

Digital Cable Receiver

TT-micro[®] C831 SCX HDTV



Instruction manual



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GÖRLER

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1. Operating and function elements

● Front side



A IR receiver

B Stand-by button

C Four-digit LED display

See page 66 for information on display in stand-by or on brightness control.

D CI slot and smart card reading device (behind flap)

● Rear side



E Coaxial input for cable connection **RF IN**

F Coaxial output **RF OUT** for "looping through" of the analogue signal to the TV set or a different device (loop-through function)

G USB connection for external drive (PVR function)

H HDMI socket **HDMI**

I SCART socket **TV SCART**

J Analogue audio right **Audio Out R**

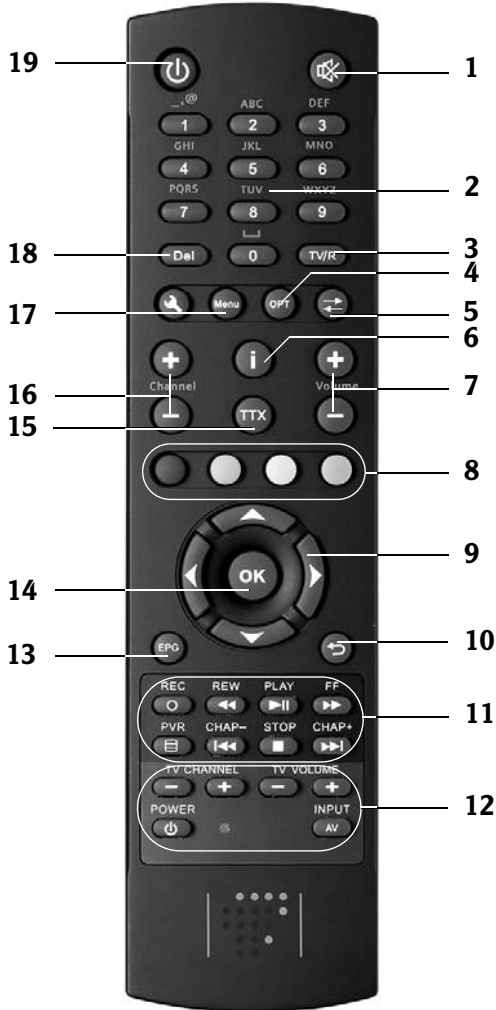
K Analogue audio left **Audio Out L**

L S/PDIF out (audio digital) **S/PDIF**

M Connection socket for external power supply **12V**

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● Remote control



OPERATING AND FUNCTION ELEMENTS

- 1 Mute**
Switches sound to mute
- 2 Numerical keys**
Directly selects the channel via the single buttons
- 3 TV/Radio button**
Toggles between TV and radio operation
- 4 Options button**
Opens the Options menu (same as yellow colour button)
- 5 Zap key**
Toggles between the two previously selected channels
- 6 Info button**
Shows/hides the info banner
- 7 Volume buttons + / -**
Puts up / turns down the volume
- 8 Colour buttons**
 - yellow: displays the options menu
 - blue: changes the HD video resolution in the screen settings menu during the currently running programme
 - green: selects picture scaling and audio output format during the currently running programme
 - red: activates slumbering function, picture scaling during the currently running programme in the screen settings menu
- 9 Arrow buttons**
 - for menu navigation
 - to choose channel (▲ / ▼)
 - to alter volume (◀ / ▶)
- 10 Exit button**
 - Cancels a process
 - Quits the menu
- 11 Buttons for recording and replay**
See page 9

12 Buttons for operating a TV set

See page 10

13 EPG button

Opens EPG (EPG = Electronic Program Guide)

14 OK button

- Confirms selection

- Calls up list of TV and radio programmes

15 TTX button

Displays Videotex

16 Channel buttons + / -

Selects next /previous channel

17 Menu button

Opens the main menu

18 Del button

Deletes stored recordings from the archive

19 On/Off button

Turns the appliance on and off (stand-by)

● ● **Enter text**

To input text, use the remote control's keys 0 to 9.

The instruction manual describes how to proceed for naming of the lists, for example, see as of page 38.

OPERATING AND FUNCTION ELEMENTS

- ● **Buttons for recording and replay**



Description of the buttons from the left to the right and from the top to the bottom:

REC	Directly records running programme
REW	For replay: recording is running backwards two times faster
PLAY	Starts and stops replay Restarts interrupted playback Changes to normal replay speed Starts Timeshift
FF	For replay: recording runs forward two times faster In EPG: goes to the next day
PVR	Opens recording archive
CHAP-	goes back
STOP	Quits replay or recording
CHAP+	Jumps forward

- ● **Buttons for operating a TV set**



Description of the buttons from the left to the right and from the top to the bottom:

TV CHANNEL	Selects next or previous channel of the channel list on the TV set when receiving analogous channels - independent of the receiver
TV VOLUME	Changes the TV set's volume
POWER	Turns the TV set on and off (stand-by)
INPUT	Selects different inputs on the TV set (if available)

- ● **Programming the remote control for controlling the TV set**

- ● ● ● **Note:**

See page 76 for the list of the required TV codes.

1. Simultaneously press the **POWER** and **INPUT** buttons for approx. 3 seconds. (Do not direct the remote control to the receiver!)

The LED besides the **POWER** button flashes two times for confirmation. The remote control is now in programming mode.

2. Release the pressed buttons.

- ● ● ● **Note:**

The programming mode is automatically exited after 5 seconds, if no button is pressed.

3. Enter the 4-digit TV code (see as of page 76).

Every push of a button is confirmed by the flashing LED.

Input of the TC code is completed following the fourth digit. The LED flashes two times for confirmation, the programming procedure is finished.



OPERATING AND FUNCTION ELEMENTS

- • • • Note:
In case of wrong input, the LED flashes for three seconds until extinguishing. The programming mode is exited then. The wrong input is not saved, the procedure is to be repeated.
- 4. Press the **POWER button** to switch on the TV set.
The TV set switches on:
 - Press the **OK button**.
The LED flashes two times and the code is saved.The TV set does NOT switch on:
 - Press **any key** (except the **OK button!**).
The LED flashes for three seconds before extinguishing. The entered code is rejected.
- 5. Check further functions (**Channel+/-** and **Volume+/-**).

- • • • Note:
The respective manufacturer suggests several codes for many devices. In case single buttons within the TV scope do not activate the desired function, try programming with a further code from the list.

If none of the suggested codes is successful, try programming via the automatic search function:

1. Turn on the TV set.
2. Simultaneously press the **POWER** and **INPUT buttons** for approx. 3 seconds.
The LED besides the **POWER button** flashes two times for confirmation. The remote control is now in programming mode.
3. Release the pressed buttons.
4. Press the **POWER button** and keep it pressed.
The LED starts flashing after approx. 5 seconds. Keep the button pressed until the TV sets switches off.
5. Again release the **POWER button** and wait until the TV set is ready again.

6. Shortly press the **POWER button**.

The LED flashes two times for confirmation. The respective code was found and is now stored in the remote control. Programming is complete.

• • • • Note:

If you press a different button instead of the **POWER button**, the LED flashes for three seconds. Then, it extinguishes and the automatic scan is cancelled. No code is stored. If you do not press a button, the scan is cancelled as well, without a code having been stored.

• • • • Note:

Other devices (DVD players, audio systems, etc.) cannot be controlled using the remote control unit.

2. Your appliance in brief

This new digital cable receiver will open a whole new world of television for you - in top quality!

This manual will help you make optimal use of the many functions and possibilities of your new digital receiver.

● Summary of properties

- DVB cable TV and radio reception
- Receives free and encrypted high definition TV channels and standard definition TV channels (HDTV and SDTV)
- Simultaneous playback of HD signals on HDMI and component out in HD quality and on SCART in SD quality
- Easy to use graphic menu
- Context-related help function
- Automatic and manual channel scan
- Separate channel list for TV and radio
- Up to 4 different lists of favourites
- Up to 4000 channel memory spaces
- Electronic programme guide (EPG) current/subsequent programme, grid EPG as well as additional 7 days programme overview
- 4-digit display
- Automatic format change from 4:3 and 16:9
- Wide Screen Signaling (WSS)
- Timer setting via a touch of an EPG button
- Multi-language support
- Integrated Teletext browse and Teletext reinsertion (VBI)
- Support of DVB and EBU subtitles
- CEC support for controlling the receiver via the remote control of the CEC-capable TV set

● **What does HDTV stand for?**

HDTV is abbreviated for "High Definition Television", resembling a digital television with higher resolution. Different to the conventional PAL system - the most common standard in Europe - HDTV is able to transfer the four-fold to five-fold of picture and sound information per channel.

For comparison:

NTSC (USA) 850 x 480 visible dots

PAL 1024 x 576 visible dots

HDTV (up to) 1920 X 1080 visible dots

This results in pictures that are displayed with sharp outlines, deep colours and extensive depth of sharpness, creating the impression of live witnessing.



Your devices must be designed in a way to be able to use HDTV. This is indicated by the "HD ready" logo.

Similar sounding and looking logos to not correspond to the set HDTV standard.

The features listed hereafter for display, TC set and projector are warranted by the logo shown above:

- A physical resolution of at least 720 lines
- Wide-screen format
- Support of both HDTV standards:
 - 1280 x 720 / 50 or 60Hz, progressive
 - 1920 x 1080 / 50 or 60Hz, interlaced
- Analogous interface (YPbPr)
- Digital HDMI interface
- Copy protection HDCP (High-bandwidth Digital Content Protection) on the digital interface

● What does CEC stand for?

"CEC" abbreviates Consumer Electronics Control. This protocol provides functions to control multiple consumer electronics devices from a single point of control.

Consequently, you only need a single remote control to control appliances interconnecting through their HDMI interfaces.

In other words, CEC makes interconnecting compatibles "communicate" with one another. Many manufacturers have invented their own names for CEC, e.g. Simplink, EasyLink or BARVIA Sync.

Please note:

- You can connect the receiver to any TV set which is equipped with a HDMI socket.
- You can only use the CEC function if your TV set supports this standard. For information, study the manual of your TV set.
- To enable your TV set's remote control to control the receiver, the TV set is to support the "Remote Control Pass through CEC" protocol.
- Even if your TV set supports CEC, it may be that only very few functions are available which can be activated via the TV remote control for the receiver, e.g. simultaneous switching on and off of TV and receiver. This is no receiver error, but depends on the CEC protocols available on the TV set.
- In case your TV set supports CEC, you are to activate the respective function in the device settings, see page 57.
- If your TV set does not support CEC, complete operation is done via the remote control of the receiver.

● Contents of package

When you open the package check that it contains all the items below and that nothing is damaged. The package contains:

- 1 receiver
- 1 operating instructions
- 1 remote control unit
- 2 batteries for the remote control unit, type LR03 / 1.5 V
- 1 pluggable power supply
- 1 HDMI cable
- 1 antenna cable

3. Safety and environmental protection

Read the following points prior to connecting and operating your receiver:

- The device is designed for domestic use.
- Only the functions described in this instruction manual may be carried out with this device.
- Keep the instruction manual ready at hand near the appliance.
- Remember to include the instruction manual should you pass on the appliance to someone else.

● Danger to children



-
- Never leave children unattended with this device. Children have no sense of danger when handling electric appliances.
 - Batteries can be fatal when swallowed. Thus, keep batteries out of the reach of children. Immediately call a doctor or other health professional if a battery has been swallowed.
 - Keep children away from packaging material. It causes danger of suffocation when swallowed.



SAFETY AND ENVIRONMENTAL PROTECTION

● Danger caused by electricity



-
- There are dangerous voltages inside the appliance. Never open the housing or insert objects through the ventilation openings.
 - Do not expose the appliance to dripping or spray water. Prevent liquid from getting into the appliance. Immediately pull the plug if need be.
 - Do not place vases, cups or similar objects containing liquid on the appliance.
 - Do not operate the appliance in humid rooms (e.g. bathrooms) or in rooms where there is a lot of dust.
 - Plug the unit's power supply into a properly installed and sufficiently fused 230 V wall outlet only.
 - Make sure there is ready access to the wall outlet in case you need to pull the plug quickly.
 - Leads must neither be clamped nor squashed.
 - Do not operate the appliance if the unit or its leads are visibly damaged or after you dropped it.
 - If an apparent damage occurs (e.g. smoke or similar) during operation, immediately disconnect the electric power supply from the power outlet. Always pull at the plug and not at the cable.
 - Do not put too much load on wall outlets and extensions because you otherwise run a risk of fire! Ask about the maximum admissible power consumption when purchasing leads or outlets.
 - Unplug the power supply from its wall outlet to completely disconnect the unit from the mains.
 - Always have qualified experts do receiver repairs or change receiver settings. The manufacturer accepts no liability for accidents of the user if the device is opened. Connecting other than the rated power sources or consumers may cause unit malfunction or failure.
 - Do not modify the appliance.

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- Use provided cables and pluggable power supplies only.
- Thunderstorms may damage appliances still connected to the mains. Always unplug the power supply from the wall outlet when there is a thunderstorm.
- If not used for a longer period, disconnect the receiver from plug and cable connection. This also applies to devices connected to the receiver.

● Danger of injuries by other causes

- Ensure that leads cannot be tripped over.
- Do not disassemble, short-circuit or throw batteries into the fire.
- Do not let liquid leaking from the battery come into contact with the skin, eyes or mucous membranes. If battery acid contacts your skin, immediately wash with lots of water and consult a doctor.

● Place of operation

- Keep the appliance on a horizontal surface only.
- Do not expose to extreme temperatures. Therefore:
 - avoid exposure to direct sunlight or heat from radiators;
 - leave sufficient minimum space to the top and the sides. Ensure free circulation of air.
 - Do not cover the appliance with magazines, tablecloth, etc. Avoid the heat being trapped inside the appliance! It may otherwise damage or set fire to the unit!
- Do not operate the appliance in close proximity to inflammable material such as curtains, combustible liquids, etc.
- Be careful in case of wood or surfaces made of veneered wood. These may bleach over time due to the receiver's heat. Place a heat-resistant mat under the device, if applicable.



SAFETY AND ENVIRONMENTAL PROTECTION

● Notes on handling batteries

- If the battery is not used for a longer period, it should be removed from the RC. Replace the battery at least one a year to prevent it from leaking.
- Do not expose the batteries to extreme conditions, for instance by storing them on a radiator. Increased risk of leakage!
- Never try to reactivate used batteries with heat, loading or other methods.
- Batteries must not be dismantled and short-circuited.
- Only use batteries as listed in the "Technical data". When inserting the batteries, observe the correct polarity (+/-), otherwise there is danger of explosion.
- Clean battery and appliance contacts before inserting new batteries, as applicable.

● Miscellaneous

- Do not place sources of naked flames, such as lit candles, on the appliance.
- Opening the device results in loss of warranty.
- Condensation water can be produced within the device, e.g. if the device is brought from a cold to a warm environment. Wait for about one hour before operating the receiver. After that time, the water will normally have evaporated.
- The appliance has feet on its bottom side. Since the surfaces of furniture are made of very different materials that a wide variety of care products is used on, we cannot exclude the possibility of some of these substances or their ingredients soften or otherwise damage the feet. Place a non-slip mat under the feet, as appropriate.

● **Disposing of batteries and the appliance**

Sort packaging by type before disposal.



Do not throw the appliance into your household waste.

When you find that the appliance is of no practical use any longer, contact your local disposal authority or company about proper ways of disposal.

Batteries and rechargeable batteries are not be disposed of in household waste.



You as user are obliged by law to give batteries or rechargeable batteries to a collection organised by your municipality, district or local trade. Only by these means, environmentally compatible disposal is ensured.

Cd Batteries and rechargeable batteries which are labelled with the characters as follows contain the following harmful substances, among others: Cd (cadmium), Hg (mercury), Pb (lead).

Hg

Pb

4. Getting started

● Insert batteries into remote control unit

The battery compartment is situated at the rear of the RC unit.

1. Open the battery compartment by pushing the covering bracket a bit down and lifting the battery compartment lid.
2. Insert the batteries as shown on the bottom of the battery compartment. Observe the polarity!
3. Close the battery compartment again. The battery compartment lid is to engage audibly.

● Connecting the receiver

- ● ● ● Note:

Observe the operating instructions of the other devices as well as the graphic connection diagram, see page 24.



Attention!

Make sure all appliances are turned off before connecting them. First establish all other connections, then plug the power supply connector into the mains socket. This is to avoid possible damage.

● ● Cable connection

- ▶ Connect the output socket of the cable connection with an antenna cable to the antenna input socket **RF IN** of the receiver.

● ● Connecting a TV set

The receiver can be connected to the TV set in several ways whereby the possibilities are also dependent on the TV set.

Select one of the following connection options.

Best option (HDTV reception)

- ▶ Connect the **HDMI** socket of the receiver with the HDMI socket of your TV set via HDMI cable.

- • • • Note:

When connecting the receiver to a CEC-capable TV set, you can probably control some of the receiver functions via the TV set's remote control directly.

See page 15 an your TV set's operating instructions for further information.

Second best alternative 0(HDTV reception)

- • • • Note:

The SCART adapter required for this kind of connection is not included (available in specialist shop).

The component out is output via the **TV SCART** socket.

1. Insert the SCART adapter in the **TV SCART** socket.
2. Connect the YPbPr sockets of the adapter with the YPbPr sockets of your TV set. Only connect sockets of the same colour.

- • • • Note:

Sound is not transmitted for this kind of connection. You are to additionally connect the receiver with an audio system, see page 24. Or use the audio inputs of your TV set.

Third best alternative

- ▶ Connect the **TV SCART** socket with the SCART socket of your TV set using a SCART cable. Note the correct marking in case the TV set has several SCART sockets.

- • **Connecting a USB medium**

If you wish to use the record function of the receiver, you are to connect a USB medium (USB memory stick or USB hard disk) to the **USB** socket.

- • • • Note:

Observe the USB system requirements, see page 45.



● ● Connecting an audio system

You can opt between two different kinds of connection for connecting your stereo or surround decoder to your receiver.

- Connect the devices by means of a Cinch cable (sockets **AUDIO OUT L** and **R**), or
- Connect the devices using an optical cable (socket **S/PDIF**).

● ● ● ● Note:

With this type of connection the sound reproduction for the TV should be switched to mute.

Do not connect the receiver via a video recorder, as this may distort the image displayed on the TV set due to copy protection.

● ● Connecting the receiver to the mains



Attention!

Connect the device only to a properly installed 230 V ~ 50 Hz power outlet. Only switch on the device after all other connections have been made.

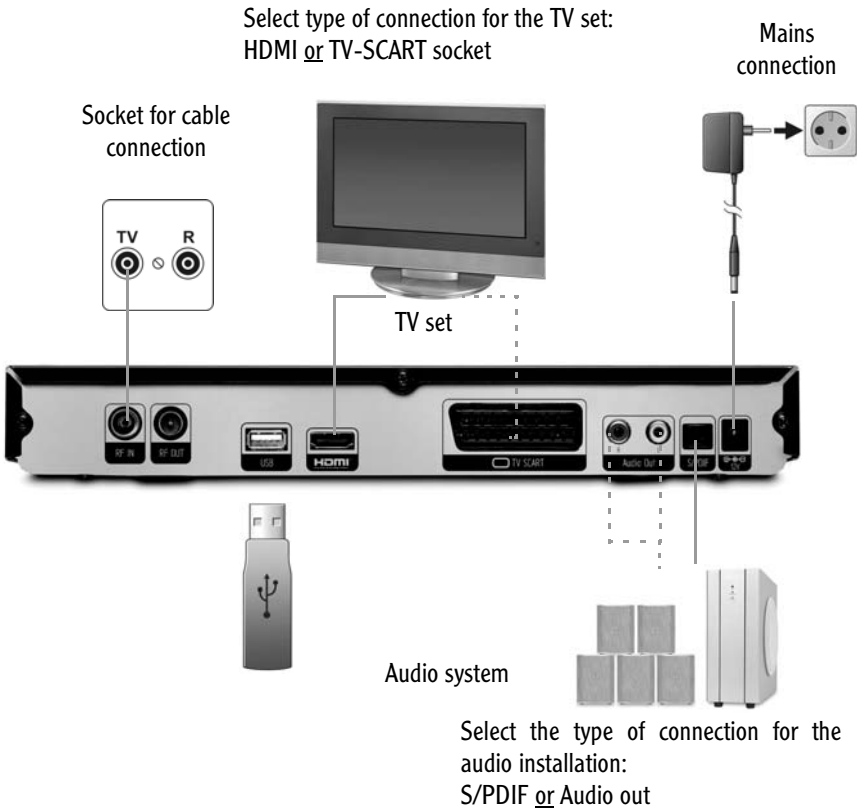
Connect receiver and mains socket with the pluggable power supply.

1. First of all, attach the power supply cord to the receiver's **12 V** jack.
2. Then insert the plug into a power outlet.



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● Connection diagram



Attention!

- Note the connection information, see page 21.
- HDTV picture quality only via HDMI interface.
- Insert pluggable power supply only at the end.



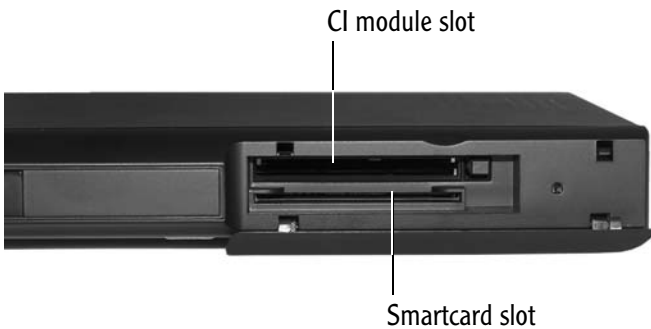
● Inserting the Smartcard

Operating the appliance without a smart card means that you can only receive non-encrypted channels. A Smartcard is necessary in order to receive encrypted channels.

These are obtainable in trade shops and sometimes even directly from the channel provider.

To insert the Smartcard:

1. Open the flap at the operating front.



2. Completely insert the Smartcard into the card reader with the chip to the bottom (bottom slot).



3. Close the flap at the operating front.

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- • • • Note:
If you use a Smartcard with a CI module, insert the Smartcard in the CI module. Insert the CI module in the top slot, then.
- • • • Note:
An own Smartcard menu item is available in the main menu, see page 68. Design and scope depends on the application provider. Please note the documents that are normally provided with the Smartcard.

Common Interface (or just "CI") is a port of DVB receiver equipment.

A card that fits into the CI slot is called a CI module.

The CI module is what your smart card slots into. You need the Smartcard to decrypt the digital data received.

5. First steps (installation)

● Switching on the receiver

As soon as you inserted the pluggable power supply of the receiver in a power outlet, the receiver switches on and the display on the housing front shows **Inst** or **Boot**.

- ● ● ● Note:
In case you are only displayed a dot, switch on the device using the **On/Off button** of the remote control or the stand-by button on the housing's front.
 1. Switch on all devices connected to the receiver.
 2. Activate that AV channel or input of your TV set to which you have connected the receiver.
- ● ● ● Note:
For further information, refer to the operating instructions of your TV set.

● Applying the OSD menu

The on-screen menu (referred to as on-screen display = OSD) lets you change the TV settings via the remote control.

- ● ● ● Note:
Also observe the information and help messages displayed on the screen.
This is how you use the on-screen display functionality:
 - In order to navigate in OSD and to select menu points, make use of the **arrow buttons** on the remote control. The selected menu item is highlighted in colour.
 - In order to confirm a selection, press the **OK button**. The selected menu item is now run or executed.
 - In order to delete the OSD or to leave a called up program press the **Exit button**.

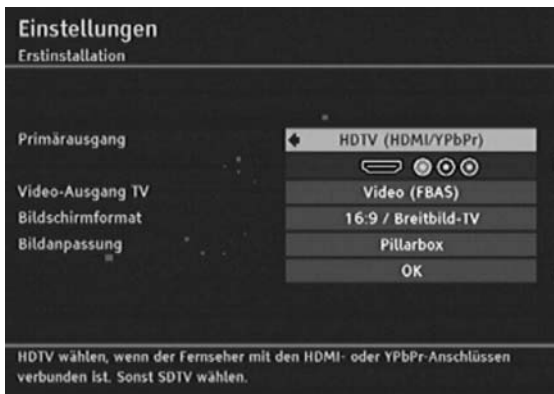
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- The **red**, the **green**, the **yellow** and the **blue coloured buttons** on the remote control have different functions which depend on the menu currently on the screen.
- If a button in the OSD is coloured red, green, yellow or blue, then the corresponding function is triggered by pressing the same coloured buttons on the remote control.
- At the bottom edge of every OSD screen, you will see notes as to which controls you must press to make any settings using the current menu.

● First time installation

After the first switch-on, you'll receive the following welcome window.

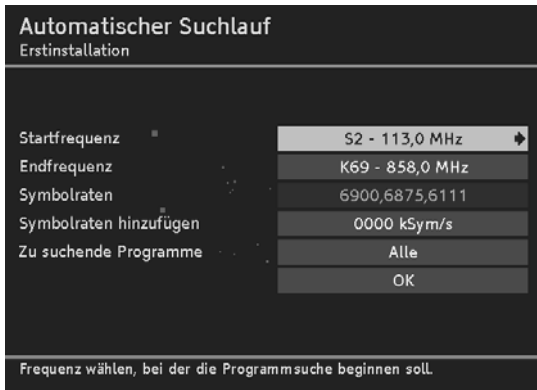
1. With the **arrow buttons** select the desired menu language and confirm with the **OK button**.



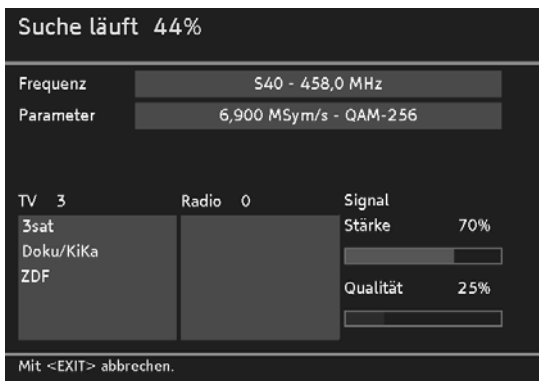
2. This is where the settings for the TV are made. Then highlight the bottom field **OK** in the screen and press the **OK button**.

- • • • Note:
You will normally find that the default settings are acceptable as they are. You can also change the settings at any later time, see as of page 53.

The next screen is shown:



- • • • Note:
- Normally, the displayed values for starting and stop frequency can be maintained.
 3. If desired, change the values for the start and stop frequency by using the **arrow buttons** ◀ or ▶ .
 4. Determine the channels to be searched for: **All**, **Pay TV only** or **Free TV only**.
 5. Use the **arrow keys** ▲ or ▼ to highlight the bottom field **OK** and press the **OK button**.
 6. This will start the scan. The screen dialogue will inform you of the progress of the programme search.



- • • • Note:
 - By pressing the **EXIT key** you can stop the scan mode at any time.
 - An on-screen message will tell you when the scan is complete.
- 7. Press **OK** to quit the setup and installation routine.
- 8. Press **OK** again to start watching television.

6. Operation

● Change of channel

There are various ways of changing channels:

- By pressing **Ch +** or **-**.
- By pressing the **arrow key** **▲** or **▼**.
- By pressing the **ZAP button** it is possible to change backwards and forwards between the two last selected channels.
- By picking the channel straight from the channel list, see page 34.

● Volume

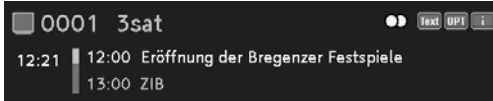
In addition to controlling the volume of your TV set, your stereo or your surround decoder, you can also specify the general output volume via your receiver.

- The volume can be increased with the **Volume button +** and decreased with the **Volume button -**.
- You may as well use the **arrow keys** **◀** (quieter) and **▶** (louder) to change the volume.
- The volume strength is shown by means of a graph bar.
- The volume is turned off by pressing the **Mute** button. Pressing the button again un-mutes the sound and restores the previous volume.



● Information banner

The info banner is automatically displayed every time you change channels.



1. Press the **Info key** to call up the information banner without changing the channel.

The info banner displays the selected channel number and the station. At the left banner edge you can also see the current time.

The progress bar to the right of the time tells you how far a programme has got.

The lines at the bottom show the current and next programmes and their time of broadcast. After several seconds, the information banner is automatically hidden again.

● ● ● ● Note:

You can set the time the info banner is shown and whether or not it is to automatically appear at all, see page 61.

While the info banner is on the screen, you can activate the extended information banner by again pressing the **Info key**. The extended information banner displays further details of the current programme.



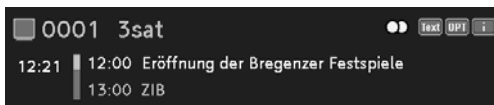
Please note:

- More extensive texts are distributed to several pages. Repeatedly press the **OK button** (or try the **arrow keys** ▲ and ▼) to browse the pages.
 - You are displayed information on the next programme when pressing the **Info** or **arrow key** ►. By pressing the **arrow key** ◀ you return to the information on the current programme.
2. Pressing **Exit** hides the information banner.

● Options

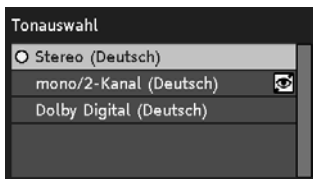
Some stations give you a choice of several camera perspectives, sound tracks and/or Videotex.

You should therefore check the programme's info banner: **OPT** in the right corner is telling you that you have one or several of the above options.



In this case you have a choice of video or audio channels or Videotex pages or any combination of these.

Example: audio selection



How to use the options:

1. Switch to the desired channel.
2. Press the (yellow) **OPT button**.
3. By using the **arrow buttons** ◀ / ▶ / ▲ / ▼ select the desired option and press the **OK button**. The option is enabled and the options page is closed.



- • • • Note:
You may find that both a view and an audio track can be selected. In this case, the **OPT button** must be pressed several times in order to select the desired option.

● Videotext

- • • • Note:
For HDMI connections, Videotext can be activated via the remote control of the receiver only.
1. Press the **TTX button** to display Videotext.
 - Use the **number keys** to skip to a specific page.
 - Press the **arrow keys** ◀ and ▶ to go to the previous or next page.
 - Use the **Channel +** button to go to the page with the next total value of hundred (e.g. 462 > 500 > 600 etc.). The **Channel -** button effects the opposite (462 > 400 > 300 etc.).
 - Use the **yellow** and **blue colour buttons** to skip to the previously selected pages back and forth (history function).
 - Press the **Info button** to go straight to page 100 or the **EPG button** to display page 300.
 - Use the **red** and **green colour buttons** to toggle between the subpages (e.g. page 1/3 > page 2/3 > page 3/3)
 - To suppress the automatic turning of sub pages (e.g. page 3/6), press the **OPT button**.
 - Use the **arrow keys** ▲ and ▼ to highlight a three-digit number on certain pages. Press the **OK button** to directly skip to the selected page.
 - The video text depiction is enlarged by pressing the **ZAP button**. Pressing the button again will reduce Videotext to its original size.
 - Pressing the **TV/R button** turns Videotext into a transparency which is put over the TV picture. Repeatedly pressing the button redoes the function.
 2. Remove the video text completely by pressing the **Exit button**.

● Channel list

1. In order to call up the channel list, press the **OK button** during normal TV display.

This list contains all TV channels the appliance has found and stored when scanning for channels.



This list contains all TV channels the appliance has found and stored when scanning for channels.

Please note:

- When pressing **Zap** while the channel list is open, you are subsequently presented the further favourites list (in case favourites were added). These personalised lists of TV channels only contain your favourite stations. For further information, see page 35.
 - A key next to a station name is telling you that programmes on this channel are encrypted and require the correct smart card to be able to watch them.
 - By pressing the **TV/R button** a list of all radio programmes that the scanning has found is shown.
2. Use the **arrow keys** ◀ / ▶ / ▲ / ▼ to select the desired channel from the list.
 - Pressing **the arrow keys** ▲ or ▼ selects the next or previous channel on the list.
 - By using the **arrow keys** ◀ or ▶, you skip eight positions in the channel list forwards or backwards.
 3. Press the **OK button** after the desired station has been selected.



● Favourites

● ● Creating favourites list(s)

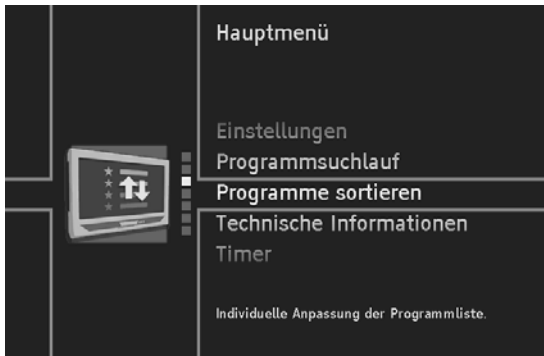
Your receiver supports up to four favourites lists. These are lists of favourite channels you can pick and choose yourself, that is to say, they only contain the channels you actually wish to watch.

For instance, you could create a list of sports channels, another one for entertainment, and a third one containing political magazines. Or, every member of the family can have his or her own "favourites list".

Please note:

- All favourites lists are created in the same way.
- The same applies to radio stations that another up to four lists of favourites can be defined for. For radio and radio station details, see page 49.

1. Press the **Menu** button.
2. Press the **arrow keys** ▲ or ▼ to pick the menu item **Sort channels**. Press **OK** to accept.



1. Highlight one of your favourite entries, e.g. **Favourites 1** and press the **OK button**.



- • • • Note:
If your list of TV channels is very long you may wish to filter it for a less cumbersome number of entries. Press the **yellow colour button**. For further information on filtering, see page 39.

2. First press the **arrow keys** **▲** or **▼** to pick a channel from the list on the left, then press **OK** to accept.
The programme is highlighted with an asterisk and will now also appear on the **TV favourites** list.



3. Repeat the above step to add other channels to your list of favourites.
4. If you would like to add radio programmes to the favourites, press the **TV/R button** and proceed as described above.
5. **Then finally press the Exit button.**
6. You will be prompted whether to store the changes made. Confirm this by pressing **OK**.

- ● **Moving channels**

You can individually adapt the sequence of channels within the favourites lists.

1. Press the **Zap button** to be taken from the left list of the sorting window to the right one.
2. With the **arrow buttons** ◀ / ▶ / ▲ / ▼ highlight the station you wish to move.
3. Press the **OK button**. The station name is moved inwards and highlighted in colour.



4. Move the highlighted station to the desired position using the **arrow keys** ◀ / ▶ / ▲ / ▼ .
5. Press the **OK button** to store the channel at the desired position.

- ● **Renaming list of favourites**

You are free to individually rename lists of favourites, e.g. "sports", "movies", etc. This name will then be used in the OSD and displayed.

1. Press the **Zap button** to be taken from the left list of the sorting window to the right one.
2. Press the **blue colour button**.



3. Enter the desired name using the buttons of the numeric keypad. To do so, see the assignment of keys displayed in the screen.
4. Finally press the **OK button** to close the screen and save the name.

- ● ● ● **Note:**

You are as well free to rename radio favourites lists, e.g. "radio play", "news", etc..

- ● **Deleting favourites**

1. Press the **Zap button** to be taken from the left list of the sorting window to the right one.
2. Press the **arrows** ▲ or ▼ to select the channel to be removed from the list.
3. Press the **red colour button**.

- ● ● ● **Note:**

If the **yellow colour button** is pressed, all the programmes are deleted. However, they are only deleted from the respective favourites list. The channels are still on any other favourites lists you may have defined and on the "all channels list", though.

- ● **Filtering channels**

Filtering helps you define your lists of favourites by extracting only a subset of TV or radio stations and sorting them by the criteria you specify. The resulting list is clearer and more structured.

4. Press the **yellow colour button** of the "Sort channels" screen.

The following page will appear:



5. First press the **arrow keys** ▲ or ▼ to move up and down the list of options, then press \hat{O} or \check{s} to set the selected option as appropriate.
6. Highlight **OK** and press the **OK button**.

You will be returned to the "Sort channels" page where the selected criteria are shown at the top of the page. You are now ready to create your list of favourites.

- ● ● ● **Note:**

Filters are defined for temporary use and are not stored. Thus, when you close the "Sort channels" page, all filter settings will be lost.

- ● **Working with favourites lists**

The favourites lists (four for TV and four for radio) are available during normal TV and radio operation.

1. Press the **OK button** and then the **ZAP button** until the desired favourites list is displayed.
2. Press the **arrow keys** ▲ or ▼ to pick a channel, then press **OK** to accept.

● Channel scan

Following first-time installation, see page 28, it may be necessary to scan afresh, e.g. to search for new channels.

1. Press the **Menu** button.
2. Press the **arrow keys** ▲ or ▼ to pick the menu item **Channel scan** and press **OK** to confirm.
3. Highlight the desired type of scan with the **arrow buttons** and again press **OK**, until the scan is started.

The following scan mode options are available:

- **Automatic search** - comfortable scan mode in which most of the channels are found.
- **Enhanced search** - scan mode detecting also channels which were left out by the "Automatic search". This operation may take some time.
- **Expert scan** - manual scan that lets you find individual channels e.g. by specifying the frequencies to be scanned or by limiting the search to free TV channels.

When the scan is complete you will be told whether and how many channels were found.

4. By using the **arrow buttons** ◀ or ▶ choose whether
 - add the new channels to the old list (default),
 - overwrite the old list of channels,
 - discard all newly found channels.
5. Then press the **OK button**.

● EPG

The Electronic Programme Guide (EPG) provides an overview of the programmes the current channel will broadcast during the week ahead.

Please note:

- Not all channels offer a complete EPG.
- Many stations give a forecast of the day but do not offer detailed descriptions.



- There are also TV stations that do not broadcast any EPG information.
1. Select a channel as appropriate.
 2. Press the **EPG key** to call up the electronic programme guide.



- • • • Note:
The shown data will be downloaded bit by bit.

EPG options:

- You can run the EPG as a single-channel or all-channel service.
- To be shown more information about a programme, move the highlight to it using the **arrow keys** **◀** / **▶** / **▲** / **▼**, then press the **Info button**. Pressing the **Info button** again will hide the additional information and return you to the programme guide.
- Try pressing the **Channel +** or **Channel -** to study the EPG of another channel.
- Repeatedly pressing the **Favourites button** will reduce the list of channels to the ones on the lists of favourites.
- The **TV/R button** toggles between the EPG of TV and radio stations.
- Use the **red** or **green colour buttons** to alter the displayed period for 24 hours.
- To be displayed information on programmes again, press the **green colour button**.

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- To add a programme to the timer list, select it and press the **blue colour button**. Confirm the following request by pressing the **OK button**.
- The numerical buttons **1**, **5** and **7** provide further options of timer programming: **1** = weekly timer, **5** = timer from Monday to Friday, **7** = daily timer.
- • • • Note:
Detailed information on the "Timer" subject can be found in the next paragraph.
- Press the **REC button** to record the selected programme. For further information on the PVR function, see page 45.
- Repeatedly pressing the **EPG button** returns you to the "classic" EPG display:



- In order to alternate between the afternoon and evening programmes in this screen, press the **colour buttons** in the EPG. Depending on the time of day, also "tomorrow" may be displayed.
 - Use the **arrow keys** ◀ and ▶ to go to programme information of other days.
 - Again pressing the **Zap button** takes you back to the EPG standard view.
3. Press **Exit** to quit the EPG.



● Timer

Setting a timer allows you to switch your receiver on or off at a specified time to watch a programme that is of special interest to you, for example. The device then automatically switches on in the standby mode.

If the device has been switched on already, then it will automatically switch to the selected programme.

● ● Adding a programme to the timer list

The timer function is taken over into the timer list via the EPG.

1. Open the EPG and highlight the desired programme.
2. Press the **blue colour button**.
3. Confirm the following query by pressing the **OK button**.

The window is closed and the programme is stored in the timer list.

● ● Processing the timer list

1. Press the **Menu button**.
2. With the **arrow key** ▲ or ▼ select the **Timer** menu item and press **OK** to open the timer list.



The timer list lists all selected programmes. The abbreviation indicates the type of timer:

Abbreviation	Type of timer	EPG button
Without	Once only	Blue colour key
W	Weekly	Number key 1
MF	Monday - Friday	Number key 5
T	Daily	Number key 7

Deleting programme(s)

1. Select the desired programme.
2. Press the respective **colour button**:
 - red : deletes the selected programme.
 - yellow : all videos are deleted.
3. Confirm the following query by pressing the **OK button**.

Processing the timer

1. Select the desired programme and press **OK**.



2. Alter the displayed settings by using the **arrow** and **numerical keys**.

You can modify the following settings:

- Date,
- Time (starting and ending times),
- Cycle (interesting for series and regularly recurring programmes).

3. Finally, highlight the **OK** field and press the **OK button**.

● ● **Switching off the running timer function**

While a timer programme is running, almost all keys are locked. During this time the on-screen display is not available, too.

In order to switch off the running timer function:

1. Press the **On / Off** button of the remote control.
2. Press the **OK button**.

● **Recording function (PVR)**

The recording function (PVR = Private Video Recorder) allows you to record programmes and replay them when you want to.

You can either spontaneously start recording by pressing a button or plan a recording via EPG or Timer.

As the receiver does not comprise an internal hard disk, you are to connect an USB hard disk or memory stick.

● ● **Connecting medium**

- ▶ Connect an USB medium to the **USB** socket of the receiver.

Please note:

- The medium is to support USB standard 2.0 and be formatted in FAT or FAT32. If applicable, use the formatting function of the receiver, see page 48.
- The medium should provide a minimum of 16 GB (recommended 32 GB) of free memory to record.
- If you only use the Timeshift function, see page 48, the medium should have at least 8 GB of free memory space. This is sufficient for one hour of HDTV recording
- The recommended speed of the USB medium is 10 MB/sec. or more.

- The USB interface of the receiver provides a max of 500 mA power in accordance with USB specification. We thus recommend that you use USB drives with separate power supply.
- To prevent data loss, you should only disconnect the USB drive from the receiver when the receiver is not in recording mode.
- The data stored on the hard disk may be encrypted in part. This depends on the channel provider. Encrypted data can only be played back by the receiver which recorded them.
- Encrypted recordings saved on hard disk **cannot** be replayed or viewed on a PC or notebook.

- • **Directly recording a programme**



1. Start recording by pressing the **REC button**.
2. Use the arrow keys to specify the duration of recording: **End of current programme, 15, 30, 60 or 120** (minutes).
3. Press **OK** to start recording.

- • • • Note:
You are able to stop recording at any time by pressing the **STOP button**. When you select a different channel while recording is running, you are prompted with a security query. Observe the screen display.

- • **Selecting programme for programmed recording**

If there is a programmed recording, the receiver switches on at a certain time and records the programme previously selected.

1. Select the desired programme in the EPG, see as of page 40, or in the Timer, see as of page 43.
2. Press the **REC button**.

The programme is recorded while running and saved on the connected medium.



- ● **Managing and playing back saved recordings**

Saved recordings are selected, played back or deleted via the recording archive.

1. Press the **PVR button**.
2. Select the **arrow keys** ▲ or ▼ to select the desired programme.
3. Press the **PLAY button** to start replay of the recorded programme.

- ● ● ● Note:

For further information on the recording list, see page 70.

While replay is running, the respective functions are available to you via the shown buttons,



REW	recording is running backwards two times faster
PLAY	Starts and stops replay Restarts interrupted playback Changes to normal replay speed
FF	For replay: recording is running forward two times faster Note: This function may be restricted due to the settings of the channel provider. This is no device or remote control error.
CHAP-	goes back
STOP	Quit replay
CHAP+	Jumps forward

- ● ● ● Note:

The jump length via the **CHAP-** and **CHAP+** buttons depends on the set time in the record settings, see as of page 63.

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● ● Remove the data carrier

● ● ● ● Note:

Do not remove the medium by simply pulling the USB memory stick or USB plug. **Danger of data loss!** Always proceed as described afterwards.

1. Press the **Menu button** to open the main menu.
2. Use the **arrow buttons** ▲ or ▼ to highlight the **Settings** item and press the **OK button**.
3. Select the item **Record settings** and press the **OK button**.
4. Highlight the **Edit storage medium** item and select the **Savely remove** function.
5. Press **OK** and observe the screen display.
6. Remove the medium as requested.

● ● Formatting medium

See page 64 for information on how to format a data carrier.

● Timeshift feature

● ● ● ● Note:

A medium is to be connected to be able to use the Timeshift function, see page 45.



Time Shift is operated via the bottom keys of the remote control unit.

● ● ● ● Note:

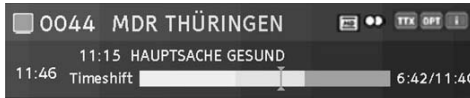
The **FF button's** function may be restricted due to the settings of the channel provider. This is no device or remote control error.

This is how to proceed:

1. During playback of the current programme, press **PLAY**.



Apparently, the film is stopped, while in fact it is recorded in the background. The info banner shows a timeline.



Following information details are displayed:

- white: already lapsed part of the programme without Timeshift
- yellow : already lapsed part of the programme which is stored in the Timeshift memory
- grey: part of the programme not broadcast yet
- vertical line in the yellow field: position of the currently displayed picture

2. Press **PLAY** for resuming the programme at the stopped point.

3. You can start the actions as following while recording with Timeshift:

- Fast forward: Press **FF**
- Fast rewind: Press **REW**
- Repeatedly pressing **FF** or **REW** you can increase replay speed.
- The recording is replayed in normal speed when you press **PLAY**.
- If you keep the **CHAP-** or **CHAP+** button pressed, an advance or recess is done in accordance with the specified setting, see as of page 63.

4. Press the **STOP button** to return to the normal programme (live).

● ● ● ● Note:

You are able to stop recording at any time by pressing the **STOP button**. When you select a different channel while recording is running, you are prompted with a security query. Observe the screen display.

● Radio mode

Also digital radio programmes that are transmitted via cable can be received with the receiver.

Please note:

- In order to change back and forth between TV and radio programmes, press the **TV/R button**.
- By clicking the **OK button** during radio reception, a list of all radio programmes is displayed. This list basically works the same as the list of TV channels, see page 34.
- Some radio stations provide an EPG. With the EPG it is also possible to use the timer function, if available.
- "Radio EPG" and "Radio timer" are operated in the same manner as for TV, see page 40 and see page 43.
- Various audio outputs can be selected by means of the **green colour button**, see page 50.

● Restoring factory settings

You can restore the appliance's factory defaults. Your own lists of favourites will be cleared in the process.

1. Press the **Menu button** to open the main menu.
2. Use the **arrow buttons** ▲ or ▼ to highlight the **Settings** item and press the **OK button**.
3. Use the **arrow buttons** ▲ or ▼ to highlight the **Restore factory settings** item and press the **OK button**.
4. With the **arrow button** ► set the displayed setting to **Yes** and press the **OK button**.
5. The appliance will reset. It switches off and shortly after that on again.
6. Do an initial installation, see page 28.

● Changing picture and sound settings directly

You can change the audio and video settings while listening to or watching a programme.

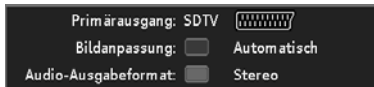
1. Press either the **green colour button** or the **blue colour button**.



Which setting options are displayed to you on the screen, depends on the kind of connection, with which you connected the receiver and the TV set, on the currently selected channel as well as on the defined basic settings.



when connecting via **HDMI/ YCbCr**



when connecting via **SCART**

2. By repeatedly pressing the **green colour button** you change the sound settings (mono, mono left, mono right, stereo etc.)
3. Use the **blue colour button** to determine the line number: **576p, 576i, 720p or 1080i**.

- • • • Note:

In case you select a setting which is not supported by your TV set, the screen will remain black. Repeatedly press the **blue colour button** then until you are shown a picture again. Observe the operating instructions of your TV set, too.

4. Use the **red colour button** to effect changes in the picture format (**Pillarbox , Zoom etc.**).

- • • • Note:

Further information on the screen format can be found later in these instructions, see page 55.

- **Using the slumbering function (Sleep Timer)**

The receiver can automatically switch off after a certain time span.

1. Press the **red colour button** while the current programme is played.
2. Set the desired time until deactivation of the receiver by repeatedly pressing the red colour button (**15 min, 30 min** etc.).

When the set time frame is over, the receiver automatically switches off.

● **Displaying channel and programme information**

Whereas you will hardly ever need this information, it will be quite useful, though, if you, e.g.:

- retrieve information about a channel or to check the strength and quality of a channel signal,
- intend to tell the Technical Support which software version is installed on your receiver and the like.

1. Press the **Menu button** to open the main menu.
2. Use the **arrow buttons** ▲ or ▼ to highlight the **Technical information** item and press the **OK button**.
3. Select **Channel information** or **System information**.

● ● ● ● **Note:**

You cannot change any of the details. They are shown purely for information at this point.

● ● **Updating the software**

Every time you turn on the receiver it checks for and automatically installs new software updates. If it finds any, a message to that effect will be displayed on the TV screen.

You can also run this function manually.

1. Press the **Menu button** to open the main menu.
2. Use the **arrow buttons** ▲ or ▼ to highlight the **Technical information** item and press the **OK button**.
3. Highlight the **System information** and press the **OK button**.
4. Use the **arrow keys** ▲ or ▼ to highlight **Software update** and press **OK**.

This starts the search for new software. As soon as the procedure is ended, a corresponding system message is displayed on the screen.

5. Press **OK**.



7. Settings

1. Press the **Menu button** to open the main menu.
2. Use the **arrow buttons** ▲ or ▼ to highlight the **Settings** item and press the **OK button**.

The following page will appear:



3. By using the **arrow key** ▲ or ▼, highlight the desired option and press the **OK key** in order to call it up.

- • • • Note:

Do take heed of the on-screen info texts. These will help you make the right decisions.

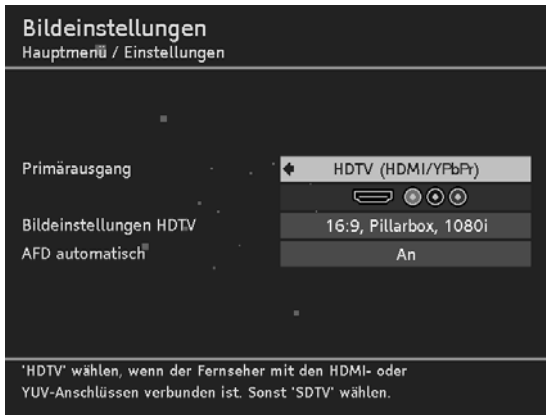
Selecting and altering the settings is carried out as per usual, i.e. by pressing the **arrow buttons** ◀ / ▶ / ▲ / ▼ press **Exit** to close any popup boxes.

● HDTV/SDTV video settings

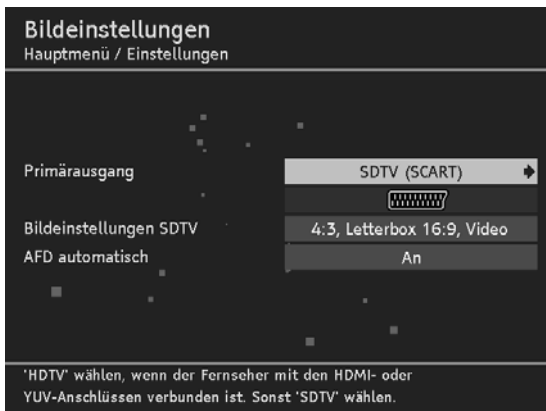
On the home page of the video settings you determine the primary output, that is the kind of connection for TV set and receiver. You can select between

- HDTV with primary out via HDMI/component (see page 55) and
- SDTV wth primary output via SCART (see page 58).

In case you selected **HDTV (HDMI/YCbCr)** as primary output:



If you selected **SDTV (SCART)** as primary output:



To do the video settings:

- ▶ Use the **arrow keys** **▲** or **▼** to highlight the **Video settings item** (**HDTV** or **SDTV**, depending on the type of connection) and press the **OK button**.

• • • • Note:

In case you used a SCART adapter for establishing a component connection (YPbPr), you are to select **HDTV** as primary output.



AFD automatic

The transmitted picture format can deviate from the one shown. AFD recognises and corrects the presentation if you select the option **On**.

- • • • Note:
AFD automatic can be applied for HDTV and SDTV video settings.
- • **HDTV video settings**

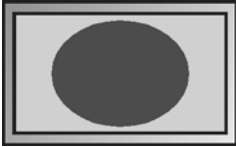
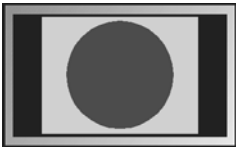

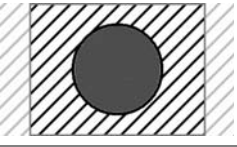
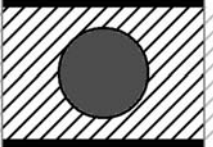
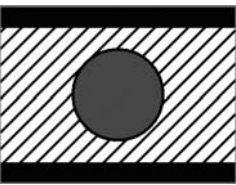


Picture format

At **Screen format** select **16:9 / Wide screen TV**, if you possess a wide screen TV set. For a standard TV set select **4:3**.

Picture scaling

The setting possibilities for **Picture scaling** depend on the selected picture format.

Picture format 16:9		Stretched
		Pillarbox
		Zoom
Picture format 4:3		Pan Scan / CCO
		Letterbox 14:9
		Letterbox 16:9

Original video resolution

The video resolution is reproduced as broadcast by the channel, e.g. 720p for "First HD" and 1080i for "RTL HD".

HD video resolution

In **HD video resolution** set the number of lines: **576p**, **720p** or **1080i**.

1. If there is a **p** behind the number, then the display will be "progressive", i.e. all the lines will be shown at once.
2. If there is an **i**, then the display is "interlaced", e.g. the lines will be displayed in the sequence 1,3,5,7 etc. then 2,4,6,8 etc. This technology builds picture from fields which the sheer quantity of information renders almost invisible, though.



Note:

For this, observe the operating instructions of your TV set. Check which setting is supported and enabled.

In case you selected **On** as option for **Original video resolution**, HD video resolution can no longer be chosen.

HDCP encryption

The mode of encryption is defined via **Automatic**, **Permanent** or **Never**. If you encounter problems with encrypted channels, you should try which setting is the best.

HDMI audio

Here set the audio transmission via HDMI to **Off** or **On**.

HDMI CEC

Set this option to **On** if you intend to use the CEC function.

Please note:

- For information on "CEC" see page 15.
- If you encounter problems when later using the device (e.g. muting of the receiver in spite of having chosen a different function on the remote control of the TV set), you set the option **HDMI-CEC** to **Off**.

- ● SDTV video settings



Picture format / Picture scaling

The same setting option apply as with HDTV, see page 55.

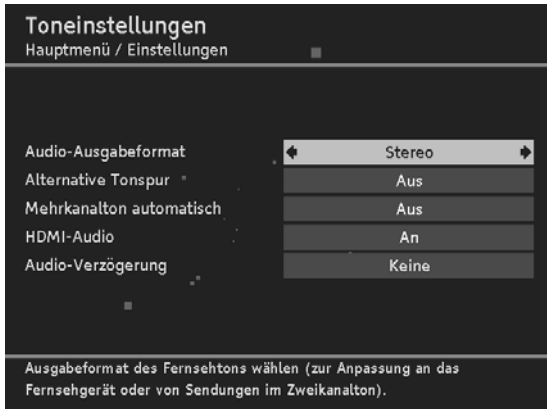
Video output TV

The formats **RGB**, **Video (FBAS)** and **S-Video (Y/C)** are provided for the **Video output TV**. Most of the time **RGB** is the right choice. Furthermore, RGB offers the best picture quality.

AV control

If you want your TV set to automatically set the AV channel when activating the receiver, you are to select **On** for **AV control**, provided that your TV set supports this function.

● Audio settings



Audio format

As your receiver picks up digital TV signals, some channels provide the option of choosing from different audio tracks. The sound may be reproduced either in stereo or mono.



Note:

Even if, at this point, an audio format has been preset, it is possible to quickly change between the available audio tracks using the green colour button later on.

Alternative sound track

If the channel broadcasts a sound track with spoken information (for visually impaired people), this is automatically reproduced if you select **On** here.

Multichannel audio automatic

Select **On**, if you connected a digital audio system to the receiver via the S/PDIF connection.

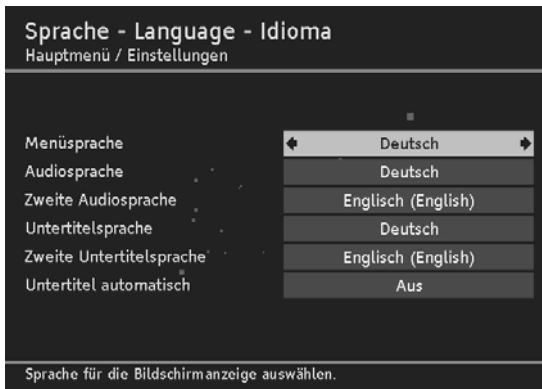
HDMI audio

Here set the audio transmission via HDMI to **Off** or **On**.

Audio delay

In some cases, image display may be delayed when compared to audio, resulting in asynchronous replay of image and audio. You can make up for this so called synchronisation gap by setting the respective delay for audio replay which is required to again exactly match picture and sound. Warning: This only applies for a digital audio system being connected to the S/PDIF output.

● Language



- ● ● ● Note:
The audio language and subtitles options are only available for programmes being broadcast in more than one language, i.e. they depend on the languages broadcast by the service provider.

Menu language

Set this option to the language you want the OSD (on-screen display) to appear in. Numerous languages are available.

Audio language

Set this option to the language you wish to hear when listening to programmes.

Audio language #2

Select an optional second language you wish to hear when listening to programmes.

- • • • Note:
In case your favoured programme is not broadcast in the language set in **Audio language**, the **Second audio language** is used automatically.

Subtitles language

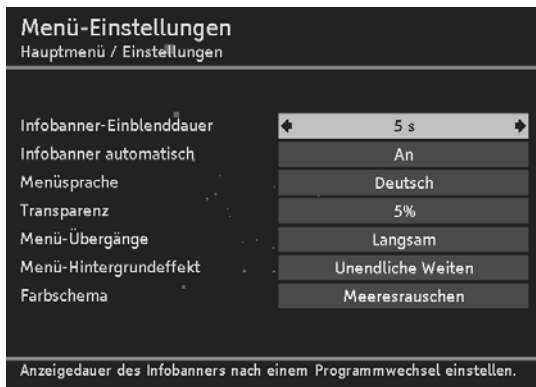
Select the language of any subtitles displayed.

- • • • Note:
Selecting the first and second subtitle languages works the same as selecting the first and second audio languages.

Subtitles automatic

Set this option to **An** if you wish to automatically see subtitles received in the selected subtitle language (default: **Off**). Some stations sometimes offer extended subtitles for people with hearing problems, including texts describing background sound, for example. To see these subtitles, change the setting to **On (impaired hearing)**.

• Menu settings



Info banner duration

Option to set the time the info banner, see page 31, will remain on the screen when changing channels. If you would like the info banner to be suppressed when changing channels, select **None**.

Info banner automatic

By default, the start of a new programme will invoke the info banner. If you do not want this, select **Off**.

-
-
-
-

Note:

This option is available only if you set the **Info banner duration** to 4 seconds or longer.

Menu language

Sets the OSD language.

Menu transparency

Sets the level of OSD transparency. If there are difficulties in setting the OSD to the transparency setting, select **None**.

Menu transitions

Option saying how quickly menus will be displayed or hidden.

Menu background effect

Various effects are shown in the background of menus on the screen. If you do not want this, set it to **Off**.

Colour scheme

Selects the OSD colour.

● Time settings



Time zone adjustment

Tell the program to automatically set your local time vs. Greenwich mean time or to let you set it yourself.

If you say **Manual** you will also have to set the **Time zone (GMT)** and specify whether to automatically change to summer time /daylight saving time (DST) or manually do that yourself also.

Having set **Automatic**, the time settings are updated via the Set Top Box. The options **Time zone (GMT)** and **Daylight saving time** will be deactivated thus.

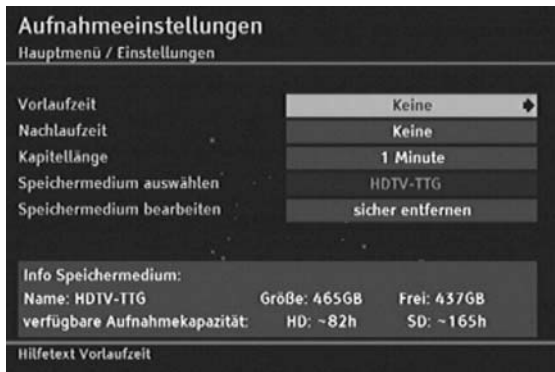
Time zone (GMT)

Only if **Time zone adjustment = Manual**: Assuming you are in Central Europe (e.g. in Germany) you would choose **GMT +01:00** (to specify the difference between your local time and Greenwich mean time).

Daylight saving time

Option to say whether clocks are to be put forward and back automatically (**On**) or whether you want to take care of that yourself (only if **Time zone adjustment = Manual**).

● **Record settings**



The recording settings are relevant for the PVR and Timeshift functions.

Lead time

To make sure that programmes are recorded completely even if they start earlier than indicated, you can enter a lead time.

Follow-up time

To make sure that programmes are recorded completely even if they end later than indicated, you can enter a follow-up time.

Chapter length

Set the time the recording skips forwards or backwards if you keep the **CHAP-** or **CHAP+** buttons pressed while playing back a recording.

Selecting storage medium

In case you connected several USB media via one USB hub (not recommended), you can select the desired medium here.

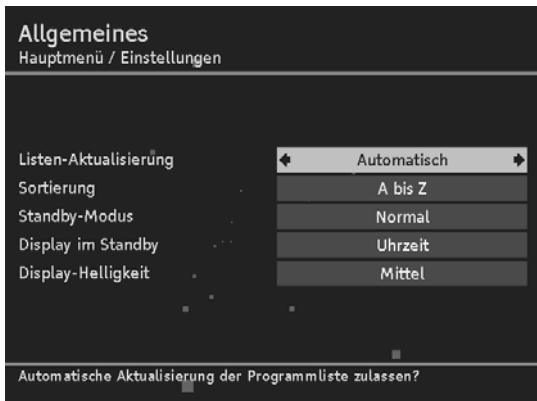
Edit the memory medium

- **Savely remove** - see page 48
 - **Check for errors** - a test program checks the medium. This function is only of interest in case of recording problems. **A test run may take a very long time. You must not switch off the device during the test run.**
 - **Delete all recordings** - all recordings are deleted.
 - **Formatting the hard disk** - all recordings are deleted and the structure of the hard disk is redefined.
- ● ● ● Note:
Save recordings by copying them to a PC if you do not want them to be deleted. Following formatting, you can copy saved recording from the PC to the USB medium again.

Info storage medium

Memory size and available space (in %) of the connected medium are shown.

- General



Channel list update

The architecture of channels is dynamic because stations move to other frequencies or new channels come to life.

To be able to watch all channels available, the channel list is to be updated regularly.

- Selecting **None** leaves it up to you when to perform a new channel scan.
- If you choose **Automatic**, the receiver will regularly check for changes and refresh the list of channels accordingly. Here you can specify whether this is only going to happen **during operation** of the receiver or while the device is in standby mode.
- Automatic update in **stand-by mode** means that the receiver will automatically refresh the list of channels at any suitable time.
- ● ● ● Note:
It may be that channels may be overwritten with new settings at an automatic update which is generally performed at night. If you do not want an automatic update to do so, choose the setting **None** and manually update the channel list at a time you normally watch TV.

Sorting

You can change the sort order of the channel list, see page 34.

Specify in **Sorting**, whether you want to sort the channel list according to **Service Provider**, **Service ID** or in alphabetical order **A to Z** or **Z to A**.

Standby mode

In addition to the "normal" standby mode you can define the **Eco** mode consuming less power. When in **Eco** mode, the LED light up in red.

It is only possible to activate the box via remote control or timer programming when in **Eco** mode. The antenna signal is not "looped through" in **Eco** mode, i.e. a connected device, like for example your TV set or video recorder does not receive a signal.

The set-top box is to be switched on, too, if you only intend to watch the looped through analogous channels or videos or DVDs from a recorder being connected to the set-top box.

• • • • Note:

It is only after 2 to 3 minutes that the box switches over to eco mode. Eco mode is only feasible with the receiver receiving an input signal. If the receiver is not connected to a cable connection or if the signal is disturbed for any reason, the receiver will only support "normal" stand-by.

Display in stand-by

With the receiver being switched on, the display shows the channel number or **Set**, if the menu is activated.

When switching on the receiver, the display **Boot** is shown during the starting procedure, while **Inst** is displayed when doing initial installation or following restore to the factory settings.

Only in stand-by mode **Normal**:

You can select whether the display of the box is to show the time or a merely dot in stand-by mode.

- • • • Note:
Even the time display in stand-by mode requires a cable connection signal. If the receiver is not connected there or if the signal is disturbed due to other reasons, the display only shows a line.

Display brightness

You can choose from three options to adapt the brightness of the receiver's display to your needs.

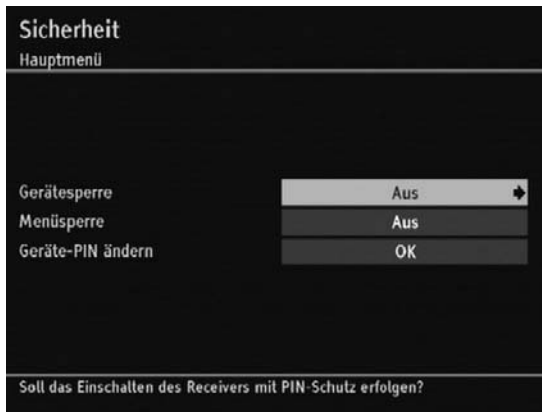
8. Security settings

The following functions are called up under the **Security** menu.

In order to call up the **Security** menu:

1. Press the **Menu button** to open the main menu.
2. Use the **arrow keys** ▲ or ▼ to highlight the **Security** item and press the **OK button**.
3. Use the numerical keys to enter your PIN (factory default: 0000) and press the **OK button**. The numerals you enter will be shown as # on the screen.

Then select the desired function.



Receiver lock

Enable this option to protect the appliance against unauthorised access.

When the receiver is switched on next, a PIN entry query will appear (the PIN code is set to 0000 at the works).

Menu lock

Activate this option if you wish to protect the menu against unauthorised access.

The next time you access the menu page, you will be prompted for the PIN (the factory default PIN code is 0000).

Change device PIN

This is where you specify your personal PIN code. For security reasons, the numerals you enter will be shown as # on the screen.

1. Press the **OK button**.
2. Enter the current PIN code and confirm with the **OK button**.
3. Enter the new PIN code and confirm with the **OK button**.
4. To avoid mistakes by typing errors etc. you will be asked to enter the new PIN again and press **OK** to confirm. A message will tell you if changing the PIN was successful.

9. Encrypted Access

This menu's option are only of relevance, if you use a Smartcard for receiving encrypted channels.

1. Press the **Menu button** to open the main menu.
2. With the **arrow buttons** ▲ or ▼ highlight the **Encrypted access** point and press the **OK button**.

The following functions are available:

- Conax CA,
- Technotrend-CI and
- CI expert settings.



Please note:

- If nothing or an error message are shown following function activation, check whether the Smartcard is properly installed in the device or whether the correct card has been inserted.
- The actual functions controlled by the above menu items depend on your smart card and CI module.
- The receiver has no influence on these menus, it only provides them to the user.
- For further information please study the documents normally included in the CI module and smart card packages.

● Games

You are free to set the difficulty level for every game: **Simple, Standard, Tricky** or **Difficult**.

1. Press the **Menu button** to open the main menu.
2. Use the **arrow buttons** ▲ or ▼ to highlight the **Games** item and press the **OK button**.
3. Select the desired game and press **OK**.

● ● ● ● Note:

For help on the rules of the game, press the **Info button** after having started the respective game.

● Viewer

Use this function to have a look at graphics stored as jpg on a USB medium.

● ● ● ● Note:

Take heed of the connection advice, see page 45.

1. Insert the USB medium in the **USB** socket on the rear of the device.
2. In **Games & Extras**, select the **Viewer** function and press **OK**.
3. Use the **arrow keys** ▲ or ▼ to select the directory the pictures are stored in and press the **OK button**.

4. Highlight the first image (jpg format) and press the **OK button**.
Slide show is started, the pictures pop up automatically one after the other.
Navigation during the slide show:
 - **red and green colour button** - turn the picture counterclockwise or clockwise for 90°
 - **yellow colour button** - stop and restart slide show
 - **blue colour button** - show and hide file info
 - **arrow key** ◀ - show the first picture in the directory
 - **arrow key** ▶ - show the last picture of the directory
 - **arrow key** ▲ - show the next picture (manual sequence)
 - **arrow key** ▼ - show the previous picture (manual sequence)
5. Repeatedly press the **Exit button** to quit and exit the Viewer.

● Recording list

The recording list shows all recordings stored on the connected medium.



Use the **arrow buttons** ▲ or ▼ to select the desired channel and start replay pressing the **PLAY button**.

The further functions can be activated by pressing the respective colour buttons:

- **green** - the submenu for the recording setting is activated, see page 63.
- **red** - the selected programme is deleted.
- **yellow** (if available) - replay is resumed at the point it was interrupted last time.

Note:

The hard disk "remembers" the point even if you disconnected it from the receiver and reconnect it, for example after a week or so.

10. Warranty & service

Principally a defect digital receiver will be replaced directly on the spot and after a max. of 48 hours (Monday to Friday) within the scope of the 2-year warranty or guarantee period.



In case of a warranty, always contact our telephone service hotline first:

+49 180 599 98 54

Monday to Sunday from 8 o'clock to 23:00 o'clock
(14 Ct./Min from a German Telekom landline,
max. 42 Ct./min. from the German mobile phone network)

This is to prevent that an operating error or mere reception problem leads to superfluous replacement of a device

If the receiver is defect, its replacement will be effected via the service hotline directly.

11. Diagnostics



Attention! Do your best to avoid unnecessary risks.
Never attempt to repair defects or perceived defects on the device by yourself.

You may encounter problems in every electronic appliance. However, these problems need not be caused by a defect. Often the cause is poor connections or errors in connecting.

Check the following points before contacting technical support.

Fault	Possible cause	Remedies
Appliance won't start	No mains voltage	Check cable and power supply connector
Sound but no picture	Wrong channel parameters	Perform automatic search, see p. 40
	SCART- or HDMI plug not completely inserted	Check plug connection
No picture, no sound	No mains voltage	Check cable and power supply connector
	No or incorrect channel list	Perform automatic channel scan
	Connection lost	Check connection
Previously received channel not available	Channel out of service	None
	DECT telephone interference	Increase distance between TV set and telephone

Fault	Possible cause	Remedies
No or poor or blurred picture	SCART- or HDMI plug not completely inserted	Check plug connection
	Wrong channel parameters	Perform automatic scan, see p. 40
	Wrong screen format	Change format, see page 55
	Picture settings not suited to selected type of connection	Select different picture setting, see p. 53
	Incorrect TV SCART output signal	Select different video output format, see p. 50
	TV set and HDMI settings don't match	Change settings, see p. 53
No response to remote control commands	Obstruction between remote control and receiver	Remove object(s)
	Faulty data stream -> device locks	Unplug power supply and replug after 10 seconds
	Batteries used up	Exchange old batteries of the remote control for new ones
Certain channels sometimes not available	These channels have no 24 hr service and are sometimes not available. This is not a fault.	
Forgot your PIN	Use the master PIN: 8421	

12. Technical data

● Characteristics

- DVB cable receiver in accordance with EN 300 429
- MPEG-2 and MPEG-4 AVC/H.264 video coding
- HDMI out with HDCP copy protection
- Perfect upscale in the formats 576i, 576p, 720p and 1080i

TT-micro® C831 SCX HDTV

- Audio and video output via SCART
- Digital audio out via optical S/PDIF
- Analogous audio output (left/right) using RCA (Cinch)
- Video decoding:
 - ISO/IEC 13818-2 (MPEG-2 video) - MP@ML & MP@HL
 - ISO/IEC 14496-10 (MPEG-4/part 10) - HP@4L
 - High definition and standard definition : 1080i50, 720p50, 576i25
- Audio decoding:
 - ISO/IEC 13818-3 (MPEG-1/2, layer 1, 2 & 3)
 - Dolby AC-3 pass-through and down-mix
- Common Interface Slot behind front
- Update options via DVB-C network (OTA)

● **Input/output specifications**

- Input connection: IEC 60169-2 female (75 Ω)
- Loop-through connector: IEC 60169-2 male (75 Ω)
- Digital HDMI video out
- SCART output (TV) in accordance with EN 50049-1:
 - TV SCART output: CVBS, Y/C, RGB, Audio
 - Switch signal: at PIN8 0/6/12 V; at PIN16 0/1-3 V
- Analogous audio output (left/right) using RCA (Cinch)
- Digital audio out (PCM stereo, AC3) via optical S/PDIF
- Common interface port
- USB 2.0 connection



● Frequency specification

- QAM 16/32/64/128/256 demodulation support (EN 300 429)
- Frequency range: 47...862 MHz
- Symbol rate: 1.7...7 MSymbols/s
- Input connection: IEC 60169-1 type female
- Input termination: 75 Ω
- Loop-through socket: IEC 60169-1 male
- Loop-through termination: 75 Ω

● Power supply

- Power supply 230VAC/50Hz on 12VDC
- Operation power consumption less 20 W
- Stand-by power consumption less 1 W

● Admissible temperature range

- Temperature +5 °C...+40 °C

● Standards + regulations

- DVB cable standard EN 300 429
- MPEG2 transport stream support according to ISO/IEC 13818-1
- MPEG-2 video/audio support according to ISO/IEC 13818-2, -3
- MPEG-4 Video (AVC) support according to ISO/IEC 14496-10
- Teletext in VBI corresponding ETS 300 472
- DVB subtitles according to EN 300 743
- Safety and EMC directives:
EN 55013, EN 55020 and EN 60065



13. Code table

Note:

See page 87 for special codes on LCD TV sets

Label	Code
A.R. Sys-tems	0037 0556
Accent	0037 0556 1155
Accuphase	0556 0909
Acec	0012
AAcme	1002
Action	1155 1163 1164 1172
Acura	1006
ADA	1005
ADC	1001 1003
Adcom	0625 1001 1003
Admiral	0093 0418 0087 0163 0264 1000 1001 1011 1012 1155 1163
Adyson	0217 0216
AEA	0037 0556
Agashi	0216 0264 0217
AGB	0516
Agef	0087
Aiko	0009 0037 0556 0216 0371 0035 0433 0072 0361 0191 0264 0217
Aim	0037 0072 0412 0556
Aiwa	0701 1026
Akai	0361 0208 0371 0037 0433 0191 0035 0009 0072 0218 0714 0163 0516 0715 0602 0556 0548 0581 0480 0217 0631 0216 0264 0178 0377 0606 0237 1003 1004 1005 1006 1007 1022 1024 1039 1041 1047 1138 1139 1144 1155 1161 1163 1172 1173
Akiba	0218 0282 0455 0037 0556 0294
Akito	0037 0556
Akura	0037 0556 0668 0412 0493 0009 0218 0282 0264
Alaron	0216
Alba	0009 0418 0370 0235 0371 0668 0037 0556 0237 0355 0218 0216 0247 0163 0487 0581 0036 0579
Alkos	0035
Allorgan	0206 0294 0217
Allstar	0037 0556

Label	Code
Ambassador	0177
Amplivision	0217 0370 0320
Amstrad	0177 0009 0516 0264 0371 0218 0037 0556 0433 0412 0237 0648 0581
Anam	0037 0556 0009
Anam National	0037 0556 0650
Anglo	0009 0264
Anitech	0009 0264 0037 0556 0282 0102
Ansonic	0370 0037 0556 0009 0668 0374 0163 0292 0102 0411 0259 0247 0012 0104
AOC	1163
Apollo	0473
Arc en Ciel	0109
Arcam	P0216 0217
Ardem	0486 0714 0037 0556
Aristona	0556 0037 0012
Arthur Martin	0163
ASA	0105 0346 0104 0087
Asberg	0037 0556 0102
Asora	0009
Astra	0037 0556
Asuka	0218 0217 0216 0264 0282
Atlantic	0037 0556 0216 0206 0320 0259
Atori	0009
Auchan	0163
Audiosonic	0009 0037 0374 0556 0109 0714 0715 0217 0370 0337 0264 0218 0486
Audioton	0217 0486 0370 0264
Autovox	0087 0206 0349 0217 0247
AWA	0011 0036 0009 0157 0374 0412 0037 0556 0216 0606 0217 0108 0264
Axxent	0009
Axxon	0714
Baird	0109 0193 0343 0190 0072 0073 0217 0208
Bang & Olufsen	0565 0087
Barco	0380 0163
Basic Line	0374 0037 0163 0668 0556 0009 0218 0282 0217 0455
Bastide	0217
Baur	0195 0512 0037 0556 0191 0361 0349 0505
Bazin	0217
Beaumarck	0178

CODE TABLE

Label	Code
Beko	0486 0035 0714 0370 0037 0556 0606 0715 1025 1104 1143 1153
Bell & Howell	1163
BENCH-MARK-BEAUMARK	1155 1163 1164 1172
Beon	0037 0556 0418
Berthen	0668
Best	0337 0370
Bestar	0037 0556 0370 0374
Bestar-Dae-woo	0374
Binatone	0217
Black Diamond	0237 0556
Black Panther	0102
Black Star	0247
Blacktron	0282
Blackway	0282 0218
Blaupunkt	0191 0195 0455 0170
Blue Sky	0037 0714 0237 0487 0668 0715 0909 0556 0218 0282 0455 1007 1161
Blue Star	0282 1033
Bondstec	0247
Boots	0217 0009
Bosch	0320
BPL	0037 0556 0282
Brandt	0625 0109 0287 0335 0471 0343
Brandt Electronique	0287 0335
Brinkmann	0037 0556 0668 0519 0418 0486
Brionvega	0037 0556 0087
Britannia	0216 0217
Brother	0264
Bruns	0087
BSR	0163 0294 0361
BTC	0218
Bush	0668 0218 0163 0349 0009 0036 0037 0371 0235 0282 0355 0374 0519 0264 0361 0237 0487 0208 0217 0698 0581 0294 0556 0714
Canton	0218
Capsonic	0264
Carad	0610 0037 0556 0668
Carena	0455 0037 0556
Carrefour	0036 0037 0556

Label	Code
Carver	0170
Cascade	0009 0037 0556
Casio	0037 0556 0163 0349
Cathay	0037 0556
CCE	0037 0556 0217
Centrum	0237
Centurion	0037 0556
Century	0087 0247 0238
CGE	0418 0247 0370 0163
Cimline	0009 0235 0218
City	0009 1006 1155
Clarivox	0418 0037 0556 0102
Clatronic	0037 0370 0371 0714 0218 0264 0556 0217 0247 0009 0102 0320 0579 0648
Clayton	0237
CMS	0216
CMS hightec	0217
Concorde	0009 1006 1155
Condor	0320 0037 0556 0370 0216 0009 0282 0102 0247 0418 0411 0163 0264
Conrad	0037 0556
Contec	0216 0009 0157 0011 0036 0264 0037 0556
Continental Edison	0109 0287 0487
Cosmel	0009 0337 0037 0556
Crosley	0087 0247 0163
Crown	0009 0370 0486 0037 0556 0487 0714 0606 0715 0418 0579 0208 0339
CS Electronics	0216 0218 0247
CTC	0247
Curtis Mathes	0093 0166
Cybertron	0218
D-Vision	0037 0556
Daewoo	0634 0374 0909 0499 0037 0556 0009 0216 0218 0217 0137
	1002 1006 1022 1066 1082 1136 1138 1139 1155 1163
Dainichi	0218 0216
Dansai	0037 0556 0264 0035 0216 0009 0036 0217
Dansette	0412
Dantax	0370 0486 0714 0606 0715
Datsura	0208
Dawa	0037 0556



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Label	Code
Daytron	0009 0374 0037 0556
De Graaf	0208 0044 0163 0548
Decca	0072 0516 0037 0556 0217 0137 1002 1003 1013 1016 1022 1035 1047 1139 1144 1163
Deitron	0037 0556 0374 0218
Denko	0264
Denver	0037 0556 0606
DER	0193 0190
Desmet	0320 0037 0556 0009 0087
Diamant	0037 0556
Diamond	0264 0698 0696
Digatron	0037 0556
Digiline	0037 0556
Digitor	0037 0556
Digivision	0361
DiK	0037 0556
Dixi	0009 0037 0556 0247 0217 0087 1006 1022 1047 1139 1155 1163
Domeos	0668
Doric	0349
DTS	0009
Dual	0349 0217 0343 0519 0037 0556 0259 0163
Dual-Tec	1002 1006 1037
Dumont	0087 0104 0102 0217 0072
Dunai	0163
Dux	0037 0556 0012
Dynatron	0037 0556 0012
Eaton	1164
E-Elite	0218
Edison-Min- erva	0487
Elbe	0435 0238 0259 0292 0370 0163 0037 0556 0218 0191 0411 0610 0217 0516 0361
Elbe-Sharp	0516
Elcit	0087 0247 0516 0102 0163
Elekta	0009 0037 0556 0264 0282
ELG	0037 0556
Elin	0216 0037 0556 0105 0104 0548 0361 0349 0163 0009
Elite	0218 0037 0556 0320
Elman	0102
Elta	0009 0264 0216
Emco	0247

Label	Code
Emerson	0177 0178 0087 0247 0037 0556 0371 0282 0320 0361 0909 0486 0370 0163 0321
Emperor	0282
Enzer	0696
Erres	0037 0556 0012
ESC	0037 0556 0217
Estèle	0163
Etron	0037 0556 0009 0163
Eurofeel	0264 0217
Euroman	0216 0264 0037 0556 0217 0370 1001 1002 1022 1163 1138 1139 1143
Europe	0037 0556
Europhon	0037 0516 0102 0163 0217 0556 0247 0216
	1002 1008 1013 1022 1035 1037 1138 1139 1144 1162 1163 1171
Excel	0037 0556
Expert	0206 0259 0163
Exquisit	0037 0556 0247
Fagor	0037 0556
Family Life	0037 0556
Fenner	0374 0009
Ferguson	0073 0625 0287 0190 0335 0238 0193 0109 0560 0037 0556 0035 0343 0104 0108 0361 0471
Fidelity	0163 0512 0037 0556 0371 0412 0193 0216 0264
Filsai	0217
Finlandia	0208 0346 0548 0361 0163 0072 0287 0343 0045
Finlux	0105 0104 0037 0556 0714 0346 0217 0072 0163 0516 0715 0087 0102 0411 0631 0492 0480 0473 0418 0606
Firstline	0037 0556 0374 0668 0714 0163 0009 0294 0321 0216 0247 0909 0102 0217 0411 0349 0238 0072 0235 0208 0361
Fisher	0104 0217 0036 0208 0370 0045 0087 0157 0361 0163 0349 0072
Flint	0037 0556 0610 0072 0218 0455 0264
FNR	0102
Forgestone	0193
Formenti	0163 0037 0556 0486 0216 0087 0320
Formenti- Phoenix	0216 0320
Fortress	0093 0087
Fraba	0037 0556 0370
Friac	0009 0037 0556 0102 0370 0499 0655

CODE TABLE

Label	Code
Frontech	0247 0264 0349 0217 0009 0163 1001 1006 1011 1012 1032 1036 1139 1155
Fujimaro	1146
Fujitsu	0206 0072 0102 0217 0163 0009 0037 0556 0361 0259
Fujitsu General	0009 0217 0206 0163
Funai	0668 0264 0294 0412
Future	0037 0556
GGalaxi	0102 0037 0556 0361 0163
Galaxis	0370 0418 0037 0102 0556
Galeria	0009
GBC	0163 0009 0374 0218
GE	0343 0178 0282 0560 0287 0109 0335
GeantCassino	0163
GEC	0163 0361 0349 0037 0516 0556 0072 0217
Geloso	0247 0009 0163 0374
General	0109 0287 0471
General Electric	0343 0287
General Technic	0009
Genesis	0009
Genexxa	0218 0037 0556 0412 0493 0163 0009
Giant	0217
Goldfunk	0668
Goldhand	0216
Goldline	0337
GoldHand	1138 1155
GoldStar	0037 0009 0370 0377 0217 0178 0247 0216 0556 0163 0361 0109 0606 0044 1002 1006 1011 1022 1036 1037 1047 1048 1138 1139 1140 1143 1153 1163 1164 1171 1172
Gooding	0487
Goodmans	0634 0374 0037 0499 0556 0237 0668 0909 0036 0264 0072 0516 0009 0487 0371 0343 0235 0035 0480 0560 0217 0335 0218
Gorenje	0370
GPM	0218
Gradiente	0170 0037 0556
Graetz	0361 0371 0163 0037 0339 0556
Gran Prix	0648
Gradin	1155 1161 1163
Graetz	1012 1041

Label	Code
Granada	0037 0556 0226 0356 0012 0045 0072 0108 0208 0217 0036 0339 0516 0473 0335 0560 0163 0225 0343 0548
Grandin	0037 0556 0009 0163 0610 0714 0715 0668 0374 0320 0282 0218 0455 0579
Gronic	0102 0217 0163
Grundig	0195 0191 0487 0037 0556 0587 0009 0036 0443 0370
Grunkel	1148
Haier	0698 0264
Halifax	0264 0216 0217
Hampton	0216 0217
Hanimex	0294 0218
Hanseatic	0037 0556 0499 0519 0349 0163 0361 0292 0282 0320 0634 0370 0009 0294 0217 0087 0377
Hantarex	0009 0037 0556 0102 0516
Harley Davidson	1164
Hantor	0037 0556
Harwood	0009 0412 0037 0556
Hauppauge	0037 0556
HCM	0009 0412 0037 0556 0217 0218 0418 0282 0264
Hedzon	0556 0037
Hema	0217 0009
Hemmermann	0349
Hifivox	0109
Higashi	0216
Highline	0264 0037 0556
Hikona	0218
Hinari	0208 0037 0556 0009 0218 0036 0163 0355 0443 0487 0235 0294 0264
Hisawa	0282 0218 0455 0610
Hit	0087
Hitachi	0225 0325 0349 0036 0356 0044 0108 0473 0163 0343 0578 0217 0194 0516 0072 0481 0499 0037 0556 0109 0548 0719 0634 0178 0137 0105 0492 0361 0512 0480 1002 1003 1011 1012 1015 1019 1021 1032 1035 1037 1039 1040 1041 1100 1139 1144 1147 1159 1163 1165 1172
Hitachi Fujian	0108 0225
Hitsu	0009 0455 0218 0610
HMV	0087

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Label	Code
Hornophone	0037 0556 0012
Hoshai	0218 0455
Huanyu	0374 0216
Hygashi	0217 0216
Hyper	0009 0216 0217 0247
Hypersonic	0361
Hypson	0037 0556 0714 0715 0264 0217 0282 0455 0238
Hyundai	0037 0556
Iberia	0037 0556
ICE	0264 0037 0371 0009 0556 0218 0217 0216
Ices	0218 0216
Icos	0012
Ict	0037 0137 0556
Imperial	0037 0163 0370 0556 0411 0361 0349 0418 0247
Indiana	0037 0556
Ingelen	0487 0610 0714 0163 0361
Ingersoll	0009
Inno Hit	0009 0072 0037 0556 0218 0217 0516 0247 0102 0282
Innovation	0519 0037 0556
Interactive	0037 0556 0012 0087 0512 0163 0361 0370 0109
Interbuy	0009 0037 0264 0247 0512 0556
Interdis- count	1163 1165
Interfunk	0037 0556 0012 0087 0512 0163 0361 0370 0109 0349 0247
Internal	0037 0556 0499 0374 0909
Internat- ional	0216
Intervision	0282 0217 0455 0037 0371 0377 0519 0486 0370 0487 0218 0102 0163 0264 0247 0009 0556
Irradio	0009 0037 0556 0218 0247 0371 1006 1007 1022 1047 1140 1153 1155 1163 1170
Isukai	0218 0037 0556 0282 0455
ITC	0217 0320
ITS	0037 0371 0218 0282 0264 0216 0009 0556
ITT	0163 0480 0349 0361 0473 0548 0193 0346 0339 0208 0610
ITT Nokia	0361 0548 0163 0473 0480 0349 0346 0208 0339 0606 0610 0631
ITV	0264 0037 0556 0247 0374

Label	Code
JBL	1163
Jean	0036
JEC	0035
JMB	0037 0499 0634 0374 0556 0443
Jocel	0712
Jubilee	0556
JVC	0653 0190 0036 0193 0371 0218 0606 0418
Kaisui	0218 0282 0037 0556 0216 0455 0217 0009
Kamp	0216
Kapsch	0163 0361 0206 0259 0104
Karcher	0037 0556 0370 0610 0163 0282 0102 0264
Kathrein	0556 0037
Kawa	0371
Kawasho	0216
KBAristocrat	0163
Kendo	0610 0037 0556 0163 0519 0512 0370 0377 0411 0102 0235 0247
Kennedy	0163 0206 0435
Kenwood	0105
Kingsley	0216
KIC	1139
Kiton	0556 0037 1037 1042 1171
Kneissel	0037 0370 0610 0411 0374 0499 0556 0435 0259 0292 0238
Kolster	0037 0556 0102 0349
Konka	0037 0556 0371 0714 0418 0218
Kontakt	0487
Korpel	0037 0556
Korting	0087 0370 0320
Kosmos	0037 0556
Kotron	0412 0264
Koyoda	0009
Kraking	0238
Kriesler	0012
KTV	0217 1002 1139
Kuba	0349 0163
Kuba Elec- tronic	0349 0163
Kyoshu	0412 0418 0264
Kyoto	0163 0216 0217
LaSAT	0486 0370
Leader	0009
Lecson	0037 0556
Lemair	0411
Lenco	0037 0009 0163 0374 0556 0104

CODE TABLE

Label	Code
Lenoir	0009
Lesa	0247
Levis Austria	0037 0556
Leyco	0264 0072 0037 0556 0294 0579 1001 1003 1014 1022 1047 1163 1172
LG	0037 0370 0009 0377 0217 0556 0714 0247 0216 0163 0178 0361 0606 0109 1002 1006 1011 1022 1036 1037 1047 1048 1105 1138 1139 1140 1143
Liesenk & Tter	0037 0556
Liesenkotter	0037 0012 0556
Lifetec	0037 0009 0519 0374 0668 0512 0655 0237 0137 0556 0218 0264
Lloyd's	0009
Loewe	0512 0037 0556 0655 0370 0633 0087 0292
Logik	0011 0698 0037 0193 0556 0371
Logix	0668
Luma	0037 0206 0163 0411 0556 0374 0009 0259
Lumatron	0206 0037 0556 0163 0259 0361 0217 0264 0073
Lux May	0037 0009 0556 0581
Luxman	0579
Luxor	0194 0480 0492 0349 0361 0208 0356 0548 0163 0346 0473 0217 0631
LXI	0178
Madison	0037 0556
Magnadyne	0087 0247 0516 0102 0163 1000 1008 1035 1036 1037 1047 1144 1153 1155 1162
Magnafon	0516 0102 0216 0073 1002 1008 1020 1035 1138 1144 1162
Magnavox	0037 0556 0036 1163
Magnum	0648 0714 0037 0556 0715
Mandor	0264
Manesth	0037 0556 0235 0217 0264 0320 0035 0294 0163
Manhattan	0037 0556 0668 0237 0163
Marantz	0037 0556 0412
Marelli	0087
Mark	0037 0556 0217 0216 0374 0009 0714 0715
Masuda	0218 0371 0009 0264 0037 0217 0556

Label	Code
Matsui	0037 0556 0487 0009 0235 0177 0011 0355 0072 0036 0217 0294 0371 0433 0443 0579 0455 0163 0349 0516 0035 0208 0045 0195 0191 0335 1002 1003 1006 1011 1013 1014 1015 1016 1022 1035 1045 1047 1139 1144 1155 1157 1159
Matsushita	0650 1023
Matsuyama	0587
Mediator	0037 0556 0012
Medion	0037 0668 0519 0512 0556 0137 0698
Megas	0610
Megatron	0178
Meletronic	0346 0037 0512 0109 0343 0247 0105 0104 0374 0009 0217 0480 0492 0216 0411 0349 0163 0287 0556 0634 0361 0191 0195
Memorex	0009 0178
Memphis	0337 0072 0009
Mercury	0037 0009 0556
Metz	0195 0447 0191 0367 0037 0087 0556 0587 0668 0237
MGA	0178 0037 0556 0218 0104
Micromaxx	0037 0556 0668 0237
Minato	0037 0556
Minerva	0487 0195 0191 0516 0108
Minoka	0412 0037 0556
Mistral Electronics	0193
Mitsubishi	0108 0093 0512 0037 0178 0087 0036 0193 0556 0208
	1000 1015 1016 1022 1028 1030 1155 1163 1173
Mitsuri General	0163
Mivar	0292 0370 0216 0609 0516 0217 1002 1020 1035 1138 1139 1140 1141 1142 1143 1144 1145
Monaco	0009
Morgan's	0037 0556
Motorola	0093
MTC	0370 0349 0512 0163 0216 0361 1038 1138 1143 1164
Multibroadcast	0193
Multistandard	0102
Multitec	0037 0556 0486 0668 0237

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Label	Code
Multitech	0349 0009 0486 0037 0370 0556 0217 0216 0247 0102 0264
	1002 1006 1008 1011 1015 1020 1036 1037 1047 1138 1139 1143 1153 1155 1162 1002 1010 1039 1138 1159
Murphy	0104 0216 0072 0163
Musikland	0037 0218 0247 0556
Myryad	0556 0037
NAD	0166 0178 0361 0163
Naiko	0037 0606 0556
Nakimura	0374 0037 0556
Naonis	0163
NAT	0226
National	0226 1030 1163
NEC	0170 0036 0320 0455 0009 0374 0217 0037 0556 0011 0499
	1015 1139 1150 1155 1164
Necker- mann	0037 0191 0370 0505 0556 0163 0418 0349 0087 0247 0217 0411 0320 0512
NEI	0037 0556 0337 0371 0163
Nesco	0247
Netsat	0037 0556
Network	0337
Neufunk	0037 0009 0556 0610 0218 0282 0714
New Tech	0037 0009 0556 0343 0217
New World	0218 1007
Newtech	1139 1155 1163
Nicamagic	0216
Nikkai	0072 0218 0037 0556 0217 0264 0035 0337 0216 0009 0036
Nikko	0178
Nobluko	0102 0216
Nogamatic	0109
Nokia	0361 0163 0480 0349 0548 0492 0473 0339 0208 0374 0631 0606 0346 0320 0610 0109 1012 1017 1038 1039 1041 1155 1156 1159 1164 1167
Nordic	0217
Nordmende	0109 0714 0287 0343 0560 0195 0037 0556 0335 0163 0471
Norfolk	0163
Normerel	0037 0556
Novak	0012
Novatronic	0037 0105 0374 0556
Nurnberg	0163 0361
Oceanic	0163 0361 0294 0208 0473 0548 0480
Odeon	0264
Okano	0370 0037 0556 0264 0072 0009

Label	Code
Olympic	1155
Omega	0264
ONCEAS	1002 1155
Onwa	0371 0602 0218 0433 0581 0102
Opera	0037 0556
Optimus	0650 0166
Optonica	0093
Orbit	0037 0556
Orion	0037 0355 0556 0655 0714 0235 0294 0177 0320 0011 0009 0321 0443 0102 0264 0412 0516 1006 1014 1016 1022 1029 1035 1047 1048 1108 1144 1155 1157 1163 1169
Orline	0037 0218 0556
Ormond	0668 0237 0037 0556
Orsowe	0516
Osaki	0072 0218 0217 0264 0493 0037 0412 0374 0355 0556
Osio	0037 0556
Oso	0218
Osume	0157 0072 0036 0218 0037 0556
Otake	1169
OTF	1155
Otto Ver- sand	0505 0036 0093 0512 0037 0556 0195 0349 0191 0361 0235 0109 0294 0226 0247 0320 0217 0009 0282 0343 0516 0519 1002 1005 1015 1022 1032 1033 1034 1037 1038 1040 1041 1047 1139 1144 1154 1155 1156 1163 1173 1169
OVP	1163
Pacific	0037 0556 0137
Pael	0216
Palladium	0370 0037 0191 0505 0418 0556 0247 0349 0087 0163 0217 0411 0655 0519
Palsonic	0264 0412 0037 0217 0377 0218 0698 0556
Panama	0009 0217 0264 0216 0037 0556 0247
Panasonic	0650 0226 0361 0367 0516 0037 0556 0163 0548
	1012 1023 1030 1041 1061 1071 1144 1159 1163
Panavision	0037 0411 0556
Pathe Cin- ema	0163 0238 0216 0320 0292 0349 0370
Pathe Mar- coni	0109 1018 1040
Pausa	0009 1006 1155
PCE/PEC	1164

CODE TABLE

Label	Code
Perdio	0072 0320 0163 0037 0216 0282 0556
Penney	1164
Perdio	1003 1138
Perfekt	0037 0556
Philco	0087 0418 0247 0163 0370 0037 0556 0519
Philex	0193 0163
Philharmonic	0217 1002 1046 1139
Philips	0556 0037 0238 0012 0191 0087 0193 0343 0374 1000 1002 1019 1020 1022 1037 1041 1047 1053 1055 1057 1060 1064 1067 1068 1069 1070 1076 1081 1083 1086 1087 1089 1095 1114 1152 1153 1154 1165 1171 1172 1170 1163
Phoenix	0037 0556 0370 0486 0163 0087 0072 0216 0320
Phonola	0037 0556 0012 0087 0193 0216 1000 1022 1047 1138 1163
Pilot	0556 0037 0712 1164
Pioneer	0166 0037 0556 0370 0343 0361 0109 0163 0287 0486 0512
	1012 1022 1040 1047 1143 1153 1163 1165
Pionier	0370 0486 1143
Plantron	0037 0556 0264 0009
Playsonic	0217 0714
Policom	0102 0109 0206 0238 0361 0163 0087
Polytron	0697
Poppy	0009
Portland	0374 0909
Powerpoint	0487
Prandoni	1170 1162
Prandoni	0247 0516 0361 1011 1035 1041 1144
Prince	
Precision	0217 1002 1046 1139
Premier	0009
Prima	0009 0264 0412
Prinz	0072 0349 0361 0194
Profex	0009 0163 0361
Profi	0009 1162 1163 1022 1048
Profftronic	0037 0556 0102 1002 1047 1048 1138 1139 1143
Proline	0037 0556 0625 0634 0411 0012 0321 0072
Prosonic	0037 0556 0370 0374 0371 0668 0714 0216 0579

Label	Code
Protech	0037 0556 0217 0009 0247 0349 0102 0264 0418 0337 0668 0282 0163 0486
	1001 1002 1006 1008 1022 1031 1036 1037 1038 1046 1047 1139
Proton	0178 1155
Provision	0499 0037 0556 0237
Pye	0037 0556 0012 0087 0374 0349 0412
Pymi	0009 1006 1155
Quadral	0218
Quasar	0247 0650 0009
Source	0037 0505 0011 0109 0512 0349 0191 0361 0036 0217 0247 0104 0105 0668 0556 0157 0195 0264 0294 0346 0009 1001 1002 1009 1010 1014 1016 1022 1036 1037 1041 1047 1048 1139 1140 1154 1155 1157 1163 1171 1173 1169 1170
Questa	0036
R-Line	0037 0556 0163
Radiola	1022 1047 1139 1163
Radialva	0109 0218 0163 0037 0556 0287
Radiola	0037 0556 0012 0217
Radiomarelli	0087 0516 0247 0037 0556 1000 1035 1036 1144
RadioShack	0037 0556 0178
Radiotone	0009 0037 0556 0370 0579 0418 0412 0648 0668 0264
Rank Arena	0036 0157 1009 1015 1159
RCA	0625 0093 0560 0335 0343 1017 1164
Realistic	0178
Recor	0037 0556
Rectiligne	0037 0556
Rediffusion	0361 0548 0036 0346
Redstar	0037 0556
Reflex	0037 0556 0237 0668
Reoc	0714 0634 0909
Revox	0037 0556 0370
Rex	0206 0411 0247 0163 0259 0264
RFT	0087 0292 0370 0072 0264 0037 0556
Rhapsody	0216
Ricoh	0037 0556
Roadstar	0009 0418 0037 0237 0556 0218 0264 0282
Robotron	0087
Rodex	0037 0556
Rowa	0264 0698 0217 0712
Royal Lux	0370 0412 0335
Rukopir	0556 0037

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Label	Code
Runco	1164
Saba	0625 0287 0087 0163 0109 0516 0343 0361 0498 0335 0548 0471 0560 1000 1012 1035 1040 1041 1109 1144 1159 1165 1056 1169
Sacccs	0238
Sagem	0610 0455 0282
Saisho	0235 0516 0177 0009 0011 0217 0163 0264
Saivod	0037 0556
Sakai	0163
Salora	0194 0349 0163 0356 0361 0516 0548 0339 0208
Salsa	0335
Sambers	0516 0102 1008 1020 1035 1144 1162 1170
Samsung	0618 0587 0037 0178 0556 0009 0217 0370 0264 0216 0644 0072 0208 0519 0163 1001 1002 1003 1006 1016 1022 1025 1044 1046 1047 1085 1088 1101 1138 1139 1140 1143 1153 1155 1163 1164 1172
Sandra	0216 0217 1002 1138 1139
Sanela	0238
Sansui	0037 0556 0371 0655 0602 0455 1022 1155 1163 1164
Santon	0009
Sanyo	0208 0157 0292 0036 0011 0370 0339 0072 0216 0217 0104 0045 0009 0163 0037 0108 0556 0486 1002 1003 1004 1010 1015 1016 1017 1020 1037 1044 1093 1138 1139 1142 1143 1155 1165 1172
Save	0037 0556
SBR	0037 0556 0012 0193
Schaub Lorenz	0349 0548 0714 0606 0361 0486 0374
Schneider	0137 0037 0556 0519 0012 0349 0259 0343 0217 0247 0371 0361 0218 0668 0237 0163 0648 0714 0909
Scotland	0163
Scott	0178
Sears	0178
SEG	0037 0556 0237 0668 0217 0487 0009 0349 0163 0264 0634 0036 0102 0247 0216 0218 0909 1001 1002 1008 1015 1020 1036 1037 1047 1112 1138 1139 1148 1155 1162

Label	Code
SEI	0087 0102 0505 0163 0516 0349 0294 0206 0037 0556 0177 1000 1008 1012 1014 1035 1144 1157 1162
Sei-Sinud- yne	0102 0206 0294 0516 0505 0037 0556 0087
Seleco	0206 0259 0163 0411 0371 0036 0264 0346
Sencora	0009
Sentra	0035 0218 0009 0349
Serino	0610 0455 0216 0093
Sharp	0093 0293 0157 0036 0294 0653 0193 0516 1015 1065 1074 1092 1094 1144 1148
Shorai	1014
Show	1155
Shintoshi	0037 0556
Shivaki	0037 0556 0443 0374
Shorai	0294
Siarem	0163 0087 0102 0516
Siemens	0191 0195 0157 0037 0556 0361 1169 1005 1173
Siera	0037 0556 0012
Siesta	0370
Silva	0037 0556 0216 0361 0648
Silver	0036 0037 0455 0361 0556 0715 0163
Singer	0009 0087 0037 0556 0102 0247 0435 0335 0163
Sinudyne	0177 0087 0235 0102 0294 0163 0361 0516 0349 0505 0206 0037 0556
Skantic	0356
Sky	0037 0556
Skymaster	0105
Skysonic	0696
Skyworth	1051
Sliding	1146
SLX	0668
Smaragd	0487 0320 0361 0072 0163 0548 0037
Sogera	0556
Solavox	
Soemtron	1146
Solavox	1012
Sonawa	0218
Soniko	0037 0556
Sonitron	0208 0370 0339 0217
Sonneclair	0037 0556
Sonoko	0037 0556 0009 0264 0282 0217
Sonolor	0208 0163 0505 0548 0361 0282
Sontec	0037 0556 0370 0294 0009

CODE TABLE

Label	Code
Sony	0505 0651 0011 0036 0102 0037 0556 1003 1006 1015 1016 1046 1052 1059 1063 1072 1077 1097 1103
Sound & Vision	0102 0218 0374 0037 0556
Soundesign Soundwave	0178 0037 0556 0320 0418
Soundwave	1022 1047
Spectra	0009
Ssangyong	0009
Standard	1002 1006 1007 1022 1046 1139 1155
Starlight	1047
Staksonic	0009
Standard	0037 0556 0237 0218 0009 0217 0320 0374
Starlite	0009 0163 0037 0556 0264 0412
Stenway Stern	0282 0218 0206 0259 0163 0264 0411 0435
Stern	1011 1012 1042 1171
Strato	0037 0556 0264 0009
Strong	1147 1148 1170
Stylandia	0217
Sunic Line	0037 0556
Sunkai	0294 0355 0321 0455 0218 0235 0610 0037 0556 0487
Sunstar	0371 0037 0556 0009 0579 0264
Sunwood	0037 0556 0009
Superla	0516 0216 0217
Supertec	1155
SuperTech	0009 0037 0556 0216 0218
Supra	0374 0009
Susumu	0335 0218 0287
Sutron	0009
Swissline	0247
SYC LINE	1155
Sydney	0216 0217
Sysline	0037 0556
Sytong	0216 1138
T+A	0447
TALENT	1173
Tandberg	0367 0411 0109 0337 0361 0163
Tandy	0218 0072 0217 0247 0093 0163 1002 1003 1007 1012 1039 1046 1139 1172
Tashiko	0036 0217 0170 0216 0163
Tatung	0037 0556 0072 0516 0217 0011
	1002 1003 1013 1022 1035 1046 1047 1139

Label	Code
TCM	0714 1001 1006 1026 1048
Teac	0698 0512 0037 0237 0556 0712 0668 0455 0217 0264 0909 0178 0009 0412 0349 0282 0418
Teak	1155
TEC	0217 0009 0247 0471 0335 0337 0259 0037 0556 0361 0163
Tech Line	0037 0556 0668
Technics	1023
Techniland	1153
Technol	1155
Techwood	1148 1164
Tecnison	1155
Techica	0218
Technema	0320
TechniSat	0655 0037 0556 0163
Tecnimagen	0556
Tedelex	0217 0606 0009 0208 0587 0037 0556
Teiron	0009
Tekon	1155 1164
Teleavia	0109 0287 0343
Telecor	0037 0163 0556 0218 0217 0259
Telefac	1155
Telefunken	0109 0498 0471 0287 0335 0073 0343 0037 0556 0486 0625 1022 1030 1040 1110 1165 1169
Telefusion	0037 0556
Telegazi	0037 0163 0556 0259 0218 0264
Telemeister	0320 0037 0556
Telesonic	0037 0556
TELEOPTA	1155
TELESERV- ICE	1173
Telestar	0037 0556 0579 0412
Teletech	0037 0556 0668 0009 0247 0337
Teleton	0217 0206 0163 0349 0259 0036
Televideon	0320 0163 0216
Televue	0037 0556
Telexa	0102
Temco	0294
Televideon	1138
Tempest	0009 0037 0556
Tennessee	0037 0556
Tensai	0104 0218 0037 0556 0217 0294 0320 0009 0105 0374 0371 0377 0247 0715 0163
Tesmet	1022
Tenson	0320 0009

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Label	Code
Tevision	0519 0037 0556 0648 0668 0137
Textet	0217 0374 0009 0216 0218
Thomas	1155 1163 1164 1172
Thomson	0625 0560 0287 0109 0471 0335 0343 0037 0556 0349
	1002 1022 1030 1040 1054 1056 1079 1080 1165
Thorn	0193 0073 0190 0238 0499 0037 0104 0556 0335 0512 0374 0035 0108 0109 0225 0343 0361 0505 0072
Thorn Ferguson	0104 0108 0109 0190 0238 0193 0361 0335 0499 0073 0035
TMK	0178 0177
TOBO	1155
Tokai	0072 0037 0556 0337 0163 0668 0217 0374 0009
Tokyo	0216 0035 1002 1138 1164
Tomashi	0282 0218
Toshiba	0035 0508 0036 0102 0608 0217 0109 0718 0195 0191 0618
Tosonic	1164
Towada	0349 0102 0217
Toyoda	0009 0371
Trakton	0264
Trans Continens	0668 0217 0037 0556
Transonic	0037 0556 0455 0587 0512 0264 0698 0712
Transcontinens	1139
Transtec	0216
TRC	1156
TREVI	1155
Triad	0037 0556
Trical	0157
Trident	0516 0217 1046 1139 1144
Tristar	0264 0218 0193
Triumph	0177 0516 0346 0556 0037
Trivision	1155
Tsoschi	0282
TVTEXT 95	0556
Uher	0037 0556 0206 0320 0374 0418 0486 0370 0259
Ultra	1172
Ultravox	0087 0102 0374 0247 0216 0163 0037 0556
Uma	1159 1163 1165 1173
Unimor	1163

Label	Code
Unic Line	0037 0556 0473 0455 0349
United	0037 0556 0714 0715
Universum	0346 0105 0195 0473 0361 0247 0492 0480 0370 0418 0011 0512 0294 0036 0157 0163 0264 0104 0037 0556 0411 0505 0668 0349 0217 0109 0337 0177 0631 0009
Univox	0037 0556 0337 0087 0163 0238
Utax	0163
Uranya	1155 1162
VANGUARD	1155
Veco	1155
VWestel	0037 0163 0217 0556 0668 0237
Vexa	0009 0037 0556
Victor	1015 1022 1023
Videologic	0218
Vide-ologique	0216 0218 0217
Videosat	0247
VideoSystem	0037 0556
Videotechnic	0216 0320 0217 0374
Videoton	0356 0163 1165
Vidikron	0102
Vidtech	0036 0178
Viper	0337
VIDION	1155
Visiola	0216 1002 1138
Vision	0037 0556 0320 0217
Visorex	1027
Vistar	0206 0361
Vortec	0037 0556
Voxson	0087 0037 0556 0418 0163
WALKIE	1171
WWaltham	0217 0668 0356 0418 0287 0037 0556 0109
Wards	1163
Watson	0037 0320 0556 0163 0218 0579 0519 0009 0668 0237
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