

# v.LiNK Video inserter

## CI-VL7-NBT2

Compatible with

**BMW** vehicles F-and G-series  
with NBT2 and 6.5, 7, 8.8 and 10.25inch monitor and HSD+2 plug

**Mini** vehicles  
with NBT2 8.8inch monitor and HSD+2 plug



example

**Video-inserter for one rear-view camera, one front camera  
and one additional video input**

### Product features

- Video-inserter for factory-infotainment systems
- CVBS Input for one rear-view camera
- CVBS Input for one front camera
- 1 CVBS Video-input for after-market Video sources (e.g. USB-Player, DVB-T2 Tuner)
- Automatic switching to rear-view camera input on engagement of the reverse gear
- Automatic front camera switching after disengaging reverse gear for 10 seconds
- Dynamic 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).

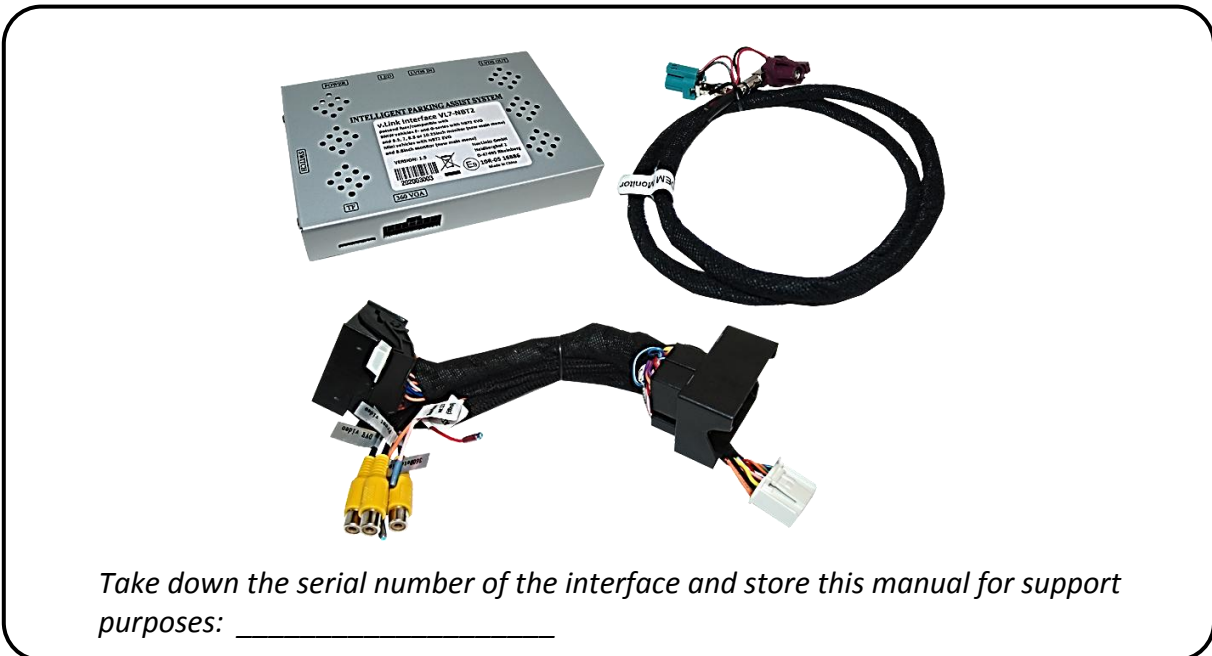
Changes/updates of the vehicle's software can cause malfunctions of the interface. Up to one year after purchase we offer free software-updates for our interfaces. To receive a free update, the interface has to be sent in at own cost. Wages for de-and reinstallation and other expenditures involved with 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

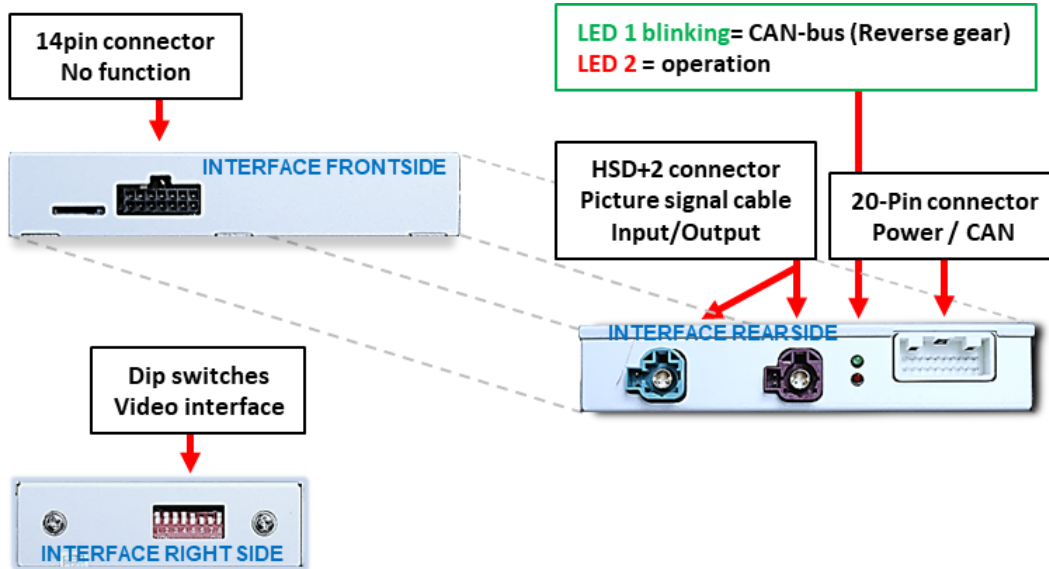
Brand	Compatible vehicles	Compatible systems
<b>BMW</b>	F-series vehicles from about 05/2016 and G-series vehicles with NBT2 (new main menu + more flat iDrive)	Radios, S606A Business Navigation, S6UNA Navigation, S6U2A Live Cockpit Plus, S609A Professional Navigation, S6UPA Navigation Plus - <b>NBT2 EVO with 6.5, 7, 8.8 and 10.25 inch monitor</b> <i>Since 2019, BMW has been gradually converting its vehicles from NBT2 to MGU. Visually, NBT2 is difficult to distinguish from MGU. Send us the vehicle identification number for verification in an enquiry, please.</i>
<b>Mini</b>	from about 2016/2017	609 Professional Navigation <b>NBT2 Evo with 8.8inch monitor</b> (new main menu)

### Limitations

<i>Video only</i>	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.
<i>Factory rear-view camera</i>	Automatically switching-back from inserted video to factory rear-view camera is only possible while the reverse gear is engaged (no delay of the switching possible). Automatic switching to the factory rear-view camera does not work from the video mode of a video source connected to the video input of the interface.
After market front camera	The front camera will automatically be switched for 10 seconds after disengaging the reverse gear. A manually front camera switching isn't possible.
<i>Dynamic guidelines</i>	Displayed dynamic guidelines are not available in all vehicles.
<i>Factory PDC display</i>	The factory PDC display does not work in all vehicles.
<i>Image formats</i>	On 8.8inch and 10.25inch monitors, the image formats of the inserted video sources will only be displayed in full screen (stretched)!
<i>Video input signal</i>	Only NTSC video sources compatible.

### 1.3. Connectors – video interface

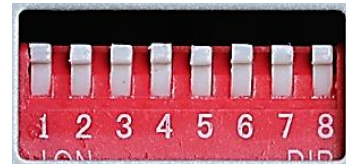
The video-interface converts the video signals of connected after-market sources in a factory monitor compatible picture signal which is inserted in the factory monitor, by using separate trigger options. Further it reads the vehicle’s digital signals out of the vehicle’s CAN-bus and converts them for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



### 1.4. Settings of the 8 Dip switches

Some settings have to be selected by the dip-switches of the video interface.

Dip position down is **ON** and position up is **OFF**.



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

## 1.4.1. Settings - dips1-3

Dip switches 1 to 3 are used for basic adjustment for the compatible vehicle types and monitor sizes (make settings according to the table).

vehicle - and monitor selection	Dip-1	DIP-2	Dip-3
1, 2, 3, 4 series, X3, X4 with 8.8inch monitor <b>WITH</b> factory rear-view camera	OFF ↑	OFF ↑	OFF ↑
1, 2, 3, 4 series, X3, X4 with 8.8inch monitor <b>WITHOUT</b> factory rear-view camera	ON ↓	OFF ↑	OFF ↑
5 serie with 8.8inch monitor <b>WITH</b> factory rear-view camera	OFF ↑	ON ↓	OFF ↑
5 serie with 8.8inch monitor <b>WITHOUT</b> factory rear-view camera	ON ↓	ON ↓	ON ↓ OFF ↑
1, 2, 3, 4 series, X1, MINI with 6.5 and 7inch monitor	OFF ↑	OFF ↑	ON ↓
5serie and 7 serie,X5, X6, i3 with 10.25inch monitor	ON ↓	ON ↓	ON ↓
X1 with 10.25inch monitor	ON ↓	OFF ↑	ON ↓

Varies depending on Equipment



If the above mentioned switch positions of Dip1-Dip3 generate system errors or do not show a satisfying picture (no picture, black picture, incorrect picture size) please also try all other combinations of the 3 Dip switches!

## 1.4.2. Settings – dips4-8

Dip switches for switching functions, (dip4 to dip8)

Dip	Function	ON ↓	OFF ↑
4	Factory PDC for after-market rear-view camera	disabled*	enabled
5	Video in (setting 1)	disabled	enabled
6	Video in (setting 2)	enabled	disabled
7	Front camera	enabled**	disabled
8	Rear-view cam type	Factory or none	After-market

\*For factory rear view camera, Dip-4 must be set to **ON** (bottom).

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

### 1.4.2.1. Deviating dip-switch combinations for manual switching to after-market camera (not via CAN-BUS)

Dip-switches	Dip-4	DIP-8
Manually activated by orange wire*	OFF ↑	ON ↓

\* In this case the factory PDC display cannot be deactivated

See the following chapters for detailed information.

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

### 1.4.3. Explanation of the individual dipswitch functions

#### 1.4.3.1. Vehicle and monitor selection (Dip1-3)

Dip switches 1 to 3 are used for basic adjustment for the compatible vehicle types and monitor sizes (make settings according to the table).

#### 1.4.3.2. Activating the factory PDC display (Dip-4)

Dip 4 is used to activate the factory PDC display (if available) when retrofitting an after-market rear view camera. When Dip switch is set to **OFF**, the factory PDC display is shown on the right side of the display. With Dip switch position **ON**, the factory PDC display is not shown.

**Exceptional case:** A manual switching to an after-market camera (by orange cable) only works with the following combination of dip-4 and dip-8:

Dip-4 switch position = **OFF** / Dip-8 switch position = **ON**

In this case the factory PDC display cannot be deactivated!



**Before installing the interface, the factory PDC display must be activated and visible in the middle of the screen!**

**Note:** If a factory rear view camera is installed, Dip 4 must be set to ON (bottom).

#### 1.4.3.3. Activating the video input (Dip 5+6)

Dip switches 5 and 6 activate the video input - it is necessary to set both dip switches according to the table:

Dip	Function	ON ↓	OFF ↑
5	Video in (setting 1)	disabled	enabled
6	Video in (setting 2)	enabled	disabled

#### 1.4.3.4. Activating the front camera input (Dip 7)

Dip 7 is used to activate the front camera input. With Dip switch position **ON**, the interface switches from the rear camera to the front camera input for 10 seconds after the reverse gear has been engaged.

Dip-switch position **OFF** deactivates the front camera input.

### 1.4.3.5. Rear-view camera settings (Dip 8)

Dip 8 is used to set the type of rear view camera. Dip switch position **ON** switches the interface to factory picture of an existing factory rear view camera as long as reverse gear is engaged.

Dip switch position **OFF** switches the interface to the rear view camera input as long as reverse gear is engaged.

**Exceptional case:** A manual switching to an after-market camera (by orange cable) only works with the following combination of dip-4 and dip-8:

**Dip-4 switch position = OFF / Dip-8 switch position = ON**

**In this case the factory PDC display cannot be deactivated!**

**Note:** Automatic switching to the factory rear-view camera does not work from the video mode of a video source connected to the video input of the interface.

## 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.**

**If the necessary stabilized power supply for the interface is not taken directly from the battery, the chosen connection has to be checked for being constantly stable.**

**The interface needs a permanent 12V source!**

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

### 2.1. Place of installation

The interface is supposed to be installed at a suitable location behind the vehicle's head-unit.

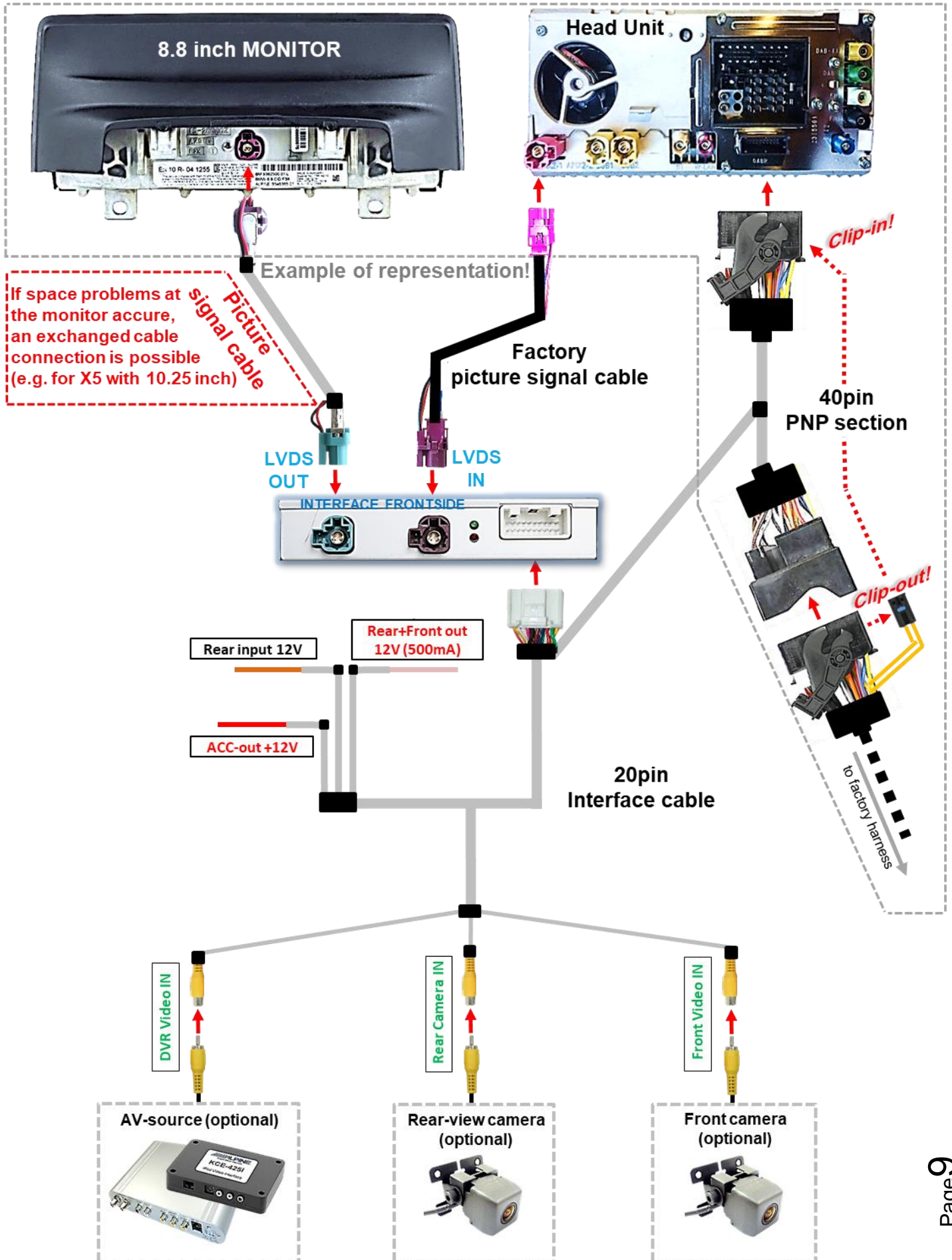


**Deviation BMW i3:** With installation in BMW i3 the PNP cable requires an extension to the video interface, as its head unit is located in the rear of the vehicle.

The installation place of the video Interface remains in the front of the vehicle.

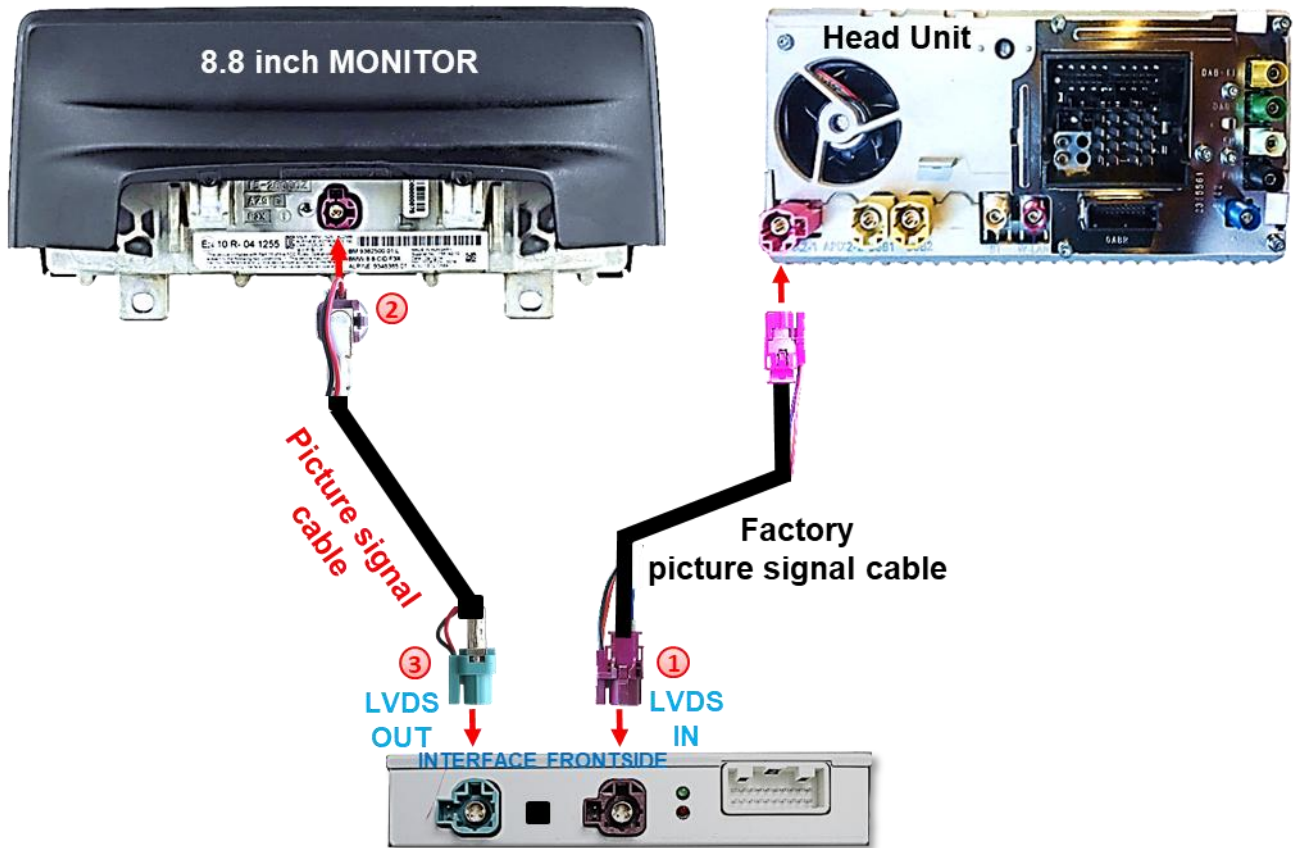


2.2. Connection schema



## 2.3. Connections to factory head-unit and monitor

### 2.3.1. Connection - picture signal cable



- ① Disconnect the factory picture signal cable's bordeaux coloured HSD+2 connector from the rear-side of the monitor and connect it to the bordeaux coloured HSD+2 connector „LVDS IN“ of the video interface .
- ② Connect the angled bordeaux coloured HSD+2 connector of the enclosed picture signal cable to the previously become free bordeaux coloured HSD+2 connector at the monitor's rear side.
- ③ Connect the opposite straight waterblue coloured HSD+2 connector of the enclosed picture signal cable to the waterblue coloured male HSD+2 connector „LVDS OUT“ of the video interface.

**Attention:** The picture signal cable's connecting direction doesn't have an impact on the system's function, for that the angled and not-angled HSD+2 connectors are allowed to be interchanged, depending on the HSD+2 connectors mounting space at the monitor.



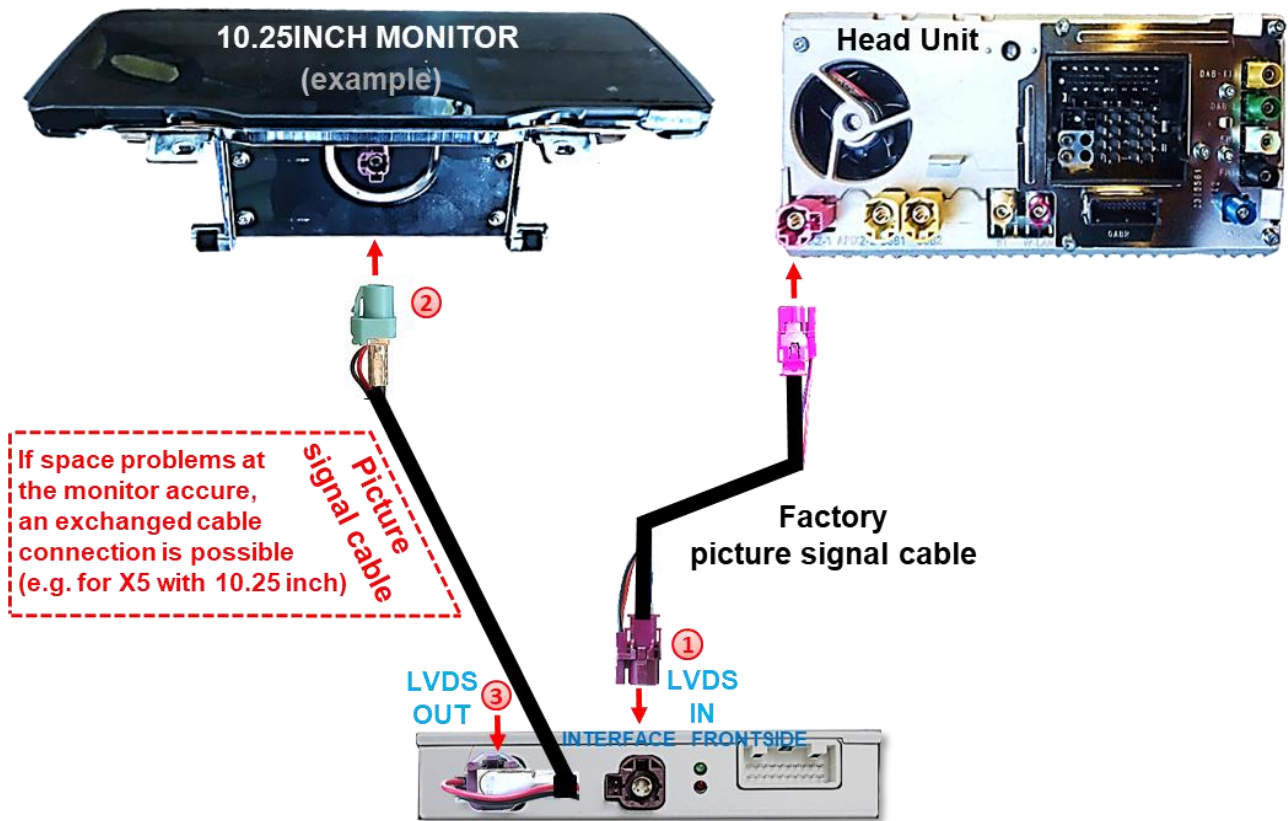
**However, mixing up/interchanging the connections of „LVDS IN“ and „LVDS OUT“ will cause dysfunction or even damage to the system!**

**Note:** The colours of the HSD+2 connectors at monitor and head unit may vary.

## 2.3.1.1. Special case - space problems with the monitor connection

The picture signal cable's connecting direction doesn't have an impact on the system's function, so that the angled and not-angled HSD+2 connectors are allowed to be interchanged, depending on the HSD+2 connectors mounting space.

### Possible special case for X5 with 10.25 inch



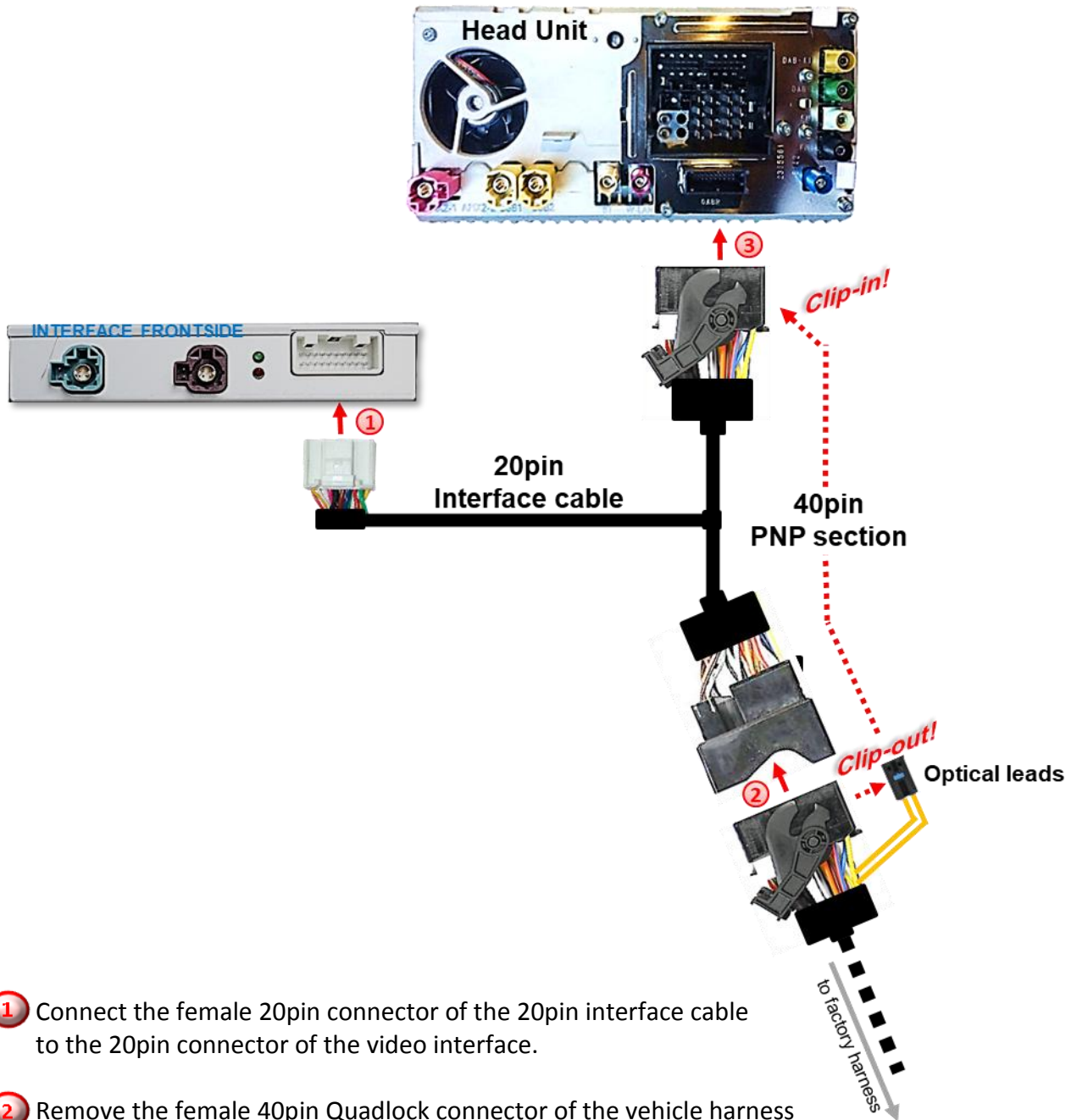
- ① Disconnect the factory picture signal cable's bordeaux coloured HSD+2 connector **at the rear-side of the monitor** and connect it to the bordeaux coloured HSD+2 connector „LVDS IN“ of the video interface .
- ② Connect the straight waterblue coloured HSD+2 connector of the enclosed picture signal cable to the previously become free bordeaux coloured HSD+2 connector at the monitor's rear side.
- ③ Connect the opposite angled bordeaux coloured HSD+2 connector of the enclosed picture signal cable to the waterblue coloured male HSD+2 connector „LVDS OUT“ of the video interface.



**Mixing up/interchanging the connections of „LVDS IN“ and „LVDS OUT“ will cause dysfunction or even damage to the system!**

**Note:** The colours of the HSD+2 connectors at monitor and head unit may vary.

## 2.4. Connection – Quadlock/CAN



- 1 Connect the female 20pin connector of the 20pin interface cable to the 20pin connector of the video interface.
- 2 Remove the female 40pin Quadlock connector of the vehicle harness from the rear-side of the head-unit and connect it to the male 40pin Quadlock connector of the 40pin PNP section.
- 3 Connect the opposite female 40pin Quadlock connector of the 40pin PNP section to the previously become free male 40pin Quadlock connector at the rear-side of the head unit.



**Attention:** If the factory Quadlock connector is equipped with optical leads, these must be clipped out there and transferred to the female 40-pin Quadlock connector of the 40-pin PNP section!



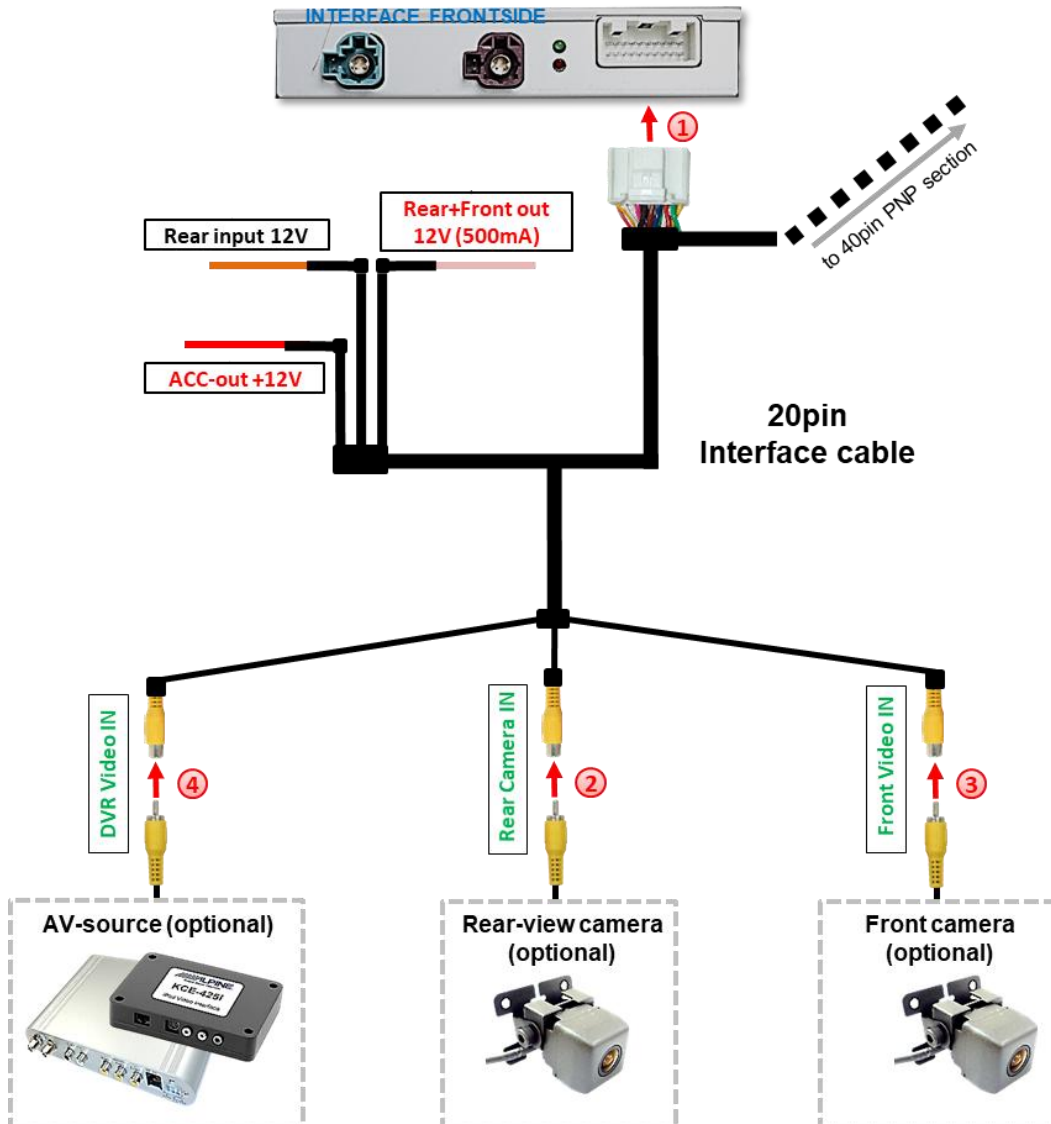
**Deviation BMW i3:** With installation in BMW i3 the PNP cable requires an extension to the video interface, as its head unit is located in the rear of the vehicle. The installation place of the video Interface remains in the front of the vehicle.



## 2.5. Connection - video sources

It is possible to connect an after-market rear-view camera, an after-market front camera and one more after-market video source 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.

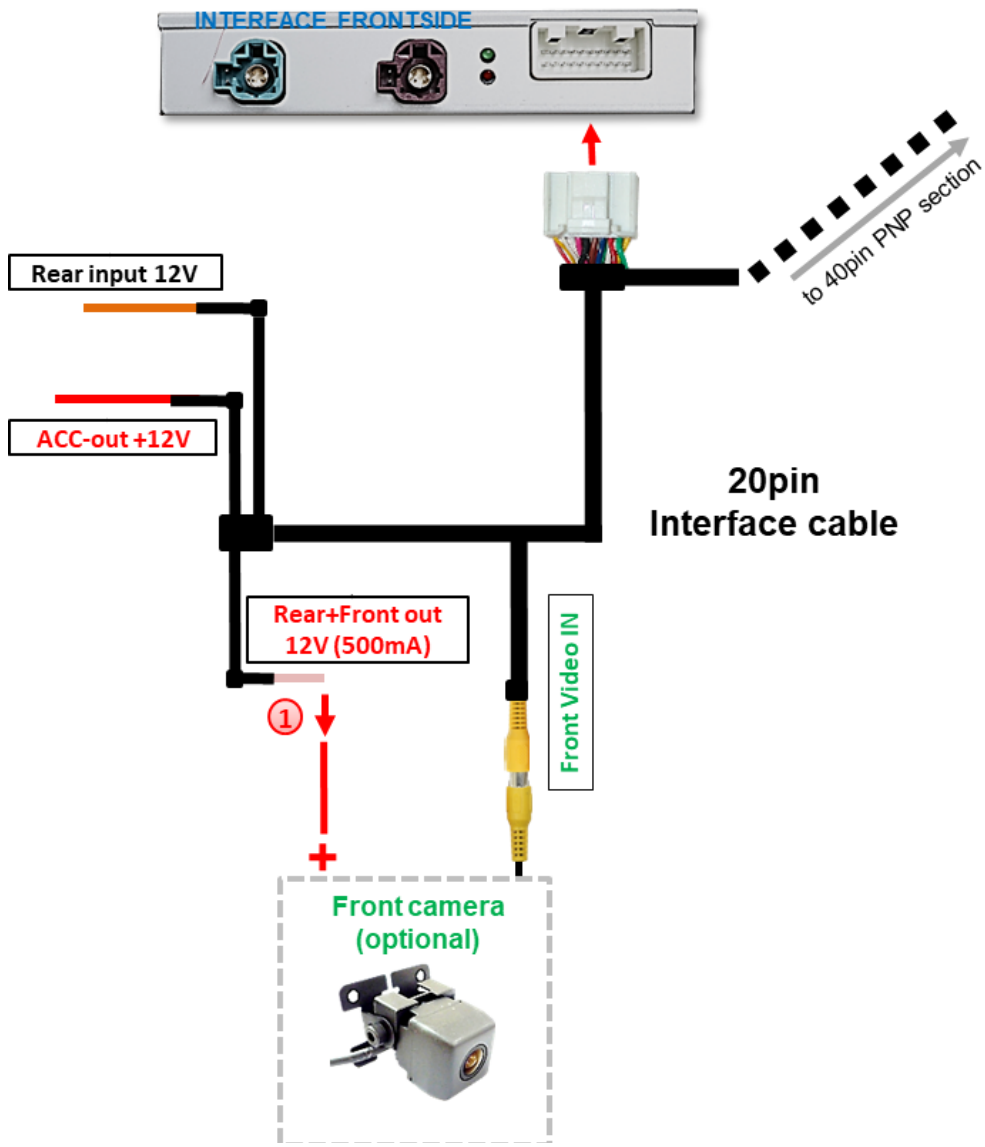


- 1 Connect the 20pin interface cable's female 20pin connector to the male 20pin connector of the video-interface.
- 2 Connect the video RCA of the rear.view camera to the female RCA connector "Rear Camera IN" of the 20pin interface cable.
- 3 Connect the video RCA of the front camera to the female RCA connector "Front Video IN" of the 20pin interface cable.
- 4 Connect the video RCA of an additional video source to the female RCA connector "DVR Video IN" of the 20pin interface cable.

## 2.5.1. 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.

## 2.5.2. After-market front camera



- ① The red wire of the 20-pin interface cable "**Rear+Front out**" is used for the power supply of the front and rear camera. It carries +12V (max. 3A) when the reverse gear is engaged plus 10 seconds after the reverse gear is again disengaged.

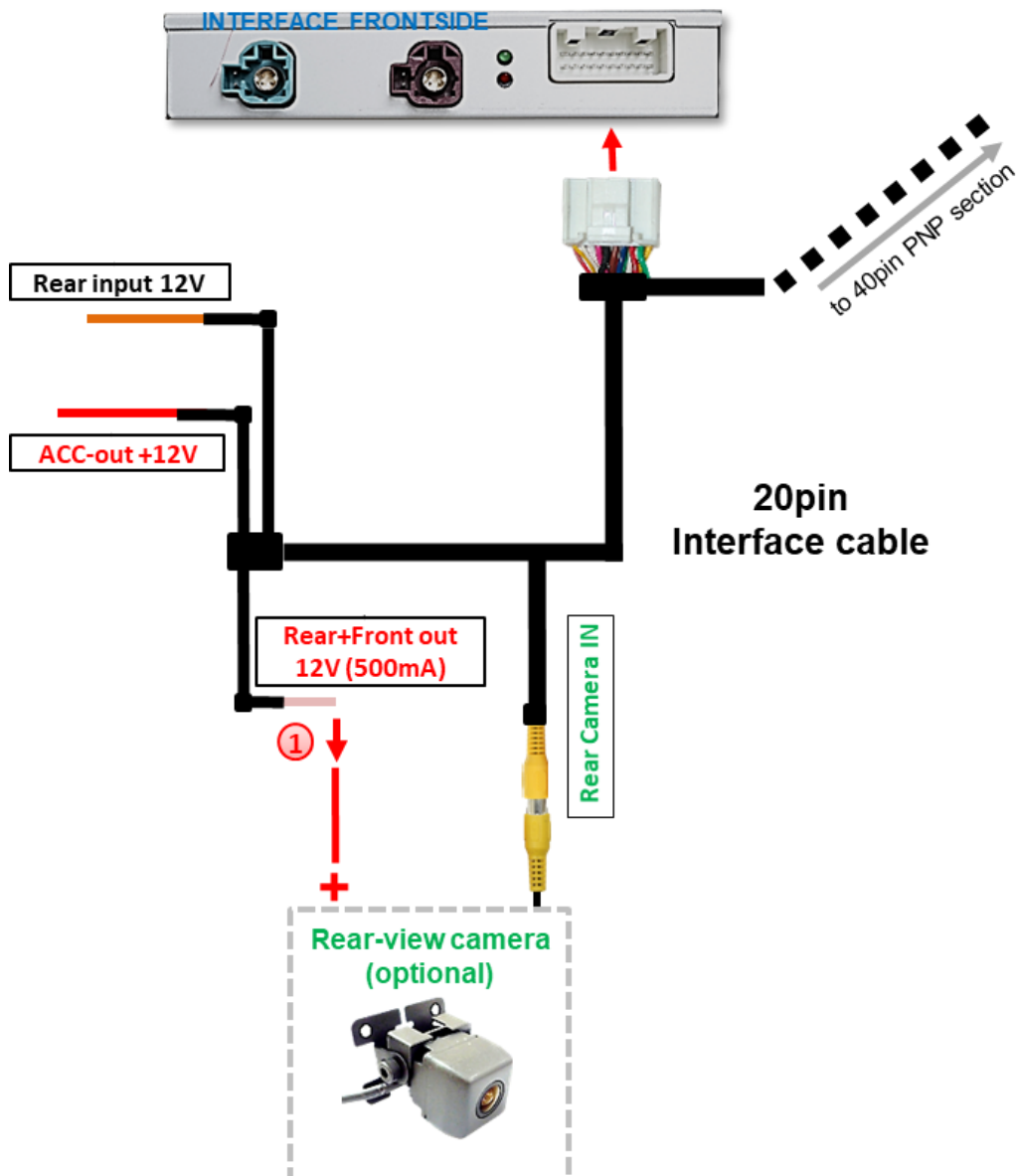
## 2.5.3. After-market rear-view camera

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

**Note:** Do not forget to set video interface's dip8 to **OFF** before testing.

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

If the interface delivers +12V on the green output wire of the 20pin interface cable while reverse gear is engaged, the video interface will automatically switch to the rear-view camera input **"Rear Camera IN"** while the reverse gear is engaged.

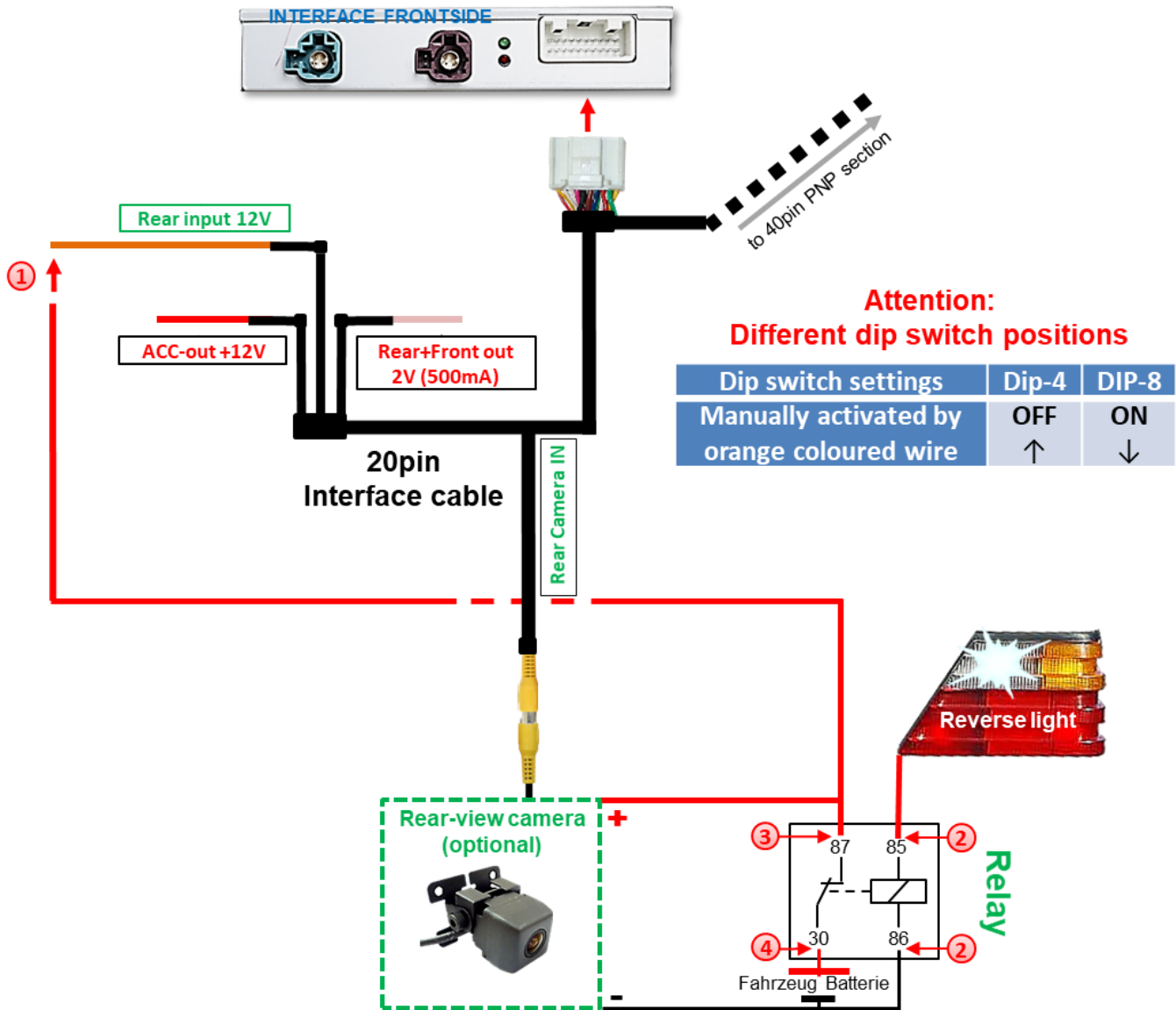


- ① The red wire of the 20-pin interface cable **"Rear+Front out"** is used for the power supply of the front and rear-view camera. It carries +12V (max. 3A) when the reverse gear is engaged with additional 10 seconds after the reverse gear is again engaged.

## 2.5.3.2. 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 on the next page shows the connection type of the relay.

**Deviating dip switch positions must be observed!**



- ① Connect the 20pin interface cable's orange coloured input cable "Rear input 12V" to the output connector (87) of the relay.
- 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 "Rear input 12V" cable before.
- ④ Connect stable and permanent +12V to the relay's input connector (30).



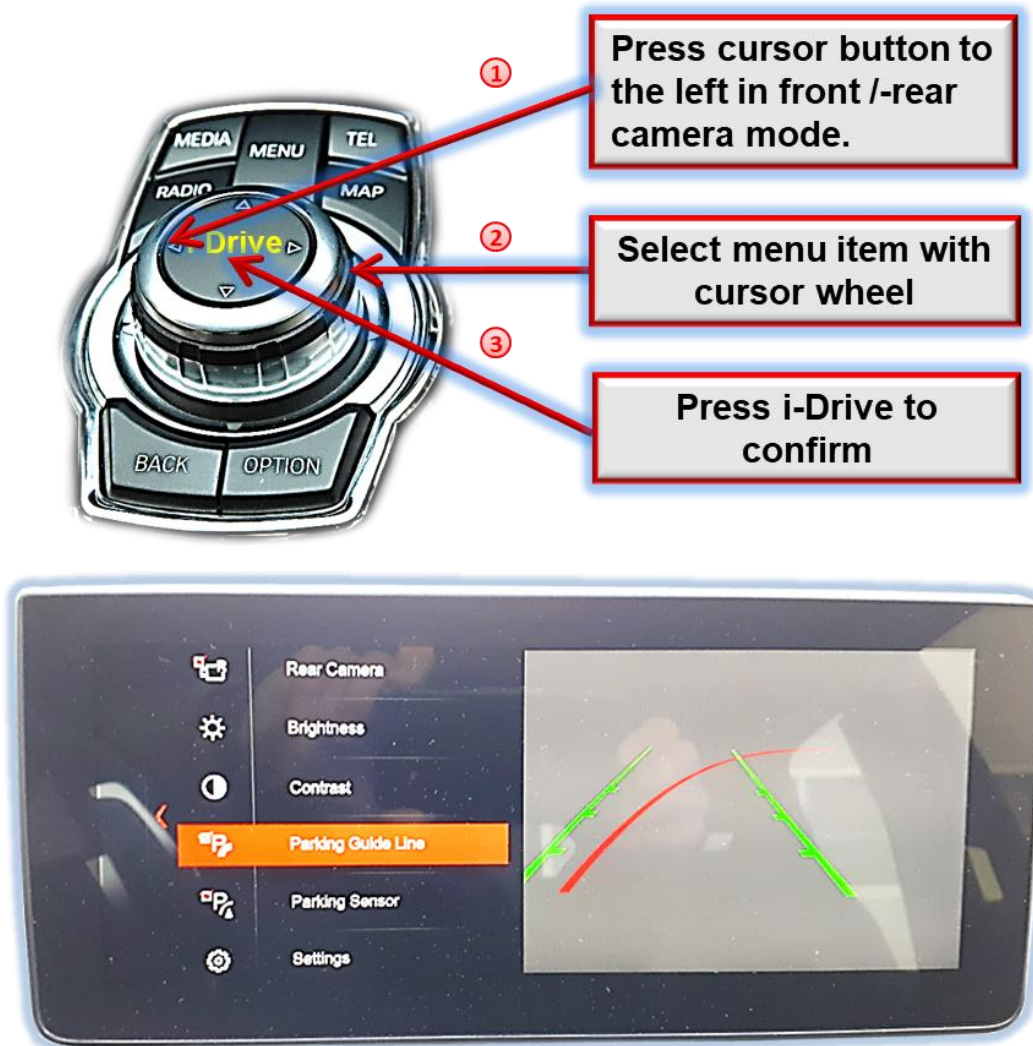
## 2.5.4. Power supply output

The red power supply output „ACC out +12V“ can be used to power an after-market video source (e.g. USB-player, DVB-T2 tuner).

## 2.6 Picture settings in the menu

To enter the menu, the front or rear camera image must be shown on the display.

### Selecting the menu settings



- 1 Press the cursor to the left. The menu picture appears on the monitor.
- 2 Select the corresponding menu item with the cursor wheel.
- 3 Press the I-Drive button to confirm.

## 2.6. Adjusting the dynamic guide lines

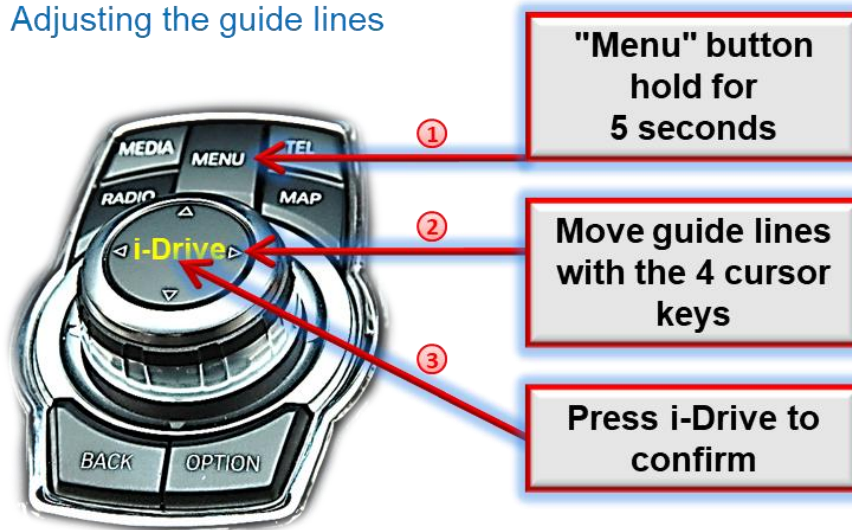


The display of the dynamic guide lines does not work in all vehicles. The adjustment of the dynamic guide lines does not work in all vehicles where the lines are displayed.

**Note:** During the adjustment of guide lines, Dip-6 must be set to **ON**. To adjust the guide lines, the reverse gear must be engaged. Move the steering wheel to see the changes.

### 2.6.1. By i-Drive buttons

#### Adjusting the guide lines



While adjusting the guide lines, Dip-6 must be set to "ON"!

- 1 Press and hold the Menu button on the i-drive for 5 seconds.
- 2 Use the cursor keys "up"- "down"- "right"- "left" to move the guide lines in the corresponding direction.
- 3 Press the i-Drive button to confirm the position.

In case of unchangeable values, the system supports an automatic picture adjustment.

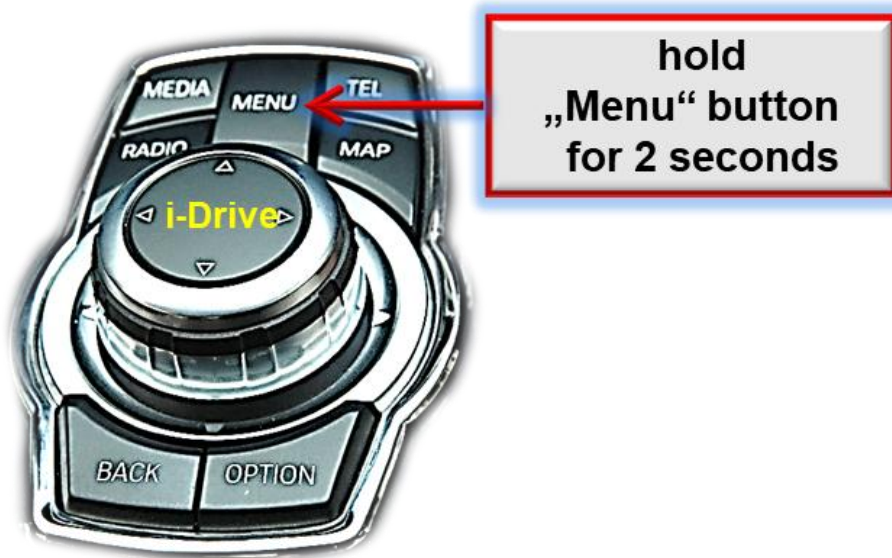
### 2.6.2. By touchscreen (only if supported)

For vehicles with factory touchscreen, touch the display at any point for 20 seconds. Then use the 4 arrow keys "up"- "down"- "right"- "left" to move the guide lines in the corresponding direction as required.

### 3. Interface operation

The factory i-Drive button can be used to manually switch to an after-market video source, activated on the interface (e.g. USB-player, DVB-T2 tuner).

#### switching to a video source



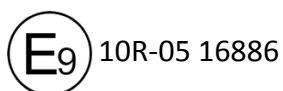
Pressing the Menu button on the i-Drive for 2 seconds, switches the input from the factory video to the video source that has been inserted in the interface. If the input is activated by dip switch setting (dip6), the sequence is as follows:

*Factory video → Video IN 1 → factory video*

Each press will switch between the factory video and the activated video source.

## 4. Specifications

BATT/ACC range	9V – 16V
Stand-by power drain	2mA
Power	450mA @12V
Video input formats	NTSC
Temperature range	-20°C to +70°C
Dimensions Interface box	130 x 88 x 25 mm (W x D x H)



Made in China

