HD Digital Television Recorder

User's Manual

HDR-7500T

The default password is 0000.

HUMAX

Notice

Thank you for purchasing a HUMAX product. Please read this user's manual carefully to be able to safely install, use and maintain the product at maximum performance. Keep this user's manual next to your product for future reference. The information in this user's manual is subject to change without notice.

Copyright (Copyright © 2011 HUMAX Corporation)

Not to be copied, used or translated in part or whole without HUMAX's prior consent in writing except approval of ownership of copyright and copyright law.

The Copyright Act 1968 only permits to copy broadcasts for Private and Domestic purposes in limited circumstances. Humax does not authorise any use of this feature in any way which may amount to a breach of any law or the rights of the owner of copyright in film or broadcast.

Warranty

The warranty does not cover parts which may become defective due to misuse of the information contained in this manual.

Meaning of Symbols

To reduce the risk of electric shock, do not remove cover (or back). No user serviceable parts inside. Refer servicing to qualified service personnel.

This symbol indicates dangerous voltage inside the product that presents a risk of electric shock or personal injury.

This symbol indicates important instructions accompanying the product.

Warnings, Cautions and Notes

Throughout the whole manual, pay special attention to the following marks that indicate hazardous situations.

Warning
Indicates a hazardous situation which could result in serious injury.

Caution
Indicates a situation which could damage the equipment or other apparatus.

Notice

Note
Indicates additional information to make the user aware of possible problems and information of any importance to help understand, use and maintain the installation.

Disposal Instructions

This product should not be disposed with other household 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 prevent possible harm to the environment or human health from uncontrolled waste disposal.

Trademarks

- Manufactured under license from Dolby Laboratories.
  Dolby and the double-D symbol are trademarks of Dolby Laboratories.
- HDMI, the HDMI Logo, and High-Definition Multimedia interface are trademarks and registered trademarks of HDMI Licensing LLC.

This item incorporates copy protection technology that is protected by U.S. patents and other intellectual property rights of Rovi Corporation. Reverse engineering and disassembly are prohibited.

IceTV's free trial, discounted annual subscription, life-time subscription, and other offers from time to time are provided by IceTV only. Humax is not responsible for fulfillment of any of these offers and will not accept liability for any loss, financial or otherwise, associated with the acceptance of any of these offers. Humax also does not make any representations or warranties, express or implied, in respect of the offers or such services.
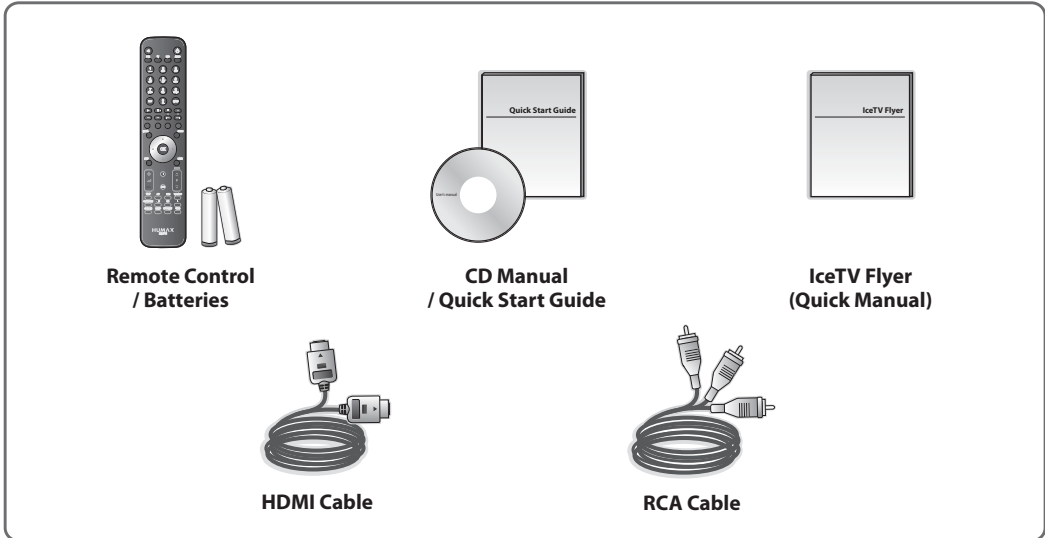
Contents

Quick Start Guide

1. Checking Accessories

Remote Control / Batteries

CD Manual / Quick Start Guide

IceTV Flyer (Quick Manual)

HDMI Cable

RCA Cable

Note: The accessories may vary according to area.

2. Product Overview

Front Panel

STANDBY
Switches between operation and standby modes.

VOL+/-

P+/-

USB Port
Connect a USB storage device.
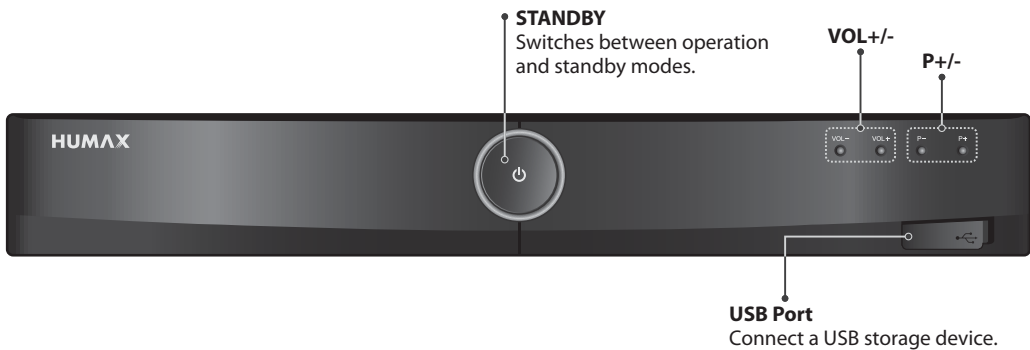
Note: The image shown may differ from the actual product.

Quick Start Guide

Rear Panel

ANTENNA IN
Connect to TV antenna.
ANTENNA OUT
Connects to the TV or VCR using an RF cable.

COMPONENT(YPbPr) OUT
Connects to the TV or VCR using a component cable.

ETHERNET
Service port
USB Port
Connect a USB storage device.

ON/OFF

VIDEO
Connect to the TV or VCR using an RCA cable.
AUDIO
Connect to the TV or VCR using an RCA cable.

SPDIF
Connect to the audio system using an S/PDIF cable. (digital audio)

HDMI
Connect to the TV using an HDMI cable.

Note: The image shown may differ from the actual product.

Quick Start Guide

Remote Control

⊗ **MUTE**		Mutes audio.
⏻ **STANDBY**		Switches between operation and standby modes.
❶ **MODE**		Changes the mode of remote.
NUMERIC		(0-9)
TV Portal		Enters HUMAX TV Portal.
MENU		Displays the main menu.
❷ **Playback Control Buttons**		▶ Play, ‖ Pause, ■ Stop, ● Record, ◀◀ Rewind, ▶▶ Fast Forward, ▶◀ Previous, ▶▶ Next, ⟲ Instant Replay, ⟳ Skip
❸ **COLOUR Buttons**		Colour keys for interactive applications.
MEDIA		Displays the media list.
GUIDE		Displays the programme guide.
ARROW Buttons		Moves the cursor up, down, left or right.
OK		Selects (Enters) a menu or confirms a selection.
EXIT		Exits all On-Screen Display (OSD) screens.
BACK		Returns to the previous channel. Goes back to the previous screen.

Note:
- The image shown may differ from the actual product.
- Some playback control buttons may not function depending on the contents.

Quick Start Guide

◢+/-	Adjusts the audio volume.
P▲/▼	Changes the channel or page.
LIST	Displays the channel list.
i (Information)	Displays the channel and programme information.
OPT+	Displays the channels attributes.
AUDIO	Displays the audio list.
SUBTITLE	Displays the subtitle language list.
TV/RADIO	Switches between TV and radio modes.
TEXT	Enters the digital text service.
SOURCE	Switches between the input sources.
SLEEP	Sets the sleep timer.
V-FORMAT	Sets the resolution of video.
WIDE	Sets the display format.
❹ **Playback Control Buttons**	Add Bookmark, Bookmark List, Slow

Inserting Batteries

1. Press the hook upward and lift the battery cover off.
2. Insert the batteries (supplied) matching the plus(+) and minus(-) at each end.
3. Close the cover.
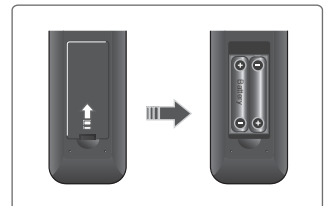
Quick Start Guide

3. Connections

This section describes how to connect your product to match your particular devices setup and to gain optimum signal quality. The product provides various interfaces to connect to the TV, VCR or other devices. Select the most appropriate procedure depending on the device you have.

Note: If you encounter any problems setting up your product, please contact HUMAX Customer Helpline.

Quick Start Guide
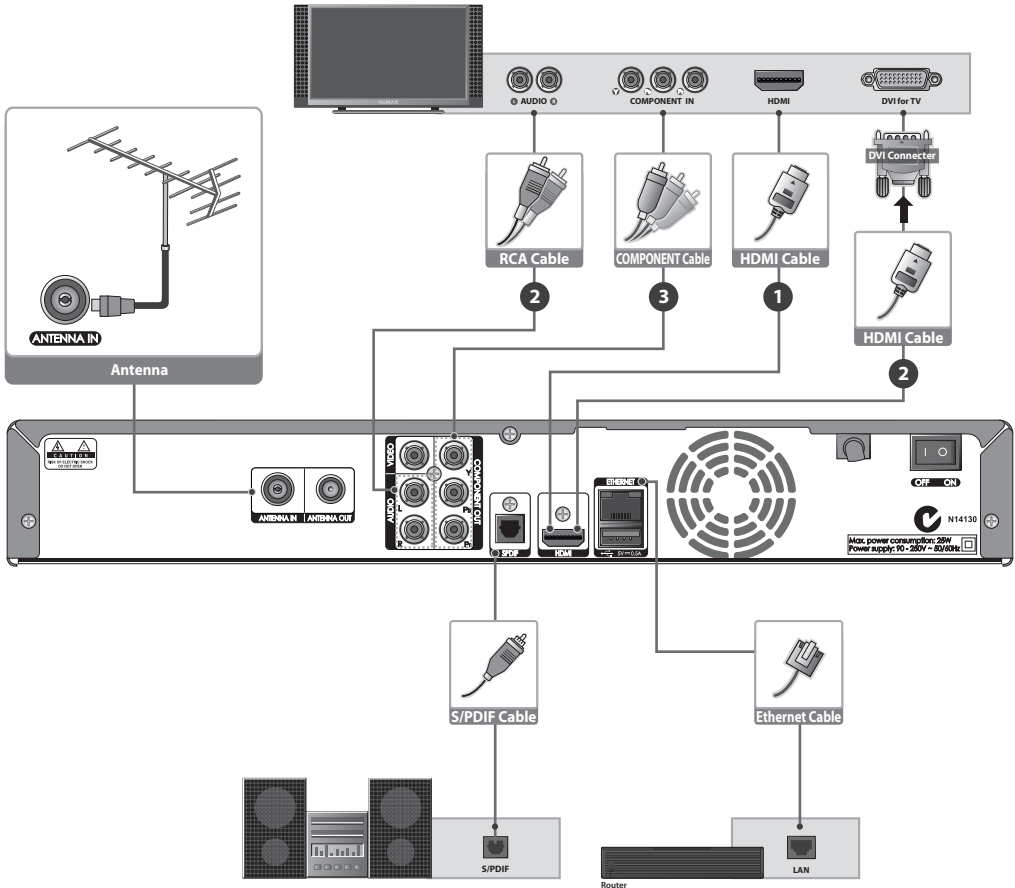
Connecting the Antenna

Connect the aerial to the **ANTENNA IN**.

Connecting the TV

You can select one of the following connections depending on the device you have.

❶ TV with the HDMI connector;
For the best picture quality, connect the product and TV using a HDMI cable.

❷ TV with the DVI connector;
For very good picture quality, connect the product and TV using a HDMI cable and a HDMI-to-DVI converter for video.
You will also require a RCA cable (Audio L/R) connected to the necessary connection(s) on your TV/Display for Audio.

❸ TV with the Component(YPbPr) connector;
For good picture quality, connect the product and TV using a component cable.

For additional audio connections you can either

1. Connect the product and TV using an RCA cable (Audio L/R).
2. When using the digital audio system, connect the product and the digital audio system using an S/PDIF cable.

Note: Connecting your TV directly to the audio/video output of the product will assure a more vivid picture and enhance your viewing enjoyment.

Quick Start Guide

Connecting the Network

❶ Connecting to the LAN;

Connect one end of the Ethernet cable to the product and the other end to the LAN router.

❷ Connecting to the Wi-Fi (Wireless LAN);

1. Power off the receiver and disconnect the Ethernet cable.
2. Insert the HUMAX Wi-Fi dongle into an USB port and power on the receiver.

3. Go to **MENU > Settings > System > Internet Setting > Configure Wi-Fi**.

Note: If **Configure Wi-Fi** is disabled, make sure that the Ethernet cable is disconnected and check if the HUMAX Wi-Fi dongle is inserted correctly into an USB port on the receiver.
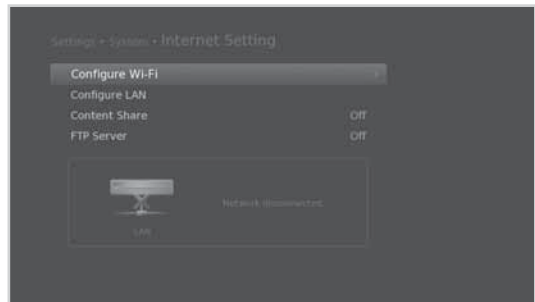
4. Select **Network Name** and press the **OK** button. The list of all available Wi-Fi Networks detected will appear. Select the Network you want to connect to and press the **OK** button.
5. Select the **Security Type** of your Wi-Fi router. If you do not know the security type, do not change this option. (Default: WPA-PSK(TKIP))

Quick Start Guide

6. Select **Password** and press the **OK** button. Enter the WEP key/Password of you router. (This information is normally written on your router.)
7. Press the **YELLOW** button to complete.
8. Select **APPLY** and press the **OK** button.

9. When the connection is complete, press the **OK** button and press the **EXIT** button to return to the menu.

The Wi-Fi network and TCP/IP settings have been configured. Now you can use the Wi-Fi network.

OK

Note:
- Make sure the distance between the Wi-Fi access point and the product is not too far away. This may lower the quality of service.
- It is recommended to purchase a wireless USB dongle distributed by HUMAX. Other products may not function or respond. Go to www.humaxdigital.com/au to purchase a HUMAX Wi-Fi dongle.

WLAN USB Dongle

Ethernet Cable

Wireless Router   Router

LAN
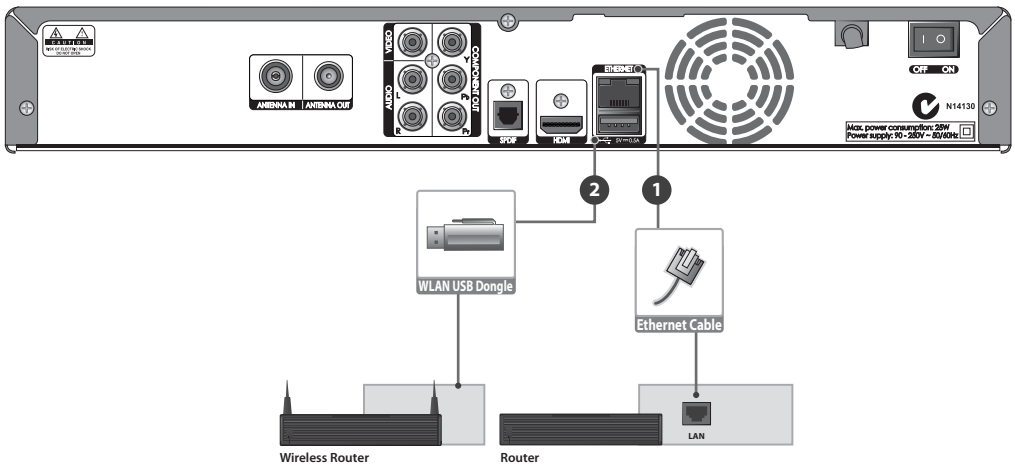
Quick Start Guide

4. Powering On

1. Connect the power cord of the product to a wall outlet.
2. Ensure the **ON/OFF** switch at the rear of the product is switched to **ON**.
3. Power on by pressing the **STANDBY** button on the remote control or the **STANDBY** button at the front of the product.

Quick Start Guide
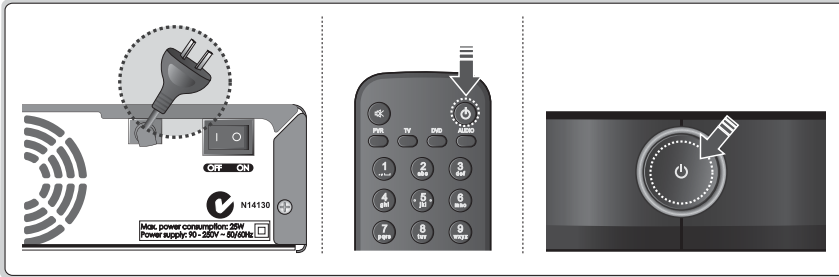
5. First Installation Wizard

When powering on your product for the first time after purchase or performing the factory default in menu, the installation wizard will operate automatically.

Note: If you exit the installation wizard without fully completing the channel searching procedure, you may not have all of the channels available. In this case, you can use the **Settings > Installation** menu to search for more channels.

1. **Region**
    Select the state you currently live in.
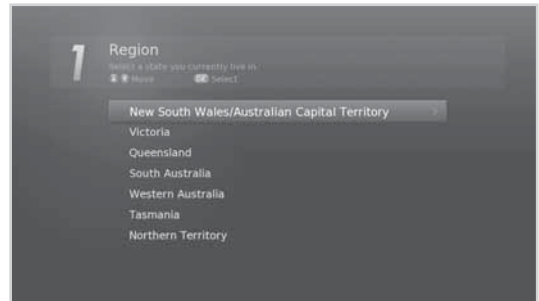
2. **Display**
    Set the video output to your TV.

3. **Automatic Search**
    Channel search will begin automatically. Save the found channels when the search is complete.

Quick Start Guide

4. EPG Type
Select the **EPG Type** you want.
If you already have an IceTV account or wish to take advantage of the additional features of IceTV, select **IceTV**.

Note: To use the IceTV EPG, connect the receiver to the internet via Ethernet or USB wireless dongle. Refer to ***Connecting the Network***.

5. Result
The result of the Installation Wizard is shown. Select **Finish** to exit the wizard.

Quick Start Guide
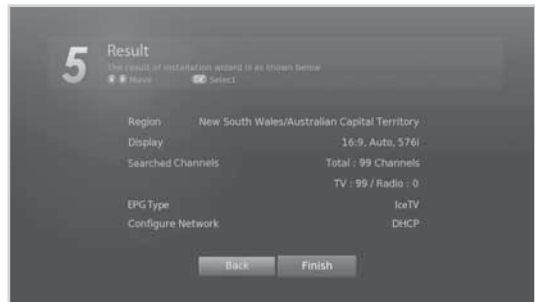
6. Menu Overview
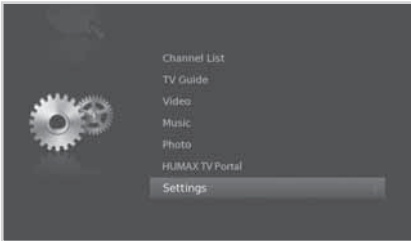
Channel List	
TV Guide	
Video	
Music	
Photo	
HUMAX TV Portal	
Settings	

Preference
- Parental Control
- Language
- Time
- Video
- Audio
- Recording
- Screen Display
- EPG Type

Edit Channels
- Edit Favourite List
- Edit Channel List

Installation
- Automatic Search
- Manual Search
- Software Update
- Dynamic Update
- Antenna Power
- Factory Default

System
- System Information
- Signal Detection
- Power Management
- Data Storage
- Internet Setting

How to Navigate

MENU	Displays the main menu			Moves among menus or options
OK or	Selects (Enters) a menu or confirms a selection			Changes or adjusts the option
BACK	Goes back to the previous screen			Enters the number (0~9)
EXIT	Exits all On-Screen Display (OSD) screens			

Basic Operation

Changing Channels

You can change the channels in several ways.

❖ Press the **P▲/▼** button.
❖ Enter the channel number directly. **(0-9)**
❖ Go to the channel list and select a channel.

Note: Press the **TV/RADIO** button to switch between TV and radio channels.

Volume / Mute / Audio

❖ To adjust the audio volume, press the ◢**+/-** button.
❖ To mute the audio temporarily, press the **MUTE** button.

Setting Audio Options

Audio options are available only when the programme supports multiple audio languages.
Press the **AUDIO** button to change the audio language and direction.
Each time you press this button, the value changes.

Note:
• The mute function remains set while you change channels.
• You cannot set the audio direction when the programme is broadcast in Dolby Digital.

Basic Operation

Display Format / Resolution

Setting Display Format

Press the **WIDE** button to set the display format according to the screen ratio.
Each time you press this button, the value changes.

➤ Screen ratio 4:3: **Auto – Letterbox 16:9 – Letterbox 14:9 – Centre**
➤ Screen ratio 16:9: **Auto – Pillarbox – Zoom**

WIDE Display

Setting Resolution

Press the **V-FORMAT** button to set the resolution of the screen.
Each time you press this button, the value changes.

➤ **576i - 576p - 720p - 1080i - Original**

Note: When connected with an HDMI cable, you can only change to resolutions the TV supports.

V-FORMAT Display

Basic Operation

Programme Information (i-plate)

The i-plate is an information banner that is displayed for a certain period of time whenever you change channels. Press the **i** button while watching a progamme to display the i-plate. Press the **EXIT** button to hide.

Playing time   Icons   Signal strength and quality

Channel number and name   Current time and date   Group name
Programme name

1003 SEASONS

Seasons magazine

22:00 ——————— 24:30   23:15 TUE 12.06.2008

Favourite1

1080i HD Digital+

i Display   Navigation mode
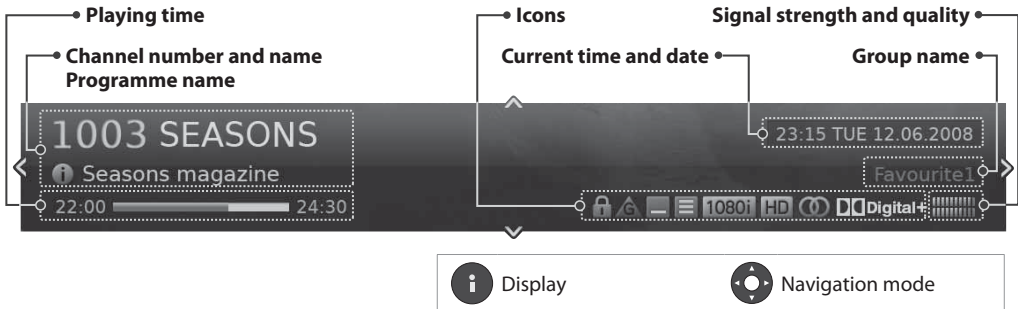
➤ **Viewing detailed programme information**
Press the **i** button again while the i-plate is displayed.
➤ **Viewing previous/next programme information**
Press the ◄/► button while the i-plate is displayed.
➤ **Viewing programme information of other channels**
Press the ▲/▼ button while the i-plate is displayed. Press the **OK** button to change to the selected channel.
➤ **Searching related contents**
Press the **OPT+** button while the i-plate is displayed. This option is supported only when the network is connected.

Icons

The icons represent the information and services provided.

🔒	Locked programme	▤	Teletext
▬	Pay TV / encrypted programmes (CAS icons)	1080i	Resolution
🅖	Parental guidance programme	HD	HD programme
▬	Subtitle	◉	Multiaudio
D D+	Dolby Digital audio Dolby Digital Plus audio		

Note: Programme information is not displayed when there is no programme information.

Basic Operation

Sleep Timer

Press the **SLEEP** button to set the automatic turn off time.
Each time you press this button, the value changes.

➤ **10 - 20 - 30 - 60 - 90 - 120 minutes**

SLEEP Display

Subtitle

You can select the subtitle language when subtitle information is provided.
Press the **SUBTITLE** button to change the subtitle language.
Each time you press this button, the value changes.

Note: You can choose to always display the subtitle when available.

SUB Display   Select   OK Confirm

19
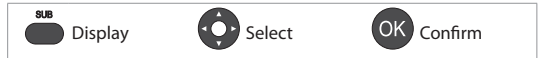
Basic Operation

Option

You can set the options for the watching channel.

1. Press the **OPT+** button.
2. Select an option.
   - ➤ **Favourite:** Select the favourite group to add the channel.
   - ➤ **Lock:** Select **On** or **Off**.
   - ➤ **Delete:** Press the **OK** button.
   - ➤ **Rename:** Press the **OK** button and enter the name in the keyboard.
3. Select **OK** to save and exit.

OPT+ Display   Select   **OK** Confirm

Teletext

Teletext is a free service broadcast which gives the latest information on news, weather and many other topics. You can use interactive services in teletext mode.

All teletext supporting channels have the teletext icon on the i-plate.

1. Press the **TEXT** button.
2. To display the teletext menu, press the **MENU** button in teletext mode.
3. Select the teletext function you want and press the **OK** button.

TEXT Display   Select   **OK** Confirm

Channel List

The channel list will help you find the channel you want to watch quickly and easily.

You can access the channel list in several ways.

❖ Press the **LIST** button.
❖ Press the **MENU** button and select **Channel List**.

Changing Channels

Select the channel you want to watch and press the **OK** button. The displayed channel will change.

Note:
• 🔒: Locked channel, ▣ : Scrambled channel (CAS icons)
• Press the **i** button to view the detailed channel information.
• Press the **LIST** or **EXIT** button to exit.

Advanced Options

Changing Group

You can display the list of the selected channel group.
➤ **TV, Radio, Favourite 1~5, Recent**

1. Press the ▶ button.
2. Select a channel group.
3. Press the **OK** button.

Note: Press the **TV/RADIO** button to switch between TV and Radio groups.

Sorting Channels

Press the **RED** button to sort the list in numerical or alphabetical order.

TV	Radio	Favourite1	Favourite2	Favourite3	Favourite4

2   ABC1
3   SBS One
• 7   Seven
9   Nine
22   ABC2
23   ABC3
24   ABC NEWS 24
30   SBS HD
32   SBS Two
72   7two
73   7mate

Display/Change   Select   OK Confirm
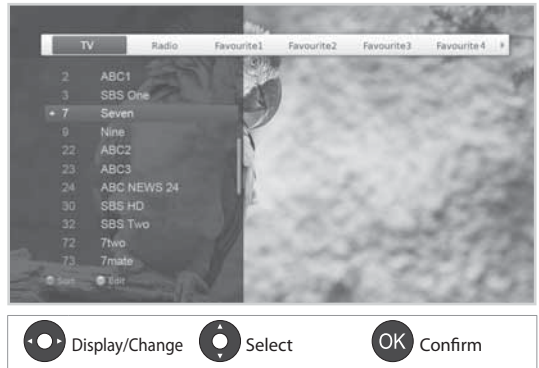
Channel List

Editing Channels in Channel List

You can edit each channel in the channel list, as well as in menu. To edit the multiple channels, go to the **MENU > Settings > Edit Channels**.

Locking / Deleting / Renaming Channels

1. Select a channel you want to edit and press the **GREEN** button.
2. Select an option.
   > **Lock:** Select **On** or **Off**.
   > **Delete:** Press the **OK** button.
   > **Rename:** Press the **OK** button and enter the name in the keyboard.
3. Select **OK** to save and exit.

Note: The default password is 0000. If you have forgotten your password, please contact HUMAX Customer Service.
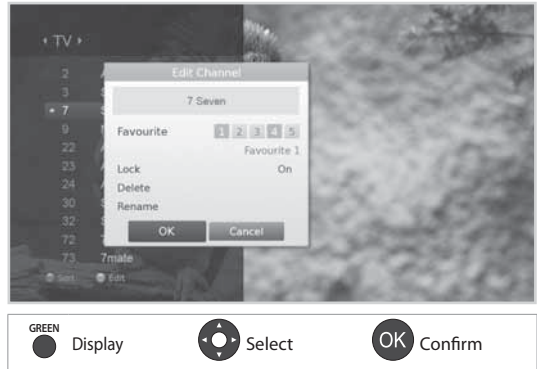
Setting Favourite Channels

You can select your favourite channels and include them in the favourite group.

1. Select a channel and press the **GREEN** button.
2. Select **Favourite** and press the **OK** button.
3. Select a favourite group you want to include the channel in and press the **OK** button.
   To remove a channel from a favourite group, select the group and press the **OK** button again.
4. Select **OK** to save and exit.

Managing Channels

Editing Favourite Channels

The **Edit Favourite List** menu will help you add or remove channels from the favourite groups.

MENU → Settings → Edit Channels → Edit Favourite List

Group name
Marked / Total channels

Favourite group name

Function buttons
: Coloured or **OPT+** button

Select   OK Mark/Confirm   Page up/down

Note:
- Press the **MENU** or **EXIT** button to exit. Press the **BACK** button to return to the previous screen.
- The channels that are automatically numbered by broadcaster cannot be deleted or moved.

Adding / Removing Favourite Channels

1. Press the **YELLOW** button and select the favourite group you want to edit.
2. To add channels to the favourite list, select the channels you want to add using the ▲/▼ and **OK** button in the left column and then press the **RED** button. The added channels will appear in the right column.
3. To remove channels from the favourite list, select the channels you want to remove in the right column and then press the **RED** button.

Moving Channels

1. Select the channels using the ▲/▼ and **OK** button.
2. Press the **GREEN** button.
3. Move the selected channels to the location you want using the ▲/▼ and **OK** button.

Note: You can move the channels in the right column only.

Managing Channels

Renaming Favourite Groups

1. Press the **YELLOW** button and select the favourite group you want to edit.
2. Press the **OPT+** button.
3. Select **Rename Favourite**.
4. Enter the name in the keyboard.

Advanced Options

Changing Group

To list the channels of other groups in the left column, press the **GREEN** button and select a group you want.

Note: Press the **TV/RADIO** button to switch between TV and Radio groups.

Changing Background

You can change the channel displayed in the background while editing.

1. Select the channel you want to watch.
2. Press the **BLUE** button. The displayed channel will change.

Selecting / Releasing All Channels

1. Press the **OPT+** button.
2. Select **Select All**.
3. To release all, select **Release All**.

Managing Channels

Editing Channels

The **Edit Channel List** menu will help you delete, move lock or rename multiple channels.

MENU → Settings → Edit Channels → Edit Channel List

Group name

Marked / Total channels

Function buttons
: Coloured button

Select   OK Mark/Confirm   Page up/down
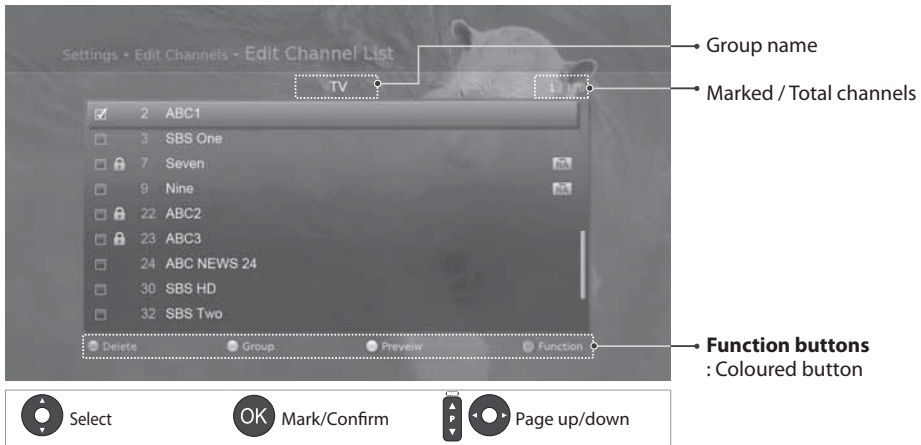
Note:
- 🔒 : Locked channel, ▭ : Scrambled channel (CAS icons)
- Press the **MENU** or **EXIT** button to exit.
- The channels that are automatically numbered by broadcaster cannot be deleted or moved.

Deleting Channels

1. Select the channels using the ▲/▼ and **OK** button.
2. Press the **RED** button.

Managing Channels

Locking / Unlocking Channels

1. Select the channels using the ▲/▼ and **OK** button.
2. Press the **BLUE** button.
3. Select **Lock**. To unlock, select **Unlock**.

Advanced Options

Changing Group

To list the channels of other groups, press the **GREEN** button and select a group you want.

Note: Press the **TV/RADIO** button to switch between TV and Radio groups.

Changing Background

You can change the channel displayed in the background while editing.

1. Select the channel you want to watch.
2. Press the **YELLOW** button. The displayed channel will change.

Selecting / Releasing All Channels

1. Press the **BLUE** button.
2. Select **Select All**.
3. To release all, select **Release All**.

TV Guide

The TV guide is an on-screen guide of grid type which displays the programme information of channels in time and date order.

You can access the TV guide in several ways.
- ❖ Press the **GUIDE** button.
- ❖ Press the **MENU** button and select **TV Guide**.

Note: Press the **GUIDE** or **EXIT** button to exit. Press the **BACK** button to return to the previous screen.

Preview

Current time and date

Information of the selected programme: channel number & name, programme name, simple information, favourite group, network type, and icons

Time bar

Function buttons : Coloured buttons

Select   OK Confirm   Page up/down
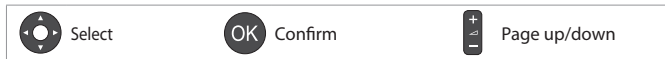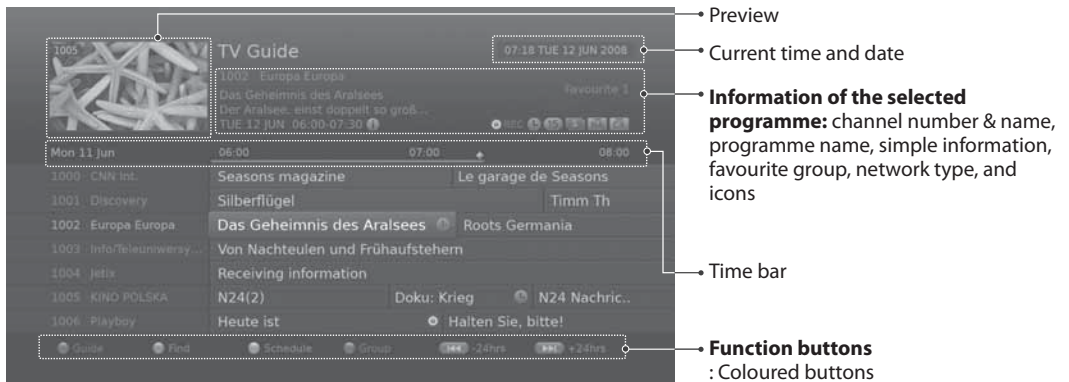
Note:
- Press the **i** button to view the detailed programme information.
- 🕐 : Scheduled programme (Red: Recording, Blue: Reminder), ◉ : Recording programme, ◆ : Present time

Watching Programmes

1. Select a programme and press the **OK** button. The programme will be displayed in the preview.
2. Press the **OK** button again to exit the TV guide and watch the programme.

TV Guide

Setting Reminders or Recordings

1. Select a future programme and press the **OK** button.
2. Select **Record the whole programme** or **Reminder** and press the **OK** button.
3. Press the **OK** button again to cancel the reservation.
   The reserved programmes will be added automatically in **Schedule**.

Note:
*   By selecting **Reminder** an on-screen notification will appear prior to the selected programme starts. Select **OK** to automatically change to the channel the programme commences. Select **Cancel** to continue watching the current programme and not change channels.
*   If the programme is conflicted with another programme, adjust the reservation appropriately.
*   If the channel is locked, you will be prompted to enter your password to complete the reservation. The default password is 0000. If you have forgotten your password, please contact HUMAX Customer Service.
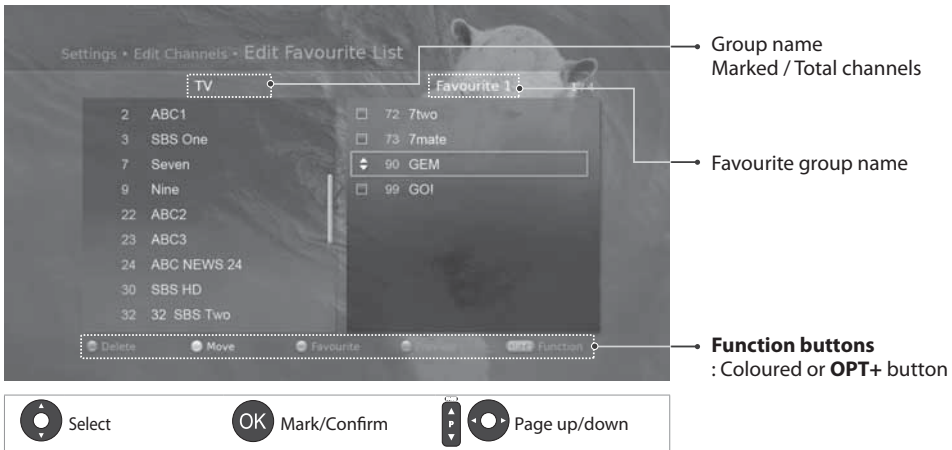*   You can reschedule reminders or recordings. (Refer to *Scheduling Reminders and Recordings*.)
*   If the programme you want to record is a series, you can select to record the whole series. However, this function may not be available depending on the broadcasting environment.

Advanced Options

Quick Navigation

Press the ◄/► button to move to the previous/next programme.
Press the ◄◄/►► button to jump back/ahead two hours.
Press the I◄◄/►►I button to move to the previous/next day.

Changing Group

To list the channels of other groups, press the **BLUE** button and select a group you want.

Note:
*   Press the **TV/RADIO** button to switch between TV and Radio groups.
*   To search specific programmes, go to **Find Programmes** by pressing the **GREEN** button. (Refer to *Finding Programmes*.)

TV Guide

Finding Programmes

Find will help you find the programmes more specifically using the keyword or genre.

By Keyword

1. Press the **GREEN** button.
2. Select **Keyword** and press the ▶ button.
3. Select a keyword and press the **OK** button.
4. Press the **YELLOW** button to add the selected programme to schedule.

Note: To enter a new keyword, select **New Keyword**. Type the new keyword and press the **YELLOW** button to confirm.

By Genre

1. Press the **GREEN** button.
2. Select **Genre** and press the ▶ button.
3. Select a genre and press the **OK** button.
4. Select the specific genre and press the **OK** or ▶ button.
5. Scroll through the list and press the **YELLOW** button to add to schedule.

Note:
- Press the i button to view the detailed programme information.
- Press the **OK** button to watch a found programme. (Refer to *Changing Channels*.)
- You can set reminders or recordings for future programmes. (Refer to *Setting Reminders or Recordings*.)

GREEN Display	**OK** Confirm	Select
Page up/down		
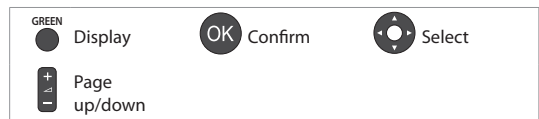
TV Guide

Schedule

Schedule lists all programmes that you have set for recordings or reminders and will help you manage these reservations in more detail.

Adding or editing schedule

1. Press the **YELLOW** button.
2. To add, select **New Reservation** and press the **OK** button.
    To edit, select a reminder or recording and press the **OK** button.
3. **Reservation** will pop up. You can change the options you want using the ▲/▼/◄/►, **NUMERIC(0~9)** and **OK** buttons.
4. Select **OK** to save and exit.
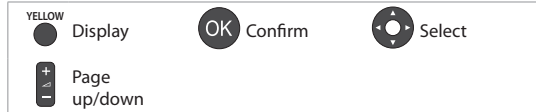
Deleting schedule

1. Press the **YELLOW** button.
2. To delete, select a reminder or recording and press the **BLUE** button.
3. Select **Yes** and press the **OK** button.

Note:
*   Press the i button to view the detailed programme information.
*   You can easily set reminders or recordings in TV guide,
    Find Programmes or i-plate navigation mode. (Refer to *Setting Reminders or Recordings*, *Find Programmes* or *Programme Information*)

YELLOW ● Display	**OK** Confirm	**Select**
● Page up/down		

Recording and Playback

You can record programmes in the built-in hard disk drive and playback the recorded programmes whenever you want.

Note: Recording or copying is for private and domestic use only.

Recording

You can watch another channel while recording a channel or record programmes from two different channels at the same time.

Instant Recording

You can record the currently watching programme instantly and change the recording duration.

To instantly record the current programme you are watching, press the **RECORD** button.
The recording will start from the current broadcast point and the record banner will be displayed for a few seconds.

Press the **STOP** button to stop recording the programme.

The recording will continue till the end of the current programme. However, if the programme ends in less than ten minutes, it will continue till the end of the next programme. When no programme information is provided, the recording will continue for two hours.

Note: You can also press the **Record** button while in the Guide to start recording a current programme on a different channel.
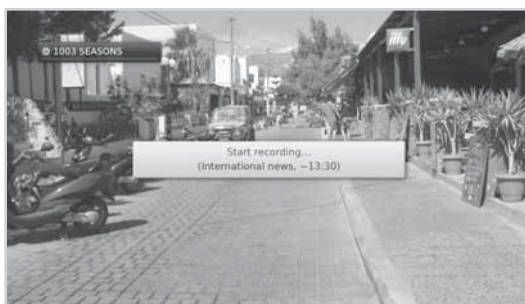
Delayed Recording

You can record the scenes of a live broadcast you have been watching until now by rewinding with the time shifted recording function.

Find the starting point you want to record by using the ◀◀REWIND, ◀ or ▶ buttons, then press the **RECORD** button.

The recording will start from the point you select.

Changing Recording Duration

1. Press the **RECORD** button on the currently recording channel.
2. Set the duration manually or select till the end of the current prorgramme or the next programme.

⬤ Record	✛ Select	OK Confirm	⠿ Enter 0~9

Recording and Playback

Scheduled Recording

You can easily set the recording reservations in **TV Guide**, **Schedule** or i-plate navigation mode.

❖ While in the **TV Guide** highlight a future programme and press the **OK** button.
❖ Select from:
  Record Whole Series
  Record the Whole Programme
❖ Press the **OK** button on a future programme in i-plate and select either **Record the whole series** or **Record the Whole Programme**. (Refer to *Programme Information.*)

The recording will start at the scheduled time and the record banner will be displayed for a few seconds.

Press the **STOP** button to stop recording the programme.

Note:
• Press the **GUIDE** button to go to **TV Guide.**
• Press the **GUIDE** button and press **YELLOW** button to go to **Schedule.**
• Press the **i** button while watching a progamme to display the i-plate.

Editing Recording Schedule

You can edit or delete your reservations in **Schedule.**

➤ To edit, select a reservation and press the **OK** button. You can change the options such as channel, date, time, repeat mode, etc.
➤ To delete, select a reservation and press the **BLUE** button.

Note: Refer to page 30 for instructions on how to Add, Edit or Delete your reservations.

Record — Select — OK Confirm — Enter 0~9

Recording and Playback

Recording Conflict

You can watch another channel while recording a channel or record programmes from two different channels at the same time.

Recording Duration Conflict

When an instant recording conflicts with one of the scheduled recordings (or reminders), you can either;

➢ Record for the automatically modified duration.
➢ Cancel either of the scheduled recordings (or reminders).
➢ Cancel the previous recording.

Watching Conflict

When a scheduled recording starts on a different channel while you are watching a channel and recording another channel, a record notice will pop-up 30 seconds before the scheduled recording starts.

➢ **OK:** The channel will change at the start time and the scheduled recording will start automatically.
➢ **Cancel:** The scheduled recording will be canceled.
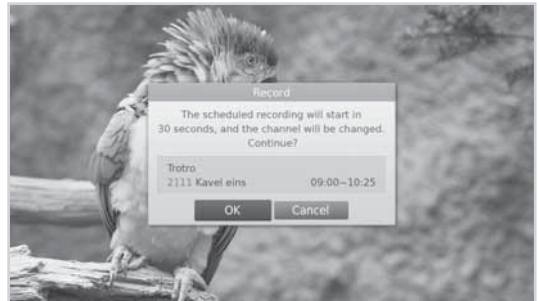
Scheduling Conflict

When a new scheduled recording conflicts with one of the previously set recordings (or reminders), you will be prompted to select up to two programmes you want to keep.
Select the programme using the ▲/▼ and **OK** button.

⬤ Record	Select	OK Confirm	Enter 0~9

Recording and Playback

Setting Padding / Jump Time

MENU → Settings → Preferences → Recording

Setting Padding Time

You can set the recording padding time in case the recording starts earlier or ends later than scheduled.

> **Start Padding Time**: Additional recording time before the recording starts.
>
> **End Padding Time**: Additional recording time after the recording ends.

Setting Jump Time

You can set the jump time to replay or skip scenes during playback or time shifted recording.

> **Instant Replay Time**: 7 sec, 15 sec, 30 sec
>
> **Skip Forward Time**: 30 sec, 60 sec, 120 sec, 240 sec
>
> **Auto Delete**: Old recordings will be deleted automatically when the HDD becomes full.

Note:
- You can record radio programmes also.
- The record banner will be displayed with the i-plate whenever pressing the **i** button.
- You can change the recording duration by using the **RECORD** button for instant recording or by going to **MENU > TV Guide > Schedule** for scheduled recording.
- When a new scheduled recording starts while a recording is already in progress, the record banner will be displayed for a few seconds to inform you that the recording has been started. If you are not watching the channel being recorded, a record notice will pop-up 30 seconds before the scheduled recording starts, and the channel will switch to the scheduled programme automatically at the start time.
- Pressing the **STANDBY** button while recording will not stop the recording. New recordings will start even in standby mode.
- While watching a recording programme, you can trick-play using the playback control buttons such as pause, fast rewind, instant replay, slow, etc.
- You can record the digital TV or radio programmes only. The external AV inputs cannot be recorded.
- Make sure that there is enough free space before recording. If the free space on the hard disk drive is insufficient, recording will stop. Recording HD programme requires more space than SD programme. The space for recording one hour programme may differ depending on the programme. Recording one hour of HD and SD programmes may require 8 GB and 2~3 GB of hard disk space, respectively.
- To view the recorded programme list, press the **MEDIA** or **MENU** button and select **Video**. (Refer to **Using Video List.**)

Record   Select   OK Confirm   Enter 0~9

Recording and Playback

Playback

You can playback the recorded programmes that are stored in the built-in hard disk drive.

Playing Recordings (Video)

You can access the recorded file list easily and play the recorded programmes.

❖ Press the **MEDIA** button.
❖ Press the **MENU** button and select **Video**.

Select a file and press the **OK** button. Playback will start.
You can perform fast rewind, fast forward, slow motion and pause while playing back a recorded file. The green playbar is displayed when pressing the **PLAY, FAST FORWARD, REWIND, SLOW** or **PAUSE** button while playing.

Note: Press **BACK** or **EXIT** to hide the playbar.

Play status   Start time

Present time

Play pointer   Total time

Record	Select	OK Confirm	Enter 0~9

Recording and Playback

Playback Controls

▶	Play
⏸	Pause the scene. Press the **PAUSE** button again to go back to play mode.
⏹	Stop the playback of the current file and go to live TV.
⏪	Fast Rewind
⏩	Fast Forward
⏮	Move to the previous chapter and replay the scenes.
⏭	Move to the next chapter and skip scenes.
◀/▶	Jump to the previous or next scene.
🔖	Add or delete a bookmark in your desired scene. The bookmarked scene is shown as a yellow pointer.
📖	Jump to bookmarked scenes directly. The play pointer will first move to the nearest bookmark.
▷	Watch the recording in slow video.

Note:
- When you press the **BACK** button during playback, the playback stops.
- Chapters are made by dividing the recorded programme into eight portions.
- Bookmarks are available only when playing back the recorded programmes.
- Up to four bookmarks can be used, and the bookmarks will remain even if you stop playback.
- Refer to *Media List > Using Video List* for more details about the recorded files.

Record   Select   OK Confirm   Enter 0~9

Recording and Playback

Pausing and Rewinding Live TV (TSR)

Time Shifted Recording (TSR) allows you to pause a live broadcast and return to it later and continue where you left off.
The TSR function automatically saves the programmes you watch to the built-in hard disk drive temporarily.
TSR lasts for 120 minutes.

To pause the programme you are watching,

Press the **PAUSE** button. Press the **PLAY** button to return. Pause makes a time gap between the live broadcasting point and watching point. The time gap is equivalent to the period the programme has been paused.
Press the **STOP** button to close the time gap and go to live programme.

To rewind and watch missed scenes,

Press the **REWIND** button. Press the **PLAY** button at the point where you want to start watching. You can pause, rewind or fast forward within the programme.
You can fast rewind to the start point. If you reach the start point while rewinding, the programme is automatically played at the normal speed.

To fast forward and skip scenes,

Press the **FAST FORWARD** button. You can fast forward only when there is a time gap between the current watching point and the live broadcasting point caused by pause, slow motion or fast rewind. You can fast forward up to the current broadcasting point. If you reach the live broadcasting point while fast forwarding, the programme is automatically played at normal speed.

Note: Press the **PREVIOUS/NEXT** button to instantly replay or skip scenes at regular intervals you set in the menu. (Refer to Setting Jump Time.)

To record the Time Shift Recording buffer

Rewind to the point you wish to record by pressing the ◀◀ **REWIND** or ◀ button and press the **Record** button on the remote control.

Note: The recording will not appear immediately in the Media list as time is required to transfer the buffer into a recording.

Media List

You can retrieve video, music or photo files from the built-in hard disk drive, the USB storage devices, or the DLNA compliant devices.

You can access Media List in several ways.

❖ Press the **MEDIA** button.
❖ Press the **MENU** button and select **Video**, **Music** or **Photo**.
❖ Connect a USB storage device for media and select your desired media type.

Video	Lists TV/Radio recordings or Xvid files.
Music	Lists MP3 files.
Photo	Lists JPEG files.

Note:
• Press the **MEDIA** or **EXIT** button to exit. Press the **BACK** button to return to the previous screen.
• Select **Copy** to copy the media files to the different devices. (Refer to *Using the Video List > Editing Files*.)

Switching Storage

1. Press the **BLUE** button to switch the storage.
2. Select the storage and press the **OK** button.
   ➤ **HDD**: Displays the internal HDD.
   ➤ **USB**: Displays each partition of the connected USB storage devices. Select a USB.
   ➤ **Network**: Displays the connected DLNA compliant devices. Select the server.
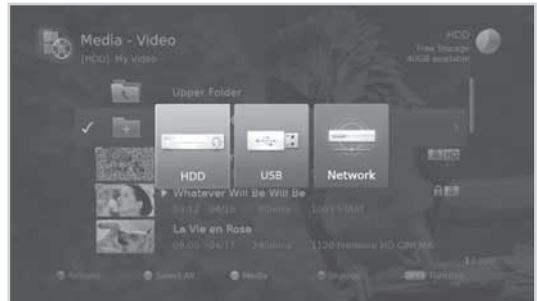
Switching Media

1. Press the **YELLOW** button to switch the media type.
2. Select the media type and press the **OK** button.
   ➤ **Video, Music, Photo**

MEDIA Media On/Off	Select	OK Confirm	Enter 0~9

Media List
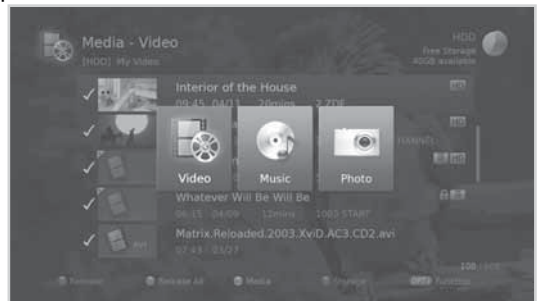
Note:
- Please use only the USB storage device which was formatted with ext3, FAT or NTFS file system.
- Compatible USB devices include portable flash memory (particularly keydrives) and digital audio players (MP3 players) of format FAT12/16/32. It is not possible to connect this unit to a personal computer for USB playback.
- You can play back Xvid/MP3/JPEG files (except files with copy-protection or restricted playback).
- Supported features according to USB file system
    - ➤ **ext3**: Read, Copy (Digital TV/Radio, MP3, JPEG, Xvid)
    - ➤ **FAT**: Read, Copy (Digital TV/Radio, MP3, JPEG, Xvid)
    - ➤ **NTFS**: Read (MP3, JPEG, Xvid)
- USB ports on your product supply 800mA in total. This 800mA is shared among all devices connected to product.
- Please connect power to a USB storage device which requires an external power supply. If not, the device may not be recognized.
- Please connect a USB storage device with the cable offered by the device maker. If you use a cable which is not offered by the device maker or an excessively long cable (max 5m), the device may not be recognized.
- If the USB storage device is connected in standby mode, it will automatically be recognized when the product is turned on.
- A USB storage device using an automatic recognition programme may not be recognized.
- A USB storage device which uses its own driver may not be recognized.
- The recognition speed of a USB storage device may depend on each device.
- Please do not disconnect or turn off the USB storage device while playing back. When the USB storage device is suddenly separated or unplugged, the stored files or the USB storage device may be damaged.
- Be sure to back up important files since data stored in a USB storage device may be damaged.
- If your USB storage device has multiple partitions, or if you use a USB multi-card reader, you can use up to 4 partitions or USB memory devices.
- If the USB memory stick does not work properly, disconnect and reconnect it.
- Some USB storage devices may not be supported or operated smoothly.
- How fast a USB storage device is detected differs from device to device.
- USB storage devices below USB 2.0 are supported as well. But they may not work properly.
- The system may require a longer time to read large amounts of data stored in a USB device.
- Only one USB icon will appear even when there are more than one USB.
- The network icon is displayed only when the network has been connected.
- HUMAX cannot guarantee compatibility (operation and/or bus power) with all USB mass storage devices and assumes no responsibility for any loss of data that may occur when connected to this unit.

MEDIA Media On/Off   Select   OK Confirm   Enter 0~9

Media List

Using the DLNA Media Server

Your receiver is a DLNA (Digital Living Network Alliance) compliant device capable of sharing media files with other DLNA compliant devices such as the PC, NAS or another HUMAX PVR when they are connected to the same home network.

You can play the video, music or photo files that are stored in your PC on your receiver when the PC is connected to the same home network. You can also play the media files stored in your receiver on your PC.

Connecting to Home Network

1. Connect the receiver to your home network by connecting the router or the Wi-Fi access point.
2. Press the **MENU** button and go to **Settings>System>Internet Setting**.
3. Set the options for the LAN or Wi-Fi. (Refer to **System>Internet Setting** for details.)
4. Set **Content Share** to **On** to allow sharing of the media files.

Playing Files On Your Receiver

: Files stored in the PC, NAS or another HUMAX PVR

1. Press the **MEDIA** button.
2. Press the **BLUE** button and select **Network**.
3. Select a server from the list.
4. Press the **YELLOW** button and select the media type.
5. Select the files you want to play.
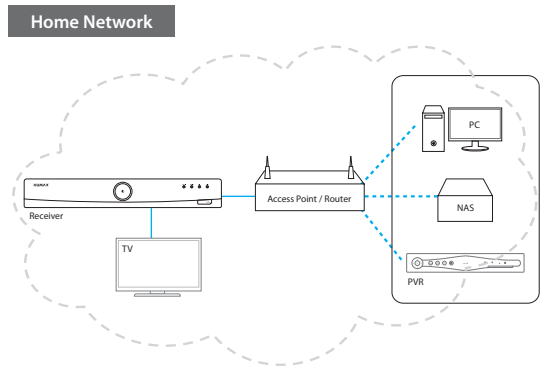
Playing Files On Your PC

: Files stored in your receiver

1. Install and run the DLNA media server software on your PC.
2. Select the name of the receiver in the library list of your PC.
3. Select the files you want to play.
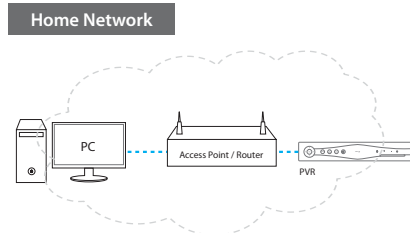
Note:
- The list of supported DLNA media servers will appear automatically.
- DLNA media server software such as Window Media Player 12 must be installed and executed on the PC to share media files stored in the PC. The media files must be stored in the library folder of the PC.
- For more information on DLNA, visit their website. (http://www.dlna.org/)

MEDIA Media On/Off   Select   OK Confirm   Enter 0~9

Media List

Using Video List

You can play TV/Radio recordings or Xvid files from the internal hard disk drive, USB storage device or the DLNA compliant device.

MENU → Video

Note:
- Press the **YELLOW** button to switch the media type.
- Press the **BLUE** button to switch the storage.
- Press the **i** button to view the detailed programme information.

Note:
- ⊙ : Recording icon, ▷ : Playing icon , HD : HD icon, ▆: CAS icon, 🔒: Lock icon
- When you record the whole series of the programme, the programmes will be recorded in the same series folder.

Playing Files

Select a file and press the **PLAY** button. Playback will start from the recently viewed point.
To play multiple files successively, select the files using the **RED** button and press the **PLAY** button.

Using Play Options

1. Select a file and press the **OK** button.
2. Select a play option.
   - ➤ **Resume Play**: Plays from the recently viewed point.
   - ➤ **Play from the Start**: Plays from the start.
   - ➤ **Delete**: Deletes the selected files.
   - ➤ **Rename**: Renames the selected file.
   - ➤ **Lock/Unlock**: Locks or unlocks the selected files.
3. Press the **OK** button.

You can perform fast rewind, fast forward, slow motion and pause while playing back a recorded file. Refer to **Recording and Playback > Playback** for details on playback control and playbar.

| MEDIA Media On/Off | Select | OK Confirm | Enter 0~9 |

Media List

Note:
- To play multiple files successively, select the files using the **RED** button and press the **OK** button. When multiple files are selected, **Resume Play** and **Rename** are not available in **Play Options**.
- You will be prompted to enter the password when playing the locked files or the files with guidance policy.
- Some playback control buttons may not function depending on the contents.

Editing Files

Deleting Files

1. Select the file(s) you want to delete and press the **OPT+** button.
2. Select **Delete** and press the **OK** button.
3. Select **Yes** and press the **OK** button.

Sorting Files

1. Press the **OPT+** button.
2. Select **Sort** and press the **OK** button. The files will be sorted in alphabetical order.
3. To sort the files in time order, repeat the above procedure.

Note: Sorting files is available for video files only.

Locking Files

1. Select the file(s) you want to lock and press the **OPT+** button.
2. Select **Lock** and press the **OK** button.
3. To unlock, press the **OPT+** button again and select **Unlock**.
4. Enter the password.

Renaming Files

1. Select the file you want to rename and press the **OPT+** button.
2. Select **Rename** and press the **OK** button.
3. Enter the name of the file in the keyboard and press the **YELLOW** button.

Creating Folder

1. Press the **OPT+** button.
2. Select **New Folder** and press the **OK** button.
3. Enter the name of the folder in the keyboard and press the **YELLOW** button.

MEDIA Media On/Off   Select   OK Confirm   Enter 0~9

Media List

Moving / Copying Files

1. Select the file(s) you want to move and press the **OPT+** button.
2. Select **Move/Copy** and press the **OK** button.
3. Select the folder or storage you want to move the file(s) to and press the **RED** button.
   - ➤ **Moving the file(s) within the same storage**
     - Select or Create the folder you want to move the file(s) to and press the **RED** button.
     - If you want to create a new folder, press the **OPT+** button and enter the folder name and press the **OK** button.
   - ➤ **Copying the file(s) to another storage**
     - Press the BLUE button to select the storage – Highlight the storage and press the **OK** button.
     - Highlight the folder and then press the **RED** button to copy
     - If you want to create a new folder, press the **OPT+** button and enter the folder name and press the **OK** button.
     - The Copyright Act 1968 only permits to copy broadcasts for Private and Domestic purposes in limited circumstances. HUMAX does not authorise any use of this feature in any way which may amount to a breach of any law or the rights of the owner of copyright in film or broadcast.
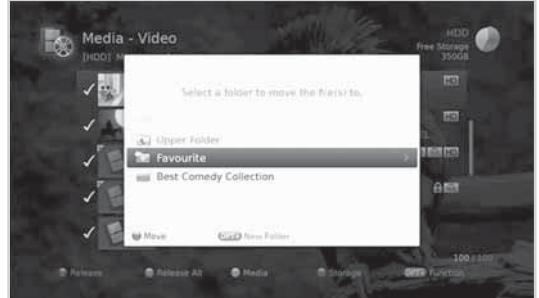
Note: When moving a locked file, you will be prompted to enter the password.

4. If you want to move or copy a recorded file, a copyright message will appear. Select **Yes** to proceed or **No** to cancel.

Media List

Using Music List

You can play MP3 audio files from the internal hard disk drive, USB storage device or the DLNA compliant device.

MENU → Music

Note:
- Press the **YELLOW** button to switch the media type.
- Press the **BLUE** button to switch the storage.

Path

Storage

Title, Artist, Album

Function buttons
: Coloured or **OPT+** button
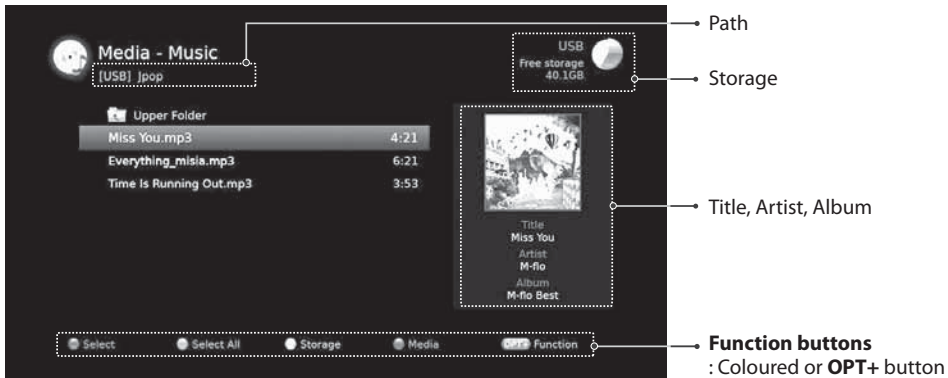
Playing Files

Select a file and press the **OK** or **PLAY** button. All files in the folder will be played successively.
To play the selected files only, select the files using the **RED** button and press the **OK** or **PLAY** button.

Media On/Off   Select   OK Confirm   Enter 0~9

Media List

Music Player

The music player is displayed while playing the music file(s).
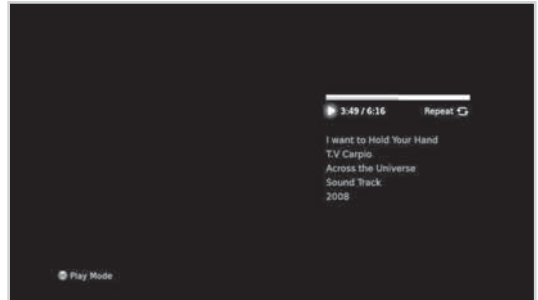
OK	Plays or pauses	▶	Plays
◀◀	Plays the previous file	⏸	Pauses
▶▶	Plays the next file	RED	Changes the play mode (once, repeat, repeat all, shuffle)
⏮	Plays the first file	⏹	Stops the music player and displays the list
⏭	Plays the last file	EXIT	Exits the music player and goes to live TV

Editing Files

Deleting, moving, renaming the music files or creating new folders are the same as in the video list. Refer to **Using Video List > Editing Files**.

Media List

Using Photo List

You can play JPEG photo files from the internal hard disk drive, USB storage device or the DLNA compliant device.

MENU → Photo

Note:
- Press the **YELLOW** button to switch the media type.
- Press the **BLUE** button to switch the storage.

Path

Storage

Thumbnail

Function buttons
: Coloured or **OPT+** button
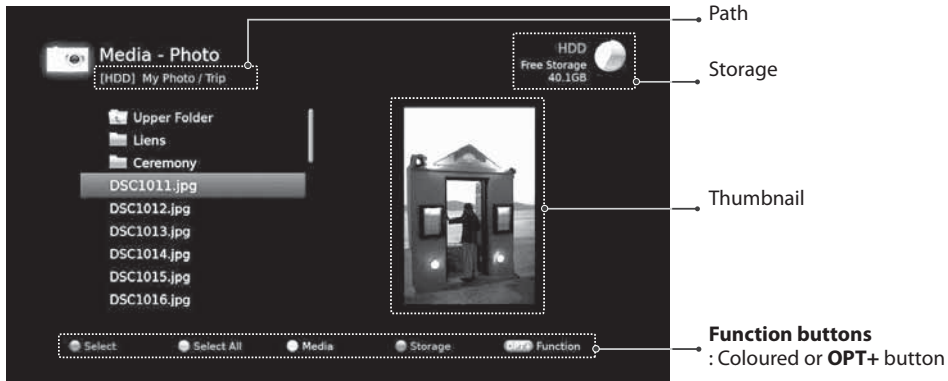
Photo Slideshow

Select a file and press the **OK** or **PLAY** button. All files in the folder will be shown successively.
To slideshow the selected files only, select the files using the **RED** button and press the **OK** or **PLAY** button.

The info banner is displayed while slideshow is paused.
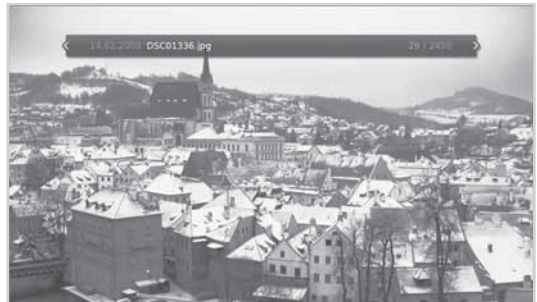
OK	Pauses or plays	▶	Plays
◀◀	Shows the previous photo	ⅠⅠ	Pauses
▶▶	Shows the next photo	■	Stops slideshow and displays photo list
◀◀	Shows the first photo	EXIT	Exits slideshow and goes to live TV
▶▶	Shows the last photo		

Media List

<u>**Slide Mode**</u>

You can play music files during slideshow.

1. Press the **OPT+** button.
2. Select **Slide Mode** and press the **OK** button.
   - ➤ **Display Time:** The duration a photo is displayed
   - ➤ **Music Play:** Select **On** to play music files during slideshow.
   - ➤ **Folder:** Select the folder the music files in located in using the **RED** button.
3. Select **OK** to save and exit.
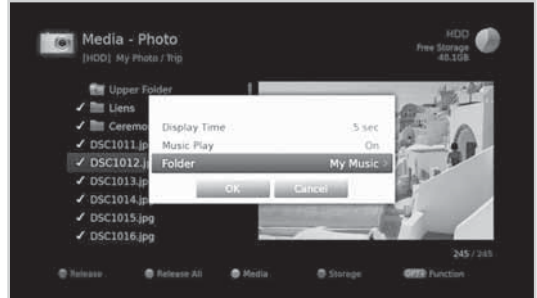
Editing Files

Deleting, moving, renaming the photo files or creating new folders are the same as in the video list. Refer to ***Using Video List > Editing Files***.

HUMAX TV Portal

HUMAX TV Portal provides Catch-up TV services and various web applications.

You can access **HUMAX TV Portal** in several ways.

> ➤ Press the **TV Portal** button.
> ➤ Press the **MENU** button and select **HUMAX TV Portal.**

Note:
- Press the **TV Portal** button to return to TV Portal home while using the portal service.
- Press the **EXIT** button to exit. Press the **BACK** button to return to the previous screen.
- Press the **RED** button to enter the simple mode.
- Press the **BLUE** button to display the HUMAX Privacy Policy.
- HUMAX TV Portal is powered by independent service providers and the services are subject to change without notice.

Disclaimer: You agree that your use of the HUMAX TV Portal Service ("Service") is at your sole risk and acknowledge that the Service and anything contained therein, including, but not limited to, content, services, goods or advertisements (the "Items") are provided "AS IS" and that HUMAX makes no warranty of any kind, express or implied, as to the Items, including, but not limited to, merchantability, no infringement, title or fitness for a particular purpose or use. HUMAX is not responsible for the quality of the broadband, and any disruptions or discontinuation of the Services as a result of broadband provided by your Internet Service Provider ("ISP"). HUMAX does not warrant that the Service is compatible with your equipment or that the Service is free of errors or viruses and is not liable for any damage you may suffer as a result of such destructive features. You agree that HUMAX, its Suppliers and its third-party agents shall have no responsibility or liability for any injury or damages, whether caused by the negligence of HUMAX, its employees, subcontractors, agents, Suppliers or otherwise arising in connection with the Service and shall not be liable for any lost profits, losses, punitive, incidental or consequential damages or any claim against HUMAX by any other party or any fault, inaccuracy, omission, delay or any other failure in the Service caused by your equipment or arising from your use of the Service on such equipment. For any issues or questions about the compatibility with your broadband, please contact your ISP.

Note: More applications are to be updated.

Preferences

In this chapter you can set options for parental control, language, time, video, audio and others.

Note: Press the **MENU** or **EXIT** button to exit.

Parental Control

MENU → Settings → Preferences → Parental Control

You will be prompted to enter the password to access this menu.

Note: The default password is 0000. If you have forgotten your password, please contact HUMAX Customer Service.

Restriction of Access

1.   Select **Restriction of Access**.
2.   Select an option.
     ➢ **No Block**
     ➢ **Block G(General) and above**
     ➢ **Block PG(Parental Guidance Recommended) and above**
     ➢ **Block M(Mature Audience 15+) and above**
     ➢ **Block MA(Mature Adult Audience 15+) and above**
     ➢ **Block AV(Adult Audience, Strong Violence 15+) and above**
     ➢ **Block R(Restricted 18+) and above**
     ➢ **Block All**
3.   Press the **OK** button.

Note: The password is required to view the blocked programmes.

Changing STB Password

1.   Select **Change STB Password**.
2.   Enter the new password.
3.   Enter the new password again for verification.
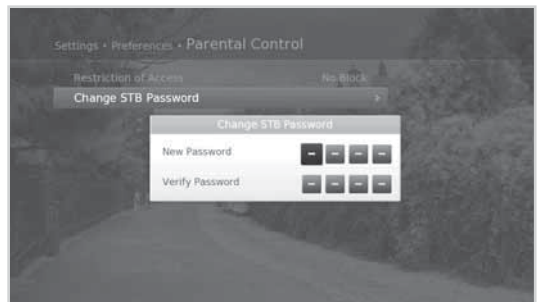
Preferences

Language Setting

1. Select **System Language**.
2. Select the language.

Note: You can change the audio or subtitle
language by pressing the **AUDIO** or
SUBTITLE button while watching a
programme.

Setting Power On/Off Timer

1. To turn on the product automatically, select
   Power On Timer and select **Set Timer**.
2. Enter the time.
3. Set the options for the power on timer.
   ➤ **Channel**: Select the channel to be displayed
   when powering on.
   ➤ **Volume**: Adjust the volume of the audio when
   powering on.
   ➤ **Repeat**: Select the repeat mode of the power on
   timer.
4. To turn off the product automatically, select
   Power Off Timer and select **Set Timer**.
5. Enter the time.
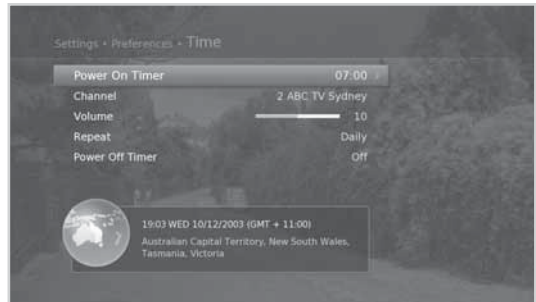
Note: The power on time and power off time should be set different from each other.

MENU Menu On/Off   Select   OK Confirm   Enter 0~9

Preferences

Video Setting

MENU → Settings → Preferences → Video

Setting TV Screen Ratio

You can select the screen ratio of your TV.

1. Select **Screen Ratio**.
2. Select an option.
   ➤ **16:9 – 4:3**

Setting Display Format

You can select the display format according to the screen ratio of your TV.

1. Select **Display Format**.
2. Select an option.
   ➤ Screen ratio 4:3: **Auto – 16:9 Letterbox – 14:9 Letterbox – Centre**
   ➤ Screen ratio 16:9: **Auto – Pillar Box – Zoom**

Note: You can set the display format by pressing the **WIDE** button while watching a programme. Refer to *Display Format / Resolution*.

Screen Ratio	Display Format		
4:3	**Auto**	**Letterbox**	**Centre**
16:9	**Auto**	**Pillarbox**	**Zoom**

Preferences

Audio Setting

Setting Digital Audio Output

You can select the digital audio signal output of your product.

1. Select **Digital Audio Output**.
2. Select an option.
   ➤ **Multi-channel – Stereo**

Setting Lip-Sync

You can adjust the sound difference of audio and video.

1. Select **Lip-Sync**.
2. Adjust the lip-sync using the ◄/► button.
   Pressing the right button increases the audio speed and pressing the left button decreases it.

MENU Menu On/Off　　Select　　OK Confirm　　Enter 0~9

Preferences

Screen Display

MENU → **Settings** → **Preferences** → **Screen Display**

Setting Info Display Time

You can set the duration the information box is displayed every time the channel is switched.

1. Select **Info Display Time**.
2. Select an option.
   ➢ **Off – 1~20 sec**

Setting Transparency

You can the transparency of the On-Screen Display.

1. Select **Transparency**.
2. Select an option.
   ➢ **Off – 25% – 50% – 75%**

Setting Subtitle Display

You can set to display the subtitle automatically or not.

1. Select **Subtitle Display**.
2. Select an option.
   ➢ **On – Off**

Setting Subtitle Font

You can adjust the subtitle font.

1. Select **Subtitle Font**.
2. Select an option.
   ➢ **Variable – Fixed**

EPG Type Setting

MENU → **Settings** → **Preferences** → **EPG Type**

Setting EPG Type

You can set the EPG type to **HUMAX** mode or **IceTV** mode.

1. Select **EPG Type**.
2. Select an option.
   ➢ **HUMAX:** The HUMAX TV guide and i-plate is displayed.
   ➢ **IceTV:** If you have an IceTV account, select IceTV. Enter the member ID, password, region and device label to proceed.

Installation

Installation menu allows you to search the available TV and radio channels. Software update, dynamic update, antenna power and factory default settings are also available in this section.

MENU → Settings → Installation

You will be prompted to enter the password to access this menu.

Note:
- The default password is 0000. If you have forgotten your password, please contact HUMAX Customer Service.
- Press the **MENU** or **EXIT** button to exit.

Automatic Search

MENU → Settings → Installation → Automatic Search

You can search channels automatically without entering any other information.

1. Select **Automatic Search**. Channel search starts.
2. Select **Save** and press the **OK** button to save the results.

Note:
- Select **Stop** and press the **OK** button to stop the channel search.
- The channels searched from the previous channel search will remain.

MENU Menu On/Off   Select   OK Confirm   Enter 0~9
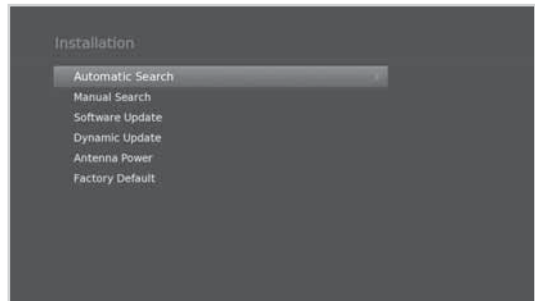
Installation

Manual Search

MENU → **Settings** → **Installation** → **Manual Search**

You can search channels manually by searching parameters.

1. Select **Manual Search**.
2. Configure the search options.
   ➢ **Channel**: Select the channel.
   ➢ **Frequency**: Enter the frequency. The corresponding frequency value will be automatically displayed.
   ➢ **Bandwidth**: Select the bandwidth.
   ➢ **Network Search**: Select **On** or **Off**.
3. Select **Search** and press the **OK** button.
4. Select **Save** and press the **OK** button to save the results.
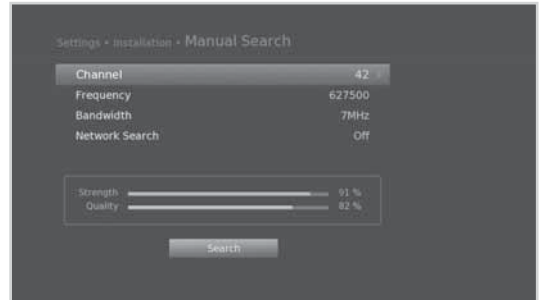
Note:
• Select **Stop** and press the **OK** button to stop the channel search.
• The channels searched from the previous channel search will remain.

Installation

Software Update

The software will be updated automatically through the Regular Update feature as a default. You can also check for newly released software versions by selecting SW Update in HUMAX TV Portal. It is recommended that you periodically check for the availability of software update.

Make sure the internet is connected. You can connect the internet using a wireless USB dongle or a LAN cable. When using a wireless USB dongle, it is recommended to use a USB dongle distributed by HUMAX. Other products may not function or respond. Go to www.humaxdigital.com/au for details of where to buy. If there is no internet connection, visit the HUMAX website for the latest software versions (http://www. humaxdigital.com/au) or contact Humax Customer Support on 1800 737 937.

MENU → **Settings** → **Installation** → **Software Update**

Automatic Update

1. Select **Automatic Update** and press the **OK** button to search for new software.
2. When new software is detected, select **Yes** to start the update process now.

Manual Update

1. Select **Manual Update** and press the **OK** button.
2. Enter the options manually.
   ➢ **Channel**: Select the channel.
   ➢ **Frequency**: Enter the frequency. The corresponding frequency value will be automatically displayed.
   ➢ **Bandwidth**: Select the bandwidth.
3. Select **Search** and press the **OK** button to search for new software.
4. When new software is detected, select **Yes** to start the update process now.
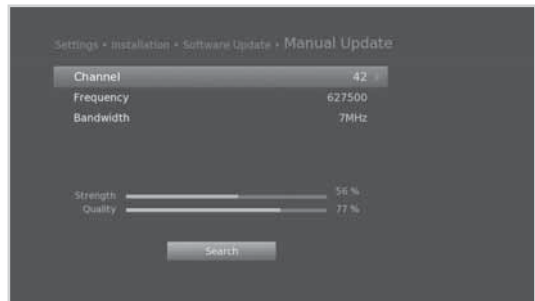
Please wait until the update is complete. When completing the software update, the product is automatically powered off and on again automatically powered off and on again.

MENU Menu On/Off   Select   OK Confirm   Enter 0~9

Installation

Regular Update

You can set the software update to take place automatically at 4a.m. on a daily basis.

1. Select **Regular Update**.
2. Select an option.
   ➢ **On**: Software is updated automatically at 4a.m.
   ➢ **Off**: No automatic software update

Note:
- It may take approximately 40 minutes to update software.
- Other functions such as scheduling programmes will not activate while software update takes place.
- If new software is detected, you can choose either to download immediately or later. If you select **Later**, the message will be displayed again when you switch into standby mode.
- You can also update the software by connecting a USB device which has the new software file. The file can be downloaded from the HUMAX website.

Caution:
- Please be careful to keep the power on and the power cord plugged in during software update. If the power is off during software update, fatal damage may be caused to the product.
- Software update through the network is also possible if you access HUMAX TV Portal.

Software Upgrade via USB Memory Stick

1. Visit HUMAX Australia website (www.humaxdigital.com/au) and go to **Support>Software Download**.
2. Check the latest software version and click the title to commence download and save it to an EMPTY USB memory stick (Make sure you have no other files).
3. Power off the receiver by switching off the switch located on the rear.
4. Insert the USB memory stick into the USB port (located at the rear) of the receiver.
5. Power on the receiver by switching on the switch located on the rear and immediately start tapping the front **Standby** touch button until the letter **R** appears on the front display.
6. The front display will change to **P** and numbers will show indicating the progress. (You can also monitor the progress on the TV screen connected to the receiver.)
7. When the front display changes to **END**, pull out the USB memory stick.
8. To confirm successful update, please go to **Menu>System>System Information** and check **Software Version**.

Note: If the download progress stops around 89%, it may take up to 5 minutes for it to restart. DO NOT TURN OFF the receiver at this point.

Installation

Dynamic Update

MENU → Settings → Installation → Dynamic Update

You can have the real time channel update take place automatically when necessary.

1. Select **Dynamic Channel Update**.
2. Select an option.
   - ➤ **On**: Channels are updated automatically when necessary.
   - ➤ **Off**: No automatic channel update

Antenna Power

MENU → Settings → Installation → Antenna Power

Active antenna is a portable or indoor antenna which needs power supply from the product because it does not have power cord for itself. Connect an active antenna to the **ANTENNA IN** on the rear of the product. The antenna power should be turned on if your TV is connected to an active antenna that requires external power.

1. Select **5V Antenna Power**.
2. Select an option.
   - ➤ **On**: 5V power is supplied from the active antenna cable.
   - ➤ **Off**: No power supplied.

MENU Menu On/Off   Select   OK Confirm   Enter 0~9
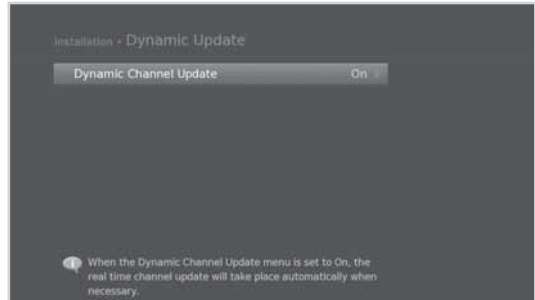
Installation

Factory Default

MENU → Settings → Installation → Factory Default

1. Select **Factory Default**.
2. A popup will appear. Select **Yes**.
3. You will be prompted to enter the password. Enter the password.

Note: The default password is 0000. If you have forgotten your password, please contact HUMAX Customer Service.

Warning:
- To format the HDD, mark **Format HDD**.
- Please note that once you perform Factory Default, all data such as channel list, and all user configured data will be deleted. After completing the default setting, the installation wizard will appear automatically in a few seconds.
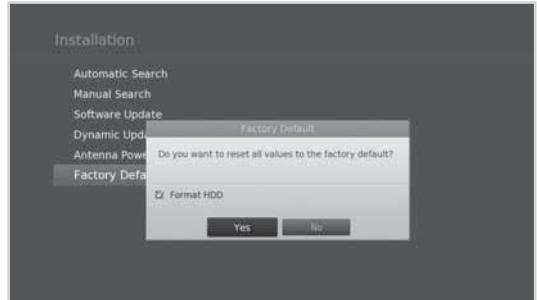
System

In **System**, system information, signal detection, power management, conditional access and data storage options are available.

Note: Press the **MENU** or **EXIT** button to exit.

System Information

The system information is displayed.

Settings • System • System Information	
Model Name	HDR-7500T
Software Version	0.00.08
Loader Version	L5.FA.14
System ID	0000.0000
Update Date	25 FEB 2010
MICOM Version	0.0
Mac Address	

Signal Detection

You can check the signal strength and quality of the searched channels.

Note: This menu will not be activated while recording.

Settings • System • Signal Detection	
Channel	42
Ch42, 627500kHz, 7MHz	
Strength	99%
Quality	59%
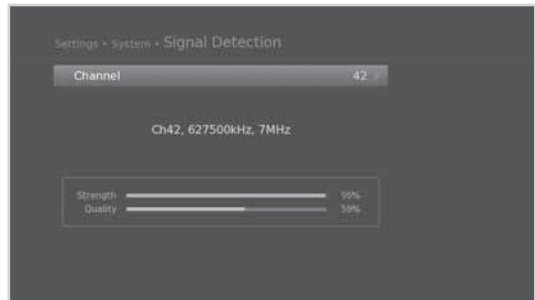
System

Power Management

MENU → **Settings** → **System** → **Power Management**

Power Saving in Standby

You can minimise the standby power consumption to below 1W.

Setting Automatic Power Down

The receiver automatically enters standby mode for power saving if no user interaction occurs for 3 hours.

1. Select **Automatic Power Down**.
2. Select **On** to enter standby mode automatically if no user interaction occurs for 3 hours.

Note: The message will be displayed before entering standby mode. If no selection is made for 30 seconds, the receiver enters standby mode automatically.

Data Storage

MENU → **Settings** → **System** → **Data Storage**

You can check the size of the internal hard disk drive or external USB storage device.

1. Select a storage to display the details for each storage.
2. To format the selected storage, select **Format Storage**. If you select **Yes**, you will be prompted to enter the password.

Note:
* The default password is 0000. If you have forgotten your password, please contact HUMAX Customer Service.
* Supported features according to USB file system
  ➤ **ext3:** Read, Copy (Digital TV/Radio, MP3, JPEG, Xvid)
  ➤ **FAT:** Read, Copy (Digital TV/Radio, MP3, JPEG, Xvid)
  ➤ **NTFS:** Read (MP3, JPEG, Xvid)
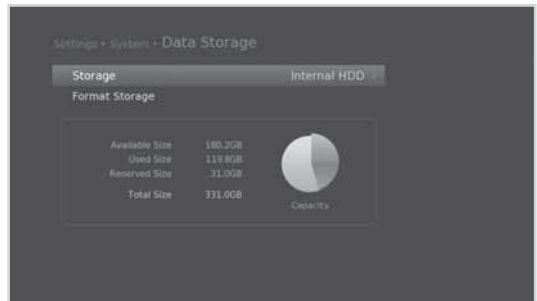
System

Internet Setting

Configuring Wi-Fi (wireless)

1. Select **Configure Wi-Fi**.
2. The wireless LAN network list will appear. Select your Wi-Fi network and press the **OK** button.
3. If your Wi-Fi network is not listed, select **Input network name** and enter the name in the keyboard.
4. Configure the Wi-Fi setting options.
   ➢ **Network Name**: The Wi-Fi network name
   ➢ **Security Type**: The Wi-Fi security type
   ➢ **Password**: The Wi-Fi password.

Note: Refer to **Connecting the Network** for details.

Configuring LAN

1. You can configure the Ethernet setting options.
   ➢ **DHCP**: Apply the options according to the DHCP.
   ➢ **Manual**: Enter the options manually,

Select **Apply** and press the **OK** button.

Note:
• When entering the IP address manually, enter 3 digits in a row.
• The network is connected by LAN when both WiFi and LAN are activated.
• HUMAX recommends the network connection over a direct LAN.
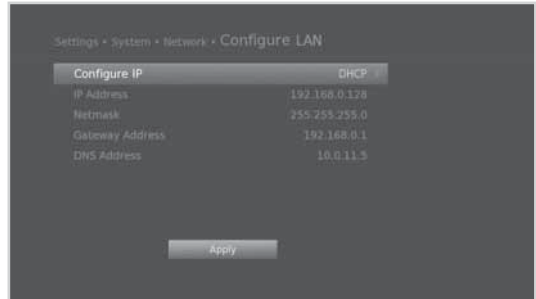
Content Sharing

You can find video, music and photo files in the HDD and play them on your TV or send those files to other devices. (Make sure the network is connected to both devices.)

1. Select **Content Sharing.**
2. Select **On** to connect to the HDD from other devices.

FTP Server

You can use the product as an FTP server to upload or download files.

1. Select **FTP Server**.
2. Select **On** to use the product as an FTP server.

MENU Menu On/Off   Select   OK Confirm   Enter 0~9

Appendix

Specification

Tuner & Channel	
No. of Tuners	2
Input Connector	IEC 169-2 female
Frequency Range	174-230MHz(VHF) 520-820MHz(UHF)
Audio/Video Decoding	
Audio Decoding	MPEG/MusiCam Layer I & II, Dolby Digital+
Audio Mode	Single channel/Dual channel/Joint stereo/Stereo
Video Decoding	MPEG-2 ISO/IEC 13818 Transport Stream Specification
Video Format	4:3, 16:9
Video Resolution	1080p, 1080i, 720p, 576p, 576i
Memory	
Flash Memory	32MB
RAM	256MB
EEPROM	8KB
Audio/Video In/Out	
Video	RCA, YPbPr, HDMI/HDCP
Audio	Audio L/R, S/PDIF (Digital Audio Output)
Data In/Out	
USB	USB 2.0 Host (5 V⎓500, 500mA Max.)
File Format	JPEG(jpeg, .jpg, .jpe, .jfif), MP3(mp3, .mp2, .mp1)
Hard Disk	
HDD	500GB/1TB
Power Supply	
Input Voltage	90-250V a.c., 50/60Hz
Type	SMPS
Power Consumption	Max. 25W (Standby: Max. 1W)
Protection	Separate internal fuse. The input should be protected against lightning.

Appendix

Physical Specification	
Size (w/h/d)	380mm×246mm×55mm
Weight	2.75kg
Operating Temperature	0 ºC to +45 ºC

Note: The specifications are subject to change without notice.

Appendix

Service and Support

Information concerning troubleshooting, software upgrade and product support is provided in the following websites and customer service centre. Should your product require warranty service, please contact HUMAX to obtain the appropriate authorization.

HUMAX Customer Service

Australia	Tel:	1300 737 937
	Opening Hours:	Mon-Fri 9:00-17:00 (excluding Public Holidays)
	Address:	7 / 602 Whitehorse Road, Mitcham, Vic, 3132
	E-mail:	ausupport@humaxdigital.com
	Website:	www.humaxdigital.com/au
	Language:	English

Note: For hardware repair, please visit our website.

Appendix

Safety Warning

This product has been manufactured to comply with international safety standards. Please read the following safety precautions carefully.

Safety Instructions and Precautions

1. **MAINS SUPPLY**
    *   Operate this product only from the type of power supply indicated on the marking label. If you are not sure of the type of power supplied to your home, consult your local power company.
    *   Disconnect the product from the mains before you start any maintenance or installation procedures.
2. **OVERLOADING**
    *   Do not overload a wall outlet, extension cord or adapter as this may result in electric fire or shock.
3. **LIQUID**
    *   The product should not be exposed to liquid of any kind. In addition, no objects filled with liquid should be placed on the apparatus.
4. **CLEANING**
    *   Disconnect the product from the wall outlet before you clean it.
    *   Use a moist cloth to clean the product. Do not use solvents. Wipe the surface gently with a soft cloth as it may get scratched.
5. **VENTILATION**
    *   Make sure that the top of the product is not blocked. It is necessary to have a sufficient airflow into the unit.
    *   Do not put the product on soft surfaces.
    *   Do not put objects on the product. This will block the ventilation or cause damage to the surface.
6. **ATTACHMENTS**
    *   Do not use any unsupported attachments as these may be hazardous or cause damage to the product.
7. **LIGHTNING, STORM OR NOT IN USE**
    *   Unplug the product from the wall outlet and disconnect the antenna during a thunderstorm or when left unattended and unused for long periods of time. This will prevent damage to the unit due to lightning and power-surges.
8. **EXTRANEOUS OBJECTS**
    *   Do not insert anything through the openings in the unit, where they can touch dangerous voltage points or damage parts.
9. **REPLACEMENT OF PARTS**
    *   When replacement of parts is required, be sure the service technician uses replacement parts specified by the manufacturer or those that have the same characteristics as the original part. Unauthorized substitution may result in additional damage to the unit.
10. **CONNECTION**
    [Satellite] CONNECTION TO THE SATELLITE DISH LNB
    *   Disconnect the product from the mains before connecting or disconnecting the cable from the satellite dish. Failure to do so can damage the LNB.
    [Cable] CONNECTION TO THE CABLE TV SIGNAL
    *   Connect all components before plugging any power cords into the wall outlet. Always turn off the product, TV and other components before you connect or disconnect any cables.
    [Terrestrial] CONNECTION TO THE AERIAL
    *   Disconnect the product from the mains before connecting or disconnecting the cable from the aerial. Failure to do so can damage the aerial.

Appendix

11. CONNECTION TO THE TV
- Disconnect the product from the mains before connecting or disconnecting the cable from the TV. Failure to do so can damage the TV.

12. EARTHING
   [Satellite] The LNB cable must be earthed to the system earth for the satellite dish.

13. LOCATION
- Place the product indoors to avoid exposing it to lightning, rain or sun. Do not place it near a radiator or heat register.
- We recommend that the product has 10 cm clearance from any other appliances susceptible to electromagnetic influences, such as a TV or a VCR.
- Do not block the openings with any object, and do not place the product on a bed, sofa, rug, or other similar surface.
- If you place the product on a rack or a bookcase, ensure that there is adequate ventilation and that you have followed the manufacturer's instructions for mounting.
- Do not place the product on an unstable cart, stand, tripod, bracket, or table where it can fall. A falling product can cause serious injury to a child or adult, and serious damage to the appliance.
- No naked flame sources, such as lighted candles, should be placed on the apparatus.

Warning

1. To avoid damage of the power cord or plug;
- Do not modify or process the power cord or plug arbitrarily.
- Do not bend or twist the power cord.
- Make sure to disconnect the power cord holding the plug.
- Keep heating appliances as far as possible from the power cord in order to prevent the cover vinyl from melting.
- The mains plug, as a disconnection device, shall remain readily accessible by the user.

2. To avoid electrical shock;
- Do not open the main body.
- Do not insert metal or inflammable objects inside the product.
- Do not touch the power plug with wet hands.
- Disconnect the power cord in case of lightning.

3. To avoid damage of product;
- Do not use the product when it is out of order. If you continue to use the product when defective, serious damage can be caused. Make sure to contact HUMAX Customer Service if the product is out of order.
- Do not insert metal or alien substance into the slots for the modules or Smartcards. (where applicable) It may cause damage to the product and reduce its life span.

4. To avoid damage of the hard disk drive (PVR only)
- Do not move the product or turn the power off suddenly while the hard disk drive is running.
- The company shall not be liable for any corruption of data on the hard disk drive caused by carelessness or misuse.

Appendix

Trouble Shooting

Before contacting the customer service centre, please read the tips below carefully. If the problem persists after completing the following procedure, please contact HUMAX Customer Service for further instructions.

1. **No message displayed on the front display. (The product will not switch on.)**
   - Check the main power cable and make sure it is plugged into a suitable power outlet.
   - Check that the mains supply is switched on.
   - Connect the power cable to a different power outlet.
   - Check that the power switch is on at the rear of the product. (where applicable)

2. **No picture**
   - Make sure that the product is powered on and in operation mode. (Press the **STANDBY** button)
   - Make sure that the AV cable is firmly connected to the TV.
   - Make sure that the antenna cable is properly connected to the product.
   - Be sure to activate channel search.
   - Check the brightness level of the TV.
   - Check if the channel is currently on air. Contact the broadcaster to ensure that the channel is running.
   - Press the SOURCE button if the product is in external input mode. (where applicable)
   - **Satellite:** Make sure that the antenna setting in the menu is correct.

3. **Poor picture/sound quality**
   - Make sure there is no mobile phone or microwave oven near the product.
   - Keep the power and the RF cables apart from each other.

Note: If the antenna is covered with snow or the RF is weakened by heavy rain, the condition of the sound and picture may temporarily be poor. However, the poor sound and picture quality due to weather conditions cannot be accepted as a malfunction of product.

   - **[Satellite]** Check that your dish alignment is correct.
   - **[Satellite]** Change the satellite dish for a larger one as this will increase the signal levels received.
   - **[Satellite]** Replace the LNB with a lower noise factor in cases where the noise factor is too high.
   - **[Satellite]** Replace the LNB with a new one in case it is damaged or out of order.
   - **[Satellite]** Install the antenna in an obstacle-free place.
   - **[Satellite]** Check the signal levels and adjust your antenna if the level is too low. The signal level may be affected by weather conditions.
   - **[Terrestrial]** Adjust the antenna direction to get a better picture.
   - **[Terrestrial]** Set the antenna power in menu to On, if you use the active antenna to improve the reception. (where applicable)

4. **No or poor sound**
   - Check that your AV cable is connected correctly.
   - Check the volume levels of your TV set and the product.
   - Check if the product or TV is on mute.
   - Check audio type or soundtrack option. (where applicable)

5. **Remote control does not operate.**
   - To control the product, the top end of the remote control should point directly towards the receiving part of the product.
   - Remove and reinsert the batteries in the remote control.
   - Replace the batteries in the remote control for a new set.
   - Set the remote control to STB or PVR mode, if you are using the universal remote control. (where applicable)

6. **Cannot make reservations.**
   - Check that no previous reservations are conflicting with the new reservation.

Appendix

7. **No password information is given.**
   - The default password is always **0000**.

8. **Channel search does not work.**
   - [**Satellite**] Make sure that the antenna setting in the menu is correct.
   - [**Cable**] Make sure that your cable is connected correctly.
   - [**Terrestrial**] Use the appropriate antenna capable of receiving VHF or UHF channels for your area.

9. **Cannot update new software.**
   - You can get an update. If the product does not show a message requesting update, this means no software is available.

10. **Cannot watch scrambled channels.**
    - Check that you have the appropriate Smartcard or CI-Module. Reinsert the Smartcard or CI-Module and make sure it initialises correctly.
    - Check in the menu that the product is detecting the Smartcard or CI-Module.
    - Check in the menu that you have a valid and working subscription to the channels you wish to view.
    - Ensure that the Smartcard or CI-Module is not damaged.

11. **Cannot watch pay channels.**
    - Check in the menu that you have a valid and working subscription to the channels you wish to view.
    - Contact your network operator for more information.

12. **The product makes a humming noise.**
    - The noise is from the fan; the hard disk is operating normally. This kind of noise is inevitable but seldom noticeable.

13. **Cannot record programmes. (PVR only)**
    - The hard disk is full. Delete unnecessary programmes and make space for new recording.
    - Check if recording is conflicted with another channel. Stop the current recording or wait until the recording is finished.
    - Check that the product is switched on when recording starts.

14. **Cannot operate TSR (Time Shifted Recording). (PVR only)**
    - TSR may not be available during recording. Wait until recording is finished.
    - Delete unnecessary programmes and make space for new recording.

15. **Cannot playback. (PVR only)**
    - To playback the recorded file of a scrambled channel, use the Smartcard. In case it has been a long time since you last recorded, this may not work. Contact Humax Customer Service.
    - The signal during recording may be weak or the hard disk too full.

16. **Cannot change channels while recording. (PVR only)**
    - Certain channels may not be changed due to restriction of the tuner or connection type.

Appendix

Error Message

Error message	Possible causes	What to do
No or bad signal [Satellite]	The satellite dish is not pointing at the satellite.	Adjust dish alignment.
	Signal is too weak.	Increase the LNB voltage or connect a signal amplifier.
	Satellite dish is too small.	Change to a larger dish.
	Problem with LNB.	Change the LNB.
	Wrong antenna setting.	Set the antenna correctly.
No or bad signal [Cable]	The cable is not connected.	Make sure the cable is connected correctly.
	The cable may be damaged or defective.	Exchange the cable.
	The channel is not broadcasting.	Exchange the cable.
No or bad signal [Terrestrial]	The aerial is not pointing properly.	Adjust aerial. Check the cable from the aerial. If you cannot resolve the problem, you may need to have your aerial and installation tested by a professional.
The channel is scrambled or not available.	The channel has a signal, but no audio or video.	Confirm if the channel is currently on air.
	The channel has been deleted by the broadcasting company.	Check if the channel is currently on air
	The channel is for data broadcasting.	Remove the channel from the channel list and check for new transponder details.
The audio is not available.	The channel has a video signal, but no audio.	Press the audio button to confirm that the channel has audio options.
No access	No access	Make sure you are subscribed to the channel.
	No authorization.	If the product has been turned off for a long time (standby or power off), please wait for authorization. It may take up to 60 minutes.
No card inserted.	Smartcard is not inserted.	Insert Smartcard.

Appendix

Error message	Possible causes	What to do
Incorrect card	Wrong Smartcard is inserted.	Insert the correct Smartcard.
	Smartcard is not inserted correctly.	Remove the Smartcard and reinsert it.
	Smartcard is damaged.	Contact your Smartcard retailer or channel broadcaster for a Smartcard replacement.
CI-Module not installed.	CI-Module is not inserted.	Insert CI-Module.
	CI-Module is not inserted correctly.	Remove the CI-Module and reinsert it.
	CI-Module is not recognized.	Insert a different CI-Module to check if your existing module is working.
Invalid CI-Module	Wrong CI-Module.	Insert the correct CI-Module.
	CI-Module is damaged.	Replace the CI-Module.
The antenna cable is short-circuited. [Satellite]	LNB cable is short.	Replace LNB cable.
	LNB is internally short.	Replace LNB.
	Alien substance is inserted in the LNB IN port. The port may be damaged.	Remove the alien substance and contact the local service centre in case damaged has occurred.

Appendix

Glossary

CVBS (Composite Video Baseband Signal)
A technology for transmitting video signals via a cable. Mixes luminance (brightness) and the chrominance (colour) signals together.

DiSEqC (Digital Satellite Equipment Control)
A DiSEqC compatible receiver relies on a switching box which detects the 22kHz tone pulsing rapidly on and off. In this way, a specially designed receiver can control numerous LNBs through a DiSEqC switching box.

Dolby Digital
An encoding system that digitally compresses up to 5.1 discrete channels of audio (left front, centre, right front, left surround, right surround) into a single Bitstream. A low frequency effect (LFE) channel is included providing the sound needed for special effects.

DVB (Digital Video Broadcasting)
Set of standards that define digital broadcasts using satellite, cable or terrestrial systems.

EPG (Electronic Programme Guide)
An electronic equivalent to a printed television listings magazine; it is an application used with digital set-top boxes and digital television sets to list current and scheduled programs that are or will be available on each channel, including a short summary or commentary for each program. The information supplied in the EPG is sent and updated by the channel broadcaster.

FEC (Forward Error Correction)
A technique for error control of data transmission.

Frequency
The property of a signal measured in cycles per second (=Hz).

FTA (Free- To-Air)
An unscrambled broadcaster allowing customers to view channels or services without paying any subscription.

HDD (Hard Disk Drive)
The primary computer storage medium, which is made of one or more aluminum or glass platters, coated with a ferromagnetic material.

HDMI (High-Definition Multimedia Interface)
An all-digital audio/video interface that supports standard, enhanced, or high-definition video, plus multi-channel digital audio on a single cable. It transmits all ATSC HDTV standards and supports 8-channel digital audio.

Hi-Fi (High Fidelity)
The characteristics of audio devices that can play back all the audio frequencies a person can detect, which is the range of 16Hz-20KHz. Sometimes it is used to indicate good quality of audio devices such as stereo tape recorders.

LNB (Low Noise Block)
A device that is mounted on an arm facing your satellite dish, focusing on satellite signals. A LNB converts signals received from satellite to a lower frequency and sends them to a satellite receiver via coaxial cable.

NVOD (Near Video On Demand)
A technology that allows customers to view the start of popular programmes or films within a short period from the time they make their selection. This is possible as the broadcaster sends multiple copies with staggered start times.

OSD (On Screen Display)
OSD displays the basic information necessary for the users to configure monitor or TV settings. OSD information may include brightness, contrast, tuning, RGB adjustment, and screen size and position.

Appendix

OTA (Over the Air)
A standard for the transmission of software for equipment, through a broadcast system. Manufacturers reserve the right for deciding the release of the software for their products.

PID (Packet Identifier)
A set of numbers identifying stream packets contained within a single data stream.

PIP (Picture In Picture)
A function that allows you to display two different TV channels (or TV inputs) on a single screen.

Polarisation
The direction of the electrical and magnetic fields of a signal. Satellites use both vertical and horizontal polarisation. Means that a frequency can be used twice.

PVR (Personal Video Recorder)
Video recorder that can record and playback programmes directly using the embedded hard disk drive(s).

QPSK (Quadrature Phase Shift Keying)
Digital modulation technique in which the carrier phase can have one of four possible values.

RF (Radio Frequency)
Television signals are modulated onto RF signals and are then demodulated by your television's or STB's tuner.

RF Modulator
Enables you to output the receiver's digital signals to a TVs RF (Aerial) input, allowing you to connect the receiver to a TV set without a SCART connection.

RGB (Red – Green – Blue)
A technology for transmitting video signals via a cable. RGB is a system to represent red, green, and blue colours on a TV or monitor display. Red, green, and blue can be combined in various proportions to obtain any colour.

RS-232C
A connection to allow you to connect to a PC to update receiver's software.

SCART
A 21-pin connector standard to connect two pieces of Audio-Visual equipment such as a TV and a VCR. Each device will have a 21-pin female connection; a cable with male connection at both ends is used for connecting the devices.

Smartcard
A credit card sized card that contains updateable chip memory. It is used for accessing Pay TV (encrypted) channel or services when inserted into an appropriate receiver.

S/PDIF (Sony/Philips Digital Interface format)
A standard format for the transfer of digital audio signals. It allows the transfer of digital audio between two devices without any conversion to and from analogue, which could degrade the signal quality.

S-Video (Super-Video)
Sometimes referred to as Y/C video; a technology for transmitting video signals via a cable. It is a video signal transmission in which the luminance (brightness) and the chrominance (colour) signals are transmitted separately to achieve superior picture clarity.

Transponder
A satellite is divided up in parts called transponders. A transponder is one distribution section of the satellite. Each transponder can be used for distribution of several channels or services.

Trick-Play
Pause, Fast Forward/Fast Rewind, Slow Motion, Instant Replay, Commercial Skip, Repeat A-B.

TSR (Time Shifted Recording)
A function that records the present programme temporarily to support trick-play.

Appendix

Remote Control Code List

1. Using the Universal Remote Control

1. Select the mode(PVR, TV, DVD, AUDIO) you want to set by pressing the corresponding button on the remote control. The button will blink once.
2. Keep pressing the button for 3 seconds until the button lights on.
3. Enter the 3-digit code. Every time a number is entered, the button will blink. When the third digit is entered, the button will blink twice.
4. If a valid 3-digit code is entered, the product will power off.
5. Press the **OK** button and the mode button will blink three times. The setup is complete.
6. If the product does not power off, repeat the instruction from 3 to 5.

Note:
*   When no code is entered for one minute the universal setting mode will switch to normal mode.
*   Try several setting codes and select the code that has the most functions.

Remote Control Function List

The keys on the remote control function as in the list below.

Note: Some keys may not function depending on the product.

Button	TV	DVD	AUDIO
STANDBY	POWER	POWER	POWER
🔇	MUTE	MUTE	MUTE
PVR			
TV			
DVD			
AUDIO			
1	DIGIT 1	1	INPUT 1
2	DIGIT 2	2	INPUT 2
3	DIGIT 3	3	INPUT 3
4	DIGIT 4	4	INPUT 4
5	DIGIT 5	5	INPUT 5
6	DIGIT 6	6	INPUT 6
7	DIGIT 7	7	INPUT 7
8	DIGIT 8	8	INPUT 8
9	DIGIT 9	9	INPUT 9
0	DIGIT 0, 11	0	INPUT 0
TV Portal			
MENU	MENU	MENU	MENU/MODE

Appendix

Button	TV	DVD	AUDIO
►	TEXT EXPAND	PLAY	PLAY
II	TEXT HOLD	PAUSE	PAUSE
■	PIP INPUT	STOP	STOP
●	PIP MOVE	RECORD, OPEN CLOSE	RECORD
◄◄	PIP OFF	REWIND, SEARCH REVERSE; SCAN	DVD SEARCH REW, CD SEARCH REW, REW
►►	PIP	FAST FORWARD, SEARCH FORWARD; SCAN	FAST FORWARD, DVD SEARCH REW, CD SEARCH REW, REW
I◄◄	TEXT MIX	SKIP -, TRACK -, CHAPTER -	DVD SKIP -, CD SKIP -, SKIP -
►►I	TEXT OFF, TV	SKIP, TRACK +, CHAPTER +	DVD SKIP+, CD SKIP +, SKIP +
RED	RED	RED	RED
GREEN	GREEN	GREEN	GREEN
YELLOW	YELLOW	YELLOW	YELLOW
BLUE	BLUE	PROGRAMME	BLUE
MEDIA			
GUIDE	GUIDE	GUIDE	DSP MODE
OK	OK	OK	OK
UP	UP	UP	UP
LEFT	LEFT	LEFT	LEFT
RIGHT	RIGHT	RIGHT	RIGHT
DOWN	DOWN	DOWN	DOWN
EXIT	EXIT	EXIT, RETIRN	EXIT
BACK	LAST, RECALL; PP; LAST CHANNEL	CLEAR	REPEAT
VOL+	VOL+	VOL+	VOL+
VOL-	VOL-	VOL-	VOL-
ℹ	INFO, OSD; DISPLAY	INFO, OSD; DISPLAY	INFO
LIST		LIST	
P+	P+	P+	P+
P-	P-	P-	P-
TEXT	TEXT	PVR MENU	
◁?		AUDIO, LANGUAGE	SURROUND
SUB	SUBTITLE, LANGUAGE; CC	SUBTITLE	

Appendix

Button	TV	DVD	AUDIO
TV/RADIO	TV/DTV ATV/DTV; D/A; DTV/ TV; DTV; DIGITIAL	HDD, DVD/HDD	BAND
OPT+			RANDOM
📑	TEXT SUBPAGE TEXT TIME		RANDOM
📖	TEXT INDEX	TITLE	
▶	TEXT POSITION TEXT CANCEL; TEXT UPDATE	SLOW; STEP	
SOURCE	SOURCE, AV, 55INPUT; TV/ AV	SOURCE, TV/DVD, TV/DISK	SOURCE, FUNCTION
SLEEP	SLEEP	SLEEP	SLEEP
V-FORMAT	TEXT SIZE; TEXT EXPAND; FTB		
WIDE	WIDE, FORMAT, 16:9, ASPECT; ZOOM	ZOOM	

Note: Some products may not respond depending on the manufacturer.

2. TV Code List

Brand	Code
A.R. Systems	102, 006, 080, 066
Accent	006
Acer	261, 278, 305
Acoustic Solutions	210, 312, 324, 370, 386, 428, 477
Acura	002
ADL	224
Admiral	043, 014, 015, 023
Advent	192, 342
Adyson	034, 035
AEG	211, 256, 327, 489
Agashi	043, 034, 035
AGB	094
Agef	014
Aiko	006, 061, 043, 074, 002, 004, 011, 028, 034, 035, 065
Aim	006, 171
Airis	316, 413, 473
Aiwa	139, 141, 445

Brand	Code
Akai	102, 006, 098, 144, 145, 111, 061, 043, 074, 148, 232, 280, 128, 122, 461, 109, 462, 489, 094, 084, 083, 065, 035, 034, 033, 028, 023, 011, 004, 002, 154, 321
Akiba	006, 036, 080, 045
Akito	006, 044
Akura	006, 144, 134, 204, 043, 036, 002, 026, 045, 071, 298, 327, 376, 451
Alaron	034
Alba	006, 144, 134, 204, 087, 064, 036, 005, 108, 473, 455, 447, 388, 099, 084, 077, 072, 065, 059, 034, 023, 002
AlfaView	220
All-Tel	190, 238
Allorgan	032, 035
Allstar	006
Amitech	131, 241
Amoi	315
Amplivision	064, 035, 049

Appendix

Amstrad	006, 204, 043, 036, 074, 002, 023, 026, 062, 065, 071, 094, 128, 410, 436, 451
Anam	006, 002
Anam National	006, 129
Andersson	210, 211
Anglo	043, 002
Anitech	006, 043, 002, 045
Ansonic	006, 134, 064, 002, 017, 023, 042, 048 , 066, 070, 285
AOC	120, 266, 335
Apollo	083
Apro	420
Arc En Ciel	020
Arcam	034, 035
Ardem	006, 144
Arena	006
Aristona	102, 006
ART	204
Arthur Martin	023
ASA	010, 014, 017, 018, 055
Asberg	006
Asora	002
Asuka	043, 036, 034, 035, 045
Atec	340, 387
Atlantic	006, 032, 034, 042, 049
Atori	002
Auchan	023
Audiosonic	006, 144, 086, 145, 043, 064, 036, 002, 020, 035, 066, 190, 250, 405, 473
Audioton	086, 043, 064, 035
Audiovox	079
Aumark	009
Autovox	014, 032, 035, 056, 097
AVC	472
Avious	352
Awa	111, 005, 019, 002, 003, 035, 079, 271
Axxent	002
Baier	192

Baird	011, 012, 020, 033, 035, 054, 218
Bang & Olufsen	014
Barco	023
Basic Line	102, 006, 134, 204, 036, 080, 002, 023, 035, 045, 053, 066, 211
Bastide	035
Bauer	171, 344
Baur	006, 030, 061, 028, 056, 093, 096, 097, 101
Bazin	035
Beaumark	027
Beko	006, 144, 086, 145, 111, 064, 072, 172, 361, 405
Belson	138, 201, 215
Belstar	204
BenQ	223, 328, 329
Bensten	258, 436, 437
Beon	006, 072
Berthen	134
Best	064
Bestar	006, 064, 066
Bestar-Daewoo	066
Binatone	035
Black Diamond	444, 204, 211
Blackway	036, 045
Blaupunkt	030, 005, 080, 025, 028, 096, 101
Blue Media	340, 387
Blue Sky	102, 006, 144, 134, 204, 145, 087, 036, 080, 091, 119, 045, 215, 229, 254, 265, 310, 361, 380, 445
Blue Star	045
BlueH	391
Boca	361
Boman	256
Boots	002, 035, 044
Bork	265
Bosch	049
BPL	006, 033, 045, 202
Brandt	120, 144, 103, 020, 046, 052
Brimax	380
Brinkmann	006, 134, 086, 072, 095

Appendix

Brionvega	006, 014, 062	**CMS Hightec**	035
Britannia	034, 035	**Concorde**	002
Brother	043	**Condor**	006, 043, 064, 002, 034, 045, 049, 070, 072
Bruns	014	**Conia**	179, 201, 298, 376
BSR	023	**Conrac**	172
BTC	036	**Contec**	006, 005, 002, 034
Bush	102, 006, 144, 134, 204, 138, 087, 061, 043, 036, 005, 108, 376, 373, 370, 361, 355, 352, 327, 388, 430, 431, 432, 440, 448, 451, 473, 476, 477, 478, 002, 033, 035, 044, 045, 056, 059, 065, 066, 095, 133, 164, 210, 213, 229, 232, 250	**Continental Edison**	087, 020, 046
		Cosmel	006, 002
		Crosley	014, 023
		Crown	006, 144, 134, 204, 086, 145, 087, 111, 143, 064, 361, 135, 072, 071, 053, 033, 002
Canton	036	**Crown Mustang**	135
Capsonic	043	**CS Electronics**	036, 034
Carad	134, 204, 113	**CTX**	395
Carena	006, 080	**Curtis Mathes**	009, 015, 021, 024, 079
Carrefour	006, 005, 010	**Cybertron**	036
Carver	025	**Cytronix**	246
Cascade	006, 002	**D-Vision**	102, 006, 451
Casio	006	**Daewoo**	102, 006, 124, 444, 036, 441, 406, 341, 338, 271, 249, 195, 192, 190, 164, 133, 119, 091, 079, 066, 035, 034, 002
Cat	373, 504		
Cathay	006, 386		
CCE	006		
cello	397, 410, 418, 419, 420	**Dainichi**	036, 034
Centrum	204	**Daitsu**	237
Centurion	006	**Dansai**	006, 005, 002, 004, 033, 034, 035
Century	014	**Dansette**	071
CGE	064, 023, 072	**Dantax**	144, 204, 086, 145, 064, 361, 445, 450
Changhong	180		
Chimei	475, 415	**Datsura**	033
Cimline	036, 002	**Dawa**	006
Cineral	079	**Daytek**	221, 269, 271
Cinex	128, 213, 327	**Dayton**	002, 221, 269
Citizen	009	**Daytron**	006, 002, 066
City	002	**De Graaf**	098, 007, 023, 033
Clarivox	006, 010, 072	**DEC**	258
Classic	091	**Decca**	006, 011, 035, 044, 094, 118
Clatronic	006, 144, 043, 064, 036, 002, 035, 049, 065, 256	**Dell**	235, 278
		Denko	043
Clayton	204	**Denon**	021
CMS	034		

Appendix

Denver	006, 108, 214, 256, 352, 410, 453, 473, 489
Desmet	006, 002, 014, 049
DGM	436
Diamant	006
Diamond	181
DiBoss	293
Digatron	006
Digihome	210, 370
Digiline	006, 134, 018
Digimate	198
Digital Device	340
Digitek	310, 380
Digitrex	478
Digix Media	195
Dixi	006, 002, 014, 035
DL	199, 258
DMTech	260, 438, 449, 454, 456
Domeos	134
Dream Vision	379
DTS	002
Dual	006, 204, 208, 035, 042, 054, 056, 095, 097, 164, 210, 219, 237, 468
Dual Tec	035
Dumont	010, 011, 014, 017, 035
Durabrand	285, 361, 453
Dux	006
Dynatech	035
Dynatron	006
e-motion	380
E:max	256, 316
Easy Living	230, 326, 402
Ecco	162
ECE	006
Edison-Minerva	087
Eiki	150
Elba-Sharp	094
Elbe	102, 006, 113, 036, 028, 035, 042, 048, 062, 070, 075, 094, 099, 121
Elcit	014, 023, 094

Elekta	043, 045
Element	376
Elfunk	204, 222
ELG	006
Elin	006, 098, 061, 002, 017, 056
Elite	006, 036, 049
Elta	043, 002
Emerson	006, 144, 134, 444, 086, 061, 064, 010, 014, 027, 045, 049, 065, 119
Emperor	045
Envision	266
Epson	243, 184, 186
Erae	267
Erres	006
ESC	006, 035
Etron	002, 023
Eurofeel	043, 035
Euroman	006, 043, 064, 034, 035
Europa	006
Europhon	006, 035, 094
Evesham	230, 340, 370, 382, 387
Evesham Technology	387
Evolution	395
Excors	467
Expert	023, 032, 042
Exquisit	006
FairTec	268
Fenner	002, 066
Ferguson	006, 120, 098, 103, 030, 204, 012, 020, 029, 046, 052, 054, 077, 292, 447, 476
Fidelity	006, 061, 043, 023, 026, 029, 034, 065, 071, 093, 097
Filsai	035
Finlandia	098, 061, 011, 023, 033, 055
Finlux	102, 006, 144, 145, 333, 327, 172, 122, 118, 094, 089, 084, 083, 070, 055, 035, 023, 018, 017, 014, 011, 010
Firstline	102, 006, 144, 134, 204, 061, 341, 267, 265, 250, 215, 172, 119, 097, 070, 066, 056, 050, 035, 034, 033, 011, 002

Appendix

Fisher	061, 064, 005, 008, 011, 014, 017, 033, 035, 056, 097		**Gorenje**	064
Flint	006, 113, 043, 036, 080, 011		**GPM**	036
Force	210		**Gradiente**	006, 025, 207
Forgestone	029		**Graetz**	144, 087, 061, 023, 053, 065, 211
Formenti	006, 014, 023, 034, 049		**Gran Prix**	128
Formenti-Phoenix	034, 049		**Granada**	006, 098, 103, 005, 019, 038, 011, 023, 033, 035, 053, 054, 060, 081, 083, 094, 008
Fortress	014, 015			
Fraba	006, 064		**Grandin**	102, 006, 144, 134, 204, 145, 113, 036, 080, 272, 270, 269, 246, 220, 215, 195, 190, 119, 066, 049, 045, 023, 002
Friac	006, 113, 064, 002, 091			
Frontech	043, 002, 023, 035			
Fujimaro	190		**Gronic**	035
Fujitsu	002, 011, 032, 035, 042, 137, 173, 187		**Grundig**	102, 006, 030, 087, 142, 005, 108, 498, 476, 448, 447, 445, 430, 405, 370, 271, 267, 250, 225, 135, 121, 010, 101, 096, 028, 077
Fujitsu General	002, 032, 035, 137			
Fujitsu Siemens	172, 211, 230, 246, 268, 369			
Funai	144, 134, 043, 275, 336, 369, 407		**Grunkel**	211
Galaxi	006		**H & B**	172, 456
Galaxis	006, 064		**Haier**	138, 344, 392, 339
Gateway	394		**Halifax**	043, 034, 035
GBC	036, 002, 023, 066		**Hallmark**	027
GE	015, 027, 045, 052, 079, 150, 442		**Hampton**	034, 035
GEC	006, 061, 011, 023, 035, 056, 094		**Hanimex**	036, 443
Geloso	002, 023, 066		**Hanns.G**	402
General	020, 046, 082		**Hannspree**	262, 263, 264, 342, 401, 402, 463
General Technic	002		**Hanseatic**	102, 006, 120, 144, 124, 061, 064, 172, 133, 097, 095, 091, 067, 056, 049, 048, 045, 035, 014, 002
Genexxa	006, 036, 002, 023, 071			
Gericom	172, 190, 195, 220, 224, 246, 340, 388			
			Hantarex	006, 002, 094, 190, 260, 289
Go Video	009		**Hantor**	006
Gold	397, 413, 484, 485		**Harsper**	190
Goldfunk	134		**Harwa**	162, 218, 238
GoldHand	034		**Harwood**	006, 087, 002, 071
GoldStar	006, 144, 145, 111, 061, 001, 007, 020, 023, 027, 034, 035, 047, 067		**Hauppauge**	006
			Havermy	015
Gooding	087		**HCM**	006, 043, 036, 002, 035, 045, 071, 072
Goodmans	102, 006, 120, 144, 103, 134, 124, 444, 204, 087, 043, 036, 005, 478, 211, 232, 477, 250, 476, 271, 445, 355, 370, 373, 440, 376, 382, 383, 386, 002, 004, 011, 035, 047, 052, 054, 065, 066, 084, 091, 094, 119, 121, 133, 172, 195, 210			
			Hema	002, 035
			Hemmermann	056, 097
			Hifivox	020
			Higashi	034
			Highline	006, 043

Appendix

Hikona	036, 452
Hinari	006, 043, 036, 005, 002, 033, 059, 077, 443
Hisawa	144, 113, 036, 080, 045
Hisense	102, 092, 165, 254, 265, 366, 491
Hit	014
Hitachi	006, 098, 124, 204, 208, 005, 019, 037, 146, 152, 153, 163, 169, 193, 197, 007, 206, 210, 217, 227, 295, 296, 330, 377, 399, 424, 483, 020, 021, 023, 027, 035, 054, 056, 060, 076, 081, 083, 084, 085, 089, 091, 094, 018, 106, 107, 011
Hitachi Fujian	019
Hitsu	113, 036, 080, 002
HMV	014
Hoeher	144, 190, 211, 327
Home Electronics	111
Hornyphon	006
Hoshai	036, 080, 045
Huanyu	034, 066
Hugoson	198, 224
Humax	505, 299, 506, 507, 245, 319, 322, 411, 433, 479
HYD	271
Hygashi	034, 035
Hyper	002, 034, 035
Hypersonic	061
Hypson	102, 006, 144, 134, 204, 086, 145, 043, 080, 035, 045, 118
Hyundai	164, 190, 192, 241, 244, 271, 291, 317, 338, 340, 341, 439
Iberia	006
ICE	006, 043, 036, 034, 035, 065
ICeS	036, 034
iDEAL	327
Igo	226
IISonic	271, 308, 342
Iiyama	193, 198, 224
Imperial	006, 064, 056, 072, 121, 487
Indiana	006
InFocus	212, 220, 283
Ingelen	144, 113, 087, 023

Ingersol	002
Inno Hit	036, 002, 011, 035, 045, 047, 094, 211
Innovation	095
Innowert	190, 246
Interbuy	006, 043, 002
Interfunk	006, 061, 014, 020, 023, 056, 093
Internal	102, 444, 119
Intervision	006, 086, 087, 043, 036, 080, 002, 035, 045, 067, 095
Irradio	006, 036, 002, 047, 065, 147
Isukai	006, 036, 080, 045
ITC	035, 049
ITS	006, 043, 036, 034, 045, 065
ITT	098, 113, 061, 023, 029, 033, 053 055, 056, 083, 084, 097
ITT Nokia	098, 113, 111, 061, 023, 033, 053 055, 056, 083, 084
ITV	006, 043, 066
JDV	451
Jean	005, 307, 308
JEC	004
JMB	102, 124, 077, 091
JNC	378
Jocel	143
Jouge	284
Jubilee	102
JVC	111, 036, 005, 129, 130, 015, 029 065, 072, 137, 149, 207, 264, 362 408, 496
Kaisui	006, 036, 080, 002, 034, 035, 045
Kamp	034
Kapsch	061, 017, 023, 032, 042
Karcher	144, 113, 111, 043, 064, 045, 164, 327, 451
Kathrein	102, 195
Kawa	065
Kawasho	034
KB Aristocrat	023
Kendo	006, 204, 113, 064, 062, 067, 070, 095, 099, 128, 210, 285, 333
Kennedy	023, 032, 075

Appendix

Kennex	204	Liesenk & Tter	006
Keymat	258, 300, 398, 436, 437	Liesenkotter	006
Kingsley	034	Lifetec	006, 144, 134, 204, 208, 036, 002 066, 095, 137
Kioto	142	Lloyd's	002
Kiss	170	Local India TV	002, 033, 109, 280
Kiton	006, 134	Lodos	204, 210
Kneissel	102, 006, 113, 064, 042, 048, 062 066, 070, 075, 091	Loewe	006, 064, 014, 048, 093, 094, 123 131, 167, 414, 434
Kobra	290	Logic	494
Kolster	006, 036, 056	Logik	204, 001, 003, 029, 162, 195, 224, 292, 376, 464, 465, 466
Konig	006, 016	Logix	134, 095
Konka	006, 144, 036, 065, 072, 126, 158, 201	Luker	451
Kontakt	087	Luma	204, 002, 023, 032, 042, 062, 066, 070
Korpel	006	Lumatron	006, 043, 012, 023, 032, 035, 042
Korting	064, 014, 049	Lux May	006, 002
Kosmos	006	Luxor	098, 204, 061, 023, 033, 035, 047, 055, 056, 060, 083, 084, 122, 211
Kotron	071, 440	LXI	022
Koyoda	002	M Electronic	006, 144, 124, 030, 061, 361, 133, 093, 089, 084, 070, 066, 056, 055, 054, 046, 035, 034, 023, 020, 018, 017, 002
Kreisen	192, 293		
KTV	035		
Kuba	056		
Kyoshu	071, 072	Madison	006
Kyoto	023, 034, 035	MAG	298, 376
L&S Electronic	144, 172, 190	Magnadyne	014, 023, 094, 097
LaSAT	086	Magnafon	012, 034, 094
Lava	293	Magnavox	005, 003
Lavis	204	Magnin	442
Leader	002	Magnum	006, 144, 145, 128, 242
Lecson	006	Mandor	043
Lemair	070	Manesth	006, 043, 004, 035, 049
Lenco	006, 108, 017, 066, 352, 452	Manhattan	006, 134, 204, 164, 192, 237, 293
Lenoir	002, 214	Maqma	290, 340, 378, 404
Lentec	316	Marantz	102, 006, 071, 140, 277, 317
Lexsor	218, 303	Marelli	014
Leyco	006, 043, 011	Mark	006, 144, 145, 002, 034, 035, 066
LG	102, 006, 144, 145, 138, 061, 064, 248, 281, 354, 367, 368, 384, 396, 416, 417, 425, 426, 215, 209, 067, 047, 035, 034, 027, 023, 002, 001, 236, 257	Marks and Spencer	420
		Marquant	478
		Mascom	327, 432

Appendix

Master's	091
Masuda	036
Matsui	102, 006, 144, 030, 204, 087, 005, 080, 074, 153, 195, 097, 094, 369, 445, 077, 447, 065, 059, 056, 052, 044, 035, 033, 028, 011, 008, 004, 003, 002
Matsushita	129
Maxent	394, 160
Maxim	213, 327, 451
Medialine	220, 449
Mediator	102, 006
Medion	102, 006, 144, 134, 204, 138, 208, 172, 195, 093, 040, 210, 213, 219, 230, 285, 327, 370, 440, 456
Megas	113
Megatron	021, 027
MEI	204
Memorex	204, 002, 009, 027
Memphis	002, 011
Mercury	006, 002
Metronic	120
Metz	006, 134, 030, 108, 014 ,028, 063 096, 101, 211, 318
MGA	027, 442
Micromaxx	006, 134, 204, 121, 172, 256, 456
Microspot	343
Microstar	172
Mikomi	204, 153, 210
Minato	006
Minerva	030, 087, 019, 010, 028, 094, 096, 101
Minoka	006, 071
Mirai	369, 423, 482
Mirror	440
Mistral Electronics	029
Mitsai	327
Mitsubishi	102, 006, 204, 005, 019, 014, 015, 027, 093, 096, 191, 311
Mivar	034, 035, 047, 048, 094, 112
Mogen	374, 410
Monaco	002

Morgan's	006
Motorola	015
MTC	064, 009, 034, 056, 093
MTEC	044
MTlogic	144, 473
Multibroadcast	029
Multitec	006, 134, 204, 086, 327
Multitech	006, 086, 043, 064, 002, 034, 035
Murphy	017, 023, 034
Musikland	036
Mx Onda	298, 376
MyCom	271
Myrica	369
Myryad	102
NAD	006, 061, 190
Naiko	006, 111, 157, 451
Nakimura	006, 066
Narita	451
NAT	038
National	038
NEC	005, 002, 003, 025, 035, 040, 049, 066, 140, 239, 379
Neckermann	102, 006, 064, 014, 028, 049, 056, 070, 072, 101
NEI	006, 204, 065
Neon	237, 389
Neovia	190, 192, 220, 260, 267, 268, 271, 273, 449, 454
Nesx	389
Netsat	006
NetTV	160
Neufunk	102, 006, 144, 113, 036, 002
New Tech	102, 006, 002, 035, 054
New World	036
Nextier	338
NFREN	170
Nicam	097
Nicamagic	034
Nikkai	006, 043, 036, 005, 002, 004, 011, 034, 035
Nikkei	144

Appendix

Nikko	027		Otto Versand	102, 006, 030, 061, 005, 038, 028, 020, 035, 049, 054, 056, 015, 093, 096, 097, 101
Nobliko	010, 034			
Nogamatic	020		Pacific	102, 144, 204, 208, 077, 256
Nokia	098, 113, 111, 061, 023, 033, 049, 053, 055, 056, 066, 083, 084, 089, 122		Packard Bell	254, 293
			Pael	034
			Palladium	102, 006, 144, 064, 208, 035, 056, 028, 070, 072, 095, 101, 023, 121, 131 ,014
Norcent	266, 335			
Nordic	035		Palsonic	006, 138, 043, 001, 035, 072, 218, 238, 303
Nordmende	006, 144, 103, 030, 020, 046, 054, 242, 280, 499			
			Panama	006, 043, 002, 034, 035
Normerel	006		Panasonic	006, 098, 061, 129, 038, 023, 063, 094, 187, 251, 294, 353, 359, 279, 306
Northern Star	220			
Novatronic	006, 018, 066			
Novita	273		Panavision	006, 070
Oceanic	098, 061, 023, 033, 083		Pathe Cinema	023, 034, 048, 049
Odeon	043		Pathe Marconi	020
Okano	006, 043, 064, 002, 011		Pausa	002
Olidata	271		Penney	009, 022, 027, 442
Omega	043		Perdio	006, 011, 023, 034, 045, 049
Onida	207, 226		Perfekt	006
Onimax	144		Petters	006
Onn	380, 465, 477, 495, 497, 500, 501		Philco	006, 064, 014, 021, 072
Onwa	036, 074, 065, 109		Philex	029
Onyx	380, 397		Philharmonic	035
Opera	006		Philips	102, 006, 061, 459, 435, 429, 395, 310, 302, 297, 247, 125, 110, 101, 073, 066, 054, 029, 014, 002
Optimus	129, 024			
Optoma	234, 346, 371			
Orbit	006		Phocus	144, 242, 250, 361, 405
Orcom	300		Phoenix	006, 086, 064, 011, 014, 023, 034, 049
Orion	102, 006, 144, 204, 467, 458, 457, 456, 448, 445, 443, 385, 218, 195, 131, 097, 094, 077, 071, 059, 050, 049, 003			
			Phonola	102, 006, 014, 029, 034
			Pilot	142
			Pioneer	006, 086, 061, 064, 020, 023, 024, 046, 073, 093, 136, 159, 233, 277, 286, 381
Orline	006, 036			
Ormond	134, 204			
Orsowe	094		Pionier	086, 064, 327
Osaki	102, 006, 043, 036, 011, 035, 044, 059, 066, 071		Plantron	006, 043, 002
			Playsonic	006, 144, 145, 035, 053, 361, 405
Osio	006, 047		Polaroid	298, 312, 355, 376, 383, 390, 240
Oso	036		Poppy	002
Osume	006, 036, 005, 011		Portland	066, 119
Otic	298, 376			

Appendix

Powerpoint	006, 138, 087, 201		**RBM**	010
Prandoni-Prince	061, 094		**RCA**	120, 015, 442
Precision	035		**RealiTV**	237
Premier	199		**Reality**	237
Prima	043, 002, 071, 218, 238, 303		**Recor**	006
PrimeView	340		**Rectiligne**	006
Prinston	204, 145		**Rediffusion**	098, 061, 005, 055
Prinz	061, 011, 056, 097		**Redstar**	006
Profex	061, 002, 023		**Reflex**	006, 134, 204
Profi	002		**Relisys**	190, 192, 193, 194, 220, 221, 271, 310, 333, 338, 341, 355, 390
Profilo	327			
Profitronic	006		**Remotec**	006, 015, 021, 026
Proline	006, 120, 124, 204, 011, 050, 070, 118, 121, 271, 324, 386, 450		**Reoc**	144
			Revox	006
Prosco	002		**Rex**	043, 023, 032, 042, 070, 099
Prosonic	006, 144, 134, 064, 034, 035, 065, 066, 389, 403, 428, 437, 467, 486		**RFT**	006, 043, 011, 014
			Roadstar	006, 144, 134, 204, 145, 043, 036, 002, 045, 072, 214, 440
Protech	006, 134, 204, 086, 043, 002, 035, 045, 056, 072			
			Robotron	014
Proton	027		**Rolson**	178, 267
ProVision	102, 006, 144, 256		**Rover**	193
Proxima	150, 152		**Royal Lux**	064, 052, 071
Pvision	192, 310, 456		**Saba**	120, 098, 144, 103, 061, 014, 020, 023, 046, 052, 054, 090, 094, 335
Pye	102, 006, 014, 056, 066, 101			
Pymi	002		**Sagem**	113, 080, 182, 253, 337
QONIX	352		**Saisho**	043, 002, 003, 023, 035, 094, 097
Quadral	036		**Saivod**	006, 134, 204, 143, 211, 327, 451
Quasar	002, 190		**Sakai**	023
Quelle	006, 134, 030, 204, 061, 101, 097, 096, 093, 056, 028, 020, 017, 010, 003		**Salora**	098, 061, 023, 033, 047, 056, 060, 084, 094, 118, 122, 213, 219, 327
			Salsa	052
Questa	005		**Sambers**	094
R-Line	006		**Sampo**	394, 160
Radialva	036, 023		**Samsung**	102, 006, 043, 064, 108, 115, 231, 252, 276, 287, 332, 345, 350, 351, 372, 442, 474, 488, 490, 492, 228, 176, 175, 127, 095, 047, 035, 034, 033, 027, 023, 011, 009, 002
Radiola	102, 006, 035			
Radiomarelli	006, 014, 094			
RadioShack	006, 027			
Radiotone	006, 134, 204, 043, 064, 002, 071, 072, 128			
			Sandra	034, 035
Rank	010		**Sansui**	006, 142, 131, 148, 189, 267, 326
Rank Arena	005		**Santon**	002

Appendix

Sanyo	204, 064, 005, 019, 442, 370, 363, 358, 357, 356, 222, 200, 150, 140, 097, 053, 048, 035, 034, 033, 025, 023, 017, 011, 008, 003, 002, 240
SBR	102, 006, 029
Schaub Lorenz	098, 144, 086, 111, 061, 056, 066, 215, 256, 267
Schneider	102, 006, 144, 134, 204, 061, 208, 036, 451, 450, 293, 128, 097, 095, 065, 056, 054, 042, 035, 023, 010
Scotch	027
Scotland	023
Scott	214
Sears	022, 026, 027
Seaway	124
Seelver	204
SEG	006, 134, 204, 087, 043, 036, 005, 285, 211, 210, 119, 062, 056, 035, 034, 002
SEI	006, 014, 023, 032, 056, 094, 097
Sei-Sinudyne	006, 014, 032, 094, 097
Seleco	023, 032, 042, 055, 062, 065, 070, 075, 099
Semp	022
Sencora	002
Sentra	004
Serino	113, 080, 015, 034
Sharp	005, 130, 216, 015, 029, 088, 094, 177, 274, 334, 365, 409, 166, 288
Shintoshi	006
Shivaki	006, 077
Siarem	014, 023, 094
Siemens	006, 030, 028, 096, 101
Siera	102, 006
Siesta	064
Silva	006, 061, 034, 128
Silva Schneider	006, 213, 327, 451
Silvano	108
Silver	145, 061, 005
SilverCrest	204
Singer	006, 074, 002, 014, 052, 075
Sinotec	162

Sinudyne	006, 061, 014, 023, 032, 056, 094, 097
Skantic	060
SKY	006, 195, 271, 300, 307, 308, 340, 341, 342, 343, 344, 391, 400, 421
SKY Brazil	195
Sliding	170, 190, 195, 256, 269, 270, 272
SLX	134
Smaragd	087
Soemtron	190, 246
Sogera	049
Sogo	271, 473
Solavox	006, 098, 061, 011, 023
Sonawa	036
Soniko	006
Sonitron	064, 033, 035, 053
Sonix	271, 389
Sonneclair	006
Sonoko	006, 043, 002, 035, 045
Sonolor	098, 061, 023, 033, 045
Sontec	006, 064, 002
Sony	006, 301, 005, 446, 412, 393, 375, 360, 325, 255, 203, 185, 174, 058, 003
Sound & Vision	036, 066
Soundesign	027
Soundwave	006, 204, 145, 049, 072, 420
Spectra	002
Squareview	026
Ssangyong	002
Standard	006, 204, 036, 002, 035, 049, 066, 380
Starlite	006, 043, 002, 023
Stenway	036, 045
Stern	043, 023, 032, 042, 070, 099
Strato	006, 043, 002, 403
Strong	210, 211
Stylandia	035
SunBrite	284
Sungoo	470
Sunkai	113, 087, 036, 080, 050, 059, 190

Appendix

Sunstar	006, 043, 002, 065
Sunstech	456
Sunwood	006
Superla	034, 035, 094
SuperTech	102, 006, 036, 002, 034
Supra	002, 066
Susumu	036, 046, 052
Sutron	002
SVA	108, 190
Swedx	340
Swissflex	481
Swisstec	481, 480, 422, 421, 401, 400, 391, 344, 343, 342, 341, 340, 308, 307, 300, 271, 195, 190
Sydney	034, 035
Sylvania	026, 275, 427
Sysline	006
Sytong	034
Tactus	044
Tandberg	061, 020, 063
Tandy	036, 011, 015, 023, 035
Targa	237, 267
Tashiko	005, 023, 025, 034, 035
Tatung	006, 003, 011, 035, 044, 094, 118, 215, 230, 256, 267, 326, 327, 382, 383, 395
TCL	142, 321
TCM	144, 172, 242, 456
Teac	006, 144, 134, 138, 143, 043, 080, 002, 025, 026, 027, 056, 093
Tec	006, 002, 035, 042, 052, 082
Tech Line	006, 134, 211, 285
Tech Lux	214
Techica	036
Technema	049
Technica	118, 451
Technics	102, 129
Technika	422, 428, 465, 468, 480, 493
TechniSat	102, 131, 237
Technisson	144, 242, 361
Technosonic	102, 120, 091, 195, 256, 258, 436, 437, 451, 468

Technotrend	316, 378
Techwood	204, 211
Teckton	271
Tecnimagen	102
Teco	205
Tedelex	002, 035, 380
Teiron	002
Tek	168
Teknika	009
TELE System	192
Teleavia	046, 054
Telecor	006, 036, 023, 035, 042
Telefunken	006, 120, 144, 103, 086, 320, 202, 105, 090, 082, 055, 054, 052, 046, 020, 016, 012, 348
Telefusion	006
Telegazi	006, 043, 036, 023, 042
Telemagic	150
Telemeister	006, 049
Telesonic	006
Telestar	102, 006
Teletech	006, 134, 204, 002
Teleton	005, 032, 035, 042, 056
Televideon	023, 034, 049
Teleview	006
Tempest	002
Tennessee	006
Tensai	006, 204, 145, 036, 002, 017, 018, 035, 049, 065, 066, 067
Tenson	002, 049
Tevion	102, 006, 144, 134, 204, 208, 468, 405, 403, 376, 355, 327, 298, 246, 242, 232, 230, 172, 128
Texet	036, 002, 034, 035, 066
Texla	165
Thes	467, 469, 471
Thomson	006, 120, 103, 020, 046, 052, 054, 056, 082, 335
Thorn	006, 061, 005, 100, 096, 093, 091, 054, 052, 044, 029, 020, 017, 012, 011, 004
Thorn-Ferguson	012, 029, 052, 054, 091

Appendix

Time	378, 454, 455		**Univox**	006, 014, 023
Tiny	238		**V2max**	190
TMK	027		**V7 Videoseven**	195, 224, 237, 271, 369, 394
Tobishi	310		**Venturer**	324, 386, 428
Tokai	006, 134, 204, 002, 011, 023, 035, 066		**Vestel**	006, 134, 204, 035, 211, 333, 370
Tokaido	204		**Vexa**	006, 002
Tokyo	004, 034		**Vibrant**	044
Tomashi	036, 045		**Victor**	005
Topline	134, 204		**Videocon**	092
Toshiba	030, 204, 005, 115, 129, 092, 447, 364, 313, 304, 242, 212, 211, 183, 100, 039, 022, 020, 010, 009, 004, 236, 257		**Videologic**	036, 034
			Videologique	036, 034, 035
			VideoSystem	006
			Videotechnic	034, 035, 049, 066
Tosumi	451		**Videoton**	023, 060
Towada	035, 056		**Vidikron**	150, 277
Toyoda	002		**Vidtech**	027
Trakton	043		**Viewpia**	192
TRANS-continents	102, 006, 134, 204, 035, 118, 190, 269, 272		**Viewsonic**	307, 308, 323, 335, 349, 391, 394, 259, 331
Transonic	006, 108, 002		**Visiola**	034
Transtec	034		**Vision**	006, 035, 049
Trident	035, 094		**Vistar**	032
Trio	298, 376		**Vistron**	265, 460
Tristar	043, 036, 029		**Vivax**	250, 258
Triumph	102, 006, 055, 094		**Vivid**	250
Tsoschi	045		**Vortec**	006
TVTEXT 95	102		**Voxson**	006, 014, 023, 072
TWF	432		**Waltham**	006, 134, 204, 020, 035, 060, 072, 077
Uher	006, 086, 064, 032, 042, 049, 066, 072, 084		**Wards**	009, 022, 024, 027
Ultravox	006, 014, 023 034, 066		**Watson**	006, 144, 134, 204, 036, 002, 023, 049, 095, 271, 285
UMC	308, 340, 343, 391, 400, 422, 480, 481, 493		**Watt Radio**	023, 034, 056, 097
Unic Line	006, 080, 083		**Wega**	006, 005, 014
United	006, 144, 204, 145, 108, 397, 445, 451		**Wegavox**	002
			Welltech	014
Universal	006		**Weltblick**	035, 049
Universum	006, 134, 030, 204, 061, 043, 064, 005, 115, 070, 072, 083, 084, 089, 093, 096, 097, 101, 122, 172, 211, 285, 062, 056, 055, 047, 035, 025, 020, 018, 017, 010, 003, 002		**Weltstar**	204
			Westinghouse	189
			Wharfedale	102, 006, 095, 189, 256, 327, 370, 452, 453, 477, 502

Appendix

White Westinghouse	006, 034, 049, 119
Wilson	102
Windsor	134, 204
Windstar	045
Windy Sam	102
World-of-Vision	190, 193, 195, 198, 224, 242, 246, 340, 389
X-View	215
Xenius	124, 133
XLogic	188
Xomax	397
Xoro	218, 224, 229, 303, 404, 503
Xrypton	006
Yakumo	342
Yalos	398
Yamaha	169, 314, 330, 184
Yamishi	006, 036, 080, 035, 045
Yokan	006
Yoko	006, 043, 064, 036, 002, 034, 035, 053
Yorx	036
Ytawai	316
Zanussi	032, 035
Zenith	119, 236
Zenor	053
TV/VCR Combo	
Aiwa	445
Amstrad	026
Beko	086
Black Diamond	444
Blue Sky	119, 445
Daewoo	444, 119
Dantax	445
Emerson	444, 119
Ferguson	120, 012
Fidelity	026
Finlux	017
Firstline	119
GE	015, 442
GoldStar	006

Goodmans	444, 066, 119, 445
Grandin	119
Grundig	102, 006, 030, 101, 445
Hanimex	443
Hinari	005, 443
Internal	444, 119
Irradio	147
LG	027
Magnin	442
Matsui	445
MGA	442
Mitsubishi	102, 015
Orion	443, 445
Penney	442
Philips	102, 006
Portland	119
Radiola	102
RCA	015, 442
Saba	120
Samsung	442
Sanyo	442
Schneider	102, 006
SEG	119
Sharp	015
Siemens	006
Sony	301, 446
Teac	026
Technics	102
Thomson	120
United	445
Universum	018
White Westinghouse	119
TV/VCR/DVD Combo	
Bush	448
Ferguson	447
Grundig	448
Matsui	447
Orion	448

Appendix

3. DVD Code List

Brand	Code
3D LAB	038
4Kus	106
A-Trend	063
Acoustic Solutions	066, 062, 114, 193, 208
AEG	073, 077, 058, 075, 113, 181
AFK	105, 181
Airis	057, 081, 109, 117, 216
Aiwa	036, 115
Akai	077, 075, 093, 100, 113, 162, 212
Akira	149
Akura	093, 103, 113, 136
Alba	038, 059, 066, 057, 062, 064, 103, 140, 162, 185, 216
Alize	104
Altacom	109
Amitech	073, 013, 087
Amstrad	073, 077, 062, 104, 136
Amuseer	120
AMW	091
Ansonic	082, 071, 120, 136
Apex Digital	057, 094, 116, 134
Arena	100
Aristona	038, 052, 214
ASCOMTEC	181
Asono	109
Atacom	109
Audiola	149, 224
Audiosonic	181, 216
Audix	062
Autovox	062
Auvio	086
Axion	066
Basic Line	062, 185
Baze	093
BBK	109
Bellagio	094
Bellwood	081
Belson	136, 181
Belsonic	136
Berthen	156
Binatone	181
Biostek	148
Black Diamond	062
Blu:sens	113, 117
Blue Nova International	117
Blue Sky	059, 077, 057, 062, 086
BlueTinum	136
Boghe	094
Boman	093
Bose	189
Brainwave	073, 100
Brandt	033, 039
Broksonic	059
Bush	066, 082, 057, 062, 064, 065, 103, 120, 127, 129, 140, 162, 172, 216, 217
Cambridge Audio	070
Cat	076, 181
CCE	066
cello	164, 198, 205
Centrum	058, 062, 076, 110, 181, 185
CGV	070, 100
Chili	135, 136
Cinea	085
Cinetec	062, 091
CJ Digital	156, 204
Classic	066, 164
Clatronic	057, 058, 075, 113, 181
Clayton	062
CMX	156
Coby	066, 120
Codex	113
Commax	117, 135
Compacks	081, 211
Contel	075
Continental Edison	082, 091

Appendix

Crown	073, 062, 100		ECC	066
Cybercom	082		Eclipse	065, 070
CyberHome	063		Elfunk	062, 087
Cytron	061, 119		Elin	073
D-Vision	100		Ellion	013, 087
Daenyx	091		Elta	073, 057, 075, 087, 100, 104, 113, 161, 204
Daewoo	073, 018, 061, 063, 083, 091, 129, 130, 159		Eltax	113, 117, 149
Dalton	097		Emerson	043, 061
Dansai	073, 100, 162		Enterprise	043
Dantax	038, 077, 062, 065, 122		EuroLine	058, 075, 100, 113, 120, 131, 156
Daytek	091		F&U	203
Dayton	091,106		Ferguson	059, 062, 093, 162, 164
DCE	082		Finlux	067, 043, 073, 057, 070
Decca	073, 100		Fintec	140
Denon	032, 049, 151		Firstline	062, 086, 090, 140
Denver	057, 075, 093, 117, 128, 136, 148, 181, 216		Fisher	056
			Funai	059, 058
Denzel	055		Gateway	106
Desay	086		GE	064
Dgtec	057		Global Link	109
Difrnce	211		Global Solutions	072
Digihome	062		Global Sphere	105
DigiLogic	062, 159		Go Video	090
Digitech	172		Gold	198
Digitek	013		GoldStar	067, 043
Digitrex	217		Goodmans	066, 077, 062, 065, 094, 103, 105, 116, 140, 164, 181, 217
Digix Media	081			
DiK	082		GoWell	156
Dinamic	075		GPX	067
Disney	082		Graetz	055
DiViDo	061		Gran Prix	082, 093
DK Digital	082, 116		Grandin	062, 113, 116, 204
Dragon	082		Greenhill	064
DreamX	104		Grundig	038, 039, 059, 077, 056, 061, 062,094, 097, 129, 156, 162, 164, 172
DSE	164			
Dual	066, 082, 077, 055, 062, 129, 140			
Durabrand	082, 058, 062, 128, 140, 159		Grunkel	073, 082, 077, 136
E:max	026, 113, 117, 156, 161		GVG	073
eBench	105		H & B	013, 062, 085, 087, 113, 204

Appendix

Hanseatic	067, 077	**KXD**	088, 117, 135, 181
Harman/Kardon	060, 111, 135	**Lawson**	072
Harwa	211	**Leiker**	091
HCM	075	**Lenco**	073, 062, 124
HDT	061	**Lexia**	072
HE	066, 181	**LG**	067, 043, 077, 090, 143, 179, 186
Henss	062	**Lifetec**	082, 119
Hikona	124	**Limit**	072
HiMAX	086	**LiteOn**	106, 126, 157, 165
Hitachi	042, 054, 062, 185	**LM**	156
Hiteker	057, 181	**Lodos**	062
Hoeher	082 ,062, 081, 094, 109, 140	**Loewe**	038, 067
Home Electronics	073, 066	**Logic**	222
Home Tech Industries	109, 156, 181	**Logik**	062
HotMedia	105	**Logix**	061
Humax	052, 225	**Lumatron**	067, 059, 061, 062, 100, 117, 172, 215
HYD	113	**Lunatron**	067
Hyundai	087	**Luxman**	042
Ingelen	075	**Luxor**	062, 064, 094, 162, 164
Inno Hit	062	**Magnat**	181
International	159	**Magnavox**	038, 033, 052, 058, 062, 103
Irradio	090, 100, 109, 113	**Magnex**	065
ISP	059	**Magnum**	129
it's	064	**Majestic**	149, 224
Jamo	097	**Manhattan**	061, 062
Jaton	055	**Manta**	136
JDB	066	**Marantz**	038
JGC	140	**Mark**	062
JMB	059	**Marquant**	073, 217
JVC	045, 038, 033, 107, 147, 176	**Matsui**	059, 057, 062, 094, 162, 164
Kansas Technologies	113, 140	**Maxim**	062, 091, 114
Kazuki	136	**MBO**	066, 164
Kendo	082, 057, 062	**MDS**	062
Kennex	073, 062, 093	**Mecotek**	073
Kenwood	032, 037	**Mediencom**	070
KeyPlug	156	**Medion**	067, 082, 119, 157
Kiiro	073	**MEI**	077
King Vision	136, 156	**Memorex**	082
Kiss	055, 085		

Appendix

Metz	041, 035, 062, 185	Oopla	106
MiCO	065, 070, 116	Opera	215
Micromaxx	059, 162	Optim	086
Micromedia	038, 033	Optimus	035
Micromega	038	Orbit	091, 156
Microsoft	163, 194	Orion	059, 062, 113, 127, 162
Microstar	082	Ormond	062
Minax	062	Pacific	082, 072, 077, 062, 071
Minoka	073, 100	Packard Bell	082, 117, 158
Mitsubishi	062	Palladium	059, 062, 179
MixSonic	101	Panasonic	032, 146, 155, 173, 178, 180
Mizuda	073	Panda	076, 135
Monyka	055	peeKTon	093, 109
MPX	086	Philips	038, 033, 052, 058, 106, 118, 121, 137, 167, 170, 191, 192, 195, 196, 210, 209
MTlogic	216
Mustek	066, 148, 164	Pioneer	041, 035, 016, 048, 133, 141, 145, 175, 183, 220
Muvid	136, 156, 204
Mx Onda	070, 116	PJ	181
Myryad	116	Play It	156
Mystral	082	Plu2	087
NAD	067	Polaroid	134
Naiko	073, 094	Powerpoint	091
Neom	136, 156	Prinz	082
Neon	013	Prism	082, 061
Neufunk	055	ProCaster	094, 200
Nevir	073, 082, 057	Proline	057, 094, 122, 165, 193
Nexius	077	Proson	062
Next Base	160	Prosonic	130, 208
NFREN	081	ProVision	066, 117, 136, 181
Nikkai	181	Pye	038, 052
Nikkei	116	QONIX	077
Norcent	181	Quartek	158
Nordmende	082	Radionette	067, 090, 179
Nortek	204	Radiotone	062
Oasis-Media	148	Raite	055
Olidata	057	RCA	168
Onkyo	033, 046, 169	REC	032
Onn	223	Redstar	073, 071, 075, 093, 125, 181
Onyx	198	Relisys	119

Appendix

Reoc	072, 092		**SKY**	013
Revoy	085		**Skymaster**	066, 072
Richmond	113		**Skyworth**	093
Roadstar	066, 057, 062, 093, 110, 172		**Sliding**	100
Ronin	091		**SM Electronic**	066, 072, 105
Rotel	045		**Smart**	061, 062
Rowa	064		**Sogo**	136, 203, 216
Rownsonic	076		**Sontech**	131
Saba	039, 204		**Sony**	036, 089, 096, 098, 139, 142, 150, 171, 177, 184, 188, 190, 201, 202
Saivod	082, 071		**Sound Color**	113
Salora	067		**Soundmaster**	072
Sampo	117		**Soundwave**	062, 140
Samsung	032, 042, 017, 022, 069, 099, 152, 166, 182, 197, 199, 219, 080		**Standard**	082, 072, 075, 093
Sansui	059, 013, 070		**Star Clusters**	105, 110
Sanyo	056, 062		**Starmedia**	109
Scan	061, 087		**Stein**	148
ScanMagic	066, 164		**Strato**	105, 123
ScanSonic	162		**Strong**	062
Schaub Lorenz	073, 075, 100, 104, 156		**Sunkai**	073, 087
Schneider	038, 082, 052, 077, 061, 062, 075, 090, 110, 122, 214		**Sunstar**	001
Schoentech	062		**Sunstech**	082, 148, 149
Scientific Labs	072		**Suntronic**	001
Scott	057, 097, 113, 125, 181		**Sunwood**	075, 093
Seeltech	109, 156		**Supervision**	072, 105
SEG	055, 062, 091, 140, 185, 215		**Supratech**	203, 213
Shanghai	057		**SVA**	057
Sharp	058, 062, 090, 127		**Swisstec**	206, 218
Sherwood	067, 064		**Sylvania**	058, 207
Shinco	064		**Symphonic**	058
Siemssen	123		**Synn**	072
Sigmatek	109, 200		**Syscom**	081
Siltex	109		**Sytech**	148, 200
Silva	075, 093		**Tamashi**	125
Silva Schneider	067, 082, 090, 093		**Tandberg**	062, 162, 185
SilverCrest	014, 015, 105		**Tangent**	117
Sinudyne	116		**Targa**	110, 157, 179
Sistemas	057		**Tatung**	073, 162
Skantic	038, 062		**Tchibo**	067

Appendix

TCM	067, 077
Teac	067, 072, 061, 064, 071, 110
Tec	093
Technica	162
Technics	032, 178
Technika	073, 082, 100, 140, 162, 206, 208, 218, 221
Technisson	100
Technosonic	100
Techwood	062, 140, 185
Telefunken	039
Teletech	072, 062
Tensai	073
Tevion	093, 097, 110, 123, 131, 164, 181, 215
Textorm	136
Theta Digital	041
Thomson	039, 116, 160, 168
Time	013
Tokai	077, 055, 075, 093, 113
Tom-Tec	076, 148
Top Suxess	109
Toshiba	033, 059, 132, 138, 153, 154, 169, 187
TRANS-continents	082, 081, 091, 113, 117
Tredex	086
Trevi	082
TSM	109
TVE	062
Umax	104
UMC	206, 218, 221
United	059, 066, 058, 062, 075, 081, 100, 105, 113, 120, 131, 156, 172, 198
Universum	067, 043, 077, 062, 090, 110, 140
Vecatech	136
Venturer	077, 169, 193, 208
Vestel	062, 140, 185
Vieta	061
Voxson	066, 082
Waitec	066, 104, 109, 113

Walkvision	064
Waltham	062, 140
Welkin	082
Wellington	062
Weltstar	062
Wharfedale	077, 062, 070, 100, 124, 172
Wilson	082, 113
Windsor	062
Windy Sam	042
Wintel	101
Woxter	104, 109
Xbox	163, 194
Xenius	077
Xomax	198
Xoro	108, 226
Yakumo	094
Yamada	091, 094, 104, 106, 126, 135, 136
Yamaha	032 ,038, 052, 079
Yamakawa	055, 091, 215
Yukai	066, 164
Zenith	033, 043
TV/DVD Combo	
Acoustic Solutions	193, 208
Airis	216
Akai	212
Alba	216
Audiosonic	216
Bush	062, 216, 217
cello	198, 205
Dantax	122
Denver	128, 216
Digitrex	217
Gold	198
Hikona	124
Logic	222
Marquant	217
MTlogic	216
Onn	223
Onyx	198

Appendix

Philips	210		**Technika**	208, 221
Proline	193		**UMC**	221
Prosonic	208		**Venturer**	193, 208
Sliding	100		TV/VCR/DVD Combo	
Sogo	216		**Ferguson**	059
Swisstec	218		**Matsui**	059

4. VCR Code List

Brand	Code
Accent	009
Adventura	001
Adyson	009
Aiwa	003, 028, 001, 029, 002, 068, 102
Akai	028, 029, 023, 012, 020
Akiba	009
Akura	009
Alba	010, 021, 028, 001, 009, 029, 023
Allorgan	020
Allstar	010
America Action	021
Amstrad	021, 001, 009
Anam	021, 003, 019, 020
Anam National	019
Anitech	009
Ansonic	001
Aristona	010
ASA	010, 003
Asha	020
Asuka	010, 003, 001, 009
Audiolab	010
Audiosonic	021
Audiovox	003
AVP	001, 029
Awa	003, 024, 005
Baird	021, 001, 011, 012
Basic Line	021, 009, 011
Beaumark	020
Beko	011

Bell & Howell	011
Bestar	021
Black Diamond	051
Black Panther	021
Blaupunkt	010, 019
Blue Sky	021, 003, 028, 051, 009, 029, 031, 068, 102
Bondstec	009
Brandt	024, 025
Brinkmann	028
Bush	010, 021, 028, 001, 051, 009, 029, 023, 068
Calix	003
Carena	010
Carrefour	006
Carver	010
Casio	001
Cathay	021
CCE	021, 009
Centrum	044
CGE	001
Cimline	009
Cineral	021
Citizen	021, 003
Clatronic	001, 009
Colt	009
Combitech	029
Condor	021
Craig	003, 009, 020
Crown	021, 003, 009, 031

Appendix

Cybernex	020	**GEC**	010
Cyrus	010	**General Technic**	028
Daewoo	021, 050, 051, 029, 006	**Genexxa**	011
Dansai	021, 009	**Go Video**	030, 102
Dantax	029, 068	**GoldHand**	009
Daytron	021	**GoldStar**	003, 001, 031, 102
De Graaf	010, 011, 007, 004	**Goodmans**	010, 021, 050, 003, 028, 001, 051, 009, 029, 020, 068
Decca	010, 001, 029, 008		
Deitron	021	**GPX**	003
Denko	009	**Gradiente**	001
Denon	004	**Graetz**	011, 020
Diamant	003	**Granada**	010, 003, 001, 011, 007, 004, 019, 020
Dual	010, 021, 028, 001		
Dumont	010, 001, 011	**Grandin**	021, 003, 001, 009, 068
Durabrand	051, 044	**Grundig**	010, 028, 009, 024, 029, 019, 068
Elbe	021	**Hanimex**	029
Elcatech	009	**Hanseatic**	010, 003
Electrophonic	003	**Harley Davidson**	001
Elin	020	**Harwood**	009
Elsay	009	**HCM**	009
Elta	021, 009	**Hinari**	021, 009, 029, 020
Emerex	002	**Hisawa**	029
Emerson	021, 050, 003, 001, 009, 006, 005	**Hischito**	006
ESC	021, 020	**Hitachi**	010, 001, 004, 020, 044
Ferguson	021, 028, 001, 024, 025, 068	**Hoeher**	021, 051
Fidelity	001, 009, 029, 030, 020	**Hornyphon**	010
Finlandia	010, 003, 001, 011, 007, 005, 004, 012, 019	**Hughes Network Systems**	004
Finlux	010, 001, 011, 004	**Hypson**	021, 003, 001, 009, 029, 031
Firstline	021, 003, 028, 009, 006, 005, 004, 031, 102	**Imperial**	001
		Ingersol	020
Fisher	011	**Inno Hit**	009
Flint	028	**Interbuy**	003, 009
Frontech	009	**Interfunk**	010, 011
Fujitsu	001	**Internal**	021, 050
Funai	001, 044	**International**	021, 003, 051
Galaxi	001	**Intervision**	021, 003, 028, 001
Galaxis	021	**Irradio**	010, 003, 009, 102
Garrard	001	**ITT**	011, 012, 020
GE	007, 020	**ITV**	021, 003

97

Appendix

JBL	021	**Medion**	028, 051, 029	
JMB	028, 029, 068	**Memorex**	003, 028, 001, 011, 007, 020	
Joyce	001	**Memphis**	009	
JVC	008	**Metronic**	010	
Kaisui	009	**Metz**	010, 144, 003, 019, 084	
Karcher	010, 021, 051	**MGA**	005, 020	
KEC	021, 003	**MGN Technology**	020	
Kendo	021, 003, 028, 051, 009, 023, 012	**Micormay**	028	
Kenwood	008	**Migros**	001	
KLH	009	**Minolta**	004	
Kneissel	021, 003, 028, 029	**Mitsubishi**	010, 051, 008, 007, 005, 031	
Kodak	003	**Motorola**	007	
Korpel	009	**MTC**	001, 020	
Kyoto	009	**Multitec**	003	
Lenco	021	**Multitech**	001, 009	
Leyco	009	**Murphy**	001	
LG	021, 003, 001, 031, 102	**Myryad**	010	
Lifetec	028	**NAD**	011	
Lloyd's	001	**Naiko**	028, 051	
Loewe	010, 144, 003	**National**	019	
Logik	009, 012, 020	**NEC**	003, 011, 008	
Lumatron	044, 102	**Neckermann**	010	
Lunatron	102	**Nesco**	001, 009	
Lux May	009	**Neufunk**	102	
Luxor	009, 011, 007, 005, 023, 012	**Nikkai**	021, 009	
LXI	003	**Nikko**	003	
M Electronic	003, 001	**Noblex**	020	
Magnasonic	021, 044	**Nokia**	010, 021, 011, 007, 004, 023, 012, 020	
Magnavox	010, 001	**Nordmende**	051, 024, 008, 025	
Magnin	020	**Oceanic**	010, 001, 024, 011 ,007, 012	
Magnum	051	**Okano**	021, 028, 009, 023	
Manesth	010, 009, 006	**Olympus**	019	
Marantz	010	**Onimax**	051	
Mark	021, 001	**Optimus**	007, 030, 044	
Mascom	051	**Orbit**	009	
Mastec	051	**Orion**	028, 029, 068	
Master's	021	**Orson**	001	
Matsui	003, 028, 029, 020, 068	**Osaki**	003, 001, 009	
Mediator	010			

Appendix

Osume	009	Royal	009
Otto Versand	010	Saba	021, 024, 025
Pace	029	Saisho	028
Pacific	028, 001, 051, 068	Salora	011, 005, 012
Palladium	003, 028, 009	Samsung	006, 030, 020, 068
Palsonic	001, 009	Sanky	007
Panasonic	144, 019, 084	Sansei	007
Pathe Cinema	005	Sansui	001, 009, 008, 012
Penney	003, 004, 020	Sanyo	011, 008, 007, 020
Pentax	004	Saville	021, 029, 020
Perdio	001	SBR	010
Philco	009	ScanSonic	020
Philips	010, 044	Schaub Lorenz	028, 001, 011, 023, 012
Phoenix	021	Schneider	010, 021, 003, 028, 001, 051, 009, 029, 004, 020, 102
Phonola	010	Scott	005, 044
Pilot	003	Sears	003, 001, 011, 004
Pioneer	010, 008, 004	Seaway	021
Portland	021, 050	SEG	010, 021, 050, 051, 009, 020, 044
Prinz	001	SEI	010
Profitronic	010, 020	Sei-Sinudyne	010
Proline	021, 001, 051, 024, 025	Seleco	003
Prosco	021	Semp	006
Prosonic	021	Sentra	009
Protech	010, 009	Setron	009
ProVision	021	Sharp	007, 040, 102
Pye	010	Shintom	009, 011
Quasar	021	Shivaki	003
Quelle	010	Shogun	020
Radialva	010, 003, 009, 007	Siemens	010, 003, 024, 011
Radiola	010	Siera	010
Radionette	003, 102	Silva	003
RadioShack	003, 001	Silva Schneider	102
Radix	003	Silver	021
Randex	003	SilverCrest	051
RCA	024, 007, 004, 020	Singer	009, 006
Realistic	003, 001, 011, 007	Sinudyne	010, 029
Reoc	028	Smaragd	028
RFT	009	Sonneclair	009
Roadstar	010, 021, 003, 009, 020, 068		

Appendix

Sonolor	007		**Topline**	028
Sontec	021, 003		**Toshiba**	010, 029, 006, 005, 030, 068
Sony	001, 002, 012, 095, 112		**Totevision**	003, 020
Soundwave	003, 028		**Towada**	009
Ssangyong	009		**Tradex**	010
Standard	021		**Uher**	020
Stern	021		**Ultravox**	021
Sunkai	021, 028		**Unitech**	020
Sunstar	011		**United**	028, 068
Suntronic	011		**Universum**	010, 003, 028, 001, 011, 012, 020, 102
Sunwood	009		**Vector**	006
Supra	003		**Victor**	008
Sylvania	010, 001, 005		**Video Concepts**	006
Symphonic	001, 044		**Video Technic**	001
Tandberg	021		**Videomagic**	003
Tandy	001, 011		**Videosonic**	020
Tashiko	010, 003, 001, 007, 020		**Villain**	001
Tatung	010, 028, 001, 029, 007, 005		**Wards**	010, 001, 009, 006, 007, 004, 020
Tchibo	028		**Watson**	010, 051, 029
TCM	028		**Weltblick**	003
Teac	003, 001, 051		**Wharfedale**	044
Tec	009		**White Westinghouse**	021, 009
Tech Line	009		**World**	028
Technics	010, 019		**XR-1000**	001, 009
TechniSat	028		**Yamishi**	021, 009
Technosonic	029		**Yokan**	009
Teknika	003, 001		**Yoko**	003, 009, 020
Telefunken	021, 024, 025		**Zenith**	050, 001
Telerent	019		**ZX**	028, 029
Teletech	021, 001, 009		**TV/VCR Combo**	
Tenosal	009		**Aiwa**	001, 029, 068, 102
Tensai	021, 003, 001, 009		**Alba**	029
Tevion	028, 051		**Amstrad**	001
Texet	021		**Beko**	011
Thomas	001		**Bestar**	021
Thomson	021, 024, 008, 025		**Blue Sky**	021, 029, 068
Thorn	003, 011		**Bush**	029, 068
TMK	020			
Tokai	003, 009, 011			

Appendix

Citizen	021	**Portland**	050
Colt	009	**Radiola**	010
Daewoo	021, 050	**RCA**	007, 020
Dantax	029, 068	**Saba**	024
Emerson	021, 050	**Samsung**	030, 020, 068
Ferguson	021, 001, 025, 068	**Sansui**	001
Fidelity	001	**Sanyo**	020
Firstline	021	**Saville**	029
Funai	001	**Schneider**	010, 001
GE	007, 020	**Sears**	003, 001
GoldStar	003, 031	**SEG**	050
Goodmans	021, 050, 029, 068	**Sharp**	007
Grandin	021, 068	**Siemens**	010
Grundig	010, 029, 068	**Sinudyne**	029
Hanimex	029	**Sony**	001, 002, 112
Harley Davidson	001	**Sylvania**	010
Hinari	029	**Symphonic**	001
Hitachi	001	**Tatung**	029
Hypson	003	**Teac**	001
Internal	021, 050	**Technics**	010
JBL	021	**Technosonic**	029
JMB	029	**Telefunken**	021
Kneissel	021, 029	**Thomas**	001
LG	003, 031	**Thomson**	021, 025
Lloyd's	001	**Toshiba**	029, 030, 068
Magnasonic	021, 044	**United**	068
Magnavox	010, 001	**White Westinghouse**	021
Magnin	020	**Zenith**	011
Matsui	029, 068		
Medion	029		
Memorex	003		
MGA	020		
Mitsubishi	010, 007		
Orion	029, 068		
Pace	029		
Pacific	068		
Penney	003, 020		
Philips	010		

Appendix

5. Audio & AUX Code List

Brand	Code
Amplifier	
Acoustic Solutions	078, 082, 084, 094
Cambridge Audio	106
Curtis Mathes	014
Denon	012
Durabrand	089, 090
Goodmans	093
Hitachi	089
JBL	042
Logitech	074
Magnat	042
Magnum	094
Mustek	093
Optimus	014, 029
Pacific	094
Pioneer	014, 029
RCA	014
Sven	090
Tevion	094
Trice	090
upXus	078
Vieta	042
Yamaha	016, 030
Accessory	
Apple	038
Sony	008
Yamaha	121, 122
Receiver	
Acoustic Solutions	087
AEG	071, 072
AFK	071
Aiwa	005, 073
Akai	004, 021, 072, 087
Alba	087, 088
All-Tel	072
Amstrad	024, 072
Anam	021

Brand	Code
Arcam	044
ASCOMTEC	071
Audiolab	043
Audiosonic	071
Audiotronic	043
Bang & Olufsen	028
Basic Line	088
Belson	071
Binatone	071
Blue Sky	072, 087
Bose	046, 099
Bush	027
Cambridge Audio	080, 101
Cat	071
CCE	065
Centrum	045, 071
Clatronic	027, 071
Cosmotron	027
Daewoo	076
Dantax	018, 072
Denon	067, 025, 036, 075
Denver	071
DiK	027
Dual	045, 072
eBench	024, 027
Elta	024, 027, 072
EuroLine	098
Fine Arts	043
Firstline	027
Garrard	013, 018
Genexxa	010
Global Sphere	098
Goodmans	021, 024, 027, 071, 072
Grundig	043, 013, 027, 035, 087
Grunkel	024, 072
Hanseatic	072
Harman/Kardon	043, 056, 003, 011, 057, 060
Harwood	024

Appendix

HCM	072
HE	071
Hitachi	088
Hitech	024
Hiteker	071
Home Tech Industries	071
Hyundai	087
Inkel	020
Intersound	024
JBL	056, 057
JVC	001, 019, 068
Kenwood	033, 061, 091, 010
Kioto	027
Kompernass	027
KXD	071
LG	054, 086, 125
Lifetec	027
LXI	024
Magnat	071
Magnavox	043, 035
Marantz	043, 049, 031, 035, 053
Matsui	024, 027
MBO	065
Medion	027, 087
MEI	072
Metz	088
Micromega	043
Microstar	027
MTlogic	087
Musicmagic	035
Mustek	065
Mx Onda	024, 027
Myryad	043
NAD	015, 021
Nexius	072
Nikkai	071
Nikkei	024
Norcent	071
NTDE Geniesom	024

Onkyo	006, 063, 114
Optimus	032, 010, 024
Orient Power	024
Orion	018
Palladium	027, 045, 054, 072, 086
Panasonic	109, 085, 058, 059, 062, 110, 111, 113, 128
Paramount Pictures	045
PCCW	128
Philips	043, 049, 031, 035, 048, 053, 117
Phonotrend	020
Pioneer	052, 032, 010, 039, 081, 097
PJ	071
Polk Audio	053
Prima Electronic	027
Proline	027, 072
ProVision	071
QONIX	072, 087
Radionette	054, 100
Recco	027
Redstar	071
Revox	007, 010, 035
Roadstar	027
Rotel	026
Samsung	013, 055, 119, 123, 083
Sansui	021, 035, 098
Sanyo	024
Schneider	003, 024, 045, 072
Scott	071
SEG	088
Sharp	010, 022, 070, 100
Sherwood	020, 022
Siemens	021
Silva Schneider	027, 072, 086
SilverCrest	087
Sony	040, 034, 047, 103, 107, 037, 066, 077, 079, 096, 108, 116, 118, 124
Soundwave	021
Stereophonics	032
Sumida	024

Appendix

Sunfire	061
T+A	050, 105
TAG McLaren	043
Tandberg	088
Targa	054
TCM	027
Teac	018, 021
Technics	109, 085, 058, 059, 011, 110
Techwood	088
Tedelex	098
Tevion	071
Thorens	043
Thorn	024
Tokai	072
Toshiba	092

United	072, 098
Universum	013, 021, 024, 027, 045, 072, 076, 095
Venturer	027 ,072
Vestel	088
Victor	001
Waitec	065
Watson	027
Wellfund	024
Welltech	027
Wharfedale	072
Xenius	072
Yamaha	009, 002, 010, 017, 023, 041, 051, 064, 069, 112, 115, 120
Yukai	065
Zenith	024

MDB1.3

Appendix

OPEN SOURCE SOFTWARE NOTICE

HUMAX products use certain open source operating system software distributed pursuant to GNU GENERAL PUBLIC LICENSE Version 2 and GNU LESSER GENERAL LICENSE Version 2.1 each as defined and published by the Free Software Foundation, Inc.

The following GPL and LGPL software source codes used in this product can be provided and this offer is valid for up to three years from the date of original download of the software or purchase of product containing such software. Please contact us at gnu@humaxdigital.com.

GPL Software

linux

busybox

tinyftp

avinfo

e2fsprogs

> This package, the ext2 filesystem utilities, are made available under the GNU Public License version 2, with the exception of the lib/ext2fs and lib/e2p libraries, which are made available under the GNU Library General Public License Version 2, the lib/uuid library which is made available under a BSD-style license and the lib/et and lib/ss libraries which are made available under an MIT-style license.

LGPL Software

uClibc

libexif

id3lib

FreeType License (FTL) Software

freetype

> Portions of this software are copyright © <2007> The FreeType Project (www.freetype.org). All rights reserved.

OpenSSL License Software

OpenSSL

> This product includes cryptographic software written by Eric Young. (eay@cryptsoft.com)
> This product includes software written by Tim Hudson. (tjh@cryptsoft.com)
> This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit.
> (http://www.openssl.org)

Appendix

Use, modification and redistribution of the Open Source Software is governed by the terms and conditions of the applicable Open Source License. The GNU General Public License (GPL) v2 is shown below.

The GNU General Public License (GPL)
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301, USA

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things. To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".
    Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.
1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.
    You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.
2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:
    a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.
    b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.
    c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

Appendix

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:
    a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
    b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
    c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

    The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

    If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

    If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

    It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

    This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

    Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

Appendix

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.
12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS
How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

One line to give the program's name and a brief idea of what it does.
Copyright (C) yyyy name of author
This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.
This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.
You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02111-1301, USA.
Also add information on how to contact you by electronic and paper mail.
If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'. This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.
The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items—whatever suits your program.
You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:
Yoyodyne, Inc., hereby disclaims all copyright interest in the program `Gnomovision' (which makes passes at compilers) written by James Hacker.
signature of Ty Coon, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

GNU Lesser General Public License (LGPL)
Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc. 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

Appendix

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.
When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".
    A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.
    The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

109

Appendix

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1.   You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2.   You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

   a)   The modified work must itself be a software library.
   b)   You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.
   c)   You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.
   d)   If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3.   You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4.   You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5.   A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

Appendix

6.   As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.
     You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

     a)   Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)
     b)   Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.
     c)   Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.
     d)   If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.
     e)   Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

     For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.
     It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7.   You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

     a)   Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.
     b)   Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8.   You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9.   You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.
     If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.
     It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.
     This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

Appendix

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.
    Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.
14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.
16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS
How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.
one line to give the library's name and an idea of what it does.> Copyright (C) year name of author
    This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.
    This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.
    You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James Random Hacker.

signature of Ty Coon, 1 April 1990
Ty Coon, President of Vice

Appendix

Problem Check List

1. Please check the **Trouble Shooting** section first when problem occurs.
   Website: **http://www.humaxdigital.com/au**
2. Read the description below and mark the type of problem you have before calling HUMAX Customer Service.

	Description	Check
AC & DC Power	No power when using AC power	
	No power caused by physical damage	
STB (Product) Operation	System does not boot up - Freezes on initial screen (with front LED on)	
	Cannot wake up from standby	
	Cannot power off	
	Frozen picture (while system is operating)	
	Flickering / snowy / black / blue screen	
	Broken OSD (menu) display	
	Reboots unintendedly (while operating)	
Audio	Dolby Digital : Optical	
	No audio - (RCA, HDMI OUT). Please check the output port.	
	Excessive / low audio level	
	Audio does not mute	
	Distorted / unbalanced audio or popping noise in audio	
	Audio delay / Lip-sync problem	
Video	No video - (RCA, HDMI OUT). Please check the output port.	
Channel Searching	No HDTV, UHF,VHF reception. Please check the input port.	
	Incorrect channel tuning	
	No OTA software reception	
Remote Control	No remote control operation	
Front Display	Error code appears in display. Please enter the error code.	
	Front display dim (no display)	
UI (User interface)	Faulty teletext	
	Faulty EPG reception or functional problem	
	Faulty operation of parental lock (keylock function)	
	Faulty clock function	
	Faulty channel editing function	
	Faulty search function (language / subtitle / chapter)	
Accessory	Missing accessory	

Appendix

Description		Check
Network	MAC address is missing or incorrect	
	IP address is missing or incorrect	
	USB interface problem	
Recording	Cannot erase recording files	
	Cannot playback recording files	
	Recording file gets erased unintendedly	
	HDD formatting problem	
	Other recording / playback problem	
Physical Damage	Damaged top cover (STB only)	
	Damaged bottom case	
	Damaged front / door	
	Damaged /not working front key button	
	Damaged plug / socket / terminal / connector /card holder / RF	
Pay Channels	Cannot watch pay channels. Make sure that the electronic chip on the Smartcard is facing the correct direction.	

Note: The contents of the Problem Check List may differ according to the product specification.

Other issues : Please write in the blank below.

www.humaxdigital.com/au

Think
Nature