Manuals+ — User Manuals Simplified.

PARKSAFE
PARKSAFE
CAMINTER21
Video
Interface

PARKSAFE CAMINTER21 Video Interface Owner's Manual

Contents

PARKSAFE

PARKSAFE CAMINTER21 Video Interface

Examples

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 devices, 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-MBN7 only: 1 HDMI input for HD rear-view camera or other HDMI source (e.g. iOS/Android device, laptop, streaming stick, DVB-T2 tuner, etc.) Supported HDMI resolutions 720p NTSC (60Hz), 720p PAL (50Hz), 1080p NTSC (60Hz), 1080p PAL (50Hz)
- Automatic switchover to rear-view camera input while reverse gear is engaged
- Automatic front camera shift after reverse gear is engaged 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)
- Free picture while driving (only for inserted video-sources)
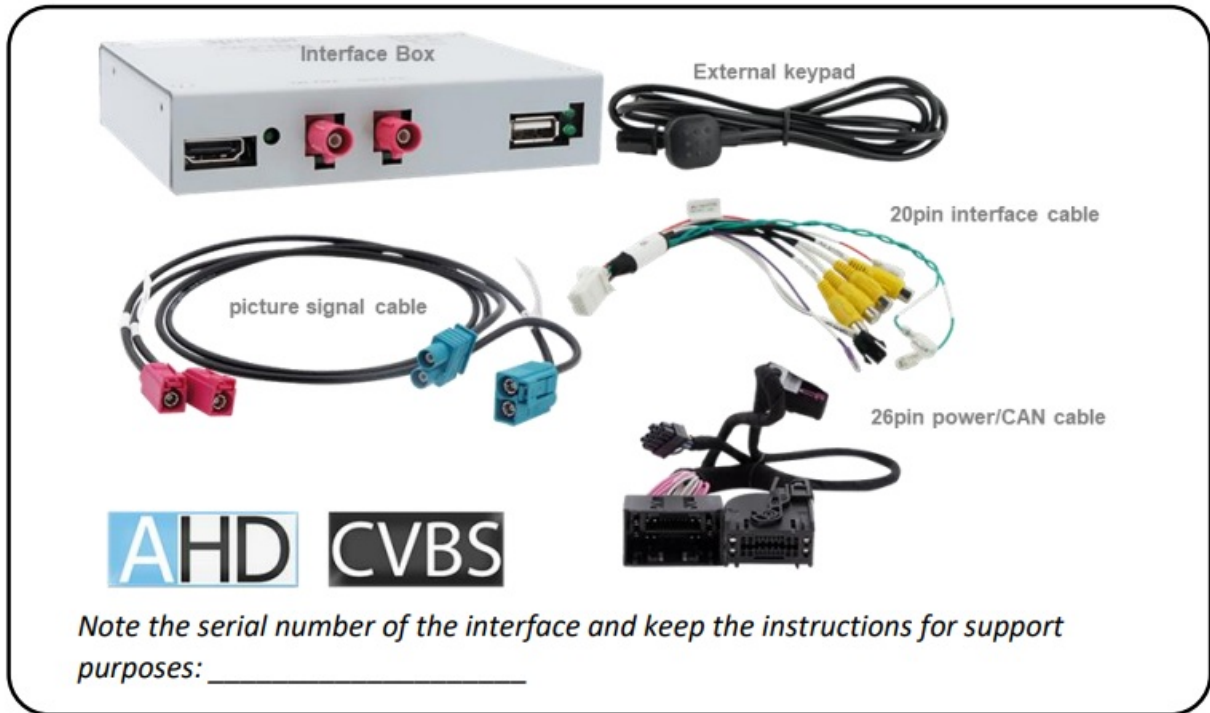
Legal notice

The driver must not be distracted directly or indirectly by moving pictures while driving. This is prohibited by law in most countries/states. We therefore exclude all liability for damage to property and personal injury caused directly or indirectly by the installation and operation of this product. This product is only intended for displaying stationary menus (e.g. MP3 menu of USB devices) or pictures from (rear-view) cameras while driving.
Changes/updates to the vehicle software may impair the functionality of the interface. Software updates for our interfaces are provided to customers free of charge for up to one year after purchase of the interface. The interface must be sent in free of charge for the update. Costs for installation and removal will not be reimbursed.

Before installation

These instructions must be read before installation. Specialist knowledge is required for installation. The installation location of the interface must not be near sources of moisture or heat. Before final installation in the vehicle, we recommend a test run after connection to ensure that the vehicle and interface are compatible. Due to production-related changes made by the vehicle manufacturer, there is always the possibility of incompatibility.

Scope of delivery

Interface Box

External keypad

20pin interface cable

picture signal cable

26pin power/CAN cable

AHD CVBS

Note the serial number of the interface and keep the instructions for support purposes: _____

Check interface compatibility with vehicle and accessories

Requirements

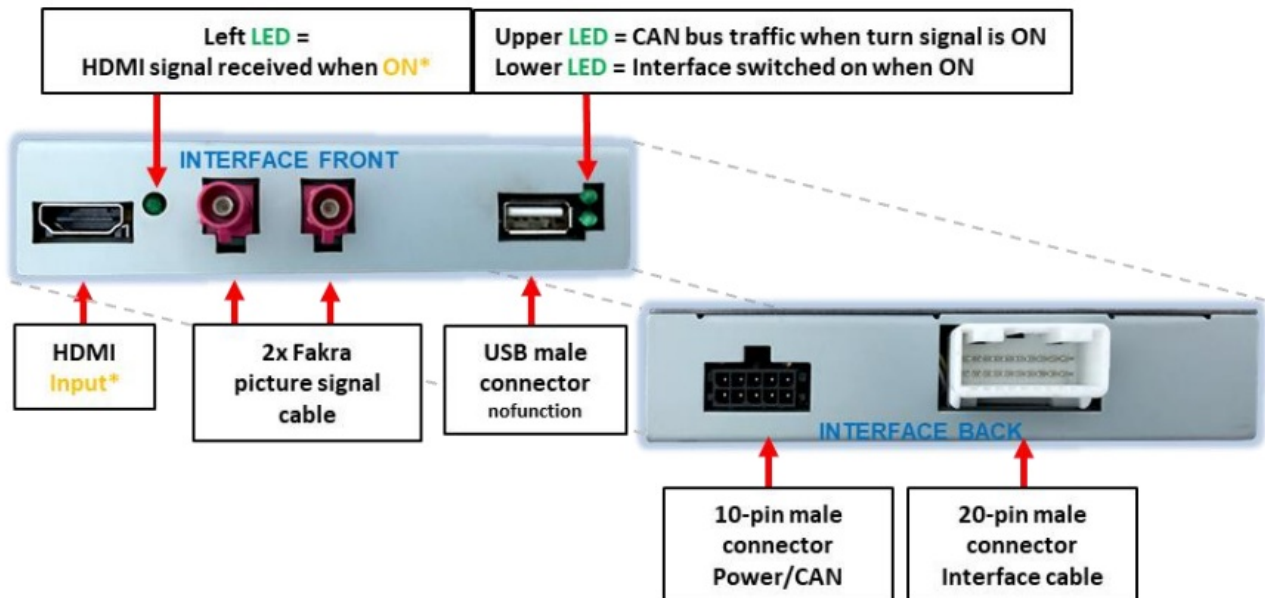| Manufacturer	Compatible vehicle models	Infotainments
	C-Class (W206) 06/2021-,	
	C-Class T-model/station wagon (S206) 06/2021-,	
	C-Class All-Terrain (X206) 10/2021-,	
	CLE Coupé (C236) 11/2023-,	
	CLE Convertible (A236) 2024-,	
	E-Class (W214) 08/2023-,	
	E-Class T-model/station wagon (S214) 08/2023-,E-Class All-Terrain (X214) 09/2013-, EQE (V295) 03/2022-,	**MBUX2 NTG7 multimedia system with 9.5 or 11.9 inch monitor**
	EQE SUV (X294) 12/2022-,	
Mercedes Benz	EQS (V297) 08/2021-,	
	EQS SUV (X296) 08/2022-,	
	GLC Coupé (C254) 07/2023-,	
	GLC SUV (X254) 07/2022-.	
	GT AMG Coupé (C192) 10/2023-,	
	SL AMG (R232) 11/2021-	
	A-Class (W177),	
	B-Class (W247)	**MBUX2 NTG7 multimedia system**
	Sprinter (W907/W910),	**with 10.25 inch monitor**
	Vito (W447)	

Limitations

- CAN bus compatibility The CAN bus compatibility of the interface may be limited completely or for individual functions in some vehicles. This may be noticeable both during installation and later. The interface with all video inputs can be operated with analogue switching signals without connection to the vehicle CAN bus. In this case, individual additional functions are omitted, see chapter 2.4.2 Analogue connection without CAN bus.
- Video only Interface does not insert any audio signals. In order to insert audio signals, any existing factory audio AUX input or optional products must be used.
- Factory rear-view camera Automatic switching to rear-view camera input only takes place while reverse gear is engaged. Optional accessories are required for different switching times.
- After-market front camera Switching to front camera occurs automatically after shifting into reverse gear for 5, 10, 15 or 20 seconds (depending on the OSD menu setting). Manual switching to front camera is also possible via the 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.
- Vehicles with active Parking assistant system 235 It is not possible to display the camera image while the

factory-fitted active parking assistant system 235 is in use.

Boxes and connections – Interface

The interface converts video signals from after-market sources into a video signal compatible with the factory head unit. This is inserted into the factory monitor via various switching options. The interface also reads digital signals from the vehicle CAN bus and uses them for its own functions.

Left LED =
HDMI signal received when ON*

Upper LED = CAN bus traffic when turn signal is ON
Lower LED = Interface switched on when ON

INTERFACE FRONT

| HDMI Input* | 2x Fakra picture signal cable | USB male connector nofunction |

INTERFACE BACK

| 10-pin male connector Power/CAN | 20-pin male connector Interface cable |

* HDMI input only available with HDV-MBN7

Settings – 8-position switch bench (interface functions) Interface box, right side, black

Dip position UP = OFF and DOWN = ON
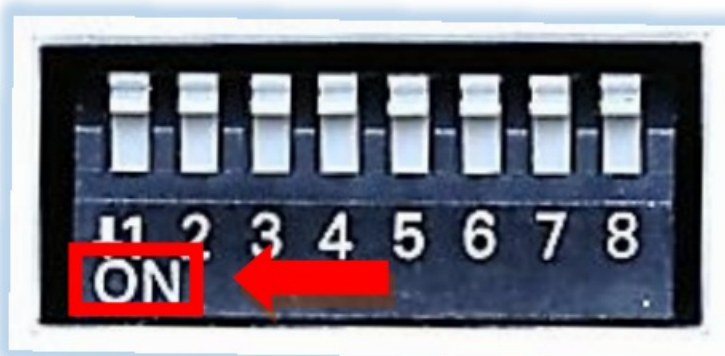
Dip	Function	ON (down)	OFF (up)
1	Video 1 / V1-Left	activated	deactivated
2	Video 2 / V2-Right	activated	deactivated
3	Front camera / V3 front	activated*	deactivated
4	Type of rear-view camera (V4-Rear)	After- Market	Plant or none
5	Connection type of the **After-market rear-view camera***	**HDMI***	V4-Reverse (CVBS/AHD)
6	**HDMI input***	activated	deactivated
7	Monitor selection	9.5 inch monitor	10.25 inch monitor 11.9 inch monitor
8	Monitor selection	9.5 inch monitor 10.25 inch monitor	11.9 inch monitor

Power reset interface after each dip change to activate changes!

- Switching to front camera takes place automatically for 5, 10, 15 or 20 seconds (depending on the OSD menu setting) after shifting into reverse gear.
- With HDA-MBN7, dip 5 and dip 6 have no function. Set both to OFF.

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

Interface video inputs V1-Left and V2-Right (Dip 1-2)
With Dip 1 (Dip 2) = ON, the CVBS/AHD input V1-Left (V2-Right) is activated for side camera or other video sources. Only activated video inputs can be accessed – both with automatic and manual switching. It is recommended to only activate used inputs, to avoid accidental switching.

Front camera input V3-Front (Dip 3)
If Dip 3 = ON, the interface switches to the CVBS/AHD front camera input V3-Front after the reverse gear is engaged. In addition, manual switching to the front camera input is possible from any picture mode using an external keypad (short press).In the OSD menu settings, the automatic display time of the front camera can be selected between 5; 10; 15 or 20 seconds or switched off. Another video source could then also be connected to instead of a front camera.

Rear-view camera settings (dip 4)

- If dip 4 = OFF, the interface switches to the factory image for the existing factory rear-view camera or factory PDC display as long as reverse gear is engaged.
- If Dip 4 = ON, the interface switches to its CVBS/AHD rear-view camera input V4-Reverse (provided Dip 5 is set to OFF) or the HDMI input* (provided Dip 5 and Dip 6 are set to ON) when reverse gear is engaged.

Note: V4 reverse remains without function when dip 5 = ON, using an HDMI camera.

Connection type of the rear-view camera (Dip 5)
Dip 5 = ON selects the HDMI input* as the rear-view camera input. In addition, the HDMI input* input must be activated with dip 6 = ON. Dip 5 = OFF selects the V4 -Reverse input as the rear-view camera input.

Note: The automatic switchover to front camera for the preset time is given in both cases after engaging while reverse gear is engaged.

HDMI input* (Dip 6)

With dip 6 = ON, the HDMI input* is activated 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/360° camera system, dip 5 = ON. With dip 6 = OFF, the HDMI input* is deactivated.

Monitor selection (Dip 7+8)

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

| Monitor size	Dip 7	Dip 8
9.5 inch monitor	**ON**	**ON**
10.25 inch monitor	**OFF**	**ON**
11.9 inch monitors	**OFF**	**OFF**

* HDMI input only available with HDV-MBN7
Power reset interface after each dip change to activate changes!

Settings – 4-position switch bench (CAN function – red)

Interface box, right side, red
Set the DIP switch positions according to the following table. Dip position UP=OFF and DOWN=ON
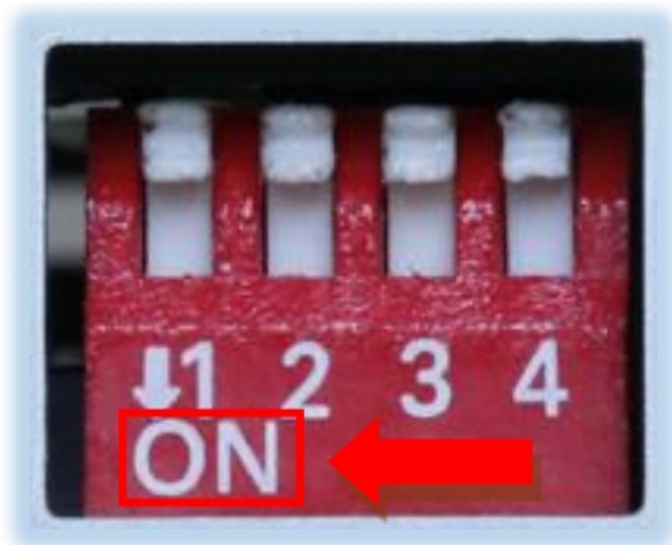
Vehicle/Navigation	Dip 1	Dip 2	Dip 3	Dip 4
All vehicles	OFF	OFF	OFF	OFF
Vehicles with Active Parking Assistant System 235	**ON**	OFF	OFF	OFF

Note: No camera image is available while the active parking assistant system 235 is in use. Power reset interface after each dip change to activate changes!

Installation

Switch off the ignition and disconnect the vehicle battery according to the factory specifications! If the vehicle

battery must not be disconnected according to the factory specifications, in most cases it is sufficient to put the vehicle into sleep mode. If this does not work, disconnect the vehicle battery with a resistor cable. Before final installation, we recommend a test run of the interface with all connected devices to ensure that all parts are compatible. Due to possible changes in the vehicle manufacturer's production at any time, incompatibility can never be ruled out. As with every installation of retrofit devices, a quiescent current test of all retrofitted devices must be carried out after installation to ensure that the devices are switched off to standby mode in vehicle sleep mode.
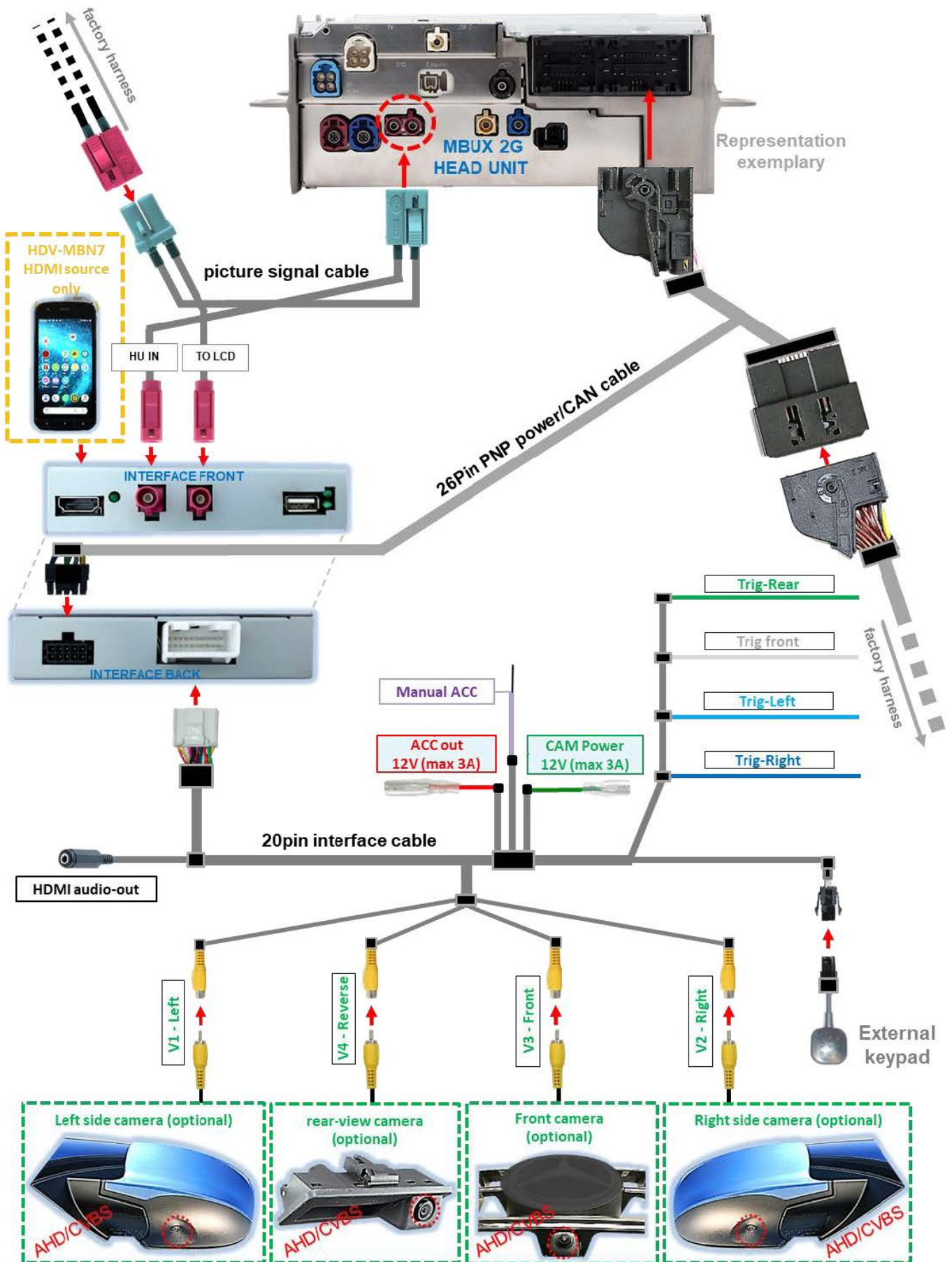
Place of connection

The installation location of the MBUX 2nd generation (NTG7) head unit, to which the connection is made, varies depending on the vehicle model.

Examples:

- A-Class (W177), B-Class (W247), CLA (C118/X118), GLA (H247): on the A-pillar on the driver's side
- GLE (W167 and C167): under the passenger seat
- Sprinter (W907/910): behind the factory monitor
- Citan/T-Class W420: behind the glove compartment

Connection schema

factory harness

picture signal cable

HDV-MBN7
HDMI source
only

MBUX 2G
HEAD UNIT

Representation
exemplary

HU IN   TO LCD

26Pin PNP power/CAN cable

INTERFACE FRONT

Trig-Rear

Trig front

factory harness

Trig-Left

Trig-Right

INTERFACE BACK

Manual ACC

ACC out
12V (max 3A)

CAM Power
12V (max 3A)

20pin interface cable

HDMI audio-out

V1 - Left

V4 - Reverse

V3 - Front

V2 - Right

External
keypad

Left side camera (optional)

rear-view camera
(optional)

Front camera
(optional)

Right side camera (optional)

AHD/CVBS

AHD/CVBS

AHD/CVBS

AHD/CVBS

Connection – picture signal cable

Attention: The picture signal cable is only connected to the double Fakra of the head unit, even if it is only used on one side!
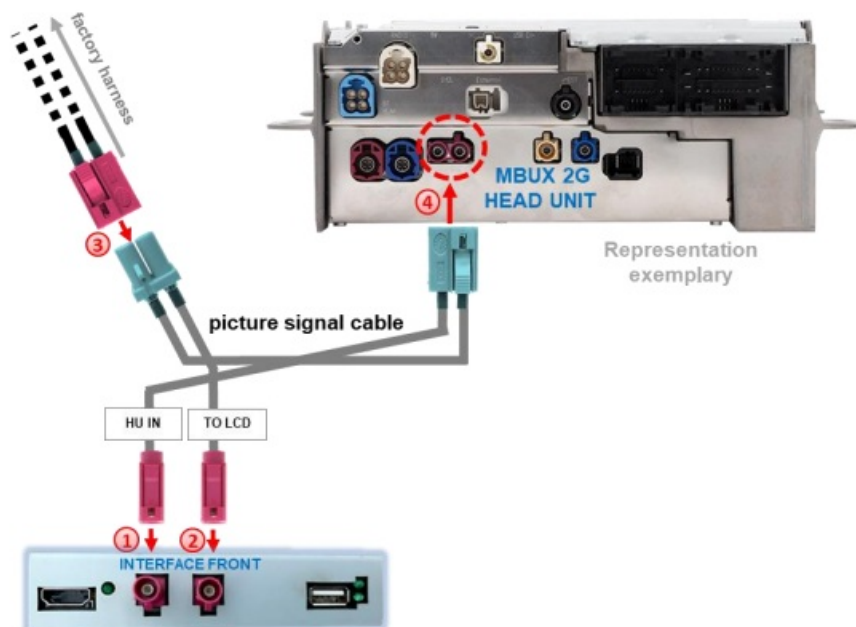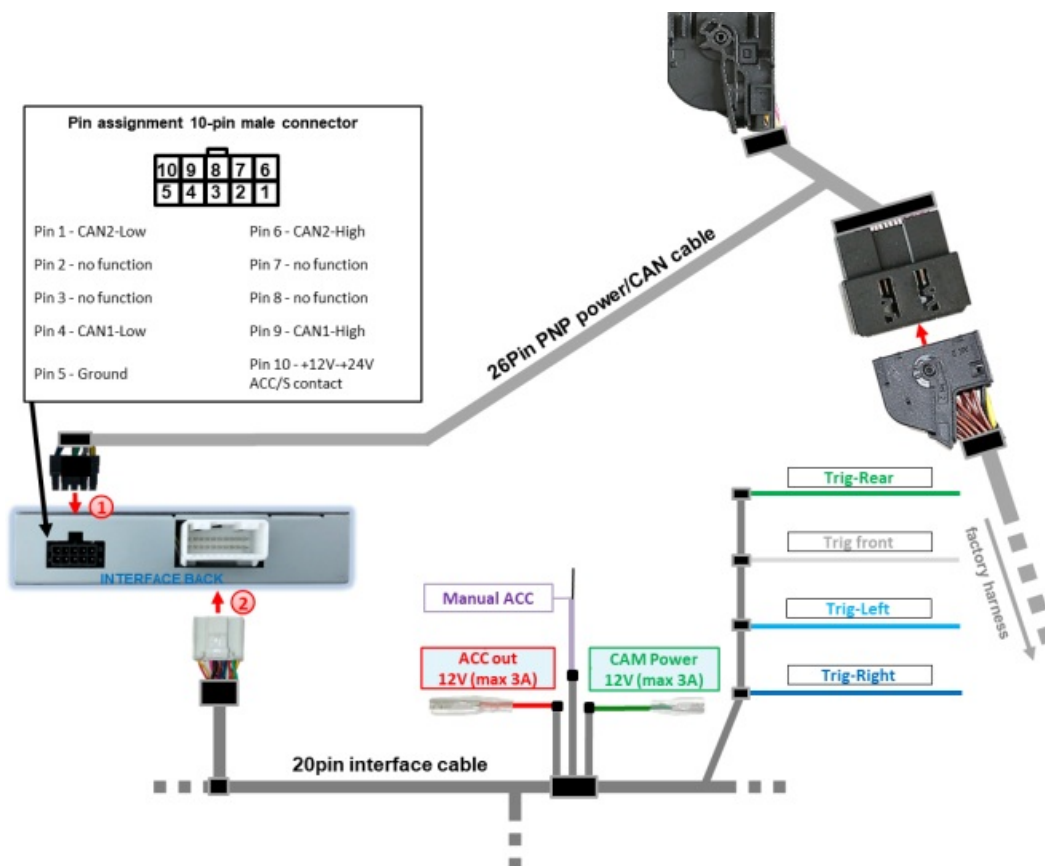
- Connect the bordeaux Fakra female connector "HU IN" of the supplied picture signal cable to the bordeaux Fakra male connector "HU IN" of the video interface.

- Connect the bordeaux Fakra female connector "TO LCD" of the supplied picture signal cable to the bordeaux Fakra male connector "TO LCD" of the video interface.

- Disconnect the double Fakra female connector of the factory picture signal cable from the pink-bordeaux double Fakra male connector of the head unit and connect it to the water blue double Fakra male connector of the picture signal cable supplied.

- Connect the water-blue double Fakra female connector of the supplied picture signal cable to the pink-bordeaux double Fakra male connector of the head unit.

Attention: The picture signal cable is only connected to the double Fakra of the head unit, even if it is only used on one side!

Connection – cable sets, power supply and CAN bus or analogue without CAN bus
The interface can be integrated via CAN bus or operated completely analogue without connection to the CAN bus. When integrated via CAN bus, the interface is switched on via the CAN bus and Rgear signal and turn signals are usually recognised from this. In some vehicles, movable guide lines can also be displayed using the CAN bus steering signals and parking sensor data . In exceptional cases, CAN communication is not (fully) compatible. If no interface LED lights up after connecting the 26 pin PNP power/CAN cable when the ignition is switched on, the analogue connection described below must be made. The analogue connection is also possible to avoid a possible subsequent CAN bus incompatibility. In this case, the interface must be both switched on and switched to its inputs via +12V switching inputs. The display of movable guide lines for the rear-view camera is omitted with an analogue connection.

Pin assignment 10-pin male connector

```
10 9 8 7 6
 5 4 3 2 1
```

Pin 1 - CAN2-Low	Pin 6 - CAN2-High
Pin 2 - no function	Pin 7 - no function
Pin 3 - no function	Pin 8 - no function
Pin 4 - CAN1-Low	Pin 9 - CAN1-High
Pin 5 - Ground	Pin 10 - +12V-+24V ACC/S contact

Connect the 10 pin female connector of the 26 pin PNP power/CAN cable to the 10 pin male connector of the interface. Connect the 20 pin female connector of the 20 pin interface cable to the 20 pin male connector of the interface.

Connection with CAN bus
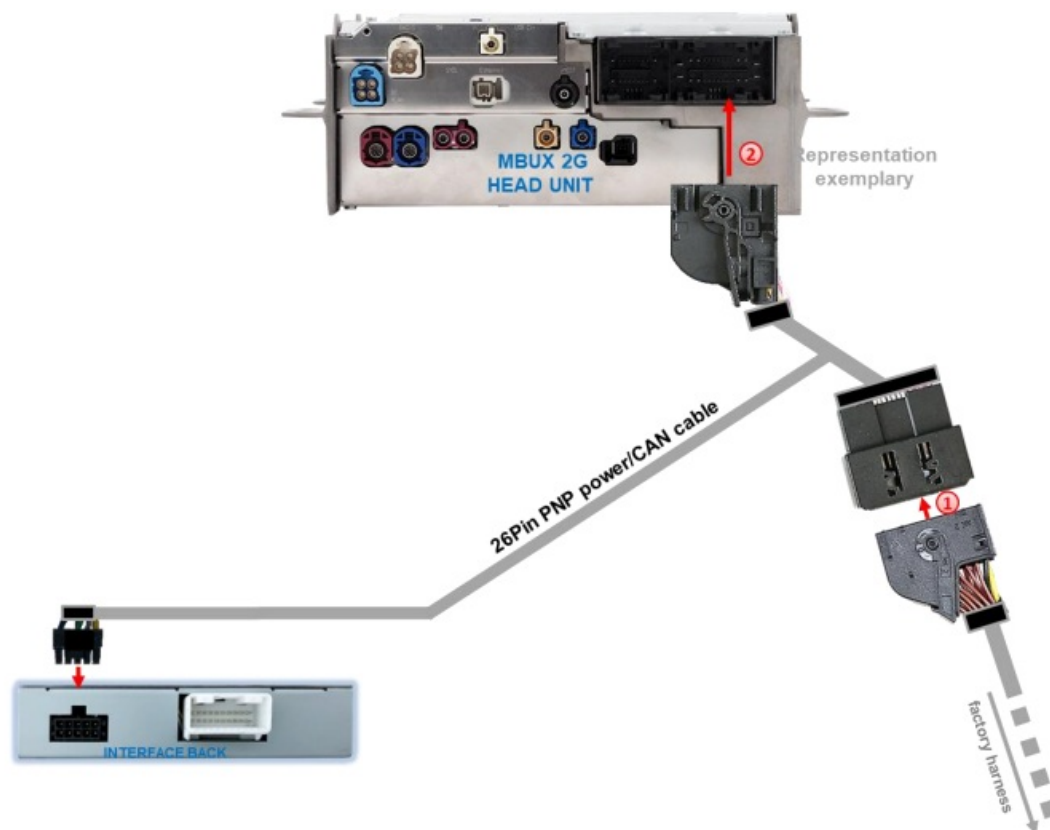
Disconnect the 26 pin female connectors of the vehicle wiring harness at the rear of the head unit and connect them to the 26 pin male connectors of the 26 pin PNP power/CAN cable. Connect the 26 pin female connectors of

the 26 pin PNP power/CAN cable to the previously vacated 26 pin male connector of the head unit.

Analogue connection without CAN bus

With analogue connection, the two CAN wires of the 26pin PNP power/CAN cable are not connected – the two wires of the 26pin PNP power/CAN cable must be disconnected for this!
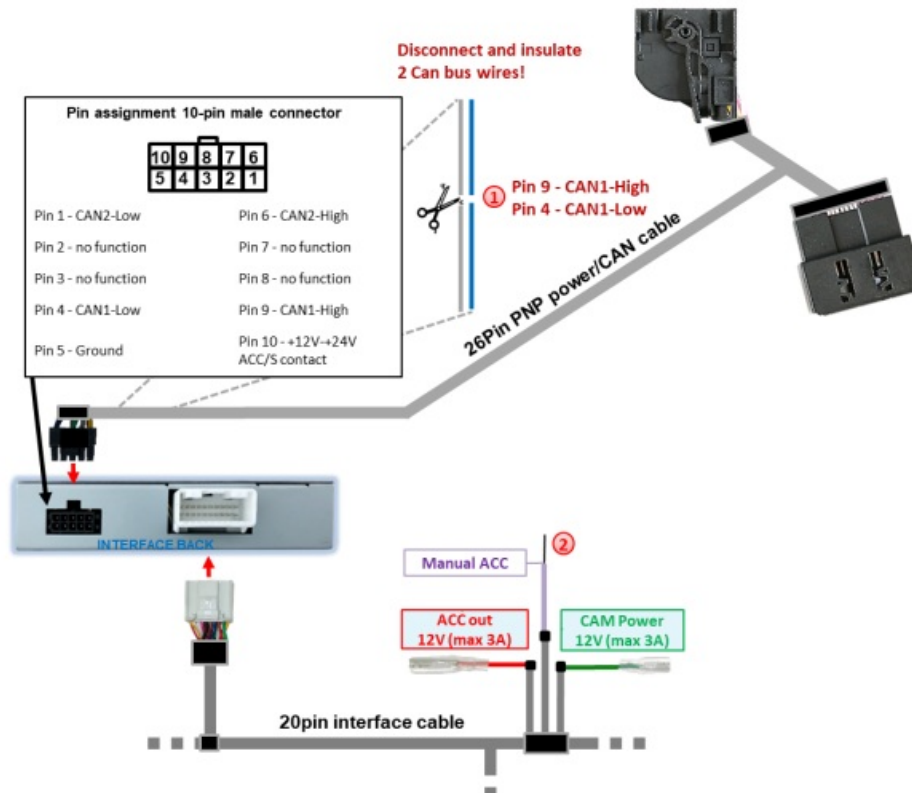
Disconnect and insulate the 2 CAN bus wires (grey, blue) of the 26pin PNP power/CAN cable approx. 4-5 cm behind the black male connector. Connect the violet wire Manual ACC of the 26pin PNP power/CAN cable to the +12V-+24V S contact (terminal 86s) or ACC terminal 15r (e.g. cigarette lighter, glove compartment lighting).

Notes

- The screen is only switched on as long as the video interface is switched on via +12V on Manual ACC. Otherwise, the factory picture is also black. When selecting the switch-on signal, it must be checked whether the factory picture is available in all desired operating states.
- The display of movable guide lines for rear-view camera is omitted with analogue connection.
- If the interface is connected analogue (without CAN bus), the rear-view camera and side cameras must also be connected analogue. see points:

Case 2: Reverse gear signal via reversing light – analogue connection

Case 2: Turn signals analogue connection

Power supply outputs

The two red and green power supply lines ACC out 12V (max 3A) and CAM Power 12V (max 3A) of the 20 pin interface cable can either be used as ACC power supply for the external video sources (e.g. iOS/Android devices, laptop, streaming stick, DVB-T2 tuner) connected to V1-Left, V2-Right, V3-Front or HDMI input*, or as power supply for the after-market cameras (e.g. side, front and rear view camera) connected to V1-Left, V2-Right, V3-Front, V4-Reverse or HDMI input* (e.g. side, front and rear-view cameras).
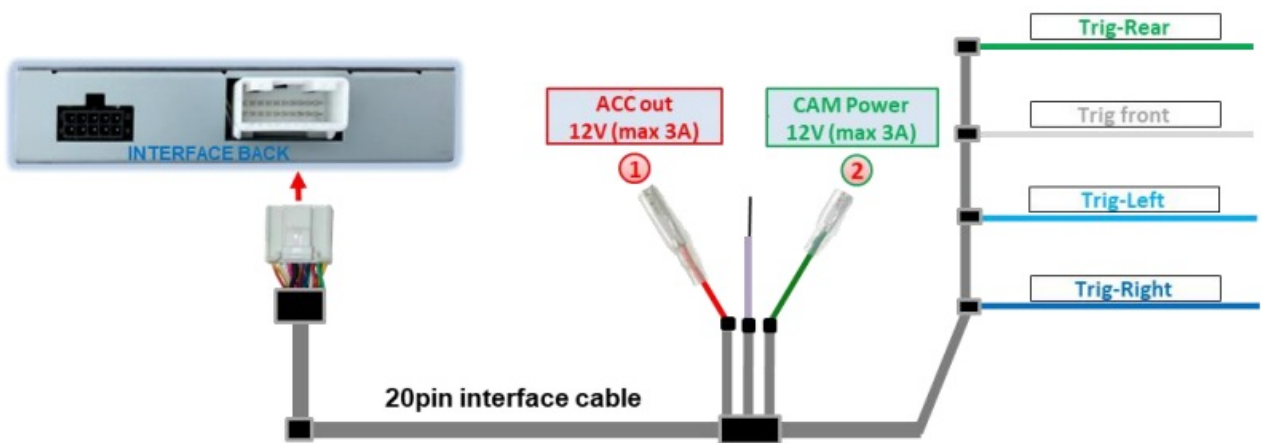
External video sources (no cameras) can be supplied with power via the red ACC out 12V (max 3A) power supply line of the 20pin interface cable. The wire carries a permanent +12V ACC switching output current while the interface is switched on (see the following chapter for connection diagrams). The power supply for after-market cameras (e.g. rear-view, side and front cameras) can be provided via the green CAM Power 12V (max 3A) power supply line of the 20pin interface cable. The wire carries +12V switching output current only as long as one of the camera inputs is displayed, regardless of whether the connection is made via the vehicle CAN bus or via one of the trigger wires (see the following chapter for connection diagrams).

* HDMI input only available with HDV-MBN7

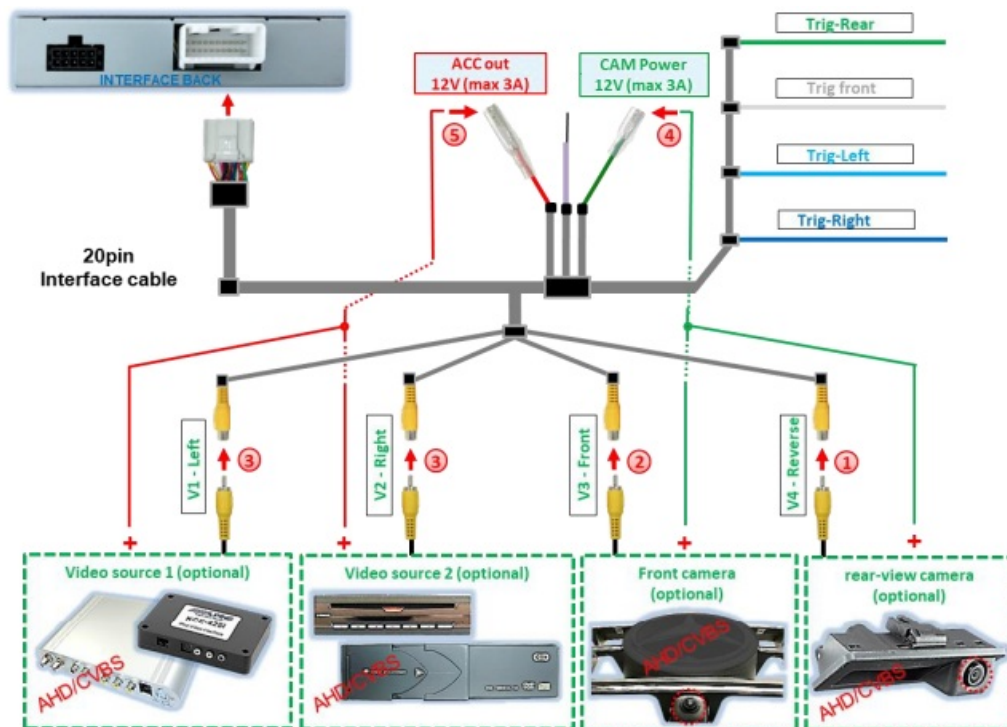**Connection and power supply – Video sources Rear-view camera, front camera and 2 side cameras**
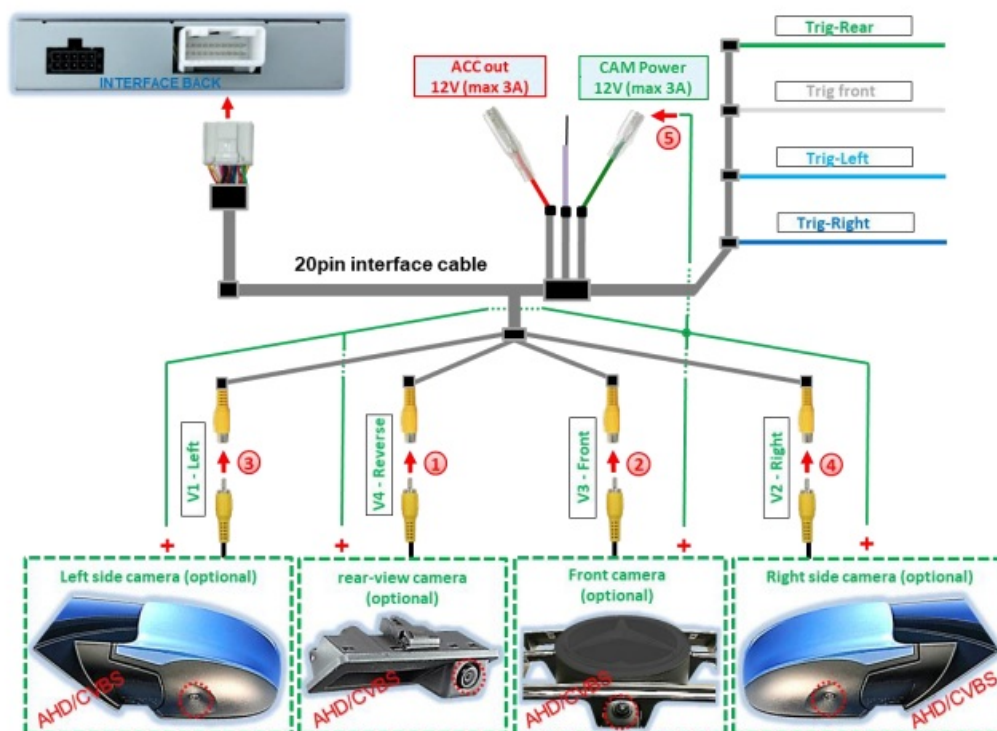
- Connect the RCA male connector of the rear-view camera to the V4 reverse RCA female connector of the 20pin interface cable.
- Connect the RCA male connector of the front camera to the RCA V3 front female connector of the 20pin interface cable.

- Connect the RCA male connector of the left side camera to the RCA female connector V1-Left of the 20pin interface cable.
- Connect the RCA male connector of the right side camera to the RCA female connector V2-Right of the 20pin interface cable.
- Connect the power supply for all after-market cameras to the green wire CAM Power 12V (max 3A) of the 20pin interface cable.

Note: The type of camera selection (via vehicle CAN bus or trigger lines) can be preset individually for each input in the OSD menu settings.

Connection and power supply – video sources
Rear-view camera, front camera and 2 video sources

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

Note: The type of camera selection (via vehicle CAN bus or trigger lines) can be preset individually for each input in the OSD menu settings.

After-market rear-view camera
Automatic switching to rear-view camera can be carried out via the CAN bus or an analogue +12V reverse gear signal.

Case 1: Reverse gear signal from CAN bus

The basic requirement is that the connection is made with CAN bus. Furthermore, the vehicle CAN bus reverse gear signal and detection by the interface must be compatible. Then the interface supplies +12V power while reverse gear is engaged on the green wire CAM Power 12V (max 3A) of the 20pin interface cable and the interface automatically switches to the rear-view camera input V4-Reverse or the HDMI input*. See also chapter 1.5 Settings – 8-position switch bench (interface functions).
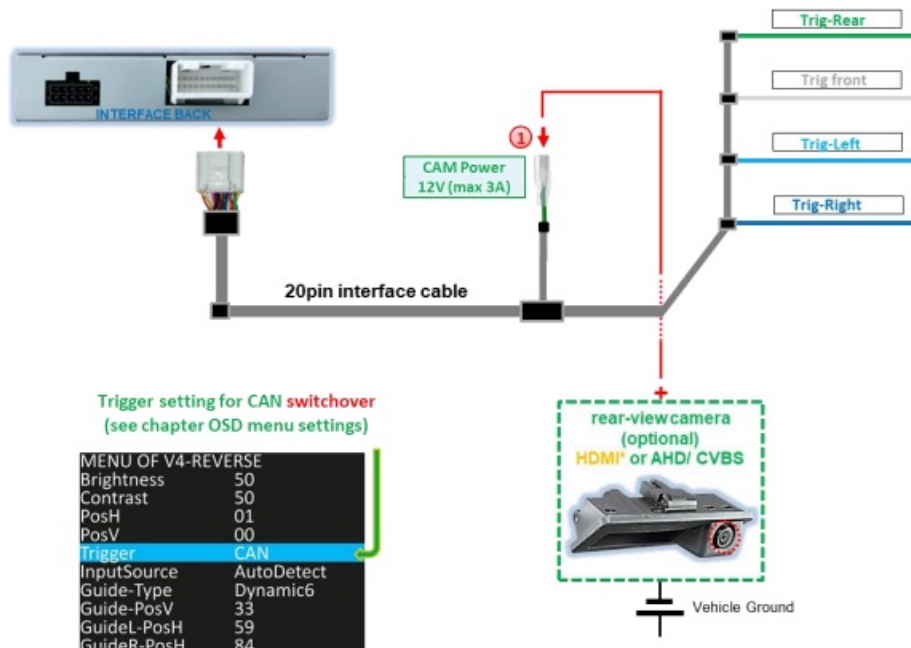

The +12V power supply for the after-market rear-view camera can be provided via the green wire CAM Power 12V (max 3A) of the 20pin interface cable, as voltage is only present on this wire when one of the video inputs is active (some cameras are not suitable for continuous operation).

Notes

- If the HDMI input* is defined as the rear-view camera input, the V4 reverse input has no function!
- If the reverse gear detection of the interface on the CAN bus does not work , the reverse gear signal must be connected analogue.

Case 2: Reverse gear signal via reversing light – analogue connection

If the interface does not supply +12V on the green wire CAM Power 12V (max 3A) of the 20pin interface cable when reverse gear is engaged (not all vehicles are compatible), an analogue switching signal (+12V) from the reversing light is required. As reversing lights often output voltages with 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 strongly recommended. The following diagram shows the use of a normally open relay.
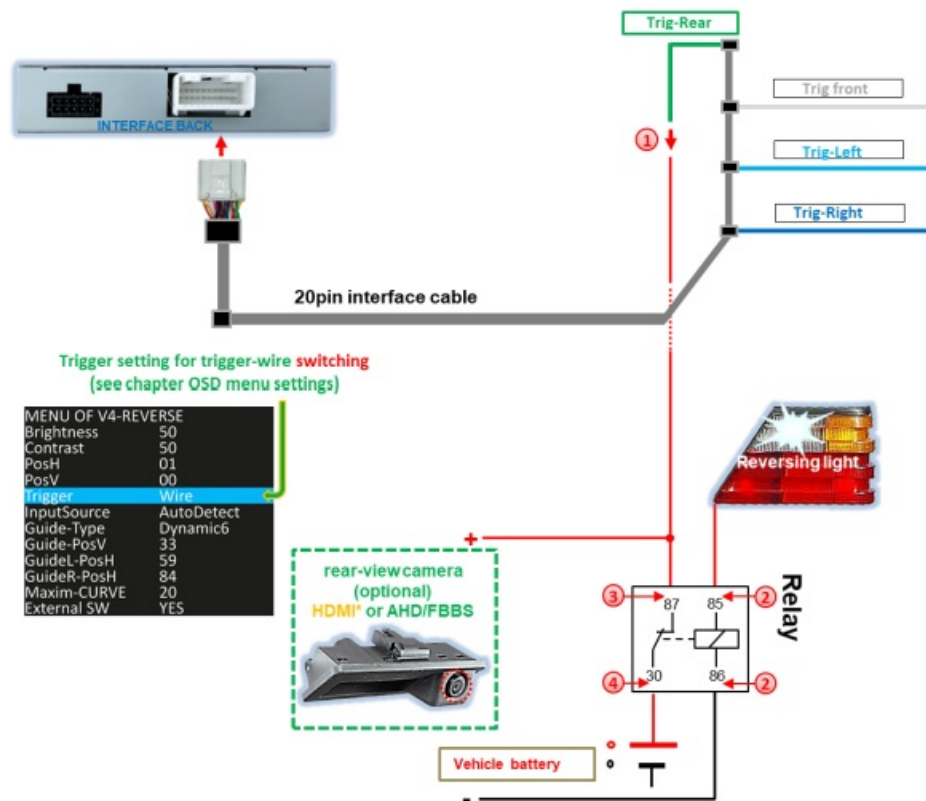
- Connect the green wire Trig-Rear to the output terminal (87) of the relay.
- Connect the reversing light connection cable to the switching coil terminal (85) and the vehicle Ground to the switching coil terminal (86) of the relay.
- Connect the rear-view camera power supply wire to the output terminal (87) of the relay, in addition to the green Trig-Rear wire.
- Connect continuous voltage +12V to the input terminal (30) of the relay.

After-market front camera
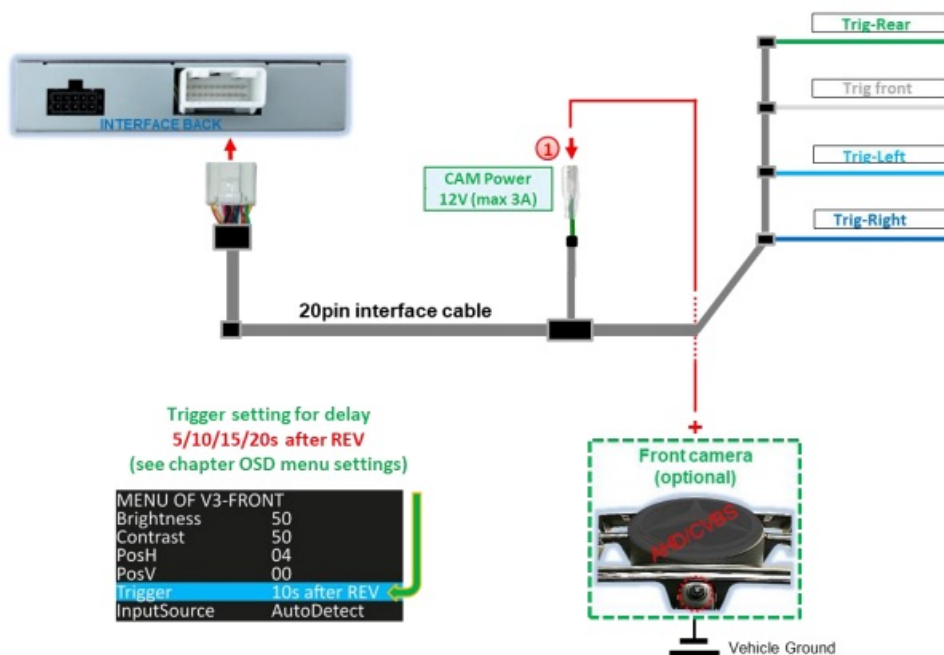
The green CAM Power 12V (max 3A) wire can be used to supply power to the front camera . This is only energised for the duration of the activation of one of the video inputs (some cameras are not suitable for continuous operation). Requirements for using the front camera is Dip 3 = ON (black 8 switch bench). The delay time can be selected in the OSD menu settings of the front camera for 5, 10, 15 or 20 seconds. Switching to front

camera after engaging reverse gear for the time set in the OSD menu takes place both with reverse gear signal from CAN bus and with analogue connection.

Note: In addition, manual switching to front camera input (short press) is possible from any picture mode using an external keypad (see chapter 3 Operating the video interface).

After-market side cameras

Side cameras can be connected with activation via CAN bus or analogue.

Case 1: Turn signals from CAN bus

The basic requirement is that the connection is made via CAN bus. In addition, the vehicle turn signals from the CAN bus must be recognised by the interface. Then +12V is present on the green CAM Power 12V wire (max 3A) of the 20pin interface cable for the duration of turn signal operations (right/left).
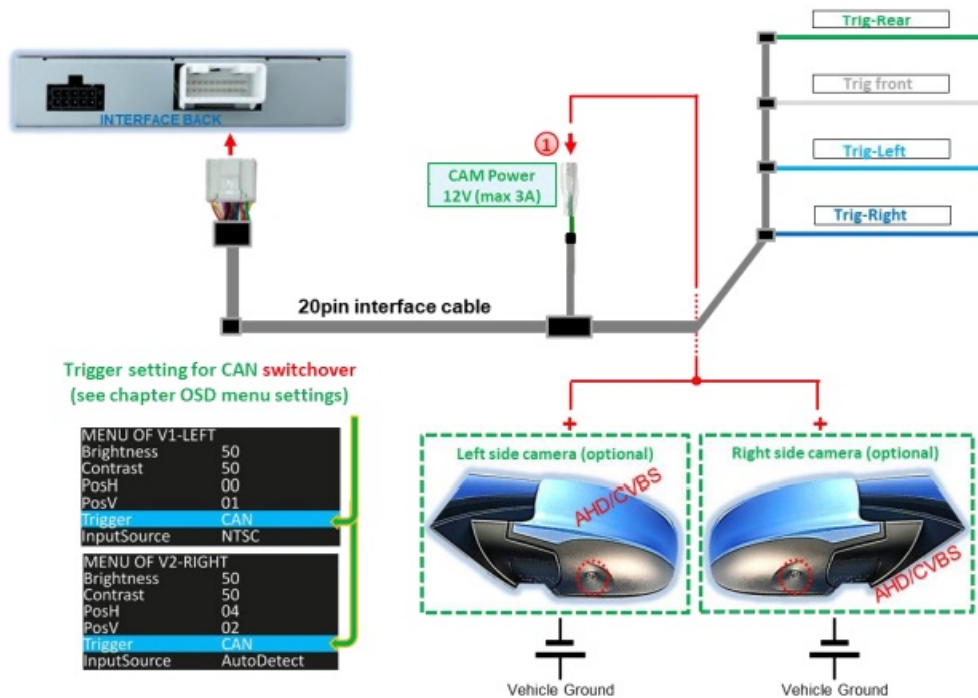

The power supply for the side cameras can be supplied via the green CAM Power 12V wire (max 3A) of the 20pin interface cable, as this wire is only energised during an active video input (some cameras are not suitable for continuous operation).

Note: If the turn signal detection of the interface on the vehicle CAN bus does not work, the turn signals must be connected in analogue form.

Case 2: Turn signals analogue connection

With an analogue connection, e.g. because signals from the vehicle CAN bus are not recognised, analogue activation of the side camera video inputs is possible via the +12V switching lines Trig-Left and Trig-Right. An analogue +12V 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 strongly recommended for each input. The following diagram shows the use of a normally open relay
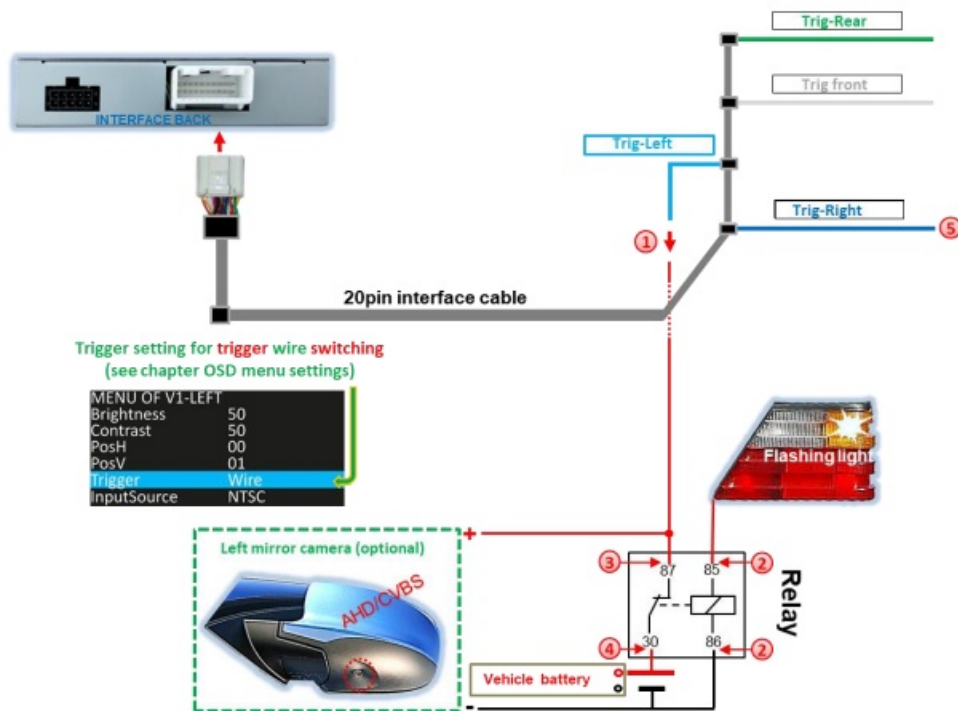
- Connect the light blue wire Trig-Left to the output terminal (87) of the relay.
- Connect the flashing light power cable of the left-hand flashing light to the switching coil terminal (85) of the relay and the vehicle ground to the switching coil terminal (86) of the relay.
- Connect the left side camera power cable to the output terminal (87) of the relay, in addition to the light blue Trig-Left wire.
- Connect continuous current +12V to input terminal (30) of the relay.
- The same connection method applies to the right side camera via the dark blue Trig-Right wire.

HDMI rear-view camera or other HDMI sources (HDV-MBN7 only)
The HDMI input* of the interface can generally be used for any video source connected to it with HDMI output (e.g. rear-view camera, 360° camera system or other video source such as smartphone, laptop, streaming stick DVB-T2 tuner, etc.).
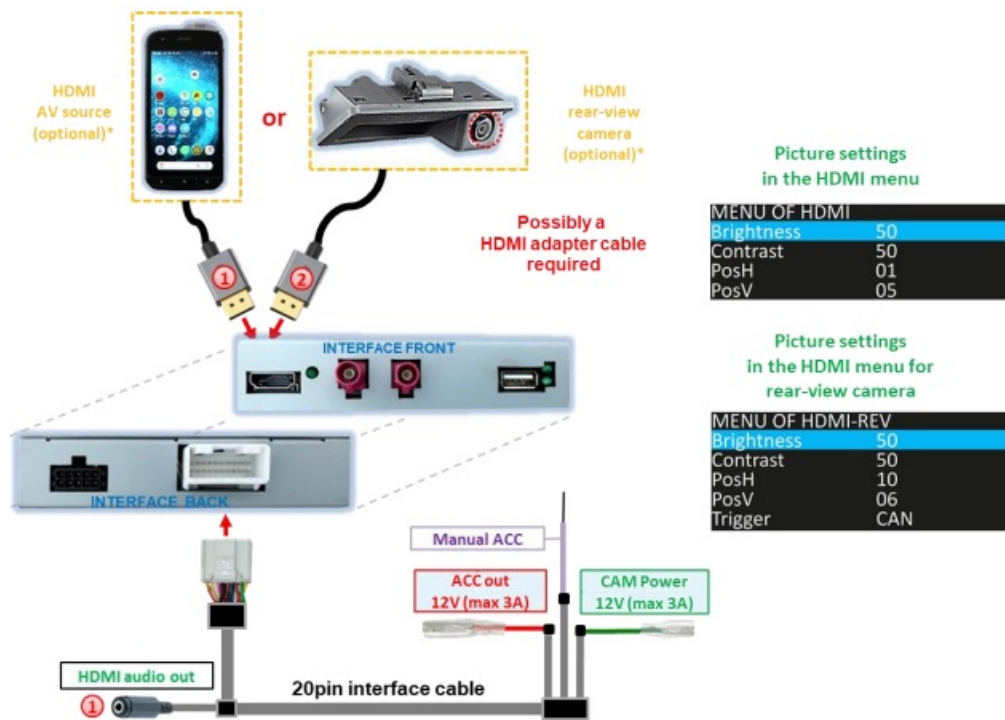
- If an optional video source is connected to the HDMI input*, the picture shown on the display of the source (e.g. smartphone, laptop, etc.) is mirrored on the vehicle monitor. Other sources (e.g. streaming stick, DVD player, DVB-T tuner, etc.) can also be displayed on the vehicle monitor. The video source can be supplied with power via the red wire ACC out 12V(max3A).

- HDMI audio signals are output via the 3.5 mm jack socket HDMI Audio out* of the 20pin interface cable. See the following chapter 2.10 Audio insertion.

- If a rear-view camera or a 360° camera system is connected to the HDMI input* (activated via CAN bus or analogue), the picture from the rear-view camera is displayed for the preset time while reverse gear is engaged and, after it has been laid out, the picture from a front camera connected to the front camera input V3-Front is also displayed. Power can be supplied via the green wire CAM Power 12V(max3A) .

Audio insertion
The interface can only insert video signals into the factory infotainment. Audio signals from the HDMI input* are output via the 3.5mm jack socket HDMI Audio out* of the interface. For all connected AV sources, their audio output must be connected to the factory AUX input (if available) or an optional Audio insertion (e.g. FM modulator). If several AV sources are connected to the infotainment, an additional audio switch may be necessary. Video signals fed in can be activated in parallel to any audio mode of the factory infotainment system. * HDMI input and HDMI audio out only available with HDV-MBN7

Connection – video interface and external keypad
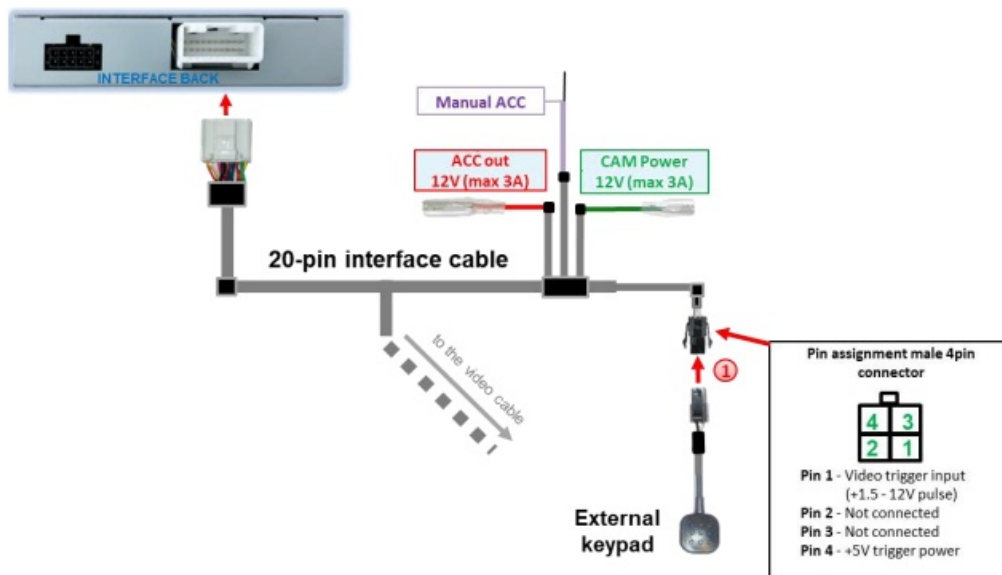
Connect the 4-pin female connector of the external keypad to the 4-pin male connector of the 20pin interface cable.

Note: Even if the keypad is not required for switching multiple sources, it is strongly recommended that it is connected to the interface and remains invisible. The keypad should then not be installed "pressed".

OSD menu settings
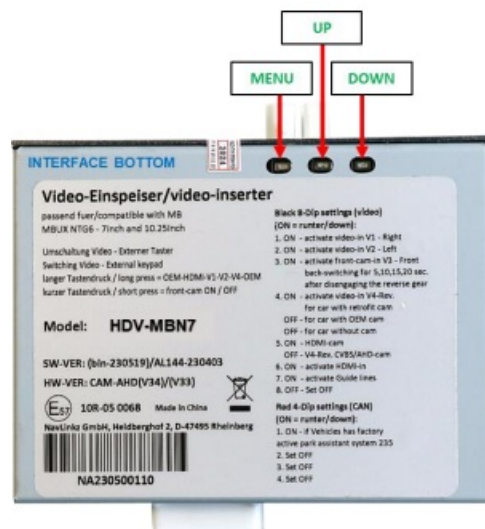
OSD menu settings can be changed using the 3 keypads on the back of the interface. MENU opens the OSD settings menu or moves the cursor to the next menu item. UP (UP) and DOWN (DOWN) change the values of the current menu item. The individual OSD settings menu of each video input can only be called up while it is displayed, regardless of whether a video source is connected. The following setting options are available in the OSD setting menus of the 5 video inputs:

Menu V1-Left (V2-Right)

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**)**"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)If the automatic setting of the video signal type does not work, it must be set manually. 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 OF V1-LEFT              MENU OF V2-RIGHT
Brightness      50           Brightness      50
Contrast        50           Contrast        50
PosH            00           PosH            04
PosV            01           PosV            02
Trigger         Wire         Trigger         CAN
InputSource     NTSC         InputSource     AutoDetect
```

V3 front menu

Brightness	Brightness
Contrast	Contrast
Item H	Horizontal image position
Item V	Vertical image position
Trigger	Type of selection of video input **V3 front**.**"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)If the automatic setting of the video signal type does not work, it must be set manually. 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 OF V3-FRONT
Brightness      50
Contrast        50
PosH            04
PosV            00
Trigger         10s after REV
InputSource     AutoDetect
```

Menu V4-Reverse

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**."**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)If the automatic setting of the video signal type does not work, it must be set manually. 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-MBN7

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

MENU OF HDMI
Brightness 50
Contrast 50
PosH 01
PosV 05

MENU OF HDMI-REV
Brightness 50
Contrast 50
PosH 10
PosV 06
Trigger CAN

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**.**"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.

- 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-MBN7

Operating the video interface

- The external keypad can be used to switch all activated inputs – including the input defined as the rear-view camera input.
- Long press of the keypad (2-3 seconds)
- The external keypad switches from factory video to the first activated interface video input with a long press (2-

3 seconds). Each further long press switches an activated interface video input until the last press switches back to factory video.

- Deactivated inputs are skipped. If all inputs are activated using the corresponding dip switch, the sequence is as follows:
- Factory picture   HDMI* V1-Left V2-Right V4-Reverse** Factory picture

Note: The interface only switches after the switch is released (after a long press).

- * HDMI input only available with HDV-MBN7
- **V4-Reverse can only be selected via the external keypad if the "External SW" function is set to "Yes" in the V4-Reverse menu.

Briefly press the keypad (only possible if dip 3 is ON)
The external keypad switches from the current video mode to the front camera input when pressed briefly.

input V3-Front and back to the previous video mode when pressed briefly again .

Note: Even if the keypad is not required for switching multiple sources, it is strongly recommended that it is connected to the interface and remains invisible.
The keypad should then not be installed "pressed".

Specifications

BATT/ACC range	9V - 16V
Stand-by power drain	approx. 5mA
Power consumption	280mA @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
Video box dimensions	117 x 25 x 109 mm (W x H x D)

Troubleshooting Interface functions – product-specific

Problem	Possible cause	Solution
Malfunction or no picture	Video input signal type for video source: Auto Detectionwithout function or manual setting in the OSD of the respective video input not correctly defined	See chapter *2.12 OSD menu settings* – Menu of the respective input

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 areoff).	Check whether CAN-bus box delivers +12 V 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 input sare 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.	
Inserted picture b/w.	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 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 sizes lightly 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, setinterface 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 ALL OFF 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 6 pin to 8 pincable 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 whitewire of 6pin to 8pin cable and isolate both ends.	

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.

Parksafe Group
Tel 01773 746592 Email **Technical@parksafegroup.com**

FAQ

- **Q: How do I troubleshoot specific functions of the Video interface CAMINTER21?**
- A: Refer to the troubleshooting section in the user manual for detailed guidance on product-specific issues.
- **Q: What should I do if I encounter general issues with the Video interface CAMINTER21?**

  A: For general troubleshooting, consult the user manual or contact technical support for assistance.

Documents / Resources

	PARKSAFE CAMINTER21 Video Interface [pdf] Owner's Manual CAMINTER21 Video Interface, CAMINTER21, Video Interface, Interface

References

- **User Manual**