

Video inserter

CI-HDV-UCON10 / CI-HDA-UCON10

Compatible with

Alfa Romeo vehicles with Connect Infotainment with 10.25inch monitor

Fiat and **Opel** vehicles with Uconnect 5 Infotainment
with 10inch or 10.25inch ultrawide monitor

Jeep vehicles with Uconnect 5 Infotainment with 10.1inch monitor

Citroen und Peugeot vehicles with Uconnect 5 Infotainment
with 10inch monitor



Examples

Attention!
We recommend to set the video-signal
type of every connected video source
manually in the interface OSD menu
instead of using the default AutoDetect!

Product features

- 1 x CVBS/AHD-input for rear-view camera
- 1 x CVBS/AHD-input for front camera
- 2 x CVBS/AHD-input for side-cameras or additional after-market video-sources (e.g., USB-device, DVB-T2 Tuner, etc.)
- All inputs NTSC and PAL compatible
Supported AHD resolutions 720p NTSC (30Hz), 720p PAL (25Hz), 960p NTSC (30Hz), 960p PAL (25Hz), 1080p NTSC (30Hz), 1080p PAL (25Hz)
- **HDV-UCON10 only:** 1 HDMI-input for HD rear-view camera or additional HDMI-sources (e.g., IOS/Android, laptop, streaming stick, DVD-Player, DVB-T2 Tuner, etc.)
Supported HDMI resolutions 720p NTSC (60Hz), 720p PAL (50Hz), 1080p NTSC (60Hz), 1080p PAL (50Hz)
- **HDV-UCON10 only:** Analogue audio output for HDMI source
- Automatic switching to rear-view camera input while reverse gear is engaged
- Automatic front camera switching after reverse gear for 5, 10, 15 or 20 seconds
- Adjustable guide lines (fixed or movable) can be activated for rear-view camera (movable guide lines not available for all vehicles)
- Picture free during the car ride (only for inserted video-sources)

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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 (for example the MP3 menu of USB devices) or (rear-view) cameras' video when the vehicle is moving.

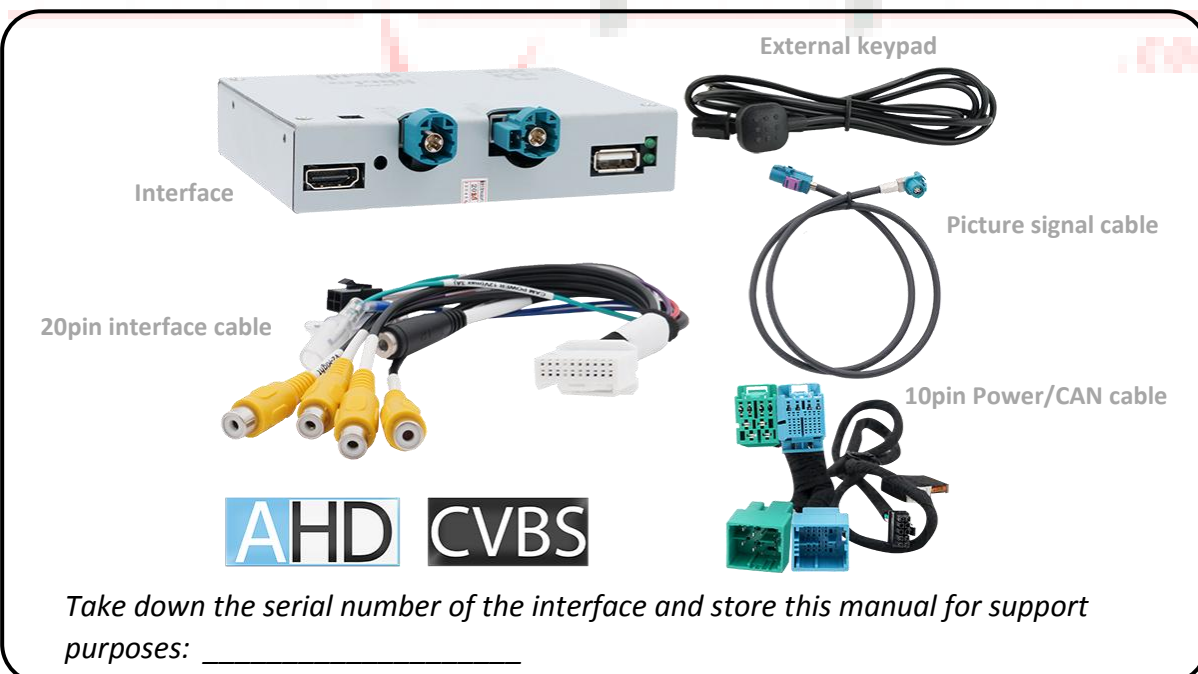
Changes/updates of the vehicle's software can cause malfunctions of the interface. Up to one year after purchase we offer free software-updates for our interfaces. To receive a free update, the interface has to be sent in at own cost. Wages for de- and reinstallation or other expenditures involved with 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, 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
Alfa Romeo	Tonale (965) from 05/2022	Connect 10.25inch or Connect NAV 10.25inch - (R1 INT ER) with ultra-wide tablet monitor with separate head unit
Citroen	Jumper2 from 2021	Uconnect5 (R1 EXT ER) with 10inch tablet monitor with separate head-unit
Fiat	500, 500e from 11/2020 Ducato3 (Serie 8) from model year 2021 Tipo (356) from model year 2023	Uconnect5 (R1 EXT ER) with 10inch tablet monitor or Uconnect (R1 INT ER) with 10.25inch ultra-wide monitor. With separate head unit
Jeep	Compass from model year 2021	Uconnect5 (R1 EXT ER) with 10.1inch tablet monitor with separate head-unit
Opel	Movano C from 05/2021	Uconnect5 (R1 EXT ER) with 10inch tablet monitor or Uconnect (R1 INT ER) with 10.25inch ultra-wide monitor. With separate head unit
Peugeot	Boxer2 from model year 2021	Uconnect5 (R1 EXT ER) with 10inch tablet monitor with separate head-unit

Limitations

CAN-bus compatibility

CAN-bus compatibility of interface may to some vehicles have no or limited compatibility. This can show on installation as well as later. Interface and all its video-inputs can be operated with analogue trigger signals, without connection to vehicle CAN-bus. Yes, in this case, some features do not work, see chapter 2.4.2. *Analogue connection without CAN-bus.*

Video only

Interface inserts **only video-signals** into the infotainment. To insert audio signals a possibly existing factory audio-AUX-input or other optional products (e.g. FM-Modulator) must be used. For HDMI source, the audio is output via an analogue audio output (3.5mm jack socket).

Factory rear-view camera

Automatic switching to factory rear-view camera input is only possible while reverse gear is engaged. For deviating switching times optional accessories are required.

After market front camera

Front camera will automatically be switched to for 5, 10, 15 or 20 seconds (depending on menu setting) after disengaging the reverse gear. Manual switching to front camera is possible by external keypad.

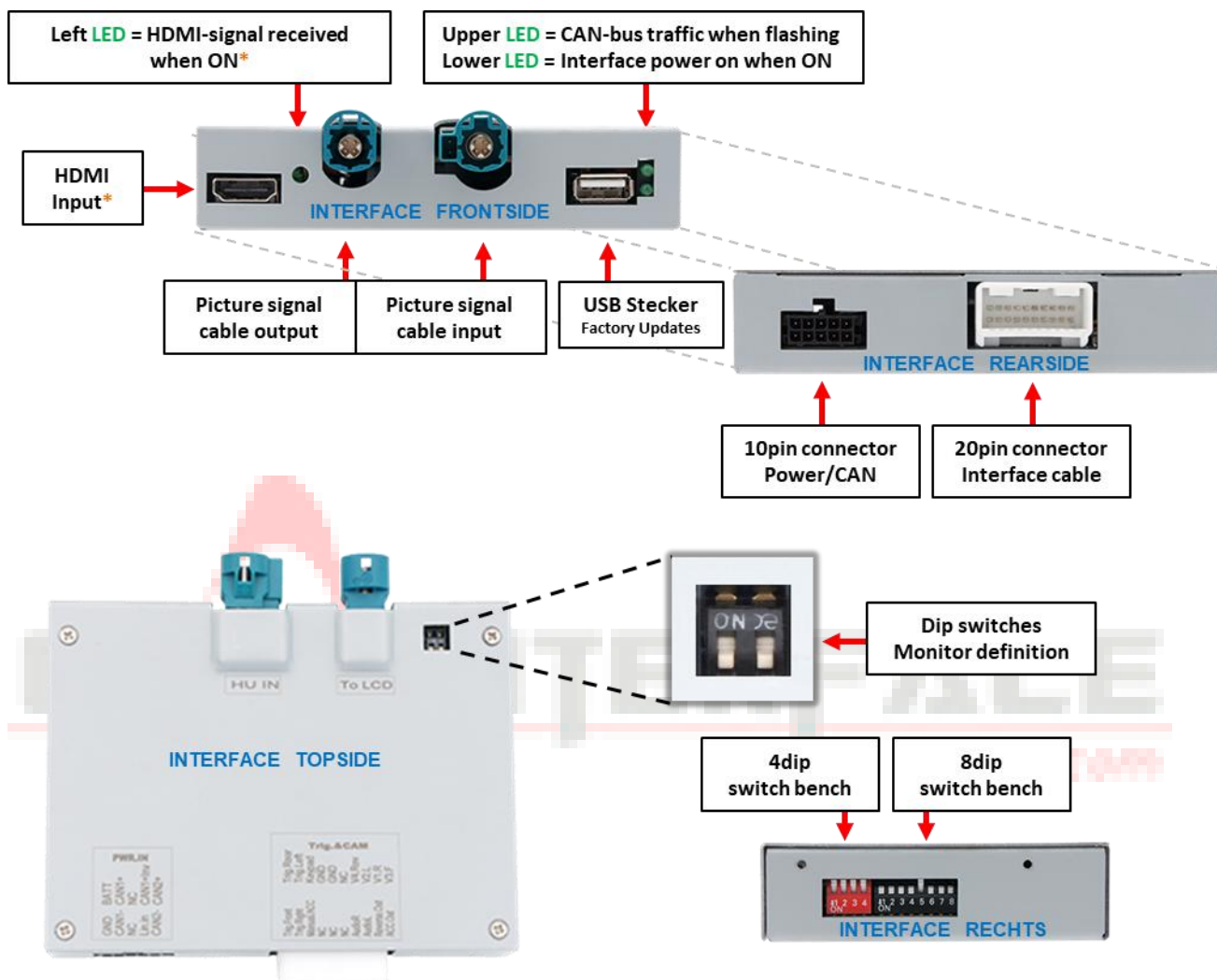
Guide lines for rear-view camera

If the vehicle CAN bus is not fully compatible with the interface or if the connection is analogue, the movable guide lines function cannot be used.

1.3 Limitations

1.4 Boxes and connectors - interface

The interface converts connected after-market sources' video-signals into a video-signal compatible with the factory monitor. It can then be inserted, using separate trigger options. The interface also reads the vehicle's CAN-bus signals and uses them for own functions.



* HDMI-input only available on HDV-UCON10

1.5 Settings - 8dip switch bench (interface functions)

Interface box, right side, black

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



Dip	Function	ON (down)	OFF (up)
1	Video 1 / V1-Left	enabled	disabled
2	Video 2 / V2-Right	enabled	disabled
3	Frontcamera / V3-Front	enabled *	disabled
4	Rear-view cam type (V4-Reverse)	after-market	factory or none
5	Connection type of After-market rear-view camera*	HDMI*	V4-Reverse (FBAS/AHD)
6	HDMI-Input*	enabled	disabled
7	Monitor selection	7 inch monitor	10.25 inch monitor all types
8	Monitor selection	10 or 10.1 inch monitor Ducato8/Jeep 16:9	10.25 inch monitor Alfa/Fiat 25:9

Power reset interface after each dip change to activate changes!

* The front camera will automatically be switched for 5, 10, 15 or 20 seconds after disengaging reverse gear (depending on OSD-menu setting).

* On **HDA-UCON10**, dip 5 and dip 6 have no function. Set both **OFF**.

See following chapters for detailed information about 8dip switch bench.

1.5.1 Video inputs V1-Left and V2-Right (dip 1-2)

With dip 1 (dip 2) = **ON**, the CVBS/AHD input **V1-Left (V2-Right)** for side-camera or other video-sources is enabled. Only enabled video inputs can be accessed – no matter whether automatically or manually switched. We recommend to enable only used inputs to avoid unwanted switching.

1.5.2 Front camera input V3-Front (dip 3)

With dip 3 = **ON** the interface switches to its CVBS/AHD front camera input **V3-Front** after disengagement of reverse gear. Additionally, manual switching to front camera input is possible by the external keypad (short press) from any video mode.

In the OSD-menu settings it is possible to set the automatic front camera display time from 5, 10; 15 or 20 seconds or shut it off. Therefore, it is also possible to connect a video-source other than from camera.

1.5.3 Rear-view camera settings (dip 4)

With dip 4 = **OFF**, the interface switches to factory picture while reverse gear is engaged, to display factory rear-view camera or factory optical park system picture.

With dip 4 = **ON**, while the reverse gear is engaged the interface switches to its CVBS/AHD rear-view camera input **V4-Reverse** (provided that dip 5 is set to **OFF**) or to its **HDMI-input*** (provided dip 5 and dip 6 are set to **ON**).

Note: **V4-Reverse** remains without function with HDMI rear-view camera (dip 5 = **ON**).

1.5.4 Rear-view cam connection type (dip 5)

With dip 5 = **ON**, the **HDMI-input*** will be used as rear-view camera input. Additionally, the **HDMI-input*** must be enabled with dip 6 = **ON**.

With dip 5 = **OFF**, the **V4-Reverse** input is used as rear-view camera input.

Note: Automatic switching to front camera for the pre-set time, after disengaging reverse, is working in both cases.

1.5.5 HDMI-input* (dip 6)

With dip 6 = **ON**, the **HDMI-input*** is enabled and can be used for various HDMI-sources (e.g., rear-view camera or 360° camera-system, smartphone, laptop, streaming stick, DVB-T2 tuner, etc.). For rear-view camera or 360° camera system, additionally set dip 5 = **ON**.

With dip 6 = **OFF**, the **HDMI-input*** is disabled.

1.5.6 Monitor selection (dip 7+8)

Dips 7 and 8 are used to set the size of the monitor.

Monitor size	Dip 7	Dip 8
7 inch monitor	ON	ON
10.25 inch monitor Alfa/Fiat 25:9	OFF	OFF
10 or 10.1 inch monitor Ducato8/Jeep 16:9	OFF	ON

*** HDMI-input only available on HDV-UCON10**

Power reset interface after each dip change to activate changes!

Interface box, top side, black

1.6 Settings - 2dip switch bench (monitor definition)



Monitor size	Dip 1	Dip 2
All monitor sizes	OFF	OFF

Attention: Opposite to other dip benches (8dip and 4dip), the 2dip position here is **UP = ON** and **DOWN = OFF!**

Interface box, right side, red

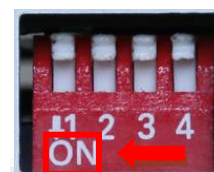
If picture- or touch problems appear, try also the other dipswitch settings!

Power reset interface after each dip change to activate changes!

1.7 Settings - 4dip switch bench

Set dips according to below table.

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



Dip	Function	ON (down)	OFF (up)
1	No function	-	set to OFF
2	No function	-	set to OFF
3	No function	-	set to OFF
4	No function	-	set to OFF

Power reset interface after each dip change to activate changes!

2 Installation

For installation, first switch off the ignition and disconnect the vehicle's battery following the instructions of the vehicle manufacturer regarding battery disconnection! If disconnecting battery is not suggested, enable vehicle sleep-mode (hibernation mode).

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

Before final installation, a test-run of interface and all connected devices is recommended to ensure compatibility of the complete installation. Due to at any time possible changes in the vehicle manufacturers' productions, incompatibilities can never be ruled out.

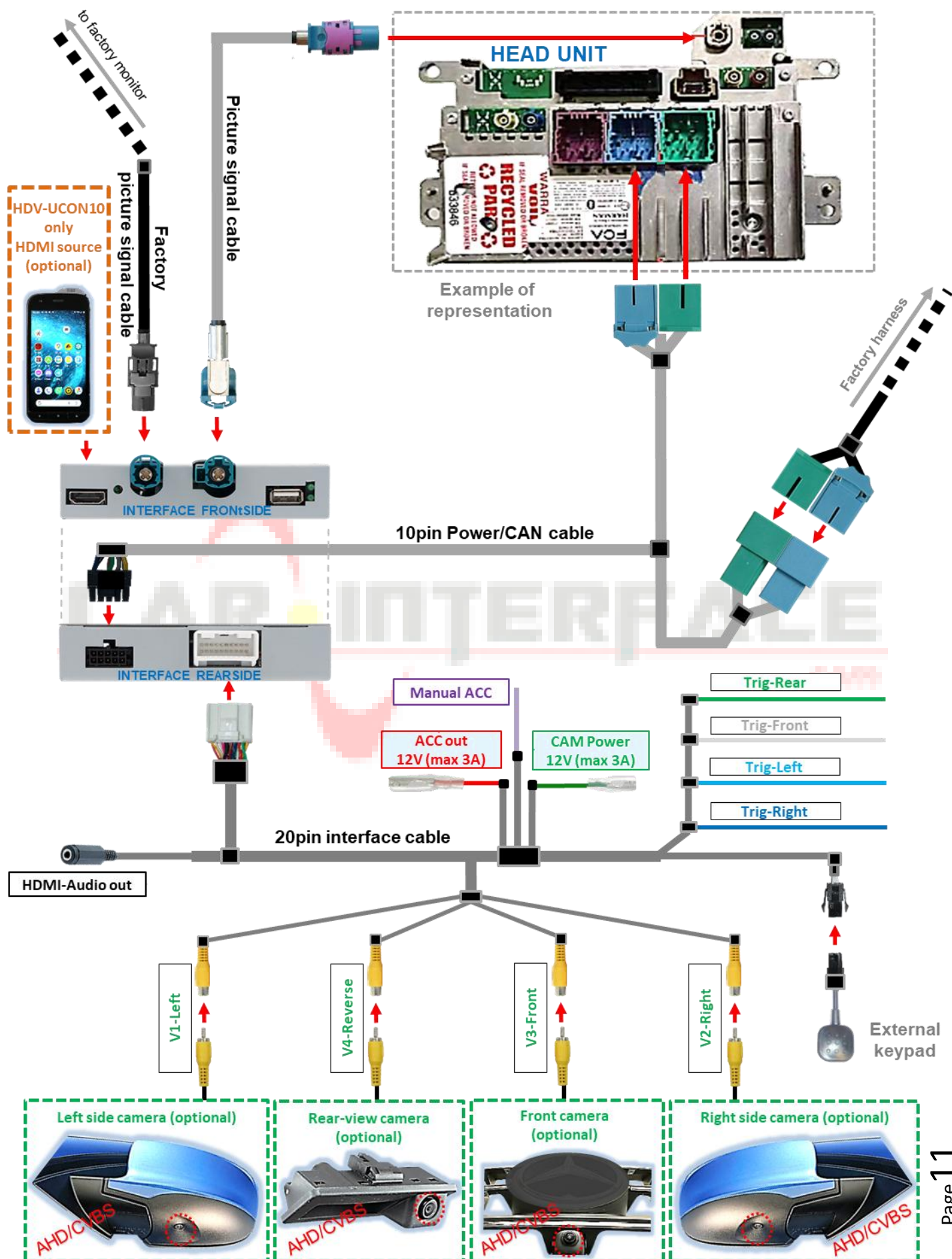
As on any installation of retrofit equipment, a stand-by test is necessary after installation to ensure that the retrofit products switch off after the vehicle enters sleep mode.

2.1 Place of connection

The video-interface has to be connected at the head-unit's rear side.

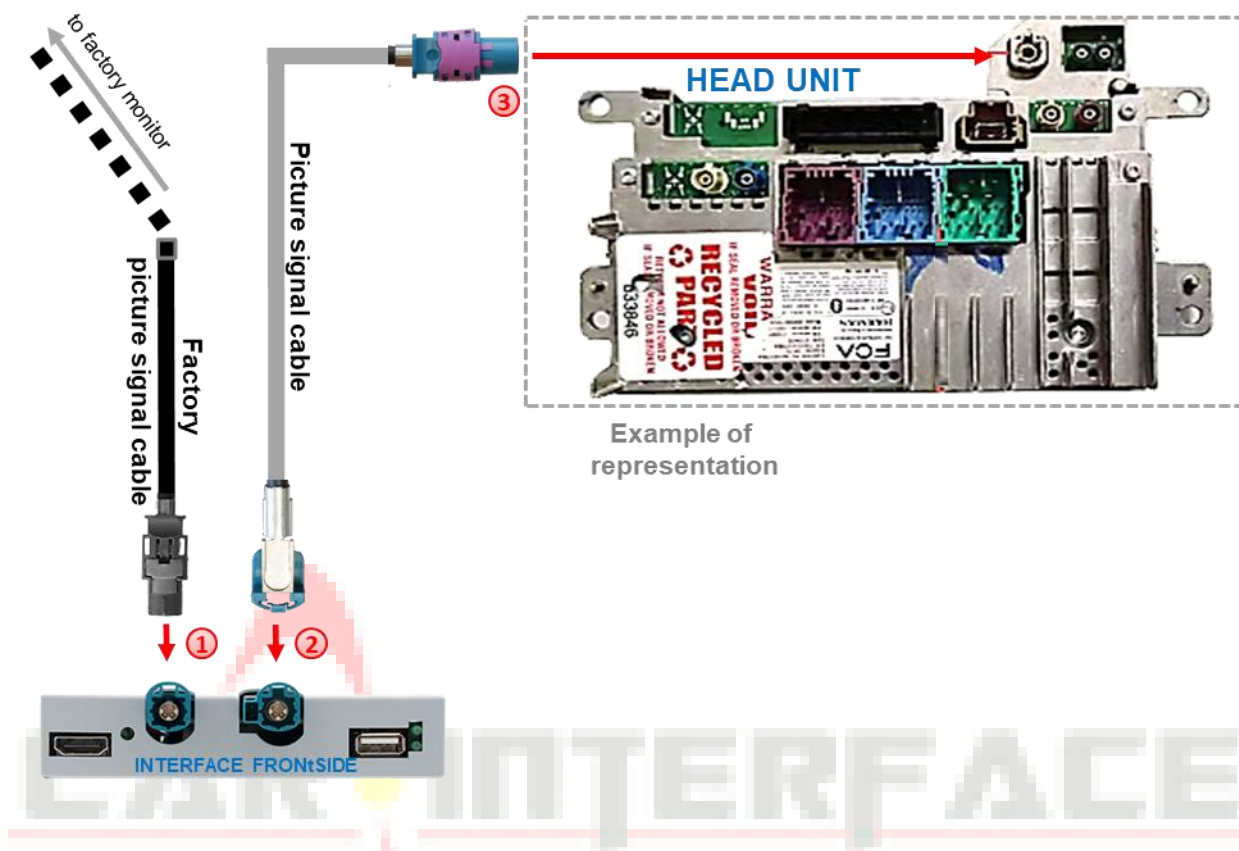


2.2 Connection schema



2.3 Connection - picture signal cable

Remove head unit.



- ① Disconnect the **black** female HSD connector (colours may vary) of the factory picture signal cable at the rear-side of the head unit and connect it to the **waterblue** male HSD connector „TO LCD“ of the interface.
- ② Connect the **waterblue** angled female HSD connector of the picture signal cable to the **waterblue** male HSD+2 connector „HU IN“ of the interface.
- ③ Connect the not-angled **waterblue** female HSD connector of the picture signal cable to the **black** male HSD connector of the head unit.



Note: Depending on the installation conditions, the enclosed picture signal cable may also be mounted upside down, concerning it's HSD connectors. However, it's connection must only be made at the head unit!

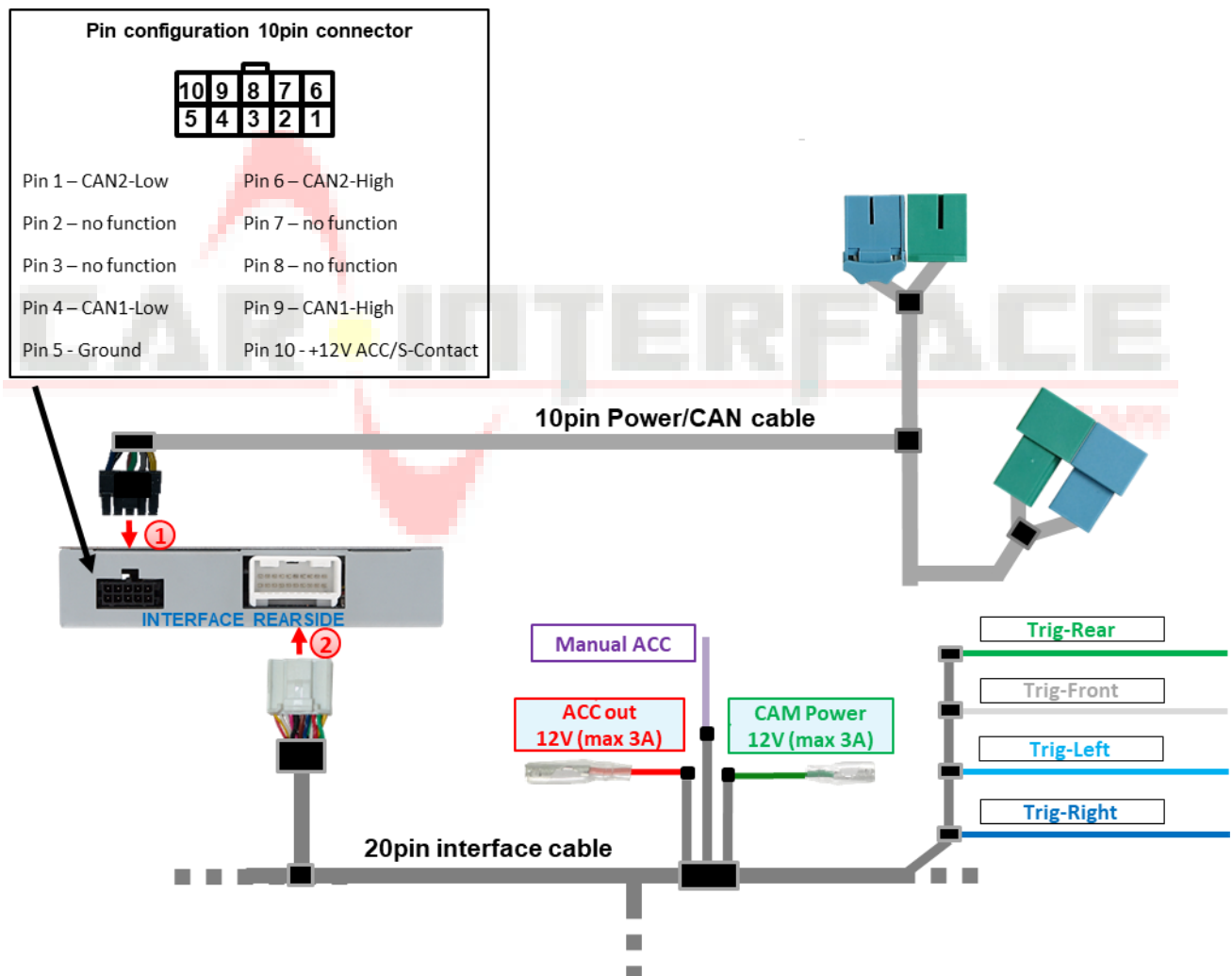
2.4 Connection - harnesses, power supply and CAN-bus or analogue without CAN-bus

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

When integrated via CAN-bus, the interface is switched on by the vehicle CAN-bus and R-gear signal and turn signals are usually recognized. In some vehicles also movable guide can be displayed, using CAN-bus steering signals.

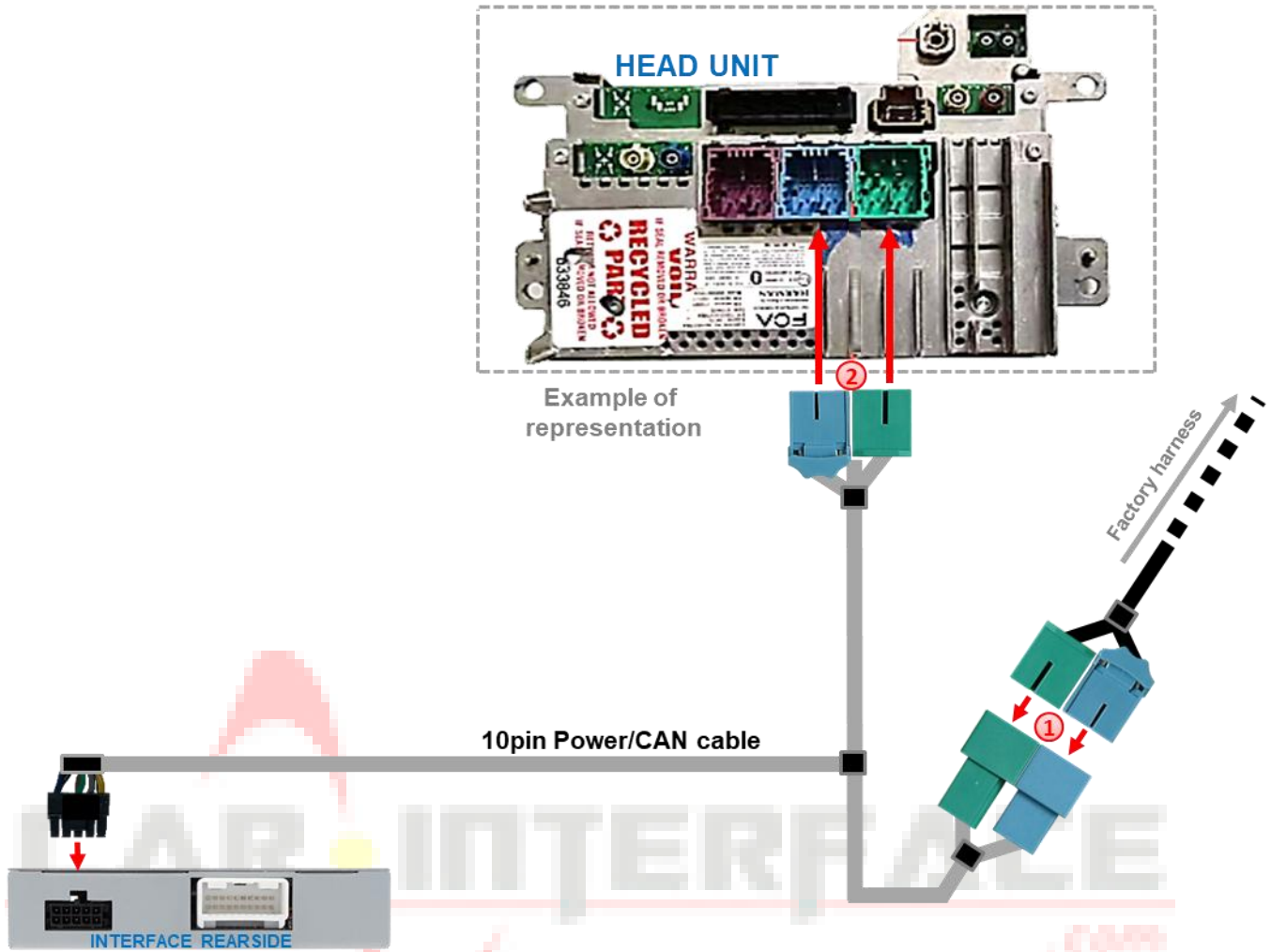
Exceptionally, the CAN-communication is not (fully) compatible. If after connection of **10pin power/CAN cable** with ignition on, no interface LED is on, the analogue connection described hereinafter must be made. Also, to avoid possible afterwards CAN-bus incompatibility, an analogue connection is also possible. Thereby the interface must be switched on as well as switched over to its inputs by +12V switch inputs.

The display of movable guide lines for the rear-view camera is omitted with an analogue connection.



- ① Connect female 10pin connector of **10pin power/CAN cable** to the male 10pin connector of interface.
- ② Connect female 20pin connector of **20pin interface cable** to the male 20pin connector of interface.

2.4.1 Connection with CAN-bus

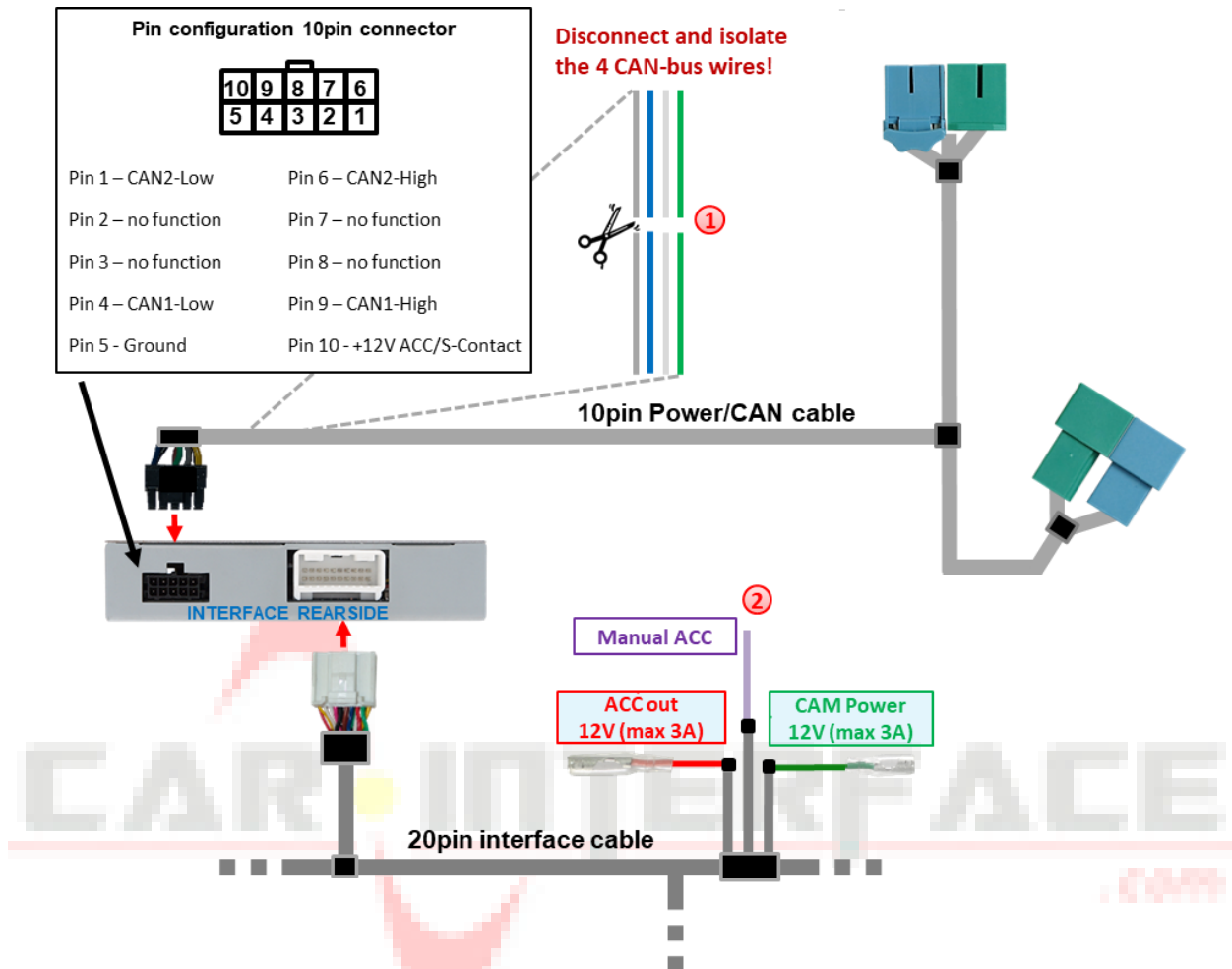


- ① Disconnect the two female 12- and 32pin connectors of the vehicle harness at the rear-side of the head unit and connect them to the male green and blue 12- and 32pin connectors of the 10pin power/CAN cable.
- ② Connect the two opposing female green and blue 12- and 32pin sockets of the 10pin Power/CAN cable to the previously become free male 12- and 32pin connectors of the head unit.

Attention!
 Exceptionally, the CAN communication may not succeed in all vehicles. If, after connecting the 10pin power/CAN cable, no interface LED lights up while ignition is turned on, the analog connection described below must be made.

2.4.2 Analogue connection without CAN-bus

With analogue connection, the four CAN wires of the 10pin power/CAN cable are not connected - for this, the four wires of the 10pin power/CAN cable must be disconnected!



- 1 Disconnect and isolate the 4 CAN bus wires (grey, blue, white and green) of the 20pin interface cable about 4-5 cm behind the black connector.
- 2 Connect purple wire Manual ACC of 20pin interface cable to +12V S-contact terminal 86s or ACC terminal 15r of vehicle (e.g., cigarette lighter, glove compartment illumination).

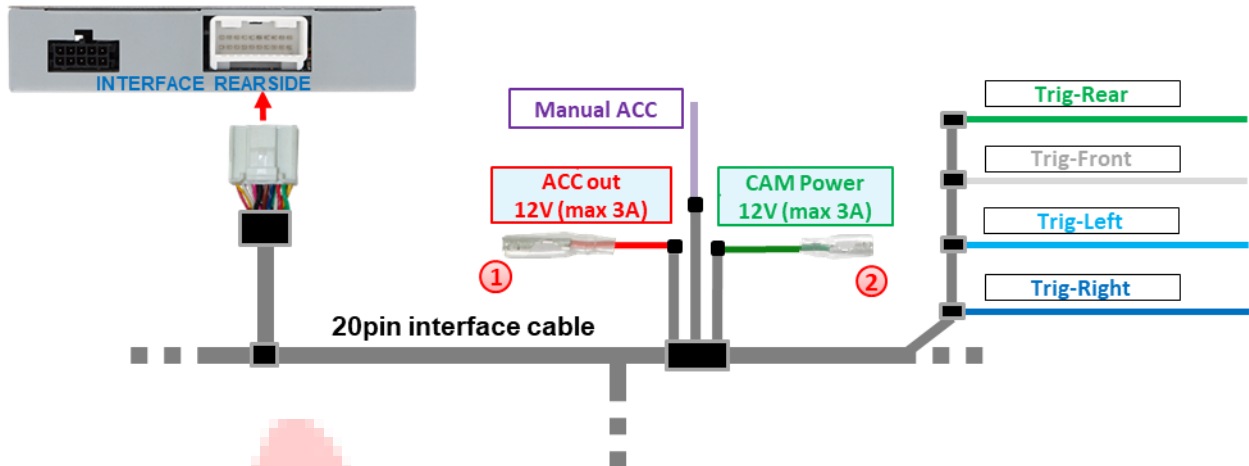


Notes

- Only as long as the interface is switched on via +12V on Manual ACC, the monitor can show picture. Otherwise, also the factory picture is black. When selecting the switch-on signal, please check whether the factory picture is available in all desired operating states.
- With analogue connection, driving-path lines and PDC cannot be displayed.
- With analogue connection of interface (without CAN-bus), the connection of rear-view camera and side-cameras must also be made analogue. See chapters:
 2.6.2 Case 2: Reverse gear signal from analogue signal
 2.8.2 Case 2: Turn signals from analogue signal

2.5 Power supply outputs

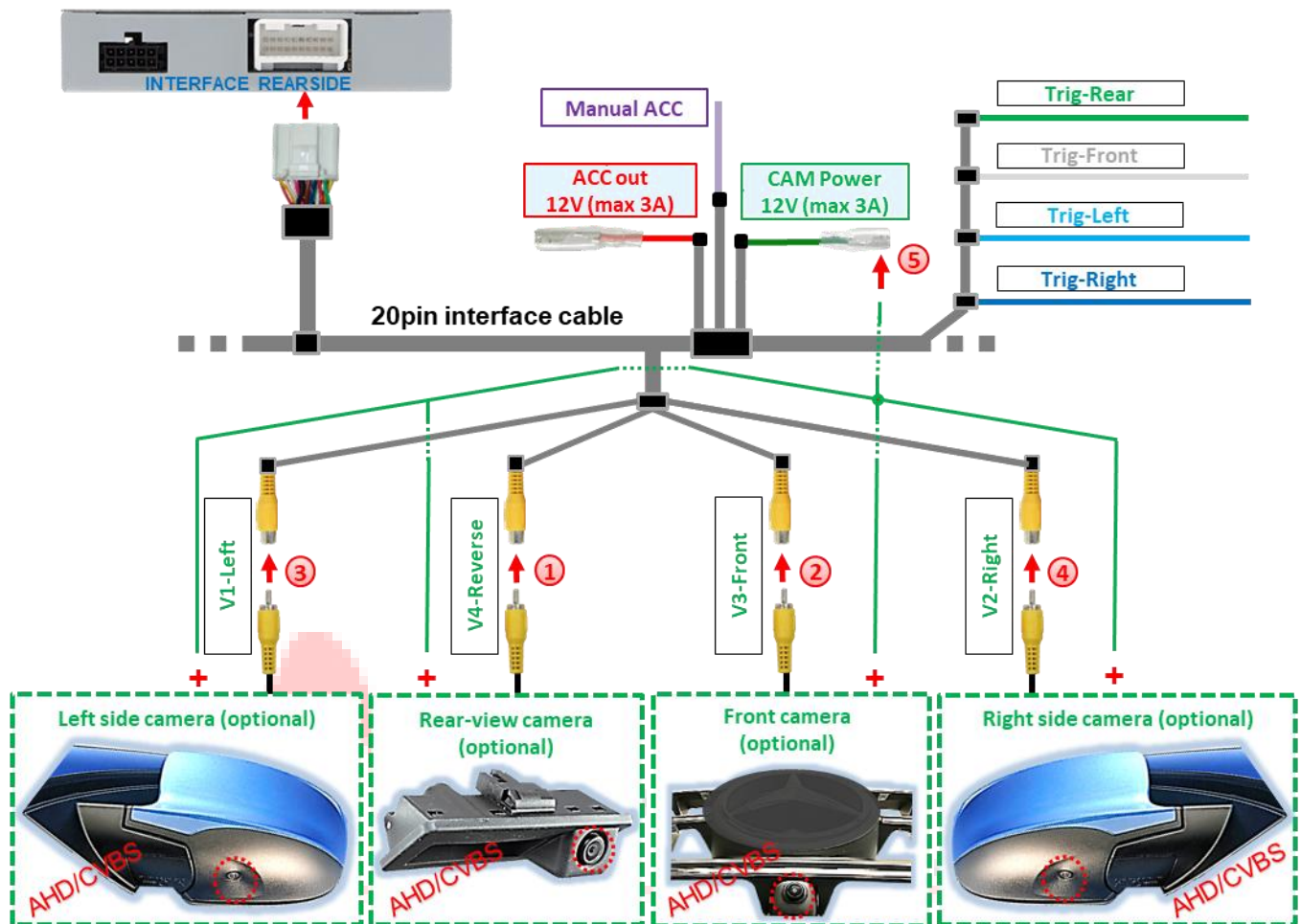
The two **red** and **green** power supply cables **ACC out 12V (max 3A)** and **CAM power 12V (max 3A)** of the **20-pin interface cable** can be used either as ACC power supply for **external video-sources** connected to the inputs **V1-Left, V2-Right, V3-Front** or **HDMI-input*** (e.g., iOS/Android devices, laptop, streaming stick, DVB-T2 tuner), or as power supply for the **after-market cameras** connected to the **V1-Left, V2-Right, V3-Front, V4-Reverse** or **HDMI-input*** (e.g., rear-view, front and side-cameras).



- ① **External video-sources** (no cameras) can be supplied with power via the red power supply cable **ACC out 12V (max 3A)** of the **20pin interface cable**. The cable carries +12V ACC trigger out power **permanently** while interface is powered (*see following chapters for connection*).
- ② The power supply for **after-market cameras** (e.g., rear-view, side and/or front camera) can be supplied by the green power supply cable **CAM power 12V (max 3A)** of the **20pin interface cable**. The cable carries **+12V trigger out power** exclusively as long as any of the camera inputs is shown, regardless of whether the switching is by vehicle CAN-bus or by trigger wires (*see following chapters for connection*).

* **HDMI-input only available on HDV-UCON10**

2.5.1 Connection and power-supply - video-sources rear-view camera, front camera and 2 side-cameras



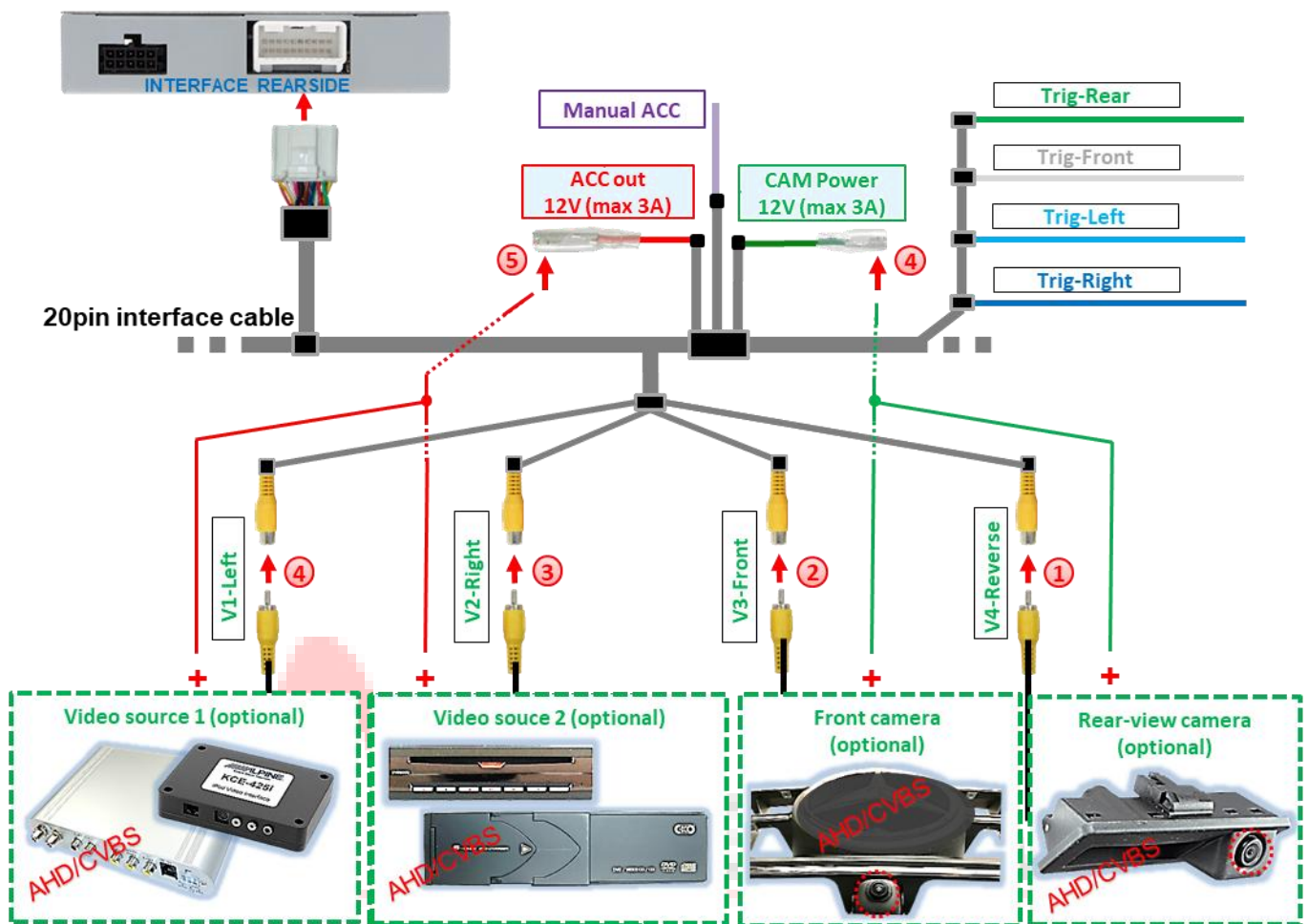
- ① Connect male RCA connector of rear-view camera to female RCA connector **V4-Reverse** of 20pin interface cable.
- ② Connect male RCA connector of front camera to female RCA connector **V3-Front** of 20pin interface cable.
- ③ Connect male RCA connector of left side-camera to female RCA connector **V1-Left** of 20pin interface cable.
- ④ Connect male RCA connector of right side-camera to female RCA connector **V2-Right** of 20pin interface cable.
- ⑤ Connect power supply for all after-market cameras to **green wire CAM power +12V (max 3A)** of 20pin interface cable.



Note: The type of camera switching (by CAN-bus or trigger cables) can be preset in the OSD-menu settings individually for each input.

Attention!
We recommend to set the video-signal type of every connected video source manually in the interface OSD menu instead of using the default AutoDetect!

2.5.2 Connection and power-supply - video-sources rear-view camera, front camera and 2 video-sources



- ① Connect male RCA connector of rear-view camera to female RCA-connector **V4-Reverse** of 20pin interface cable.
- ② Connect male RCA connector of front camera to female RCA-connector **V3-Front** of 20pin interface cable.
- ③ Connect male RCA connectors of video-source 1 and 2 to female RCA connectors **V1-Left** and **V2 Right** of 20pin interface cable.
- ④ Connect power supply for after-market cameras to **green cable CAM power +12V (max 3A)** of 20pin interface cable.
- ⑤ Connect power supply for other video-sources to **red cable ACC out +12V (max 3A)** of 20pin interface cable.



Note: The type of camera switching (by CAN-bus or trigger cables) can be preset in the OSD-menu settings **individually** for each input.

Attention!
We recommend to set the video-signal type of every connected video source manually in the interface OSD menu instead of using the default AutoDetect!

2.6 After-market rear-view camera

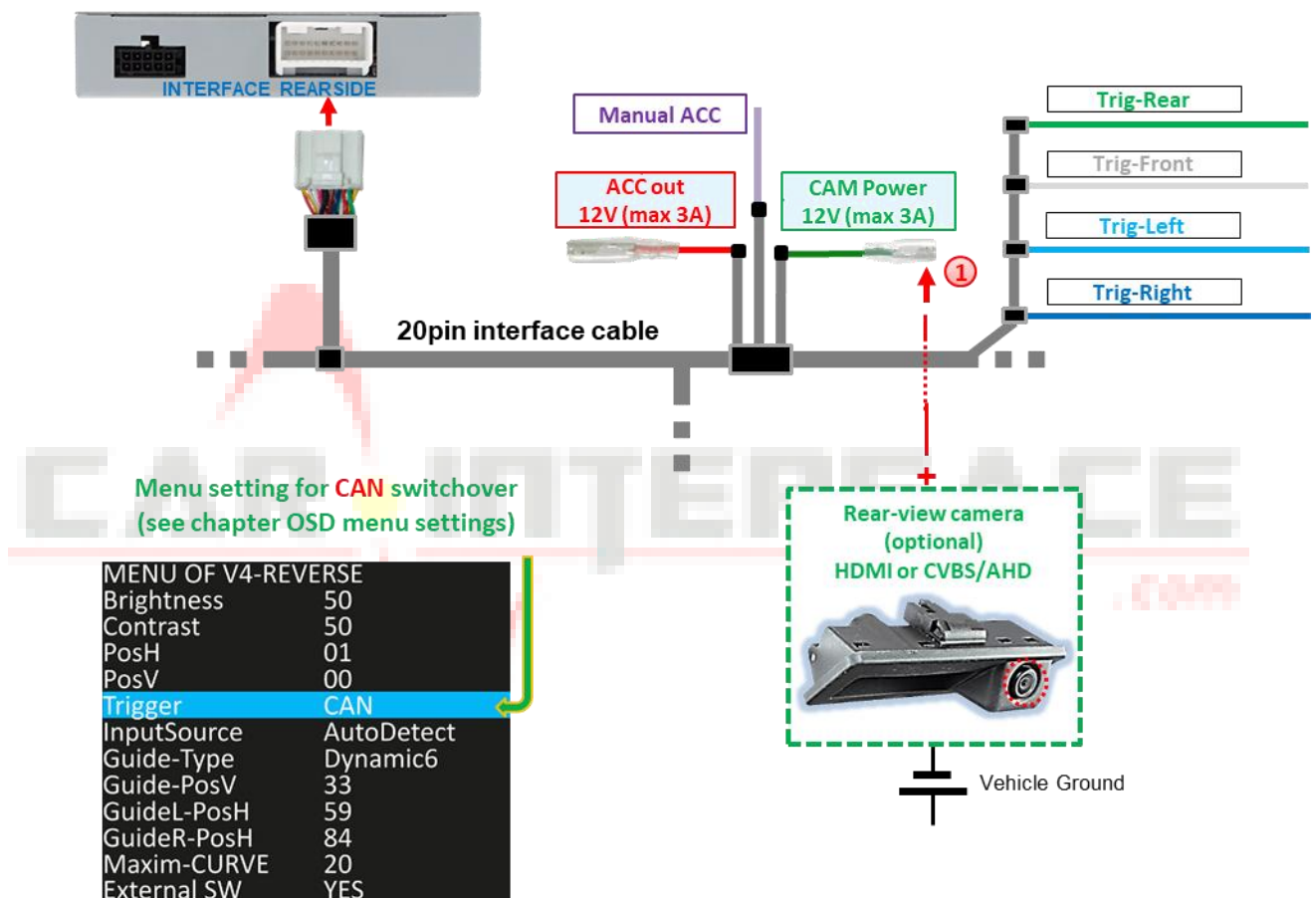
Automatic switching to rear-view camera is possible by CAN-bus or by analogue reverse signal.

2.6.1 Case 1: Reverse signal from CAN-bus

Basic requirement is that the interface is connected to CAN-bus. Furthermore, vehicle CAN-bus reverse signal and its detection by the interface must be compatible.

If so, interface supplies +12V on **green wire CAM power 12V (max 3A)** of **20pin interface cable** while reverse gear is engaged and interface automatically switches to rear-view camera input **V4-Reverse** or **HDMI-input***.

See also chapter 1.5 Settings - 8dip switch bench (interface functions).



- ① The +12V (max. 3A) power supply for the rear-view camera can be taken from the **green wire CAM power 12V (max 3A)** of the **20pin interface cable**, as it carries voltage only for the time of camera input activation (some cameras are not continuously current-stable).



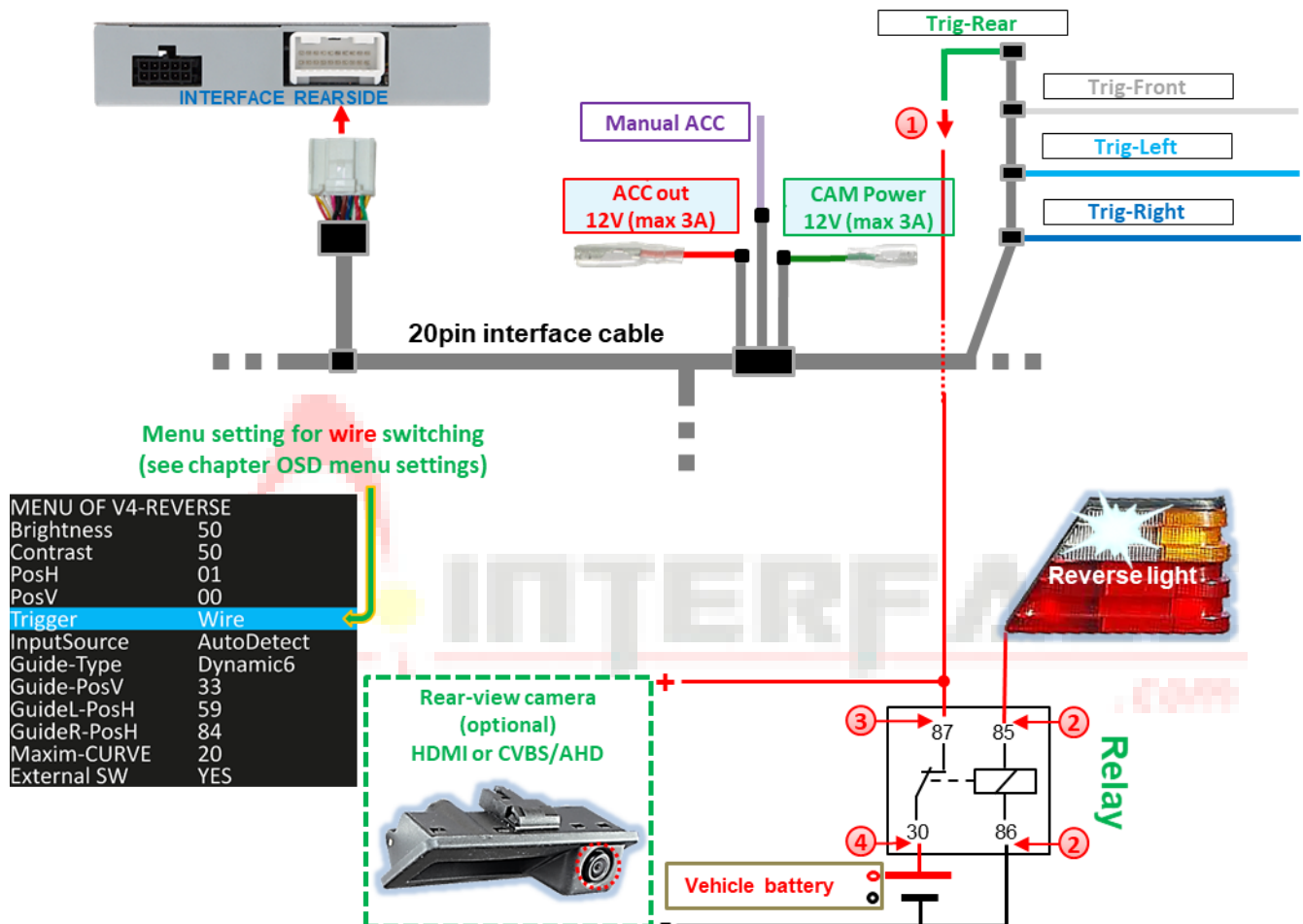
Notes

- If **HDMI-input*** is defined as rear-view camera input by dip 5, **V4-Reverse** input remains without function!
- If reverse gear detection of interface by CAN-bus does not work, reverse gear signal has to be connected analogue.

* **HDMI-input only available on HDV-UCON10**

2.6.2 Case 2: Reverse gear signal from analogue signal

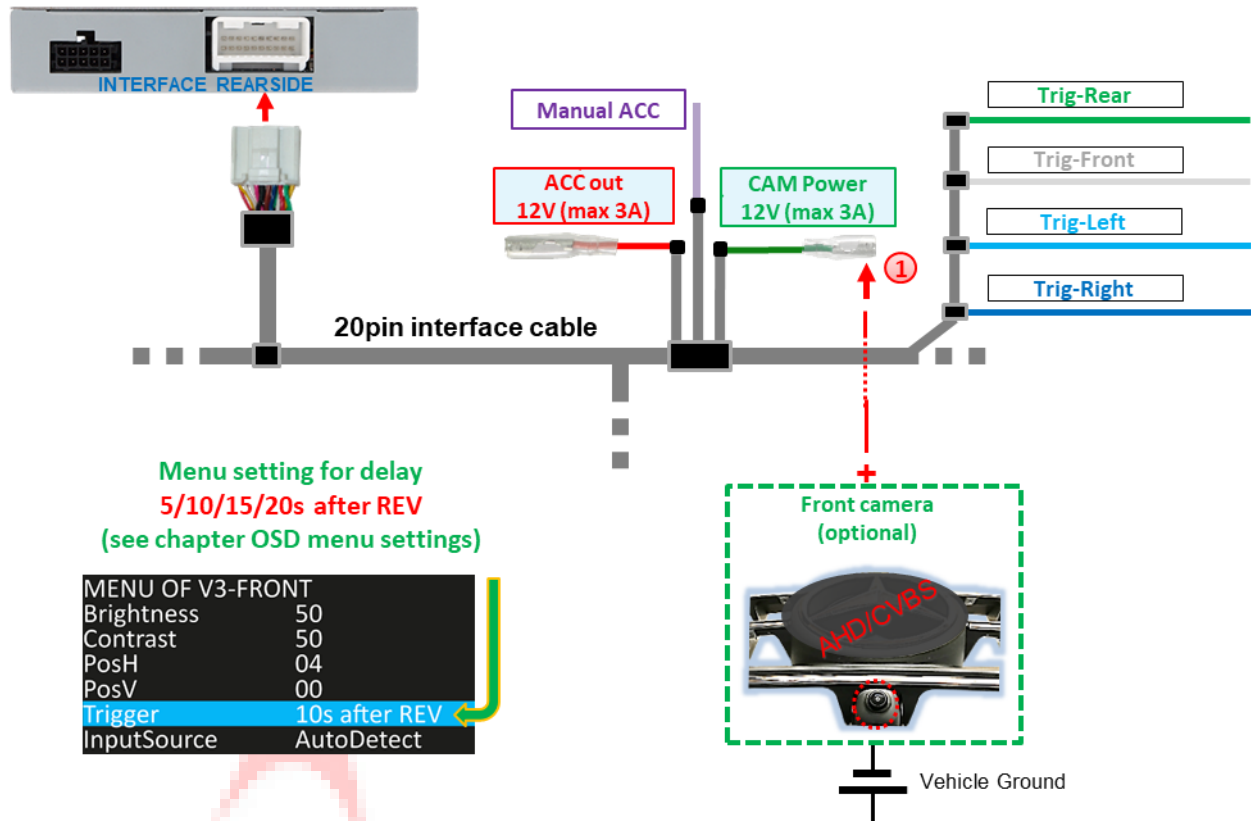
When connected the interface without CAN bus or when connected with CAN bus, if reverse gear is engaged and the interface does not provide +12V on the **green wire CAM Power 12V (max 3A)** of the **20pin interface cable** (not all vehicles are compatible), an external reversing light switch signal is required. As the reversing signal contains electronic interference, a normally open relay (e.g. AC-MR-312 or AC-MR-201) or a noise filter (e.g. AC-PNF-RVC) is required. The following diagram shows the use of a normally open relay.



- 1 Connect **green wire Trig-Rear** to output connector (87) of relay.
- 2 Connect the power cable of vehicle reverse light to relay coil (85) and vehicle ground to relay coil (86).
- 3 Connect output connector (87) of relay to power cable of rear-view camera, additionally to **green wire Trig-Rear**.
- 4 Connect stabile and permanent +12V to input connector (30) of relay.

* HDMI-input only available on HDV-UCON10

2.7 After-market front camera



- ① The **green wire CAM power 12V (max 3A)** can be used to supply power to front camera (and all other cameras connected to the video inputs), as it only carries current for the duration of any camera activation (some cameras are not continuously current-stable). Requirement is dip 3 = **ON** (black 8dip switch bench). Then **green wire** carries +12V (max 3A) as power supply for the front camera as long as the front camera input is displayed. The time of display delay can be selected individually for **5, 10, 15** or **20** seconds in the front camera OSD-menu settings.

Switching to front camera after disengaging reverse gear for the time set in the OSD-menu, takes place both, with connection by vehicle CAN-bus and with analogue connection of the rear camera.



Note: In addition, manual switching to front camera input (short press) is possible by external button from any image mode (see chapter3 Interface operation).

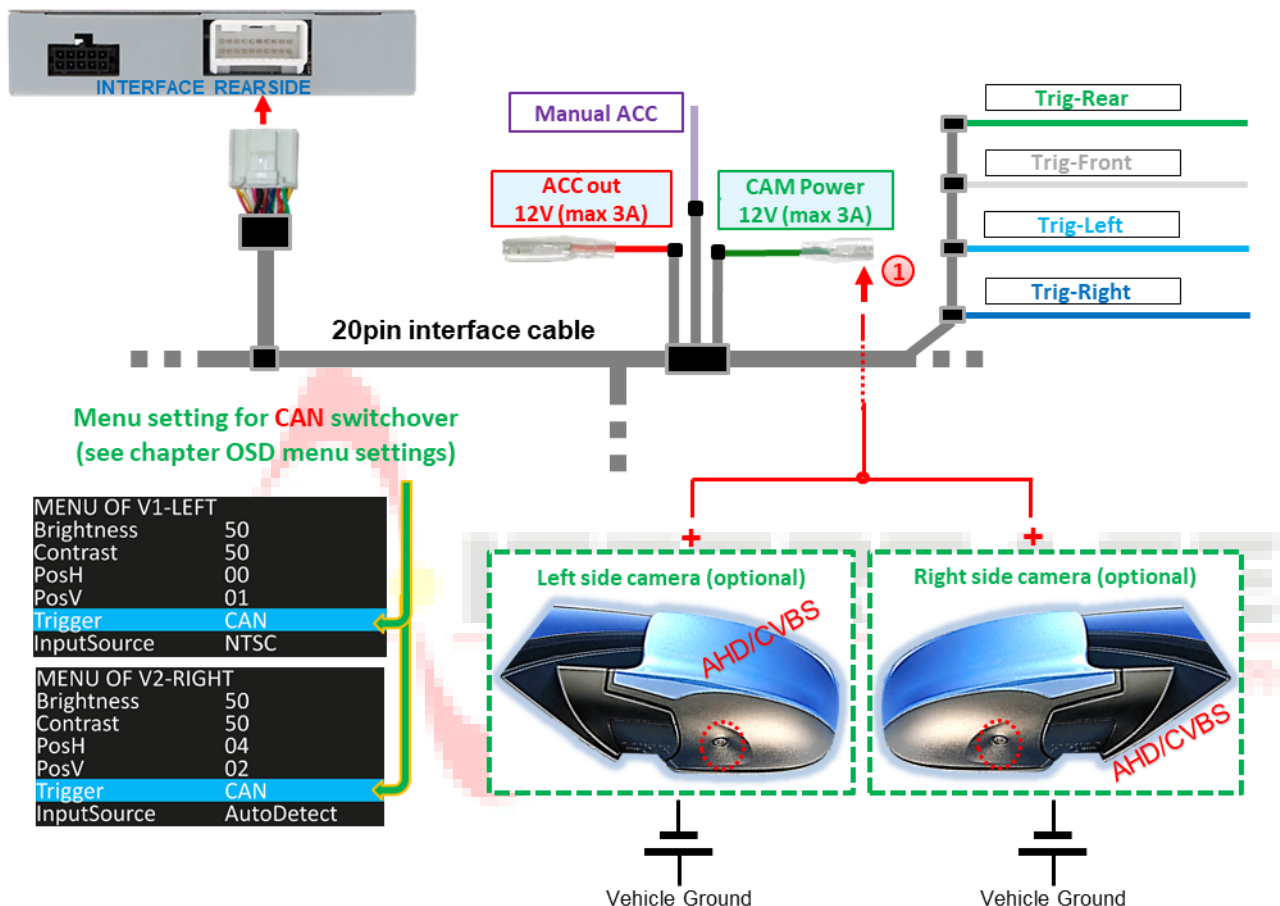
2.8 After-market side-cameras

Side-cameras can be connected with switching by CAN-bus or analogue.

2.8.1 Case 1: Turn signal from CAN-bus

Basic requirement is that the interface connection is made with CAN-bus. Furthermore, vehicle CAN-bus turn signals and its detection must be compatible with the interface.

If so, interface supplies +12V on **green wire CAM power 12V (max 3A)** of **20pin interface cable** for the duration of turn signal operations.



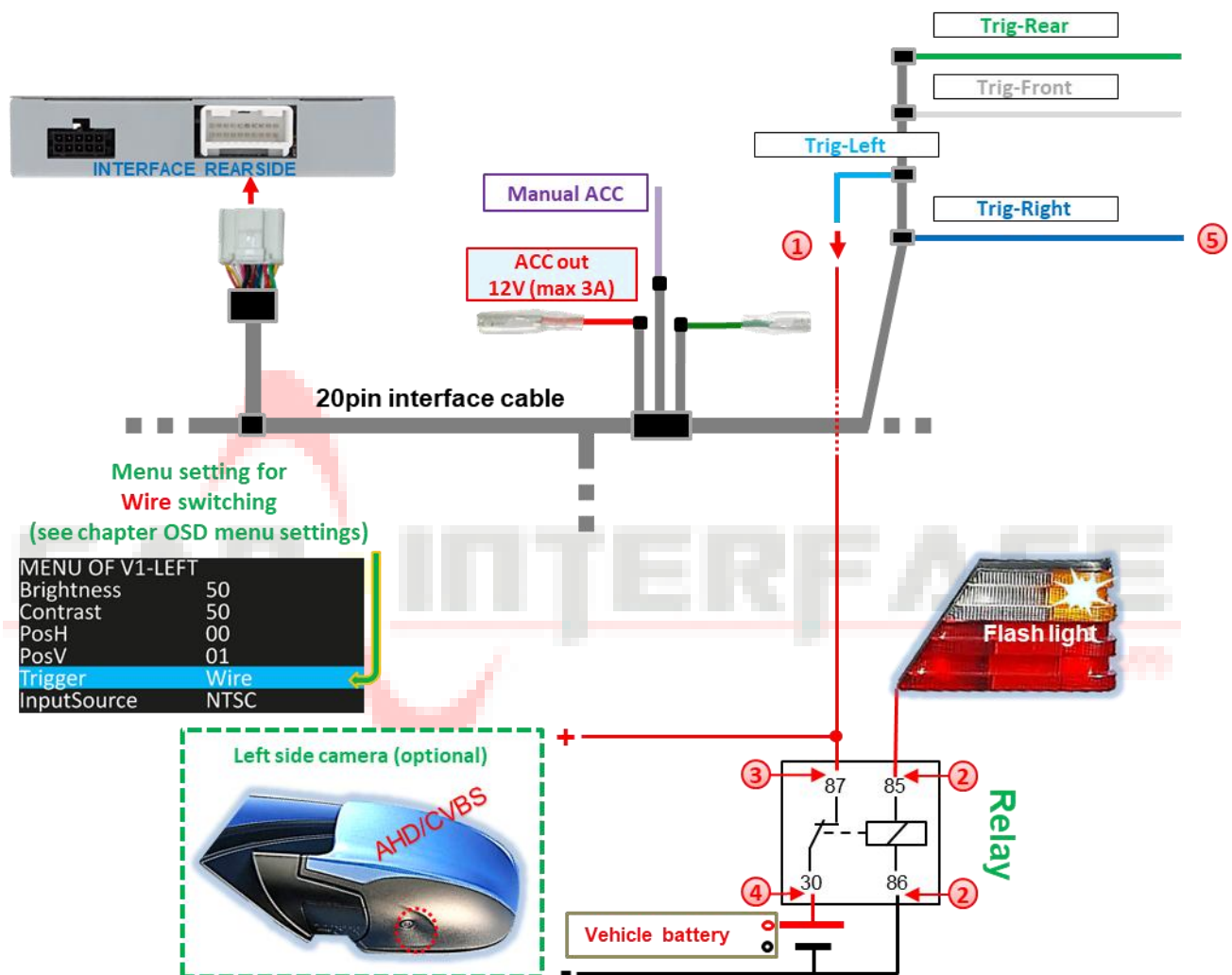
- Power supply for side-cameras should be connected to **green wire CAM power 12V (max 3A)** of **20pin interface cable**, as this cable is only powered during camera activation (some cameras are not continuously current stable).



Note: If turn signal detection of interface is not compatible with the vehicle CAN-bus, the turn signals must be connected analogue.

2.8.2 Case 2: Turn signals from analogue signal

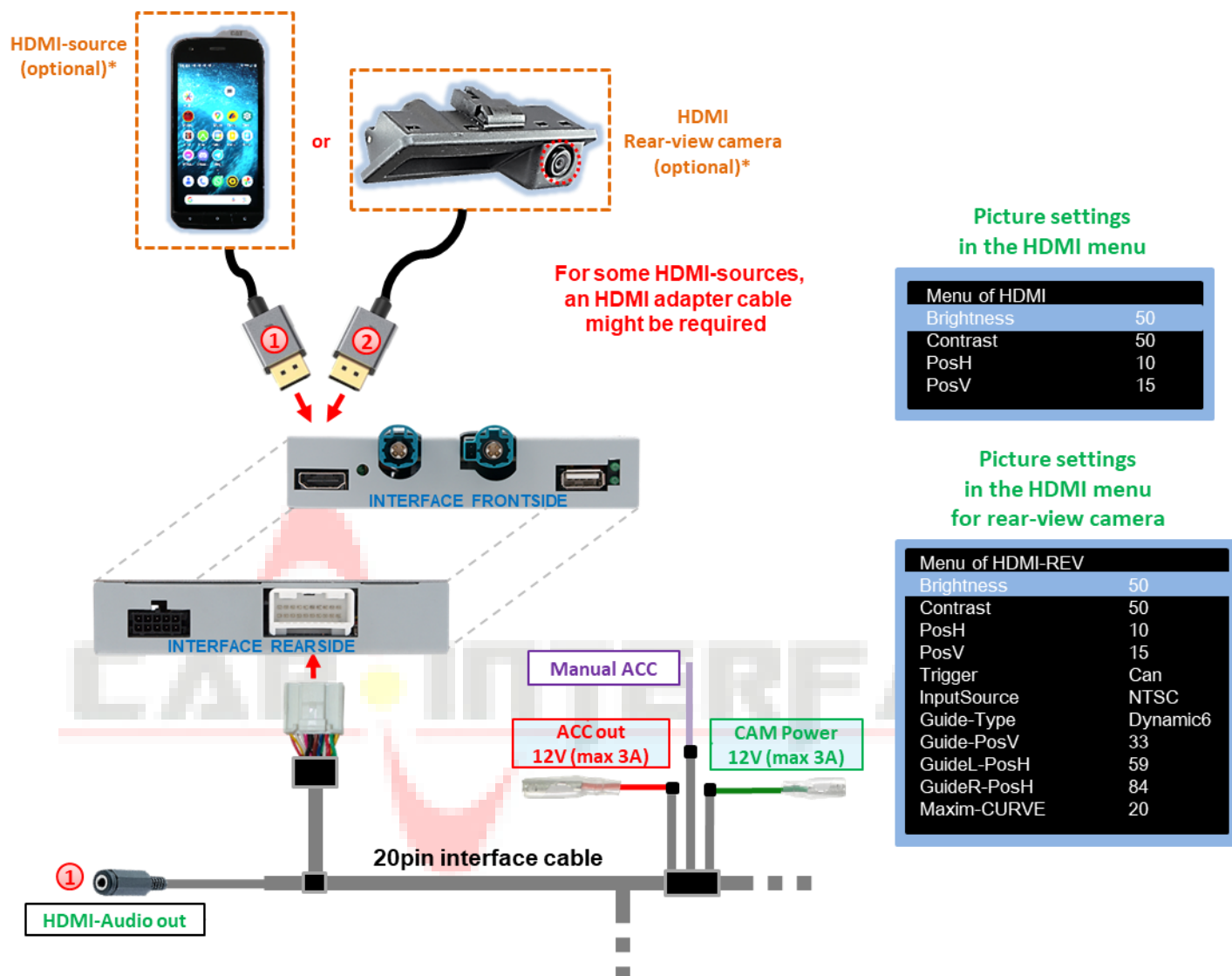
When the interface is connected without CAN bus or when the interface is connected with CAN bus and the turn signals from the vehicle CAN bus are not recognised, an analogue activation of the side camera inputs is possible via the +12V switching input wires **Trig-Left** and **Trig-Right**. An external switching signal from the turn signal bulbs is required to switch to the side camera inputs. As turn signals may contain electronic interference, a normally open relay (e.g. AC-RW-1230 with AC-RS5 wiring) or a noise filter (e.g. AC-PNF-RVC) is required for each input. The diagram below shows the use of a normally open relay.



- ① Connect light blue wire **Trig-Left** to output connector (87) of relay.
- ② Connect power-cable of left turn signal to coil (85) of relay and coil (86) of relay to vehicle ground.
- ③ Connect output connector (87) of relay to power cable of rear-view camera, additionally to light blue wire **Trig-Left**.
- ④ Connect stabile and permanent +12V to input connector (30) of relay.
- ⑤ Same connection applies to right side-camera just the dark blue wire **Trig-Right**.

2.9 HDMI rear-view camera or other HDMI-source (only HDV-UCON10)

The **HDMI-input*** of the interface can generally be used for any video-source with HDMI-output, connected to it, e.g., rear-view camera, 360° camera-system or other video-source such as smartphones, laptop, streaming stick, DVB-T2 tuner, etc.



- 1 If an optional HDMI video-source (e.g., smartphone, laptop, etc.) is connected to the **HDMI-input***, the video shown on the display of the HDMI-source will be mirrored on the vehicle monitor. The video-signal from display-free sources (e.g., streaming stick, DVD-Player, DVB-T2 Tuner, etc.) will be displayed on the vehicle monitor. The power supply for the video-source can be taken from **red wire ACC out 12V (max 3A)**.
Received audio signals will only be supplied by the female 3.5 mm jack connector **HDMI-Audio out*** of the 20pin interface cable. (See following chapter 2.10 Audio-insertion.)

- 2 If a rear-view camera or 360° camera-system is connected to the **HDMI-input*** (switched to by CAN-bus or analogue), the image displayed while reverse gear is engaged, and the image of a front camera connected to **V3-Front** is also displayed for the preset time when reverse gear is disengaged. Power supply can be taken from **green wire CAM power 12V (max3A)**.

* **HDMI-input only available on HDV-UCON10**

2.10 Audio-insertion

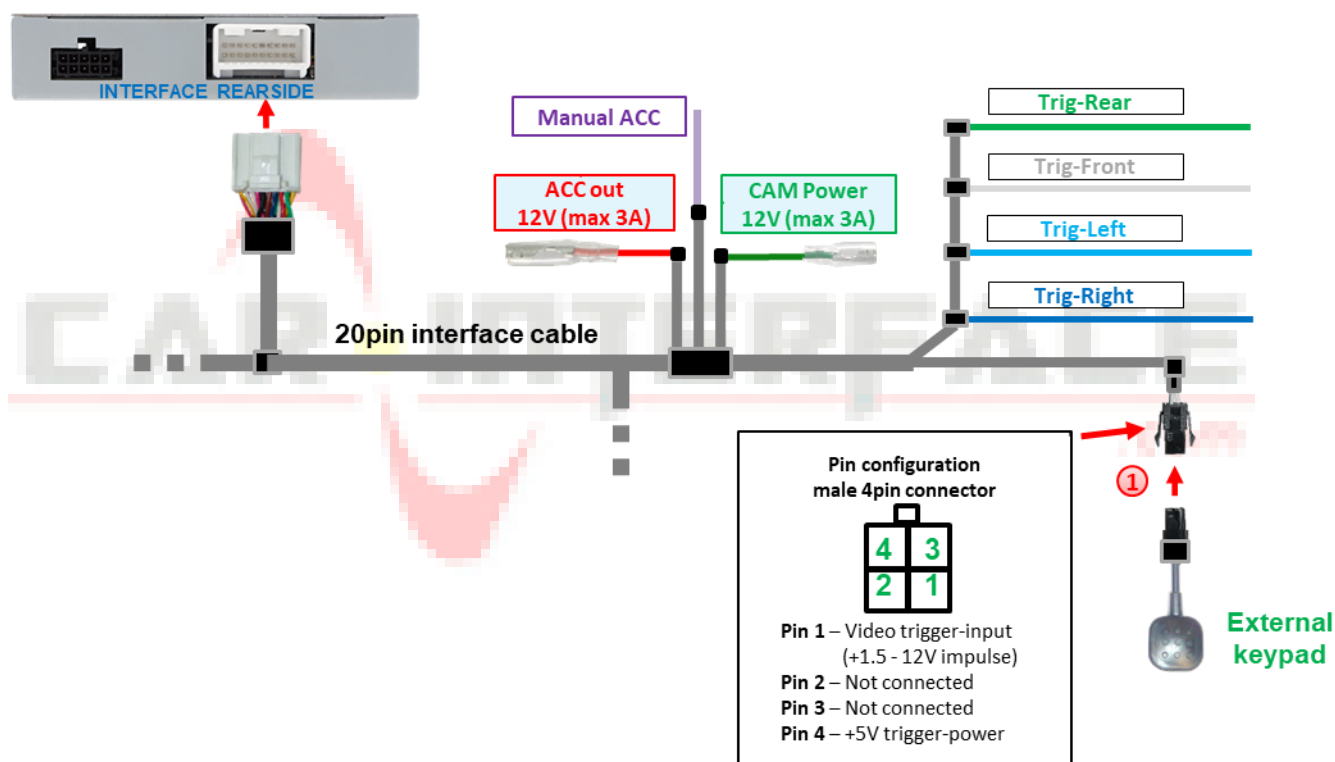
The interface can only insert video-signals into the factory infotainment.

Audio signals of the **HDMI-input*** are supplied through the 3.5 mm female jack connector **HDMI-Audio out*** of the interface. For all AV-sources connected to the interface, their audio output must be connected factory AUX input or an optional audio-inserter (e.g. FM modulator). If several AV-sources are connected to the infotainment, an audio-switch might be required additionally.

Inserted video-signal can be switched to simultaneously to any audio mode of the factory infotainment.

*** HDMI-input only available on HDV-UCON10**

2.11 Connection - Interface and external keypad



1 Connect female 4pin connector of keypad to male 4pin connector of **20pin interface cable**.



Note: We recommend to install the external keypad for possible support reasons even if not required for customer needs. Make sure the external keypad is not installed “pressed” then.

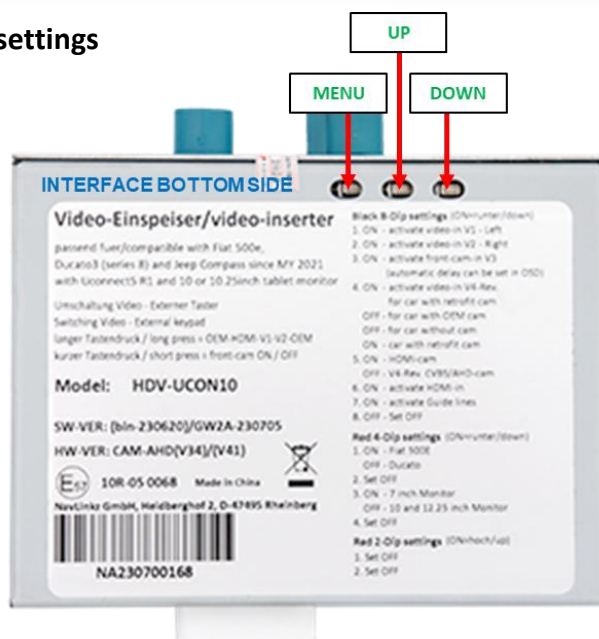
Optional: Instead of the external keypad, the interface can also be operated using the optionally available remote control ‘HDA-RC’. This enables direct selection of the video/camera inputs and more convenient changing of settings in the respective OSD menus.

* The remote control is compatible with all HDA and HDV interfaces that are labelled with ‘RC’ at the end of the software version.



Remote control ‘HDA-RC’ optionally available

2.12 OSD-menu settings



Attention!
We recommend to set the video-signal type of every connected video source manually in the interface OSD menu instead of using the default AutoDetect!

OSD-menu settings can be changed by using the 3 keys on rear-side of interface. Pressing MENU key opens the OSD-menu or moves cursor to next menu item. UP (UP) and DOWN (DOWN) change values of current menu item.



The individual OSD-menu of every video input is only accessible when this input is displayed, regardless of whether a video-source is connected.

The following setting options are available in the individual OSD-menus of the 5 video inputs:

Menu V1-Left (V2-Right)

8dip switch bench dip 1 (dip 2) = ON

Brightness Brightness
Contrast Contrast
Item H Horizontal image position
Item V Vertical image position
Trigger Type of selection of video input **V1-Left (V2-Right)**

MENU OF V1-LEFT	
Brightness	50
Contrast	50
PosH	00
PosV	01
Trigger	Wire
InputSource	NTSC

MENU OF V2-RIGHT	
Brightness	50
Contrast	50
PosH	04
PosV	02
Trigger	CAN
InputSource	AutoDetect

"CAN" function for side cameras via CAN bus. Selection of the video input **V1-Left (V2-Right)** when turn signal operations left (right). Requirements are that the turn signals are recognised by the interface on the vehicle CAN bus. Manual selection of this input using an external keypad does not work with this setting.

"Wire" function for other video sources or side cameras without CAN bus. The video input **V1-Left (V2-Right)** is selected exclusively via the **light blue (dark blue) wire Trig-Left (Trig-Right)** or manually via an external keypad.

Input Source Video signal type of the video source(s) connected to **V1-Left (V2-Right)**.

AutoDetect - automatic setting of the video signal type (preset)

Be sure to set the video signal type manually, as various problems may occur later! The following video source signal types can be selected:

CVBS video sources: **NTSC, PAL**

AHD video sources: **720p NTSC, 960p NTSC, 1080p NTSC, 720p PAL, 960p PAL, 1080p PAL**

V3 front menu

8-position switch bench Dip 3 = ON

Brightness	Brightness
Contrast	Contrast
Item H	Horizontal image position
Item V	Vertical image position
Trigger	Type of selection of video input V3 front .

MENU OF V3-FRONT	
Brightness	50
Contrast	50
PosH	04
PosV	00
Trigger	10s after REV
InputSource	AutoDetect

"Delay" function for front camera. The "Delay" setting is used to determine the automatic switching of a front camera connected to the V3 **front input** after the reverse gear is engaged as well as its display duration on the display. Available are 5s after REV, 10s after REV, 15s after REV, 20s after REV.

"Wire" function for other video sources. If another video source is to be connected to **V3-Front** instead of a front camera, select the "Wire" setting. This switches off the "Delay" function and the input can only be selected via the **white Trig-Front** wire or manually via an external keypad.

Input Source Video signal type of the video source connected to the **V3 front**.

AutoDetect - automatic setting of the video signal type (preset)

Be sure to set the video signal type manually, as various problems may occur later! The following video source signal types can be selected:

CVBS video sources: **NTSC, PAL**

AHD video sources: **720p NTSC, 960p NTSC, 1080p NTSC, 720p PAL, 960p PAL, 1080p PAL**

Menu V4-Reverse

8-position switch bench Dip 4 = ON, Dip 5 = OFF, Dip 6 = OFF

V4 reverse input has no function if **HDMI input*** is defined as rear-view camera input (dip 5 = ON).

Brightness	Brightness
Contrast	Contrast
Item H	Horizontal image position
Item V	Vertical image position
Trigger	Type of selection of rear-view camera input V4 reverse .

MENU OF V4-REVERSE	
Brightness	50
Contrast	50
PosH	01
PosV	00
Trigger	CAN
InputSource	AutoDetect
Guide-Type	Dynamic6
Guide-PosV	33
GuideL-PosH	59
GuideR-PosH	84
Maxim-CURVE	20
External SW	YES

"CAN" function with CAN bus connection. With the "CAN" setting, the system automatically switches to **V4 Reverse** for CVBS/AHD rear-view camera when reverse gear is engaged. Requirements are that the interface recognises the reverse gear in the CAN bus.

"Wire" function with analogue connection. The selection of a rear-view camera connected to the **V4- Reverse** via the **green Trig-Left wire** is possible with both the "Wire" and "CAN" settings. It is recommended to set "Wire" for analogue (reversing signal) connection.

Input Source Video signal type of the video source connected to **V4-Reverse**.

AutoDetect - automatic setting of the video signal type (preset)

Be sure to set the video signal type manually, as various problems may occur later! The following video source signal types can be selected:

CVBS video sources: **NTSC, PAL**

AHD video sources: **720p NTSC, 960p NTSC, 1080p NTSC, 720p PAL, 960p PAL, 1080p PAL**

Guide Type	Setting 6 different angles of the guide lines for the rear-view camera	
	Movable guide lines	Dynamic 1-6
	Fixed guide lines	Fixed 1-6
	No guide lines	OFF
Guide Pos. V	Vertical position of the guide lines	01-69
Guide L Pos.H	Horizontal position of the left guide lines	01-90
Guide R Pos.H	Horizontal position of the right-hand guide lines	01-90
Maxim. Curve	Radius of the guide lines	01-20
External SW	Selectable via external keypad V4 Reverse	
	YES: Factory video → HDMI* → V1-Left → V2-Right → V4-Reverse → Factory video	
	NO: Factory video → HDMI* → V1-Left → V2-Right → Factory video	

* **HDMI input only available with HDV-UCON10**

HDMI menu* 8-position switch bench (dip 4 = ON, dip 5 = **ON/OFF**, dip 6 = ON)

HDMI AV input (Dip 5 = OFF)

Brightness	Brightness
Contrast	Contrast
Item H	Horizontal image position
Item V	Vertical image position

Menu of HDMI	
Brightness	50
Contrast	50
PosH	10
PosV	15

HDMI rear-view camera input (dip 5 = ON)

Brightness	Brightness
Contrast	Contrast
Item H	Horizontal image position
Item V	Vertical image position
Trigger	Type of selection of rear-view camera input HDMI-REV.

Menu of HDMI-REV	
Brightness	50
Contrast	50
PosH	10
PosV	15
Trigger	Can
InputSource	NTSC
Guide-Type	Dynamic6
Guide-PosV	33
GuideL-PosH	59
GuideR-PosH	84
Maxim-CURVE	20

"CAN" function with CAN bus connection. With the "CAN" setting, the system automatically switches to **HDMI*** for HDMI rear-view camera when reverse gear is engaged. Requirements are that the interface recognises the reverse gear in the CAN bus.

"Wire" function with analogue connection. The selection of a rear-view camera connected to the **HDMI*** via the **green Trig-Rear wire** is possible with both the "Wire" and "CAN" settings. It is recommended to set "Wire" for analogue (reversing signal) connection.

Input Source No function – the picture resolution of connected HDMI sources is automatically recognised.

Guide Type	Setting 6 different angles of the guide lines for the rear-view camera	
	Moving guide lines	Dynamic 1-6
	Fixed guide lines	Fixed 1-6
	No guide lines	OFF

Guide Pos. V	Vertical position of the guide lines	01-69
Guide L Pos.H	Horizontal position of the left hand guide line	01-90
Guide R Pos.H	Horizontal position of the right-hand guide line	01-90
Maxim. Curve	Radius of the guide lines	01-20

In the **HDMI** menu*, the picture settings of an HDMI rear-view camera connected to the **HDMI input*** (Dip 5 = **ON**) or another connected HDMI AV source can be made (Dip 5 = OFF). (Dip 5 = **OFF**) can be made when these are displayed.

The picture resolution of connected HDMI sources is recognised automatically.



Notes: **V4 reverse** input has no function if the **HDMI input*** is defined as rear-view camera input (dip 5 = **ON**).

*** HDMI input only available with HDV-UCON10**

3 Interface operation

The external keypad of the can be used to switch alle enabled inputs except the input defined for rear-view camera.

➤ Long press of keypad (2-3 seconds)

Long press of external keypad (2-3 seconds), switches from factory video to inserted first enabled interface video-input. Any additional long press switches to the next enabled interface video-input and after last back to factory video. Disabled inputs are skipped.

If all inputs are enabled by the corresponding dip-switches, the order is as follows:

*Factory video → **HDMI*** → **V1-Left** → **V2-Right** → **V4-Reverse**** → factory video*



Note: The interface only switches after releasing the switch (after long press).

*** HDMI-input only available on HDV-UCON10**

****V4-Reverse** can only be selected via the external keypad if the "External SW" function is set to "Yes" in the **V4-Reverse** menu.

➤ Short press of keypad (only if dip 3 is set to ON)

Short press of external keypad, switches from any video mode to front camera input **V3-Front** and next short press switches back to the previous video mode.



Note: We recommend to install the external keypad for possible support reasons even if not required for customer needs. Make sure the external keypad is not installed "pressed" then.

3.1 Optional: Operating the video interface via the 'HDA-RC' remote control

Instead of the external keypad, the interface can also be operated using the optionally available 'HDA-RC' remote control.* This allows direct selection of the video/camera inputs and more convenient changing of settings in the respective OSD menus.

* The remote control is compatible with all HDA and HDV interfaces that are labelled with 'RC' at the end of the software version.



Remote control 'HDA-RC' optionally available

4 Specifications

BATT/ACC range	9V - 16V
Stand-by power drain	7mA
Power consumption	240mA @12V
Video input	0.7V - 1V
Video input signal types	CVBS/AHD/ HDMI (HDV-version only)
Signal standards CVBS/AHD	NTSC/PAL
Temperature range	-40°C to +85°C
Dimensions video-box	117 x 30 x 108 mm (W x H x D)

5 FAQ - Troubleshooting interface functions - product-specific

Problem	Possible reasons	Solution
Malfunction or no picture	Video input signal type for video source: AutoDetection without function or manual setting in the OSD of the respective video input not correctly defined	See chapter 2.12 <i>OSD-menu settings</i> - menu of corresponding input

6 FAQ - Troubleshooting Interface functions - general

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 connect 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.		
Inserted picture qual. bad.	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 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.
	Pressed too short.	For video source switching a longer press of about 2.5 seconds is required.
Not possible to switch video sources by external keypad.	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.



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