

## Video inserter

### RL4-MBN6

Compatible with Mercedes Benz vehicles with MBUX/NTG6 with 7inch, 10.25inch or 12inch monitor

*Attention: Take notice of place of installation for the video interface!*



example

**Video-inserter for front- and rear-view camera and two more video inputs**

#### Product features

- Video-inserter for factory-infotainment systems
- 1 CVBS Input for rear-view camera
- 1 CVBS Input for front camera
- 2 CVBS Video-inputs for after-market Video sources (e.g. DVD-Player, DVB-T Tuner)
- Automatic switching to rear-view camera input on engagement of the reverse gear
- Automatic front camera switching after reverse gear for 10 seconds
- Activatable parking guide lines for rear-view camera (not available for all vehicles)
- Video-in-motion (ONLY for connected video-sources)
- Video-inputs 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. Apart from using this product in an unmoved vehicle, it should only be used to display fixed menus or rear-view-camera video when the vehicle is moving (for example the MP3 menu for DVD upgrades).

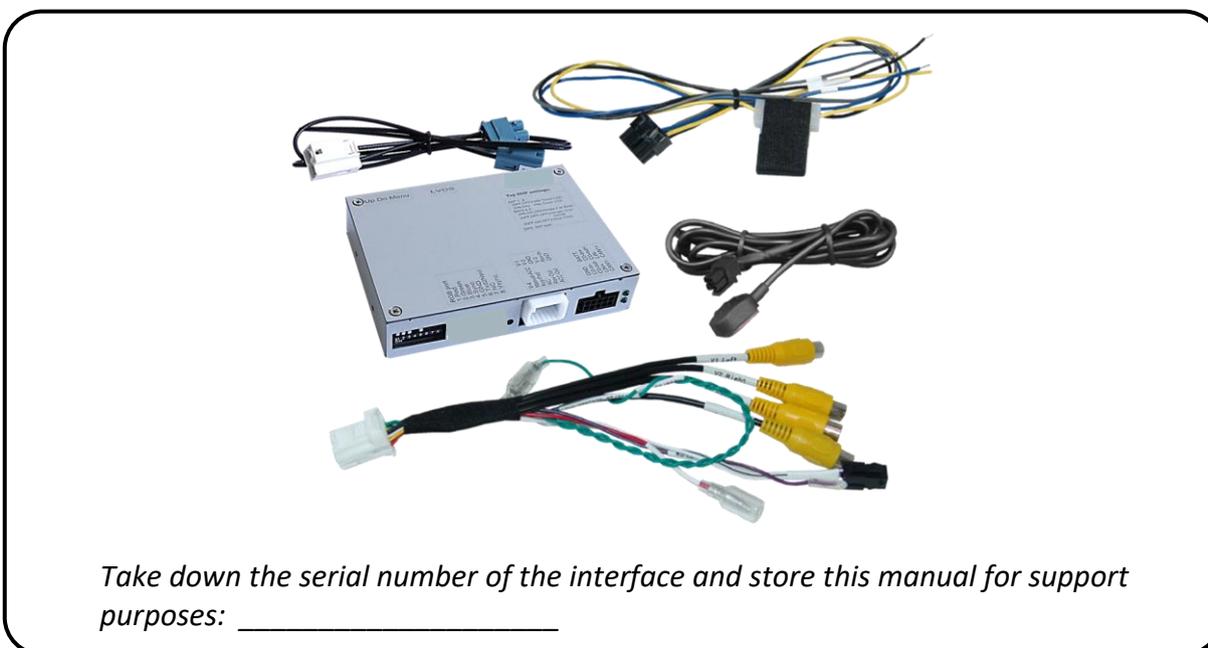
Changes/updates of the vehicle's software can cause malfunctions of the interface. Up to one year after purchase we offer free software-updates for our interfaces. To receive a free update, the interface has to be sent in at own cost. Wages for de-and reinstallation and other expenditures involved with the software-updates will not be refunded.

## 1. Prior to installation

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

**Before the final installation in the vehicle of the video sources, we recommend a test-run to ensure the compatibility of vehicle and interface. Due to changes in the production of the vehicle manufacturer there's always a possibility of incompatibility.**

### 1.1. Delivery contents



## 1.2. Checking the compatibility of vehicle and accessories

### Requirements

Brand	Compatible vehicles	Infotainments
<b>Mercedes Benz cars</b>	A-class (W177) from 05/2018, B-class (W247) from 12/2018, CLA coupe (C118) from 03/2019, CLA shooting brake (X118) from 07/2019, CLS coupe (C257) from 07/2020- E-class (W213) from 06/2020 til 08/2023, E-class T-model (S213) from 06/2020 til 08/2023, E-class coupe (C238) from 06/2020 til 10/2023, E-class convertible (A238) from 06/2020 til 10/2023, EQA SUV (H243) from 02/2021, EQB SUV (X243) from 11/2021, EQC (N293) from 05/2019 til 05/2023, EQT (W420) from 05/2023, EQV (W447) from 10/2020, GLA (H247) from 02/2020, GLB (X247) from 09/2019, GLC coupe (C253) about 05/2019 til 03/2023, GLC SUV (X253) about 05/2019 til 07/2022, GLE coupe (C167) from 11/2019, GLE SUV (V167) from 10/2018, GLS (X167) from 04/2019, GT AMG 4door (X290) from 06/2020	<b>MBUX Multimedia system with 7, 10.25 or 12 inch touch screen monitor</b>  MB sales description a.o.: Connect 20 Mid, Connect 20 High  MB order codes a.o.: 548, 549
<b>Mercedes Benz trucks/vans</b>	Citan (W420) from 10/2021, Sprinter (W907/W910) from 06/2018, T-class (W420) from 2022, V-class (W447) from 03/2020	<b>MBUX Multimedia system with 7 inch touch screen monitor</b> without navigation: MB order code <b>E3M, E6E or E2X</b> with navigation: MB order code <b>E3M+E1E or 6M+E1E</b>  <b>MBUX Multimedia system with 10.25 inch Touch screen monitor</b> with navigation: MB order code <b>E4M</b>

## Limitations

### *Video only*

The interface inserts ONLY video signals into the infotainment. For inserting Audio signals either the possibly existing factory audio-AUX-input or a FM-modulator can be used. If 2 audio sources shall be connected to the infotainment, an additional electronic is necessary to switch them.

### *Factory rear-view camera*

Automatically switching-back from inserted video to factory rear-view camera is only possible while the reverse gear is engaged. To delay the switch-back an additional electronic part is required.

### *After market front camera*

The front camera will automatically be switched for 10 seconds after disengaging the reverse gear. A manually front camera switching is possible by external keypad.

### *Guide lines*

Available for vehicles with 7inch monitor, for vehicles with 10inch monitor only limited available. If the interface does not receive the required information from the vehicle CAN-bus, guide lines won't be supported generally.

### *Factory OBD socket*

The permanent connection of an OBD dongle product, e.g. for a tank app or an electronic driver's logbook, may result in partial failure of switching to the rear view camera. if the switching signal is obtained from the CAN bus. In this case an external switching signal from the reverse gear light and an ordinary open relay or filter are required for the installation of a rear-view camera (see chapter: "Case 2: Interface does not receive a reverse gear signal").

### *Vehicles with active Park assistant system 235*

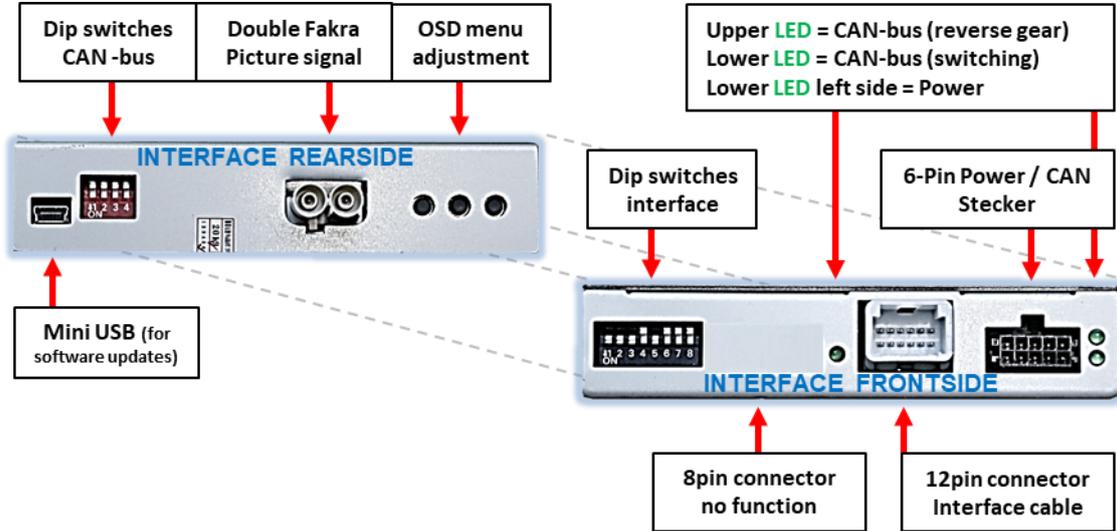
While the factory active park assistant system 235 is in use, the displaying of the camera picture is not possible.

### *Video input signal*

NTSC video sources compatible only. and **Fehler! Verweisquelle konnte nicht gefunden werden. Fehler! Verweisquelle konnte nicht gefunden werden.**

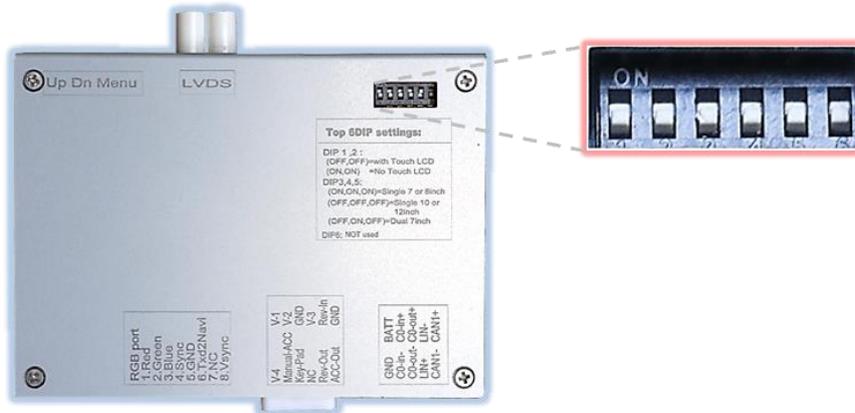
## 1.3. Boxes and connectors – video interface

The video-interface converts the connected after-market sources video signals into a LVDS signal which is inserted in the factory monitor using separate trigger options. Further it reads the vehicle's digital signals out of the vehicle's CAN-bus and converts them for the video interface.



There are 2 different interface versions:

- Version with 6-dip switches on the top of the housing

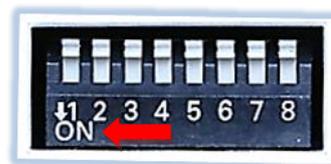


- Version without 6-dip switches on the top of the housing



## 1.4. Settings of the 8 Dip switches (black)

Some settings have to be selected by the dip-switches on the video interface. Dip position **UP = OFF** and **DOWN = ON**.



Dip	Function	ON (down)	OFF (up)
1	Frontkamera	enabled*	disabled
	Power supply output (red wire)	+12V (max. 3A) when reverse gear is engaged incl. 10 seconds delay and +12V by manual switching to front camera by keypad	+12V (max. 3A) ACC
2	CVBS Video 1-input	enabled	disabled
3	CVBS Video 2-input	enabled	disabled
4	No function		set to OFF
5	Rear-view cam type	after-market	factory or none
6	*Frontcam back-switching for 10 seconds	*enabled	disabled
7	Guide lines Version with 6dips on top	Enabled (only 7inch monitor)	disabled
	Guide lines Version without 6dips on top	Enabled (all monitor sizes)	disabled
8	Monitor selection	7inch monitor	10.25inch monitor

\*The front camera will automatically be switched for 10 seconds after disengaging the reverse gear.

See the following chapters for detailed information.

### 1.4.1. Adjustment – power supply output (dip 1)

If set to **ON**, the video interfaces' red wire will supply +12V (max 3A) with engaging the reverse gear and additionally 10 more seconds delay for the time of the front camera's back-switching after the reverse gear has been disengaged. Furthermore, the red wire's power supply for the front cam becomes active with manually front camera switching (short press of the external keypad).

If set to **OFF**, the video interfaces' red wire will supply permanent +12V ACC (max 3A).

Description of the power supply output: see chapter "Power supply output".

## 1.4.2. Enabling the interface's video inputs (dip 2-3)

Only the enabled video inputs can be accessed by switching through the interface's video sources. It is recommended to enable only the required inputs. Then the disabled inputs will be skipped while switching through the video interfaces inputs.

**Note:** Dip 4 is out of function and has to be set to **OFF!**

## 1.4.3. Rear-view camera settings (dip 5)

If set to **OFF**, the interface switches to factory 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 while the reverse gear is engaged.

## 1.4.4. Activating – front camera back-switching (dip 6)

If set to **ON**, the interface switches for 10 seconds from the rear-view camera to the front camera input after having disengaged the reverse gear. In addition, a manual switch-over to the front camera input is possible via keypad (short press) from any image mode. (Attend to correct adjustment of the power supply output (dip1)!

## 1.4.5. Activating the guide lines (dip 7)

If set to **ON**, the guidelines will be shown on the display. If set to **OFF**, the guide lines won't be visible on the display.

- Version with 6-dip switches on the top of the housing:  
Guide lines are only possible for infotainments with a 7inch monitor.
- Version without 6-dip switches on the top of the housing:  
All monitor sizes can be supported with guide lines

**Note:** If there is no communication between interface and the vehicle's CAN-bus (several vehicles aren't compatible), the reverse gear guide lines can't be shown during the vehicle's operation, even if they once appear after having switched the system to powerless.

## 1.4.6. Monitor selection (Dip 8)

Dip 8 customizes the monitor-specific video settings.

If the monitor doesn't give a satisfying picture, change the dip position while a working video source is connected to the chosen input of the interface.

Disconnect the 10pin plug at the interface box between every change of the dip setting.

**After each Dip-switch-change a power-reset of the interface box has to be performed!**

## 1.5. Settings - 6 Dip switches (Top of box–black)

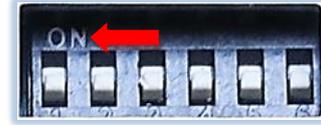


**For version with 6dips on top only!**

The 6 dip switches at the top of the video interface are responsible for the according monitor assignment.



**Attention: In contrast to both other dip benches (8dip and 4dip), the 6dip position UP = ON and DOWN = OFF!**



Monitor size	Dip 1	Dip 2	Dip 3	Dip 4	Dip 5	Dip 6
<b>7inch monitor</b> Sprinter (W907/910) GLC (X253)	OFF	OFF	ON	ON	ON	OFF
<b>7"inch monitor</b> A-Class (W177)* B- Class (W247)* CLA Coupé (C118)* CLA Shooting B (X118)* GLA (H247)* GLB (X247)*	OFF	OFF	OFF	ON	OFF	OFF
<b>10.25 inch monitor</b> Sprinter (W907/910) A- Class (W177) B- Class (W247) CLA Coupé (C118) CLA Shooting B (X118) EQC (N293) GLA (H247) GLB (X247) GLC (X253) GLE Coupé (C167) GLE SUV (W167) GLS- Class (X166)	OFF	OFF	OFF	OFF	OFF	OFF

Complete list of vehicle model and year – see page 4

**\*If Picture- or touch problems appear in vehicles with 7 inch monitor, try also the other dipswitch settings!**

## 1.6. Settings of the 4 Dip switches (CAN functions – red)

All 4 dip-switches of the video interface have no function for normal use and have to be set to OFF.

Dip position **UP = OFF** and **DOWN = ON**.



Vehicle/Navigation	Dip 1	Dip 2	Dip 3	Dip 4
All vehicles	OFF	OFF	OFF	OFF
Vehicles with factory active park assistant system 235	ON	OFF	OFF	OFF

**Note:** During the use of the factory active park assistant system 235, no camera image is available.

**After each Dip-switch-change a power-reset of the interface-box has to be performed!**

## **2. Installation**

**To install the interface, first switch off the ignition and disconnect the vehicle's battery. Please read the owner's manual of the car, regarding the battery's disconnection! If required, enable the car's Sleep-mode (hibernation mode)**

**In case the sleep-mode does not succeed, the disconnection of the battery can be done with a resistor lead.**

**As with any installation of retrofit equipment, a stand-by test is necessary after the installation of the video interface, to ensure that the unit also switches off after reaching the vehicle's sleep mode.**

**Before the final installation, we recommend a test-run of the interface. Due to changes in the production of the vehicle manufacturer, there's always the possibility of incompatibility.**

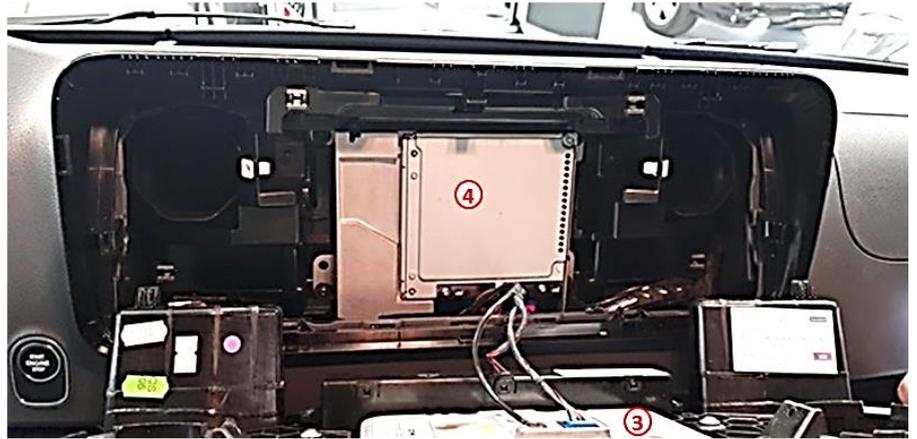
### **2.1. Place of connection**

Depending on the vehicle model, the place of installation of the MBUX head unit to which the connection is made, varies.

#### **Examples:**

- A-Class (W177), B-Class W247), GLA (H247): On the A-pillar on the driver's side
- GLE (W167 und C167): Under the passenger seat
- Sprinter (W907/910): Behind the factory monitor
- Citan/T-Klasse W420: behind the glove compartment

## 2.1.1. Removing the MBUX head-unit in the Sprinter (W907)



- 1 Remove air vents by using MB special tool.
- 2 Remove one hidden screw under each air vents
- 3 Remove front cover – monitor will stay in front.
- 4 Remove the head-unit.

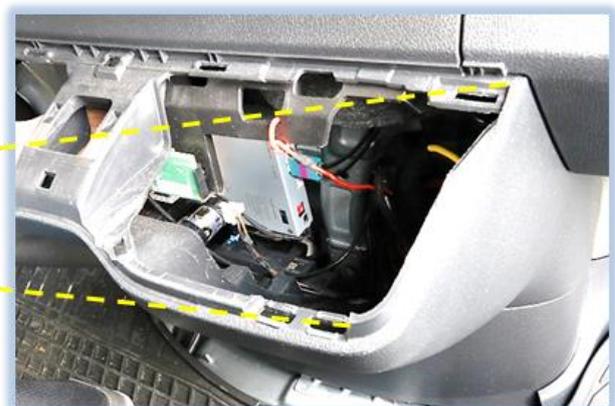
## 2.1.2. Place of installation - RL4-MBN6



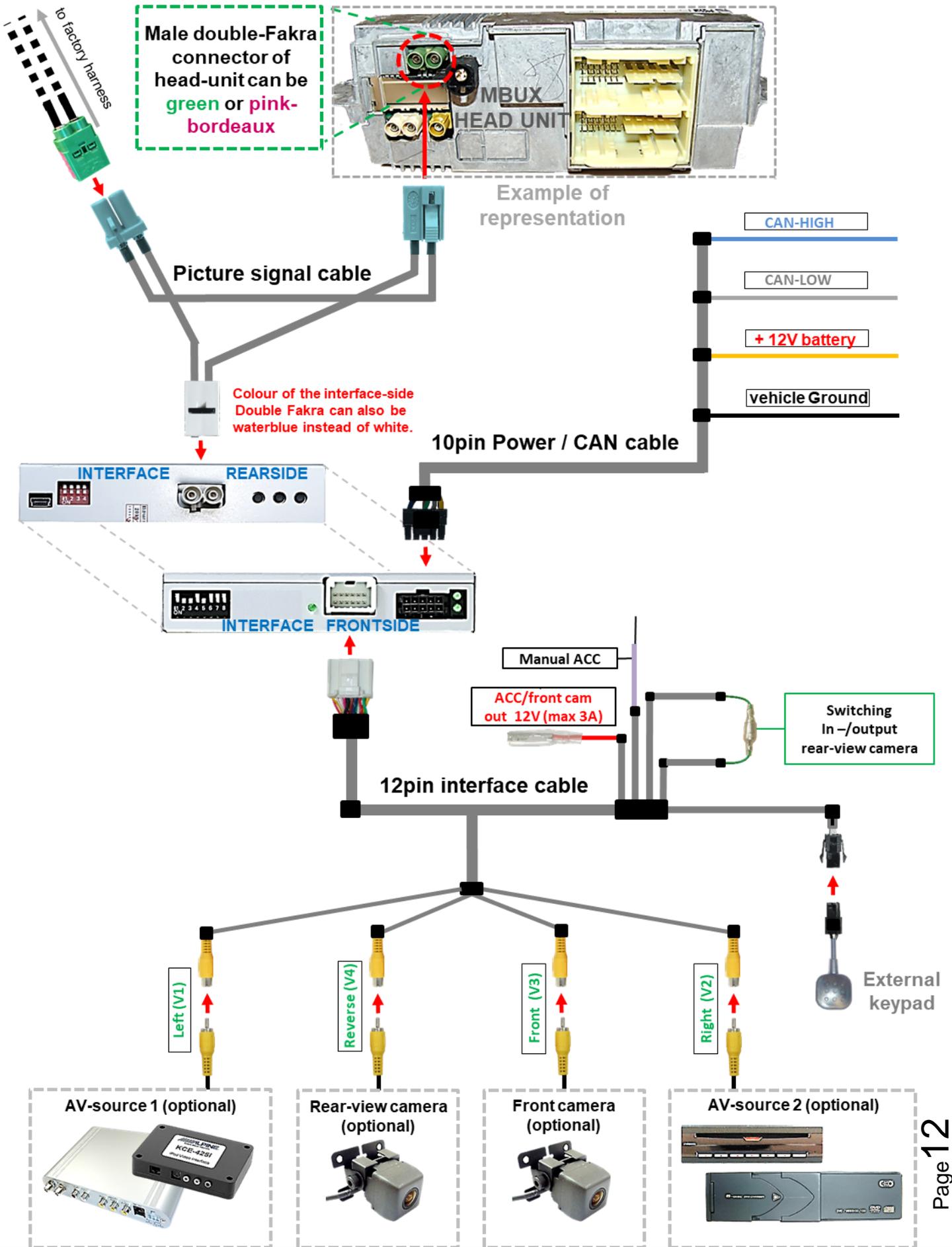
The installation of the interface box close to or behind the MBUX head unit should generally be avoided in all vehicles due to thermal problems, as the head-unit has a very high heat generation.

Particularly in the Sprinter W907/910 in the area around the MBUX head unit exists high heat generation due to solar radiation and the heating pipes. For the Sprinter W907/910, it is recommended to install the video interface in the centre console below the MBUX system, as shown in the pictures.

## Place of installation - Sprinter



## 2.2. Connection schema



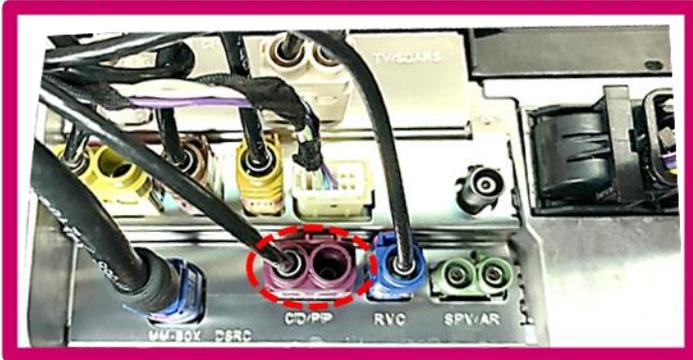
## 2.3. Connection

### Attention:

Depending on the vehicle, two different head units were installed.  
The connection differs between HU **type 1** and HU **type 2**.

### Head Unit **type 1**

**Pink/bordeaux coloured Double Fakra**



**MBUX 7inch with navigation**

MB order code: **E3M+E1E**

**MBUX 10.25inch with navigation**

MB order code: **E4M**

### Head Unit **type 2**

**Green Double Fakra** (pink/bordeaux doesn't exist)



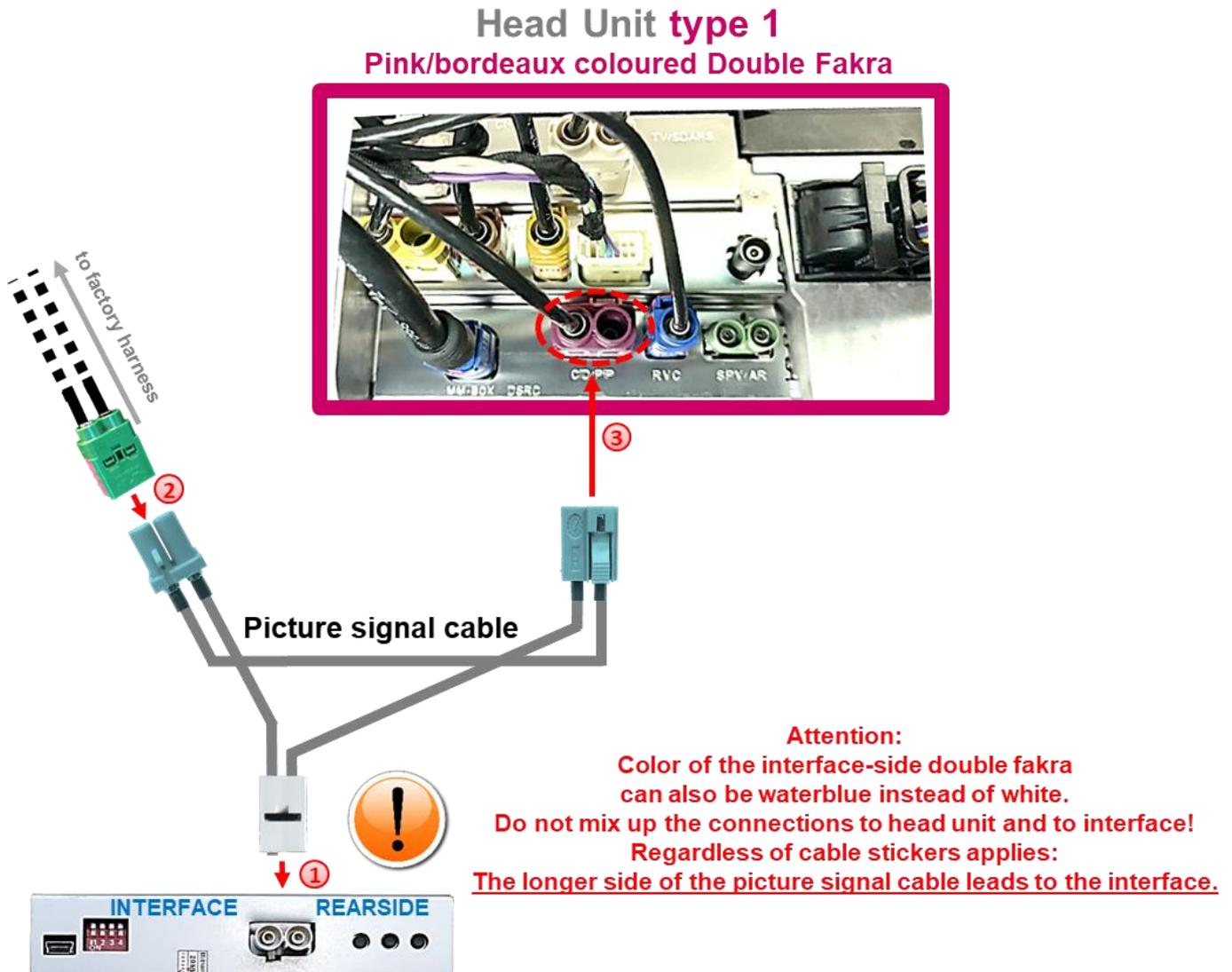
**MBUX 7inch without navigation**

MB order code: **E3M (without E1E)**

## 2.3.1. Picture signal cable - head unit type 1

If a pink/bordeaux Double Fakra is present at the head unit's rear-side, the picture signal cable has always to be connected to the pink/bordeaux one.

Remove the head unit and disconnect the rearside's pink-bordeaux coloured female double Fakra connector.



- 1 Connect the picture signal cable's white coloured female Double Fakra connector to the male double Fakra connector of the video interface.
- 2 Disconnect the female double Fakra connector at the head unit's male pink-bordeaux coloured Double Fakra connector and connect it to the male waterblue coloured double Fakra connector of the enclosed picture signal cable.
- 3 Connect the picture signal cable's waterblue coloured female Double-Fakra connector to the head unit's previously become free pink-bordeaux coloured Double-Fakra connector.

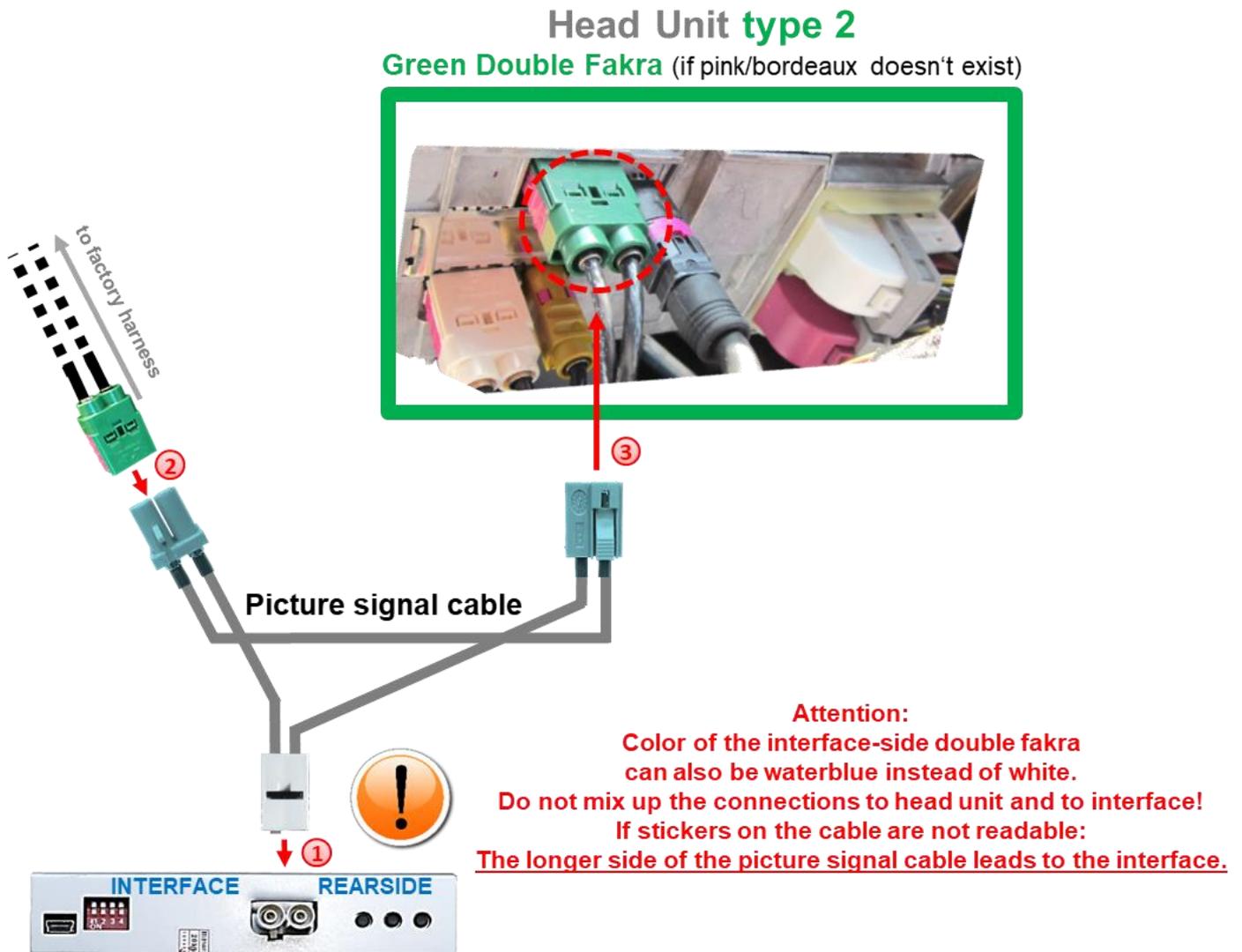


Attention: The picture signal cable's connection has always to be done at the head unit's Double Fakra, even if only one side of the factory Double Fakra is occupied!

## 2.3.2. Picture signal cable head unit type 2

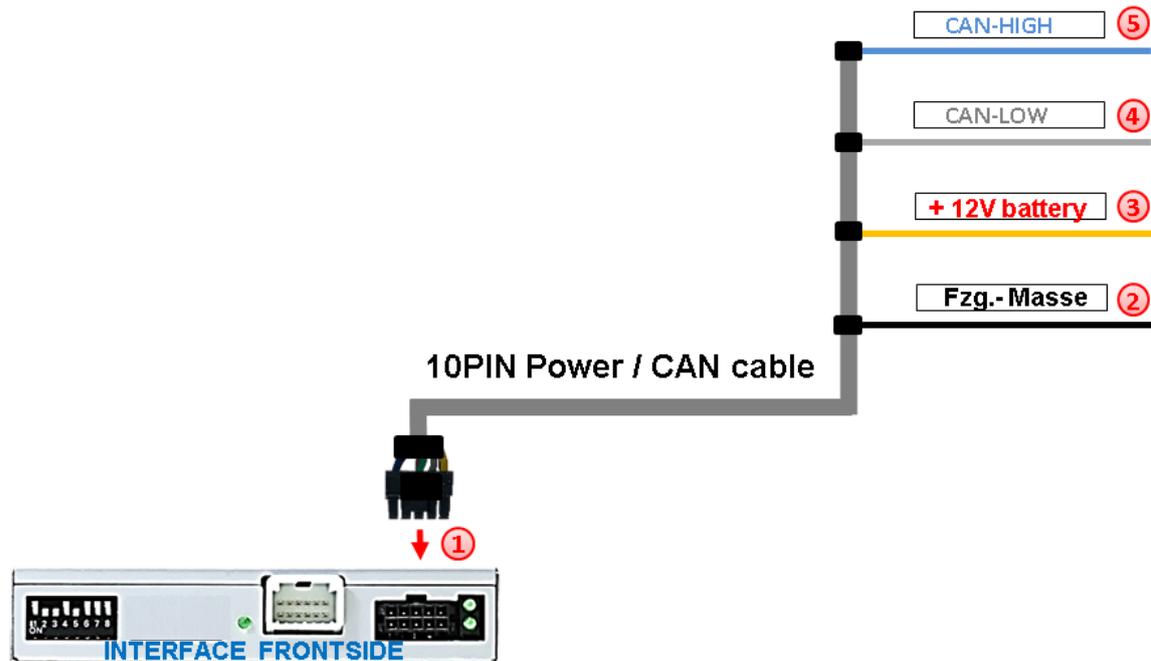
If **no** pink/bordeaux Double Fakra is present at the head unit's rear-side, the picture signal cable has to be connected to the green one.

Remove the head unit and disconnect the rearside's **green** female double Fakra connector.



- ① Connect the picture signal cable's white coloured female Double Fakra connector to the male double Fakra connector of the video interface.
- ② Disconnect the female double Fakra connector at the head unit's male **green** coloured Double Fakra connector and connect it to the male waterblue coloured double Fakra connector of the enclosed picture signal cable.
- ③ Connect the picture signal cable's waterblue coloured female Double-Fakra connector to the head-unit's previously become free **green** coloured Double-Fakra connector.

## 2.3.3. 10pin Power / CAN cable



- ① Connect the 10pin power / CAN cable's female 10pin connector to the 10pin connector of the video interface.
- ② Connect the single **black wire** of the 10pin Power / CAN Cable to stable vehicle's negative ground.
- ③ Connect the single **yellow wire** of the 10pin power/CAN cable to +12V permanent and stable power supply.
- ④ Connect the single **grey wire** of the 10pin power / CAN cable to the vehicle's CAN-Low
- ⑤ Connect the **blue wire** of the 10pin Power / CAN Cable to the vehicle's CAN-High.

Connection diagrams: see next chapter

## 2.3.4. Installation with connection to CAN bus or analogue (without CAN bus)

The RL4-MBN6 can be integrated via CAN bus as well as operated in analogue mode without CAN bus.

When integrated via CAN bus, the interface is switched on by the vehicle's CAN-Bus and the R-gear signal is usually recognised, too (not all vehicles).

With the MBUX with 7 inch monitor, some vehicles can display guide-lines. To avoid CAN bus incompatibility or to comply with vehicle manufacturer policies, an analogue connection without using the vehicle's CAN-BUS is also possible. In this case, via +12V switch inputs, the interface is switched on and switched to the rear-view camera input.

If connected analogue, guide-lines can't be shown.

### 2.3.4.1. Connection points/CAN – all vehicles



**Attention:** The two CAN wires may only be connected at the following specified points. Tapping the CAN information at other points can cause malfunctions.

#### Head Unit **Type 1** with pink-bordeaux Double-Fakra



Pin-assignment RL4 10pin Power/CAN	Pin-Belegung <b>Type 1</b> black 26pin locking connector
● CAN High blue	● Pin 7 purple white **
● CAN Low grey	● Pin 20 purple **
● +12V battery yellow	● Pin 14 red
● Ground black	● Pin 1 brown

Alternatively, the plug&play connection can be made with article **PNP-MBUX31P**.

#### Head Unit **Type 2** with Double-Fakra



Pin-assignment RL4 10pin Power/CAN	Pin-assignment <b>Type 2</b> white 31pin connector
● CAN High blue	● Pin 15 purple white **
● CAN Low grey	● Pin 22 purple **
● +12V battery yellow	● Pin 1 red
● Ground black	● Pin 6 brown

Alternatively, the plug&play connection can be made with article **PNP-MBUX31P**.

**\*\* The CAN bus colours on the vehicle can also be yellow/white and yellow!**

## 2.3.4.2. Alternative connection point Power/CAN - Sprinter W907/910

As an alternative connection option, **if an RVC preinstallation (code FR7) exists**, Power and CAN can also be tapped at the 4-pin socket with the same cable colours under the driver's seat for both HU types.



**Note:** The factory FR7 RVC preparation is only present:

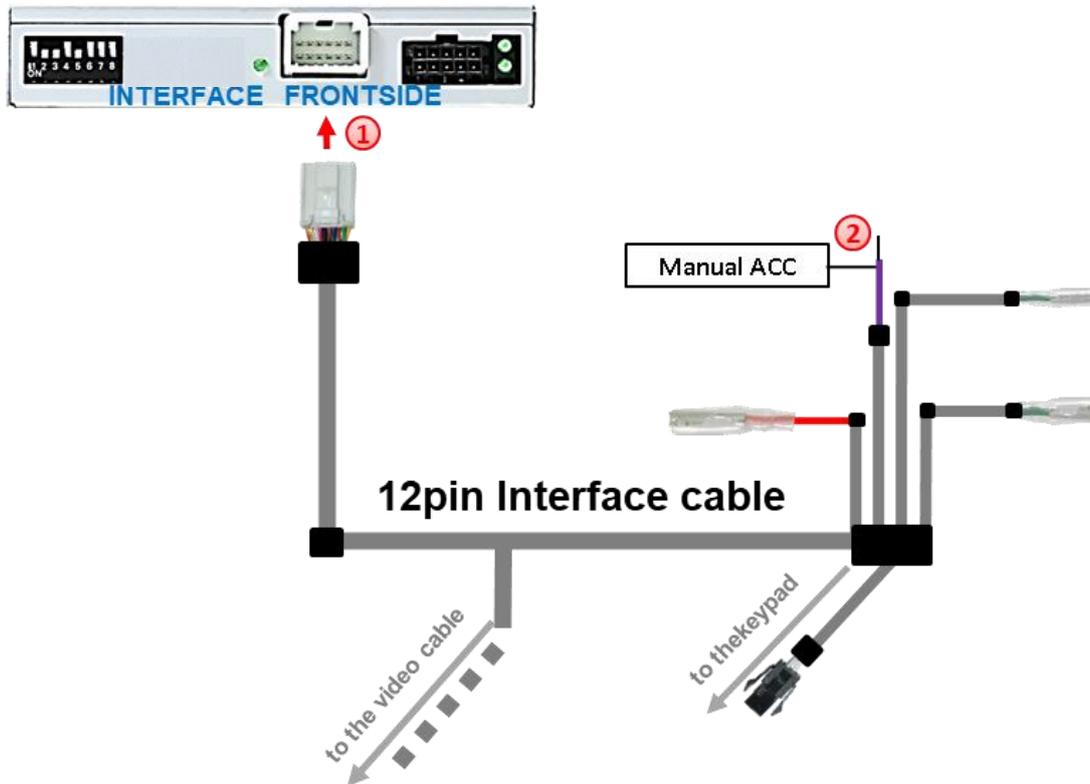
**for Type 1** – If the blue single fakra on the head unit is connected

**for Type 2** – If the green double fakra is twice-connected on the head unit.

Pin-assignment RL4 10pin Power/CAN	Head-units with FR7 RVC pre-fitting Type 1 und Type 2
• CAN High <b>blue</b>	• <b>purple</b> white
• CAN Low <b>grey</b>	• <b>purple</b>
• +12V battery <b>yellow</b>	• <b>red</b>
• Ground <b>black</b>	• <b>brown</b>

**There`s no liability for the vehicle`s pin diagram! Changes in the manufacturer`s production are possible any time. The mentioned information has to be verified by the installer.**

## 2.3.4.3. Installation with analogue connection (without CAN-Bus)



- 1 Connect the enclosed 12pin interface cable's female 12pin connector to the male 12pin connector of the video interface.
- 2 Connect the purple coloured wire **Manual ACC** of the 12pin interface cable to **S-contact terminal 86s +12V** (e.g. glove compartment illumination).



### Note:

Only as long as the video interface is switched on via +12V and Manual ACC, the MBUX screen is also switched on. Otherwise, the factory picture is black. When selecting the switch signal, please check whether the factory picture is available in all desired operating states.

With analogue connection of the video interface (without CAN bus), the connection of the rear-view camera must also be made manually. (see point **2.3.5.2.**: Case 2: Interface does not receive a reverse gear signal).

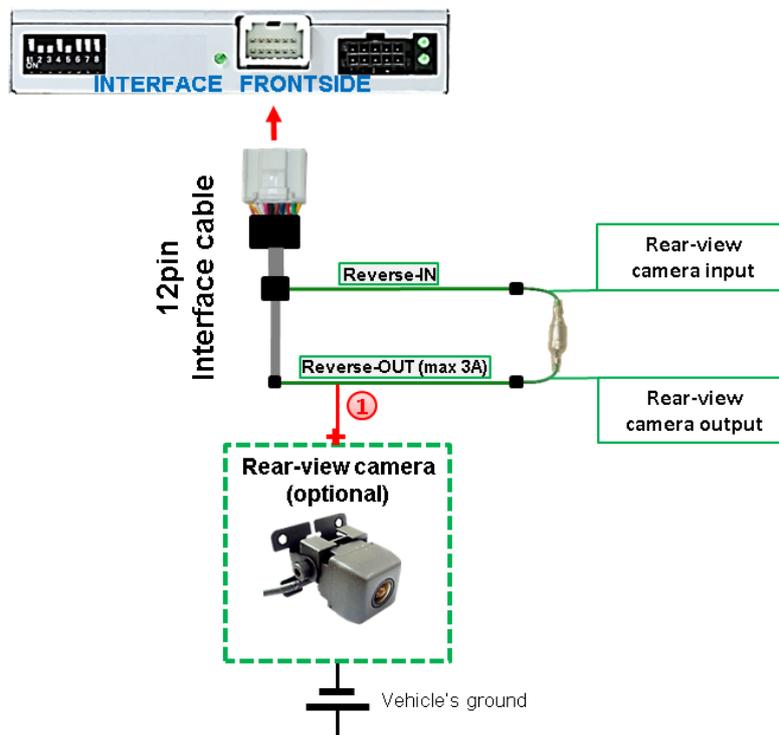
## 2.3.5. After-market rear-view camera

Some vehicles have a different reverse gear code on the CAN-bus which the video-interface is not compatible with. Therefore, there are two different ways of installation. If the video interface receives a signal of the reverse gear, the green wire "Reverse-OUT" of the 20pin cable should carry +12V while the reverse gear is engaged.

**Note:** Do not forget to set video interface's dip5 to ON before testing.

### 2.3.5.1. Case 1: Interface receives the reverse gear signal

If the interface delivers +12V on the green output wire of the 12pin interface cable while reverse gear is engaged, the video interface will automatically switch to the rear-view camera input "Camera IN" while the reverse gear is engaged.



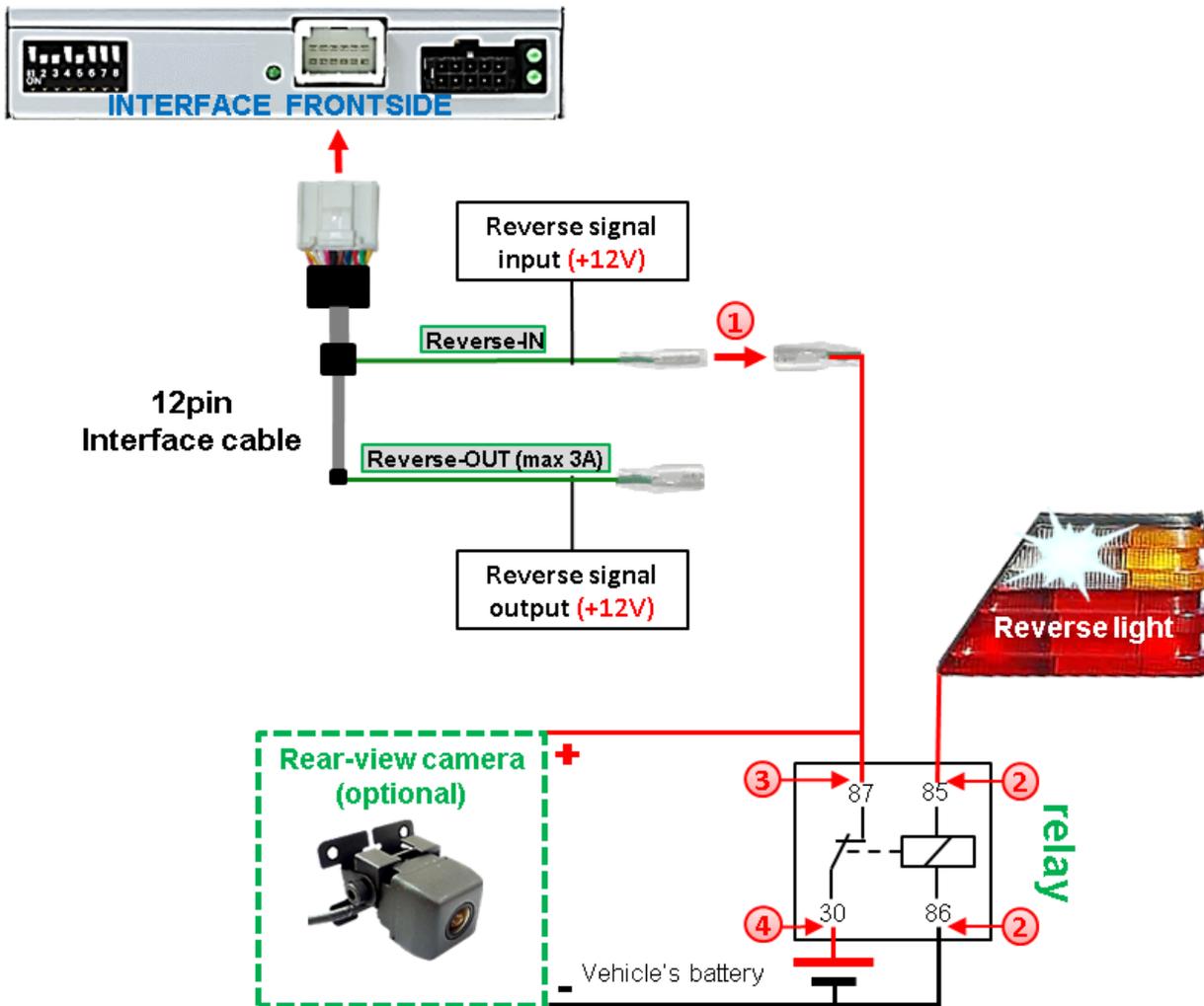
- ① Additionally, the +12V (max. 3A) power supply for the rear-view camera can be taken from the green wire of the 12pin interface cable.



**Note:** The permanent connection of an OBD dongle product, e.g. for a tank app or an electronic driver's logbook, may result in partial failure of switching to the rear-view camera. If the switching signal is obtained from the CAN bus. In this case, connect the rear-view camera as described in the following chapter "Case 2".

## 2.3.5.2. Case 2: Interface does not receive the reverse gear signal

If the video interface does not deliver +12V on the green wire of the 12pin 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's power supply isn't voltage-stable all the time, an ordinary open relay (e.g AC-RW-1230 with wiring AC-RS5) or filter (e.g. AC-PNF-RVC) is required. The diagram below shows the connection type of the relay.

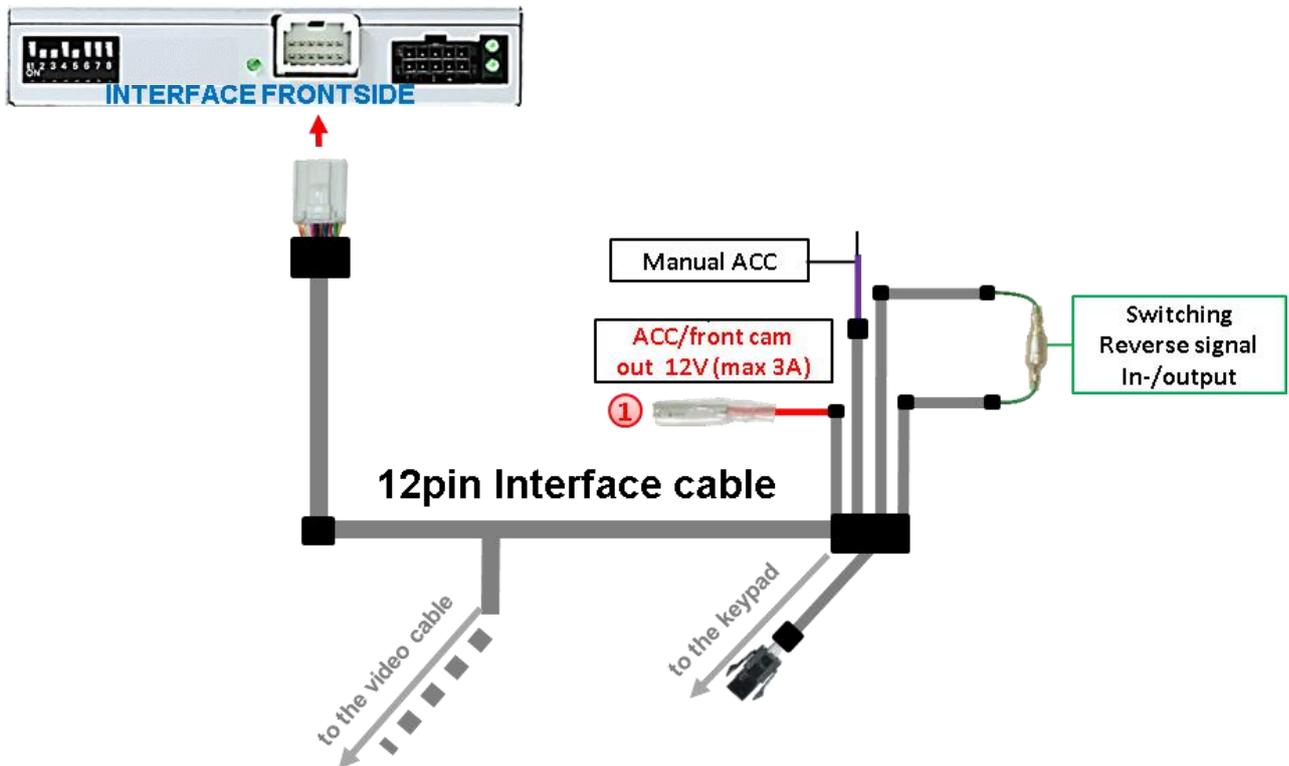


- 1 Disconnect the green cable's preconnected male- and female connectors of the 12pin interface cable and connect the green input cable "Reverse-IN" to the output connector (87) of the relay.

**Note:** Last but not lot least to avoid short circuits, the best solution should be, to crimp a male 4mm connector to the relay's output cable and connect it to the green cable's female 4mm connector. The output-cable "Reverse-OUT" remains disconnected as it's out of function.

- 2 Connect the Reverse light's power-cable to coil (85) and the vehicle's ground to coil (86) of the relay.
- 3 Connect the output connector (87) of the relay to the rear-view camera's power-cable, like you did it to the green "Reverse-IN" cable before.
- 4 Connect stabile and permanent +12V to the relay's input connector (30).

## 2.3.6. Power supply output



- ① The red power supply output **ACC/front cam out 12V (max 3A)** can be used to power an external source and has a different assignment depending on the position of dip switch 1 (of the black 8 dips):

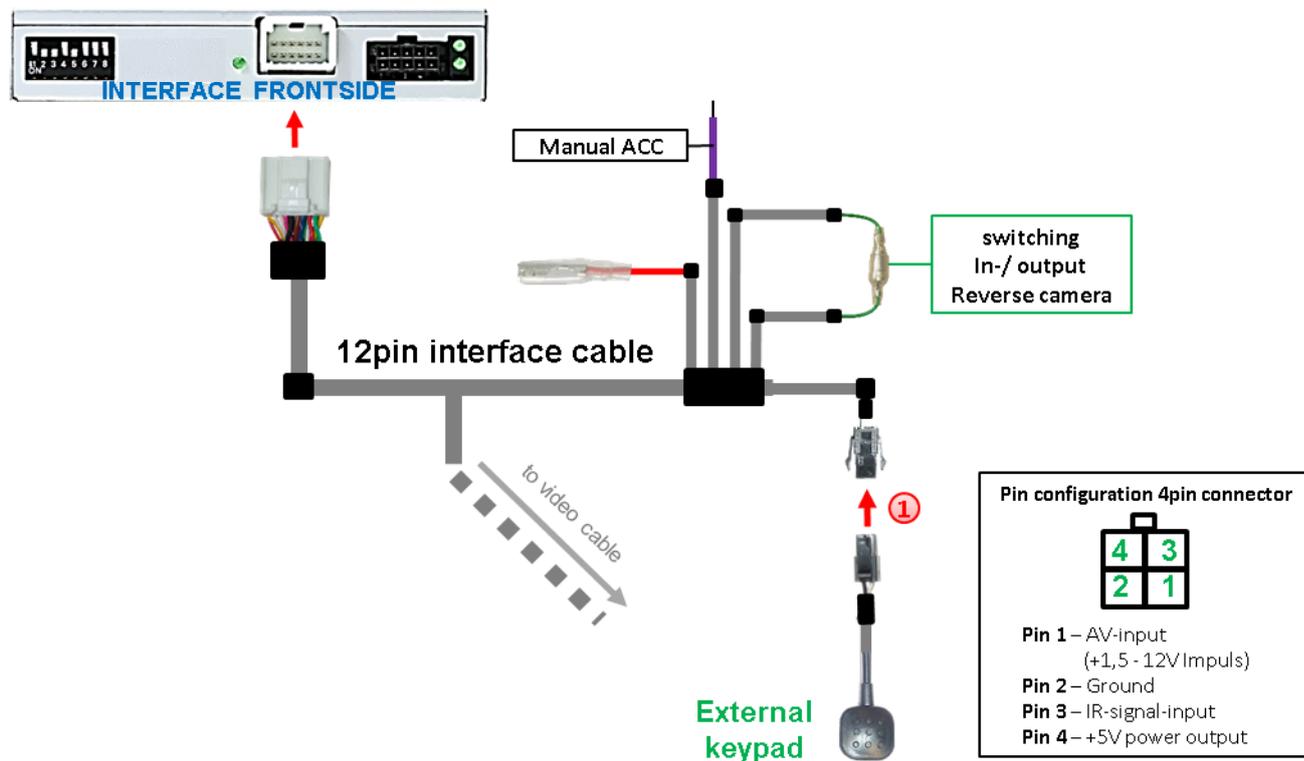
Dip	Function
Dip 1 <b>ON</b>	+12V (max. 3A) when reverse gear is engaged incl. 10 seconds delay after reverse gear is disengaged and +12V by manual switching to front camera by keypad (short press)
Dip 1 <b>OFF</b>	+12V (max. 3A) simulated ACC (while CAN has activity)

### 2.3.6.1. After-market front camera

- ① The red power supply output **ACC/front cam out 12V (max 3A)** can be used to power a front camera. If Dip 1 is set to ON (of the black 8 dips), the power supply output supplies +12V (max 3A) when the reverse gear is engaged and additionally 10 seconds delay after reverse gear is disengaged.

**Note:** In addition, a manual switch-over to the front camera input is possible via keypad (short press) from any image mode. The power supply output supplies +12V then, too (if Dip 1 is set to ON and the front camera input is selected).

## 2.4. Connection - video-interface and external keypad



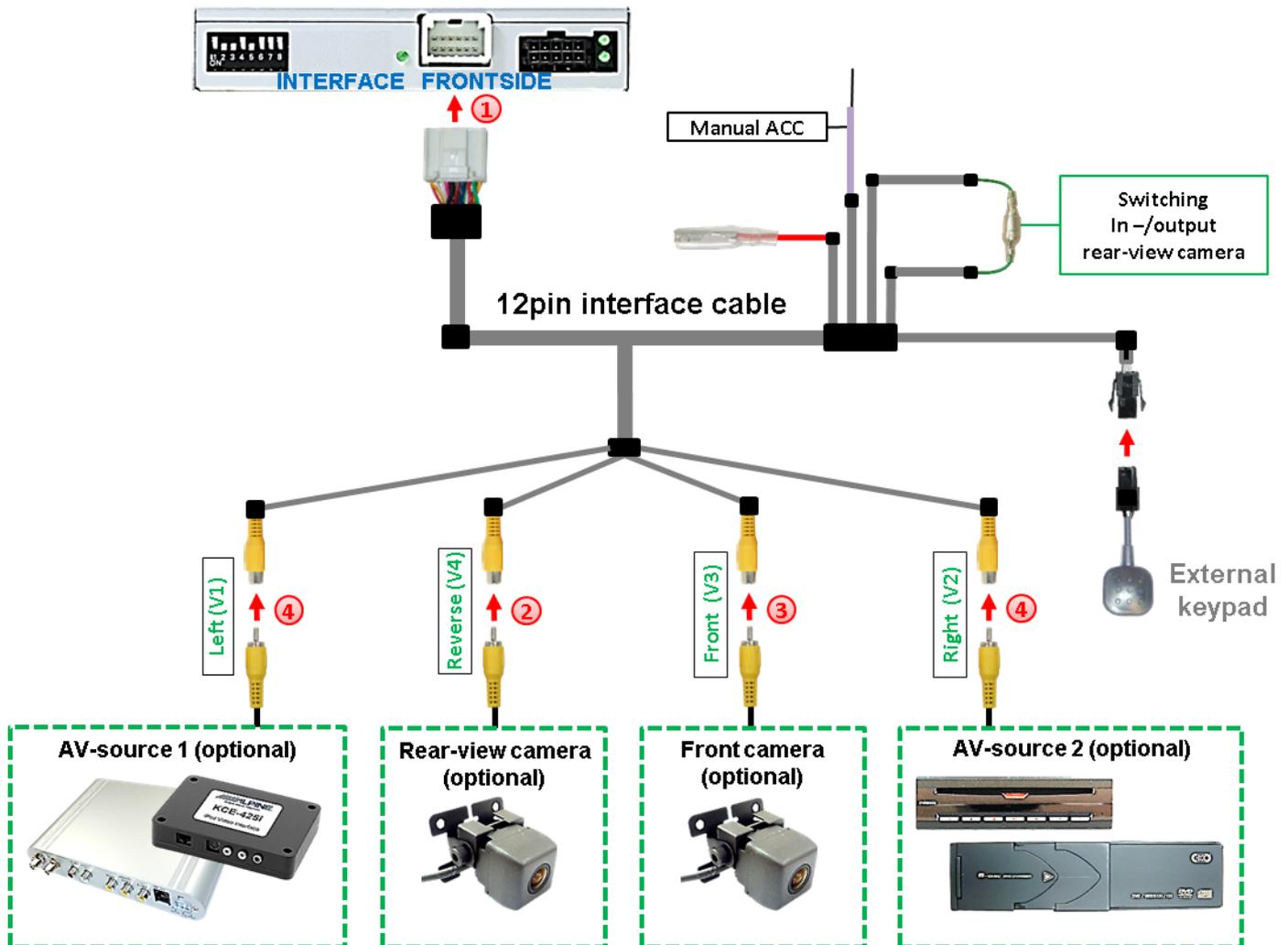
- 1 Connect the female 4pin connector of the keypad to the male 4pin connector of the 12pin interface cable.

**Note:** Even if switching through several video sources by the keypad mightn't be required, the invisible connection and availability is strongly recommended.

## 2.5. Connection - video sources

It is possible to connect an after-market rear-view camera, an after-market front camera and two more video sources to the video-interface.

Before a final installation of the video sources, we recommend a test-run to ensure the compatibility of vehicle and interface. Due to changes in the production of the vehicle manufacturer there's always a possibility of incompatibility.

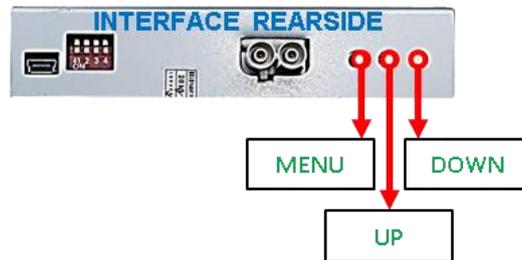


- ① Connect the 12pin interface cable's female 12pin connector to the male 12pin connector of the video-interface.
- ② Connect the video RCA of the Rear-view camera to the 12pin interface cable's female RCA connector „Reverse V4“.
- ③ Connect the front camera's video RCA connector to the 12pin interface cable's female RCA connector „Front V3“.
- ④ Connect the video RCA of the AV source 1 and 2 to the 12pin interface cable's female RCA connector “Left (V1)” and “Right (V2)”.

## 2.6. Audio-insertion

This interface is only able to insert video signals into the factory infotainment. If an AV-source is connected, the audio insertion has to be done by the factory audio AUX input or an FM-modulator. The inserted video-signal can be activated simultaneously to each audio-mode of the factory infotainment. If 2 AV sources shall be connected to the infotainment, additional electronic is necessary to switch the audio signals.

## 2.7. Picture settings and guide lines

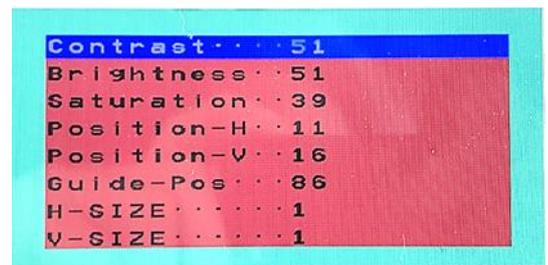


The picture settings are adjustable by the 3 push-buttons at the rear-side of the video-interface. Press the MENU button to open the OSD settings menu or to switch to the next menu item. Press UP and DOWN to change the selected value. The buttons are placed inside in the housing to avoid accidental changes during or after the installation. Picture settings must be done separately for all video inputs while the corresponding input is selected and visible on the monitor.

**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:

- Contrast
- Brightness
- Saturation
- Position H = horizontal picture position
- Position V = vertical picture position
- Guide-Pos = Move guide-lines horizontally
- (Setting result of the guide-lines is only visible after a short steering wheel movement!)**
- Size H = picture size horizontal
- Size V = picture size vertical



**Note:** If there is no communication between interface and the vehicle's CAN-bus (several vehicles aren't compatible), the reverse gear guide-lines can't be shown during the vehicle's operation even if they once appear after having switched the system to powerless!

## 3. Interface operation

### ➤ Long press of keypad (2-3 seconds)

By long pressing the external keypad (2-3 seconds), the video interfaces switches the input from the factory video to the inserted video sources. If all inputs are activated by dip switch settings, the order is the following:

*Factory video → Left (V1) → Right (V2) → factory video*

Each long press will switch to the next enabled input. Inputs which are not enabled will be skipped.

**Note:** The interface switches after releasing the switch (after long pressure).

### ➤ Short press of keypad (only if DIP 1 is set to ON)

By short pressing the external keypad, the video interfaces switches from the factory video to the front camera input and with press-repeat back to factory video.

## 4. Specifications

BATT/ACC range	7V - 25V
Stand-by power drain	10mA
Power	270mA @12V
Video input	0.7V - 1V
Video input formats	NTSC
Temperature range	-40°C to +85°C
Dimensions video-box	119 x 24 x 100 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.	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 qual. bad.		
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.
Not possible to switch video sources by external keypad.	Pressed too short.	For video source switching a longer press of about 2.5 seconds is required.
	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.

## 6. Technical Support

Please note that direct technical support is only available for products purchased directly from NavLinkz GmbH. For products bought from other sources, contact your vendor for technical support.

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