# Manual

# v.LOGiC Intelligent Solution
## Interface

## CI-V4-NTG5

## Compatible with Mercedes Benz vehicles with COMAND Online NTG5/5.1 navigation and Audio20 NTG5/5.1 system with 4pin HSD LVDS connector

## Product features

- Plug and play media-controller with controls by factory infotainment
- Own on-screen display and setup
- 3 AV-inputs
- Controls of after-market devices (e.g. DVB-T Tuner, ...) by factory infotainment
- 2 trigger outputs (+12V max. 1A), separately adjustable switching events
- 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 30km/h
- Manual switching to rear-view camera
- Manual return from rear-view and front camera (cancellation of automatic switching)
- Compatible with all factory video accessories (e.g. rear-view camera, TV-tuner)
- Rear-seat-entertainment output for AV-sources connected to the interface
- USB update-port for software-updates by consumer

# Contents

## 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.*

Interface-box
V4C-M625
HW_____ SW_____

Harness
V4C-MBN5

LVDS cable
CAB-HSD-MF100

Interface box
TV-500

Video-harness
V4C-VIDEO

Audio-harness
V4C-AUDIO

LVDS cable
CAB-HSD-FF150

### 1.2. Check compatibility of vehicle and accessories

| Requirements | |
|---|---|
| *Navigation* | COMAND Online NTG5/5.1, Audio20 NTG5/5.1 with 4pin HSD LVDS connector on the monitor (<u>s-class W222 is not supported</u>) |
| **Limitations** | |
| *Audio AUX-IN* | For audio connection is additional hardware required. Please see the notes in chapter "Connection to the AUX-input"! |
| *Factory TV tuner* | Vehicles with factory TV tuner are not supported |

## 1.3. Setting the dip switches of the interface-box V4C-M625

Dip 1 on the back of the interface-box V4C-M625 are used to set the monitor type.
The default setting is:

| Head unit | Dip 1 | Dip 2 | Dip 3 |
|---|---|---|---|
| COMAND Online NTG5/5.1, Audio20 NTG5/5.1 (Hi resolution) | ON | No function | No function |
| Audio20 NTG5/5.1  (Low resolution) | OFF | No function | No function |

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

## 1.4. LED's of the interface-box V4C-M625



- 🔵 valid input source
- 🟢 CAN ok
- 🔴 valid signal

## 2. Connection schema

**Rear-seat-entertainment (optional)**

**Quadlock female vehicle harness**

**RCA-Y-cable (optional)**

**Quadlock male on rear side of head unit**

**No function**

**No function**

**+12V switching outputs**

**Interface box TV-500**

multimedia integration

AUDIO VIDEO POWER

**Interface-box V4C-M625 REAR**

**Harness V4C-MBN5**

**Audio-harness V4C-AUDIO**

**Video-harness V4C-VIDEO**

**No function**

**AV-source 2 (optional)**

🟡⚫ AV2

🔵⚫ AV1/3

**AV-source 1 (optional)**

**IR-cable STA-Y (optional)**

**AV-source 3 (optional)**

**Rear-view camera (optional)**

**LVDS cable**
**CAB-HSD-FF150**

**Interface-box**
**V4C-M625**
**REAR**

**Back of**
**head unit**

**LVDS cable**
**CAB-HSD-MF100**

**4-Pin HSD**
**LVDS female**
**vehicle harness**

## 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 is 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
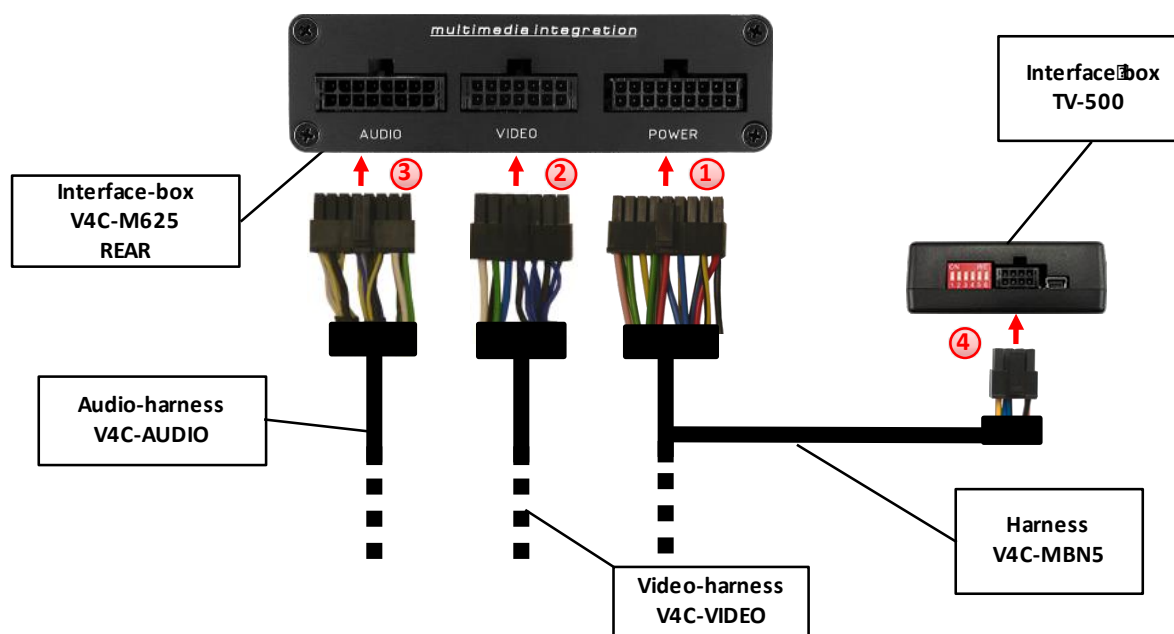


① Connect female 18pin Micro-Fit connector of harness V4C-MBN5 to the male 18pin Micro-Fit connector (POWER) on the front of the interface-box V4C-M625.

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-M625.

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-M625.

④ Connect female 8pin Micro-Fit connector of harness V4C-MBN5 to the male 8pin Micro-Fit connector on the interface-box TV-500.

### 3.2. LVDS connection
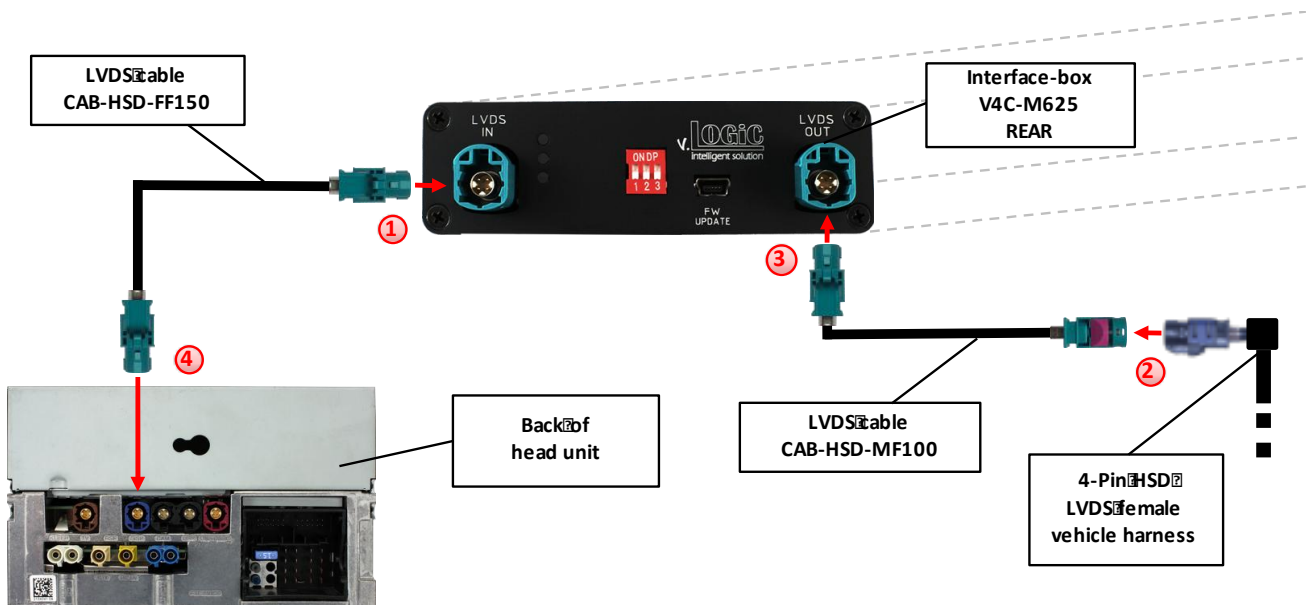


| | |
|---|---|
| ① | Connect the female 4pin HSD LVDS connector of the LVDS cable CAB-HSD-FF150 to the male 4pin HSD LVDS connector (LVDS-IN) on the rear of the interface-box V4C-M625. |
| ② | Remove the blue female 4pin HSD LVDS connector of the vehicle harness at the back of the head unit and connect it to the male 4pin HSD LVDS of the CAB-HSD-MF100 LVDS cable. |
| ③ | Connect the female 4pin HSD LVDS connector of the LVDS cable CAB-HSD-MF100 to the male 4pin HSD LVDS connector (LVDS-OUT) on the rear of the interface-box V4C-M625. |
| ④ | Connect the female 4pin HSD LVDS connector of the LVDS cable CAB-HSD-FF150 to the pink male 4pin HSD LVDS connector on the rear of the head unit. |

### 3.3.  Quadlock connector
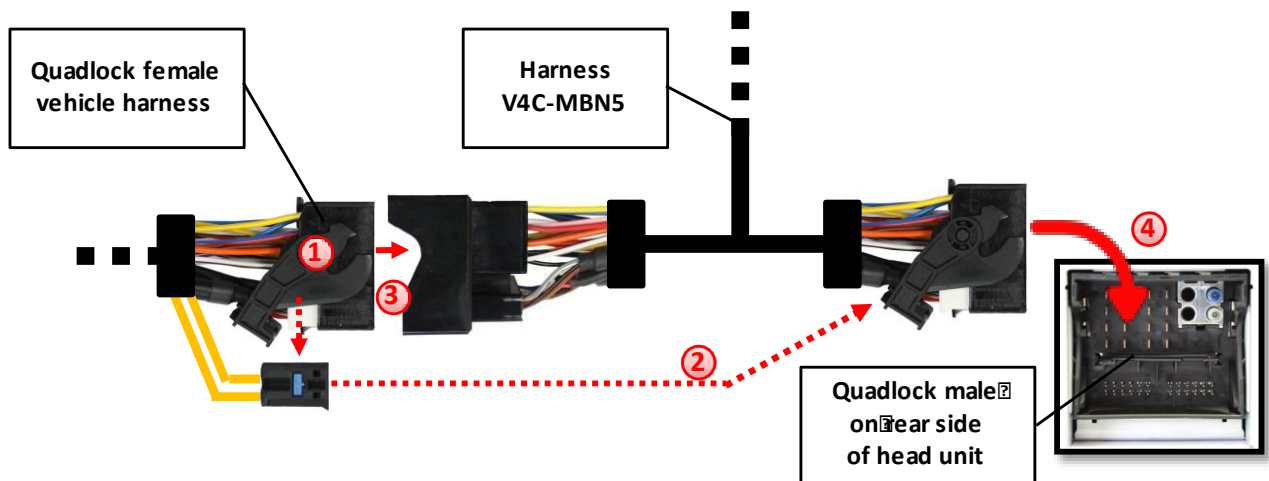


① Remove the female Quadlock connector of the vehicle harness from the rear of the navigation computer.

② Remove optical leads from the female Quadlock connector of the vehicle harness and insert them into the female Quadlock connector of harness V4C-MBN5 at the same position.

③ Connect female Quadlock connector of vehicle harness to the male Quadlock connector of harness V4C-MBN5.

④ Connect female Quadlock connector of harness V4C-MBN5 to the male Quadlock connector of the navigation computer

### 3.4. Connection to the AUX-input

### 3.4.1. AUX input COMAND NTG5 ( only c-class (W205) , v-class (W477) )

Please use the separately sold OBD dongle "OBD-N5-X-01" for AUX activation.
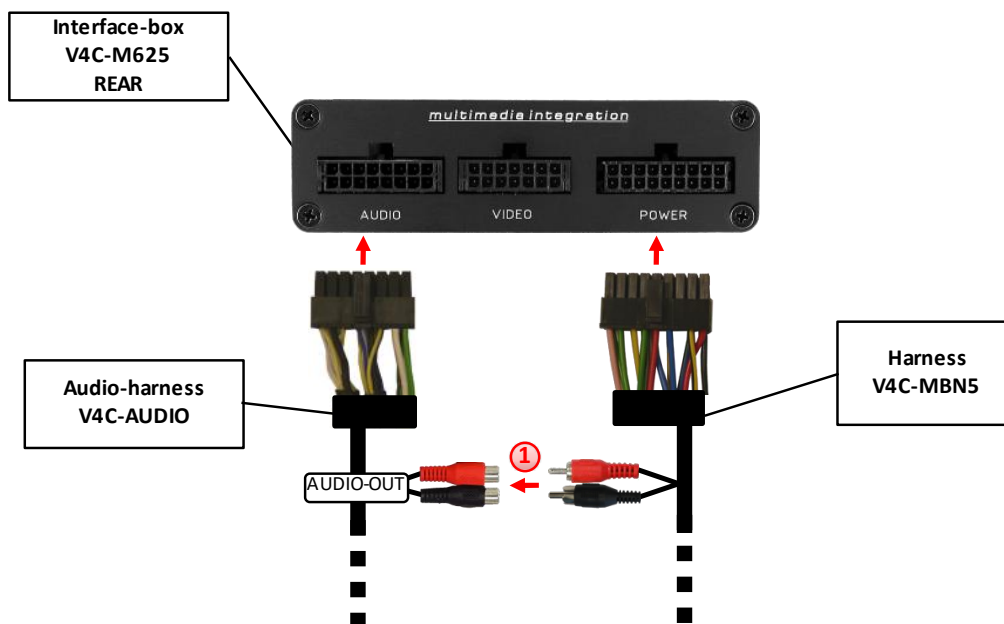


① Connect the audio-RCA of harness V4C-MBN5 to the female RCA-connectors AUDIO OUT of the audio-harness V4C-AUDIO.

### 3.4.2. AUX input COMAND and Audio 20 NTG5/NTG5.1

For the AUX input is an additional "FM modulator" required which must be purchased separately.
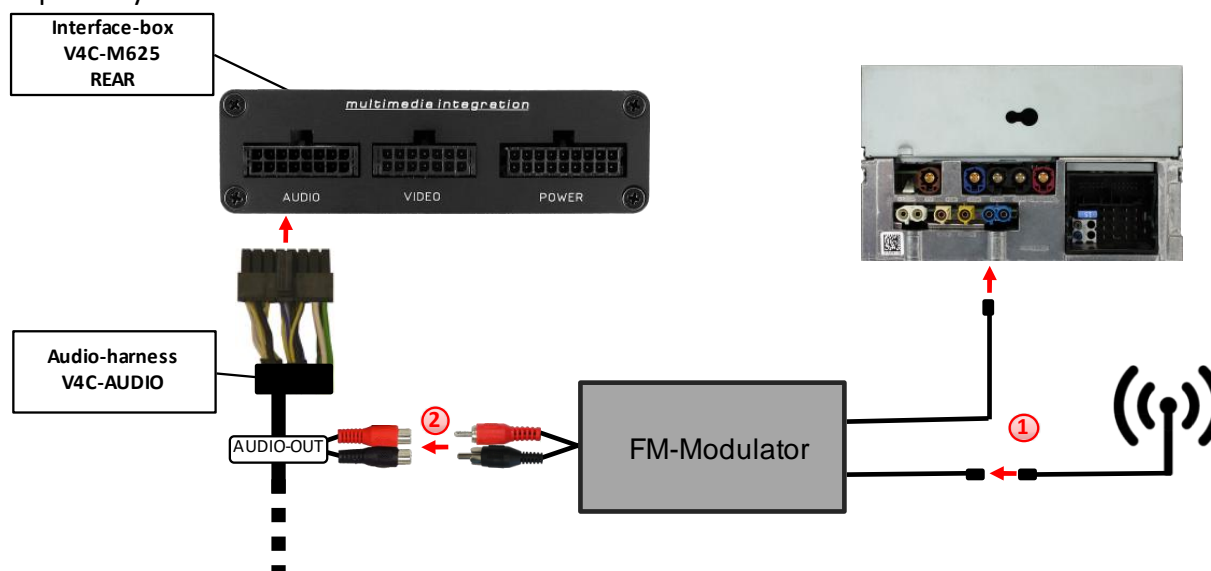


① Install the FM modulator on the Head Unit according the manufacturer's instructions.

② Connect the audio-RCA of harness V4C-MBN5 to the female RCA-connectors AUDIO OUT of the audio-harness V4C-AUDIO.

### 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.
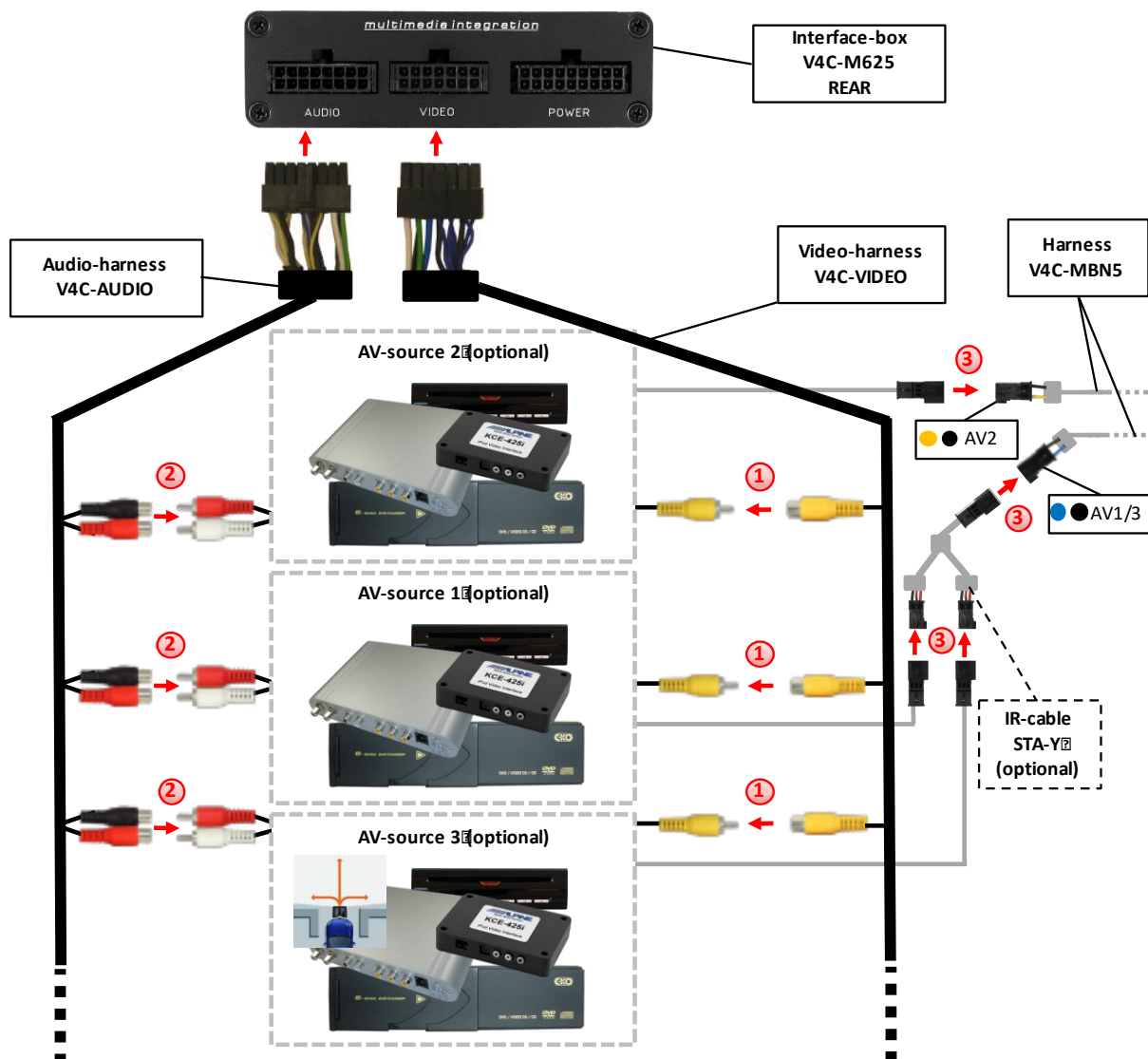


① Connect video RCA of AV-source 1 to female RCA connector VIDEO-1, the video RCA of AV-source 2 to female RCA connector VIDEO-2 and video RCA of AV-source 3 to female RCA connector VIDEO-3 of the video-harness V4C-VIDEO.

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-MBN5 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
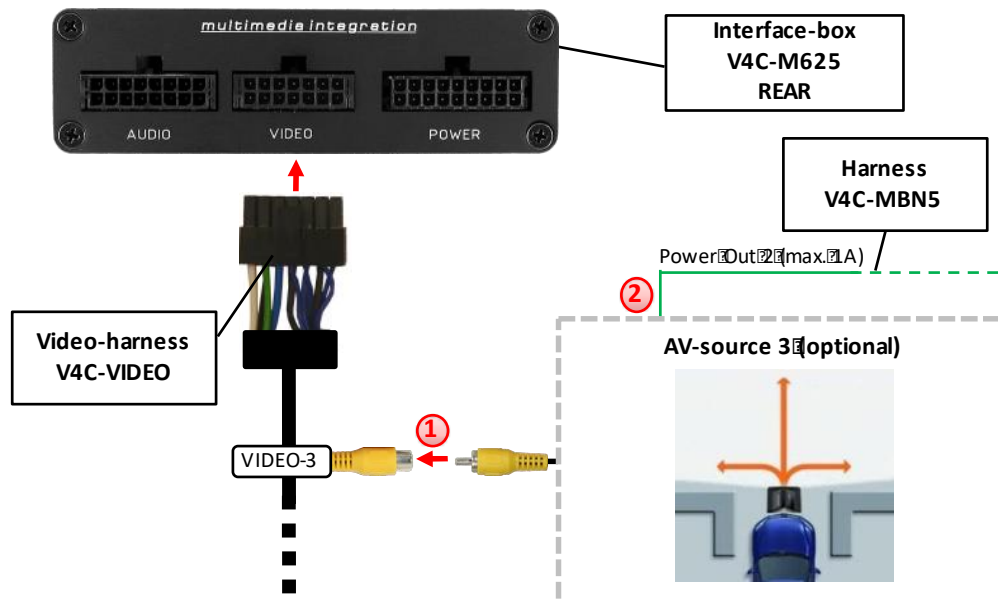


① Connect the video RCA of the after-market front camera to the female RCA connector VIDEO-3 of the video-harness V4C-VIDEO.

② The green wire of harness V4C-MBN5 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 | FVC | OFF | Keine Frontkamera angeschlossen |
| | | ON | Switches to front camera if parking process is enabled and reverse gear is released |
| OPTION | PARK LOGIC | RGearOnly | Enabled while parking process |
| | | RGearSpeed | Enabled while parking process and up to 30 km/h |
| | | RGearTime | Enabled while parking process and up to 20 second |

**Note:** After deactivation you can't enable the parking process again until the vehicle is diving faster than 30km/h or the ignition is switched off.

### 3.5.3. Rear-view camera

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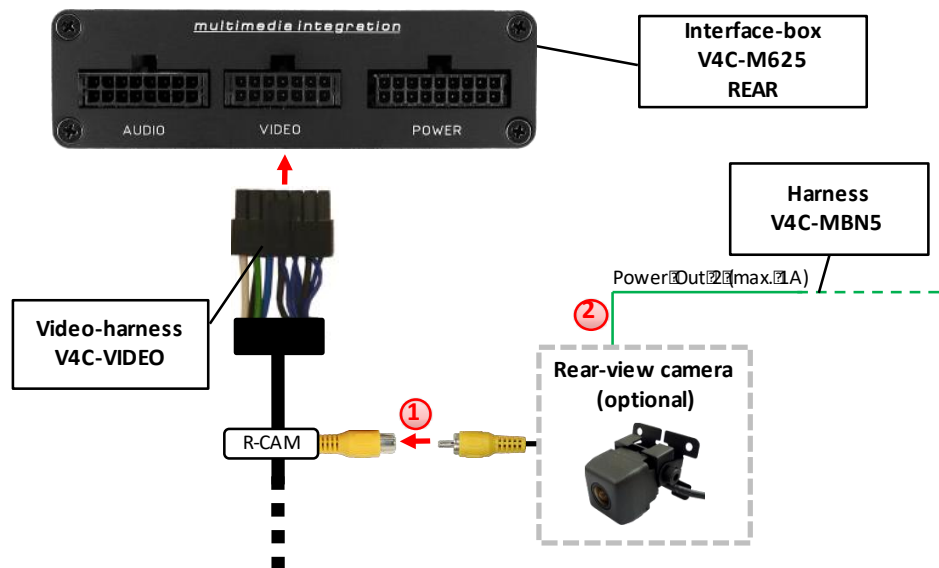


①  Connect the video RCA of the after-market rear-view camera to the female RCA connector of the video-harness V4C-VIDEO.

②  The green wire of harness V4C-MBN5 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 | RGearOnly | Enabled while parking process |
| | | RGearSpeed | Enabled while parking process and up to 30 km/h |
| | | RGearTime | Enabled while parking process and up to 20 second |
| | RVC GRAPHIC | OFF | Interactive lane lines deactivated |
| | | Lines | Interactive lane lines activated |

**Note:** After deactivation you can't enable the parking process again until the vehicle is diving faster than 30km/h or the ignition is switched off.

### 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 reverse gear is enabled and it displays factory rear-view camera |
| OPTION | PARK LOGIC | RGearSpeed | Enabled while parking process and up to 30 km/h |

### 3.5.4. Rear-seat-entertainment
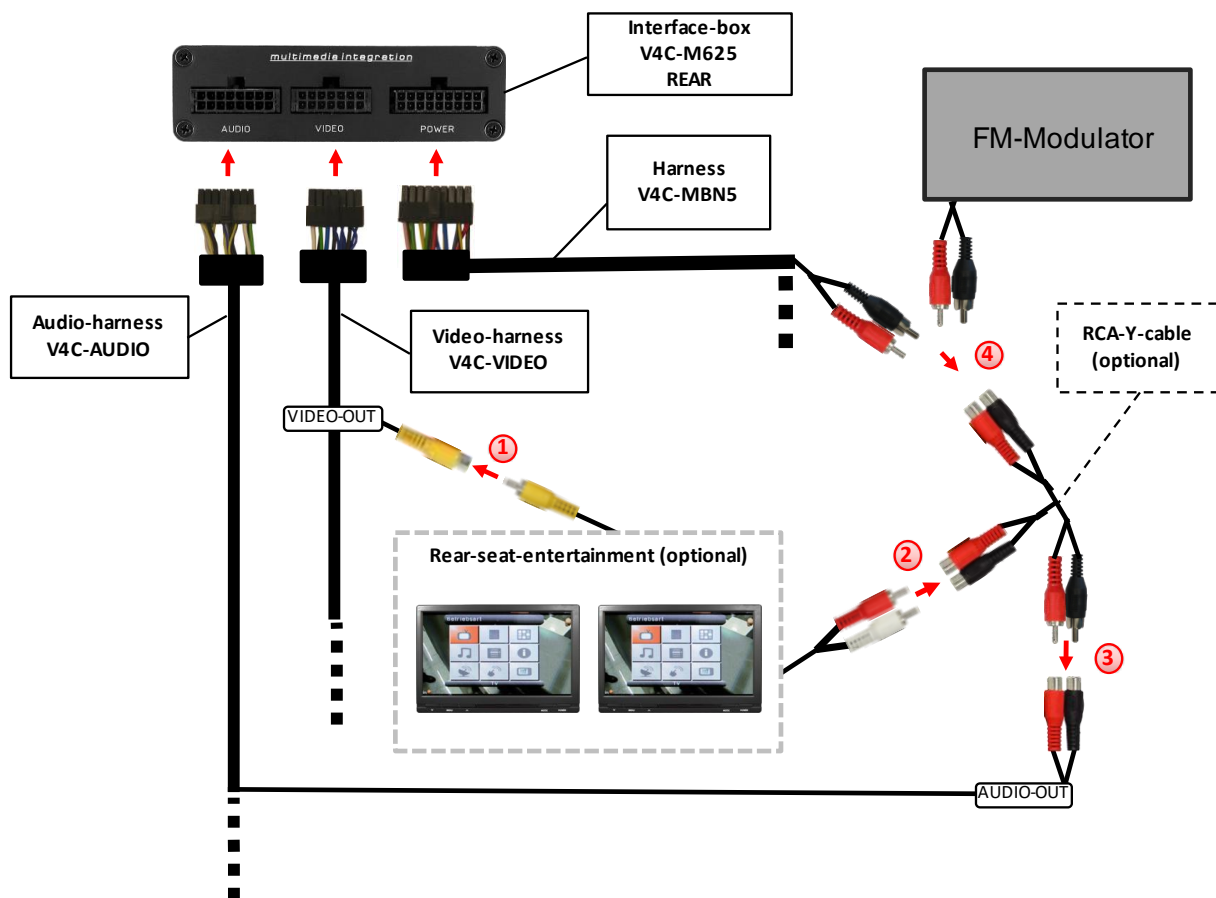


① Connect the video RCA of the rear-seat-entertainment to the female RCA connector VIDEO-OUT of video-harness V4C-VIDEO.

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-MBN5 or FM-modulator audio input 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.

### 3.5.5. Configurable trigger outputs
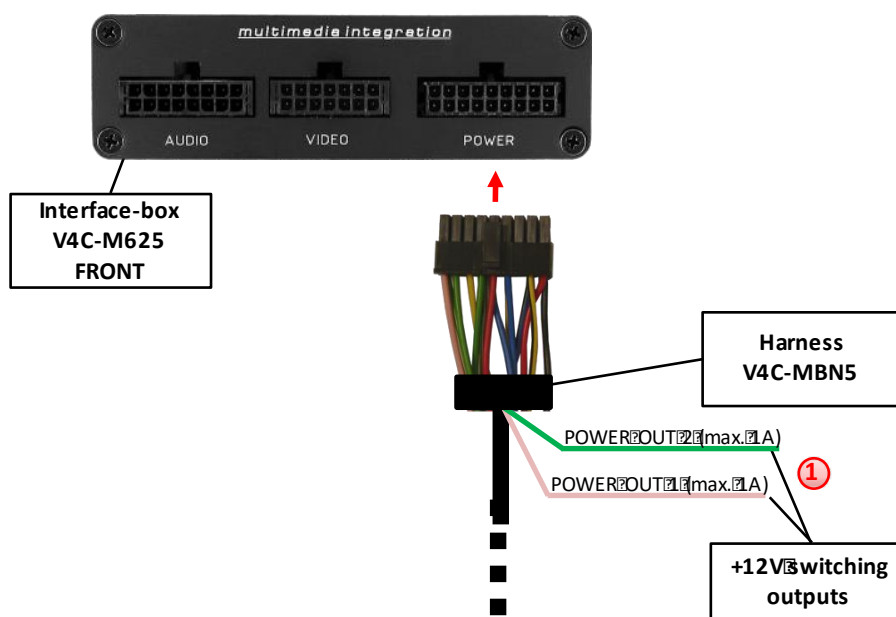


**①** You can configure the both +12V trigger outputs separately. The pink wire is POWER OUT 1 and the green wire is POWER OUT 2.

**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 is activated |
| | | RGEAR | +12V when reverse gear is engaged |
| | | AVS | +12V when interface video-source is active |
| | | OFF | Trigger output 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").
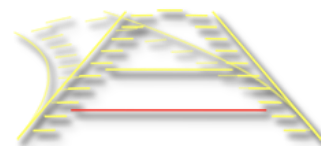


| OSD-menu | Menu item | Setting | Explication |
|---|---|---|---|
| OPTION | RVC GRAPHIC | OFF | Interactive lane lines deactivated |
| | | Lines | Interactive lane lines activated |
| | CAR TYPE | A/B/C/CLA/CLS/ E/G/GLA/GLC/ GLE/GLS/SL/SLC/ V/VITO/ | Vehicle type selection |

### 3.7.    Picture settings

You can change the picture settings in the OSD-menu IMAGE (activation only from interface
AV level possible).

◦ Brightness
◦ Contrast
◦ Saturation
◦ Hue
◦ Sharpness

**Note:** The picture 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 over the external control knob.
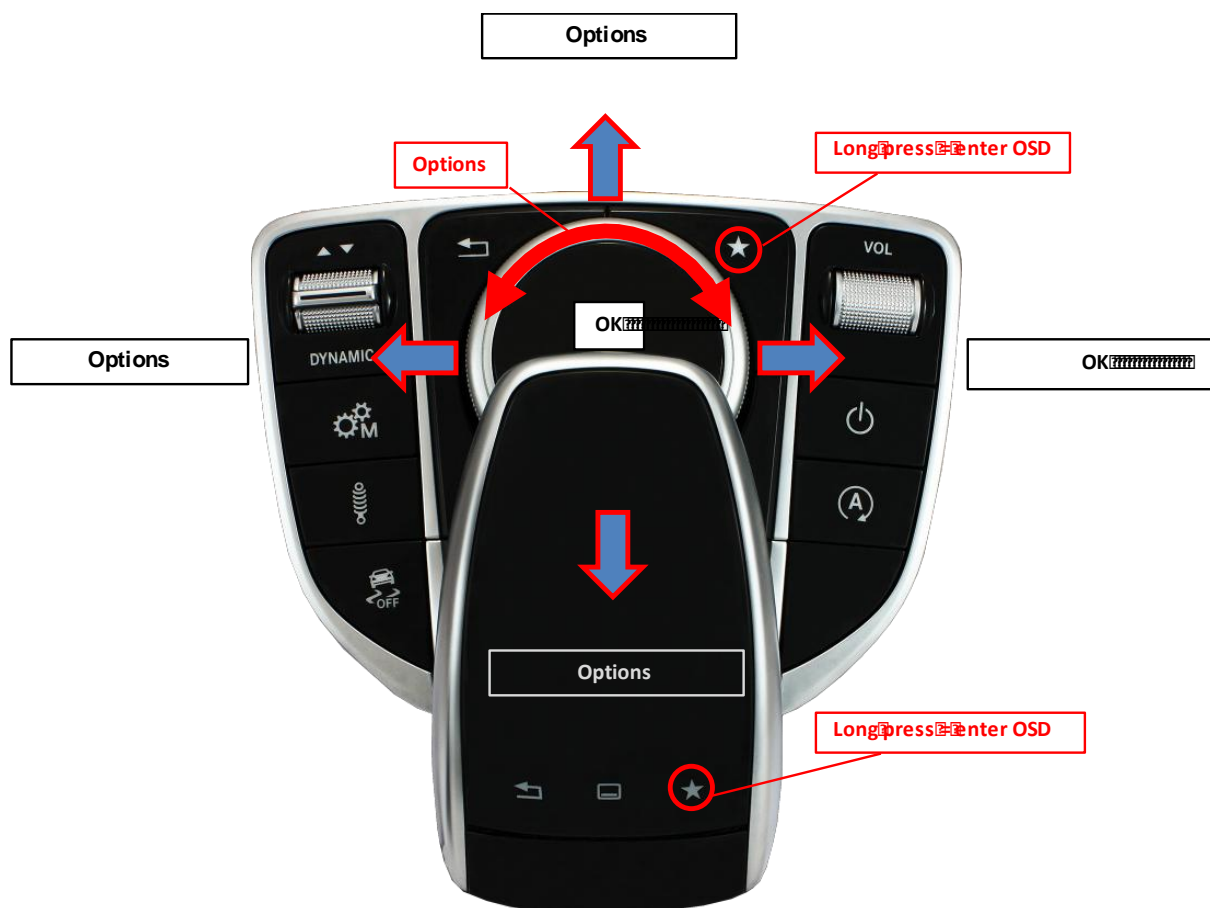
### 4.1.2.  OSD – Additional setting options

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 |
| | OSD TIMEOUT | 2-20 | Time setting for automatic OSD shutoff |
| INFO | VERSION | X.XX.XX | Displays the current SW-version |
| OPTION | FACTORY RESET | | Resetting to factory settings |

### 4.2.  Video-in-motion function and DIP switch settings of TV-500 box

It is possible to activate and deactivate the video-in-motion function on the TV-500 box.

| Function | Dip 1 | Dip 2 | Dip 3 | Dip 4 | Dip 5 | Dip 6 |
|----------|-------|-------|-------|-------|-------|-------|
| Video-in-motion activated | **ON** | OFF | OFF | OFF | **ON** | **ON** |
| Video-in-motion deactivated | OFF | OFF | OFF | OFF | **ON** | **ON** |

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



In the vehicle's **Media** menu, activate **Aux** level or select the preconfigured **FM-Modulator radio channel** and **press long BACK-button** for choose the interface as current AV-source.

The **short press** of **STAR** button 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 → 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.

### 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)
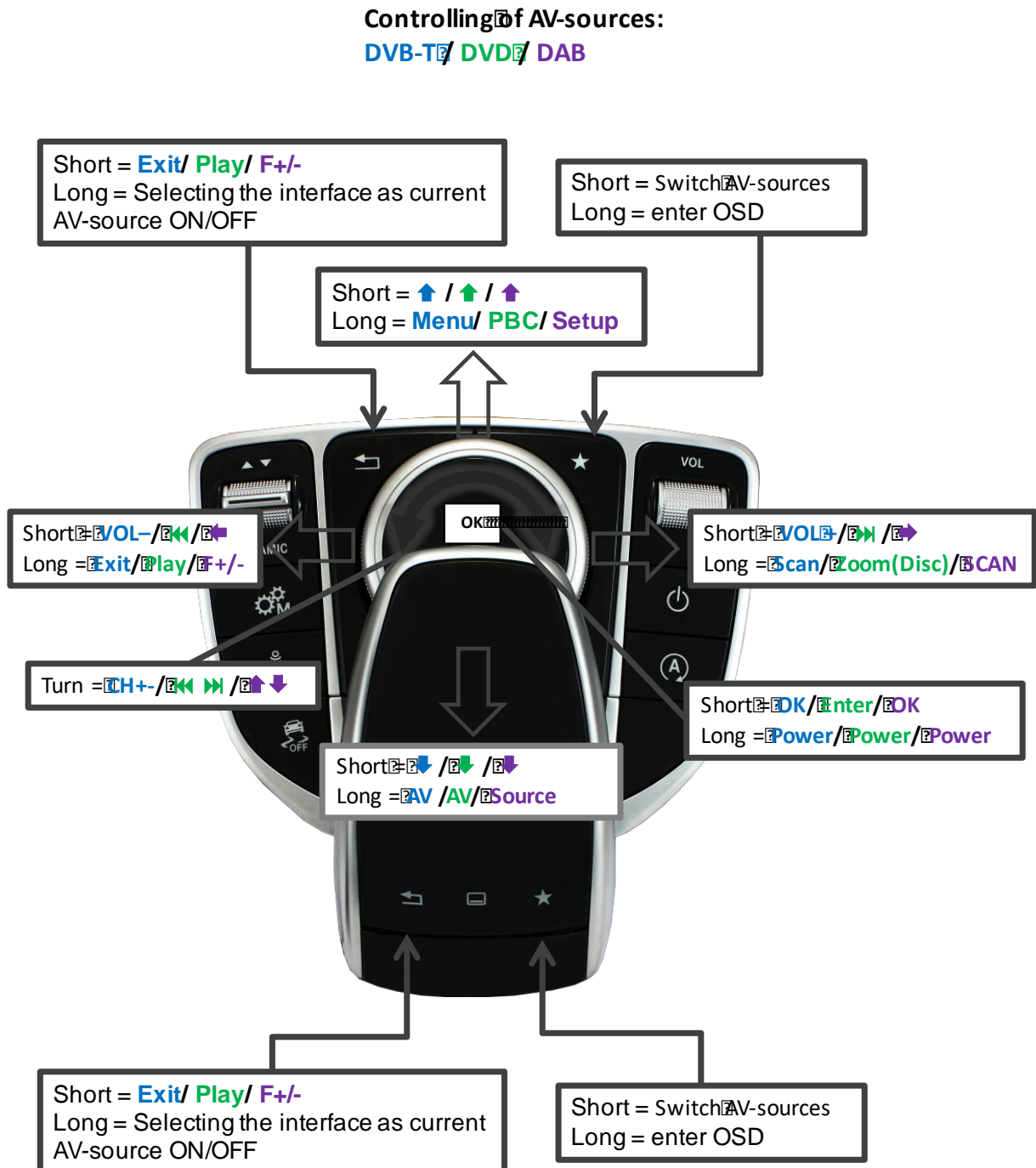


**Note:** The IR-control channel AV1 is preset to IR-Code 41 compatible DVB-T tuners

If you connect an AV-source without control you have to assign any IR code for the respective AV-input (AV1/2/3) because with setting „OFF", the video input is deactivated.

## 4.5. Controlling of the connected AV-sources

The picture shows which functions of the connected devices can be executed by external control knob. Once an AV-input is activated the control knob 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).

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

Short = **Exit**/ **Play**/ **F+/-**
Long = Selecting the interface as current AV-source ON/OFF

Short = Switch AV-sources
Long = enter OSD

Short = ⬆ / ⬆ / ⬆
Long = **Menu**/ **PBC**/ **Setup**

Short = **VOL–**/ ⏮ / ⬅
Long = **Exit**/ **Play**/ **F+/-**

OK

Short = **VOL +**/ ⏭ / ➡
Long = **Scan**/ **Zoom(Disc)**/ **SCAN**

Turn = **CH+-**/ ⏮ ⏭ / ⬆⬇

Short = **OK**/ **Enter**/ **OK**
Long = **Power**/ **Power**/ **Power**

Short = ⬇ / ⬇ / ⬇
Long = **AV** /**AV**/ **Source**

Short = **Exit**/ **Play**/ **F+/-**
Long = Selecting the interface as current AV-source ON/OFF

Short = Switch AV-sources
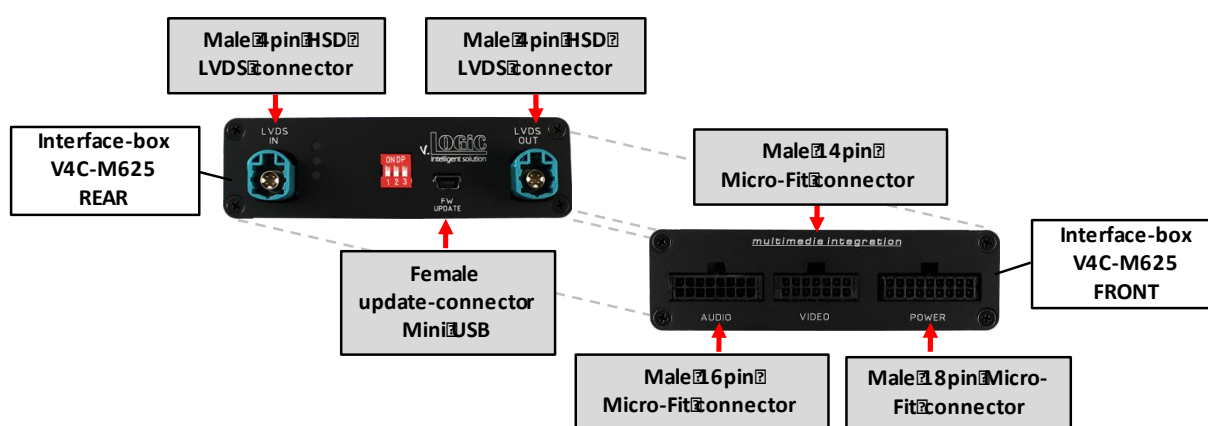Long = enter OSD

**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

$C \epsilon$ ===12V DC

## 6. Connections (interface-box)



**Male 4pin HSD LVDS connector**

**Male 4pin HSD LVDS connector**

**Interface-box V4C-M625 REAR**

**Male 14pin Micro-Fit connector**

**Interface-box V4C-M625 FRONT**

**Female update-connector Mini USB**

**Male 16pin Micro-Fit connector**

**Male 18pin Micro-Fit connector**