

## **dvbLOGiC DVB-T Tuner**

**DVB-MFD2-R1**

**DVB-MFD3-R1**

**Compatible with navigation systems**  
**Volkswagen MFD2/RNS2,RNS510,RNS810**  
**Skoda Nexus,Columbus**  
**Seat Trinax**

**Only for vehicles WITH factory rear-view camera WITH camera control-box**

### **Product features**

- full plug and play vehicle-specific dual DVB-T Tuner
- with two active DVB-T glass-mount antennas
- integrated into and controllable by vehicle infotainment
- AV-input with IR-control channel (optionally USB-AV-port DVBU-XXX instead AV-input)
- control of after-market devices by OEM buttons, e.g. DVD-player, USB/iPod devices, ...
- rear-seat-entertainment AV-output
- optional remote control for full DVB-tuner functions/rear-seat-entertainment
- power on remote out trigger signal (+12V max. 1A) to switch on connected devices
- video-in-motion

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## Legal Information

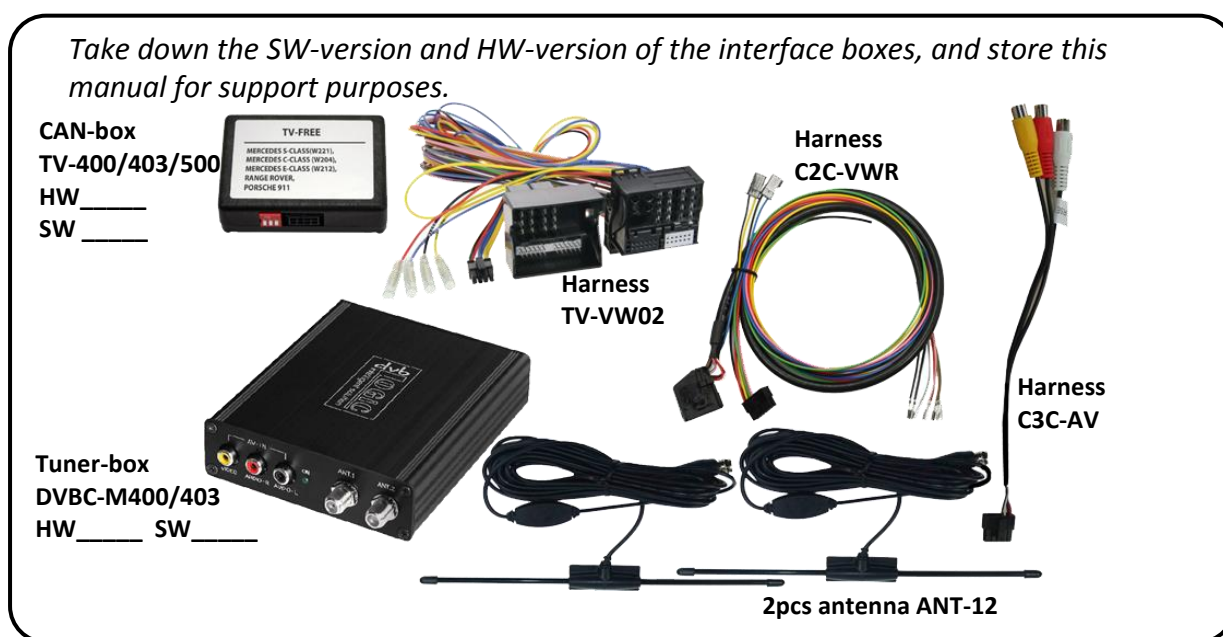
By law, watching moving pictures while driving is prohibited, the driver must not be distracted. We do not accept any liability for material damage or personal injury resulting, directly or indirectly, from installation or operation of this product. This product should only be used while standing or 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



The DVB-MFD2-R1 package contains the tuner-box M400 and the CAN-box TV-400/500. The DVB-MFD3-R1 package contains the tuner-box M403 and the CAN-box TV-403/500.

If remote function for a peripheral device shall be used, additional an IR-remote cable and Y-adpater are needed, see chapter [AV-source](#).

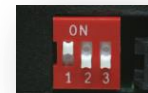
## 1.2. Check compatibility of vehicle and accessories

Requirements	
<i>Vehicle</i>	Volkswagen, Seat and Skoda <b>With factory rear-view camera with camera control box</b>
<i>Navigation</i>	MFD2/RNS2, RNS510, RNS810, Trinax, Nexus or Columbus navigation
Limitations	
<i>Factory-TV-tuner</i>	Must NOT be installed.
<i>Teletext</i>	Teletext of the dvbLOGiC can only be used with the optionally available DVB-IRSET remote control set.

## 1.3. Setting the dip switches of the CAN-box TV-400/403/500

### TV-400/403

All vehicles	dip 1 ON, dip 2 OFF, dip 3 OFF
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### TV-500

Vehicle/ navigation	Dip 1	Dip 2	Dip 3	Dip 4	Dip 5	Dip 6
Video-in-motion permanent	ON	OFF	OFF	OFF	OFF	OFF
Video-in-motion selective*	OFF	OFF	OFF	OFF	OFF	OFF

\* With dip1 to OFF the included green cable is used to activate the video-in-motion function.

**Note:** Dip switch functions of the TV-500

Dip 1 – activation TV-free

Dip 2 – no function

Dip 3 – no function

Dip 4 – no function

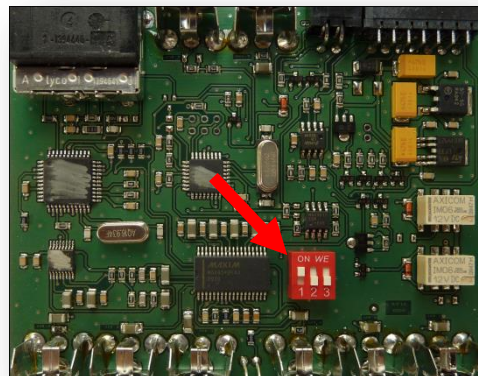
Dip 5 – CAN-bus termination resistor on the vehicle side

Dip 6 – CAN-bus termination resistor on the head-unit side

## 1.4. Setting the dip switches of the tuner-box DVBC-M400/403

The default dip switch settings of the tuner-box need to be changed **ONLY** if the AV of the dvbLOGiC shall be deactivated. The dip switches are located **inside** the tuner-box. For changes it is necessary to open the box. Default settings are:

Dip1 = ON, dip2 = OFF, dip3 = OFF

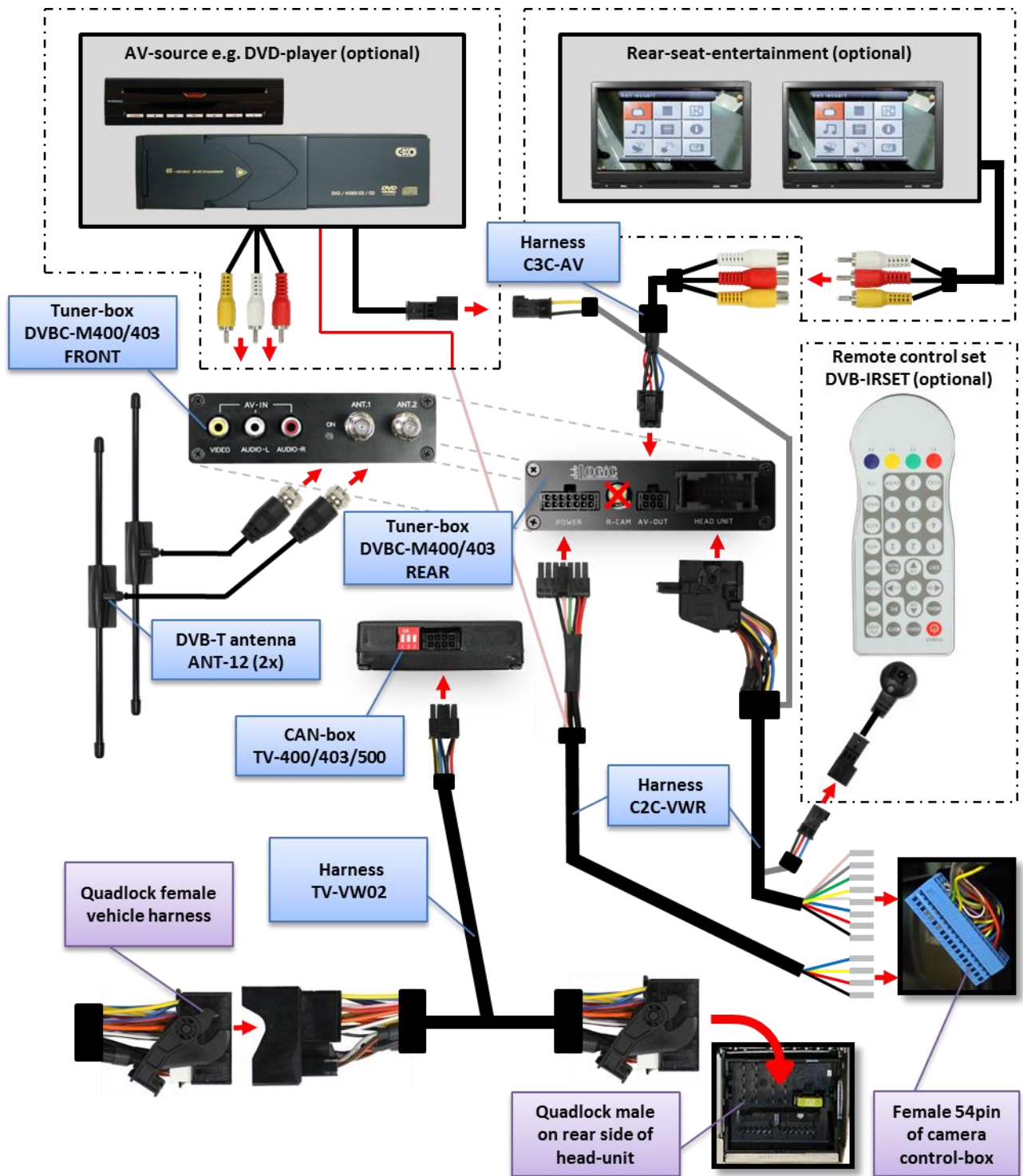


### 1.4.1. Deactivating dvbLOGiC AV input

If no peripheral AV-source shall be connected to the dvbLOGiC, we recommend to disable the AV-input, to avoid customers switching by mistake to black/no picture of the AV-input. In order to disable the AV-input of the dvbLOGiC, set dip1 = OFF (down).



## 2. Connection schema



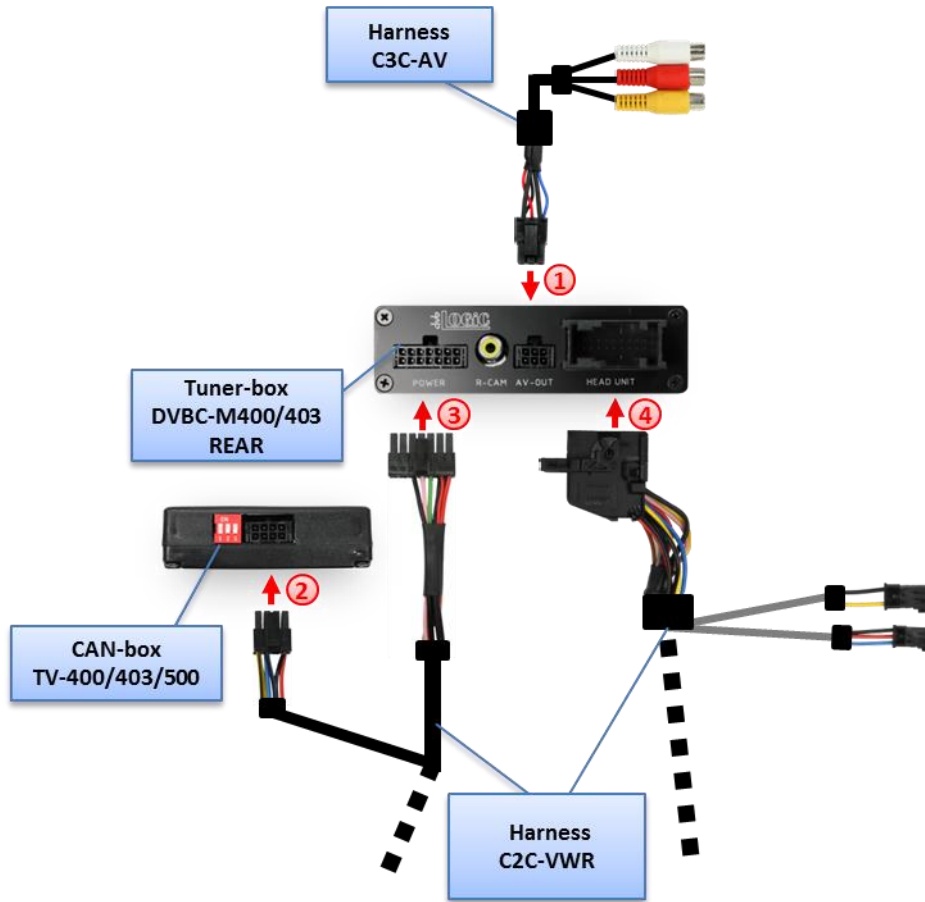
## 3. Installation

**Switch off ignition and disconnect the vehicle's battery! If according to factory rules disconnecting the battery has 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.**

Place of installation is behind the head-unit and of the camera control-box which is depending on the vehicle located either underneath the passenger seat, underneath the center console or above the wheel case of the rear right or left tire (e.g. T5 underneath the passenger seat, Tiguan rear right, Alhambra rear left). The camera control box has a blue 54pin connector.

**Note:** A multiple switching to rear-view camera picture by engaging the reverse gear (for testing) couldn't be possible! In this case the vehicle must be moved up to 25km/h to achieve full functionality.

### 3.1. Interconnecting tuner-box, CAN-box and harnesses

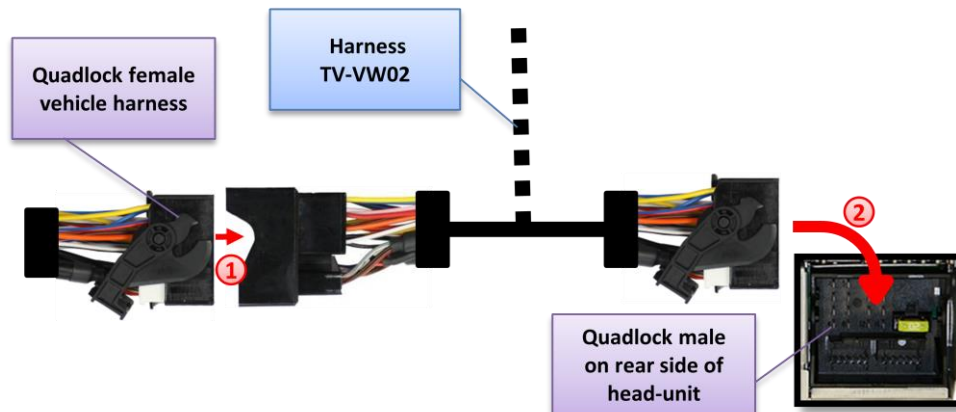


- ① Plug harness C3C-AV into 6pin Molex of tuner-box DVBC-M400/403.
- ② Plug harness C2C-VWR into 8pin Molex of CAN-box TV-400/403/500.
- ③ Plug harness C2C-VWR into 14pin Molex of tuner-box DVBC-M400/403.
- ④ Plug female 18pin AMP-connector of C2C-VWR into male 18pin AMP-socket of tuner-box DVBC-M400/403.

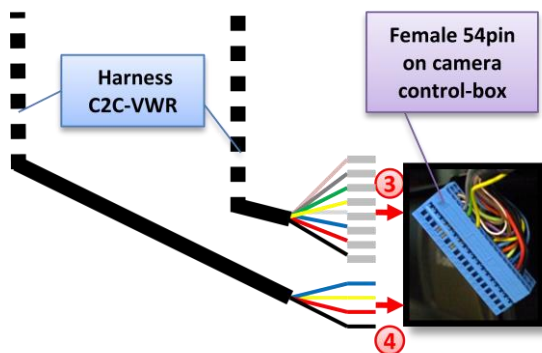


## 3.2. Connections to head-unit and camera control-box

Remove the head-unit from the dash-board and locate the camera control-box which is depending on the vehicle located either underneath the passenger seat, underneath the center console or above the wheel case of the rear right or left tire (e.g. T5 underneath the passenger seat, Tiguan rear right, Alhambra rear left).



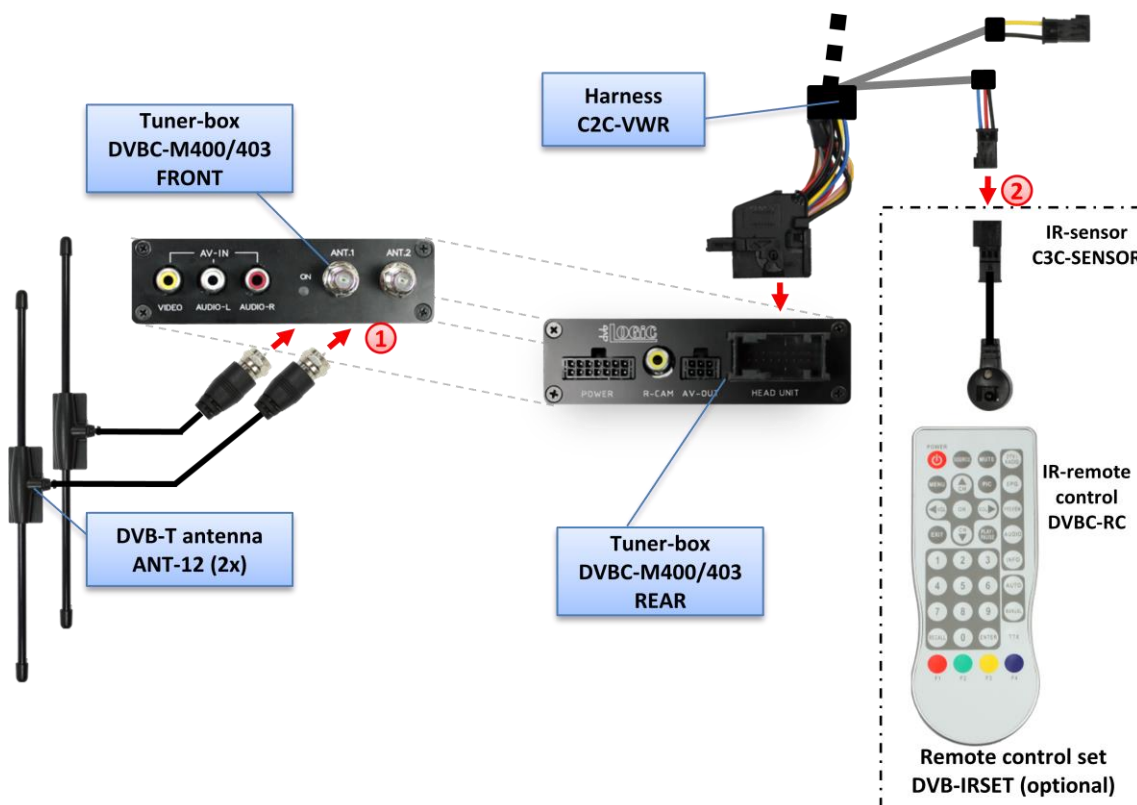
- ① Transfer female Quadlock connector from the back of the head-unit to male Quadlock connector of harness TV-VW02.
- ② Plug female Quadlock connector of TV-VW02 into male Quadlock socket of head-unit.



Signal	Colour	54pin
RGB signal - red	● red	Pin 17
RGB signal - green	● green	Pin 15
RGB signal - blue	● blue	Pin 13
RGB-signal - sync	● white or ● orange	Pin 11
RGB-signal - shield	● grey or ● black (ø 0,25)	Pin 9
Audio-signal - right	● pink or ● purple	Pin 5
Audio-signal - left	● yellow	Pin 7
Audio-signal - ground	● black (ø 0,5)	Pin 4
+12V permanent	● red (w/o contact)	+12V permanent (separately!)
ground	● black (w/o contact)	Ground (separately!)
CAN-high	● yellow (w/o contact)	Pin 40
CAN-low	● blue (w/o contact)	Pin 39

- ③ Plug the 8 MQS contacts of harness C2C-VWR into the female 54pin connector of the vehicle harness which is located at the camera control-box. Obey the blue part of the above pin-configuration table.
- ④ Connect the loose yellow and the loose blue wire of C2C-VWR **additionally** to the corresponding wires of the female 54pin connector of the vehicle harness. Obey the grey part of the above pin-configuration table. Connect the loose red and the loose black cable **not** to the corresponding wires of the female 54pin connector but to a separately power supply.

### 3.3. Antennas and optional IR-remote control set



- ① Mount antennas ANT-12 and connect them to the female f-plug connectors on front of tuner-box DVBC-M400/403.

**We strongly recommend to first test the reception quality of the chosen mounting position of the antennas before final installation! See “Appendix C – Antenna positioning” for additional information.**

- ② The DVB-IRSET consists of the external C3C-SENSOR IR-sensor and the DVBC-RC IR-remote control and can be used to control the dvbLOGiC’s internal DVB-T tuner functions additionally to the control through the navigations buttons. Connect the C3C-SENSOR to the female black/red/blue 3pin AMP connector of harness C2C-VWR and locate the sensor in an accessible place.

**Note:** To use the teletext function of the dvbLOGiC’s internal DVB-T tuner, the DVB-IRSET is necessary to enter the page numbers.

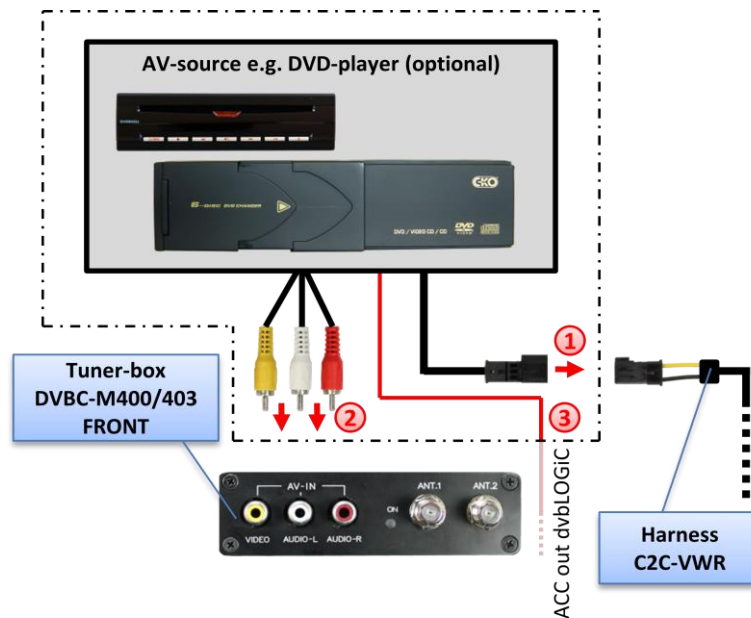
### 3.4. Connecting peripheral devices

It is possible to connect an after-market AV-source and rear-seat-entertainment to the dvbLOGiC Tuner.

**Before final installation of the peripheral devices, we recommend to test-run the dvbLOGiC functions to detect incompatibility of vehicle, navigation, factory accessories or peripheral devices as soon as possible.**

## 3.4.1. AV-source

The dvbLOGic has the possibility to connect and remotely control by navigation buttons a pre-programmed device. 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.

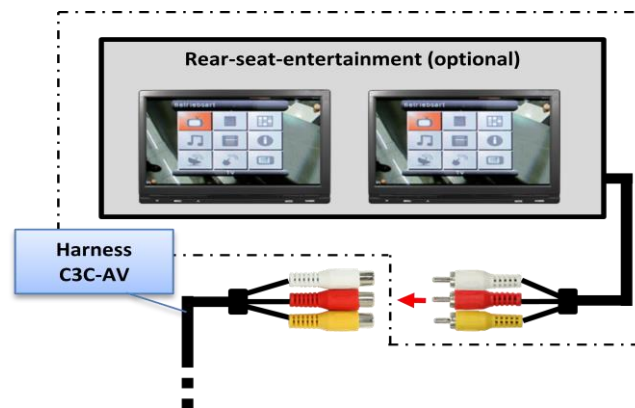


- ① Using the respective STA-xxx IR-control cable, interconnect the yellow female 3pin AMP connector of harness C2C-VWR and the IR-port of the AV-source.
- ② Using an RCA-cable, interconnect the female RCA-port AV-IN of the tuner-box DVBC-M400/403 with the AV-output of the AV-source.
- ③ The pink ACC-output wire (+12V max 1A) of harness C2C-VWR can be connected to the ACC-input wires of the connected device to switch it on. It carries +12V when the head-unit is running.

## 3.4.2. Installing AV-source's IR-sensor additionally

Additionally to the control via OEM navigation, it is possible to install the original IR-sensor of a connected device. By using the respective Y-adaptor (e.g. STA-Y35MM or STA-RJ12) for the IR-Port of the connected device, the controls of navigation AND device's IR-sensor can be connected and used simultaneously. Installation of the IR-sensor is recommended as the controls via navigation are limited, and not all functions may be covered.

### 3.4.3. After-market rear-seat-entertainment



- ① Using RCA-cables, connect the rear-seat-entertainment to the female RCA-connector VIDEO OUT of tuner-box DVBC-M400/403.

**Note:** As the output is a full output, not shared with the video signal for the navigation system, splitting the video with an RCA Y-cable might give a good enough picture for two rear-seat-entertainment monitors. If not, or if connecting more than two monitors, use a video splitter.

## 4. Operation RNS510/RNS810/Trinax/Columbus

### 4.1. Activation of the video-in-motion function

#### TV-400/403

The video-in-motion function is activated permanently without disturbing the navigation performance.

**Note:** The loose white and green cable are not required and must be isolated.

#### TV-500

The video-in-motion can be activated and deactivated by Dip 1 or alternatively by the included loose green cable in connection with a switch (not included in delivery).

#### Video-in-motion permanent

With dip1 to ON the video-in-motion function is activated permanently without disturbing the navigation performance.

#### Video-in-motion selective

With dip1 to OFF the included green cable is used to activate the video-in-motion function.

Connect a switch to the green cable and connect the green cable to +12V ACC.

- +12V = TV-Free is activated
- 0V = TV-Free is not activated

**Note:** The loose white cable is not required and must be isolated.

## 4.2. Selecting the dvbLOGiC as current AV-source

Push the **MEDIA** button of the head-unit and then select **VIDEO** to choose the dvbLOGiC as current AV-source.



## 4.3. Switching between internal DVB-T and AV-input

After selecting the dvbLOGiC as current AV source, tap on the touch-screen to receive the options menu. Select **Senderliste** (channel list) to open the remote function menu. Select **Switch AV1/AV2** to switch between internal DVB-T (AV1) and AV-IN (AV2).



**Note:** If the AV-input is deactivated (see chapter 1.4.2.), it is not possible to switch to the dvbLOGiC's AV-input AV-IN (AV2).

## 4.4. Assigning device control for connected AV-source

After selecting the dvbLOGiC as current AV source, tap on the touch-screen to receive the options menu. Select **Extras** and then **V-text**.



Select **Seite** (page).

Enter "2", followed by the device-related IR-code as described in device control table (appendix A). Confirm with **OK**.

**Note:** The IR-control channel is preset to RC-Code 09 for the optional USB-AV-port (DVBU). If the AV-input is deactivated (see chapter 1.4.2.), it is not necessary, nor possible to assign device controls.

## 4.5. Remote functions

Remote functions can be executed by steering-wheel buttons, head-unit buttons and touch-screen.

## 4.5.1. Previous/next channel/track

To skip to previous or next channel (TV-mode) or track (DVD/USB/iPod®-modes), use the arrow buttons in the upper left corner of the head-unit, the arrow touch-screen buttons or the UP and DOWN buttons of the steering-wheel.



## 4.5.2. Other remote functions

When internal DVB-T or AV-input mode is activated, enter **Senderliste** (channel list). The menu which opens offers a range of commands for the active device. The function description equals the remote control buttons of the optional dvbLOGiC remote control or the additional device. On the additional device the writing may vary (e.g. AV instead of Source).



Select any button to execute the described function on the active AV-source.

**Note:** The volume of an optional connected USB-AV-port (DVBU) can be regulated by the right knob (possible only in the main menu).

## 4.5.3. Menu/setup navigation

To navigate through menu or setup options of the AV-sources, it is necessary to see their picture/OSD, which is not possible in the **Senderliste** (channel list). Instead, after entering menu/setup, select **Extras** and then **V-Text**.



Now menu navigation is possible by the arrow buttons in the upper left corner of the head-unit (left/right) and touch-screen:

- Arrow up = UP, Arrow down = DOWN
- Stopp = MENU/EXIT
- Zoom = OK/Enter



**Note:** Left/right can also be used to adjust the preset volume of the internal DVB-T to match it to the volume of the OEM modes.

## 5. Operation MFD2/RNS2/Nexus

### 5.1. Activation of the video-in-motion function

The video-in-motion function is activated permanently without disturbing the navigation performance.

### 5.2. Selecting the dvbLOGiC as current AV-source

**CD-Version** - Push **AUX** button of head-unit , then select **TV** to choose the dvbLOGiC as current AV-source.

**DVD-Version** - Push **CD** button of head-unit, then select **AUX** to choose the dvbLOGiC as current AV-source.



### 5.3. Switching between internal DVB-T and AV-input

After selecting the dvbLOGiC as current AV source, push the right knob for 3 seconds to switch between DVB-T and AV-input. Repeat to switch back.

**Note:** If the AV-input is deactivated (see chapter 1.4.2.), it is not possible to switch to the dvbLOGiC's AV-input AV-IN.

### 5.4. Assigning device control for connected AV-source

After selecting the dvbLOGiC as current AV source, switch to the dvbLOGiC's AV-input. Now longpress number key "1". The MFD will display "TV 2" and "RC01". Turn right knob until the device-related IR-code as described in device control table (appendix A) is reached. Push right knob to confirm the assignment.



If the vehicle has no MFD display in the instrument panel (for example in case of retrofitted navigation systems), you must count the notches when turning the knob (to the right +1, to the left -1). At the same time, remember that the starting point is channel RC01 (the first notch to the right is then already RC02).

**Note:** The IR-control channel is preset to RC-Code 09 for the optional USB-AV-port (DVBU). If the AV-input is deactivated (see chapter 1.4.2.), it is not necessary, nor possible to assign device controls.

## 5.5. Button assignment table

The button assignment table shows which functions of dvbLOGiC and additionally connected devices can be executed by head-unit buttons. Once DVB-T or AV-input mode is activated, the head-unit button in the left column will execute the function described in the corresponding device column. The function description equals the remote control buttons of the optional dvbLOGiC remote control or the additional device. On the additional device the writing may vary (e.g. AV instead of Source).



**Button assignment table dvbLOGiC MFD2/RNS2/Nexus**

Head-unit button	Internal DVB-T	DVBU optional USB-port	DVD-player	DVD-changer	iPod®-control	Analog-tuner
1	OK	POWER	PLAY	PLAY	PLAY/PAUSE	SCAN
2	AV	MEDIA	AV	AV	EJECT	MODE
3	EPG	VOL+	PBC	PBC	SHUFFLE	FM
4	INFO	VOL-	TITLE	TITLE	REPEAT	DISPLAY
5	SCAN	ZOOM	ZOOM	DISC		SCAN
6	MENU	SETUP	SETUP	SETUP	LIGHT	ADJUST
6 long	POWER	POWER	POWER	POWER	POWER	POWER
7	DISPLAY	MEDIA	DISPLAY	DISPLAY		DISPLAY
8	AUDIO	AUDIO	AUDIO	AUDIO		AUDIO
9	→	→	→	→	→	CH +
10	←	←	←	←	←	CH -
12	↓	↓	↓	↓	↓	VOL -
13	↑	↑	↑	↑	↑	VOL +
14	OK	OK / PLAY	OK	OK	ENTER	MODE
11	EXIT	EXIT	STOP	STOP	PLAY	MUTE
15	CH -	TRACK -	TRACK -	TRACK -	TRACK -	CH -
16	CH +	TRACK +	TRACK +	TRACK +	TRACK +	CH +

Additionally to the head-unit buttons, the steering-wheel buttons UP and DOWN can be used for remote functions. DOWN-button has the same function as **15** on the head-unit and UP-button has the same function as **16** on the head-unit.



## 5.6. Picture settings

By pressing the button **17**, it is possible to switch between 4:3 and 16:9 picture format.  
To enter the picture settings menu longpress button **11**.

The picture settings menu always starts with the brightness settings.  
The respective current picture value is displayed on the instrument panel.


Press the right knob to change from brightness to colour and contrast (after contrast, the interface starts again with brightness).

Turn the right knob to change the current picture value. To quit the settings menu press “**ESC**”-button.



## 6. Specifications

Operation voltage	10.5 – 14.8V DC
Stand-by power drain	<1mA
Operation power drain	~500mA
Power consumption	~6W
Temperature range	-30°C to +80°C
Weight	328g
Measurements (box only) B x H x T	140 x 30 x 105 mm

CE  12V DC

## 7. Technical Support

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