Video-inserter

VL2-MBN2

for Mercedes Benz
Comand APS NTG1 and NTG2
navigation systems

Video-inserter with 2 video- + RGB- + rear-view camera input

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.
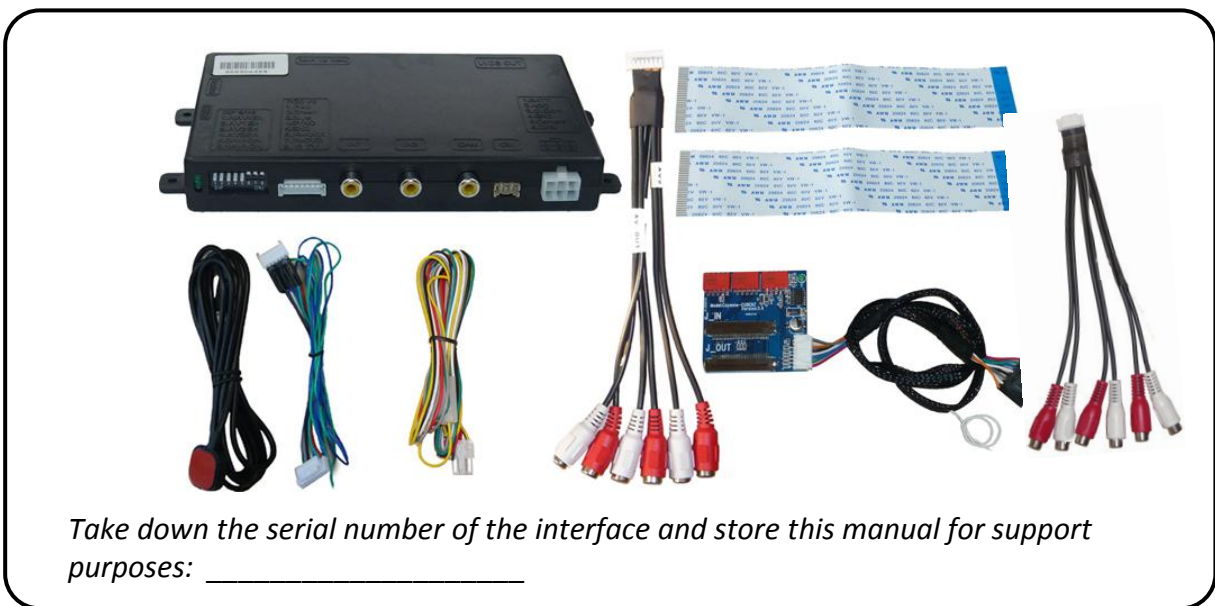
Product features

- RGB-input for after-market navigation
- 2 video-inputs for after-market devices (e.g. DVD-Player, DVB-T tuner, …)
- Built-in audio-switch
- Rear-view camera input, automatically switching
- Factory rear-view camera compatible
- Switching of video through steering-wheel button and external switch
- PAL/NTSC input compatible
- Wrong-plugging circuit protection

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 serial number of the interface and store this manual for support purposes: _____

1.2. Checking the compatibility of vehicle and accessories

Requirements

Vehicle   Mercedes Benz

Navigation/radio   Comand APS NTG1 and NTG2 navigation system

Limitations

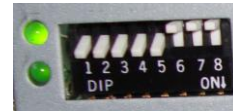*Video only*   The interface inserts ONLY video into the infotainment,
                                   for sound use the FM-modulator, the AUX-In interface
                                   AUX-110 or factory AUX which can be coded by dealership.

1.3. Dip-switch settings

With the video interface boxes dip-switches it is possible to dis- or enable the interfaces inputs (dip 1 to 3) and to preselect the type of camera which is (to be) installed (dip 5).
Dip position down is ON and position up is OFF.

1.3.1. Enabling the interface's video inputs (dip 1-3)

Only the enabled video inputs can be accessed when switching through the video sources. It is recommended to enable only the required inputs for the disabled will be skipped when switching through the video interfaces inputs.

Dip	Video-input	ON (down)	OFF (up)
Dip 1	RGB	enabled	disabled
Dip 2	Video IN1	enabled	disabled
Dip 3	Video IN2	enabled	disabled

1.3.2. Rear-view camera settings (dip 5)

Depending on whether no camera, after-market camera or factory camera shall be used, dip 5 must use different settings. If set to OFF, the interface switches to factory LVDS picture when the reverse gear is engaged to display factory rear-view camera or factory PDC picture.

Rear-view camera type	Dip 5
None	OFF
Factory	OFF
After-market	ON

2. 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.
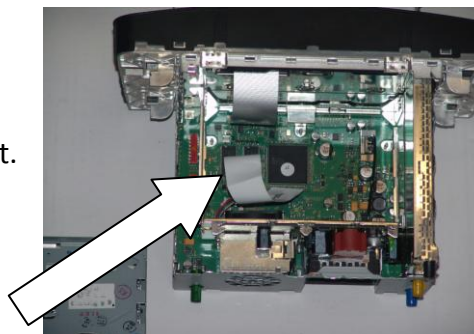
2.1.   Installationsort

The interface is installed on the backside of the monitor panel. Therefore, the head-unit must be removed.
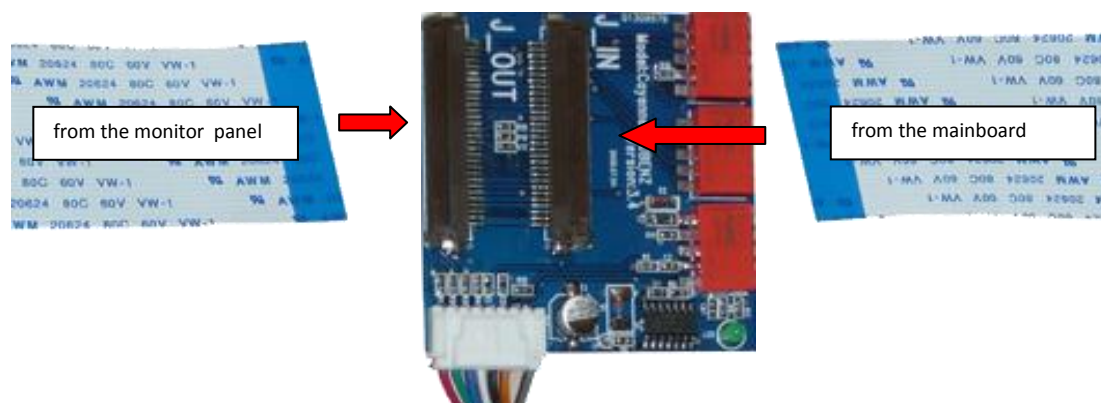
Remove head-unit.

Remove the upper cover including the DVD/ navigation device. The external daughter PCB is plugged in between the flex cable of the monitor panel and the mainboard of the head-unit.

2.2. Connecting the flex cables

A rotated and a normal 30pin flex cable are included in delivery. Depending on the orientation of the flex cable connectors at the monitor panel and at the mainboard the rotated or the normal flex cable have to be installed.

Connect the flex cable from the mainboard to J_IN of the external daughter PCB and the flex cable from the monitor panel to J_OUT of the external daughter PCB.

from the monitor panel
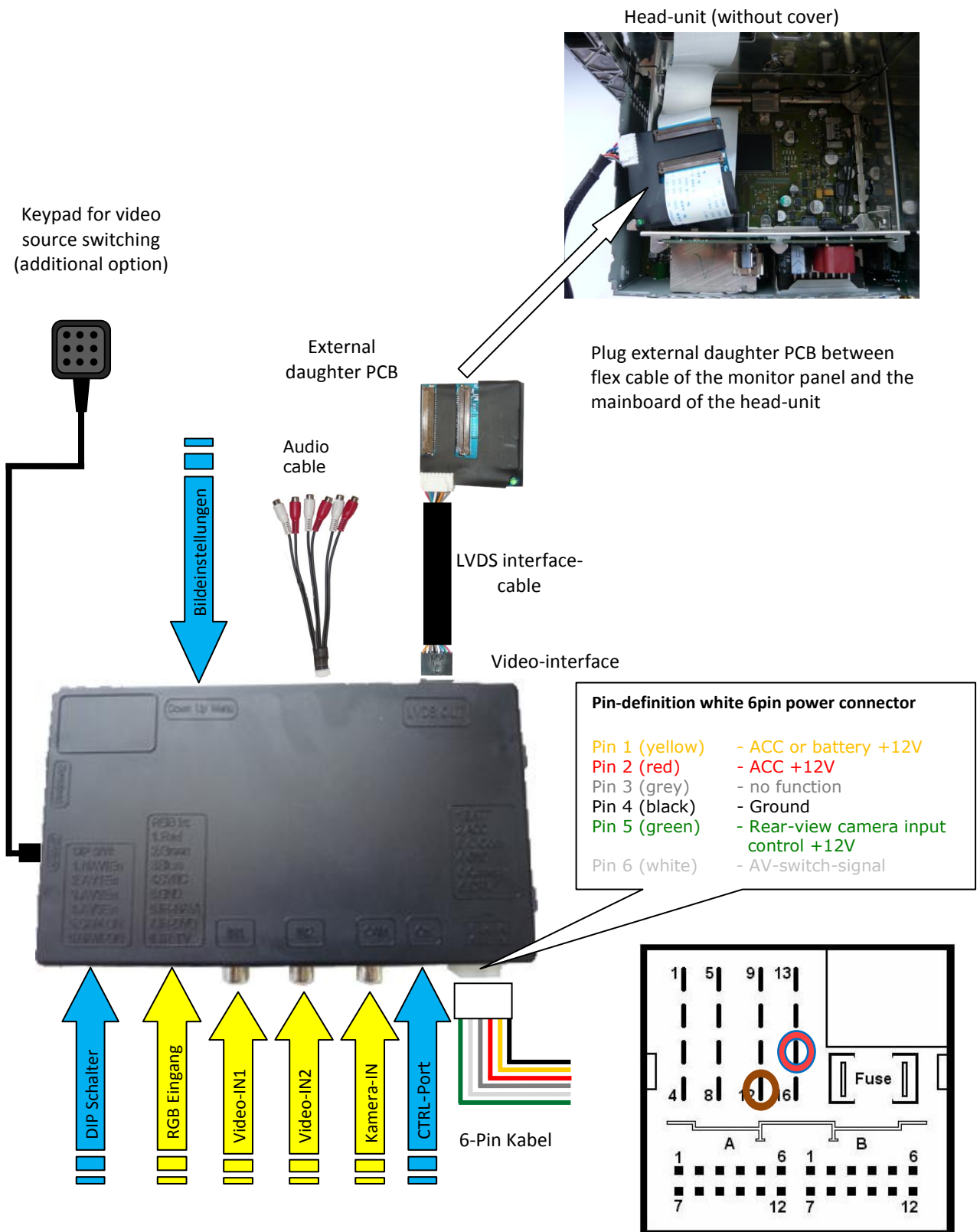
from the mainboard

Electrical the contacts have to be transmitted similar, in other words the left contact of the monitor panel have to be connected with the left contact of the mainboard. Please take note of the contact surfaces of the flex cables during installation.

Note: Depending on the navigation the original flex cable possibly needs to be changed into a flex cable in delivery.

2.3. Connections

Head-unit (without cover)

Keypad for video source switching (additional option)

External daughter PCB

Plug external daughter PCB between flex cable of the monitor panel and the mainboard of the head-unit

Audio cable

Bildeinstellungen

LVDS interface-cable

Video-interface

Pin-definition white 6pin power connector

Pin 1 (yellow) - ACC or battery +12V
Pin 2 (red) - ACC +12V
Pin 3 (grey) - no function
Pin 4 (black) - Ground
Pin 5 (green) - Rear-view camera input control +12V
Pin 6 (white) - AV-switch-signal

DIP Schalter

RGB Eingang

Video-IN1

Video-IN2

Kamera-IN

CTRL-Port

6-Pin Kabel

Fuse

Quadlock-connector of the vehicle

No liability for vehicle wire colors and pin definition! Possible changes by the vehicle manufacturer. The given information must be verified by the installer.

● ● Red/Blue +12Volt Permanent Pin 15
● Brown Ground Pin 12

2.4. Installation procedure – function check

Follow the below procedure using the "Connections" scheme from chapter 2.2. as reference. Before the installation of the sources and the interface we recommend a first quick connection of the interface and test run to ensure that vehicle and product are compatible. Due to changes in production of the vehicle manufacturer there is always the possibility of incompatibility.

- Switch off ignition and disconnect vehicle's battery
- Remove vehicle monitor and open the body as described in chapter 2.1.
- Remove vehicle flex cable from the flex cable socket of the mainboard
- Plug in external daughter PCB between flex cable of the vehicle and flex cable socket of the mainboard (see chapter 2.2.)
- Connect external daughter PCB to the video interface
- Connect female 6pin connector of the 4pin cable to the video interface
- Connect 4pin cable to the pins of the Quadlock as shown in chapter 2.3.
- Plug keypad into "Switch" connector. Even if the keypad shall not be used, its installation (e.g. in a hidden spot) is recommended for support reasons
- If audio insertion shall be used, connect it according to chapter 2.6.
- If 2 audio sources shall be used, connect it according to chapter 2.7.
- Reconnect battery and turn on ignition
- Check LEDs on video interface, one each must be on
- Try to activate video sources by keypad (see chapter 3.1.), using a test picture source
- If camera is (to be) connected try to engage reverse gear with test picture source connected
- If 2 audio sources shall be used, connect the audio wires and check the audio function
- **ONLY after positive function check proceed with final installation of the video sources!**
- After installation and connection of the real video source(s), adjust picture settings (see chapter 2.5.)

2.5. Picture settings

After installing the sources the picture settings can be changed using a pen on the buttons of the video interface. Press the MENU button to open settings menu on the OSD and to switch to the next setting. UP and DOWN change the corresponding values. The buttons are embedded in the housing to avoid accidental changes during or after installation.
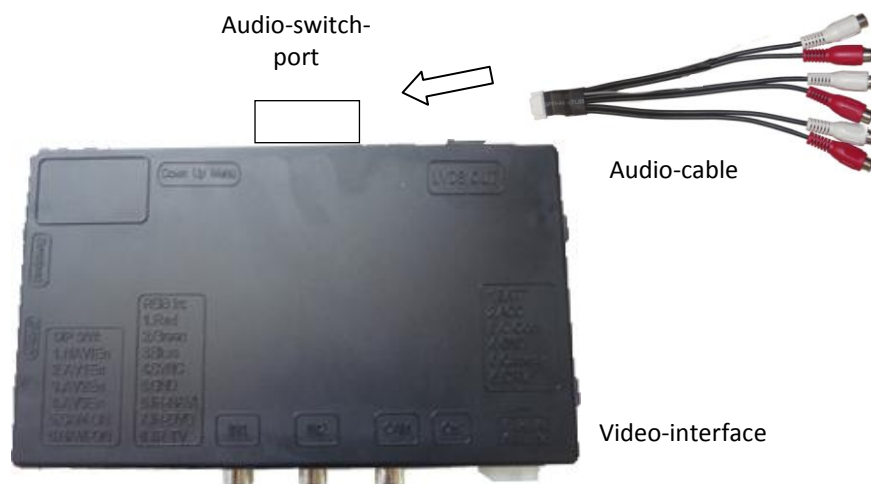
2.6. Audio insertion

This interface can only insert video into the factory infotainment. The video can be activated to any audio mode of the factory infotainment. If an AV-source is to be connected, the source's video out is connected to the video IN1 of the video interface and the source's audio out to the audio insertion. Audio insertion is possible by factory audio AUX input, the optional available AUX-In interface AUX-110 or FM-modulator. The factory audio AUX can be coded by the dealership.

2.7. Connecting 2 AV-sources

If two AV-sources shall be connected, connect the included audio cable to audio-switch-port of the video interface. When switching the video interface from video-IN1 to video-IN2, the audio will also automatically be switched.

Audio pins	Definition
1/2	Audio input signal R/L of source IN2
3/4	Audio input signal R/L of source IN1
5/6	Audio output signal L/R of factory audio AUX or FM-modulator
7	Ground
8	No function

Audio-switch-port

Audio-cable

Video-interface

3. Interface operation
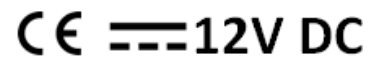
3.1. By keypad and steering-wheel

The keypad and the "hanging up" button of the steering-wheel can be used to execute interface functions. Each press will switch to the next enabled input. If all inputs are enabled the order is:

Factory video → RGB-in → video IN1 → video IN2 → factory video →…

Inputs which are not enabled are skipped. If the audio cable is connected, when switching from video IN1 to video IN2, also the sound will be switched.

4. Specifications

BATT/ACC range	7V ~ 25V
Power	0.3A @12V
Video input	0.7V~1V
Video input formats	PAL/NTSC
Weight	195g
Dimensions (box only) B x H x T	182 x 24 x 100 mm

CE ===12V DC

5. Technical support

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