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(A) Safety Instructions

STB has been designed and manufactured in compliance with EU consumer safety requirements (CE). Please read the following safety precautions carefully.

1. Connecting Power

- This product operates only in the range of AC 100V~250V and 50Hz/60Hz. Please check first your power supply to see if it fits this range.
- Please be noted that you need to disconnect from the mains before you start any maintenance or installation procedures.
- Make sure that the power cord is placed in a position where it is easy to unplug it from the mains in an emergency.

2. Overloading

- Do not overload a wall outlet, extension cord or adapter as this may cause electrical fire or shock.

3. Liquid

- This product is not water-proof and should not be exposed to dripping, splashing, or any type of liquid.
- No objects filled with liquid such as base shall be placed on the product.
- Please do not clean the product with wet cloth, which may cause a short circuit.
- No wet objects should be placed near the product.

4. Ventilation

- Allow a sufficient space between the product and other objects to make sure air ventilation of the product.
- Do not block the top or rear of the product with an object, which will close the ventilation holes and lead to a high temperature of the system. This may cause a failure of the product.
- Do not stack other electronic devices on top of the product.
- Do not insert any kind of pointed objects like screw, gimlet, etc. into the ventilation holes of the product. This will damage the product.

5. Connecting the Satellite Cable

- Disconnect the power of the product before you connect the satellite cable to the product. Otherwise, it may cause damage to the LNB.

6. Grounding

- The LNB must be earthed to the system earth for the satellite dish.

7. Location

- Place the product indoor.
- Do not expose the product to rain, sun or lightening.

- Do not place the product near any heat appliances as a radiator.
- Ensure that there is more than 10 cm distance from any electrical devices & wall.

8. Lightning, Storm or Not In Use

- Unplug the product and disconnect the antenna cable during a thunderstorm or lightning, especially when left unattended and unused for a long period of time. This will prevent possible damages from power surges or lightning.

9. Replacement of Parts

- Unauthorized part replacements, especially by one who is not a qualified technician may result in damage to the product.
- Ensure that when part replacements are necessary qualified technicians perform the task using the components specified by the manufacturer.

10. Hard Disk Drive

- Do not move the product or turn the power off suddenly while the Hard Disk Drive (HDD) is still running. This may result in damage to the HDD and thus the system.
- The company shall not be liable for any corruption of data on the HDD caused by careless use or misuse of users.

11. Battery

- There is danger of explosion if batteries are incorrectly replaced.
- Replace batteries only with the same or equivalent type.



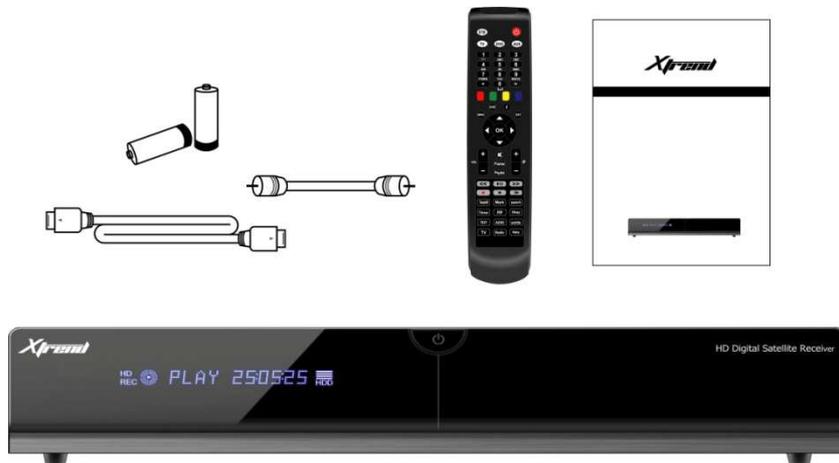
'WEEE' Symbol instructions

This product should not be disposed with other house hold wastes at the end of its working life. Please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources. This will help prevent harm to the environment or human health from uncontrolled waste disposal.

Dolby Digital: Manufactured under license from Dolby Laboratories. 'Dolby' and the 'double-D' symbol are trademarks of Dolby Laboratories.

MP3: MPEG Layer-3 audio coding technology licensed from Fraunhofer IIS and Thomson

(B) Packaging Contents

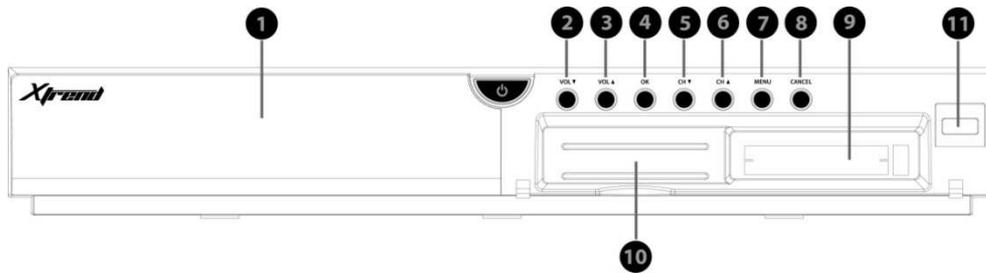


Please check all package contents before using your product.

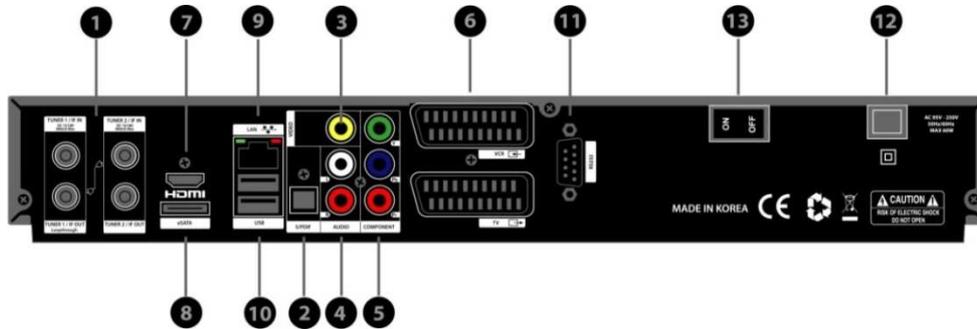
- STB
- Remote Control
- Batteries
- HDMI cable
- Loop-through cable
- User Manual

(C) Product Descriptions

Front Panel



- ① **Display** : Displays the current menu information. 12 character dot matrix VFD.
- ② ~③ **VOL▲/VOL▼** : Volume control
- ④ **OK** : Select
- ⑤ ~⑥ **CH▼/CH▲** : Switches channel
- ⑦ **Menu** : Shows main menu
- ⑧ **Cancel** : Cancel the menu
- ⑨ **CI Module slot**
- ⑩ **Smartcard reader slot**
- ⑪ **USB**: Connect a USB storage device

Rear Panel

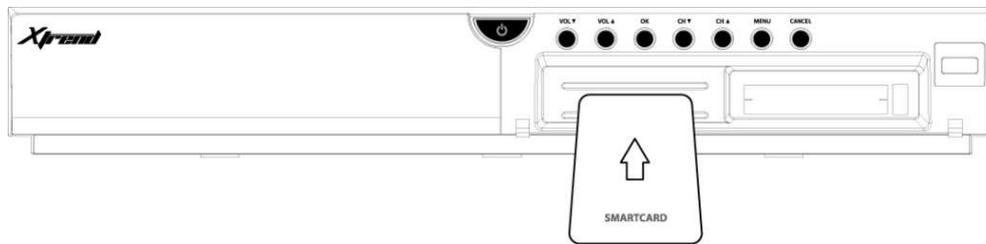
- ① **TUNER 1 / TUNER 2** : Two satellite cables can be connected.
- ② **S/PDIF** : Connects to a digital audio system using S/PDIF cable.
- ③ **Video output** : Connects to TV using RCA cable.
- ④ **Audio output** : Connects to TV using RCA cable.
- ⑤ **Component (YPbPr)** : Connects to TV using a component cable.
- ⑥ **SCART** : Two SCART connectors are provided for TV and/or VCR using SCART cables.
- ⑦ **HDMI** : Connects to TV using a HDMI cable for both audio and video signals.
- ⑧ **e-SATA** : Connects the external HDD using e-SATA cable.
- ⑨ **Ethernet** : Connects the PC or another set top box of ET.
- ⑩ **USB** : Connects the USB memory stick or external HDD.
- ⑪ **RS-232** : RS-232 data port is provided.
- ⑫ **Power Inlet** : Connects the detachable power cord.
- ⑬ **On/Off Switch** : Powers on/off.

(D) Conditional Access

Amongst the channels that are scanned via STB, some channels can be properly tuned in only with the corresponding Smartcard. STB provides two Smartcard Reader slots and users need to purchase those Smartcards that are required for viewing such subscription based services.

Insertion of Smartcard

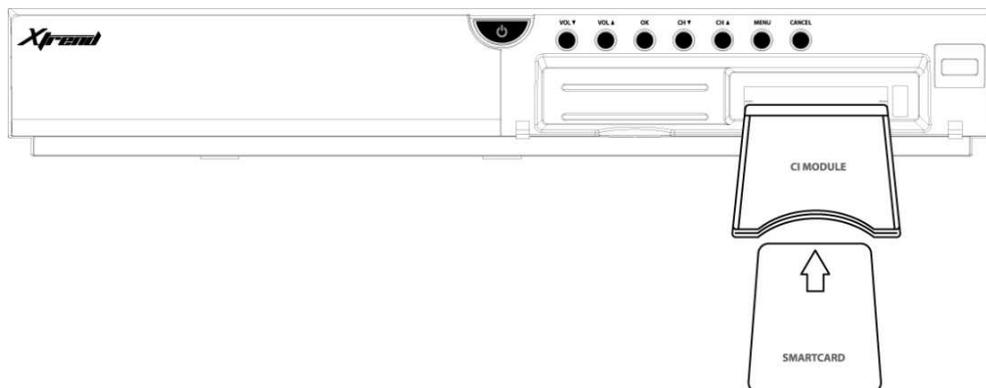
- ① Open the door on the right side.
- ② Insert Smartcard as in the following instruction.
- ③ Make sure that the Smartcard remain inserted while viewing.



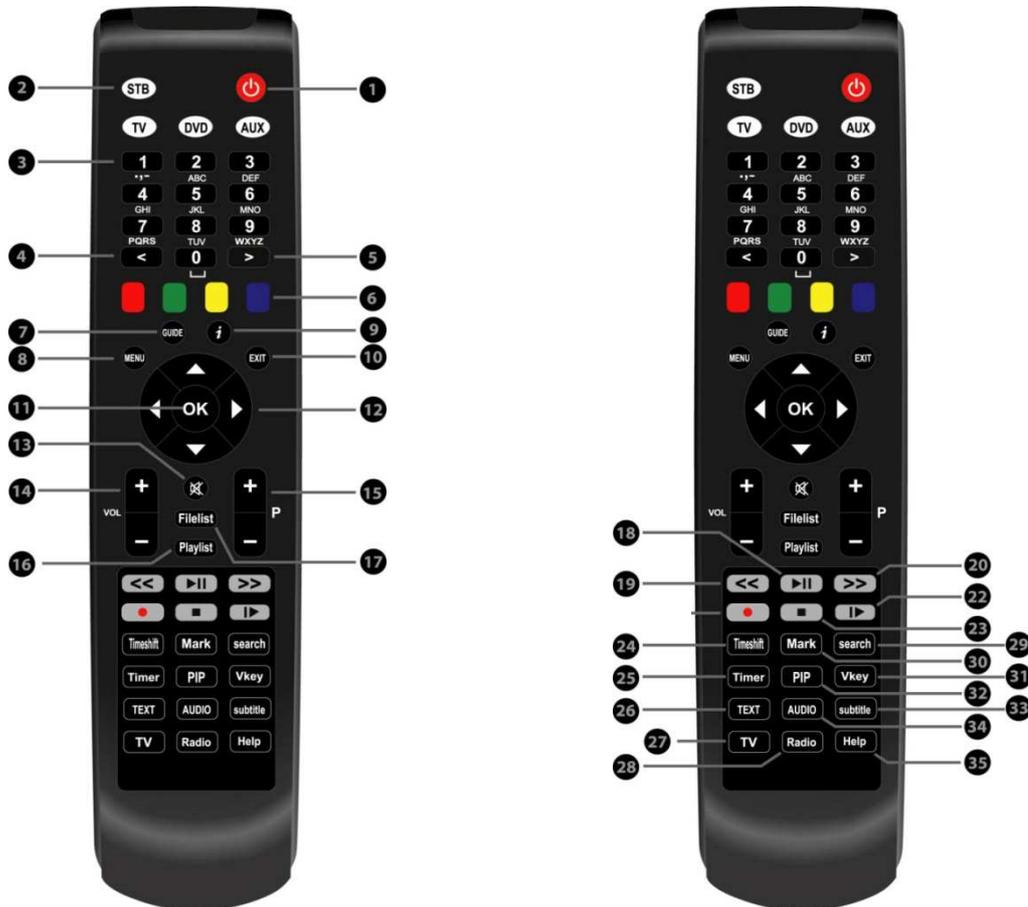
Insertion of CAM (Conditional Access Module)

There are several Conditional Access Systems (CAS) that STB supports. To be able to watch channels that are encrypted in such CAS as Nagravision, NDS, Irdeto, Viaccess, etc, users need to purchase a CAM that is corresponding to each CAS, as well as Smartcard to decrypt those encrypted channels.

- ① Insert a Smartcard into the CAM as in the below picture.
- ② Once the Smartcard inserted into the CAM, insert the CAM into the CI slot.
- ③ Make sure that the CAM remain inserted while viewing.



(E) Remote Control



- ,1 **Power** : To switch the receiver in and out of stand-by mode.
- ,2 **STB, TV, DVD, AUX** :
 - STB - To switch the remote control to receiver mode.
 - TV - To switch the remote control to Television mode.
 - DVD - To switch the remote control to DVD mode to operate your DVD player.
 - AUX - To switch the remote control to operate your audio system.
- ,3 **Numeric Keys** : Enters a service number for service change or to specify values for menu options.
- ,4 **<** : Navigates left on the menu options.
- ,5 **>** : Navigates right on the menu options.
- ,6 **Color Keys** : Each key is assigned a specific function that may be different in each menu.
 - Red - mainly used for REC, Cancel, etc.
 - Green - mainly used for OK
 - Yellow
 - Blue
- ,7 **GUIDE** : Displays the Electronic Program Guide (EPG) information if provided.

- ,8 **MENU** : Displays the main menu.
- ,9 **Information** : Displays the service information box. It is also used to display more information about a program.
- ,10 **EXIT** : Exits the current menu option into the live mode, or switches one step back of the menu.
- ,11 **OK** : Confirms the selected menu option.
- ,12 **Navigation Keys** : Navigates Up/Down and Left/Right on the menu options. Up/down keys are used to call up the channel list.
- ,13 **Mute** : Mutes the audio.

NOTE: When Teletext is activated, this key is also used when toggling between the Teletext page and the live mode.

- ,14 **VOL +/-** : Adjusts the audio volume.
- ,15 **P +/-** : Navigates through the scanned channel list
- ,16 **Playlist** : Displays channel list during viewing mode.
- ,17 **Filelist** : Displays the list stored on HDD if any.
- ,18 **▶||** : Play and Pause
- ,19 **<<** : Fast Rewind
Fast rewinds at up to 128 times faster than the normal speed
(x2/4/8/16/32/64/128)
- ,20 **>>** : Fast Forward
Fast forwards at up to 128 times faster than the normal speed
(x2/4/8/16/32/64/128)
- ,22 **I▶** : Used to start slow motion playback. Subsequent presses change the playback speed.
- ,23 **Stop** : Stops playing and goes to the live mode.
- ,24 **Timeshift** : Used to start Timeshift function.
- ,25 **Timer** : Sets sleep timer
- ,26 **TEXT** : Displays the teletext information of the current channel, if the channel provides teletext data.
- ,27 **TV** : Displays the TV channel list.
- ,28 **Radio** : Displays the Radio channel list.
- ,29 **Search** : Used to start channel search.
- ,30 **Mark** : Used to jump to next bookmark position.
- ,31 **Vkey** : Changes video resolution.
- ,32 **PIP** : Used to picture-in-picture mode.
- ,33 **Subtitle** : Displays the subtitle of the current channel if the channel provides subtitle.
- ,34 **Audio** : Displays the audio track option to choose (e.g. AC3, Stereo)
- ,35 **Help** : Displays major important operation methods of STB. This provides users with a quick guide of using STB.

(F) Main Features

- 400 MHz MIPS Processor
- Linux Operating System
- Media Player
- Downloadable Plug-ins supported
- 2 x Smartcard Readers
- 2 x Common Interface
- MPEG2 / H.264 Hardware Decoding
- DVB-S2 Twin Tuners
- 12 character Dot Matrix VFD
- 128MB NAND Flash / 512MB DDR Memory
- External SATA supported
- 10/100MB Ethernet Interface
- 3 x USB 2.0
- RS-232
- HDMI
- YPbPr
- Composite Video (RGB)
- 2 x SCART
- S/PDIF for digital bit stream out (optical)
- EPG supported
- Automatic & Manual Service Scan supported
- Multiple LNB control (DiSEqC) supported
- Skin change supported
- Stable SMPS integrated

(G) Technical Data

STB Technical Specifications		
Front Panel	Display	12-digit Dot Matrix VFD display with status icons displaying channel names and program information
	Smartcard reader slot	2
	Common Interface	2
	USB	1 x USB 2.0
	Buttons	8 (Power, Volume Up/Down, OK, Channel Up/Down, Menu, Cancel)
Rear Panel	Power Switch	1
	Sat-IF input/output	2 x F-type socket
	Connection TV/VCR	2 x Scart socket
	Video output(analogue)	3 x RCA (YPbPr)/1 x RCA (Composite)
	Video/audio output (digital)	1 x HDMI
	Audio output (analogue)	2 x RCA
	Audio output (digital)	Standard optical (S/PDIF)
	USB	2 x USB 2.0
	eSATA	1
	Ethernet	1
RS-232	1	
Power	Mains voltage	95~250/50~60 V/Hz
	Power consumption (Max./typ. operation/stand-by)	65/35/1 W
RF	RF range	950~2,150 MHz
	Modulation, FEC, de-multiplexer	DVB-S/DVB-S2 standard
Video	Video resolution	CCIR 601 (720x576 lines), 576p, 720p, 1080i, 1080p@30
	Video decoding	MPEG-2, MPEG-4 compatible
	Input data rate	2~45 MSymb/s
	S/N	> 53 dB
Decoding	Decoding	AC 3, MPEG-4 (AAC-HE), MPEG-1, Layer 1, 2 and 3
	Sampling rate	32/4.1/48 kHz
	S/N	> 65 dB
LNB	LNB supply(horiz./vert.)	14/18 ; Max. 400mA
	Control signal	22kHz ; ToneBurst ; DiSEqCTM1.0/1.1/1.2
General	Dimensions (W x H x D)	380 x 60 x 240 mm
	Weight (without HDD)	App. 3kg

I. Installation of STB

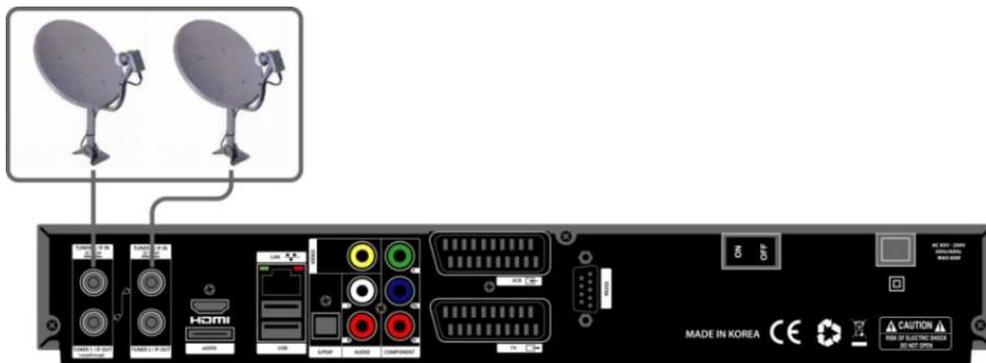
This chapter will guide you through the whole installation process of STB. Please read each section carefully to make sure that the system runs properly.

1. Connecting Satellite Cables

STB is integrated with twin satellite tuners, and one of the first steps is to connect satellite cable(s) to STB in order to gain optimal signal quality. You can either choose one of the following connection methods depending on the equipment you have.

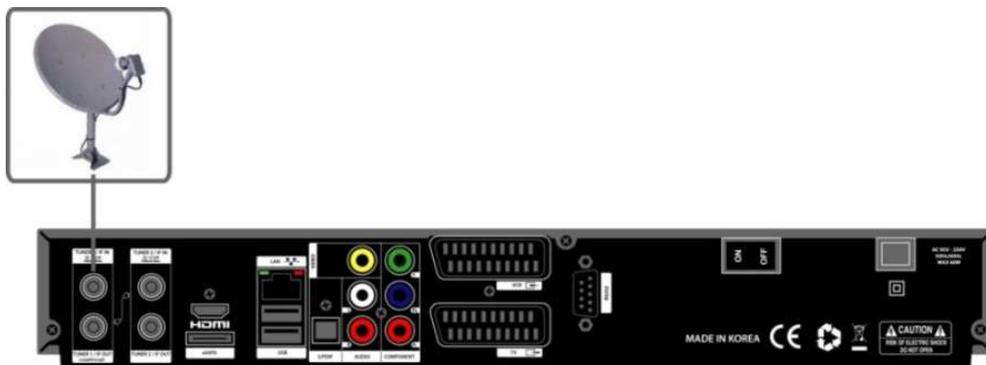
A. Two Separate Satellite Cables

In case you have two separate satellite cables providing different broadcast signals, you can configure TUNER 1 Input and TUNER 2 Input independently.



B. Internal Loop-through

In case you have only one satellite cable, connect the cable to TUNER 1 Input.

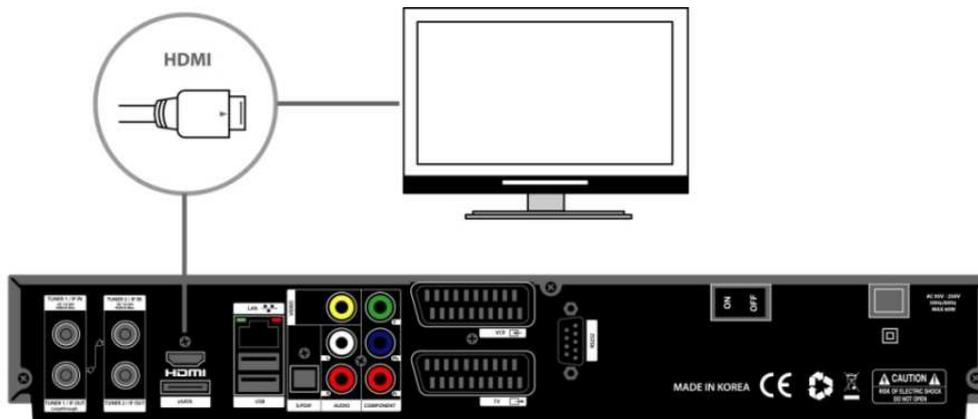


2. Connecting the TV (and VCR)

STB provides a variety of audio/video connection methods.

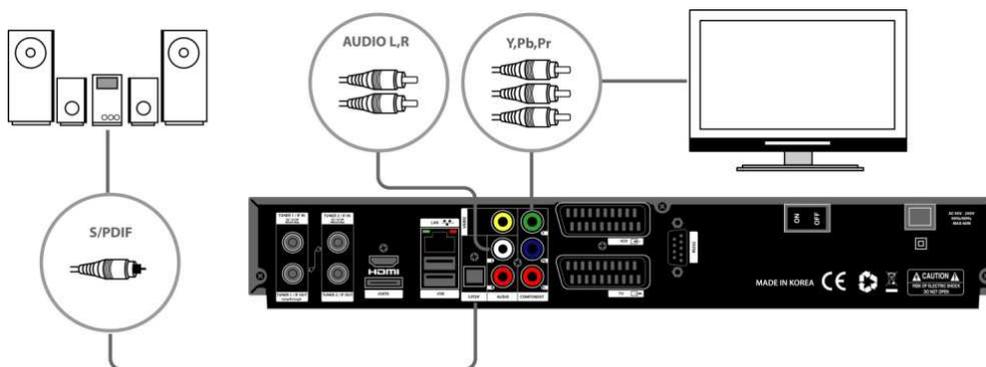
A. Connecting TV via HDMI Cable

For the sake of the best picture quality, especially for digital TV, HDMI connection is recommended. Most HDTVs have HDMI connectors to ensure the highest picture quality. In the rear panel of STB one HDMI connector is available for this purpose. Connect your TV to STB using a HDMI cable as follows.



B. Connecting TV via Component Cable

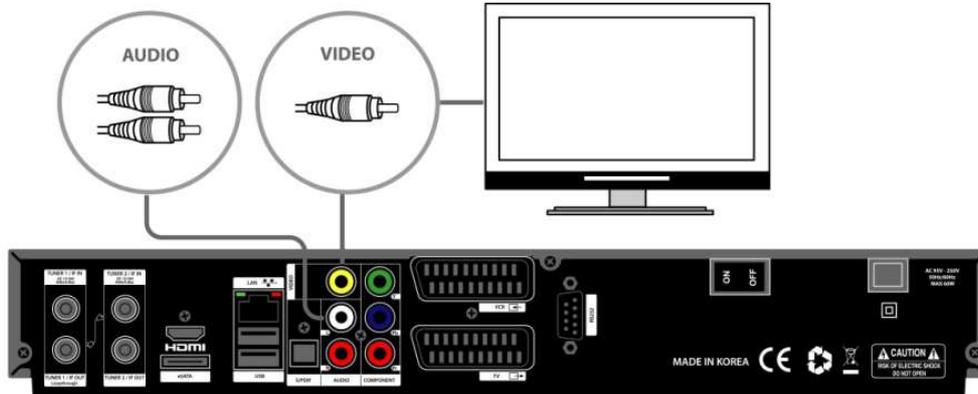
The secondly recommend TV connection for digital TV is via component cable (YPbPr). However, unlike the HDMI connection which delivers audio and video signal at the same time, YPbPr connection requires additional audio connection either via RCA cable (Stereo L/R) or S/PDIF as follows.



NOTE: When you have an A/V receiver with S/PDIF digital audio input, this connection is recommended to enjoy the best audio quality, especially for the Dolby Digital sound.

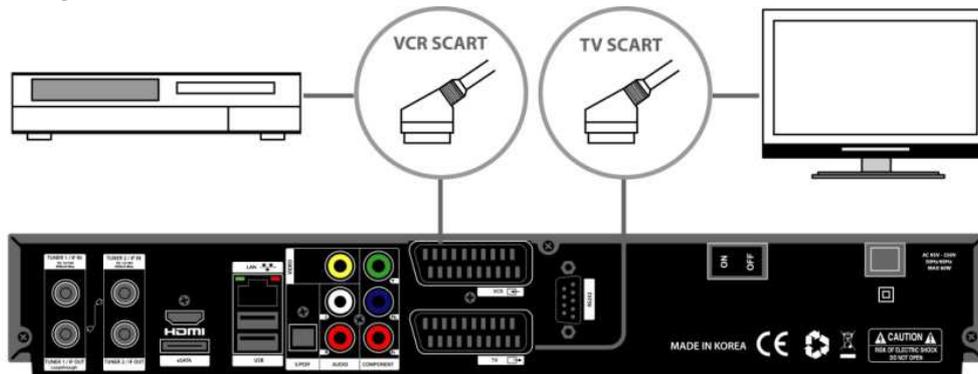
C. Connecting TV via RCA (Video) Cable

STB provides Composite video connection as well. Composite cable has normally three connectors at the both end; one Video (Yellow) and two Audio (White/Red). Connect your TV to STB as follows:



D. Connecting TV (and VCR) SCART Cable

In case your TV is analogue TV, SCART cable is the most common method. Connect your TV to STB using SCART cable as follows



3. Connecting Power

A power cord is provided as one of the basic accessories of STB.

- Connect the power cord to the connector at the rear panel of STB.
- Connect the power cord to a power outlet.
- Turn on the power switch at the rear panel.

NOTE: AC input condition

- Nominal Voltage Range: 100~240 VAC
- Maximum Voltage Range: 90~264 VAC
- Nominal Frequency: 50/60 Hz
- Maximum Frequency Range: 47~63 Hz

4. Power ON/OFF

[ : Press  or Press  → 'Standby/Reset']

There are several ways to turn your STB ON or OFF

- **Complete Power Shutdown**

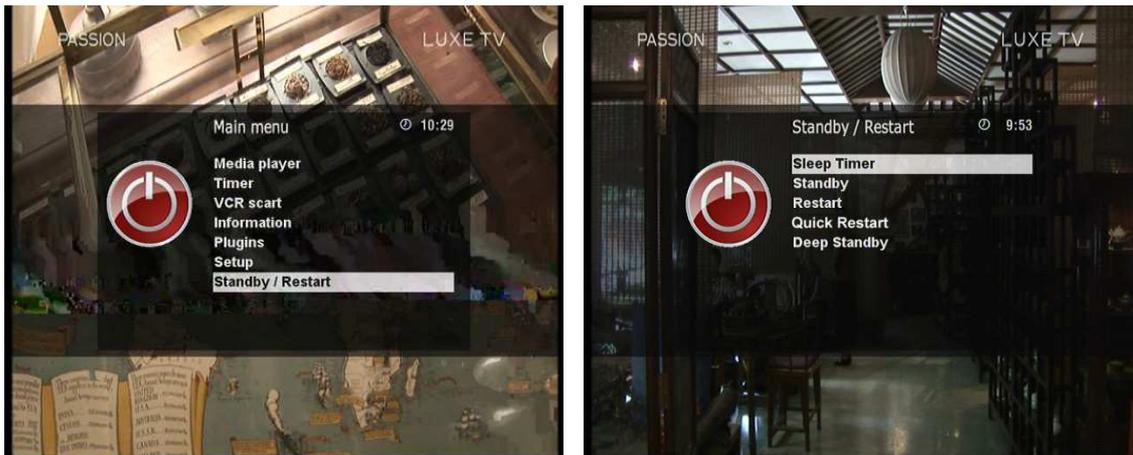
There is a Power Switch in the rear panel and once it is ON, you do not need to turn it on or off each time. It takes a longer time to boot the system if you turned it off by this switch.

- **Standby Mode**

POWER key is normally used to turn the power of STB on or off. If you press POWER, it instantly switches your STB off or on. In this mode, the system is not completely shutdown and thus it takes a shorter time to turn it on and off.

- **Deep Standby Mode**

Deep Standby is used to reduce the standby power consumption. STB is designed to be energy efficient and to guarantee the power consumption to be under 1W in the deep standby mode.



II. First Time Installation (using Wizard)

When you turn on STB for the first time after purchase, an installation wizard will begin step by step.

NOTE: 'OK' key is used for confirmation and turns to the next step. Pressing 'EXIT' key to return to the previous page.

Step 1. Language Selection

STB provides various languages and here you can choose the main language for your STB. Use UP/DOWN key to scroll up and down to find the language you want.



Step 2. Configuring Satellite Connection

From now on you need to configure the satellite connection. You have two options:

- Use wizard to setup basic features
- Exit wizard

You are strongly recommended to use wizard as it is designed to guide you through the configuration process.



Step 3. Configuring Tuner A

Using LEFT/RIGHT key, you can choose one of the following Configuration Modes:

- Not configured.
- Simple
- Loop-through to: mode to make the TUNER 1 be internally connected to the TUNER 2.
- Equal to: mode to use the same configuration as that of Tuner B.
- Advanced: for an advanced user configuration.



If you choose Simple configuration mode, the following picture will appear.



The five modes are available for the satellite cable connection between LNB and your STB as below:

- **Single**

This option is used to receive a single satellite with a single LNB. The cable from LNB is directly connected to STB.



- **ToneBurst A/B**

This option is used if you want to receive two satellites using a ToneBurst switch.



- **DiSEqC A/B**

This option allows you to configure two satellites in Port A and Port B.



- **DiSEqC A/B/C/D**

This option allows you to configure four satellites in Port A, Port B, Port C and Port D.



- **Positioner**

This option is used when you have a motorized satellite antenna.



Step 4. Configuring Tuner B

This step is for the configuration of TUNER B Input and the process is same as that of Tuner A. For further information please refer to the above "Configuring Tuner A" section.

Step 5. Parental Control Option

Here you can choose whether to enable the parental control option. If you press OK, you will be asked to enter PIN number.



III. Basic Operations

1. Switching Channel

[ : Press CHANNEL  /  or Press  /  → Press  /  to move to the next channels]

STB offers various channel zapping methods. You can switch the current channel by pressing

- **UP/DOWN key**

If you press **UP** or **DOWN** key, **Channel Selection** menu appears.

You can move up and down to select the channel that you want to tune into.

- **LEFT/RIGHT key**

If you press LEFT or RIGHT key, the previous or subsequent channel of the current channel is tuned in.

- **CHANNEL +/- key**

If you press **CHANNEL +/-** key, this will call up the **Channel Selection menu**.

- **Channel Number**

Enter a channel number, and it will instantly tune into the channel.

NOTE: If channel change is not done, it is probably because the selected channel is encrypted and you do not have a proper smartcard.



2. Volume Control

[ : Press VOLUME  /  or Press ]

You can adjust the audio volume by pressing **VOLUME +/-** key. You can also mute or unmute the audio



3. Selecting Audio Track

[**i** : Press **AUDIO**]

You can check what audio tracks are available to choose by pressing AUDIO key.



By using **UP/DOWN** key and **Color** key, you can select a different audio language or Stereo sound.

NOTE: Available options on this menu will differ depending on the service.

4. Subtitle

[**i** : Press **subtitle** or Press **MENU** → 'Subtitle']

You can view the subtitle of the current program if the program provides the subtitle. Press **SUBTITLE** key and **Subtitle selection** menu appears as below.



Available subtitles, if any, will display. By using **UP/DOWN** navigate the list to select a subtitle that you want to play and press **OK** to activate it.

5. Teletext

[**i**] : Press **TEXT**]

You can call up Teletext information by pressing **TEXT** key. It will take some time to load all the information.



You can navigate through the Teletext page by using **UP/DOWN** key to select a text page. Also, just simply enter the page number that you want to read.

- **MUTE** key

Once you activated Teletext, you can toggle between the live mode and the Teletext page by pressing **MUTE** key instantly. In this case, loading of the Teletext page takes place instantly.

- **VOLUME +** key

If you want to enlarge the page, press **VOLUME +** key.



- **VOLUME - Key**

If you want to reduce the page size, press **VOLUME -** key.



6. Program Information (Infobar)

[**i** : Press **OK**]

Whenever you change the channel, infobar is always displayed for 5 seconds (default setting). Infobar is designed to provide you comprehensive information of the channel that you are currently watching.

Press OK to call up infobar.



- ① **A** : The tuner being used for the current channel
- ② **SNR (Signal to Noise Ratio)** : Signal Level
- ③ **AGC (Automatic Gain Control)** : Signal Strength
- ④ The name of the current channel
- ⑤ Remaining time of the current program
- ⑥ The current program
- ⑦ The next program
- ⑧ **REC** : Not support this function

- ⑨ **CAS** : Encrypted program
- ⑩ **Text** : Highlighted when the program provides Teletext.
- ⑪ **16:9** : Screen ratio
- ⑫ **RED** : Not support this function
- ⑬ **GREEN** : to call up Subservices, if available
- ⑭ **YELLOW** : to activate Timeshift
- ⑮ **Extensions** : to call up a menu for Sleep Timer and Graphical Multi EPG

7. Channel List (Channel Selection Menu)

[**i** : Press ▲ / ▼]

If press **UP/DOWN** key, this will activate Channel Selection Menu as below.



Four types of the channel lists are available to help you manage your channel selection.

- **RED** displays the list of all scanned channels.
- **GREEN** displays the list of all satellites scanned. Per each satellite, channels are arranged according to Services, Provider, and New.



- **YELLOW** displays the list of providers.



- **BLUE** displays the list of your favorite channels.



In order for you to add certain channels to this **Favourites** list,

- ① Call up the **Channel Selection** list by Pressing **UP** or **DOWN** key.
- ② Go to All list by pressing **RED** key.
- ③ Select the channel that you want to add to the **Favourites** list.
- ④ Press **MENU** key on the selected channel and the following menu appears.
- ⑤ Choose '**add service to bouquet**' and press **OK**.
- ⑥ Go to the **Favourites** list by pressing **BLUE** key to confirm that the selected channel is correctly included in the list.



8. Electronic Program Guide (Eventview)

[ : Press ]

The Electronic Program Guide (EPG) displays the program information of each channel, if provided, in time and date order. You can view the detailed program information by pressing **GUIDE** key and the menu, **Eventview** appears.

Detailed information of the current channel will be displayed on EPG. On this menu, three options are provided.

- **RED (Similar)**

This option helps you find similar programs. If there are one or more programs that are similar to the current program, **EPG Selection** window displays them.

- **GREEN (Add Timer)**

If you press GREEN key, Timer entry menu appears. This option is used to setup a new timer for zapping.

- **Name**

Displays the name of the selected program.

- **Description**

Displays a short description of the selected program.

- **Timer Type**

- Select **Zap** for channel tuning reservation.

- **Repeat Type**

- Select **Once** for one time of zapping reservation.
- Select **Repeated** for repeated zapping.
- Repeats - This option is given only when you selected '**Repeated**' in the Repeat Type. You can reserve zapping per Daily/Weekly/Mon-Fri/User-defined.

- **Date**

Displays the current date. This entry is on when you selected **Once**, in the Repeat Type.

- **Start Time**

You can set the time to begin zapping.

- **End Time**

You can set the time to end zapping.

- **Channel**

This entry allows you to change the channel. Press **LEFT/RIGHT** key to call up **Channel Selection** menu. You can select a different channel from this list using this option. To return to **Timer entry** menu, press **EXIT**.

- **YELLOW (Single EPG)**

Press **YELLOW** while Eventview menu is on, to call up the program event schedules of the selected channel. In this state, you can sort the list according to A-Z order or Time by pressing **YELLOW**.

NOTE: To add a timer for zapping, press **GREEN**.

- **BLUE (Multi EPG)**

Press **BLUE** to activate **EPG Selection Multi EPG** window.

- You can move the previous or next program within the same channel by using **YELLOW** (Previous)/**BLUE** (Next).

NOTE: Not all channels provide EPG information and thus in case of no EPG data, nothing will be displayed except for the channel name.

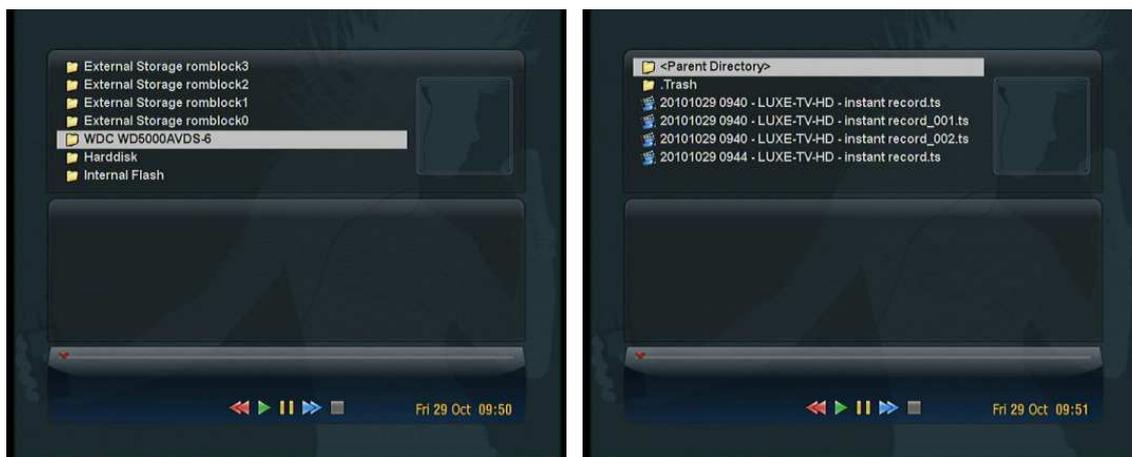
- You can switch to another channel by using UP/DOWN key.
- **RED** key is used to instantly tune into the selected channel.
- **GREEN** key is used to reserve zapping of the selected program.

9. Media Player

[**i** : Press **MENU** → 'Media Player']

STB is truly a multimedia receiver capable of playing media contents. Using Media Player, you can enjoy Music, Photo and Video contents stored on the internal HDD and/or a USB memory stick plugged into STB .

If you play **Media Player**, the following player will appear.



- ① Go into any directory of the HDD or plugged USB.
- ② Select a file to play and press **OK**.
- ③ Supported formats are mainly JPG, MP3, AVI, etc.
- ④ In the same way, you can play the files stored on the HDD.

10. Sleep Timer

[ : Press  → 'Standby/Restart' → 'Sleep Timer']

You can set a specific time when your STB goes into Standby mode or Deep Standby mode, using this menu. Three color keys are used to setup this sleep timer.

① RED

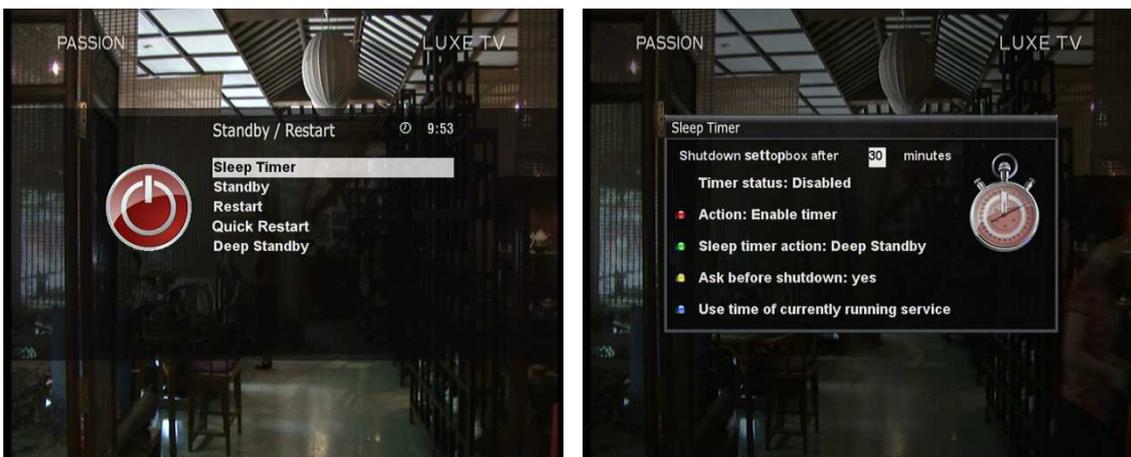
This option is used to enable or disable *Sleep Timer*.

② GREEN

This option is used to choose between *Standby mode* and *Deep Standby mode*.

③ YELLOW

This option is used to choose whether to be asked of confirmation before system shutdown.



IV. System Configuration

STB is a very sophisticated device designed to allow users a variety of system setting options as detailed as possible. You can fine-tune your STB to be your OWN system to fit your taste. This chapter will guide you through the entire menu of system configuration.

Prior to System Configuration, please take a notice on the menu structure of STB first.

1. Main Menu

[**i** : Press **MENU**]

The main menu of STB consists of the following sub menus.

① Subtitles

Displays Subtitle selection menu of the current program.

② Media player

Activate Media player of STB. For more information, please refer to the page 38.

③ Information

Has two sub menus for **Service/About**. **Service** menu provides the detailed information of the current Channel. **About** menu provides the detailed information of the H/W and S/W system of your STB. For more information, please refer to the 61~62.

④ Plug-ins

Activates Plug-in browser of STB .Using this browser, you can log onto the designated website and you can download a variety of new plug-ins. For more information, please refer to the page 39.

⑤ Setup

Provides all of the system settings. For more information, please refer to the page 42~62.

⑥ Standby/Restart

Provides options for power On/Off and sleep timer. For more information, please refer to the page 17.



2. System Setup

[**i** : Press **MENU** → 'Setup']

The Setup menu consists of the following sub-menus.

- ① **Service Searching**
- ② **System**
- ③ **Common Interface**
- ④ **Parental Control**
- ⑤ **Default settings**
- ⑥ **Factory reset**



2-1. Service Searching

[**i** : Press **MENU** → 'Setup' → 'Service Searching']

Here you setup the tuners of your STB and run channel scanning automatically or manually.

A. Tuner Configuration

[**i** : Press **MENU** → 'Setup' → 'Service Searching' → 'Tuner Configuration']

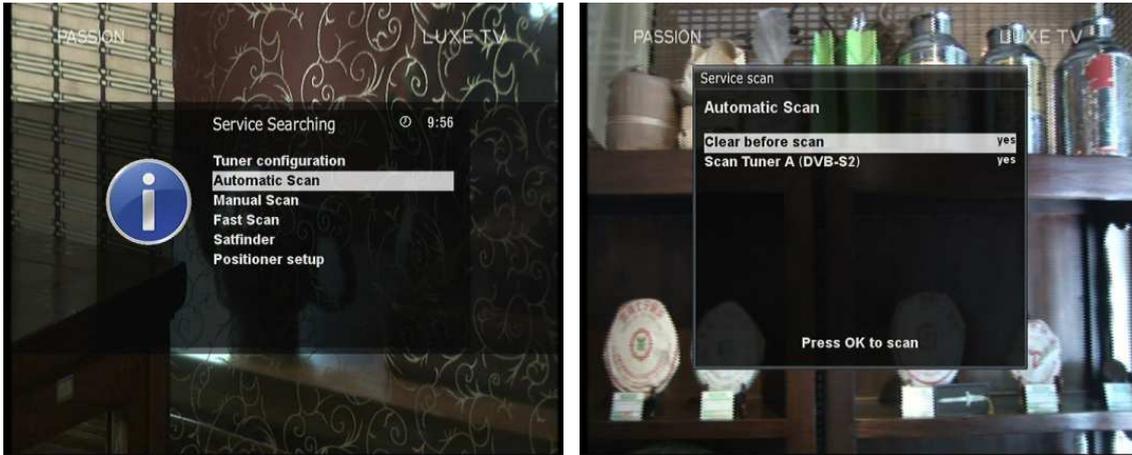
If you run the First Time Installation process (refer to the page 18~22), the Tuner A is already configured. You can check the information of Tuner A and which satellites are scanned by Tuner A as follows.



B. Automatic Scan of Services

[**i** : Press **MENU** → 'Setup' → 'Service Searching' → 'Automatic Scan']

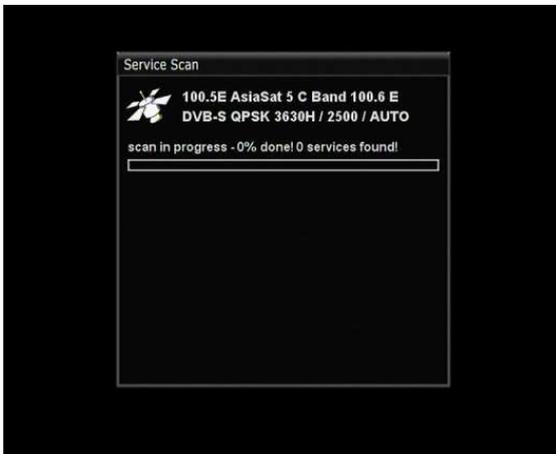
The easiest way to scan services is to use Automatic Scan. In the Automatic Scan menu, there are two options to choose from as below.



- **Clear Before Scan**

YES is used when you want to delete the existing channel list before you start the automatic scan. If you want to keep the existing list, select **NO**.

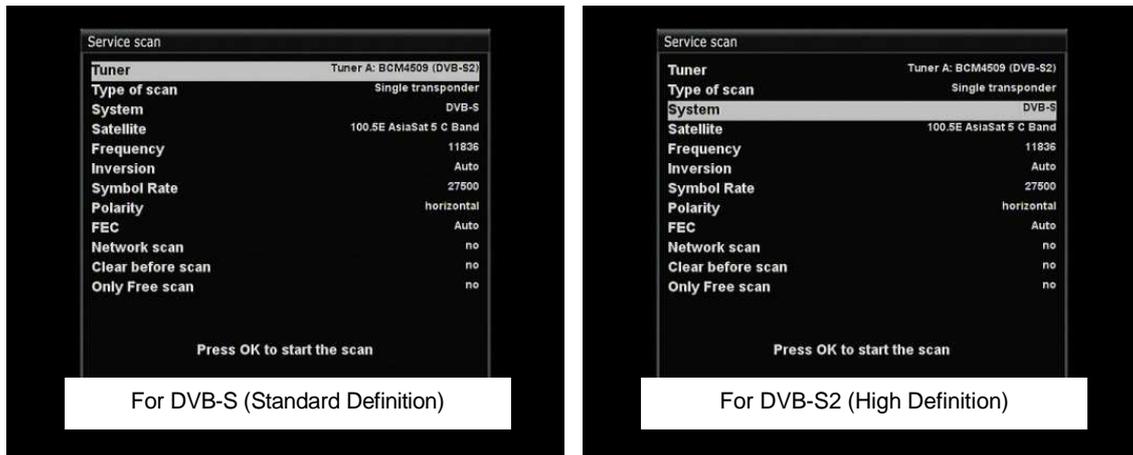
Press **OK** to activate the automatic scan. This will take some minutes. As the scan proceeds, you will see the progressive bar and the newly found services underneath.



C. Manual Scan of Services

[**i** : Press **MENU** → 'Setup' → 'Service Searching' → 'Manual Scan']

If you know well enough to configure each exact setting required for manual search of services, you can do manual scan as well. There are many parameter values that you need to decide as below.



Amongst other things, the below parameters are what you need to decide prior to performing manual scan.

① Tuner

You need to decide which tuner you want to use for manual scan.

② System

Here you have two options between DVB-S (SD) and DVB-S2 (HD).

③ Frequency

You need to enter the exact frequency of the transponder that you want to scan.

④ Symbol Rate

You need to enter the exact symbol rate of the transponder that you want to scan

⑤ Polarity

Here, you have options for Horizontal, Vertical, Circular Left and Circular Right. You need to know the polarity of the transponder that you want to scan.

⑥ FEC (Forward Error Correction)

You need to enter the exact FEC value of the transponder that you want to scan

⑦ Modulation

Here you have two options for QPSK (SD) and 8PSK (HD).

⑧ Network Scan

Here you have two options for **YES** and **NO**. **NO** is used to scan the transponder (TP) based on the data that your STB currently has. **YES** is used to scan the TP not just based on the existing TP data but also using new TP data, if there is TP data newly transported from the TP. Naturally, **YES** option takes longer while it may results in a better scan result.

⑨ Clear Before Scan

YES is used when you want to delete the existing channel list before you start the automatic scan. If you want to keep the existing list, select **NO**.

⑩ Only Free Scan

Here you have two options for **YES** and **NO**. You want to scan only Free to Air channels without any encryption, select **YES**. Otherwise, select **NO** to scan all FTA and CAS channels.

Press **OK** to activate the manual scan. This will take some minutes. As the scan proceeds, you will see the progressive bar and the newly found services underneath.



2-2. System Configuration

[**i** : Press **MENU** → 'Setup' → 'System']

Here you can find most of the necessary settings that you might need to optimize your STB in the way you like it.



A. A/V Settings

[**i** : Press **MENU** → 'Setup' → 'System' → 'A/V Settings']

Here you will find options necessary to setup the audio and video configuration of your STB.



NOTE: RED is for cancel and GREEN is OK.OK key of RCU is not working in this mode.

Amongst the parameters given in this menu, the following ones are generally what you need to decide for the audio and video.

① Video output

Here you need to decide which video output you want to use between your TV and STB. The available options are as below.

- CVBS
- S-Video
- RGB

② Mode

You need to decide which resolution to use according to the video output above and your TV amongst the following options.

Resolution	
	PAL
	NTSC
	Multi

③ AC3 Default

YES is used when you want to set Dolby Digital audio as the default audio. If the program you are watching has AC3 and Stereo, AC3 is used.

On the other hand, **NO** is used when you do not want to set Dolby Digital audio as the default audio. If the program you are watching has AC3 and Stereo audio, Stereo audio is used.

④ AC3 Downmix

YES is used when you want to set the audio output to be down-mixed from AC3 to Stereo. **NO** is used when you do not want to set the audio output to be down-mixed from AC3 to Stereo. If **NO** is on and you are using only HDMI connection, there can be no audio sometimes, if the program that you are watching provides AC3 only. This option is recommended when you are using S/PDIF connection.

B. Language Selection

[**i** : Press **MENU** → 'Setup' → 'System' → 'Language']

A variety of languages are available for the OSD of STB.



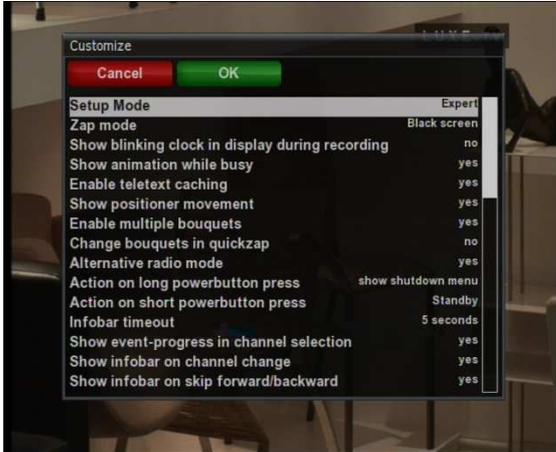
C. Customization

[**i** : Press **MENU** → 'Setup' → 'System' → 'Customize']

In this menu you will find various customization options and this menu can be displayed in three different formats:

Simple, **Intermediate**, and **Expert**.





NOTE: RED is for cancel and GREEN is OK. OK key of RCU is not working in this mode.

Amongst the options given in this menu, the following ones are generally what you may need to know.

D. Selecting Time Zone

[**i** : Press **MENU** → 'Setup' → 'System' → 'Timezone']

You can set your time zone in this menu.



Using **LEFT/RIGHT** key, you can find a time zone that you want to use for your STB .After selecting a time zone, press **GREEN** to confirm and save the changed setting.

E. Hard Disk Setup

[**i** : Press **MENU** → 'Setup' → 'System' → 'Harddisk setup']

You can set the duration of time after which HDD is to be put into standby mode.

Here, you can choose from

- No standby
- 10 or 30 seconds
- 1, 2, 5, 10, 20, 30 minutes
- 1, 2, 4 hours.

Once you set this option, press **GREEN** key to confirm the change.



F. Front Display Setup

[**i** : Press **MENU** → 'Setup' → 'System' → 'Display Setup']

There is a 16 character dot matrix VFD display on the front panel of STB. This display shows various information like the current menu, channel, HD icon, and so on. You can adjust the brightness of this display using this menu.



- **Brightness**

You can change the brightness of the front VFD display using **LEFT/RIGHT** key when the set is in use.

- **Standby**

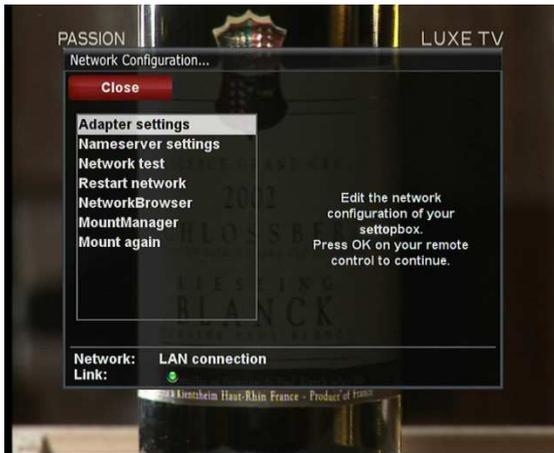
You can change the brightness of the front VFD display using **LEFT/RIGHT** key when the set is in standby mode.

Once you completed this option, press **GREEN** key to confirm the change.

G. Network Setup

[**i** : Press **MENU** → 'Setup' → 'System' → 'Network']

STB is integrated with standard 10/100Mbps Ethernet with RJ 45 connector standard. You are recommended to use this network capability of STB to fully enjoy the system. You can setup the network settings through this **Network Configuration** menu.



In the **Network Configuration** menu, you will see five sub menus as follows:

① Adapter settings

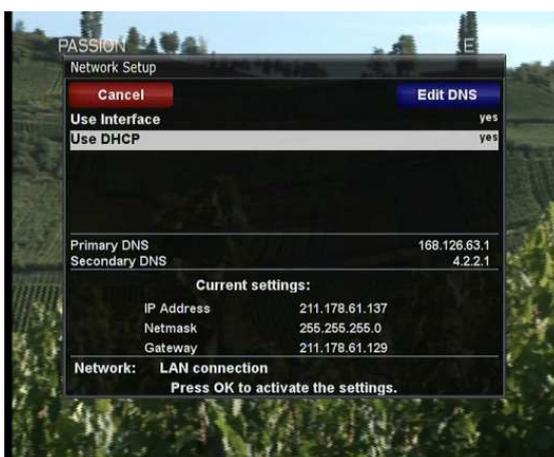
Through this menu, you can set the basic Ethernet configuration.

- **User Interface**

YES is used to activate the Ethernet. If you set this option at **NO**, the Ethernet will not work.

- **Use DHCP**

YES is used to use **DHCP (Dynamic Host Configuration Protocol)**. If you set this option at **YES**, it will automatically detect the correct IP address. **NO** is used when you want to use a certain fixed IP address. In this case, you need to enter correct addresses in each field.



② Nameserver settings

This option is required if you selected not to use **DHCP**. You need to enter the address of the Nameserver.



③ Network test

When you are not sure whether the network configuration has been done correctly or not, you can run this test.



④ Restart Network

This option is used when you want to reboot the Ethernet of your STB.

H. Skin

[**i**] : Press **MENU** → 'Setup' → 'System' → 'Skin'

STB is a Linux based set top box and there are a lot of Skins available for Linux set top box. Using this menu, you can use a different Skin other than the default one.

NOTE: It takes some minutes since the change of Skin requires a complete system shutdown. Please wait patiently until the system reboots with a newly selected Skin.



2-3. Checking CAM

[**i** : Press **MENU** → 'Setup' → 'Common Interface']

To be able to watch CAS channels, you need to have a proper CAM and a Smartcard. STB is integrated with two Common Interface slots. If you have two CAM modules and keep them inserted in your STB, it will reduce the trouble of changing CAM. Please refer to the page 9.

If you have inserted one or two CAMs, you can check the information of the inserted CAMs, through this menu as below:



2-4. Parental Control

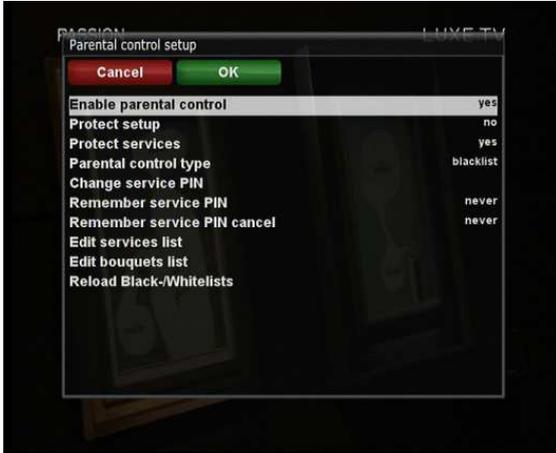
[**i** : Press **MENU** → 'Setup' → 'Parental Control']

If you want to prevent certain channels from being accessed by others, you can do so using this menu.

- ① Go to Parental Control menu by pressing **MENU** > **Setup** > **Parental Control**.

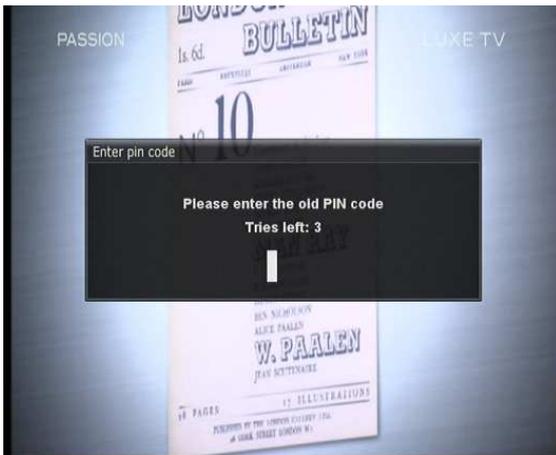


- ② Set the parental control option at **YES** using **LEFT/RIGHT** key. The menu will change as below.



- **Protect setup**

If you set this option at **YES**, you will be asked to enter PIN code when you enter this Parental setup menu.



- **Change setup pin**

If you want to change the existing PIN code for Parental setup, you can do so using this menu.



You need to enter a new PIN code twice.

- **Protect services**

You need to set this option at **YES**, if you want to lock certain channels with PIN code.

- **Parental control type**

This option will be activated only if you set Protect services at YES. Here there are two options:

- White list : This option is used to block all channels except those channels in the parental control list.
- Black list : This option is used to block only those channels included in the parental control list.

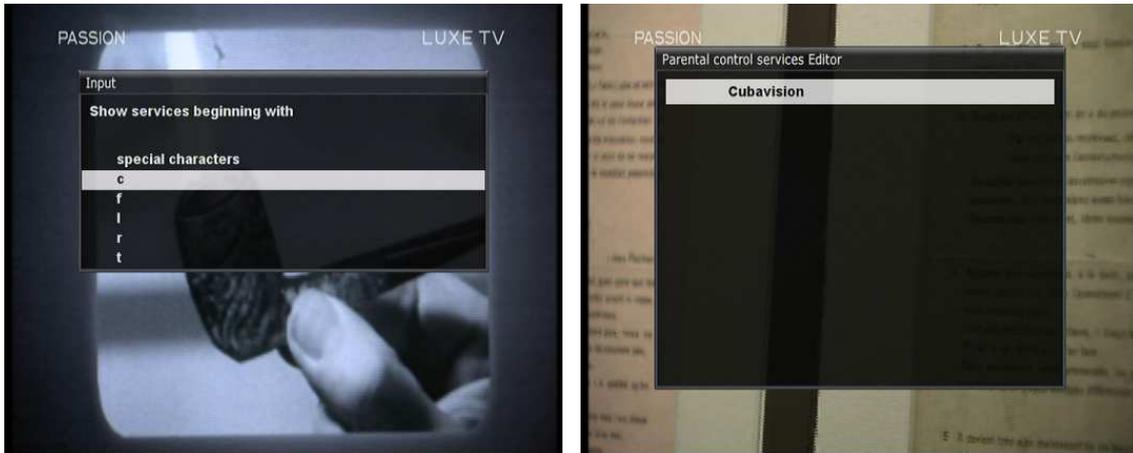
- **Change service pin**

Here you can define a PIN code required to change services to be included in the parental control list.

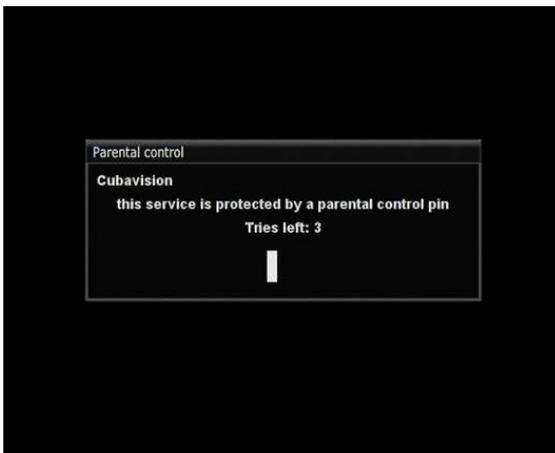
NOTE: PIN code here is used for Change service and thus you are recommended to use a PIN code different from that used for Protect services.

- **Edit service list**

Here you can add services that you want to lock with PIN code. Services will be arranged in the alphabetical order and you can select an alphabet to enter into the list where you can find the channel that you want to lock.



Once the selected channel is locked, next time when you or anyone else want to tune into this service, the menu asking for PIN code will appear instantly as below.

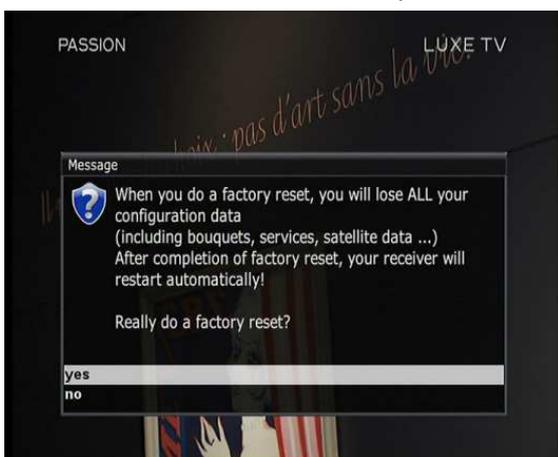


NOTE: It is very important not to lose this PIN code.

2-5. Factory Reset

[**i** : Press **MENU** → 'Setup' → 'Factory Reset']

If you want to erase all installed service list as well as all configurations, run the Factory Reset process. Select YES in the below menu to run the factory reset.



Upon the completion of factory reset process, your STB will reboot automatically and start the First Time Installation process.

NOTE: If you do this factory reset, all of your configuration data including bouquets, service lists, satellite parameters, and so on will be erased.

2-6. Checking H/W & S/W Information

[**i** : Press **MENU** → 'Information']

If you want to check the H/W or S/W system of your STB, this is the menu that you need to use. Also, here you can check very detailed information of a specific service.

A. Service Information

[**i** : Press **MENU** → 'Information' → 'Service']

In this menu, you can see all the parameter data of the current channel. The service information is well arranged in four sections as below:

① Service info



② PIDs



③ Transponder



④ Tuner Status



B. System Information

[ : Press  → 'Information' → 'About']

This menu is for you to check the current system of your STB. You can see the following information:

- ① S/W version
- ② Detected NIMs for both Tuner A & B
- ③ Detected HDD



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END OF TERMS AND CONDITIONS

VI. Menu Structure

Main Menu				
1 st level	2 nd level	3 rd level	4 th level	5 th level
Subtitles	Subtitle selection Window			
Media player	Media Player			
Timer	Timer List			
VCR Scart	Switch to VCR Scart			
Information	Service	Service info		
	About	About		
Plug-ins	Plug-in browser			
Setup	Service Searching	Tuner Configuration	Tuner A	
			Tuner B	
		Default Service list		
		Automatic Scan	Service scan Window	
		Manual Scan	Service scan Window	
		Language	Language Selection Window	
		Customize	Customize Window	
		Timezone	Timezone Window	
		Harddisk	Harddisk setup	Harddisk setup
			Initialization	Initialization
			Filesystem Check	Filesystem Check
		A/V Settings	A/V Settings Window	
		Display Setup	Display Setup Window	
		Network	Network Configuration Window	
		Keyboard	Keyboard Setup Window	
		Skin		
		Common Interface		
		Parental control	Parental control setup	
		Default settings		
		Factory reset		
Standby / Restart	Sleep Timer			
	Standby			
	Restart			
	Deep Standby			

VII. Troubleshooting

Before you contact your local service center, please read the following tips carefully.

NOTE: if the antenna is covered with snow or the RF signal is weakened by heavy rain, the quality of audio and video may become temporarily poor. If you experience poor audio and video quality due to bad weather conditions, please check if your satellite antenna is oriented in the original direction. And see if it is covered by snow. Also, check if your LNB is not damaged.

1. No Video on TV

- Check first if the product is powered on and in operation mode.
- Check if the video cable is properly connected between TV and STB.
- Check if the satellite cable is properly connected to STB.
- Check if the selected channel is currently on air.
- Check if the selected channel is encrypted and if you have a corresponding access smartcard.

2. Problem with audio quality

- Check if your audio cable is connected correctly.
- Check the volume level of your TV and the product.
- Check if the product or TV is on mute.
- Check the audio option if it is correctly selected for the program that you are currently watching.

3. Remote control problem

- Check if the batteries are correctly mounted.
- If your remote control has been used for long, change the batteries.
- Point the remote control directly toward the product.
- Make sure that nothing blocks the front panel display.

4. Channel search problem

- • Make sure if tuner configurations are all correctly made.
- • Check if the antenna cable(s) are properly connected.

5. Encrypted channel viewing problem

- Check if you have the appropriate Smartcard and/or CAM.
- Take the Smartcard and CAM out and re-insert them to re-initialize.
- Check if your system correctly detects the smartcard and CAM.

VIII. Universal Remote Control

The universal remote control allows you to operate the most important functions such as power on/off and volume control on your television, audio-video receiver, or DVD player. To be able to control the device, you must adapt the remote control to the device first.

1. Setup method

1-1. Initial Settings

A. Device Default: STB

B. Remote Control Default Setting Code

- 1) STB: 001
- 2) TV: 001
- 3) DVD: 001
- 4) AUX: 001

1-2. Settings method

A. 3-DIGIT Setup Method

- 1) Turn on the device that you want to setup (for example turn on TV)
- 2) Press and hold [DEVICE] + [OK] button more than 2 seconds until the device LED blinks.
If there is no key input for 20seconds, the Remote Control will exit the setting mode and return to normal mode.
- 3) Enter the 3-Digit setup code from the Brand list. (The LED will blink by Key input)
When the 3-Digit setup code is input, the designated Power Code will be output. (LED blinks)
Verify whether it operated properly by pressing the [Power] button. (If the device does not operate properly, press next 3-Digit setup code)
In case the 3-Digit setup code is not valid, the LED will off for 1.5seconds and revert to on status for input mode.
It does not answer against key input other than [OK], [0~9], [CH+], [CH-], [Power] key.
- 4) Press [OK] button to save and exit the setup model. (LED will blink 2 times and off)

B. Auto Search (CH+, CH-) Setup method

- 1) Turn on the device that you want to setup (for example turn on TV)
- 2) Press and hold [DEVICE] + [OK] button more than 2 seconds until the device LED blinks.
If there is no key input for 20seconds, the Remote Control will exit the setting mode and return to normal mode.
- 3) Press [CH+] or [CH-] button. By pressing the button, the power code of next setting number will be output. (LED blinks)
It does not answer against key input other than [OK], [0~9], [CH+], [CH-], [Power] key.
- 4) Press [OK] button to save and exit the setup model. (LED will blink 2 times and off)

1-3. Setup Code Read Out (Number Call)

- 1) Press and hold [DEVICE] + [OK] button more than 2 seconds until the device LED blinks.
If there is no key input for 20seconds, the Remote Control will exit the setting mode and return to normal mode.
- 2) Press [INFO] button. LED will blink the number of times as setup code.
0: LED blinks quickly 10 times.
1~9: LED blinks the number of digit.

1-4. Factory Reset

- 1) Press and hold [TV] + [0] button simultaneously for more than 5 seconds.
- 2) LED will blink in the following order of STB -> TV->DVD->AUX 3 times and turn off.

2. TV Brand/Code List

TV

Brand	Code List														
A.R.SYSTEM	049	063													
ACCENT	049	063													
ACEC	112														
ACURA	195														
ADMIRAL	065	076	163	171	190	307	324	369							
ADYSON	379														
AGASHI	076	379													
AGEF	324														
AIKO	049	063	076	102	141	172	195	225	379						
AIM	049	063													
AIRSTONA	049	050	063	065	079	112	158	160	188						
AIWA	376	377													
AKAI	019	049	050	055	063	076	102	107	123	133	139	141	150	172	
	174	182	195	209	225	326	333	379	428	432	433	437			
AKIBA	006	049	063	123	380										
AKITO	049	063	106												
AKURA	006	049	076	096	123	195	419	426							
ALARON	042	334													
ALBA	018	044	049	050	107	123	134	163	179	184	195	225	228	232	
	239	379	413	421	431										
ALBIRAL	121	326	372												
ALCYON	407														
ALLORGAN	050	094	236	334											
ALLSTAR	049	063													
AMPLIVISION	113	379	421	425											
AMSTRAD	004	011	049	063	076	123	131	172	195	225	426				
ANAM	049	063	195												
ANGLO	076	195													
ANITECH	049	063	076	195	407										
ANSONIC	045	049	063	107	112	195	210	242	391	413	421				
APOLLO	165														
ARC EN CIEL	029	034	074	182	186	415	424								
ARCAM	029	379	424												
ARDEM	392														
ARTHUR MARTIN	075	107	127	133	136	139	148	153	307	425					
ASA	003	020	065	078	080	091	117	146	171	197	235	307	319	324	
	341	375	406	408											
ASBERG	049	063	407												
ASORA	195														
ASTRA	195														
ASUKA	006	050	076	123	379										
ATLANTIC	049	050	063	113	236	242	379								
ATORI	195														
AUCHAN	107	425													
	031	049	063	074	076	195	213	379	392	421					
AUDIOTON	050	076	379	392	421										
AUSIND	075	090	407												
AUTOVOX	050	071	078	079	080	083	090	147	156	236	254	305	319	323	
	324	379	407	413	416										
AWA	018	049	063	131	195	206	320	379	426	433					

TV

Brand	Code List													
AYOMI	411													
BAIRD	074	102	182	209	321	329	379	409						
BANG & OLUFSEN	324													
BARCO	107	355	371	372	422									
BASIC LINE	006	031	049	107	123	159	195	207	226					
BASTIDE	379													
BAUR	012	049	053	063	107	150	172	244	245	246	247	301	357	414
	416													
BAZIN	379													
BEKO	063	184	240	241	392	421	433							
BEON	049	063	163											
BEST	213	421												
BESTAR	049	063	421											
BINATONE	379													
BLACK STAR	413													
BLACKTRON	006													
BLACKWAY	006													
BLAUPUNKT	019	053	057	060	113	118	244	245	246	247	248	249	308	
BLUE SKY	006	049	063	123	195	232								
BLUE STAR	006													
BONDSTEC	413													
BOOTS	050	106	379											
BPL	006	049	063											
BRANDT	074	182	218	415	424	436								
BRANDT ELECTRONIQUE	029	034	074	182	186									
BRINKMANN	049	063	163											
BRION VEGA	049	063	065	083	167	172	173	181	196	324	356			
BRITANNIA	379													
BROTHER	076													
BRUNS	056	065	324											
BSR	094	107	110	139	168	314								
BTC	123													
BUSH	006	018	049	076	094	106	107	123	134	139	142	143	172	179
	195	209	223	225	226	232	239	307	379	416				
BUSH(UK)	107	147	168											
CAPSONIC	076													
CARAD	049	063												
CARENA	049	063	380											
CARREFOUR	018	406												
CARVER	177													
CASCADE	049	063	064	195										
CASIO	049	063												
CATHAY	049	063												
CCE	049	063	379											
CENTURION	049	063												
CENTURY	044	054	065	163	189	324	411	413						
CGE	002	044	054	090	093	094	096	107	139	142	163	168	189	
	369	407	413	421										
CIHAN	111													
CIMLINE	031	123	134	195										

TV

Brand	Code List													
CITY	195													
CLARIVOX	056	121	125	163	406									
CLATONIC	076	123												
CLATRONIC	031	045	049	063	076	113	123	195	225	379	407	413	421	431
CMS HIGHTEC	379													
COMTEL	111	125												
CONCORD	195													
CONDOR	006	045	049	050	063	113	163	195	210	379	413	421		
CONTEC	018	131	195	206	302	320	379							
CONTINENTAL EDISON	029	034	074	182	186	232	415	424						
COSMEL	195	213												
CROSELY	044													
CROSELY	054	065	090	093	094	104	107	139	324	407	413			
CROWN	049	063	154	163	170	195	209	232	372	407	419	421	431	
CS ELECTRONICS	031	123	379	413										
CTC	413													
CTC CLATRONIC	045													
CURTIS MATHES	126	190	212											
CYBERTRON	123													
DAENYK	042													
DAEWOO	063	123	140	145	161	193	195	379						
DAINICHI	123	379												
DANSAI	063	076	141	195	379									
DANSETTE	426													
DANTAX	392	421												
DATSURA	209													
DAWA	049	063												
DAYTRON	049	063	195	226										
DE GRAAF	023	107	122	139	209	307								
DECCA	049	063	102	106	111	120	200	331	379					
DECCA(UK)	046	050	102	106	131									
DEITRON	049	063												
DENKO	076													
DENON	126	212												
DER	321													
DERWENT	105													
DESMET	049	063	113											
DIAMANT	049	063												
DIGILINE	049	063												
DIXI	063	195	379	413										
DOMLAND	423													
DORIC	104	105												
DREAN	049	063												
DTS	195													
DUAL	049	050	063	095	107	139	156	168	182	242	243	379	414	416
	423	424												
DUAL-TEC	195	168	050	040										
DUMONT	045	065	080	102	139	146	319	324	339	341	375	379	406	408
DUMONT-FINLUX	020	045	061	075	078	091	104	117	147					
DUX	049	063	112											

TV

Brand	Code List													
DYNATRON	049	063												
ELBE	049	063	107	121	123	172	194	210	242	337	368	369	391	411
	421	435												
ELBIT	111													
ELCIT	045	046	047	062	065	104	107	150	168	324	413			
ELECTA	006	076												
ELECTRO TECH	195													
ELEKTA	006	076												
ELEKTRONSKA	318													
ELG	049	063												
ELIN	003	020	049	063	107	139	172	195	379	408	416			
ELITE	031	049	063	123										
ELMAN	045	168												
ELTA	076	195	379											
EMERSON	004	006	042	044	049	063	065	113	225	324	327	406	413	
EMPEROR	006													
ERRES	063	112												
ESC	049	063												
ETRON	049	063	107	139	195									
EURO-FEEL	076													
EUROMANN	049	063	076	379	421									
EUROPA	049	063												
EUROPHON	044	045	046	049	050	063	068	107	120	168	318	336	379	
	413													
EXPERT	107	236	242	425										
EXQUISIT	049	063	413											
FAMILY LIFE	049	063												
FENNER	063	195												
FERGUSON	001	032	050	073	074	076	080	082	102	103	121	158	182	204
	218	244	245	246	251	306	319	321	322	328	329	344	409	
	411	436												
FIDELITY	049	050	063	076	107	158	225	307	364	379				
FIDELITY(UK)	133													
FILSAI	050	379												
FINHER	359													
FINLANDIA	033	122	139	172	197	209	223	307	375	419				
FINLUX	003	020	042	045	049	061	063	075	078	080	090	091	102	104
	107	117	139	146	147	163	197	210	235	319	324	339	341	
	375	379	406	407	408	428	429	437						
FIRST LINE	049	063	094	102	107	134	139	191	195	209	210	379	411	
	413	416												
FISHER	019	041	050	056	065	102	104	107	117	139	143	156	172	
	189	206	209	320	324	379	408	414	416	421				
FLINT	031	049	063	102	123	379	380							
FNR	045													
FORGESTONE	158													
FORMENTI	090	107	113	139	307	324	379	407						
FORMENTI-PHOENIX	050	075	104	113	148	307								
FORTRESS	190	324												
FRABA	049	063	421											

TV

Brand	Code List													
FRIAC	045	049	063	195										
FRONTECH	076	139	195	307	379	413	416							
FUJITSU	042	045	102	107	195	236	327	379						
FUJITSU GENERAL	195	379												
FUNAI	042	076	094	314	327									
GALAXI	045	049	063											
GALAXIS	045	049	063	163	421									
GBC	031	104	107	139	143	168	195							
GE	006	074	182	218										
GEANT CASINI	107	425												
GEC	049	063	102	104	107	120	171	172	192	307	379	416		
GEC(UK)	046	050	102	107	150	162	192							
GELOSO	031	047	062	104	107	139	168	171	195	307	413			
GENERAL	064	074	182											
GENERAL TECHNIC	195													
GENEXA	049	063	123	307	426									
GOLDHAND	379													
GOLDLINE	213													
GOODMANS	018	042	063	076	102	134	139	141	143	155	182	195	218	225
	232	379	428											
GORENJE	124	189	421											
GPM	123													
GRADIENTE	049	063	170	177										
GRAETZ	049	063	090	104	136	139	153	159	162	171	172	198	225	307
GRANADA	013	018	033	041	063	102	104	105	112	120	148	164	165	171
	209	218	237	238	240	241	252	307	325	363	379	407	418	419
GRANADA(UK)	046	050	090	107	139	143	162	307						
GRANDIN	006	031	049	063	107	113	123	195	379	380	425	431	435	
GRONIC	045													
GRUNDIG	005	019	049	053	063	080	090	101	115	118	166	232	244	245
	246	247	248	249	308	340	341	406	407					
HALIFAX	076	379												
HAMPTON	379													
HANIMEX	094													
HANSEATIC	006	018	049	050	063	094	104	107	113	143	172	195	324	379
	391	416	421	423										
HANTAREX	045	046	049	063	195									
HANTOR	049	063												
HARLET DAVIDSON	042													
HARWOOD	049	063	195	426										
HAUPPAUGE	049	063												
HCM	006	031	049	063	076	123	163	195	379	426				
HEMA	195	379												
HEMMERMANN	150	416												
HIFIVOX	029	034	074	182	186	304	424							
HIGASHI	050													
HIGHLINE	049	063	076											
HIKONA	123													
HINARI	004	018	042	049	066	094	107	119	123	133	134	139	143	179
	195	209	232	307	327									

TV

Brand	Code List													
HISAWA	006	031	123	380	425									
HIT	342													
HITACHI	007	009	018	020	023	033	049	050	063	074	086	102	104	107
	110	126	127	139	143	150	162	168	171	176	182	185	186	192
	212	218	231	304	307	309	315	333	334	344	361	379	416	418
HITASHI FUJIAN	013	164	252											
HITSU	123	195	379											
HORNYPHON	049	063	112											
HOSHAI	123	379												
HUANYU	379													
HYGASHI	379													
HYPER	050	168	195	254	361	379	416							
HYPERSONIC	172													
HYPSON	006	049	063	076	379	380	411	425						
IBERRIA	049	063												
ICE	049	063	076	123	195	225	379							
ICES	123	379												
IMPERIAL	002	044	049	054	063	090	093	094	107	142	163	168	189	301
	307	369	407	413	416	421								
INDIANA	049	063												
INGELEN	090	104	136	139	153	159	162	171	198	232	435			
INGERSOL	195													
INNAVATION	049	063												
INNO HIT	044	046	049	050	063	066	102	123	155	195	217	379	407	413
INTERACTIVE	210													
INTERBUY	076	195	413											
INTERFUNK	049	063	065	067	074	090	104	107	112	139	150	153	159	172
	182	301	302	324	363	421								
INTERVISION	006	045	049	055	063	076	107	123	225	232	378	379	380	381
	382	384	385	386	387	388	389	413	421	423				
IRRADIO	031	049	063	066	075	090	123	155	195	254	407	413		
ISUKAI	006	049	063	123										
ITC	379													
ITS	006	031	049	063	076	123	225	379						
ITT	042	090	107	117	134	139	150	157	159	162	165	171	172	193
	197	198	209	301	307	343	350	375	416	428				
ITT-NOKIA	042	090	097	104	107	117	134	136	139	150	153	159	162	165
	171	172	185	193	197	198	209	301	307	343	350	375	416	428
	433	435	437											
ITV	049	063	076	413										
JEAN	018													
JEC	141													
JET POINT	365													
JVC	018	103	123	129	143	158	170	174	182	225	364	409	433	
KAISUI	006	031	049	050	063	123	195	207	379	380				
KAMOSONIC	050													
KAMP	379													
KAPSCH	107	172	236	242	408									
KARCHER	003	006	020	031	045	049	050	063	068	076	107	195	207	217
	421	435												

TV

Brand	Code List													
KATHREIN	124													
KAWASHO	379													
KB ARISTOCRAFT	107													
KENDO	044	045	049	055	063	134	172	210	413	421	435			
KENNEDY	071	079	104	107	139	236	305	323	369					
KINGSLEY	379													
KLARMAX	371	372												
KNEISSEL	049	063	210	242	369	391	411	421	435					
KOLSTER	045	049	063	416										
KONKA	031	049	063	123	225	232								
KORPEL	049	063												
KORTING	027	065	094	113	324	421								
KOSMOS	049	063												
KOTRON	076	426												
KRANKING	411													
KRIESLER	050	063	065	079	112	158	160	188						
KTV	050	379												
KYOSHU	076	163												
KYOTO	107													
KYUSHU	426													
LECSON	049	063												
LEMAIR	210													
LENCO	049	063	107	195	408									
LENOIR	050	195												
LESA	413													
LEYCO	049	063	076	094	102	431								
LEYEO	076													
LG(GOLDSTAR)	023	049	050	055	063	107	139	152	155	168	172	195	202	203
	219	254	379	413	421									
LIESENKOTTER	049	063	112											
LIFETEC	049	063	076	123	195									
LLOYD'S	195													
LOEWE	049	063	089	324	391	421								
LOEWE OPTA	035	046	049	052	063	065	120	144	213	324				
LOGIC	331													
LOGIK	032	131	158	225	364									
LOGIX	195													
LUMA	063	107	110	133	171	172	195	210	236	242	307			
LUMATRON	049	063	076	107	172	236	242	329	379					
LUX MAY	049	063	195											
LUXOR	042	050	090	107	122	127	133	139	150	155	159	165	172	185
	197	209	307	312	330	416	418	428	429					
LYCO	076													
M ELECTRONIC	003	235	375											
MAAZ	371	372												
MACROMAXX	049	063	195											
MADISON	049	063												
MAGNADYNE	045	046	047	062	065	104	107	120	139	150	168	318	324	413
MAGNAFON	045	046	050	068	075	090	120	235	336	379	407			
MAGNAVOX	018	042	049	063										

TV

Brand	Code List													
MANDOR	076													
MANESTH	063	076	094	113	134	141	379							
MANHATTAN	049	063	195											
MARANTZ	063													
MARELLI	324													
MARK	063	195	379											
MASUDA	123	195	225											
MATSUI	001	004	018	041	049	050	063	094	100	102	106	107	131	134
	141	143	150	171	179	180	195	209	218	225	229	232	244	245
	246	307	314	331	379	380	416	431						
MAXIMAL	119	139												
MAXWELL	371	372												
MCMICHAEL	192													
MEDIATOR	049	063	112											
MEDION	049	063	195											
MEGAS	435													
MEGATRON	125	212												
MELECTRONIC	003	049	063	074	182	195	210	375	379	408	413	416	428	429
MELVOX	425													
MEMOREX	099	195												
MEMPHIS	102	195	213											
MERCURY	049	063	195											
METZ	019	049	051	053	065	067	070	092	118	244	245	246	247	324
MINERVA	019	053	080	090	118	232	244	245	246	247	248	249	340	341
	406	407												
MINOKA	049	063	419	426										
MISTRAL	158													
MITSUBISHI	013	018	019	021	049	063	065	105	124	131	132	143	157	164
	183	190	244	245	246	252	326	330	331					
MIVAR	043	046	050	058	072	081	090	120	155	318	337	379	391	407
	421	434												
MONACO	195													
MORGAN'S	049	063												
MOTION	407													
MOTOROLA	190													
MTC	049	063	379	416	421									
MTEC	106													
MULTISTANDARD	045													
MULTITEC	049	063	195											
MULTITECH	031	045	046	049	050	063	120	189	195	379	392	413	416	421
MURPHY	102	104	105	107	117	171	254	307	379	408				
MURPHY(UK)	162													
MUSIKLAND	123													
NAD	172	209												
NAIKO	049	063												
NAKIMURA	049	063												
NAONIS	036	040	071	079	110	171								
NAT	085	149	151											
NATIONAL	033	085	104											
NEC	018	049	063	113	131	143	177	195	379	380				

TV

Brand	Code List													
NECKERMANN	002	012	049	050	063	107	133	139	163	180	189	210	247	
	250	307	312	324	357	379	413	416	421					
NEI	063	125	225											
NESCO	042	413												
NETIATOR	063													
NETSAT	049	063												
NETWORK	213													
NEUFUNK	049	063	195	435										
NEW WORLD	123													
NEWTECH	049	050	063	182	195	379								
NICAMAGIC	379													
NIKKAI	018	049	063	076	102	123	139	141	195	213	379			
NIKKIA	066													
NOBLEX	049	063	076	359	360									
NOBLIKO	044	045	050	075	080	090	235	379	406	407				
NOGAMATIC	029	034	074	182	186	424								
NOKIA	090	104	107	117	134	136	139	150	153	157	159	162	165	171
	172	193	197	198	209	301	307	330	343	350	416	419	428	429
	433	437												
NORDMENDE	017	029	034	038	049	063	074	083	130	150	165	174	182	186
	218	244	245	246	304	307	333	334	424					
NOVATRONIC	003	020	049	063										
OCEANIC	086	094	104	107	108	109	116	139	159	172	209	425		
OCEANIC(F)	150													
ODEON	076													
OKANO	049	063	076	102	421									
OMEGA	076													
ONCEAS	050													
ONWA	031	123	225	432										
OPERA	049	063												
OPTIMUS	099	315												
OPTONICA	190													
ORBIT	049	063												
ORION	004	042	045	049	051	063	076	094	113	131	134	139	150	179
	191	195	199	216	314	331	366	367	426					
ORLINE	049	063	123											
ORMENTI-PHOENIX	104													
ORMOND	195													
OSAKA	066													
OSAKI	049	063	066	076	102	106	123	379	426					
OSIO	049	063	155											
OSO	123													
OSUME	018	102	123	302										
OTTO VERSAND	012	018	049	050	053	063	074	094	104	107	113	134	139	143
	172	190	244	245	246	247	250	312	357	362	379	413	414	416
P.T ACTRON	111													
PAEL	050	075	379											
PALLADIUM	012	049	063	107	163	210	247	324	357	379	413	416	421	
PALSONIC	049	055	063	076	379	426								
PANAMA	049	063	076	195	379	413								

TV

Brand	Code List													
PANASONIC	049	063	099	104	107	137	139	149	151	172	397	398	400	401
	405													
PANAVISION	049	063	210											
PATHE CINEMA	107	113	121	379	391	411	416	425						
PATHE CINEMA(F)	050	168												
PATHE MARCONI	029	034	074	182	186	415	424							
PAUSA	195													
PAUZA	195													
PERDIO	049	063	102	107	113									
PERFEKT	049	063												
PERSHIN	425													
PHILCO	002	016	044	049	054	063	065	090	093	094	104	107	126	142
	163	168	189	212	324	369	407	413	421					
PHILHARMONIC	379													
PHILIPS	015	022	049	050	063	065	079	089	111	112	157	158	160	175
	182	188	192	215	217	220	221	247	250	313	324	337	342	350
	363	374	427											
PHOENIX	049	050	063	075	102	104	107	113	148	324	379	392	421	
PHONOLA	022	050	063	065	079	112	158	160	188	250	324	379		
PILOT	049	063												
PIONEER	049	063	074	172	182	209	218	227	307	421	427			
PIONIER	392	421												
PLANTRON	049	063	076	195										
PLASONIC	379													
POLICOM	074													
POPPY	195													
POWERPOINT	232													
PRANDONI-PRINCE	044	046	075	090	120	171	172	307	407	413				
PRECISION	379													
PREMIER	142													
PRIMA	076	195	307											
PRINCE	044	046	075	171										
PRINZ	102	185	416											
PROFEX	107	139	195											
PROFI-TRONIC	045	049	063											
PROLINE	030	049	102	112	191	366	436							
PROSONIC	049	063	085	149	151	195	225	379	421	431				
PROTECH	045	063	076	139	163	195	379	416	416					
PROVISION	049	063												
PYE	050	063	065	079	112	157	158	160	188	250				
PYMI	049	063	112	195	324									
QUADRA VISION	425													
QUASAR	045	046	068	075	099	155	413							
QUELLE	003	018	019	020	049	050	053	063	074	075	076	078	080	090
	091	094	113	115	117	118	131	139	146	147	150	153	155	172
	195	206	235	244	245	246	247	254	301	319	320	340	341	379
	406	408	413	416										
QUESTA	018													
RADIALVA	049	063	074	107	123									
RADIO SHACK	049	063												

TV

Brand	Code List													
RADIOLA	050	063	065	079	112	158	160	188	250	342				
RADIOMARELLI	045	046	047	062	063	065	104	105	168	324	413			
RADIONETTE	003	020	117	150										
RADIOTONE	049	063	076	163	195	421	426	431						
RAMK	341													
RANDT	029													
RANK	147	406												
RBM	341													
RBM(UK)	147													
RCA	190	218	436											
RECOR	049	063												
RECTILIGNE	049	063												
REDIFFUSION	018	059	105	139	171	172	307	343						
REDIFFUSION(UK)	150	162												
REDIFUSION	104	105												
REDSTAR	049	063												
REFLEX	049	063												
REVOX	049	063	421											
REX	036	040	063	071	079	095	107	110	171	210	236	242	243	305
	307	323	338	413										
RFT	076	102	390	391	392	393	394	395	421					
RHAPSODY														
R-LINE	049	063												
ROADSTAR	031	049	063	076	163	195								
ROBOTRON	056	065	324											
RODEX	049	063												
ROTEL	302													
ROWSONIC	050													
ROYAL LUX	421	426												
RTF	056	065												
SABA	014	017	029	034	038	046	065	074	077	107	120	133	139	172
	182	186	218	304	307	324	333	334	424	436				
SACCS	121													
SAGEM	006	380	435											
SAISHO	004	050	076	084	107	131	132	134	179	195	233	307	330	331
	379													
SALORA	033	075	107	127	133	136	139	148	150	153	171	172	185	198
	209	301	307	312	416	418	419							
SAMBERS	045	046	068	075	090	120	155	336	407					
SAMSUNG	050	063	066	076	102	155	189	195	217	359	360	365	379	421
SANDRA	379													
SANELA	411													
SANSUI	049	063	225											
SANTON	195													
SANYO	003	018	020	041	049	050	056	063	065	102	107	117	131	143
	189	195	198	201	206	209	302	320	325	331	351	379	391	408
	421													
SAVE	049	063												
SBR	063	112	157	185	192	313								
SCHAUB LORENZ	090	104	136	139	153	159	162	171	198	307	416	433		

TV

Brand	Code List													
SCHNEIDER	031	040	050	063	065	069	079	095	104	107	112	114	139	148
	156	158	160	168	172	182	188	195	225	242	243	250	307	
	328	342	379	413	414	416	423							
SCOTT	042	327												
SEARS	042													
SEG	018	045	049	050	056	063	076	107	172	195	232	379	413	
SEI	004	045	049	051	063	094	107	139	236	314	324	357		
	416													
SEL SINUDYNE	250													
SELECO	036	040	063	071	095	107	110	171	172	210	236	242	243	
	305	307	323	338	339	369								
SENCORA	195													
SENTRA	123	139	141	195										
SERINO	380	435												
SHARP	018	094	143	170	190	206	214	302	362	364				
SHORAI	042	094												
SIAM	049	063												
SIAREM	045	046	065	104	107	120	139	324						
SICATEL	121													
SIEMENS	003	018	019	023	049	053	063	066	113	118	206	244	245	246
	247	248	249	302	307									
SIERA	050	063	065	079	112	158	160	188						
SIERRA	049	063	112											
SIESTA	421													
SILVA	049	063	379											
SILVER	018	042	049	063	076	172								
SINGER	045	047	049	063	065	104	195	324	369	413	425			
SINUDYNE	004	031	045	051	063	065	094	104	107	134	139	150	172	210
	216	266	314	324	357	366	367	416						
SKANTIC	307	418												
SKGERA	113													
SKY	049	063												
SOLAVOX	066	102	107	123	139	172	307							
SONITRON	209	379	421											
SONNECLAIR	049	063												
SONOKO	006	050	063	076	195	379								
SONOLOR	012	107	139	159	172	209	357	425						
SONTEC	049	063	094	421										
SONY	012	018	028	045	131	143	204	208	211	331	357	358	370	
SOUND & VISION	031	045	123											
SOUND WAVE	049	113	163											
SOUNDESIGN	042													
SPECTRA	195													
SSANGYONG	195													
STANDARD	049	050	063	113	123	195	379							
STENWAY	006	031	123											
STERN	036	040	063	071	079	095	107	110	171	266	242	243	305	307
	323	338												
STRAIGHT	049	063	076	107	195									
STRATO	049	063	076	195										

TV

Brand	Code List													
SUNKAI	049	063	094	123	134	179	191	232	314	367				
SUNSTAR	049	063	195	225	431									
SUNWOOD	049	063	195											
SUPERLA	379													
SUPERTECH	049	063	123	195	379									
SUPRA	195													
SUSMU	218													
SUTRON	195													
SWISSLINE	413													
SYDNEY	379													
SYTONG	425													
TACTUS	106													
TANDBERG	065	074	078	172	182	210	213	304						
TANDY	050	096	102	123	190	307	379	413						
TASHIKO	018	050	107	143	177	192	201	379	419					
TATUNG	049	050	063	102	106	111	120	131	200	253	331	379		
TEAC	049	063	076	195	380	416	426							
TEC	040	050	064	168	195	213	218	242	243	379	413			
TECH LINE	049	063	195											
TECHICA	123													
TECHINEMA	113													
TECHNICS	099	315												
TEDELEX	379													
TEIRON	195													
TEKNIKA	042	327												
TELEAVIA	029	034	074	182	186	415	424							
TELECOR	049	063	107	123	242	379	423							
TELEFUNKEN	032	049	063	064	074	082	182	186	187	218	392	424	436	
TELEFUSION	049	063												
TELEGAZI	049	063	076	107	123	242								
TELEMEISTER	049	063	113											
TELESONIC	049	063												
TELESTAR	049	063												
TELETECH	049	063	195	213	413									
TELETON	018	067	107	236	242	379	416							
TELEVIDEON	050	075	104	107	113	148	379							
TELEVISIO	425													
TEMCO	094													
TEMPEST	049	063	195											
TENNESSEE	049	063												
TENSAI	003	020	050	055	063	094	113	117	123	195	225	379	408	413
TETUNG	046													
TEVION	049	063	195											
TEXET	050	195	379											
THOMSON	008	010	017	024	029	034	049	063	064	074	134	147	174	182
	186	218	230	234	304	309	333	334	415	424	436			
THORN	049	053	063	106	141	185	218	222	321	329	408	409	411	
	419													
THORN-FERGUSON	032	073	074	076	080	082	103	121	158	306	319	321	322	328
	329	357	358	364	375									

TV

Brand	Code List														
THRON	117														
TMK	143														
TOKAI	049	063	102	107	195	213	379								
TOKYO	141	379													
TOMASHI	006	031	123												
TOSHIBA	001	018	045	128	141	143	147	205	341	369	379	406			
TOWADA	045	379	416												
TOYODA	195														
TRAKTON	076														
TRANS CONTINENS	044	046	049	063	075	171	307	379							
TRANSONIC	049	063	380												
TRANSTEC	379														
TRIDENT	379														
TRISTAR	123	364													
TRIUMPH	044	046	049	063	128	147	197	235	339	375					
UHER	049	063	069	080	090	113	147	148	163	236	242	307	392	407	
	414	421													
ULTRAVOX	044	045	047	049	050	063	065	104	107	133	139	324	379	413	
UMA	305														
UNIC LINE	049	063	165												
UNITED	049	063													
UNIVERSUM	003	004	012	018	020	049	063	074	076	094	107	131	155	163	
	165	172	195	202	206	210	213	235	244	245	246	320	357	375	
	379	406	407	408	413	416	421	428	429	437					
UNIVOX	049	063	107	121	213	324	409	411							
UTAX	050														
VEGAVOX	163														
VESTEL	049	063	107	125	364	379									
VEXA	063	195													
VICTOR	174														
VIDEO SYSTEM	049	063													
VIDELOGIQUE	031	123	379												
VIDEOTECHNIC	113	379													
VIDEOTON	107	418													
VIDIKRON	045														
VIDTECH	018														
VIPER	213														
VISIOLA	379														
VISION	049	063	113												
VISTAR	172	236													
VOLTEC	074														
VORTEC	063														
VOXSON	049	063	065	090	163	171	307	324	407						
WAGAVOX	195														
WALTHAM	049	063	163	182	307	379	418								
WATSON	049	063	107	113	123	195	244	245	246	423	431				
WATT RADIO	045	050	068	104	107	121	139	150	336	379	416				
WEGA	018	049	063	139	143	324									
WEGA COLOR	065	088													
WELTBlick	063	113													

TV

Brand	Code List													
WESTINGHOUSE	063	094												
WESTON	168													
WHARFEDALE	049	063												
WHITE	045													
WHITE WESTINGHOUSE	049	050	063	113	213	379								
WINCO	426													
WINDSTAR	006													
WINTERNITZ	361													
XRYPTON	049	063												
YAMISHI	006	049	063	123	379	380								
YOKAN	049	063												
YOKO	049	050	063	076	123	195	379	413	421					
YORX	123													
ZANUSSI	036	040	063	071	079	095	110	171	236	305	307	323	338	379
ZOPPAS	036	040	071	079	110	171	307							

DVD

Brand	Code List														
3 DLAB	072														
ADCOM	082	092	225	161	023	148	149								
AIWA	075	170	018	104	202	203	213	211	188						
AKI	189														
ALBA	087														
AMSTRAD	085														
ANTHEM	127	128													
ARCAM	141	255													
ATLANTIC TECHNOLOG	134														
A-TREND	086														
AUDIO_FILE	071														
B&K	096	097													
BLUE SKY	080														
BOSE	070	170	224	147	227	199									
BOSTON_ACOUSTICS	246														
BUSH	078	079	082	085											
CARVER	006	028	061	071	201	214	226	185	022	077	050				
CINE ULTRA	082														
CLARION	026														
CYBER HOME	086														
DAEWOO	083														
DELPHI	251														
DENON	002	019	022	034	051	109	215	230	234	002	121	133			
DENVER	082														
DENZEL	077														
DIGITOR	079														
DIVIDO	083														
DUAL	076	077													
ELAN	057	090													
ELTA	079														
ENZER	077														
ESCIENT	229														
FISHER	047	214	182												
FLEXTRONICS	207														
FOSGATE_AUDIONICS	231	134													
GE	003	004													
GOLDSTAR	008														
GRUNDIG	072	080													
HARMAN KARDON	001	066	231	233	153	154	118	119							
HITACHI	077	020													
INTEGRA	029														
JMB	080														
JVC	006	163	191	114	034	091									
KENWOOD	005	007	026	034	037	043	050	066	069	145	182	192	196	252	
KISS	077														
KLH	123														
KRELL	150	072	197	222											
LAWSON	083														
LECSON	081														
LENCO	082														

DVD

Brand	Code List													
LEXICON	120	235	236	237	159	160								
LG(GOLDSTAR)	005	055	064	070										
LIFETEC	076													
LINN	124	206												
LOGIX	083													
LUXMAN	137	139	052	165	115	004	009							
MAGNAVOX	009	033	056											
MAGNAVOX	086	164	152	208										
MANHATTAN	083													
MARANTZ	033	059	072											
MARANTZ	006	028	031	040	063	185	186	015	056					
MATSUI	076	080												
MCINTOSH	238	053												
MEDION	076	083												
MERIDIAN	100	012	013											
MICROMEDIA	009													
MICROMEGA	072													
MINOWA	083													
mitsubishi	023	036	242	243	204									
MONDIAL	157	158	042	043	081	112								
MONYKA	077													
MYRYAD	030	099												
NAD	010	062												
NAD	186	113	038	216	210									
NAKAMICHI	111	244	245	172	183	054								
NEUFUNK	077													
NILES	241													
NIRO	135													
ONKYO	009	015	048	029	017	046	108	080	209					
OPTIMUS	050	026	041											
ORION	080													
ORITRON	076													
OUTLAW	134													
PANASONIC	024	025	030	034	035	044	052	032	195	219	177	098	221	
PARASOUND	129	130	132	003	103	105	125	126						
PEALISTIC	019	073	075											
PHILIPS	009	033	056	072	249	250	063							
PHONOTREND	082													
PIONEER	010	012	020	038	041	046	065	072	074	014	039	044	069	168
	116	035	078											
POLKAUDIO	251													
PROCEED	144	021												
PROLINE	076													
PROSCAN	003	004	037											
PROVISION	082													
RAITE	077													
RCA	003	004	018	037	010	048	117	156	067	055				
REC	034	078												
REVOY	082													
ROADSTAR	078	079	082											

DVD

Brand	Code List													
ROTEL	074	083	085											
RUSSOUND	223	239												
SAMSUNG	016													
SANSUI	080	040	048	110	065	228	063							
SANYO	047	059												
SCAN	083													
SCHNEIDER	076													
SCOTT	019													
SEG	077	085												
SHARP	021	028	050	026	094	131	175							
SHERWOOD	024	102	106	246										
SHINCO	087													
SM ELECTRONIC	079													
SONY	015	029	043	045	067	018	247	248	166	101	184	218	025	179
	180	220												
SOUDSIGN	036													
STANDARD	076													
SUNFIRE	142	143	146											
TEAC	087	005	019	049	111	212	217							
TECHINICS	122	193	219	178	177	200	254	007	034					
TENSAI	076	079												
TEVION	076													
THETA_DIGITAL	136													
THOMSON	003	004	073											
TOKAI	077													
TOKIWA	083													
TOSHIBA	009	010	033	057	058	060	087	033						
TV PROJECT	008													
UNIVERSUM	085													
WALKVISION	087													
WESDER	082													
WHARFEDALE	081													
YAMAHA	016	017	030	034	063	026	253	169	067	173	205	011	232	089
	027	051	181											
YAMAKAWA	077	084												
ZENITH	005	009	033	055	064	083								

Media PC Controls

Brand	Code List												
DELL	194	190											
GATEWAY	194	190											
HP	194	190											
SONY	194	190											
TOSHIBA	194	190											
WINBOOK	194	190											

XM Radios

Brand	Code List												
DELPHI	251												
KENWOOD	252												
POLKAUDIO	251												
SOLY	220												

IX. Service

Service address of this receiver:

COMAG Handels AG

Zillenhardtstr. 41

73037 Göppingen

Germany

Service-Hotline: +49 (0) 7161 5030666

Email: technik@comag-ag.de

Dear customer,

as experience has shown, a lot of complaints can be solved easily by calling the service-hotline. If you have problems with this device, please contact our service-hotline. By this way, you can save a lot of time and trouble. Our service-hotline will inform you about the procedure of further steps if there is a defect.

X. Glossary

8PSK	8-PSK is usually the highest order PSK constellation deployed. With more than 8 phases, the error-rate becomes too high and there are better, though more complex, modulations available such as quadrature amplitude modulation (QAM). Although any number of phases may be used, the fact that the constellation must usually deal with binary data means that the number of symbols is usually a power of 2 — this allows an equal number of bits-per-symbol.
CAM	Conditional Access Module is an electronic device, usually incorporating a slot for a smart card, which equips an Integrated Digital Television or set-top box with the appropriate hardware facility to view conditional access content that has been encrypted using a conditional access system. They are normally used with direct broadcast satellite (DBS) services.
Composite Video	<p>Composite video is the format of an analog television (picture only) signal before it is combined with a sound signal and modulated onto an RF carrier. Composite video is often designated by the CVBS acronym, meaning 'Color, Video, Blank and Sync'. In German (with PAL being a German invention by Telefunken's Walter Bruch) the abbreviation FBAS (Farbe-Bild-Austastung-Synchron) means the same.</p> <p>It is usually in standard formats such as NTSC, PAL, and SECAM. It is a composite of three source signals called Y, U and V (together referred to as YUV) with sync pulses. Y represents the brightness or luminance of the picture and includes synchronizing pulses, so that by itself it could be displayed as a monochrome picture. U and V represent hue and saturation or chrominance; between them they carry the color information. They are first modulated on two orthogonal phases of a color carrier signal to form a signal called the chrominance. Y and UV are then combined. Since Y is a baseband signal and UV has been mixed with a carrier, this addition is equivalent to frequency-division multiplexing.</p>
Conditional Access System	Several companies provide competing Conditional Access Systems; Irdeto Access, Nagravision, Conax, Viaccess, Verimatrix and NDS are among the most commonly used CAS systems.
DiSEqC	Stands for Digital Satellite Equipment Control. It is a special communication protocol for use between a satellite receiver and a device such as a multi-dish switch or a small dish antenna rotor. DiSEqC was developed by European satellite provider Eutelsat, which now acts as the standards agency for the protocol.
Dolby Digital	<p>Dolby Digital is the common version containing up to six discrete channels of sound. The most elaborate mode in common usage involves five channels for normal-range speakers (20 Hz - 20,000 Hz) (right front, center, left front, right rear and left rear) and one channel (20 Hz - 120 Hz allotted audio) for the subwoofer driven low-frequency effects. Mono and stereo modes are also supported.AC-3 supports audio sample-rates up to 48 kHz.</p> <p>* Dolby Digital</p>

	<p>* DD (an abbreviation for Dolby Digital, often combined with channel count; for instance, DD 2.0, DD 5.1)</p> <p>* AC-3 (Audio Codec 3, Advanced Codec 3, Acoustic Coder 3).</p>
EPG	<p>Electronic Program Guide is a digital guide to scheduled broadcast television or radio programs, typically displayed on-screen with functions allowing a viewer to navigate, select, and discover content by time, title, channel, genre, etc. by use of their remote control, a keyboard, or other input devices such as a phone keypad. Content can also be scheduled. The on-screen information may be delivered by a dedicated channel or assembled by the receiving equipment from information sent by each program channel.</p>
eSATA	<p>A variant of SATA meant for external connectivity with the following characteristics: * Minimum transmit potential: Range is 500-600 mV. * Minimum receive potential: Range is 240-600 mV. * Identical protocol and logical signaling (link/transport-layer and above), allowing native SATA devices to be deployed in external enclosures with minimal modification.</p>
FEC	<p>Stands for Forward Error Correction. This is a system of error control for data transmission, whereby the sender adds redundant data to its messages, also known as an error-correction code. This allows the receiver to detect and correct errors (within some bound) without the need to ask the sender for additional data. The advantages of forward error correction are that a back-channel is not required and retransmission of data can often be avoided (at the cost of higher bandwidth requirements, on average).</p>
HDMI	<p>Stands for High-Definition Multimedia Interface. It is a compact audio/video interface for transmitting uncompressed digital data. HDMI connects digital audio/video sources—such as set-top boxes, Blu-ray Disc players, personal computers (PCs), video game consoles (such as the PlayStation 3 and some models of Xbox 360), and AV receivers—to compatible digital audio devices, computer monitors, and digital televisions. As an uncompressed connection, HDMI is independent of the various digital television standards used by individual devices, such as ATSC and DVB, as these are encapsulations of compressed MPEG video streams (which can be decoded and output as an uncompressed video stream on HDMI).</p>
LNB	<p>Stands for Low-Noise Block converter. This is the (receiving, or downlink) antenna of what is commonly called the parabolic satellite dish commonly used for satellite TV reception. The LNB is usually fixed on or in the satellite dish. The purpose of the LNB is to take a wide block (or band) of relatively high frequencies, amplify and convert them to similar signals carried at a much lower frequency (called intermediate frequency or IF). These lower frequencies travel through cables with much less attenuation of the signal, so there is much more signal left on the satellite receiver end of the cable. It is also much easier and cheaper to design electronic circuits to operate at these lower frequencies, rather than the very high frequencies of satellite transmission.</p>
PID	<p>Stands for Packet Identifier. This is a set of numbers identifying stream packets contained within a single data stream</p>
Polarization	<p>The orientation of the electrical and magnetic fields of a signal. Satellites use</p>

	mainly vertical and horizontal polarization.
S/PDIF	Stands for Sony/Philips Digital Interconnect Format. A common use for the S/PDIF interface is to carry compressed digital audio as defined by the standard IEC 61937. This mode is used to connect the output of a DVD player to a home theater receiver that supports Dolby Digital or DTS surround sound. Another common use is to carry uncompressed digital audio from a CD player to a receiver. This specification also allows for the coupling of personal computer digital sound (if equipped) via optical or coax to Dolby or DTS capable receivers.
Smartcard	A pocket-sized card with embedded Integrated Circuits which can process data. It can receive input which is processed and delivered as an output. The card may embed a hologram to avoid counterfeiting. It is used for accessing encrypted TV channels or services.
Teletext	A television information retrieval service developed in the United Kingdom in the early 1970s. It offers a range of text-based information, typically including national, international and sporting news, weather and TV schedules. Subtitle (or closed captioning) information is also transmitted in the teletext signal, typically on page 888 or 777.
YPbPr	<p>A color space used in video electronics, in particular in reference to component video cables. YPbPr is the analog version of the YCBCR color space; the two are numerically equivalent, but YPBPR is designed for use in analog systems whereas YCBCR is intended for digital video. YPbPr is commonly called 'component video', but this is a misnomer, as there are many other types of component video (mostly RGB with sync either on green or one or two separate signals).</p> <p>YPbPr is converted from the RGB video signal, which is split into three components, Y, PB, and PR.</p> <ul style="list-style-type: none"> * Y carries luma (brightness) and sync information. * PB carries the difference between blue and luma (B-Y). * PR carries the difference between red and luma (R-Y). <p>Sending a green signal would be redundant, as it can be derived using the blue, red and luma information.</p>