

COREMAX M1 PROJECT GM CHASSIS SERVICE MANUAL

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REVISION LIST

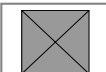
Version	Amendment	Date	Responsible Department
1	SEK draft published	27.07.2017	TV Design Application

▲ WARNING

Risk of electrical accident

- Do not open the TV set. Safety risk may arise and also the guarantee of the product can be void if the television set is opened.
- The TV set can only be operated with the power cable or the AC/DC adaptor supplied with the product.
- Do not operate the TV set with a damaged power cable/AC/DC adaptor (if supplied).
- on products with 32" external adaptor option:
If you use a 12 V battery to supply the TV, you must use a suitable cable with 6A support.
If you use it with an external adaptor, you need to use a 12 V (min. 6A) adaptor.
- If the plug on the TV set has an earthing contact, only insert the plug into a socket with an earthing contact.
- Plug the TV set into the mains socket only after you have connected the external devices and the antenna.
- Protect the TV set from moisture. Do not place any vessels filled with water (such as vases) on the TV.

Fire hazard

-  To prevent the spread of fire, keep candles or other open flames away from this product at all times.
- Do not cover the ventilation slots on the TV set.
- Always unplug the power plug and antenna plug during thunderstorms and stormy weather.
- Keep candles or other open flames away from the TV set.
- Do not expose the batteries to extreme heat such as sunshine, fire or the like.
- Only use batteries of the same type (brand, size, properties). Do not use used and new batteries together.

Injuries caused by falling TV set

Never place the TV set on an unstable surface. The TV set may fall, causing serious injury, possibly leading to death in isolated cases. Observe the following precautions especially to protect the children from such negative incidents:

- Only use furniture that can safely support the TV set.
- Sides of the TV must not extend beyond the on which the television is placed.
- Do not place the television on furniture such as cupboard, sideboard, bookshelf that tends to tip over. In obligatory cases, such bearers must be fixed onto the wall or suchlike structures so that the television does not tip over.
- There must be no cover, lace, cloth, tulle or similar items between the television and the stand/furniture you have placed the television on.
- Instruct children that there is danger associated with climbing on furniture when the TV set is to be reached.
- Observe the aforementioned warnings when you displace the television.

WARNING

Shortened service life due to high operating temperature

- Do not place the TV set next to heating units or in direct sunlight.
- To ensure adequate ventilation, maintain clearance of at least 10 cm around the TV set.

Discolouration of furniture due to rubber feet

- Some furniture surfaces may discolour when they come in contact with rubber. To protect furniture, you can place a sheet made of glass or plastic under the stand. Do not use textile underlays or mats such as doilies.

PRODUCT SPECIFICATIONS

Technical specifications

Specification	Crystal	LUNA	Ledart
Energy Class	A/A+	A/A+	
Display Size	32(HD), 32" 40" 43"(FHD)	24" 32" (HD), 40" 43" (FHD)	32(HD), 43" 49"(FHD)
PPR	500/600/800/850	200/600/800	600/800
HD Ready	YES	YES	YES
Full HD	YES	YES	YES
Ultra HD	NO	NO	NO
Full HD 50 Hz	YES	YES	YES
Full HD 100Hz	NO	NO	NO
Audio output	"7W@8ohm 12.5V" must be selected on 32" products, "10W@8ohm 13.5V" must be selected on 40" products, and "10W@8ohm 24V" must be selected on 43" prod- ucts.	"3W@6ohm 12V" must be selected on 24" products, "6W@6ohm 12.5V" must be selected on 32" products, "8W@6ohm 12.5V" must be selected on 40" and 43" products, and "8W@6ohm 24V" must be selected on 50" products.	"7W@8ohm 12.5V" must be selected on 32" products, and "10W@8ohm 24V" must be selected on 43", 49" and 55" products.
On board Subwoofer	NO	NO	NO
Standby power consumption	<0.5W		
Power input (V/Hz.)	220-240V ~ 50-60Hz		
Rosh Limits	Pb (Lead) / Hg (Mercury) Pb, complies with RoHS Directive / 0 mg		
Scart OUT	NO		
Scart input	Standard		
Audio/Video RCA input	Via Scart		
S-Video input	Via Scart		
HDMI input 1-2-3	HDMI 1.4		
YPBPR input	Via Scart		
VGA input	NO		
PC audio input	NO		

PRODUCT SPECIFICATIONS

Line Out	Via Headphones		
Headphone Socket	Standard		
Optics Out	YES		
Languages	Support for 27 different languages		
Diseqc Standard	Diseqc 1.2		
Broadcasting Systems	DVB-T2/C/S2 (Analog/DVB-T2/DVB-C/DVB-S2) 100 / 1000 / 1000 / 6000 .3gp, .mp3, .m4a, .aac, .mov, divx (4/5/6.x), .mpg, .vob, .dat, .ts, .avi, .mp4, .mkv, .trp, .div, H264 (L4.0), H264 (L4.1), HEVC		
Digital Program memory TV/ Radio			
USB Film formats			
USB Subtitle formats	SRT, SSA, ASS, SMI, .txt .jpg, .jpe, .bmp, .png,		
USB Picture formats			
MEMC	NO	NO	NO
Integrated WiFi & Bluetooth	NO	NO	NO
WiFi Ready	NO	NO	NO
Appstore (download-remove-update, move, add favorite)	NO	NO	NO
Inter@ctive Cloud (Dropbox)	NO	NO	NO
DLNA	NO	NO	NO
ROVI Smart TV Guide (Web EPG)	NO	NO	NO
Web Browser	NO	NO	NO
AppPip	NO	NO	NO
HBB TV 1.2.1 (1.5)	NO	NO	NO
HEVC	YES (Tuner, USB)	YES (Tuner, USB)	YES (Tuner, USB)
Wi-di (other than Widi ready products)	NO	NO	NO
Live Share (Widi & Miracast)	NO	NO	NO
Interactive Hotel TV	NO	NO	NO
VoD - Maxdome/Netflix/ Amazon Prime*	NO	NO	NO
Online Software Update	NO	NO	NO
OSD Type	Grundig/Beko/Arçelik/ OEM	Grundig/Beko/ Arçelik/OEM	Grundig/Beko/ Arçelik/OEM
Easy-to-Use User Interface	YES	YES	YES

PRODUCT SPECIFICATIONS_____

Remote Control	TP6-P1	TP6-P1	TP6-P1
Easy-to-Use Remote Control	NO	NO	NO
W8, iPhone/iPad, Android remote control	NO	NO	NO
CI+	CI+ 1.3 (Single)	CI+ 1.3 (Single)	CI+ 1.3 (Single)
DTS	NO	NO	NO
Dolby MS11	YES	YES	YES
PVR	OPTION	OPTION	OPTION
MHL	NO	NO	NO
Dual Watch	NO	NO	NO
Panel stand-by during music	NO	NO	NO
PIP	NO	NO	NO
Capture & Share	NO	NO	NO
Gesture Control	NO	NO	NO
Voice Recognition	NO	NO	NO
Baby Watch	NO	NO	NO
Easy sign-in	NO	NO	NO
Simple Hotel TV	YES	YES	YES
Front Time Display	NO	NO	NO

PRODUCT SPECIFICATIONS

Unique features of your TV set

- Your television set enables you to receive and watch digital stations (via DVB-S, DVB-T and DVB-C), including the High Definition (HD) ones. Today, High Resolution programs can be viewed in many countries.
- Although this television meets the current DVB-S, DVB-T and DVB-C standards as of August 2012 its compatibility with future DVB-S digital satellite broadcasts, DVB-T digital terrestrial broadcasts and DVB-C digital cable broadcasts is not guaranteed.
- This television can receive and process all analogue and all unencrypted digital stations. This television set has an integrated digital and analogue receiver. The digital receiver unit converts the signals from digital stations to provide outstanding audio and picture quality.
- The TV guide (only for digital stations) tells you of any schedule changes at short notice, and provides an overview of all the stations' schedules for the next few days.
- You can connect various data media, for example, an external hard drive, a USB memory stick or a digital camera to the USB socket. Using the file browser, you can then select and play the file formats you want (for example, MP4, MP3 or JPEG data).
- With the Time Shift function, you can easily stop and resume a program with the remote control in a fast and simple way. Program is recorded to the external data medium.
- You can save any digital TV channel you have chosen, if no limitation has been imposed by the broadcaster.

HEVC: It is the video compression algorithm. It can compress the image 36%-44% more in comparison to previous standard H264 with the same quality.

- ■ TV channel is transformed by the TV and saved to a USB external data medium.

You can recall and play saved programs from the archive.

While a recording is in progress, you can select a another recording from the archive and watch that.

For saving and playing TV programs, please see page 37.

- TV and radio division in programme menu/channel list
- Faster opening time compared to KY-KT
- Compatible with TS1-TS2-TS3-TS4, iPhone/iPad RC, Android RC and new RC design
- Unicable solution in DVB-S/S2 broadcasts
- Using different sources during recording
- More user-friendly USB menu (such as viewing all files, deleting all files in bulk)
- Compatible with new 2015 designs
- DTS support
- Sub-woofer option
- Sub-woofer analog output (Line-out)
- Dolby 2+1/5+1

Receiving digital stations

- To receive digital satellite stations (DVB-S) you need a satellite antenna.
- To receive digital stations (DVB-T) you need a digital rooftop or indoor antenna.
- The antenna cable of the cable TV network that broadcast in DVB-C must be plugged into TV in order to receive the DVB-C broadcasts.
- Unlike analog broadcasting, not every station has its own transmission frequency. Instead, several stations are grouped into what are known as bouquets on a regional or national level.
- You can find the current transmission information on teletext from various broadcasters, or look in a TV guide or on the Internet.
- Various digital television stations from private broadcasters are encrypted (DVB-S, DVB-T

PRODUCT SPECIFICATIONS

and DVB-C). Watching these stations and the recording and playback functions are only possible with the appropriate CI module and a SmartCard. Consult your specialist dealer.

GRUNDIG SCR System

Your TV supports SCR system (Single Channel Router). With SCR satellite system, several users can individually receive all signals from the satellite simultaneously. ■

Things to do for energy saving

Those items mentioned below will help you reduce the consumption of natural resources as well as save your money by reducing electricity bills.

- If you will not be using the TV set for several days, it should be disconnected from the mains for environmental and safety reasons. TV will not consume energy in this condition.
- If the TV set has main switch, it will be enough to turn the TV off via main switch. TV will reduce energy consumption almost to Zero Watt.
- TV consumes less energy on stand-by mode. However, some TV sets may have features such as on timer, that require the TV set to be left in stand-by to work correctly.
- TV consumes less energy when brightness is reduced.

Notes on still images

Watching the same image for a long time on the screen may cause a still image remains feebly on the background. Feeble image(s) on the background is originated from LCD/LED technology and does not require any action under guarantee. To avoid such cases and/or minimize the impact, you may observe the tips below.

- Do not allow the same TV channel to stay on the screen for a very long time. Channel logos may cause this situation.
- Do not allow the images, which are not full screen, to constantly stay on the screen; if not streamed in full screen format by the broadcaster, you can convert the images to full screen by changing picture formats.

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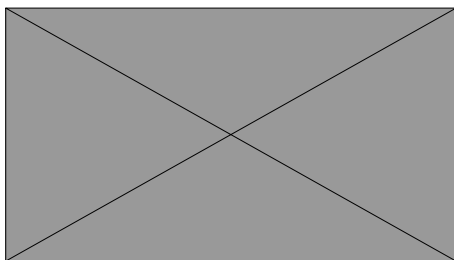
PRODUCT SPECIFICATIONS

Full HD, User Friendly Menu Structure

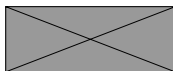
The user-friendly new UI structure provided with KP chassis has been kept in the new GM chassis as well.

The aims of this structure are;

- Impressiveness: To create a quality experience with animations and design,
- Themeability: To create special designs for our brands and to create distinctiveness among them,
- Accessibility: To create designs that can easily be used by everyone of all age groups as well as offering ease of use in our all interfaces.



High Efficiency Video Coding (HEVC)



It is a video compression standard created as a result of a mutual study by ISO/IEC MPEG (Moving Picture Experts Group) and ITU-T VCEG (Video Coding Experts Group). It is a coding technology offering the same quality image with a higher compression rate and a lower bandwidth in comparison to H264/avc, which is the previous standard.

HEVC standard is mostly used for UHD videos and it supports videos up to 8K. However since it is an efficient method and it particularly allows using the bandwidth effectively in DVB-T2 broadcasts, it is started to be used in FHD broadcasts as well. With G7 chassis, for the first time HEVC will be supported for FHD on one of our non-UHD televisions.

Web Browser (Open Web Browser)

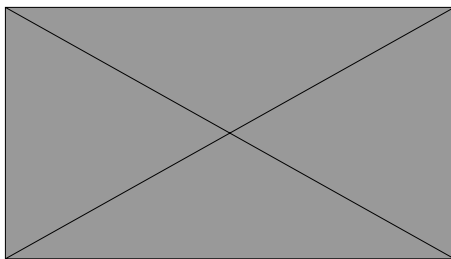
Open web browser software enables users to open HTML or more developed pages on the network providers. G7 chassis incorporates a "Web Browser". Thus, as in computers or mobile phones, all internet pages can be accessed by entering URL address. Browser does not support Flash. For this reason, on some web pages, applications requiring flash player will not function.

Electronic TV Guide



The Electronic TV guide (RoviGuide™) has two operation modes, namely online and offline.

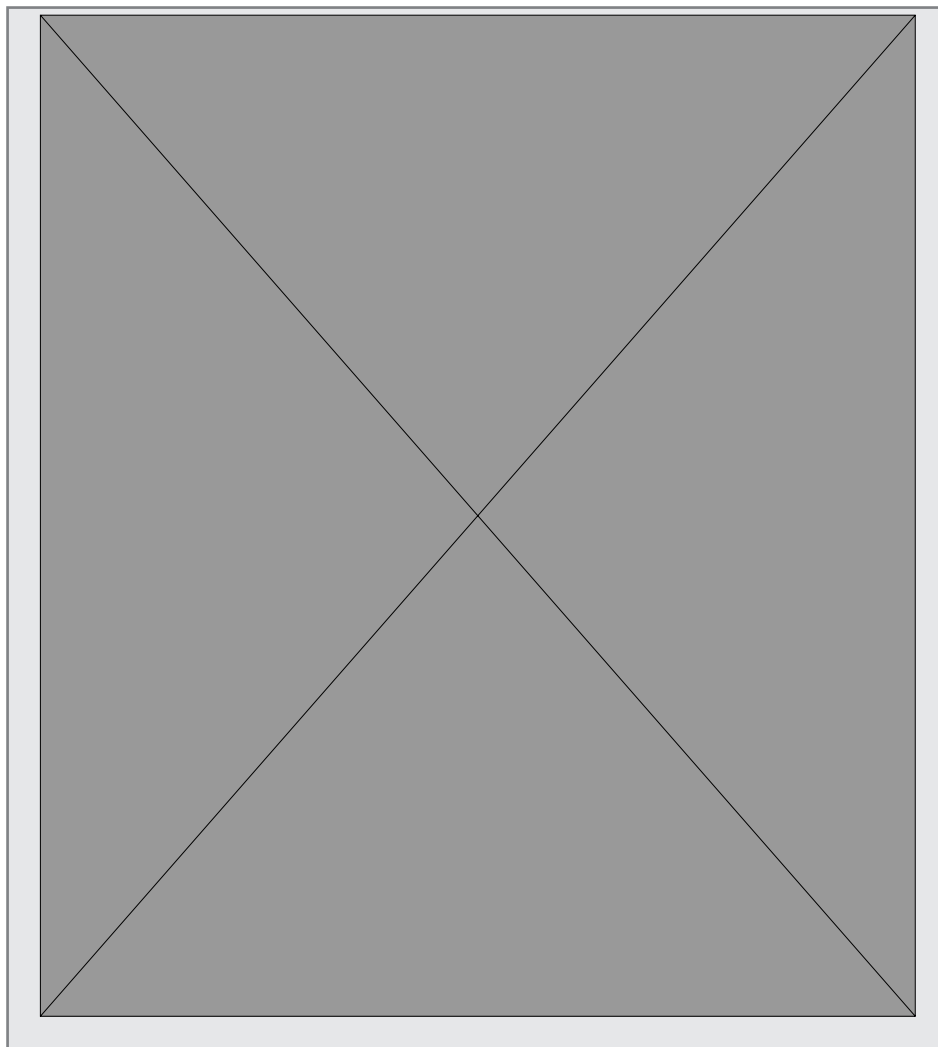
In the offline mode, you can only see channel data which the station provider has made available.



A lot of content such as program information, channel logos, information about actors/actresses, pictures, fragments, etc. can be received via the Internet connection in the online mode. Additionally, through using artist, series or film names, it is possible to perform search among TV programs.

PRODUCT INSTALLATION_____

Package Content



Standard accessories

- 1 Television
- 2 Stand
- 3 Remote control
- 4 Battery for remote control
- 5 Screws and installation instructions for the stand
- 6 User manual

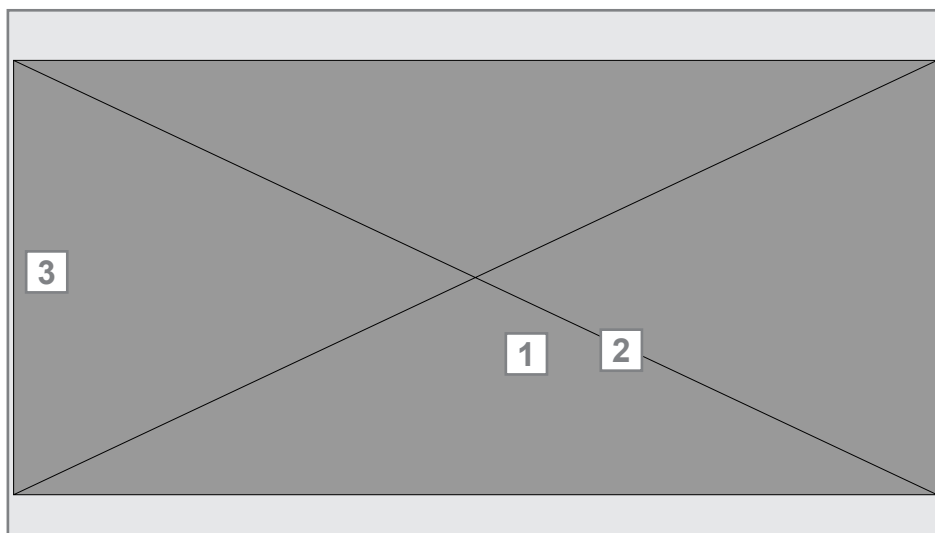
Optional accessories

- Easy-to-Use Remote Control
- Battery for Easy-to-Use Remote Control
- Cleaning cloth

PRODUCT INSTALLATION

Connection/Preparation

Connecting the antenna and the power cable



1 To receive digital satellite channels (DVB-S), connect the satellite antenna cable to the **SATELLITE** antenna socket on the television set;

and/or

2a For terrestrial digital stations (DVB-T), connect the rooftop or indoor antenna to the **ANT IN** antenna socket on the television set;

or

2b For digital stations of the cable TV network (DVB-C), plug the antenna cable into **ANT IN** socket on the television set;

or

2c For analog stations, plug the antenna cable into **ANT IN** socket on the television set.

Note:

- When connecting an indoor antenna you may have to try it out at different positions until you get the best reception.

3 Plug the power cable into the wall socket.

Note:

- Only plug the device into the mains socket after you have connected the external devices and the antenna.
- Do not use an adapter plug or an extension cable which does not meet the applicable safety standards. Do not make changes on the power cable.

Setting up or hanging

- Select a location so that no direct sunlight falls on the screen.

Setting up with stand

- To mount the stand, refer to the installation instructions included.
- Place the TV set on a hard, level surface.

Preparing for mounting on the VESA bracket

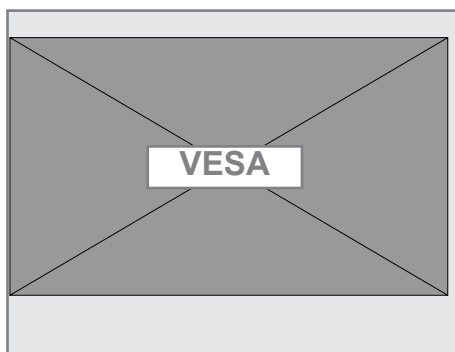
Contact authorised dealer to purchase the bracket.

You will need:

- A pair of scissors,
- A cross-tip screwdriver.

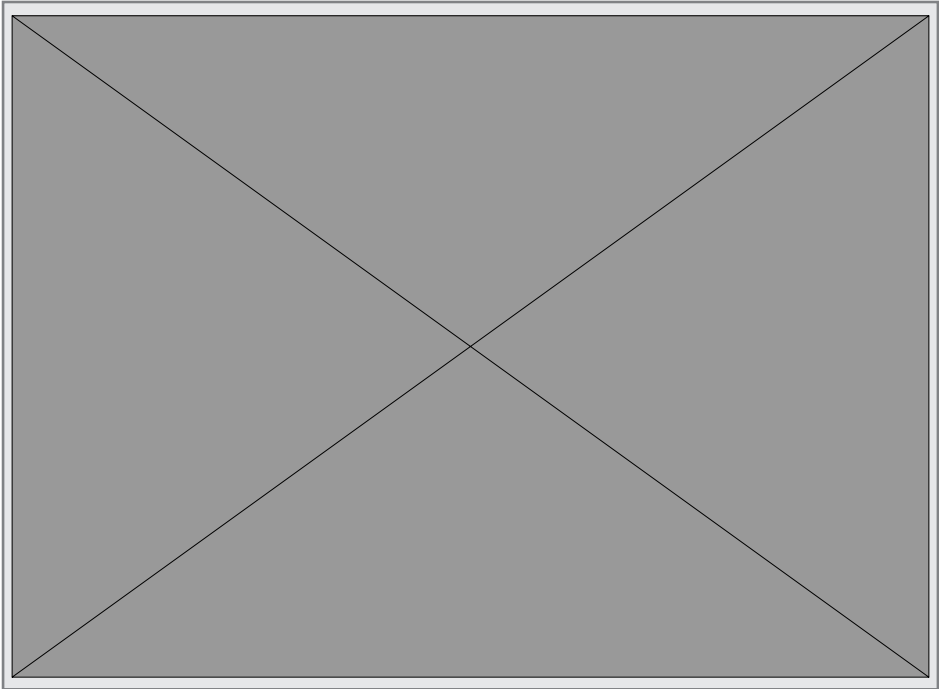
Follow the installation instructions for the VESA bracket.

- 1 Place the TV set in the film on a smooth surface with the screen facing down.
- 2 Cut open the film on the back side using the scissors.
- 3 Connect the required cables to the connectors of television. See the "Connections" section in this manual.
- 4 Tie the cables so they do not hang down onto the floor.
- 5 Screw the VESA bracket onto the TV set and mount it according to its installation instructions.




PRODUCT INSTALLATION

Connections of the television



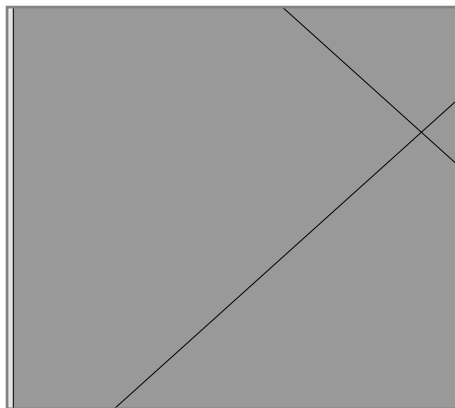
AV / S-VHS / COMPONENT

	Scart audio / video input (CVBS signal, RGB signal); S-Video audio / video input (with Scart-S-VHS converter); Component, audio / video input (with Scart - YPbPr converter).	SATELLITE ANT IN	Satellite antenna socket. Antenna socket.
Service	is for service purposes.		Headphone connection (3.5 mm jack); External audio output (with headphone-RCA converter)
Optic Out	Optics sound output.	USB1	USB socket for external data media and PVR function.
USB(HDD)	USB Hard disk socket for external data medium and PVR function.	HDMI1	HDMI socket, audio/video signal input (HDMI).
HDMI3 (ARC)	HDMI socket, audio/video signal input (HDMI).	CI	Common interface slot.
HDMI2	HDMI socket, audio/video signal input (HDMI).		

PRODUCT INSTALLATION

Control elements on the television

Buttons of the remote control



Starting and switching the television to standby mode

- 1 To start the television from standby mode press **⏻/I**.
- 2 To switch the television to standby mode press **⏻/I**.

Adjusting the volume or changing the channel

- 1 Press **V/P** and use **+** or **-** to select volume or channel, confirm with **V/P**.
- 2 Increase volume/channel with **+**.
- 3 Decrease volume/channel with **-**.

Source selection

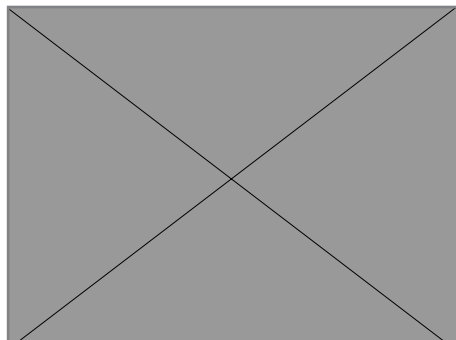
- 1 Press **V/P**, use **+** or **-** to select »Open Input Source Menu« and confirm with **V/P**.
– »Select source« menu will be displayed.
- 2 Use **+** or **-** to select the source and confirm with **V/P**.
– Selected source will be displayed.

Inserting Batteries into the Remote Control

- 1 Open the battery compartment by removing the lid.
- 2 Insert the batteries (2 x 1.5 V micro; for example R03 or AAA). Observe the polarity (marked on the base of the battery compartment).
- 3 Close the battery compartment.

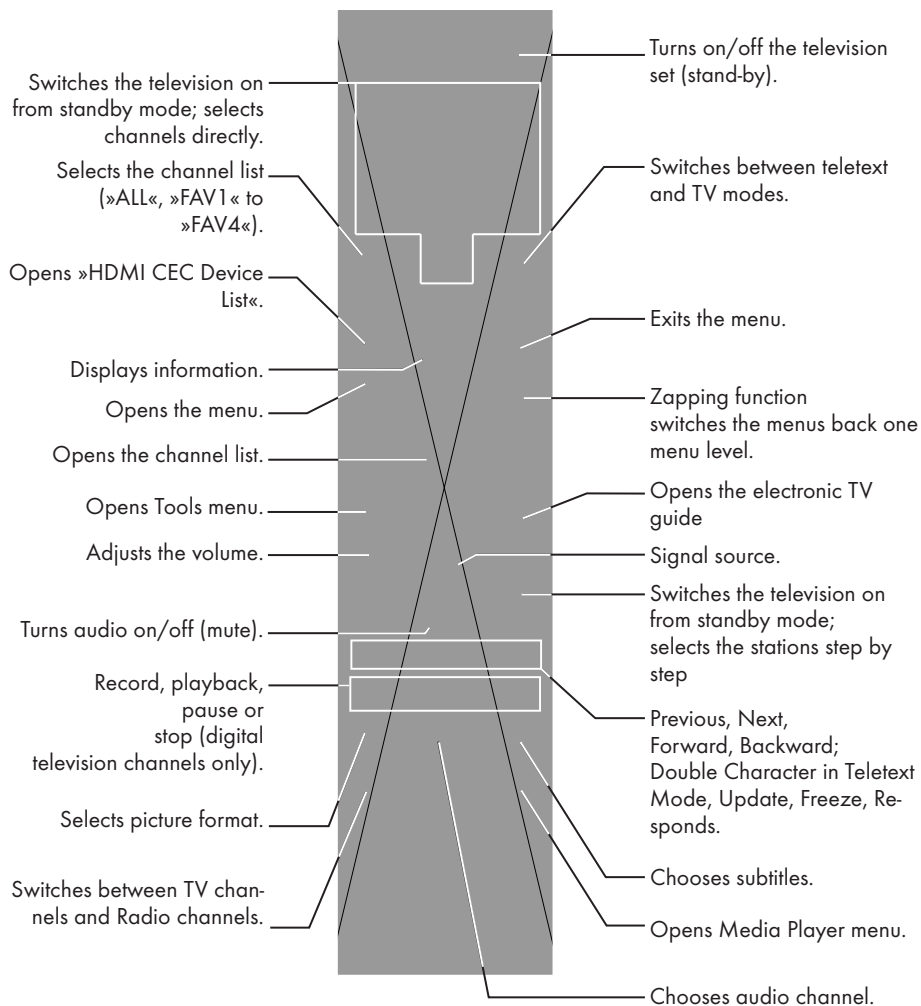
Note:

- If the television no longer reacts properly to remote control commands, the batteries may be flat. Be sure to remove used batteries.
- The manufacturer accepts no liability for damage resulting from used batteries.

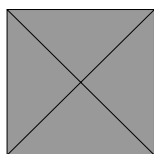


PRODUCT INSTALLATION

Remote control - Main functions



Cursor Control



- Moves the cursor up and down in menus.
- Moves the cursor to the left/right in menus.
- Opens the channel list; activates various functions.

SETTINGS

The television is fitted with an "installation assistant", which guides you step by step through the basic settings.

The user can use the dialogue window on the screen to perform settings that seem complex and data inputs in a simple way that will be understood by anybody.

Pages and dialogue items appear on the screen, which identify the subsequent and likely operating steps.

To support this, you will also see the required button symbols of the remote control.

Detailed basic settings:

- language selection
- country selection;
- user mode selection;
- Station settings (DVB-S, DVB-T, DVB-C and analog channels).

Tuning television channels

Depending on the type of the antenna connected, you can determine which television channels you would like to search.

DVB-S – Tunes digital satellite television channels.

You have two options for this search:

- basic installation which pre-sets a standard selection, e.g. The satellite Astra 19.2° East; you only need to start the scanning;
- professional installation, which allows you to make all required settings and set parameters for your receiver's system.

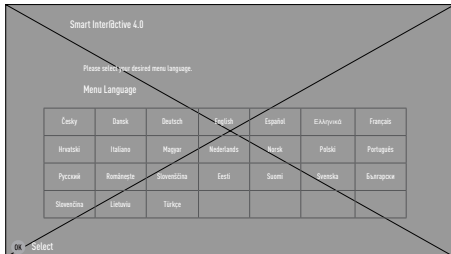
DVB-C – Tunes digital cable television channels.

DVB-T – Tunes digital terrestrial television channels.

SETTINGS

Initial set-up

- 1 Switch the television set to standby using the power switch **O/I**.
- 2 Switch on the television set from standby with **⏻**, **1...0**, **P+** or **P-**.
 - The Menu Language selection menu appears when the television is switched on for the first time.



- 3 Select the menu language with **◀**, **▶**, **▼** or **▲** and press **OK** to confirm.
 - »Welcome« menu appears.
- 4 Gradual set-up will be performed to use the television. Press **OK** to start the set-up.
- 5 Use **◀**, **▶**, **▼** or **▲** to select the country in which the television is going to be used and press **OK** to confirm.
 - When »User Mode« appears, select »Home Mode«.
- 6 Confirm »Home Mode« option with **OK**;

or

Select »Enhanced« with **▼** or **▲** and confirm with **OK**.

- »Home Mode« contains preconfigured TV settings that provide energy savings conforming EUP.

- »Enhanced« - if you will use the television for a demo presentation, enhanced picture and sound settings are used in this mode. Enhanced mode consumes more energy.

Select »Stand« or »Wall-mounted« with **▼** or **▲**.

Note:

- Choosing the location of the television is important for sound setting.

7 Press **OK** to confirm »Next«.

- »Summary« menu will be displayed.

8 Press **•••••** (blue) to proceed to the next step.

Note:

- Continue to search TV channels as shown for the following:
 - For DVB-S reception, article 9;
 - For DVB-C reception, article 14;
 - For DVB-T reception, article 19;

Searching television channels with satellite signal (DVB-S/S2)

9 Select »Satellite« with **▼** or **▲** and confirm with **OK**.

- Türksat Satellite is preset to 42 ° East.

10 Select »Standard Mode« with **▼** or **▲** and confirm with **OK**.

11 Press **•••••** (blue) for the next page.

Notes:

- Select »Channel Type«.

Press **▼** or **▲** to select whether you want to search for only digital channels (Digital) or only radio channels (Radio) or both (Digital + Radio) and press **OK** to select and mark or unmark the »Digital« and/or »Radio« items.

- Select Scan Mode.

To select whether you want to scan free digital television channels (Free), only encrypted digital television channels (Scrambled) or both (Free + Scrambled), press **▼** or **▲** and press **OK** to select and mark or unmark the »Free« and/or »Scrambled« elements.

SETTINGS

- 12** Press »*« (Red) to start scanning.
- »Automatic Channel Search« menu will appear and TV channels scanning will start.
 - The scan is complete as soon as »Search is completed!« appears.

- 13** Select »Channel Editor« with »OK«.

Tuning digital cable television channels (DVB-C)

- 14** Select »Cable« with »V« or »^« and confirm with »OK«.
- 15** Select »Scan Type« with »V« or »^«.
- Select »Quick« or »Full« with »<« or »>«.
- »Quick« scanning function tunes the channels according to the cable operator information in the broadcasting signal.
 - »Full« scan function scans the entire frequency range selected. With this search option, searching can take a long time. This search type is recommended. Some cable providers do not support »Quick« scan.

Note:

- You can speed up the search. To do this, frequency and network ID information are required. You may get this data from your cable operator or find it in Internet forums.

- 16** Press »....« (blue) for the next page.

Note:

- Select Channel Type. Press »V« or »^« to select whether you want to scan only digital channels (Digital), only Analog channels (Analog) or both (Digital + Analog) and press »OK« to select and mark or unmark the »Digital« and »Analog« elements.
- 17** Press »*« (Red) to start scanning.
- »Automatic Channel Search« menu will appear and TV channels scanning will start.
 - The scan is complete as soon as »Search is completed!« appears.
- 18** Select »Channel Editor« with »OK«.

Tuning terrestrial digital television channels (DVB-T/T2)

- 19** Select »Anten« (Antenna) with »V« or »^« and confirm with »OK«.
- 20** Select »Next Page« with »V« or »^« and press »OK« to confirm.

Note:

- Select Channel Type. Press »<« or »>« to select whether you want to search for only digital channels (Digital), only Analog channels (Analog) or both (Digital + Analog) and press »OK« to select and mark or unmark the »Digital« and »Analog« items.
- 21** Press »*« (Red) to start scanning.
- »Automatic Channel Search« menu will appear and TV channels scanning will start.
 - The scan is complete as soon as »Search is completed!« appears.
- 22** Select »Channel Editor« with »OK«.

SETTINGS

Channel Editor for digital channels

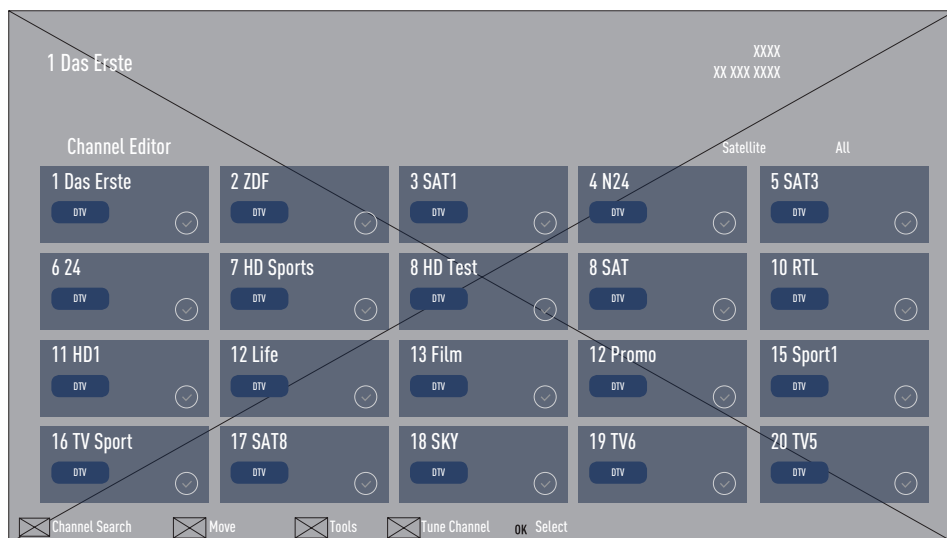
Channels found at the end of the search are stored in the »Channel Editor«.

In the program table, you can delete unnecessary channels, change the sequence of the channels in the program table and lock each channel (Parental Control).

Moreover, you can add channels to your favorites list and change the sequence of the channels in the favorites list.

In Channel Editor, press »P+« to move the channel list to the next page, press »P-« to move it to the previous page.

To search by Channel name in the Channel Editor menu, press »*« (Red).



Opening the Program Table

- 1 Open the menu with »MENU«.
- 2 Select »Settings« with »◀«, »▶«, »▼« or »▲« and confirm with »OK«.
- 3 Use »◀« or »▶« to select »Source«, press »▼« or »▲« to select »Channel Editor« and confirm with »OK«.
– »Channel Editor« menu will be displayed.

Important:

- Program table and favorite lists are stored separately for all sources (satellite, cable and air).
- Program table of the current source will be displayed when you select program table.

Notes:

- A CI module and smart card is required to watch the channel if there is a »CA« sign next to the channel name in Program Table.
- As the recorded data channels are not displayed in the channel list, number channels displayed in the Channel list may be less than 6000

Searching channels by name in channel editor

When editing channels in channel editor, you can use the first two characters of the channel name to search for it and select channels.

- 1 In »Channel Editor« menu, press »*« (red) to select search mode.
- 2 Use »◀«, »▶«, »▼« or »▲« to select the first character of the channel name you want to search and press »OK« to confirm. Repeat the input for the next characters.
– The channels found will be shown on the right side of the screen.
- 3 You can use »▶« to go to the results section, select the channel you have searched for with »▼« or »▲« and highlight it with »OK«.

Note:

- Please continue to read the relevant section for relocating the channels, deleting the channels and adding them to favorites lists.
- 4 Press »BACK ◀« to return to the previous menu.
 - 5 Press »EXIT« to exit the »Channel Editor« menu.

Deleting channels in channel editor

- 1 In the »Channel Editor« menu, use »◀«, »▶«, »▼« or »▲« to select the channel(s) you want to delete and press »OK« to highlight the TV channel.
– Channel will be marked with »✓«.
- 2 Press »***« (yellow).
– »Tools« menu will be displayed.
- 3 Select »Delete« with »▼« or »▲« and press »OK« to confirm.
- 4 To confirm the deletion, use »◀« or »▶« to select »OK« and press »OK«;

or
select »Cancel« to cancel and press »OK«.
- 5 Press »EXIT« to exit the »Channel Editor« menu.

PICTURE / SOUND SETTINGS

Moving the channels in the channel organizer to different channel positions

- 1 In the »Channel Editor« menu, use »◀«, »▶«, »▼« or »▲« to select the channel(s) you want to move and press »OK« to highlight the TV channel.
– Channel will be marked with »✓«.
- 2 Press »♦♦« (green).

Notes:

- In case of changing the order of the channels, channel numbers sent by the broadcaster will be changed.
 - If more than one channel has been selected for moving, the moving processes will follow one another according to the selection sequence of the channels.
- 3 Select the new location of the channel with »◀«, »▶«, »▼« or »▲« and confirm with »OK«.
 - 4 Press »EXIT« to exit the »Channel Editor« menu.

Displaying channels by antenna type in channel editor

If you have more than one antenna type, you can display the channels by antenna type in the channel editor.

- 1 In the »Channel Editor« menu, press »♦♦♦« (yellow) to display the channels by antenna type.
– »Tools« menu will be displayed.
- 2 Confirm the »Antenna Type« option by pressing »OK«.
- 3 Select »Antenna«, »Cable« or »Satellite« by pressing »▼« or »▲« and then press »OK« to confirm.
– The TV will switch to the antenna system you have selected and the channels will be displayed.
- 4 Press »EXIT« to exit the »Channel Editor« menu.

Sorting the channels in channel editor

In the channel editor, you can sort the channels by various criteria, for example as TV, radio, scrambled/unencrypted.

- 1 In the »Channel Editor« menu, press »♦♦♦« (yellow) to sort the channels by different criteria.
- 2 Select the desired sorting criterion with »▼« or »▲« and press »OK« to confirm.
– The channels will be displayed in the channel editor menu based on the criterion you have selected.
- 3 Press »EXIT« to exit the »Channel Editor« menu.

Creating a favorites list

You can select your favorite channels and save them in up to four lists (FAV1 to FAV4).

Note:

- Favorite lists must be created separately for all sources (satellite, cable and air).
 - Press »FAV« to select the favorites list.
- 1 In the »Channel Editor« menu, use »◀«, »▶«, »▼« or »▲« to select the channel(s) you want to add to the favorites list and press »OK« to highlight the TV channel.
– Channel will be marked with »✓«.
 - 2 Press »♦♦♦« (yellow).
– »Tools« menu will be displayed.
 - 3 Select »Add To Fav.« with »▼« or »▲« and press »OK« to confirm.
– »Add to Fav.« menu will be displayed.
 - 4 Select the favorite list you want to add the selected channels with »▼« or »▲« and store with »OK«.
– Channels are marked with »❶«, »❷«, »❸« or »❹« in Channel Editor.
– You can add the same channel in more than one favorites list.
– Each favorite list can contain 250 channels maximum.

PICTURE / SOUND SETTINGS

Notes:

- You can delete channels from the favorites list. Press »...« (yellow), select the favorites list where the channel is found with »V« or »^« and press »OK« to confirm. Select the channel(s) you want to delete with »<«, »>«, »V« or »^« and highlight the channel by pressing »OK«.
Press »...« (yellow) and select »Remove from Fav.« with »V« or »^« and confirm with »OK«. The channel you have selected is now deleted from the favorites list.
 - When a channel stored in the favorite channel list is deleted, channel sort in the favorite list is updated.
- 5 Press »EXIT« to exit the »Channel Editor« menu.

Sorting channels in the favorites list

You can change the channel sorting in the favorites list.

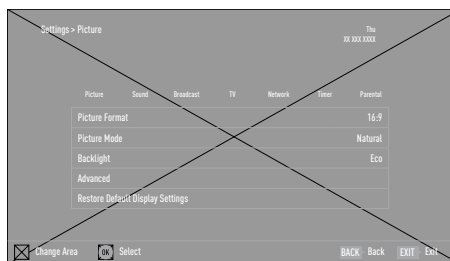
- 1 In the »Channel Editor« menu, press »...« (yellow) to select the favorites list.
- 2 Select the desired sorting criterion with »V« or »^« and press »OK« to confirm.
– Channels of the selected favorites list will be displayed.
- 3 Use »<«, »>«, »V« or »^« to select the channel(s) you want to move and press »OK« to highlight the TV channel.
– Channel will be marked with »✓«.
- 4 Press »...« (yellow).
– »Tools« menu will be displayed.
- 5 Select »Move« with »V« or »^« and press »OK« to confirm.

Note:

- If more than one channel has been selected for moving, the moving processes will follow one another according to the selection sequence of the channels.
- 6 Select the new location of the channel with »<«, »>«, »V« or »^« and confirm with »OK«.

Picture settings

- 1 Open the menu with »MENU«.
- 2 Select »Settings« with »<«, »>«, »V« or »^« and confirm with »OK«.
- 3 Confirm the menu item »Picture« with »V«.
– »Picture« menu is now activated.



- 4 Select the desired line/function with »V« or »^« and press »OK« to confirm.
Select the option with »<« or »>« and press »BACK ◀« to return to »Picture Settings« menu.

Note:

- Other settings are available under »Advanced«.
- 5 Press »V« to select »Advanced« and confirm with »OK«.
 - 6 Select the desired line/function with »V« or »^« and press »OK« to confirm.
Select the value/option with »<« or »>« and press »OK« to confirm.
Press »BACK ◀« to return to »Picture Settings« menu.
 - 7 Press »EXIT« to finish the setting.

PICTURE / SOUND SETTINGS

Enhanced picture settings

"Enhanced picture settings" are found in primary digital picture. However, these should only be used when necessary when the picture quality and transmission are excellent. They may well improve the display with poor material, but may adversely affect the display where transmission and picture quality are excellent.

- **»Vibrant Colour«** – Increases the color contrast and the contrast adjustment. This setting is mostly too strong for use with normal pictures and should only be used where necessary (low or off). Otherwise, nuances in the picture can be suppressed.
- **»Gamma«** – This setting determines which brightness value should be displayed for which digital transmission value. Most records are transferred in 2.2 gamma value (All Windows computers and newer MAC based computers operate on this value while older MAC systems and transfers without color profiles operate on 1.8 gamma value).
- **»Dynamic Contrast«** – This function dynamically and optimally adjusts the contrast for the respective picture content by analyzing images and then altering this depending on a change in contrast. This increase in the contrast however may also reduce the visible brightness levels in the picture.
- **»Perfect Clear«** – Improves the general image by means of a gentle blue hue (giving the appearance of greater sharpness) and improves the black level by setting it entirely to black from a specific shade of back. This reduces visible grey values in the dark areas of the picture.
- **»Film mode«** detects and processes feature films automatically for all channel sources. This means that you get the optimum picture at all times.
This functions in 480i, 576i and 1080i modes in TV playback and for other channel sources.
If the **»Film mode«** is switched on for programs without a feature film signal, minor problems such as picture freeze, defective

subtitles or fine lines in the picture may occur.

- **»Clarity«** – Reduces the noise coming from the signal. It should therefore be used minimally provided that a good picture material is present.
- **»Noise Reduction«** – Reduces the noise coming from the signal. It should therefore be used minimally provided that a good picture material is present.
- **»Block Noise Reduction«** – This function can only be selected with digital receiver sources and AV pre-sets. It reduces any interference from artefacts (pixel blocks) from digital programs due to MPEG compression (such as from DVB-T receivers and lower transmission rates or DVD players).

Restore factory defaults

- 1 In **»Picture«** menu, select **»Restore Default Display Settings«** with **»V«** and press **»OK«** to confirm.
- 2 Press **»Yes«** to confirm the security query;
or
select **»No«** and press **»OK«** to cancel.
- 3 Press **»EXIT«** to finish the setting.

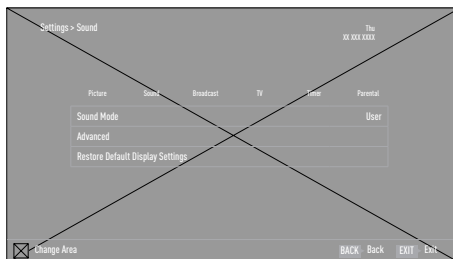
Ending the settings

- 1 Press **»EXIT«** to end the setting and quit the menu.

PICTURE / SOUND SETTINGS

Sound settings

- 1 Open the menu with »MENU«.
- 2 Select »Settings« with »◀«, »▶«, »V« or »▲« and confirm with »OK«.
- 3 Select the menu item »Sound« with »▶« or »◀« and press »V« to confirm.
– »Sound« menu is now activated.



Note:

- Additional operations are explained in the following sections.

Sound Mode

- 1 Select »Sound Mode« with »V« or »▲«.
- 2 Press »◀« or »▶« to select »Standard Mode« or »User«.

TV location

Choosing the location of the television with this feature is important for the sound setting.

- 1 Select »Advanced« with »V« or »▲« and press »OK« to confirm.
- 2 Select »TV Location« with »V« or »▲«.
- 3 Select »Stand« or »Wall-mounted« with »◀« or »▶«.

Stereo/dual channel

If the device receives two channel programs, e.g. a film with the original sound on sound channel B (display: »Dual II«) and the dubbed version on sound channel A (display: »Dual I«), you can select the desired sound channel.

- 1 Select »Advanced« with »V« or »▲« and press »OK« to confirm.
- 2 Select »Sound Type« with »V« or »▲« and adjust with »◀« or »▶«.

Equalizer

Equalizer offers a sound setting that you can create.



Equalizer is active in the menu when »Sound Mode« is selected as »User«.

- 1 Select »Advanced« with »V« or »▲« and press »OK« to confirm.
- 2 Select »Equalizer« with »V« or »▲« and press »OK« to confirm.
– »Equalizer« menu will open.
- 3 It is active in »120Hz« frequency band. Adjust the preferred value by using »◀« or »▶«.
- 4 Select the next frequency band with »V« or »▲« to repeat the adjustment procedure.
- 5 Press »BACK ◀« to save the setting.



Sound settings

Switching on and off








FUNCTIONING OF THE TV - BASIC FUNCTIONS__

- 1 Switch the television to standby mode with the power switch **»ON • OFF«**.
- 2 Press **»«, »1...0«, or »P+« or »P-«** to switch on the TV in standby mode.
- 3 Press **»«** to switch the TV to standby mode.
- 4 Switch the television to standby mode with the power switch **»ON • OFF«**.

Selecting channels





- 1 Use **»1...0«** to select channels directly.
- 2 Select TV channels step by step with **»P+«** or **»P-«**.
- 3 Open the channel list by pressing **»OK«**, select the channel list by pressing **»«** or **»«** and confirm the channel with **»OK«**, then close the channel list with **»EXIT«**.

Notes:

- You can press **»«** to display program information for the next days.
- Open the channel list by pressing **»OK«** to switch to radio channels, select **»Radio«** by pressing **».....«** (blue), use **»«** or **»«**. Press **»«** or **»«** to select radio channels and confirm with **»OK«**.
- Open the channel list again with **»OK«** and switch to the TV channel list, select **»Digital«** by pressing **»«** or **»«**, press **».....«** (blue) and confirm with **»OK«**.
- For energy saving, you can turn off the display in "Radio mode" (please see "COMFORT FUNCTIONS" on page 70).

Selecting a favorites list

You can select channels from various lists (e.g. ALL, FAV1-FAV4).




- 1 Press **»FAV«** to recall the favorites list menu. – **»Favorites«** menu will be displayed.
- 2 Select the channel list with **»«** or **»«** and confirm with **»OK«**.
- 3 Select the channel with **»«** or **»«** and press **»OK«** to confirm.
- 4 Press **»EXIT«** to exit the channel list.

Pinning a favorite channel to the main menu

You can pin up to three favorite channels to the main menu of the TV and select a channel there.

- 1 Use **»1...0«** or **»P+«** or **»P-«** to select the channel you want to pin.
- 2 Press **»?«**, and then press **»...«** (green).
- 3 Select the location you want to pin the channel and confirm with **»OK«**.

Selecting a signal source

- 1 Press **»«** to open **»Select Source«** menu.
- 2 Use **»«** or **»«** to select the desired AV signal source and confirm with **»OK«**.


Note:

- AV signal sources can be renamed. Please see "Settings" on page 19.

Adjusting the volume

- 1 Adjust the volume with **»-  +«**.

Muting

- 1 Use **»«** to turn off the volume (mute) and then turn it on again.


FUNCTIONING OF THE TV - BASIC FUNCTIONS__

Displaying information

- 1 Press »?« to display information.
 - The menu on the screen will disappear automatically after a short while.
- 2 Press »?« twice to display detailed information.


Audio language

You can select various languages when watching digital channels. This depends on the program being broadcast.

- 1 Press  to open the selection menu.
- 2 Select the language with »V« or »^« and confirm with »OK«.
- 3 Press »EXIT« to end the settings.

Subtitles

You can select various subtitles when watching digital channels. This depends on the program being broadcast.

- 1 Press  to open the selection menu.
- 2 Select the language with »V« or »^« and confirm with »OK«.
- 3 Press »EXIT« to end the settings.

Zap function

This function allows you to save the television channel which you are currently watching and switch to other channels (zapping).

- 1 Select the channel you want to save in the zap memory with »1...0« or »P+«, »P-« to select the channel you wish to add to zap memory (for example, channel 1, BBC 1) and save with »BACK ◀«.
- 2 Change channels with »1...0« or »^« »V«.
- 3 You can now use »BACK ◀« to switch between the saved channel (in the example, BBC 1) and the channel you were watching before.
- 4 Press »EXIT« to exit the zap function.

Night Mode

Adjusted audio output for operation at night.

- 1 Select »Night Mode« with »V« or »^«.
- 2 Activate (»On«) or deactivate the night mode by pressing »◀« or »▶«.

Notes:

- »Night Mode« will be active in the menu if »DTS« is selected in »Sound Mode«.
- Other settings are found under »Advanced«. Select »Advanced« with »V« or »^« and press »OK« to confirm.

Turning Bluetooth on/off and connecting to an external sub-woofer

The Bluetooth feature sends audio signal of the television to the sub-woofer.

The television sends signals only to Bluetooth compatible devices.

- 1 Turn on sub-woofer and start pairing. (Refer to the sub-woofer's user manual for pairing).
- 2 Use »V« or »^« to select »Bluetooth« and press »◀« or »▶« to confirm (»On«).
 - Wireless audio device will start. The sub-woofer will appear in the menu after a short time.
- 3 After the sub-woofer has been found, confirm with »OK«.
 - The name of the subwoofer will be displayed in »Sound« menu.

FUNCTIONING OF THE TV - ADDITIONAL FUNCTIONS _

In the »Tools« menu, you can find the features below.

Sleep timer

In the »Sleep Timer« menu you can enter a time for the television to switch off. After this time has elapsed, the TV will switch to standby mode.

- 1 Open the tools menu with »**TOOLS**«.
- 2 Select »Sleep Timer« with »**V**« or »**^**«.
- 3 Select the switch-off time with »**<**« or »**>**«.

Note:

- Set the function to »Off« with »**<**« or »**>**«.
- 4 Press »**EXIT**« to end the settings.

Zoom function

With this function, you can enlarge the picture on the television.

- 1 Open the tools menu with »**TOOLS**«.
- 2 Select »Zoom« with »**V**« or »**^**«.
- 3 Press »**<**« or »**>**« to select the zoom setting and confirm with »**OK**«.
 - The picture will be zoomed in, focusing on the center.
- 4 To navigate in the zoomed picture, press »**◀**« (red) and use »**<**«, »**>**«, »**V**« or »**^**« to move the screen.
- 5 Press »**BACK** **←**« to return to the zoom menu.
- 6 Press »**EXIT**« to end the settings.

Changing the picture format

The television automatically switches to the 16:9 format if this format is detected via the Scart socket.

- 1 Open the tools menu with »**TOOLS**«.
- 2 Select »Picture Format« with »**V**« or »**^**«.
- 3 Select the picture format with »**<**« or »**>**« and press »**OK**« to confirm.
- 4 Press »**EXIT**« to end the settings.

Note:

- You can choose one of the picture formats below.

»Auto« format

The picture format is automatically switched to »16:9« for 16:9 programs.

The picture format is automatically switched to »4:3« for 4:3 programs.

»16:9« and »14:9« formats

During programs in 4:3 format, the picture is stretched horizontally if »16:9« or »14:9« is selected.

The picture geometry is stretched horizontally.

With actual 16:9 signal sources (from a set-top box on the Euro-AV socket) the picture fills the screen completely and with the correct geometry.

»4:3« format

The picture is shown in 4:3 format.

»LetterBox« format

The Letterbox setting is especially suitable for programs in 16:9

The black borders which are usually at the top and bottom of the screen are eliminated, 4:3 pictures fill the screen.

The transmitted pictures are enlarged, but are slightly cropped at the top and bottom. The picture geometry remains unchanged.

The electronic program guide offers an overview of all programs that will be broadcast in the next week (for digital stations only).

ELECTRONIC TV GUIDE

- 1 Press
»**GUIDE**« to start Electronic TV guide.
– Electronic TV guide will be displayed.

Notes:

- Not all stations provide a detailed TV guide.
- Many broadcasters supply their daily program but not the detailed descriptions.
- There are broadcasters which do not provide any information at all.

- 2 Select the channel with »**V**« or »**^**«.

Note:

- Press »**P+**« or »**P-**« to skip 7 channels each time.

- 3 Switch to the detailed information section about the current program using »**OK**«.

Notes:

- The selected program can be stored (if an external data medium is connected). To do this, press »**OK**« to switch to the details page, press »**V**« or »**^**« to select »Save« and confirm with »**OK**«.
- To add the selected program to the reminder timer, press »**OK**« to switch to the details page, press »**V**« or »**^**« to select »Save« and confirm with »**OK**«.

- 4 Return to the program overview with
»**BACK** **←**«.

- 5 Press »**>**« to select information on the next program and press »**<**« to return to the information for the current program.

Note:

- Refer to the user guide on the screen for additional options.

- 6 Press »**EXIT**« to close the channel guide.

TELETEXT MODE

TOP text or FLOF text mode

- 1 Press »TXT« to switch to the teletext mode.
- 2 You can select the teletext pages directly with »1...0« or gradually with »▼« or »▲«.
To return to page 100, press »?«.

Note:

- At the bottom of the screen, you will see an information line consisting of a red, green and, depending on the station, yellow and blue text field. Your remote control has buttons with the corresponding colors.
- 3 Press »•« (red) to scroll one page back.
 - 4 Press »••« (green) to scroll one page forward.
 - 5 Press »•••« (yellow) to select section.
 - 6 Press »••••« (blue) to select topic.
 - 7 Press »TXT« to exit teletext mode.

Normal text mode

- 1 Press »TXT« to switch to the teletext mode.
- 2 You can select teletext pages directly with »1...0«.
To return to page 100, press »?«.
- 3 Press »P-« to scroll one page back.
- 4 Press »P+« to scroll one page forward.
- 5 Press »TXT« to exit teletext mode.

Additional functions

Skipping the waiting time

While a page is being searched for, you can switch to the television channel.

- 1 Enter the teletext page number with »1...0« and then press »▶|«. As soon as the page is found, the page number is displayed.
- 2 Press »▶|« to switch to the teletext page.

Enlarging character size

If you have difficulty reading the text on the screen, you can double the character size.

- 1 To enlarge the character size of a teletext page, press »|◀« repeatedly.



Page stop

A multiple page may contain several sub-pages, which are automatically scrolled by the transmitting station.

- 1 Stop the sub-pages with »◀◀«.
- 2 Press »◀◀« to quit the function.

Calling a sub-page directly

If the selected teletext page contains further pages, the number of the current sub-page as well as the total number of pages is displayed.

- 1 Call the sub-page with »«.
- 2 Press »• « (red) or »• • « (green) to select a sub-page.
- 3 Press »« to quit the function.



Reveal answer

Certain teletext pages contain "hidden answers" or information which can be called up.

- 1 Display information with »▶▶«.
- 2 Conceal information with »▶▶«.

Split screen

With this function you can see the television channel on the left and the teletext page on the right.

- 1 To activate the split screen function, press »«.
– The television channel and the teletext page appear next to each other on the screen.
- 2 To deactivate the split screen function, press »«.

Information on recording and playing television programs

- Recording and reproducing programs, this can only be done with digital television stations (DVB-S, DVB-T and DVB-C).
- You can record and playback digital television stations (DVB-S, DVB-T and DVB-C) depending on the broadcasting station.
- Recording and reproducing programs, as well as the Time Shift function can only be carried out using an external data medium (hard drive or USB stick).
- Recordings can be made with most data mediums on the market. However, we cannot guarantee operation for all data media.
- If you record a program on an external data medium, you can only watch it on your television.

You will not be able to watch this program on any other device.

- If you send your television to be repaired and hardware components need to be replaced, you might not be able to play the recordings again on the repaired television.
- Grundig isn't responsible for any loss of data stored on any external storage device.
- It is recommended to play the files saved on DTV by PVR media player. Some recorded files may not play correctly on USB Media Player.

Possible restrictions when using external data medium

Depending on the broadcasting station, you may experience various restrictions on some functions from some television stations.

GRUNDIG has no influence on these restrictions.

- Recording a program on the external data medium can be disabled by the broadcaster.
- If »URI* protected! PVR function blocked« is displayed, then recording or time shift is restricted (one recording possible) or disabled (recording not possible) by the broadcaster.
- *URI = user rights information.

- If you record and save a program on the archive of an external data medium, playback can be restricted.

The broadcaster can allow you to see this program one or more times but could also just make it available for a certain period of time.

- Stations from which children are protected, immediately require a PIN number before recording starts. If this authorisation is not given, the recording may not start.
- Copying a program from a digital television station onto a video or DVD recorder using the »**AV1/S-VHS**« socket (analog sound/picture signal) may have been restricted by the broadcaster. In order to do this, your device must support the copying function.

USB RECORDING

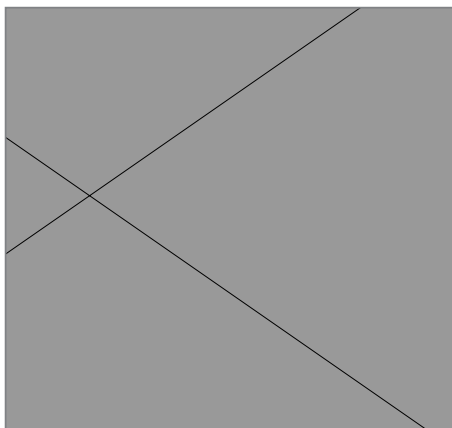
Connecting external data medium

Notes:

- It is advised to switch the television to standby mode before connecting the External Data medium.
- Before disconnecting the external data medium, first of all, the television must be switched to standby mode. Otherwise, may can be damaged.
- There are two USB inputs on the television, including the »**USB (HDD)**« and »**USB1**«. **USB(HDD)** input is intended for USB devices that require additional power (e.g. external hard disk).

Notes:

- **USB1** port of the TV supports 500 mA current according to USB standard. Devices such as external hard disk and etc. that consume more power can only be connected to the **USB(HDD)** interface of the television.
- If you are using a power cable for the external hard disk that you have connected to the **USB(HDD)** USB interface, then the power cable of the external hard disk must also be unplugged when the TV is turned off.
- You must not disconnect the USB Device from the TV while a file on the USB Device is being read by the TV.



- 1 Plug the external hard disk to **USB(HDD)** interface of the television;

or

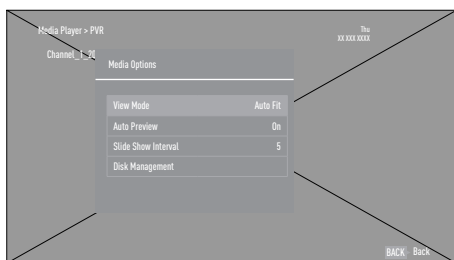
plug the memory stick into the **USB1** interface of the television.

USB RECORDING

USB recording settings

Selecting the menu

- 1 Open the menu with »MENU«.
- 2 Select »Records« with »V«, »^«, »<« or »>« and confirm with »OK«.
 - »Media Player« menu will be displayed.
- 3 Select »PVR« with »V« or »^« and press »OK« to confirm.
 - Content will be displayed.
- 4 Press »TOOLS«.
 - »Media Options« menu will be displayed.



Note:

- Additional operations are explained in the following sections.

Removing the external data medium

- 1 In the »Disk Management« menu, select »Safely Remove Disk« with »V« or »^« and press »OK« to confirm.

Note:

- The disk can now be safely removed from the socket.

Selecting external data medium

If there are more than one external data medium connected to the television, select one of them.

- 1 In the »Disk Management« menu select »Disk« with »V« or »^« and press »OK« to confirm.
- 2 Select the external data medium with »V« or »^« and press »OK« to confirm.
- 3 Return with »BACK <« or press »EXIT« to finish settings.

Selecting a partition on the external data medium

If there are more than one partitions on the external data medium, select one of them.

- 1 In the »Disk Management« menu, select »Partition« with »V« or »^« and press »OK« to confirm.
- 2 Select the desired partition with »V« or »^« and press »OK« to confirm.
- 3 Return with »BACK <« or press »EXIT« to finish settings.

Testing external data medium

You can test the external data medium to see if it is suitable for functions.

- 1 In the »Disk Management« menu select »Disk« with »V« or »^«. If there are more than one external data medium, select the desired data medium with »V« or »^«.
- 2 Select »Partition« with »V« or »^«. If there are more than one partition, select the desired partition with »V« or »^«.
- 3 Select »Check Disk« with »V« or »^« and press »OK« to confirm.
 - Disk information will be displayed.
- 4 Return with »BACK <« or press »EXIT« to finish settings.

Formatting the partition

- 1 In the »Disk Management« menu, select »Format Partition« with »**V**« or »**^**« and press »**OK**« to confirm.
- 2 Select »Yes« with »**<**« or »**>**« to confirm the deleting process;

or
select »No« and press »**OK**« to cancel.
- 3 Return with »**BACK** **<**« or press »**EXIT**« to end the setting.

"Pausing" time shift programs

You can pause a program that you are watching. This is a useful function. For instance, if the phone rings when you are watching a movie, you can pause the movie and resume it after the call without missing anything.

The freeze-frame image of the last scene will be displayed on the screen and the time shift will be stored in the external data medium.

In the Time shift mode, you can only record as much as the free memory in the external data medium.

You can record approximately 60 minutes in the current broadcast.

Note:

- Use an external USB hard disk for an uninterrupted "Permanent Time Shift".

- 1 Press »**||**« during the broadcast.
 - The television image will be paused and the delay time will be displayed.
- 2 Press »**>**« to resume the broadcast.
 - The system will continue to record the broadcast while you are watching it.

Note:

- The following functions can be used in Time Shift mode.
 - Fast rewind, press »**<<**« several times for the desired speed;
 - Fast forward, press »**>>**« several times for the desired speed;
 - Press »**||**« to pause.
- 3 Press »**■**« to quit the time shift function.
 - »Live Broadcast« will appear.
 - Images in "Time shift memory" will be deleted.

Recording Programs





You can record the programs. Programs are recorded onto the external data medium and the archive is managed via television.

A memory of 44 MB up to 110 MB is required for a 1 minute record.

Other recordings in the archive can be watched while a program is being recorded.

It is possible to navigate channels during recording between free channels on the same frequency (DVB-T), on the same frequency (DVB-S) or on the same transponder (DVB-C).







One-touch program recording

- 1 Select the channel with »1...0« or »P+«, »P-« and press »« to start recording.
 - Recording information will be displayed: Recording symbol, channel name, program time and recording time.
 - This information will disappear shortly.
- 2 Press »« to end recording.
- 3 Use »« or »« to select »Yes«;
or
select »No« and press »OK« to cancel.

Notes:

- When recording is complete, it will automatically be stored in the external data medium.
- If you remove the external data medium during recording, then the recording will be cancelled automatically and no data will be recorded into the external data medium.

Recording a program from the channel list

- 1 Press »OK« to open the channel list.
- 2 Select a channel with »« or »« and press »OK« to confirm.
- 3 Press »EXIT« to exit the channel list.
- 4 Press »« to start recording.
 - Recording information will be displayed: Recording symbol, channel name, program time and recording time.
 - These information will disappear after a short while. Recording symbol and the recording time will appear on the lower right corner of the screen.
- 5 Press »« to end recording.
- 6 Use »« or »« to select »Yes«;
or
select »No« and press »OK« to cancel.

Program setting for recording

... with electronic program guide

Electronic program guide data can be used for recording.

A total of 25 EPG reminders and/or recorders can be set in total.

- 1 Press **»GUIDE«** to open the electronic program guide (EPG).
- 2 Select the desired channel with **»V«** or **»^«**.
 - Information about the actual TV program will be displayed.
- 3 Press **»<«** or **»>«** to select the TV program you want to record.
- 4 Press **»OK«** to add broadcasts to the timer.
 - Information for the TV program to be recorded will be displayed.
- 5 Select **»Record«** with **»V«** or **»^«** and press **»OK«** to confirm.
- 6 Press **»EXIT«** to end the settings.

Notes:

- Open the menu with **»MENU«** if the recording data will be modified. Select the **»Schedule List«** menu with **»V«**, **»^«**, **»<«** or **»>«** and confirm with **»OK«**. Press **»♦♦«** (green), modify the data and save it with **»♦♦♦«** (blue).
- A warning will be displayed before the timer recording starts and it will count down for 10 seconds to allow you to switch to the channel. At the end of 10 seconds, the channel to be recorded will appear automatically.
- If the timer recording starts during playback, playback will stop. If you do not select **»Yes«** in the warning prompt, recording will start automatically at the end of the countdown.

- Note specific to UPC customers: While the program is being recorded, part of the previous or the next program may be included in the recording because of Program Guide errors. In such cases, keep in mind that the highest family protection level will apply to the whole recording if one or more of those programs has/have family protection.

Setting the delay/follow-up time

You can change the recording time set with the electronic TV guide with this function.

If you think that a program will start a few minutes earlier or will end several minutes later, you can "add" up to 60 minutes to this time.

- 1 Open the menu with **»MENU«**.
- 2 Select **»Schedule List«** with **»V«**, **»^«**, **»<«** or **»>«** and confirm with **»OK«**.
- 3 Confirm **»Padding Time«** with **»♦♦♦♦«** (blue).
- 4 Change the start time with **»<«** or **»>«**.
- 5 Use **»V«** to switch to the **»End«** line and change the end time with **»<«** or **»>«**.
- 6 Use **»V«** to press **»Save«** to save the setting.
- 7 Press **»EXIT«** to end the settings.

USB RECORDING

... by entering the information manually

25 TV programs can be preset for timer recording or for the reminder.

- 1 Press »GUIDE« to open the electronic program guide (EPG).
- 2 Press »••« (green) to display Schedule List.
- 3 Press » • « (red).
- 4 Under »Type«, press »◀« or »▶« to select »Recorder«.

Notes:

- If you want to use the reminder function, select »Remind« under »Type«.
- 5 Press »▼« or »▲« to select »Select Channel« and press »◀« or »▶« to select the channel to be saved.
 - 6 Press »▼« or »▲« to select »Mode« and then press »◀« or »▶« to make selection (»Once«, »Weekly« or »Every Day«).
 - 7 Press »▼« or »▲« to select »Start Date« and use »1...0« buttons to enter the start date. (day.month.year.).
 - 8 Press »▼« or »▲« to select »Start Time« and use »1...0« buttons to enter the start time. (hour:minutes).
 - 9 Press »▼« or »▲« to select »End Date« and use »1...0« buttons to enter the start date. (day.month.year.).
 - 10 Press »▼« or »▲« to select »End Time« and use »1...0« buttons to enter the start time. (hour:minutes).
 - 11 To save the settings, press »••••« (blue).
 - »Your schedule is saved into list.« message will be displayed.
 - 12 Press »EXIT« to exit the menu.

Notes:

- A warning will be displayed before the timer recording starts and it will count down for 10 seconds to allow you to switch to the channel. At the end of 10 seconds, the channel to be recorded will appear automatically.

Editing the timer

You can edit programmed timers.

- 1 Open the menu with **»MENU«**.
- 2 Select **»Schedule List«** with **»V«**, **»^«**, **»<«** or **»>«** and confirm with **»OK«**.
– The **»Schedule List«** will be displayed.
- 3 Press **»V«** or **»^«** to select the program title to be edited and press **»♦♦«** (green) to edit it.
- 4 Press **»V«** or **»^«** to select the items you want to edit and modify them with **»1...0«** and **»<«** or **»>«**.
- 5 Press **»♦♦♦«** (blue) to save the changes.
– The timer will be changed.
- 6 Press **»EXIT«** to finish the setting.

Deleting a timer

You can delete programmed timers.

- 1 Open the menu with **»MENU«**.
- 2 Select **»Schedule List«** with **»V«**, **»^«**, **»<«** or **»>«** and confirm with **»OK«**.
– The **»Schedule List«** will be displayed.
- 3 Select the title of the program to be deleted with **»V«** or **»^«** and delete the timer with **»♦♦♦«** (yellow) button.
– Timer is now deleted.
- 4 Select **»Yes«** with **»<«** or **»>«** to confirm the deleting process;
or
select **»Cancel«** and press **»OK«** to cancel.
- 5 Press **»EXIT«** to finish the setting.

Playback

Recorded programs (started either manually or using the timer function) are all stored in the external data medium. You can display an archive in the external data medium from the **»Media Player«** menu.

Selecting a broadcast from the recorded files list

- 1 Open the menu with **»MENU«**.
- 2 Select **»Records«** with **»V«**, **»^«**, **»<«** or **»>«** and confirm with **»OK«**.
– **»Media Player«** menu will be displayed.
- 3 Select **»PVR«** with **»V«** or **»^«** and press **»OK«** to confirm.
– Recorded files will be displayed.
- 4 Press **»V«** or **»^«** to select the broadcast you want to play and press **»▶«** to start playing.
- 5 Press **»■«** to end playing.
– The TV will return to the media player menu.

Forward/reverse picture search

- 1 Press **»▶▶«** repeatedly to select the playback speed (2x, 4x, 8x, 16x or 32x) during playback.
or
press **»◀◀«** repeatedly to select the playback speed (2x, 4x, 8x, 16x or 32x) during playback.

USB OPERATION

File formats

Your television can be operated via the USB input with the following file formats:

Video data

Video compression / decompression (codec) is intended for decreasing the storage area without sacrificing the picture quality.

Your TV allows you to play compressed video data with XVID, H.264/MPEG-4 AVC(L4.1, Ref. Frames:4), MPEG-4, MPEG-2, MPEG-1, MJPEG, MOV standards.

File extensions supported by the device: ".avi", ".mkv", ".mp4", ".ts", ".mov", ".mpg", ".dat", ".vob", ".divx". In addition to video data, these files also contain audio data compressed and "packaged" by using MP3, AAC, DTS 2.0 or Dolby Digital.

Format (codec) information is embedded within the file content and may differ depending on the file extension. The ".avi", ".mkv" or ".divx" files containing divx codec within are not played back.

DTS 2.0+Digital Out denotes the dual ability to pass the DTS encrypted digital dual stream to an external DTS decoder for playback as well as fold down the digital surround soundtrack for playback in a 2-channel environment through analogue outputs.

Audio data

Your television can play audio data coded with MP3, AAC standards.

MP3 stands for MPEG-1 Audio Level 3 and is based on the MPEG-1 standard developed by MPEG (Motion Picture Expert Group).

AAC indicates the Advanced Audio Coding and has been developed by MPEG. AAC provides higher audio quality with the same data rate (bit rate).

WMA (Windows Media Audio) is a compression standard developed by Microsoft for audio data.

These formats enable audio files to be saved on storage devices with a sound quality similar to that of a CD.

File extensions supported by your device:

".mp3", ".mp2", ".wma", ".m4a", ".aac", ".wav"
MP3 files can be organized into folders and sub-folders similar to the files on a computer.

Picture data

Your television can display picture data in JPEG, PNG and BMP formats.

JPEG stands for Joint Picture Experts Group. This process is intended to compress picture files.

PNG and BMP standards are intended to compress picture data without loss.

Picture files can be saved in a data storage medium together with other file types.

Such files can be organized as folders and subfolders.

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USB OPERATION

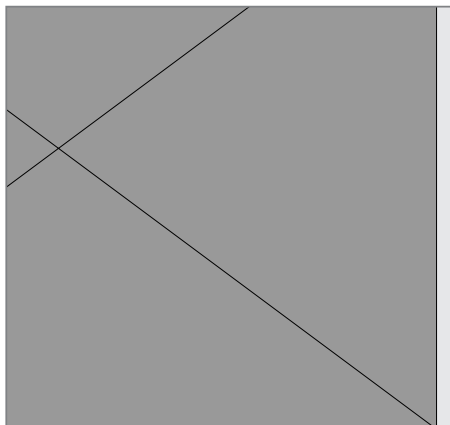
Connecting external data medium

It is advised to switch the television to stand-by mode before connecting the External Data medium. Connect the device and then switch the television on again.

Before disconnecting the data medium, first of all, the television must be switched to standby, otherwise files may get damaged.

Notes:

- **USB1** port of the TV supports 500 mA current according to USB standard. Devices such as external hard disk and etc. that consume more power can only be connected to the **USB(HDD)** interface of the television.
- If you are using a power cable for the external hard disk that you have connected to the USB(HDD) USB interface, then the power cable of the external hard disk must also be unplugged when the TV is turned off.
- You must not disconnect the USB Device from the TV while a file on the USB Device is being read by the TV.
- A bi-directional data transfer as defined for ITE (Information Technology Equipment) devices in EN 55022/EN 55024 is not possible.
- USB transfer is not an operating mode by itself. It is only an additional function.



- 1 Connect the **USB(HDD)** USB interface of the television and the corresponding data output socket on the external data device (external hard drive, digital camera, card reader or MP3 player) using a USB cable;

or

plug the memory stick into the **»USB1«** interface of the television.

Removing the external data medium

Before removing the external data medium, log off the data medium.

- 1 Open the menu with **»MENU«**.
- 2 Select **»Media Center«** with **»V«**, **»^«**, **»<«** or **»>«** and confirm with **»OK«**.
- 3 Select **»Safely Remove Disk«** with **»*«** (red).
- 4 Remove the data medium from the socket.

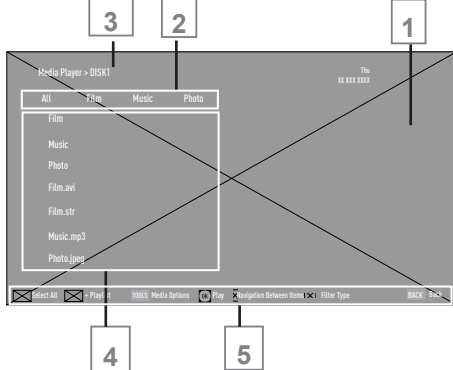
USB OPERATION

File browser

The file browser displays the video, audio and picture data that the external data medium provides.

If a data medium contains different file formats, you can deactivate data (Video file, Audio file, Picture file) you do not need for the playback using a filter function.

The main menu of the file browser



- 1 Preview.
- 2 Data type.
- 3 Name of the data medium.
- 4 Folders in the data medium.
- 5 Menu navigation.

Settings in the USB set-up menu

Selecting the menu

- 1 Open the menu with »MENU«.
- 2 Select »Media Center« with »V«, »^«, »<« or »>« and confirm with »OK«.
- 3 Select the external data medium with »V« or »^« and press »OK« to confirm.
- 4 Select »Media Options« with »TOOLS«.

Note:

- Additional operations are explained in the following sections.

Selecting the screen mode

- 1 Select »View Mode« with »V« or »^«.
- 2 Press »<« or »>« to select the function.
- 3 Press »EXIT« to finish the setting.

Switching to auto preview

If the auto preview is switched on, you can see the selected file in the main menu of the file browser.

- 1 Select »Auto Preview« with »V« or »^«.
- 2 Press »<« or »>« to switch the function »On«.
- 3 Press »EXIT« to finish the setting.

USB OPERATION

Selecting the display duration of the slide show

- 1 Select »Slide Show Interval« with »V« or »^«.
- 2 Select the time (3, 5, 10 seconds) with »<« or »>«.
- 3 Press »EXIT« to finish the setting.

Subtitle settings

If the film you watch has subtitles, you can turn on and off this subtitle, change its size or color.

- 1 Under »Media Options« menu, use »V« or »^« to select »Auto Subtitle Selection«, »Subtitle Size« or »Subtitle Color«.
- 2 Adjust with »<« or »>«.
- 3 Press »EXIT« to finish the setting.

Note:

- These adjustments can only be made for external subtitle files. These adjustments cannot be made in subtitles combined with the film.

Play basic functions

- 1 Open the menu with »MENU«.
- 2 Select »Media Player« with »V«, »^«, »<« or »>« and confirm with »OK«.
– »Media Player« menu will be displayed.
- 3 Select the external data medium with »V« or »^« and press »OK« to confirm.
– Media Player menu of the selected external data medium will be displayed.

Note:

- If the content of the external data medium cannot not displayed, press »•••« (yellow) to refresh.
- 4 Select the desired filter type (All, Film, Music or Photo) with »<« or »>«.
 - 5 Select the folder with »V« or »^« and press »OK« to confirm.
– A list of sub-directories will appear.

Note:

- Go back to the previous folder with »BACK«.
- 6 Select the track or picture with »V« or »^« and press »▶« to start playing.

Notes:

- When playing picture data, press »?« to view information about the resolution and the size.
 - For playing MP3 or WMA data, information on the album, track and singer, if any, is displayed on the left side of the menu.
 - When playing picture data, press »?« to switch on the control panel.
- 7 Press »||« to pause playing.
 - 8 Press »▶« to resume playing.
 - 9 Press »■« to end playing.
– The file browser will be displayed.

Notes:

- Use »▲« to select »Up Folder«, when you would like to return to the last folder.
- It is possible that some files supported in USB mode do not operate due to some problems that may arise depending on how such files are created (compression) although they contain the supported file extension.
- If there are more than one audio sources (audio stream) in the video files that are being played, then you can switch between the audio sources with the »⊠« while the file is played in full screen mode.
- Films you will be watching from the film file only supports subtitles with .srt, .sub, .ass, .ssa, .smi format. Names of the subtitle and film files must be the same. Otherwise, subtitle can not be displayed.

Additional playing functions

Depending on the file formats used, the following additional functions are possible.

Selecting chapters in files

(only supported video files)

- 1 During playing, select the next chapter with »▶«.
- 2 During playing, select the previous chapter with »◀«.

Selecting titles in files

(only supported video files)

- 1 During playing, select the next title with »▲«.
- 2 During playing, select the previous title with »▼«.

Playing selected tracks

Plays marked tracks only.

- 1 Select the desired track with »▼«, »▲« and highlight it with »...« (yellow).
- 2 Select the other desired track with »▼«, »▲« and highlight it with »...« (yellow).
- 3 Press »▶« to start playing.
- 4 Press »■« to end playing.

Note:

- To remove the highlighting, select the track with »▼« or »▲« and unmark with »...« (yellow).

Selecting a track or picture in steps (SKIP)

- 1 During playback, select the next track/picture you want with »▶|«.
- 2 Select the previous track/picture with »|◀«.
 - Playback begins with the track or picture you have selected.

USB OPERATION

Moving to desired time in video files

- 1 Press »OK« during playing.
- 2 Enter the time that you want to move to with »1...0« and confirm with »OK«.

Moving to desired time in audio files

- 1 Press »...« (yellow) button during playback.
- 2 Enter the time that you want to move to with »1...0« and confirm with »OK«.

Forward search

(only video and audio files)

You can select different speeds (2x, 4x, 8x 16x and 32x faster, forward and backward).

- 1 During playback, you can select the playback speed by pressing »◀◀« or »▶▶«.
- 2 Press »▶« to resume playing.

Rotating a picture

(only picture files)

Pictures can be rotated by 90°.

- 1 During playback, switch on the control panel with »OK«.
- 2 For »↕« selection, use »◀« or »▶« to select »OK«.
 - The picture will rotate 90° clockwise.

Repeat functions

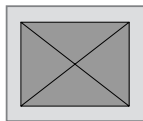
Options:

- »One«, the selected track is repeated once;
- »Sequence«, selected tracks are repeated consecutively;
- »Random«, selected tracks are repeated in a mixed order;
- »None«, repetition off.

- 1 Press »▶« to start playing.
- 2 During playback, switch on the control panel with »OK«.
- 3 For »G« selection, press »◀« or »▶« and confirm with »OK«.
 - The repeat function will change.

USING AN EXTERNAL DEVICE

DIGI LINK



Your television is equipped with DIGI LINK feature. This feature utilizes CEC (Consumer Electronics Control) protocol. CEC allows you to make an HDMI

connection between your TV and DVD player, STB or video recorder and control such equipment with the remote control of the television. This feature must also be supported by the device you will connect it.

You television supports the following functions. For detailed information about this function, read the user manual of the external device.

Digi Link connection functions of the TV

Switching on the external device in standby mode

If you switch on your external device (e.g. DVD player) in standby mode, your television will also be switched on in standby and switch to the HDMI source that the external device is connected to.

Depending on the features of the external device (e.g. AV receiver) it can start and your television can remain in stand-by mode.

Selecting the HDMI source from the television

When you switch on your external device (e.g. DVD player), your television will switch to the HDMI source that the external device is connected to. (your television must be switched on).

Selecting the menu language

When you select menu language on your TV, menu language of the external device will change as well. (If your DVD player supports).

Switching off the external device from standby mode

After switching your television to standby, your external device (e.g. DVD player) will also switch to standby if it is switched on. DIGI LINK is always active on your television. Refer to the user manual of your external device to learn how to activate this feature on it.

Searching and selecting the active external device

You can connect up to 11 devices that support DIGILINK to this television.

- 1 Open the tools menu with **»TOOLS«**.
- 2 Select **»Digilink«** with **»V«** or **»^«** and press **»OK«** to confirm.
 - Connected devices will be displayed in **»Device List«** menu.
- 3 Press **»«** to start searching.
- 4 Select the device that you want to control with **»V«** or **»^«** and mark it with **»OK«**.
 - If the selected device is connected to a different source than the current one, you will automatically switch to the source to which the device is connected.

USING EXTERNAL DEVICES

Device Control

You can determine how the remote control of your television will control the external device.

- 1 Press **»[Source Icon]«** and use **»[Left]«** or **»[Right]«** to select either one from **»HDMI1«** to **»HDMI3«** and then confirm with **»OK«**.
- 2 Open the menu with **»MENU«**.
- 3 Use **»[Down]«**, **»[Up]«**, **»[Left]«** or **»[Right]«** to select **»Settings«** and confirm with **»OK«**.
- 4 Select **»Source«** with **»[Right]«** or **»[Left]«** and press **»[Down]«** to confirm.
 - **»Source«** menu will be displayed.



- 5 Select the **»Remote Behavior«** line with **»[Down]«** or **»[Up]«**.
- 6 Press **»[Left]«** or **»[Right]«** to select control type. (**»Pass-Through«**, **»Deck«** or **»Zap«**).

Notes:

- **»Pass-Through«** is included in the menu as an option that can be selected in every device type. **»Deck Control«** and **»Tuner Control«** options change depending on the external device connected.
 - Apply trial and error method to determine the functions of the remote control buttons for the selected control type.
 - Refer to the user manual of the Digi Link compatible device for its functions.
- 7 Press **»EXIT«** to finish the setting.

Switching the device to standby

This option switches the connected external device to standby.

- 1 Press **»[Source Icon]«** and use **»[Left]«** or **»[Right]«** to select either one from **»HDMI1«** to **»HDMI3«** and then confirm with **»OK«**.
- 2 Open the menu with **»MENU«**.
- 3 Use **»[Down]«**, **»[Up]«**, **»[Left]«** or **»[Right]«** to select **»Settings«** and confirm with **»OK«**.
- 4 Select **»Source«** with **»[Right]«** or **»[Left]«** and press **»[Down]«** to confirm.
 - **»Source«** menu will be displayed.
- 5 Select **»Put device into standby«** with **»[Down]«** or **»[Up]«** and press **»OK«** to confirm.
 - The connected external device will switch off.

USING EXTERNAL DEVICES

High resolution – HD Ready

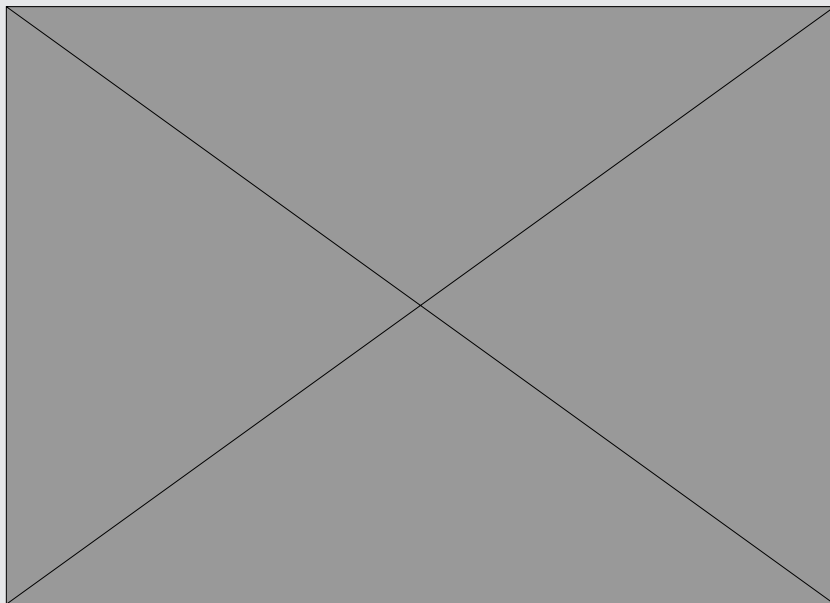
Your television can play high-definition television signals (HDTV).

You can connect the input sources (HDTV set-top box or High Definition DVD player) to the »**HDMI**« socket (digital HDTV signal).

This ensures that you can view digital HDTV programs, even if they are copy-protected (HDCP High Bandwidth Digital Content Protection).

Connection options

- The television socket(s) you connect your external devices to depends/depend on the sockets the external device is equipped with and the signals available.
- Note that with many external devices the resolution of the video signal must be adapted to the input sockets on the television (check the external device's instruction manual). You can find out which values you need to set by referring to the guidelines in the section about connection options.
- Do not connect any other device while the device is switched on. Switch off other devices as well before connecting it.
- Only plug the device into the mains socket after you have connected the external device.



USING EXTERNAL DEVICES

With a digital audio/video signal

- Suitable devices: Digital satellite receiver, game console, Blu-ray player, DVD player/recorder, set-top box, notebook, PC.
- Video signal: digital image; definition: standard 576p; HDTV 720p, 1080i, 1080p.
- Audio signal: digital sound (stereo, multichannel compression, uncompressed).
- »HDMI1«, »HDMI2«, »HDMI3« channel position.

- 1 Connect the **HDMI1, HDMI2, HDMI3 (ARC)** socket on the television and the corresponding HDMI socket on the external device using a standard HDMI cable (digital video and audio signal).

With an analog video signal (progressive)

- Suitable devices: DVD player/recorder, games console.
- Video signal: YUV; definition: standard 576p; HDTV 720p, 1080i, 1080p.
- Audio signal: stereo, analog.
- Channel position »Component«.

- 1 Connect **SCART / S-VHS / COMPONENT** sockets on the television to the corresponding sockets on the external device using SCART - COMPONENT cables (audio and video signal).

Using Euro/AV socket

- Suitable devices: Digital satellite receiver, DVD player/recorder, set-top box, game console, video recorder, decoder.
- Video signal: CVBS/RGB.
- Audio signal: stereo, analog.
- Channel position »SCART«.

- 1 Connect the **AV / S-VHS / COMPONENT** input on the television to the corresponding socket on the external device using EURO/AV cable (video and audio signal).

Selecting Scart volume adjustment

- 1 Open the menu with »**MENU**«.
- 2 Use »**V**«, »**^**«, »**<**« or »**>**« to select »Settings« and confirm with »**OK**«.
- 3 Select the menu item »Sound« with »**>**« or »**<**« and press »**V**« to confirm.
– »Sound« menu will be displayed.
- 4 Select »Advanced« with »**V**« or »**^**« and press »**OK**« to confirm.
- 5 Select »Scart Output« with »**V**« or »**^**«.
- 6 Select »Fixed« or »Adjustable« with »**<**« or »**>**«.

Note:

- »Scart Volume« becomes active when »Adjustable« is selected in the menu.
- 7 Select »Scart Volume« with »**V**« or »**^**« and adjust the volume with »**<**« or »**>**«.
 - 8 Press »**EXIT**« to finish the setting.


In S-Video signal

- Suitable devices: DVD player/recorder, video recorder, camera recorder, notebook, PCs.
- Video signal: Y/C.
- Audio signal: stereo, analog.
- Channel position »S-VHS«.

- 1 Connect the **AV / S-VHS / COMPONENT** socket on the television to the corresponding socket on the external device using EURO/AV cable (video and audio signal).

USING EXTERNAL DEVICES

Using a DVD recorder, DVD player, video recorder or set-top box

- 1 Switch on the video recorder, DVD player or set-top box and select the function you wish to use.
- 2 Press  and use **◀** or **▶** to select input signal (»SCART«, »S-VHS«, »HDMI1«, »HDMI2«, »HDMI3« or »COMPONENT«) and press **OK** to confirm.

Headphones

Connecting headphones

- 1 Plug the headphone jack (3.5 mm ø jack plug) into the headphone socket of the television.

Selecting the sound setting for the headphones

- 1 Open the menu with **»MENU«**.
- 2 Use **»V«**, **»^«**, **»◀«** or **»▶«** to select »Settings« and confirm with **»OK«**.
- 3 Select the menu item »Sound« with **»▶«** or **»◀«** and press **»V«** to confirm.
– »Sound« menu will be displayed.
- 4 Select »Advanced« with **»V«** or **»^«** and press **»OK«** to confirm.
- 5 Select »Headphone Volume« with **»V«** or **»^«**.
- 6 Adjust the volume with **»◀«** or **»▶«**.
- 7 Press **»EXIT«** to finish the setting.

Note:

- Prolonged listening at loud volumes with the headphones may damage your hearing.

Hi-Fi system

Connecting digital multi-channel amplifier/AV receiver

- 1 Connect the **HDMI3 (ARC)** (HDMI 1.4 Audio Return Channel) socket to the relevant socket on the HDMI ARC compliant Digital multichannel amplifier / AV receiver with a standard HDMI cable (digital audio signal);

or
- 2 Connect the **Optic Out** socket on the television to the corresponding socket on the AV receiver using a standard optic digital cable (digital audio signal).

Important:

- Do not use an HDMI cable longer than 5 m for HDMI ARC connection.

Apply HDMI ARC feature on the device and enable HDMI ARC feature

- 1 Switch on the multi-channel amplifier or the AV receiver. Player must be turned on if a Blu-Ray player is connected to AV receiver.
- 2 Open the tools menu with **»TOOLS«**.
- 3 Select »Digilink« with **»V«** or **»^«** and press **»OK«** to confirm.
– Audio device connected to the »HDMI4 (ARC)« source in the »Device List« menu will be displayed in the list.
- 4 Start device search with **»♦♦♦♦«** (blue).
– Audio device connected to the **»HDMI3 (ARC)«** source shall be displayed in the list.
- 5 Select the device with **»V«** or **»^«** and press **»OK«** to confirm.

Notes:

- If the audio system also has a playing function (e.g. Home theatre system including DVD player function), two devices will be listed on the HDMI CEC list. The first one is the player, and the second one is the audio player.

USING EXTERNAL DEVICES


- If a Blu-ray Player is connected to the AV receiver, please remove the Disk from the Player during registration.

- 6 Open the menu with »MENU«.
- 7 Use »V«, »^«, »<« or »>« to select »Settings« and confirm with »OK«.
- 8 Select the menu item »Sound« with »>« or »<« and press »V« to confirm.
– »Sound« menu will be displayed.
- 9 Select »Advanced« with »V« or »^« and press »OK« to confirm.
- 10 Select »ARC« with »V« or »^«.
- 11 Press »<« or »>« to select »On«.


Notes:

- Internal speakers of the television will switch off automatically.
 - You can adjust the volume of the AV receiver with the remote control of the television.
 - To disable HDMI ARC function, press »<« or »>« and select »Off«.
 - The ARC function will be deactivated while switching off the television and the internal speakers are active again.
- 12 Press »EXIT« to finish the setting.

Playing the audio signal with the Hi-Fi system

- 1 Connect the socket  on the television and the corresponding socket on the Hi-Fi system / AV receiver using an adapter cable.

Note:

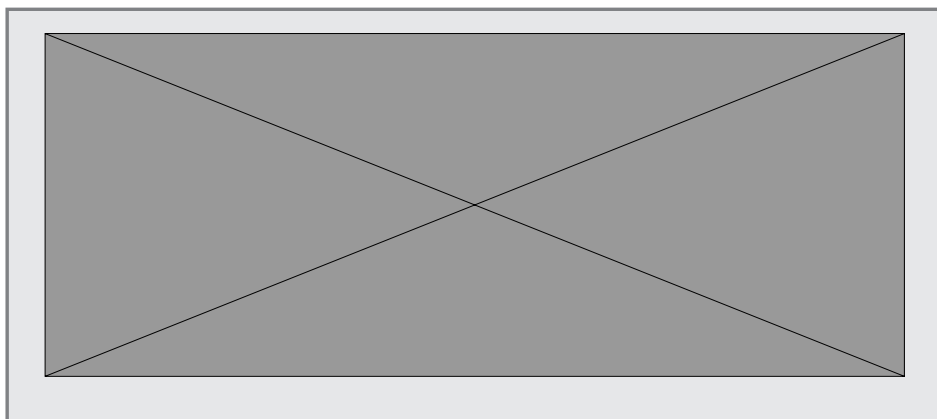
- When this function is activated, the Hi-Fi system / AV receiver (connected to socket ) transmits the audio signal.
- 2 Open the menu with »MENU«.
 - 3 Use »V«, »^«, »<« or »>« to select »Settings« and confirm with »OK«.
 - 4 Select the menu item »Sound« with »>« or »<« and press »V« to confirm.
– »Sound« menu will be displayed.
 - 5 Press »V« to select »Advanced« and confirm with »OK«.
 - 6 Select »Audio Out« with »V«.
 - 7 Select »Fixed« or »Adjustable« with »<« or »>«.

Notes:

- If you select »Adjustable«, the volume can be adjusted in the menu option »Audio Out Volume«.
 - If you want to get the audio output only from the Hi-Fi system/AV receiver, use »<« or »>« to select »Off« under »TV Speaker«.
- 8 Press »EXIT« to finish the setting.

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WIRED SCREEN SHARE (MHL)




What is MHL?

- Your television supports MHL connection (Mobile High Definition Connection) thanks to a MHL cable or MHL adapter.
- MHL connection allows you to share your mobile device screen with the television by connecting your mobile device to the television by means of an MHL cable.
- MHL can only be used from **HDMI1** socket and only with a mobile device that supports MHL feature.

Connecting a mobile device

- 1 Connect the »**HDMI1**« socket on your television with the corresponding socket of the mobile device by using an MHL cable or HDMI adapter.

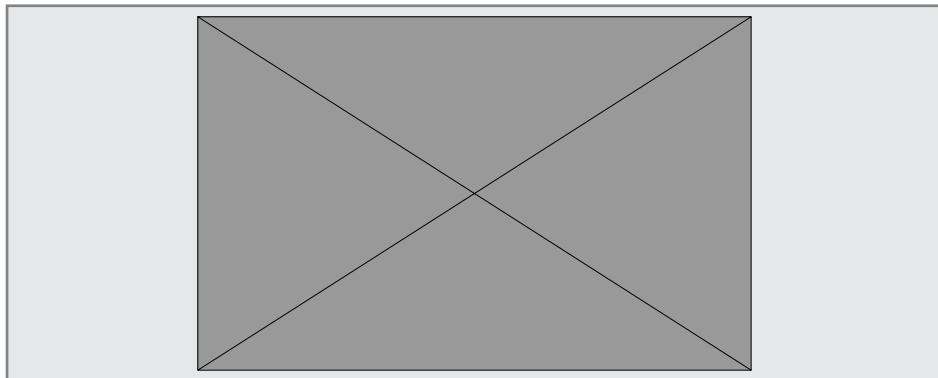
Selecting the channel position for a mobile device

- 1 Press »« and use »<<« or »>>« to select input signal »HDMI1«, then confirm with »OK«.
 - Screen image of your mobile device will be displayed on the television.

Note:

- To find out if your mobile device supports MHL connection or not, please visit the website of the manufacturer.

OPERATION WITH COMMON INTERFACE_____



What is common interface?

- Common Interface (CI) is an interface for DVB receivers.
- Scrambled stations can only be viewed with a CA module suitable for the encoding system and the corresponding smart card.
- The television set is equipped with a Common Interface slot into which CA modules from various providers can be inserted.
- You can insert the provider's smart card into the CA module in order to enable the encrypted stations you want to see.

Inserting the CA module

Note:

- Switch off the appliance before inserting the CA module in the **CI** slot.
- 1 Insert the smart card into the CA module.
 - 2 Insert the CA module with the smart card into the **CI** slot on the television.

Note:

- To see which CA module is in the Common Interface slot, go to »CA - Module« submenu.
- When you insert a CA module into the CI slot on the television for the first time, wait for a few minutes until the television registers the CA module.

Access control for the CA module and smart cards

- 1 Open the menu with »**MENU**«.
- 2 Use »**V**«, »**A**«, »**◀**« or »**▶**« to select »Settings« and confirm with »**OK**«.
- 3 Select »Source« with »**▶**« or »**◀**« and press »**V**« to confirm.
 - »Source« menu will be displayed.
- 4 Press »**V**« to select »Advanced« and confirm with »**OK**«.
- 5 Select »CA - Module« with »**A**« or »**V**« and confirm with »**OK**«.

Notes:

- This menu provides operating instructions and, after you've entered your PIN code, it allows you to access the channels of the Paid TV provider.
 - Other settings are described in the manuals for your CA module and smart card.
 - CA is not supported in some countries and regions. Please consult your authorized dealer.
- 6 Press »**EXIT**« to finish the setting.

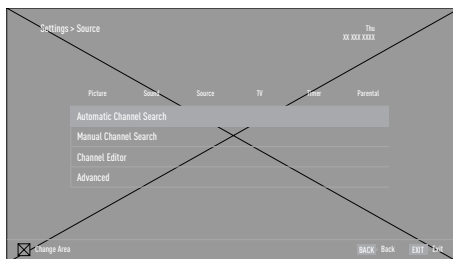
DETAILED CHANNEL SETTINGS

Scanning all the digital television stations from a satellite automatically

New satellite channels are added or satellite data are changed frequently. Therefore, we recommend you to run auto search function from time to time.

All transponders are scanned for new channels.

- 1 Open the menu with **»MENU«**.
- 2 Use **»V«**, **»^«**, **»<«** or **»>«** to select **»Settings«** and confirm with **»OK«**.
- 3 Select **»Source«** with **»>«** or **»<«** and press **»V«** to confirm.
 - **»Source«** menu will be displayed.



- 4 Select **»Automatic Channel Search«** with **»V«** or **»^«** and press **»OK«** to confirm.
 - Menu will be displayed.
- 5 Select **»Satellite«** with **»V«** or **»^«** and confirm with **»OK«**.
- 6 Select the vendor with **»V«** or **»^«** and confirm with **»OK«**.
- 7 Select **»Continue«** with **»♦♦♦♦«** (blue).
- 8 Select the Channel Type.
Press **»V«** or **»^«** to select whether you want to search for only digital channels (Digital) or only radio channels (Radio) or both (Digital + Radio) and press **»OK«** to select and mark or unmark the **»Digital«** and/or **»Radio«** items.
- 9 Select Scan Mode.
To select whether you want to scan free digital television channels (Free), only encrypted digital television channels (Scrambled) or both (Free + Scrambled), press **»V«** or

»^« and press **»OK«** to select and mark or unmark the **»Free«** and/or **»Scrambled«** elements.

- 10 Press **»♦«** (Red) to start scanning.

Notes:

- When updating via the same satellites a security query is displayed at the beginning of the search.
- To store them in the previously stored channels list, select **»Yes«** with **»<«** or **»>«**;
or
select **»No«** to delete the channels and press **»OK«** to confirm.
 - The **»Digital Search«** menu will appear and the search for TV channels will begin.
 - The search is complete as soon as **»Search is completed!«** appears.

Note:

- The search can be terminated with **»EXIT«**.

- 11 Press **»♦♦♦«** (yellow) to switch to the Channel Editor;

or

Press **»EXIT«** to end the setting.

DETAILED CHANNEL SETTINGS

Searching for satellite-connected digital television channels manually

If a certain channel cannot be found through auto search, you can search it manually by means of the manual search function. You must enter all parameters of the channel correctly. You can obtain the current transponder information from teletext page, satellite TV magazines or internet.

- 1 Open the menu with **»MENU«**.
- 2 Use **»V«**, **»^«**, **»<«** or **»>«** to select **»Settings«** and confirm with **»OK«**.
- 3 Select **»Source«** with **»>«** or **»<«** and press **»V«** to confirm.
– **»Source«** menu will be displayed.
- 4 Select **»Manual Channel Search«** with **»V«** and press **»OK«** to confirm.
- 5 Select **»Satellite«** with **»V«** or **»^«** and confirm with **»OK«**.
- 6 Use **»V«** or **»^«** to select the necessary elements.

Service Type

Press **»<«** or **»>«** to select whether you want to search for only television channels (DTV), only radio channels (Radio) or both (Radio+TV).

Scan Type

Press **»<«** or **»>«** to select whether you want to search for only free digital television channels (Free), only scrambled digital television channels (Scrambled) or both (Free + Scrambled).

Transponder

Enter the channel frequency as a 5-digit number with **»1...0«**.

Symbol Rate

Enter the channel symbol rate as a 5-digit number with **»1...0«**.

Polarization

Select the channel polarization as **»Horizontal«** or **»Vertical«** with **»<«** or **»>«**.

Network Search

Select the network search as **»On«** or **»Off«** with **»<«** or **»>«**.

- 7 Press **»•«** (Red) to start searching.
– The **»Digital Search«** menu will appear and the search for TV channels will begin.

Note:

- The search can be terminated with **»EXIT«**.
- 8 Press **»EXIT«** to finish the setting.

DETAILED CHANNEL SETTINGS

Antenna settings for digital satellite channels and searching for channels automatically

Notes:

- The following description about LNB settings provides substantial information about satellite systems. Consult your specialist dealer.

- 1 Open the menu with »MENU«.
- 2 Use »V«, »^«, »<« or »>« to select »Settings« and confirm with »OK«.
- 3 Select »Source« with »>« or »<« and press »V« to confirm.
– »Source Setup« menu will be displayed.
- 4 Select »Manual Channel Search« with »V« or »^« and press »OK« to confirm.
- 5 Select »Satellite« with »V« or »^« and confirm with »OK«.
- 6 Select »Standard Mode« with »V« or »^« and confirm with »OK«.
- 7 Select »Antenna Settings« with »V« or »^« and confirm with »OK«.
– »Antenna Settings« menu will be displayed.
- 8 Select the required elements with »V«, »^«.

Satellite

Press »OK« and use »<«, »>«, »V« or »^« to pick the satellite you wish to get the digital stations from and press »OK« to confirm.

LNB Type

Press »OK« and use »<« or »>« to select the LNB type used in the satellite system and press »♦♦« (green) to confirm.

LNB Power

Set the LNB power to »Off« or set it to »13/18V« or »14/19V« depending on the LNB type by using »<« or »>«.

LNB selection

Select only the required »DiSEqC 1.0« or »DiSEqC 1.1« option.

- 9 Press »♦♦♦« (blue) to exit antenna settings.
- 10 Select the Channel Type.
Press »V« or »^« to select whether you want to search for only digital channels (Digital) or only radio channels (Radio) or both (Digital + Radio) and press »OK« to select and mark or unmark the »Digital« and/or »Radio« items.
- 11 Select Scan Mode.
To select whether you want to scan free digital television channels (Free), only encrypted digital television channels (Scrambled) or both (Free + Scrambled), press »V« or »^« and press »OK« to select and mark or unmark the »Free« and/or »Scrambled« elements.
- 12 Press »♦« (Red) to start scanning.

Notes:

- When updating via the same satellites a security query is displayed at the beginning of the search.
- To store them in the previously stored channels list, select »Yes« with »<« or »>«;
or
select »No« to delete the channels and press »OK« to confirm.
– The »Digital Search« menu will appear and the search for TV channels will begin.
– The search is complete as soon as »Search is completed!« appears.

Note:

- The search can be terminated with »EXIT«.
- 13 Press »♦♦♦« (yellow) to switch to the Channel Editor;
or
Press »EXIT« to end the setting.

DETAILED CHANNEL SETTINGS

Antenna settings for digital satellite channels and searching for channels automatically with SCR system

Notes:

■ Your TV supports SCR system (Single Channel Router). SCR (Single Channel Router - EN 50494).

■ LNB settings described in the following section require significant expertise on satellite systems. Contact your authorized dealer about this matter.

- 1 Open the menu with »MENU«.
- 2 Use »V«, »^«, »<« or »>« to select »Settings« and confirm with »OK«.
- 3 Select »Source« with »>« or »<« and press »V« to confirm.
– »Source« menu will be displayed.
- 4 Select »Auto Channel Search« with »V« and press »OK« to confirm.
- 5 Select »Satellite« with »V« or »^« and confirm with »OK«.
- 6 Select »Standard Mode« with »V« or »^« and confirm with »OK«.
- 7 Select »Antenna Settings« with »V« or »^« and confirm with »OK«.
– »Antenna Settings« menu will be displayed.
- 8 Select the required elements with »V«, »^«.

Satellite

Press »OK« and use »<«, »>«, »V« or »^« to pick the satellite you wish to get the digital stations from and press »OK« to confirm.

LNB Type

If your antenna system incorporates a single cable router multi-switch, use »Grundig SCR« option. Press »OK« or select »Grundig SCR« with »<« or »>«.

Select »LNB-Frequency High« with »V« and enter the frequency with »1...0« as a five-digit number.

Select »LNB-Frequency Low« with »V« and

enter the frequency with »1...0« as a five-digit number.

Press »...« (green) to confirm the selection.

LNB Selection

Depending on the LNB number, press »<« or »>«.

If only 1 LNB is used, select »1/2« and if two LNBs are used, select the required option (»1/2« or »2/2«).

User Band

Using »<« or »>«, select the antenna socket used.

UB Frequency (MHz)

Using »1...0«, enter the required frequency for the selected antenna socket.

Notes:

- Use installation equipment supported / suggested by your SCR Switch.
 - Other users / receivers connected to the system may be affected if the specified user band number and frequency is changed during installation.
 - User band and User band frequency is specified on the SCR switch used; and each user / receiver must select a specified user band and user band frequency.
 - With SCR satellite system, auto search by several users / receivers at the same time may cause problems.
- 9 Press »...« (blue) to exit antenna settings.
 - 10 Select the Channel Type.
Press »V« or »^« to select whether you want to search for only digital channels (Digital) or only radio channels (Radio) or both (Digital + Radio) and press »OK« to select and mark or unmark the »Digital« and/or »Radio« items.
 - 11 Select Scan Mode.
To select whether you want to scan free digital television channels (Free), only encrypted digital television channels (Scrambled) or both (Free + Scrambled), press »V« or »^« and press »OK« to select and mark or unmark the »Free« and/or »Scrambled« elements.

DETAILED CHANNEL SETTINGS

12 Press »•« (Red) to start scanning.

Notes:

- When updating via the same satellites a security query is displayed at the beginning of the search.

- To store them in the previously stored channels list, select »Yes« with »◀« or »▶«;

or

select »No« to delete the channels and press »OK« to confirm.

- The »Digital Search« menu will appear and the search for TV channels will begin.
- The search is complete as soon as »Search is completed!« appears.

Note:

- The search can be terminated with »EXIT«.

13 Press »•••« (yellow) to switch to the Channel Editor;

or

Press »EXIT« to end the setting.

Aerial settings for digital satellite channels and searching for channels automatically with DiSEqC 1.0/1.1

Note:

- LNB settings described in the following section require significant expertise on satellite systems. Consult your authorized dealer about this matter.

- 1 Open the menu with »MENU«.
- 2 Use »▼«, »▲«, »◀« or »▶« to select »Settings« and confirm with »OK«.
- 3 Select »Source« with »▶« or »◀« and press »▼« to confirm.
 - »Source Setup« menu will be displayed.
- 4 Select »Auto Channel Search« with »▼« and press »OK« to confirm.
- 5 Select »Satellite« with »▼« or »▲« and confirm with »OK«.
- 6 Select »Standard Mode« with »▼« or »▲« and confirm with »OK«.
- 7 Select »Antenna Settings« with »▼« or »▲« and confirm with »OK«.
 - »Antenna Settings« menu will be displayed.
- 8 Select the required elements with »▼«, »▲«.

Satellite

Press »OK« and use »◀«, »▶«, »▼« or »▲« to pick the satellite you wish to get the digital stations from and press »OK« to confirm.

LNB Type

Press »OK« and use »◀« or »▶« to select the LNB type used in the satellite system and press »•••« (green) to confirm.

LNB Power

Set the LNB power to »Off« or set it to »13/18V« or »14/19V« depending on the LNB type by using »◀« or »▶«.

DETAILED CHANNEL SETTINGS

LNB Selection

see DiSEqC mode.

DiSEqC Mode

Based on the number of current satellite systems, select »Off«, »DiSEqC 1.0« or »DiSEqC 1.1« with »◀« or »▶«.

- »Off«: For satellite systems with single antenna.
- »DiSEqC 1.0« switch allows for receiving from four satellites maximum at a time.
Under »LNB selection«, use »◀« or »▶« to select »1/4«, »2/4«, »3/4« or »4/4« for the satellite that corresponds to the relevant DiSEqC positions.
- »DiSEqC 1.1« switch allows for receiving from sixteen satellites maximum at a time.

Under »LNB selection«, use »◀« or »▶« to select between »1/16« and »16/16« for the satellite that corresponds to the relevant DiSEqC positions.

9 Press »♦♦♦♦« (blue) to exit antenna settings.

10 Select the Channel Type.

Press »▼« or »▲« to select whether you want to search for only digital channels (Digital) or only radio channels (Radio) or both (Digital + Radio) and press »OK« to select and mark or unmark the »Digital« and/or »Radio« items.

11 Select Scan Mode.

To select whether you want to scan free digital television channels (Free), only encrypted digital television channels (Scrambled) or both (Free + Scrambled), press »▼« or »▲« and press »OK« to select and mark or unmark the »Free« and/or »Scrambled« elements.

12 Press »♦« (Red) to start scanning.

Notes:

- When updating via the same satellites a security query is displayed at the beginning of the search.

- To store them in the previously stored channels list, select »Yes« with »◀« or »▶«;

or

select »No« to delete the channels and press »OK« to confirm.

- The »Digital Search« menu will appear and the search for TV channels will begin.
- The search is complete as soon as »Search is completed!« appears.

Note:

- The search can be terminated with »EXIT«.

13 Press »♦♦♦« (yellow) to switch to the Channel Editor;

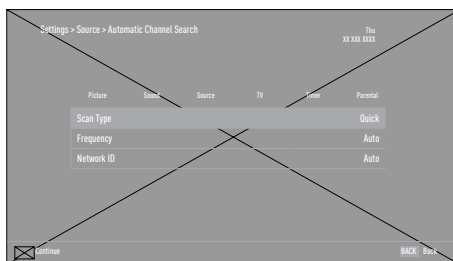
or

Press »EXIT« to end the setting.

DETAILED CHANNEL SETTINGS

Searching for television channels from the cable provider automatically

- 1 Open the menu with **»MENU«**.
- 2 Use **»V«**, **»^«**, **»<«** or **»>«** to select **»Settings«** and confirm with **»OK«**.
- 3 Select **»Source«** with **»>«** or **»<«** and press **»V«** to confirm.
- 4 Select **»Automatic Channel Search«** with **»V«** or **»^«** and press **»OK«** to confirm.
- 5 Select **»Cable«** with **»V«** or **»^«** and confirm with **»OK«**.
 - **»Automatic Channel Search«** menu will be displayed.



- 6 Select **»Scan Type«** with **»^«** or **»V«** and select **»Quick«** or **»Full«** scan type with **»<«** or **»>«**.
 - **»Quick«** scanning function tunes the channels according to the cable operator information in the broadcasting signal. **»Network ID«** performs the installation that is suitable to your network. Network ID must definitely be entered if known. If you do not know the Network ID, please select **»Auto«** for **»Frequency«** and **»Network ID«**.
 - If scanning cannot be performed with the **»Quick«** option, select **»Full«**. All current channels will be tuned and stored in **»Full«** scanning. This scanning process may take a long time. This option is recommended if your cable carrier does not support quick scanning function.

Note:

- You can speed up the search. To do this, frequency and network ID information are required. You may get this data from your cable operator or find it in Internet forums.
- 7 Select **»Continue«** with **»♦♦♦«** (blue).

Note:

- Select whether to search for digital or analog TV channels. To do this, press **»V«** or **»^«** to select **»Digital«** or **»Analog«** and unmark or mark the "little tick" with **»OK«**.
- 8 Press **»♦«** (Red) to start searching.

Note:

- If there are any preset channels found, all channels will be deleted. Using **»<«** or **»>«**, select **»Yes«** to start searching;

or

select **»No«** to cancel the search and press **»OK«** to confirm.

- The **»Digital Search«** menu will appear and the search for TV channels will begin.
- The search is complete as soon as **»Search is completed!«** appears.

Note:

- The search can be terminated with **»EXIT«**.
- 9 Press **»♦♦♦«** (yellow) to switch to Channel Editor;

or

Press **»EXIT«** to end the setting.

DETAILED CHANNEL SETTINGS

Searching for television channels from the cable provider manually

- 1 Open the menu with »MENU«.
- 2 Use »V«, »^«, »<« or »>« to select »Settings« and confirm with »OK«.
- 3 Select »Source« with »>« or »<« and press »V« to confirm.
- 4 Select »Manual Channel Search« with »V« or »^« and press »OK« to confirm.
- 5 Select »Cable« with »V« or »^« and confirm with »OK«.
- 6 Select whether to search for digital or analog TV channels.
To do this, press »V« or »^« to select »Digital« or »Analog« option and confirm with »OK«.
- 7 Under »Frequency (MHz)«, enter the frequency (4-digit) directly with »1...0«; the search will start.
- The search is finished when the channels found appear in the list.
- 8 Press »EXIT« to finish the setting.

Searching for digital terrestrial TV channels automatically

- 1 Open the menu with »MENU«.
- 2 Use »V«, »^«, »<« or »>« to select »Settings« and confirm with »OK«.
- 3 Select »Source« with »>« or »<« and press »V« to confirm.
- 4 Press »V« to select »Advanced« and confirm with »OK«.
- 5 Select »Automatic Channel Search« with »^« and press »OK« to confirm.
- 6 Select »Air« (Antenna) with »V« or »^« and confirm with »OK«.
- 7 Select whether to search for digital or analog TV channels.
To do this, press »V« or »^« to select »Digital« or »Analog« and unmark or mark the "little tick" with »OK«.
- 8 Press »♦« (Red) to start searching.

Note:

- If there are any preset channels found, all channels will be deleted. Using »<« or »>«, select »Yes« to start searching;

or

select »No« to cancel the search and press »OK« to confirm.

- The »Digital Search« menu will appear and the search for TV channels will begin.
- The search is complete as soon as »Search is completed!« appears.

Note:

- The search can be terminated with »EXIT«.

- 9 Press »♦♦♦« (yellow) to switch to Channel Editor;

or

Press »EXIT« to end the setting.

DETAILED CHANNEL SETTINGS

Searching for digital terrestrial TV channels manually

- 1 Open the menu with **»MENU«**.
- 2 Use **»V«**, **»^«**, **»<«** or **»>«** to select **»Settings«** and confirm with **»OK«**.
- 3 Select **»Source«** with **»>«** or **»<«** and press **»V«** to confirm.
- 4 Press **»V«** to select **»Advanced«** and confirm with **»OK«**.
- 5 Select **»Manual Channel Search«** with **»^«** and press **»OK«** to confirm.
- 6 Select **»Air«** (Antenna) with **»V«** or **»^«** and confirm with **»OK«**.
- 7 Select whether to search for digital or analog TV channels.
To do this, press **»V«** or **»^«** to select **»Digital«** or **»Analog«** option and confirm with **»OK«**.
 - **»Manual Channel Search«** menu will be displayed.
- 8 Enter frequency (2-digit) directly with **»1...0«** and confirm with **»<«**.
 - Scanning will start.
 - The search is finished when the channels found appear in the list.
- 9 Press **»EXIT«** to finish the setting.

Auto service update

If this function is activated, possible changes of network operators are updated automatically.

The television must be switched to the stand-by mode.

This update affects all types of reception - terrestrial, cable and satellite.

- 1 Open the menu with **»MENU«**.
- 2 Use **»V«**, **»^«**, **»<«** or **»>«** to select **»Settings«** and confirm with **»OK«**.
- 3 Select **»Source«** with **»>«** or **»<«** and press **»V«** to confirm.
 - **»Source«** menu will be displayed.
- 4 Select **»Advanced«** with **»V«** or **»^«** and press **»OK«** to confirm.
- 5 Use **»V«** or **»^«** to select **»Auto Service Update«** and use **»<«** or **»>«** (**»On«**) to select automatic update.
- 6 Press **»EXIT«** to finish the setting.

DETAILED CHANNEL SETTINGS

Tuning analogue television channels

This setting is only necessary if you cannot receive any digital channels and you have not carried out an analog search during initial set-up.

The television channel can be set directly or using the search.

Tuning all analog television channels

Analog television stations are listed in the channel list after the digital television stations.

Note:

- Plug the rooftop antenna cable (for analog television stations) into the **ANT IN** socket on the television.

- 1 Open the menu with »MENU«.
- 2 Use »V«, »^«, »<« or »>« to select »Settings« and confirm with »OK«.
- 3 Select »Source« with »>« or »<« and press »V« to confirm.
 - »Source« menu will be displayed.
- 4 Select »Automatic Channel Search« with »V« or »^« and press »OK« to confirm.
- 5 Select »Antenna« or »Cable« with »V« or »^« and confirm the source you are receiving analog broadcast from by pressing »OK«.
- 6 Select »Digital« with »V« or »^« and press »OK« to remove the tick.
- 7 Press »*« (Red) to start searching.

Notes:

- If there is any preset channel, a security query will appear. Press »OK« to confirm the »Yes« option.
- All of your channel and favorites lists in the channel list will be deleted and compiled again.
- »Analog Search« menu will appear, and the search for TV channels will start. Depending on the number of television channels received, this can easily take a few minutes.
- The search is complete as soon as »Search is completed!« appears.

Note:

- The search can be ended prematurely with »EXIT«.

- 8 Press »***« (yellow) to switch to Channel Editor;

or

Press »EXIT« to end the setting.

Tuning analog television channels by entering the channel numbers

- 1 Open the menu with »MENU«.
- 2 Use »V«, »^«, »<« or »>« to select »Settings« and confirm with »OK«.
- 3 Select »Source« with »>« or »<« and press »V« to confirm.
 - »Source« menu will be displayed.
- 4 Select »Manual Channel Search« with »V« or »^« and press »OK« to confirm.
- 5 Select »Antenna« or »Cable« with »V« or »^« and confirm the source you are receiving analog broadcast from by pressing »OK«.
- 6 Select »Analog« with »V« or »^« and confirm with »OK«.
 - Menu will be displayed.

DETAILED CHANNEL SETTINGS

- 7 Select »Program No« with »V« or »^« and press »<«, »>« or »1...0« to select the pre-setting.
- 8 Using »V« or »^«, select »Band«. To select either »S« (special channel) or »C« (channel) press »<« or »>«.
- 9 Select the channel with »V« or »^«. To enter the channel number step by step, press »<« or »>« or enter it directly with »1...0« or
Start the auto scan with »...« (green) or »...« (yellow).

Notes:

- The current system will be displayed under »System«. If there are problems in terms of color and picture, select »System« with »V« or »^«. Select the required setting with »<« or »>«.
 - When fine tuning is required, select »Fine Tuning« with »V« or »^« and tune with »<« or »>«.
- 10 To save the setting, press »...« (blue).
- Note:**
- To set other television channels, repeat steps from 7 to 10.
- 11 Press »EXIT« to finish the setting.

Changing stored analog channels

If channels were stored with the auto channel search during the tuning of the television channels, you can delete them. You can also change or enter the name of a channel and skip a channel.

Selecting channel lists

- 1 Open the menu with »MENU«.
- 2 Use »V«, »^«, »<« or »>« to select »Settings« and confirm with »OK«.
- 3 Select »Source« with »>« or »<« and press »V« to confirm.
- 4 Select »Channel Editor« with »V« or »^« and press »OK« to confirm.
– »Channel Editor« menu will be displayed.

Note:

- Additional operations are explained in the following sections.

Deleting channels

- 1 In the »Channel Editor« menu, select the channel or channels you want to delete with »V«, »^«, »<« or »>«, and highlight the television channel by pressing »OK«.
– Channel will be marked with »✓«.

Note:

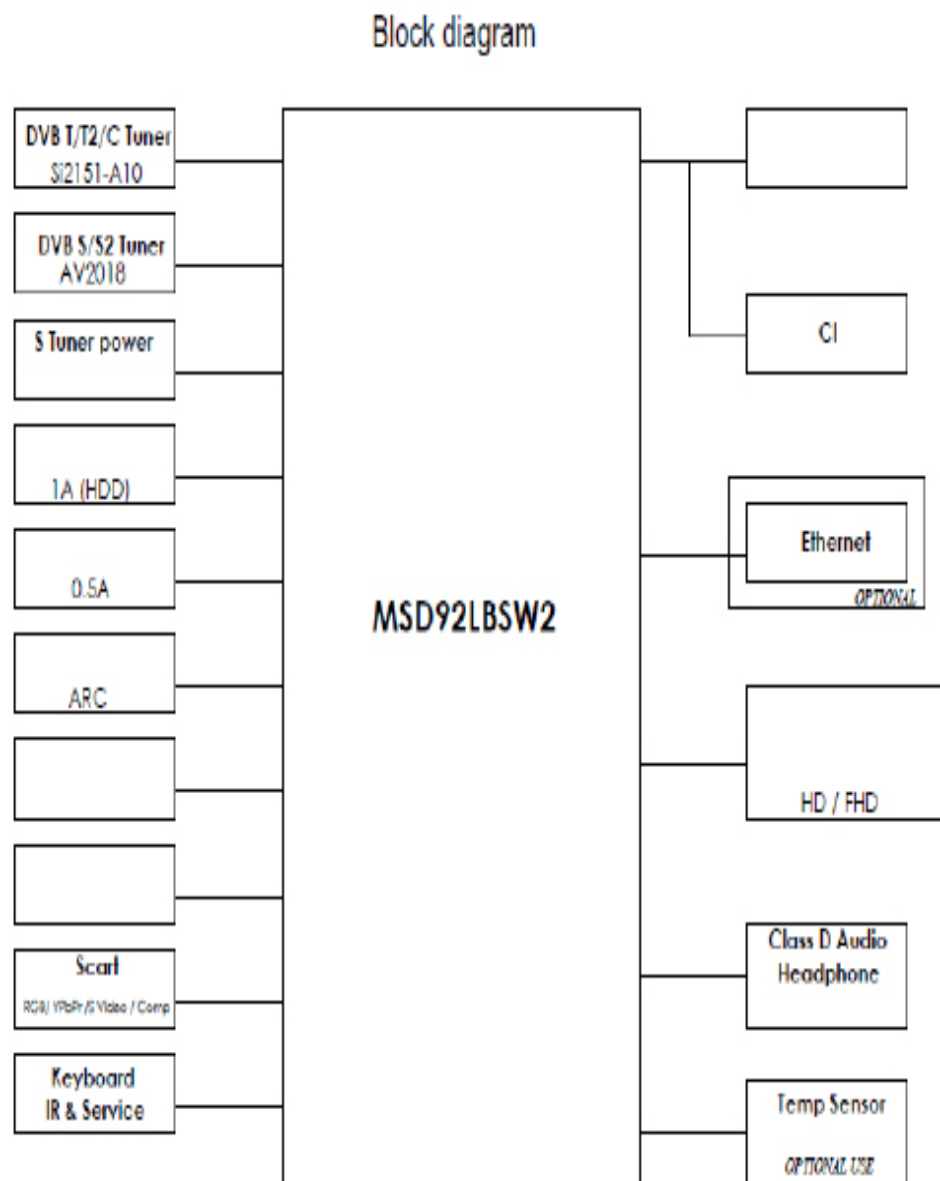
- If several TV channels are to be deleted, press »V«, »^«, »<« or »>« to select them and mark each one with »OK«.
- 2 Confirm »Tools« with »...« (yellow).
 - 3 Select »Delete« with »V« or »^« and press »OK« to confirm.
 - 4 Select »Yes« with »<« or »>« to confirm the deleting process;

or

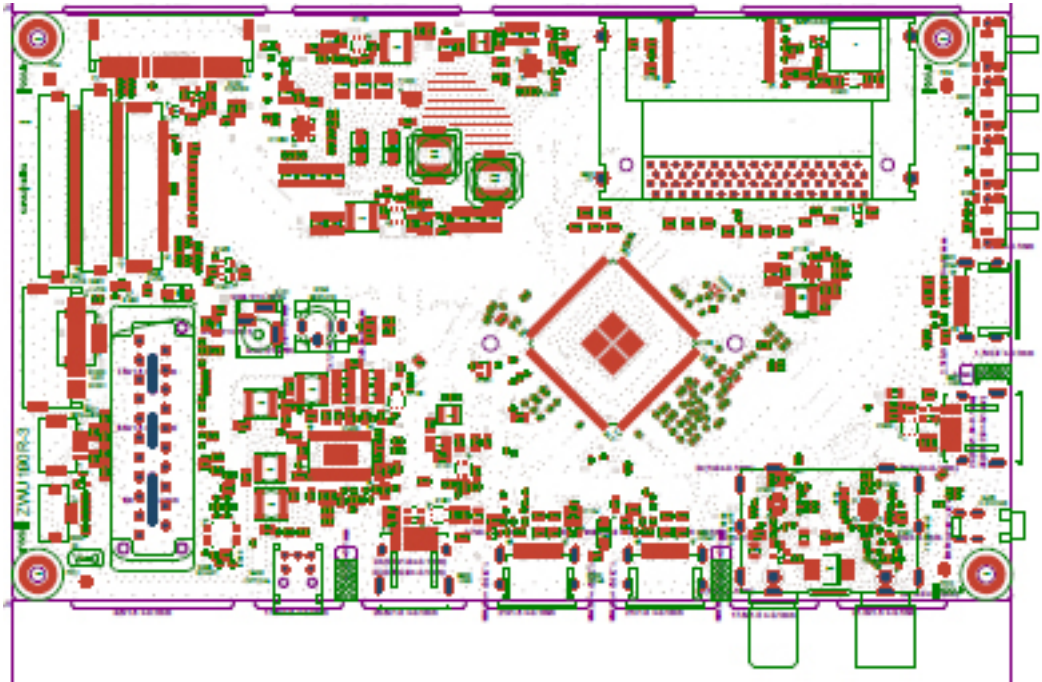
select »No« to cancel and press »OK« to confirm.

GENERAL OPERATING PRINCIPLE OF THE TV_____

Block Diagram



GENERAL OPERATING PRINCIPLE OF THE TV_____



General Operating Principle of Chassis

In products with a Gm chassis, the URSA circuit in KY and KT chassis is not used as an external circuit. It is found in the main integrated circuit and is 50 HZ-supported. There will be no support for 100 HZ.

As seen in the block diagram the signals received from all audio and video sources provide input to main integrated circuit. Image is sent to panel with LVDS lines from main integrated circuit after it is processed. Likewise, the sound is sent to the sound amplifier after being processed.

While performing these processes, the main integrated circuit reads software installed on flash and key data. There is not an SPI Flash where boot software is stored or a system EEPROM where key data is stored as in our previous projects. All of these have been transferred into the IC. This integrated circuit must be checked if key data or boot software are considered faulty.

RAMs are used for the processes performed within the integrated circuit.

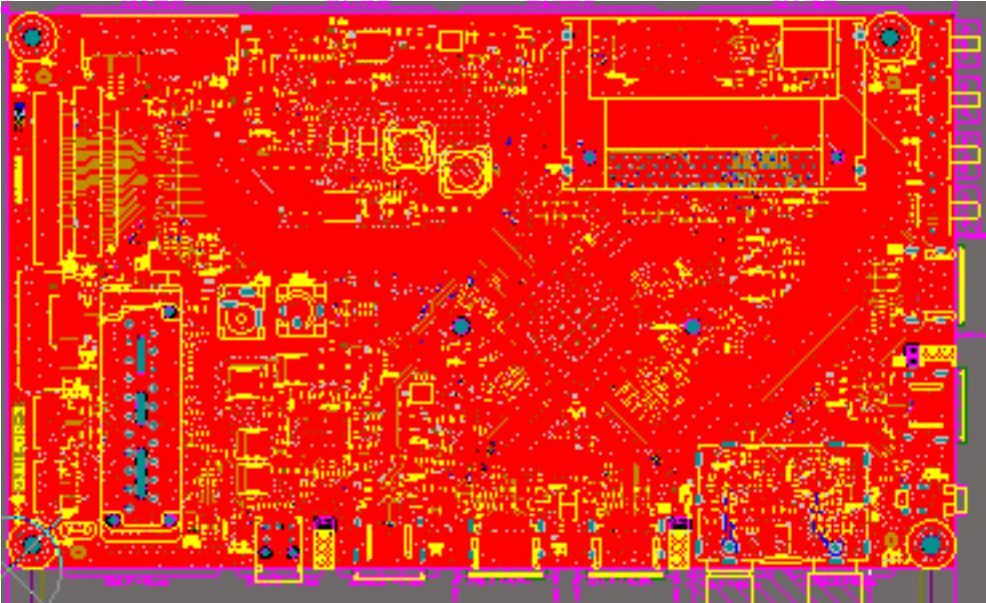
Of course, the system should be supplied power in 5 V, 3.3 V, 1.8 V, 1.5 V and 1.18 V which is required for these processes.

DC Power Stage

Chassis and supply unit should be connected via S100 connector. In GM-chassis products, only 5V is fed from the supply unit (PSU) in Stand-By mode (VCC_STB). The supply unit's 12 V, 12.5 V, 13.5 V and 24 V supplies for different cabins and inches are activated through the control of the main integrated circuit when the TV is exiting Stand-By mode. All of these voltages are supplied from PSUs.

On S100 connector, 3 main control signals are sent to the power supply. The first signal is "POWER_SW"; it is sent to the power source from 10th pin of S100 connector. The voltages it activates in ON position are shown in the table.

GENERAL OPERATING PRINCIPLE OF THE TV_____



KABIN	Size	Amp Voltaj
KRISTAL	32	125V
	40	13.5V
	43	24 V
LEDART	32	125V
	43	24V
	49	
	55	
LUNA	24	12V
	32	12.5V
	40	
	43	
	50	24 V

Different PSUs are used. The 2nd signal is "VBL_CTRL"; it switches panel's back-lights on or off. This signal is sent from the 14th pin of S100 connector to the power supply and from there, to panel inverter; rear lights are switched on if this is higher (3.3 V). The 3rd signal is "BRI_ADJ"; it is sent from the 13th pin of S100 connector to supply unit, and from there to panel inverter. BRI_ADJ signal represents DIMMING in our previous chassis; it determines the brightness level of backlight depending on the value set in

the user menu. When BRI_ADJ is high (3.3 V) maximum brightness level is reached. This signal can be a square wave or a DC value according to the panels using PWM dimming and DC dimming.

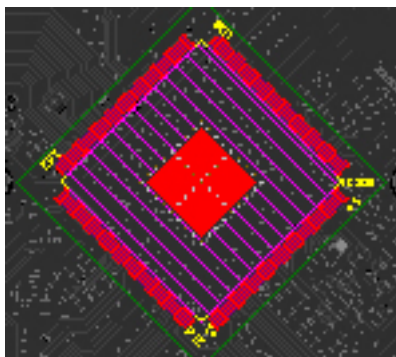
In Stand-By, only VCC_STB and STBC3V3 voltages act on the chassis. These voltages are used for core voltage supplies of various modules and integrated circuits in GM chassis. In Stand-By mode, integrated circuits and regulators remain off as long as possible to ensure lower power consumption. In GM-chassis products, Stand-By power consumption is below 0.5 W.

DDR3 RAM and the main integrated circuit are supplied with VCC1V5; the main integrated circuit is supplied with VCC1V18; tuners, Lnb integrated circuit, audio amplifier, main integrated circuit, I2C pull-ups and the RESET integrated circuit are supplied with VCC3V3.

OPERATING PRINCIPLES OF THE CIRCUIT COPNENTS

IC200 Main integrated circuit (IC-SMD MSD92LBSW2 BGA)

Main integrated circuit IC200's specifications are: FHD support, digital (DVB-T/T2/C/S2) and analog broadcast demodulator, USB recording feature, broadcast and A/V decoder (NTSC/PAL/SECAM) Full HD 50 Hz support, MPEG-2 and MPEG-4 support, 32-Bit Linux based processor, Audio and sub-woofer processor and interface, 3 USB 2.0, 3 HDMI, DDR3 RAM,



HEVC H.265 support.

The main integrated circuit collects and processes data coming from all inputs and sends audio and video output to the speaker over amplifier and to the panel over LVDS line. This integrated circuit has more than 500 legs. Special equipment is required for installation and removal. Therefore, these integrated circuits are designed with very low error ratios. If you suspect any error with main IC on TV, firstly supplies of this IC should be checked. There are 4 input supplies as 1.5 V, 1.1 8V, 1.8 V and 3.3 V. Extremely low or high ratings of these supplies might cause image freezing, some sources' not functioning or losing the picture completely. Besides, the problem might be originated in software, flash, crystal or RAM. If there is a problem, we cannot be sure that it is originated in IC before checking it out.

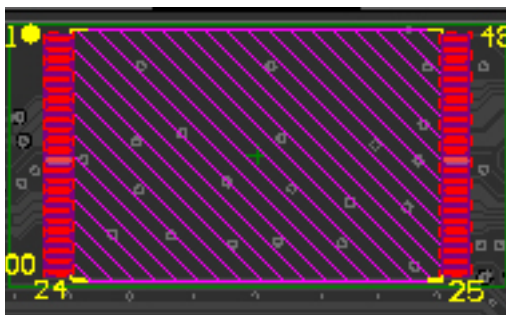
While turning the TV on, main IC switches on the system by reading the flash and turns on the power supply by switching the "POWER_SW"

signal to high. Then, panel signals "BRI_ADJ" (Sets back-light brightness) and "VBL_CTRL" (turns on back-light) turn on panel back-light and the image appears on TV.

There is no separate RAM on the chassis.

IC700 Nand flash (IC-SMD K9F-2G08U0D)

IC700 Flash memory is where the system operating software is installed. System software starts to operate as soon as TV is turned on. This software installed in the flash controls all TV functions.



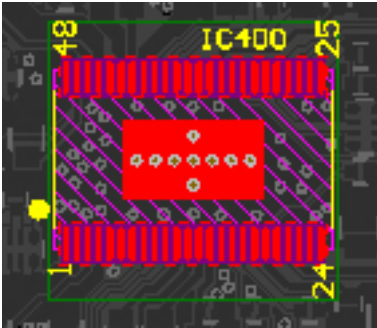
If any problem occurs in the flash integrated circuit, the chassis will not function because the software in the chassis does not start. As soon as the chassis is energized, LED located on the front panel will start flashing. This means that main IC has read and started the software. IF LED is constantly illuminated but not flashing, and the chassis is not turned on even though it is energized, this means either software was not read due to a problem in flash IC or it could not be started due to a problem in main IC.

The keys such as HDCP, CI are stored in nand flash in TVs with GM chassis. This is why it is not recommended to completely delete the flash.

IC400 Audio and headphone amplifier (IC-SMD TAS5753MD)

The integrated circuit of audio amplifier amplifies digital audio data coming from main IC to the desired level and sends it out. GM chassis audio output power is 2x10 W (2x7 W for 32") for LedART cabins, and 2x7 W on 32",

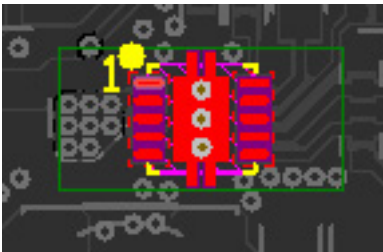
OPERATING PRINCIPLES OF THE CIRCUIT COMPONENTS



2x10 W on 40" and 43" for Crystal cabins.
For LUNA cabins, it is 2x3 W on 24", 2x6 W on 32", 2x8 W on 40", 43" and 50". As is the case with KP chassis, there is not a separate circuit for the headphone socket. Headphone amplifier is in the audio IC. I

IC103 DC-DC converter (IC-SMD TPS54335ADRCR)

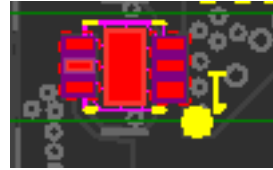
IC103 is the converter through which VCC5V is obtained from VCC input. VCC5V is the main IC supply.



IC104 Step-Down converter (IC-SMD XC6222D151ER-G)

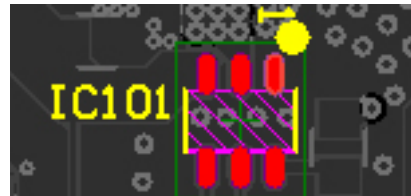
IC104 is the Step-down converter through which +1.5 V is obtained from MAIN3V3 or STBC3V3. Output of this IC is not active when TV is in stand-by.

When IC output is faulty, chassis does not carry out any operations. RAM error will be obtained in the log.

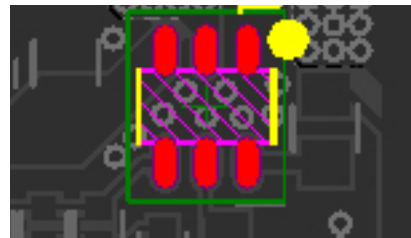


IC101 Step-Down converter (IC-SMD TPS562200)

IC101, is the Step-down converter through which +1.1_CPU is obtained from VCC_STB. The Main IC supply of FRC and the relevant board is provided from here.



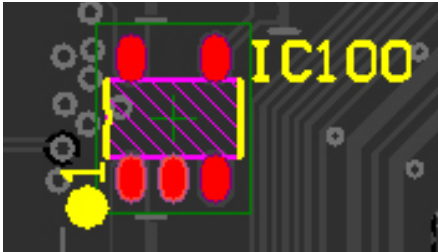
IC102 Step-down DC/DC converter



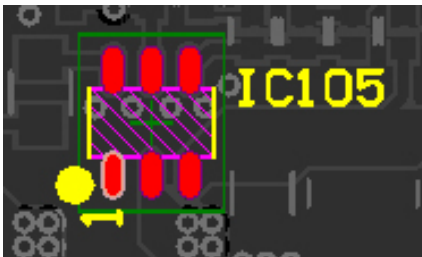
IC102 is the Step-down converter through which STBC3V3 is obtained from VCC_STB.

OPERATING PRINCIPLES OF THE CIRCUIT COMPONENTS

IC100 Current-limited power distribution switch (IC-SMD XC8107AC-10MR-GW)



IC100, is the DC-DC converter through which MAIN3V3 is obtained from STBC3V3. Output of this IC is active when TV is in stand-by. When IC output is faulty, chassis does not carry out any operations. Led is not lit. No log is received.

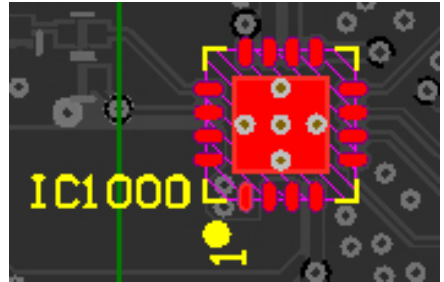


IC105 DC-DC converter (IC-SMD XC8107AC10MR-GW)

IC105, is the DC-DC converter through which 12V_PANEL is obtained from VCC. It helps keep the output stable for 12 V Panel based on the changing values of VCC.

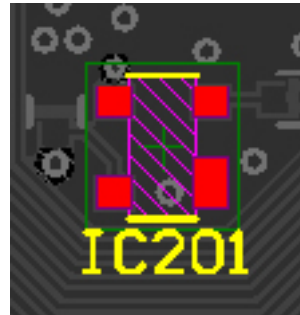
IC1000 LED Backlight Driver integrated circuit (IC-SMD AP3064FNTR-G1)

IC1000 integrated circuit is on the chassis on 24" LUNA and 32" cabins. There is no separate LED Driver board. It is supplied through direct PSU supply.



IC201 System reset integrated circuit (IC-SMD APX812-29UG-7)

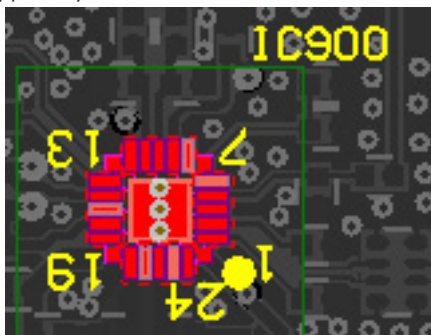
With IC201 integrated circuit, System-RST signal is sent to the main integrated circuit and the system is reset when STBC3V3 voltage drops below 2.93 V.



OPERATING PRINCIPLES OF THE CIRCUIT COMPONENTS

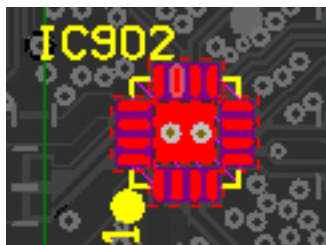
IC900 Analog-digital tuner integrated circuit (IC-SMD Si2151-A10-GMR)

IC900 Analog-digital tuner IC has two different blocks. It communicates with Main IC using I2C protocol. Thus, it locks into two set channels. Tuner 1 block in IC is used for analog broadcast and CVBS mark is sent to Main IC by demodulation. Both tuner blocks can be used for digital broadcasts. IF signal of desired channel is sent to demodulator IC. IC900 integrated circuit is supplied by 3.3V_TUN.



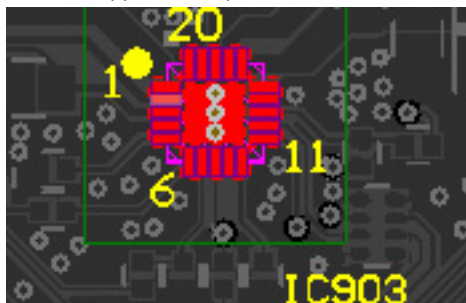
IC902 Satellite tuner integrated circuit (IC-SMD AV2018-S85QFG)

IC902 satellite tuner IC obtains inter frequency signal of digital broadcast, similar to the tuner in our chassis; filters this carrier frequency from other frequencies and sends video and audio data on it to the demodulator after loading IF on inter-frequency. This DVB-S2 compatible tuner also enables viewing HD broadcast from the satellite. It operates with 3.3 V supply. And its outputs are directly sent to the demodulator.



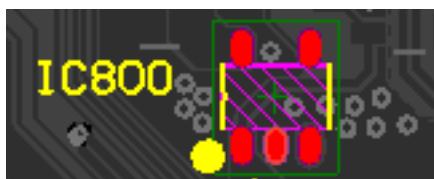
IC903 LNB regulator

This integrated circuit adjusts LNB voltage according to the data received from IC through I2C line. High band-low band, vertical-horizontal selection, DiSeqC selection are all done according to the data this integrated circuit sends to LNB. It is supplied 12 V power.



IC800, IC801 USB supply integrated circuit (IC-SMD TPS2530D-BVR, IC-SMD TPS2065CDBVR-2)

It is the integrated circuit that switches USB voltage and limits USB current. Data lines in USB socket are directly connected to main integrated circuit.



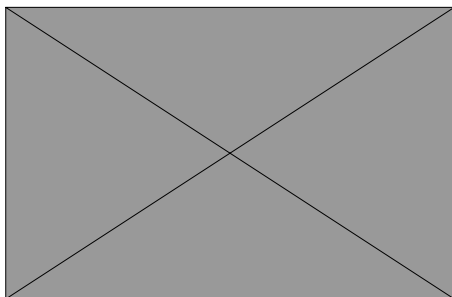
SERVICE MENU SETTINGS

To enter service menu, just like in the previously launched products, we press menu button of the remote control and enter 9, 3, 0, 1 or 8, 5, 0, 0.

As the chassis improvement and development works go on throughout the production, service menu items may vary according to the software version. The following explanations are service menu settings of the current version.

System Configuration

This menu contains general settings of the system. Press OK button on the remote control to access this menu.



■TV MODE tab contains "Factory" and "Customer" options. It is used to perform factory controls and settings more efficiently and faster. On the TVs delivered to the customer, this setting is absolutely selected as "Customer". Otherwise, it will lead to customer complaints such as "TV automatically turns on after power failures" or "different functions operate from the remote control".

■PLUG PLAY (Demo Mode): A navigation key is pressed after having completed all settings and checks in the factory. Later, "Please wait" message appears; and when you see the message "DONE", the device should be unplugged and plugged again. With this process, television will be set to its initial values before delivery. It will be proper to set Plug&Play tab after service. After pressing right key on the tab, the flash will be installed with factory defaults. TV can be shipped to the customer after this setting. Please note that any warning is not displayed or you do not have to exit the menu while Plug&Play is getting activated. You should be careful not to

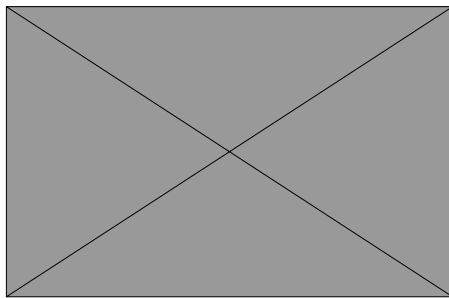
take the device into Plug&Play mode by mistake.

■PANEL ENERGY CLASS header is used for selecting the energy class of the product. Product is set to specifications in the factory. Panel brightness levels available in the NAND Flash are used according to the product energy class.

■HOTEL tab should be set to "On" with the products for which the Basic Hotel TV feature is desired; and it should be set to "Off" in other products. When the hotel model is "On", certain features designed for the hotel use are activated; the user cannot change the channels set by the service, for example, or the volume cannot be increased more than a certain level.

Source Configuration

This menu can be accessed by pressing 2,3,5,6 on the remote control. The settings under source configuration tab determine which sources will be on and which ones will be off depending on customer demands. PC source cannot be selected in GM-chassis products as they do not have VGA connector.

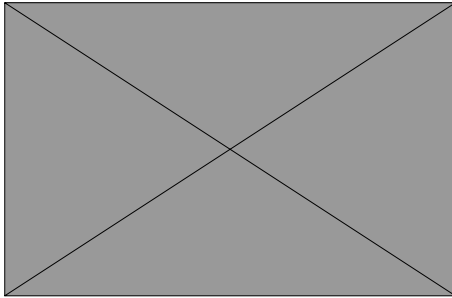


TV Configuration

This menu contains configuration settings of TV. We may select amongst the menus that are being used and to be used on TV. These settings differ from the "System Configuration". This menu contains the changes which the user can directly observe.

To enter this menu, you should go to "TV configuration" from the service menu and enter the numbers 2, 3, 5, 6 in sequence.

SERVICE MENU SETTINGS



■ OSD Selection menu has "Grundig", "Beko", "Arçelik" and "OEM" selection. For Grundig products, "Grundig" is selected. Menu images vary according to selected brand.

■ GRFset1 (USB RECORDING): This indicates the television's status of USB recording. In GM-chassis products, it is selected ON by default. It will be off in Non-pvr products.

■ The Remote Control: GRUNDIG and other OSD can support several different models of remote controls and all those models can be seen under the menu. Selection of remote control may vary according to the customer demand.

■ Operator Selection: Approved operators are selected as "Avail" and others as "Navail".

■ CEC: This feature allows you to make an HDMI connection between your TV and DVD player, satellite receiver or video recorder and control such equipment with the remote control of the television. The products with G7 chassis have CEC feature as standard.

■ Speaker Output Power: Allows selecting speaker output power. Speaker output power must be selected "10W@8ohm 24V" on LedART 43", 49", 55" products; "7W@8ohm 12.5V" on 32" products; "8W@6ohm 12.5V" on LUNA 40", 43" products; "8W@6ohm 24V" on 50" products; "6W@6ohm 12.5V" on 32" products; "3W@6ohm 12V" on 24" products; "7W@8ohm 12.5V" on CRYSTAL 32" products; "10W@8ohm 13.5V" on 40" products; "10W@8ohm 24V" on 43" products.

■ Optical Out (Digital Optical Audio Output): This feature is generally used to input digital audio to devices such as amplifier, DVD and etc. Optical out must be set to ON by default in GM chassis products.

KABİN	Size	Amp Voltaj	Çıkış Gücü	Empedans
KRISTAL	32	12,5V	7W	8 Ohm
	40	13,5V	10W	8 Ohm
	43	24 V	10W	8 Ohm
LEDART	32	12,5V	7W	8 Ohm
	43	24V	10W	8 Ohm
	49		10W	8 Ohm
	55		10W	8 Ohm
LUNA	24	12V	3W	6 Ohm
	32	12,5V	6W	6 Ohm
	40		8W	6 Ohm
	43		8W	6 Ohm
	50	24 V	8 W	6 Ohm

SERVICE MENU SETTINGS

■ **BISS Key:** This is developed for decryption when broadcast is scrambled over satellite without using modules. It should be selected "On" for G7-chassis products.

■ **Voice Recognition RC:** This is for remote control operated by voice recognition.

■ **Power LED Brightness Low:** This is the value that adjusts LED brightness when TV is On. It must be set to "8" on GM chassis products.

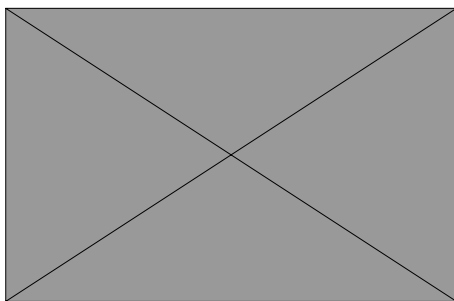
■ **Power LED Brightness High:** This is the value that adjusts LED brightness when TV is off. It is set as "23" on GM products.

■ **Bubble Help,** it activates the help option in the user menu.

Cloner Configuration (Cloning feature configuration)

This menu is used to copy your selections, channel lists, user options, satellite settings and service menu settings on TV and move them to another TV. Particularly, when installing TV at the user's home, this feature will save us time as we will not have to tune satellite channels anew.

Cloning can be done from any TV with the same chassis. To enter this menu, you need to go to "Cloner configuration" from the service menu and enter the numbers 4, 6, 5, 8 in sequence.



■ **Copy** selects what and to where you want to copy. TV to USB copies the configuration on TV to the USB. USB to TV transfers previously prepared channel list, user and satellite settings to TV.

■ **Copy Item;** this is the name of configuration to be copied.

"My Channel List" allows you to copy the channel and favorite lists created on the TV to a USB stick or transfer a previously copied list to the TV from the USB stick.

"My Satellite List" allows you to copy the transponder list stored on the TV to a USB stick or transfer a previously copied list to the TV from the USB stick.

"Channel Set.", "Service Set." and "User Set." are used to copy the user and service menu settings on the TV to a USB stick or transfer the settings on the USB stick to a TV. While the installation is performed by the service agents, these settings must not be transferred to the television.

■ **Start Cloning** option starts the cloning process. Whereas TV to USB takes little time, USB to TV causes a short interruption of TV imaging. When TV automatically restarts after installation, it means cloning is completed.

WARNING

When cloning, you should ensure that both product codes are the same. If the cloning will be carried out for two products having the same product code, during both TV to USB cloning and USB to TV cloning, "ALL" should be selected as Copy item. When cloning between different product codes, only "My Channel List" section should be copied. After copying, picture settings of TV may show some differences. TV should be delivered to the customer after those settings are checked. On User menu, go to "Source Setup" (without selecting). Press the keys 4, 6, 5, 8; and cloning menu will be displayed.

Acoustic management

This feature is used to create the best sound performance suitable for the cabinet. Bass/treble settings vary depending on options in the existing cabinets; the options have been adjusted to prevent cabinet resonance and ensure best audio quality.

SERVICE MENU SETTINGS

Software Version

All versions of software and hardware can be seen under software version tab. This menu is for information only, it cannot be changed.

Approved Logos

This refers to logos and approved countries that will be on the screen when SHOP MODE is selected in the product.

The tab includes "Country Approvals" and "Feature Approvals".

Other Menus

Other menus are closed to services as they are used for R&D studies in the factory.

CUSTOMER SETTINGS

Customer settings vary depending on the product code and model. In G7-chassis products, many of the features are selected ON by DEFAULT.

The values of each feature are shown in the next column of the table. The values of optional features are stated in VTF (Version Demand Form) depending on the customer's demand.

Customer settings are not changed when software or bootcode is installed.

!! If flash IC is required to be changed in G7-

chassis products for any reason at the service centre, relevant settings should be performed in service menu by re-checking the tables below and VTF of the product before delivery to the customer because the values in the tables below will take default values on software in accordance with the product size (screen) and features!

Note: Following settings may vary according to software versions.

DIVISION	FEATURES	SETUP	VALUE TO BE SELECTED
SYSTEM CONFIGURATION	TV Mode	Standard	Customer
	Plug Play	Standard	Off
	Hotel	Optional	Must be set according to VTF.
	Panel Energy Class	Optional	Must be set according to VTF.
	AC Direct On	Standard	Off
SOURCE CONFIGURATION	ATV	Standard	Avail
	Air	Standard	Avail
	Cable	Standard	Avail
	Satellite	Optional	Must be set according to VTF.
	USB	Standard	Avail
	HDMI1	Standard	Avail
	HDMI2	Standard	Avail
	HDMI3	Standard	Avail
	AV1	Standard	Avail
	Component	Standard	Avail
	S-VHS	Standard	Avail

CUSTOMER SETTINGS

TV CONFIGURATION	OSD Selection	Optional	Must be set according to VTF.
	GRFSet1	Optional	Must be set according to VTF. It must be set to "On" in products with PVR and "Off" in products with Non-PVR.
	Remote Control	Optional	Must be set according to VTF.
	Digital Out	Optional	On
	CEC	Standard	On
	Speaker Output Power		It must be selected "7W@8ohm 12.5V" on Crystal 32" products; "10W@8ohm 13.5V" on 40" products; "10W@8ohm 24V" on 43" products. It must be selected "3W@6ohm 12V" on Lune 24" products; "6W@6ohm 12.5V" on 32" products; "8W@6ohm 12.5V" on 40" and 43" products; "8W@6ohm 24V" on 50" products. It must be selected "7W@8ohm 12.5V" on LedART 32 products; "10W@8ohm 24V" on 43", 49", 55" products.
	Bubble Help	Optional	Off
	Hiderv Mono	Optional	Off
TV CONFIGURATION	Multi source Fav. List	Standard	Off
	Basic Mode	Standard	Off
	Setting Recovery	Optional	Off
	BISS Key	Standard	On
	Power LED Brightness Low	Standard	8
	Power LED Brightness High	Standard	23
	Language Selection	Standard	0
	TURKSAT OAD	Standard	Off

CUSTOMER SETTINGS

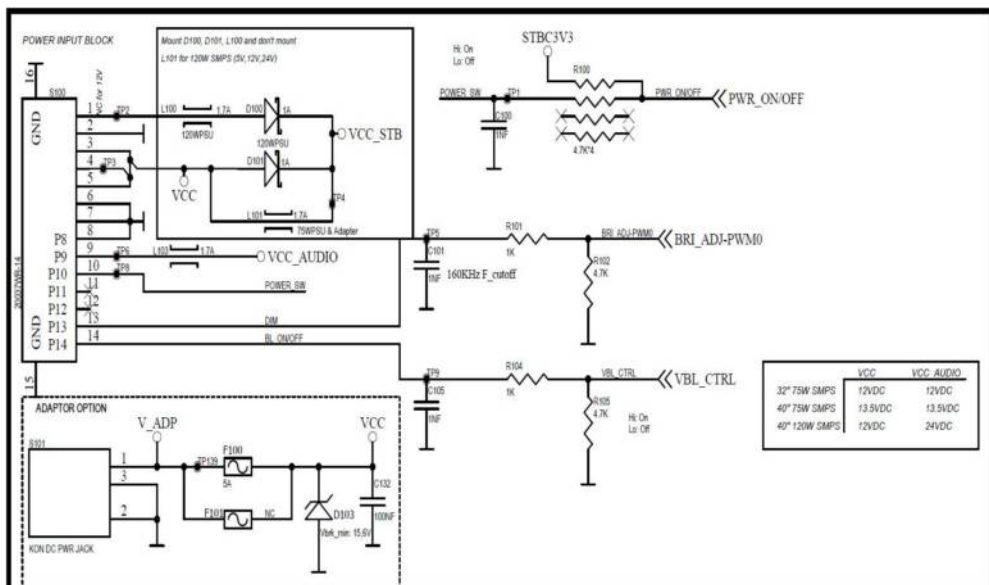
ACOUSTIC MAN- AGEMENT	ACOUSTIC MANAGE- MENT	Cabinet	Automation
APPROVED LOGOS / COUNTRY APPROVALS	Digiturk	Standard	Off
	D-Smart	Standard	Off
	Tivibu	Standard	Off
	Turksat TKGS	Standard	Off
	UPC	Standard	Off
	Sky	Standard	Off
	ORF Austria	Standard	Off
	TNT HD	Standard	Off
	CanalReady	Standard	Off
	Fransat	Standard	Off
	MediaSet	Standard	Off
	Levira	Standard	Off
	Spain TDT	Standard	Off
	Stofa	Standard	Off
	EvoTV	Standard	Off
	Canal Digital	Standard	Off
	Cable Ready	Standard	Off
	Antenna HD Ready	Standard	Off
	Com Hem	Standard	Off
	YouSee	Standard	Off
	MPEG4 Boxer	Standard	Off
	Riks TV	Standard	Off
APP. LOGOS / FEATURE APP.	Dolby Digital	Standard	On
	DTS TruSurround	Standard	On
	DTS HD	Standard	On

CUSTOMER SETTINGS

OPERATOR SELECTION	Turksat TKGS	Standard	Off
	D-Smart	Standard	Off
	Digiturk	Standard	On
	Tivibu	Standard	Off
	Astra Fast	Standard	On
	Sky	Standard	On
	UPC	Standard	Off
	Fransat	Standard	Off
	Cable Ready	Standard	Off
	Canal Digital	Standard	Off
	Com Hem	Standard	Off
	Stofa	Standard	Off
	YouSee	Standard	Off

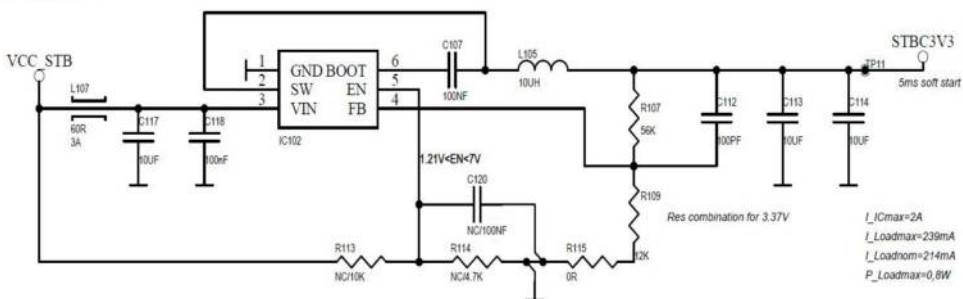
CHASSIS DIAGRAMMATIC IMAGES

Chassis DC Socket

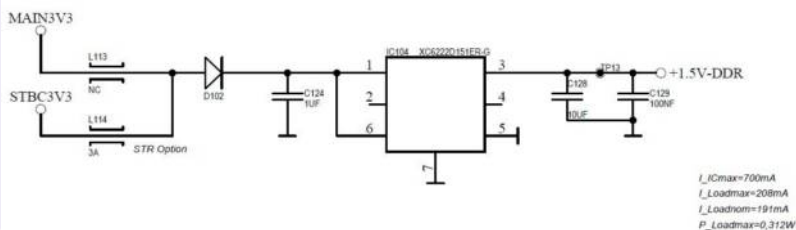


DC voltages

VCC to 3.3V_Standby 1A nom. 2A max (new) (Always ON)
SoC Load nom 180mA



MAIN3V3 to 1.5V DDR 300mA nom.



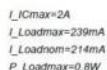
Res combination for 5.12V



13V to 12V 1A nom. 2A max (new)

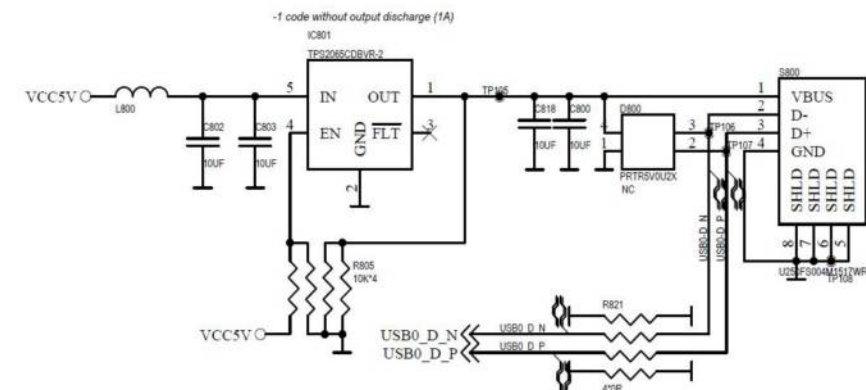


SoC Load: 180mA

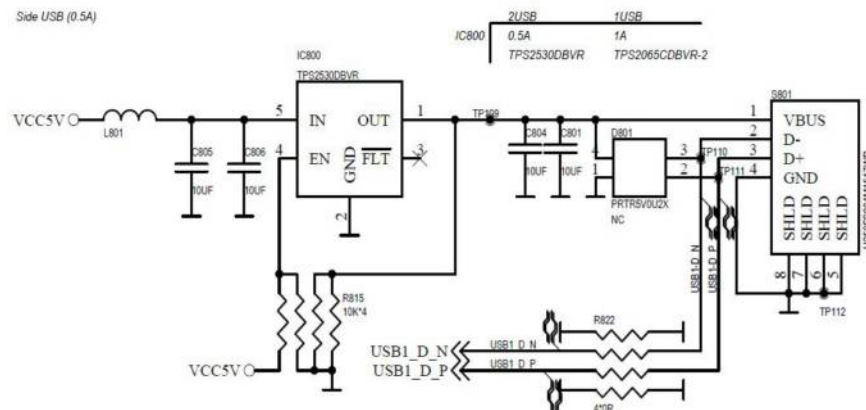




USB



Side USB (0.5A)



FAILURE/ERROR ANALYSES

Sound available but no picture, and back-lights illuminated

In this section, we will basically explain where we need to check if there is "no picture on TV" even though there are not any problems in the panel inverter. Here, we are assuming that chassis is generally in good condition as we obtain sound output from TV. When you cannot determine if the back-light is working or not due to the illumination level in the environment, you are recommended to tap on the TV's front panel lightly; if the back-light is working, you will notice a slight glowing.

Before starting controls and repairs, it is crucial to analyze and comprehend the problem exactly. In this problem, you must make sure if it is originated from the utilized source, if it is a cable connection error or if utilized devices have any problems or not.

Then, particularly LVDS cable on the chassis should be checked for any disconnections, loose parts, dislocations, breaks or ruptures. Likewise, it will be proper to check cable connections of the panel.

Later, the panel power (PANEL-PWR) supplied to the panel T-CON board over LVDS cable should be checked on T100 in the chassis. Panel supply for the products with GM chassis is 12V.

If this supply is unavailable, whether 12V feeding is present on S100 socket will be checked from pin #4 or 5. If 12V supply is not found on S100 socket although POWER_SW signal exists, PSU should be replaced. If POWER_SW signal is not available, main IC and peripheral components should be checked.

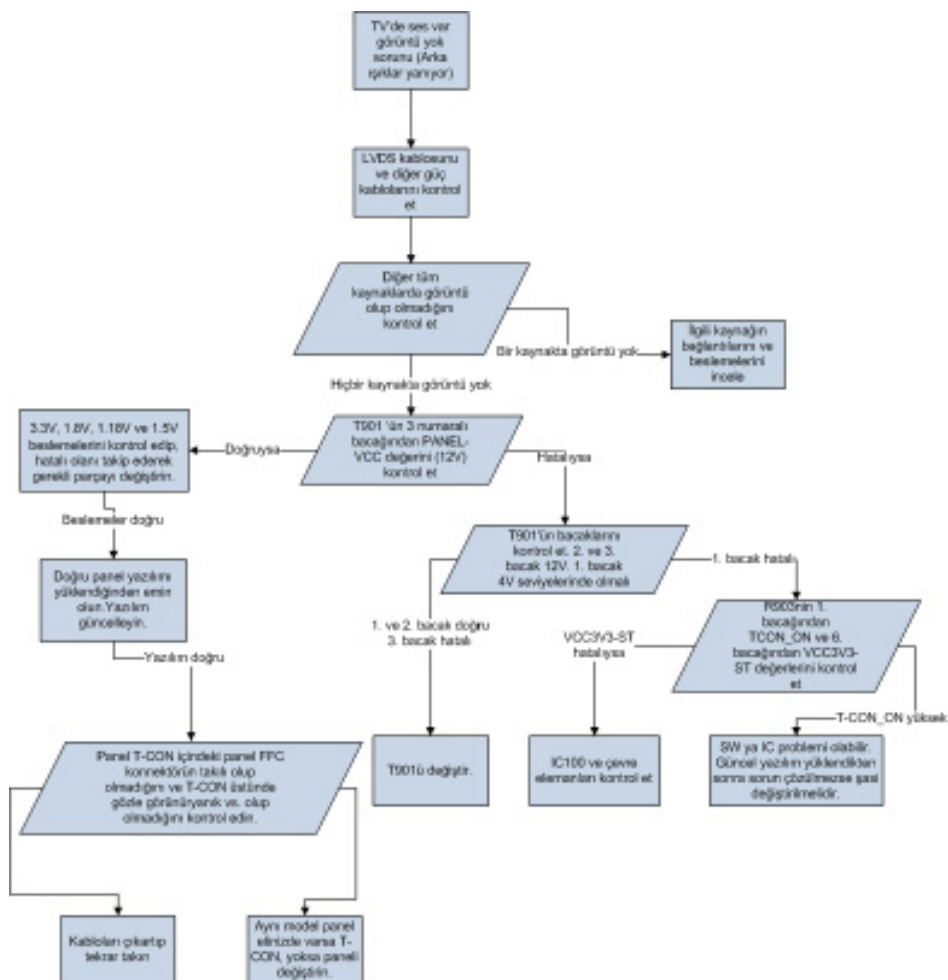
If VCC_PANEL voltage is found in T100 Leg 2 but not found in Leg 3; peripheral components will be checked. When TV is "ON", a voltage around 3.8V occurs on Leg 1 of FET as to be higher than 0V, and supply voltage on Leg 2 is transferred to Leg 3. Check "TCON_ON" signal, Leg 1 of R125 resistance. Here, if the voltage is High, it means that panel supply has not been turned on from the main integrated circuit or software. This signal remains high while the TV is going out of Stand-By and gets down to 0V, 1 seconds before the picture appears on the screen.

If the panel is supplied voltage over LVDS, it is

most likely that picture information is transmitted as well. Even if we do not have any precise control method for information flow over data lines, the voltage is around 1.2V DC as detected by means of a measuring tool. If this voltage cannot be received, main processor might be faulty.

If LVDS data leaves Main Processor without problems, problem might be in panel.

Besides, you can also consider problems including that LVDS data is not being transmitted to the panel properly, i.e. panel parameters are wrong in NAND Flash or software installation error. Problem can be eliminated by installing the appropriate software.



FAILURE/ERROR ANALYSES

Sound available but no picture, and back-lights not illuminated

In the cases where audio is available yet the back-lights are not lit, first of all, check the cable and connector connections to PSU, TCON board and panel. After the connection checks are completed, check whether 12V is present on the 4th pin of the chassis S100 connector. PSU must be changed if 12V cannot be measured on this pin. If 12V voltage is present, check the 13th pin of the S100 connector on the chassis. If the VBL_CTRL signal is 0V on the 13th pin, it indicates that there is a problem originating from software or IC. If the voltage measured on this pin is 0V, for test purposes connect 3.3V to the S100 connector of the chassis PSU cable which is located on the chassis side. If the TV does not operate, then there may be a problem originating from LED or driver. First replace the LED driver (if any) circuit then the panel if the problem persists. If the TV operates, increase the backlit to the maximum and install a different version of software and try again. To make sure that system works, turn back light down to the lowest level and check. If no problem occurs, submit TV.

FAILURE/ERROR ANALYSES_____

FAILURE/ERROR ANALYSES

No audio

In case of any audio problem, not only one but also various sources, cables and devices should be checked against the problem. You need to make sure that volume has not been turned down from television settings or mute button is not pressed.

If there is not any problems, check the loud-speaker cables and loudspeakers on the chassis; fix the problem, if any.

Before starting detailed checks, check if sound problem is caused by headphone out. As headphone amp. is in sound amp., setting can be enabled or disabled in service menu and you can check if the problem is caused by headphone amp. If no sound is received from Sound IC out, an oscilloscope can be used to check data lines I2S and I2C in input. If no signal is observed, then there is a problem on the main integrated circuit. If signals are detected, you should check IC800 and peripheral components against problems, and check IC800 supply and see if MUTE is pressed on.

Besides, scart output of TV should be checked for sound. If there is no sound in scart output, power supply of the integrated circuit at position IC600 and peripheral components, and at IC600 input, the availability of AU_DAC2_L and AU_DAC2_R signals sent by main integrated circuit should be checked. If you cannot detect AU_DAC2_L and AU_DAC2_R signals at the IC600 input, it means no sound signal comes from main IC. If the scart output has sound, the problem might be arising from the audio amplifier or peripherals.

Check VCC_AUDIO voltage in L400 that is the supply of sound amp. in IC400 position for the sound problem. If you cannot detect supply, power supply should be checked against problems.

If the amplifier is being supplied with power, Legs 14, 19, 34 of the amplifier should be checked for 3.3V DC voltage. We should suspect the main integrated circuit if there is no 3.3V. This voltage drops down to 0V and ensures switching the amplifier off in Stand-By mode (POWER_SW signal and main integrated circuit performs the control).

Audio amplifier has I2C communication lines to communicate with the main integrated circuit. Roughly, the voltage level should be below 3.3V and variable at the Pins 29 and 30. Here, the fixed 3.3V gets lower when data is being transmitted, and thus, audio amplifier and main integrated circuit communicate. If this value is constantly 0V, short circuit possibility should be checked where I2C line is connected. Current version of the software should be installed against software problems.

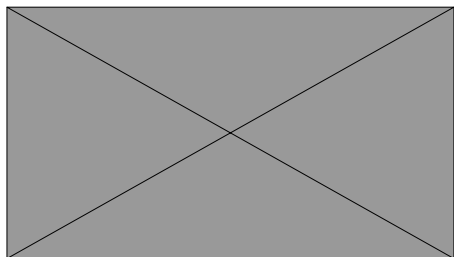
FAILURE/ERROR ANALYSES_____

SOFTWARE UPDATE

Updating TV Software by using USB memory

To update TV software by means of USB memory, we will use Target_GM folder available in the system according to product code.

First, copy Target_GM folder to USB main directory. Before starting installation, you should check script, image and panel files in the Target_GM folder which will be installed. The content of Target_GM folder to be transferred to USB disk main directory should be as shown below.

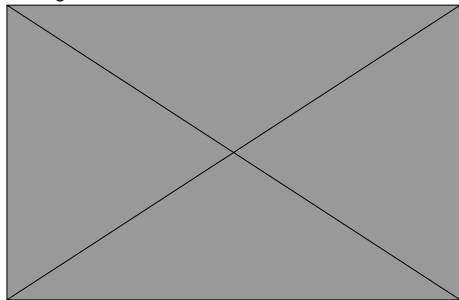


- In products with GM chassis, in order to download software, turn off the TV before inserting the USB to the TV. (Disconnect the power)

- Plug USB into the TV; press middle key of the joystick in products with joystick and plug in the TV.

- Hold down the key until you see that code installation has started.

- USB update logo will be shown on the screen during software installation from USB.



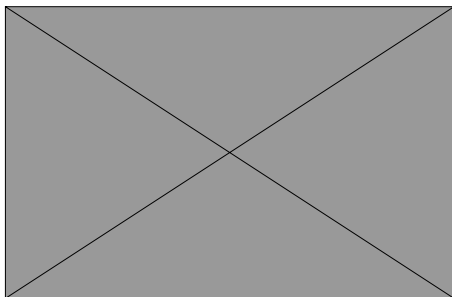
- If code installation has been successfully completed, the TV will automatically turn on.

Updating software and boot from the user menu

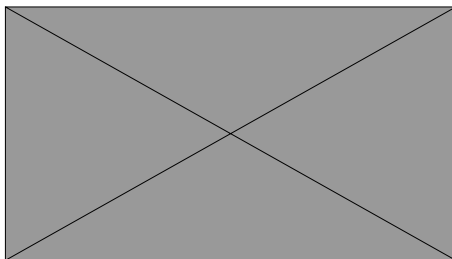
If the TV can be turned on normally, the software update must be performed accordingly.

- Open the TV menu. Enter the service menu with 8500 or 9301. Select Boot Code Configuration and press "OK" on the remote control.

- Install the boot update and the TV will be switched on automatically.

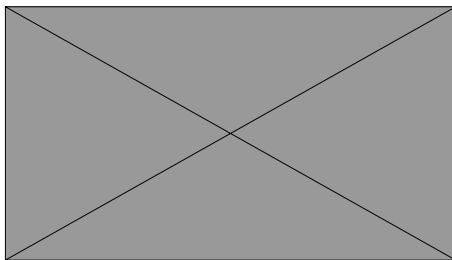


- Open the TV menu to update the software.



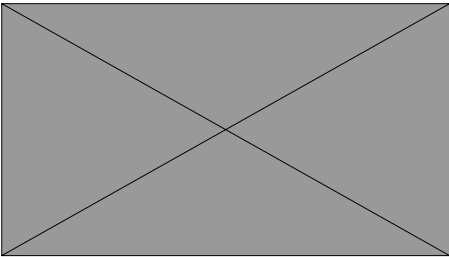
- Select the TV source from the settings menu. Select "About" menu.

- Select Software Updates.



SOFTWARE UPDATE

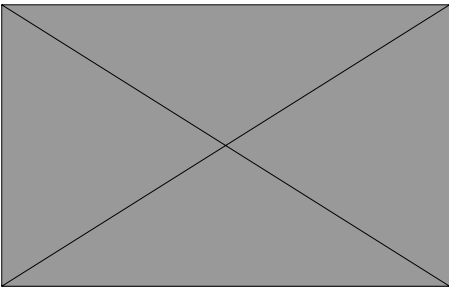
■Start updating by selecting USB from the Software Updates menu.



■Once the software update is completed the TV will be switched off and then on by itself.

Updating panel file

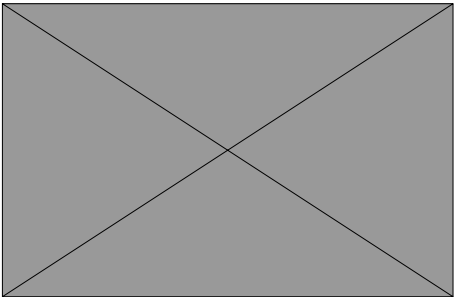
The content of BIN_FILES folder should be as shown below. Appropriate panel file will be selected from GM_PANELLER.rar in the WEB folder. The file in the Panel files folder will be copied and pasted in the keys folder.



The panel.bin file here will be deleted and the file will be renamed as panel.bin.

Panel folder contains panel software. Panel file update is performed by using the P+ key of the TV or on the product with a joystick, by pulling the joystick button upwards.

LOADING PANEL DATA update logo will be shown on the screen during panel software installation.



Locations where required keys are stored

SOFTWARE ID DATA	MEMORY TO LOAD THE SOFTWARE
Main Software	NAND Flash
Chassis Serial No	
Product Serial No	
CI+	
Acoustic	
Mac Address	
Panel	
HDCP Key	
HDCP TX Key	
SSL - Secure Socket Layer	
Gamma	
Boot Software	NAND Flash/Main IC
HDMI EDID Resolution and audio info	

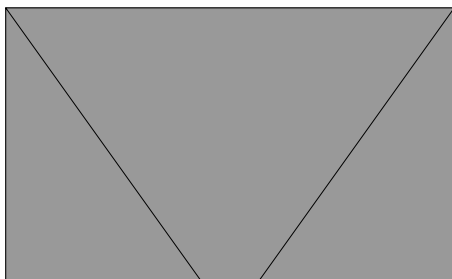
SOFTWARE UPDATE

TeraTerm usage

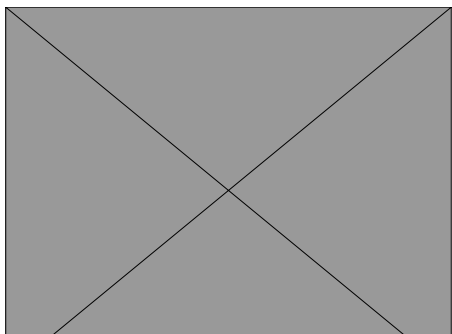
In case of possible locking that may occur on the television, failure to detect prompts from controller and/or keypad, failure of LED light to blink or when the TV cannot be turned on completely, TeraTerm must be used to observe "core dump" errors that may occur. Printout showing software status in *.txt format can be taken and even examined. TeraTerm software can be provided from under the relevant product software folder in the E-Library.

TeraTerm installation;

- Install TeraTerm.exe program on your PC.
- Once the program is opened, Set-up → Serial port... is selected for port settings.



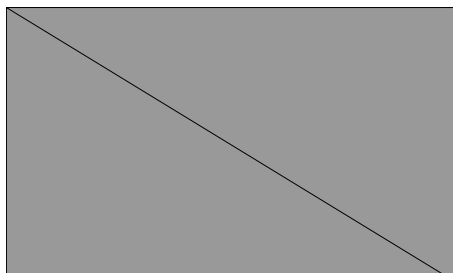
- Window in the picture opens on the screen. Port selection is performed and OK is pressed. Thus, program is started for printing.



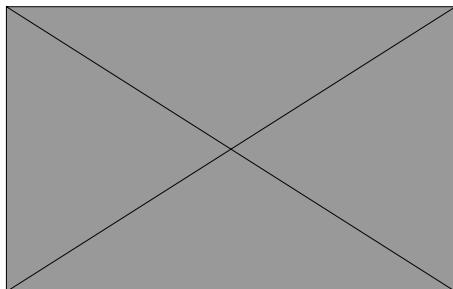
Port to be selected in Teraterm during port selection; when mstar isp tool (software installation tool) is connected to pc using USB, "USB serial port (Com#)" value is displayed in "ports(COM&LPT) under "device manager" tab. If "usb serial port (com#)" line cannot be seen here, it means that software uploading apparatus installation could not be done properly.

Receiving LOG

- File → Log... is selected from the drop down menu.



- Name and place of file to be saved is determined in the opening window. Once the "Open" key is pressed, writing on the file starts.

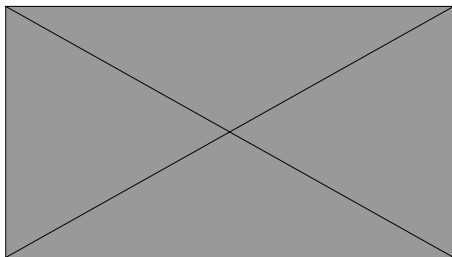


- To terminate logging process, "Close" key on the upper window is used and then "Pause" key is used to resume.

HOTEL TV SETUP

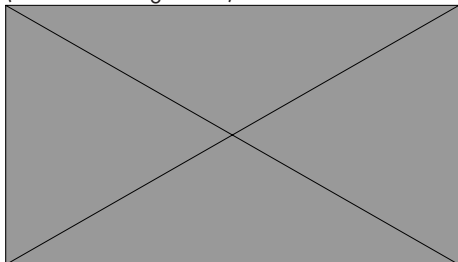
Hotel TV is intended to prevent hotel guests from changing TV's channel settings and turning volume up to disturbing levels for the environment. Therefore, "Source Setup" tab is not shown in user menu.

Check whether the "Hotel TV" option under the System Configuration tab in Service Menu is "On" to perform the desired settings in HOTEL TV. If the "Hotel TV" tab is ON in the service menu, then we must open the "Hotel TV Settings" menu and log in as "Admin" to perform any operation in this menu.



■ Open the user menu by pressing "Menu" button in order to open and make settings in the Hotel TV Settings menu. On the Video Settings, use password 4, 6, 5, 8 to turn off and on the MENU once; thus you can access HOTEL TV settings and get the authorization (admin mode) to perform settings in HOTEL TV mode. Remember that Hotel TV settings shall not be displayed when the TV is turned off and on again. Above-stated procedures have to be repeated if any change is to be made on the settings again.

■ On the Hotel TV settings menu, you can perform channel tuning, maximum initial sound volume settings and whether TV will stay on Stand-By or directly switch on when plugged in (Hotel TV Settings menu).



■ The channels are tuned and favorite list is determined over source setup. In customer mode, TV is turned on at the channel and source where it was turned off in admin mode. This feature should be used to set TV's opening channel. As an opening channel, you may set the hotel's own advertisement channel with hotel's videos or a channel advertising paid broadcasts. In customer mode, it is not an error that TV is turned on at the same source and channel whichever channel or source was open when turning off the TV. You should consider this issue before switching TV to Stand-By in Admin mode.

■ When setting up an Hotel TV, the easiest and most convenient way is to perform all settings on a single TV and copy the same configuration to other TVs by means of cloning feature. Here, you should make sure that TV is turned off at the intended channel after completing set-up at the admin mode.

■ "Cloner Configuration" menu has to be opened in order to use the cloning feature from the USB. Cloner Configuration menu can be turned on by two ways. First one is to navigate to the "Cloner configuration" tab and press 4, 6, 5, 8 keys. Another option is to press 4, 6, 5, 8 to enter Cloning menu in the Source Setup/ Program Table while you are in Hotel TV admin mode.

In the Cloning menu:

"My Channel List", you can copy the channels and favorites list you have created on the TV to a USB stick or transfer a list which has previously been copied to the TV from the stick.

"My Satellite List" allows you to copy the transponder list stored on the TV to a USB stick or transfer a previously copied list to the TV from the USB stick.

"Channel Set.", "Service Set." and "User Set." are used to copy the user and service menu settings on the TV to a USB stick or transfer the settings on the USB stick to a TV. While the installation is performed by the service agents, these settings must not be transferred to the television.

Varies depending on the TV model.

ARC

With ARC (Audio Return Channel) the audio signal of the television program can be played back via a HDMI cable or an optical cable with a multi-channel amplifier.

Back-light

Manual setting for back lighting (only active if dynamic back lighting is switched to "OFF"). This setting also directly impacts power consumption.

Block Noise Reduction

This function can only be selected with digital reception sources and AV pre-sets. It reduces any interference from artefacts (pixel blocks) from digital programs due to MPEG compression (such as from DVB-T receivers and lower transmission rates or DVD players).

Common Interface

Interface for DVB receiver. Scrambled channels can only be viewed with a CA module suitable for the encoding system and the corresponding smart card.

Digilink

This feature utilizes CEC (Consumer Electronics Control) protocol.

CEC enables the external devices which are connected to the HDMI socket with a HDMI cable to be controlled by a remote control.

DiSEqC

DiSEqC (Digital Satellite Equipment Control) is a digital system for controlling complex satellite systems with motors or several LNBs.

DiSEqC is required if two or more satellite positions are to be controlled.

DLNA

Digital Living Network Alliance is an international agreement between manufacturers of consumer electronics, IT hardware and mobile telephones. The agreement aims to ensure perfect communication between IT devices in the home and personal use sector. This means that you can access released data in your network very simply via the Grundig LED TV remote control and play it on the TV – without laborious connecting of USB drives or burning DVDs.

Domain name system

The domain name system (DNS) is one of the most important services on the Internet. Its main function is to convert an Internet address into the corresponding IP address.

DTS Studio Sound™

DTS Studio Sound is an advanced Surround Sound solution package that precisely extracts and positions audio signals for an atmospheric audio experience. For completing the audio experience, the psychoacoustic processes which supply 3D audio playback (for bass and dialogue optimization and for supplying a uniform and balanced volume for the entire content) are implemented.

DVB-C

DVB-C (Digital Video Broadcasting – Cable) is a variation of DVB which is used for the transmission of digital radio and television signals via a cable connection.

DVB-S/S2

DVB-S/S2 (Digital Video Broadcasting – Satellite) is for the broadcasting of DVB signals via satellite.

DVB-T/T2

DVB-T/T2 (Digital Video Broadcasting – Terrestrial) is a variation of DVB which is used for the radio transmission of digital radio and television signals via terrestrial channels.

Dynamic Contrast

This function dynamically and optimally adjusts the contrast for the respective picture content by analyzing images and then altering this depending on a change in contrast. This increase in the contrast however may also reduce the visible brightness levels in the picture.

Film mode

Detects and processes feature films automatically for all channel sources. This means you will always receive an optimal picture.

This functions in the mode 480i, 576i and 1080i in TV playback and for other channel sources.

If the "Film mode" is switched on for programs without a feature film signal, minor problems such as picture freeze, defective subtitles or fine lines in the picture could occur.

Firmware version

Firmware is the term used for software that is embedded in a programmed chip (micro-controller). It is mostly stored in a flash memory, an EPROM or an EEPROM. The firmware contains functions for controlling the device.

Gamma

This setting establishes which brightness value should be displayed for which digital transmission value. Most recordings are transmitted with a gamma value of 2.2 (all Windows PCs and newer PCs with a MAC operating system work with this; older MAC systems and transmissions without color profile mostly operate with a gamma value of 1.8).

Gateway

A gateway allows networks, which may be based on completely different protocols, to communicate with each other. In the home area, a combination of the router and the DSL modem are used as an Internet gateway.

Hardware version

Hardware in this context means the device.

This includes all components such as processor, display, etc.

HbbTV

HbbTV is the interactive successor of video text, which has content with a modern design, high resolution images and video sequences as well as media libraries.

For full functionality of HbbTV, the TV must be connected to the Internet.

HD/Full HD/UHD

High Definition Television is a general term for a range of television standards which feature increased vertical, horizontal or temporal resolution.

Full HD is a feature of an HDTV capable device which is able to output or record an HD resolution of 1920 x 1080 pixels.

The HD resolution for UHD is 3840 x 2160.

IP Address

An IP address (Internet protocol address) is used to uniquely identify the address of computers and other devices in an IP network. The most well-known network in which IP addresses are used is the Internet. Here, for example, web servers are addressed using the IP address. The IP address can be provided automatically by the router (automatic address) or can be entered manually in the router (static address). If it is entered manually, this address must also be entered in the TV set.

JPEG

JPEG stands for Joint Picture Experts Group. This is a process for compressing picture data.

LIVE SHARE

With Live Share all content between Widi™/Miracast™ certified mobile devices (smart phone or tablet) and PC and the television can be streamed via WiFi. HD contents can also be streamed without any difficulty on the television and naturally TV contents can also be transferred to mobile devices/PC.

LNB

Low Noise Block is located in the center of a parabolic antennae.

E.g. It implements the satellite frequency from e.g. 10.7–11.75 or 11.8–12.75 GHz in the range 950–2150 MHz and enables cable transmission through a coaxial cable (and recently also with fiber optic cables) and reception with a satellite receiver.

MEMC

Improves the display of moving images through the additional computation of intermediate pictures and is only available for devices from 32". It is displayed with PPR (Picture Perfection Rate). If the adjustment value is too high, this may result in ghosting with poor transmission due to the incorrect computation of the intermediate pictures.

MHL 2.0

With the Mobile High Definition Link 2.0 high resolution content from all MHL capable mobile devices is also transmitted without delay on the television. Connect the mobile device's micro USB connection via a MHL supported HDMI cable to the MHL compatible television interface.

MP3

Compressed audio file format.

NAS (network attached storage)

The abbreviation NAS is used for devices that provide data from a hard drive to a network.

Network mask

The network mask or net mask, sometimes also referred to as a subnet mask, is a bit mask that separates an IP address into a network part and

a device/host part. It is used in IP networks to make routing decisions.

Network name (SSID)

The network name (SSID – service set identifier) is the term used for the identification of a wireless network that is based on IEEE 802.11. Every wireless LAN has a configurable SSID, which uniquely identifies the wireless network. The character sequence of the network name can be up to 64 characters in length. It is configured in the base station (access point) of a wireless LAN and set on all clients which access it.

Noise Reduction

Reduces the noise coming from the signal. It should therefore be used minimally provided that a good picture material is present.

Perfect Clear

Improves the general image by means of a gentle blue hue (giving the appearance of greater sharpness) and improves the black level by setting this entirely to black from a specific level of greyness. This reduces the visible grey values in the dark areas of the picture.

Special IP Address

Private IP addresses belong to the particular IP address ranges that are not routed in the Internet. They can be used by anybody for private networks, such as LANs. Many computer networks require complete connectivity at IP level, but only limited access to the Internet. If such a computer network has a private IP address range, it forms an Intranet which cannot be accessed from the Internet as the Internet routers ignore private address ranges. A gateway or router that is placed in this private network and which has a public address in the Internet as well as a private IP address makes the connection to the Internet. This can be performed by a proxy or using NAT/PAT/masquerading. As the address range used can only be viewed within the private network, the same range can also be used in other private networks. The unique nature of an IP address required by the Internet protocol is ensured by this restricted visibility.

Proxy server

A proxy or proxy server is a service program for computer networks that administers data transfer. It makes data transfer faster, and can also increase security by implementing access control mechanisms. The transfer is conducted between computers or programs in computer networks. On the server side, the proxy acts as a client; on the client side, it acts as a server.

Router

A router is a network component that links several computer networks. Router analyzes (on the basis of layer 3 information) the network packages of a protocol it receives and forwards it to the intended destination network. Conventional routers work on layer 3 of the application layer. A router has an interface for every network connected to it. When data is received, the router determines the correct path to the destination and thereby the suitable interface via which the data can be transferred. For this it uses a locally available routing table that specifies via which router connection a particular network can be reached.

RoviGuide™

Electronic program guide with a variety of information about television programs.

SCR (Single Channel Router)

Single Cable System EN 50494.

If your antennae system is equipped with a single cable system multi switch, the televisions which are connected to this antennae system can receive television programs independently from one another.

Security (WEP/WPA)

WEP (wired equivalent privacy) is the standard encryption algorithm for WLAN. It controls both access to the network as well as ensuring the confidentiality and integrity of data. This procedure is considered insecure nowadays. For this reason, more recent WLAN installations should use the more secure WPA encryption.

Symbol rate

Amount of transmitted symbols per time unit in

digital transmission technology.

Time Shift

You can pause a program that you are watching. This is a useful function. For example if the telephone rings while you are watching a film and you do not want to miss anything.

The program is saved in the Time Shift memory of the external data volume.

A maximum of 60 minutes of the current program can be recorded in the Time Shifter memory.

Transponder

Gathering of various transmitters on a frequency.

USB Recording

Enables recording and playback of digital television programs (DVB-S, DVB-T and DVB-C). This is dependent on the respective program provider.

The recording and playback of programs can only be carried out with an external data volume (hard drive or USB stick).

Vibrant Colour

Increases the color contrast and the contrast adjustment. This setting is mostly too strong for use with normal pictures and should only be used where necessary (low or off) otherwise nuances in the image can be suppressed.

Wi-Fi

Wireless transmission of Internet and Intranet parcels.

WMA

These formats enable recording and playback of audio files which sound as good as a CD, yet only occupy a fraction of the storage space.