

## Video inserter

### RL2-LR16

Compatible with

**Jaguar** and **Land Rover** vehicles

with Touch-Screen Navigation version 3 infotainment or  
with Incontrol Touch infotainment and 8inch monitor



### Video-inserter for rear-view camera

#### Product features

- Video-inserter for factory-infotainment systems
- 1 CVBS Input for rear-view camera
- Automatic switching to rear-view camera input on engagement of the reverse gear
- Activatable parking guide lines for rear-view camera (not available for all vehicles)
- 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).

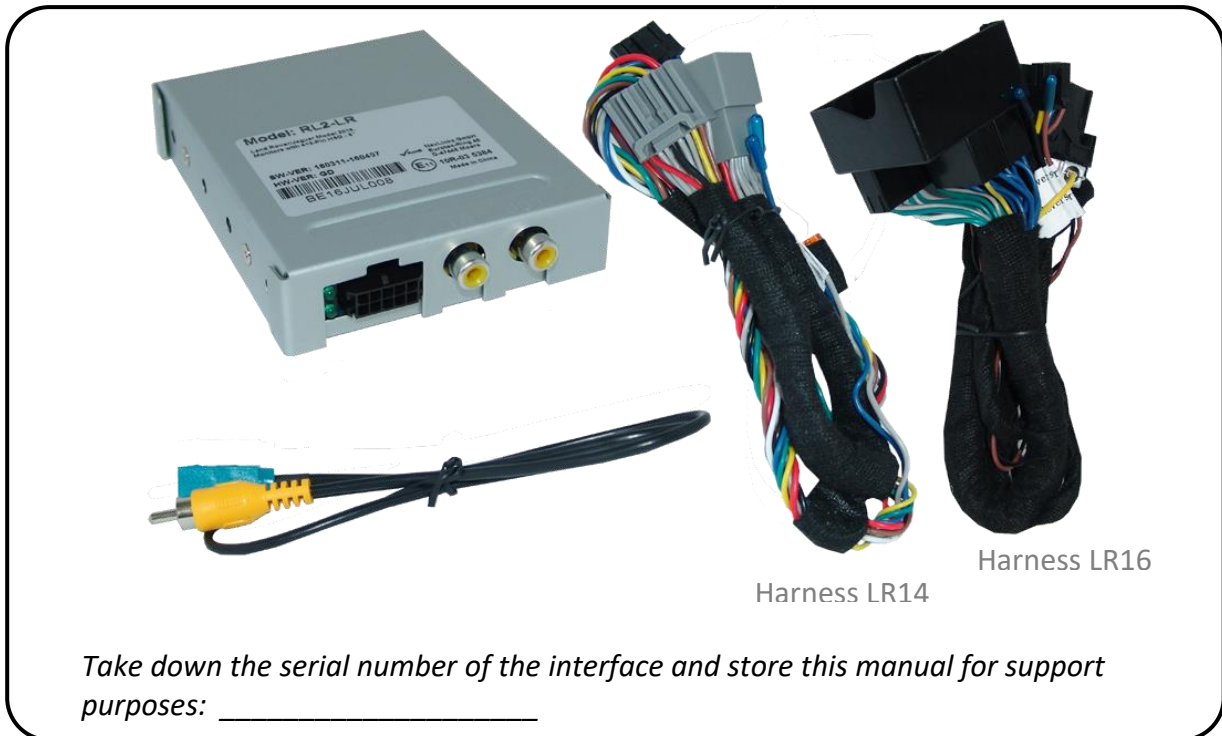
Changes/updates of the vehicle's software can cause malfunctions of the interface. Up to one year after purchase we offer free software-updates for our interfaces. To receive a free update, the interface has to be sent in at own cost. Wages for de-and reinstallation and other expenditures involved with 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>Jaguar</b>	<b>F-Type</b> model years 2013-2015 <b>XF X250</b> model years 2012-2015 <b>XJ X351</b> model years 2010-2015	Touch-screen navigation Version 3 (resistive) and 3.1 (capacitive)  <i>with harness LR14</i>
<b>Land Rover</b>	<b>Range Rover Evoque</b> L538, <b>Range Rover Sport</b> L320, <b>Discovery4</b> L319 model years 2012-2014, <b>Range Rover (Vogue)</b> L322, <b>Freelander2</b> L359 model years 2013- <i>Only for vehicles with automatic gear shift</i>	
	Vehicles model years 2015-2016 (not 2017) with Meridian-Sound-System <i>Only for vehicles with automatic gear shift</i>	

Brand	Compatible vehicles	Compatible systems
<b>Jaguar</b>	<b>F-Pace</b> since model year 2016 <b>F-Type</b> since model year 2016 <b>XE</b> since model year 2016 <b>XF</b> since model year 2016 <b>XJ</b> since model year 2016	Incontrol Touch with 8inch monitor  <i>with harness LR16</i>
<b>Land Rover</b>	Vehicles model years 2015-2016 (not 2017) without Meridian-Sound-System <i>Only for vehicles with automatic gear shift</i>	Incontrol Touch with 8inch 16:9 monitor with touch-screen menu 4  <i>with harness LR16</i>

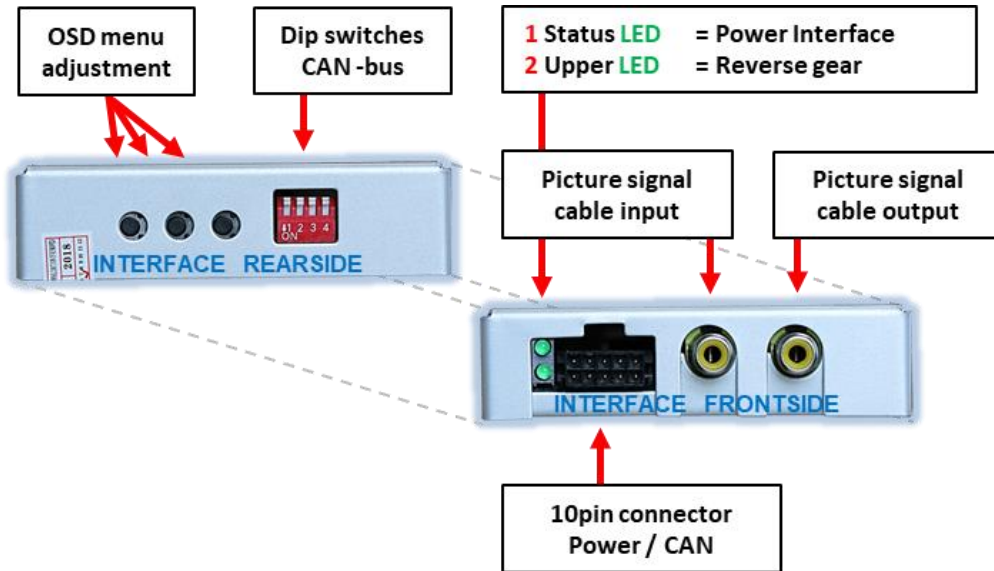
### Limitations

*Guidelines* Displayed guidelines are not available in all vehicles.

*Video input signal* Only NTSC video sources compatible.

## 1.3. Boxes and 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 4 Dip switches

The 4 dip-switches of the video are used to select the kind and choice of the factory head-unit.

Dip position down is ON and position up is OFF.



Dip	Funktion	ON (unten)	OFF (oben)
1	No function		Set to OFF
2	Vehicle selection	with LR14 harness	with LR16 harness
3	No function		Set to OFF
4	No function		Set to OFF

**After each Dip-switch-change a power-reset of the video interface 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.**

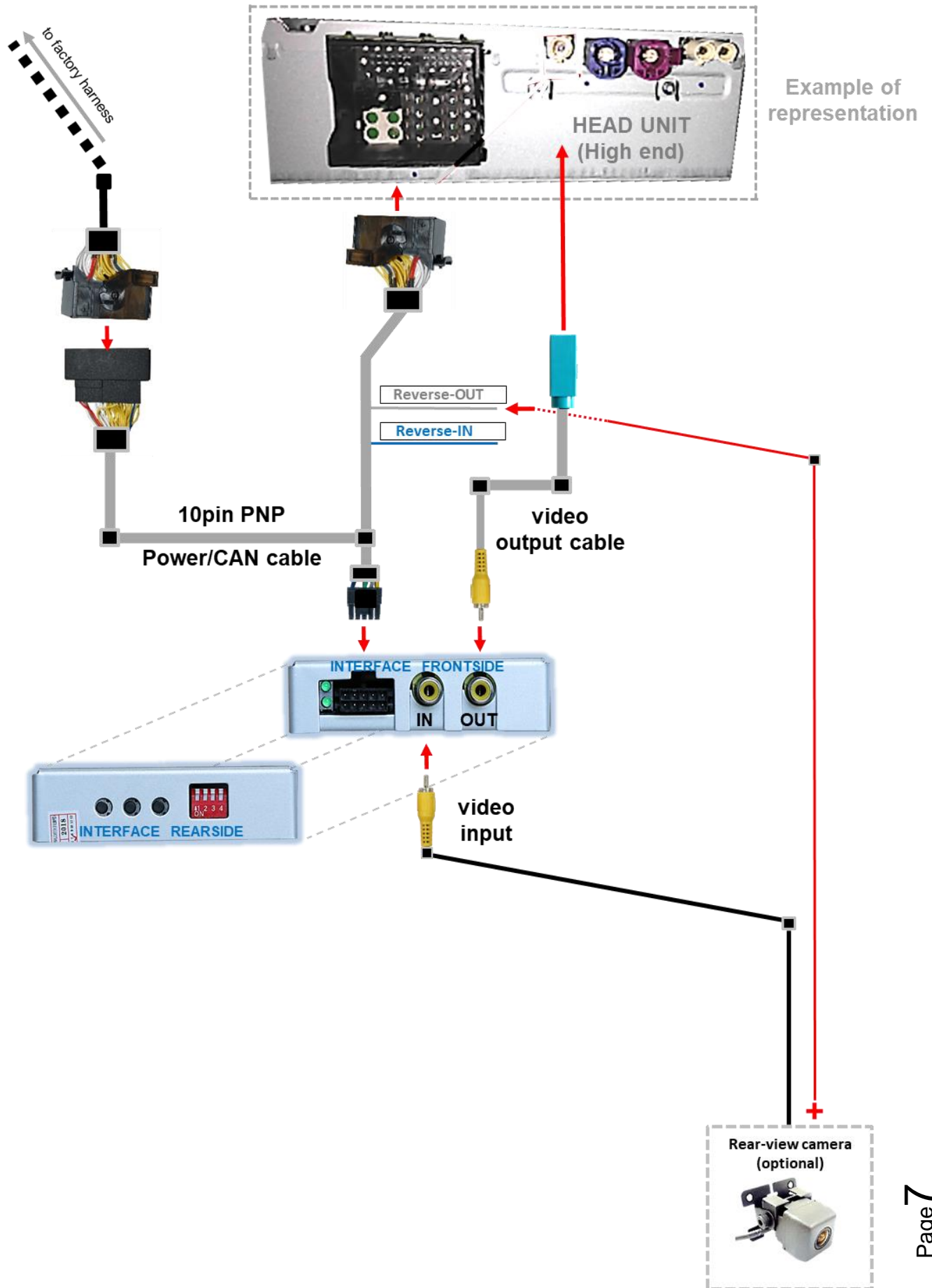
**If the necessary stabilized power supply for the interface is not taken directly from the battery, the chosen connection has to be checked for being constantly stable.**

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

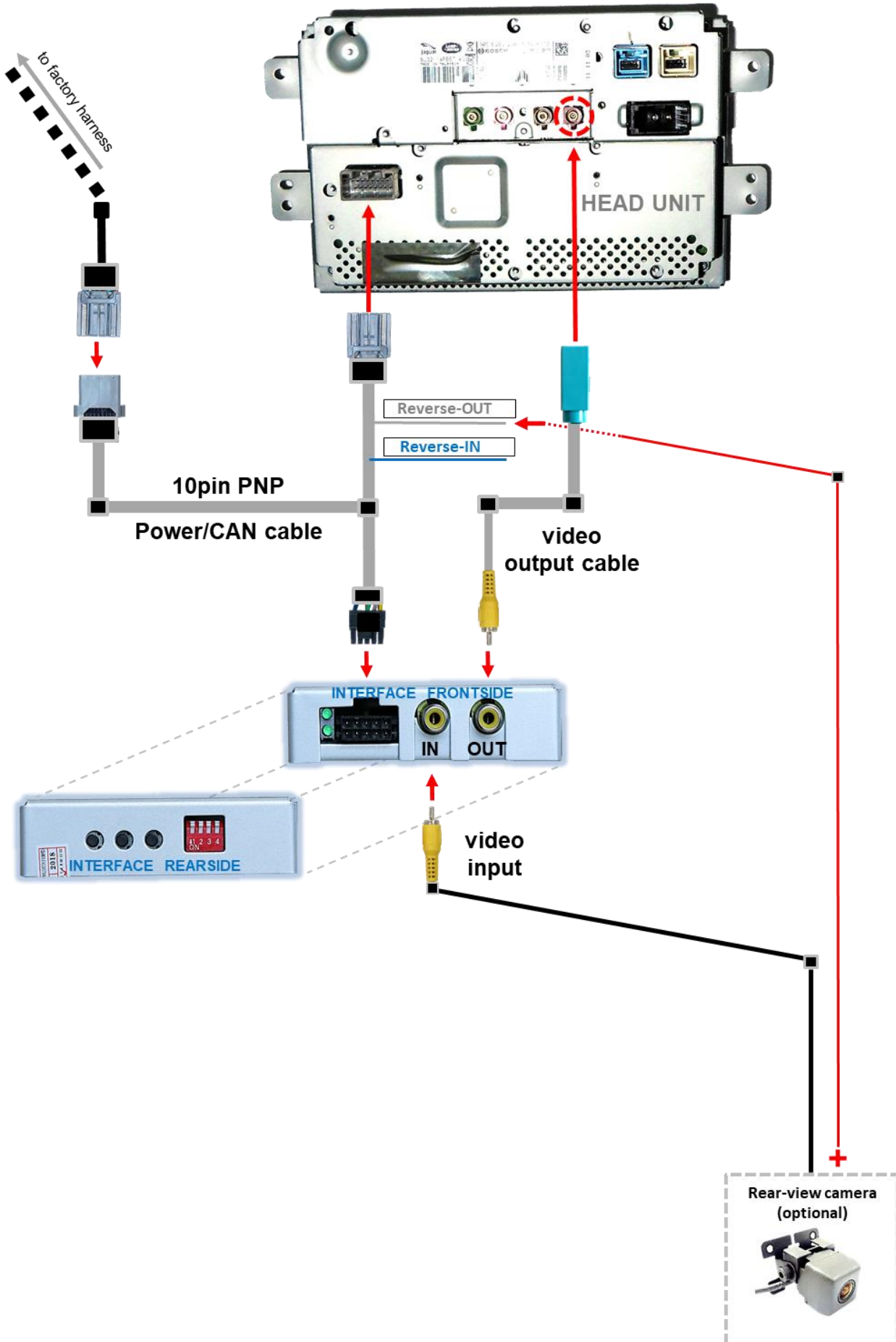
### 2.1. Place of installation

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

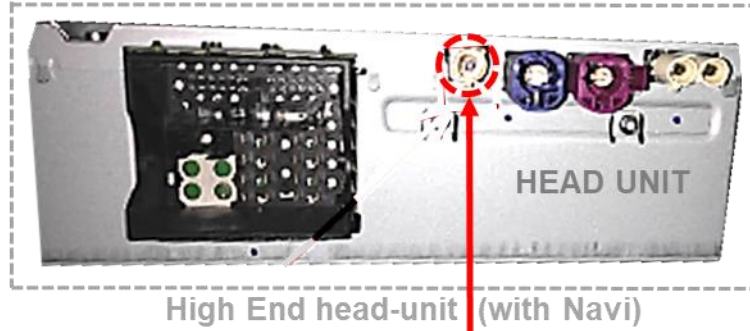
## 2.2. Connection schema 1 – with LR16 harness



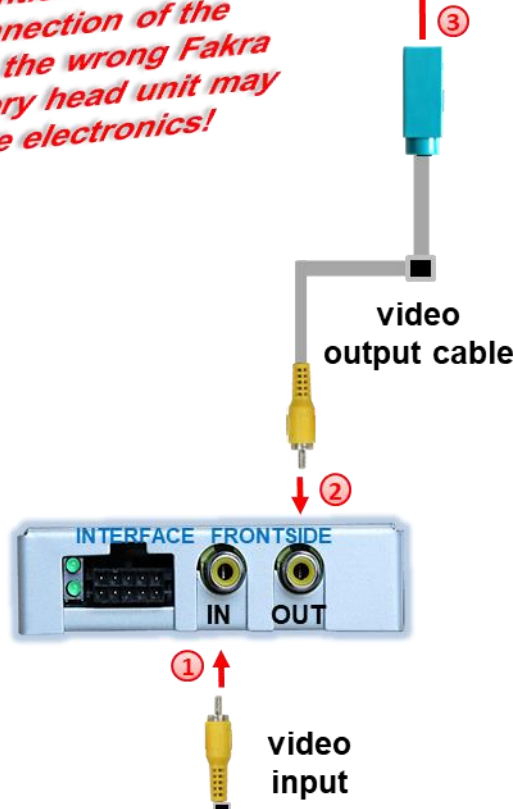
## 2.2.1. Connection schema 2 – with LR14 harness



## 2.3. Connection 1 – picture signal cable (High end head-unit) – with LR16 harness



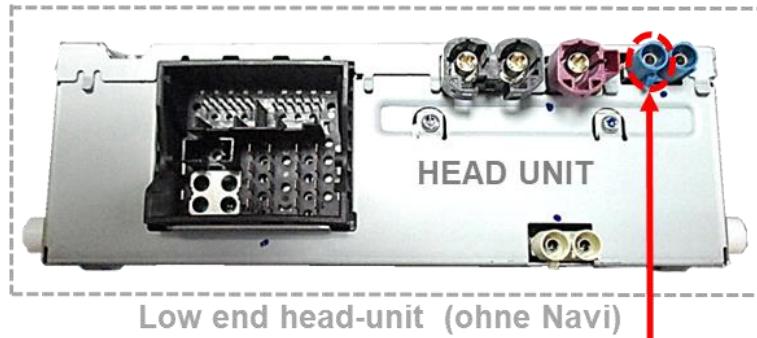
**Attention:**  
*Accidental connection of the Fakra connector to the wrong Fakra connector of the factory head electronics may cause damage to the electronics!*



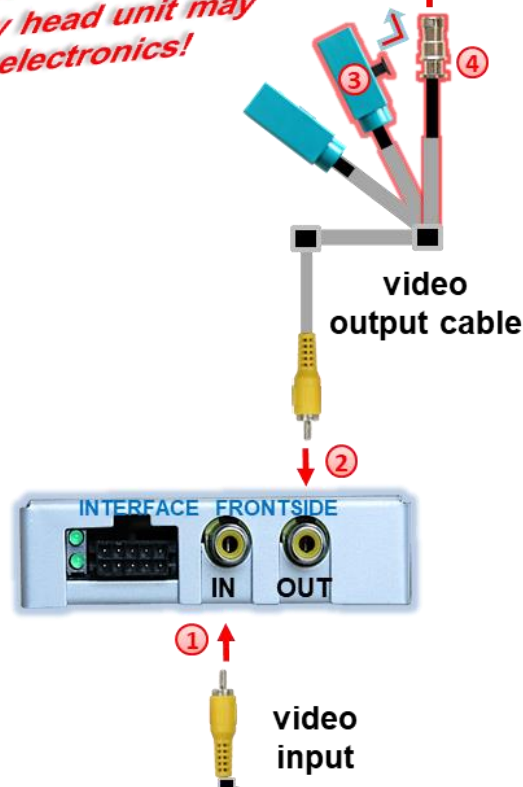
- 1 Connect the cinch connector of the rear view camera to the video input connector of the video interface.
- 2 Connect the yellow cinch connector of the enclosed video output cable to the video output connector of the video interface.
- 3 Connect the opposite water-blue Fakra socket of the enclosed video output cable to the Fakra connector of the head unit as shown in the diagram above.



## 2.3.1. Connection 1 – picture signal cable (Low end head-unit) – with LR16 harness



**Attention:**  
Accidental connection of the Fakra connector to the wrong Fakra connector of the factory head unit may cause damage to the electronics!

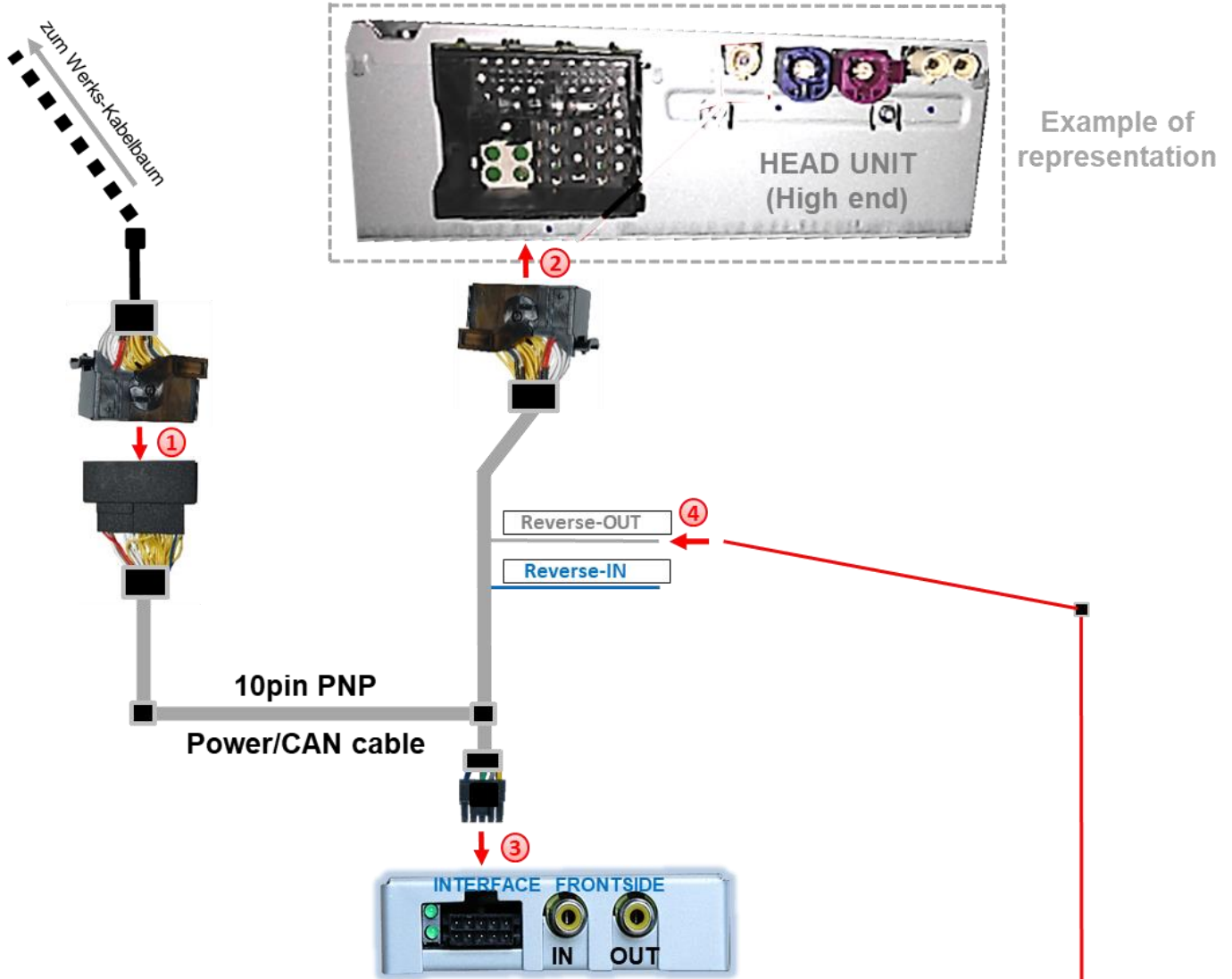


- 1 Connect the cinch connector of the rear view camera to the video input connector of the video interface.
- 2 Connect the yellow cinch connector of the enclosed video output cable to the video output connector of the video interface.
- 3 Unlock the black latch of the opposite water-blue coloured Fakra connector of the enclosed video output cable and pull the metal socket out of the housing.
- 4 Connect the previously detached metal socket of the video output cable to the Fakra connector of the head-unit, shown in the diagram above.





## 2.4. Connection 1 - voltage and CAN - with LR16 harness



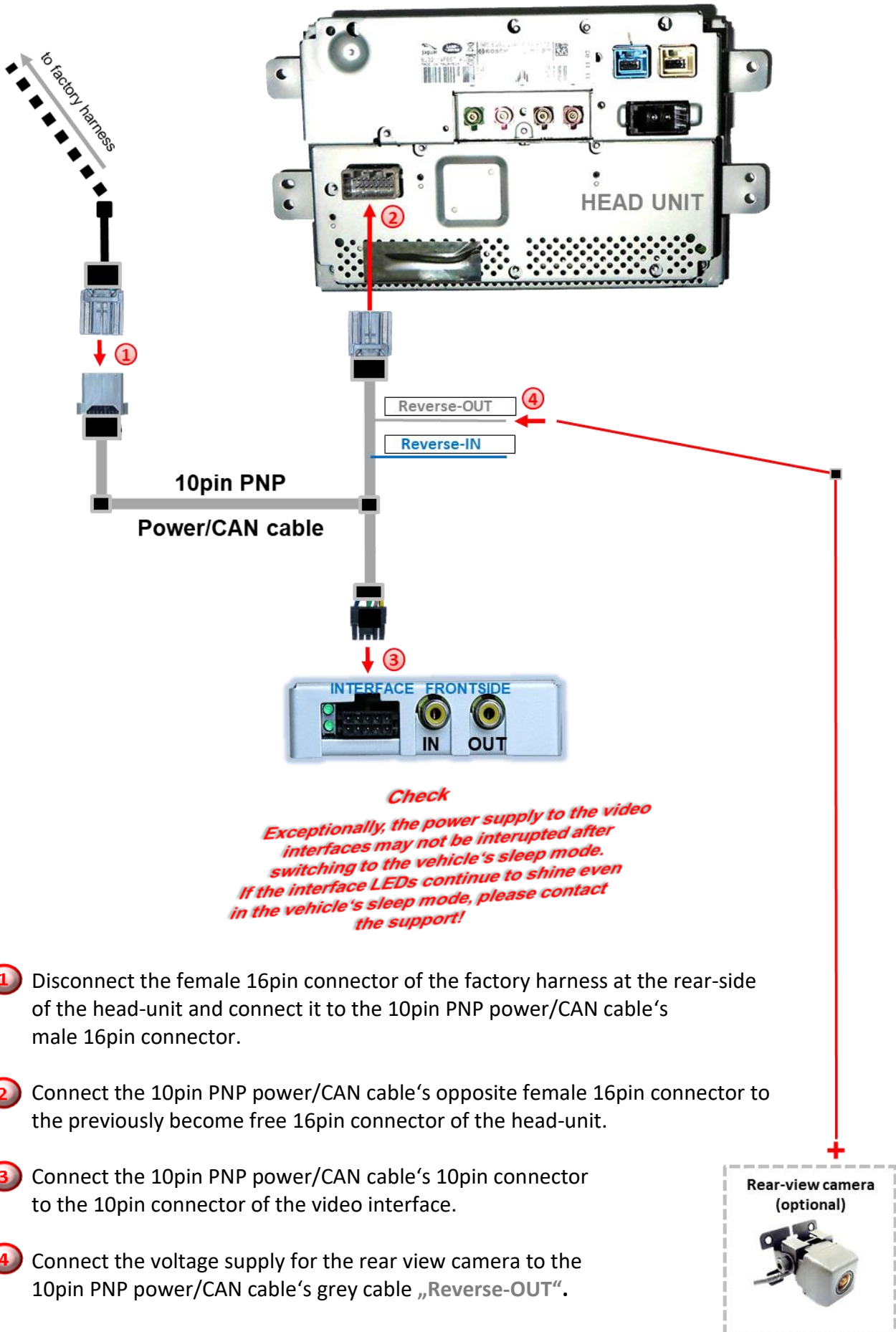
### Check

*Exceptionally, the power supply to the video interfaces may not be interrupted after switching to the vehicle's sleep mode. If the interface LEDs continue to shine even in the vehicle's sleep mode, please contact the support!*

- ① Disconnect the female 40pin quadlock connector of the factory harness at the rear-side of the head-unit and connect it to the 10-pin PNP power/CAN cable's male 40pin quadlock connector.
- ② Connect the 10-pin PNP power/CAN cable's female 40pin quadlock connector to the previously become free male 40pin quadlock connector of the head-unit.
- ③ Connect the 10-pin PNP power/CAN cable's 10-pin connector to the 10-pin connector of the video interface.
- ④ Connect the voltage supply for the rear view camera to the 10-pin PNP power/CAN cable's grey cable „Reverse-OUT“.



## 2.4.1. Connection 2 - voltage and CAN - with LR14 harness



- 1 Disconnect the female 16pin connector of the factory harness at the rear-side of the head-unit and connect it to the 10pin PNP power/CAN cable's male 16pin connector.
- 2 Connect the 10pin PNP power/CAN cable's opposite female 16pin connector to the previously become free 16pin connector of the head-unit.
- 3 Connect the 10pin PNP power/CAN cable's 10pin connector to the 10pin connector of the video interface.
- 4 Connect the voltage supply for the rear view camera to the 10pin PNP power/CAN cable's grey cable „Reverse-OUT“.



## 2.5. After-market rear-view camera

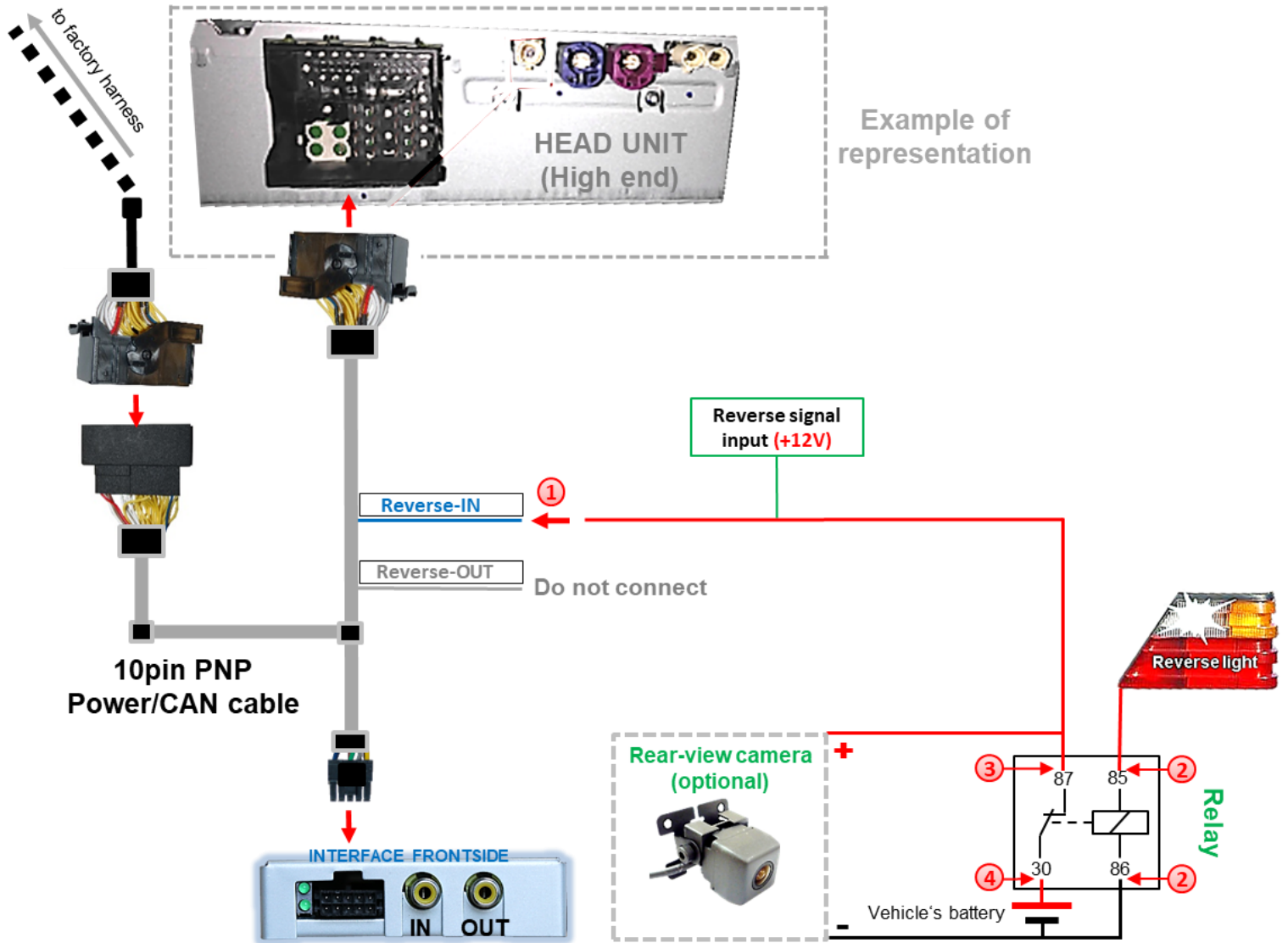
Some vehicles have a different reverse gear code on the CAN-bus which the video-interface is not compatible with. Therefore, there are two different ways of installation. If the video interface receives a signal of the reverse gear, the grey coloured wire **“Reverse-OUT”** should carry +12V while the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

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

If the interface delivers +12V on the grey coloured output wire **“Reverse-OUT”** of the 10pin PNP Power/CAN cable while reverse gear is engaged, the video interface will automatically switch to the rear-view camera input **“IN”** while the reverse gear is engaged.

If the video interface does not deliver +12V on the grey coloured wire **“Reverse-OUT”** of the 10pin PNP Power/CAN 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-stabile 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 following diagram **“Case 2: Interface does not receive the reverse gear signal”** shows the connection type of the relay

## 2.5.2. Case 2.1: Interface does not receive the reverse gear signal – with LR16 harness



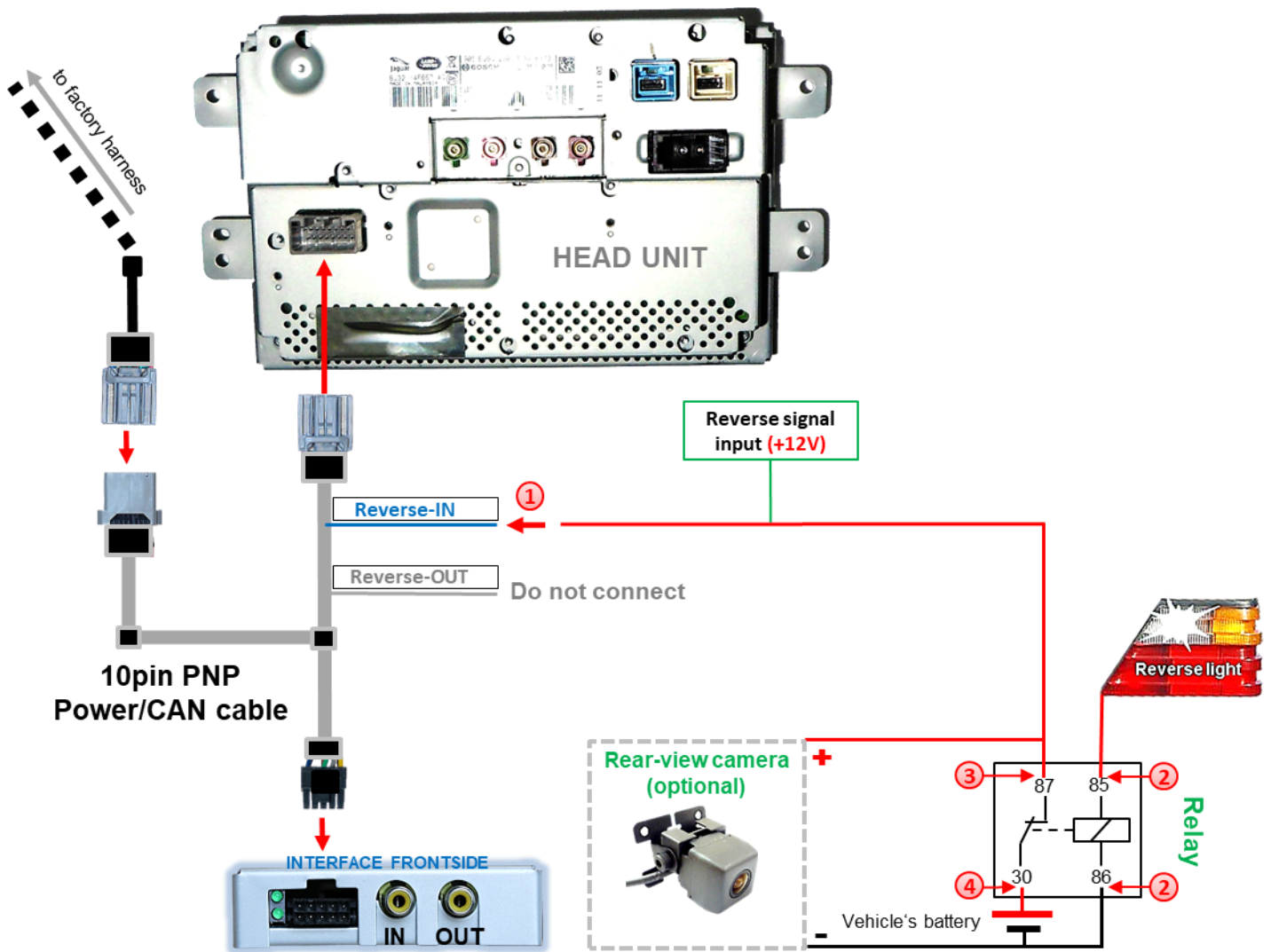
- 1 Connect the blue coloured input cable “Reverse-IN” to the output connector (87) of the relay.

**Note:** The grey coloured 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 blue coloured “Reverse-IN” cable before.
- 4 Connect stable and permanent +12V to the relay’s input connector (30).

**Note:** BEFORE completing the installation, check that the switchover to the rear-view camera takes place by applying +12V current to the blue coloured “Reverse-IN” wire.

## 2.5.2.1. Case 2.2: Interface does not receive the reverse gear signal – with LR14 harness



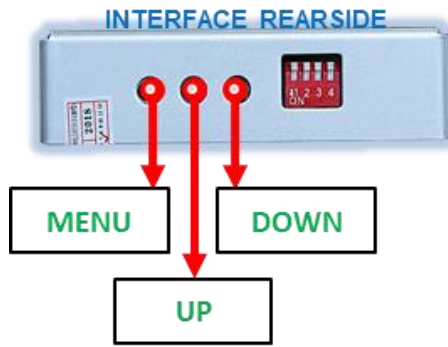
- ① Connect the blue coloured input cable “Reverse-IN” to the output connector (87) of the relay.

**Note:** The grey coloured 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 blue coloured “Reverse-IN” cable before.
- ④ Connect stable and permanent +12V to the relay’s input connector (30).

**Note:** BEFORE completing the installation, check that the switchover to the rear-view camera takes place by applying +12V current to the blue coloured “Reverse-IN” wire.

## 2.6. 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.

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

The following settings are available:

Contrast		
Brightness		
Saturation		
Position H (horizontal)	=	horizontal picture position
Position V (vertical)	=	vertical picture position
IR-AV1	=	no function
IR-AV2	=	no function
Guide L	=	distance-left guide-line
Guide R	=	guide-lines position
Guide-CNTRL	=	guide-lines/PDC On/Off
H-SIZE	=	horizontal picture size RVC
V-SIZE	=	vertical picture size RVC

Contrast	50
Brightness	50
Saturation	62
Position-H	50
Position-V	20
IR-AV1	Sanyo
IR-AV2	Sanyo
Guide-L	60
Guide-R	70
Guide-CNTRL	ALLON
H-SIZE	10
V-SIZE	16

**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. Specifications

BATT/ACC range	7V - 25V
Stand-by power drain	20mA
Power	360mA @12V
Video input	0.7V - 1V
Video input formats	NTSC
Temperature range	-40°C to +85°C
Dimensions video-box	80 x 22 x 110 mm (W x H x D)

### 4. 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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