

## **v.LiNK Video-inserter**

### **VL2-MMI3G-OPS**

**For Audi  
MMI3G basic/high, MMI3G+ basic/high and  
VW RNS850 navigation systems  
with 4pin HSD LVDS connector**

**Video-inserter with 2 video + RGB + rear-view camera input  
+ support of the optical park display (OPS)**

**ATTENTION! The interface is installed  
on the backside of the head-unit,  
not on the monitor!!!**

#### **Product features**

- Video-inserter
- 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
- Support of the optical park display (OPS)
- 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

## Contents

### 1. Prior to installation

- 1.1. Delivery contents
- 1.2. Checking the compatibility of vehicle and accessories
- 1.3. Dip-switch settings
  - 1.3.1. Vehicle selection (dip 6-8)
  - 1.3.2. Enabling the interface's video inputs (dip 1-3)
  - 1.3.3. Rear-view camera settings (dip 5)
- 1.4. Dip-switch settings of CAN-box

### 2. Installation

- 2.1. Place of installation
- 2.2. Connection schema
- 2.3. Connecting video-interface and MMI-box for MMI3G (not MMI3G+)
- 2.4. Connecting video-interface and MMI-box for MMI3G+ (not MMI3G)
- 2.5. Connection to the head-unit
- 2.6. Connecting peripheral devices
  - 2.6.1. Video-sources to IN1 and IN2
  - 2.6.2. Audio-switch and audio-insertion
  - 2.6.3. After-market rear-view camera
  - 2.6.4. After-market navigation
- 2.7. Connecting video-interface and keypad
- 2.8. Picture settings
- 2.9. Aktivierung der Abstandslinien für Rückfahrkamera

### 3. Interface operation

### 4. Specifications

### 5. Connections (video-interface)

### 6. Technical support

## 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



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

**Vehicle** A1, A4 (8K), A5 (8T), A6 (4F), A7 (4G), A8 (4E/4H), Q5 (8R), Q7 (4L), Touareg from version 2011 and other vehicles with:

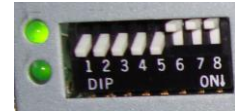
**Head-unit/monitor** Audi MMI 3G basic/high, MMI 3G+ basic/high, VW RNS850  
**with 4pin HSD LVDS video connector**

#### Limitations

**Video only** The interface inserts ONLY video into the infotainment. For sound use the possibly existing factory-audio-AUX-input, a FM-modulator or the AUX-in interface AUX-110.

### 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 6 to 8), 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 in and set dip 7 and 8 according to the below table.

Vehicle/Navigation	Resolution	Dip 7	Dip 8
Audi A1, A4, A5, Q5	400 x 240	OFF	ON
Audi A6, A8, RNS850	800 x 480	OFF	OFF

#### 1.3.2. 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. The disabled video inputs are left out when switching.

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

#### 1.3.3. 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.

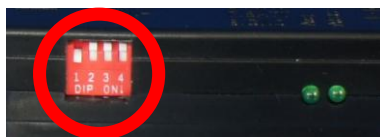
If set to OFF, the interface switches to factory LVDS picture when the reverse gear is engaged to display factory rear-view camera or factory PDC picture. The green wire of the video-interface's 6pin power connector must be connected to reverse light (+12V of reverse light signal) by using a relay, ONLY if camera (after-market or factory) shall is (to be) installed.

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

#### 1.4. Dip-switch settings of CAN-Box

Choose the navigation the interface is to be installed in and set dip 1 to 4 according to the below table.

ON ↓



Fahrzeug/Navigation	Dip 1	Dip 2	Dip 3	Dip 4
MMI3G	OFF	OFF	OFF	OFF
MMI3G+	ON	OFF	OFF	OFF

## 2. Installation

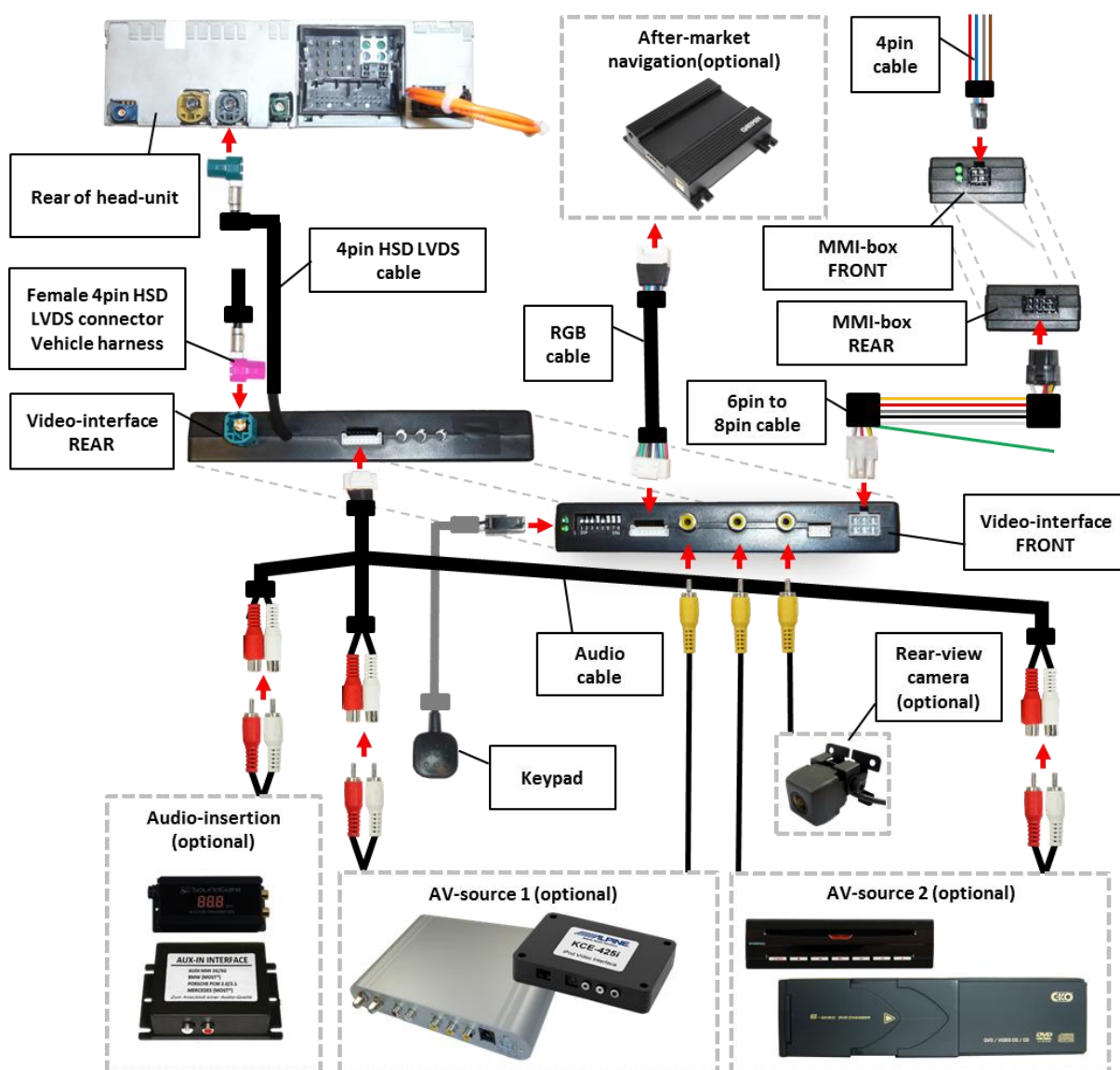
**Switch off ignition and disconnect the vehicle's battery! The interface needs a permanent 12V source. If according to factory rules disconnecting the battery is to be avoided, it is usually sufficient to put the vehicle in sleep-mode. In case the sleep-mode does not show success, disconnect the battery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

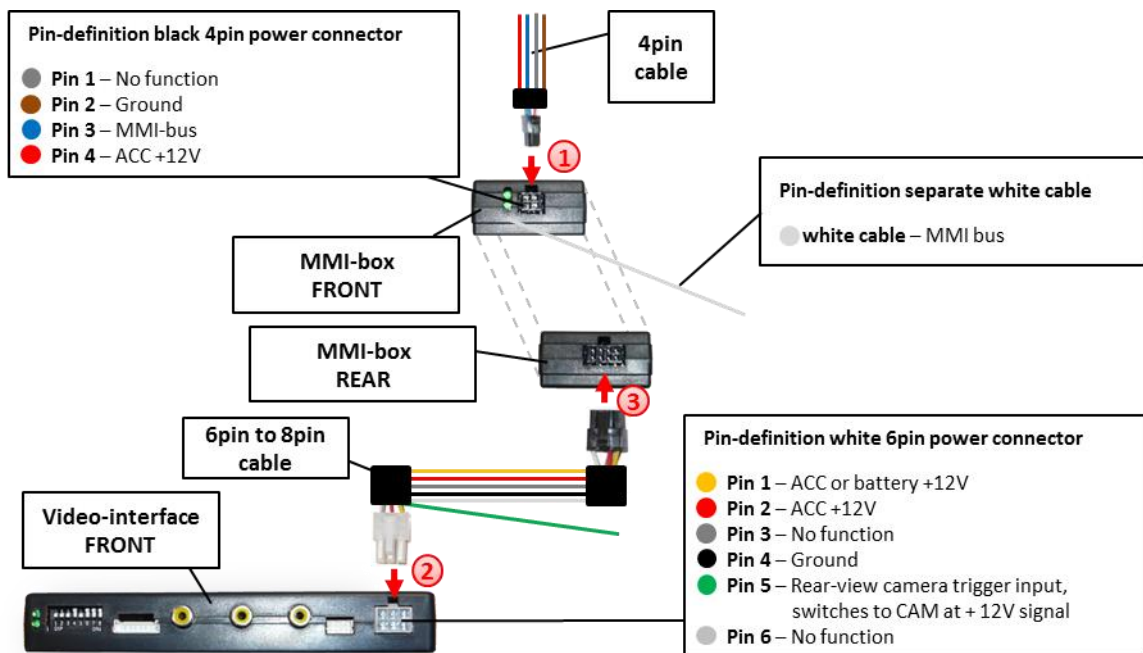
#### 2.1. Place of installation

The interface is installed on the backside of the head-unit (navigation computer/radio).

## 2.2. Connection schema



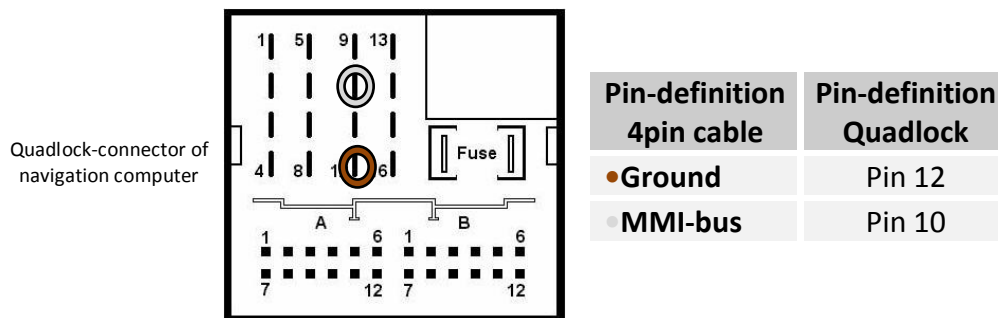
## 2.3. Connecting Video-interface and MMI-Box for MMI3G (not MMI3G+)



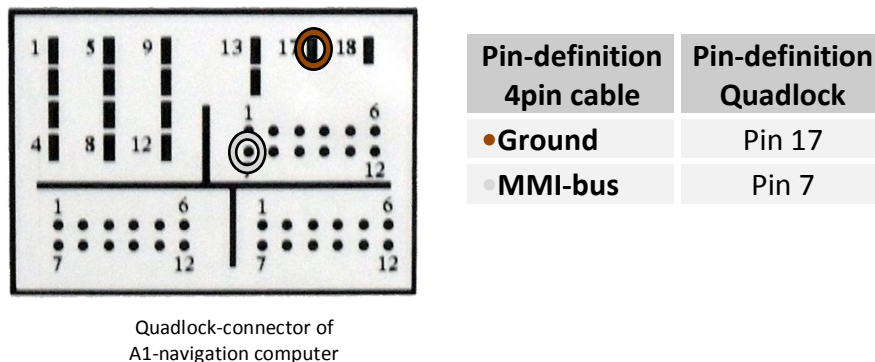
**Note:** It is possible to use the interface without MMI-box. In this case sort the female 8pin connector out from the 6pin to 8pin cable.

- 1 Connect loose ends of the 4pin cable and the loose white cable to the noted pins of the Quadlock connector. The grey and the blue cable are not connected and have to be isolated. Connect black female 4pin Micro-Fit connector of the 4pin cable to the male 4pin Micro-Fit connector of the MMI-box.

**Note:** Check LEDs on MMI-box after reconnecting the battery, one must be on.



### Pin definition Audi A1:



- 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 MMI-box.

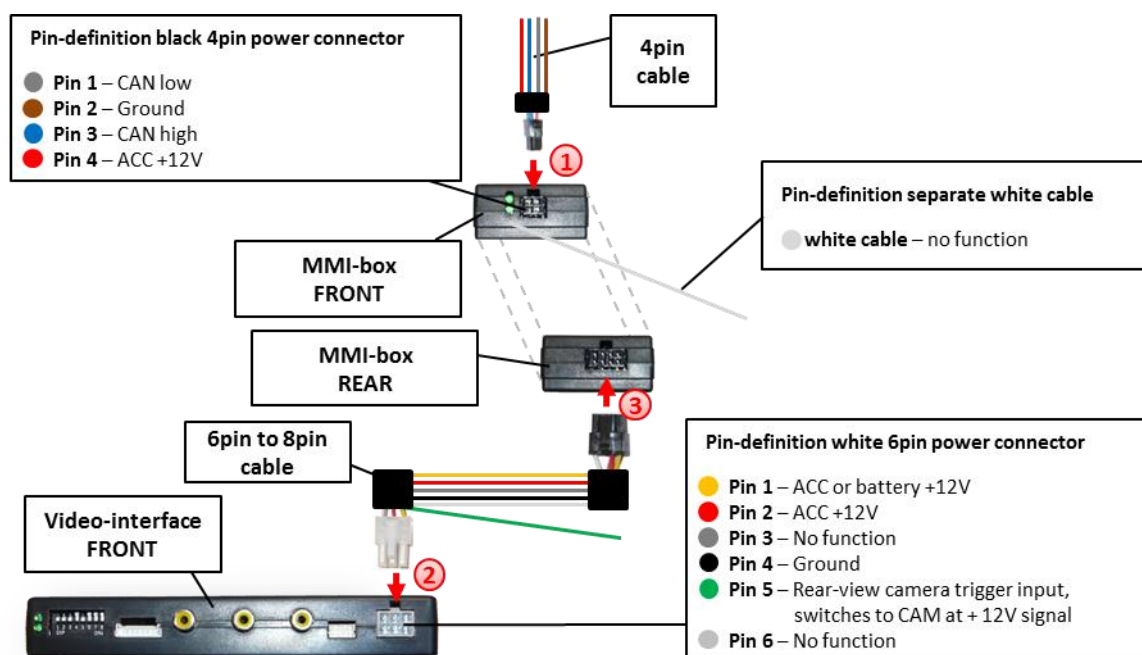
**Note:** Check LEDs on video-interface after reconnecting the battery, one must be on.

**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. Connecting Video-interface and MMI-Box for MMI3G+ (not MMI3G)



**Note:** It is possible to use the interface without MMI-box. In this case sort the female 8pin connector out from the 6pin to 8pin cable.

- ① Connect loose ends of the 4pin cable to the noted pins of the CAN-gateway (Ground of Quadlock). The white wire is not connected and has to be isolated. Connect black female 4pin Micro-Fit connector of the 4pin cable to the male 4pin Micro-Fit connector of the MMI-box.

**Note:** Check LEDs on MMI-box after reconnecting the battery, one must be on.

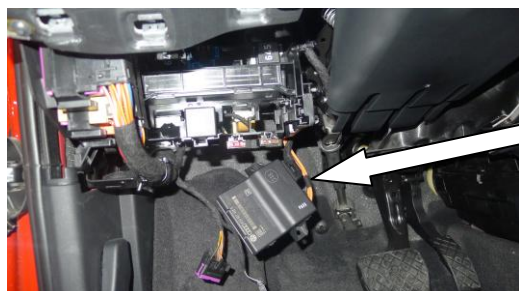
Pin-definition 4pin cable	Pin-definition CAN-gateway
CAN low	Pin 5
CAN high	Pin 15
Ground	Pin 10 of Quadlock!



CAN-gateway

### Location of CAN-gateway

- A1/A3 below the steering-wheel
- A6/A7/A8 footwell on the passenger side below right
- Q5/Q3 footwell on the passenger side top left



Location under the steering-wheel

- 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 MMI-box.

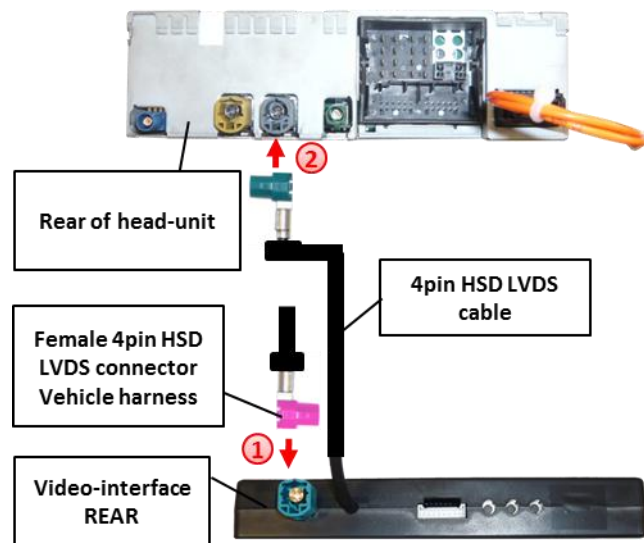
**Note:** Check LEDs on video-interface after reconnecting the battery, one must be on.

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

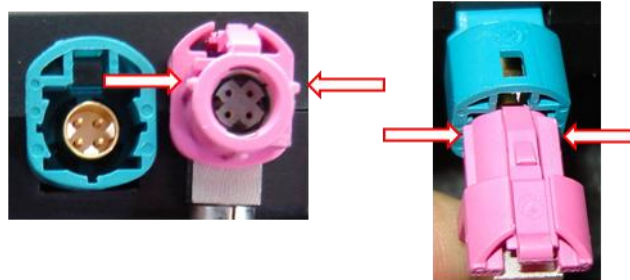
Possible changes by the vehicle manufacturer. The given information must be verified by the installer.

## 2.5. Connection to the head-unit

Remove head-unit (navigation computer/radio).



- ① Remove female 4pin HSD LVDS connector from the rear of the head-unit and connect it to the male 4pin HSD LVDS connector of the video-interface.



**Note:** The marked lug of the female 4pin HSD LVDS connector of the vehicle harness has to be cut off!

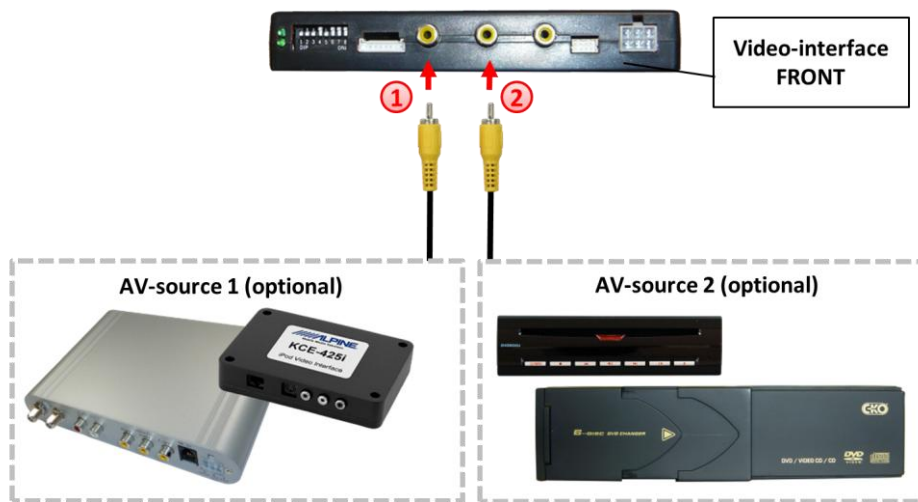
- ② Connect female 4pin connector of the HSD LVDS interface cable to the male 4pin HSD LVDS connector of the head-unit.

## 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

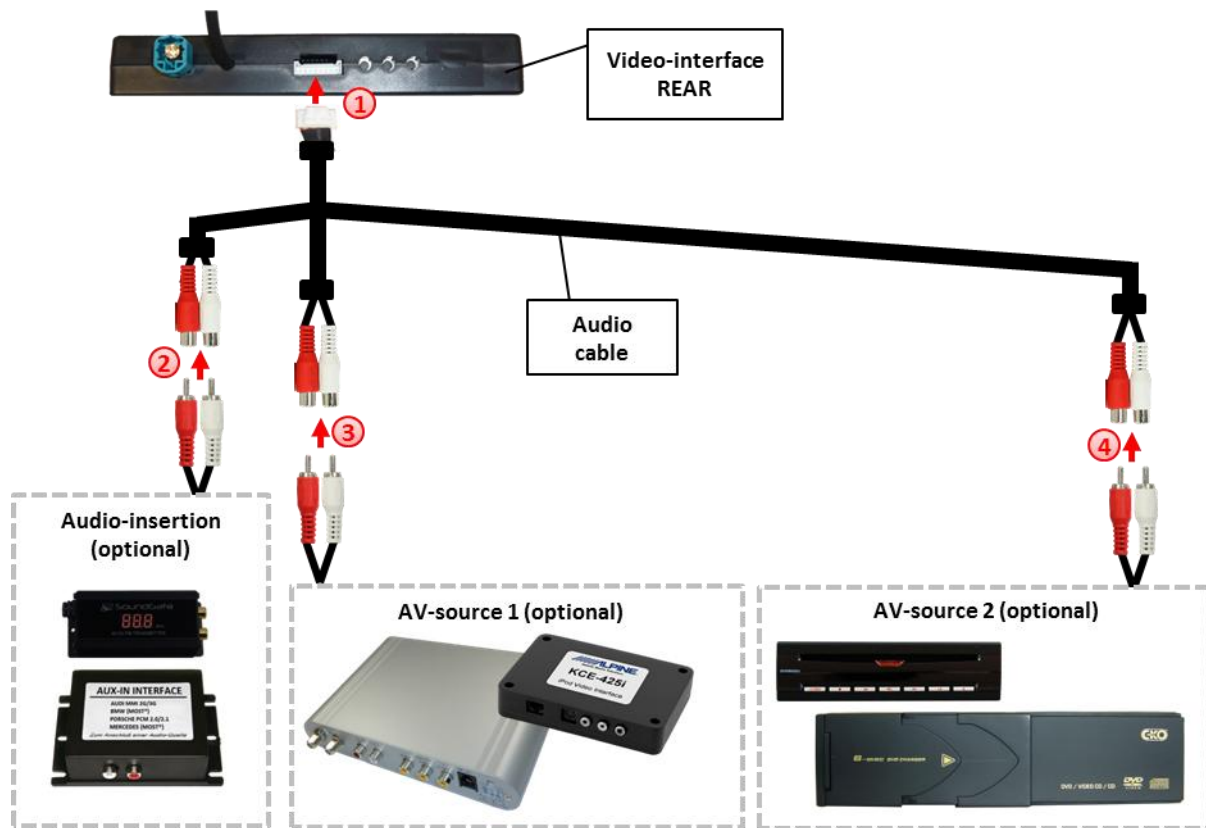


- ① Connect video RCA of the AV-source 1 to the female RCA connector IN1 of the video-interface.
- ② Connect video RCA of the AV-source 2 to the female RCA connector IN2 of the video-interface.

### 2.6.2. Audio-switch and audio insertion

This interface can only insert video signals into the factory infotainment. Audio insertion is possible by optionally available AUX-in interface AUX-110 (only for MMI3G, not for MMI3G+) or FM-modulator. The video can be activated to any 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.

**Note:** If no factory AUX-input is available, it is possible to code it with the optionally available OBD-coder OBD-MMI3G-HM-xx.



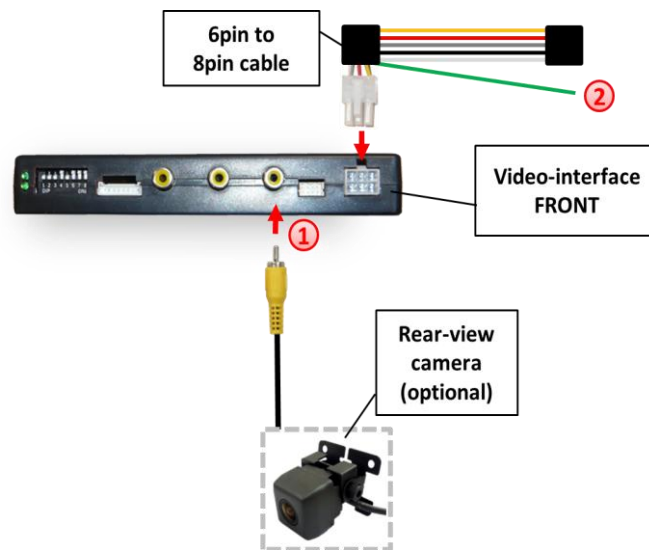
**Note:** If only one AV-source shall be connected, it is possible to connect the video output of the AV-source to video IN1 of the video-interface and the audio output of the AV-source direct to the audio-insertion.

- ① Connect female 8pin connector of the audio cable to male 8pin connector of the video-interface.
- ② Connect the audio-RCA of the possibly existing factory AUX-input, the AUX-110 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 AUX-110 or FM-modulator
7	Ground
8	No function

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

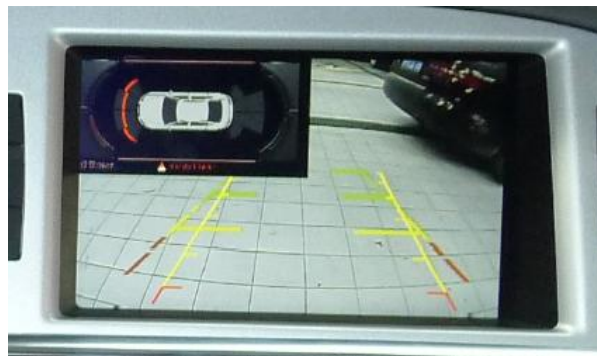
### 2.6.3. After-market rear-view camera



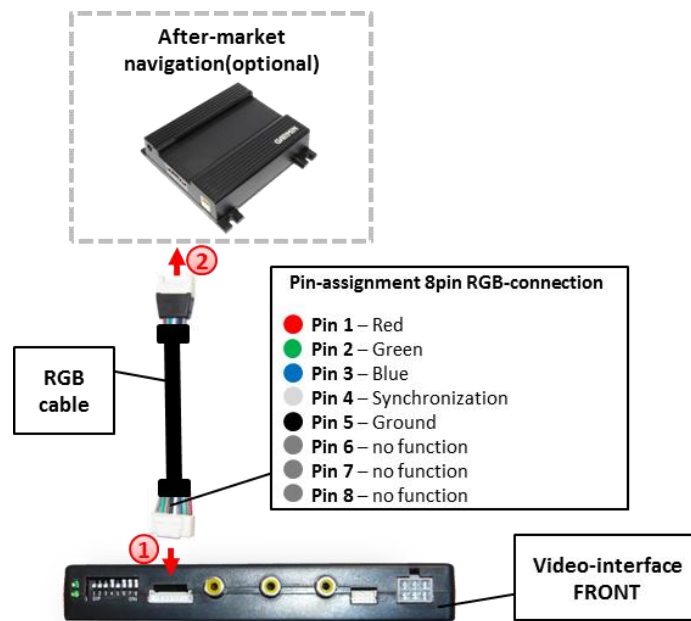
- ① Connect the video-RCA of the after-market rear-view camera to the female RCA port of the video-interface.
- ② Connect the green wire of the 6pin to 8pin cable to +12V to see whether the automatic switching to camera inputs work. Later connect green wire to reverse gear light, using a relay (relay AC-RW1230 and AC-RS5 optional available).

**Note:** Set Dip 5 to ON.

If automatic switching to rear-view camera is activated it is possible to enable or disable the optical park display by pressing the MODE button of the steering-wheel.

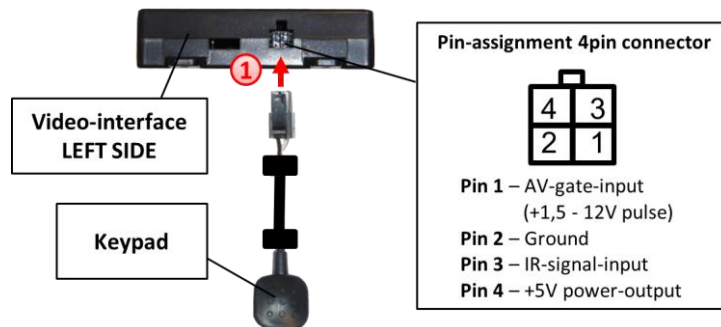


### 2.6.4. After-Market navigation



- 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.

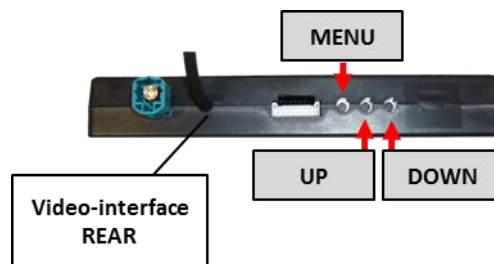
### 2.7. Connecting video-interface and keypad



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



## 2.8. Picture settings



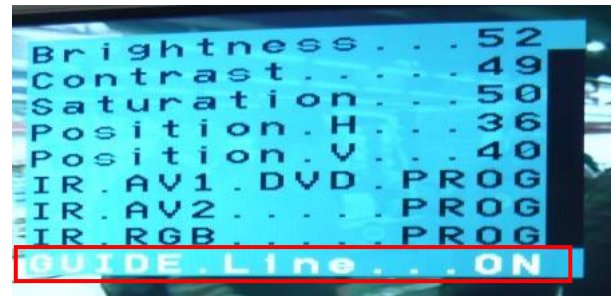
After installing the sources the picture settings can be changed using a pen on the buttons of the video interface. Press the MENU button to open settings menu on the OSD and to switch to the next setting. UP and DOWN change the corresponding values. The buttons are embedded in the housing to avoid accidental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

The **NAVI** button and the **MODE** button of the **MMI** and the interface's **keypad** is used to execute interface functions.

#### MMI3G

**Longpress MODE** or **NAVI** button or **press keypad** to switch the video-source

#### MMI3G+ and A1

**Longpress NAVI** button of the steering-wheel or **longpress keypad** to switch the video-source.


Each press 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 →...*

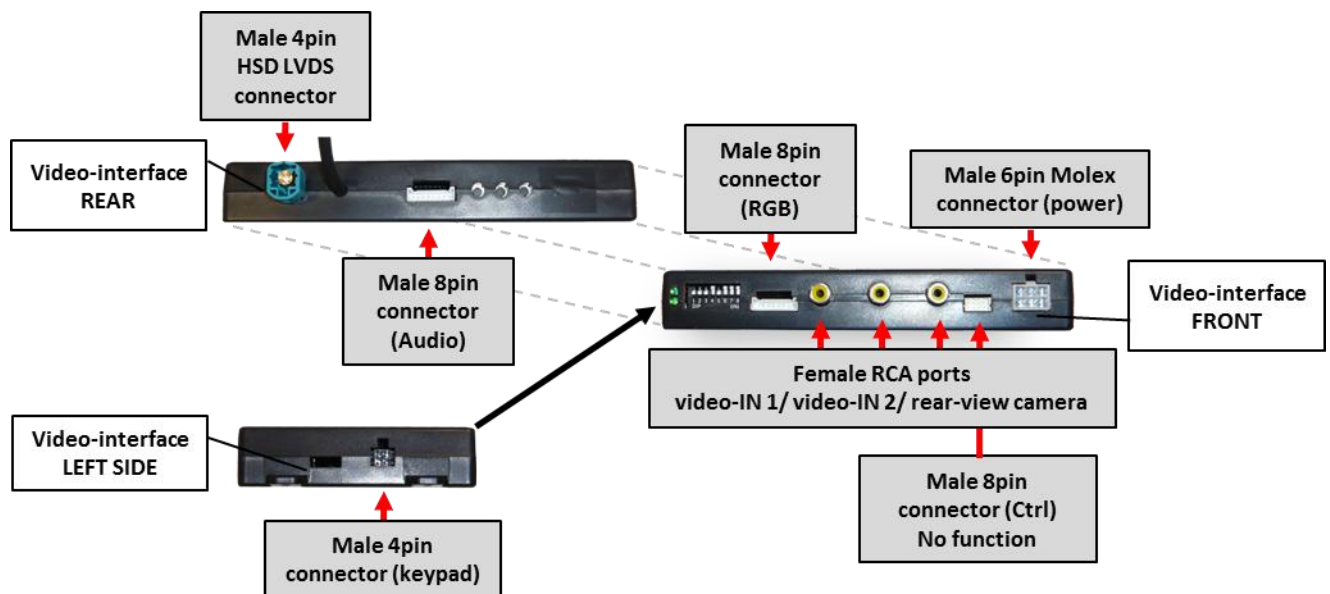
Inputs which are not enabled are skipped. If the sources are connected to the audio cable, when switching from video IN1 to video IN2, also the sound will be switched.

## 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
RGB-Video amplitude	0.7V with 75 Ohm impedance
Temperature range	-40°C to +85°C
Video input formats	PAL/NTSC
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

**NavLinkz GmbH**  
**distribution/tech dealer-support**  
 Eurotec-Ring 45  
 D-47445 Moers

**Caraudio-Systems Vertriebs GmbH**  
**distribution**  
 Rheinhorststr. 22  
 D-67071 Ludwigshafen am Rhein

Tel +49 180 3 907050  
 Email [mail@navlinkz.de](mailto:mail@navlinkz.de)