v.LOGiC Intelligent Solution

Interface

CI-V5-NBT-PNP

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

- Own on-screen display and setup
- Rear-view camera input
- Automatic switching to rear-view camera input on engagement of reverse gear from all operation modes
- Front camera input / SMART-LINK input
- Control of SMART-LINK module over iDrive control panel
- Manual switching to rear-view camera (only for vehicles with PDC button)
- Manual return from rear-view and front camera (cancellation of automatic switching)
- 2 trigger outputs (+12V max. 1A), separately adjustable switching events (CAN, ACC, camera, reverse gear)
- Picture-in-picture mode combining after-market rear-view and front camera picture(s) with factory parking sensor graphics
- Interactive lane lines
- Compatible with all factory video accessories (e.g. rear-view camera, Top-View, nightvison, DVD-changer, TV-tuner)
- USB update-port for software-updates by consumer

CI-V5-NBT-PNP

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. Check compatibility of vehicle and accessories

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

**Interface-box
V5C-M637
HW_____ SW_____**

**LVDS cable
CAB-HSD2-RR148**

**V5C-UNI01
harness**

**TV-BM01
harness**

1.2. Check compatibility of vehicle and accessories

Requirements	
Navigation	F-series with navigation system or radio with 6.5", 7", 8.8" or 10.25" monitor with 4+2pin HSD2 LVDS connector
Note	"PDC – picture in picture" and "interactive lane lines" function is not simultaneously usable
	"PDC – picture in picture" function is only for 8.8" and 10.25" monitor available

1.3. Setting the dip switches of the interface-box V5C-M637

Dip 1 and 2 on the back of the interface-box V5C-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!

1.4. LED's of the interface-box V5C-M637

🔵 **Valid input source**
🟢 **CAN ok**
🔴 **Power**

2. Connection schema

Quadlock male on rear site of the NBT unit

TV-BM01 harness

+12V switching output

No function

Interface-box V5C-M637 FRONT

POWER / CAN   FRONT CAM   REAR CAM   FW UPDATE

Rear-view camera

V5C-UNI01 harness

SMART-LINK CarPlay® android auto®

STA-UART (optional)

Quadlock female vehicle harness

+12V switching output

SMART-LINK (optional)

Front camera

Back of factory monitor

LVDS cable CAB-HSD2-RR148

Interface-box V5C-M637 FRONT

LVDS IN

LVDS OUT

v. **logic** intelligent solution

4+2Pin HSD2 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 head unit.

3.1.   Connecting interface-box and harnesses
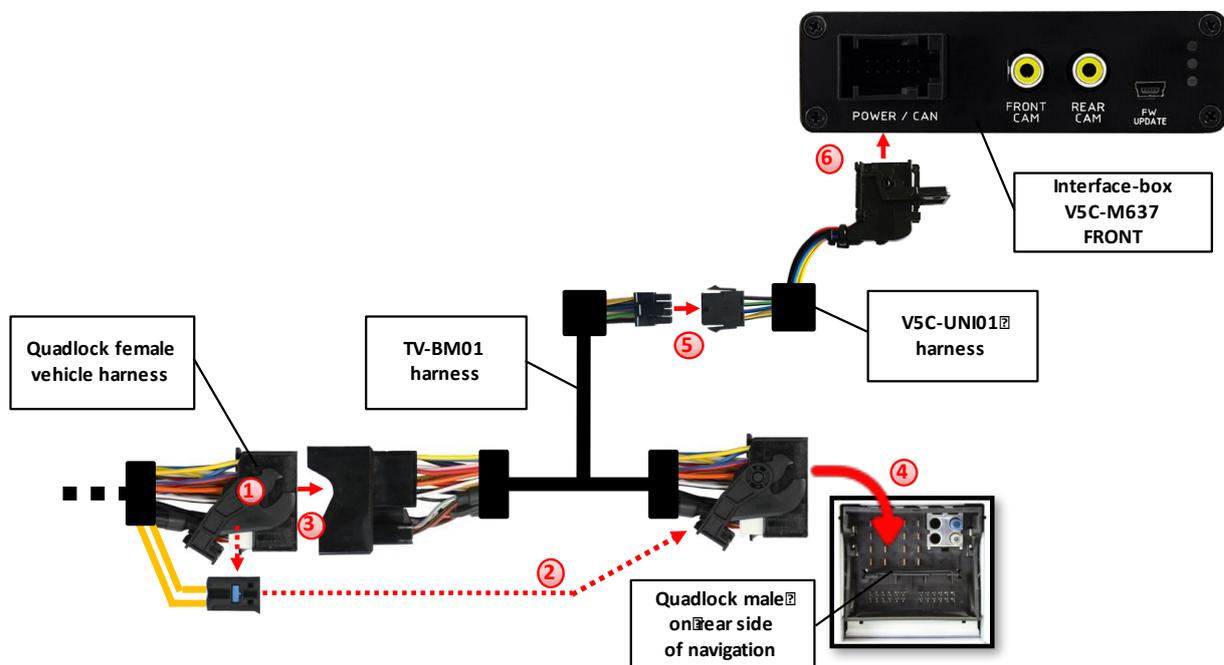
① Remove the female Quadlock connector of the vehicle harness from the rear of the navigation computer.

② Remove optical leads from the female Quadlock connector of the vehicle harness and insert them into the female Quadlock connector of harness TV-BM01 at the same position.

③ Connect female Quadlock connector of vehicle harness to the male Quadlock connector of harness TV-BM01.

④ Connect female Quadlock connector of harness TV-BM01 to the male Quadlock connector of the navigation computer

5 Connect female 8 pin molex connector of the harness TV-BM01 to the male 8 pin molex connector of the harness TV-BM01.

6 Connect female 12pin AMP connector of the harness TV-BM01 to the front site of the V5C-M637 interface box.

3.1.1. Special case BMW i3

Since the BMW i3 has the head unit under the rear seat, the extension cable V5C-CON300 must be purchased separately. This is inserted between the TV-BM01 and the V5C-UNI01 cable set.

3.2. LVDS connection

Back of factory monitor

LVDS cable CAB-HSD2-RR148

Interface-box V5C-M637 FRONT

LVDS IN

LVDS OUT

4+2Pin HSD2 LVDS female vehicle harness
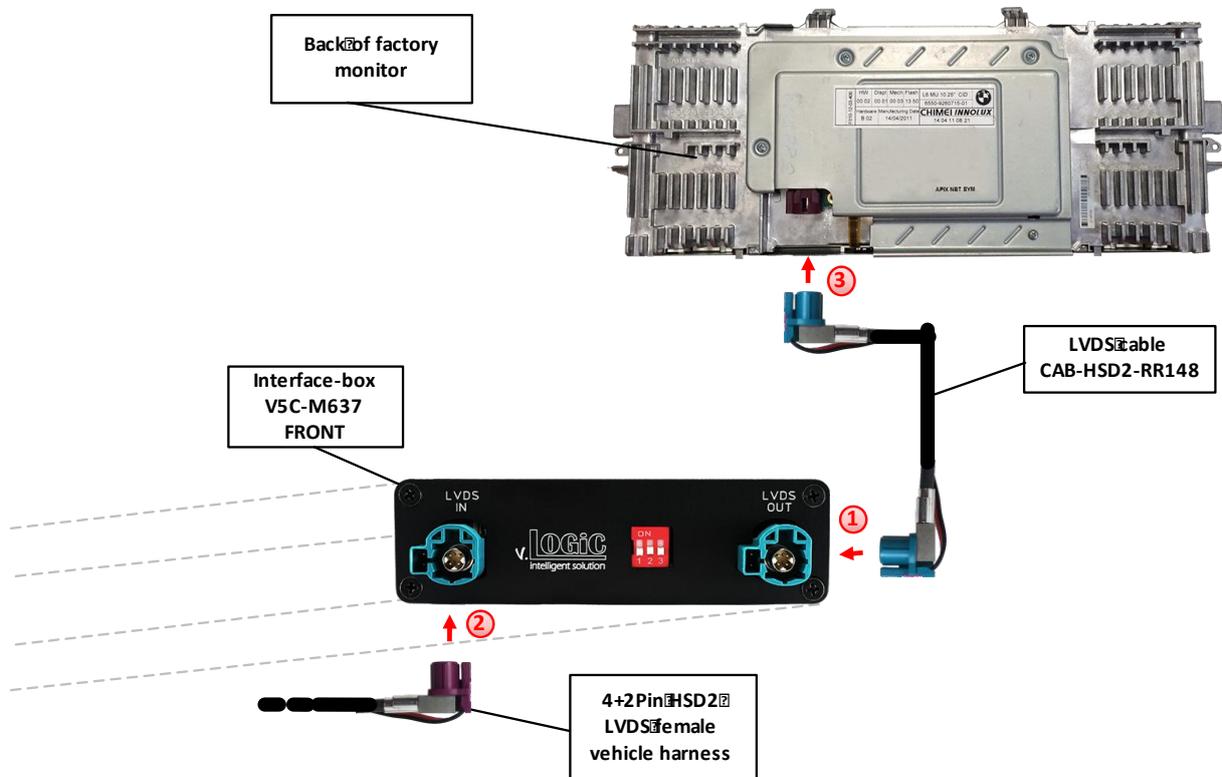
1 Connect the female 4+2pin HSD2 LVDS connector of the LVDS cable CAB-HSD2-RR148 to the male 4+2pin HSD2 LVDS connector (LVDS-OUT) on the front of the interface-box V5C-M637.

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 V5C-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.

3.2.1. After-market front camera

3.2.1.1. Connection to the after-market front camera
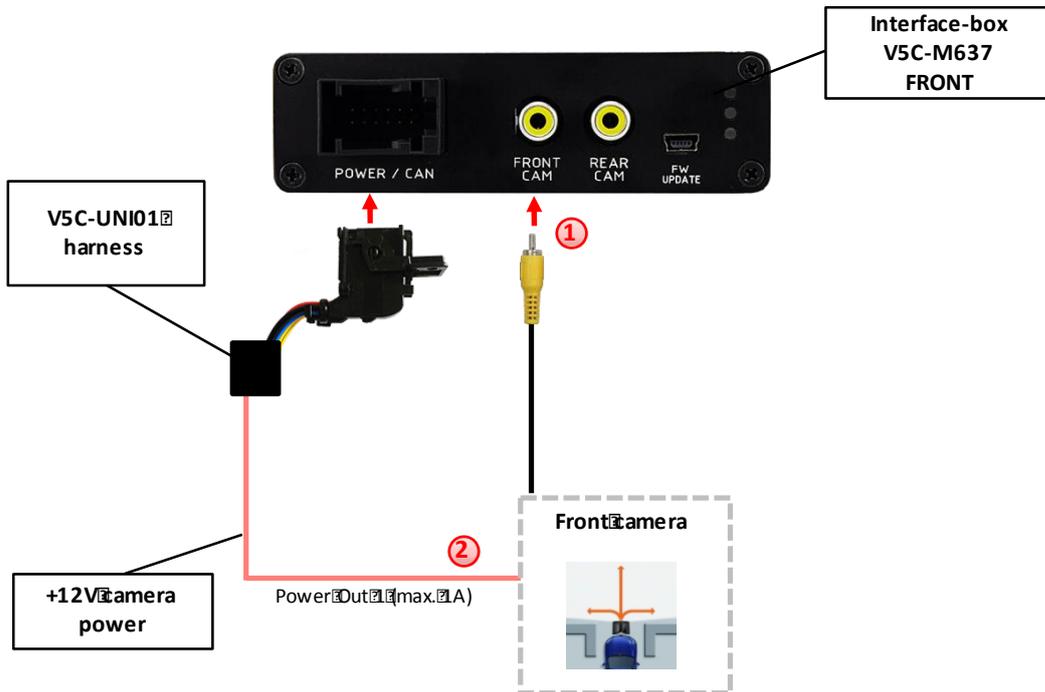
① Connect the video RCA of the after-market front camera to the female RCA connector "FRONT CAM" of the interface box V5C-M637.

② The pink wire of harness V5C-UNI01 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 1" the designated electric power supply (see chapter "Configurable switching outputs").

3.2.1.2. 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	No front camera connected
		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.

3.2.2. After-market rear-view camera

3.2.2.1. Connection to the after-market rear-view camera

Interface-box V5C-M637 FRONT

V5C-UNI01 harness

TV-BM01 harness

Power Out 2 (max. 1A)
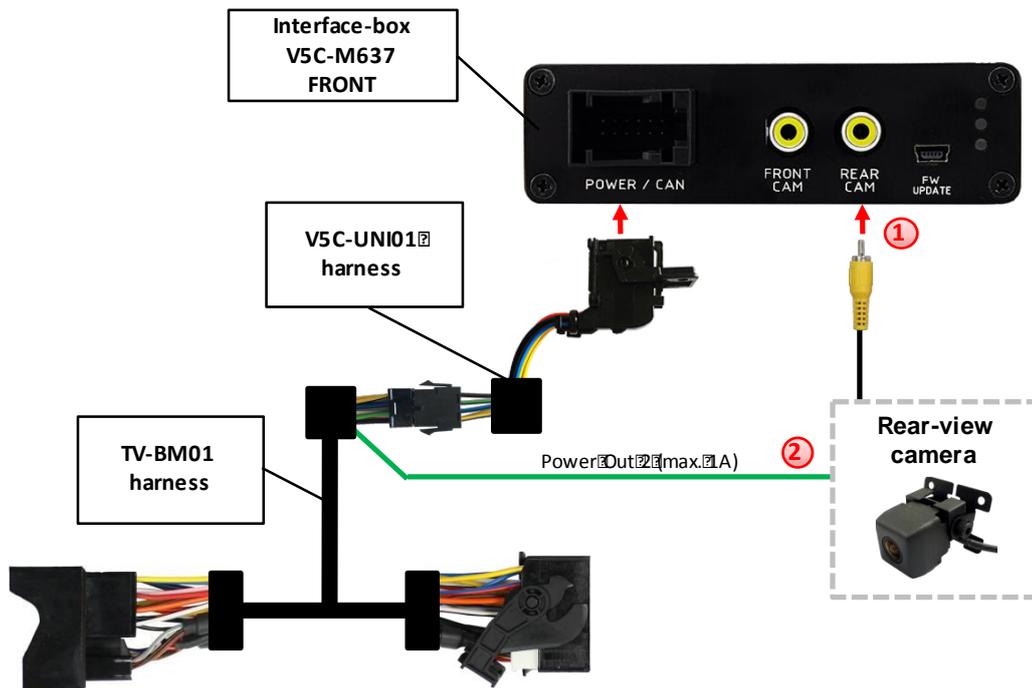
Rear-view camera

1   Connect the video RCA of the after-market rear-view camera to the female RCA connector "REAR CAM" of the interface box V5C-M637.

2   The green wire of harness TV-BM01 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").

3.2.2.2.   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
		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 diving faster than 20km/h, the ignition is switched off and on or the PDC will be disabled and enabled again, if existing.

3.2.2.3.   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

3.2.3. SMART-LINK

The front camera input can alternatively be used for SMART-LINK set (CarPlay® & Android Auto® module) connection. In addition, the interface has the option of controlling the connected SMART-LINK module over the iDrive control panel.

3.2.3.1. SMART-LINK video and control connection
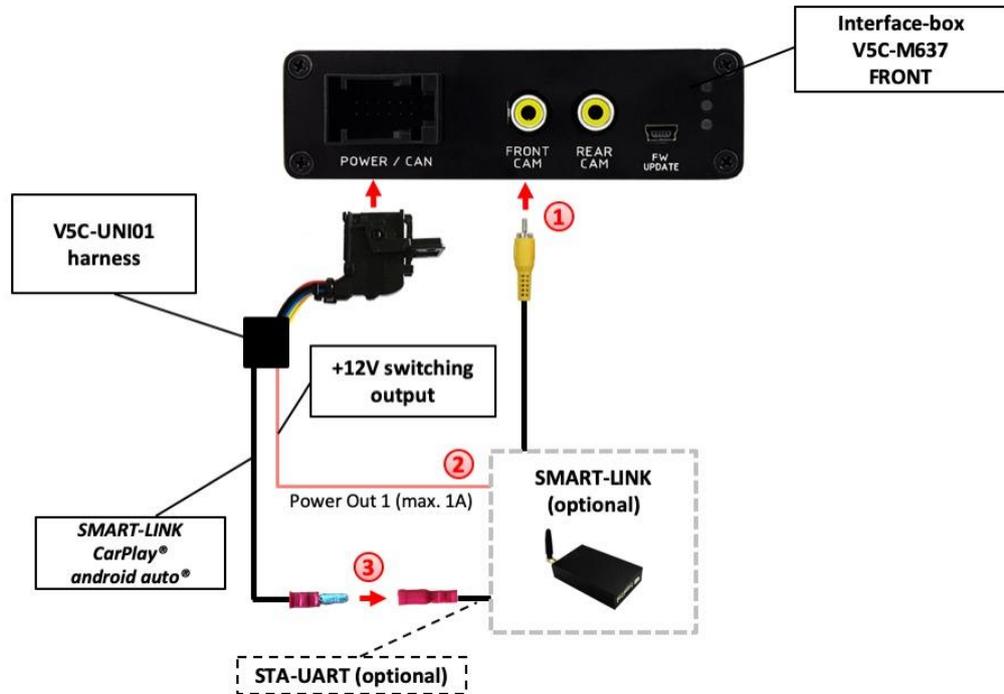
1. Connect the video RCA of the SMART-LINK module to the female RCA connector "FRONT CAM" of the interface box V5C-M637.

2. Connect the pink cable (+12V Power OUT 1) of the V5C-UNI01 harness to the +12V ACC power input of the SMART-LINK module. Configure in the OSD-menu "OPTION", menu item "Power Out 1" the setting "CAN" (see also chapter "Configurable switching outputs").

3. Connect the SMART-LINK interface control port "STA-UART" (available separately) to the "SMART-LINK CarPlay® Android Auto®" socket of V5C-UNI01 harness..

3.2.3.2. SMART-LINK audio connection
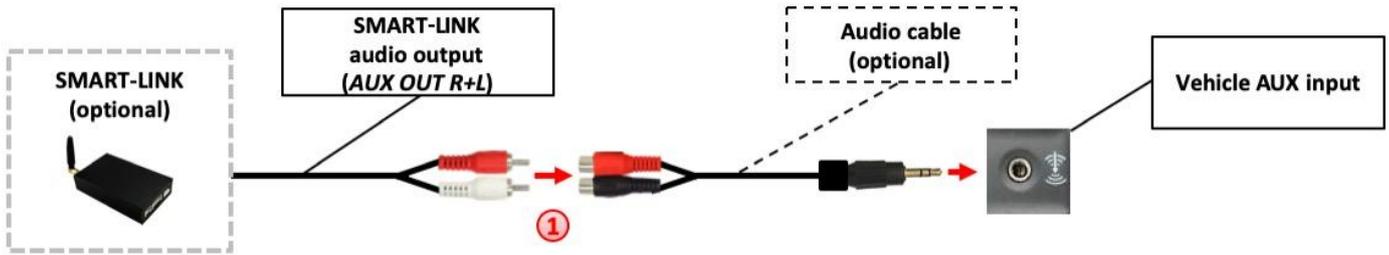
1 By using an audio cable (sold separately), connect the audio output of the SMART-LINK module to the vehicle AUX input.

3.2.3.3. Settings for SMART-LINK connecting

You have to configure some settings in the OSD-menu INPUT if you want to connect the SMART-LINK module (Operation of the OSD: see chapter "OSD-Operation").

OSD-menu	Menu item	Setting	Explication
INPUT	FVC	OFF	No front camera/SMART-LINK connected
		SmartPhone	Enables the " FRONT CAM" input and control for the SMART-LINK set

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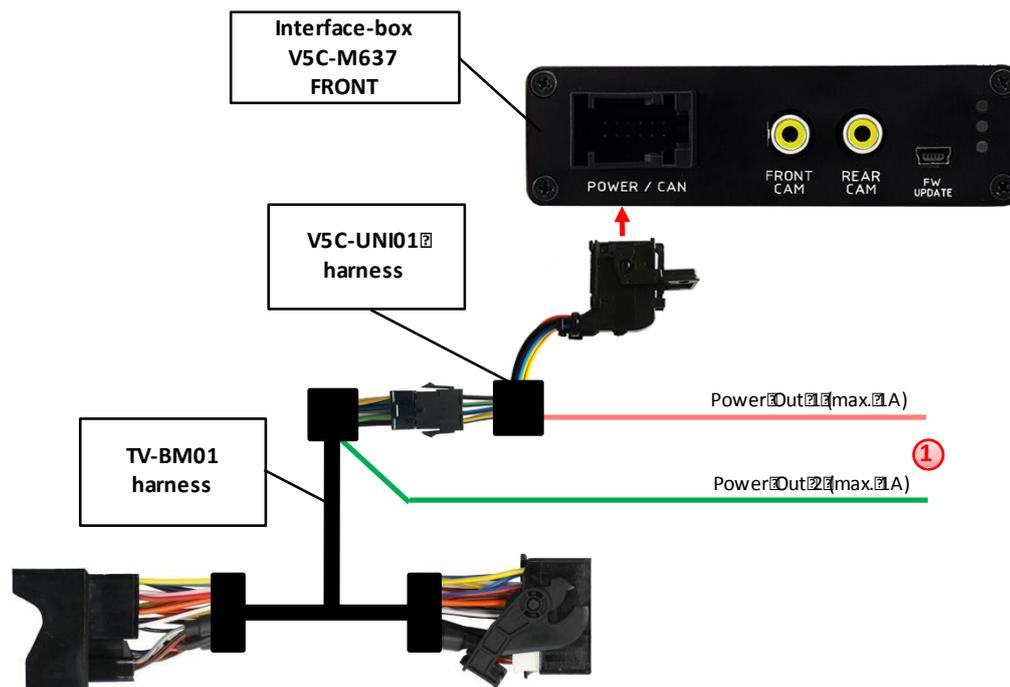
1 You can configure the both +12V trigger outputs separately. The pink wire is POWER OUT 1 and the green wire is POWER OUT 2.

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 (for external audio switch)
		OFF	Trigger putput deactivated

3.3. 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").
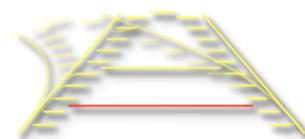
OSD-menu	Menu item	Setting	Explication
OPTION	RVC LINES	LINES	Interactive lane lines activated
	CAR TYPE	1/2/3/4/5/6/7/X1/X3/X4/X5/X6/Z4/i3	Vehicle type selection

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

3.4. Picture settings

The picture settings and picture format can be changed in the OSD menu (<u>activation only possible from camera or SMART-LINK level</u> by **long pressing** the **OPTION -button).**

The following options are available:

◦ 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

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

Options

Options

Back

OK

Short press= leave OSD

Long press = enter OSD
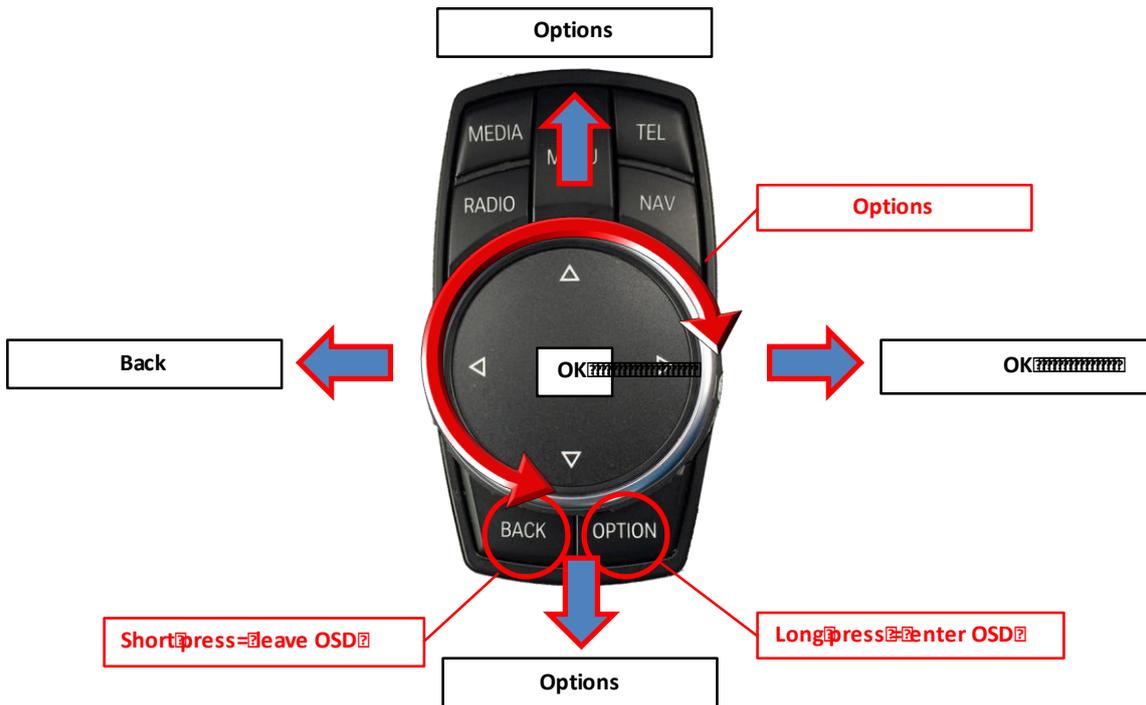
Options

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 video-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 video-source.

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

RVC → *FVC/SmartPhone* →*…*

Inputs which are not enabled are skipped.

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

Note: Activation of the AUX level is not necessary for camera view.

### 4.4. Controlling of the connected SMART-LINK module

The picture shows which functions of the connected SMART-LINK module can be executed by iDrive control panel. Once the FVC/SmartPhone input is activated the iDrive control panel action will execute the function described in the picture.

4.4.1. Controlling by iDrive High

Controlling:
SMART-LINK

Short = ⬆

Short = Switch video inputs

MEDIA   TEL

RADIO   NAV

Short = ⬅   Short = ➡

Turn = ⬆⬇

Short = **OK**
Long = **Voice control**

BACK   OPTION

Short = **Exit**
Long = Back to the main menu

Short = ⬇

Short = **Home**
Long = Enter OSD
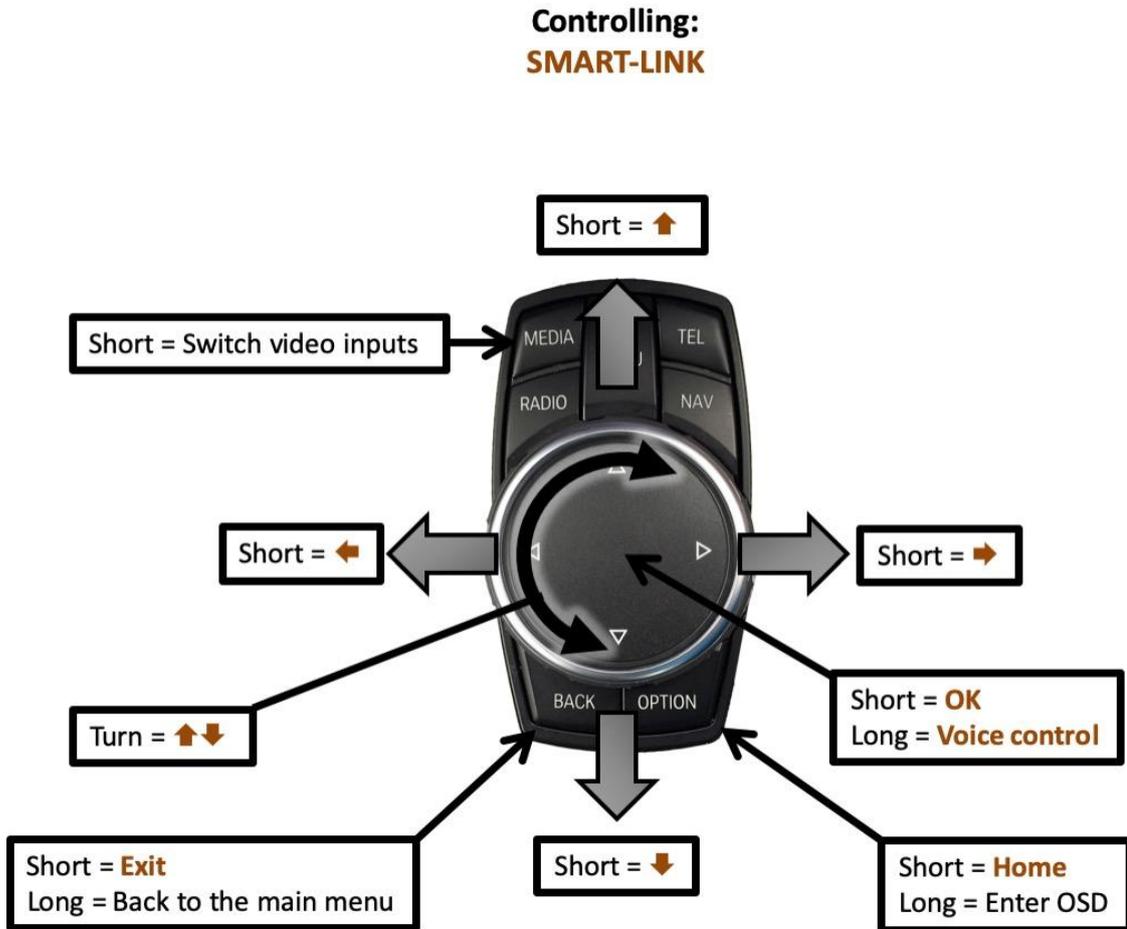
4.4.2. Controlling by iDrive Low

Controlling:
SMART-LINK

Short = Switch video inputs

Short = ←

Short = ➡

Turn = ⬆⬇

AUDIO MENU TEL

BACK OPTION

Short = **OK**
Long = **Voice control**

Short = **Exit**
Long = Back to the main menu

Short = **Home**
Long = Enter OSD
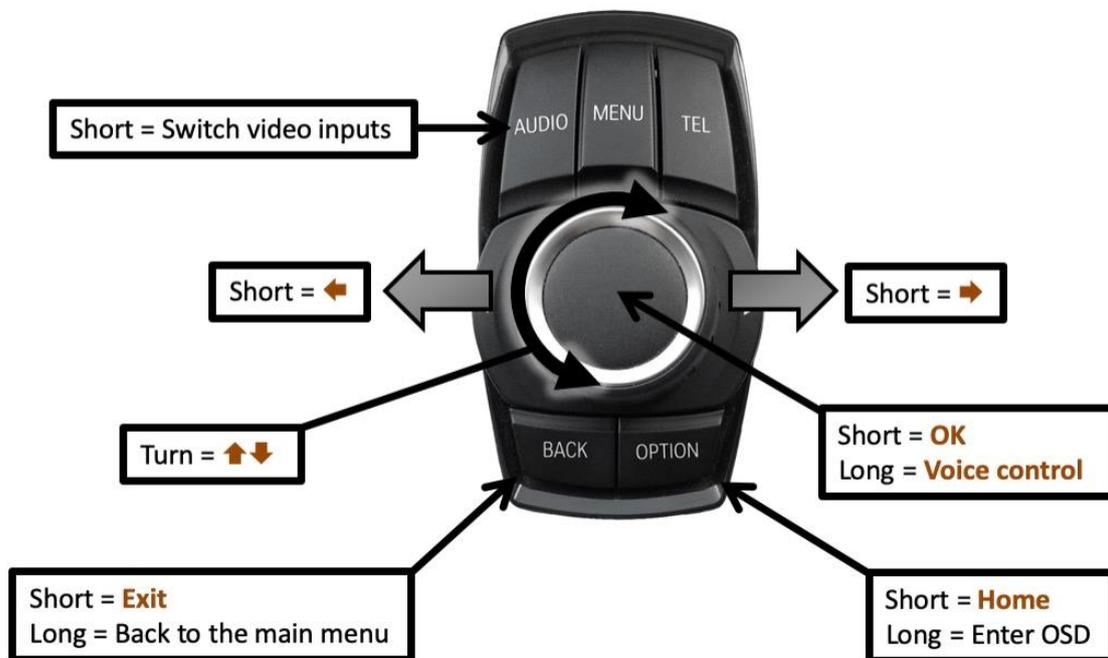
5. Specifications

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)	208g
Measurements (box only) B x H x T	103 x 30 x 105 mm

CE ⎓12V DC
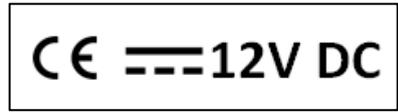
6. Connections (interface-box)

Interface-box V5C-M637 REAR

Male 12pin AMP connector

Rear-view camera input

Male 4+2pin HSD2 LVDS connector

Male 4+2pin HSD2 LVDS connector

Interface-box V5C-M637 FRONT

Front camera input

Female update-connector Mini USB
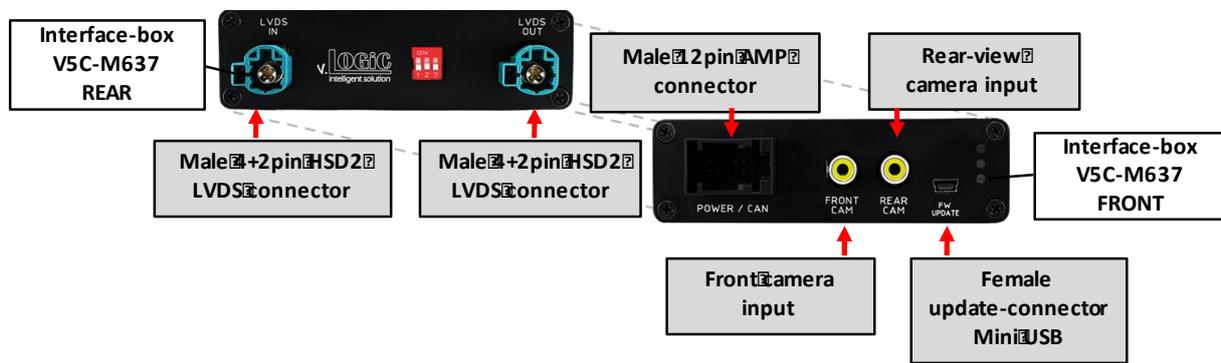
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