

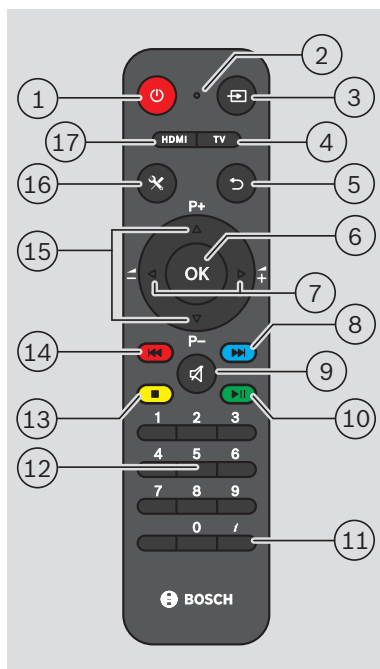
# DVB-T2 Tuner Gen2












7 620 320 035



**BOSCH**

en Operating instructions



- (1) **Stand-by button**  
Switch between normal operating mode and stand-by mode
- (2) **LED**  
Lights up when ready for operation and when a button is pressed
- (3)  button  
Open the source selection menu
- (4) **TV button**  
Switch to TV mode
- (5)  button  
Return to the previous screen/mode
- (6) **OK button**  
Confirm settings or a selected menu item
- (7)  /  buttons  
Adjust the volume, select a menu item, change setting values
- (8)  button  
Fast forward, go to the next track, special function depending on the context
- (9)  button  
Mute/unmute the device volume
- (10)  button  
Start/pause/continue playback, special function depending on the context
- (11)  button  
Show channel/file information
- (12) **0 – 9 keypad**  
Access stored channels/stations
- (13)  button  
Stop playback, special function depending on the context
- (14)  button  
Fast rewind, go to the previous track, special function depending on the context
- (15) **P+ / P- buttons**  
Go to the previous/next channel, select a menu item or list item
- (16)  button  
Open the settings menu
- (17) **HDMI button**  
Switch to playback of the HDMI source

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## Important information

Before using the device, please read these instructions carefully and familiarise yourself with the device. Keep these instructions in the vehicle for later reference.

Any changes or modifications not expressly approved by the party responsible for ensuring compliance with the applicable conformity requirements could void the user's authority to operate the equipment.

Robert Bosch GmbH hereby declares that the product DVB-T2 Tuner Gen2 complies with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the Internet address below.

Hereby, Robert Bosch GmbH declares that the radio equipment type DVB-T2 Tuner Gen2 is in compliance with the relevant statutory requirements. The full text of the Declaration of Conformity is available at this Internet address: [www.bosch-professional-systems.com](http://www.bosch-professional-systems.com)

### Intended use

The device has been designed for operation in a commercial vehicle with a 12 V or 24 V electrical system.

The device and its HDMI output are not intended to be used with recording devices.



### Road safety

- ▶ Road safety has absolute priority. Only use the device when the vehicle is stationary. If it is necessary to use the device during the journey, find a safe

parking spot and park the vehicle.

- ▶ You must always be able to hear police, fire service and ambulance sirens in good time from inside the vehicle.  
For this reason, ensure that the playback volume is appropriate.
- ▶ Make sure that your ability to drive the vehicle is not impaired and your view is not blocked by the device, the antennas connected to it, or the wiring.

### Scope of delivery

- ▶ DVB-T2 Tuner Gen2
- ▶ Quick guide
- ▶ Remote control, including batteries (2 x AAA)
- ▶ External IR sensor (for the remote control)

### Installation notes



#### Note:

The device has been preconfigured for use with the coach infotainment system. Before the device can be used with another Bosch system (e.g. Classic Line) or as a stand-alone unit, it must be reconfigured (please see the "Configuration" section below).

- ▶ The tuner must only be installed by experienced personnel.
- ▶ Before installation, disconnect the power supply by disconnecting the cable from the negative terminal of the battery.

- ▶ The tuner must be installed in such a way that the driver's actions are not impeded in any way.
- ▶ The mounting location must be a rigid, horizontal surface that offers sufficient stability. The tuner can also be mounted overhead. The vehicle manufacturer is responsible for compliance with the legal requirements.
- ▶ Check that the polarities of the connections are correct.
- ▶ Incorrect wiring can cause problems in the vehicle and can lead to damage, accidents and injury.
- ▶ Cables must be laid in such a way that they cannot be pinched and cannot be damaged by a sharp metal edge.
- ▶ Cables must be laid in such a way that the connection points are not under tension.
- ▶ Before connecting the antennas, the device must first be connected to the vehicle's earthing point (terminal 31).
- ▶ The device can only be operated when all three DVB-T antennas are connected.
- ▶ Only use very high quality antennas to ensure flawless, stable reception. DVB-T antennas must be used that meet the following specifications:
  - ▶ FAKRA connector (female A or Z coded)
  - ▶ Vertical polarisation (DVBT/T2)
  - ▶ Voltage: 5 V  $\pm$  10%
  - ▶ Current strength: 50 mA
  - ▶ RF impedance: 50 ohms
  - ▶ VHF frequency: 174 - 230 MHz
  - ▶ UHF frequency: 470 - 862 MHz

- ▶ Gain: 15 - 20 dB
- ▶ Amplifier noise: < 4 dB

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## Configuration

The device leaves the factory configured for use with the coach infotainment system. The HDMI output (HDMI out) is activated, and a source connected to the HDMI input can be selected. In this case, the CVBS output and the corresponding analogue inputs (AV1, AV2) are deactivated.

For stand-alone operation or use with another Bosch coach system (e.g. Classic Line), the device must be reconfigured in order to activate the CVBS output and analogue playback via the AV1 and AV2 inputs.

You will find the relevant configuration files at: <https://bosch-professional-systems.com>

## Checking the current configuration

If you are not sure how your device is currently configured,

- ▶ select AV1 or AV2 (CVBS) or HDMI as the media source (see the chapter entitled "Selecting a media source").

If the currently deactivated video output is selected, a notification will appear informing you that the other media output is activated.

## Configuring the device

You will need a USB storage device that has the FAT32 or NTFS file system.

- ▶ Download the required configuration file.

- Save the configuration file onto the USB stick at the highest directory level (i.e. in the root directory).

**Note:**

Ensure that the name of the configuration file is:

`system-configuration.ini`

- Switch off the device via the vehicle ignition.
- Connect the prepared USB storage device.
- Switch on the device again via the vehicle ignition.

The device will be automatically reconfigured in accordance with the configuration file and then restarted.

### Disposal of end-of-life appliances

Please do not dispose of your old appliance in the domestic refuse/waste.

To dispose of the old appliance, please use the available waste return and recycling systems.

## Switching on/off

The device is switched on/off with the vehicle ignition.

To switch to stand-by mode or back to normal operating mode,

- press the stand-by button (1).

**Note:**

After the device is switched on for the first time or after the factory default settings are restored, the first channel found by the seek tuning function will be played.

## Adjusting the volume

**Note:**

The volume is set to maximum after each source switch.

- Press the or button (7) to increase or decrease the volume.
- To mute or unmute the device volume,
- press the button (9).

## Selecting a media source

- Press the button (3) to open the source selection menu.
- Use the / buttons (7) and **P+** / **P-** buttons (15) to select the desired source:
  - : TV
  - : Radio
  - : AV1 (analogue mode only)
  - : AV2 (analogue mode only)
  - : HDMI
  - : Connected USB storage device
- Press the **OK** button (6).

**Notes:**

- ▶ Depending on how the device is configured, you will have access to the AV1 and AV2 inputs (for further information on this, see also the “Configuration” section in the “Important information” chapter).
- ▶ If the AV1, AV2 or HDMI input is selected without there being an input signal present, nothing is displayed.
- ▶ For information about playback from a connected USB storage device, see the “USB mode” chapter.
- ▶ It is not possible to play HDCP-encrypted content (e.g. from a Blu-ray Disc) via the HDMI port.
- ▶ When playing media via the HDMI input that originate from regions with frame rates other than 50 Hz, smooth playback may be impaired at the outputs for reasons related to the system.

## TV mode

When TV mode starts, the current channel is played, and the channel information is shown for around 5 seconds.

### Displaying channel information

- ▶ Press the **i** button (11).

The channel information is shown for around 5 seconds.

**Note:**

You can set the length of time you want the channel information to be shown (see the section entitled “Setting the display duration for the on-screen menu” in the “System settings” chapter).

### Switch to the next/previous channel

- ▶ Press the **P+** or **P-** button (15).

The next or previous channel is played, and the channel information is shown for a short time.

### Selecting channels in the channel list or favourites list (“myList”)

To display the channel list or favourites list (“myList”),

- ▶ press the **i** button (11) (if necessary) to show the channel information.
- ▶ Press the **OK** button (6).

**Note:**

The channel list is only displayed when there are no channels stored in the favourites list (“myList”). Otherwise, the favourites list is displayed.

To select a channel,

- ▶ use the **P+ / P-** buttons (15) to select the desired channel.

To play the channel,

- ▶ press the **OK** button (6).



## Selecting a channel directly

You can use the channel buttons (12) to select a channel directly from the channel list.



### Note:

If there are channels already stored in the favourites list ("myList"), select the relevant channel in the favourites list.

- ▶ Briefly press the corresponding channel button (12) to select one of the first nine channels in the list.



### Note:

To select a two-digit memory preset, briefly press the button for the first digit and then for the second digit within approx. two seconds.

## Channel list and favourites list ("myList")

The TV channels that can currently be received are contained in the channel list. You can put together your personal selection of channels in the favourites list ("myList").









### Notes:

- ▶ Any channels in the favourites list that are currently not receivable are shown greyed out.
- ▶ The TV channel list may also contain pay-TV channels that are within reception range. To play such pay-TV channels, the device will need to be equipped with a suitable module and card

(see the "Receiving pay-TV channels" section).

## Opening the settings for channel lists

- ▶ Press the  button (16).
- ▶ Use the  /  buttons (7) and **P+** / **P-** buttons (15) to select the channel lists .
- ▶ Press the **OK** button (6).
- ▶ Use the **P+** / **P-** buttons (15) to select the channel/station lists for TV  or radio .
- ▶ Press the **OK** button (6).

## Switching between the channel list and favourites list ("myList")


- ▶ Press the red  button (14).

## Changing how the list is displayed

To sort the channels in the list alphabetically,


- ▶ press the green  button (10).

To display only DVB-T channels, only DVB-T2 channels or both types of channels in the list,


- ▶ press the yellow  button (13) several times as needed.

## Only for TV channels:

To display only free-to-air TV channels, only pay-TV channels or both channel types in the list,

- ▶ press the blue  button (8) several times as needed.

### Storing channels in the favourites list ("myList")


- ▶ If necessary, press the red  button (14) to switch to the channel list.
- ▶ Use the **P+** / **P-** buttons (15) to select a channel in the list.
- ▶ Press the **OK** button (6) to mark the channel.

A preview picture of the channel as well as its current signal strength and reception quality are displayed.

- ▶ Press the blue  button (8).

The channel is added to the end of the favourites list.

### Managing channels in the favourites list ("myList")



- ▶ If necessary, press the red  button (14) to switch to the favourites list.
- ▶ Use the **P+** / **P-** buttons (15) to select a channel in the list.
- ▶ Press the **OK** button (6) to mark the channel.

A preview picture of the channel as well as its current signal strength and reception quality are displayed.

To delete the marked channel,



- ▶ press the blue  button (8).

To change the position of the marked channel in the list,








- ▶ press the yellow  button (13).
- ▶ Use the **P+** / **P-** buttons (15) to select the desired position in the list.
- ▶ Press the yellow  button (13) again.

### Selecting the audio language and subtitles

Some channels provide various audio languages and/or subtitles for the entire channel or for specific programmes.

- ▶ If necessary, press the **i** button (11) to display the channel information.
- ▶ For subtitles, press the green  button (10). For audio languages, press the yellow  button (13).
- ▶ Use the **P+** / **P-** buttons (15) to select the desired setting.
- ▶ Press the **OK** button (6).

### TV settings

- ▶ Press the  button (16).
- ▶ Use the  /  buttons (7) and **P+** / **P-** buttons (15) to select the TV settings .
- ▶ Press the **OK** button (6).
- ▶ Use the **P+** / **P-** buttons (15) to select the picture adjustment setting.
- ▶ Press the **OK** button (6).
- ▶ Use the  /  buttons (7) and **P+** / **P-** buttons (15) to select the desired setting.
- ▶ Press the  button (5) (several times as needed) to return to the next higher menu level or to exit the menu.

## Radio mode

When radio mode starts, the current station is played. The radio station's logo, its current signal strength and reception quality as well as the station list or favourites list ("myList") are displayed.

## Selecting radio stations



### Notes:

- ▶ The station list is only displayed when there are no stations stored in the favourites list ("myList"). Otherwise, the favourites list is displayed.
- ▶ For information relating to the station list and favourites list ("myList"), please see the section entitled "Channel list and favourites list ("myList")" in the "TV mode" chapter.
- ▶ Use the **P+** / **P-** buttons (15) to select the desired station.
- ▶ Press the **OK** button (6) to play the station.

## Selecting a station directly

You can use the station buttons (12) to select a station directly from the station list.



### Note:

If there are stations already stored in the favourites list ("myList"), select the relevant station in the favourites list.

- ▶ Briefly press the corresponding station button (12) to select one of the first nine stations in the list.



### Note:

To select a two-digit memory preset, briefly press the button for the first

digit and then for the second digit within approx. two seconds.

## USB mode

### Connecting a USB storage device

- ▶ Connect the USB storage device to the USB port.

### Playing media

- ▶ Select the connected USB storage device (see the "Selecting a media source" chapter).
- ▶ Use the  $\nabla$  /  $\blacktriangle$  buttons (7) and **P+** / **P-** buttons (15) to select the desired media type:
  - ▶ : Video
  - ▶ : Photos
  - ▶ : Audio
  - ▶ : File browser
- ▶ Press the **OK** button (6).

The list view for video, photo or audio playback or the file browser will be displayed.



### Note:

In the file browser, you have access to all media types (video, photos and audio).

### Selecting and marking a file

- ▶ Use the **P+** / **P-** buttons (15) to select the desired file.
- ▶ Press the **OK** button (6) to mark the file.

## Displaying a file preview



### Note:

Not available in audio list view.

To display information about the marked file as well as a preview,

- ▶ press the red  button (14).

## Playing/displaying a file



### Note:

Not available in audio list view (see the “Controlling audio playback” section regarding this).

To play or display the marked file,

- ▶ press the green  button (10).

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## Activating/deactivating shuffle playback

In the file browser and the video list view,

- ▶ press the yellow  button (13).

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## Activating/deactivating repeat playback

In the file browser and the video list view,


- ▶ press the blue  button (8).




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## Options during video playback

- ▶ Press the **i** button (11) to display the file information.

## Controlling video playback

- ▶ Press the red  button (14) (several times as needed) to start fast-rewinding at up to 16 times the speed.

- ▶ Press the green  button (10) to start playback and to pause/resume playback.
- ▶ Press the yellow  button (13) to stop playback.
- ▶ Press the blue  button (8) (several times as needed) to start fast-forwarding at up to 16 times the speed.

## Selecting the audio language and subtitles

Some video files provide various audio languages and/or subtitles.

- ▶ For subtitles, press the **1** button (12). For audio languages, press the **2** button (12).
- ▶ Use the **P+** / **P-** buttons (15) to select the desired setting.
- ▶ Press the **OK** button (6).

## Adjusting the picture format



You can adjust the video picture display to suit the screen.


- ▶ Press the **3** button (12).
- ▶ Use the **P+** / **P-** buttons (15) to select the desired setting:
  - ▶ No adjustment of the format
  - ▶ Fill the width of the screen
  - ▶ Fill the height of the screen
  - ▶ Fill the entire screen
- ▶ Press the **OK** button (6).

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## Controlling audio playback

In the audio list view or in full-screen picture mode (see below),

- ▶ press the red  button (14) to switch to the previous file.
- ▶ press the green  button (10) to start playback and to pause/resume playback.

- ▶ press the yellow  button (13) to stop playback.
- ▶ press the blue  button (8) to switch to the next file.

## Starting and controlling the slide show

To start the slide show,





- ▶ press the green  button (10) in the photo list view.

To control the slide show,

- ▶ press the **i** button (11) while the slide show is running in order to display the file information.
- ▶ Then press
  - ▶ the **1** button (12) to activate/deactivate shuffle playback.
  - ▶ the **2** button (12) to activate/deactivate repeat playback.
  - ▶ the **3** button (12) (several times as needed) to set how long each picture should be displayed (standard: 3 sec. / +2 presses: 5 sec. / +4 presses: 7 sec.).

## System settings

### Opening the system settings menu

- ▶ Press the  button (16).
- ▶ Use the  /  buttons (7) and **P+** / **P-** buttons (15) to select the system settings .
- ▶ Press the **OK** button (6).






### Setting the display duration for the on-screen menu




#### Note:

The display duration that is set also applies to the channel information display.

To set the display duration for the on-screen menu and the channel information,



- ▶ press the green  button (10) (several times as needed) to switch between the following options:
  - ▶ : Standard display duration 5 sec.
  - ▶ : Display duration 7 sec.
  - ▶ : Display duration 9 sec.
- ▶ Press the  button (5) (several times as needed) to return to the next higher menu level or to exit the menu.

### Restoring the factory default settings

- ▶ Press the yellow  button (13).
- ▶ Use the **+** / **-** buttons (7) and **P+** / **P-** buttons (15) to select the "Yes" option.
- ▶ Press the **OK** button (6).

The device switches off automatically and restores the factory default settings.

### Checking the antenna reception performance

- ▶ Press the  button (16).
- ▶ Use the **+** / **-** buttons (7) and **P+** / **P-** buttons (15) to select the TV settings .
- ▶ Press the **OK** button (6).

The current field strength is displayed as bars for each of the three antennas.

The antenna status is indicated by the colour of the respective antenna symbol:

- ▶ Green: Normal operation
- ▶ Red: Short circuit
- ▶ Grey: No connection to the antenna

## Receiving pay-TV channels

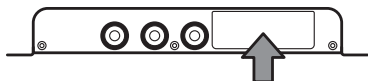
To receive pay-TV channels with the device, you will need a smart card from your pay-TV provider and a suitable CI module (CI stands for “common interface”).



### Note:

This device does not support CI+.

CI slot:



To enable pay-TV reception,

- ▶ first switch off the device if it is not already off.
- ▶ Remove the cover from the CI slot (use a suitable tool if need be).
- ▶ Push the CI module together with the smart card from your pay-TV provider into the CI slot.
- ▶ Switch the device on again.

You can now watch channels broadcast by your pay-TV provider.

## Software update



### Note:

The current software version is displayed at the bottom of the system settings menu (see the section entitled “Opening the system settings menu” in the “System settings” chapter).

You can find software updates for this device online at:

<https://downloads.bosch-carmultimedia.net/>

To carry out a software update, you will need a USB storage device that has the FAT32 or NTFS file system.

- ▶ Download the update file and unpack it if necessary.



### Note:

Make sure the file name ends in `.bin`.

- ▶ Save the file onto the USB storage device.
- ▶ Connect the prepared USB storage device.
- ▶ Press the **X** button (16).
- ▶ Use the **+** / **-** buttons (7) and **P+** / **P-** buttons (15) to select the system settings .
- ▶ Press the **OK** button (6).
- ▶ Use the **+** / **-** buttons (7) and **P+** / **P-** buttons (15) to select the update file.
- ▶ Press the **OK** button (6).

The software versions are displayed for the device and for the update.

**Note:**

The software update consists of two parts:

1. Device firmware
2. TV tuner firmware

To start the software update,

- ▶ use the **+** / **-** buttons (7) to select the **Yes** option.
- ▶ Press the **OK** button (6).

The software update for the device firmware is then executed. The estimated length of time for the update process is displayed (around 1 minute).

**Note:**

If the update cannot be performed successfully, a corresponding error message appears. The device can then continue to be operated as normal with the present software.

If the device software update is completed successfully, a corresponding notification appears.

- ▶ Press the **OK** button (6).

The device is restarted, and the second part of the update (TV tuner firmware) is carried out. The estimated length of time for the update process is displayed (around 5 minutes).

**Notes:**

- ▶ If the update cannot be performed successfully, a corre-

sponding error message appears. The device can then continue to be operated as normal with the present software.

- ▶ If the update is interrupted, for example, owing to an interruption of the power supply, it will automatically be restarted the next time the device is switched on.

If the device software update is completed successfully, a corresponding notification appears.

- ▶ Press the **OK** button (6).

The device will restart.

List of compatible USB storage devices:

- ▶ SanDisk Ultra Dual 32 GB USB 3.0
- ▶ Transcend JetFlash 530 8 GB Retractable USB 2.0
- ▶ SanDisk Ultra USB 3.0 16 GB
- ▶ Intenso USB 2.0 Drive
- ▶ Patriot Supersonic Boost XT 8 GB (USB 3.2 Gen 1)

**Note:**

It cannot be guaranteed that other USB storage devices will function.

## Technical data

### Operating voltage

12 V / 24 V (9 – 36 V)

### Current consumption

During operation:

12 V: 910 mA

24 V: 480 mA

Max. consumption:

12 V: 1.2 A

24 V: 0.6 A

Standby consumption: < 100 µA

### Antennas

Power supply: Max. 50 mA (5 V) per antenna

Impedance: 50 Ω

### RF reception

Wavebands

VHF: 174 – 230 MHz

UHF: 470 – 690 MHz

Bandwidth: 7.8 MHz

### Connections

HDMI

Version: 1.0

USB

Version: 2.0

Power supply: 5 V, max. 500 mA

Supported

file systems: NTFS, FAT32

Supported

data storage

device capacity: 1 TB

Supported image

file formats: .png, .jpg, .bmp

AUX

2 x Video-in

2 x Audio-in (stereo)

CI

No support

for CI+

### Video

Transmission type: DVB-T, DVB-T2

Formats: 1920 x 1080 x 30p

Codecs: H.264/AVC

H.265

MPEG2

File formats: .mov (MPEG-4 video/  
MPEG-4 AAC)  
.mp4 (H.264/  
MPEG-4 AAC)  
.mpg (MPEG-1 video/  
MPEG-1 layer 2  
(MP2))

Resolution

NTSC: 720 x 480 x 60i

PAL: 720 x 576 x 50i



**Audio**

Formats:	MPEG-1/2 layer 1 & 2, 16 – 48 kHz, Layer2: 32 – 384 kbps Layer1: 32 – 448 kbps MPEG-2/4 AAC-LC, 8 – 96 kHz, 8 – 576 kbps Dolby Digital AC3 (no 32-bit support) Dolby Digital Plus (DD+, no 32-bit support)
Codecs:	MPEG-1/2 layer 1 & 2, MPEG-2/4 / AAC-LC
File formats:	.aac, .flac, .mp3, .wav

**Standards**

CE, UN ECE R10,  
UN ECE R118,  
EN 50221, UKCA

Subject to changes!

**Operating temperature**

0°C to +65°C

**Storage temperature**

-40°C to +85°C

**Dimensions**

227.2 x 160.8 x  
30.3 mm (without  
connectors)

**Weight**

Approx. 900 g



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