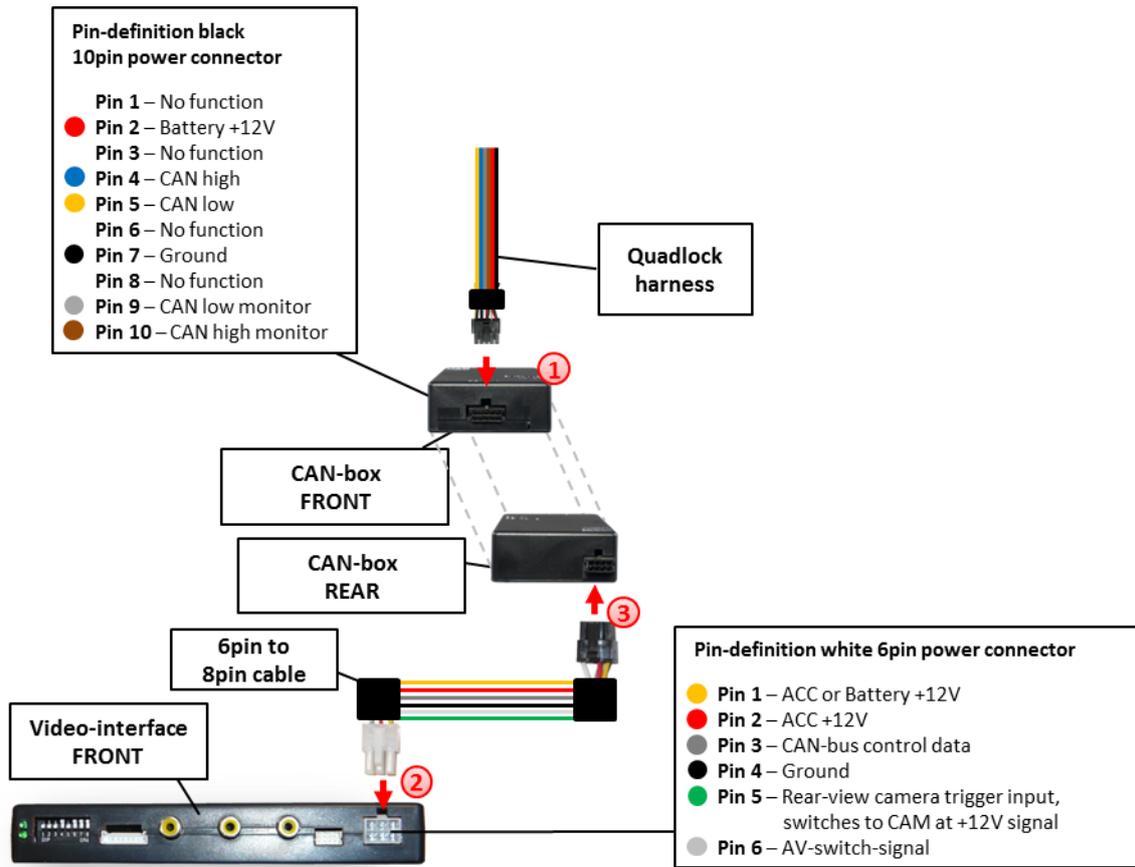
2.1. Place of installation

The interface is installed on the backside of the factory monitor and on the backside of the head-unit.

2.2. Connection schema



2.3. Connecting video-interface and CAN-box



① Connect black female 10pin Micro-Fit connector of the Quadlock harness to the male 10pin Micro-Fit connector of the CAN-box.

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

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

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

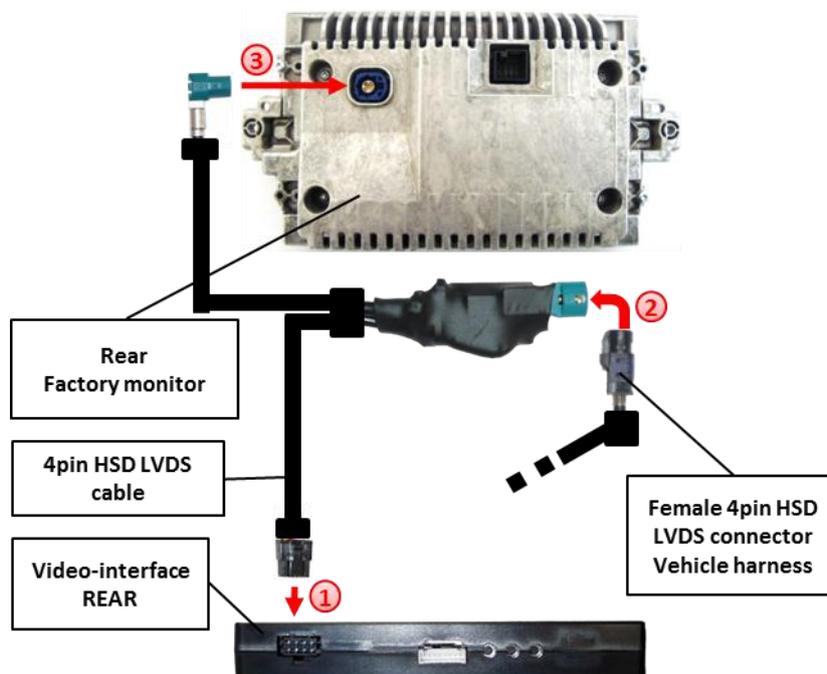
Note: Check LEDs on video-interface after reconnecting the battery, one must be on.

Note: No liability for vehicle wire colours and pin definition!

Possible changes by the vehicle manufacturer. The given information must be verified by the installer.

2.4. Connections to the factory monitor

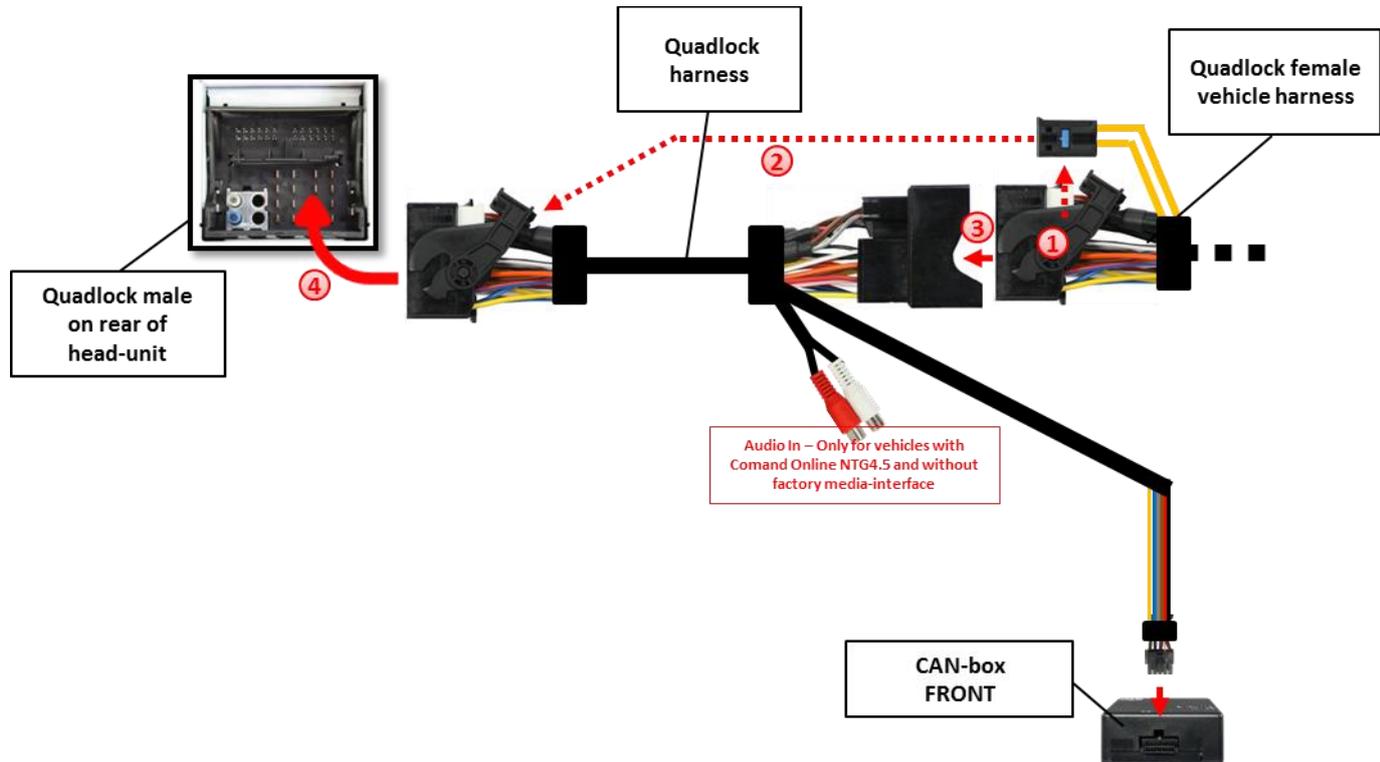
Remove factory monitor.



- ① Connect female 8pin Micro-Fit connector of the 4pin HSD LVDS cable to male 8pin Micro-Fit connector of the video-interface.
- ② Remove female 4pin HSD LVDS connector from the rear of the factory monitor and connect it to the male 4pin HSD LVDS connector of the 4pin HSD LVDS cable.
- ③ Connect female 4pin connector of the 4pin HSD LVDS cable to the male 4pin HSD LVDS connector of the factory monitor.

2.5. Connections to the head-unit

Remove head-unit.



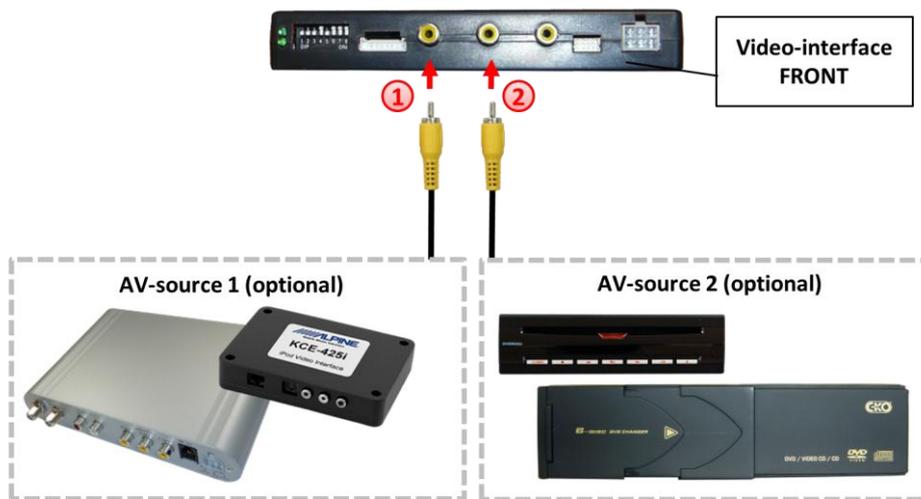
- ① Remove the female Quadlock connector of the vehicle harness from the rear of the navigation computer.
- ② Remove optical leads –if existing- from the female Quadlock connector of the vehicle harness and insert them into the female Quadlock connector of Quadlock harness at the same position.
- ③ Connect female Quadlock connector of vehicle harness to the male Quadlock connector of Quadlock harness.
- ④ Connect female Quadlock connector of Quadlock harness to the male Quadlock connector of the head-unit.

2.6. Connecting peripheral devices

It is possible to connect 2 after-market AV-sources, an after-market rear-view camera and an after-market navigation to the video-interface.

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

2.6.1. Video-sources to IN1 and IN2

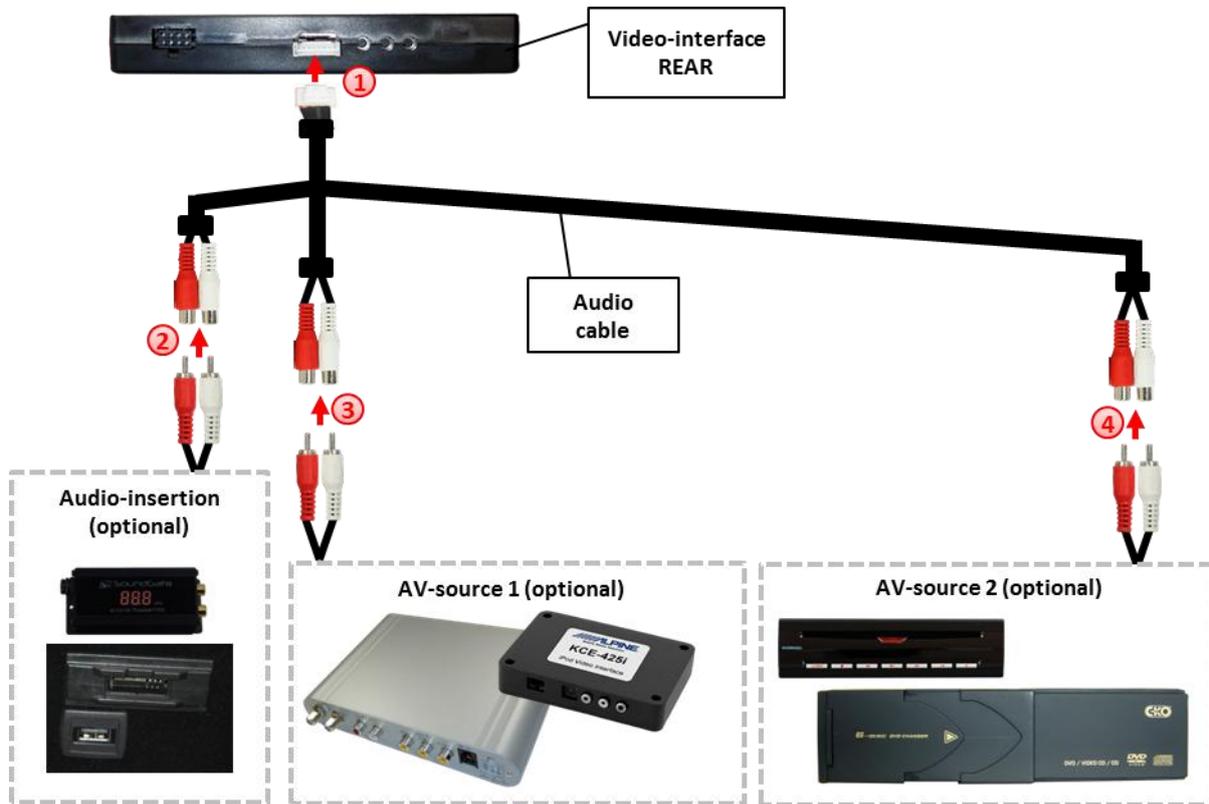


- ① Connect video RCA of the AV-source 1 to the female RCA connector IN1 of the video-interface.
- ② Connect video RCA of the AV-source 2 to the female RCA connector IN2 of the video-interface.

2.6.2. Audio-switch and audio insertion

This interface can only insert video signals into the factory infotainment. Audio insertion is possible by possibly existing factory audio AUX input or FM-modulator. The inserted video-signal can be activated parallel to each audio-mode of the factory infotainment. It is possible to switch the audio signals from the to IN1 and IN2 connected AV-sources parallel to the video-signal of the respective AV-source by video-interface's built-in audio-switch.

Exception: Vehicles with Comand Online NTG4.5 navigation system and without factory media-interface, see chapter "Special case: Audio-insertion on Comand Online NTG4.5 without factory media-interface".



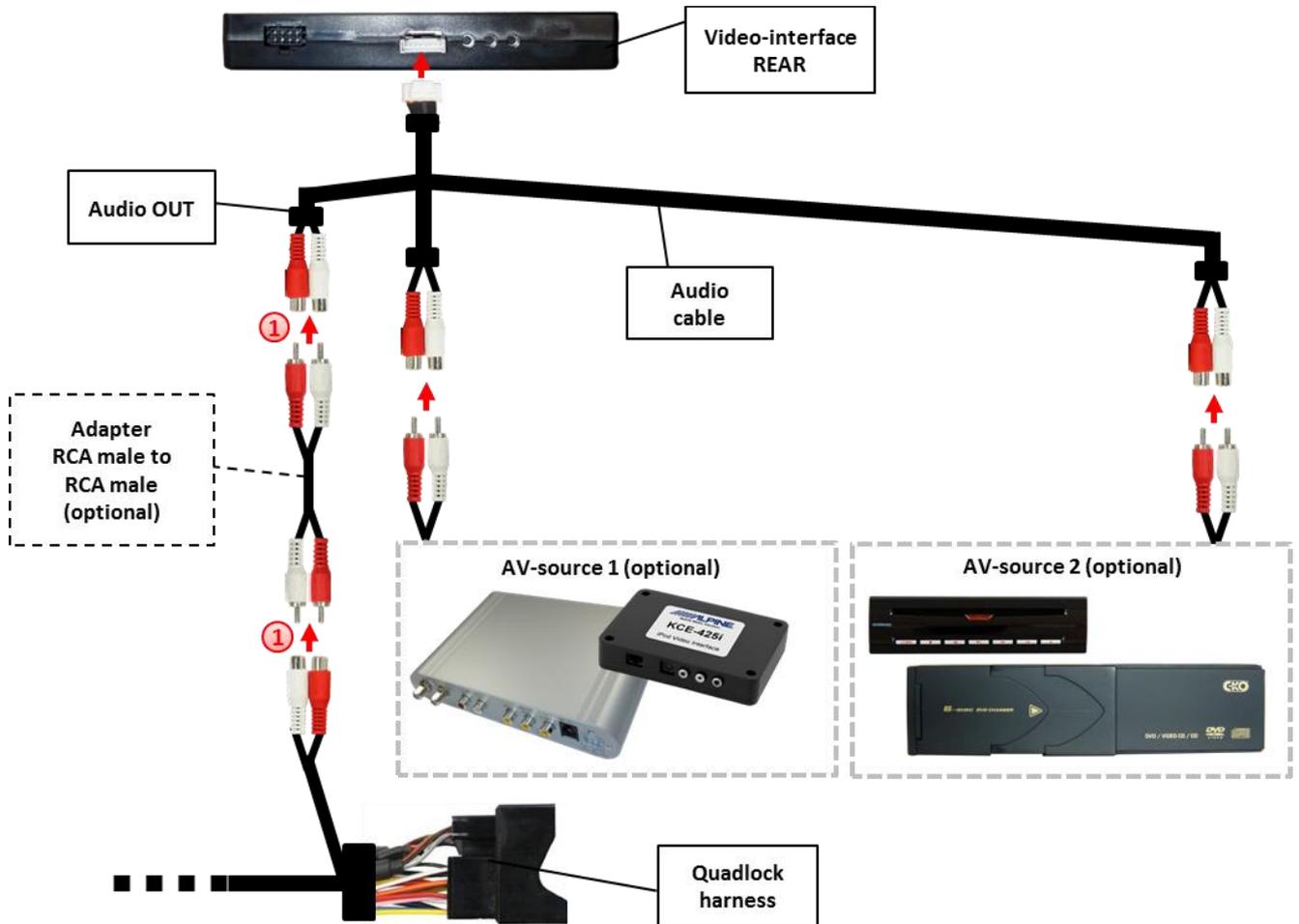
Note: If only one AV-source shall be connected, it is possible to connect the video output of the AV-source to video IN1 of the video-interface and the audio output of the AV-source direct to the audio-insertion.

- ① Connect female 7pin connector of the audio cable to 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.

Audio pins	Definition
1/2	Audio input signal R/L of source IN2
3/4	Audio input signal R/L of source IN1
5/6	Audio output signal R/L of factory audio AUX or FM-modulator
7	Ground

Note: When switching the video interface from video-IN1 to video-IN2, the audio will also automatically be switched.

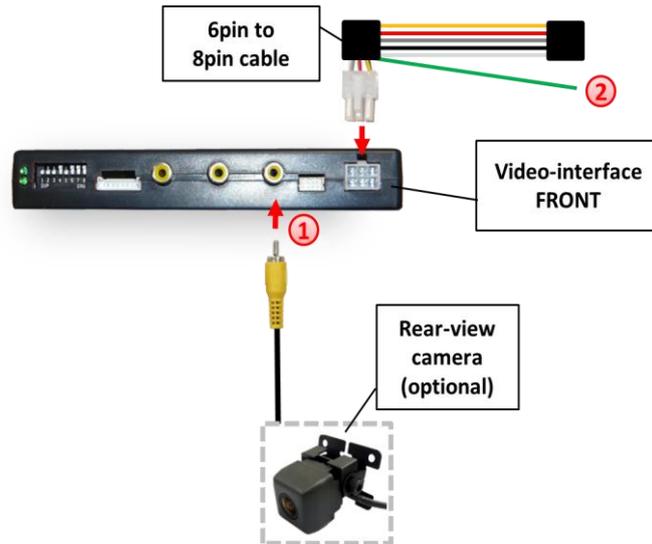
2.6.2.1. Special case: Audio-insertion on Comand Online NTG4.5 without factory media-interface



① Connect the audio-RCA of the Quadlock harness to the female RCA port AV-Out of the audio cable.

Note: If only one AV-source shall be connected, it is possible to connect the video output of the AV-source to video IN1 of the video-interface and the audio output of the AV-source direct to the audio-RCA of Quadlock harness.

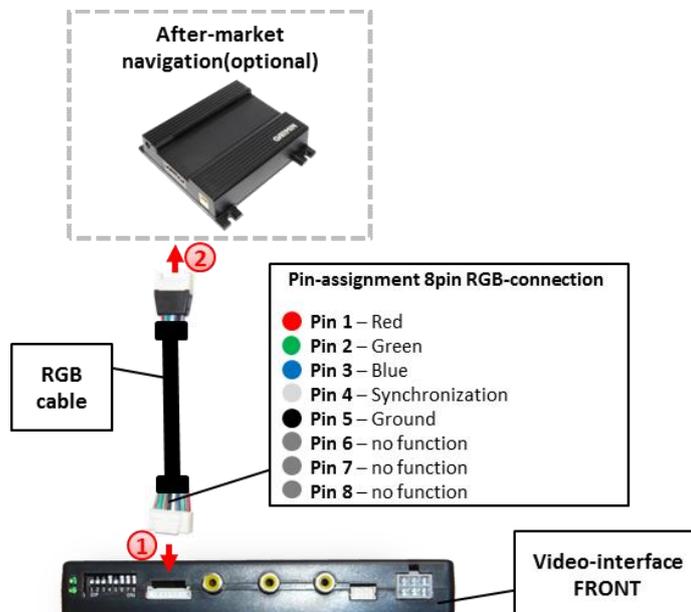
2.6.3. After-market rear-view camera



- ① Connect the video-RCA of the after-market rear-view camera to the female RCA port of the video-interface.
- ② If the Can-bus does not work while connecting an after-market rear-view camera, cut the green cable of the 6pin to 8pin cable at the black 8pin connector and connect it to the reverse gear light (+12V). For this use a relay because the reverse gear light of the vehicle is clocked (relay AC-RW1230 and AC-RS5 optional available).

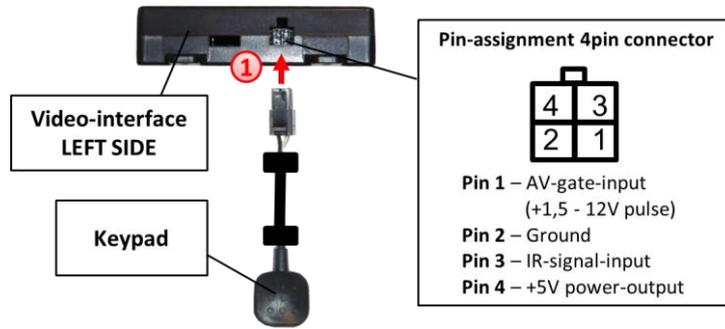
Note: Set Dip 5 to ON.

2.6.4. After-Market navigation



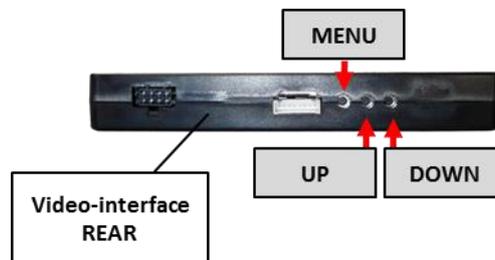
- ① Connect female 8pin connector of the RGB cable to the male 8pin connector of the video-interface. The loose grey wires have no function and have to be isolated.
- ② Connect male 6pin connector of the RGB cable to the after-Market navigation.

2.7. 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



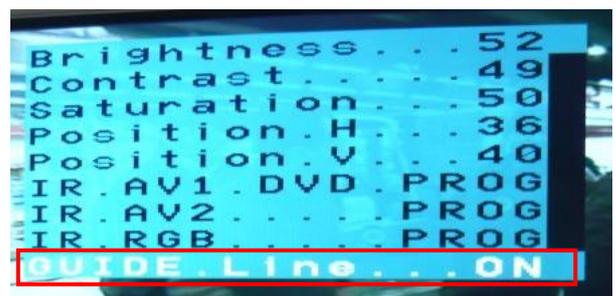
After installing the sources the picture settings can be changed using a pen on the buttons of the video interface. Press the MENU button to open settings menu on the OSD and to switch to the next setting. UP and DOWN change the corresponding values. The buttons are embedded in the housing to avoid accidental changes during or after installation.

The following settings are available:

- Brightness
- Contrast
- Saturation
- Position H (horizontal)
- Position V (vertical)

2.9. Activation of parking guide lines for rear-view camera

The parking guide lines for rear-view camera can be activated or deactivated via the OSD. Press the MENU button to open settings menu on the OSD and to switch to the next setting. Choose menu item "Guide Line" and activate (ON) or deactivate (OFF) parking guide lines by UP and DOWN buttons.



3. Interface operation

3.1. By Comand-buttons

Some of the Comand-buttons can be used to execute interface functions.

Long press C button (3 sec.) beside knob in centre console 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.

3.2. By keypad

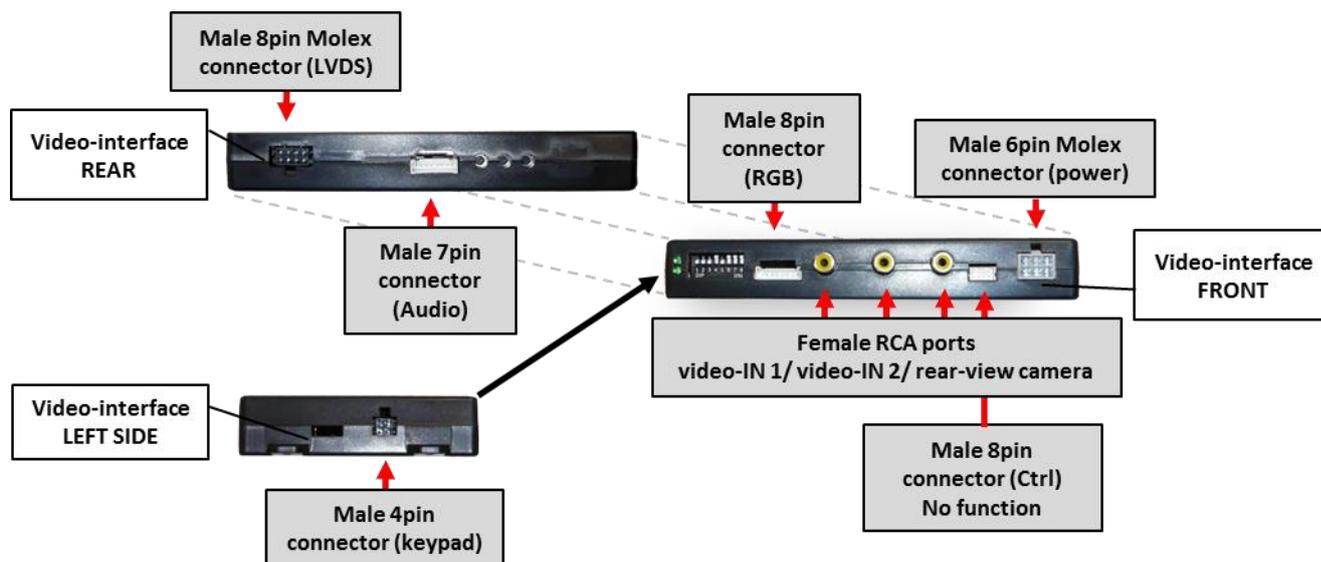
Alternatively or additionally to the factory infotainment buttons the interface's keypad can be used to switch the enabled inputs.

4. Specifications

BATT/ACC range	7V ~ 25V
Stand-by power drain	<5mA
Power	0.3A @12V
Power consumption	2.4W
Video input	0.7V~1V
Video input formats	PAL/NTSC
RGB-video amplitude	0.7V with 75 Ohm impedance
Temperature range	-40°C to +85°C
Weight	195g
Dimensions (box only) B x H x T	182 x 24 x 100 mm

CE  12V DC

5. Connections (video-interface)



6. Technical Support

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