

# **v.LOGiC Intelligent Solution Interface**

## **V4-NBT**

**Compatible for the F-series BMW with navigation system or radio and 6.5", 7", 8.8" or 10.25" monitor with 4+2pin HSD2 LVDS connector**



## Product features

- Plug and play media-controller with controls by factory infotainment (iDrive)
- Own on-screen display and setup
- No coding of vehicle/factory-infotainment necessary
- On 8.8" and 10.25" 24:10 ultrawide monitor 3 picture format modes (split-mode with factory video, 16:9, 16:9 zoom, full screen and full screen zoom)
- On 6.5" and 7" 16:9 monitor 2 picture format modes (full screen and zoom)
- 3 AV-inputs
- Controls of after-market devices (e.g. DVD-player, DVD-changer, ...) by factory infotainment (iDrive, see STA + Database for supported devices)
- 2 trigger outputs (+12V max. 1A), separately adjustable switching events (CAN, ACC, rear-view camera, reverse gear, external navigation)
- Video-in-motion
- Rear-view camera input
- Interactive lane lines
- Automatic switching to rear-view camera input on engagement of reverse gear from all operation modes
- AV3 can be used for front camera, automatic on parking operation, automatic return at 20km/h
- Manual switching to rear-view camera (only for vehicles with PDC button)
- Manual return from rear-view and front camera (cancellation of automatic switching)
- Picture-in-picture mode combining after-market rear-view and front camera picture(s) with factory parking sensor graphics
- Compatible with all factory video accessories (e.g. rear-view camera, Top-View, nightvision, DVD-changer, TV-tuner)
- Rear-seat-entertainment output for AV-sources connected to the interface
- USB update-port for software-updates by consumer

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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. This product should only be used while standing or 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. We offer free software-updates for our interfaces for one year after purchase. To receive a free update, the interface must be sent in at own cost. Labor cost for and other expenses 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 place of installation must be free of moisture and away from heat sources.

### 1.1. Delivery contents

*Take down the SW-version and HW-version of the interface boxes, and store this manual for support purposes.*



### 1.1. Check compatibility of vehicle and accessories

Requirements	
<i>Vehicle</i>	<b>1series (F20/F21), 3series (F30/F31/F32/F33), X3 (F25)</b> , all other <b>F-series</b> vehicles from approx 06/2012, <b>Mini Paceman 2014</b>
<i>Navigation</i>	F-series with navigation system or radio with 6.5", 7", 8.8" or 10.25" monitor with 4+2pin HSD2 LVDS connector
Limitations	
<i>Factory-USB-port</i>	The AUDIO connection is different if the vehicle is with factory USB-port, please see the note in chapter "Connection to the vehicle-AUX-input"!
<i>PDC / inter. lane lines</i>	"PDC – picture in picture" and "interactive lane lines" function is not simultaneously usable

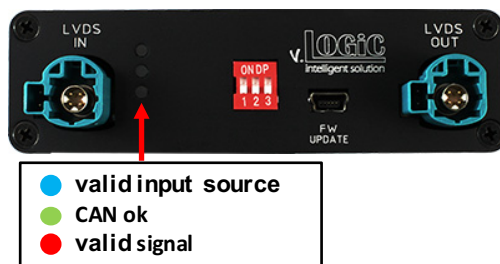
## 1.2. Setting the dip switches of the interface-box V4C-M637

Dip 1 on the back of the interface-box V4C-M637 are used to set the monitor type. The default setting is:

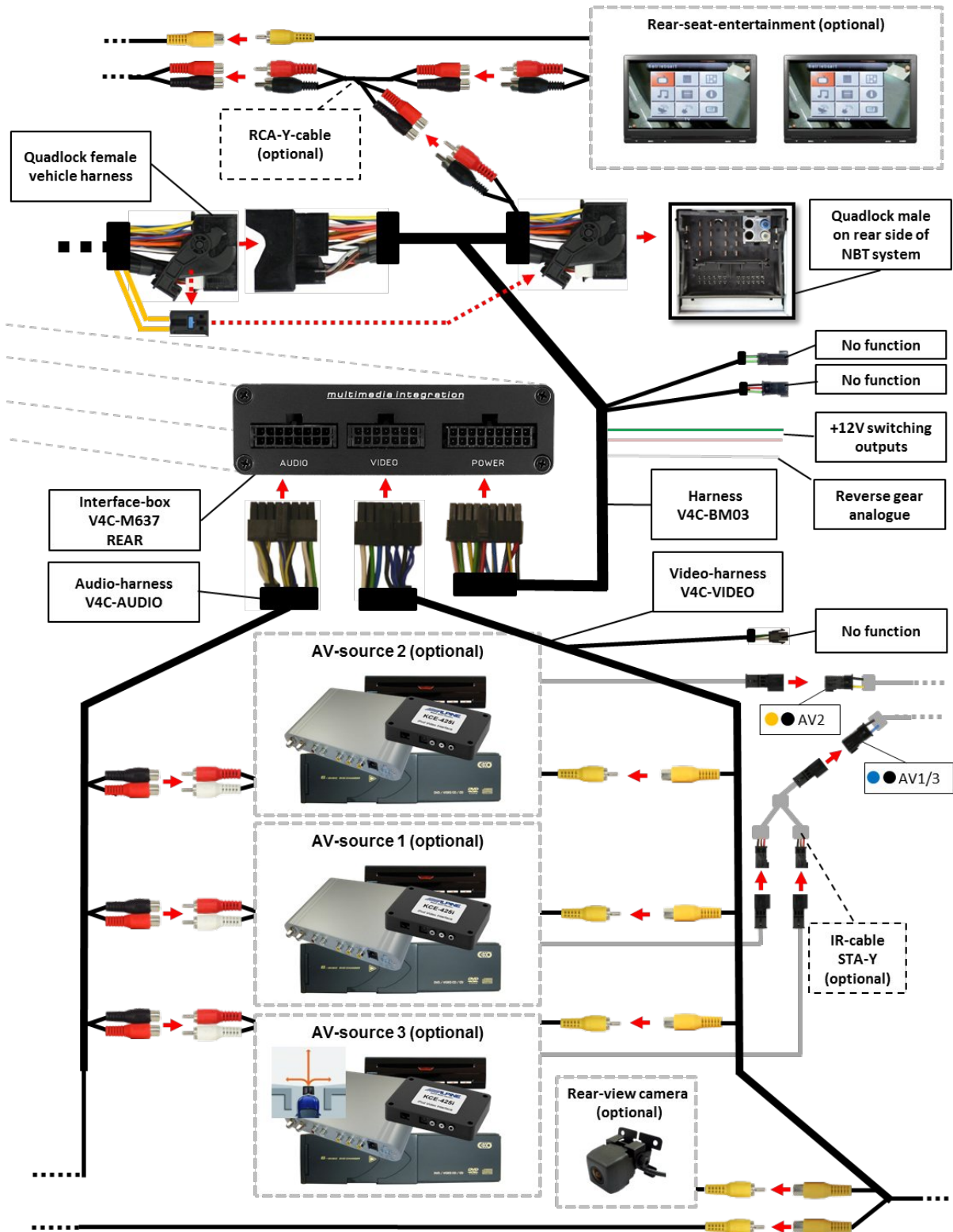
Vehicle/ navigation	Dip 1	Dip 2	Dip 3
6.5" monitor (ver.1)	OFF	OFF	OFF
6.5" monitor (ver.2)	OFF	OFF	ON
7" monitor (ver.1)	OFF	OFF	OFF
7" monitor (ver.2)	OFF	ON	OFF
8.8" monitor	ON	OFF	OFF
10.25" monitor (ver.1)	ON	OFF	OFF
10.25" monitor (ver.2)	ON	ON	OFF

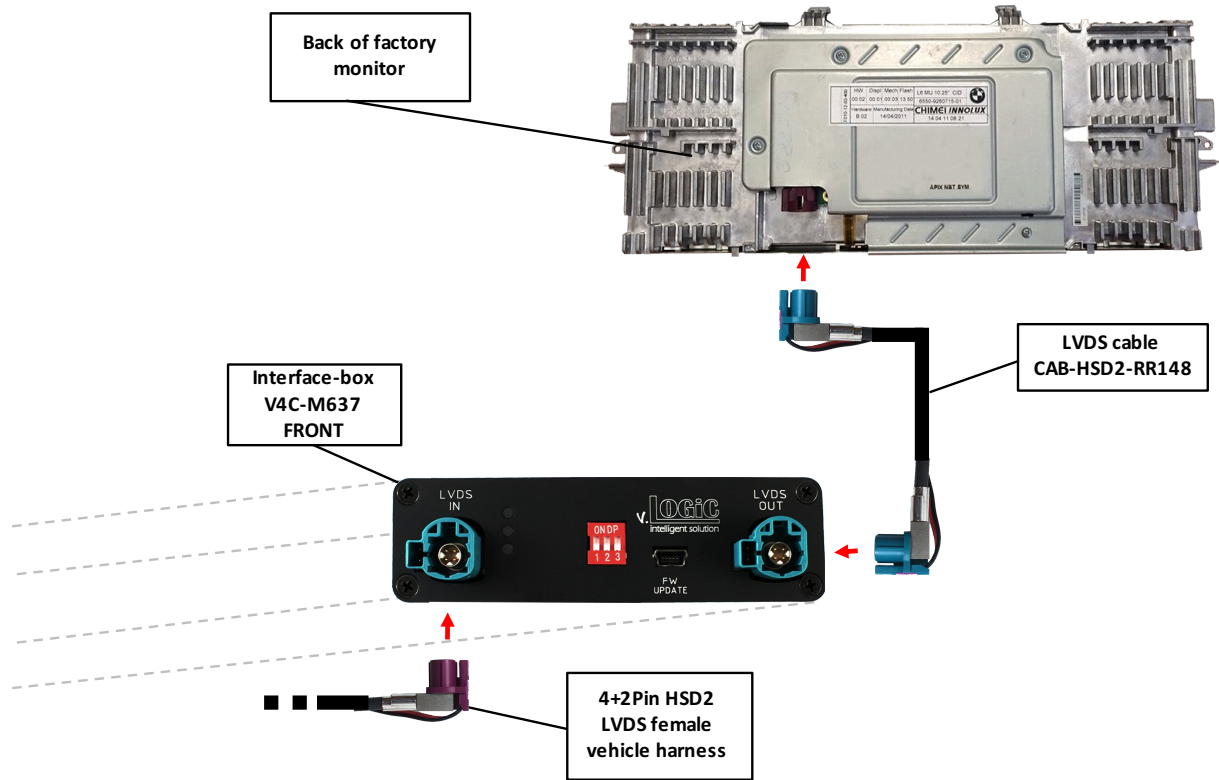
**After each change of the dip switch settings you have to execute a power reset of the interface-box!**

## 1.3. LED's of the interface-box V4C-M637



## 2. Connection schema







## 3. Installation

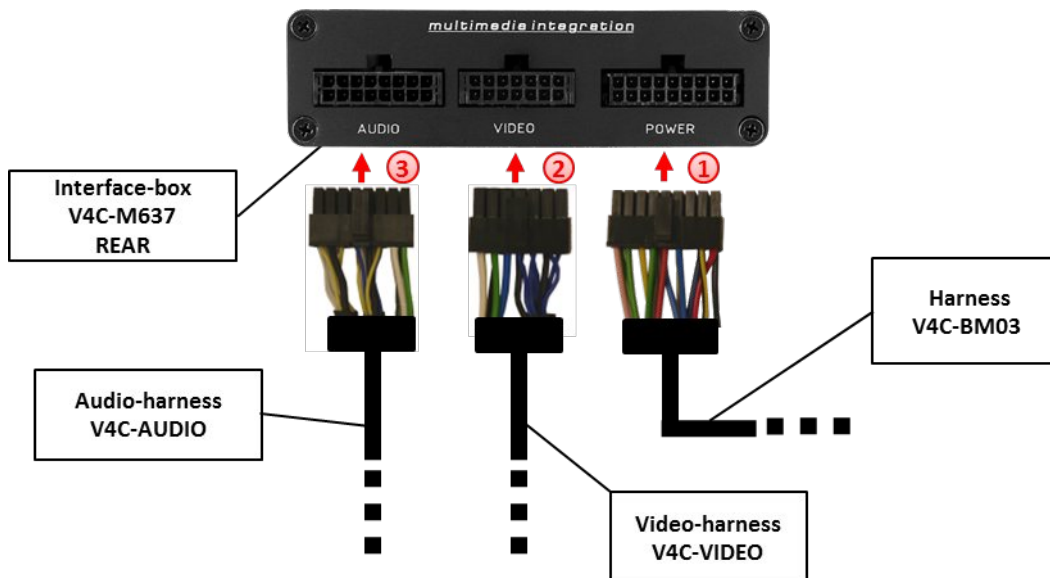
Switch off ignition and disconnect the vehicle's battery! The interface needs a permanent 12V source. If according to factory rules disconnecting the battery is to be avoided, it is usually sufficient to put the vehicle in sleep-mode. In case the sleep-mode does not show success, disconnect the battery with a resistor lead.

If power source is not taken directly from the battery, the connection has to be checked for being start-up proven and permanent.

Prior to wire and device installation we suggest to connect and test correct function of all after-market and factory infotainment equipment!

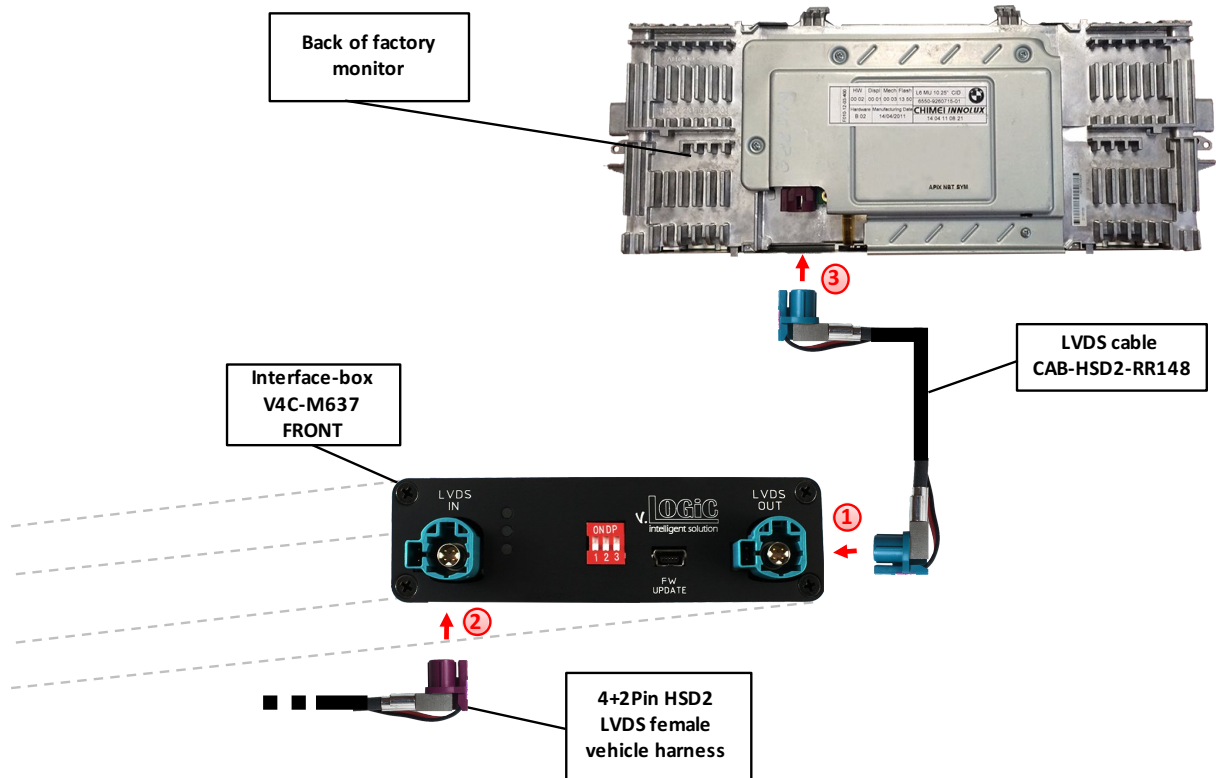
The interface is installed on the backside of the factory monitor and on the backside of the navigation computer.

### 3.1. Connecting interface-box and harnesses



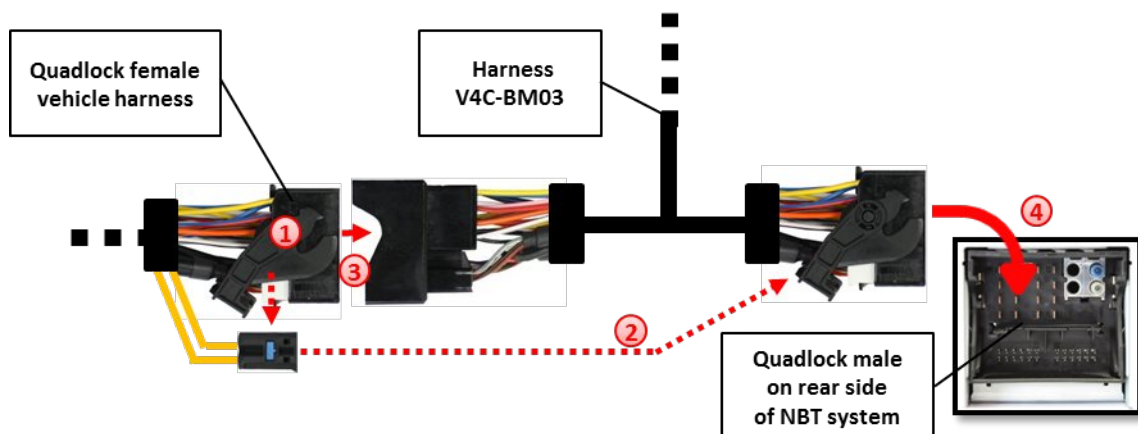
- 1 Connect female 18pin Micro-Fit connector of harness V4C-BM03 to the male 18pin Micro-Fit connector (POWER) on the front of the interface-box V4C-M637.
- 2 Connect female 14pin Micro-Fit connector of the video-harness V4C-VIDEO to the male 14pin Micro-Fit connector (VIDEO) on the rear of the interface-box V4C-M637.
- 3 Connect female 16pin Micro-Fit connector of the audio-harness V4C-AUDIO to the male 16pin Micro-Fit connector (AUDIO) on the rear of the interface-box V4C-M637.

## 3.2. Connection to the factory monitor



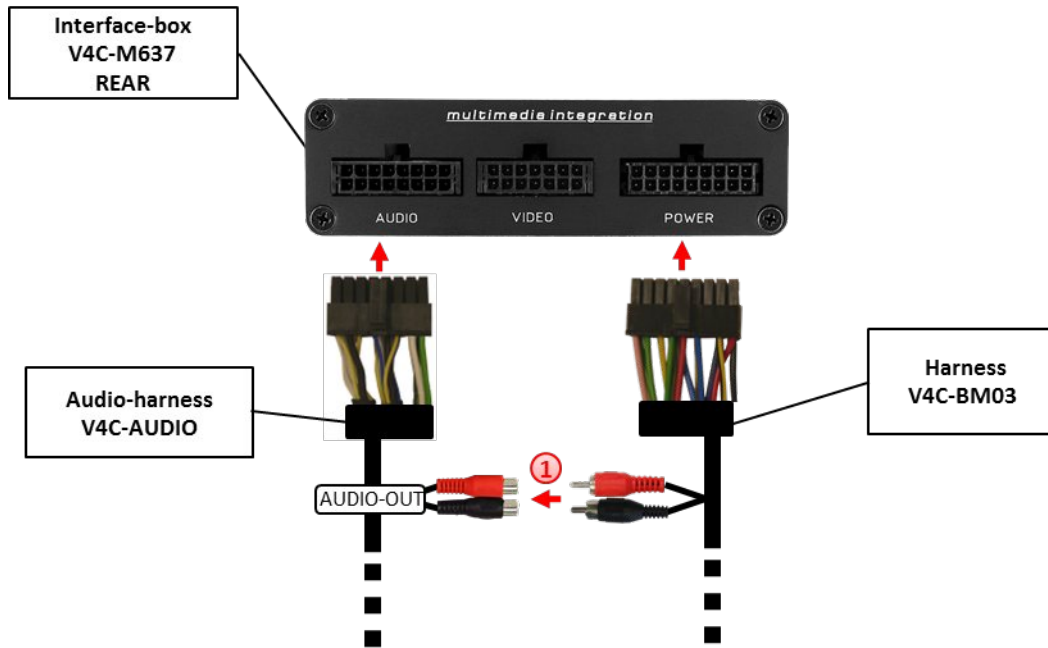
- ① Connect the female 4+2pin HSD2 LVDS connector of the LVDS cable CAB-HSD2-RR148 to the male 4+2pin HSD2 LVDS connector (LVDS-OUT) on the front of the interface-box V4C-M637.
- ② Remove the female 4+2pin HSD2 LVDS connector of the vehicle harness of the factory monitor and connect it to the male 4+2pin HSD2 LVDS connector (LVDS-IN) on the front of the interface-box V4C-M637.
- ③ Connect the second female 4+2pin HSD2 LVDS connector of the LVDS cable CAB-HSD2-RR148 to the male 4+2pin HSD2 LVDS connector of the factory monitor.

## 3.3. Quadlock connector



- ① Remove the female Quadlock connector of the vehicle harness from the rear of the navigation computer.
- ② Remove optical leads from the female Quadlock connector of the vehicle harness and insert them into the female Quadlock connector of harness V4C-BM03 at the same position.
- ③ Connect female Quadlock connector of vehicle harness to the male Quadlock connector of harness V4C-BM03.
- ④ Connect female Quadlock connector of harness V4C-BM03 to the male Quadlock connector of the navigation computer

## 3.4. Connection to the vehicle-AUX-input



- 1 Connect the audio-RCA of harness V4C-BM03 to the female RCA-connectors AUDIO OUT of the audio-harness V4C-AUDIO.

**Note:** If the vehicle is with factory USB-port, the AUDIO-OUT of the audio harness V4C-AUDIO **must be connected** to the Audio-AUX jack bush which is next to the USBport (instead of to the male RCA on V4C-BM03 harness).

If connecting a rear-set-entertainment an optional RCA Y-cable is plugged in between, see chapter "Rear-seat-entertainment"

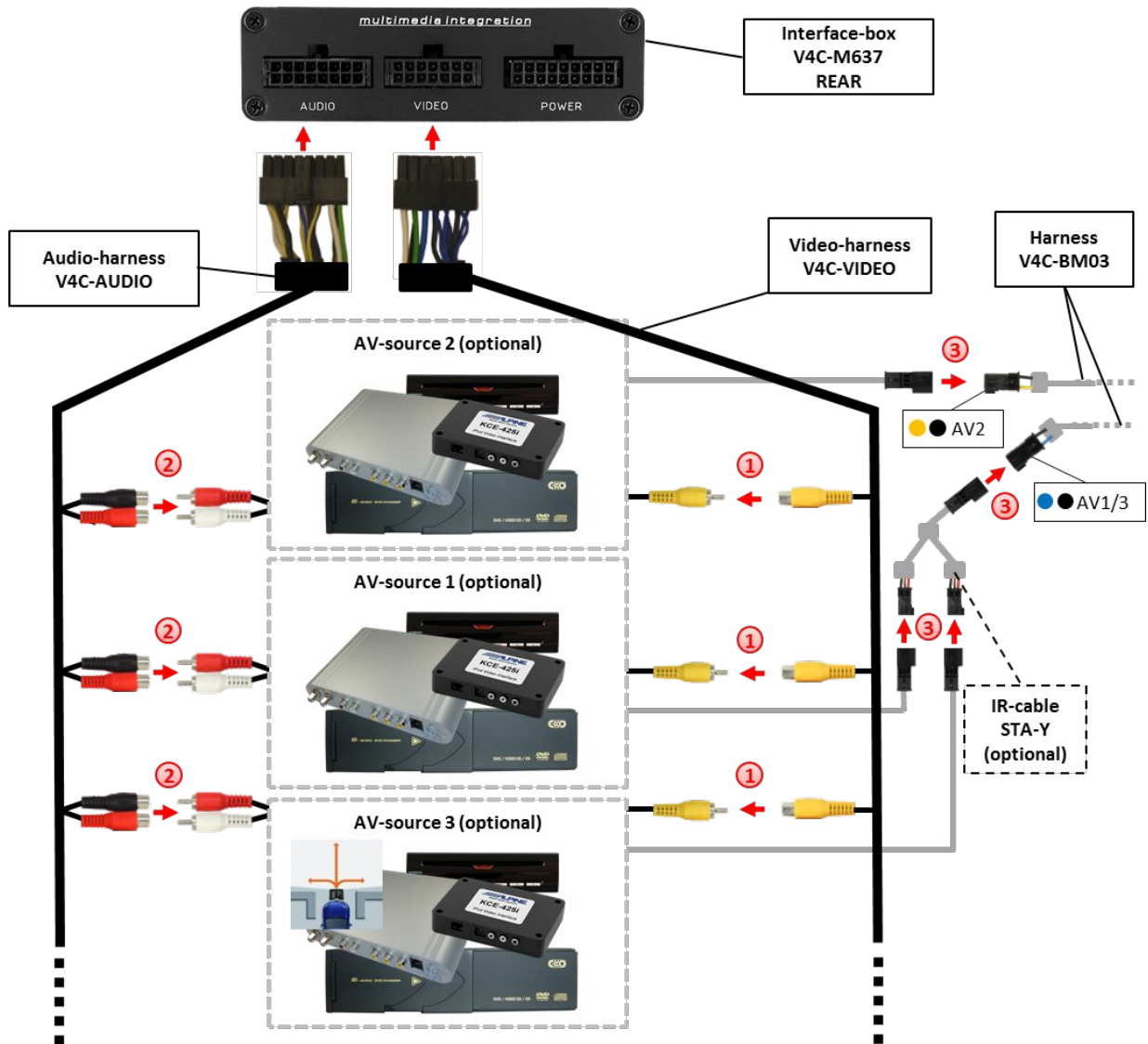
## 3.5. Connecting peripheral devices

It is possible to connect 3 after-market AV-sources, therefrom optional an an after-market front camera, an after-market rear-view camera, an after-market navigation and rear-seat-entertainment to the interface.

**Before final installation of the peripheral devices, we recommend a test-run to detect incompatibility of vehicle and interface. Due to changes in the production of the vehicle manufacturer is always the possibility of incompatibility.**

## 3.5.1. AV-source(s)

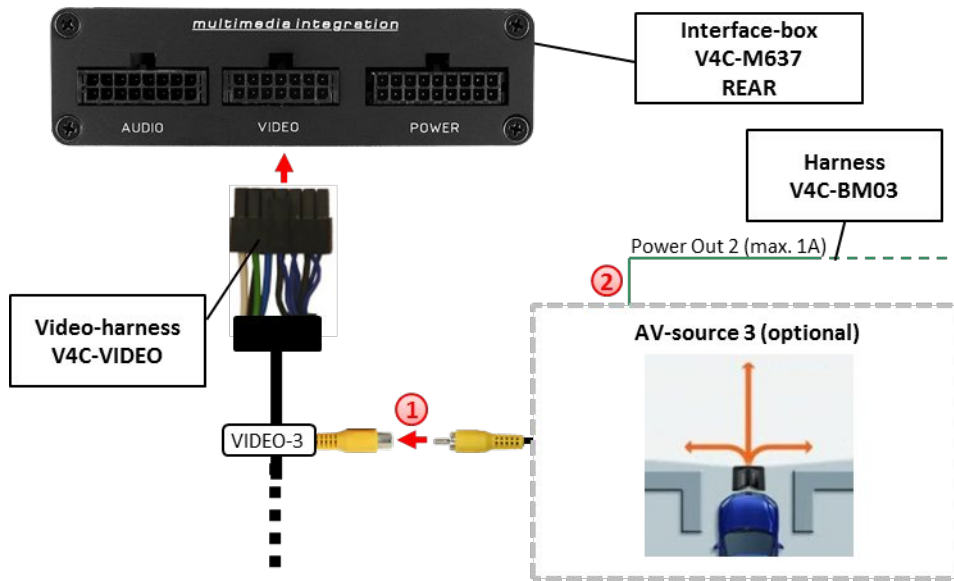
The interface has the possibility to connect and remotely control by navigation buttons 3 pre-programmed devices. The device list in the device control table (appendix A) shows the pre-programmed remote channels and the related IR-remote cables STA-xxx which must be ordered separately for the control of the device.



- ① Connect video RCA of AV-source 1 to female RCA connector VIDEO-1, the video RCA of AV-source 2 to female RCA connector VIDEO-2 and video RCA of AV-source 3 to female RCA connector VIDEO-3 of the video-harness V4C-VIDEO.
- ② Connect audio RCA of AV-source 1 to female RCA connectors AUDIO-1, the audio RCA of AV-source 2 to female RCA connectors AUDIO-2 and audio RCA of AV-source 3 to female RCA connectors AUDIO-3 of the audio-harness V4C-AUDIO.
- ③ Using the respective STA-xxx IR-control cable, interconnect the blue-black (yellow-black) female 3pin AMP connector of harness V4C-BM03 and the IR-port of the AV-source 1 (AV-source 2). If 3 AV-sources are connected, connect the optionally available IR-control cable STA-Y between the blue-black female 3pin AMP connector and the IR-ports of the AV-sources 1 and 3.

## 3.5.2. After-market front camera

### 3.5.2.1. Connection to the after-market front camera



- ① Connect the video RCA of the after-market front camera to the female RCA connector VIDEO-3 of the video-harness V4C-VIDEO.
- ② The green wire of harness V4C-BM03 can be used for +12V electric power supply (max. 1A) of the after-market front camera. Configure in the OSD-menu "OPTION", menu item "POWER OUT 2" the designated electric power supply (see chapter "Configurable switching outputs").



**Note:** The after-market front camera is always connected to AV3.

## 3.5.2.2. Settings for connecting an after-market front camera

You have to configure some settings in the OSD-menus INPUT and OPTION if you want to connect an after-market front camera (Operation of the OSD: see chapter "OSD-Operation").



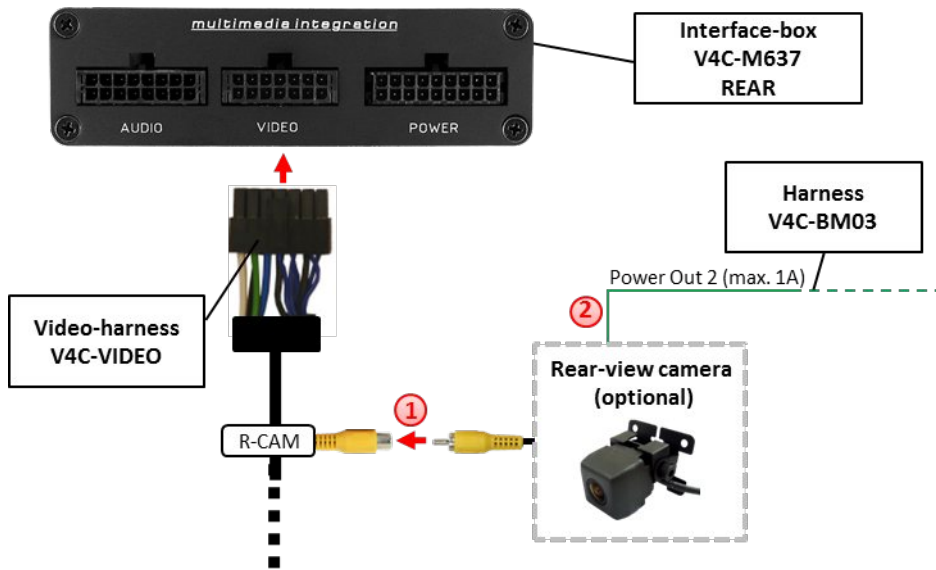
OSD-menu	Menu item	Setting	Explication
INPUT	AV3	OFF	The front camera is connected to AV3
	FVC	OFF	Keine Frontkamera angeschlossen
		ON	Switches to front camera if parking process is enabled and reverse gear is released
OPTION	PARK LOGIC	PDC	For vehicles with PDC button. Enabled while parking process and up to 20 km/h or together with PDC if existing
		RGearOnly	Enabled while parking process
		RGearSpeep	Enabled while parking process and up to 20 km/h
		RGearTime	Enabled while parking process and up to 20 second
	RVC GRAPHIC	PIP1	OEM PDC display of the vehicle

**Note:** You can deactivate the enabled parking process by pressing the iDrive or by enabling other modes (e.g. radio). After deactivation you can't enable the parking process again until the vehicle is diving faster than 20km/h, the ignition is switched off and on or the PDC will be disabled and enabled again, if existing.



## 3.5.3. After-market rear-view camera

### 3.5.3.1. Connection to the after-market rear-view camera



- 1 Connect the video RCA of the after-market rear-view camera to the female RCA connector of the video-harness V4C-VIDEO.
- 2 The green wire of harness V4C-BM03 can be used for +12V electric power supply (max. 1A) of the after-market rear-view camera. Configure in the OSD-menu "OPTION", menu item "POWER OUT 2" the designated electric power supply (see chapter "Configurable switching outputs").





### 3.5.3.2. Settings for connecting an after-market rear-view camera

You have to configure some settings in the OSD-menus INPUT and OPTION if you want to connect an after-market rear-view camera (Operation of the OSD: see chapter “OSD-Operation”).



OSD-menu	Menu item	Setting	Explication
INPUT	RVC	OFF	No rear-view camera connected
		ON	Switches to rear-view camera if reverse gear is engaged and/or PDC-display is displayed
OPTION	PARK LOGIC	PDC	For vehicles with PDC button. Enabled while parking process and up to 20 km/h or together with PDC if existing
		RGearOnly	Enabled while parking process
		RGearSpeep	Enabled while parking process and up to 20 km/h
		RGearTime	Enabled while parking process and up to 20 second
	RVC GRAPHIC	PIP1	OEM PDC display of the vehicle activated
		LINES	Interactive lane lines activated

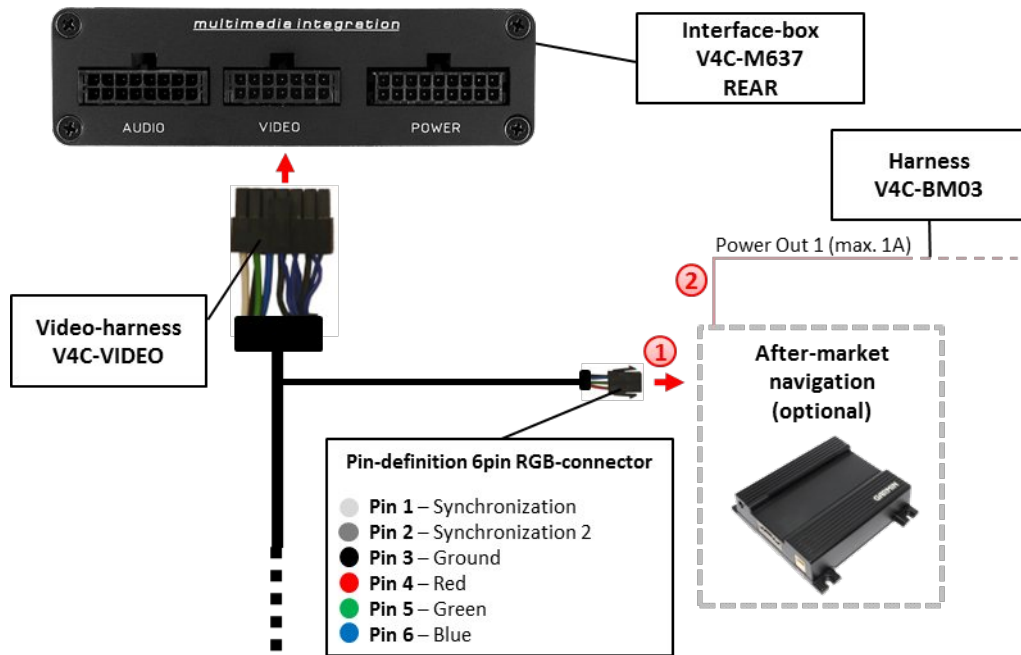
**Note:** You can deactivate the enabled parking process by pressing the iDrive or by enabling other modes (e.g. radio). After deactivation you can't enable the parking process again until the vehicle is driving faster than 20km/h, the ignition is switched off and on or the PDC will be disabled and enabled again, if existing.

### 3.5.3.3. Settings for OEM rear-view camera

OSD-menu	Menu item	Setting	Explication
INPUT	RVC	OEM	If a factory rear-view camera is existing! The interface turns off, if PDC or reverse gear is enabled and it displays factory rear-view camera and/or PDC-display
OPTION	PARK LOGIC	PDC	For vehicles with PDC button. Enabled while parking process and up to 20 km/h or together with PDC if existing

## 3.5.4. After-market navigation

### 3.5.4.1. Connection to the after-market navigation by RGB



① Connect the male 6pin connector of the video-harness V4C-VIDEO to the after-market navigation.

② The pink wire of harness V4C-BM03 can be used for +12V switching voltage (max. 1A) of the after-market navigation. Configure in the OSD-menu MISC, menu item POWER OUT 1 to “ACC” (see chapter “Configurable switching outputs”).



**Note:** It is possible to connect the after-market navigation to an AV-input alternatively.

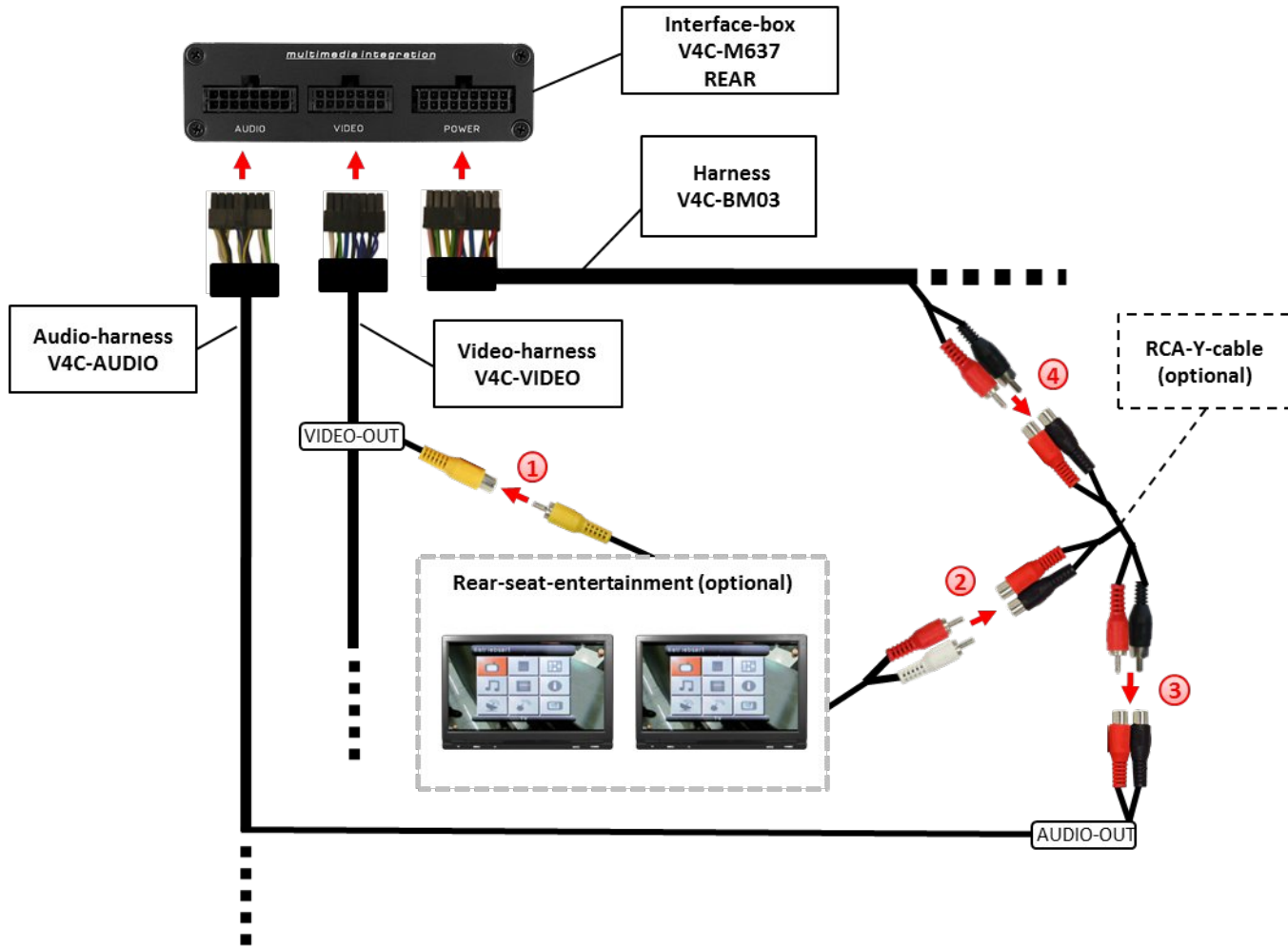
## 3.5.4.2. Settings for connecting an after-market navigation by RGB

You have to configure some settings in the OSD-menu INPUT if you want to connect an after-market navigation (Operation of the OSD: see chapter “OSD-Operation”).



OSD-menu	Menu item	Setting	Explication
INPUT	RGB	OFF	No after-market navigation connected
		800x480	After-market navigation connected by RGB

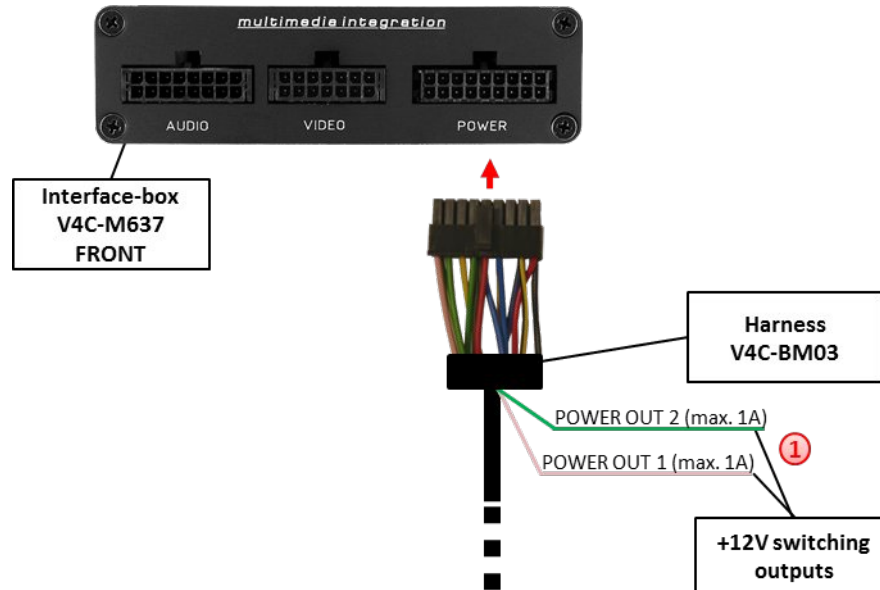
## 3.5.5. Rear-seat-entertainment



- ① Connect the video RCA of the rear-seat-entertainment to the female RCA connector VIDEO-OUT of video-harness V4C-VIDEO.
- ② Connect the audio-RCA of the rear-seat-entertainment to the female RCA connectors of the optional RCA-Y-cable.
- ③ Connect the audio RCA of the optional RCA-Y-cable to the female RCA connectors AUDIO OUT of the audio-harness V4C-AUDIO.
- ④ Connect the audio RCA of harness V4C-BM03 to the female RCA connectors of the optional RCA-Y-cable.

**Note:** The last source keeps active on rear-seat-entertainment if you switch the navigation to OEM mode.

## 3.5.6. Configurable trigger outputs



① You can configure the both +12V trigger outputs separately. The pink wire is POWER OUT 1 and the green wire is POWER OUT 2.

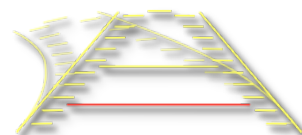
**Note:** You can configure the both trigger outputs in the OSD-menu OPTION separately (Operation of the OSD: see chapter “OSD-Operation”).



OSD-menu	Menu item	Setting	Explication
OPTION	POWER OUT1 (pink) POWER OUT2 (green)	CAN	+12V when the interface is on (red LED on)
		ACC	+12V when ignition is on
		CAM	+12V when the rear-view camera input (AV4) is activated
		RGEAR	+12V when reverse gear is engaged
		AVS	+12V when interface video-source is active (for external audio switch)
		OFF	Trigger putput deactivated

## 3.6. Interactive lane lines

You have to configure some settings in the OSD-menu OPTION if you want to activate interactive lane lines (Operation of the OSD: see chapter “OSD-Operation”).



OSD-menu	Menu item	Setting	Explication
OPTION	RVC LINES	LINES	Interactive lane lines activated
	CAR TYPE	1/2/3/4/5/6/7/ X1/X3/X4/X5/X6/ Z4/i3	Vehicle type selection

Note: “PDC – picture in picture” and “interactive lane lines” function is not simultaneously usable.

## 3.7. Picture settings

The picture settings and picture format can be changed in the OSD menu (activation only possible from interface AV level by **long pressing** the **OPTION -button**). In addition, the RC code can also be set.



The following options are available:

- IR Code
- Brightness
- Contrast
- Saturation
- Hue
- Sharpness

◦ Format =

- 8.8" and 10.2" 24:10 ultrawide monitor:

- FULL = 24:10 video full screen mode
- ZOOM = 24:10 video full screen mode zoom
- AV+LVDS = 16:9 video on left side, factory picture on right side

- 6.5" and 7" 16:9 monitor:

- FULL = 16:9 video full screen mode
- ZOOM = 16:9 video full screen mode - zoom

IR Code	41
Format	FULL
Brightness	50
Contrast	50
Stauration	50
Hue	50
Sharpness	50

**Note:** The picture / format/ RC code settings will be retained for each AV-source separately.



## 4. Operation

### 4.1. OSD – On-screen display

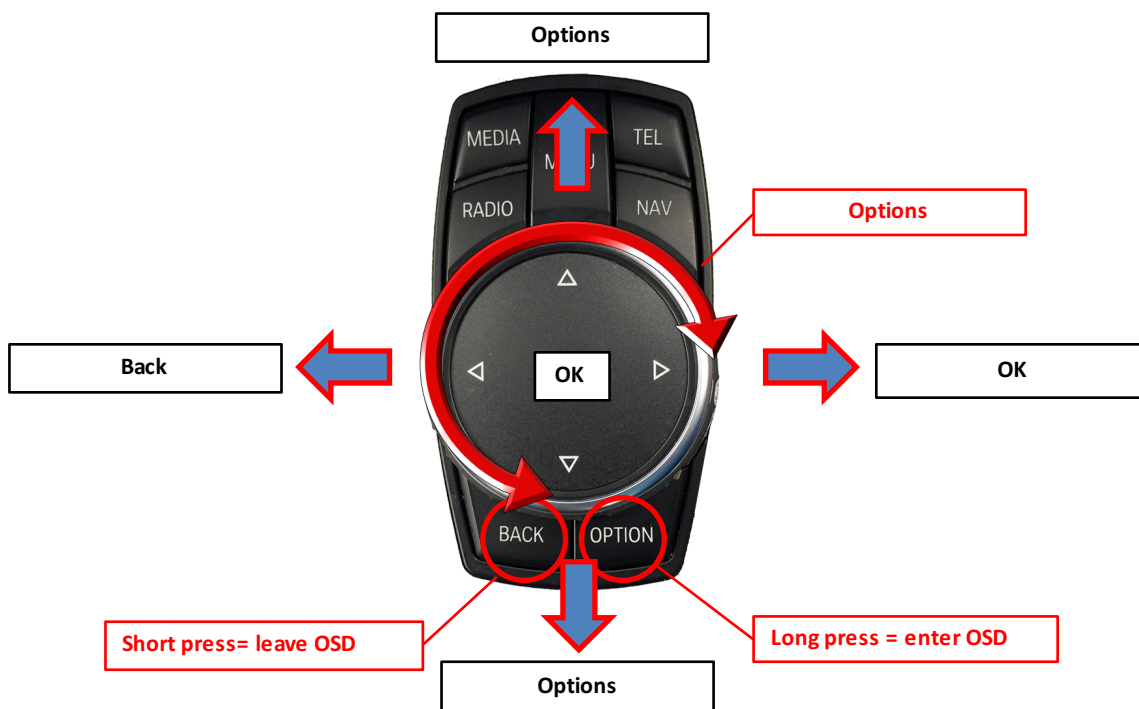
You can change the basic configurations of the interface in the OSD (on screen display).



#### 4.1.1. OSD – Operation

You can control the OSD by iDrive.

##### 4.1.1.1. iDrive High





## 4.1.1.2. iDrive Low



## 4.1.2. iDrive selection

OSD menu „OPTION“ – „IDRIVE“ is for setting the right iDrive control knob.



OSD-menu	Menu item	Setting	Explication
OPTION	IDRIVE	LOW	Vehicles with iDrive Low control knob
		HIGH	Vehicles with iDrive High control knob



iDrive High



iDrive Low

## 4.1.3. OSD – Additional setting options

The following settings in the OSD-menus OPTION and OSD can be configured over and above the described settings in this manual (Operation of the OSD: see chapter “OSD-Operation”):



OSD-menu	Menu item	Setting	Explication
OSD	POS. X	0-xxx	Horizontal position of the OSD
	POS. Y	0-xxx	Vertical position of the OSD
	SIZE	SMALL	Small OSD menu windows
		LARGE	Large OSD menu windows
	OsdTimeOut	01-20	OSD menu timeout
INFO	VERSION	X.XX.XX	Displays the current SW-version
OPTION	FACTORY RESET		Resetting to factory settings

## 4.2. Video-in-motion function

It is possible to activate and deactivate the video-in-motion in the OSD menu “OPTION” (Operation of the OSD: see chapter “OSD-Operation”).



OSD-menu	Menu item	Setting	Explication
OPTION	VIM	ON	Video-in-motion activated
		OFF	Video-in-motion deactivated

## 4.3. Selecting the interface as current AV-source



In the vehicle's **CD/Multimedia > External devices** menu, activate **AUX front** by iDrive and after it **long press MEDIA-button** respectively **long press AUDIO-button** to choose the interface as current AV-source.

**Short press MEDIA** button respectively **AUDIO** button to switch the AV-sources. Each short press will switch to the next enabled input. If all inputs are enabled the order is:

*AV1 → AV2 → AV3 → RGB → RVC → FVC → AV1 →...*

Inputs which are not enabled are skipped.

The exiting of the video interface level is achieved by **long press** of **BACK** button or **short press** of **RADIO / MENU / TEL / NAV** button.

## 4.4. Assigning device controls

You can assign the device controls in the OSD-menu INPUTS (Operation of the OSD: see chapter "OSD-Operation"). Assign related IR-codes AV1 for AV-source 1, AV2 for AV-source 2 and AV3 for AV-source 3 as described in device control table (see appendix A)

INPUT	AV1	41
OPTION	AV2	01
OSD	AV3	OFF
INFO	RGB	800x480
EXIT	RVC	0N
	FVC	0N
	BACK	

**Note:** The IR-control channel AV1 is preset to IR-Code 41 compatible DVB-T tuners

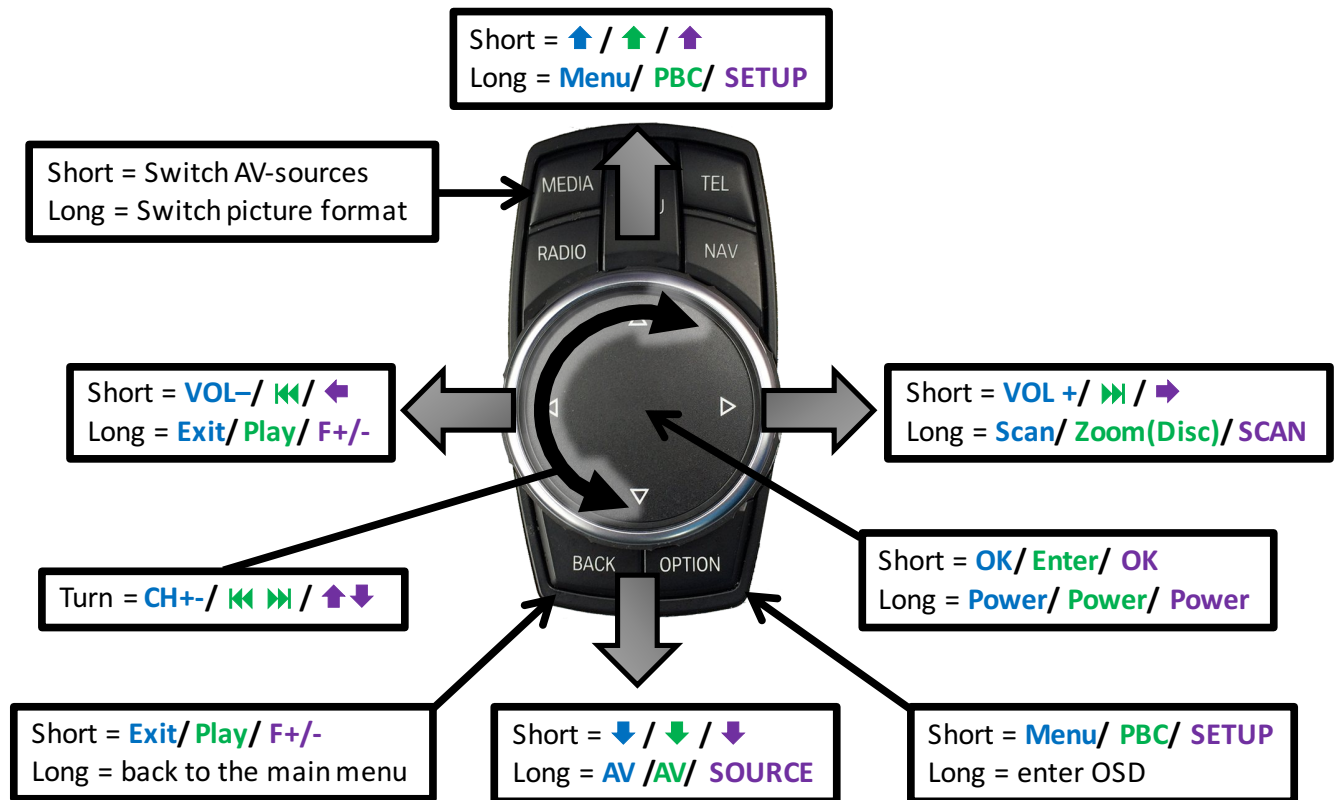
If you connect an AV-source without control you have to assign any IR code for the respective AV-input (AV1/2/3) because in the setting „OFF“ there is no picture visible.

## 4.5. Controlling of the connected AV-sources

The picture shows which functions of the connected devices can be executed by iDrive. Once an AV-input is activated the iDrive action will execute the function described in the picture. The function description equals the remote control buttons of the device's remote control. On the additional device the writing on the remote control buttons may vary (e.g. AV instead of Source).

### 4.5.1.1. Controlling by iDrive High

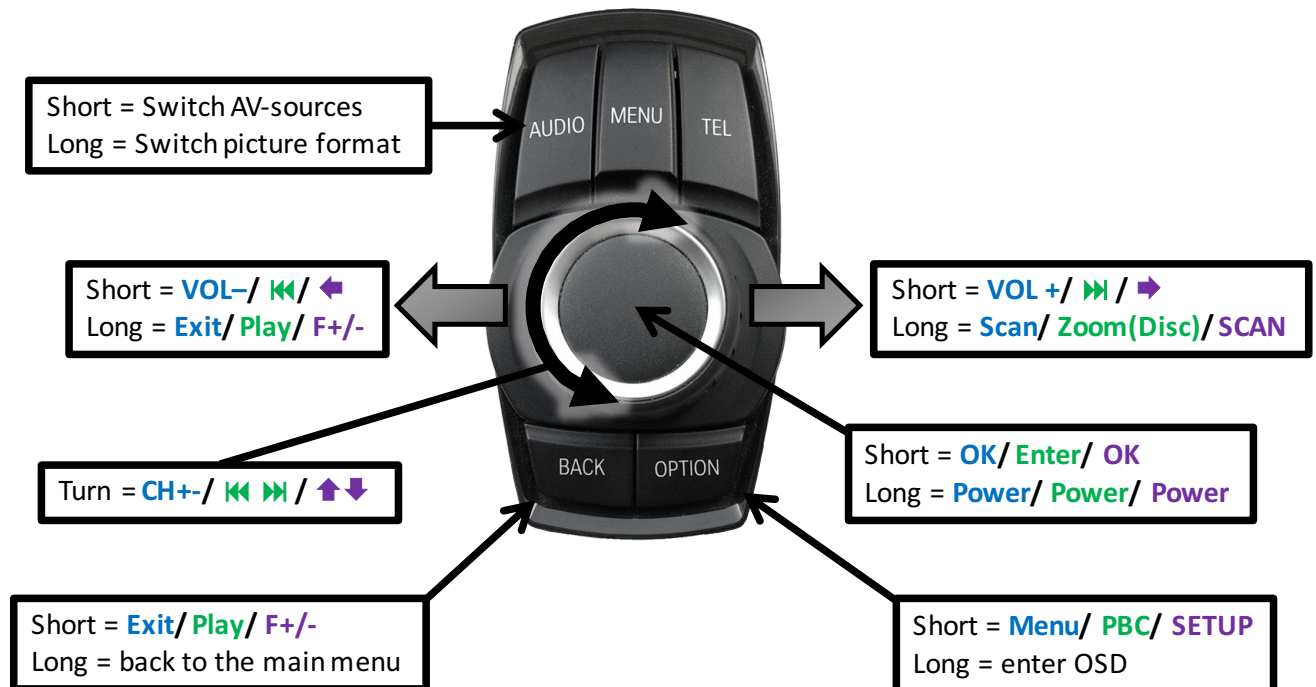
#### Controlling of AV-sources: DVB-T / DVD / DAB



**Note:** A few functions could be different on some connected devices.

## 4.5.1.2. Controlling by iDrive Low

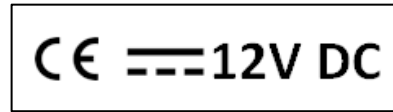
### Controlling of AV-sources: DVB-T / DVD / DAB



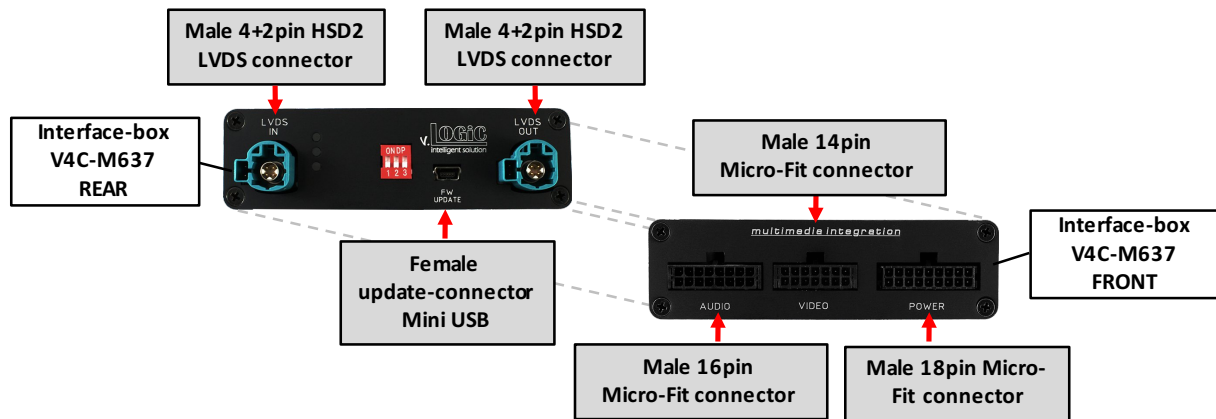
**Note:** A few functions could be different on some connected devices.

## 5. Specifications

Operation voltage	10.5 – 14.8V DC
Stand-by power drain	<0,1mA
Operation power drain	190mA
Power consumption	2,6W
Temperature range	-20°C to +80°C
Weight (box only)	285g
Measurements (box only) B x H x T	141 x 30 x 105 mm



## 6. Connections (interface-box)



## 7. Technical Support

**Caraudio-Systems Vertriebs GmbH**  
*manufacturer/distribution*  
In den Fuchslöchern 3  
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