

---

HD Digital Recorder  
Digitaler HD-Rekorder  
HD Dijital Kayıt Cihazı

---

# User's Manual Bedienungsanleitung Kullanıcı Kılavuzu

**iCord HD+**

The default password is 0000.  
Das voreingestellte Passwort lautet 0000.  
Menü parola/PIN 000'dir.



**HUMAX**

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 © 2010 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.

## 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.

### 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.

# Notice

---

## **‘WEEE’ 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.

### **Domestic users:**

Please contact either the retailer where you purchased this product or their local government office for details of where and how they can take this item for environmentally safe recycling.

### **Business users:**

Contact your supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.

## **Trademarks**

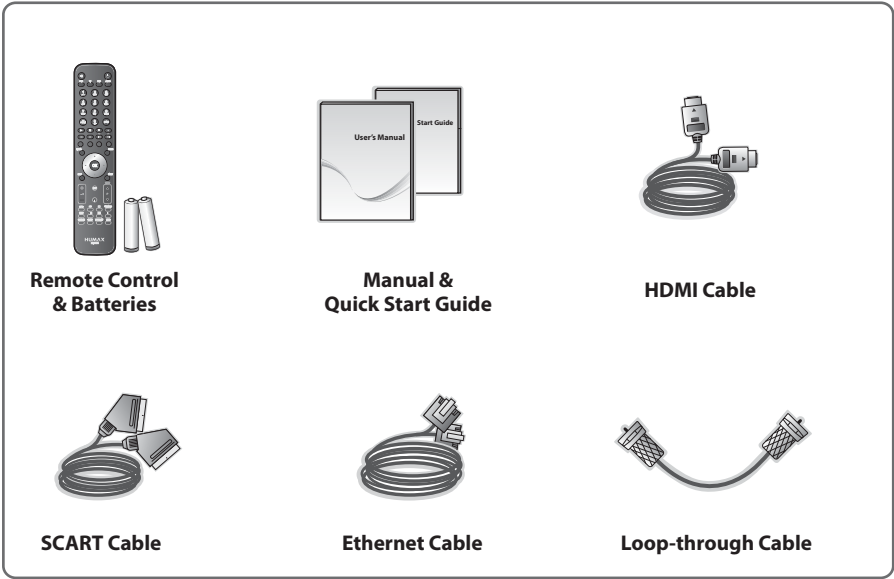
- Viaccess is a trademark of France Telecom.
- CryptoWorks is a trademark of Irdeto Access B.V.
- Irdeto is a trademark of Irdeto Access B.V.
- Nagravision is a registered trademark of KUDELSKI S.A.
- Conax is a trademark of Telenor Conax AS.
- Manufactured under license from Dolby Laboratories.
- Dolby 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.

<b>Quick Start Guide</b>	<b>4</b>	<b>Preferences</b>	<b>54</b>
1. Checking Accessories	4	Parental Control	54
2. Product Overview	4	Language Setting	55
3. Connections	9	Setting Power On/Off Timer	55
4. Powering On	13	Video Setting	56
5. First Installation Wizard	14	Audio Setting	57
6. Menu Overview	16	Screen Display	58
<b>Basic Operation</b>	<b>17</b>	<b>Installation</b>	<b>59</b>
Changing Channels	17	Search Channels [Fixed Antenna]	60
Volume / Mute / Audio	17	Search Channels [SCD Antenna]	64
Display Format / Resolution	18	Search Channels [Motor Antenna]	65
Programme Information (i-plate)	19	Update Channels	68
Sleep Timer	20	Software Update (OTA)	69
Subtitle	20	Factory Default	70
Option	21	<b>System</b>	<b>71</b>
Multifeed	21	System Information	71
Teletext	22	Signal Detection	71
<b>Channel List</b>	<b>23</b>	Power Management	72
Changing Channels	23	Smartcard Information	73
Editing Channels in Channel List	25	Common Interface	73
<b>Managing Channels</b>	<b>26</b>	Data Storage	74
Edit Preferred List	26	Internet Setting	75
Editing Favourite Channels	28	<b>Appendix</b>	<b>76</b>
Editing Channels	30	Service and Support	78
<b>TV Guide</b>	<b>32</b>	Safety Warning	79
Watching Programmes	32	Trouble Shooting	81
Setting Reminders or Recordings	33	Error Message	83
Finding Programmes	34	Glossary	85
Scheduling Reminders and Recordings	35	Remote Control Code List	87
Highlights	35	OPEN SOURCE SOFTWARE NOTICE	113
<b>Recording and Playback</b>	<b>36</b>		
Recording	36		
Playback	40		
Pausing and Rewinding Live TV (TSR)	42		
Using Video List	46		
Using Music List	49		
Using Photo List	51		
<b>HUMAX TV Portal</b>	<b>53</b>		

# Quick Start Guide

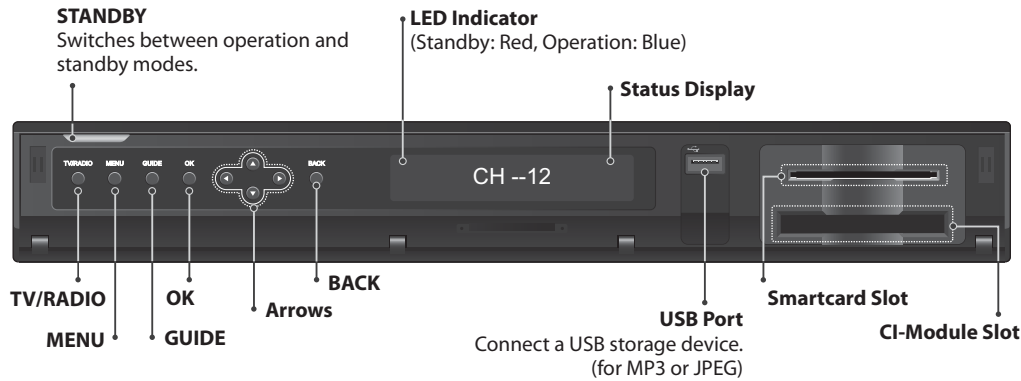
## 1. Checking Accessories



**Note:** The accessories may vary according to area.

## 2. Product Overview

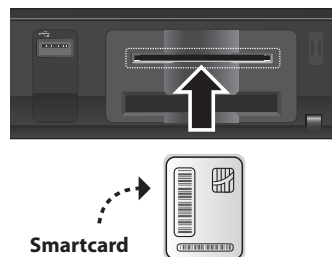
### Front Panel



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

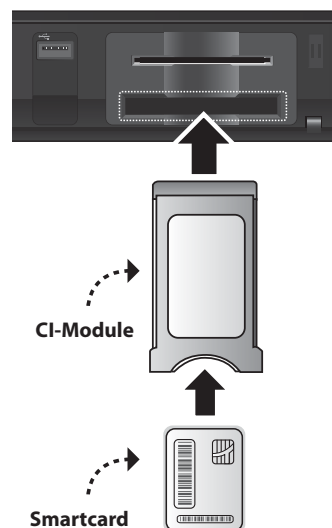
## Inserting the Smartcard

1. Open the right-hand flap on the front panel to expose the card slot.
2. Hold Smartcard horizontally with the electronic chip facing upwards.
3. Insert the Smartcard into the slot.



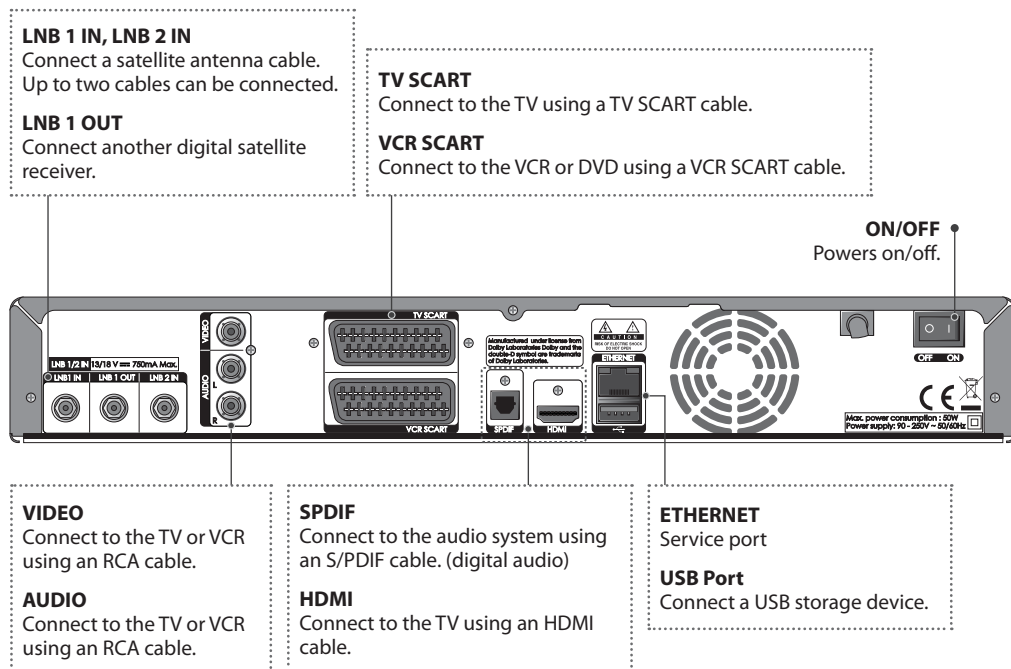
## Inserting the CI-Module

1. Open the right-hand flap on the front panel of the product.
2. Follow the instructions of the module and insert the Smartcard into the CI-Module.
3. Keep the CI-Module (with the Smartcard) horizontal.
4. Insert the CI-Module into the slot.



# Quick Start Guide

## Rear Panel

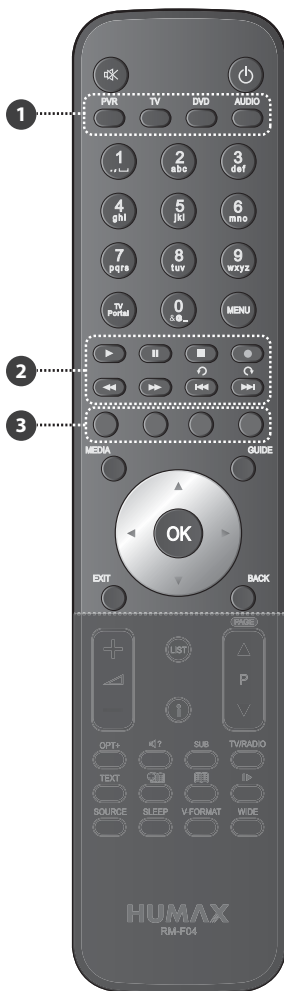




**Note:** The image shown may differ from the actual product.

# Quick Start Guide

English

## Remote Control

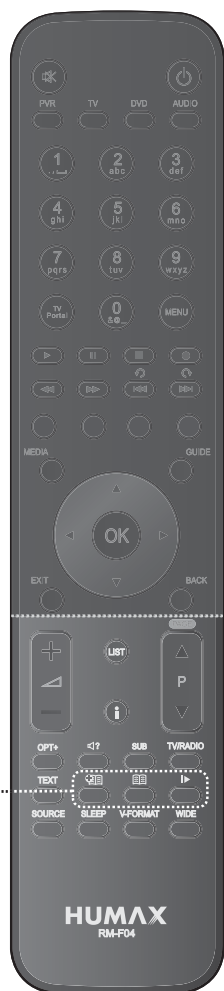


	<b>MUTE</b>	Mutes audio.
	<b>STANDBY</b>	Switches between operation and standby modes.
<b>1</b>	<b>MODE</b>	Changes the mode of remote.
	<b>NUMERIC</b>	(0-9)
	<b>TV Portal</b>	Enters HUMAX TV Portal.
	<b>MENU</b>	Displays the main menu.
<b>2</b>	<b>Playback Control Buttons</b>	► Play, II Pause, ■ Stop, ● Record, ◀◀ Rewind, ▶▶ Fast Forward, ◀◀ Previous, ▶▶ Next, ◀ Instant Replay, ◀ Skip
<b>3</b>	<b>COLOUR Buttons</b>	Colour keys for interactive applications.
	<b>MEDIA</b>	Displays the media list.
	<b>GUIDE</b>	Displays the programme guide.
	<b>ARROW Buttons</b>	Moves the cursor up, down, left or right.
	<b>OK</b>	Selects (Enters) a menu or confirms a selection.
	<b>EXIT</b>	Exits all On-Screen Display (OSD) screens.
	<b>BACK</b>	Returns to the previous channel. Goes back to the previous screen.

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



# Quick Start Guide

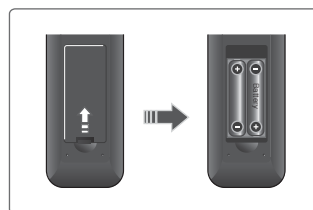


<b>▲/▼</b>	Adjusts the audio volume.
<b>P▲/▼</b>	Changes the channel or page.
<b>LIST</b>	Displays the channel list.
<b>i (Information)</b>	Displays the channel and programme information.
<b>OPT+</b>	Displays the channels attributes.
<b>🔊 AUDIO</b>	Displays the audio list.
<b>SUBTITLE</b>	Displays the subtitle language list.
<b>TV/RADIO</b>	Switches between TV and radio modes.
<b>TEXT</b>	Enters the digital text service.
<b>SOURCE</b>	Switches between the input sources from SCART.
<b>SLEEP</b>	Sets the sleep timer.
<b>V-FORMAT</b>	Sets the resolution of video.
<b>WIDE</b>	Sets the display format.

**4 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

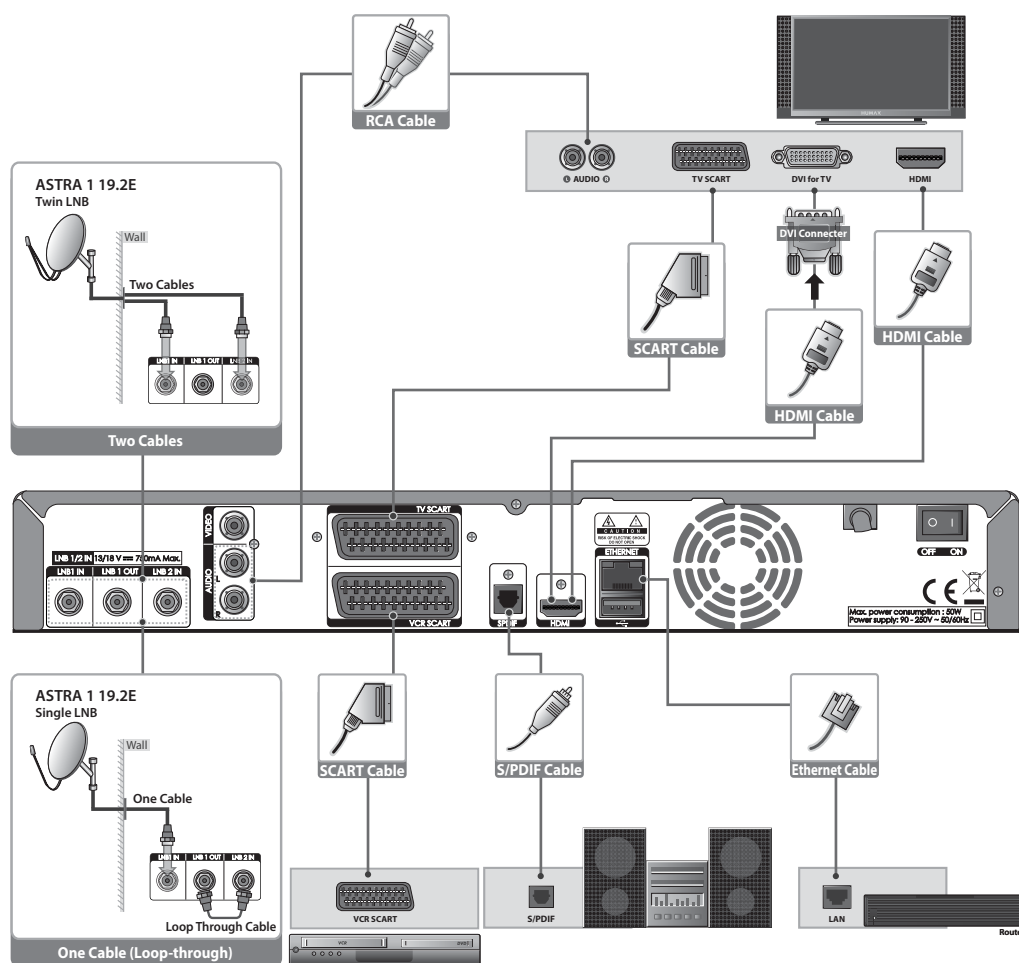
English

## 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.

**Warning:** 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.

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



# Quick Start Guide

## Connecting the Antenna

### ❶ Connecting to Two Cables;

Connect two satellite coaxial cables from the wall directly to the LNB 1 IN and LNB 2 IN connectors.

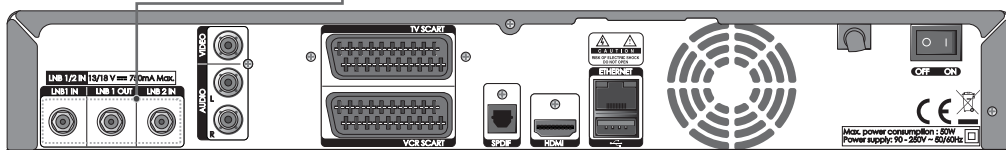
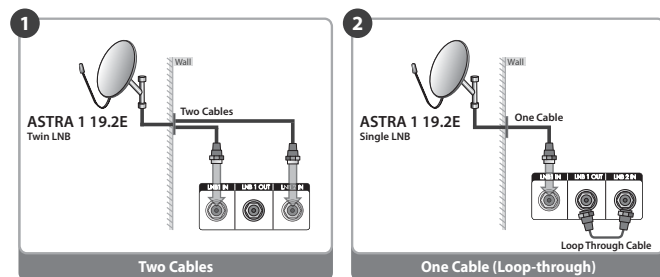
**Note:** This connection will allow you to view different channels while recording or record two channels at the same time.

### ❷ Connecting to One Cable;

1. Connect a satellite coaxial cable from the wall to LNB 1 IN connector.
2. Connect the LNB 1 OUT and LNB 2 IN connectors using a loop through cable.

**Note:**

- When using this connection, the specified functions for 2 tuners will be not available.
- When using a Motorised System or SCD Antenna (also known as Unicable), connect the satellite coaxial cable only to LNB 1 IN connector.



## Connecting the TV

### ❶ TV with the HDMI connector;

For the best picture quality, connect the product and TV using an HDMI cable.

### ❷ TV with the DVI connector;

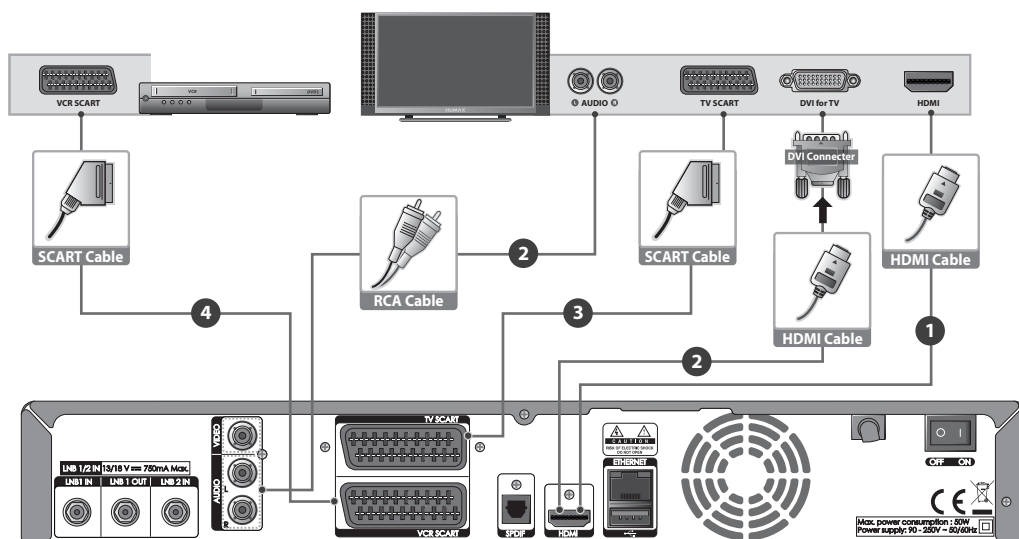
For very good picture quality, connect the product and TV using an HDMI cable and an HDMI-to-DVI converter for video and an RCA cable (Audio L/R) for audio.

### ❸ TV with the SCART connector;

For good picture quality, connect the product and TV using a SCART cable.

### ❹ VCR with the SCART connector;

To output video and audio, connect the product and VCR using a SCART cable.



## Note:

- When using the digital audio system, connect the product and the digital audio system using an S/PDIF cable for audio.
- Programmes restricted by DRM (Digital Rights Management) may not be viewed via the HDMI cable. Connect using the SCART or composite cable.
- 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.

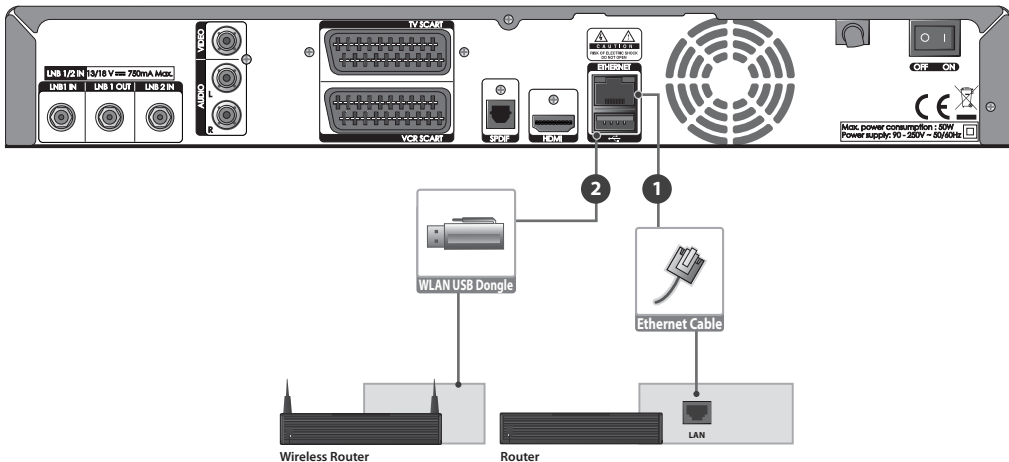
### ❷ Connecting to the Wi-Fi (Wireless LAN);

You can connect the network via the Wi-Fi access point or DSL/cable modem.

1. Plug in the wireless USB dongle to the USB port. (Separate purchase required)
2. Set the options for the Wi-Fi.
  - **Network Name (SSID):** Select the network name of your Wi-Fi access point from the list.
  - **Security Type (WEP):** This product supports WEP 40/128bit ASCII and WEP 40/128bit HEX. The security type of the Wi-Fi and the product shall be set the same.
  - **Password:** When using the security type, you must set the password. Enter the same password in the Wi-Fi setting menu.
3. After completing the Wi-Fi access point setting, make sure the settings in **Installation Wizard** or **System>Network>Configure Wi-Fi** are the same.

#### Note:

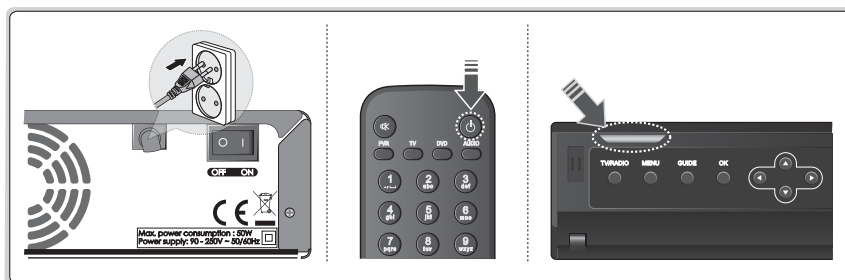
- Make sure the distance between the Wi-Fi access point and the product is not too far away. This may lower the quality of service.
- It is recommended to purchase a wireless USB dongle distributed by HUMAX. Other products may not function or respond.



**Note:** We recommend the network connection over a direct LAN.

## 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. Display

Set the video output to your TV.



### 2. Search Channels

Select the type of channel search.

- **Quick Search:** Default channels of ASTRA1 (19.2E) will be applied without searching channels.
- **Automatic Search:** Search all channels of ASTRA1 (19.2E) and HOT BIRD (13.0E) automatically.
- **Skip:** If you have SCD or motor antenna, skip the search process and go to **MENU > Settings > Installation**.

**Note:** **Quick Search** appears only in Germany or Austria.



### 3. Configure Network

Make sure that the LAN cable is connected to the Ethernet port or the wireless USB dongle is enabled.

Configure the network setting.



## 4. 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
	<b>Settings</b>

### Preferences

- Parental Control
- Language
- Time
- Video
- Audio
- Recording
- Screen Display

### Edit Channels

- Edit Preferred List
- Edit Favourite List
- Edit Channel List

### Installation

- Search Channels
- Update Channels
- Software Update
- Factory Default

### System

- System Information
- Signal Detection
- Power Management
- TVTV EPG Update
- Common Interface
- Smartcard Information
- Data Storage
- Internet Setting

## How to Navigate



Displays the main menu



Selects (Enters) a menu or confirms a selection



Goes back to the previous screen



Exits all On-Screen Display (OSD) screens



Moves among menus or options



Changes or adjusts the option



Enters the number (0~9)

## 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 or TV guide and select a channel.

### Note:

- Press the **TV/RADIO** button to switch between TV and radio channels.
- Press the **BACK** button to return to the previous channel.

## Volume / Mute / Audio

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

## Setting Audio Options

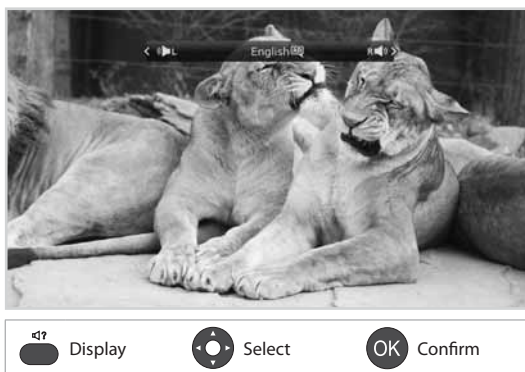
Audio options are available only when the programme supports multiple audio languages.

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** – **Centre**
- Screen ratio 16:9: **Auto** – **Pillar Box** – **Zoom**

**Note:** Refer to **Setting Display Format** for details.



**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**

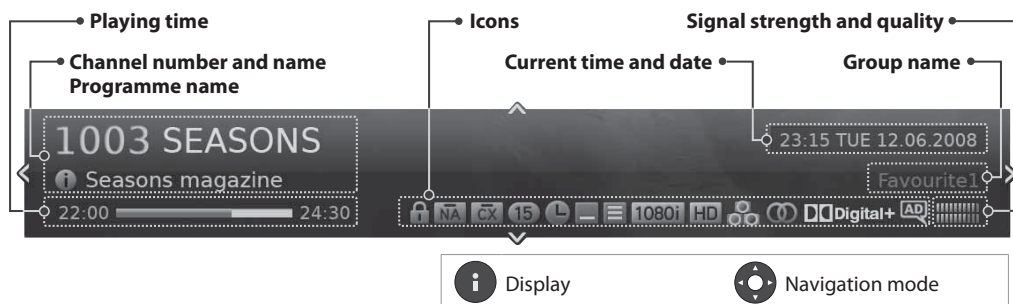
**Note:** When connected with an HDMI cable, you can only change to resolutions the TV supports.



**V-FORMAT**  
☒ Display

## 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 programme to display the i-plate. Press the **EXIT** button to hide.



### ➤ 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. Press the **OK** button to set reminders or recordings for future programmes.

### ➤ 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.

## Icons

The icons represent the information and services provided.

	Locked programme		Subtitle
	Scrambled programme (CAS icons)		Teletext
	Parental level (minimum age for viewing)		Multifeed
	HD programme		Multiaudio
	Scheduled programme (Red: Record, Blue: Reminder)		Dolby Digital audio
			Dolby Digital Plus audio
	Resolution		Screen ratio
	Audio description		

**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



 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.



 Display

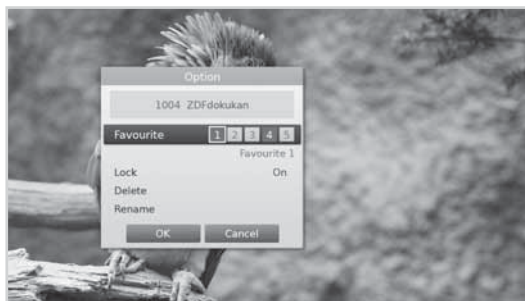
 Select

 Confirm

## Option

You can set the options for the watching channel.

1. Press the **OPT+** button.
2. Select an option.
  - **Multifeed:** Press the **OK** button. The available subfeed channels will be listed. 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.

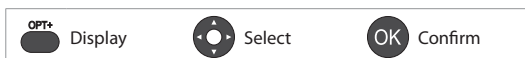


## Multifeed

You can choose one of the subfeeds when watching a multifeed channel that provides multiple video feeds.

When multifeed is available in the channel, the multifeed icon ( ) will appear on the i-plate.

1. Press the **OPT+** button.
2. Select **Multifeed** and press the **OK** button. The available subfeed channels will be listed.
3. Select an option.
4. Press the **OK** button.



# Basic Operation

## 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.



# 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.

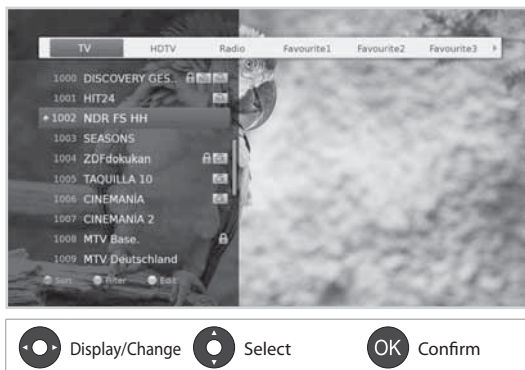
#### ► TV, HDTV, Radio, Favourite 1~5, Recent

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.





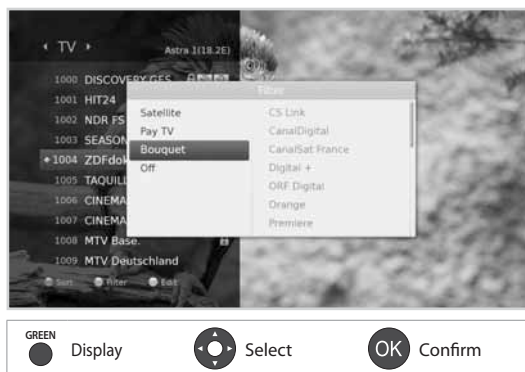
# Channel List

## Filtering Channels

You can filter the channels according to channel type in TV or Radio list.

1. Press the **GREEN** button.
2. Select the channel type.
  - **Satellite, Pay TV, Bouquet, Off**
3. Press the **OK** button.

**Note:** Select **Off** to cancel filtering.



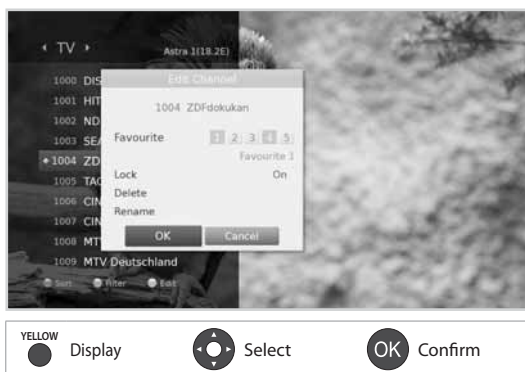
## Editing Channels in Channel List

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 **YELLOW** 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 your local distributor.



### Setting Favourite Channels

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

1. Select a channel and press the **YELLOW** 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

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 your local distributor.

## Edit Preferred List

The **Edit Preferred List** menu will help you manage the channels 1~99 in the preferred list.

**MENU → Settings → Edit Channels → Edit Preferred List**



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

## Adding/Removing Preferred Channels

1. To add channels to the preferred 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.
2. To remove channels from the preferred 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 **YELLOW** 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.

## Advanced Options

### Changing Group

To switch between TV and Radio groups, press the **GREEN** button.

### 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

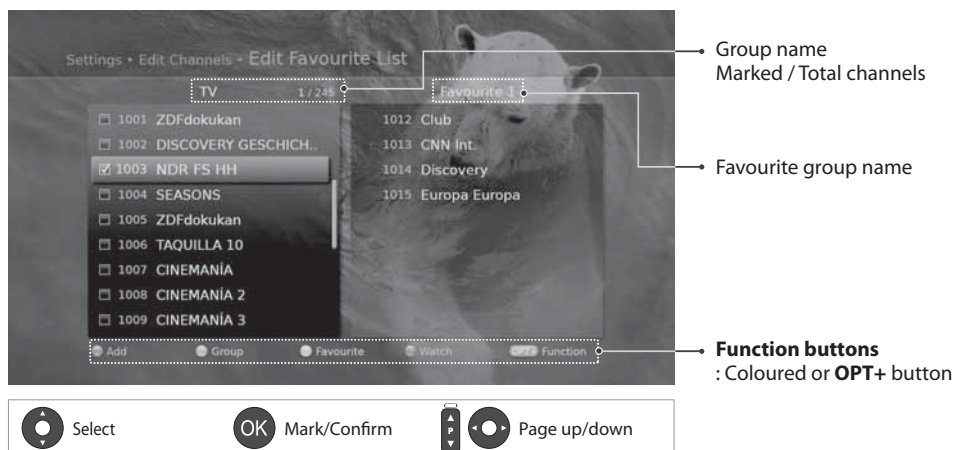
1. Press the **OPT+** button.
2. Select **Select All**.
3. To release all, select **Release All**.

# Managing Channels

## Editing 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**



### Note:

- Press the **i** button to view the detailed channel information.
- 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.

## 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**.
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

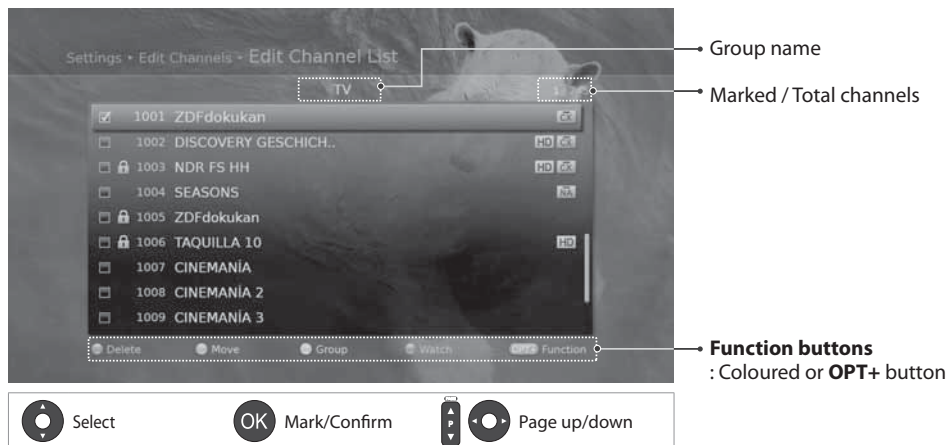
1. Press the **OPT+** button.
2. Select **Select All**.
3. To release all, select **Release All**.

# 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**



### Note:

- : Locked channel, : Scrambled channel (CAS icons)
- Press the **i** button to view the detailed channel information.
- 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.

## Deleting Channels

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

## Locking / Unlocking Channels

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

## Renaming Channels

1. Select a channel to rename.
2. Press the **OPT+** button.
3. Select **Rename**.
4. Enter the name in the keyboard.

## Advanced Options

### Changing Group

To list the channels of other groups, press the **YELLOW** 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**.



# 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.

The screenshot shows the TV Guide interface. At the top, there's a 'Preview' section showing a program thumbnail. To its right, the 'Current time and date' is displayed as '07:18 TUE 12 JUN 2008'. Below this, the 'Information of the selected programme' is shown for channel 1002, 'Europa Europa', with the title 'Das Geheimnis des Aralsees' and a description 'Der Aralsee, einst doppelt so groß...'. A 'Favourite 1' label and 'eVeV' logo are also present. The main part of the screen is a grid of programs for 'Mon 11 Jun' and 'Tue 12 Jun'. The grid shows programs like 'Seasons magazine', 'Le garage de Seasons', 'Silberflügel', 'Timm Th', 'Von Nachteulen und Frühaufstehern', 'Receiving information', 'N24(2)', 'Doku: Krieg', 'N24 Nachric...', and 'Halten Sie, bitte!'. A 'Time bar' is visible at the bottom of the grid. At the very bottom, there are 'Function buttons': 'Now', 'Find', 'Schedule', 'Highlights', and 'Group'. Below the screen, a control bar shows three buttons: 'Select' (a directional pad), 'Confirm' (an 'OK' button), and 'Page up/down' (a button with up and down arrows).

Annotations on the right side of the screenshot:

- 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 or **OPT+** button

**Note:**

- Press the **i** button to view the detailed programme information.
- : Scheduled programme (Red: Record, 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.

## Setting Reminders or Recordings

1. Select a future programme and press the **OK** button.
2. Select **Reminder** or **Record** 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:

- 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 your local distributor.
- You can reschedule reminders or recordings. (Refer to **Scheduling Reminders and Recordings**.)

## 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 ◀◀◀/▶▶▶ button to move to the previous/next day.

### Changing Group

To list the channels of other groups, press the **OPT+** 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** 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.

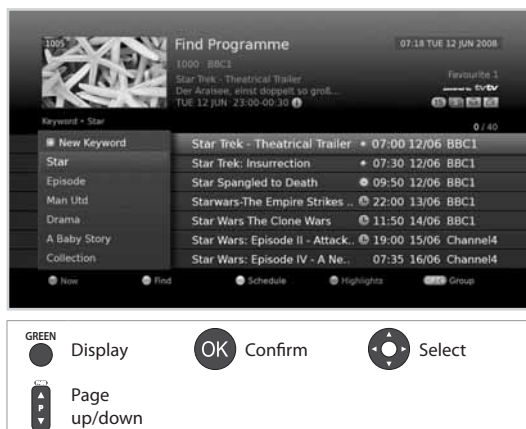
**Note:** To enter a new keyword, select **New Keyword**.

### 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** button. (if provided)

### **Note:**

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



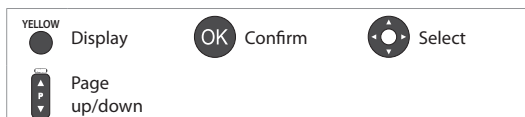
## Scheduling Reminders and Recordings

**Schedule** lists reminders or recordings and will help you manage them in more detail.

1. Press the **YELLOW** button.
2. You can add, edit or delete your reminders or recordings.
  - To add, select **New Reminder** and press the **OK** button.
  - To edit, select a reservation and press the **OK** button.
  - To delete, select a reservation and press the **OPT+** 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.

### Note:

- Press the **i** button to view the detailed programme information.
- You can easily set reminders or recordings in **TV Guide**, **Find** or i-plate navigation mode.



## Highlights

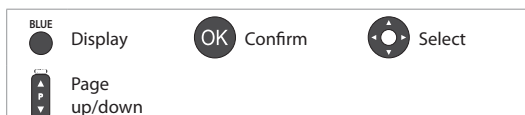
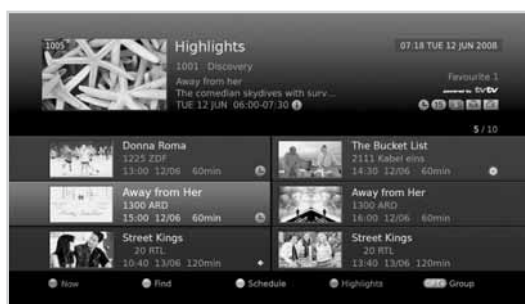
**Highlights** display the highlights and detailed programme information of each channel based on the time, date or topic. You can look up programmes up to a week in advance and set reminders or recordings with ease.

This service is available only when TVTV EPG is provided.

1. Press the **BLUE** button.
2. Select a programme and press the **OK** button. You can set a reminder or recording.
3. Press the **OPT+** button to sort the programmes in time or alphabetical order.

### Note:

- Press the **i** button to view the detailed programme information.
- You can choose to update the TVTV EPG during standby or select the update time in **MENU > Settings > System > TVTV EPG Update**.



# Recording and Playback

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

## 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.

### 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 programme or the next programme.



# Recording and Playback

English

## Scheduled Recording

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

- ❖ Select a future programme and press the **OK** button in **TV Guide**.  
(Refer to **Setting Reminders or Recordings**.)
- ❖ Select **New Reminder** and press the **OK** button in **Schedule**.  
(Refer to **Scheduling Reminders or Recordings**.)
- ❖ Press the **OK** button on a future programme in i-plate and select **Record**.  
(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 programme 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 **OPT+** button.

# 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.



## Setting Padding Time

### MENU → Settings → Preferences → Recording

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.



### 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 can't be recorded.
- Ensure that there is enough free space before recording. If the free space on the hard disk drive is insufficient, recording will stop. Recording one hour of programme may require up to 2 or 3GB of hard disk space. The space for recording a 1 hour programme may differ depending on the programme.
- To view the recorded programme list, press the **MEDIA** or **MENU** button and select **Video**. (Refer to **Using Video List**.)



# 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.



## Playback Controls

	Play
	Pause the scene. Press the <b>PAUSE</b> 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:**

- Chapters are made by dividing the recorded programme into eight portions.
- Fast forwarding and jump may not function in programmes restricted by DRM.
- Bookmarks are available only when playing back the recorded programmes.
- Up to 32 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.

# 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 90 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 back to the start point. If you reach the start point while rewinding, the programme is automatically played at 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:** Fast forwarding and jump may not function in programmes restricted by DRM.

# Media List

English

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.

<b>Video</b>	Lists TV/Radio recordings or XviD files.
<b>Music</b>	Lists MP3 files.
<b>Photo</b>	Lists JPEG files.

## Note:

- Press the **MEDIA** or **EXIT** button to exit. Press the **BACK** button to return to the previous screen.
- When you connect a USB storage device, the media type menu is displayed automatically.
- 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**



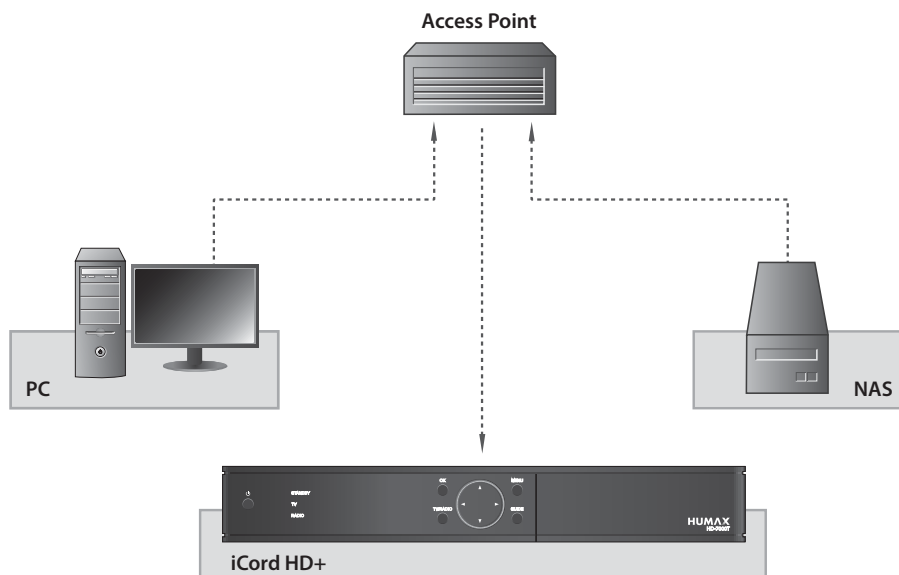
# Media List

## 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 playback 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. We will not be responsible for any data loss.
- 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.

## Using the DLNA Server

You can have access to DLNA servers such as the PC or NAS (Network attached storage) and play the video, music or photo files. To connect to a DLNA server, the receiver must be connected to the local network.



## Playing Video Files in Network

1. Go to **MENU>Video**.
2. Press the **BLUE** button and select **Network**.
3. Select the DLNA server from the list and select the folder the video file is located in.
4. Select the video file and play the file.

### Note:

- Playing music and photo files is similar as playing video files.
- You can download DLNA tools such as Media Server 11(<http://www.microsoft.com/windows/windowsmedia/de/player/11/default.aspx>) and XBMC(<http://www.xbmc.org>). The software can be downloaded and updated in each website.

# Media List

## Using Video List

You can play TV/Radio recordings or XviD files from the built-in hard disk drive, the USB storage devices, or the DLNA compliant devices.

**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 icon, : CAS icon, : Lock icon
- : DRM (Digital Rights Management) expiration icon

## Playing Files

Select a file and press the **OK** or **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 **OK** or **PLAY** 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.

**Note:**

- You will be prompted to enter the password when playing locked files.
- Files with DRM (Digital Rights Management) expiration dates may expire if not watched before the written date.
- Some playback control buttons may not function depending on the contents.

## Editing Files

### 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.

### 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.

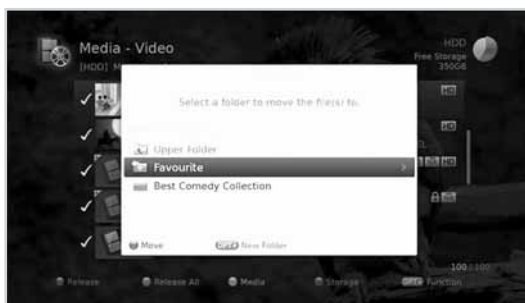
### Locking Files

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.

### Moving / Copying Files

1. Select the file(s) you want to move and press the **OPT+** button.
2. Select **Move** and press the **OK** button.
3. Select the folder or storage you want to move the file(s) to and press the **OK** button.
  - **Moving the file(s) within the same storage:** Select the folder you want to move the file(s) to and press the **OK** button.
  - **Copying the file(s) to another storage:** Select the storage and then select the folder to copy the file(s) to. Press the **OPT+** button to create the folder.

**Note:** When a file is moved to a different storage, it will be copied. However, video recordings may not be copied to certain storages.





# Media List

## 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.

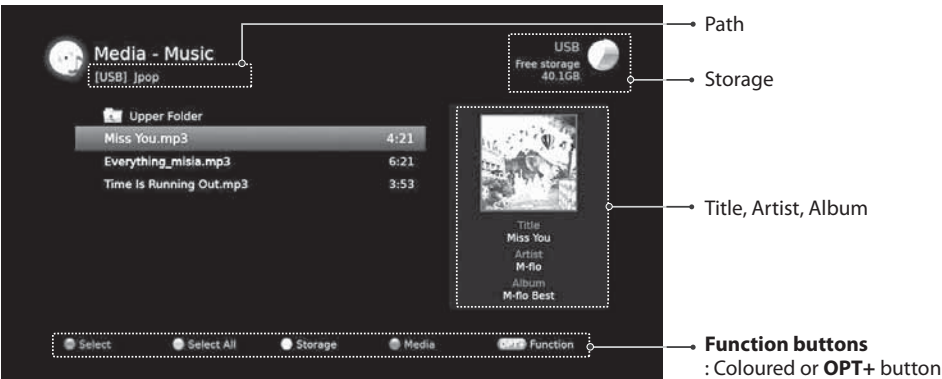
## Using Music List

You can play MP3 audio files from the built-in hard disk drive, the USB storage devices, or the DLNA compliant devices.

**MENU → Music**

**Note:**

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



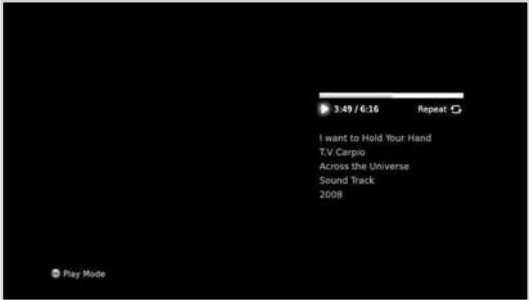
## Playing Files

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 List

## Music Player

The music player is displayed while playing the music file(s).



	Plays or pauses		Plays
	Plays the previous file		Pauses
	Plays the next file		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		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**.

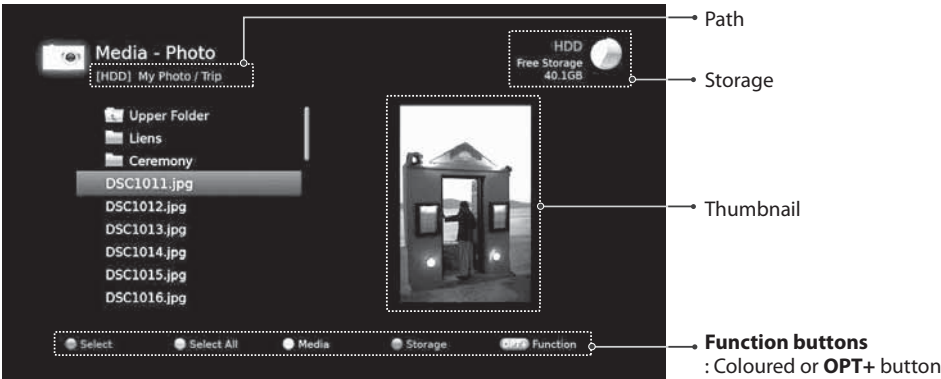
## Using Photo List

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

**MENU → Photo**

**Note:**

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



## 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.



	Pauses or plays		Plays
	Shows the previous photo		Pauses
	Shows the next photo		Stops slideshow and displays photo list
	Shows the first photo		Exits slideshow and goes to live TV
	Shows the last photo		

# Media List

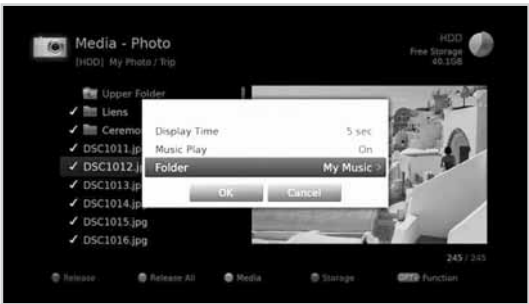
## Editing Files

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**.

### Slide Mode

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.



**HUMAX TV Portal** is a web service portal which allows you access to TV catch-up, VOD, Internet Radio, and HUMAX support. You can also view past programmes using this service.

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

- ❖ Press the **TV Portal** button.
- ❖ Press the **MENU** button and select **HUMAX TV Portal**.

You can change the language using the **RED** button. (English ↔ German)

## Note:

- Press the **TV Portal** button to jump to a live programme then go to TV Portal home while playing back a time shifted recording.
- Press the **TV Portal** button to go to TV Portal home while playing a video, music or photo file.
- 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.



## TV Catch-Up

Connects to the TV Catch-Up website.

## Internet Radio

Displays the radio station list. You can view your favourite radio channels, list the radio channels according to category or country, search radio channels or view your recent channels.

## HUMAX Support

Provides FAQs, glossary and service related information. Software update through the network is also possible if the network is connected through the LAN.



TV Portal On



Select



Confirm



Exit

# 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. Press the **BACK** button to return to the previous screen.

## Parental Control

**MENU** → **Settings** → **Preferences** → **Parental Control**

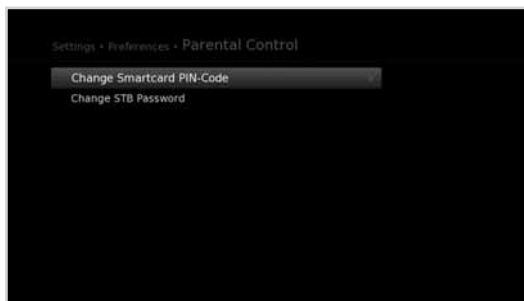
You will be prompted to enter the password to access this menu.

**Note:** The default password is 0000. If you have forgotten your password, please contact your local distributor.

### Changing Smartcard PIN-Code

1. Select **Change Smartcard PIN-Code**.
2. Enter the PIN-Code.

**Note:** If you enter the wrong PIN-Code three times, the receiver will remain locked for 10 minutes.



### Changing STB Password

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



## Language Setting

MENU → Settings → Preferences → Language

1. Select **System Language**, **Audio Language** or **Subtitle Language**.
2. Select the language.

### Note:

- If you select **Off** in subtitle language, the subtitle will not be displayed.
- You can change the audio or subtitle language by pressing the **AUDIO** or **SUBTITLE** button while watching a programme.



## Setting Power On/Off Timer

MENU → Settings → Preferences → Time

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.
- The TVTV EPG update time and power on time should be set different from each other.



# 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 – 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	 Pillar Box	 Zoom

### Setting Letter and Pillar Box Colour

You can set the colour for the margin space according to the display format.

- 1. Select **Letter & Pillar Box Colour**.
- 2. Select an option.
  - **Black – Gray**

## Setting TV SCART / VCR SCART

You can select the video signal output option for the TV SCART or VCR SCART.

1. Select **TV SCART** or **VCR SCART**.
2. Select an option.
  - TV SCART: **CVBS – S-Video – RGB**
  - VCR SCART: **CVBS – S-Video**

## Audio Setting

**MENU → Settings → Preferences → Audio**

### 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.



# 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 set the transparency of the On-Screen Display.

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

### Setting Subtitle Font

You can adjust the subtitle font.

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



**Installation** menu allows you to configure your antenna and search the available TV and radio channels. You can configure the fixed antenna, SCD antenna or motor antenna with this receiver. LCN channels update, software update and default setting 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 your local distributor.
- Press the **MENU** or **EXIT** button to exit. Press the **BACK** button to return to the previous screen.

Firstly, you should select your antenna type which is connected to this receiver.

### Selecting Antenna Type

1. Press the **RED** button.
2. Select your antenna type.
  - **Fixed Antenna**
  - **SCD Antenna**
  - **Motor Antenna**
3. Select **OK** to save and exit.

**Note:** All channels will be deleted when the antenna type is changed.



# Installation

## Search Channels [Fixed Antenna]

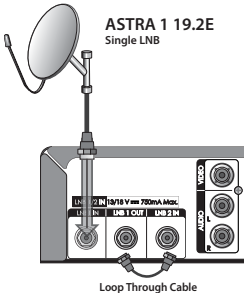
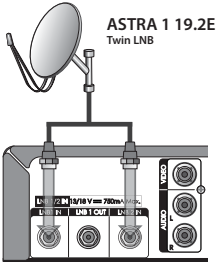
MENU → Settings → Installation → Search Channels

You can search channels by selecting the switch type and setting the required satellite.

**Note:** If the antenna is not properly set, channel search cannot be activated which means you cannot watch any of the programmes on air.

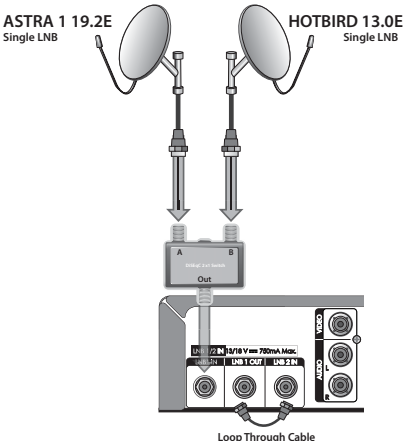
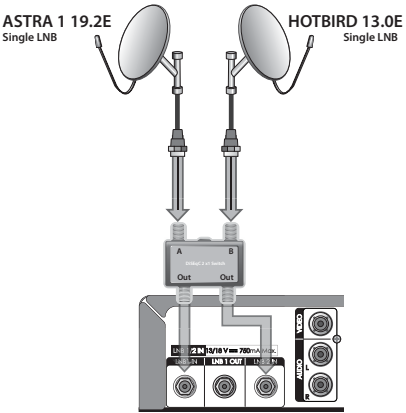
### LNB Only

You can either connect to an antenna with a single LNB switch using an RF cable and a loop through cable or an antenna with a twin LNB switch using two RF cables.

When connecting loop through, the specified functions for 2 tuners such as dual recording may be not available.	This connection allows you to view different channels while recording or record two channels at the same time.
 <p>ASTRA 1 19.2E Single LNB</p> <p>Loop Through Cable</p>	 <p>ASTRA 1 19.2E Twin LNB</p>

### DiSEqC

You can either connect to several antennas with a single LNB switch using an RF cable and a loop through cable or several antennas with a single LNB switch using two RF cables.

When connecting loop through, the specified functions for 2 tuners such as dual recording may be not available.	This connection allows you to view different channels while recording or record two channels at the same time.
 <p>ASTRA 1 19.2E Single LNB</p> <p>HOTBIRD 13.0E Single LNB</p> <p>Loop Through Cable</p>	 <p>ASTRA 1 19.2E Single LNB</p> <p>HOTBIRD 13.0E Single LNB</p>

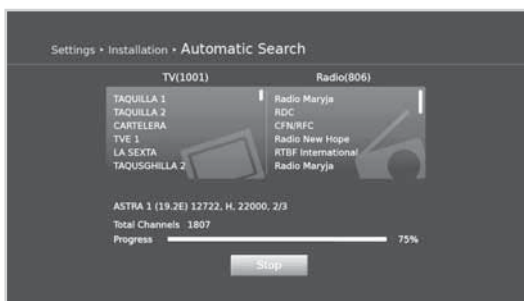
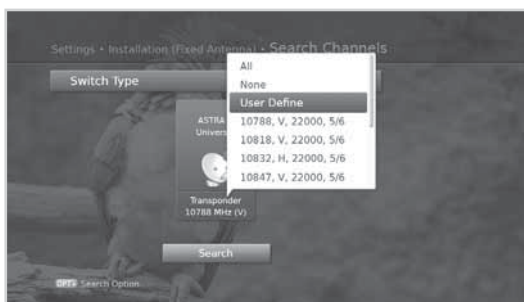
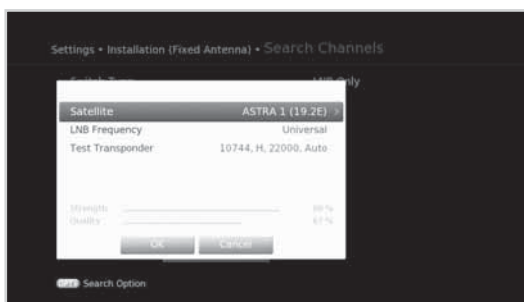
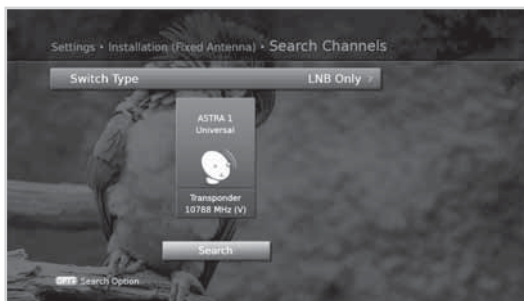
## Using LNB Switch Only

Select **LNB Only** if you want to search only channels of one satellite using the fixed antenna.

1. Check that your antenna connection and the selected antenna type are correct.
2. Select **Switch Type** and select **LNB Only**.
3. Select a satellite figure and press the **OK** button.
  - **Satellite:** Select the satellite.
  - **LNB Frequency:** Select the LNB frequency.
  - **Test Transponder:** Check the signal status of each transponder and select the one with the best quality.
4. Select **OK**.
5. Select **Transponder** under the activated satellite figure and press the **OK** button.
6. Select a value in the transponder list.
7. Select **Search** and press the **OK** button. The found channels will be listed.
8. When the search has completed, select **Save** and press the **OK** button to save the found channels.

### Note:

- Select **User Define** to enter options directly.
- Refer to **Setting Transponder** for details in transponder setting.
- Select **Stop** and press the **OK** button to stop the channel search.



# Installation

## Using DiSEqC Switch

Select **DiSEqC** if you want to search the channels of more than one satellite using the fixed antenna.

1. Check that your antenna connection and the selected antenna type are correct.
2. Select **Switch Type** and select **DiSEqC**.
3. Select a satellite figure and press the **OK** button.
  - **Satellite**: Select the satellite.
  - **LNB Frequency**: Select the LNB frequency.
  - **22kHz Tone**: Select **On** when using a 22kHz tone switch box.
  - **DiSEqC**: Select the DiSEqC switch.
  - **Test Transponder**: Check the signal status of each transponder and select the one with the best quality.
4. Select **OK**.
5. Select **Transponder** under the activated satellite figure and press the **OK** button.
6. Select a value in the transponder list.
7. Repeat the four steps above to set more satellites.
8. Select **Search** and press the **OK** button. The found channels will be listed.
9. When the search has completed, select **Save** and press the **OK** button to save the found channels.

### Note:

- Select **User Define** to enter options directly.
- Refer to **Setting Transponder** for details in transponder setting.
- Select **Stop** and press the **OK** button to stop the channel search.

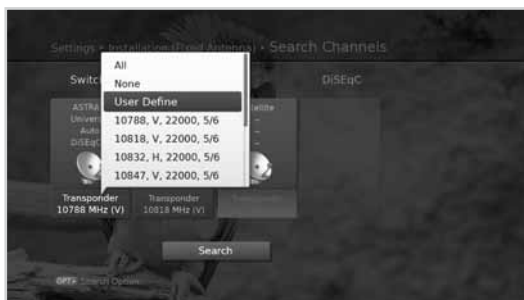


## Setting Transponder

The available transponders for each satellite are automatically listed. You can enter the transponder setting options directly if necessary.

1. Select **Transponder** under the activated satellite figure and press the **OK** button. You can also select **Test Transponder** in **Satellite Setting** box.
2. Select **User Define** to enter options directly.
  - **Frequency:** Enter the frequency of the transponder.
  - **Polarisation:** Select the polarisation of the transponder.
  - **Symbol Rate:** Enter the symbol rate of the transponder.
  - **Transmission:** Select **DVB-S2** for HD broadcasts.
  - **Modulation:** Select **QPSK** or **8PSK** when selecting **DVB-S2** in **Transmission**.
  - **FEC:** Select the FEC of the transponder.
3. Select **OK**.

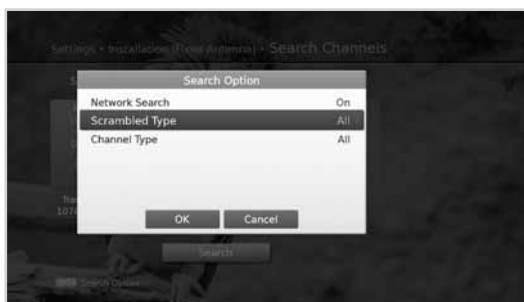
**Note:** Refer to the following websites for information on up-to-date transponder frequencies.  
[www.lyngsat.com](http://www.lyngsat.com)  
[www.satcodx.com](http://www.satcodx.com)



## Setting Search Options

You can set the options for more specific search.

1. Press the **OPT+** button.
2. Set the search options.
  - **Network Search:** Select **On** to receive the latest channel information.
  - **Scrambled Type:** **All** – FTA – CAS
  - **Channel Type:** **All** – TV – Radio
3. Select **OK** to save and exit.





# Installation

## Search Channels [SCD Antenna]

**MENU → Settings → Installation → Search Channels**

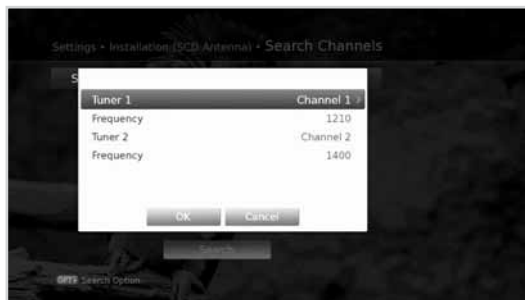
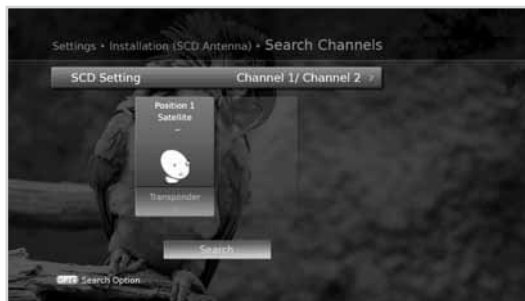
**Single Cable Distribution** enables the delivery of broadcast programming over a single cable to multiple users eliminating the numerous cables required to support other electronics devices.

If you are using more than one satellite receiver, set one receiver at a time and turn off the others while setting. Refer to the satellite antenna manual for details.

1. Check that your antenna connection and the selected antenna type are correct.
2. Select **SCD Setting** and press the **OK** button to set the channel(band) and frequency for this receiver.
  - **Tuner1**: Select from Channel 1~8.
  - **Frequency**: The frequency is set based on the channel of tuner1.
  - **Tuner2**: Select from Channel 1~8.
  - **Frequency**: The frequency is set based on the channel of tuner2.
3. Select **OK**.
4. Select a satellite figure and press the **OK** button.
  - **Satellite**: Select the satellite.
  - **LNB Frequency**: Select the LNB frequency.
  - **Test Transponder**: Check the signal status of each transponder and select the one with the best quality.
5. Select **OK**.
6. Select **Transponder** under the activated satellite figure and press the **OK** button.
7. Select a value in the transponder list.
8. Repeat the four steps above to set more satellites.
9. Select **Search** and press the **OK** button. The found channels will be listed.
10. When the search has completed, select **Save** and press the **OK** button to save the found channels.

### Note:

- Select **User Define** to enter options directly.
- The channel(band) and frequency of tuner1 and tuner2 should be different from each other. Refer to the SCD antenna manual for the band frequency.
- Select **Stop** and press the **OK** button to stop the channel search.
- Refer to **Setting Transponder** for details in transponder setting.



## Setting Search Options

You can set the options for more specific search.

1. Press the **OPT+** button.
2. Set the search options.
  - **Network Search:** Select **On** to receive the latest channel information.
  - **Scrambled Type:** **All – FTA – CAS**
  - **Channel Type:** **All – TV – Radio**
3. Select **OK** to save and exit.



## Search Channels [Motor Antenna]

### MENU → Settings → Installation → Search Channels

You can set the position of the satellites when using a motor antenna for efficient channel search.

1. Check that your antenna connection and the selected antenna type are correct.
2. Set the type and location of your motor. (**Motor Setting**)
3. Select the satellites that the motor antenna is pointing to. (**Edit Satellite Data**)
4. Set your antenna position for the selected satellites. (**Position Setting**)
5. Set the operation limit of your motor. (**Limit Setting**)
6. Select a satellite figure and press the **OK** button.
7. Select a satellite you want to search.
8. Select **Transponder** under the activated satellite figure and press the **OK** button.
9. Select a value in the transponder list.
10. Select **Search** and press the **OK** button. The found channels will be listed.
11. When the search has completed, select **Save** and press the **OK** button to save the found channels.



### Note:

- Only channels of one satellite can be searched when using a motor antenna. Please repeat the search process to search more satellites.
- Select **Stop** and press the **OK** button to stop the channel search.
- Refer to **Setting Transponder** for details in transponder setting.

# Installation

## Motor Setting

Set the type and location of your motor.

1. Select **Motor Setting** and press the **OK** button.
2. Select **Motor Type**.
  - **DiSEqC1.2**: General motor antenna using DiSEqC 1.2.
  - **USALS**: Motor antenna using USALS.
3. Select **My Longitude** and enter the longitude and direction.
4. Select **My Latitude** and enter the latitude and direction.
5. Select **LNB Frequency** and enter the LNB frequency.
6. Select **OK**.



**Note:** When **Motor Type** is set as **DiSEqC 1.2**, both **My Longitude** and **My Latitude** are inactivated.

## Edit Satellite Data

Select the satellites that the motor antenna is pointing to.

1. Select **Edit Satellite Data** and press the **OK** button.
2. Select satellites using the **▲/▼** and **OK** button.
3. When selecting **User Define**, enter the **Longitude** and **Direction**.
4. Press the **BACK** button to save and return.

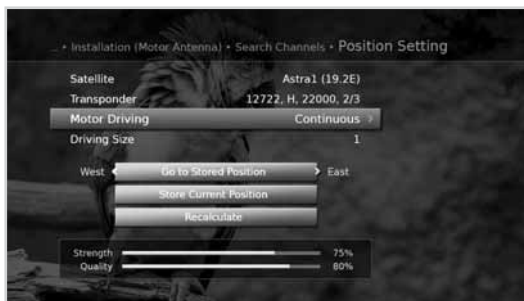


## Position Setting

Set your antenna position for the selected satellites.

1. Select **Position Setting**.
2. Select **Satellite** and select the satellite.
3. Select **Transponder** and select the transponder.
4. Select **Motor Driving** and select the motor driving option.
  - **Continuous – Step – Time**
5. When motor driving is set to **Step** or **Time**, select **Driving Size** and select one from **1~127**.
6. Select **Go to Stored Position** to make the antenna turn toward the position of the selected satellite.
7. Fine-tune the position using the ◀/▶ button until the signal strength and quality reaches the maximum level.
8. Select **Store Current Position** to save the adjusted position.
9. Select **Recalculate** to recalculate the positions of all satellites based on the position of current satellite.

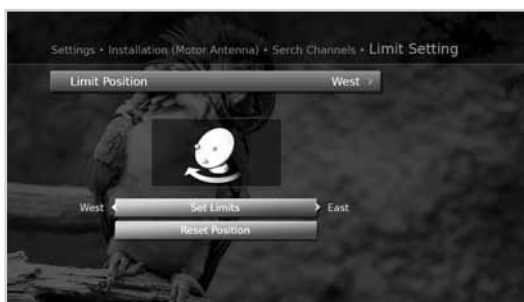
**Note:** When **Motor Type** is set as **USALS**, **Motor Driving**, **Store Current Position** and **Recalculate** are inactivated.



## Limit Setting

Set the operation limit of your motor.

1. Select **Limit Setting**.
2. Select **Limit Position** and select **East** or **West**.
3. Select **Set Limit** and set the operation limit to **East** or **West** using the ◀/▶ button.
4. Select **Reset Position** to initialise the position of the motor antenna to the original position (factory default).

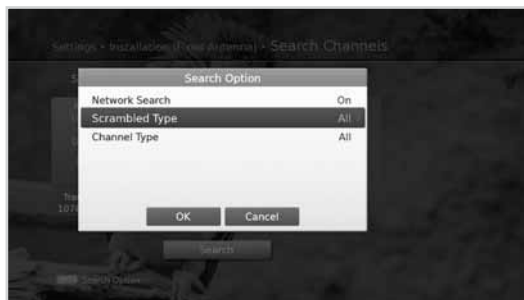


# Installation

## Setting Search Options

You can set the options for more specific search.

1. Press the **OPT+** button.
2. Set the search options.
  - **Network Search:** Select **On** to receive the latest channel information.
  - **Scrambled Type:** **All – FTA – CAS**
  - **Channel Type:** **All – TV – Radio**
3. Select **OK** to save and exit.



## Update Channels

**MENU → Settings → Installation → Update Channels**

### Updating channel list

1. Select **Update Channel List**.
2. The channel list will be updated. If there is no channel to update, a message will appear.

### Changing channel list

1. Select **Change Channel List**.
2. The **Channel List** will appear. Select the channel list you want to apply.



## Software Update (OTA)

In order to maintain proper performance of the product, it is essential to have the most up-to-date software. Visit the HUMAX website to check the latest news and newly released software versions. (<http://www.humaxdigital.com>) It is recommended that you periodically check for the availability of software update.

OTA, an abbreviation of **Over-the-Air**, means that the software can be downloaded through your aerial. The manufacturer reserves the right to decide when and where to release software by this process.

You can also search and download new software manually.

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

### Automatic Update

You can update software via the transponder pre-appointed by the manufacturer.

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

You can update software via another transponder.

1. Select **Manual Update** and press the **OK** button.
2. Enter the options manually.
  - **Satellite:** Select the satellite. Select **User Define** to enter the options directly.
  - **Frequency:** Enter the frequency of the transponder.
  - **Polarisation:** Select the polarisation of the transponder.
  - **Symbol Rate:** Enter the symbol rate of the transponder.
  - **FEC:** Select the FEC of the transponder.
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.



Menu On/Off



Select



Confirm



Enter 0~9

# Installation

## Note:

- It may take 5~10 minutes to update software.
- Other functions such as scheduling programmes will not activate while software update takes place.
- Be sure to update software when the signal strength and quality is high. If the weather is not favorable and the signal strength and quality are not recommendable, perform the software update later.
- The product will search new software automatically during standby. If new software is detected, you can choose either to download immediately or later when you switch into operation mode. If you select **Later**, the message will be displayed again when you power on.
- 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.
- Software update through the network is also possible if the network is connected through the LAN. Refer to **HUMAX TV Portal**.

## 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.
- Please be careful not to pull out the signal line (RF cable) during software update. Update may be interrupted and the product may not operate.

## 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 your local distributor.
- To format the HDD, mark **Format HDD**.

**Warning:** Please note that once you perform Default Setting, all data such as antenna setting information, 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.



In **System**, you can view the information of the system, signal detection, Smartcard, CI-Module and data storage. Power management, TVTV EPG and network options are also available in this section.

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

## System Information

**MENU → Settings → System → System Information**

The system information is displayed.

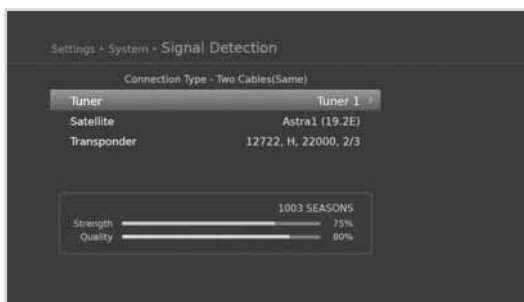


## Signal Detection

**MENU → Settings → System → Signal Detection**

You can check the signal strength and quality of the searched channels.  
Select a tuner, satellite or transponder you want to check.

**Note:** This menu will not be activated while recording.



Menu On/Off



Select



Confirm



Enter 0~9



# System

## Power Management

MENU → Settings → System → Power Management

### Setting Power Saving in Standby

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

1. Select **Power Saving in Standby**.
2. Select **On** to deactivate the certain features and minimise the power consumption.

### 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.



## Smartcard Information

**MENU → Settings → System → Smartcard Information**

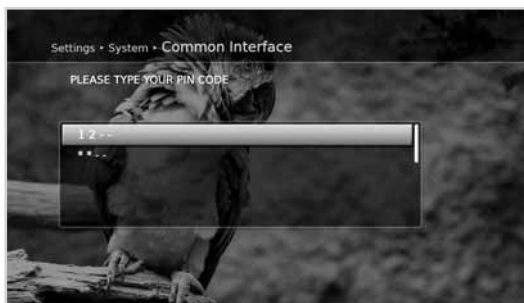
The smartcard information is displayed.



## Common Interface

**MENU → Settings → System → Common Interface**

The common interface information is displayed.



# System

## Data Storage

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

You can check the size of the internal HDD 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 your local distributor.
- 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)



## Internet Setting

**MENU → Settings → 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.



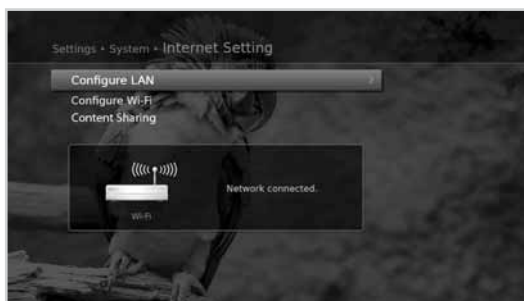
### Configuring LAN

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.

# Appendix

## Specification

Tuner & Channel	
No. of Tuners	2
Input Connector	F-Type, IEC 169-24, Female
Frequency Range	950 MHz to 2150 MHz
Signal Level	-25 to -69 dBm
LNB Power & Polarisation	Vertical : +13.5V (+14.5V at high voltage) Horizontal : +18.3V (+19V at high voltage) Current : Max. 500mA (Overload protection)
22KHz Tone	Frequency : $22 \pm 4$ KHz Amplitude : $650\text{mV} \pm 250\text{mV}$
DiSEqC Control	Version 1.0, 1.2, USALS
Audio/Video Decoding	
Audio Decoding	MPEG/MusiCam Layer I & II, Dolby Digital, Dolby Digital Plus
Audio Mode	Single channel/Dual channel/Joint stereo/Stereo
Video Decoding	MPEG-2 ISO/IEC 13818 H.264 AVC Transport Stream Specification
Video Format	4:3, 16:9
Video Resolution	1080i, 720p, 576p, 576i
Memory	
Flash Memory	32 MB
RAM	320 MB
EEPROM	8 KB
Audio/Video In/Out	
Video	TV-SCART, VCR-SCART, RCA, HDMI/HDCP
Audio	TV-SCART, VCR-SCART, Audio L/R, S/PDIF (Digital Audio Output)
Data In/Out	
USB	USB 2.0 Host (5 V $\overline{\text{DC}}$ 500, 250 mA Max.)
RJ-45	Ethernet 10/100 Mbps
Hard Disk	
HDD	320/500/1024 GB

Power Supply	
Input Voltage	90-250V a.c., 50/60Hz
Type	SMPS
Power Consumption	Max. 50 W (Standby: Max.1 W)
Protection	Separate internal fuse. The input should be protected against lightning.
Physical Specification	
Size (w/h/d)	380 mm×55 mm×252 mm
Weight	3.55 kg
Operating Temperature	0 °C to +45 °C

**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 call centers. Should your product require warranty service, please contact HUMAX to obtain the appropriate authorization.

### HUMAX Call Center

<b>Österreich</b>	<b>Tel:</b> <b>Öffnungszeiten:</b> <b>E-Mail:</b> <b>Website:</b> <b>Sprache:</b>	0820 400675 (€ 0,14/Min) Mo-So 08:00-20:00 Uhr techinfo@humax-digital.de www.humax-digital.de Deutsch/Englisch/Türkisch
<b>Deutschland</b>	<b>Tel:</b> <b>Öffnungszeiten:</b> <b>E-Mail:</b> <b>Website:</b> <b>Sprache:</b>	01805-778870 (€ 0,14/Min) Mo-So 8:00-20:00 Uhr techinfo@humax-digital.de www.humax-digital.de Deutsch/Englisch/Türkisch
<b>Italia</b>	<b>Tel:</b> <b>Orario:</b> <b>Lingua:</b>	899 100 080 (€1+ VAT/min) Lun.-Ven. 8:00-18:00 Italiano
<b>Suomi</b>	<b>Puh:</b> <b>Aukioloajat:</b> <b>Kieli:</b>	+358 9 56186 130 ma-pe 8:00-16:00 Suomi/Englanti
<b>Sverige</b>	<b>Tfn:</b> <b>Öppettider:</b> <b>Språk:</b>	+46 (0)550 85527 Mån-fre 08:00-16:30 Svenska/Engelska
<b>UK</b>	<b>Tel:</b> <b>Opening Hours:</b> <b>E-mail:</b> <b>Website:</b> <b>Language:</b>	0870 247 8800 Mon-Fri 8:30-21:00 uksupport@humax-digital.co.uk www.humax-digital.co.uk English

**Note:** For hardware repair, please visit our website.

## 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 cleaning.
- Use a light damp cloth (no solvents) to dust the product.

#### 5. VENTILATION

- The slots on top of the product must be left uncovered to allow proper airflow into the unit.
- Do not stand the product on soft furnishings or carpets.
- Do not stack electronic equipments on top of the product.

#### 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. EXTRANEIOUS 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.

## 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 your local product distributor 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.

## Trouble Shooting

Before contacting your local service centre, please read the tips below carefully. If the problem persists after completing the following procedure, please contact your local product distributor or service centre 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 the product distributor.
- 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.

## Error Message

Error message	Possible causes	What to do
<b>No or bad signal [Satellite]</b>	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.
<b>No or bad signal [Cable]</b>	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.
<b>No or bad signal [Terrestrial]</b>	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.
<b>The channel is scrambled or not available.</b>	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.
<b>The audio is not available.</b>	The channel has a video signal, but no audio.	Press the audio button to confirm that the channel has audio options.
<b>No access</b>	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.
<b>No card inserted.</b>	Smartcard is not inserted.	Insert Smartcard.

# Appendix

Error message	Possible causes	What to do
<b>Incorrect card</b>	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.
<b>CI-Module not installed.</b>	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.
<b>Invalid CI-Module</b>	Wrong CI-Module.	Insert the correct CI-Module.
	CI-Module is damaged.	Replace the CI-Module.
<b>The antenna cable is short-circuited. [Satellite]</b>	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.

## 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 (Quaternary 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 TV's 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.

## Remote Control Code List

### 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 4-digit code. Every time a number is entered, the button will blink. When the fourth digit is entered, the button will blink twice.
4. If a valid 4-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
	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
	TEXT MIX	SKIP -, TRACK -, CHAPTER -	DVD SKIP -, CD SKIP -, SKIP -
	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-
			
LIST			
P+	P+	P+	P+
P-	P-	P-	P-
TEXT			
		AUDIO, LANGUAGE	SURROUND
	SUBTITLE, LANGUAGE; CC	SUBTITLE	

Button	TV	DVD	AUDIO
TV/RADIO	TV/DTV ATV/DTV; D/A; DTV/TV; DTV; DIGITAL	HDD, DVD/HDD	BAND
OPT+			
	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		
ZOOM	WIDE, FORMAT, 16:9, ASPECT; ZOOM	ZOOM	

## 2. TV Code List

Brand	Code		
<b>A.R. Systems</b>	0556, 0037, 0455, 0352, 0374	<b>Akai</b>	0556, 0037, 0548, 0714, 0715, 0606, 0361, 0264, 0433, 0729, 1259, 1413, 0648, 0631, 2021, 0602, 2025, 2096, 0516, 0480, 0473, 0371, 0217, 0216, 0208, 0191, 0163, 0072, 0035, 0009, 0745, 1537
<b>Accent</b>	0037	<b>Akiba</b>	0037, 0218, 0455, 0282
<b>Acer</b>	1339, 1403, 1509	<b>Akito</b>	0037, 0272
<b>Acoustic Solutions</b>	1149, 1523, 1545, 1667, 1727, 1865, 2055	<b>Akura</b>	0037, 0714, 0668, 1037, 0264, 0218, 0009, 0171, 0282, 0412, 1498, 1556, 1687, 1982
<b>Acura</b>	0009	<b>Alaron</b>	0216
<b>ADL</b>	1217	<b>Alba</b>	0037, 0714, 0668, 1037, 0487, 0370, 0218, 0036, 0587, 2050, 1997, 1935, 1731, 0551, 0480, 0443, 0418, 0371, 0355, 0247, 0216, 0163, 0009
<b>Admiral</b>	0264, 0087, 0093, 0163	<b>AlfaView</b>	1206
<b>Advent</b>	0876, 1613	<b>All-Tel</b>	0865, 1269
<b>Adyson</b>	0216, 0217	<b>Allorgan</b>	0206, 0217
<b>AEG</b>	1163, 1324, 1556, 2096	<b>Allstar</b>	0037
<b>Agashi</b>	0264, 0216, 0217	<b>Amitech</b>	0655, 1281
<b>AGB</b>	0516	<b>Amoi</b>	1529
<b>Agef</b>	0087	<b>Amplivision</b>	0370, 0217, 0320
<b>Aiko</b>	0037, 0361, 0264, 0433, 0009, 0035, 0072, 0191, 0216, 0217, 0371		
<b>Aim</b>	0037, 0805		
<b>Airis</b>	1531, 1833, 2050		
<b>Aiwa</b>	0701, 0705, 1916		

# Appendix

<b>Amstrad</b>	0037, 1037, 0264, 0218, 0433, 0009, 0163, 0171, 0362, 0371, 0412, 0516, 0648, 1820, 1890, 1982
<b>Anam</b>	0037, 0009
<b>Anam National</b>	0037, 0650
<b>Andersson</b>	1149, 1163
<b>Anglo</b>	0264, 0009
<b>Anitech</b>	0037, 0264, 0009, 0282
<b>Ansonic</b>	0037, 0668, 0370, 0009, 0104, 0163, 0259, 0292, 0374, 0411, 1437
<b>AOC</b>	0625, 1365, 1588
<b>Apollo</b>	0473
<b>Apro</b>	1846
<b>Arc En Ciel</b>	0109
<b>Arcam</b>	0216, 0217
<b>Ardem</b>	0037, 0714
<b>Arena</b>	0037
<b>Aristona</b>	0556, 0037
<b>ART</b>	1037
<b>Arthur Martin</b>	0163
<b>ASA</b>	0070, 0087, 0104, 0105, 0346
<b>Asberg</b>	0037
<b>Asora</b>	0009
<b>Asuka</b>	0264, 0218, 0216, 0217, 0282
<b>Atec</b>	1606, 1728
<b>Atlantic</b>	0037, 0206, 0216, 0259, 0320
<b>Atori</b>	0009
<b>Auchan</b>	0163
<b>Audio sonic</b>	0037, 0714, 0486, 0715, 0264, 0370, 0218, 0009, 0109, 0217, 0374, 0865, 1308, 1800, 2050
<b>Audioton</b>	0486, 0264, 0370, 0217
<b>Audiovox</b>	0451
<b>Aumark</b>	0060
<b>Autovox</b>	0087, 0206, 0217, 0247, 0349, 0544
<b>AVC</b>	2044
<b>Avious</b>	1634
<b>Awa</b>	0606, 0036, 0108, 0009, 0011, 0217, 0451, 1376
<b>Axxent</b>	0009
<b>Baier</b>	0876

<b>Baird</b>	0072, 0073, 0109, 0193, 0208, 0217, 0343, 1196
<b>Bang &amp; Olufsen</b>	0087, 0565, 0619, 0620
<b>Barco</b>	0163
<b>Basic Line</b>	0556, 0037, 0668, 1037, 0218, 0455, 0009, 0163, 0217, 0282, 0339, 0374, 1163
<b>Bastide</b>	0217
<b>Bauer</b>	0805, 1615
<b>Baur</b>	0037, 0195, 0361, 0191, 0349, 0512, 0535, 0544, 0554
<b>Bazin</b>	0217
<b>Beaumark</b>	0178
<b>Beko</b>	0037, 0714, 0486, 0715, 0606, 0370, 0418, 0808, 1652, 1800
<b>Belson</b>	0698, 0894, 1191
<b>Belstar</b>	1037
<b>BenQ</b>	1212, 1562, 1574
<b>Bensten</b>	1326, 1890, 1893
<b>Beon</b>	0037, 0418
<b>Berthen</b>	0668
<b>Best</b>	0370
<b>Bestar</b>	0037, 0370, 0374
<b>Bestar-Daewoo</b>	0374
<b>Binatone</b>	0217
<b>Black Diamond</b>	1909, 1037, 0614, 1163
<b>Black Star</b>	0247
<b>Blackway</b>	0218, 0282
<b>Blaupunkt</b>	0195, 0036, 0455, 0170, 0191, 0200, 0327, 0535, 0554
<b>Blue Media</b>	1606, 1728
<b>Blue Sky</b>	0556, 0037, 0714, 0668, 1037, 0715, 0487, 0218, 0455, 0499, 0624, 0282, 1191, 1243, 1314, 1363, 1521, 1652, 1709, 1916
<b>Blue Star</b>	0282
<b>BlueH</b>	1745
<b>Boca</b>	1652
<b>Boman</b>	1324
<b>Bondstec</b>	0247
<b>Boots</b>	0009, 0217, 0272
<b>Bork</b>	1363

# Appendix

English

<b>Bosch</b>	0320
<b>Boxlight</b>	0736
<b>BPL</b>	0037, 0208, 0282, 0896
<b>Brandt</b>	0625, 0714, 0560, 0109, 0287, 0335
<b>Brimax</b>	1709
<b>Brinkmann</b>	0037, 0668, 0486, 0418, 0519
<b>Brionvega</b>	0037, 0087, 0362
<b>Britannia</b>	0216, 0217
<b>Brother</b>	0264
<b>Bruns</b>	0087
<b>BSR</b>	0163
<b>BTC</b>	0218
<b>Bush</b>	0556, 0037, 0714, 0668, 1037, 0698, 0487, 0361, 0264, 0218, 0036, 0587, 1687, 1682, 1667, 1652, 1645, 1634, 1556, 1731, 1869, 1870, 1871, 1900, 1954, 1982, 2050, 2053, 2055, 2056, 0009, 0208, 0217, 0272, 0282, 0349, 0355, 0371, 0374, 0519, 0614, 0660, 0661, 0778, 1149, 1166, 1243, 1259, 1308
<b>Canton</b>	0218
<b>Capsonic</b>	0264
<b>Carad</b>	0668, 1037, 0610
<b>Carena</b>	0037, 0455
<b>Carrefour</b>	0037, 0036, 0070
<b>Carver</b>	0170
<b>Cascade</b>	0037, 0009
<b>Casio</b>	0037
<b>Cat</b>	1682, 2155
<b>Cathay</b>	0037, 1727
<b>CCE</b>	0037
<b>cello</b>	1770, 1820, 1844, 1845, 1846
<b>Centrum</b>	1037
<b>Centurion</b>	0037
<b>Century</b>	0087, 0247
<b>CGE</b>	0370, 0074, 0163, 0247, 0418
<b>Changhong</b>	0821
<b>Chimei</b>	2052, 1837
<b>Cimline</b>	0218, 0009
<b>Cineral</b>	0451
<b>Cinex</b>	0648, 1166, 1556

<b>Citizen</b>	0060
<b>City</b>	0009
<b>Clarivox</b>	0037, 0070, 0418
<b>Classic</b>	0499
<b>Clatronic</b>	0037, 0714, 0264, 0370, 0218, 0009, 0217, 0247, 0320, 0371, 1324
<b>Clayton</b>	1037
<b>CMS</b>	0216
<b>CMS Hightec</b>	0217
<b>Concorde</b>	0009
<b>Condor</b>	0037, 0264, 0370, 0009, 0216, 0247, 0282, 0320, 0411, 0418
<b>Conia</b>	0820, 0894, 1498, 1687
<b>Conrac</b>	0808
<b>Contec</b>	0037, 0036, 0009, 0216
<b>Continental Edison</b>	0487, 0109, 0287
<b>Cosmel</b>	0037, 0009
<b>Crosley</b>	0074, 0087, 0163, 0247
<b>Crown</b>	0037, 0714, 0668, 1037, 0486, 0715, 0487, 0606, 0712, 0370, 1652, 0672, 0418, 0412, 0339, 0208, 0009
<b>Crown Mustang</b>	0672
<b>CS Electronics</b>	0218, 0216, 0247
<b>CTC</b>	0247
<b>CTX</b>	1756
<b>Curtis Mathes</b>	0060, 0093, 0145, 0166, 0451
<b>Cybertron</b>	0218
<b>Cytronix</b>	1298
<b>D-Vision</b>	0556, 0037, 1982
<b>Daewoo</b>	0556, 0037, 0634, 1909, 0218, 1902, 1812, 1612, 1598, 1376, 1307, 0880, 0876, 0865, 0778, 0661, 0624, 0499, 0451, 0374, 0217, 0216, 0009
<b>Dainichi</b>	0218, 0216
<b>Daitsu</b>	1267
<b>Dansai</b>	0037, 0036, 0009, 0035, 0208, 0216, 0217
<b>Dansette</b>	0412
<b>Dantax</b>	0714, 1037, 0486, 0715, 0370, 1652, 1916, 1981
<b>Datsura</b>	0208
<b>Davis</b>	0736

# Appendix

<b>Dawa</b>	0037
<b>Daytek</b>	1207, 1374, 1376
<b>Dayton</b>	0009, 1207, 1374
<b>Daytron</b>	0037, 0009, 0374
<b>De Graaf</b>	0548, 0044, 0163, 0208
<b>DEC</b>	1326
<b>Decca</b>	0037, 0072, 0217, 0272, 0516, 0621
<b>Dell</b>	1264, 1403
<b>Denko</b>	0264
<b>Denon</b>	0145
<b>Denver</b>	0037, 0587, 1189, 1324, 1634, 1820, 1988, 2050, 2096
<b>DER</b>	0193
<b>Desmet</b>	0037, 0009, 0087, 0320
<b>DGM</b>	1890
<b>Diamant</b>	0037
<b>Diamond</b>	0825
<b>DiBoss</b>	1474
<b>Digatron</b>	0037
<b>Digihome</b>	1149, 1667
<b>Digiline</b>	0037, 0668, 0105
<b>Digimate</b>	0890
<b>Digital Device</b>	1606
<b>Digitek</b>	1521, 1709
<b>Digitrex</b>	2056
<b>Digix Media</b>	0880
<b>Dixi</b>	0037, 0009, 0087, 0217, 0247
<b>DL</b>	0891, 1326
<b>DMTech</b>	1338, 1898, 1964, 1994, 2001
<b>Domeos</b>	0668
<b>Domland</b>	0394
<b>Dream Vision</b>	1704
<b>DTS</b>	0009
<b>Dual</b>	0037, 1037, 1137, 0217, 0259, 0343, 0349, 0352, 0394, 0519, 0544, 0778, 1149, 1202, 1267, 2032
<b>Dual Tec</b>	0217
<b>Dumont</b>	0070, 0072, 0087, 0104, 0217
<b>Durabrand</b>	1437, 1652, 1988
<b>Dux</b>	0037

<b>Dynatech</b>	0217
<b>Dynatron</b>	0037
<b>e-motion</b>	1709
<b>E:max</b>	1324, 1531
<b>Easy Living</b>	1248, 1553, 1783
<b>Ecco</b>	0773
<b>ECE</b>	0037
<b>Edison-Minerva</b>	0487
<b>Eiki</b>	0735
<b>Elba-Sharp</b>	0516
<b>Elbe</b>	0556, 0037, 0610, 0218, 0191, 0217, 0259, 0292, 0362, 0411, 0435, 0516, 0551, 0630
<b>Elcit</b>	0087, 0163, 0247, 0516
<b>Elekta</b>	0264, 0282
<b>Element</b>	1687
<b>Elfunk</b>	1037, 1208
<b>ELG</b>	0037
<b>Elin</b>	0037, 0548, 0361, 0009, 0104, 0349
<b>Elite</b>	0037, 0218, 0320
<b>Elta</b>	0264, 0009
<b>Emco</b>	0247
<b>Emerson</b>	0037, 0714, 0668, 1909, 0486, 0361, 0370, 0070, 0087, 0178, 0247, 0282, 0320, 0371, 0624
<b>Emperor</b>	0282
<b>Envision</b>	1365
<b>Epson</b>	0881, 1290, 0833, 0840
<b>Erae</b>	1371
<b>Erres</b>	0037
<b>ESC</b>	0037, 0217
<b>Etron</b>	0009, 0163
<b>Eurofeel</b>	0264, 0217
<b>Euroman</b>	0037, 0264, 0370, 0216, 0217
<b>Europa</b>	0037
<b>Europhon</b>	0037, 0217, 0516
<b>Evesham</b>	1248, 1606, 1667, 1719, 1728
<b>Evesham Technology</b>	1728
<b>Evolution</b>	1756
<b>Excors</b>	2031
<b>Expert</b>	0163, 0206, 0259

<b>Exquisit</b>	0037, 0247	<b>Geloso</b>	0009, 0163, 0247, 0374
<b>FairTec</b>	1373	<b>General</b>	0109, 0287, 0471
<b>Fenner</b>	0009, 0374	<b>General Technic</b>	0009
<b>Ferguson</b>	0037, 0625, 0548, 0560, 0195, 1037, 0073, 0109, 0193, 0287, 0335, 0343, 0443, 1471, 1935, 2053	<b>Genexxa</b>	0037, 0218, 0009, 0163, 0412
<b>Fidelity</b>	0037, 0361, 0264, 0163, 0171, 0193, 0216, 0371, 0412, 0512, 0544	<b>Gericom</b>	0808, 0865, 0880, 1206, 1217, 1298, 1606, 1731
<b>Filsai</b>	0217	<b>Go Video</b>	0060
<b>Finlandia</b>	0548, 0361, 0072, 0163, 0208, 0346	<b>Gold</b>	1770, 1833, 2077, 2081
<b>Finlux</b>	0556, 0037, 0714, 0715, 1585, 1556, 0808, 0631, 0621, 0516, 0492, 0480, 0473, 0411, 0346, 0217, 0163, 0105, 0104, 0087, 0072, 0070	<b>Goldfunk</b>	0668
<b>Firstline</b>	0556, 0037, 0714, 0668, 1037, 0361, 1612, 1371, 1363, 1308, 1191, 0808, 0624, 0544, 0411, 0374, 0349, 0321, 0247, 0217, 0216, 0208, 0072, 0009	<b>GoldHand</b>	0216
<b>Fisher</b>	0361, 0370, 0036, 0045, 0072, 0087, 0104, 0208, 0217, 0349, 0544	<b>GoldStar</b>	0037, 0714, 0715, 0606, 0361, 0001, 0044, 0109, 0163, 0178, 0216, 0217, 0247, 0290, 0377
<b>Flint</b>	0037, 0610, 0264, 0218, 0455, 0072	<b>Gooding</b>	0487
<b>Force</b>	1149	<b>Goodmans</b>	0556, 0037, 0625, 0714, 0560, 0668, 0634, 1909, 1037, 0487, 0264, 0218, 0036, 2056, 1163, 1259, 2055, 1308, 2053, 1376, 1916, 1645, 1667, 1682, 1900, 1687, 1719, 1720, 1727, 0009, 0035, 0072, 0217, 0290, 0335, 0343, 0371, 0374, 0480, 0499, 0516, 0624, 0630, 0661, 0808, 0880, 1149
<b>Forgestone</b>	0193	<b>Gorenje</b>	0370
<b>Formenti</b>	0037, 0087, 0163, 0216, 0320	<b>GPM</b>	0218
<b>Formenti-Phoenix</b>	0216, 0320	<b>Gradiente</b>	0037, 0170, 1053
<b>Fortress</b>	0087, 0093	<b>Graetz</b>	0714, 0487, 0361, 0163, 0339, 0371, 1163
<b>Fraba</b>	0037, 0370	<b>Gran Prix</b>	0648
<b>Friac</b>	0037, 0610, 0370, 0009, 0499	<b>Granada</b>	0037, 0548, 0560, 0036, 0108, 0226, 0072, 0163, 0208, 0217, 0339, 0343, 0356, 0469, 0473, 0516, 0045
<b>Frontech</b>	0264, 0009, 0163, 0217, 0247	<b>Grandin</b>	0556, 0037, 0714, 0668, 1037, 0715, 0610, 0218, 0455, 1377, 1375, 1374, 1298, 1206, 1191, 0880, 0865, 0624, 0374, 0320, 0282, 0163, 0009
<b>Fujimaro</b>	0865	<b>Gronic</b>	0217
<b>Fujitsu</b>	0009, 0072, 0206, 0217, 0259, 0683, 0809, 0853	<b>Grundig</b>	0556, 0037, 0195, 0487, 0706, 0036, 0587, 2127, 2053, 1954, 1935, 1916, 1869, 1800, 1667, 1376, 1371, 1308, 1223, 0672, 0630, 0070, 0554, 0535, 0191, 0443
<b>Fujitsu General</b>	0009, 0206, 0217, 0683	<b>Grunkel</b>	1163
<b>Fujitsu Siemens</b>	0808, 1163, 1248, 1298, 1373, 1666	<b>H &amp; B</b>	0808, 2001
<b>Funai</b>	0714, 0668, 0264, 1394, 1595, 1666, 1817	<b>Haier</b>	0698, 1615, 1748, 1604
<b>Galaxi</b>	0037	<b>Halifax</b>	0264, 0216, 0217
<b>Galaxis</b>	0037, 0370	<b>Hallmark</b>	0178
<b>Gateway</b>	1755		
<b>GBC</b>	0218, 0009, 0163, 0374		
<b>GE</b>	0093, 0178, 0282, 0335, 0451, 0735, 1907		
<b>GEC</b>	0037, 0361, 0072, 0163, 0217, 0349, 0516		

# Appendix

<b>Hampton</b>	0216, 0217
<b>Hanimex</b>	0218, 1908
<b>Hanns.G</b>	1783
<b>Hannspree</b>	1348, 1351, 1352, 1613, 1776, 1783, 2027
<b>Hanseatic</b>	0556, 0037, 0625, 0714, 0634, 0361, 0370, 0808, 0661, 0544, 0519, 0499, 0394, 0377, 0349, 0320, 0292, 0282, 0217, 0087, 0009
<b>Hantarex</b>	0037, 0009, 0516, 0865, 1338, 1465
<b>Hantor</b>	0037
<b>Harsper</b>	0865
<b>Harwa</b>	0773, 1196, 1269
<b>Harwood</b>	0037, 0487, 0009, 0412
<b>Hauppauge</b>	0037
<b>Havermy</b>	0093
<b>HCM</b>	0037, 0264, 0218, 0009, 0217, 0282, 0412, 0418
<b>Hema</b>	0009, 0217
<b>Hemmermann</b>	0349, 0544
<b>Hifivox</b>	0109
<b>Higashi</b>	0216
<b>Highline</b>	0037, 0264
<b>Hikona</b>	0218, 1983
<b>Hinari</b>	0037, 0264, 0218, 0036, 0009, 0208, 0355, 0443, 1908
<b>Hisawa</b>	0714, 0610, 0218, 0455, 0282
<b>Hisense</b>	0556, 0508, 0780, 1314, 1363, 1660, 2098
<b>Hit</b>	0087
<b>Hitachi</b>	0037, 0548, 0634, 1037, 1137, 0036, 0108, 0225, 0719, 0737, 0744, 0777, 0797, 0877, 0884, 0044, 1045, 1149, 1194, 1225, 1481, 1484, 1576, 1691, 1772, 1854, 2074, 0109, 0145, 0163, 0178, 0217, 0343, 0349, 0356, 0441, 0469, 0473, 0480, 0481, 0492, 0499, 0516, 0105, 0576, 0578, 0072
<b>Hitachi Fujian</b>	0108
<b>Hitsu</b>	0610, 0218, 0455, 0009
<b>HMV</b>	0087
<b>Hoeher</b>	0714, 0865, 1163, 1556
<b>Home Electronics</b>	0606
<b>Hornbyphon</b>	0037

<b>Hoshai</b>	0218, 0455, 0282
<b>Huanayu</b>	0216, 0374
<b>Hugoson</b>	0890, 1217
<b>Humax</b>	2181, 1501, 4000, 4001, 1295, 1535, 1539, 1821, 1873, 2057,
<b>HYD</b>	1376
<b>Hygashi</b>	0216, 0217
<b>Hyper</b>	0009, 0216, 0217, 0247
<b>Hypersonic</b>	0361
<b>Hypson</b>	0556, 0037, 0714, 0668, 1037, 0486, 0715, 0264, 0455, 0217, 0282, 0621
<b>Hyundai</b>	0778, 0865, 0876, 1281, 1294, 1376, 1468, 1532, 1598, 1606, 1612, 1899
<b>Iberia</b>	0037
<b>ICE</b>	0037, 0264, 0218, 0216, 0217, 0371
<b>ICeS</b>	0218, 0216
<b>iDEAL</b>	1556
<b>Igo</b>	1224
<b>IIsonic</b>	1376, 1513, 1613
<b>Iiyama</b>	0877, 0890, 1217
<b>Imperial</b>	0037, 0370, 0074, 0247, 0349, 0418, 0630, 2089
<b>Indiana</b>	0037
<b>InFocus</b>	0736, 0752, 1164, 1206, 1430, 1516
<b>Ingelen</b>	0714, 0610, 0487, 0163
<b>Ingersol</b>	0009
<b>Inno Hit</b>	0218, 0009, 0072, 0217, 0247, 0282, 0290, 0516, 1163
<b>Innovation</b>	0519
<b>Innowert</b>	0865, 1298
<b>Interbuy</b>	0037, 0264, 0009, 0247
<b>Interfunk</b>	0037, 0361, 0087, 0109, 0163, 0200, 0247, 0327, 0349, 0512
<b>Internal</b>	0556, 1909, 0624
<b>Intervision</b>	0037, 0486, 0487, 0264, 0218, 0455, 0009, 0217, 0247, 0282, 0377, 0394, 0519
<b>Irradio</b>	0037, 0218, 0009, 0247, 0290, 0371, 0724
<b>Isukai</b>	0037, 0218, 0455, 0282
<b>ITC</b>	0217, 0320
<b>ITS</b>	0037, 0264, 0218, 0216, 0282, 0371

<b>ITT</b>	0548, 0610, 0361, 0163, 0193, 0208, 0339, 0346, 0349, 0473, 0480, 0544	<b>Kontakt</b>	0487
<b>ITT Nokia</b>	0548, 0610, 0606, 0361, 0163, 0208, 0339, 0346, 0349, 0473, 0480	<b>Korpel</b>	0037
<b>ITV</b>	0037, 0264, 0247, 0374	<b>Korting</b>	0370, 0087, 0320
<b>JDV</b>	1982	<b>Kosmos</b>	0037
<b>Jean</b>	0036, 1511, 1513	<b>Kotron</b>	0412, 1900
<b>JEC</b>	0035	<b>Koyoda</b>	0009
<b>JMB</b>	0556, 0634, 0443, 0499	<b>Kreisen</b>	0876, 1474
<b>JNC</b>	1702	<b>KTV</b>	0217
<b>Jocel</b>	0712	<b>Kuba</b>	0349
<b>Jouge</b>	1435	<b>Kyoshu</b>	0412, 0418
<b>Jubilee</b>	0556	<b>Kyoto</b>	0163, 0216, 0217
<b>JVC</b>	0606, 0218, 0036, 0650, 0653, 0093, 0193, 0371, 0418, 0683, 0731, 1053, 1352, 1653, 1818, 2118	<b>L&amp;S Electronic</b>	0714, 0808, 0865
<b>Kaisui</b>	0037, 0218, 0455, 0009, 0216, 0217, 0282	<b>LaSAT</b>	0486
<b>Kamp</b>	0216	<b>Lava</b>	1474
<b>Kapsch</b>	0361, 0104, 0163, 0206, 0259	<b>Lavis</b>	1037
<b>Karcher</b>	0714, 0610, 0606, 0264, 0370, 0282, 0778, 1556, 1982	<b>Leader</b>	0009
<b>Kathrein</b>	0556, 0880	<b>Lecson</b>	0037
<b>Kawa</b>	0371	<b>Lemair</b>	0411
<b>Kawasho</b>	0216	<b>Lenco</b>	0037, 0587, 0104, 0374, 1634, 1983
<b>KB Aristocrat</b>	0163	<b>Lenoir</b>	0009, 1189
<b>Kendo</b>	0037, 1037, 0610, 0370, 0247, 0362, 0377, 0411, 0519, 0551, 0648, 1149, 1437, 1585	<b>Lentec</b>	1531
<b>Kennedy</b>	0163, 0206, 0435	<b>Lesa</b>	0247
<b>Kennex</b>	1037	<b>Lexsor</b>	1196, 1507
<b>Keymat</b>	1326, 1504, 1771, 1890, 1893	<b>Leyco</b>	0037, 0264, 0072
<b>Kingsley</b>	0216	<b>LG</b>	0556, 0037, 0714, 0715, 0698, 0361, 0370, 1305, 1423, 1637, 1663, 1664, 1721, 1768, 1840, 1842, 1859, 1860, 1191, 1148, 0377, 0290, 0247, 0217, 0216, 0178, 0163, 0009, 0001, 1265, 1325
<b>Kioto</b>	0706	<b>Liesen &amp; Tter</b>	0037
<b>Kiss</b>	0800	<b>Liesenkotter</b>	0037, 0327
<b>Kiton</b>	0037, 0668	<b>Lifetec</b>	0037, 0714, 0668, 1037, 1137, 0218, 0009, 0374, 0519, 0683
<b>Kneissel</b>	0556, 0037, 0610, 0370, 0259, 0292, 0362, 0374, 0411, 0435, 0499	<b>Lloyd's</b>	0009
<b>Kobra</b>	1467	<b>Local India TV</b>	0009, 0208, 0602, 1413
<b>Kolster</b>	0037, 0218, 0247, 0349	<b>Lodos</b>	1037, 1149
<b>Konig</b>	0037, 0101	<b>Loewe</b>	0037, 0370, 0087, 0292, 0512, 0516, 0633, 0655, 0790, 1836, 1884
<b>Konka</b>	0037, 0714, 0218, 0371, 0418, 0641, 0754, 0894	<b>Logic</b>	2107
		<b>Logik</b>	1037, 0001, 0011, 0193, 0773, 0880, 1217, 1471, 1687, 2028, 2029, 2030



# Appendix

<b>Logix</b>	0668, 0519
<b>Luker</b>	1982
<b>Luma</b>	1037, 0009, 0163, 0206, 0259, 0362, 0374, 0411
<b>Lumatron</b>	0037, 0264, 0073, 0163, 0206, 0217, 0259
<b>Lux May</b>	0037, 0009
<b>Luxor</b>	0548, 1037, 0361, 0163, 0208, 0217, 0290, 0346, 0349, 0356, 0473, 0480, 0631, 1163
<b>LXI</b>	0156
<b>M Electronic</b>	0037, 0714, 0634, 0195, 0361, 1652, 0661, 0512, 0492, 0480, 0411, 0374, 0349, 0346, 0343, 0287, 0247, 0217, 0216, 0163, 0109, 0105, 0104, 0009
<b>Madison</b>	0037
<b>MAG</b>	1498, 1687
<b>Magnadyne</b>	0087, 0163, 0247, 0516, 0544
<b>Magnafon</b>	0073, 0216, 0516
<b>Magnavox</b>	0036, 0011
<b>Magnin</b>	1907
<b>Magnum</b>	0037, 0714, 0715, 0648, 1289
<b>Mandor</b>	0264
<b>Manesth</b>	0037, 0264, 0035, 0217, 0320
<b>Manhattan</b>	0037, 0668, 1037, 0778, 0876, 1267, 1474
<b>Maqma</b>	1467, 1606, 1702, 1789
<b>Marantz</b>	0556, 0037, 0412, 0704, 1398, 1532
<b>Marelli</b>	0087
<b>Mark</b>	0037, 0714, 0715, 0009, 0216, 0217, 0374
<b>Marks and Spencer</b>	1846
<b>Marquant</b>	2056
<b>Mascom</b>	1556, 1871
<b>Master's</b>	0499
<b>Masuda</b>	0218
<b>Matsui</b>	0556, 0037, 0714, 0195, 1037, 0487, 0036, 0455, 0433, 0744, 0880, 0544, 0516, 1666, 1916, 0443, 1935, 0371, 0355, 0349, 0335, 0272, 0217, 0208, 0191, 0072, 0045, 0035, 0011, 0009
<b>Matsushita</b>	0650
<b>Maxent</b>	1755, 0762

<b>Maxim</b>	1166, 1556, 1982
<b>Medialine</b>	1206, 1964
<b>Mediator</b>	0556, 0037
<b>Medion</b>	0556, 0037, 0714, 0668, 1037, 0698, 1137, 0808, 0880, 0512, 0245, 1149, 1166, 1202, 1248, 1437, 1556, 1667, 1900, 2001
<b>Megas</b>	0610
<b>Megatron</b>	0145, 0178
<b>MEI</b>	1037
<b>Memorex</b>	1037, 0009, 0060, 0178
<b>Memphis</b>	0009, 0072
<b>Mercury</b>	0037, 0009
<b>Metronic</b>	0625
<b>Metz</b>	0037, 0668, 0195, 0587, 0087, 0191, 0367, 0388, 0447, 0535, 0554, 0746, 1163, 1533
<b>MGA</b>	0178, 1907
<b>Micromaxx</b>	0037, 0668, 1037, 0630, 0808, 1324, 2001
<b>Microspot</b>	1614
<b>Microstar</b>	0808
<b>Mikomi</b>	1037, 0744, 1149
<b>Minato</b>	0037
<b>Minerva</b>	0195, 0487, 0108, 0070, 0191, 0516, 0535, 0554
<b>Minoka</b>	0037, 0412
<b>Mirai</b>	1666, 1852, 2072
<b>Mirror</b>	1900
<b>Mistral Electronics</b>	0193
<b>Mitsai</b>	1556
<b>Mitsubishi</b>	0556, 0037, 1037, 0036, 0108, 0087, 0093, 0178, 0512, 0535, 0868, 1522
<b>Mivar</b>	0216, 0217, 0290, 0292, 0516, 0609
<b>Mogen</b>	1683, 1820
<b>Monaco</b>	0009
<b>Morgan's</b>	0037
<b>Motorola</b>	0093
<b>MTC</b>	0370, 0060, 0216, 0349, 0512
<b>MTEC</b>	0272
<b>MTlogic</b>	0714, 2050
<b>Multibroadcast</b>	0193

# Appendix

English

<b>Multitec</b>	0037, 0668, 1037, 0486, 1556
<b>Multitech</b>	0037, 0486, 0264, 0370, 0009, 0216, 0217, 0247
<b>Murphy</b>	0104, 0163, 0216
<b>Musikland</b>	0218, 0247
<b>Mx Onda</b>	1498, 1687
<b>MyCom</b>	1376
<b>Myrica</b>	1666
<b>Myryad</b>	0556
<b>NAD</b>	0037, 0361, 0865
<b>Naiko</b>	0037, 0606, 0753, 1982
<b>Nakimura</b>	0037, 0374
<b>Narita</b>	1982
<b>NAT</b>	0226
<b>National</b>	0226
<b>NEC</b>	0036, 0009, 0011, 0170, 0217, 0245, 0320, 0374, 0704, 1270, 1704
<b>Neckermann</b>	0556, 0037, 0370, 0087, 0191, 0200, 0247, 0320, 0327, 0349, 0411, 0418, 0554
<b>NEI</b>	0037, 1037, 0371
<b>Neon</b>	1267, 1732
<b>Neovia</b>	0865, 0876, 1206, 1338, 1371, 1373, 1376, 1384, 1964, 1994
<b>Nesco</b>	0247
<b>Nesx</b>	1732
<b>Netsat</b>	0037
<b>NetTV</b>	0762
<b>Neufunk</b>	0556, 0037, 0714, 0610, 0218, 0009
<b>New Tech</b>	0556, 0037, 0009, 0217, 0343
<b>New World</b>	0218
<b>Nextier</b>	1598
<b>NFREN</b>	0800
<b>Nicam</b>	0544
<b>Nicamagic</b>	0216
<b>Nikkai</b>	0037, 0264, 0218, 0036, 0009, 0035, 0072, 0216, 0217
<b>Nikkei</b>	0714
<b>Nikko</b>	0178
<b>Nobliko</b>	0070, 0216
<b>Nogamatic</b>	0109

<b>Nokia</b>	0548, 0610, 0606, 0361, 0163, 0208, 0320, 0339, 0346, 0349, 0374, 0473, 0480, 0492, 0631
<b>Norcent</b>	1365, 1588
<b>Nordic</b>	0217
<b>Nordmende</b>	0037, 0714, 0560, 0195, 0109, 0287, 0343, 1289, 1413, 2129
<b>Normerel</b>	0037
<b>Northern Star</b>	1206
<b>Novatron</b>	0037, 0105, 0374
<b>Novita</b>	1384
<b>Oceanic</b>	0548, 0361, 0163, 0208, 0473
<b>Odeon</b>	0264
<b>Okano</b>	0037, 0264, 0370, 0009, 0072
<b>Olidata</b>	1376
<b>Omega</b>	0264
<b>Onida</b>	1053, 1224
<b>Onimax</b>	0714
<b>Onn</b>	1709, 2029, 2055, 2112, 2125, 2130, 2133
<b>Onwa</b>	0218, 0433, 0371, 0602
<b>Onyx</b>	1709, 1770
<b>Opera</b>	0037
<b>Optimus</b>	0650, 0166
<b>Optoma</b>	1263, 1622, 1674
<b>Orbit</b>	0037
<b>Orcom</b>	1504
<b>Orion</b>	0556, 0037, 0714, 1037, 2031, 2007, 2005, 2001, 1954, 1916, 1908, 1722, 1196, 0880, 0655, 0544, 0516, 0443, 0412, 0355, 0321, 0320, 0011
<b>Orline</b>	0037, 0218
<b>Ormond</b>	0668, 1037
<b>Orsowe</b>	0516
<b>Osaki</b>	0556, 0037, 0264, 0218, 0072, 0217, 0272, 0355, 0374, 0412
<b>Osio</b>	0037, 0290
<b>Oso</b>	0218
<b>Osume</b>	0037, 0218, 0036, 0072
<b>Otic</b>	1498, 1687
<b>Otto Versand</b>	0556, 0037, 0195, 0361, 0036, 0226, 0191, 0109, 0217, 0247, 0320, 0343, 0349, 0093, 0512, 0535, 0544, 0554

# Appendix

<b>Pacific</b>	0556, 0714, 1037, 1137, 0443, 1324
<b>Packard Bell</b>	1314, 1474
<b>Pael</b>	0216
<b>Palladium</b>	0556, 0037, 0714, 0370, 1137, 0200, 0217, 0247, 0327, 0349, 0191, 0411, 0418, 0519, 0554, 0163, 0630, 0655, 0087
<b>Palsonic</b>	0037, 0698, 0264, 0001, 0217, 0418, 1196, 1269, 1507
<b>Panama</b>	0037, 0264, 0009, 0216, 0217, 0247
<b>Panasonic</b>	0037, 0548, 0361, 0650, 0226, 0163, 0367, 0516, 0853, 1310, 1480, 1636, 1650, 1410, 1510
<b>Panavision</b>	0037, 0411
<b>Pathe Cinema</b>	0163, 0216, 0292, 0320
<b>Pathe Marconi</b>	0109
<b>Pausa</b>	0009
<b>Penney</b>	0060, 0156, 0178, 1907
<b>Perdio</b>	0037, 0072, 0163, 0216, 0282, 0320
<b>Perfekt</b>	0037
<b>Petters</b>	0037
<b>Philco</b>	0037, 0370, 0074, 0087, 0145, 0247, 0418
<b>Philex</b>	0193
<b>Philharmonic</b>	0217
<b>Philips</b>	0556, 0037, 0361, 2015, 1887, 1867, 1756, 1521, 1506, 1495, 1304, 0772, 0639, 0605, 0554, 0423, 0374, 0343, 0200, 0193, 0087, 0009
<b>Phocus</b>	0714, 1289, 1308, 1652, 1800
<b>Phoenix</b>	0037, 0486, 0370, 0072, 0087, 0163, 0216, 0320
<b>Phonola</b>	0556, 0037, 0087, 0193, 0216
<b>Pilot</b>	0706
<b>Pioneer</b>	0037, 0486, 0361, 0370, 0109, 0163, 0166, 0287, 0423, 0512, 0679, 0760, 1260, 1398, 1457, 1717
<b>Pionier</b>	0486, 0370, 1556
<b>Plantron</b>	0037, 0264, 0009
<b>Playsonic</b>	0037, 0714, 0715, 0217, 0339, 1652, 1800
<b>Polaroid</b>	1498, 1523, 1645, 1687, 1720, 1741, 1276
<b>Poppy</b>	0009

<b>Portland</b>	0374, 0624
<b>Powerpoint</b>	0037, 0698, 0487, 0894
<b>Prandoni-Prince</b>	0361, 0247, 0516
<b>Precision</b>	0217
<b>Premier</b>	0891
<b>Prima</b>	0264, 0009, 0412, 1196, 1269, 1507
<b>PrimeView</b>	1606
<b>Prinston</b>	1037, 0715
<b>Prinz</b>	0361, 0072, 0349, 0544
<b>Profex</b>	0361, 0009, 0163
<b>Profi</b>	0009
<b>Profilo</b>	1556
<b>Profitronic</b>	0037
<b>Proline</b>	0037, 0625, 0634, 1037, 0072, 0321, 0411, 0621, 0630, 1376, 1545, 1727, 1981
<b>Proscio</b>	0156
<b>Prosonic</b>	0037, 0714, 0668, 0370, 0216, 0217, 0371, 0374, 1732, 1787, 1865, 1893, 2031, 2085
<b>Protech</b>	0037, 0668, 1037, 0486, 0264, 0009, 0217, 0247, 0282, 0349, 0418
<b>Proton</b>	0178
<b>ProVision</b>	0556, 0037, 0714, 1324
<b>Proxima</b>	0735, 0737
<b>Pvision</b>	0876, 1521, 2001
<b>Pye</b>	0556, 0037, 0087, 0349, 0374, 0554
<b>Pymi</b>	0009
<b>QONIX</b>	1634
<b>Quadral</b>	0218
<b>Quasar</b>	0009, 0247, 0865
<b>Quelle</b>	0037, 0668, 0195, 1037, 0361, 0554, 0544, 0535, 0512, 0349, 0327, 0247, 0200, 0191, 0109, 0104, 0074, 0070, 0011
<b>Questa</b>	0036
<b>R-Line</b>	0037
<b>Radialva</b>	0218, 0163
<b>Radiola</b>	0556, 0037, 0217
<b>Radiomarelli</b>	0037, 0087, 0247, 0516
<b>RadioShack</b>	0037, 0178

# Appendix

English

<b>Radiotone</b>	0037, 0668, 1037, 0264, 0370, 0009, 0412, 0418, 0648
<b>Rank</b>	0070
<b>Rank Arena</b>	0036
<b>RBM</b>	0070
<b>RCA</b>	0625, 0093, 1907
<b>RealITV</b>	1267
<b>Reality</b>	1267
<b>Recor</b>	0037
<b>Rectiligne</b>	0037
<b>Rediffusion</b>	0548, 0361, 0036, 0346
<b>Redstar</b>	0037
<b>Reel Multimedia</b>	1424
<b>Reflex</b>	0037, 0668, 1037
<b>Relisys</b>	0865, 0876, 0877, 0878, 1206, 1207, 1376, 1521, 1585, 1598, 1612, 1645, 1741
<b>Remotec</b>	0037, 0093, 0145, 0171
<b>Reoc</b>	0714
<b>Revox</b>	0037
<b>Rex</b>	0264, 0163, 0206, 0247, 0259, 0411, 0551
<b>RFT</b>	0037, 0264, 0072, 0087
<b>Roadstar</b>	0037, 0714, 0668, 1037, 0715, 0264, 0218, 0009, 0282, 0418, 1189, 1900
<b>Robotron</b>	0087
<b>Rolson</b>	0819, 1371
<b>Rover</b>	0877
<b>Royal Lux</b>	0370, 0335, 0412
<b>Saba</b>	0625, 0548, 0714, 0560, 0361, 0087, 0109, 0163, 0287, 0335, 0343, 0498, 0516, 1588
<b>Sagem</b>	0610, 0455, 0830, 1313, 1596
<b>Saisho</b>	0264, 0009, 0011, 0163, 0217, 0516, 0544
<b>Saivod</b>	0037, 0668, 1037, 0712, 1163, 1556, 1982
<b>Sakai</b>	0163
<b>Salora</b>	0548, 0361, 0163, 0208, 0290, 0349, 0356, 0480, 0516, 0621, 0631, 1166, 1202, 1556
<b>Salsa</b>	0335
<b>Sambers</b>	0516

<b>Sampo</b>	1755, 0762
<b>Samsung</b>	0556, 0037, 0264, 0370, 0587, 0618, 1249, 1312, 1395, 1458, 1584, 1619, 1630, 1632, 1678, 1907, 2051, 2094, 2097, 2103, 1235, 0814, 0812, 0644, 0519, 0290, 0217, 0216, 0208, 0178, 0163, 0072, 0060, 0009
<b>Sandra</b>	0216, 0217
<b>Sansui</b>	0037, 0706, 0655, 0729, 0861, 1371, 1553
<b>Santon</b>	0009
<b>Sanyo</b>	1037, 0370, 0036, 0108, 1907, 1667, 1654, 1649, 1648, 1647, 1208, 0893, 0735, 0704, 0544, 0339, 0292, 0217, 0216, 0208, 0170, 0163, 0104, 0072, 0045, 0011, 0009, 1276
<b>SBR</b>	0556, 0037, 0193
<b>Schaub Lorenz</b>	0548, 0714, 0486, 0606, 0361, 0349, 0374, 1191, 1324, 1371
<b>Schneider</b>	0556, 0037, 0714, 0668, 1037, 0361, 1137, 0218, 1982, 1981, 1474, 0648, 0544, 0519, 0394, 0371, 0352, 0349, 0343, 0259, 0247, 0217, 0163, 0070
<b>Scotch</b>	0178
<b>Scotland</b>	0163
<b>Scott</b>	1189
<b>Sears</b>	0156, 0171, 0178
<b>Seaway</b>	0634
<b>Seelver</b>	1037
<b>SEG</b>	0037, 0668, 1037, 0487, 0264, 0218, 0036, 1437, 1163, 1149, 0624, 0362, 0349, 0247, 0217, 0216, 0009
<b>SEI</b>	0037, 0087, 0163, 0206, 0349, 0516, 0544
<b>Sei-Sinudyne</b>	0037, 0087, 0206, 0516, 0544
<b>Seleco</b>	0163, 0206, 0259, 0346, 0362, 0371, 0411, 0435, 0551
<b>Semp</b>	0156
<b>Sencora</b>	0009
<b>Sentra</b>	0035
<b>Serino</b>	0610, 0455, 0093, 0216
<b>Sharp</b>	0036, 0653, 1193, 0093, 0193, 0200, 0491, 0516, 0818, 1393, 1586, 1659, 1819, 0787, 1459
<b>Shintoshii</b>	0037
<b>Shivaki</b>	0037, 0443

# Appendix

<b>Siarem</b>	0087, 0163, 0516
<b>Siemens</b>	0037, 0195, 0191, 0200, 0327, 0535, 0554
<b>Siera</b>	0556, 0037
<b>Siesta</b>	0370
<b>Silva</b>	0037, 0361, 0216, 0648
<b>Silva Schneider</b>	0037, 1166, 1556, 1982
<b>Silvano</b>	0587
<b>Silver</b>	0715, 0361, 0036
<b>SilverCrest</b>	1037
<b>Singer</b>	0037, 0433, 0009, 0087, 0247, 0335, 0435
<b>Sinotec</b>	0773
<b>Sinudyne</b>	0037, 0361, 0087, 0163, 0206, 0349, 0516, 0544
<b>Skantic</b>	0356
<b>SKY</b>	0037, 0880, 1376, 1504, 1511, 1513, 1606, 1612, 1613, 1614, 1615, 1745, 1775, 1848
<b>SKY Brazil</b>	0880
<b>Sliding</b>	0800, 0865, 0880, 1324, 1374, 1375, 1377
<b>SLX</b>	0668
<b>Smaragd</b>	0487
<b>Soemtron</b>	0865, 1298
<b>Sogera</b>	0320
<b>Sogo</b>	1376, 2050
<b>Solavox</b>	0037, 0548, 0361, 0072, 0163
<b>Sonawa</b>	0218
<b>Soniko</b>	0037
<b>Sonitron</b>	0370, 0208, 0217, 0339
<b>Sonix</b>	1376, 1732
<b>Sonneclair</b>	0037
<b>Sonoko</b>	0037, 0264, 0009, 0217, 0282
<b>Sonolor</b>	0548, 0361, 0163, 0208, 0282
<b>Sontec</b>	0037, 0370, 0009
<b>Sony</b>	0037, 1505, 0036, 1925, 1825, 1751, 1685, 1651, 1625, 1551, 1317, 1010, 0834, 0810, 0353, 0074, 0011
<b>Sound &amp; Vision</b>	0218, 0374
<b>Soundesign</b>	0178
<b>Soundwave</b>	0037, 1037, 0715, 0320, 0418, 1846

<b>Spectra</b>	0009
<b>Squareview</b>	0171
<b>Ssangyong</b>	0009
<b>Standard</b>	0037, 1037, 0218, 0009, 0217, 0320, 0374, 1709
<b>Starlite</b>	0037, 0264, 0009, 0163
<b>Stenway</b>	0218, 0282
<b>Stern</b>	0264, 0163, 0206, 0259, 0411, 0551
<b>Strato</b>	0037, 0264, 0009, 1787
<b>Strong</b>	1149, 1163
<b>Stylandia</b>	0217
<b>SunBrite</b>	1435
<b>Sungoo</b>	2037
<b>Sunkai</b>	0610, 0487, 0218, 0455, 0321, 0355, 0865
<b>Sunstar</b>	0037, 0264, 0009, 0371
<b>Sunstech</b>	2001
<b>Sunwood</b>	0037
<b>Superla</b>	0216, 0217, 0516
<b>SuperTech</b>	0556, 0037, 0218, 0009, 0216
<b>Supra</b>	0009, 0374
<b>Susumu</b>	0218, 0287, 0335
<b>Sutron</b>	0009
<b>SVA</b>	0587, 0865
<b>Swedx</b>	1606
<b>Swissflex</b>	2062
<b>Swisstec</b>	2062, 2059, 1849, 1848, 1776, 1775, 1745, 1615, 1614, 1613, 1612, 1606, 1513, 1511, 1504, 1376, 0880, 0865
<b>Sydney</b>	0216, 0217
<b>Sylvania</b>	0171, 1394, 1864
<b>Sysline</b>	0037
<b>Sytong</b>	0216
<b>T+A</b>	0447
<b>Tactus</b>	0272
<b>Tandberg</b>	0361, 0109, 0367
<b>Tandy</b>	0218, 0072, 0093, 0163, 0217, 0247
<b>Targa</b>	1267, 1371
<b>Tashiko</b>	0036, 0163, 0170, 0216, 0217

# Appendix

English

<b>Tatung</b>	0037, 0011, 0072, 0217, 0272, 0516, 0621, 1191, 1248, 1324, 1371, 1553, 1556, 1719, 1720, 1756
<b>TCL</b>	0706, 1537
<b>TCM</b>	0714, 0808, 1289, 2001
<b>Teac</b>	0037, 0714, 0668, 0698, 0712, 0264, 0455, 0009, 0170, 0171, 0178, 0349, 0512
<b>Tec</b>	0037, 0009, 0217, 0247, 0259, 0335, 0471
<b>Tech Line</b>	0037, 0668, 1163, 1437
<b>Tech Lux</b>	1189
<b>Techica</b>	0218
<b>Technema</b>	0320
<b>Technica</b>	0621, 1982
<b>Technics</b>	0556, 0650
<b>Technika</b>	1849, 1865, 2029, 2032, 2059, 2106
<b>TechniSat</b>	0556, 0655, 1267
<b>Technisson</b>	0714, 1289, 1652
<b>Technosonic</b>	0556, 0625, 0499, 0880, 1324, 1326, 1890, 1893, 1982, 2032
<b>Technotrend</b>	1531, 1702
<b>Techwood</b>	1037, 1163
<b>Teckton</b>	1376
<b>Tecnimagen</b>	0556
<b>Teco</b>	1040
<b>Tedelex</b>	0009, 0217, 1709
<b>Teiron</b>	0009
<b>Tek</b>	0795
<b>Teknika</b>	0060
<b>TELE System</b>	0876
<b>Teleavia</b>	0287, 0343
<b>Telecor</b>	0037, 0218, 0163, 0217, 0259, 0394
<b>Telefunken</b>	0037, 0625, 0714, 0560, 0486, 1536, 0896, 0566, 0498, 0471, 0346, 0343, 0335, 0287, 0109, 0101, 0074, 0073, 1626
<b>Telefusion</b>	0037
<b>Telegazi</b>	0037, 0264, 0218, 0163, 0259
<b>Telemagic</b>	0735
<b>Telemeister</b>	0037, 0320
<b>Telesonic</b>	0037

<b>Telestar</b>	0556, 0037
<b>Teletech</b>	0037, 0668, 1037, 0009, 0247
<b>Teleton</b>	0036, 0206, 0217, 0259, 0349
<b>Televideon</b>	0163, 0216, 0320
<b>Teleview</b>	0037
<b>Tempest</b>	0009
<b>Tennessee</b>	0037
<b>Tensai</b>	0037, 1037, 0715, 0218, 0009, 0104, 0105, 0217, 0247, 0320, 0371, 0374, 0377
<b>Tenson</b>	0009, 0320
<b>Tevion</b>	0556, 0037, 0714, 0668, 1037, 1137, 2032, 1800, 1787, 1687, 1645, 1556, 1498, 1298, 1289, 1259, 1248, 0808, 0648
<b>Texet</b>	0218, 0009, 0216, 0217, 0374
<b>Texla</b>	0780
<b>Thes</b>	2031, 2036, 2038
<b>Thomson</b>	0037, 0625, 0560, 0109, 0287, 0335, 0343, 0349, 0471, 1588
<b>Thorn</b>	0037, 0361, 0036, 0553, 0535, 0512, 0499, 0343, 0335, 0272, 0193, 0109, 0104, 0074, 0073, 0072, 0035
<b>Thorn-Ferguson</b>	0073, 0193, 0335, 0343, 0499
<b>Time</b>	1702, 1994, 1997
<b>Tiny</b>	1269
<b>Tiny Digital</b>	0660
<b>TMK</b>	0178
<b>Tobishi</b>	1521
<b>Tokai</b>	0037, 0668, 1037, 0009, 0072, 0163, 0217, 0374
<b>Tokaïdo</b>	1037
<b>Tokyo</b>	0035, 0216
<b>Tomashi</b>	0218, 0282
<b>Topline</b>	0668, 1037
<b>Toshiba</b>	0195, 1037, 0036, 0618, 0650, 0508, 1935, 1656, 1524, 1508, 1289, 1164, 1163, 0832, 0736, 0553, 0241, 0156, 0109, 0070, 0060, 0035, 1265, 1325
<b>Tosumi</b>	1982
<b>Towada</b>	0217, 0349
<b>Toyoda</b>	0009
<b>Trakton</b>	0264

# Appendix

<b>TRANS-continents</b>	0556, 0037, 0668, 1037, 0217, 0621, 0865, 1374,1377
<b>Transonic</b>	0037, 0587, 0009
<b>Transtec</b>	0216
<b>Trident</b>	0217, 0516
<b>Trio</b>	1498, 1687
<b>Tristar</b>	0264, 0218, 0193
<b>Triumph</b>	0556, 0037, 0346, 0516
<b>Tsoschi</b>	0282
<b>TVTEXT 95</b>	0556
<b>TWF</b>	1871
<b>Uher</b>	0037, 0486, 0370, 0206, 0259, 0320, 0374, 0418,0480
<b>Ultravox</b>	0037, 0087, 0163, 0216, 0247, 0374
<b>UMC</b>	1513, 1606, 1614, 1745, 1775, 1849, 2059, 2062,2106
<b>Unic Line</b>	0037, 0455, 0473
<b>United</b>	0037, 0714, 1037, 0715, 0587, 1770, 1916, 1982
<b>Universal</b>	0037
<b>Universum</b>	0037, 0668, 0195, 1037, 0361, 0264, 0370, 0036,0618, 0411, 0418, 0473, 0480, 0492, 0512, 0535,0544, 0554, 0631, 0808, 1163, 1437, 0362, 0349,0346, 0327, 0290, 0247, 0217, 0200, 0170, 0109,0105, 0104, 0074, 0070, 0011, 0009
<b>Univox</b>	0037, 0087, 0163
<b>V2max</b>	0865
<b>V7 Videoseven</b>	0880, 1217, 1267, 1376, 1666, 1755
<b>Venturer</b>	1545, 1727, 1865
<b>Vestel</b>	0037, 0668, 1037, 0217, 1163, 1585, 1667
<b>Vexa</b>	0037, 0009
<b>Vibrant</b>	0272
<b>Victor</b>	0036
<b>Videocon</b>	0508
<b>Videologic</b>	0218, 0216
<b>Videologique</b>	0218, 0216, 0217
<b>Videosat</b>	0247
<b>VideoSystem</b>	0037
<b>Videotechnic</b>	0216, 0217, 0320, 0374
<b>Videoton</b>	0163, 0356

<b>Vidikron</b>	0735, 1398
<b>Vidtech</b>	0178
<b>Viewpia</b>	0876
<b>Viewsonic</b>	1511, 1513, 1542, 1588, 1627, 1745, 1755, 1330,1578
<b>Visiola</b>	0216
<b>Vision</b>	0037, 0217, 0320
<b>Vistar</b>	0206
<b>Vistron</b>	1363, 2019
<b>Vivax</b>	1308, 1326
<b>Vivid</b>	1308
<b>Vortec</b>	0037
<b>Voxson</b>	0037, 0087, 0163, 0418
<b>Waltham</b>	0037, 0668, 1037, 0109, 0217, 0356, 0418, 0443
<b>Wards</b>	0060, 0156, 0166, 0178
<b>Watson</b>	0037, 0714, 0668, 1037, 0218, 0009, 0163, 0320,0394, 0519, 1376, 1437
<b>Watt Radio</b>	0163, 0216, 0349, 0544
<b>Wega</b>	0037, 0036, 0087
<b>Wegavox</b>	0009
<b>Welltech</b>	0714, 1625
<b>Weltblick</b>	0217, 0320
<b>Weltstar</b>	1037
<b>Westinghouse</b>	0890
<b>Wharfedale</b>	0556, 0037, 0519, 0861, 1324, 1556, 1667, 1983,1988, 2055, 2134
<b>White Westinghouse</b>	0037, 0216, 0320, 0624
<b>Wilson</b>	0556
<b>Windsor</b>	0668, 1037
<b>Windstar</b>	0282
<b>Windy Sam</b>	0556
<b>World-of-Vision</b>	0865, 0877, 0880, 0890, 1217, 1289, 1298, 1606,1732
<b>X-View</b>	1191
<b>Xenius</b>	0634, 0661
<b>XLogic</b>	0860

# Appendix

English

<b>Xomax</b>	1770
<b>Xoro</b>	1196, 1217, 1243, 1507, 1789, 2146
<b>Xrypton</b>	0037
<b>Yakumo</b>	1613
<b>Yalos</b>	1771
<b>Yamaha</b>	0797, 1526, 1576, 0833
<b>Yamishi</b>	0037, 0218, 0455, 0217, 0282
<b>Yokan</b>	0037
<b>Yoko</b>	0037, 0264, 0370, 0218, 0009, 0216, 0217, 0247, 0339
<b>Yorx</b>	0218
<b>Ytawai</b>	1531
<b>Zanussi</b>	0206, 0217
<b>Zenith</b>	0624, 1265
<b>Zenor</b>	0339
<b>TV/VCR Combo</b>	
<b>Aiwa</b>	1916
<b>Amstrad</b>	0171
<b>Beko</b>	0486
<b>Black Diamond</b>	1909
<b>Blue Sky</b>	0624, 1916
<b>Daewoo</b>	1909, 0624
<b>Dantax</b>	1916
<b>Emerson</b>	1909, 0624
<b>Ferguson</b>	0625, 0073
<b>Fidelity</b>	0171
<b>Finlux</b>	0104
<b>Firstline</b>	0624
<b>GE</b>	0093, 1907
<b>GoldStar</b>	0037
<b>Goodmans</b>	1909, 0374, 0624, 1916
<b>Grandin</b>	0624
<b>Grundig</b>	0556, 0037, 0195, 0554, 1916
<b>Hanimex</b>	1908
<b>Hinari</b>	0036, 1908
<b>Internal</b>	1909, 0624
<b>Irradio</b>	0724

<b>LG</b>	0178
<b>Magnin</b>	1907
<b>Matsui</b>	1916
<b>MGA</b>	1907
<b>Mitsubishi</b>	0556, 0093
<b>Orion</b>	1908, 1916
<b>Penney</b>	1907
<b>Philips</b>	0556, 0037
<b>Portland</b>	0624
<b>Radiola</b>	0556
<b>RCA</b>	0093, 1907
<b>Saba</b>	0625
<b>Samsung</b>	1907
<b>Sanyo</b>	1907
<b>Schneider</b>	0556, 0037
<b>SEG</b>	0624
<b>Sharp</b>	0093
<b>Siemens</b>	0037
<b>Sony</b>	1505, 1925
<b>Teac</b>	0171
<b>Technics</b>	0556
<b>Telefunken</b>	0074
<b>Thomson</b>	0625
<b>United</b>	1916
<b>Universum</b>	0105
<b>White Westinghouse</b>	0624
<b>TV/VCR/DVD Combo</b>	
<b>Bush</b>	1954
<b>Ferguson</b>	1935
<b>Grundig</b>	1954
<b>Matsui</b>	1935
<b>Orion</b>	1954



# Appendix

## 3. DVD Code List

Brand	Code
<b>DVD Player</b>	
<b>3D LAB</b>	0539
<b>4Kus</b>	1158
<b>A-Trend</b>	0714
<b>Acoustic Solutions</b>	0730, 0713, 1242, 2082, 2195
<b>AEG</b>	0770, 0790, 0675, 0788, 1233, 1923
<b>AFK</b>	1152, 1923
<b>Airis</b>	0672, 0826, 1224, 1321, 2256
<b>Aiwa</b>	0533, 1243
<b>Akai</b>	0790, 0788, 0898, 1115, 1233, 1695, 2236
<b>Akira</b>	1620
<b>Akura</b>	0898, 1140, 1233, 1493
<b>Alba</b>	0539, 0695, 0730, 0672, 0713, 0717, 1140, 1530, 1695, 1994, 2256
<b>Alize</b>	1151
<b>Altacom</b>	1224
<b>Amitech</b>	0770, 0122, 0850
<b>Amstrad</b>	0770, 0790, 0713, 1151, 1493
<b>Amuseer</b>	1351
<b>AMW</b>	0872
<b>Ansonic</b>	0831, 0759, 1351, 1493
<b>Apex Digital</b>	0672, 1004, 1254, 1480
<b>Arena</b>	1115
<b>Aristona</b>	0539, 0646, 2241
<b>ASCOMTEC</b>	1923
<b>Asono</b>	1224
<b>Atacom</b>	1224
<b>Audiola</b>	1620, 2335
<b>Audiosonic</b>	1923, 2256
<b>Audix</b>	0713
<b>Autovox</b>	0713
<b>Auvio</b>	0843
<b>Axion</b>	0730
<b>Basic Line</b>	0713, 1994
<b>Baze</b>	0898
<b>BBK</b>	1224
<b>Bellagio</b>	1004

<b>Bellwood</b>	0826
<b>Belson</b>	1493, 1923
<b>Belsonic</b>	1493
<b>Berthen</b>	1643
<b>Binatone</b>	1923
<b>Biostek</b>	1601
<b>Black Diamond</b>	0713
<b>Blu:sens</b>	1233, 1321
<b>Blue Nova International</b>	1321
<b>Blue Sky</b>	0695, 0651, 0790, 0672, 0713, 0843
<b>BlueTinum</b>	1493
<b>Boghe</b>	1004
<b>Boman</b>	0898
<b>Bose</b>	2023
<b>Brainwave</b>	0770, 1115
<b>Brandt</b>	0503, 0551, 0651
<b>Broksonic</b>	0695
<b>Bush</b>	0730, 0831, 0672, 0713, 0717, 0723, 1140, 1351, 1419, 1436, 1530, 1695, 1832, 2256, 2261
<b>Cambridge Audio</b>	0751
<b>Cat</b>	0789, 1923
<b>CCE</b>	0730
<b>cello</b>	1730, 2112, 2186
<b>Centrum</b>	0675, 0713, 0789, 1227, 1923, 1994
<b>CGV</b>	0751, 1115
<b>Chili</b>	1492, 1493
<b>Cinea</b>	0841
<b>Cinetec</b>	0713, 0872
<b>CJ Digital</b>	1643, 2173
<b>Classic</b>	0730, 1730
<b>Clatronic</b>	0672, 0675, 0788, 1233, 1923
<b>Clayton</b>	0713
<b>CMX</b>	1643
<b>Coby</b>	0730, 1351
<b>Codex</b>	1233
<b>Commax</b>	1321, 1492
<b>Compacks</b>	0826, 2235
<b>Contel</b>	0788

# Appendix

English

<b>Continental Edison</b>	0831, 0872	<b>Durabrand</b>	0831, 0675, 0713, 1420, 1530, 1663
<b>Crown</b>	0770, 0713, 1115	<b>E:max</b>	0330, 1233, 1321, 1643, 1670
<b>Cybercom</b>	0831	<b>eBench</b>	1152
<b>CyberHome</b>	0714, 0816	<b>ECC</b>	0730
<b>Cytron</b>	0651, 0705, 1347	<b>Eclipse</b>	0723, 0751
<b>D-Vision</b>	1115	<b>Elfunk</b>	0713, 0850
<b>Daenyx</b>	0872	<b>Elin</b>	0770
<b>Daewoo</b>	0770, 0213, 0705, 0714, 0832, 0872, 1436, 1441, 1663	<b>Ellion</b>	0122, 0850
<b>Dalton</b>	1036	<b>Elta</b>	0770, 0672, 0788, 0850, 1115, 1151, 1233, 1670, 2173
<b>Dansai</b>	0770, 1115, 1695	<b>Eltax</b>	1233, 1321, 1620
<b>Dantax</b>	0539, 0790, 0713, 0723, 1358	<b>Emerson</b>	0591, 0705
<b>Daytek</b>	0872	<b>Enterprise</b>	0591
<b>Dayton</b>	0872, 1158	<b>EuroLine</b>	0675, 0788, 1115, 1233, 1351, 1444, 1643
<b>DCE</b>	0831	<b>F&amp;U</b>	2172
<b>Decca</b>	0770, 1115	<b>Fenner</b>	0651
<b>Denon</b>	0490, 0634, 1634	<b>Ferguson</b>	0695, 0651, 0713, 0898, 1695, 1730
<b>Denver</b>	0672, 0788, 0898, 1321, 1420, 1493, 1601, 1923, 2256	<b>Finlux</b>	0741, 0591, 0770, 0672, 0751
<b>Denzel</b>	0665	<b>Fintec</b>	1530
<b>Desay</b>	0843	<b>Firstline</b>	0713, 0843, 0869, 1530
<b>Dgtec</b>	0672	<b>Fisher</b>	0670
<b>Diamond</b>	0651	<b>Funai</b>	0695, 0675
<b>Diffrnce</b>	2235	<b>Gateway</b>	1158
<b>Digihome</b>	0713	<b>GE</b>	0717
<b>DigiLogic</b>	0713, 1663	<b>Global Link</b>	1224
<b>Digitech</b>	1832	<b>Global Solutions</b>	0768
<b>Digitek</b>	0122	<b>Global Sphere</b>	1152
<b>Digitrex</b>	2261	<b>Go Video</b>	0869
<b>Digix Media</b>	0826	<b>Gold</b>	2112
<b>DiK</b>	0831	<b>GoldStar</b>	0741, 0591
<b>Dinamic</b>	0788	<b>Goodmans</b>	0730, 0651, 0790, 0713, 0723, 1004, 1140, 1152, 1254, 1530, 1730, 1923, 2261
<b>Disney</b>	0831	<b>GoWell</b>	1643
<b>DiViDo</b>	0705	<b>GPX</b>	0741
<b>DK Digital</b>	0831, 1254	<b>Graetz</b>	0665
<b>Dragon</b>	0831	<b>Gran Prix</b>	0831, 0898
<b>DreamX</b>	1151	<b>Grandin</b>	0713, 1233, 1254, 2173
<b>DSE</b>	1730	<b>Greenhill</b>	0717
<b>Dual</b>	0730, 0831, 0651, 0790, 0665, 0713, 1436, 1530		

# Appendix

<b>Grundig</b>	0539, 0551, 0695, 0651, 0790, 0670, 0705, 0713, 0775, 1004, 1036, 1436, 1643, 1695, 1730, 1832
<b>Grunkel</b>	0770, 0831, 0790, 1493
<b>GVG</b>	0770
<b>H &amp; B</b>	0122, 0713, 0841, 0850, 1233, 2173
<b>Hanseatic</b>	0741, 0790
<b>Harman/Kardon</b>	0702, 1229, 1492
<b>Harwa</b>	2235
<b>HCM</b>	0788
<b>HDT</b>	0705
<b>HE</b>	0730, 1923
<b>Henss</b>	0713
<b>Hikona</b>	1383
<b>HiMAX</b>	0843
<b>Hitachi</b>	0573, 0664, 0713, 1994
<b>Hiteker</b>	0672, 1923
<b>Hoeher</b>	0831, 0651, 0713, 0826, 1004, 1224, 1530
<b>Home Electronics</b>	0770, 0730
<b>Home Tech Industries</b>	1224, 1643, 1923
<b>HotMedia</b>	1152
<b>Humax</b>	0646, 2338
<b>HYD</b>	1233
<b>Hyundai</b>	0850
<b>Ingelen</b>	0788
<b>Inno Hit</b>	0713
<b>International</b>	1663
<b>Irradio</b>	0869, 1115, 1224, 1233
<b>ISP</b>	0695
<b>it's</b>	0717
<b>Jamo</b>	1036
<b>Jaton</b>	0665
<b>JDB</b>	0730
<b>JGC</b>	1530
<b>JMB</b>	0695
<b>JVC</b>	0623, 0539, 0503, 1164, 1597, 1901
<b>Kansas Technologies</b>	1233, 1530
<b>Kazuki</b>	1493
<b>Kendo</b>	0831, 0672, 0713

<b>Kennex</b>	0770, 0713, 0898
<b>Kenwood</b>	0490, 0534
<b>KeyPlug</b>	1643
<b>Kiirō</b>	0770
<b>King Vision</b>	1493, 1643
<b>Kiss</b>	0665, 0841
<b>KXD</b>	0857, 1321, 1492, 1923
<b>Lawson</b>	0768
<b>Leiker</b>	0872
<b>Lenco</b>	0770, 0651, 0713, 1383
<b>Lexia</b>	0768
<b>LG</b>	0741, 0591, 0790, 0869, 1544, 1906, 2002
<b>Lifetec</b>	0831, 0651, 1347
<b>Limit</b>	0768
<b>LiteOn</b>	1158, 1416, 1644, 1738
<b>LM</b>	1643
<b>Lodos</b>	0713
<b>Loewe</b>	0539, 0741
<b>Logic</b>	2304
<b>Logik</b>	0713
<b>Logix</b>	0705
<b>Lumatron</b>	0741, 0695, 0705, 0713, 1115, 1321, 1832, 2252
<b>Lunatron</b>	0741
<b>Luxman</b>	0573
<b>Luxor</b>	0713, 0717, 1004, 1695, 1730
<b>Magnat</b>	1923
<b>Magnavox</b>	0539, 0503, 0646, 0675, 0713, 1140
<b>Magnex</b>	0723
<b>Magnum</b>	1436
<b>Majestic</b>	1620, 2335
<b>Manhattan</b>	0705, 0713
<b>Manta</b>	1493
<b>Marantz</b>	0539
<b>Mark</b>	0713
<b>Marquant</b>	0770, 2261
<b>Matsui</b>	0695, 0651, 0672, 0713, 1004, 1695, 1730
<b>Maxim</b>	0713, 0872, 1242

# Appendix

English

<b>MBO</b>	0730, 1730	<b>Nordmende</b>	0831
<b>MDS</b>	0713	<b>Nortek</b>	2173
<b>Mecotek</b>	0770	<b>Oasis-Media</b>	1601
<b>Mediencom</b>	0751	<b>Olidata</b>	0672
<b>Medion</b>	0741, 0630, 0831, 0651, 1347, 1644	<b>Onkyo</b>	0503, 0627, 1769
<b>MEI</b>	0790	<b>Onn</b>	2316
<b>Memorex</b>	0831	<b>Onyx</b>	2112
<b>Metz</b>	0571, 0525, 0713, 1994	<b>Oopla</b>	1158
<b>MiCO</b>	0723, 0751, 1254	<b>Opera</b>	2252
<b>Micromaxx</b>	0695, 1695	<b>Optim</b>	0843
<b>Micromedia</b>	0539, 0503	<b>Optimus</b>	0525
<b>Micromega</b>	0539	<b>Orbit</b>	0872, 1643
<b>Microsoft</b>	0522, 1708, 2083	<b>Orion</b>	0695, 0713, 1233, 1419, 1695
<b>Microstar</b>	0831	<b>Oritron</b>	0651
<b>Minax</b>	0713	<b>Ormond</b>	0713
<b>Minoka</b>	0770, 1115	<b>Pacific</b>	0831, 0768, 0790, 0713, 0759
<b>Mitsubishi</b>	0713	<b>Packard Bell</b>	0831, 1321, 1648
<b>MixSonic</b>	1130	<b>Palladium</b>	0695, 0713, 1906
<b>Mizuda</b>	0770	<b>Panasonic</b>	0490, 1579, 1641, 1834, 1905, 1908
<b>Monyka</b>	0665	<b>Panda</b>	0789, 1492
<b>MPX</b>	0843	<b>peekTOn</b>	0898, 1224
<b>MTlogic</b>	2256	<b>Philips</b>	0539, 0503, 0646, 0675, 1158, 1340, 1354, 1506, 1755, 1813, 1846, 2049, 2056, 2084, 2093, 2225, 2205
<b>Mustek</b>	0730, 1601, 1730	<b>Pioneer</b>	0571, 0525, 0142, 0631, 1460, 1531, 1571, 1900, 1965, 2279
<b>Muvid</b>	1493, 1643, 2173	<b>PJ</b>	1923
<b>Mx Onda</b>	0651, 0751, 1254	<b>Play It</b>	1643
<b>Myryad</b>	1254	<b>Plu2</b>	0850
<b>Mystral</b>	0831	<b>Polaroid</b>	1480
<b>NAD</b>	0741	<b>Powerpoint</b>	0872
<b>Naiko</b>	0770, 1004	<b>Prinz</b>	0831
<b>Neom</b>	1493, 1643	<b>Prism</b>	0831, 0705
<b>Neon</b>	0122	<b>ProCaster</b>	1004, 2123
<b>Neufunk</b>	0665	<b>Proline</b>	0651, 0672, 1004, 1358, 1738, 2082
<b>Nevir</b>	0770, 0831, 0672	<b>Proscan</b>	0522
<b>Nexius</b>	0790	<b>Proson</b>	0713
<b>Next Base</b>	1667	<b>Prosonic</b>	1441, 2195
<b>NFREN</b>	0826	<b>ProVision</b>	0730, 1321, 1493, 1923
<b>Nikkai</b>	1923	<b>Pye</b>	0539, 0646
<b>Nikkei</b>	1254		
<b>Norcent</b>	1923		

# Appendix

<b>QONIX</b>	0790
<b>Quartek</b>	1648
<b>Radionette</b>	0741, 0869, 1906
<b>Radiotone</b>	0713
<b>Raite</b>	0665
<b>RCA</b>	0522, 1759
<b>REC</b>	0490
<b>Redstar</b>	0770, 0759, 0788, 0898, 1394, 1923
<b>Relisys</b>	1347
<b>Reoc</b>	0768, 0875
<b>Revoy</b>	0841
<b>Richmond</b>	1233
<b>Roadstar</b>	0730, 0672, 0713, 0898, 1227, 1832
<b>Ronin</b>	0872
<b>Rotel</b>	0623
<b>Rowa</b>	0717
<b>Rownsonic</b>	0789
<b>Saba</b>	0551, 0651, 2173
<b>Saivod</b>	0831, 0759
<b>Salora</b>	0741
<b>Sampo</b>	1321
<b>Samsung</b>	0490, 0573, 0199, 0298, 0744, 1075, 1635, 1748, 1932, 2107, 2113, 2269, 0820
<b>Sansui</b>	0695, 0122, 0751
<b>Sanyo</b>	0670, 0713
<b>Scan</b>	0705, 0850
<b>ScanMagic</b>	0730, 1730
<b>ScanSonic</b>	1695
<b>Schaub Lorenz</b>	0770, 0788, 1115, 1151, 1643
<b>Schneider</b>	0539, 0831, 0646, 0651, 0790, 0705, 0713, 0788, 0869, 1227, 1358, 2241
<b>Schoentech</b>	0713
<b>Scientific Labs</b>	0768
<b>Scott</b>	0651, 0672, 1036, 1233, 1394, 1923
<b>Seeltech</b>	1224, 1643
<b>SEG</b>	0665, 0713, 0872, 1530, 1994, 2252
<b>Shanghai</b>	0672
<b>Sharp</b>	0630, 0675, 0713, 0869, 1419
<b>Sherwood</b>	0741, 0717

<b>Shinco</b>	0717
<b>Siemssen</b>	1382
<b>Sigmathek</b>	1224, 2123
<b>Siltex</b>	1224
<b>Silva</b>	0788, 0898
<b>Silva Schneider</b>	0741, 0831, 0869, 0898
<b>SilverCrest</b>	0126, 0131, 1152
<b>Sinudyne</b>	1254
<b>Sistemas</b>	0672
<b>Skantic</b>	0539, 0713
<b>SKY</b>	0122
<b>Skymaster</b>	0730, 0768
<b>Skyworth</b>	0898
<b>Sliding</b>	1115
<b>SM Electronic</b>	0730, 0768, 1152
<b>Smart</b>	0705, 0713
<b>Sogo</b>	1493, 2172, 2256
<b>Sontech</b>	1444
<b>Sony</b>	0533, 0864, 1033, 1070, 1516, 1536, 1633, 1824, 1903, 1981, 2020, 2043, 2132, 2138
<b>Sound Color</b>	1233
<b>Soundmaster</b>	0768
<b>Soundwave</b>	0713, 1530
<b>Standard</b>	0831, 0768, 0651, 0788, 0898
<b>Star Clusters</b>	1152, 1227
<b>Starmedia</b>	1224
<b>Stein</b>	1601
<b>Strato</b>	1152, 1382
<b>Strong</b>	0713
<b>Sunkai</b>	0770, 0850
<b>Sunstech</b>	0831, 1601, 1620
<b>Sunwood</b>	0788, 0898
<b>Supervision</b>	0768, 1152
<b>Supratech</b>	2172, 2238
<b>SVA</b>	0672
<b>Swisstec</b>	2187, 2263
<b>Sylvania</b>	0675, 2194
<b>Symphonic</b>	0675
<b>Synn</b>	0768

# Appendix

English

<b>Syscom</b>	0826
<b>Sytech</b>	1601, 2123
<b>Tamashi</b>	1394
<b>Tandberg</b>	0713, 1695, 1994
<b>Tangent</b>	1321
<b>Targa</b>	1227, 1644, 1906
<b>Tatung</b>	0770, 1695
<b>Tchibo</b>	0741
<b>TCM</b>	0741, 0790
<b>Teac</b>	0741, 0768, 0705, 0717, 0759, 1227
<b>Tec</b>	0898
<b>Technica</b>	1695
<b>Technics</b>	0490, 1905
<b>Technika</b>	0770, 0831, 1115, 1530, 1695, 2187, 2195, 2263, 2302
<b>Technisson</b>	1115
<b>Technosonic</b>	1115
<b>Techwood</b>	0713, 1530, 1994
<b>Telefunken</b>	0551
<b>Teletech</b>	0768, 0713
<b>Tensai</b>	0770, 0651
<b>Tevion</b>	0651, 0898, 1036, 1227, 1382, 1444, 1730, 1923, 2252
<b>Textorm</b>	1493
<b>Theta Digital</b>	0571
<b>Thomson</b>	0551, 0522, 1254, 1667, 1759
<b>Time</b>	0122
<b>Tokai</b>	0790, 0665, 0788, 0898, 1233
<b>Tom-Tec</b>	0789, 1601
<b>Top Suxess</b>	1224
<b>Toshiba</b>	0503, 0695, 1459, 1510, 1637, 1639, 1769, 2006
<b>TRANS-continents</b>	0831, 0826, 0872, 1233, 1321
<b>Tredex</b>	0843
<b>Trevi</b>	0831
<b>TSM</b>	1224
<b>TVE</b>	0713
<b>Umax</b>	1151
<b>UMC</b>	2187, 2263, 2302

<b>United</b>	0695, 0730, 0675, 0713, 0788, 0826, 1115, 1152, 1233, 1351, 1444, 1643, 1832, 2112
<b>Universum</b>	0741, 0591, 0790, 0713, 0869, 1227, 1530
<b>Vecatech</b>	1493
<b>Venturer</b>	0790, 1769, 2082, 2195
<b>Vestel</b>	0713, 1530, 1994
<b>Vieta</b>	0705
<b>Voxson</b>	0730, 0831
<b>Waitec</b>	0730, 1151, 1224, 1233
<b>Walkvision</b>	0717
<b>Waltham</b>	0713, 1530
<b>Welkin</b>	0831
<b>Wellington</b>	0713
<b>Weltstar</b>	0713
<b>Wharfedale</b>	0790, 0713, 0751, 1115, 1383, 1832
<b>Wilson</b>	0831, 1233
<b>Windsor</b>	0713
<b>Windy Sam</b>	0573
<b>Wintel</b>	1130
<b>Woxter</b>	1151, 1224
<b>Xbox</b>	0522, 1708, 2083
<b>Xenius</b>	0790
<b>Xomax</b>	2112
<b>Xoro</b>	1183, 2341
<b>Yakumo</b>	1004
<b>Yamada</b>	0872, 1004, 1151, 1158, 1416, 1492, 1493
<b>Yamaha</b>	0490, 0539, 0646, 0817
<b>Yamakawa</b>	0665, 0872, 2252
<b>Yukai</b>	0730, 1730
<b>Zenith</b>	0503, 0591
<b>TV/DVD Combo</b>	
<b>Acoustic Solutions</b>	2082, 2195
<b>Airis</b>	2256
<b>Akai</b>	2236
<b>Alba</b>	2256
<b>Audiosonic</b>	2256
<b>Bush</b>	0713, 2256, 2261

# Appendix

<b>cello</b>	2112, 2186
<b>Dantax</b>	1358
<b>Denver</b>	1420, 2256
<b>Digitrex</b>	2261
<b>Gold</b>	2112
<b>Hikona</b>	1383
<b>Logic</b>	2304
<b>Marquant</b>	2261
<b>MTlogic</b>	2256
<b>Onn</b>	2316
<b>Onyx</b>	2112
<b>Philips</b>	2225

<b>Proline</b>	2082
<b>Prosonic</b>	2195
<b>Sliding</b>	1115
<b>Sogo</b>	2256
<b>Swisstec</b>	2263
<b>Technika</b>	2195, 2302
<b>UMC</b>	2302
<b>Venturer</b>	2082, 2195
<b>TV/VCR/DVD Combo</b>	
<b>Ferguson</b>	0695
<b>Matsui</b>	0695

## 4. Audio & AUX Code List

Brand	Code
<b>Audio Amplifier</b>	
<b>Acoustic Solutions</b>	1446, 1470, 1501, 1601
<b>Cambridge Audio</b>	1730
<b>Curtis Mathes</b>	0300
<b>Denon</b>	0272
<b>Durabrand</b>	1561, 1568
<b>Goodmans</b>	1590
<b>Hitachi</b>	1561
<b>JBL</b>	1177
<b>Logitech</b>	1408
<b>Magnat</b>	1177
<b>Magnum</b>	1601
<b>Mustek</b>	1590
<b>Optimus</b>	0300, 0823
<b>Pacific</b>	1601
<b>Pioneer</b>	0300, 0823
<b>RCA</b>	0300
<b>Sven</b>	1568
<b>Tevion</b>	1601
<b>Trice</b>	1568
<b>upXus</b>	1446
<b>Vieta</b>	1177
<b>Yamaha</b>	0354, 0848

<b>Audio Accessory</b>	
<b>Apple</b>	1115
<b>Sony</b>	0159
<b>Yamaha</b>	2021, 2116
<b>Audio Receiver</b>	
<b>Acoustic Solutions</b>	1546
<b>AEG</b>	1389, 1390
<b>AFK</b>	1389
<b>Aiwa</b>	0121, 1405
<b>Akai</b>	0115, 0609, 1390, 1546
<b>Alba</b>	1546, 1554
<b>All-Tel</b>	1390
<b>Amstrad</b>	0744, 1390
<b>Anam</b>	0609
<b>Arcam</b>	1212
<b>ASCOMTEC</b>	1389
<b>Audiolab</b>	1189
<b>Audiosonic</b>	1389
<b>Audiotronic</b>	1189
<b>Bang &amp; Olufsen</b>	0799
<b>Basic Line</b>	1554
<b>Belson</b>	1389
<b>Binatone</b>	1389

# Appendix

English

<b>Blue Sky</b>	1390, 1546
<b>Bose</b>	1229, 1629
<b>Bush</b>	0797
<b>Cambridge Audio</b>	1455, 1647
<b>Cat</b>	1389
<b>CCE</b>	1352
<b>Centrum</b>	1220, 1389
<b>Clatronic</b>	0797, 1389
<b>Cosmotron</b>	0797
<b>Daewoo</b>	1436
<b>Dantax</b>	0463, 1390
<b>Denon</b>	1360, 0771, 1104, 1434, 2857, 2861
<b>Denver</b>	1389
<b>Digeo</b>	2857, 2861
<b>DiK</b>	0797
<b>Dual</b>	1220, 1390
<b>eBench</b>	0744, 0797
<b>Elta</b>	0744, 0797, 1390
<b>EuroLine</b>	1625
<b>Fine Arts</b>	1189
<b>Firstline</b>	0797
<b>Garrard</b>	0286, 0463
<b>Genexxa</b>	0186
<b>Global Sphere</b>	1625
<b>Goodmans</b>	0609, 0744, 0797, 1389, 1390
<b>Grundig</b>	1189, 0286, 0797, 1089, 1546
<b>Grunkel</b>	0744, 1390
<b>Hanseatic</b>	1390
<b>Harman/Kardon</b>	1189, 1304, 0110, 0208, 1306, 1310
<b>Harwood</b>	0744
<b>HCM</b>	1390
<b>HE</b>	1389
<b>Hitachi</b>	1554
<b>Hitech</b>	0744
<b>Hiteker</b>	1389
<b>Home Tech Industries</b>	1389
<b>Hyundai</b>	1546
<b>Inkel</b>	0502
<b>Intersound</b>	0744

<b>JBL</b>	1304, 1306
<b>JVC</b>	0074, 0464, 1374
<b>Kenwood</b>	1027, 1313, 1569, 0186
<b>Kioto</b>	0797
<b>Kompernass</b>	0797
<b>KXD</b>	1389
<b>LG</b>	1293, 1524, 2197
<b>Lifetec</b>	0797
<b>LXI</b>	0744
<b>Magnat</b>	1389
<b>Magnavox</b>	1189, 1089
<b>Marantz</b>	1189, 1269, 0891, 1089, 1289
<b>Matsui</b>	0744, 0797
<b>MBO</b>	1352
<b>Medion</b>	0797, 1546
<b>MEI</b>	1390
<b>Metz</b>	1554
<b>Micromega</b>	1189
<b>Microstar</b>	0797
<b>MTlogic</b>	1546
<b>Musicmagic</b>	1089
<b>Mustek</b>	1352
<b>Mx Onda</b>	0744, 0797
<b>Myryad</b>	1189
<b>NAD</b>	0320, 0609
<b>Nexius</b>	1390
<b>Nikkai</b>	1389
<b>Nikkei</b>	0744
<b>Norcent</b>	1389
<b>NTDE Geniesom</b>	0744
<b>Onkyo</b>	0135, 1320, 1805
<b>Optimus</b>	1023, 0186, 0744
<b>Orient Power</b>	0744
<b>Orion</b>	0463
<b>Palladium</b>	0797, 1220, 1293, 1390, 1524
<b>Panasonic</b>	1763, 1518, 1308, 1309, 1316, 1765, 1766, 1779, 2967
<b>Paramount Pictures</b>	1220
<b>PCCW</b>	2967



# Appendix

<b>Philips</b>	1189, 1269, 0891, 1089, 1266, 1289, 1654, 1673, 1831
<b>Phonotrend</b>	0502
<b>Pioneer</b>	1284, 1023, 0186, 1123, 1459, 1623
<b>PJ</b>	1389
<b>Polk Audio</b>	1289
<b>Prima Electronic</b>	0797
<b>Proline</b>	0797, 1390
<b>ProVision</b>	1389
<b>QONIX</b>	1390, 1546
<b>Radionette</b>	1293, 1634
<b>Recco</b>	0797
<b>Redstar</b>	1389
<b>Revox</b>	0140, 0186, 1089
<b>Roadstar</b>	0797
<b>Rotel</b>	0793
<b>Samsung</b>	0286, 1295, 1868, 2137, 1500
<b>Sansui</b>	0609, 1089, 1625
<b>Sanyo</b>	0744
<b>Schneider</b>	0110, 0744, 1220, 1390
<b>Scott</b>	1389
<b>SEG</b>	1554
<b>Sharp</b>	0186, 0653, 1386, 1634
<b>Sherwood</b>	0502, 0653
<b>Siemens</b>	0609
<b>Silva Schneider</b>	0797, 1390, 1524
<b>SilverCrest</b>	1546
<b>Sony</b>	1158, 1058, 1258, 1658, 1758, 1112, 1358, 1441, 1454, 1622, 1759, 1822, 1858, 2172
<b>Soundwave</b>	0609
<b>Stereophonics</b>	1023
<b>Sumida</b>	0744
<b>Sunfire</b>	1313
<b>T+A</b>	1270, 1686
<b>TAG McLaren</b>	1189
<b>Tandberg</b>	1554
<b>Targa</b>	1293
<b>TCM</b>	0797
<b>Teac</b>	0463, 0609

<b>Technics</b>	1763, 1518, 1308, 1309, 0208, 1765
<b>Techwood</b>	1554
<b>Tedelex</b>	1625
<b>Tevion</b>	1389
<b>Thorens</b>	1189
<b>Thorn</b>	0744
<b>Tokai</b>	1390
<b>Toshiba</b>	1572
<b>United</b>	1390, 1625
<b>Universum</b>	0286, 0609, 0744, 0797, 1220, 1390, 1436, 1609
<b>Venturer</b>	0797, 1390
<b>Vestel</b>	1554
<b>Victor</b>	0074
<b>Waitec</b>	1352
<b>Watson</b>	0797
<b>Wellfund</b>	0744
<b>Welltech</b>	0797
<b>Wharfedale</b>	1390
<b>Xenius</b>	1390
<b>Yamaha</b>	0176, 0082, 0186, 0376, 0712, 1176, 1276, 1331, 1376, 1776, 1815, 1949
<b>Yukai</b>	1352
<b>Zenith</b>	0744

ADB1.0

## 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](mailto:gnu@humaxdigital.com).

### GPL Software

linux

busybox

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](http://www.freetype.org)). All rights reserved.

# 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.)

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 02110-1301, 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.

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”).

# 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.

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