

ARCAM

English

f·M·J BDP300

HANDBOOK Blu-ray Disc player



ARCAM f·M·J

POWER / STANDBY ○

BDP300

DVD
VIDEO

Blu-ray Disc

COMPACT
disc
DIGITAL AUDIO

ULTRA HIGH PERFORMANCE 24 BIT DAC



Blu-ray
3D

BD-LIVE

HDMI

USB II

DTS
Digital Surround

DOLBY
DIGITAL PLUS 1

safety guidelines



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

WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.



The lightning flash with an arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated 'dangerous voltage' within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

CAUTION: In Canada and the USA, to prevent electric shock, match the wide blade of the plug to the wide slot in the socket and insert the plug fully into the socket.

CAUTION: Use of any controls, adjustments or procedures other than those specified herein may result in hazardous radiation exposure.

Important safety instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug.

A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11. Only use attachments/accessories specified by the manufacturer.

12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus.

When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



13. Unplug this apparatus during lightning storms or when unused for long periods of time.

14. Refer all servicing to qualified service personnel.

Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

15. Object or liquid entry

WARNING – Take care that objects do not fall and liquids are not spilled into the enclosure through any openings. The equipment shall not be exposed to dripping or splashing. Liquid-filled objects such as vases should not be placed on the equipment.

16. Climate

The equipment has been designed for use in moderate climates and in domestic situations.

17. Cleaning

Unplug the unit from the mains supply before cleaning.

The case should normally only require a wipe with a soft, lint-free cloth. Do not use chemical solvents for cleaning.

We do not advise the use of furniture cleaning sprays or polishes as they can cause permanent white marks.

18. Power sources

Only connect the equipment to a power supply of the type described in the operating instructions or as marked on the equipment.

The primary method of isolating the equipment from the mains supply is to remove the mains plug. The equipment must be installed in a manner that makes disconnection possible.

19. Abnormal smell

If an abnormal smell or smoke is detected from the equipment, turn the power off immediately and unplug the equipment from the wall outlet. Contact your dealer and do not reconnect the equipment.

20. Damage requiring service

The equipment should be serviced by qualified service personnel when:

- A. the power-supply cord or the plug has been damaged, or

- B. objects have fallen, or liquid has spilled into the equipment, or
- C. the equipment has been exposed to rain, or
- D. the equipment does not appear to operate normally or exhibits a marked change in performance, or
- E. the equipment has been dropped or the enclosure damaged.

WARNING - The mains plug is used as a disconnect device, the disconnect device shall remain readily operable.

WARNING - The batteries shall not be exposed to excessive heat, such as sunshine or fire.

CAUTION - Danger of explosion if batteries are incorrectly replaced. Replace only with the same or equivalent type.

Safety compliance

This equipment has been designed to meet the IEC/EN 60065 international electrical safety standard.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

welcome

English

Thank you and congratulations for purchasing your Arcam FMJ Blu-ray Disc player.

Arcam has been producing specialist hi-fi and home cinema products of remarkable quality for over three decades and the BDP300 – which plays Blu-ray Discs, DVD-Video discs and Audio CDs – is the latest in a long line of award winning home cinema equipment. The design of the FMJ range draws upon all of Arcam's experience as one of the UK's most respected audio companies and is built to give you years of trouble-free listening enjoyment.

This handbook has been designed to give you all the information you need to install, connect and use the Arcam BDP300 Blu-ray Disc player. The CR104 remote control handset supplied with this equipment is also described. Use the contents list shown on this page to guide you to the section of interest.

We hope that your FMJ Blu-ray Disc player will give you years of trouble-free operation. In the unlikely event of any fault, or if you simply require further information about Arcam products, our network of dealers will be happy to help you. Further information can also be found on the Arcam website at www.arcam.co.uk.

The FMJ development team

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installation

Arcam's BDP300 provides class-leading sound quality from Blu-ray Discs, DVD-Video discs and compact discs.

The BDP300 has a state-of-the-art Delta-Sigma DAC (Digital-to-Analogue Converter) which provides audiophile sound quality for video and audio discs.

The BDP300 is supplied with the CR104 'universal' remote control, which is simple to use and can control up to eight audio devices – such as an amplifier, television or Personal Video Recorder.

The high performance BDP300 Blu-ray Disc player is designed to truly bring your movies and music to life.

Placing the unit

- Place the BD player on a level, firm surface, avoiding direct sunlight and sources of heat or damp.
- Do not place the BD player on top of an amplifier or other source of heat.
- Do not place the BD player in an enclosed space such as a bookcase or closed cabinet unless there is good provision for ventilation. The BD player is designed to run warm during normal operation.
- Do not place any other component or item on top of the BD player as this may obstruct airflow around the unit, causing the BD player to run hot.
- Make sure the remote-control receiver (next to the display on the front panel) is unobstructed, or remote control will be impaired.
- Do not place your record deck on top of this unit. Record decks are very sensitive to the noise generated by mains power supplies which will be heard as a background 'hum' if the record deck is too close.

Power

The BD player is supplied with a moulded mains plug already fitted to the lead. Check that the plug supplied fits your supply – should you require a new mains lead, please contact your Arcam dealer.

If your mains supply voltage or mains plug is different, please contact your Arcam dealer immediately

Push the IEC plug end of the power cable into the socket on the back of the BD player, making sure that it is pushed in firmly. Plug the other end of the cable into your mains socket and, if necessary, switch the socket on.

The remote control and trigger inputs

The **REMOTE IN** input can be used to pass RC5 codes to the BDP300 if it is installed in a position, or a system, where infrared cannot be used. If this is required, please contact your dealer for further information.

The **TRIGGER IN** input can be used to switch the BDP300 in and out of standby. Connecting the trigger output of your Arcam amplifier (or other compatible device), will cause the BDP300 to come out of standby automatically when the amplifier is switched on, returning to standby when the amplifier is switched off. Please see your amplifier handbook for further information.

In normal use there is no need to make any connections to these inputs.

NOTE

The remote control input requires a mono 3.5mm jack, with the tip active and the sleeve grounded.

The remote control signals must be in modulated RC5 format (at 36kHz), with a voltage level of between 5V and 12V.

The **RS232** input is for optional connection to a home automation system or a computer. Various third-party systems are available providing sophisticated control over all your entertainment devices using touch screens etc. Contact your dealer or installer for further details. The technical details of the remote control protocol are available from Arcam on request (email support@arcam.co.uk).

Interconnect cables

We recommend the use of high-quality screened cables that are designed for the particular application. Other cables will have different impedance characteristics that will degrade the performance of your system (for example, do not use cabling intended for video use to carry audio signals). All cables should be kept as short as is practically possible.

It is good practice when connecting your equipment to make sure that the mains power-supply cabling is kept as far away as possible from your audio cables. Failure to do so may result in unwanted noise in the audio signals.

Zone 1 audio output

Connect these to your amplifier's CD (or other line-level) input using suitable high quality interconnect cables. Ensure that the left and right audio outputs from the BD player are connected to the same left and right inputs on your amplifier.

Coaxial digital output

Use this socket if you are using an AV receiver with a coaxial digital input. Connect to the digital input using a suitable 75Ω screened cable.

USB connection

Insert USB flash memory devices here. USB memory can be used to save downloaded content. The BDP300 can also play certain digital files stored on USB memory drives: see page E-8.

12V trigger input

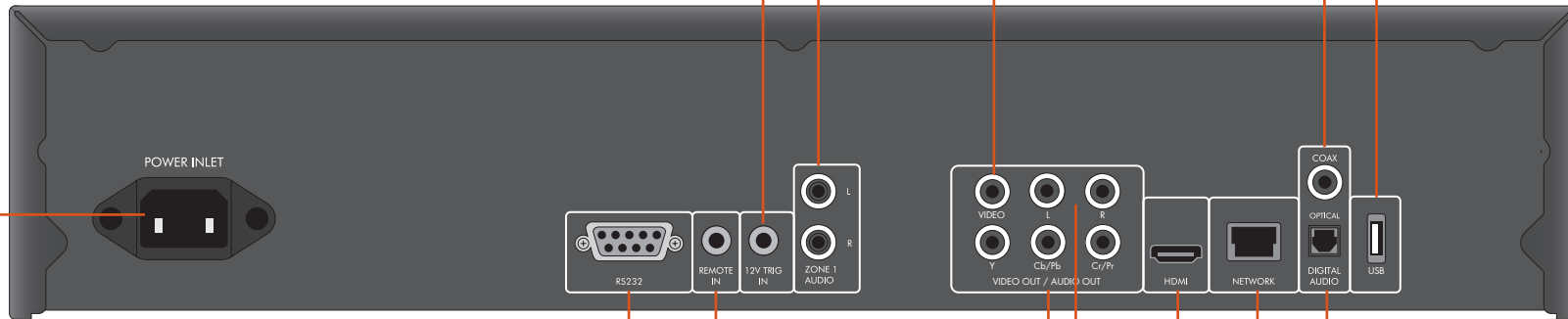
This socket allows the BDP300 to be switched in and out of standby mode by an amplifier (or another item of AV equipment) with a 12V TRIG OUT function: see page E-4.

Composite video output

Connect this output to your display if the display does not support any other connection types.

Power inlet

Connect the correct mains cable here.



RS232

This connection allows for remote control from a third-party home automation system or computer: see page E-4 for more information.

Component video output

If your display does not support HDMI but has a component input (Y, Pb, Pr), connect it to this video output.

Optical digital output

Use this socket if you are using an AV receiver with an optical digital audio input.

Remote in

This allows remote-control signals to be received by the BDP300 if the remote sensor is covered (or otherwise not 'visible' to the remote-control: see page E-4 for more information.

L, R audio output

Use this analogue output (L, R), to provide audio for use in your AV receiver's Zone 2. It can also be used to connect a recording device or headphone amplifier.

Network connection

Connect this socket to a port on your network router using an Ethernet patch cable: see page E-9. An internet connection enables interactive content for BD-Live discs. For setup details, see 'Network' on page E-21.

HDMI digital video output

Connect this output to your display or AV receiver if available for the best digital video and audio connection: see page E-7.

Making video connections

To view the pictures from the BD player you need to connect one of its video outputs to your display device (TV, monitor, projector, etc.) or AV receiver (such as the Arcam AVR600).

The BDP300 has three video output options, described below. You need only use one type of video from the list; choose a type that your display device or AV receiver supports. If your equipment does not support any of the above connection types then you will be unable to use it directly with the BDP300 and a video converter device may be required. In this case, please contact your dealer for further assistance.

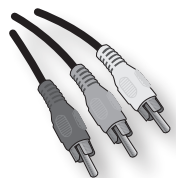
AV receivers and other video processing devices may be connected between the BDP300 and your display. Ensure that all the equipment supports the type of video signal you intend to use. For instructions on how to connect AV equipment, consult the manual for that equipment.



HDMI DIGITAL VIDEO

The HDMI connector offers uncompressed digital video and audio transmission between the BDP300 and the display device, and provides the highest quality output. Generally, it is also the easiest connection type to configure.

To use this video connection, you will require a HDMI or HDMI/DVI cable between the BDP300 and your display device or receiver. See page E-7 for further details.



COMPONENT VIDEO

Use three 75Ω phono cables to connect the Component Y, Pb, Pr outputs of the BD player to the Y, Pb, Pr inputs of the display device. Ensure that the cables are suitable for video use and that they are approximately the same length.

If your television is capable of accepting a progressively scanned (de-interlaced) video signal, you may wish to use the progressive video output from the BDP300. If you are unsure whether your display device can accept progressive video, please refer to its instruction manual or consult your dealer.



COMPOSITE VIDEO

If your display device offers only a composite input (sometimes labelled CVBS or just 'video'), connect this to the **COMPOSITE** video output of the BD player using a 75Ω phono cable suitable for video use. Note that a composite video connection gives the lowest-quality output; if your display device supports other video connection types, we advise that those are used instead.

Making audio connections

The BDP300 offers a number of alternatives for connecting audio. The connection type to use depends on the rest of your system; choose the type most appropriate to your amplifier.

If you want to listen to audio through...

... we recommend the following:

Your television

How you listen to audio through your TV depends on the inputs it has and your video connection:

- **HDMI:** If you are using an HDMI connection (not DVI), this will carry both audio and video. No further connection is required.
- **Digital Audio (Coaxial or Optical):** If your TV has Digital Audio *inputs* on Coaxial or Optical connectors, connect the appropriate digital audio lead between the TV input and the appropriate BDP300 digital output. Do not make a connection between the BDP300 and a TV's Digital Audio *output*.
- **Stereo phono:** If your TV has stereo phono inputs, follow the instructions below for a stereo amplifier.

Your stereo amplifier

If you wish to listen to audio from your player through a stereo amplifier, then use the stereo analogue outputs. These outputs provide a stereo down-mix of the source material.

Using a stereo phono cable of a suitable length, connect the outputs labeled **ZONE 1 AUDIO** to the left and right inputs (respectively) for DVD or CD on your amplifier.

Your surround-sound receiver

Connect the HDMI output to your receiver (for audio and video) if the receiver supports audio over HDMI. The HDMI connection supports all possible audio formats including Dolby TrueHD, DTS Master Audio and multichannel PCM.

If your receiver does not support HDMI audio, connect one of the Digital Audio outputs (Optical or Coaxial) to the 'Blu-ray', 'BD' or 'DVD' input of your receiver. These digital outputs provide PCM, Dolby Digital, DTS or MPEG multi-channel audio, depending on the source material. The BDP300 can also be set to re-encode all audio to DTS ('Bitstream Mixed') (see 'Audio' on page E-21). This option provides the best surround sound quality for Digital Audio connections.

You may also wish to connect the stereo analogue audio outputs to the CD input on your receiver, for listening to CDs. This will allow the BDP300's audiophile digital-to-analogue circuitry to be utilised, for the best stereo sound quality.

The HDMI interface

If you have a HDMI- or DVI-equipped monitor or display, you can connect it to the BDP300 using a HDMI cable. The HDMI connector carries uncompressed digital video, as well as digital audio.

About HDMI

HDMI (High Definition Multimedia Interface) supports both video and audio on a single digital connection for use with Blu-ray Disc players, digital TV, set-top boxes, and other AV devices. HDMI was developed to combine the technologies of High-bandwidth Digital Content Protection (HDCP) and the Digital Visual Interface (DVI) in one specification, with the addition of transmission of digital audio information; HDCP is used to protect digital content transmitted to DVI-compliant displays.

HDMI has the capability to support standard or high-definition video, together with stereo or multi-channel surround-sound audio. HDMI features include uncompressed digital video, one connector (instead of several cables and connectors), and communication between the AV source and AV devices.

Connecting using HDMI

Use a HDMI cable to connect the HDMI socket on this player to a HDMI socket on a compatible display device or receiver. The arrow on the cable connector body should be face up for correct alignment with the connector on the BDP300. If the BDP300 video resolution has been configured to 'HDMI Auto', then the BDP300 will configure its video output automatically to match the capabilities of the attached HDMI device.

NOTE

- A HDMI connection can be made only with HDMI or DVI-equipped components compatible with both DVI and HDCP. Note that if you choose to connect to a DVI device, you will need an adaptor (HDMI to DVI) to do so; a DVI/HDCP connection, however, does not support audio signals.
- If you require further information on the possibilities for connecting your BDP300 to your DVI/HDMI equipped display device, please contact your Arcam dealer.

Troubleshooting HDMI

Problems with video

No video (blank screen)

- Check that the HDMI cable is connected correctly at both ends. If an HDMI-equipped A/V receiver is in use, try connecting the BDP300 directly to the display device, in order to isolate where the fault may lie.
- Check that the display device is set to display the HDMI input (i.e., has not been set to some other video input, instead).
- Check that the HDMI input of the receiver and/or display device is enabled. See the user handbook of the connected device for details on doing this.
- Using an alternative video display device (e.g., connected via the composite video out), check that video is output.
- Consult the user handbook of the display device to ensure that it can handle the output formats provided by the BDP300. The BDP300 can provide the following:

720 x 480p (NTSC progressive scan)	1280 x 720p
720(1440) x 480i (NTSC interlaced)	1920 x 1080i
720 x 576p (PAL progressive scan)	1920 x 1080p
720(1440) x 576i (PAL interlaced)	

At least one of these standards must be supported by the connected device in order for it to work with the BDP300.

No video (random noise)

Random noise will be displayed if the content-protection algorithm fails to authenticate the attached device. This will occur, for example, if a DVI device that does not support HDCP (such as a computer monitor) is connected to the BDP300.

To attempt to isolate this problem, remove all discs from the BDP300, then power-off both the BDP300 and the connected display device. Switch the display device on, then the BDP300 – at this point, the idle logo of the BDP300 should be shown on the display device. If this is not the case, please check the items listed above for a blank screen.

If the noise appears when a copy-protected disc (Blu-ray/DVD) is played, then it is the authentication that is failing. Please contact your dealer for further information.

Problems with audio

The type of audio provided by the HDMI connector depends on the configuration of the BDP300 (see 'Audio' on page E-20). Choose a setting according to the capabilities of your audio system. Note that pure DVI devices (connections requiring a HDMI to DVI converter cable) do not support audio via this connection.

disc & file formats

Playable discs

The player supports the following disc types:



Blu-ray 3D



Blu-ray Disc



DVD-Video



DVD-R



DVD-RW



CD-Audio



CD-R



CD-RW

Video file requirements (USB/Disc)

- Video file compatibility with your player is limited as follows:
 - Maximum resolution size: 1920x1080 (W x H) pixels
 - File extensions: .wmv, .avi, .mp4, .mpeg, .mpg, .vob, .mkv (Note: Files encoded by Divx cannot be played on this player)
 - Playable Audio format: Dolby Digital, DTS, MP3, WMA, AAC, AC3
 - Sampling frequency: within 32 to 48kHz (WMA), within 8 to 48kHz (Mp3)
 - Bit rate: within 32 to 192kbps (WMA), within 32 to 320kbps (Mp3)
- CD-R/RW, DVD R/RW, BD-R/RE Format: ISO 9660+JOLIET, UDF and UDF Bridge format
- Maximum Files/Folder: Less than 1000. The movie file name and subtitle are limited to 180 characters.
- Not all of the WMA and AAC Audio formats are compatible with your player.
- HD WMA movie files contained on a USB 1.0/1.1 flash drive may not play correctly.
- Blu-ray, DVD, or USB 2.0 are recommended to play back HD WMA movie files.
- Your player does not support files that are recorded with GMC (Global Motion Compensation) or Qpel (Quarter pixel). Those are video encoding techniques in MPEG4 standard, like DivX.

MP3/WMA audio file requirements (USB/Disc)

- File extensions: .mp3, .wma
- Sampling frequency: Within 32 to 48kHz (WMA), within 8 to 48kHz (Mp3)
- Bit rate: Within 32 to 192kbps (WMA) 32 to 320kbps (MP3)
- CD-R/RW, DVD R/RW, BD-R/RE Format: ISO 9660+JOLIET, UDF and UDF Bridge format
- Maximum Files/Folder: Less than 2000 (total number of files and folders)
- Depending on the size and number of the MP3/WMA files, it may take several minutes to read the contents of the media.
- HD WMA movie files contained on a USB 1.0/1.1 flash drive may not play correctly. Blu-ray, DVD, or USB 2.0 are recommended to play back HD WMA movie files.

Photo file requirements (USB/Disc)

- File extensions: .jpg, .jpeg, .png, .gif
- Recommended size:
 - PNG: 5120 × 5120 pixels
 - GIF: 10000 × 10000 pixels
 - JPEG/JPG: 8192 × 8192 pixels, 32MB
- CD-R/RW, DVD R/RW, BD-R/RE Format: ISO 9660+JOLIET, UDF, and UDF Bridge format
- Maximum Files/Folder: Less than 1000 (total number of files and folders)
- Progressive and lossless compression photo image files are not supported.
- Depending on the size and number of the photo files, it may take several minutes to read the contents of the media.

Region coding

Blu-ray Disc players and Blu-ray or DVD Video discs are assigned region codes according to the region in which they are sold. If the region codes do not match, the disc will not play.

Blu-ray Disc region code	Area
A	North America, Central America, South America, Korea, Japan, Taiwan, Hong Kong and South East Asia
B	Europe, Greenland, French territories, Middle East, Africa, Australia and New Zealand
C	India, China, Russia, Central and South Asia
A + B + C	All areas

DVD region code	Area
1	North America
2	Europe, Japan, Middle East, Egypt, South Africa, Greenland
3	Taiwan, Korea, the Philippines, Indonesia, Hong Kong
4	Mexico, South America, Central America, Australia, New Zealand, Pacific Islands, Caribbean
5	Russia, Eastern Europe, India, most of Africa, North Korea, Mongolia
6	China
All	All areas

Symbols indicating disc will play in North America:

Blu-ray Discs:



DVDs:



Symbols indicating disc will play in Europe:

Blu-ray Discs:



DVDs:



Network connection

BD-Live discs can enable the downloading of extra content from the Internet. To enjoy on-line content, connect the Network socket of the BDP300 to a LAN port on your network router using an Ethernet patch cable (available from a computer supplies retailer).

A local network with Internet connection is required. If you do not connect to the Internet through a router (e.g. you connect a single computer directly), please contact your Internet Service Provider or an IT professional regarding setting up a home network.

NOTE

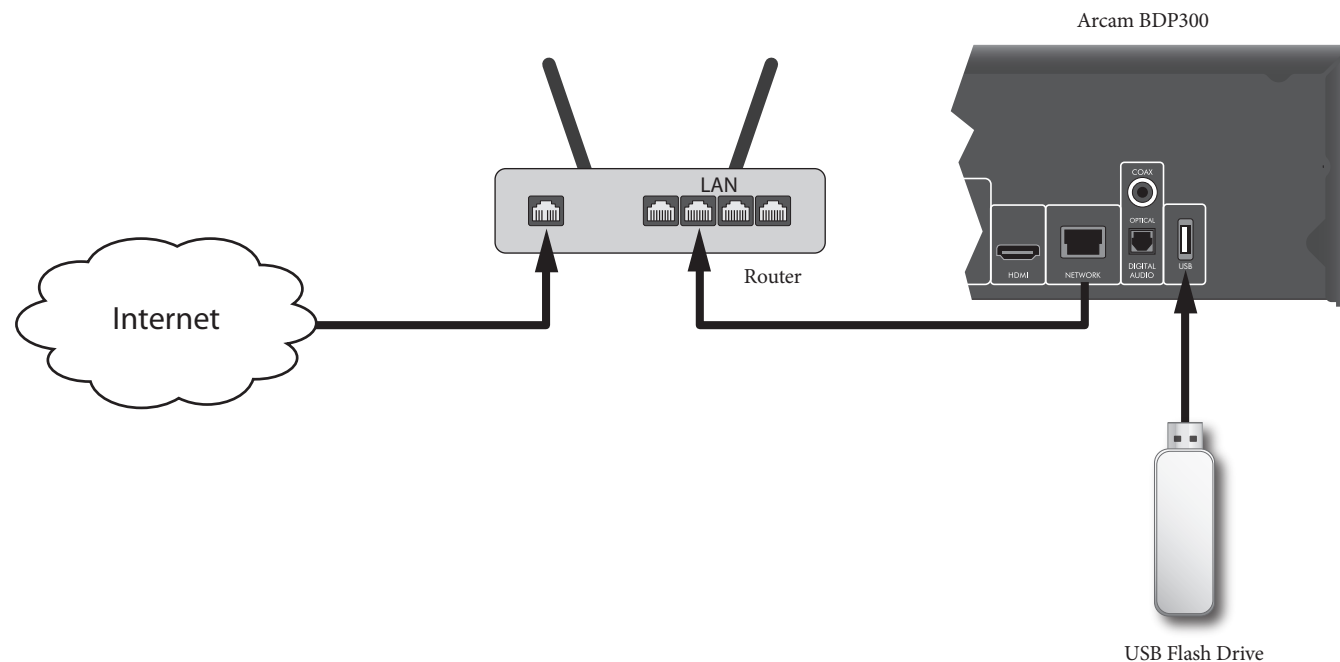
When the player is powered on with no network configured, a pop-up is shown on-screen.

USB connection

USB memory devices (flash drives) can be used for media playback and are necessary for storage of downloaded BD-Live content. To enjoy BD-Live content, the following specification is recommended:

- Capacity 2GB
- Formatted FAT32
- USB2.0 high speed (480Mbps).

Connect the USB device to the USB socket on the rear of the unit.



basic operation



Introduction

'Basic operation' explains how to play a Blu-ray Disc (BD), DVD, CD or other type of disc. Note that it may be necessary to configure your player correctly for your system before optimum – or any – playback can be achieved. Player configuration is described beginning on page E-19.

More sophisticated features – such as special playback modes, programming jumps and playback sequences – are described in 'advanced operation' on page E-16.

Switching on

Switch the unit on by pressing the **POWER** button. The status LED glows green when the unit is powered up and red when in standby mode. The remote control is used to enter and exit standby mode. If the **POWER** button is pressed (or power is removed) whilst in standby, the unit will enter standby mode when power is re-applied. Note that the remote control sensor is located on the right-hand side of the display window. Do not obstruct this or the remote control will not work.

Loading a disc

Press **■/▲** on the front panel (or **▲** on the handset) and place the disc on the tray, with the playback side facing down (some discs are double sided, in which case the side labelled 'side A' should face up to play side A).

Press **■/▲** on the front panel to close the tray. The disc loads after a pause of a few seconds.

Playing a disc

A disc may take some time to load once the tray is closed. When the 'Optical Disc Autoplay' setting is set to On (the default setting), playback starts automatically. (For details, refer to 'Optical Disc AutoPlay' on page E-21).

If Autoplay is set to Off, the player's Main Menu will appear on your TV. Use the cursor keys to select the disc in **MY MEDIA**, then press **OK** to start playback.

Some titles begin by displaying a menu. Select the menu item 'Play movie' (or similar) using the cursor pad, then press **OK** to start playback.

For discs that do not play automatically, press **▶/||** on the front panel or press **▶** on the remote control.

Fast play

Press **▶▶** or **◀◀** on the front-panel or remote control to play fast forwards or backwards. The following speeds for fast playback are available: x2, x4, x8, x16 and x32 (depending on disc type). Press the button repeatedly to cycle through the different speeds. To resume normal playback speed, press **PLAY**.

Skipping chapters/tracks

To skip chapters (or tracks on a CD), press **▶|** or **◀|**.

When skipping back, the first button press takes you to the beginning of the current chapter. Pressing the button again takes you to the start of the previous chapter.

Pausing playback

Press **▶/||** on the front panel or **||** on the remote control to pause playback. To resume playback, press **▶/||** on the front panel or **▶** on the handset.

Stopping playback

Press the **■/▲** button on the front panel or **■** on the remote control to stop playback.

When playing a BD/DVD, pressing **■** once performs a 'resume stop'. If you now press **▶**, playback resumes from the point it was stopped.

If you press **■/▲** on the front panel or **■** on the remote control twice, this is a 'complete stop', and playback resumes from the beginning of the disc.

NOTE

When you press a button, if the unit does not accept its operation, **⊗** appears on the TV screen.

Invalid operation may also occur if:

- The region codes of the unit differs from that of the disc, so playback is not allowed.
- The parental control is set to prevent operation: see 'Security/Parental Control' on page E-22.
- Some operations may be prohibited due to disc manufacturer's settings.

remote control

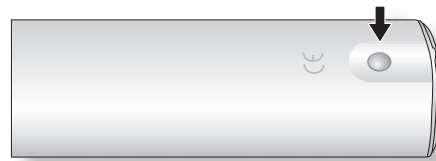
The BDP300 may be supplied with the CR104 universal remote control.

Using the remote control

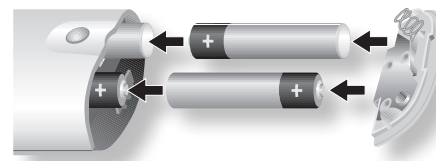
Please keep in mind the following when using the remote control:

- Ensure there are no obstacles between the remote control and the remote sensor on the front panel. The remote has a range of about 7 metres. (If the remote sensor is obscured, the IR in remote control input jack on the rear panel is available. Please consult your dealer for further information.)
- Remote operation may become unreliable if strong sunlight or fluorescent light is shining on the remote sensor of the unit.
- Replace the batteries when you notice a reduction in the operating range of the remote control.

Inserting batteries into the remote control



1. Open the battery compartment by pressing the button on the back of the handset.



2. Insert four 'AAA' batteries into the battery compartment – two facing the top of the unit, and two facing the end, as in the diagram.
3. Lower the end cap onto the plastic locating plate in the handset. This acts as a hinge, and you can now push the end cap firmly into its locked position with a click.

Notes on batteries:

- Incorrect use of batteries can result in hazards such as leakage and bursting.
- Do not mix old and new batteries together.
- Do not use non-identical batteries together – although they may look similar, different batteries may have different voltages.
- Ensure the plus (+) and minus (-) ends of each battery match the indications in the battery compartment.
- Remove batteries from equipment that is not going to be used for a month or more.
- When disposing of used batteries, please comply with governmental or local regulations that apply in your country or area.

The CR104 complies with Part 15 of the FCC rules

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide a reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet or a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

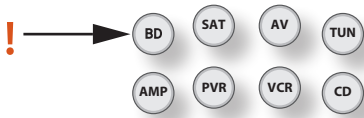
The CR104 remote

The CR104 is a sophisticated 'universal' remote control that can control up to eight devices – including the BDP300. As it's a 'learning' remote, it can copy almost any function from an existing single-device remote. You can also program the CR104 to issue a sequence of commands ('macros') from a single button press.

Select the source key first

Remember to select a source key *before* pressing command buttons – commands vary depending on the source selected.

To operate the BDP300 from the remote, first press the **BD** source button.



DISP (display)

Press to cycle through the front panel display's brightness options (dim to bright, off).

Source selection and handset configuration

BD	BD input/BD controls
SAT	Satellite decoder input/SAT controls
AV	Television (sound) input/AV controls
TUN	Radio tuner input/TUN controls
AMP	Arcam amplifier
PVR	Personal Video Recorder input/controls
VCR	Video Cassette Recorder input/controls
CD	CD player input/CD controls

Press the relevant button once to select input and reconfigure the handset.

Press and hold the button until the power LED blinks once if you wish to reconfigure the handset without changing the input.

Navigation buttons

Arrow buttons allow navigation around the settings menus on the BDP300 and disc menus. Confirm a selection by pressing (OK).

MODE

This button activates the Picture-in-Picture Secondary Video function, where available.

MUTE

Press once to mute an Arcam amplifier. Press again (or use +/- volume) to un-mute.

VOLUME +/-

Adjusts the volume of an Arcam amplifier.

OPEN

Opens and closes the disc tray.

SETUP

Press **SETUP** to access the system settings menu.

On/Standby

This allows the BDP300 to be put into and taken out of standby remotely.

Numeric keys, 0–9

Used for data entry. Also gives direct access to individual tracks on audio CDs.

RND

Toggles random ('shuffle') play of chapters/tracks on and off. Press (SHIFT) followed by (RND) to cycle through repeat play options (chapter, title, disc, etc.).

STATUS

Toggles the disc information display. Press (SHIFT) followed by (STATUS) to cycle through the HDMI output resolutions (only available from the Home screen).

MENU

Activates the BD 'popup' menu or the DVD Video menu.

RTN

Navigates to the previous menu.

⏮ ⏭

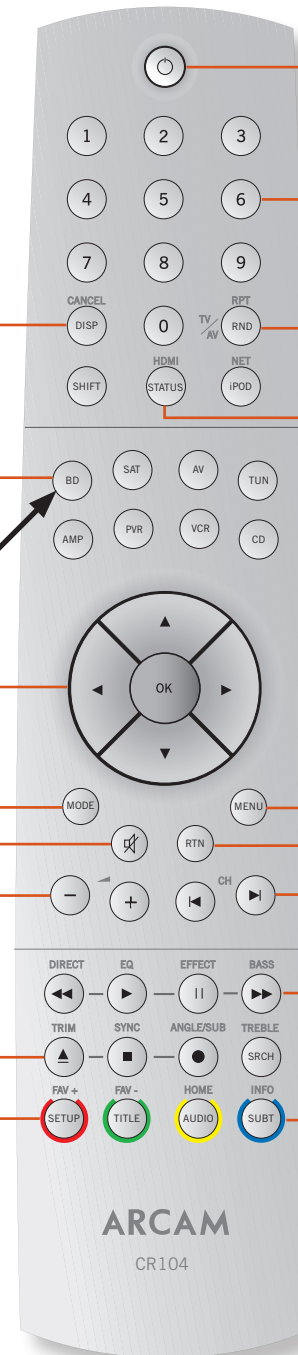
Press to skip backwards to the previous track (⏮) or forwards to the next track (⏭).

Playback control

Play (▶), Pause (⏸) and Stop (■). **SHIFT+⏸** activates slow playback.

Advanced controls

These buttons are described on the next page.



Playback and advanced controls

NOTE

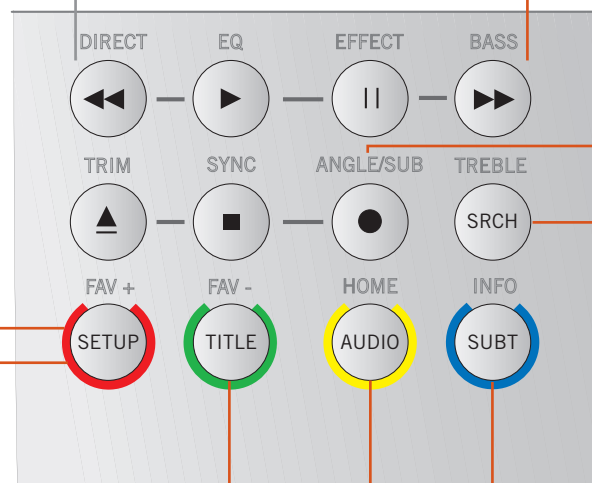
Many of these controls are labelled according to the functions assigned to other device modes. For example, the **▶▶** key activates the Bass control of an A/V receiver when the remote is in **AMP** mode.

Transport control buttons

◀◀	Fast rewind.
▶	Starts playback.
	Pause playback. Press ▶ to resume playback. When paused, pressing advances one frame. SHIFT + activates slow motion playback.
▶▶	Fast forward.
▲	Open / Close the disc tray.
■	Stop playback
●	Cycles through different camera angles, if present on the disc.

RED/GREEN/YELLOW/BLUE

The colour-coded buttons **RED**, **GREEN**, **YELLOW** and **BLUE** provide interactive controls for Blu-ray Discs and some player functions and will be displayed on-screen. They are accessed by first pressing **SHIFT** followed immediately by the button required. Their function depends on the disc and the part of the disc being viewed.



SETUP

Ensure no disc is playing and press **SETUP** to access the 'Settings' menu.

TITLE

Press **TITLE** to access the DVD's 'Title' menu (a feature that only applies to multi-title discs) or to access the main menu if a Blu-ray Disc.

AUDIO

Some discs offer the facility to select different audio tracks. Press **AUDIO** to access a menu that allows selection of the available tracks. See 'Soundtrack selection' on page E-16.

SUBT

Cycles through the available subtitle languages, including 'Off'. Some discs force subtitles on, overriding any set up preferences.

ANGLE

Displays Angle menu, to allow selection of different camera angles, if present on the disc.

SRCH

Displays Search menu with Time, Title and Track options.

Useful information

Backlight

A blue backlight comes on for five seconds whenever a key is pressed. This helps you use the handset in subdued lighting conditions. It may be possible to hear a quiet tone being emitted from the remote control when the backlight is on. This is perfectly normal.

Power LED blinks

Short blinks indicate a valid key press.

Multiple short blinks convey information (such as a device code) or signal the beginning and successful completion of a programming sequence.

Long blinks indicate an invalid key press or entry.

The symbol  is used in the manual to indicate a power LED blink.

Timeouts and unassigned keys

Time out – After 10 seconds the CR104 exits the programming state and returns to normal operation.

Stuck key timeout – After any key is pressed continuously for 30 seconds, the CR104 stops sending IR transmission to conserve battery life. The CR104 remains off until all keys are released.

Unassigned keys – the CR104 ignores any unassigned key presses for a particular Device Mode and does not transmit IR.

Low voltage indicator

When the batteries are running down, the IR transmit indicator on the CR104 (the LED under the Power button) flashes five times whenever you press a button:



If this happens, please fit four new AAA alkaline batteries as soon as possible.


Device Mode / Source keys

As the CR104 can control your BDP300, AVR500, AVR600 or AV888 as well as a range of other equipment, many of the buttons have more than one function depending on the 'device mode' selected on the remote control.

The Device Mode keys (shown below) select the source on the AVR500/AVR600/AV888. If one of these keys is pressed briefly, a command is transmitted to change the source on the unit. Also the functionality of the remote control changes to operate the selected source device. It's like having eight different remotes in your hand!




BD	BDP300 Blu-ray player
SAT	Satellite set-top box
AV	Audio-visual sound input (use with TV)
TUN	DAB, Sirius, FM or AM tuner
AMP	Controls the amplifier and setup features of the AVR500/AVR600 and AV888
PVR	Personal Video Recorder (or Digital Video Recorder)
VCR	Video Cassette Recorder
CD	Compact Disc player

If you press and hold a Device Mode key for about four seconds, you change the Device Mode of the CR104 *without* changing the signal source on the AVR500/AVR600/AV888. This can also be done by pressing  followed by a Device Mode key (within two seconds). These two methods allow you to change which device the CR104 controls without also changing the AVR500/AVR600/AV888 source, allowing uninterrupted listening.

Each Device Mode changes the behaviour of many of the CR104 keys to control the source device appropriately. For example:

In CD mode  plays the previous CD track.

In AV mode  issues the TV 'channel down' command. The CR104 remains in the last selected Device Mode so it is not necessary to press a Device Mode key before every command key if all you are doing is playing or skipping tracks on a CD, for example.




Navigation keys

The Navigation keys steer the cursor in Setup menus or on-screen menus. They also replicate the navigation functions of original remotes supplied with other home entertainment devices in your system.

 confirms a setting.

Volume control

By default, the CR104 is set up so that the volume control buttons always control the volume of an Arcam amplifier or receiver, regardless of which Device Mode the remote is currently set for. This is known as volume 'punch through'.


For example, if you are listening to a CD, you will probably have the CR104 in CD Device Mode to control the CD player. You can use the volume controls on the remote directly to adjust the volume of an Arcam amplifier without first having to press  to put the remote into AMP Device Mode. The volume buttons 'punch through' the CD Device Mode on the remote to the AMP Device Mode. Volume 'punch through' can be disabled individually for any Device Mode if desired.

Controlling other devices


Method 1 (Direct code setup)








This section describes the simplest (preferred) way to program the CR104's Device Mode keys to control the non-Arcam devices in your system.



- Some of the modes are locked to Arcam operation but can be unlocked if required: see 'Locking/unlocking a specific Device Mode' on page E-28).
-  mode only controls Arcam equipment.

BD mode	Locked
SAT mode	Unlocked
AV mode	Unlocked
TUN mode	Locked
AUX mode	Locked
VCR mode	Unlocked
CD mode	Locked

Here is a specific example of how to program the  key to control an Addison television. The principles for controlling other devices are exactly the same.






1. Make sure your device is switched on (not just on standby).
2. Find the correct Device Code table (e.g. TV) for the type of device you want to control from the CR104.
3. Find the row containing the codes for the manufacturer of your device. The most popular code is listed first.
4. Press the appropriate Device Mode key (e.g. ) on the CR104.
5. Press and hold  until the red Power LED blinks twice:   (It actually blinks once when you press the key, then twice after about three seconds).
6. Enter the first four-digit device code using the number keys. The power key blinks twice:  .
7. Aim the CR104 at the device and press . If the device switches off, the setup is complete.
8. Turn your device back on and test all the CR104's functions to ensure they are working properly.

9. **Important!** Write your device code down on the right hand side of the page so you can remember it if you ever reset the CR104.

What if I still can't control my device?

- If your device doesn't respond, repeat the above steps until one of the device codes listed for your brand works.
- If none of the codes listed for your brand operates your device, or if your brand is not listed at all, try the Library Search Method described in the next section.

Notes:

- Some codes are quite similar. If your device does not respond or is not functioning properly with one of the codes, try another code listed under your brand.
- If your device's original remote control does not have a  (POWER) key, press  instead of  when setting up your device.
- Remember to press the corresponding device key before operating your device.
- Many TVs do not switch on pressing . Please try pressing a number key ('channel select') to switch your TV back on.
- To search for the code for another device follow the instructions above, but press the appropriate device key instead of  during step 2.



Method 2 (Library search)







This section describes another way to program the CR104 to control third-party equipment.



Library Search allows you to scan through all the codes contained in the CR104's memory. It can take a lot longer than the previous method, so only use this method if:

- Your device does not respond to the CR104 after you have tried all the codes listed for your brand.
- Your brand is not listed at all in the Device Code tables.

Example: To search for a TV code





1. Switch your TV on (not standby) and aim the CR104 at it.
2. Press  on your CR104.
3. Press and hold  until the power LED blinks twice.

4. Press   . The power LED key blinks twice: .
5. Press .
6. Aim the CR104 at your Television and press  repeatedly until your Television turns off.

Every time you press  the CR104 sends out a POWER signal from the next code contained in its memory. In the worst case, you may have to press this key up to 150 times, so patience is required! If you skip past a code, step back by pressing . Remember to keep pointing the CR104 at your Television while pressing this key.

7. As soon as your television turns off, press  to store the code.











Notes:

- Many TVs do not switch on by pressing . Try pressing a number key ('channel select') to switch your TV back on.
- If you cannot control your Television properly, please continue the Search Method: you may be using the wrong code.
- To search for the code for another device follow the instructions above, but press the appropriate Device Mode key instead of  during step 2.
- If your device's original remote control does not have a  (STANDBY) key, press  instead during step 5.

Code blink-back

Once you have set up your CR104, you can blink back your device set-up codes for future reference.

Example: To blink back your Television code

1. Press the appropriate Device Mode key (e.g.  once.
2. Press and hold  until the red Power LED blinks twice  (It actually blinks once when you press the key, then twice after about three seconds).
3. Press   . The  key blinks twice.
4. For the first digit of your four-digit code, press 1 and count all the red blinks. If there are no blinks, the digit is '0'.
5. For the second, third and fourth digits, repeat the previous step, pressing , , or  in order.

Now you have the four-digit code.

Make a note of the codes

Write down the codes for your devices in the boxes below for future reference.

Device	Code
1	
2	
3	
4	
5	
6	
7	
8	

advanced operation



Disc information

Press **(STATUS)** to display the 'Information bar' at the top of your TV screen. An example is given above, but the information shown depends on the disc type. It usually includes the disc type, the current track, the total number of tracks and the elapsed track time.

For Audio CDs, press **(STATUS)** again to turn this display off.

Search

The **(SRCH)** button allows you to search for a specific title, chapter or track on the medium. Press **(SRCH)** to display the search box. Press **(SRCH)** repeatedly to select the search type:

Video Discs	Audio Discs	Media Files
Go to Title	Go to Track	Go to File No.
Go to Chapter		Go to Time
Go to Time		

Use the remote control number buttons to enter the search data. Press **(OK)** to start playback from the selected location.

Menus

Many BD Video and DVD Video discs contain a disc menu, top menu or popup menu which guides you through the available functions in the disc.

The contents of menus and corresponding menu operations depend on the disc.

- **Disc Menu:** Press **(TITLE)** to display the disc menu ('Top Menu') on the TV.
- **Popup Menu:** Press **(MENU)** to display the 'Popup' menu on the TV.

Use the remote control cursor keys to navigate the menus. Highlight an item and press **(OK)** to select it, otherwise, press the relevant menu key to exit the menu.

Soundtrack selection

Some discs contain multiple audio streams, such as a standard Dolby Digital 5.1 soundtrack and a high definition Dolby TrueHD 7.1 surround soundtrack. The audio stream can be changed during playback. The secondary audio (e.g. director's commentary) of Blu-Ray Discs (if present) can also be changed if alternatives are available.

Note: Audio language is changed using the Language menu: see page E-21.

Press **(AUDIO)** to display the current audio stream information.

Highlight either the Primary (Audio) or the Secondary (PIP) audio stream selection using the **(▲/▼)** buttons.

Press **(▶)** to show alternate audio streams. Press **(▲/▼)** to highlight the desired audio stream then press **(OK)** to select it.

Subtitles

Some discs contain multiple subtitles. The subtitles can be changed during playback. Subtitles for the secondary video (e.g. director's commentary) of Blu-Ray Discs (if present) can also be changed (if alternatives are available).

Note: Subtitle language is changed using the Language menu: see page E-21.

Press **(SUBT)** to display the current subtitle information:

Highlight either the Primary (Subtitle) or the Secondary (PIP Subtitle) subtitle selection using the **(▲/▼)** buttons.

Press **(▶)** to show alternate subtitles. Press **(▲/▼)** to highlight the desired subtitle then press **(OK)** to select it.

Bonusview and BD-Live

Bonusview and BD-Live are features of the Blu-ray Disc format.

Bonusview provides Picture in Picture and Virtual Package functions for compatible discs. BD-Live discs additionally provide a variety of features via the Internet.

Virtual Package/BD-LIVE data must be saved to a USB memory device connected to the BDP300. To enjoy these functions, connect a USB memory device (minimum 1 GB capacity; 2 GB or more is recommended) supporting FAT 32 and USB 2.0 High Speed (480 Mbit/s) to the USB connector. (For details, refer to 'USB Connection' on page E-9.)

- If there is insufficient storage space, the data is not copied/downloaded. Delete unneeded contents or use a new USB memory device.
- If a USB memory device containing other contents (previously recorded) is used, the video and audio may not play back properly.
- If the USB memory device is disconnected from this unit during playback of Virtual Package/BD-LIVE contents, playback of the disc will stop.
- Some time may be required for the contents to load (read/write).

NOTE

- It may not be possible to use the BD-LIVE functions if there is insufficient space on the USB memory device. In this case, refer to 'Erase Blu-ray Storage?' on page E-21 for erasing the Virtual Package contents and the BD-LIVE contents in the USB memory device.
- Operation of all USB memory devices is not guaranteed.
- Plug the USB memory device directly into the USB connector – do not use an extension cable or multiple connector socket.

Picture in Picture (secondary video)

Some Blu-ray discs include secondary video screens that can be played back as a small video overlaid in the corner of the screen. Press the **MODF** button on the remote control to display the PiP menu:

Press **▶** to enter the PiP menu. Select a secondary video stream using the remote control cursor keys **▲**/**▼**. Press **OK** to view the secondary video in PiP mode.

NOTE

- To listen to secondary audio or to display secondary subtitles, refer to 'Soundtrack selection' or 'Subtitles' on page E-16.
- Secondary video may not be present for every scene of a disc. The feature is disc-dependant, please consult the disc manual for further details.

Virtual Package

Blu-ray discs supporting Virtual Package allow for extra content to be automatically transferred from the disc or from the Internet to USB storage for interactive viewing. Features available include secondary video and audio, subtitles and movie trailers.

NOTE

- Playback methods are disc-dependant — refer to the disc manual.
- Playback operations may require use of the colour-coded keys on the remote control. To access the colour key functions on the CR104 remote control, press **SHIFT** first.

BD-Live

The BDP300 is compatible with BD-Live, allowing for a variety of functions when used with BD-Live compatible discs. BD-Live allows content such as the latest movie trailers and BD-J interactive games to be downloaded from the Internet to USB storage.

Available BD-Live functions are entirely dependant on the Blu-ray disc being played. Consult the disc manual for operational information.

NOTE

- The BDP300 must have an active Internet connection to use BD-Live functions. Refer to 'Network connection' on page E-9 and 'Network' on page E-21
- BD-Live Internet access can be disabled using the **BD-Live Internet access** setting in the **System** menu: see 'Network' on page E-21
- Playback operations may require use of the colour-coded keys on the remote control. To access the colour key functions on the CR104 remote control, press **SHIFT** first.

Playing media files

The **MYMEDIA** icon is shown on screen when the BDP300 is first switched on. To play video, image files (e.g. photographic slideshows) or audio files, highlight the **MYMEDIA** icon and press **OK**.



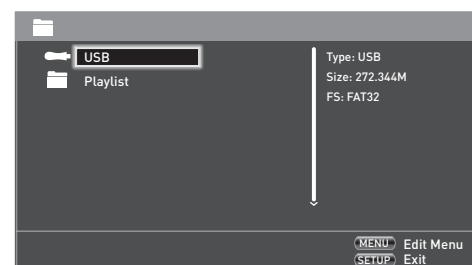
Video and audio files can be played from USB media or CD-R/RW discs. The following formats are supported:

- **Video:** AVI, MPEG4
- **Image:** JPG
- **Audio:** WMA, MP3

To play media files, insert the USB device or data disc into the player. The MY MEDIA menu is displayed with music, video and/or picture file symbols:

To play all available files without making any selection, press **▶** to go to the Play menu, described below.

To select particular files, use the **▲**/**▼** cursor keys on the remote control to highlight the media device to navigate the MY MEDIA menu. Press **OK** to select the media device and display the file and folder contents.



NOTE

When there are no playable files or folders within the selected media or folder, 'Empty' is displayed.

You can play a single file or playlist (containing up to 100 selected files). Use the **▲**/**▼** cursor keys on the remote control to highlight a file or playlist and press **OK** to select it.

The Edit menu

Press **POPUP MENU** to select the Edit menu, from which the following operations are available:

- **Add to Playlist:** Add the folder/file to the Playlist.
- **Select All:** Select all folders/files in the current directory (up to a maximum of 100 files); all selected files/folders are marked with a check mark.
- **Clear All:** Deselect all selected files/folders.
- **Cancel:** Cancel and exit the Edit menu.

Select 'Play (file)' to play a single file, or select 'Add to Playlist' to add the file to the playlist. When the desired files have been added to the playlist, press **▶** on the remote control to go back to the Play menu.

Play a music file

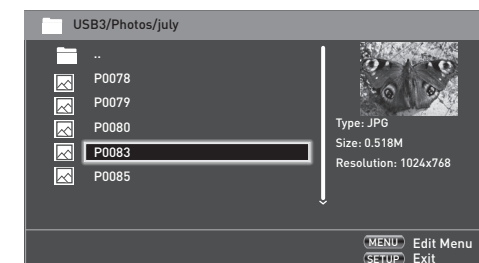
Use the **▲**/**▼** cursor keys to highlight a WMA or MP3 file and press **OK** or **▶** to start playback.

Play a video file

Use the **▲**/**▼** cursor keys to highlight an AVI or MPEG4 file and press **OK** or **▶** to start playback. Press **DISP** to view relevant video file playback information.

Play a picture file

Use the **▲**/**▼** cursor keys to highlight a JPEG (photo) file and press **OK** to confirm selection. Its preview and file information is shown on the right of the panel.





If you have selected a playlist (created using the Edit menu), you can press **▶** to start viewing the pictures as a slideshow.

You can use the remote cursor keys (up, down, right, left) to rotate the picture. The **RP1** button cycles through the repeat options (repeat one, repeat all, repeat off). The **◀** and **▶** keys can be used to change the picture playback speed: fast (1 second), medium (2 seconds) and slow (3 seconds). Press **DISP** to view relevant picture file playback information.




Advanced playback controls

The following advanced controls are available during disc or file playback (depending on media type):


Slow playback

Press  followed by  to activate slow motion playback. Press this button combination again to change the playback speed. Speeds of 1/2, 1/4 and 1/8 are available.

Rapid Playback

Press  or  during playback to activate rapid reverse or forward playback. Further button presses change the playback speed. Speeds of 2x, 4x, 8x, 16x or 32x normal speed are available. Press  to resume normal playback.

Displaying File Information

Press the  button to display the file information panel. The information displayed depends on the type of file playing, but may include the file type, elapsed and total playing time and a progress bar, and the playback mode (e.g. repeat, random play).

Press  again to hide the file information panel. Note that the file information panel is always shown when playing music files.

settings menu

The Settings menus allow you to configure all aspects of your BDP300. The next few pages will go through the menu items and explain their function. The Settings menus may look daunting if you are new to setting up home cinema, but the majority of them need only be configured once when you first install the system.

The only way to view the Settings menus is on your display device (TV or projector) using the on-screen display (OSD) capability of the BDP300. To view the OSD for the initial setting up, connect any of the video outputs to your display device (or AV receiver connected to your display).

Entering the settings menu

The **SETTINGS** icon is shown on screen when the BDP300 is first switched on.



If the main menu is not currently displayed, press **SETUP** on the remote control to display it. Note that during the playback of music, video or JPEG files, further button presses may be required to exit the folder structure.

With the **SETTINGS** icon highlighted, press **OK** to enter the Settings menu.

Unstable OSD menu or picture display?

The default BDP300 output video resolution when first powered up out of the box has been chosen according to the national standard in the country of purchase.

If the output resolution and frame rate is at a setting your display device does not support, the picture



may become unstable or may not display at all. If this happens, connect the BDP300 directly to your display using the composite video connection in order to see the menus. Once the correct video settings have been entered, a higher-quality connection can be used.

Navigating the menus

The BDP300 menus can be navigated by using the cursor (up, down, left, right) keys on the remote control.

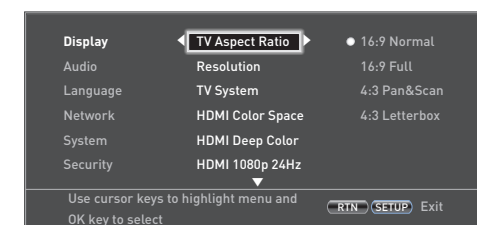
1. To display the main menu, press **SETUP**.
2. Use the **▲** and **▼** keys to navigate up and down the main headings in the left-hand panel.
3. With the main section you require highlighted, use the **▶** key to enter the middle column.
4. Use the **▲** and **▼** keys to navigate up and down the options in the middle column. Some options may be greyed out because they are not currently selectable (e.g. network IP address when DHCP is used).
5. Pressing **▶** selects a setting; use the **▲** and **▼** keys to change the setting.
6. Press **OK** to confirm the setting. Go back to step 4 to adjust any other settings in the current section.
7. Press **◀** to return to the previous screen if you want to select another section.

Display

With the **SETTINGS** icon highlighted on your display, press **OK** to show the 'Display' options.

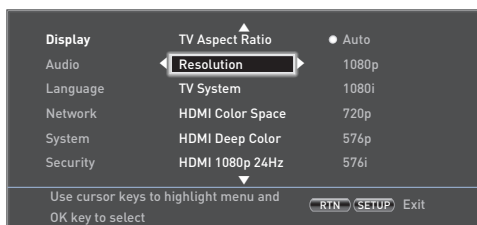


Press **▶** to move to the options in the second column.



TV Aspect Ratio – Set the aspect ratio (shape) of your display. Press **▶** to move to the options in the third column.

- **16:9 Normal:** Use with widescreen TVs. 4:3 material is zoomed to fit the wide screen.
- **16:9 Full:** Use with widescreen TVs. 4:3 material is displayed in its original aspect ratio, with vertical black bars at the sides.
- **4:3 Pan and Scan:** Use with 4:3 non-widescreen TVs. 16:9 widescreen content is displayed with the left- and right-hand sides of the image cropped to fit the screen (no black bars). The aspect ratio is maintained (the image is not stretched).
- **4:3 Letterbox:** Use with 4:3 non-widescreen TVs. 16:9 widescreen content is displayed with black bars at the top and bottom.

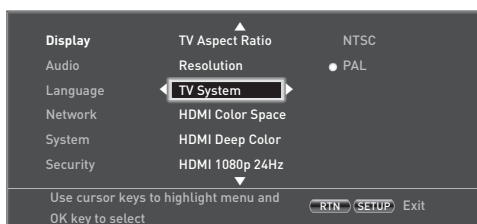


Resolution – Set the video resolution of the HDMI and COMPONENT VIDEO outputs.

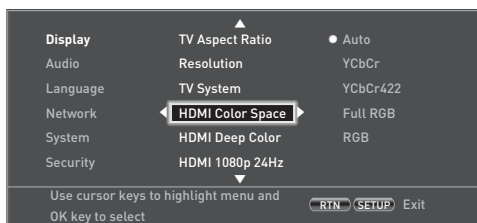
- **Auto**: Sets the TV's preferred resolution.
- **1080p**: Full HD progressive video.
- **1080i**: interlaced HD video.
- **720p**: progressive HD video.
- **480p/576p**: 480 lines (NTSC) or 576 lines (PAL) progressive video
- **480i/576i**: 480 lines (NTSC) or 576 lines (PAL) Standard Definition interlaced video.

NOTE

The HDMI Auto setting may not set the best possible resolution. If you have a 1080p Full HD display, set the resolution to 1080p.



TV System – Set the video signal format. If the colour or picture quality of analogue video appears incorrect, change this setting. It should not need to be adjusted in normal use. You can select NTSC (the USA and Canada video standard), or PAL (the Europe, Australia and China video standard).



HDMI Color Space – ‘Color Space’ refers to the number of individual colors that can be displayed on the screen. If you know the color space capability for the connected TV, you can match it by selecting one of these options. We recommend you select ‘Auto’.

HDMI Deep Color – sets the level of Deep Color processing applied to the HDMI video output. You can select ‘Auto’ or ‘Off’. If this option is set to Auto and your TV supports Deep Color, the screen displays colors at 30-, 36- or 48-bit accuracy (compared to the 24-bit accuracy of standard color). Check the documentation that came with your TV to see if your TV supports Deep Color. All system HDMI interconnect cables must be Deep Color compatible in order to use 30/36-bit Deep Color signals.

NOTE

If you experience a flickering or abnormal picture after changing the Deep Color setting, connect the unit using a Composite video cable and change the setting to a value supported by the display.

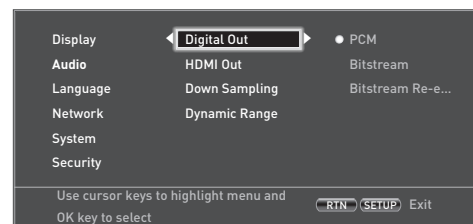
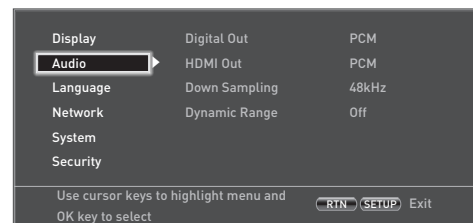
HDMI 1080p 24Hz – You can select ‘Auto’ or ‘Off’. Movies are recorded on film at a rate of 24 pictures (frames) per second. Many of the movies on Blu-ray Discs are placed on the discs at this frame rate. If your TV supports 24 frames per second, but you would prefer to view the video at a higher frame rate, you should turn off HDMI 1080p 24Hz.

NOTE

- 1080/24p video signals can only be output using the HDMI connection.
- The connected equipment (AV receiver, TV/projector) must be 1080/24p compatible.
- The output resolution must be set to 1080p or HDMI Auto.

HDMI 3D – To turn the 3D feature (if available) on or off. You can select ‘Auto’ or ‘Off’.

Audio



Digital Out – Sets the audio format output from the OPTICAL or COAXIAL DIGITAL OUT connections.

You can select:

- **PCM** – Outputs the signal as processed audio ready for any receiver. Use this when your receiver cannot decode the movie soundtrack on the disc.
- **Bitstream** – Outputs the movie soundtrack without any processing. This option requires a receiver that supports the movie soundtrack format.
- **Bitstream Re-encode** – Combines all audio signals and outputs as DTS, Dolby, or PCM depending on the audio stream on the disc.

NOTE

The signal at the HDMI output is also determined by the formats supported by the connected equipment.

HDMI Out – Sets the audio format output from the HDMI connection.

You can select:

- **PCM** – (as above).
- **Bitstream** – (as above).
- **Bitstream Re-encode** – Automatically selects the HDMI digital signal type according to the audio stream on the disc.

Down Sampling – Set the maximum sample rate of audio output from the OPTICAL or COAXIAL DIGITAL OUT.

- **48kHz** – (most compatible) Select this option if the TV speakers, amplifier, or home theater is not capable of handling signals over 48kHz sampling rate. If you do not have an audio receiver or TV connected to your player through one of the digital audio jacks (optical or coaxial), select 48kHz. See the documentation that came with the receiver or TV.
- **96kHz** – Select this option if the TV speakers, amplifier, or home theater is capable of handling a digital sampling rate of 96kHz
- **192kHz** – (best quality) Select this option if the TV speakers, amplifier, or home theater is capable of handling a digital sampling rate of 192kHz.

NOTE

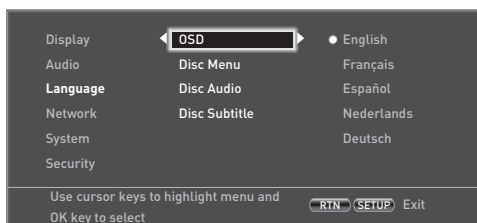
If the connected equipment (e.g. AV receiver) does not support 96kHz or 192kHz audio, silence or loud noise may result from this setting. If this happens, set **Down Sampling** to 48kHz.

Dynamic Range – Selects the Dynamic Range Control mode to ‘Off’ or ‘On’.

Dynamic Range is the range between the loudest sounds and the quietest ones. If set to ‘On’ you can listen to a movie at a lower volume without losing sound clarity.

- **Off** – No dynamic range compression
- **On** – Dynamic range compression.

Language



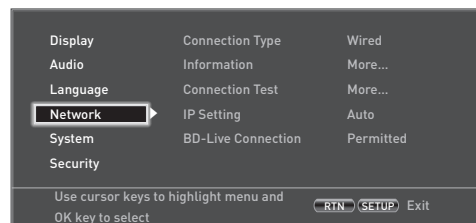
OSD – Select one language to be used for the On Screen Display (OSD).

Disc Menu – Set the language used for the Disc Menu and Pop-up Menu. The available languages depend on the disc. 'Auto' sets the priority language of the disc.

Disc Audio – Set the language for the soundtrack. The available languages depend on the disc. 'Auto' sets the priority language of the disc.

Disc Subtitle – Set the language used for the subtitles. The available languages depend on the disc. 'Off' prevents the display of subtitles.

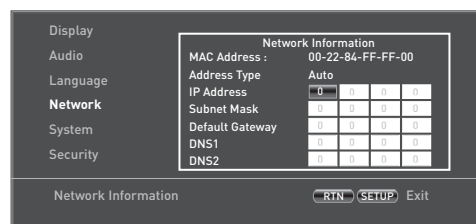
Network



An active, configured Internet connection is required if you wish to use BD-Live websites and downloaded content. See page E-9 for physical connections.

Connection Type – 'Wired'. Connect a network cable to the Ethernet jack and into a wired router. The BDP300 does not support wireless connections.

Information – Select and press **OK** to view or set the network connection parameters:



MAC Address – Information only

Address Type – Set whether the network settings are automatic or set manually.

- **Auto:** Allows the connected router or modem to configure the network settings automatically, using the network's DHCP server. This setting should be used for the majority of home networks.
- **Manual:** Enter settings manually, for expert users.

The following settings are only available when **IP Setting** is set to Manual:

IP Address – Use the cursors to navigate between segments and use the **0** to **9** keys to enter the IP address assigned to your player by your network administrator. Press **OK** to save the setting.

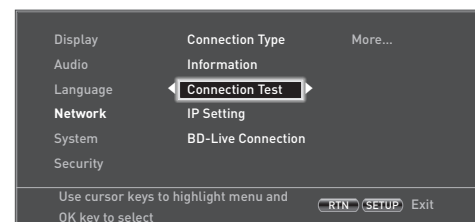
Subnet Mask – Use the cursors to navigate between segments and use the **0** to **9** keys to enter the subnet mask of your network. Press **OK** to save the setting.

Default Gateway – Use the cursors to navigate between segments and use the **0** to **9** keys to enter the Internet gateway address. Press **OK** to save the setting.

DNS1 – Use the cursors to navigate between segments and use the **0** to **9** keys to enter the IP address of your Primary DNS server. Press **OK** to save the setting.

DNS2 – Use the cursors to navigate between segments and use the **0** to **9** keys to enter the IP address of your Secondary DNS server. Press **OK** to save the setting.

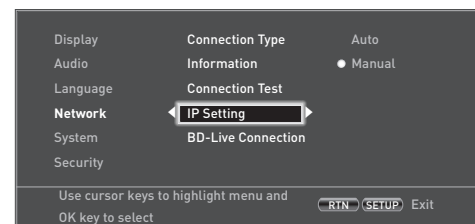
Connection Test – When your player tests your Internet connection, it sends (pings) an IP address.



Press **OK** to run a network test. This will also configure the network settings automatically if they have not been configured and if automatic configuration (DHCP) is supported by the network.

If this test fails, check the connections to your home network. Make sure your network cable is securely attached to your router and the BDP300. Check that your router is connected to your cable or DSL modem correctly. There may be an issue with your router or Internet Service Provider (ISP): contact your ISP for more help.

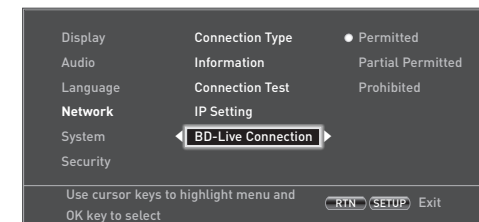
IP Setting – You can set your player to automatically obtain an IP address when it connect to your ISP. Some providers require that you enter a fixed IP address that does not change: this must be entered using the 'Manual' setting.



Highlight 'Auto' or 'Manual', then press **OK**.

If you selected Manual, the Network Information screen opens with the IP Address row highlighted. Press a number button to enter the first digit of the IP address, then press **▶** to move to the next digit. Continue using the number buttons and the **▲** or **▼** keys to enter the rest of the IP address. When you have finished, press **OK**. If you need to remove a number you entered, press **▼**.

BD-Live Connection – To set the BD-Live Internet access level.



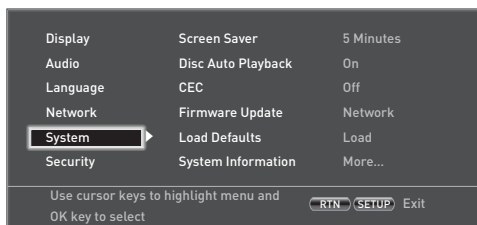
The access levels are:

- **Permitted:** All BD-Live discs are allowed access to BD-Live websites.
- **Partial Permitted:** Allows Internet access to BD-Live content with valid certificates only.
- **Prohibited:** Prohibit all BD-Live discs from accessing BD-Live websites.

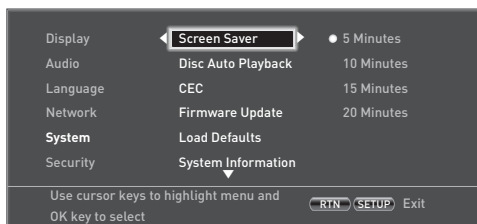
NOTE

- The available on-line functions are disc-dependent.
- Refer to the BD-Live disc instructions for information about accessing on-line content.
- The BDP300 must be connected to the Internet and set up correctly to allow access to on-line content. See page E-9 for network connections and page E-21 for network settings.

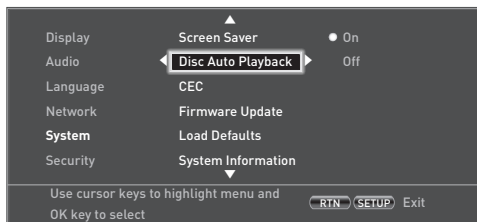
System



Screen Saver –sets the duration of a static image display before the screen saver is shown. The options are: 5/10/15/20 Minutes. Pressing any button on the unit or remote deactivates the screen saver.

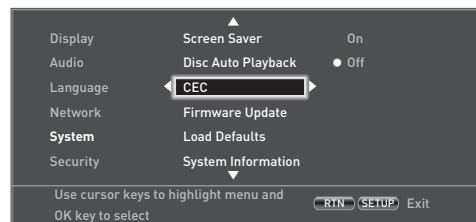


Disc Auto Playback – controls whether an optical disc (e.g. Blu-ray Disc, DVD, CD) will play automatically after it has loaded.



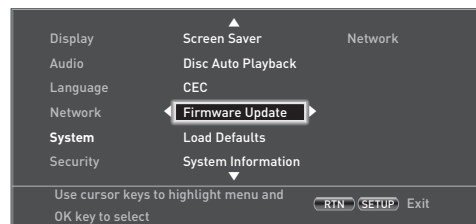
- **On:** Optical discs will play automatically.
- **Off:** PLAY must be pressed to play a disc.

CEC – The Consumer Electronics Control (CEC) option is used to allow all supported devices connected by HDMI to work together as a single system.



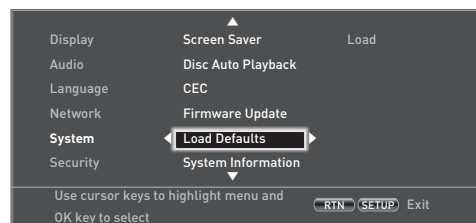
CEC may be turned 'On' or 'Off', to link or unlink the remotes.

Firmware Update – You can check for an upgrade to your player's firmware by selecting this menu item and pressing (OK) to highlight 'Network', then press (OK) again.



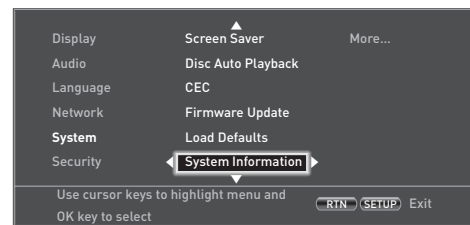
A message appears if no new firmware is available, otherwise follow the on-screen instructions. A message tells you when the upgrade is complete. Press (OK).

Load Defaults – Press (OK) with this item highlighted to reset all settings to factory defaults (including parental controls).



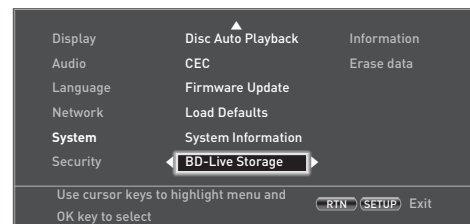
You are asked to confirm that you want to load the default settings. For 'No' press (OK); for 'Yes' press (Left Arrow) then (OK).

System Information – Highlight this option and press (OK) twice to display system information.



The System Information panel shows information about your player, such as the serial number and firmware version.

BD-Live Storage – This last System option allows you to review or delete BD-Live data stored on an external USB drive.



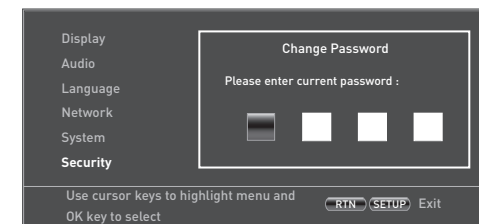
The options are:

- **Information:** Highlight and press (OK) to show file information on the BD-Live data.
- **Erase data:** Highlight and follow the on-screen instruction to erase BD-Live storage data.

Security/Parental Control



Change Password – Sets or changes the 4-digit password. Press the number buttons for the current password (the default PIN is 0000), then press (OK). Enter the new password again, then press (OK).



Parental Control – Parental control settings can be used to prevent the viewing of material inappropriate for children. According to the level set, a disc may be stopped or have certain scenes cut or substituted with alternative scenes, depending on the disc.

To set the parental control level:

1. Select 'Settings' (Right Arrow) 'Parental Control' (Right Arrow)
2. If Parental Control is set to 'On', enter your PIN using the remote control number buttons. The default PIN is 0000.



3. Once the Parental Control menu is accessed, press the (Up Arrow)/ (Down Arrow) cursor buttons on the remote to select from the following items. Press (Right Arrow) to select an item.

Parental Control – Set whether Parental Control is ‘On’ or ‘Off’:

- **Off:** All discs are played back.
- **On:** Disc playback is restricted according to the Parental Level set in the following menu item.

Parental Level – Set the degree of disc restriction. The lower the value, the stricter the limitation.

1	Kid Safe: Suitable for children.
2	G: All children and general audience.
3	PG: Parental guidance suggested.
4	PG-13: Unsuitable for children under 13.
5	PG-R: Parental guidance recommended.
6	R: Restricted; cinemas require children under the age of 17 to have an accompanying adult parent or guardian.
7	NC-17: Cinemas do not admit anyone younger than 17 years old.
8	Adult: Adult rating; discs of any rating (Adult/General/Children) can be played back.

NOTE

- If the parental control level is set and you try to play a disc with a level higher than the current parental level, a password panel opens.
- If an attempt to change the parental control or parental level is made, a password panel opens.

trouble- shooting

If a fault occurs, check this troubleshooting table before taking your unit for repair.

If the fault persists, attempt to solve it by switching the unit off and on again.

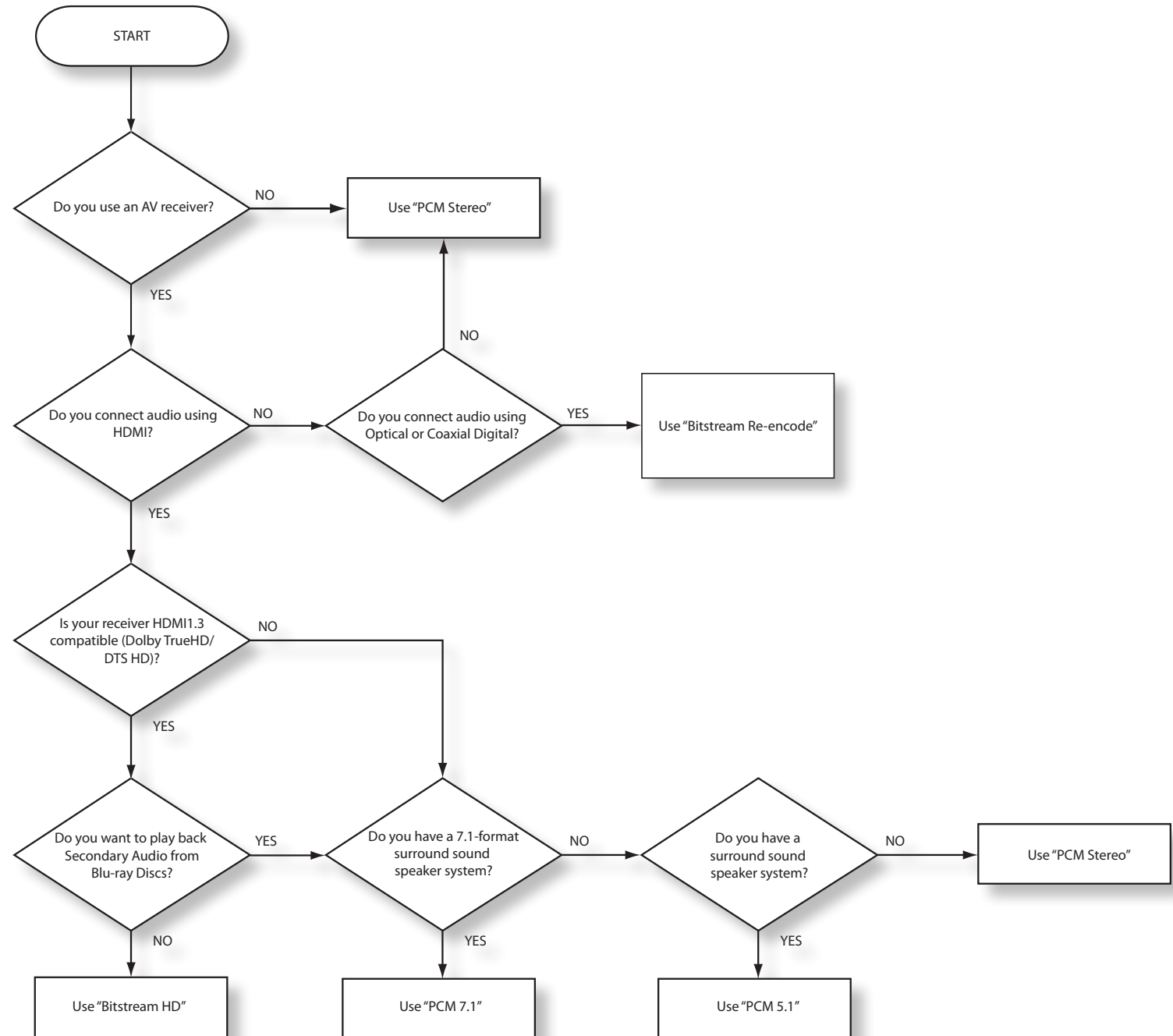
If this fails to resolve the situation, consult your dealer. Under no circumstances should you repair the unit yourself as this will invalidate the guarantee!

Problem	Possible cause	Remedy
No power	<ul style="list-style-type: none"> ■ The AC input cord is disconnected. ■ Poor connection at AC wall outlet or the outlet is inactive. 	<ul style="list-style-type: none"> ■ Connect cord securely. ■ Check the outlet using a lamp or another appliance.
No playback	<ul style="list-style-type: none"> ■ The disc is loaded upside down. ■ The disc is not playable. ■ The disc is dirty. ■ The recorded disc is not correctly finalized. ■ The parental level is not set correctly. ■ The symbol about invalid operation is displayed. 	<ul style="list-style-type: none"> ■ Reload the disc with the printed side up. ■ Use a playable disc. ■ Clean the disc. ■ Load a disc that is correctly finalized. ■ Set the parental level setting correctly: see page E-22. ■ Adjust the setting correctly.
Malfunction	<ul style="list-style-type: none"> ■ The disc is scratched, dirty, poorly recorded or unplayable. 	<ul style="list-style-type: none"> ■ Press the POWER switch to switch the power off, press the POWER switch again and then unload the disc.
No picture	<ul style="list-style-type: none"> ■ The video cords are disconnected. ■ The incorrect selection of input source on the TV. ■ The disc is not playable. 	<ul style="list-style-type: none"> ■ Connect the cords correctly. ■ Select the input source correctly. ■ Use a playable disc.
Noisy or distorted picture	<ul style="list-style-type: none"> ■ The unit is connected to a recording device directly and the copyguard function is activated. ■ The disc is dirty. ■ It is in rapid advance or reverse playback, or in frame advance playback. 	<ul style="list-style-type: none"> ■ Connect the unit so that the picture signal is transferred directly to the TV. ■ Clean the disc. ■ Sometimes a small amount of picture distortion may appear. This is not a malfunction.
Abnormal picture or no picture	<ul style="list-style-type: none"> ■ The resolution is not set correctly for video signals to be output from the COMPONENT and HDMI OUT sockets. ■ The TV does not support HDCP. ■ The TV type of this unit is different from that of your TV or the disc. 	<ul style="list-style-type: none"> ■ Set the resolution correctly: see page E-19. ■ This unit will not transfer the video signals via the HDMI connector to TV that does not support HDCP. This is not a malfunction. ■ Set the TV type correctly: see page E-19.
Slight pause of picture	<ul style="list-style-type: none"> ■ The layer transition occurs during playback of DVD Videos, etc. in dual-layer format. 	<ul style="list-style-type: none"> ■ Sometimes a slight pause may occur. This is not a malfunction.
No sound	<ul style="list-style-type: none"> ■ The audio cords are disconnected. ■ The speakers are disconnected to the amplifier. ■ The incorrect selection of input source on the amplifier. 	<ul style="list-style-type: none"> ■ Connect the cords correctly. ■ Connect the speakers correctly. ■ Select the input source correctly.
Noisy or distorted sound	<ul style="list-style-type: none"> ■ The disc is dirty. ■ Poor connections. 	<ul style="list-style-type: none"> ■ Clean the disc. ■ Check the connections and connect all cords securely.
BD-LIVE contents cannot be loaded	<ul style="list-style-type: none"> ■ Poor connections between this unit and broadband router and/or modem. ■ The USB memory device is disconnected. ■ The BD-Live Internet Access is set to 'Prohibit Access'. ■ The BD disc does not support BD-LIVE. ■ The network settings are not set correctly. 	<ul style="list-style-type: none"> ■ Check the connections and connect all cords securely. ■ Connect the USB memory device to this unit. ■ Set it to 'Always Allow Access': see page E-21. ■ Load a disc that supports BD-LIVE. ■ Set the network settings correctly: see page E-21.
Remote control unit does not operate.	<ul style="list-style-type: none"> ■ Batteries are not loaded or exhausted. ■ The remote sensor is obstructed. 	<ul style="list-style-type: none"> ■ Replace the batteries. ■ Remove the obstacle.

audio & video output formats

Audio output format

The audio output format available from the digital audio outputs depends on the soundtrack format being played, the audio output in use and the **Digital Output** setting in the **Audio** settings menu: see 'Audio' on page E-20. Use the flowchart on this page to guide you to the correct setting for your home cinema setup.



customising the CR104

Code learning

The CR104 comes with a complete library of preprogrammed codes. After you have set up the CR104 for your device, you may find that there are one or more functions on your original remote which do not have a place on the CR104 keypad. For convenience, the CR104 offers a Code Learning feature that allows you to copy up to 16 functions from an original remote control onto the CR104 keypad.







Before you start, make sure that:

- The original remote control is working correctly.
- The remotes are not pointing at your device.
- The remotes have new batteries.
- The remotes are not in direct sunlight or under strong fluorescent lights.

NOTE

Learned functions are mode-dependent: You could theoretically assign up to eight different functions to a single key (the CR104 can handle a total of 16 learned functions).

Example: To copy the 'text hold' function from a TV remote onto the **▶▶** key of your CR104

1. Place both remotes on a flat surface, 2 to 5cm apart, with the IR ports facing each other.
2. On the CR104, press and hold **SHIFT** until the power LED blinks twice:  .
3. Press **9** **7** **5**. The power LED blinks twice:  .
4. On the CR104, press the device key that matches the 'source' device (e.g. if you're learning a TV function, press **AV**).
5. On the CR104, press the key to which you want to assign the learned function (e.g. **▶▶**). The device key blinks rapidly.
6. On the original remote, press and hold the function key that you want to learn (e.g. **TEXT HOLD**) until the CR104 device key blinks twice:  .
7. If you want to learn other functions from the same source device, simply repeat steps 5 and 6 pressing the next key you want to learn.
8. To exit Code Learning mode, press and hold **SHIFT**

until the device key blinks twice:  .

9. To use the learned function on the CR104, press the Device Mode key, followed by the function key.

In this example, you'd press **AV** followed by **▶▶**

Shifted Learning

You can assign a learned function to a CR104 key without sacrificing its original function.







You can assign Shifted Learning functions to any key **except** for: Device Mode keys (e.g. **AV**), **SHIFT**, or number keys (**0** to **9**).

1. To assign a Shifted Learning function, simply follow Code Learning steps in the previous section. During step 5, press **SHIFT** once before you press the key to which you want to assign the learned function.
2. To access the shifted function, press **SHIFT** and then the target key.

Important notes

- Once you start a Code Learning session, you have approximately 10 seconds to conduct each step. Any longer, and a timeout means that you'll have to start the process again.
- The Learning feature is mode-specific – you can copy one feature *per mode* onto a key.
- The CR104 can learn approximately 16 functions in total.
- To replace a learned function, simply assign a new one to the same key.
- Learned functions *are* retained when you change batteries.
- If Code Learning fails, try altering the distance between the two remotes; make sure that the light in the area is not too bright.

To delete a learned function





1. Press and hold **SHIFT** until the power LED blinks twice:  .
2. Press **9** **7** **6**. The power LED blinks twice:  .
3. Press a Device Mode key once. For example, if you want to delete one of your learned TV functions, press **AV**.
4. Press twice on the key you want to deassign. The handset blinks twice:   to confirm.

The original function of the CR104 is restored.

To delete a Shifted Learned function:

To delete a Shifted Learned function, press **SHIFT** before you press the key to be deassigned (during step 4 above).

To delete ALL learned functions within a given Device Mode

1. Press and hold **SHIFT** until the power LED blinks twice:  .
2. Press **9** **7** **6** – the power LED blinks twice:  .
3. Press the appropriate Device Mode key twice.

Creating Macros

You can program your CR104 to issue a sequence of commands when you press a single key. Any sequence of commands you regularly use can be reduced to a single key press for your convenience.

For example, you might want to turn off your TV, VCR and Satellite at the same time.

- A key programmed with a Macro is available in all modes; it will replace that key's different functions for all modes.
- A Macro can consist of up to eight key presses.

Example: To assign a Macro to the **SRCH** key

1. Press and hold **SHIFT** until the power LED blinks twice: ✨ ✨.
2. Press **9 9 5**.
3. Press **SRCH** (the Macro will be assigned to this key).
4. Press a, **TV**, **VCR**, **SAT**, **TV**. (These are the Macro steps you wish to record.)
5. To store the Macro, press and hold **SHIFT** until the power LED blinks twice: ✨ ✨.

Now, whenever you press **SRCH**, the CR104 will toggle the power to your TV, VCR and Satellite.

- The important word here is 'toggle'. For example, if the TV and Satellite devices are currently on, but the VCR is off, pressing **SRCH** will switch off the TV and Satellite and switch on the VCR (rather than switching all three devices on or off).
- When using Macros, remember that you may need to change mode or use **SHIFT**, and that each key press (including changing modes and pressing **SHIFT**) counts as one of the Macro steps. You cannot use a Macro key within another Macro.
- If the amount of memory storage for a particular Macro is exceeded, the power LED comes on for five seconds. You can, however, save the macro steps up to that point by pressing **SHIFT**, or you can cancel the Macro recording by pressing any other key.
- The delay between key presses is recorded as part of the Macro. A delay of up to 30 seconds is permitted.

Example: To deassign the Macro associated with the **SRCH** key

1. Press and hold **SHIFT** until the power LED blinks twice: ✨ ✨.
2. Press **9 9 5**.
3. Press **SRCH**.
4. Press and hold **SHIFT** until the power LED blinks twice: ✨ ✨.

Volume punch-through

Volume punch-through means that, no matter which Device Mode is selected, the CR104 controls the AVR500, AVR600 or AV888 volume. You don't need to press **AMP** on your CR104; this feature is switched on by default.

There are times, however, when you might want to control a device's volume directly when in a specific Device Mode.

Example: To cancel volume punch-through for a TV (AV mode)

1. Press **AV** once.
2. Press and hold **SHIFT** until the power LED blinks twice: ✨ ✨.
3. Press **9 9 3**.
4. Press **-**. The power LED blinks four times.

Now, while in TV (AV) mode, you will be able to control the volume or mute functions of your TV directly.

To completely cancel all volume punch-through settings

1. Press and hold **SHIFT** until the power LED blinks twice: ✨ ✨.
2. Press **9 9 3**.
3. Press **+**. The power LED blinks four times ✨ ✨ ✨ ✨.

Now, whichever mode you're in, you will have direct access to that device's volume or mute functions, assuming they are available. You would need to switch to **AMP** mode to alter the AVR500/AVR600/AV888 volume.

Example: To restore default volume punch-through settings to all Device Modes

1. Press and hold **SHIFT** until the power LED blinks twice: ✨ ✨.
2. Press **9 9 3**.
3. Press **AMP**. The power key LED blinks twice: ✨ ✨.

Key mover

Sometimes you might find that a key you use a lot for your system is in the 'wrong' place on the CR104 keypad for your comfort. It's quite easy to reassign a favourite function to a more accessible key. It is even possible to move a function from one Device Mode to another Device Mode.

Example: To assign the **DISP** function to the **MENU** key in SAT mode

1. Press **SAT**.
2. Press and hold **SHIFT** until the power LED blinks twice: ✨ ✨.
3. Press **9 9 4**.
4. Press the key you want to move (e.g. **DISP**).
5. Press the key you want to move the key to (e.g. **MENU**).

Now, pressing either **DISP** or **MENU** while in SAT Device Mode makes the CR104 transmit the **DISP** function.

To completely swap over the functionality of the two keys to put the **MENU** functionality on the **DISP** key, repeat the above process again, but swap over the **DISP** and **MENU** key presses in the example.

Note that the function that is copied over to the new key is always the original function of the old key.

Restore a moved key


To restore a key to its previous function, repeat the example above, pressing the key to be restored twice (copy it back to itself).











Restore all moved keys for a Device Mode


To restore all keys in a Device Mode to their original functional positions, repeat the example above, but press the relevant Device Mode key (e.g. **AMP**) at points 1, 4 and 5 in the example.

Copy a key between Device Modes

It is possible to copy functions between Device Modes. However, remember that button functions are Device Mode specific and therefore effectively ‘punch-through’ to the original Device Mode when copied over.

The following example copies the AVR500/AVR600/AV888 **DIRECT** function from the CR104 **AMP** device mode to the shifted function of the  button on **AV** Device Mode.

1. Press and hold  until the power LED blinks twice: .
2. Press   .
3. Press the Device Mode key of the function you want to move (e.g. .
4. Press the function key you want to move (e.g. / **DIRECT**).
5. Press the key of the Device Mode you want to copy the function to (e.g. .
6. Press the  button graphic.
7. Press the key you want to copy the function to (e.g. .

If you prefer to copy the key to the main function of the  button instead of the ‘shifted’ function, omit point 6 in the above example.








Mode mover




If your home entertainment setup contains devices of the same type (e.g. two TVs, perhaps from different manufacturers) you can still control both those devices with the CR104. You simply need to reassign an *unused* Device Mode key.

NOTE






Before using Mode Mover, make sure both the source and destination Device Mode keys are unlocked (see next section).

Example: To use the key to control a second TV

1. Press and hold  until the power LED blinks twice: .
2. Press   .
3. Press the Device Mode key for the type of device you want to control (e.g. for a TV, press .
4. Press the Device Mode key you want to use (e.g. .
5. Don't forget to set up the CR104 to control the second device, using one of the methods from ‘Controlling other devices’ on page E-14.

Note that volume punch-through is not applied to a Device Mode that has been copied using Mode Mover. However, volume punch-through functionality can be restored when you have used Mode Mover, by copying ,  and  from the **AMP** Device Mode to the same physical buttons on the new moved Device Mode using the last example shown in Key Mover.

To restore a moved Device Mode key to its original state

1. Press and hold  until the power LED blinks twice: .
2. Press   .
3. Press the Device Mode key you want to restore *twice*.

Locking/unlocking a specific Device Mode

When you first unpack your CR104 and insert the batteries, for your convenience it is able to control certain Arcam components automatically (e.g. DVD players, Amplifiers, Tuners and CD Players). We achieve this by preprogramming specific Arcam device codes onto the relevant Device Mode keys, then locking the Device Modes so you don't reprogram them inadvertently.

If you want to override these locked default settings – to control a third-party CD player, for example – you will first need to unlock CD Mode before setting up the CR104 using one of the methods described at the start of this guide.

Here are the factory default settings:

Device Mode	Default status	Default Arcam codes
BD	Locked	0762
SAT	Unlocked	1205
AV	Unlocked	0586
TUN	Locked	2009
AMP	Locked	1242
PVR	Unlocked	1930
VCR	Unlocked	0111
CD	Locked	2010

Alternative codes are available for multi-room solutions, or in the case of code clashes with other manufacturer's products.

For example:







AMP (system code 19) 1954

You will need to change the system code on the product you wish to control, as well as the CR104.

NOTE

The **AMP** Device Mode can only be used to control Arcam amplifiers like the AVR500, AVR600 and AV888, either on its default or alternative IR system codes.

To toggle a Device Mode lock setting:

1. Press the Device Mode key you want to unlock (e.g. .
2. Press and hold  until the power LED blinks twice: .
3. Press   .
- The power LED blinks twice when being locked, and blinks four times when being unlocked.
- If you enter an invalid key sequence, the power LED gives one long blink and returns to normal operation.

While the Device Mode key is locked, the Direct Code Setup and Move Mode functions are not available.

Mode key IR punch-through

The Mode key IR punch-through default is 'on'.

Example: To set the Mode key IR punch-through to AMP

1. Press and hold **(SHIFT)** until the power LED blinks twice: ✨ ✨.
2. Press **(9) (7) (1)**. The power LED blinks twice: ✨ ✨.
3. Press **(AMP)** to punch through IR from it.

Now, whenever you press and release a Mode key, the IR data assigned to **AMP** is transmitted, no matter what the current mode is (i.e. it 'punches through' any other device).

To cancel Mode key IR punch-through

1. Press and hold **(SHIFT)** until the power LED blinks twice: ✨ ✨.
2. Press **(9) (7) (1)**. The power LED blinks twice: ✨ ✨.
3. Press **(SHIFT)** until the power LED blinks twice: ✨ ✨.

Resetting the CR104

Resetting the CR104 will erase all learned functions across all modes, as well as some other programmed functions like Macros. It will not reset the Device Mode keys; these will remain programmed to your choice of component.

1. Press and hold **(SHIFT)** until the power LED blinks twice: ✨ ✨.
2. Press **(9) (8) (0)**. The power LED blinks four times: ✨ ✨ ✨ ✨.
3. Press and hold **(SHIFT)** until the power LED blinks twice: ✨ ✨.
4. Press **(9) (9) (3)**.
5. Press **(AMP)**. The power key LED blinks twice: ✨ ✨.
6. Press and hold **(SHIFT)** until the power LED blinks twice: ✨ ✨.
7. Press **(9) (7) (1)**. The power LED blinks twice: ✨ ✨.
8. Press **(AMP)**. The power key LED blinks twice: ✨ ✨.

Command summary

Direct code setup

(e.g. AV mode, NNNN=code number)

(AV) (SHIFT) ✨ ✨ NNNN ✨ ✨ (POWER)

Library search

(e.g. AV mode)

(AV) (SHIFT) (9) (9) (1) ✨ ✨ (POWER) (NEXT) until unit turns off **(SHIFT)** to save

Code blink back

(AV) (SHIFT) (9) (9) (0) ✨ ✨

- ① count blinks for first *N*
- ② count blinks for second *N*
- ③ count blinks for third *N*
- ④ count blinks for fourth *N*

Code learning

(e.g. AV mode fast forward key)

(SHIFT) ✨ ✨ (9) (7) (5) ✨ ✨ (AV) (FF) ✨ ✨ (many rapid blinks)

(Press key on original remote that you wish to copy)

✨ ✨ (SHIFT) ✨ ✨

Delete a learned function

(e.g. AV mode fast forward key)

(SHIFT) ✨ ✨ (9) (7) (5) ✨ ✨ (AV) (FF) (FF) ✨ ✨

Delete all learned functions with a device

(e.g. AV mode)

(SHIFT) ✨ ✨ (9) (7) (5) (AV) (AV)

Creating macros

(e.g. SRCH key)

(SHIFT) ✨ ✨ (9) (9) (5) (SRCH) (AV) (POWER) (VCR) (POWER) (SAT) (POWER) (SHIFT) ✨ ✨

Deassign macro

(SHIFT) ✨ ✨ (9) (9) (5) (SRCH) (SHIFT) ✨ ✨

Key mover

(e.g. SAT mode, DISP key to MENU key)

(SAT) (SHIFT) ✨ ✨ (9) (9) (4) (DISP) (MENU)

Mode mover

(e.g. change SAT to TV(AV))

(SHIFT) ✨ ✨ (9) (9) (2) (AV) (SAT)

Restore device mode

(e.g. restore SAT)

(SHIFT) ✨ ✨ (9) (9) (2) (SAT) (SAT)

Locking/unlocking a mode

(e.g. CD mode)

(CD) (SHIFT) ✨ ✨ (9) (8) (2) ✨ ✨

(i.e. two blinks for lock)

(CD) (SHIFT) ✨ ✨ (9) (8) (2) ✨ ✨ ✨ ✨

(i.e. four blinks for unlock)

Cancel all volume punch-through

(SHIFT) ✨ ✨ (9) (9) (3) (+) ✨ ✨ ✨ ✨

Restore volume punch-through

(SHIFT) ✨ ✨ (9) (9) (3) (AMP) ✨ ✨

Mode key IR punch-through

(SHIFT) ✨ ✨ (9) (7) (1) ✨ ✨ (AMP)

Cancel mode key IR punch-through

(SHIFT) ✨ ✨ (9) (7) (1) ✨ ✨ (SHIFT) ✨ ✨

NOTE

As elsewhere in this Handbook, a single 'blink' of the red LED behind the power button is indicated by the symbol ✨.

specifications

Analogue Audio Output	
Digital to Analogue conversion	24-bit 192kHz Delta-Sigma DAC
Signal to noise ratio	110dB CCIR
Harmonic distortion (1kHz)	0.002%
Frequency response (± 0.5 dB)	10Hz–20kHz
Output level (0dB)	2.2Vrms
Output impedance	47 Ω
Minimum recommended load	5k Ω
Video Outputs	
Composite video	1 x phono. 1V pk-pk in 75 Ω
Component video	Interlaced or Progressive 3 phono sockets. Y 1V pk-pk in 75 Ω , Pb 0.7V pk-pk in 75 Ω , Pr 0.7V pk-pk in 75 Ω
HDMI	19-pin HDMI connector Supported video formats are: 720 x 576p, 720(1440) x 576i, 720 x 480p, 720(1440) x 480i, 1280 x 720p, 1920 x 1080i, 1920 x 1080p Audio to 8-channel/96kHz or 2-channel/192kHz (24-bit).
Digital interfaces	
USB	USB 2.0 High Speed (480 Mbit/s)
Network	10 BASE-T / 100 BASE-TX
Physical	
Dimensions	W433 x D400 x H100mm
Weight	6.2kg nett/8.5kg packed
Power consumption	17W maximum
Digital output connection	75 Ω co-axial optical TOSLINK
Supplied accessories	
	Mains lead CR104 remote control 4 x AAA batteries
E&OE	
NOTE: All specification values are typical unless otherwise stated	

Radio interference

The BDP300 Blu-ray Disc player is a digital device which has been designed to very high standards of electromagnetic compatibility.

All Blu-ray players generate, and can radiate RF (radio frequency) energy. In some cases this can cause interference with FM and AM radio reception. If this is the case, keep the player and its connecting cables as far from the tuner and its aerials as possible. Connecting the player and the tuner to different mains sockets can also help to reduce interference.

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**CLASS II
LASER PRODUCT**

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product guarantee

Worldwide Guarantee

This entitles you to have the unit repaired free of charge, during the first two years after purchase, provided that it was originally purchased from an authorised Arcam dealer. The Arcam dealer is responsible for all after-sales service. The manufacturer can take no responsibility for defects arising from accident, misuse, abuse, wear and tear, neglect or through unauthorised adjustment and/or repair, neither can they accept responsibility for damage or loss occurring during transit to or from the person claiming under the guarantee.

The warranty covers:

Parts and labour costs for two years from the purchase date. After two years you must pay for both parts and labour costs. **The warranty does not cover transportation costs at any time.**

Claims under guarantee

This equipment should be packed in the original packing and returned to the dealer **from whom it was purchased**. It should be sent carriage prepaid by a reputable carrier – **not** by post. No responsibility can be accepted for the unit whilst in transit to the dealer or distributor and customers are therefore advised to insure the unit against loss or damage whilst in transit.

For further details contact Arcam at:
Arcam Customer Support Department,
Pembroke Avenue, Waterbeach, CAMBRIDGE, CB25 9QR, England
or via www.arcam.co.uk.

Problems?

If your Arcam dealer is unable to answer any query regarding this or any other Arcam product please contact Arcam Customer Support at the above address and we will do our best to help you.

On-line registration

You can register your product on-line at www.arcam.co.uk.

Correct disposal of this product



This marking indicates that this product should not be disposed with other household waste throughout the EU.

To prevent possible harm to the environment or human health from uncontrolled waste disposal and to conserve material resources, this product should be recycled responsibly.

To dispose of your product, please use your local return and collection systems or contact the retailer where the product was purchased.

device code tables

tableaux des codes d'unité source

code-tabelle für fremdgeräte

tabellen apparaatcodes

tablas de códigos de dispositivos

таблицы кодов устройств

TV	
888	0294
A.R. Systems	0067 0382 0586 0404 0485
Accent	0039 0067 0586
Accusound	0890
Acoustic Research	1299
Acoustic Solutions	1179 1067
Acura	0039
Adcom	0655
Addison	0683 0138
ADL	1247 0920
Admiral	0123 0193 0448 0294
Advent	0906
Adyson	0247 0246
AEA	0067 0586
AEG	0636 1067 1179 1193
Aftron	0921
Agashi	0294 0246 0247
Aiko	0039 0067 0586 0246 0065 0463 0910 0294 0247
Aim	0067 0586 0783 0238 0736 0728 0664 0404 0485 0636 0529
Aiwa	1535
Akai	0039 0238 0586 0067 0463 0065 0783 0193 0759 0744 0736 0728 0745 0632 0578 0510 0247 0294 0661 0246 0208 0407 0636 1067 0503 1289 1278
Akashi	0890 0039
Akiba	0485 0067 0586
Akira	0448 0783 0067
Akito	0067 0586
Akura	0067 0294 0586 0698 0039 0744 1393
Alaron	0246
Alba	0039 0067 1067 0586 0744 0448 0400 0698 0246 0193 0517 0473
Alkos	0065
Allorgan	0247
Allstar	0067 0586
All-Tel	0895 1299
Amplivision	0247 0400
Amstrad	0039 0067 0294 0463 0586 1067 0680
Anam	0067 0586 0039 0680
Anam National	0067 0586 0680
Andersson	1193 1179
Anglo	0039 0294
Anitech	0039 0294 0067 0586
Ansonic	0400 0067 0586 0039 0698 0404 0193
AOC	0655 0039 0090 0123 0138 0208
Aolinpike	0294
Apex Digital	1247
Apollo	0503
Arc en Ciel	0139

Arcam	0246 0247
Arçelik	0744
Ardem	0744 0516 0663 0067 0586
Arena	0067
Aristona	0586 0067
Arthur Martin	0193
ASA	0135 0376 0100 0193
Asberg	0067 0586
Asora	0039
Astra	0067 0586
Asuka	0247 0246 0294
ATD	0728
Atlantic	0067 0586 0246
Atori	0039
Auchan	0193
Audiosonic	0039 0067 0404 0850 0586 0139 0744 0745 0247 0400 0294 0516
Audioton	0247 0516 0400 0294
Audioworld	0728
Aumark	0090
Autovox	0247
AWA	0039 0404 0067 0586 0246 0636 0247 0138 0294 1406 0208 0728
Axxent	0039
Axxon	0744
B&D	1247
Baier	0906
Baihe	0039 0294
Baile	0039 0404 0691
Baird	0373 0139 0247 0238 1226 0636
Bang & Olufsen	0595
BaoHuaShi	0294
Baosheng	0039
Barco	0193
Base	0810
Basic Line	0039 0404 1179 0067 0193 0698 0586 0247 0485 1067
Bastide	0247
Bauer	0039 0728 0736 0294
Baur	0039 0067 0542 0225 0586 1535
Bazin	0247
Beaumarck	0208
Beijing	0039 0238 0256 0294 0404 0512 0691
Beko	0400 0744 0516 0065 0745 0067 0448 0586 0636 0838
Belson	0728 1221
Bennett	0586 0067
Beon	0067 0586 0448
Berthen	0698 0586
Best	0400
Bestar	0067 0586 0400 0404
Bestar-Daewoo	0404
Binatone	0247
Black Diamond	0850 1067 0586 1193 0783 0617
Black Strip	0065

Blaupunkt	0225 0230 0357 0485 0200
Blauren	0404
Blue Sky	0067 1067 0586 0698 0744 1179 0517 0745 0655 1939 0485 1221 0838 1393
Boots	0247 0039
Bork	1393
Bosch	0357
BPL	0067 0586 0926
Brandt	0139 0655 0365 0373 0590
Brandt Electronique	0365
Brinkmann	0067 0586 0698 0448 0516
Briovega	0067 0586
Britannia	0246 0247
Brother	0294
Bruns	0516
BSR	0193
Bush	0039 1067 0067 0744 0698 0404 0193 0728 0294 0517 0238 0247 0586 0808 1289 1278 0617
Caihong	0039
Caishi	0921
Cameron	0586
Camper	0067 0586 0516
Capsonic	0294
Carad	0640 0067 0586 0698 1067
Carena	0485 0067 0586
Carrefour	0100 0067 0586
Carver	0200
Cascade	0039 0067 0586
Casio	0067 0586 0193
Cathay	0067 0586
CCE	0067 0247 0586
Celestial	0850
Centrex	0810 0921 0728
Centrum	1067
Centurion	0067 0586
CGE	0104 0448 0400 0193
Changcheng	0039 0294 0404 0691
Changfei	0039 0404
Changfeng	0294 0783
Changhai	0039
Changhong	0850 0039 0294 0538
Chengdu	0039
Chimei	1535
Ching Tai	0039
Chun Yun	0039
Chunfeng	0039 0294
Chung Hsin	0138
Chunsun	0039
Cimline	0039
Citizen	0090
City	0039
Clarivox	0067 0448 0586 0100
Clatronic	0067 0400 0744 0294 0586 0247 0039 0636 1193
Clayton	1067
CMS	0246
CMS hightec	0247

Cobolt	0921
Concorde	0039
Condor	0067 0400 0586 0246 0039 0448 0193 0294
Conia	0784 0850
Conrac	0838
Conrad	0067 0586
Conrowa	0039 0294 0728 0783 1200
Contec	0039 0246 0294 0067 0586
Continental Edison	0139 0517
Cosmel	0039 0067 0586
CPTEC	0655 1393
Crosley	0104 0193
Crown	0039 0742 0067 0400 0516 0586 0448 0517 0744 0636 0745 0238 0683 1067 0698
CS Electronics	0246
Curtis Mathes	0090 0123
Cytronix	1328
D.Boss	0067
Daewoo	0664 0691 0529 0404 1939 0067 0586 0039 0246 0247 1167 0208 0200 0910 0138 0906 0895 0728 0744 0736 0808
Dainichi	0246
Dansai	0067 0586 0294 0065 0246 0039 0247 0238
Dantax	0400 0516 0744 1067 0636 0745
Datsura	0238
Dawa	0039 0067 0586
Daytek	0728 0736 1406 0294
Dayton	0039
Daytron	0039 0404 0067 0586
Dayu	0404 0691
de Graaf	0238 0578 0193
DEC	0890 0921 0926
Decca	0067 0586 0247 1167
Deitron	0067 0586 0404
Denko	0294
Denver	0067 0586 0636 1219 0617
Desmet	0067 0586 0039
Diamant	0067 0586
Diamond	0294 0728 0039 0855 0246 0890 0850 0926 0736
DiBoss	0067 0586
Digatron	0067 0586
Digihome	1179
Digiline	0067 0586 0135 0698
DigiLogic	0067 0586
Digimate	0920
Digitex	0850
Digitor	0067 0586
DigiX	0910
DiK	0067 0586
Dixi	0039 0067 0586 0247
DL	0921 0810 0067 0617 0895 1393

Domeos	0698 0067 1067
Domland	0424
Dongda	0039
Donghai	0039
Dream Vision	1734
DSE	0850 0728
DTS	0039
Dual	0247 0373 0067 0586 0382 0424 0193 1167 0661 1179 1067 0808 1193
Dual Tec	0247
Dumont	0100 0247
Dunai	0193
Durabrand	0067 0208 0586 1067
Dux	0067 0586
D-Vision	0067 0586
DXV	0921
Dynatech	0247
Dynatron	0067 0586
e:max	0636
Easy Living	1278 1289 1247 0907
Ecco	0803 0736 0728
ECE	0067 0586
Edison-Minerva	0517
Elbe	0640 0400 0193 0067 0586 0247
Elcit	0193
Electrograph	1785
Elekta	0039 0067 0586 0294
Elfunk	1238 1067
ELG	0067 0586
Elin	0067 0246 0578 0586 0135 0193 0039
Elite	0067 0586
Elta	0039 0294 0246
Emerson	0208 0744 0067 0586 0100 1939 0516 0400 0193 0698
Enzer	0783 0803 0890
Erae	1401 1221
Erres	0067 0586
ESC	0067 0586 0247
Estèle	0193
Ether	0039
Etron	0039 0067 0586 0850 0193
Eurofeel	0294 0247
EuroLine	0067
Euroman	0246 0294 0067 0586 0247 0400
Europa	0067 0586
Europhon	0067 0193 0247
Evesham	1278 1289
Excel	0067 0586
Excello	1067
Expert	0193
Exquisit	0067 0586
Fagor	0067 0586
FairTec	1221
Family Life	0067 0586
Feilang	0039
Feilu	0039
Feiyan	0294
Feiyue	0039
Fenner	0404 0039

Ferguson	0067 0139 0655 0365 0373 0590 0586 0065 0683 0138 0578 0473 1067	G-Hanz	1393	Highline	0294 0067 0586	Interbuy	0039 0067 0294 0542 0586	Kneissel	0067 0400 0640 0404 0529 0586	Magnafon	0246	Mitsubishi	0138 0123 0542 0208 0067 0586 0238 1067 1423		
Fidelity	0193 0246 0542 0067 0586 0294	Giant	0247 0039	Hinari	0039 0238 0067 0586 0193 0473 0517 0294	Interfunk	0067 0193 0586 0542 0357 0400 0139 0230	Kobra	1328	Magnavox	0067 0586 0736 0810 0783	Mitsuri General	0193		
Filsai	0247	Go Video	0090	Hisawa	0485 0640 0744	Internal	0067 0586 0529 0404 1939	Kolin	0138	Magnum	0744 0067 0586 0745 1319	Mivar	0246 0639 0400 0247		
Finlandia	0238 0376 0578 0193 0373	Goldfunk	0698	Hisense	1393 0238 0039 0538 0783 0728 0921 0890 0810 1200 1238 0586	International	0246	Kolster	0067 0586	Mandor	0294	Monaco	0039		
Finlux	0067 0135 0100 0586 0744 0376 0247 0193 0745 0661 0522 0510 0503 0448 0636 0838 1278	Goldhand	0246	Hitachi	1606 0039 0511 0608 0138 0774 1067 1511 0139 0193 1255 0664 0208 0503 0247 0373 0538 1193 0578 0529 1179 1200 0510 0067 0586 1167 0135 0522 0907	Intervision	0067 0247 0485 0294 0407 0516 0400 0424 0517 0193 0039 0586	Kongque	0039 0294	Manesth	0067 0247 0586 0294 0065 0193	Manhattan	0067 0906 0586 0698 1067 0193 0808	Moree	0067
Firstar	0039	GoldStar	0067 0039 0208 0400 0407 0247 0586 0246 0193 0745 0485	Hitachi Fujian	0138 0067 0586 0890 0529	Irradio	1406	Konkachi	0039	Mark	0067 0586 0247 0246 0404 0039 0744 0745	Morgan's	0067 0586		
Firstline	0039 0067 0586 0246 0247 0404 0698 0744 0193 1939 0238 1067 1221 0838 1393 1193 1401	Gooding	0517	Hitsu	0039 0640 0485	IRT	0728	Kontakt	0067 0586 0744 0448 0617 0784 0636	Mascom	0586 0067	Motorola	0123		
Fisher	0247 0238 0400 0193	Goodmans	0664 0745 1289 1067 1278 0067 0529 0586 0247 0744 0698 0373 1939 0404 1193 0294 0039 0517 0065 0510 0590 0365 0691 0910 0617 1406 1179	GP	0783	Höhler	0744 0895 1193	Isukai	0067 0586 0485	Master's	0529 0067	MTC	0090 0400 0542 0193 0246		
Flint	0067 0485 0586 0640 0294	Gradiente	0683 0200 0067 0586	Hongmei	0039 0123 0294	ITC	0247	Kreisen	0906	Masuda	0039 0294 0067 0247 0586	MTlogic	0744		
Force	1179	Graetz	0744 0193 0067 0586 1193	Hongyan	0294	ITS	0067 0294 0246 0039 0586	KTV	0247	Matsui	0039 0067 1193 0586 0517 0065 0473 0238 0247 0463 0485 0193 0225 0365 0744 1067 0910	Mudan	0039 0238 0256 0294		
Formenti	0067 0193 0586 0516 0246	Granada	0067 0586 0238 0256 0247 0138 0503 0365 0590 0193 0373 0578	Hornlyphon	0067 0586	ITT	0193 0510 0578 0503 0376 0238 0640	Kuaile	0039 0294	Matsushita	0680	Multitec	0067 0586 0516 0698 1067		
Formenti-Phoenix	0246	Grandin	0067 0586 0039 0193 0640 0744 0745 0698 0404 0485 1067 0895 1221 0910	Hoshi	0485	ITT Nokia	0578 0193 0503 0510 0376 0238 0636 0640 0661	Kuba	0193	Maxam	0294	Multitech	0247 0067 0400 0586 0294		
Fortress	0123	Gronic	0247 0193	Hua' Tun	0039	ITV	0067 0294 0586 0404	Kuba Electronic	0193	Maxdorf	0803 0728 0736 0294	Murphy	0246 0193		
Fraba	0067 0586 0400	Grundig	0225 0538 1401 1221 0067 0100 0473 0517 0586 0617 0736 1067 0039 0400 0208 1406 0373 1289	Huafa	0039	JEC	0065	Kulun	0039	MCE	0039	Musikland	0067 0586		
Friac	0039 0067 0586 0400 0529 0640	H&B	0838	Huanghai	0039	Jialicai	0039 0294	Kunlun	0238 0256 0294 0404 0691	Legend	0039	MyCom	1406 0208		
Frontech	0193 0294 0247 0039	Haaz	0736	Huanglong	0039	Jinfeng	0238 0256	Kyosho	0448 0294	Medion	0067 0586	Myryad	0586 0067		
Fuchsware	0810	Haier	0728 0294 0067 0538 0617 0926	Huangshan	0039 0294	Jinque	0039 0294	Kyoto	0193 0246 0247	Medio	0698 0744 0838 1067 0067 0586 0542 1167 0728 1278 1289 0661 0910 1319 1179	NAD	0208 0895 0193		
Fujimaro	0895	Haihong	0039	Huanqiang	0294	Jinta	0039 0294	L&S Electronic	0895 0744	MegaDrive	1289	Naiko	0067 0636 0586		
Fujitsu	0713 0883 0247 0193 0039 0382 0067 0586	Haiyan	0294	Huari	0294	Jinxiang	0039 0294 0728 0067 0586	LaSAT	0516 0400	Megas	0640	Nakamura	0404 0067 0586		
Fujitsu General	0039 0247 0193	Halifax	0294 0246 0247	Hugoson	0920 1247	JMB	0067 0529 0664 0404 0586 0473	Lavis	1067 0067 0193	Maxatron	0208	Nanbao	0039 0294		
Fujitsu Siemens	1328 1289 1278 1193 0838	Hallmark	0208	HYD	1406	JNC	0906 0926	Leader	0039	Mediator	0067 0586	Nansheng	0294		
Funai	0294 1067 0698 1535 0744	Hammerstein	0294 0090	Hygashi	0247 0246	Jocel	0742	Lecson	0067 0586	Memorex	0039 0667 0193 0404 0586 0617 1067	Naonis	0193		
Furi	0294	Hampton	0246 0247	Hyper	0039 0246 0247	JTV	0890	Legend	0039	Memorex	0039 1067 0208 0680 0090	NAT	0256		
Furichi	0890	Hankook	0208	Hypson	0067 0294 0586 0744 0745 0247 0485 1067 0698 0516	Jubilee	0586	Lenco	0039 0067 0193 0404 0586 0617 1067	Medion	0698 0744 0838 1067 0067 0586 0542 1167 0728 1278 1289 0661 0910 1319 1179	National	0256 0238 0538		
Futronic	0294 0890 0728	Hanseatic	0067 0586 0529 0193 0691 0424 0664 0400 0039 0247 0407 0744 0838 0516 0655	Hyundai	0067 0890 0895 0586 0728 0783 0294 1067 0906 0736 1406 0808	Juhua	0294	Lennox	1219	MegaDrive	1289	NEC	0200 0617 1200 0208 0039 0906 0485 0404 0247 0067 0586 0294 0538 1734 0529 0683 0691		
Future	0067 0586	Hantarex	0039 0067 0586 0895	Iberia	0067 0586	JVC	0683 0761 0636 0538 0713 0448 0123 0680	Levis Austria	0067 0586	MEI	1067 0067 0586 0294	Neckermann	0067 0400 0586 1535 0230 0193 0357 0448 0247 0542		
Gaba	1067 0067	Hantor	0067 0586	ICE	0247 0294 0067 0039 0586 0246	Kaige	0039 0294	Lexus	1226	Meile	0039 0376 0067 0542 0139 0373 0193 0135 0247 0404 0510 0522 0246 0586 0664 0225 0691 0744	NEI	0067 0586 0193 1067		
Galaxi	0067 0586 0193	Harsper	0895	Ict	0067 1167 0586	Kaisui	0039 0294	Leyco	0067 0294 0586	Meletronic	0039 0376 0067 0542 0139 0373 0193 0135 0247 0404 0510 0522 0246 0586 0664 0225 0691 0744	NEO	0784		
Galaxis	0400 0448 0067 0586	Harwa	0803 1226 1299	IIsonic	1406	Kambrook	0407 0294	LG	1179 0208 0067 0586 0906 0744 1667 0674 0636 0090 0138 1295 0407 0039 0745 0247 0246 0193 0139 0728 1221	MegaDrive	1289	Neovia	0895 1401 0906 1406 1221		
Garza	0586	Harwood	0039 0067 0586 0586	Iiyama	1247 0920	Kamp	0246	LG	1179 0208 0067 0586 0906 0744 1667 0674 0636 0090 0138 1295 0407 0039 0745 0247 0246 0193 0139 0728 1221	Megas	0640	Netsat	0067 0586		
Gateway	1785	Hantronic	0039 0067 0586 0895	Imperial	0067 0104 0193 0400 0448 0538 0586	Kanghua	0926	LG	1179 0208 0067 0586 0906 0744 1667 0674 0636 0090 0138 1295 0407 0039 0745 0247 0246 0193 0139 0728 1221	Megatron	0208	Neufunk	0067 0039 0586 0640 0744		
GBC	0193 0039 0404	Hantarex	0039 0067 0586 0895	Imperial Crown	0039 0294 0404 0691	Kangli	0039 0294 0404 0691	LG	1179 0208 0067 0586 0906 0744 1667 0674 0636 0090 0138 1295 0407 0039 0745 0247 0246 0193 0139 0728 1221	MEI	1067 0067 0586 0294	New Tech	0067 0039 0586 0373 0247		
GE	0373 0208 0123 0590 0139 0365 0655	Hantorex	0039 0067 0586 0895	InFocus	0782 1194	Kapsch	0067 0586 0400 0640 0193 0294 0808 0744 0636	LG	1179 0208 0067 0586 0906 0744 1667 0674 0636 0090 0138 1295 0407 0039 0745 0247 0246 0193 0139 0728 1221	Meile	0039 0376 0067 0542 0139 0373 0193 0135 0247 0404 0510 0522 0246 0586 0664 0225 0691 0744	Newave	0039 0208 0123		
Geant Casino	0193	Harsper	0895	Ingelen	0193 0517 0640 0744	Kathrein	0586 0067 0910	LG	1179 0208 0067 0586 0906 0744 1667 0674 0636 0090 0138 1295 0407 0039 0745 0247 0246 0193 0139 0728 1221	Meletronic	0039 0376 0067 0542 0139 0373 0193 0135 0247 0404 0510 0522 0246 0586 0664 0225 0691 0744	Nicamagic	0246		
GEC	0067 0193 0247 0586	Harwa	0803 1226 1299	Ingersoll	0039	Kawasho	0246	LG	1179 0208 0067 0586 0906 0744 1667 0674 0636 0090 0138 1295 0407 0039 0745 0247 0246 0193 0139 0728 1221	Memorex	0039 1067 0208 0680 0090	Nikkai	0065 0067 0586 0246 0247 0294 0039		
Geloso	0039 0193 0404	Harwood	0039 0067 0586 0586	Inno Hit	0039 1067 0067 0586 0247 1193	KB Aristocrat	0193	LG	1179 0208 0067 0586 0906 0744 1667 0674 0636 0090 0138 1295 0407 0039 0745 0247 0246 0193 0139 0728 1221	Mercury	0067 0728 0039 0294 0586 0736 0090	Nikkei	0744		
General	0139	Hauptpauge	0067 0586	Innova	0067	Kendo	0067 0640 0586 0193 0542 0400 0407 1067 0516 1179 1193 1167	LG	1179 0208 0067 0586 0906 0744 1667 0674 0636 0090 0138 1295 0407 0039 0745 0247 0246 0193 0139 0728 1221	Memorex	0039 1067 0208 0680 0090	Nikko	0208		
General Electric	0373	HCM	0039 0067 0586 0247 0448 0294	Innovation	0067 0586	Kent	0067 0586 0400 0640 0193 0294 0808 0744 0636	LG	1179 0208 0067 0586 0906 0744 1667 0674 0636 0090 0138 1295 0407 0039 0745 0247 0246 0193 0139 0728 1221	Mermaid	0067	Nintaus	0921		
General Technic	0039	Hedzon	0586 0067	Innotech	0895 1328	Kingsley	0246	LG	1179 0208 0067 0586 0906 0744 1667 0674 0636 0090 0138 1295 0407 0039 0745 0247 0246 0193 0139 0728 1221	Merritt	0578 0193	Nishi	0512		
Genesis	0039 0067 0586	Hema	0247 0039	Interactive	0067 0586 0542 0357 0193 0400 0139	Kingsbrook	1067	LG	1179 0208 0067 0586 0906 0744 1667 0674 0636 0090 0138 1295 0407 0039 0745 0247 0246 0193 0139 0728 1221	Metronic	0655	Noblisko	0100 0246		
Genexxa	0193 0067 0586 0039	Hicon	1328	Intervision	0067 0247 0485 0294 0407 0516 0400 0424 0517 0193 0039 0586	Kioto	0586 0736	LG	1179 0208 0067 0586 0906 0744 1667 0674 0636 0090 0138 1295 0407 0039 0745 0247 0246 0193 0139 0728 1221	Metz	1563 0776 0418 0477 1193 0225 0067 0586 0617 0698 1067	Nogamatic	0139		
Gericom	0895 1328 1247 0910 0838	Higashi	0246	International	0246	Kiton	0586 0067 0698	LG	1179 0208 0067 0586 0906 0744 1667 0674 0636 0090 0138 1295 0407 0039 0745 0247 0246 0193 0139 0728 1221	Micromaxx	0067 0586 0698 1067 0838 0744	Nokia	0193 0503 0510 0578 0636 0661 0522 0238 0404 0376 0640 0139		
Gevalt	1401 1221			Inno Hit	0039 1067 0067 0586 0247 1193	KLL	0067	LG	1179 0208 0067 0586 0906 0744 1667 0674 0636 0090 0138 1295 0407 0039 0745 0247 0246 0193 0139 0728 1221	Microstar	0838	Nordic	0247		
				Innovation	0067 0586			LG	1179 0208 0067 0586 0906 0744 1667 0674 0636 0090 0138 1295 0407 0039 0745 0247 0246 0193 0139 0728 1221	MicroTEK	0850 0728 0890 0736 0294	Nordmende	0139 0921 0373 0590 0225 0067 0586 0365 0193 1289 1278 0744 1319 0473 1193		
				Innotech	0895 1328			LG	1179 0208 0067 0586 0906 0744 1667 0674 0636 0090 0138 1295 0407 0039 0745 0247 0246 0193 0139 0728 1221	Minerva	0100 1278 0517 0225 0138				
				Intervision	0067 0247 0485 0294 0407 0516 0400 0424 0517 0193 0039 0586			LG	1179 0208 0067 0586 0906 0744 1667 0674 0636 0090 0138 1295 0407 0039 0745 0247 0246 0193 0139 0728 1221	Minoka	0067 0586				
				International	0246			LG	1179 0208 0067 0586 0906 0744 1667 0674 0636 0090 0138 1295 0407 0039 0745 0247 0246 0193 0139 0728 1221	Mirai	1681				
				Inno Hit	0039 1067 0067 0586 0247 1193			LG	1179 0208 0067 0586 0906 0744 1667 0674 0636 0090 0138 1295 0407 0039 0745 0247 0246 0193 0139 0728 1221						
				Innovation	0067 0586			LG	1179 0208 0067 0586 0906 0744 1667 0674 0636 0090 0138 1295 0407 0039 0745 0247 0246 0193 0139 0728 1221		</				

TV (cont.)

Norfolk	0193
Normerel	0067 0586
Novak	0067 0586
Novatronic	0067 0135 0404 0586
Nurnberg	0193
NU-TEC	0485 0728 0850 0067 0586 0736 0294
O.K.Line	1067
Oceanic	0193 0238 0503 0578 0510
Odeon	0294
Okano	0400 0067 0586 0294 0039
OKI	1067
Olidata	1406
Omega	0294
Omni	0810 0921 0728
Onida	0683
Onn	1179 0586
Onwa	0632 0463
Opera	0067 0586 0744
Optimus	0680
Optonica	0123
Orava	1067
Orbit	0067 0586
Orion	0067 0473 0744 0586 0039 0294 0910 1226
Orline	0067 0586
Ormond	0698 1067 0067 0586
Osaki	0247 0294 0067 0404 0586
Osio	0067 0586
Osume	0067 0586
Otto Versand	1535 0067 0247 0373 0542 0123 0586 0225 0139 0256 0039
Pacific	0067 0586 1167 0744 1067 0473 0246
Pael	0246
Palladium	0400 0448 0067 0744 1167 1535 0230 0586 0357 0193 0247
Palsonic	0294 0803 0067 0247 0407 0728 0586 0448 0808 1226 1299
Panama	0039 0247 0294 0246 0067 0586
Panasonic	0680 0256 0067 1340 0586 0193 0238 0538 0926 0883 0578 0138
Panavision	0067 0586
Panda	0039 0238 0256 0294 0538 0728 0810 0736 0921
Papouw	0067 0586
Pathe Cinema	0193 0246 0400
Pathe Marconi	0139
Pausa	0039
Peng Sheng	0921
Penney	0208 0090
Perdio	0193 0067 0246 0586
Perfekt	0067 0586

Philco	0104 0448 0067 0193 0586 0400 0208 0511
Philex	0193
Philharmonic	0247
Philips	0067 0586 0802 0208 0138 0404 0373 0039 0230
Phocus	1319 0744
Phoenix	0067 0586 0400 0516 0193 0246 0294
Phonola	0067 0586 0246
Pilot	0586 0067 0742 0736
Pioneer	1290 0790 0200 0139 0193 0067 0586 0373 0516 0542
Pionier	0400 0516
Plantron	0067 0586 0294 0039
Playsonic	0744 0067 0247 0745
Polar	0067
Polaroid	0895
Policom	0139 0193 0100 0104
Poppy	0039
Portland	0404 1939
Powerpoint	0517 0067 0586 0728
Precision	0247
Premier	0039 0294 0921
President	0890
Prima	0039 0294 1299 1226
Princess	0728
Prinston	1067
Profex	0039 0193
Profi	0039
Profitronic	0067 0586
Proline	0067 0586 0655 0664 1406 1067
Prosonic	0067 0586 0400 0404 0910 0698 1406 0744 0246 0247 0636 0745 1226
Protech	0039 0067 0586 0247 0294 0448 0698 0193 0516 1067
Proton	0208 0039 0674
Provision	0529 0067 0586 1067 0744
PVision	1221 0906
Pye	0067 0586 0404
Pymi	0039
Qingdao	0238 0256 0294
Quadro	0783 0586 0067 1179 1193
Quasar	0680 0895 0039
Quelle	0067 1535 0100 0104 0139 0542 0247 0357 0135 0698 0586 0225 0230 0294 1067 0376 0039
Radialva	0139 0193 0067 0586
Radiola	0067 0586 0247
Radiomarelli	0067 0586
Radionette	0744
RadioShack	0067 0586 0208

Radiotone	0039 0067 0586 0400 0448 0698 0294 1067
Rank	0100
Rank Arena	0632 0783
RBM	0100
RCA	0655 0090 0123 0208 0590 0365 0648 0373 0783 0855
Realistic	0208
Recor	0067 0448 0586
Rectiligne	0067 0586
Rediffusion	0578 0376
Redstar	0067 0586 1067 0698
Relisys	0895 0906 0907 1328 1406
Reoc	0744 0664 1939
Revox	0067 0838 0586 0400
Rex	0193 0294
RFT	0400 0294 0067 0586 0516
Rhapsody	0246
Ricoh	0067 0586
Rinex	0803 0448 0728 0294 0736
R-Line	0067 0586 0193 0728
Roadstar	0039 1067 0745 0294 0448 0067 0586 0744 0698 1219
Rodex	0067 0586
Rolsen	1401 1221 0067 0586
Rover	0907
Rowa	0067 0294 0728 0742 0247 0039 0246 0736 0617 0586
Royal	0448 0855 0636
Royal Lux	0400 0365
Rukupir	0586 0067
Saba	0139 0655 0193 0590 0365 0373 0578 0680 0744
Sagem	0640 0485 0860 1343 0648
Saige	0039
Saisho	0039 0664 0404 0294 0247 0193
Saivod	0067 0586 1193 0698 0742 1067
Sakai	0193
Sakyno	0485
Salora	0193 0578 0238 0510 0661 0808 1401
Salsa	0365
Sampo	1785 0039 0123 0208 0680
Samsung	0674 0796 0090 0648 0208 0617 0123 0039 0586 1279 0512 1265 0067 0294 0247 0400 0238 0256 0246 0193
Sandra	0246 0247
Sanjian	0294

Sansui	0067 0759 0586 0736 0632 0485 0783 1401 1221 0728 0294 0744 1278
Santon	0039
Sanyo	0238 1238 0400 0246 0247 0039 0538 0193 0067 0138 0586 0516 0200 0294 1067 1179 1193
Sanyuan	0039 0123
Save	0067 0586
SBR	0067 0586
Schaub Lorenz	0578 0744 0636 0516 0404 1221 1393 1401 0906
Schneider	0067 1167 0586 0698 0424 0382 0373 0247 1067 0193 0744 1939 0100
Schöntech	1067
Scotch	0208
Scotland	0193
Scott	1219 0208
Sears	0208
Seaway	0664
Seelver	0586 1067 0067
SEG	1067 0247 0067 0294 1193 0586 0698 0517 0039 0193 0664 0246 1939 1179
SEI	1535 0193 0067 0586
Sei-Sinudyne	1535 0067 0586
Seitech	1247
Seleco	0193 0294 0376
Sencora	0039
Sentra	0065 0039
Serie Dorada	0208
Serino	0640 0485 0246 0123
Shancha	0294
Shanghai	0039 0238 0256 0294
Sharp	0123 1223 0039 1423 0680 0230
Shen Ying	0039
Shencai	0039 0294
Sheng Chai	0039
Sheng Chia	0039 0123
Shenyang	0039 0294 0783
Sherwood	0039
Shintoshi	0067 0586
Shivaki	0067 0586 0473 0404 0208
Show	0448 0039 0728 0294 0736 0067
Siarem	0193
Siemens	0067 0225 0230 0357 0586
Siera	0067 0586 0617
Siesta	0400
Silva	0067 0586 0246
Silva Schneider	0783
Silver	0485 0067 0586 0745 0193
SilverCrest	1067 0067 0586
Singer	0039 0728 0067 0586 0365 0193 0067
Sinotec	0803 0448 0636 0728

Sinudyne	0193 1535 0067 0586 0636
Sky	0067 0910 0208 0586 1406 0691 0895
Skymaster	0135
Skysonic	0783
Skyworth	0067 0586 0039 0294 0728 0783 0855
Sliding	0895 0910
SLX	0698
Smaragd	0517
S-Media	1247
Soemtron	0895 1328
Sogo	1406
Solavox	0193 0578 0067 0586
Songba	0039
Sonic	0783
Soniko	0067 0586
Soniq	1328
Sonitron	0238 0400 0247
Sonneclair	0067 0586
Sonoko	0039 0728 0067 0294 0247
Sonolor	0193 0238 1535 0578
Sontec	0067 0586 0400 0039
Sony	1535 1681 0680 1781 0383
Sound & Vision	0404 0067 0586
Soundesign	0208
Soundwave	0067 0448 0586 0745
Sowa	0090 0256 0208
Soyea	0803
Spectra	0039
Ssangyong	0039
Staksonic	0039
Standard	0039 0067 0247 0586 1067 0404
Starion	1067
Starlite	0039 0193 0067 0586 0294
Stern	0193 0294
Strato	0067 0586 0294 0039
Strong	1193 1179 1067 0067 0586
Stylandia	0247
Sungoo	1278
Sunic Line	0067 0586
Sunkai	0485 0640 0067 0586 0517 0895
Sunny	0067
Sunstar	0067 0586 0039 0294
Sunwatt	0485
Sunwood	0067 0586 0039
Super	1219
Superia	0246 0247
SuperScan	0123
Supersonic	0039 0238 0586 0728 0294 0485 0067
SuperTech	0039 0246 0067 0586
Supervision	0728 0294
Supra	0208 0404 0039
Susumu	0365
Sutron	0039

SVA	0617 0728 0294 0485 0895 0238 0736
Svasa	0728 0238 0736 0294
Swisstec	0910 1406 0895
Sydney	0246 0247
Synco	0090 0123 0208
Sysline	0067 0586
Sytong	0246
T+A	0477
Tacico	0208 0039
Tai Yi	0039
Taishan	0039 0404
Tandberg	0139 0193
Tandy	0123 0247 0193
Targa	1401 1221 0648
Tashiko	0247 0680 0200 0246 0193
Tatung	0039 0067 1278 0090 0586 0247 1401 1289 1221
TCL	0655 0728 0736
TCM	0744 1319 0838
Teac	0039 0728 0067 0294 1067 0586 0448 0542 0742 0485 0698 0247 0736 1939 0208 0200 0744 1179 1785 1393 0617
TEC	0247 0039 0365 0067 0586 0193
Tech Line	0067 0586 0698 1193
Tech Lux	1219
Technics	0680
TechniSat	0067 0586 0193
Technisson	0744 1319
Techno	1067
Technol Ace	0728 0294 0664 0404 0246
Technosonic	0067 0586 0529 0910
Techwood	1193 1067
Teckton	1406
Tecnimagen	0586
Teco	1343 0039 0123 0208 0294 0683
Tedelex	0247 0728 0736 0636 0448 0067 0039 0238 0921 0617 0586 0294
Teiron	0039
Tek	0850 0067 0728 0039
Teknika	0090
TELE System	0906
Televia	0139 0373
Telecor	0067 0586 0193 0247 0424
Telefunken	0655 0590 0104 0139 0617 0728 0365 0373 0742 0850 0926 0784 0810 0921 0783 0736 0067 0586 0516 0744 0376
Telefufusion	0067 0586
Telegazi	0067 0193 0294 0586
Telemeister	0067 0586
Telesonic	0067 0586
Telestar	0039 0067 0586

Teletech	0039 0067 0586 0698 1067
Teleton	0247 0193
Televideon	0193 0246
Television	0067 0586
Tempest	0039 0067 0586 0294
Tennessee	0067 0586
Tensai	0067 0586 0247 0039 0135 0404 0407 0745 0193 1067
Tenson	0039
Tesla	1067 0067 0698 0744 0745 1167 0855 0783 0586 0640
Tevion	1328 1278 1289 0067 0586 0838 0895 0698 1167 0744 1067 1319
Textet	0246 0247 0404 0039
Thomson	0590 0655 0373 0139 0783 0365 0067 0586 0246
Thorn	0065 0138 0139 0067 0104 0373 1535 0529 0542 0586 0365 0404 0100
Thorn-Ferguson	1338 0373 0139 0365 0529 0065
Tiane	0123
Tiny	1226 1299
TMK	0208
Tobo	0039 0294
Tokai	0067 0586 0698 0193 0247 0404 0039 1067
Tokaido	1067
Tokyo	0246 0065
Tongguang	0294
Tongtel	0810 0617
Top Show	0728 0803 0448 0039 0294 0736
Topline	1067 0698
Toshiba	1538 0538 0680 0090 0039 0065 1734 1194 1319 1295 0744 0100 0123 0294 0648 0674 0247 0139 0225 0728 0067 1067
Towada	0247
Toyoda	0039 0294
Trakton	0039 0294 0247
TRANS-continents	0698 1067 0895 0586 0067 0516 0247
Transonic	0067 0728 0742 0586 0485 0617 0542 0294 0448 0039 1393 0810
Transtec	0246
Triad	0067 0586 0039
Trident	0247
Trio	1278
Tristar	0294
Triumph	0376 0586 0067
Tuntex	0039
TVTEXT 95	0586
Uher	0067 0586 0404 0448 0516 0400 0510

Ultravox	0404	0246	0193
	0067	0586	
Unic Line	0067	0586	0503
	0485		
United	0744	0067	0745
	0586	1067	0617
Universal	0744	0067	0586
Universum	0838	1067	0067
	0104	1193	0294
	0376	0400	0698
	0135	0510	0225
	0503	1179	0542
	0522	0230	0448
	0100	0193	0586
	0357	1535	0247
	0139	0661	0039
	0200	0648	
Univox	0067	0586	0193
Utax	0193		
V7 Videoseven	1785	0208	0910
	1406	1247	0648
	1681	1535	
Vanguard	0067	0586	
Vestel	0067	1067	1193
	0698	0193	0247
	0586		
Vexa	0039	0067	0586
Victor	0683	0680	
Videocon	0538		
Videologic	0246		
Videologique	0246	0247	
VideoSystem	0067	0586	
Videotechnic	0246	0247	0404
Videoton	0193		
Vidtech	0208		
Viewpia	0906		
ViewSonic	1785		
Visiola	0246		
Vision	0067	0294	0586
	0247		
Vistron	1393		
Vivax	0067		
Vortec	0067	0586	
Voxson	0193	0208	0067
	0586	0448	
Walker	1179		
Waltham	0247	0448	0067
	0586	0698	0139
	1067	0193	0473
Wards	0208		
Warumaia	0404	0691	0664
Watson	0067	1067	1278
	1289	0586	0193
	0039	0698	0424
	1406	0357	
Watt Radio	0193	0246	0516
Wega	0067	0586	
Wegavox	0039	0067	0586
Weipai	0039		
Welltech	0744		
Weltblick	0067	0586	0247
Weltstar	1067		
Westinghouse	0920		
Weston	0067	0586	
Wharfedale	0067	0926	0921
	0890	0586	0728
	0736		
White	0067	0246	0586
Westinghouse	1939		
Wilson	0586		
Windsor	0698	1067	
Windy Sam	0586		
Wintel	0744		

World-of-Vision	0910	0920	0895
	1319	1328	0907
	1247		
Worldview	0485		
XDome	0538		
Xenius	0664	0691	
Xiahua	0039	0294	0728
	0803		
Xianghai	0039		
Xiangyang	0294		
Xiangyu	0039		
Xihu	0294		
Xingfu	0039		
Xinghai	0294		
Xingyu	0039		
XLogic	0728	0890	
Xoro	1226	1247	
Xrypton	0067	0586	
X-View	1221		
Yamaha	0680	1606	
Yamishi	0485	0067	0586
	0247		
Yingge	0039		
Yokan	0067	0586	
Yoko	0067	0247	0294
	0586	0039	0400
	0246		
Yonggu	0039		
Yoshita	0855		
Yousida	0039		
Yuhang	0039		
YU-MA-TU	0067		
Zaapa	1219		
Zanussi	0247		
Zenith	1939	0208	1295
Zhuhai	0039	0404	
Zonda	0728		

VCR

Accent	0102
Adyson	0102
Aim	0308 0672 0378
Aiwa	0030 0378 0382
	0067 0772 1167
	0062
Akai	0030 0067 0136
	0345 0672 0382
	0270 0378
Akashi	0102
Akiba	0102
Akura	0102
Alba	0308 0102 0382
	0030 0345 0378
	0111
Allorgan	0270
Allstar	0111
Amstrad	0030 0308 0102
Anitech	0102
Ansonic	0030
Aristona	0111
ASA	0067 0111
Asuka	0102 0067 0111
	0030
Audiosonic	0308
AVP	0382 0030
AWA	0067 0308 0672
	0073
Baird	0136 0308 0134
	0030
Basic Line	0308 0102 0134
Beko	0134
Bestar	0308
Black Diamond	0672 0308
Black Panther	0308
Blaupunkt	1592 0256 0111
Blue Sky	0067 0378 0102
	0382 0308 0030
	0510 0672 1167
	0772
Bondstec	0102
Brandt	0350
Brinkmann	0378
Broksonic	0378 0772 0382
Bush	0102 0308 0345
	0382 0030 0378
	0111 0672 0772
Carena	0111
Carrefour	0075
Casio	0030
Cathay	0308
CGE	0030
Cimline	0102
CineVision	1167
Clatronic	0102 0030
Combitech	0382
Condor	0308
Crown	0067 0308 0510
	0102
Cyrus	0111
Daewoo	0308 0672 1167
	0667 0378 0382
	0075
Dansai	0102 0308
Dantax	0382 0772
Daytron	0308
de Graaf	0072 0196 0111
	0134 0078
Decca	0030 0111 0097
	0378 0382
Deitron	0308

Denko	0102
Denon	0072
Diamant	0067
Diamond	0308
Digitor	0672
DSE	0672
Dual	0111 0308 0030
	0378
Dumont	0030 0111 0134
Durabrand	0672
Elbe	0308
Elcatech	0102
Elin	0270
Elsay	0102
Elta	0102 0308
Emerson	0102 0075 0030
	1167
ESC	0308 0270
EuroLine	0378
Ferguson	0350 0030 0308
	0378 0772
Fidelity	0030 0102 0270
	0462 0382
Finlandia	0134 0111 0072
	0196 0030 0078
	0067 0073 0136
	0256
Finlux	0030 0111 0134
	0072
Firstline	0102 0378 0073
	0067 0075 0072
	0308 1167
Fisher	0134
Flint	0378
Frontech	0102
Fujitsu	0030
Fujitsu General	0067
Funai	0030
Galaxi	0030
Galaxis	0308
GE	0350
GEC	0111
General Technic	0378
Genexxa	0134
Go Video	1167
Goldhand	0102
GoldStar	0067 0510 0030
Goodmans	0030 0102 0270
	0308 0067 0111
	0378 0667 0382
	0672
GPX	0067
Graetz	0134 0270
Granada	0134 0078 0111
	0270 0067 0256
	0072 0030
Grandin	0102 0067 0030
	0308
Grundig	0377 0111 0256
	0350 0378 0102
	0382 0772
Haaz	0378
Hanimex	0382
Hanseatic	0067 0308 0111
Harwood	0102
HCM	0102
Hinari	0102 0382 0308
	0270
Hisawa	0382
Hischito	0075
Hitachi	0072 0196 0030
	0270 0111 0134
Höher	0308 0672
Hornophon	0111

Hypson	0102 0378 0308
	0382 0030 0067
	0510
Imperial	0030 0270
Ingersoll	0270
Inno Hit	0270 0308 0102
Interbuy	0067 0102
Interfunk	0111 0134
Internal	0308 0667
International	0308 0067
Intervision	0030 0308 0067
	0378
Irradio	0102 0067 0111
	1167
ITT	0136 0134 0270
ITT Nokia	0078
ITV	0308 0067
JMB	0382 0378
Joyce	0030
JVC	0097
Kaisui	0102
Kambrook	0067
Karcher	0308
Kendo	0136 0345 0378
	0102 0067 0308
KIC	0030
Kneissel	0382 0378 0067
	0308
Kolster	0378
Korpel	0102
Kyoto	0102
Lenco	0308
Leyco	0102
LG	0067 0510 0030
	0308 1167
Lifetec	0378
Loewe	0111 1592 0256
	0067
Logik	0270 0102 0136
Lumatron	0308
Lux May	0102
Luxor	0136 0073 0102
	0134 0078 0345
Magnavox	0111 0672
Magnum	0672
Manesth	0102 0075 0111
Marantz	0111
Mark	0308 0030
Mascom	0672
Mastec	0672
Master's	0308
Matsui	0378 0067 0270
	0382 0030 0772
Maxton	0111
Mediator	0111
Medion	0378 0382
Melectronic	0030 0067
Memorex	0134 0030 0067
	0078 0378
Memphis	0102
Metronic	0111
Metz	1592 0377 0866
	0111 0256 0067
Micormay	0378
Micromaxx	0378
Migros	0030
Mitsubishi	0073 0097 0111
	0510 0030 0672
Multitec	0067
Multitech	0030 0102 0134
Murphy	0030
Myrrad	0111

NAD	0134
Naiko	0672 0378
National	1592 0256
NEC	0097 0070 0134
	0067 0308 1167
Neckermann	0111
Nesco	0102 0030 0382
Neufunk	0067
Nikkai	0102 0308
Nokia	0134 0136 0345
	0308 0270 0078
	0072 0111
Nordmende	0350 0097 0672
NU-TEC	0378
Oceanic	0030 0350 0078
	0136 0111 0134
Okano	0345 0378 0102
	0308
Onimax	0672
Orbit	0102
Orion	0378 0382 0772
Orson	0030
Osaki	0030 0067 0102
Osume	0102
Otto Versand	0111
Pace	0382
Pacific	0030
Palladium	0102 0345 0067
	0270 0378 0462
Palsonic	0102 0030 0672
Panasonic	1592 0256 0866
Pathe Cinema	0073
Perdio	0030
Philco	0102
Philips	0111
Phoenix	0308
Phonola	0111
Pioneer	0097 0111 0072
Portland	0308 0667
Prinz	0030
Profitronic	0111 0270
Proline	0030 0308 0350
	0672
Proscio	0308
Prosonic	0308 0030
Protech	0111 0308
Provision	0308
Pye	0111 0030
Quasar	0308
Quelle	0111
Radialva	0067 0102 0111
	0078
Radiola	0111
Radionette	1167 0067
RCA	0136 0350
Reoc	0378 0667 0308
RFT	0102
Roadstar	0270 0102 0067
	0308 0772 0111
Royal	0102
Saba	0350 0308
Saisho	0378
Salora	0073 0136 0134
Samsung	0270 0462
Sansui	0097 0136 0102
	0378
Sanyo	0134 0270 0078
	0097 0378
Saville	0382 0308 0270
SBR	0111
ScanSonic	0270

Schaub Lorenz	0134 0030 0136
	0345
Schneider	0102 0030 0067
	0111 0308 0270
	1167 0072 0382
	0672
Seaway	0308
SEG	0308 0102 0270
	0672 0111 0667
SEI	0111
Sei-Sinudyne	0111
Seleco	0067
Semp	0075
Senra	0102
Setron	0102
Sharp	0078 0067 0599
Shintom	0102 0134
Shivaki	0067
Siemens	0067 0134 0111
	0350 0377
Siera	0111
Silva	0067
Silver	0308
SilverCrest	0672
Singer	0378 0075
Sinudyne	0111 0382
Skantic	0378
Smaragd	0378
Sonclair	0102
Sonoco	0308
Sonolor	0078
Sontec	0067 0308
Sonwa	0672
Sony	0062 0136
Soundwave	0067 0378
Ssangyong	0102
Standard	0308
Starlite	0067 0134
Stern	0308
Sunkai	0378 0308
Sunstar	0030
Suntronic	0030
Sunwood	0102
Supra	0067 0270 0378
	0308
Symphonic	0030 0102
T+A	1592 0256
Tandberg	0308
Tashiko	0030 0078 0270
	0111 0067
Tatung	0030 0111 0078
	0073 0378 0382
Tchibo	0378
TCM	0378
Teac	0102 0030 0308
	0672 0067 0111
	0667
TEC	

VCR (cont.)

Thomson	0350	0097	0308
Thorn	0134	0067	
Thorn-Ferguson	0350		
Tokai	0102	0067	0134
Tokiwa	0102		
Topline	0378		
Toshiba	0075	0073	0111
	0772	0382	
Towada	0102		
Tradex	0111		
Tredex	0308		
Triad	0308		
Uher	0067	0270	
Ultravox	0308		
Unitech	0270		
United	0378	0772	
Universum	0030	0111	0270
	0067	0136	0378
	0134		
Victor	0097		
Video Technic	0030		
Watson	0111	0382	0308
	0672		
Weltblick	0067		
Wharfedale	0672		
White	0102		
Westinghouse			
World	0378		
Yamishi	0102	0308	
Yokan	0102		
Yoko	0067	0102	0270
Yoshita	0102		
Zenith	0667	1167	
ZX	0378	0382	
Stern	0308		
STS	0072		
Sunkai	0378	0308	
Sunstar	0030		
Suntronic	0030		
Sunwood	0102		
Supra	0067	0270	0378
	0308		
Sylvania	0030	0073	0111
Symphonic	0030	0102	
T+A	0256		
Tandberg	0308		
Tandy	0030	0134	
Tashiko	0030	0078	0270
	0111	0067	
Tatung	0030	0111	0078
	0073	0378	0382
Tchibo	0378		
TCM	0378		
Teac	0102	0030	0308
	0672	0067	0111
	0667		
TEC	0308	0102	
Tech Line	0102		
Technics	0256		
TechniSat	0378		
Tedalex	0067	0378	0672
Teknika	0030	0067	
Telefunken	0672	0350	0308
Telestar	0067		
Teletech	0102	0308	0030
Tenosal	0102		
Tensai	0030	0067	0102
	0308		
Tevion	0378	0672	
Textet	0308		

Thomas	0030		
Thomson	0350	0097	0308
Thorn	0134	0067	
Thorn-Ferguson	0350		
TMK	0270		
Tokai	0102	0067	0134
Tokiwa	0102		
Topline	0378		
Toshiba	0073	0075	0111
	0772	0382	
Totevision	0067	0270	
Towada	0102		
Tradex	0111		
Tredex	0308		
Triad	0308		
Uher	0067	0270	
Ultravox	0308		
Unitech	0270		
United	0378	0772	
United Quick Star	0308		
Universum	0030	0111	0270
	0067	0136	0378
	0134		
Vector	0075		
Vector Research	0070		
Victor	0097		
Video Concepts	0070	0075	
Video Technic	0030		
VideoSonic	0270		
Wards	0030	0072	0078
	0102	0111	0270
Watson	0111	0382	0308
	0672		
Weltblick	0067		
Wharfedale	0672		
White	0102	0308	
Westinghouse			
World	0378		
XR-1000	0030	0102	
Yamishi	0102	0308	
Yokan	0102		
Yoko	0067	0102	0270
Yoshita	0102		
Zenith	0030	0667	1167
ZX	0378	0382	

VIDAC

Elonex	1302
Fujitsu Siemens	1302
Gateway	1302
Hewlett Packard	1302
hFX	1302
Microsoft	1302
Pinnacle Systems	1477
Ricavision	1302
Tenosal	1302
Trust	1302
Via Technologies	1302
XBox	1302

CBL

@Home	1696		
ADB	1260	1299	
Alice	1654		
Amstrad	1252		
Auna	1299	1260	
Austar	0306		
Cablecom	1612		
Canal Plus	0473		
Com Hem	1696	0847	
Comcrypt	0473		
Daeryung	0507		
Fastweb	1660		
Filmnet	0473		
Foxtel	1252		
France Telecom	0847	1764	
freebox	1512		
Funai	0049		
General	0306		
Instrument			
Jerrold	0306		
KabelBW	1090		
Macab	0847		
Madritel	1260		
MNet	0473	0049	
Motorola	0306	1136	1513
Multichoice	0049	0473	
Nokia	1599		
Noos	0847	1654	
NTL	1090	1098	
Numericable	0847		
Oak	0049		
Ono	1098	0306	
Optus	0306	1090	
Orange	0847	1764	
Pace	1098	1607	1090
Philips	0847	1612	
Premiere	1607		
Sagem	0847	1654	
Samsung	1090	1696	
Scientific Atlanta	0507		
SKY Deutschland	1607		
StarHub	0306		
Tele Danmark	0847		
Tele+1	0473		
Telepiu	0473		
Telewest	1098	1090	
Telsey	1660		
Thomson	1612	1764	
Trans PX	0306		
UPC	1612		
US Electronics	0306		
Virgin Media	1090	1098	
Visiopass	0847		
YouSee	0847		
Ziggo	1599	1696	

CD

Advantage	0062		
AH!	0187		
Aiwa	0187		
Arcam	0187		
Atoll	0187		
Electronique			
Audio Research	0187		
Audiolab	0187		
Audiomeca	0187		
Audioton	0187		
Balanced Audio	0187		
Technology			
Cairn	0187		
California Audio	0059	0333	
Labs			
Cambridge	0187		
Audio			
Carver	0187		
Copland	0423		
Cyrus	0187		
Denon	0033	0796	0656
DKK	0030		
Dual	0033		
Dynaco	0187		
Elektra	0423		
Garrard	0423		
Genexxa	0030	0062	
Goldmund	0187		
Grundig	0187		
Harman/Kardon	0187		
Hitachi	0062		
JVC	0102		
Kenwood	0220	0656	0066
Krell	0187		
Linn	0187		
Loewe	0187		
Magnavox	0187		
Marantz	0187	0656	0059
Matsui	0187		
MCS	0059		
Memorex	0062		
Meridian	0187		
Micromega	0187		
Mission	0187		
Musical Fidelity	0423		
Myryad	0187		
NAD	0751	0030	
Naim	0187		
NSM	0187		
Onkyo	0131		
Optimus	0030	0062	
Orion	0423		
Panasonic	0333	0059	
Philips	0187	0656	
Pioneer	0062		
Primare	0187		
Proton	0187		
QED	0187		
Quad	0187		
Quasar	0059		
Radiola	0187		
Restek	0187		
Revox	0187		
Rotel	0187		
SAE	0187		
Sansui	0187		
Siemens	0187		
Simaudio	0187		
Sony	0030	0520	0187

Tag McLaren	0187		
Tandy	0062		
Teac	0423		
Technics	0333	0059	
Thorens	0187		
Thule Audio	0187		
Traxdata	0656		
Universum	0187		
Victor	0102		
Wards	0187		
Yamaha	0066	0520	0062

TUNER

AEG	1420	1419	
AFK	1419		
Aim	1420		
Aiwa	0151	0219	1088
	1188	1288	1652
	1752		
Akai	0639	1250	1420
All-Tel	1420		
Amstrad	1420		
Anam	0639		
Arcam	0219	1119	1219
	1299	1319	
ASCOMTEC	1419		
Audiolab	1119	1219	1299
	1319	0219	
Audiosonic	1419		
Audiovox	1420		
AudioWorld	1420		
Balanced Audio	1119	1219	1299
Technology	1319	0219	
Bang & Olufsen	0829		
Basic Line	1584		
Belson	1419		
Blue Sky	1420		
Bonnet	1219		
Bose	1259	1385	
Bush	1119	1219	1299
	1319		
Cairn	0219		
Cambridge Audio	1219	0219	
Carver	0219	1119	1219
CCE	1382		
Centrum	1250	1584	1419
Classic	1382		
Clatronic	1250		
Copland	1119	1219	1299
	1319		
Denon	1390	1134	
Denver	1419		
Diamond	1420		
DK digital	1450		
DMTECH	1420		
Dual	1250	1420	1450
Electrocompaniet	1219		
Elta	1420		
Fisher	1831		
Genexxa	0216		

Goldmund	0219	1119	1219
	1299	1319	
Goodmans	0639	1229	1450
	1641	1419	
Grundig	1119	1219	1299
	1319	0219	
Hanseatic	1420		
Harman/Kardon	1334	1119	1219
	1299	1319	0219
HCM	1420		
HE	1419		
Hitachi	1831	1250	1584
	1229		
Hiteker	1419		
Home Tech	1419		
Industries			
Integra	0165	1350	
JVC	0104	1404	1525
Kenwood	1343	1057	1599
	0216	1323	
KLH	1420		
KXD	1419		
Lenoxx	1419	1641	
Lenoxx Sound	1641		
LG	1323		
Linn	0219	1119	1219
	1299	1319	
Loewe	1119	1219	1299
	1319	0219	
Magnavox	0219	1119	1219
	1299		
Magnum	1641		
Marantz	1119	1219	1299
	1319	0219	
Mark	1119	1219	1299
	1319		
MBO	1382		
Medion	1450		
MEI	1420		
Meletronic	0639		
Meridian	1119	1219	1299
	1319		
Metz	1584		
Micromaxx	1450		
Micromega	1119	1219	1299
	1319	0219	
Mustek	1382		
Myryad	1219	1119	1299
	1319	0219	
NAD	0350	0639	
Naim	1119	1219	1299
	1319		
Nexius	1420		
Nikkai	1419		
Nikko	0639		
Norcent	1419		
Okano	0639		
Onkyo	1350	0165	
Optimus	0216	1053	
Orava	1419		
Palladium	1250		
Panasonic	1809	1548	1338
	1793	1795	1339
Paramount Pictures	1250		
Philips	1219	1299	1119
	1319	0219	
Pioneer	1053	0216	1119
	1219	1299	1319
	1489		
Polk Audio	1319		
Proceed	1219		
Proline	1420		
Proson	0639		
Provision	1419		

QONIX	1450		
Quad	1119	1219	1299
	1319		
Radiola	1119	1219	1299
	1319	0219	
Radionette	1664	1323	
RCA	1184	1420	1489
Red Star	1419		

DVD

3 Plus	0520
3D LAB	0569
4Kus	1188
Acoustic Solutions	0760 0743 1258
AEG	0818 0800 0820 1263 0705
AFK	1258 1182 1081
AG Electronics	1258
Aim	0808 1195 0702 0820
Airis	1254 1351 0702 1035 1375 1137
Aiwa	0725 0899 0563
Akai	0820 0809 0818 0800 0725 1145 0928 0705 0746 0743 0882 0735 1725 1263
Akashi	0868
AKI	1035
Akira	0808 1351
Akura	1201 0928 1081 1170
Alba	0747 0743 0753 0725 0760 0569 0702 1170 1081 1560 1725
Alize	1181
All-Tel	0820 1481 0865
Amitech	0800 0880
Amoi	0882
Amoisonic	0865
Amstrad	0743 1145 1181 1601 0820 0800
AMW	0902
Ansonic	0789 0861
Apex Digital	0702 0747 1034
Arena	0882 1145
Aristona	0569 0676
Art Mito	1451
Asono	1254
ATACOM	1254
A-Trend	0744
Audiovox	0820 0747
Audioworld	0820
Audix	1134 1182 0743
Autovox	0743
Auvio	0873
Aviovis	1195
AWA	0760 0902
Axion	0760
Base	1481
Basic Line	0743
Baze	1195 0928 0702
BBK	0892 1254
Bel Canto Design	1601
Bellagio	0902 1034
Best Buy	0887
Biostek	1035
Black Diamond	0743 0863
Blaupunkt	0747
Blusens	1263 1351
Blue Parade	0601
Blue Sky	0743 0725 0702 0873 0808 0681 0820
BNI	1351
Boghe	1034
Boman	0818 0928 1035
Brainwave	0800 1145

Brandt	0681 0581 0533
Broksonic	0725 1449
Bush	0743 0725 0863 1725 0760 0861 0747 0808 0546 0848 0753 1195 1466 1449 1513 1170 1560
Cambridge Audio	1139 0781
Campomatic Digital	1081
CAT	0819
Celestial	0702
cello	1760
Centrex	0702 1034
Centrum	0743 0819 0809 1035 0705
CGV	0800 0781
Cinea	0871
Cineral	0760
Cinetec	0743 0902
CineVision	0899 0863
Classic	0760 1760
Clatronic	0818 0809 0848 0702 1195 0705 1263
Clayton	0743
Coby	0808 1137 1195 0760 0882
Codex	1263
Compacks	1137
Conia	0702 0882 0546 0865 1351
Contel	0818
Continental Edison	0902 0861
Craig	0861
Crown	0800 0681
Crypto	1258
C-Tech	0798 1182
Cybercom	0861
CyberHome	0744 0846
Cytron	0746 0681 0735 0861 1377
Daenyyx	0902
Daewoo	0863 0899 1513 0735 0800 0744 1466 0902 0808
Dalton	1066
Dansai	0800 1145 1725
Dantax	0753 0725 0743
Daytek	0902 1035
Dayton	0902
DCE	0861
DEC	0808 0848
Decca	0800
Denon	0520 0664 1664
Denver	0808 0818 0928 0848 1137 1351 0702
Denzel	0695
Diamond	0681 0798 0808 0781 0753 0820 1182 0800 1145
Digihome	0743
DigiLogic	0743
digiRED	0747
Digitor	1035 0681
Digitrex	0702 1034
DiK	0861
Dimarson	1263
Dinamic	0818
Disney	1253 0861

DiViDo	0735
DK digital	0861
DMTECH	0820 1301
Dragon	0861
DSE	1760 0863 1182 0705
Dual	0861 0743 0695 0681 0760 0809 0820 1466 1560 1145
Durabrand	0861 0705 0743 1560
D-Vision	1145
DVX	0798 1182
e:max	1263 1351 0800
EagleTec	0744
eBench	1182
E-Boda	0753
Eclipse	0753 0781
E-Dem	1254
Electrohome	0800
Elenberg	1258
Elfunk	0880 0743 0793
Elin	0800
Ellion	0880 1451
Elta	0800 0818 0820 1145 1181 1263 1081
Eltax	1351
Emerson	0621 0735 0899 0705
Enterprise	0621
Enzer	0695 1258 1035 0800
EuroLine	0818 1145 1263 0705
Ferguson	0681 1760 0928 0743 1725
Finlux	0771 0800 0621 0702 0781 1195
Fintec	0743 1560
Firstline	0899 0681 1560
Fisher	0700
Funai	0725 0705
Futronic	1035
Gateway	1188
GE	0747
General Electric	0747
Germatic	1081
Global Link	1254
Global Solutions	0798 1182
Global Sphere	0798 1182
Go Video	0774 1188 0899 0863
GoldStar	0621 0771
Goodmans	0743 1034 0753 0781 0760 0681 0820 0848 0863 1170 1760 1560
GP Audio	1170
GPX	0771
Gradiente	0681
Graetz	0695
Grand Prix	0861 0928
Grandin	0746 0702 0743
Greenhill	0747
Grundig	0725 0805 0569 0681 0735 0820 0743 0700 0753 1725 1034 0581 1760 1466 1513
Grunkel	0800 0861
H&B	0848 0743 0871 0880 1263 1451

Haaz	0798 0781
Haier	0873
Hanseatic	0771 0820 1301
Harman/Kardon	0732
Dragon	0818
HCM	0818
HDT	0735 1227
HE	0760
Hello Kitty	0861
Henß	0743
Hicon	0702
HiMAX	0887 0873
Hitachi	0694 0809 0695 0603 0887 0743
Hiteker	0702
Höher	0861 1034 1254 0760 0928
Home Electronics	0760 0800
Home Tech Industries	1254
HYD	1263
Hyundai	0880 1258 0818 0798 1451 1560 1182 0863
ICP	1182
Ilekei	1137
Ingelen	0818
Inno Hit	0743
Insignia	0705
Integra	0657
Irradio	0771 1145 1254 1263 0899 0800
ISP	0725
it's	0747
ITT	1263
Jamo	1066
Jaton	0695
JBL	0732
JDB	0760
JDV	1258
Jeken	0808
Jepssen	1213
JGC	1560
JMB	0725
JNC	1301
JVC	0653 0588 1194 0569 0533 0897
jWIN	1081
Kansai	1137
Kansas Technologies	1263 1560
Kendo	0743 0861 0702 1377 1725
Kennex	0800 0743 0928 0863
Kenwood	0564 0520 1936
KeyPlug	0800
Kiiri	0800
King D'Home	0863
Kingavon	0848
Kiss	0871 0695
KLH	0820
KLH Digital	0747
Koda	0848
Koss	0681
Kreisen	1451
KXD	0887 1137 1351
Lawson	0735 0746 0798 1182
Leiker	0902
Lenco	0681 0800 0808 0848 0743 0861 1195
Lenoir	1258

Lennox	0868 1035
Lexia	1182 0798
LG	0771 0621 1936 0899 1263
Lifetec	0681 0861 1377
Limit	0746 1182 0798
LiteOn	1188
Lodos	0743
Loewe	0569 0771
Logic3	0802
LogicLab	0798 1182
Logik	0743
Logix	0735
Lumatron	0735 1145 0771 0863 1351 0743 0760 0928
Luxman	0603
Luxor	1034 0743 1760 0760 0747
Magnavox	0533 0705 0848 1170 0569 0743
Magnex	0753 1195
Magnum	1466 1412
Majestic	1137 1375
Manhattan	0735 0743
Marantz	0569
Mark	0743 0725 1725
Marquant	0800 1481
Mastec	1036
Matsui	0681 0743 0702 0725 1760
Maxdorf	0818
Maxent	1377
Maxim	0743
Maya	1375
MBO	0760
MDS	0808
Mecotek	0800
Medialine	1301
Mediencom	0781
Medion	0861 1377 0681 0746 1375 0660 1195 1036 0771
MEI	0820
Memorex	0861
Memory	0760 1081
Metz	0601 0555 0743
MiCO	0753 0781 1253
Micromaxx	1725 0725 1377
Micromedia	0533 0569
Micromega	0569
Microsoft	0552
Microstar	0861
Minax	0743
Minerva	0735
Minoka	0800 1145
Minowa	1195
Mintek	0747
Mitsubishi	0743
Mizuda	0848 0887 1481
Monyka	0695
Raite	0695
MPX	0873
Mustek	0760 1760
Mx Onda	0681 0781 0753 1253
Mystral	0861
NAD	0771
Naiko	0800 1034
NEC	0899 0621 0771
Neovia	1301
Nesa	0747
Neufunk	0695

Nevir	0861 0800 0702
Nexius	0820
Nintaus	1081
Nordmende	0861 1560
Nowa	0873
NU-TEC	0546 1258
Omni	0808 0863 1134 1258
Onix	0868
Onkyo	0657 0533
Oopla	1188
Oppo	1254
Optim	0873
Optimus	0601 0555
Orava	0848
Orbit	0902
Orion	0725 1725 1036 1263 1449 0928
Oritron	0681
P&B	0848 1481
Pacific	0820 1182 0798 0789 0743 0861
Packard Bell	0861
Palladium	0725 0809 0743
Palsonic	0865 0702 0882 0863
Panasonic	0520 1864 1938
Panda	0747 1137
Papouw	0563
Paramount Pictures	0809
peeKTON	1254 0928
Philips	0569 0676 1370 0705 0533 1188
Philo	1375
Phonotrend	1195
Pioneer	0601 0661 1995 0555 1601
Plu2	0880
Pointer	0800
Polk Audio	0569
Portland	0800
Powerpoint	0902 1035
Presidian	0705
Prima	1258
Prinz	0861
Prism	1036 0861
Pro2	1375
ProCaster	1034
Proline	0681 0702 0820 1034 1513 0863
Proscan	0552
Proson	0743 1035
Prosonic	1137
Provision	0848 1351 1137 0760
Pye	0676 0569
QONIX	0808 1081
Qwestar	0681
Radiomette	0771 0899 1936
Radiotone	0743
Raite	0695
RCA	0552 0681 0820 1995
REC	0520
Red Star	0789 0793 0800 0818 0928 1137 1375
Relisys	1377
Reoc	0798 1182
Revoy	0871
Rex	0868

Richmond	1263
Rimax	1181
Rio Audio	0899
Roadstar	0743 0848 0760 1081 0928 0863 1257
Rocksonic	0819
Ronin	0902
Rotel	0653 0588
Rowa	0789 1034 0546 0555 0747
Rowsonic	0819 0753
S&V	1195
Saba	0681 0581
Sabaki	0798
Saivod	0861 0789 0800
Sakyno	1182 0798
Salora	0771
Sampo	1377
Samsung	0603 0774 1962 0520
Sansui	0725 0746 0798 0800 1182 0753 0781 1258 1725 1081 1145 0793
Sanyo	0700 0903 0725 0820 1466 0743 1258
Scan	0735 0865 0880
ScanMagic	0760 1760
ScanSonic	0887
SCE	0819
Schaub Lorenz	0818 1195 0800 1182
Schneider	0861 0809 0569 0735 0818 0743 0681 0899 0820 0676 1257
Schönteck	0743
Scientific Labs	0798 1182
Scott	0681 0702 1066 1263
Seeltech	1254 1481
SEG	0743 0695 0798 1182 0902 0793 1560 1513
Shanghai	0702
Sharp	1286 0660 0743 0725 1449
Sherwood	0747 0771
Shinco	0747
Siemssen	1412
Sigmathek	0887 1254
Siltex	1254
Silva	0818 0928 0861
Silva Schneider	0861 1936 0771
SilverCrest	1182 0798
Singer	0746 0753 0781 0798 1182
Sinotec	0800 1145
Sinudyne	1170
Sistemas	0702
Skymaster	0760 0798 1182
Skyworth	0928
Sliding	1145
Slim Art	0800
Slim Devices	0563
SM Electronic	0760 0798
Smart	0735 0743
Sonashi	0746 0861
Sonic Blue	0899
Soniko	0818
Sonwa	1034

DVD (cont.)			
Sony	0563	0802	0894
	1100	2011	1663
	1463		
Sound Color	1263		
Soundmaster	0798	1182	
Soundmax	0798	1182	
Soundwave	1560		
Spectra	0902		
Standard	0681	1182	0798
	0818	0861	0928
Star Clusters	0798	1257	1182
StarLogic	1035		
Starmedia	0848	1254	1035
Strato	1412	1182	
Strong	0743		
Sunfly	0887		
Sunkai	0800	0880	
Sunstech	0861	1301	
Sunwood	0818		
SuperDigital	1217		
Supervision	0760	0798	
SVA	0702		
Sylvania	0705	0660	
Symphonic	0705		
Synn	0798	1182	
Sytech	0861		
Tandberg	0743	1725	
Tangent	1351		
Targa	1188	1257	1936
	0771		
Tatung	0800		
Tchibo	0771		
TCM	0771		
Teac	0747	0771	0820
	0546	0601	0798
	1036	1182	0621
	1227	0789	0863
	1257	1195	0705
	1254	1258	
TEC	0928		
Technics	0520	1938	
Technika	0800	1145	0861
	1195	1560	1182
Technisson	0702		
Technosonic	1081	1145	
Techwood	0743	1560	0569
Tecnimagen	1263		
Tedelex	1034	1258	0798
	0800	1182	
Telefunken	0820	0819	0818
	1258	0863	1513
	1145	0800	1375
Teletech	0743	1182	0798
Tensai	0681	0800	
Tevion	0681	1066	1412
	1451	1182	0798
	1034	1257	0863
	1377	1760	
Theta Digital	0601		
Thomson	0581	0552	0861
Tokai	0695	0928	0818
	1263		
Tokiwa	0735	0746	
Tom-Tec	0819	0863	
Top Suxess	1254		
Toshiba	0533	0725	1075
	1540		
TRANS-	0902	0861	1195
continents	1263	0863	
Transonic	0702	1195	
Tredex	0873		

Trevi	0861		
Trio	0800		
TruVision	0887	1481	
TSM	1254		
TVE	0743		
Umax	1181		
United	0818	0760	0820
	1258	0702	1195
	0725	1145	0798
	1263	0743	1182
	0705		
Universal	0798	1182	
Multimedia			
Universum	0771	0743	0621
StarLogic	1035		
Starmedia	0848	1254	1035
Strato	1412	1182	
Strong	0743		
upXus	1375		
Urban Concepts	0533		
Venturer	0820		
Vestel	0743	1560	
Vieta	0735		
Viewmaster	0892	1254	
Voxson	0760	0861	
V'Trek	1258		
Waitec	1254	0760	
Walkvision	0747		
Waltham	1560		
Welkin	0861		
Wellington	0743		
Weltstar	0743		
Wharfedale	0798	0820	0753
	0781	1182	0800
	1145		
Wilson	0861	1263	
Windy Sam	0603		
Wintech	1217		
Woxter	1181	1254	
XBox	0552		
XLogic	0800	0798	1182
	1258		
XMS	0818	0800	
Xoro	1213		
Yakumo	1034		
Yamada	1034	0902	1181
	1188		
Yamaha	0569	0676	0520
	1188		
Yamakawa	0695	0902	1134
Yukai	0760		
Zenith	0533	0899	0621
	0771		

PVR			
@sat	1330		
@Sky	1364		
Amstrad	1205		
Arnion	1330		
ASCI	1364		
Astro	1130		
Aurora	1463		
Austar	1206		
B@ytronic	1442		
Brainwave	1244		
British Sky	1205		
Broadcasting	1205		
BSkyB	1205		
Bush	1675		
CanalSatellite	1369		
Chess	1364		
CityCom	1206		
Comag	1442		
DigiFusion	1675		
DigiQuest	1330		
Dream Multimedia	1267		
eMTech	1244		
Foxtel	1206	1386	
Galaxis	1206		
GbSAT	1244		
Gecco	1442		
General Satellite	1206		
Globo	1364	1442	
Hanseatic	1130		
HB	1244		
HDT	1189		
Hirschmann	1442		
Homecast	1244		
Humax	1206	1457	1705
Hyundai	1189		
ID Digital	1206		
Imperial	1130	1364	
Interstar	1244		
Jaeger	1364		
Jepssen	1244		
Kathrein	1591		
Kongque	1330		
L&S Electronic	1364		
Maximum	1364		
Mediacom	1236		
Medion	1364	1442	
Multichoice	1463		
Neotion	1364		
Opentel	1442		
Orbis	1364	1442	
Orbitech	1130		
Pace	1205	1386	1453
	1880		
Panasonic	1334		
Pilotime	1369		
Pino	1364		
Premiere	1130	1206	
Rebox	1244		
Sagem	1283		
Samsung	1236		
Sat Control	1330		
Satplus	1130		
Schaub Lorenz	1244		
Schneider	1236		
Schwaiger	1364	1442	
Siemens	1364		
Sky	1205		
SKY Italia	1878	1880	

Sky XL	1442		
SKY+	1205		
Skymaster	1364		
skyplus	1364	1442	
Stream	1878		
Strong	1189	1330	
Sunny	1330		
Systec	1364		
TechniSat	1130		
Technosat	1236		
Telestar	1130	1364	
Televés	1244	1330	1364
Tevion	1364		
Thomson	1205	1930	
Topfield	1236	1575	1813
TPS	1283		
UEC	1386		
Worldsat	1244		
XSat	1244		
Xtreme	1330		
Zehnder	1364	1442	
Zinwell	1206		

SAT			
@sat	1330		
@Sky	1364		
ABsat	1353	0743	
Acoustic Solutions	1314		
ADB	0672	0917	1289
	1397	1503	1521
Adcom	0230		
Akai	0230		
Akura	1656		
Alba	1314	0743	
Allsat	0230	1047	
Allsonic	0399		
Alltech	0743		
Allvision	1262	1364	1442
Alpha	0230		
Amitronica	0743		
Ampere	0162		
Amstrad	0162	0877	1205
	1831	1143	1878
	0743		
Anglo	0743		
Ankaro	0399	0743	1309
AntSat	1047		
Apro	1702		
Arcon	1309	0162	1105
Arion	1309		
Armstrong	0230		
Arnion	1330		
ASA	0329		
Asat	0230		
ASCI	1364		
ASLF	0743		
AssCom	0883		
Aston	1159	1291	
Astra	0743		
Astratec	1773		
Astro	0163	0203	0399
	0688	1143	1129
	1130	0230	1303
Audioline	1459		
Aurora	0909	0672	1463
Austar	1289	0672	0909
Avanit	0329		
Axil	1487		
Axis	1141	0399	
Axitronic	1656		
B.net	1702		
B@ytronic	1442	0329	
Balmet	1487		
Bentley Walker	1047		
Best	0399		
Big Sat	1487		
Black Diamond	1314		
Blaupunkt	0203		
Blue Sky	0743		
Blue Star	1309		
Boca	0162	1396	0743
	1262		
Boshmann	1443		
Boston	0162		
Boxer	1488		
Brainwave	1244	0688	1702
British Sky	1205	0877	
Broadcasting			
Broco	0743		
BSkyB	1205	0877	
BT	1326		
Bubu Sat	0743		

Bush	1314	1656	1702
	1675	1501	1773
	1321	0382	0672
Canal Digitaal	0883		
Canal Digital	1883	0883	0197
	1076	1364	
Canal+	0883	1883	
CanalSat	0883		
CanalSatellite	0883	1369	1883
Centrex	1577		
CGV	1443	1597	
Champion	1309		
Cherokee	1353		
Chesley	1577		
Chess	1364	0743	1656
CityCom	1206	1262	0329
	0848	0534	1105
	0688		
Clatronic	1443		
Clayton	1656		
Colombia	0162		
Columbia	0162		
Com Hem	1206		
Comag	1262	1443	1442
	1396	0162	
Comsat	1443		
Condor	0399		
Connexions	0399		
Conrad	0399	0162	
Coship	1487	1702	
Crown	1314		
Cyfra+	1883	1439	0883
Cyfrowy Polsat	0883		
Cyrus	0230		
Daewoo	1326	1773	0743
	1141		
Dantax	1656		
D-box	1144	0753	
Deltasat	1105		
DGTEC	1272	1572	
Digatron	1324		
Digenius	0329	1191	
Digi Raum	1206		
Electronics			
Digitality	1364		
DigiFusion	1675	1773	
Digihome	1314		
Diginet	1577		
DigiQuest	1503	1487	1330
DigiSat	1262		
Digisky	1487		
Digital+	1883	1076	0883
DigitAlb	1262	1577	
DigitalBox	1130		
DigitAll World	1257		
DiPro	1577	1503	1397
DirectTV	0129		
Distratel	1313		
Distrisat	0230		
DMT	1105		
DNT	0230		
Doro	1702		
DRE	1206		
Dream Multimedia	1267		
DStv	0672	0909	
Dune	0399		
Durabrand	1314		
Echolink	1396		
Echostar	1230	0640	0197
	0883	0743	1353
	1503	1439	1797
Eco-Star	1443		

Edision	1309		
Einhell	0162	0743	
Elap	0743	1641	1159
	1597	1443	
Electron	1309		
Elsat	0743		
Elta	0230	0399	
Emme Esse	0399		
eMTech	1244		
Engel	1047	0743	1281
	1831		
EuroLine	1281		
Europa	0230		
Europhon	0329	0162	0743
	1364		
Eurosat	1443	1641	
Eurosat	1597		
Eurosky	0162	0329	0399
Eurostar	0848		
Eutelsat	0743		
Eycos	1309		
Fagor	1641		
Fenner	0743	0399	
Ferguson	1321	0741	1773
	1309		
Finlux	1656	1262	
Flair Mate	0743		
FMD	1281	1487	1443
Force	1224		
Fortec Star	1047		
Foxtel	1386	0909	0750
	1206	1192	
Fracarro	0155		
Free Wave	1773		
Technology			
Freecom	0203		
FTEmaximal	0399	0743	
Fuba	1831	0399	0203
	1191	0329	1281
Fugionkyo	0155		
Galaxis	1141	1206	0883
	0399	0909	
Gardiner	0848		
Garnet	1105		
GbSAT	1244		
Gecco	1442	1303	
General Satellite	1206		
Globo	1281	1656	1442
	1459	1364	
GOD Digital	0230		
Gold Box	0883		
Gold Vision	1047		
Golden Interstar	1313		
GoldMaster	1364		
Goodmans	1314	1321	
Gradiente	0917		
Grandin	1656		
Grococ	1439	1487	
Grundig	0203	0877	1321
	1314	0909	0883
H&B	1577		
Hallo	1656		
Hama	1597		
Hanseatic	1129	1130	
Hänsel & Gretel	0162		
Hauppauge	1324	1702	
HB	1244	1831	
HDT	1189		
HE@D	1309		
Healing	1577		
Hills	1262		

SAT (cont.)

Hirschmann	1141	1143	0203
	0329	1262	0399
	0155	1442	
Hitachi	1314		
HNE	1262	0162	
Homecast	1244		
Humax	1206	1262	1457
	1705	1773	1255
Huth	0162	1047	1105
Hyundai	1189	1105	1446
i-CAN	1397		
ID Digital	1206		
IDTE	1189		
Imperial	1459	1364	1129
	1130	1227	1225
	0230	1702	
Inno Hit	1656		
International	0162		
Interstar	1047	1244	
Inves	1773		
iotronic	1443	0162	
ITT Nokia	0753		
Jadeworld	0672		
Jaeger	1364		
Jepssen	1244		
KabelBW	1225	1227	1076
	1206		
Kamm	0743		
Kansalaisboksi	1577		
Kaon	1330		
KaTelco	1141		
Kathrein	1591	1597	0688
	0510	0534	0203
	0230	0743	0848
	1353	1446	
Kennex	0155		
Kenwood	0883		
Key West	0162		
Kongque	1330		
König	1309		
KPN	1575		
Kreiling	0688	1656	
Kreiselmeyer	0203		
K-SAT	0743		
Kyostar	0162		
L&S Electronic	0399	0162	1364
Labgear	1326		
LaSAT	0399	0162	0329
	0203		
Leiko	1656		
Lemon	1364		
Lenco	0743	0399	
Lennox	0399		
Lennox	1641		
Lexus	0230		
LG	1444	1105	
Lifesat	0162	0399	0329
	0743		
Linsar	1314		
Listo	1656		
Lodos	1314		
Logik	1314		
Logix	1047	1105	
Lorenzen	0329	1324	1191
	0162		
Lupus	0399		
Macab	0883		
Madritel	0672		
Manata	0743	0162	
Manhattan	1047	1330	

Marantz	0230		
Maspro	0743	0203	
Matsui	1656	0203	1773
Maximum	1105	1364	
MDS	1255		
Mediabox	0883		
Mediacom	1236		
MediaSat	0883		
Medion	1262	0329	0743
	0162	1105	1442
	1656	1364	0399
Medison	0743		
Mega	0230		
Meletronic	0848		
Metronic	0743	1309	1313
	0848	0162	1443
	1702		
Metz	0203		
Micro	0743	1324	
Micro electronic	0743		
Micro Technology	0743		
Micromaxx	0329	0399	
Microstar	1105	0329	1191
Microtec	0743		
Morgan's	0162	0743	0230
	1262	1442	1439
Motorola	0886	1503	
Multichoice	0909	1463	0672
Myryad	0230		
Mysat	0743		
MySky	1880	1386	1878
Neotion	1364		
Netgem	1352		
Netsat	0917	0129	
Neuf TV	1352		
Neuhaus	0743		
Neuling	1262	0162	
Neusat	0743	1309	
Neveling	1191		
NextWave	1047		
Nikko	0743	0753	0230
Nokia	1144	1753	1053
	1253	0753	0883
Noos	0883		
Nordmende	1641		
Nova	0909		
Numericable	0883		
OctalTV	1324	1459	
OKI	1597	1487	
Onn	1314		
Opentel	1262	1442	
Optex	1313	0743	1641
	1656	1443	
Optima	1577		
Optus	0909	0883	1386
Orbis	1364	1442	1262
Orbitech	1129	1225	1227
	1130	0230	
P/Sat	1262		
Pace	1386	1205	0877
	1453	1878	0917
	1353	1880	0271
	0821	0750	0230
	0883		
Pacific	1314		
Packard Bell	1141		
Palcom	0329	1641	1191
	1439		
Panasat	0909		
Panasonic	0877	1334	1434
Panda	0203		
Patriot	0162		

peeKTON	1487		
Philips	0129	1144	0883
	0163	0230	1702
	1773	0848	0203
	1459		
Phoenix	1303	1577	
Phonotrend	1047	1230	
Pilotime	1369		
Pino	1364		
Pioneer	0883	1338	0382
PMB	1641	0743	
Portland	1326		
Power Sky	1309		
Preisner	0162	1143	1396
Premiere	1144	0753	1206
	1225	1130	1705
	1141	0688	
Primacom	1141		
Pro Basic	0883		
Proline	1314		
PYROD	1577		
QNS	1434		
Quadral	0399	1353	
Quelle	0329		
Radiola	0230		
Radix	1143		
RCA	1321		
Rebox	1244		
Red Star	0399		
Regal	1281		
RFT	0230		
Roadstar	0743	0883	
Rollmaster	1443		
Rover	0743	0399	
Rownsonic	1597		
SAB	1281	1330	
Sagem	1144	1720	
Salora	1262		
Samsung	1273	1600	1488
	1047	1236	0883
	1205		
Sansui	1575	1281	
Sanyo	1656		
Sat Control	1330		
Sat Industrie	1641		
Sat Team	0743		
SAT+	1439		
Satec	0743		
Satelco	0399		
Satlink	1597		
Satplus	1130		
Schaub Lorenz	1244		
Schneider	1281	1236	
Schwaiger	0534	1364	1487
	1442	1459	1141
	1702	0162	1105
SCS	0329		
Sedea Electronique	0155	0162	1313
	1656	1309	
SEG	1281	0399	1656
	1105	1314	
Serino	0640		
Servimat	1641		
ServiSat	1281	0743	
Sherwood	1641	1439	
Siemens	0203	1656	1364
	1459	1702	
Silva	0329		
Skantin	0743		
SKR	0743		
SKT	0162		

Sky	0129	0886	1205
	0877	0917	0741
SKY Deutschland	1144	0753	1206
	1225	1130	1705
	1141	0688	
SKY Italia	1878	1880	
Sky XL	1442	1281	
SKY+	1205		
Skymaster	1439	1641	0743
	1230	1105	1364
	1597	1575	
Skymax	0230	1443	
Skypex	0329		
skyplus	1262	1364	1205
	1442	1487	
SkySat	0743		
SL	0162	1702	
SM Electronic	0743	1230	1105
Smart	1303	0162	0329
	1143	1262	0743
	1443	1434	
SmartVision	1487		
Soniq	1597		
Sony	0877	1588	0312
	0883		
SR	0162		
Star Sat	0162		
Starland	0743		
Stream	1878		
Stream System	1330		
Strong	1397	1439	0743
	1656	1831	0883
	1314	1189	1330
	0155	0399	0909
	1503		
Sumin	1442		
Sunny	1330		
Sunny Sound	0399		
Sunsat	0743		
Sunstar	0399	0162	0672
SuperMax	1313		
Supratech	1443		
Systec	0162	1364	
S-ZWO	1237		
Tarbs	1255		
TBoston	1487	1281	
Teac	1257	1255	1352
	1577		
Tecatel	1230		
Technika	1314	1702	
TechniSat	1225	1227	1130
	1129	1352	0230
Technomate	1313		
Technosat	1236		
Technosonic	1702		
Technotrend	1459	1702	
Technowelt	0162		
Techsan	1047		
Techwood	1314	1656	1281
tekComm	1047		
TELE System	1641	1831	1189
	1439	1281	
TeleClub	1397		
Telecom	0743		
Telestar	1129	1130	0230
	1459	1281	1364
	1656	1702	1225
	1227		
Televés	0162	1244	1330
	1364	1439	
Televisa	0917		
Telewired	1262		
Tesla	1656		

Tevion	1702	1364	0743
	1439	1597	
Thomson	0741	0877	1321
	1883	1076	1205
	0883	1930	0743
Tiny	1702		
Tioko	0162		
Tividi	1459		
Tokai	0230		
Tonna	1641	0743	
Topfield	1575	1813	1236
	1237		
Toshiba	1314		
TPS	1283		
Triax	0230	0743	0883
	1281	1326	1321
	0162	1129	1143
	1257	1656	1641
	1443		
Tricolor TV	1206		
Trio	1105		
TT-micro	1459		
Turnsat	0743		
Twinner	0162	0743	1641
UEC	0909	1192	1386
Unimax	1577		
Unisat	0230	0162	
United	1281		
Unitymedia	1459	1206	1225
	1227		
Universum	0203	0329	1129
Van Hunen	1191	0329	
Vantage	1488		
Variosat	0203		
Vega	0399		
Ventana	0230		
Vestel	1314	1281	
VH Sat	1191	0329	
Viasat	1353	1053	1225
	1227		
Viola Digital	1702		
Vision	1656		
Visionic	0155	1309	
Visiosat	1443	0743	1159
	1487		
Vitecom	1443		
Vivid	1192		
Voo	0883		
VTech	0848		
Wavelength	1262	1443	
Wharfedale	1314	0230	
Winbox	1831		
Wisi	0203	0329	0162
	1442	1262	
Worldsat	1503	1244	1281
XMS	1105		
Xrypton	0399		
XSat	0743	1244	0877
	1353		
Xtreme	1330		
Yakumo	1443		
YES	0917		
Yess	1577		
Zehnder	1281	1364	1105
	1262	1443	1442
	0534	0848	0399
Zenith	0886		
Zeta Technology	0230		
Zinwell	1206		
Zodiac	1831	1309	