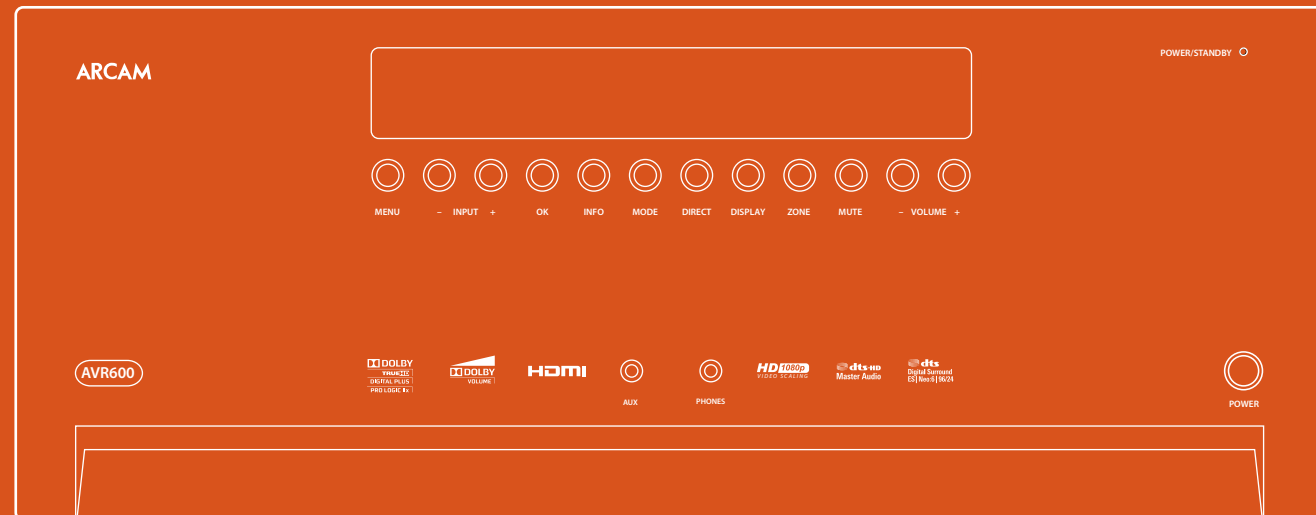


# ARCAM


English

## FMJ AVR600 / AV888


**HANDBOOK** AVR surround amplifier / AV processor



# safety guidelines





**CAUTION**  
RISK OF ELECTRIC SHOCK DO NOT OPEN



**ATTENTION**  
RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR

**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.

## Class II product

This equipment is a Class II or double insulated electrical appliance. It has been designed in such a way that it does not require a safety connection to electrical earth ('ground' in the U.S.).

Many of these items are common sense precautions but, for your own safety and to ensure that you do not damage the unit, we recommend that you read them.

## Important safety instructions

This product is designed and manufactured to meet strict quality and safety standards. However, you should be aware of the following installation and operation precautions.

### 1. Take heed of warnings and instructions

You should read all the safety and operating instructions before operating this equipment. Retain this handbook for future reference and adhere to all warnings in the handbook or on the equipment.

### 2. Water and moisture

The presence of electricity near water can be dangerous. Do not use the equipment near water – for example next to a bathtub, washbowl, kitchen sink, in a wet basement or near a swimming pool, etc.

### 3. Object or liquid entry

Take care that objects do not fall and liquids are not spilled into the enclosure through any openings. Liquid-filled objects such as vases should not be placed on the equipment.

### 4. Placing the equipment

Only use a rack or shelf that is stable and strong enough to support the weight of this equipment.

### 5. Ventilation

Do not place the equipment on a bed, sofa, rug or similar soft surface, or in an enclosed bookcase or cabinet, since ventilation may be impeded.

### 6. Heat

Locate the equipment away from naked flames or heat-producing appliances such as radiators, stoves or other appliances that produce heat.

### 7. Climate

The equipment has been designed for use in moderate climates and in domestic situations. Unplug this equipment during lightning storms to prevent possible damage from a strike or mains surge.

### 8. 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.

### 9. 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.

### 10. Power-cord protection

Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to the point where they exit from the equipment.

### 11. Power lines

Locate any outdoor antenna/aerial away from power lines.

### 12. Speaker connections

Any speakers must be connected to the unit using class II wire (i.e. no connection to Earth should be made). Failure to observe this precaution may cause the unit to become damaged.

### 13. Non-use periods

If the equipment is not being used for an extended period, we recommend that you unplug the power cord of the equipment from the outlet, to save power.

### 14. 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.

### 15. Servicing

You should not attempt to service the equipment. Contact your dealer to arrange servicing.

### 16. 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 into, 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.



## 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.

E-2


## consignes de sécurité

	<b>CAUTION</b> RISK OF ELECTRIC SHOCK DO NOT OPEN	<b>ATTENTION</b> RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR	
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**ATTENTION :** afin de réduire les risques de choc électrique, n'ouvrez pas le boîtier de l'appareil. Les pièces internes ne sont pas réparables par l'utilisateur. Pour tout problème matériel, contactez des techniciens qualifiés.

 **ATTENTION :** afin de réduire les risques de choc électrique et d'incendie, veillez à ne pas exposer cet appareil à la pluie ou à l'humidité.

Le triangle dans lequel figure le symbole d'un éclair alerte l'utilisateur de la présence, dans le boîtier de l'appareil, d'une tension dangereuse, non isolée et suffisamment importante pour représenter un risque de choc électrique.

 Le triangle dans lequel figure un point d'exclamation alerte l'utilisateur de la présence d'instructions de fonctionnement et de maintenance (réparation) importantes dans la documentation accompagnant le produit.

**ATTENTION :** au Canada et aux États-Unis, afin de prévenir tout choc électrique, aligner la plus grosse broche de la prise à la fente la plus large de la fiche et insérez entièrement la prise dans la fiche.

## Class II produit



Ce produit est un appareil électrique à isolation double (appareil de classe II). Il a été conçu pour ne pas nécessiter de connexion de sécurité à la terre (ou à la masse).

Bon nombre des consignes ci-dessous sont de simples précautions de bon sens. Nous vous recommandons toutefois de les lire pour votre propre sécurité et pour celle de l'appareil.

### Instructions de sécurité importantes

Cet appareil a été conçu et fabriqué conformément aux normes de qualité et de sécurité les plus strictes. Vous devez cependant observer les précautions qui suivent lors de son installation et de son utilisation.

#### 1. Avertissements et consignes

Il est impératif de lire les consignes de sécurité et d'utilisation avant de mettre cet appareil en marche. Conservez ce manuel pour vous y référer par la suite et respectez scrupuleusement les avertissements figurant dans ce manuel ou sur l'appareil lui-même.

#### 2. Eau et humidité

L'installation d'un appareil électrique à proximité d'une source d'eau présente de sérieux risques. Il ne faut donc pas installer l'appareil près d'une baignoire, d'un lavabo, d'un évier, dans un sous-sol humide, près d'une piscine, etc.

#### 3. Chute d'objets ou infiltration de liquides

Veillez à ne pas laisser tomber d'objets ni couler de liquides à travers les ouvertures de l'appareil et ne placez pas sur l'appareil d'objet contenant du liquide, tel qu'un vase par exemple.

#### 4. Placement de l'équipement

Utilisez uniquement une étagère assez stable et solide pour supporter le poids de cet équipement.

#### 5. Ventilation

Évitez de placer l'appareil sur un lit, un canapé, un tapis ou une surface similaire instable ou dans une bibliothèque ou un meuble fermé. Ceci risquerait de nuire à la ventilation du système.

#### 6. Exposition à la chaleur

Ne placez pas l'appareil à proximité d'une flamme nue ou de tout dispositif produisant de la chaleur : radiateur, poêle ou autre.

#### 7. Conditions climatiques

L'appareil est conçu pour fonctionner dans des climats modérés. Déconnectez cet équipement pendant un orage pour éviter tous dommages possibles d'un impacte de la foudre ou de surtension.

#### 8. Nettoyage

Mettez l'appareil hors-tension avant de le nettoyer.

Pour l'entretien du boîtier, utilisez uniquement un chiffon doux, humide et non pelucheux. N'utilisez pas de solvant chimique.

L'emploi d'aérosols ou de produits de nettoyage pour meubles est déconseillé, car le passage d'un chiffon humide risquerait de laisser des traces blanches et indélébiles.

#### 9. Alimentation secteur

Branchez l'appareil uniquement sur une alimentation secteur du type mentionné dans le manuel d'utilisation ou indiqué sur l'appareil lui-même.

Le principal moyen d'isoler l'appareil du secteur est d'utiliser l'interrupteur situé à l'arrière de l'appareil. Cet appareil doit être installé de façon à pouvoir être débranché si nécessaire.

#### 10. Protection des câbles d'alimentation secteur

Veillez à ce que les câbles d'alimentation ne se trouvent pas dans un lieu de passage ou bloqués par d'autres objets. Cette règle s'applique plus particulièrement aux prises et câbles d'alimentation et à leurs points de sortie de l'appareil.

#### 11. Câbles haute tension

Évitez de monter l'antenne extérieure de l'appareil à proximité de câbles haute tension.

#### 12. Branchement des haut-parleurs

Tous les haut-parleurs doivent être connectés à l'AVR600 avec du câble de classe II (aucune mise à la terre nécessaire). Le non-respect de cette précaution est susceptible d'endommager l'appareil.

#### 13. Périodes de non-utilisation

Si l'appareil possède une fonction de mise en veille, un courant faible continuera de circuler lorsqu'il sera réglé sur ce mode. Débrancher le cordon secteur de la prise murale si l'appareil doit rester inutilisé pendant une période prolongée.

#### 14. Odeur suspecte

Arrêtez et débranchez immédiatement l'appareil en cas d'émission de fumée ou d'odeur anormale. Contactez immédiatement votre revendeur.

#### 15. Service

N'essayez jamais d'effectuer d'autres opérations que celles mentionnées dans ce manuel. Toute autre intervention doit être effectuée par un personnel qualifié.

#### 16. Entretien par des techniciens qualifiés

L'appareil doit être entretenu par du personnel qualifié lorsque :

- A. la prise ou le câble d'alimentation a été endommagé,
- B. des objets sont tombés ou du liquide a coulé dans l'appareil,
- C. l'appareil a été exposé à la pluie,
- D. l'appareil présente des dysfonctionnements,
- E. l'appareil est tombé ou le boîtier a été endommagé.

### Respect des consignes de sécurité

Cet appareil a été conçu pour répondre à la norme internationale de sécurité électrique EN60065.

Cet appareil est conforme à la Section 15 des règles de la FCC. Son fonctionnement est soumis aux deux conditions suivantes :

- (1) ce produit ne risque pas de causer d'interférences nuisibles et (2) ce produit doit accepter toutes les interférences reçues, y compris celles qui risquent d'entraîner un fonctionnement indésirable.



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Thank you and congratulations for purchasing your Arcam FMJ AVR600 surround amplifier or AV888 AV processor.

Arcam has been producing specialist audio products of remarkable quality for over three decades and the new FMJ products are the latest in a long line of award winning Hi-Fi. The design of the FMJ range draws upon all of Arcam's experience as one of the UK's most respected audio companies, to produce Arcam's best performing range of products yet – designed and built to give you years of watching and listening enjoyment.

This handbook is intended to give you a detailed guide to using the AVR600 surround amplifier and the closely related AV888 AV processor. It starts by giving advice on installation, moves on to describe how to use the product and finishes with additional information on the more advanced features. Use the contents list shown on this page to guide you to the section of interest.

We hope that your FMJ product 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](http://www.arcam.co.uk).

The FMJ development team

welcome

English

## Professional Installation?

It may be that the unit has been installed and set up as part of your Hi-Fi installation by a qualified Arcam dealer. In this case, you may wish to skip the sections of this handbook dealing with installation and setting up, and move directly to the sections dealing with using the unit. Use the Contents list to guide you to these sections.

## DIY setup?

The AVR600 and AV888 are powerful and sophisticated items of AV equipment. If you are setting a unit up yourself, it is recommended that you read this handbook thoroughly before beginning. For instance, correct speaker configuration and placement is a key to getting the most out of your FMJ product and making sure that all the elements of your system work in harmony.

before you  
begin...

The AVR600 is a high-quality and high-performance home-cinema processor and amplifier built to Arcam's quality design and manufacturing standards. The closely related AV888 is a home-cinema processor which provides multichannel input to an external amplifier (such as Arcam's P777). They both combine digital processing with high-performance audio and video components to form the locus of an unrivalled home-entertainment centre.

The AVR600 allows switching and control of eight analogue and seven digital sources in addition to internal AM, FM and DAB radio or a SiriusConnect™ Home Tuner input – as well as networked and USB audio sources – making it an ideal hub for both home-cinema and two-channel stereo systems.

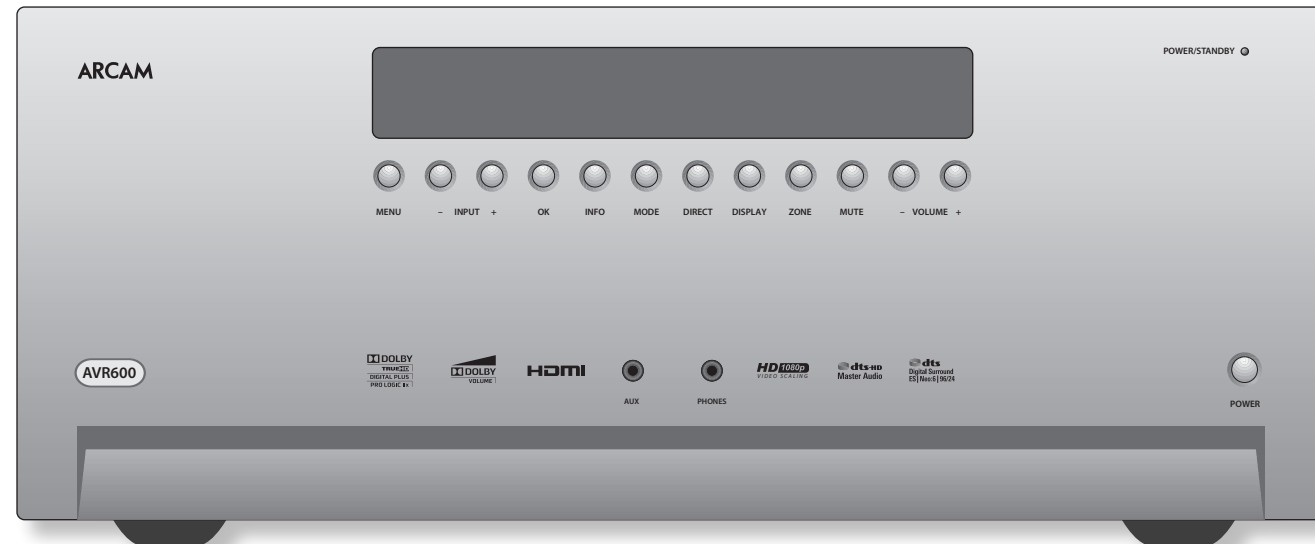
Since many of these source components are also capable of generating video signals, both the AVR600 receiver and the AV888 processor units include broadcast-quality switching for HDMI, Composite, S-Video, RGB

and Component video signals. There are audio and video outputs for PVR and VCR recording, as well as two digital outputs for digital recording of digitised audio sources. DVD-Audio and SACD can be connected via the multichannel input. Control of the AVR600 or the AV888 is either by front panel control buttons, IR remote control or RS232 port.

The CR102 remote control supplied with either unit is an eight-device 'universal' learning remote control which is simple to use, and once set up is able to control a complete system. It can be programmed using its vast internal code library to control CD and DVD players, PVRs, TVs and other devices.

*The installation of the AVR600 or AV888 in a listening room is an important process which requires care at every stage. For this reason, the installation information is very comprehensive and should be followed carefully to achieve an unrivalled level of performance.*

**The AVR600 surround amplifier and AV888 AV processor are both designed to produce a level of performance that will truly bring music and movies to life.**



## Placing the unit

- Place the unit on a level, firm surface, avoiding direct sunlight and sources of heat or damp.
- Do not place the unit on top of a power amplifier or other source of heat.
- Do not place the unit in an enclosed space such as a bookcase or closed cabinet unless there is good provision for ventilation. The unit will run warm during normal operation.
- Do not place any other component or item on top of the amplifier as this may obstruct airflow around the heat-sink, causing the amplifier to run hot. (The unit placed on top of the amplifier would become hot, too.)
- Make sure the remote-control receiver on the front panel display is unobstructed, otherwise this will impair the use of the remote-control. If line-of-sight is impractical, a remote-control repeater can be used with the rear panel connector (see page 17).
- 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 amplifier 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.

The amplifier can be switched for operation between 195–265V (switch position 230V) and 85–132V (switch position 115V).


### NOTE

Ensure that the unit is switched off and the power lead removed before changing the position of the voltage range switch.

Push the IEC plug end of the power cable into the socket on the back of the amplifier, 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 amplifier can be turned on using the **POWER** switch on the front panel. While switched on, the front panel LED will glow green.

### Standby power

The unit can be switched into standby mode using the  button on the CR102 remote control. While in standby mode the front panel LED will glow red and power consumption is around 3 watts.

While in Standby mode, it may be possible to hear a slight residual hum coming from the mains transformer inside the amplifier. This is perfectly normal. However, if the unit is to be left unused for an extended period, we recommend that you disconnect it from the mains supply to save power.

## 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.

For information on speaker cabling, please refer to the 'Speakers' section, beginning on page 18.

## Radio interference

The AVR600 and AV888 are audio devices containing microprocessors and other digital electronics. They have been designed to very high standards of electromagnetic compatibility.

This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.






If the unit causes interference to radio or television reception (which can be determined by switching the unit off and on), the following measures should be taken:

- Re-orient the receiving antenna or route the antenna cable of the affected receiver as far as possible from the unit and its cabling.
- Relocate the receiver with respect to the unit.
- Connect the affected device and the unit to different mains outlets.

If the problem persists, please contact your Arcam dealer.

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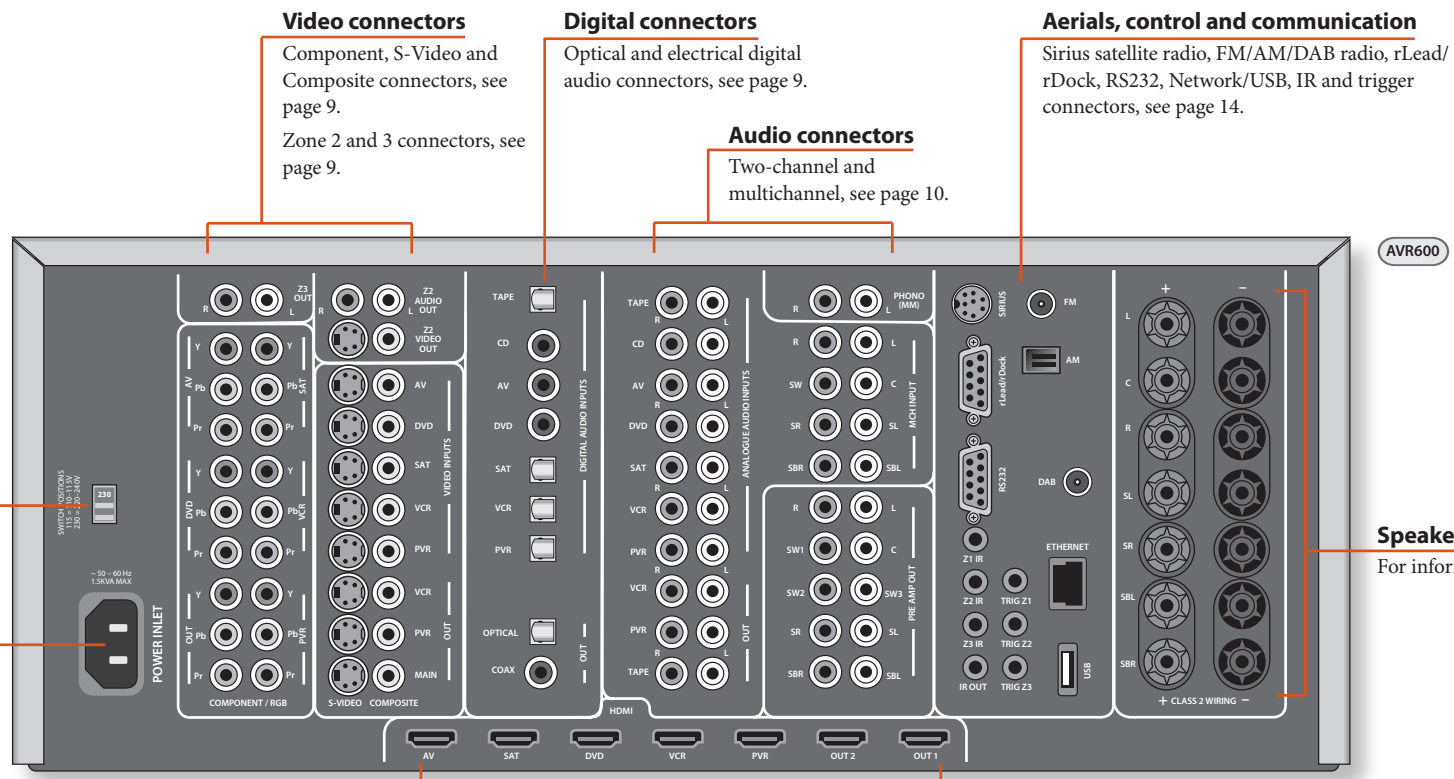
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# rear panel connectors



### Voltage select

Ensure the voltage selected matches your local power supply

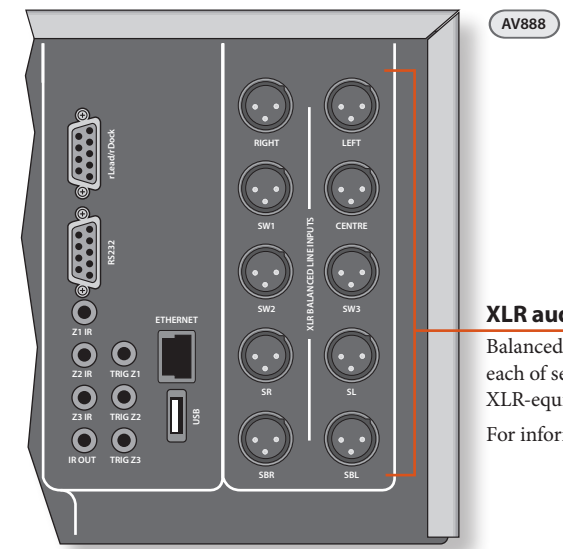
### Power inlet

Connect the correct mains cable here

### HDMI

For information, see page 8.

**NOTE**  
Please read the 'Placing the unit', 'Power' and 'Interconnect cables' sections on page 5 before connecting up your AV600 or AV888!



# audio/video connections

Before connecting your AVR600 or AV888 and power amplifier (e.g. the Arcam P777) to your source components and speakers, please read through the next few pages which will explain all the input and output connectivity that is available. The 'Speakers' section explains how to connect up your speakers to avoid damage to the amplifier and how to arrange your speakers for best performance.

## General

The inputs are named to make it easier to reference connected devices (e.g. 'DVD' or 'VCR'). They all have the same input circuit (with the exception of the 'PHONO' input), so there is no reason why you should not connect a different device to any of the inputs. For example, if you had two DVD players and the AV input was not being used, then the second DVD player could be connected to the AV input.

When connecting a video source, its audio must be connected to the corresponding sockets. For example, if you had a satellite decoder plugged into a SAT video input, the audio must be connected to the SAT audio inputs!

The hierarchy for video connections for best quality is as follows;

- HDMI
- Component/RGB
- S-Video
- Composite.

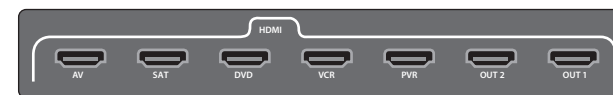
You should connect as many of these as possible. The unit will automatically select the best quality connection for the source available. For any video source to be available in Zone 2 you must have an S-Video or Composite connection between the unit and the source.

## Making connections

- Wherever possible, connect both the analogue and digital outputs of digital sources. This enables use of a digital input for the main zone and the corresponding analogue input for recording onto an analogue tape deck, VCR or PVR, or for the Zone 2 or 3 output.
- Take care to place cables as far from any power supply cabling as is practicable, to reduce hum and other noise problems.

### Important notes about Component/RGB video inputs and outputs

- When you connect your devices to these connectors, take care to follow the letter/colour coding for each input. No damage will occur but incorrectly coloured or unstable pictures will result.
- The Component video inputs have sufficient bandwidth for NTSC (525/60) or PAL (625/50) video and HDTV video signals.



## HDMI connectors

### AV, SAT, DVD, VCR, PVR

Connect the HDMI video outputs of your source equipment to these corresponding HDMI inputs.

### OUT 1

Connect this output to the HDMI video input of your main zone display device.

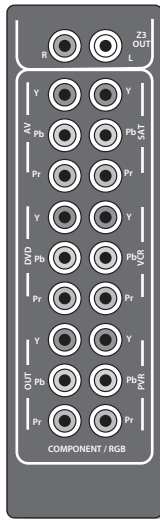
### OUT 2

Connect this output to the HDMI video input of your second display device or to another HDMI display device in a second living space. As the unit has only one processed video path, this signal will be a copy of the signal on OUT 1.

### NOTE

All Zone 1 analogue video outputs will be disabled if an HDMI digital video source is selected.

## Zone 3 connectors



### Z3 OUT

Connect these analogue audio outputs to your Zone 3 equipment. See 'Multi-room Setup' on page 48 for information.

## Component/RGB video connectors

These inputs are suitable for connection to source devices which output Component (YUV or YPbPr) or RGB high quality analogue video signals. These

signals are usually available from DVD players, set-top boxes or games consoles.

If you are connecting up to an RGB source you will also need to connect the source's Composite output to the unit's Composite input to act as a video sync. The Composite signal should be on the same named input as the RGB signals.

RGB video outputs on source equipment are often on SCART connectors. You will need to use a SCART to 'RGB+Sync on phono' breakout cable, available from your Arcam dealer.

### NOTE

When setting up the menus (later in this manual), you will need to select whether the three-wire high quality video input is Component or RGB for each input. This is done on the 'HQ Video In' line in the Input Config menu. Failure to do this can result in a green looking picture or a picture that is unstable.

### AV, DVD, SAT, VCR, PVR

Connect the Component video outputs of your source equipment to these inputs.

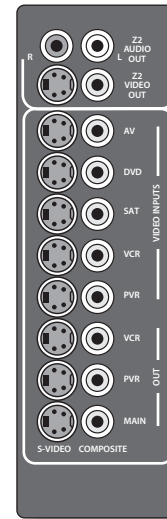
### OUT

Connect this output to the Component video input of your display device.

### NOTE

Analogue RGB video output is not available from the AVR600 or AV888. The analogue three-wire high quality video output is always configured as Component video.

## Zone 2 connectors



### Z2 AUDIO OUT, Z2 VIDEO OUT

Connect these analogue audio and video outputs to your Zone 2 equipment. See 'Multi-room Setup' on page 48 for information.

## S-Video and Composite connectors

### AV, DVD, SAT, VCR, PVR

Connect these inputs to the S-Video and Composite outputs of your available source equipment.

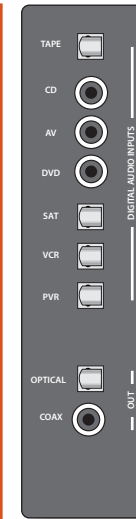
### VCR OUT, PVR OUT,

These are recording outputs. Connect these to the 'S-Video in' or 'Composite in' sockets (usually labelled 'RECORD') on your recording device.

### MAIN OUT

Connect this output to the S-Video or Composite sockets on your primary Zone 1 display.

## Digital audio connectors



### TAPE, CD, AV, DVD, SAT, VCR, PVR

Connect these inputs to the digital outputs of your available source equipment.

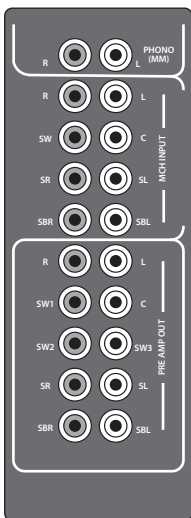
### OPTICAL, COAX

Connect the optical or coaxial output to your digital recording device such as CD-R, digital VCR or Minidisc player.

When a digital source is selected, the digital output will send an exact copy of the incoming digital signal. For example, for a 5.1 digital source, the digital output will also be in 5.1 format.

When an analogue-only source is selected, this is digitized by the unit and routed to the digital outputs.

These outputs are muted if a source is selected where the HDMI connection is used and is transmitting HD audio. The digital audio from the HDMI link will not be routed to these outputs.



## Phono

This input can be connected directly to a record deck which has a direct output from a moving magnet (MM) cartridge.

## MCH input

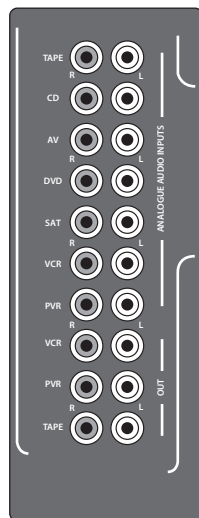
This multichannel analogue audio input can be connected to a source device which outputs surround sound on its analogue outputs. Such devices typically include DVD-Audio and SACD players. This input does not pass through any of the audio processing in the unit, therefore functions such as speaker size and distance from the listening

position should be copied from the Setup menus into the Setup menus of your multichannel source. Note however that speaker level trims *are* applied to the MCH input on the unit. Therefore speaker level trim settings on multichannel source equipment should be left unset at zero.

## Analogue pre-amplifier outputs

All pre-amplifier analogue outputs are buffered, have a low output impedance, are at line level and follow the Zone 1 volume control setting. They are able to drive long cables or several inputs in parallel if required.

For more information on connecting speakers or additional power amplifiers, see page 18 and 47.



## Analogue audio inputs

**TAPE, CD, AV, DVD, SAT, VCR, PVR**

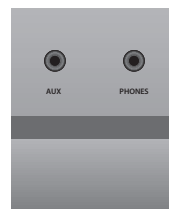
Connect the left and right inputs to the left and right outputs of your source equipment.

## Analogue record outputs

**VCR OUT, PVR OUT, TAPE OUT**

Connect the left and right outputs to the left and right input sockets of your cassette deck, PVR or VCR (usually labelled 'RECORD'). The PVR and VCR connectors may be used for a second and third cassette deck. These outputs are fixed at full line level.

## Front panel AUX input



The front panel **AUX** input can be used as an analogue or optical digital input.

For analogue sources, use a stereo 3.5mm lead; for digital sources use a 3.5mm optical lead. The front input is also used for the auto-setup microphone input.

## Front panel PHONES socket

This socket accepts headphones with an impedance rating between 32Ω and 600Ω, fitted with a 3.5mm stereo jack plug. The headphone socket is always active, except when AVR600 is muted.

When the headphone jack is inserted, the speaker outputs and analogue pre-amplifier outputs are automatically muted.



# Connection guide

## DVD player

The diagram shows how to make audio and video connections from a typical DVD player.

The preferred video hook-up, in order of preference is:

- use the HDMI connector (if HDMI output is provided by the player), otherwise connect the three Component or four RGB+Sync video connectors.
- use the S-Video connection if HDMI or Component /RGB+Sync outputs are not provided by your player.
- use the Composite connection if HDMI, Component/RGB+Sync or S-Video are not provided by your player.

In each case, connect the video inputs labelled **DVD** on the unit.

The preferred audio hook-up is using the coaxial digital connector (usually marked **DIGITAL AUDIO OUT**), in addition to the coaxial analogue outputs for left and right channels.

In each case, use the audio inputs labelled **DVD** on the unit.

## Satellite receiver

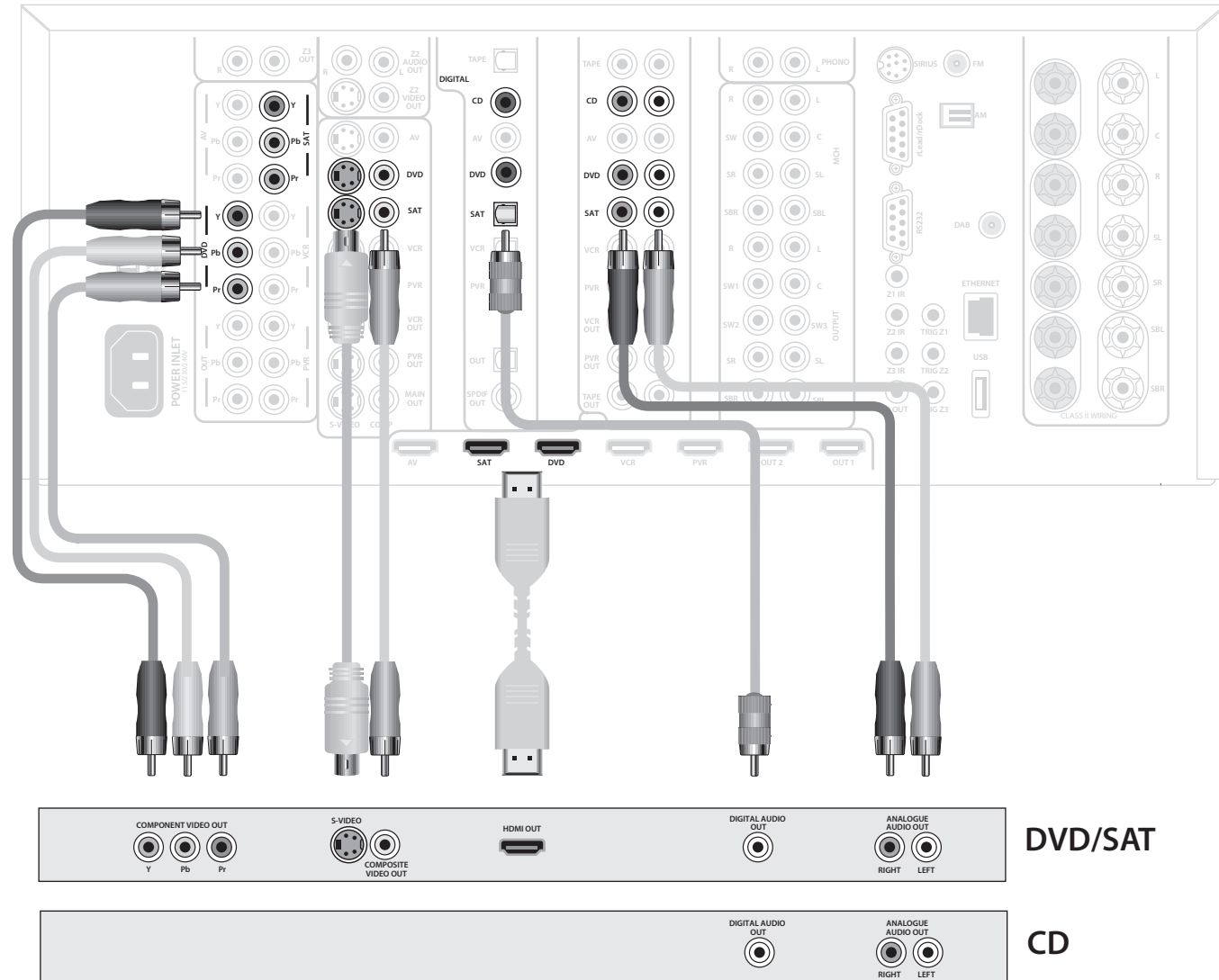
A satellite receiver is connected in the same way as a DVD player, with the same order of preference according to the outputs provided by the satellite receiver.

In each case, use the inputs labelled **SAT** on the unit. Note that digital audio input from a satellite receiver sometimes requires a coaxial/TOSLINK (digital connector) interconnect cable, as some satellite receivers do not implement audio over HDMI properly or at all.

## CD player

Connect the digital audio output (if provided by the CD player) to the digital **CD** input of the unit, using a high quality coaxial interconnect cable.

Connect the right and left analogue audio outputs of the CD player to the analogue **CD** inputs of the unit, using a pair of high quality coaxial interconnect cables.



AVR600

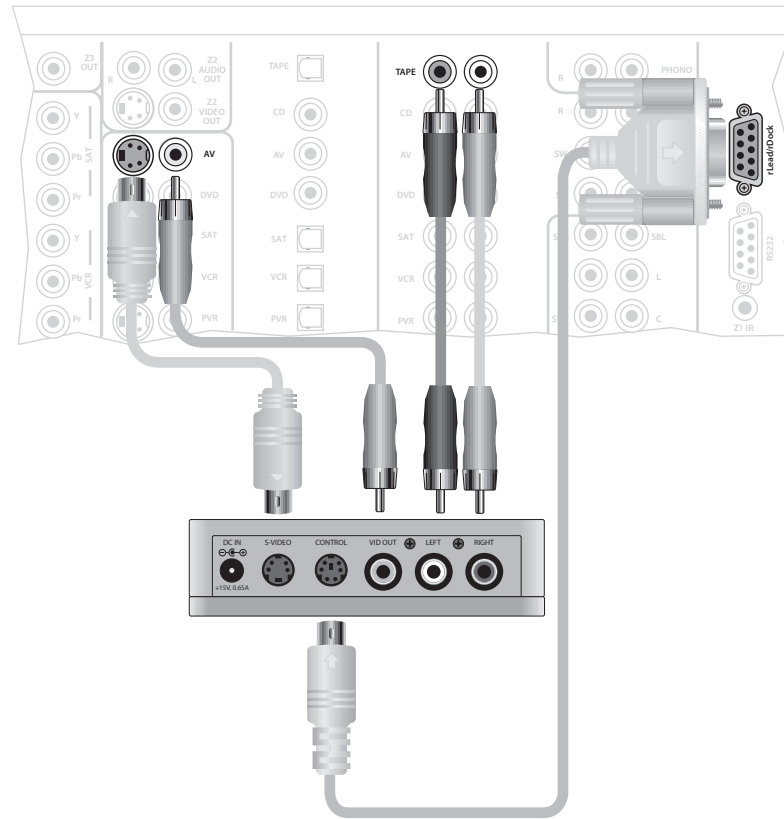
### Connecting an iPod using the Arcam rDock

The combination of the AVR600 or AV888 and Arcam's optional rDock or rLead accessory provides a great platform for your iPod.

Connect the rDock as shown, power on the rDock, slot in your iPod and select iPod as the source. For video connections, select the video source you have used for the iPod input in the 'Video Inputs' menu.

Navigating through music and podcasts on your iPod is simple using the CR102 remote, with text appearing on the front panel display.

More information is given in the rDock quick start guide (or rLead quick start guide) supplied with these accessory units.



# radio connectors

## Aerial connectors – AVR600 only

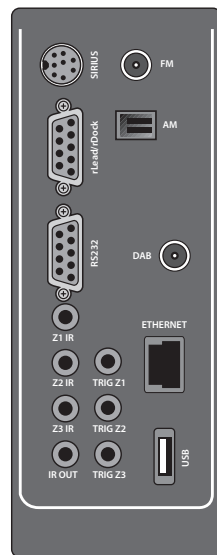
The AVR600 is fitted with an AM/FM receiver module and Sirius connector or a DAB/FM receiver, depending on the region where it was sold. The type of aerial you need depends on your listening preferences and the local conditions.

Your AVR600 is capable of superb radio reception, but only if it is receiving a good quality transmission signal.

Try the aerials supplied with your unit. If you are in a medium to strong signal area, these should be adequate for good reception. In areas with poor signal strength, you may require a roof or loft mounted aerial.

Contact your local Arcam dealer or aerial installation experts for advice about local reception conditions.

AVR600



### DAB (where fitted)

*In strong signal areas*, the DAB 'T' ribbon aerial supplied can be used with reasonable results. Mount the aerial as high up as possible on a wall.

In the UK the 'T'-elements need to be positioned vertically for DAB reception since broadcasts are vertically polarised. In other localities, check with your Arcam dealer or try both horizontal and vertical positions for best reception.

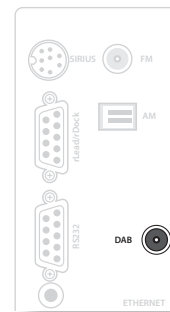
Try each usable wall of the room to see which gives best reception and use tacks or adhesive tape to secure the aerial in a 'T' shape, but note that no tacks should come into contact with the internal wire of the aerial.

When installed and receiving DAB, check the signal strength by pressing the front panel or remote control's **INFO** button until the signal quality indicator is displayed.

*In weak signal areas*, a high-gain, externally-mounted or roof-mounted aerial is desirable in order to receive the highest number of services.

In Band III transmission areas (such as the UK), use a multi-element Yagi aerial with the elements mounted vertically, as the transmissions are vertically polarised. If you are close to more than one transmitter, use an omnidirectional or folded dipole aerial.

If the DAB services in your area are transmitted on L-band, then ask your dealer for advice for the best aerial to use.



### Sirius (where fitted)

The AVR600 is designed for use with the 'SiriusConnect™ Home Tuner' package which should be connected via the cable supplied in that package to the Sirius socket.

#### Listening to Satellite Radio

To listen to Satellite Radio, you'll need to connect either a SIRIUS or XM Satellite Radio tuner (sold separately) to your satellite-ready receiver. Satellite Radio is available to residents of the US (except Alaska and Hawaii) and Canada.

Satellite Radio delivers a variety of commercial-free music from categories ranging from Pop, Rock, Country, R&B, Dance, Jazz, Classical and many more plus coverage of all the top professional and college sports including play by play games from select leagues and teams. Additional programming includes expert sports talk, uncensored entertainment, comedy, family programming, local traffic and weather and news from your most trusted sources.

Whether you purchase a SIRIUS or XM tuner, you'll need to activate and subscribe to begin enjoying the service. Easy to follow installation and setup instructions are provided with the satellite tuners. Whichever service you choose, there are a variety of programming packages available, including the option of adding "The Best of SIRIUS" programming to your XM tuner or "The Best of XM" programming to your SIRIUS tuner, enabling you to enjoy the most popular programming among both services. The "Best of" packages are not available to SIRIUS or XM Canada subscribers at this time.

Family friendly packages are also available to restrict channels featuring content that may be inappropriate for children.

To subscribe to XM, U.S. customers should visit [www.xmradio.com](http://www.xmradio.com) or call 1-800-XMRADIO (1-800-967-2346); Canadian customers should visit [www.xmradio.ca](http://www.xmradio.ca) or call XM Listener Care at 1-877-GETXMSR (1-877-438-9677).

To subscribe to SIRIUS, U.S. and Canadian customers can call 1-888-539-SIRI (1-888-539-7474) or visit [www.sirius.com](http://www.sirius.com) (US) or [www.siriuscanada.ca](http://www.siriuscanada.ca) (Canada).

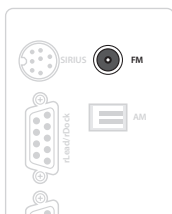
#### NOTE

The AVR600 provides power for the Sirius receiver, so an external power supply is not needed.



## FM

### Connecting an aerial



A suitable FM aerial must be connected to the AVR600 before FM radio can be received.

*In strong signal areas*, the FM ribbon aerial supplied can be used with reasonable results. Mount this as high up as possible on a wall with the top of the 'T'-elements positioned

vertically or horizontally, depending on the reception in your area. Try each usable wall of the room to see which gives best reception and use tacks or adhesive tape to secure the aerial, but note that no tacks should come into contact with the internal wire of the aerial.

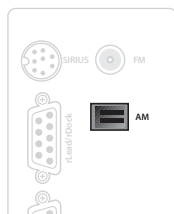
When installed and receiving FM radio, check the signal strength by pressing the front panel or remote control's **INFO** button until the signal indicator is displayed.

*In weak signal areas*, or for optimal FM radio reception, a roof- or loft-mounted aerial is advised as this will give superior reception.

In some areas, cable radio may be available or, in an apartment building, a distributed aerial system may be installed. In either of these cases you should have sockets in your home marked **FM** or **VHF** (do not use those marked **TV**); these should be connected to the **FM** coaxial connector on the rear of the AVR600.

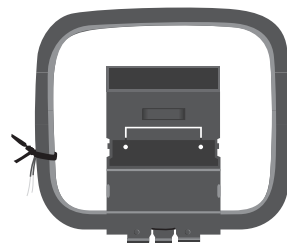
## AM

### Connecting an aerial

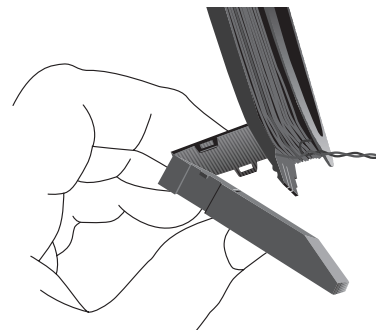


An AM aerial is required to receive AM/medium wave radio signals, so a simple loop aerial is supplied with the AVR600. Follow the assembly instructions in the diagram below.

Make sure that the aerial is positioned well away from the AVR600 itself, TVs, computers and other sources of RF 'interference'. Rotate the aerial to discover which position gives the best reception.



1. Release the tie-wrap and unwind the twisted lead. Fold the plastic stand forward through the loop frame.



2. Push the tab into the open slot in the base of the stand. Press until the tab clicks home.



3. Connect the lead wires to the AM socket at the rear of the AVR600 (the wires are not polarised). Rotate the aerial's stand until you obtain the best reception.

# other connectors

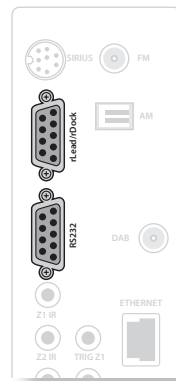
## Data connectors

### rLead/rDock

For use with an Arcam rLead or rDock accessory. See page 13 and the accessory documentation for details.

### RS232 serial connector

Use with control devices having an RS232 serial port (for example, Crestron and AMX touch screen controllers). This connection is also used for upgrading the AVR600 or AV888's internal software.



## Network connectors

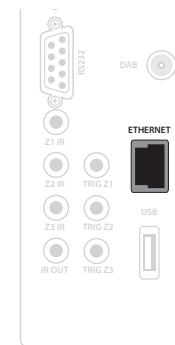
This section deals with installation of the unit into an existing home network. For information on how to use the unit's network features, the USB socket, and for a list of supported file types, refer to page 46.

Networking is a large subject and only the briefest guidelines are presented in this handbook. Please contact your Arcam dealer or specialist installer for more information about introducing the AVR600 or AV888 into your computer network.

### Ethernet

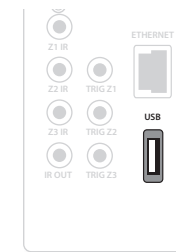
If an Ethernet cable is connected, the unit will automatically attempt to connect to your network.

You should use CAT5 cable plugged into the RJ45 socket labelled **ETHERNET** on the rear panel.



If your network uses static IP addressing rather than DHCP, you will need to provide any gateway, DNS and proxy information. See page 39 for information on setting up the network.

## USB connector



The AVR600 and AV888 can play files stored on a USB mass storage device, typically a pen drive, but any USB device that complies with the 'mass storage device' class is compatible.

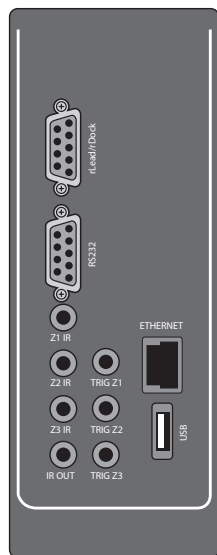
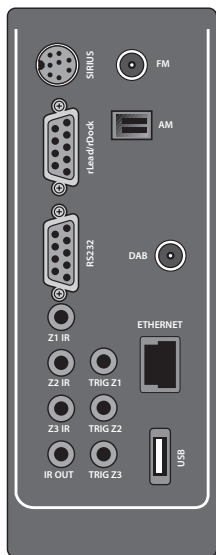
The unit only supports the direct connection of USB devices and will not support devices connected through a hub. If

regular access to the **USB** socket is required, you may find it convenient to use a USB extension lead.

See page 46 for details of supported file types.

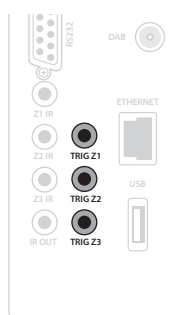
AVR600

AV888



## Trigger connectors

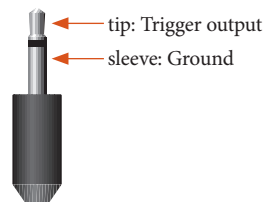
The trigger connectors (**TRIG Z1**, **TRIG Z2** and **TRIG Z3**) provide an electrical signal whenever the amplifier is switched on and the relevant zone enabled.



The trigger signal can be used to switch on and off compatible pieces of home entertainment equipment, for example, you could set up a trigger to turn on your television and DVD player whenever the unit was switched on.

There are three trigger output sockets on the unit, each capable of outputting a 12V, 70mA switching signal. The socket

is designed for mono 3.5mm jacks: tip is the trigger output, sleeve is ground.



### TRIG Z1

Use for remotely turning on and off power amps or source equipment for Zone 1. On = 12V, Off = 0V.

### TRIG Z2

Use for remotely turning on and off power amps or source equipment for Zone 2. On = 12V, Off = 0V.

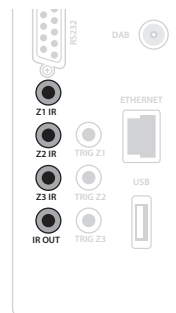
### TRIG Z3

Use for remotely turning on and off power amps or source equipment for Zone 3. On = 12V, Off = 0V.

#### NOTE

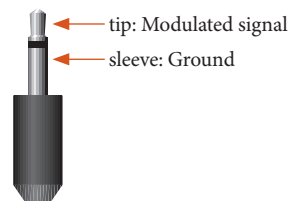
Sockets with the prefix 'Z2' or 'Z3' refer to connections used in multi-room installation. For more information on these connectors, see page 48.

## Infra-red (IR) connectors



The infra-red inputs (**Z1 IR**, **Z2 IR** and **Z3 IR**) allow the connection of external IR receivers, either when the unit's front panel IR receiver is fully or partially obstructed or to allow the use of a remote control in Zone 2 or Zone 3.

There are three IR inputs on the unit, each designed for stereo or mono 3.5mm jacks. Tip is the modulated signal, sleeve is ground.



### Z1 IR

This input is intended for use with a local IR receiver when the front panel of the unit is blocked.

Connecting an IR receiver to **Z1 IR** will disable the front panel IR receiver to prevent problems with multiple commands if the front panel IR receiver is only partially obstructed.

### Z2 IR

This input is intended for use with an IR receiver in Zone 2 to allow remote control of the unit from a second room.

### Z3 IR

This input is intended for use with an IR receiver in Zone 3 to allow remote control of the unit from a third room.

### IR OUT

This output is an electrical combination of the Z1 (or front panel) + Z2 + Z3 infra-red signals above. It can be used to drive external IR emitters or can be connected directly to other Arcam equipment which have an IR input. This function can be useful as an IR 'repeater' so that someone in any of the zones can control the functions of a CD player in the main zone, for example. Tip is the modulated electrical IR signal, sleeve is ground.

A supplier of infra-red receivers and emitter accessories and systems is Xantech. See [www.xantech.com](http://www.xantech.com) for more information, or ask your Arcam dealer.

#### NOTE

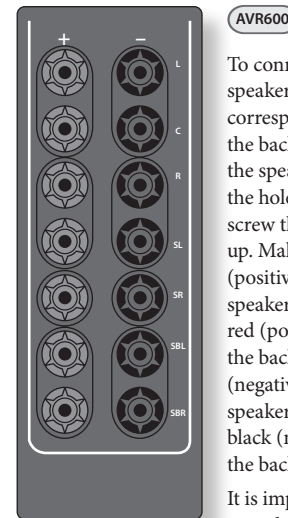
The IR inputs on the unit are designed for modulated signals. If the external IR receiver demodulates the IR signal, it will not work. Also the unit does not provide power for external receivers on the IR jack, therefore an external power source will be required.

# speakers

## Connecting speakers – AVR600 only

The AVR600 allows you to connect up to seven speakers and three active subwoofers in the main system. The output channels correspond to speakers installed in the front left, centre, front right, surround left, surround right, surround back left, surround back right and an active subwoofer.

**The configuration and placement of your speakers is very important.** All speakers, with the exception of the subwoofer, should be arranged around your normal viewing/listening position. The subwoofer should be placed in a position which gives an even frequency response in all listening positions. Incorrect placement leads to bass boom in some areas. Often the only way to find a good position for your subwoofer is by experimentation. A good place to start experimenting is close to a wall but at least 1m away from any corners. You can also consult your subwoofer handbook for placement suggestions.



To connect each of the speakers, unscrew the corresponding terminals on the back of the AVR600, insert the speaker wires through the hole in each post and screw the terminals back up. Make sure that the red (positive/+) terminal of the speaker is connected to the red (positive/+) terminal on the back panel, and the black (negative/-) terminal of the speaker is connected to the black (negative/-) terminal on the back panel.

It is important that no stray strands of wire from these connections are allowed to

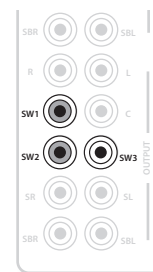
touch another cable or the product casing. Failure to ensure this can cause a short circuit and damage your AVR600.

*Do not over-tighten the loudspeaker terminals, or use a wrench, pliers, etc., as this could damage the terminals and this would not be covered under the product's warranty.*

## Speaker cables

The speakers should be connected to the amplifier using good-quality, high-purity, low impedance copper cables. Cheap speaker cables should be avoided – they are a false economy and can significantly degrade the sound quality.

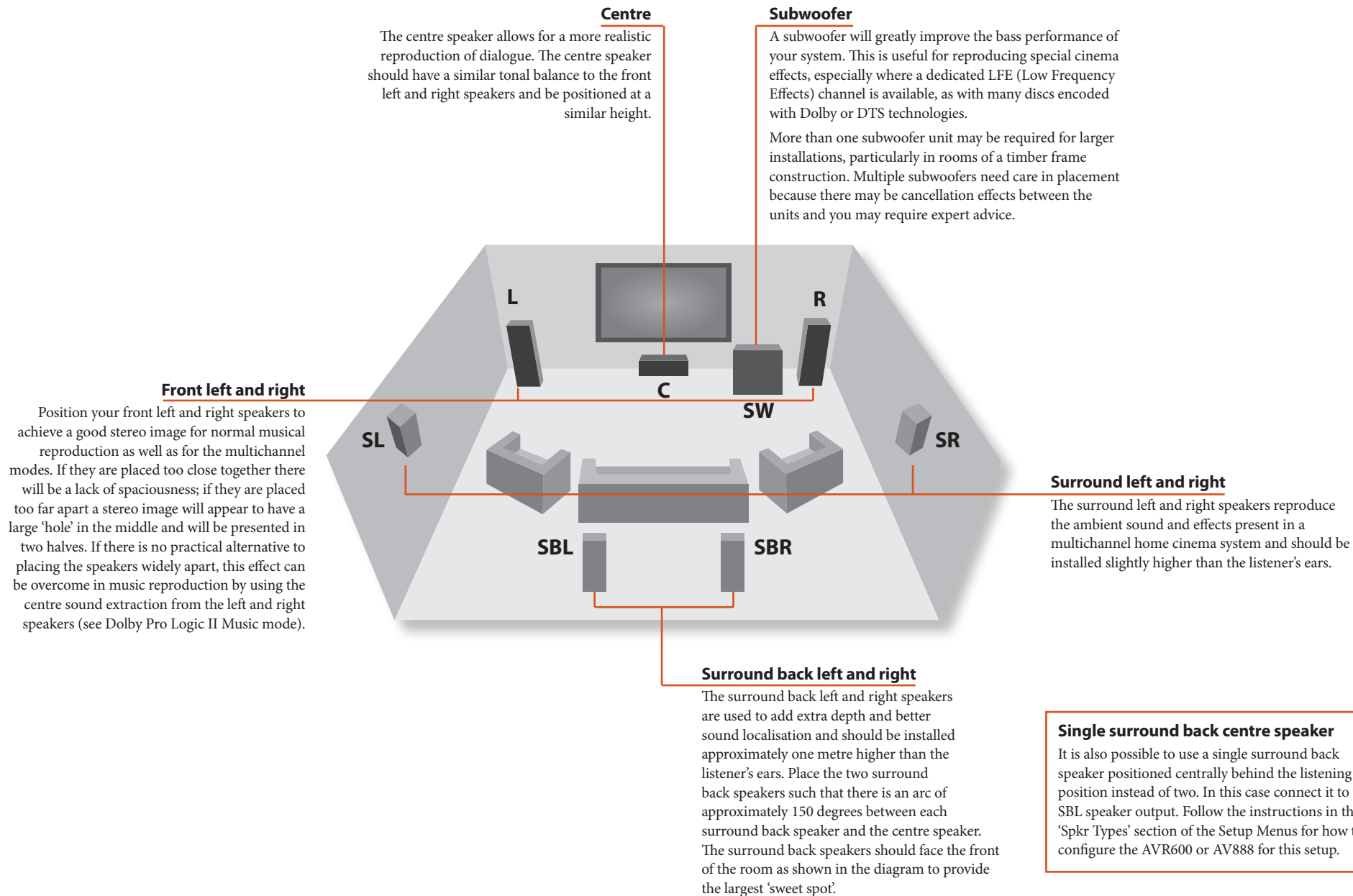
The cable runs to the speakers should be as short as practicable. Connections to the speaker terminals should always be finger tight, whether using bare wires or spade connectors.



## Connecting subwoofers

The AVR600 and the AV888 allow up to three active subwoofers to be connected to the SW1, SW2 or SW3 outputs.

See your subwoofer handbook for the correct setting up and connection for your particular subwoofer.



# operation

## Operating your AVR600 or AV888

For information display we recommend you use the OSD (On-Screen Display) on your display device whenever possible.

### Switching on

Press the front panel power button in. The power LED will glow orange, the front display shows the word 'INITIAL', followed by the volume setting and the name of the selected input. After initialization is complete, the power LED changes colour to green.

Please wait until the unit has finished initialising before operating the unit. It is recommended that if the unit is switched off, you should wait at least 10 seconds before switching the unit back on.

### Standby

The unit has a standby mode which can be entered by pressing **STANDBY** on the remote control. When in standby mode, the display is blank and the **POWER LED** glows red.

While in Standby mode, it may be possible to hear a slight residual hum coming from the mains transformer inside the amplifier. This is perfectly normal. However, if the unit is to be left unused for an extended period, we recommend that you disconnect it from the mains supply to save power.

### To switch on from standby

Press the **STANDBY** button on the remote control or any key on the front panel (other than the power button).

### Front panel display

The unit is ready for use after about four seconds.



The display window shows the currently selected source and the last selected information view setting (this information line can be changed using the **INFO** button).

The active zones (Z1, Z2 or Z3) are highlighted – the example screen above shows that only Z1 (i.e. Zone1) is active. The current volume setting (70.0dB in the above example) is also displayed.

## Selecting a source

To select a particular source, press the **-INPUT** or **INPUT +** buttons until that source is shown on the front panel display, or (if available) press the corresponding source button on the remote. The following sources are available on both the AVR600 and AV888:

CD	Compact Disc player input
AV	Audio-Visual input
DVD	DVD player input
SAT	Satellite receiver input
VCR	Video Cassette Recorder input
PVR	Personal Video Recorder input
PHONO	Phono (MM cartridge) input
MCH	Selects MCH (multichannel) analogue input
TAPE	Audio only tape deck input
AUX	Auxiliary (front panel) input
NET	Internal (Ethernet) and external USB solid-state device (e.g. pen drive) input.
IPOD	Requires an iPod® and Arcam rDock or rLead.

The following sources are only available on the AVR600:

AM/FM	Internal tuner input
DAB*	Internal tuner input
SIRIUS*	Requires an external receiver – see <a href="http://www.sirius.com">www.sirius.com</a> for more information

\*These sources are market dependent and may not be available on your unit.

Upon selecting a source, the unit will normally select an active digital input in preference to an analogue input. If you want to override the digital input and select the analogue input, press and hold the source button for at least two seconds. Some inputs (**AM/FM**, **PHONO**, **MCH**, **SIRIUS**, **IPOD**) do not have a digital input.

The processing mode and Stereo Direct functions are remembered and recalled for each individual input.

The **MCH** input is intended for direct analogue pass-through of DVD Audio or SACD sources. Apart from volume control and level trim, no processing modes are possible on this input, including bass management and delays. Please set bass management, speaker size and speaker delays in the source player. You can copy

the distances and relative speaker levels from the Setup menus in the AVR600 or AV888.

### Tape operation

Three analogue audio outputs are provided for recording, **VCR**, **PVR** and **TAPE OUT**. The selected analogue input are routed to each of these outputs.

If the VCR input is selected, the **VCR OUT** output is muted to prevent feedback loops in recording equipment. Similarly the **PVR OUT** and **TAPE OUT** outputs are muted when their respective inputs are selected to prevent feedback.

### VCR operation

Two outputs are provided for recording (Composite and S-Video only), **VCR** and **PVR OUT**. The selected video input is routed to each of these outputs.

### Stereo Direct

To listen to a pure analogue stereo input, press the **DIRECT** button. The Stereo Direct mode automatically bypasses all processing and any surround functions. In direct mode, digital processing is shut down to improve the sound quality and reduces digital noise with the unit to an absolute minimum.

Note: when Stereo Direct mode is selected, no digital output is available and no bass management is performed, meaning that bass signals will not be redirected to a subwoofer.

### Volume control

It is important to realise that the level of the volume indicator is not an accurate indication of the power delivered to your loudspeakers. The amplifier often delivers its full output power long before the volume control reaches its maximum position, particularly when listening to heavily recorded music. In comparison, some movie sound tracks can appear very quiet, as many directors like to keep maximum levels in reserve for special effect sequences.

### Headphones

To use headphones with the unit, plug the headphones into the **PHONES** socket in the centre of the front panel.

When headphones are plugged into the front panel **PHONES** socket, the outputs for Zone 1 are muted and the audio will be down-mixed to two channels (2.0). The two-channel down-mix is required so that the centre channel and surround information can be heard via the headphones.

## Using Zone 2 and 3

Zone 2 provides the option for the occupants of the master bedroom, conservatory, kitchen, etc. to view or listen to a different source at a different volume level from the main zone (Zone 1).

Zone 3 provides for a third living space to have a copy of the audio signal in Zone 2 at a different volume level.

## Extended front panel menu

Pressing the **MENU** key and holding it for longer than four seconds will bring up the Extended Menu, allowing you to perform the following:

### Restore to factory defaults

This option allows you to restore all settings on your AVR600 or AV888 to the defaults that it left the factory with. Note that this also erases any secure backups stored on the unit.

### Restore secure backup Store secure backup

This option allows you to restore from and store to a PIN-protected copy of your settings. The default PIN is 1234.

### Change remote code

The default RC5 system code the unit responds to is 16. If required, for example due to another device in your system also using this RC5 system code, it can be changed to 19.

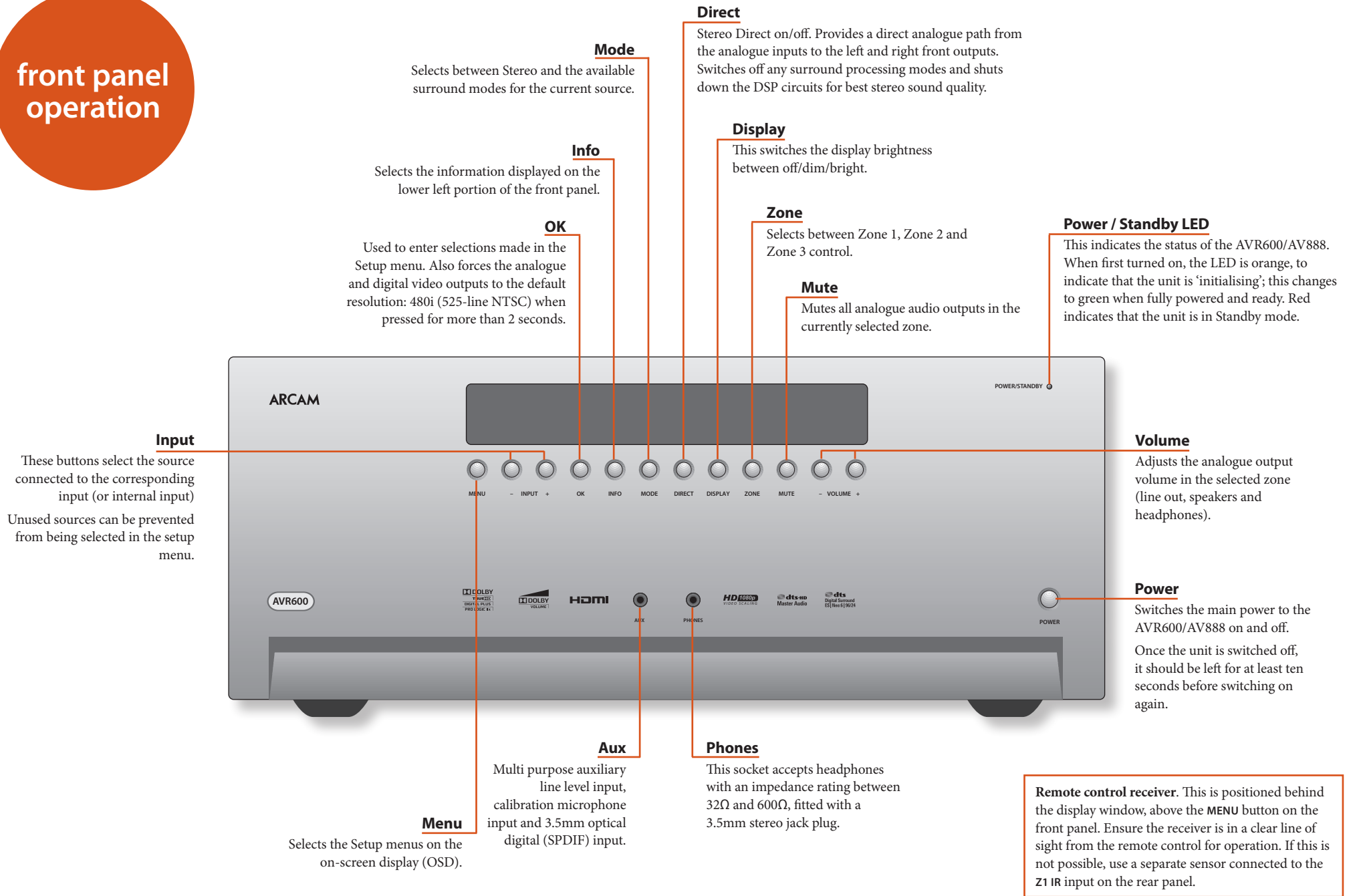
### Software versions

Information on the software version of the unit can be found [here](#).

## Updating firmware using a PC

Using a PC application (available on request from Arcam), you can update the firmware in your AVR600 or AV888 using the back panel RS232 port connected to your PC.

# front panel operation





# remote control

## The CR102 universal remote controller

The CR102 is a sophisticated 'universal' backlit remote control that can control up to eight devices. It is pre-programmed for use with the AVR600, AV888 and many other Arcam products (FM/DAB tuners, CD players and DVD players).

With its extensive built-in library of codes, it can also be used with thousands of third party audio-visual components – TVs, satellite and set-top boxes, PVRs, CD players, etc. See the list of codes at the back of this handbook, beginning on page 58.

The CR102 is a 'learning' remote, so you can teach it almost any function from an old single-device remote. You can also program the CR102 to issue a sequence of commands ('macros') from a single button press.

### Using the remote control

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

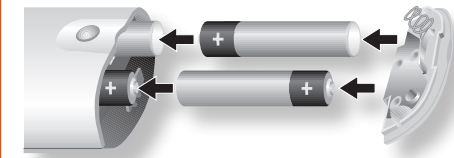
- Ensure there are no obstacles between the remote control and the remote sensor on the front panel. The remote has a range of about 7 metres. (If the remote sensor is obscured, the Z1 IR remote control input jack on the rear panel is available. Please consult your dealer for further information.)
- 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.

## 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 CR102 exits the programming state and returns to normal operation.

Stuck key timeout – After any key is pressed continuously for 30 seconds, the CR102 stops sending IR transmission to conserve battery life. The CR102 remains off until all keys are released.

Unassigned keys – the CR102 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 CR102 (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 CR102 can control your 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 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!



DVD	DVD 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 AVR600 and AV888
AUX	Auxiliary input, or an iPod® via an Arcam rDock or rLead
PVR	Personal Video Recorder (or Digital Video 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 CR102 *without* changing the signal source on the 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 CR102 controls without also changing the AVR600/AV888 source, allowing uninterrupted listening.

Each Device Mode changes the behaviour of many of the CR102 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 CR102 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 CR102 is set up so that the volume control buttons always control the volume of the AVR600/AV888, 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 CR102 in **CD** Device Mode to control the CD player. You can use the volume controls on the remote directly to adjust the volume of the AVR600 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.

### The CR102 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.

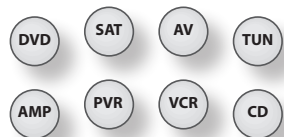
Connect the equipment into an outlet or a circuit different from that to which the receiver is connected.

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

## Controlling other devices

### Method 1 (Direct code setup)

This section describes the simplest (preferred) way to program the CR102'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 page 52).
- **AMP** mode **only** controls Arcam equipment.

DVD 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 **AV** 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 CR102.
3. Find the row containing the codes for the manufacturer of your device (e.g. Addison) (page 58). The most popular code is listed first.
4. Press the appropriate Device Mode key (e.g. **AV**) on the CR102.
5. Press and hold **SHIFT** 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 CR102 at the device and press **OK**. If the device switches off, the setup is complete.
8. Turn your device back on and test all the CR102'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 CR102.

### 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 **OK** when setting up your device.
- Remember to press the corresponding device key before operating your device.
- Many TVs do not switch on by pressing **OK**. 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 **AV** during step 2.

### Method 2 (Library search)

This section describes another way to program the CR102 to control third-party equipment.

Library Search allows you to scan through all the codes contained in the CR102'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 CR102 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 CR102 at it.
2. Press **AV** on your CR102.
3. Press and hold **SHIFT** until the power LED blinks twice.
4. Press **9 9 1**. The power LED key blinks twice: ✨ ✨.
5. Press **OK**.
6. Aim the CR102 at your Television and press **▶** repeatedly until your Television turns off.

Every time you press **▶** the CR102 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 CR102 at your Television while pressing this key.

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

### Notes:

- Many TVs do not switch on by pressing **OK**. 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 **AV** 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 CR102, 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. **AV**) once.
2. Press and hold **SHIFT** until the red Power LED blinks twice: ✨ ✨ (It actually blinks once when you press the key, then twice after about three seconds).
3. Press **9 9 0**. The **OK** 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 **2**, **3**, or **4** 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	


















## AMP Device Mode






















The  Device Mode button configures the CR102 to control the AVR600/AV888. Pressing this button does not affect the currently selected input on the AVR600/AV888.

























**IMPORTANT:** The CR102 must also be in AMP Device Mode to control the following sources: **PHONO**, **MCH** (multichannel analogue), **AUX**, **NET** (optional network audio), **USB**, **IPOD** (for use with the optional Arcam rLead or rDock).

However to control the internal Tuner in the AVR600 (AM/FM/DAB or Sirius if fitted), the CR102 must first be in TUN Device Mode (see later).


The functionality of the CR102 is context sensitive for the internal sources and is described in the following table.









	<p><b>Single press</b> – Toggles AVR600/AV888 power between standby and on in the current zone (zone in which the command is received).</p> <p><b>Press and hold</b> – Forces all AVR600/AV888 zones into standby, regardless of which zone the command was received in.</p>
	<p>The number keys can be used for source selection (without changing the CR102 Device Mode). Alternatively the Device Mode buttons can also be used with the <b>SHIFT</b> key.</p> <ul style="list-style-type: none"> <li> <b>SAT</b> (satellite) input</li> <li> <b>PHONO</b> input</li> <li> <b>AV</b> input</li> <li> <b>TUNER</b> input</li> <li> <b>DVD</b> input</li> <li> <b>TAPE</b> input</li> <li> <b>VCR</b> input</li> <li> <b>CD</b> input</li> <li> <b>AUX</b> (front panel) input</li> <li> <b>MCH</b> (multichannel) input</li> </ul>
 	<p>Selects Tape input on the AVR600/AV888</p> <p><b>SHIFT</b> +  selects <b>PHONO</b> input on the AVR600/AV888</p>
 	(for <b>IPOD</b> and <b>NET</b> sources)

	Modifies many keys (see individual key descriptions below).
 	<p>Selects <b>MCH</b> (multichannel) input on the AVR600/AV888</p> <p><b>SHIFT</b> +  selects <b>AUX</b> input on the AVR600/AV888</p>
	<p>Navigate menus</p> <p><b>OK</b> confirms a setting (equivalent to 'Enter' or 'Select' on some remote controls)</p> <p>Press and hold <b>OK</b> to force the analogue and digital video outputs to the default resolution: 480i (525-line NTSC).</p> <p><b>SHIFT</b> +  decreases the picture resolution.</p> <p><b>SHIFT</b> +  increases the picture resolution.</p> <p><b>SHIFT</b> +  turns current zone (in which command is received) on</p> <p><b>SHIFT</b> +  turns current zone (in which command is received) off.</p>
 	<p>Selects <b>IPOD</b> input on the AVR600/AV888</p> <p><b>SHIFT</b> +  selects network (<b>NET</b>) internal input on the AVR600/AV888</p>
	Cycles through the available surround and downmix modes.
	Displays the AVR600/AV888 setup menu on the On Screen Display (see page 34).
	Cycles through the front panel display's brightness options
	Toggles the mute function of the AVR600/AV888
	<p>(track control for <b>IPOD</b> and <b>NET</b> sources)</p> <p><b>SHIFT</b> +  Follow Zone1 source.</p> <p>When the command is received in Zone2 or Zone3, the source for that zone follows whatever input source is selected in Zone1</p>
	Decrease (-) and increase (+) AVR600/AV888 volume
	Stereo direct on/off. Provides a direct analogue path from the analogue inputs to the left and right front outputs. Switches off any surround processing modes and shuts down the DSP circuits for the best stereo sound quality.
	Displays the room EQ settings menu

 	(for <b>IPOD</b> and <b>NET</b> sources)
	Calls up a pop-up (and front screen) to adjust the bass setting for a particular input.
	<p>Brings up the speaker trim menu.</p> <p>Use the , ,  and  navigation buttons. Press <b>TRIM</b> again to exit the speaker trim menu.</p> <p>As this is a temporary adjustment, these additional trim levels are reset to zero when the unit is turned off or the selected input is changed, but are retained if the unit is put into standby. These temporary trim levels are independent of the speaker levels found in the setup menu.</p>
	<p>Delays may be introduced into the video signal by video processing which causes a mismatch between the audio and video timing. You will notice this by speech sound being out of synchronization with the lip movements in the video.</p> <p>To compensate for this, you can adjust the lip sync delay. Press the <b>SYNC</b> button and use the  and  navigation buttons. Press again to exit the lip sync trim menu.</p>
	Brings up the subwoofer trim menu. Use the  and  navigation buttons. Press <b>SUB</b> again to exit the sub trim menu
 	Calls up a pop-up (and front screen) to adjust the treble setting for a particular input.
 	(for <b>IPOD</b> and <b>NET</b> sources)
 	(for <b>IPOD</b> and <b>NET</b> sources)
 	(for <b>IPOD</b> and <b>NET</b> sources)
 	Cycles through the information displayed on the lower left portion of the front panel display.

## iPod commands

The iPod interface is selected by pressing  in AMP Device Mode on the CR102. When connected to an iPod via an optional rLead/rDock, the keys below are used to navigate music files in AMP Device Mode.

	<p>Navigate the files on screen.</p> <p><b>OK</b> selects/play the highlighted file.</p>
 	<p>Toggles random (shuffle) play of the playlist on and off.</p> <p><b>SHIFT</b> +  cycles through the repeat options</p>
	Selects the previous/next track in the current playlist
	Begins or resumes playback at the currently highlighted track
	Toggles pause and playback of the current track
	Stops playback

## Network commands

The AVR600/AV888 Network client is selected by pressing (GHIFT) + (POD) in AMP Device Mode on the CR102.

When using the network client, the keys below are used to navigate music files in AMP Device Mode.

	Navigate the files and menus on the screen. <b>OK</b> selects the highlighted file or enters the highlighted menu on the screen
RPT (RND)	Toggles random ('shuffle') play of the playlist on and off <b>SHIFT</b> + (RND) cycles through the repeat options
	Selects the previous/next track in the current playlist
EQ 	Begins or resumes playback at the currently highlighted track
EFFECT (II)	Toggles pause and playback of current track
SYNC 	Stops playback
FAV+ (SETUP)	Adds the currently displayed file or radio station to favourites list when using the network client
FAV- (TITLE)	Removes the currently displayed file or radio station from favourites list when using the network client
HOME (AUDIO)	Returns navigation to the top level of the music files structure ('Home')
INFO (SUBT)	Cycles through the information displayed on the lower left portion of the front panel display

## TUN Device Mode

The (TUN) Device Mode button configures the CR102 to control the tuner functions of the AVR600 (the AV888 is not equipped with tuner modules). Pressing this button also selects **TUNER** as the source.

When switching to **TUNER** from a different source, the AVR600 enters the last used tuner band, be it AM / FM / DAB (if fitted) / Sirius (if fitted). Further presses of the **TUN** Device Mode button cycle through the available tuner bands.

Further information on the tuner can be found in the 'Tuner Operation' section on page 44.

	(not used)
0...9	Number keypad used to store and recall presets
	Allows selection of previously stored Tuner presets.
	AM/FM Tuner: allows frequency tuning. DAB/Sirius Tuner (where fitted): scrolls through the channel list.
(OK)	Selects (tunes to) the currently displayed preset, or selects the currently displayed DAB or Sirius channel (or category) when strolling through the channel (or genre) list.
(SETUP)	Page up to the previous 10 presets on screen
(TITLE)	Page down to the next 10 tuner presets on screen
(AUDIO)	Delete the currently highlighted preset.


## DVD Device Mode


























The (DVD) Device Mode button configures the CR102 to control the DVD functions of Arcam DVD players, although this can be changed (see page 25). Pressing this button also selects **DVD** as the AVR600/AV888 source.















	Toggles power between standby and on
0...9	Searches for and plays the track corresponding to the key pressed
PHONO (TAPE)	Selects Tape input on the AVR600/AV888. <b>SHIFT</b> + (TAPE) selects <b>PHONO</b> input on the AVR600/AV888.
RPT (RND)	Toggles random ('shuffle') play on and off. <b>SHIFT</b> + (RND) cycles through the repeat options (track, disc, etc)
(SHIFT)	Modifies many keys (see individual key descriptions, below)
AUX (MCH)	Selects multichannel ( <b>MCH</b> ) input on the AVR600/AV888. <b>SHIFT</b> + (MCH) selects <b>AUX</b> input on the AVR600/AV888.
NET (IPOD)	Selects <b>IPOD</b> input on the AVR600/AV888. <b>SHIFT</b> + (IPOD) selects network ( <b>NET</b> ) internal input on the AVR600/AV888.
	Navigate setup and DVD programme selection menus. <b>OK</b> confirms a setting ('Enter' or 'Select' on some remotes). <b>SHIFT</b> +  to switch on from standby <b>SHIFT</b> +  to switch to standby from on.
(MODE)	Cycles through available surround sound modes. <b>SHIFT</b> + <b>MODE</b> changes the HDMI setting.
(MENU)	Activates DVD player menu, if available.
(DISP)	Cycles through the front panel display's brightness options. <b>SHIFT</b> + (DISP) enables <b>RPT A-B</b> functionality
(MUTE)	Toggles the mute function. By default this key operates the AVR600/AV888 Mute
	Press and release to skip back to the beginning of the current/previous track.

	Press and release to skip forwards to the beginning of the next track.
- +	Decrease (-) and increase (+) AVR600/AV888 volume
	Fast rewind. <b>SHIFT</b> +  cycles through slow play backwards speeds
	Starts the playback of a DVD. <b>SHIFT</b> +  cycles through the Angle options on an Arcam DVD player.
(II)	Pauses DVD play-back. Press  to restart playback. <b>SHIFT</b> + (II) cycles through Zoom options.
	Fast forward. <b>SHIFT</b> +  cycles through slow forward speeds
TRIM 	Ejects disc. <b>SHIFT</b> +  displays speaker Trim menu on Arcam DVD players.
	Stop playback of a DVD
	Start recording (on products that have this feature).
(SRCH)	Displays Search menu with Title, Track and Time options.
FAV+ (SETUP)	Displays Setup menu. <b>SHIFT</b> + <b>SETUP</b> displays programming screen on Arcam DVD players
FAV- (TITLE)	Displays Title menu. <b>SHIFT</b> + <b>TITLE</b> clears bookmark, search and program display entries on Arcam DVD players
HOME (AUDIO)	Changes Audio decode format (Dolby Digital, DTS, etc.). <b>SHIFT</b> + (AUDIO) displays the 'Memory' function (Bookmarks)
INFO (SUBT)	Cycles through DVD subtitle language options, if available. <b>SHIFT</b> + (SUBT) displays STATUS INFO on Arcam DVD players


## SAT Device Mode























The  Device Mode button configures the CR102 to control the functions of a satellite receiver. You will need to configure this Device Mode to work with your equipment. Pressing this button also selects **SAT** as the AVR600/AV888 source.















	Toggles power between standby and on
	Functions as original remote number key.
 	Selects <b>TAPE</b> input on the AVR600/AV888. <b>SHIFT</b> +  selects <b>PHONO</b> input on the AVR600/AV888.
 	Toggles between the available inputs on your satellite receiver
	Modifies many keys (see individual key descriptions, below)
 	Selects multichannel ( <b>MCH</b> ) input on the AVR600/AV888. <b>SHIFT</b> +  selects <b>AUX</b> input on the AVR600/AV888.
 	Selects <b>IPOD</b> input on the AVR600/AV888 <b>SHIFT</b> +  selects network ( <b>NET</b> ) internal input on the AVR600/AV888
	Navigate menus. <b>OK</b> confirms a setting (equivalent to 'Enter' or 'Select' on some remotes).
	Controls Backup function, if available.
	Performs same function as on original remote, if available.
	On some Satellite and Cable set top boxes this key functions as the Guide key to open the EPG (Electronic Program Guide).
	Toggles the mute function. By default this key operates the AVR600/AV888 Mute
	Channel down
	Channel up
 	Decrease (-) and increase (+) AVR600/AV888 volume
	Fast rewind
	Starts the playback

	Toggles pause of playback
	Fast forward
	(not used)
	Stop playback
	Start recording
	(not used)
 	Duplicates function of <b>RED</b> key for some Satellite and Cable set-top boxes
 	Duplicates function of <b>GREEN</b> key for some Satellite and Cable set-top boxes
 	Duplicates function of <b>YELLOW</b> key for some Satellite and Cable set-top boxes
 	Duplicates function of <b>BLUE</b> key for some Satellite and Cable set-top boxes


## AV Device Mode





















The  Device Mode button configures the CR102 to control the functions of a television or other display device. You will need to configure this Device Mode to work with your equipment. Pressing this button also selects **AV** as the AVR600/AV888 source.











	Toggles power between standby and on. (Some TVs require you to use a number key to turn them on.)
	Functions as original remote number key – usually for channel selection.
 	Selects Tape input on the AVR600/AV888. <b>SHIFT</b> +  selects <b>PHONO</b> input on the AVR600/AV888.
 	Toggles between the available inputs on your display device (e.g. TV/AV)
	Modifies many keys (see individual key descriptions, below)
 	Selects multichannel ( <b>MCH</b> ) input on the AVR600/AV888. <b>SHIFT</b> +  selects <b>AUX</b> input on the AVR600/AV888.
	Navigate setup and programme selection menus. <b>OK</b> confirms a selection (equivalent to 'Enter' or 'Select' on some remotes).
	<b>EXIT</b> function on some models.
	Functions as original remote key, if available.
	Display INFO or OSD (On Screen Display) function, if available.
	Toggles the mute function. By default this key operates the AVR600/AV888 Mute
	Channel down
	Channel up
 	Decrease (-) and increase (+) AVR600/AV888 volume.
	Toggles <b>TEXT</b> page on/off
	<b>TEXT</b> page off

	Turns Programme-In-Programme (PIP) on, if available
	Activates PIP move, if available
	Activates PIP swap, if available
	Activates PIP freeze, if available
	Activates PIP channel up, if available
	Activates PIP channel down, if available
 	Duplicates function of <b>RED</b> key for Text TV
 	Duplicates function of <b>GREEN</b> key for Text TV
 	Duplicates function of <b>YELLOW</b> key for Text TV
 	Duplicates function of <b>BLUE</b> key for Text TV


## PVR Device Mode





















The  Device Mode button configures the CR102 to control the functions of a video recorder or similar device. You will need to configure this Device Mode to work with your equipment. Pressing this button also selects **PVR** as the AVR600/AV888 source.











	Toggles power between standby and on.
	Functions as original remote number key.
	Selects Tape input on AVR600/AV888. <b>SHIFT</b> +  selects <b>PHONO</b> input on the AVR600/AV888.
	Toggles between available inputs (e.g. AV1, AV2)
	Modifies many keys (see individual key descriptions, below)
	Selects multichannel ( <b>MCH</b> ) input on AVR600/AV888. <b>SHIFT</b> +  selects <b>AUX</b> input on the AVR600/AV888.
	Selects <b>IPOD</b> input on AVR600/AV888. <b>SHIFT</b> +  selects network ( <b>NET</b> ) internal input on the AVR600/AV888.
	Navigate setup and programme selection menus. <b>OK</b> is equivalent to 'Enter' or 'Select' on some remotes.
	Operates the Exit function if the PVR uses this feature
	Turns on the Menu function if the PVR uses this feature
	Toggles display between TV and PVR
	Toggles the mute function. By default this key operates the AMP Mute
	Channel down
	Channel up
	Decrease (-) and increase (+) AVR600/AV888 volume
	Fast rewind
	Play

	Toggles pause of playback
	Fast forward
	Operates the Favourites function if the PVR uses this feature.
	Stop playback
	Starts recording
	(not used)
	Duplicates function of <b>RED</b> key (if used)
	Duplicates function of <b>GREEN</b> key (if used)
	Duplicates function of <b>YELLOW</b> key (if used)
	Duplicates function of <b>BLUE</b> key (if used).


## VCR Device Mode




















The  Device Mode button configures the CR102 to control the functions of a video recorder or similar device. You will need to configure this Device Mode to work with your equipment. Pressing this button also selects **VCR** as the AVR600/AV888 source.














	Toggles power between standby and on.
	Functions as original remote number key.
	Selects Tape input on AVR600/AV888. <b>SHIFT</b> +  selects <b>PHONO</b> input on the AVR600/AV888.
	Toggles between available inputs (e.g. AV1, AV2)
	Modifies many keys (see individual key descriptions, below)
	Selects multichannel ( <b>MCH</b> ) input on AVR600/AV888. <b>SHIFT</b> +  selects <b>AUX</b> input on the AVR600/AV888.
	Selects <b>IPOD</b> input on AVR600/AV888. <b>SHIFT</b> +  selects network ( <b>NET</b> ) internal input on the AVR600/AV888.
	Navigate setup and programme selection menus. <b>OK</b> is equivalent to 'Enter' or 'Select' on some remotes.
	Operates the Exit function if the VCR uses this feature
	Turns on the Menu function if the VCR uses this feature
	Toggles display between TV and VCR
	Toggles the mute function, if available. By default this key operates the AMP Mute
	Channel down
	Channel up
	Decrease (-) and increase (+) AVR600/AV888 volume
	Fast rewind
	Play

	Toggles pause of playback
	Fast forward
	Ejects tape
	Stop playback
	Starts recording
	(not used)
	Duplicates function of <b>RED</b> key (if used)
	Duplicates function of <b>GREEN</b> key (if used)
	Duplicates function of <b>YELLOW</b> key (if used)
	Duplicates function of <b>BLUE</b> key (if used).

## CD Device Mode

The  Device Mode button configures the CR102 to control the CD functions of Arcam CD players, although this can be changed (see page 25). Pressing this button also selects **CD** as the AVR600/AV888 source.

	Toggles power between standby and on.
	Functions as original remote number key.
	Selects <b>TAPE</b> input on the AVR600/AV888. <b>SHIFT</b> +  selects <b>PHONO</b> input on the AVR600/AV888.
	Toggles random ('shuffle') play on and off. <b>SHIFT</b> +  cycles through the repeat options (track, disc, etc.).
	Modifies many keys (see individual key descriptions, below)
	Selects multichannel ( <b>MCH</b> ) input on AVR600/AV888. <b>SHIFT</b> +  selects <b>AUX</b> input on the AVR600/AV888.
	Selects <b>IPOD</b> input on AVR600/AV888. <b>SHIFT</b> +  selects network ( <b>NET</b> ) internal input on the AVR600/AV888.
	Navigates track listings if supported by the player. <b>OK</b> selects the currently highlighted track if supported by the player
	Changes the time display modes on Arcam CD player
	(not used)
	Cycles through the front panel display's brightness options. <b>SHIFT</b> +  enables <b>RPT A-B</b> functionality if supported by the player.
	Toggles the mute function. By default this key operates the AVR600/AV888 Mute.
	Press and release to skip back to the beginning of the current/previous track.
	Press and release to skip forwards to the beginning of the next track.

	Decrease (-) and increase (+) AVR600/AV888 volume.
	Fast rewind
	Play
	Toggles pause of playback
	Fast forward
	Open/close disc tray
	Stop playback
	Start recording (on products that have this feature)
	Scans first 10 seconds of each track on CD, if supported by the player (Audio search)
	Starts Program mode
	Clears programmed item
	(not used)
	(not used)





# essential setup

Before you use your AVR600 or AV888 it is essential that you enter some information into the Setup menus about your speaker configuration. This allows the unit to process any surround sound digital source to exactly match your system and give you the ultimate surround sound experience.

There are three pieces of vital information which are outlined in the sections: 'Speaker Types', 'Speaker Distances' and 'Speaker Levels'.

The way you enter this information manually into the unit is given later in the 'Setup Menus' section on page 34. The settings can also be established automatically using the Arcam Auto Speaker Setup function. However it is important to understand why these speaker settings must be entered, which is why this section is presented first.

## Speaker types

You need to set the type of speakers that you have connected to your AVR600 (or connected indirectly to your AV888):

Large	capable of full frequency range reproduction
Small	not capable of full frequency range reproduction at the low frequency end
None	speaker not present in your configuration

The terms 'Large' and 'Small' do not necessarily relate to the physical size of your speakers. As a rule of thumb, if a speaker cannot reproduce a flat frequency response down to about 40Hz (and very few can!) it is often better to consider them as 'Small' for setup purposes of home cinema.

When a speaker is set to 'Small', very low frequency sounds are redirected away from that speaker to a 'Large' speaker or a subwoofer, which are far better suited to reproducing these low frequency sounds.

Note that it is not possible to set all speakers to 'Small' unless there is a subwoofer in your speaker configuration. If you do not have a subwoofer, you will be forced to set your front speakers to 'Large'.

(Advanced users may wish to automatically override the 'Small' speaker setting for purely stereo music listening when not watching movies. This can be achieved in the 'Input Config.' menu – see page 35.)

### Single Surround Back speaker

If you have just one Surround Back speaker in your configuration instead of two, ensure it is connected to the SBL speaker connector and set Surr. Back L/R in the Spkr Types menu to either '1 Small' or '1 Large' as appropriate.

### Crossover frequency

If you have set any speakers as being Small, then you will be required to set a value for the crossover frequency. This is the frequency below which signals are filtered away from these Small speakers and redirected to Large speakers or the subwoofer (if present). A frequency of 80Hz is often a good starting point, however you will probably have to experiment with different values to find the best value for your system or consult your speaker handbook.

### MCH sub level

If a subwoofer is present, this setting allows for a 10dB compensation on the subwoofer output when using the MCH input as required by many DVD-A players with audio outputs.

### Use Surround Back channels

If not used in the main zone, it is possible to assign the Surround Back channels to bi-amp the Front Left/Right channels or to provide an amplified output to Zone 2.

## Speaker Distances

It is essential for the distance from each speaker to the listening position to be accurately measured and entered into the 'Setup' menu. This ensures that the sounds from the various speakers arrive at the listening position at the correct time to recreate a realistic surround effect. The distance can be entered in centimetres or inches.

## Speaker Levels

Finally the levels of all the speakers in the system need to be adjusted to match each other at the listening position, again to create a proper surround effect. To help with this the AVR600 or AV888 can generate a test noise for each speaker which should be measured with a sound pressure level (SPL) meter. The meter should be set to 'C' weighting and slow response. The level of noise measured at the listening position from each speaker should be adjusted on the Speaker Trims page of the Setup menu so that the meter reads 75dB SPL. It does not matter what the system volume setting of the AVR600 or AV888 is before turning the test noise on as the volume setting is over-ridden for the duration of the speaker noise test.

There are several basic SPL meters on the market at reasonable prices aimed at home cinema enthusiasts. Check your local technology store, search online or ask your dealer.

If you do not have an SPL meter, you can try to adjust the noise level of each speaker by ear. In this case it is not possible to adjust the speakers to the absolute 75dB SPL volume level, but you should aim for all speakers sounding equally loud. Setting speaker test noise levels by ear is not recommended as it is very difficult to do accurately, but is often better than doing nothing at all!

## auto speaker setup

### Auto speaker setup

There is a proprietary automatic loudspeaker setup function built into your AVR600 or AV888. The Arcam Auto Speaker Setup function attempts to set all the essential speaker settings for all the speakers in your system. It also calculates room equalisation (Room EQ) filter values to remove some of the worst effects of resonant frequencies in the listening room.

Your AVR600/AV888 package is supplied with a calibration microphone, which should be inserted into the AUX jack socket on the front panel and positioned at the main listening position. This microphone picks up the special calibration tones generated by the speakers when Auto Speaker Setup is run. The AVR600/AV888 then analyses the signal and computes:

- which speakers are present,
- speaker type,
- speaker distance,
- speaker level,
- crossover frequency to the subwoofer (or large front speakers if no subwoofer is present),
- problem resonant frequencies in the room which need control by filtering.

It also warns if any of the speakers are too close to the microphone or if the measured tone is clipped.

To help the system be as accurate as possible when performing Auto Speaker Setup, there are a few guidance rules that should be followed:

- Minimise any background sounds in the listening room and other nearby rooms.
- Close all windows and doors in the listening room.
- Turn off all fans including air-conditioning systems.
- If holding the microphone in the hand rather than mounting on a tripod or similar, keep your hand and fingers still to avoid generating 'handling noise'.
- Position the set up microphone pointing upwards at roughly head height in the normal listening position. It is not necessary to point the microphone directly at the speaker generating the test tone. (It helps if you are able to position the microphone exactly where your head would normally be for listening, with the microphone in direct unobstructed view of all speakers.)
- If your system includes an active subwoofer, start by setting its output level / gain control to a value halfway between maximum and minimum.

When activated, a calibration tone is played through each channel in turn, including the subwoofer channel. The calibration tone cycles round each of the speakers twice. If you do not have a full 7.1 speaker configuration there will be periods of silence between some speaker channels. Follow the 'progress' information on-screen.

After all the channels have been measured, a summary of the speaker configuration will be displayed on-screen. You can then choose to accept the settings, re-measure your system again or cancel Auto Speaker Setup without storing the settings.

The Auto Speaker Setup function is found within the Setup menus, see page 37. **By default, Room EQ is not applied to any of the source inputs.** You should enable Room EQ on inputs you think benefit from this feature, as required, by listening when playing typical source material through each input. This is enabled from within the Input Config menu.

While room equalisation can help to reduce problems with listening room acoustics, it is usually far better to try to solve these problems with the room directly. Proper loudspeaker positioning, acoustic wall treatments and moving the listening position away from walls should produce far better results overall. However it may be difficult to do this in a home environment, so Room EQ is your next best choice.

### Problems

We advise you to look over the reported measurements on the screen following Auto Speaker Setup for any obviously incorrect results, in particular to ensure the reported speakers match your configuration and that the speaker distances to the listening position appear roughly correct. If the results are not what you expected re-run Auto Speaker Setup.

The Auto Speaker Setup function is normally quite accurate but occasionally false results can be generated. Problems may be as a result of:

- external sounds or rumbling / handling noises picked up by the microphone
- sound reflections off hard surfaces (e.g. windows or walls) close to the listening position,
- very strong acoustic resonances within the room.

If you are still experiencing difficulties or you wish to have the most accurate results for ultimate surround performance, we recommend using the manual method of establishing speaker distances and levels.

### Using a subwoofer

If your system includes an active subwoofer you may need to re-run Auto Speaker Setup with the subwoofer output level / gain control set to a higher or lower value, if the summary screen reports problems setting the subwoofer up.

Auto Speaker Setup will attempt to choose a crossover frequency that allows the smoothest low frequency transition from the main speakers to the subwoofer. However if this does not produce pleasing results we recommend manually trying other crossover frequencies to find something more to your preference.

See the next sections for information of how to enter or change speaker settings manually.

# setup menus

The Setup menus allow you to configure all aspects of your AVR600 or AV888. The next few pages will go through the menu items and explain their function. The Setup menus will probably look quite 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 (or if your system changes or you move house!)

The only way to view the Setup menus is on your display device (TV or projector) using the on-screen display (OSD) capability of the unit. To view the OSD for the initial setting up, connect any of the video outputs to your display device. You do not need to have a video source connected to the video inputs.

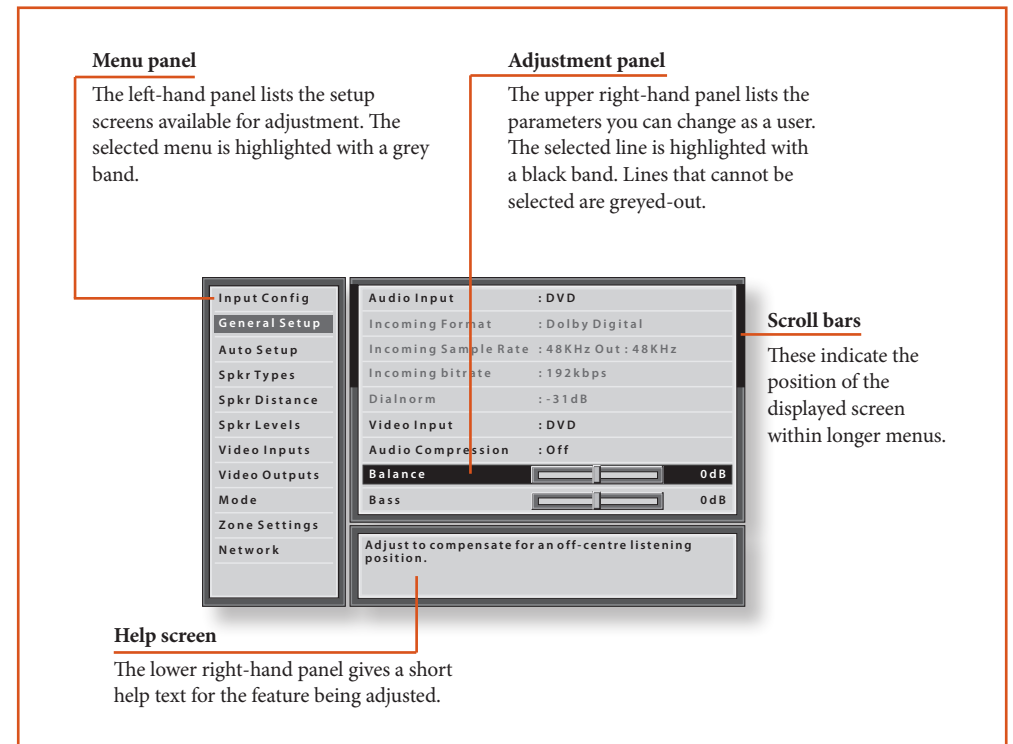
## Entering Setup mode

To enter the setup menu, press the **MENU** button on the remote control or front panel. The front panel display shows 'MENU' and the setup menu (pictured right) is displayed.

## Unstable OSD menu or picture display?

The default AVR600/AV888 output video resolution when first powered up out of the box is 525-line/60Hz NTSC for analogue video and 480i/60 for digital video. This has been chosen as most display devices can synchronise to this automatically. This can be changed in the Video Outputs section of the Setup Menu.

If the output resolution and frame rate is forced to a setting your display device does not support, the picture may become unstable or may not display at all. To reset the output video resolution and frame rate to the default values to restore the display, press and hold the **OK** button for three seconds.



## Navigating the setup menu

### ... using the remote control

The setup menu can be navigated by using the cursor (arrow) keys on the remote control. This is by far the easiest method.

1. To enter the setup menu, press the **MENU** button (which is located immediately under the navigation buttons).
2. Use the **▲** and **▼** keys to navigate up and down the main section headings in the left-hand panel.
3. Once you have the main section that you require highlighted, use the **▶** key to enter the section.
4. Use the **▲** and **▼** keys to navigate up and down the section settings in the left-hand panel. Some settings may be greyed out. These are either for information only (e.g. incoming sampling

frequency) or are not currently selectable (e.g. network IP address when DHCP is used). Scroll bars on the sides of the right hand panel indicate your position in the settings list where there are more items than can be displayed at once.

5. Pressing **OK** selects a setting to change it, pressing **OK** again de-selects the setting.
6. At any time, press the **MENU** button to exit the menu. Any changes to settings are saved.

### ... using the keys on the front panel

The front panel controls can be used to configure the unit. Follow the instructions for using the remote control, in this case using **INPUT-** for left, **INPUT+** for right, **VOLUME-** for down and **VOLUME+** for up.

## Input Config.

The audio and video settings on this page of the Setup menu can be tailored *specifically and independently to the currently selected input*.

When a different input is selected on the Input line, all the input-specific settings for that input are displayed below it. These settings are applied to the named Input only and are stored in memory and recalled each time the unit is powered up and whenever that input is selected.

**Input** – The currently selected input connectors to which the settings below relate.

**Name** – The display name of the input. You can change the name of any input to more closely match your setup. For example, if you had two satellite receivers, you could connect the main receiver to the Sat audio and video input connectors and change the Name to 'SAT 1'. You could then connect the second satellite receiver to the VCR audio and video input connectors, but change the VCR Name to 'SAT 2'. It is then clearer to users of your AVR600/AV888 which inputs they wish to select when scrolling through.

**Lip Sync** – Each input can have its own setting to add a time delay between the audio and video signals to compensate for the sound and picture not being synchronised. This is normally required when video processing is used in the system for scaling or de-interlacing video. The range of lip sync delay is -5 to +220 milliseconds.

The lip sync adjustment can only correct for delayed video. If the audio is late set lip sync to its minimum.

**Mode** – Sets the initial audio decode mode for stereo sources on this input.

- Last Mode recalls the last used setting for this input when a stereo source was applied. See section 'Multichannel source modes' on page 41 for more information.

**Ext. Mode** – Sets the initial audio decode mode for multichannel digital sources on this input.

- Last Mode recalls the last used setting for this input when a stereo source was applied. See section 'Multichannel source modes' on page 41 for more information.

**Treble** –  
**Bass** –

These allow you to alter the bass and treble tone controls for all currently active speakers for each individual

input. For example, if your PVR source sounds a little bass light, you can always correct for this by selecting PVR on the Input line at the top of this menu and add 2 or 3dB to the Bass control. Then, whenever the PVR input is selected, the bass is automatically boosted for as long as that input is selected.

**Room EQ** – When the Auto Speaker Setup function is run it also calculates Room Equalisation coefficients to remove some of the worst effects of resonant frequencies of the room at the listening position. By default Room EQ is not applied to any of the source inputs, however you can enable them on a per-input basis as you wish.

- **Not Calculated:** (Information only) Auto Speaker Setup has not been run or has errors so cannot be selected.
- **On:** Room EQ is applied to the current source.
- **Off:** Room EQ is not applied to the current source.

**Input Trim** – Sets the maximum analogue input signal level (sensitivity) on this input before the ADC (Analogue-to-Digital converter) signal path clips. Options are 0.5, 1, 2 and 4 volts RMS maximum input. The default is 2Vrms maximum.

For example, analogue sources with low output levels may benefit by choosing the 1V maximum setting, or the 0.5V maximum setting if the source has a very low output. This helps maximise signal-to-noise performance of the unit and also helps keep the various analogue sources sounding about the same level for any given volume control setting.

**Dolby Volume** – Dolby Volume is an intelligent system that improves the perceived audio frequency response at lower listening levels and corrects for volume inconsistencies between sources (e.g. a rock radio station and a DVD) and between programming (e.g. a TV show and advertisement breaks).

- **Off:** (default) Dolby Volume is not applied to this input.
- **Cinema:** enables Dolby Volume for this source and configures the input for audio which comes mostly from movie soundtracks.
- **Music:** enables Dolby Volume for this source and configures the input for audio which comes from other sources (CD, TV, Satellite, Tuner, etc.).

**Dolby Leveller** – This setting of Dolby Volume controls how closely quiet and loud sources and programme content are matched to each other, based on the ear's perception of loudness. The range of values is 0 (minimal levelling) to 10 (maximum levelling). The default setting is 9, however we recommend

experimenting with lower values if all your source material is more closely matched in level. If the Volume Leveller function is set off, no level matching between sources and programme material is performed. Note however that turning the Dolby Leveller setting of Dolby Volume to 'Off' is not the same as turning the entire function of Dolby Volume to 'Off', as volume related frequency response processing is still active. See Dolby Volume on page 42 for more information.

**DV Calib. Offset** – The Calibration Offset parameter of Dolby Volume allows you to compensate for speaker efficiencies and listening position. The default value is 0 and this should normally produce a good result when the speaker levels of the AVR600 (or AV888 and amplifier combination) are set using a sound pressure level meter.

See the Dolby Volume section on page 42 for further information on Calibration Offset.

**Surround EX** – Sets how the unit should configure its decode mode when a Dolby Digital EX bitstream is received. Note that this setting only applies if you have Surround Back loudspeakers. You may wish to experiment with these two decode modes to see which you prefer with Dolby Digital EX encoded material. Options are Auto DD EX, Auto PLIIx and Manual.

- **Auto DD EX:** When a Dolby Digital EX-flagged bitstream is detected, the decode mode automatically changes to Dolby Digital EX. This can be temporarily overridden by pressing the MODE button on the remote or front panel.
- **Auto PLIIx:** When a Dolby Digital EX-flagged bitstream is detected, the decode mode automatically changes to Pro Logic IIX Movie. This can be temporarily overridden by pressing the MODE button on the remote or front panel.
- **Manual:** The received Dolby Digital EX is treated as if it is an ordinary Dolby Digital stream in that it does not automatically select the EX or PLIIx decode modes. Instead, the previously used decode mode for a multichannel digital source on this input is applied. However, either of the EX or PLIIx decode modes can be applied manually by pressing the MODE button.

**Stereo Mode** – If you have configured your system to have a subwoofer, then you have the flexibility to choose how bass information is distributed between the front left/right speakers and the subwoofer when listening to stereo (two channel only) analogue and digital sources. Choose the option which gives you the most solid, even sounding bass. If you are using

a subwoofer for stereo, please also see Sub Stereo below to set the level of the subwoofer. For best results test with a set-up disc or live programme material. This setting can be used to override your normal speaker settings in the Spkr Types menu whenever the unit plays stereo material. It is quite common to find that two channel stereo music listening is best done with a slightly different sub/speaker setting than for surround movies.

- **As Spkr Types:** When an analogue or digital stereo source is played, your normal speaker configuration (as in Spkr Types menu) is used to reproduce the signal.
- **Left/Right:** Full frequency stereo information. All audio is sent to the front left and right speakers only without any bass redirection. You can use this setting if you consider your front left/right speakers to be able to handle the full frequency range of music. If you have set your front left/right speaker size as Small in the Spkr Types setup page, you may wish to use this option to override the setting to Large for stereo music listening, if you have full frequency range left/right speakers. It can often be beneficial to set full frequency range speakers to Small in the Spkr Types setup page for use with movies, if you have a subwoofer in your system. Doing so may deliver more impact on movie soundtracks as subwoofers are designed to handle reproduction of high bass content. However you may find that for stereo music a better overall result is obtained by not using the subwoofer and effectively treating the front left/right speakers as Large.
- **Left/Right+Sub:** Full frequency range stereo is fed to the front left and right speakers and extracted bass is sent to the subwoofer. In this case the low frequency information is effectively duplicated.
- **Sat+Sub:** Use this setting if you really do have Small satellite front left and right speakers, or if you prefer the overall sound of bass being handled by the subwoofer. Full bass management is used so that analogue and digital stereo sources are fed to the DSP where the bass is filtered off front left and right and redirected to the subwoofer.

### NOTE

The Stereo Mode function is not available when using an analogue source in Stereo Direct mode.

**Sub Stereo** – If Left/Right+Sub or Sat+Sub is selected in Stereo Mode above, this setting adjusts the level of the subwoofer when the source is two channel stereo.

**Brightness** – Sets the video brightness for this input. This setting can be used to compensate for an overly dark or bright source picture on this input when compared with other video sources.

**Contrast** – Sets the video contrast for this input. This setting can be used to compensate for too much or too little contrast in the source picture on this input when compared with other video sources.

**Colour** – Sets the video colour saturation for this input. This setting can be used to compensate for too much or too little colour in the source picture on this input when compared with other video sources.

**Picture Mode** – Sets how the video processor in the AVR600/AV888 interprets the video on this input. Normally the video processor automatically detects the original source type and correctly sets either Video mode or Film mode processing. In the unlikely event that the video processor misinterprets the video type, resulting in subtle picture artefacts, the video processor can be manually forced into Video mode or Film mode. This function should normally be set to Auto.

**Edge Enhancement** – Sharpens the picture from a source on this input.

**Mosquito N.R.** – Removes haziness that sometimes appears around objects in a picture from a source on this input.

**Noise Reduction** – Removes random noise within the picture from a source on this input.

**Block N.R.** – Removes block artefacts in overly compressed digital video from a source on this input.

**Component Mode** – Configures the current three-wire high quality analogue video input for component (YUV) video signals or RGB video signals. It is important to match the setting to the incoming video format otherwise the colours will be incorrect and the picture may be unstable.

Options are Normal, RGB and RGB+Sync.

- **Normal:** (default) the three-wire input is configured for normal Component (YUV / YPbPr) analogue video.
- **RGB:** the three-wire input is configured for RGB analogue video with video 'sync-on-green'.
- **RGB+Sync:** the three wire input is configured for RGB analogue video, with the video sync signal on the composite input for the current named source.

You should typically select RGB+Sync if you are using a standard SCART to 4-wire phono breakout cable to connect an RGB SCART source.

Note that if RGB+Sync is selected, the S-Video and Composite inputs cannot be selected as video inputs for the current source.

**HDMI Audio** – Selects whether you wish to enable or disable audio input over HDMI for this source. This option does not apply if you are not using this HDMI input. If you are not using HDMI for audio input on this source, selecting No will force the AVR600/AV888 to only use the SPDIF digital input or analogue audio inputs.

Options are Yes and No.

- **Yes:** (default) the unit will use audio over HDMI if an HDMI signal is detected.
- **No:** the unit will not use HDMI audio for this source, it will use SPDIF digital or analogue audio inputs instead.

**Video Source** – Selects whether the video signal detection for this source is automatic or forced to a particular signal type. When a source is selected the unit looks for the highest quality video signal type that is connected in the order: HDMI – Component/RGB – S-Video – Composite.

If the video input type is not HDMI, there will be a delay in detecting the type of video that is connected, resulting in longer switching times between sources. To speed up source switching times you can force the unit to look at only the specific video connection type you have for each source. Select from the list the video type you are using on this source.

- **Auto:** (default) the unit scans through the various video input connectors/formats for the current source and selects the highest quality available for this source.
- **HDMI:** the unit is forced to use the HDMI video input for this source.
- **Component:** the unit is forced to use the COMPONENT/RGB video input for this source.
- **S-Video:** the unit is forced to use the S-VIDEO input for this source.
- **Composite:** the unit is forced to use the COMPOSITE video input for this source.

## General Setup

General information and system controls.

**Source Input** – (Information only) The currently selected input to which the settings below relate.

**Incoming Format** – (Information only) The format of the digital audio stream connected to this input, if present.

**Incoming Sample Rate** – (Information only) The sample rate of the digital audio stream connected to this input, if present.

**Incoming Bit Rate** – (Information only) The bit rate of the digital audio stream connected to this input, if present.

**Dialnorm** – (Information only) If a Dolby Digital audio stream is connected to this input, this is the Dialogue Normalisation setting requested by the stream.

**Video Input** – The currently selected video input. For inputs that have video connections (e.g. SAT, PVR etc), audio and video inputs normally switch over together. However, here you can temporarily select a different video source for the current audio source. This feature may be useful, for example, if you are watching a sports game on satellite but on this occasion wish to listen to the commentary on the radio instead. This temporary override is reset when the input source is changed so that the Video Input follows the Audio Input setting (or the setting in the Video Inputs menu, if applicable).

**Audio Compression** – Allows selection of compression which is ideal for late night listening. The compression effect increases the volume of the quiet passages and decreases the volume of the louder passages. Compression only applies to some Dolby Digital and DTS soundtracks that support this function.

- **Off:** (default) no audio compression is applied.
- **On:** Audio compression is applied whenever a soundtrack supporting compression is received.
- **On / Auto:** As for On above, except for Dolby TrueHD soundtracks which support an additional Auto on/off setting

This setting applies to all inputs when a relevant digital audio stream is detected. It is stored in memory and recalled each time the unit is powered up.

**Balance** – To alter the sound balance temporarily between front left and right speakers. You can alter the sound stage to either the left or the right by up to 6dB. Note that it is not possible to shift the audio signal

completely over to one channel. This function resets to equal left/right balance when the input is changed.

**PLII Dimension** –

**PLII Centre Width** –

**PLII Panorama** –

These allow the adjustment of the sound field for Dolby Pro Logic II Music mode decoding of two-channel sources. These settings apply to all inputs when PLII or PLIIx Music decoding is selected. The settings are stored in memory and recalled each time PLII or PLIIx Music mode is selected.

- **Dimension:** Allows the user gradually to adjust the sound field either towards the front or towards the rear. Settings range from -3 to +3. We recommend Dimension is set to 0 for normal use.
- **Centre Width:** Controls the centre image width. With Pro Logic decoding, dominant centre signals come only from the centre speaker. If no centre speaker is present, the decoder splits the centre signal equally to the left and right speakers to create a 'phantom' centre image. The Centre Width control allows variable adjustment of the centre image so it may be heard only from the centre speaker; only from the left/right speakers as a phantom image; or from all three front speakers to varying degrees. We recommend Centre Width is set to 3 for normal use.
- **Panorama:** Extends the front centre image to include the surround speakers for an exciting 'wrap-around' effect with side-wall imaging.

**Digital Output Freq.** – Sets the sampling frequency of the audio Analogue-to-Digital converter. This setting applies to all inputs when analogue audio is being processed (i.e. not Stereo Direct mode). It is stored in memory and recalled each time the unit is powered up.

**Volume Adjustment** – Sets the step size of the volume control.

- **Normal:** (default) volume control is in 1dB steps
- **Fine:** volume control is in 0.5dB steps

**Maximum Volume** – Limits the maximum volume setting the system can be turned up to in the main zone. This is a useful feature to prevent accidental overdriving of low power-handling speakers (for example). It is stored in memory and recalled each time the unit is powered up.

**Max On Volume** – Limits the maximum volume the system operates in the main zone when it is switched on or comes out of Standby. The system comes on at this stored volume setting if the last used (possibly very

loud) volume exceeds this value. It is stored in memory and recalled each time the unit is powered up.

**Audio In iPod** – If you have an iPod connected to the AVR600/AV888 using an Arcam rDock or rLead, this control allows you to set which audio input is used.

## Auto Setup

Auto Speaker Setup of your loudspeakers and subwoofer (if present) is controlled by this menu. A full description of how Auto Speaker Setup works is given on page 33. Remember to insert the calibration microphone into the **AUX** input on the front panel and position the microphone at the listening position before running Auto Setup.

**Run Auto Setup** – Press **OK** (or **OK** on the remote) to start Auto Speaker Setup. The process will generate test tones from the speakers and will typically take less than two minutes. The test tone generator will cycle round each speaker twice.

**Accept Setup** – When Auto Speaker Setup has completed without errors you can choose to accept or reject the settings

- **No:** The settings are not stored in memory.
- **Yes:** All the speaker settings (speakers present, type, distance, level and crossover frequency) are stored in the relevant sections of the Setup Menu and overwrite any previous settings.

**Auto Setup Progress** – Gives a summary of what Auto Speaker Setup is doing as it progresses, starting with which speaker is being tested.

- **Calculating EQ:** Data gathered from each of the speakers is being processed.
- **Completed Error:** A problem was detected with the speaker setup. See the descriptions for each of the individual speakers, below. Alternatively an invalid speaker configuration was detected.

**Front Left** –

**Centre** –

**Front Right** –

**Surr. Right** –

**Surr. Back Right** –

**Surr. Back Left** –

**Surr. Left** –

**Subwoofer** –

If the above speakers are correctly detected as present in your speaker configuration, their size (Small or Large), distance from the listening position and trim level (dB) will be displayed. Note that size does not apply to the

subwoofer. Otherwise one of the following messages will be displayed:

- **Not Present:** A speaker was not detected on this channel.
- **Clipped:** The test tone detected by the microphone was distorted or clipped. This could be because you have very sensitive speakers and they are very close to the listening position. However it is more likely that the detected signal was corrupted by microphone handling noise or other external sounds. Try running Auto Speaker Setup again.
- **Mic too close:** The speaker is too close to the listening position to be able to calculate its distance. If possible, try moving the speaker slightly further away from the listening position and run Auto Speaker Setup again.

**Crossover Freq.** – The frequency at which Auto Speaker Setup determined is the best point to filter low frequency sounds away from Small speakers and into the subwoofer (or Large speakers if a subwoofer is not present).

## Spkr Types

Settings for the types of loudspeaker you have connected to your AVR600 or AV888 and power amplifier (e.g. the Arcam P777). These settings are applied to all audio inputs and are stored in memory and recalled each time the unit is powered up.

**Front Left / Right** –

**Centre** –

**Surr. Left / Right** –

**Surr. Back L / R** –

Here you set the type of speakers that you have connected to your AVR600/AV888:

- **Large:** capable of full frequency range reproduction
- **Small:** not capable of full frequency range reproduction at the low frequency end
- **None:** speaker not present in your configuration
- **Subwoofer:** Set whether a subwoofer is present or not.

For Surr. Back L/R, the number before Large and Small in the dropdown options list is the number of Surround Back speakers in your configuration. If you only have one Surround Back speaker connect it to the **SBL** output.

### NOTE

It is not possible to set all speakers to Small unless there is a subwoofer in your speaker configuration. If you do not have a subwoofer, you will be forced to set your front speakers to Large.

**Crossover Freq** – This is the frequency at which loudspeakers set as Small start to redirect bass signals to the Subwoofer or Large speakers in your system. Small speakers redirect bass to the subwoofer, if present. The exception is the Centre speaker which, if Small, redirects its bass to front left/right provided that they themselves are Large. This is done to help keep Centre bass directly in front of the listening position.

**MCH Sub Levels** – This setting controls the subwoofer level from an externally decoded multichannel source (DVD-A, SACD, etc). Most DVD players require a +10dB compensation on the subwoofer channel to maintain the correct balance with the main channels.

- **+10dB comp.:** for normal DVD players which output the analogue subwoofer channel at the low 0dB level. Gain compensation of +10dB is added to the subwoofer channel of the **MCH INPUT** in the AVR600 or AV888.
- **No comp.:** for DVD players which output the analogue subwoofer channel at the correct +10dB level. No subwoofer gain compensation is needed on the subwoofer channel of the **MCH INPUT** in the AVR600 or AV888.

**Use Channels 6+7 for** – If your main zone speaker set up does not include Surround Back Left and Right speakers, you can choose to use the Surround Back amplifier channels to bi-amp the Front Left and Right pair, or as a stereo power amplifier for Zone 2 (but note that powered Zone 2 is not available on the AV888).

## Spkr Distance

Calibration settings for the distances between the loudspeakers and the listening position.

### NOTE

Speakers that are not present in your configuration will be greyed out.

These settings are applied to all audio inputs and are stored in memory and recalled each time the unit is powered up.

**Units** – Select whether you wish to measure distances in centimetres or inches.

**Front Left** –

**Centre** –

**Front Right** –

**Surr. Right** –

**Surr. Back Right** –

**Surr. Back Left** –

**Surr. Left** –

**Subwoofer** –

As described in 'essential setup' on page 32, measure the distance from each loudspeaker in your system to your ear in the main listening position and enter the values. This allows the AVR600/AV888 to calculate the correct relative delay for each loudspeaker.

## Spkr Levels

Calibration settings for the test noise signal level through the loudspeakers and measured at the listening position.

### NOTE

Speakers that are not present in your configuration will be greyed out.

These settings are applied to all audio inputs and are stored in memory and recalled each time the unit is powered up.

Use the **▲** and **▼** navigation buttons on the remote control to select the relevant speaker. Press **OK** to enable/disable the calibration noise and the **◀** and **▶** navigation buttons to adjust the noise level from each speaker.

**Front Left** –

**Centre** –

**Front Right** –

**Surr. Right** –

**Surr. Back Right** –

**Surr. Back Left** –

**Surr. Left** –

**Subwoofer** –

As described in 'essential setup' on page 32, adjust the level of the test noise from each speaker so that an SPL meter at the listening position measures 75dB SPL.

## Video Inputs

Settings to optionally assign a video source to each of the normally audio-only inputs.

These settings are stored in memory and recalled each time the unit is powered up.

**Video Input Tape** –

**Video Input CD** –

**Video Input Aux** –

**Video Input AM / FM** –

**Video Input Phono** –

**Video Input MCH** –

**Video Input iPod** –

**Video Input Net** –

**Video In Digital Radio** –

The default for each of the audio inputs is 'None', however for example you could associate the satellite 'Sat' video with AM, FM and Digital Radio audio if you wished. This way you could listen to the FM or AM or Digital Radio commentary of a sports game but have the pictures from the satellite coverage.

### Progressive scan playback



The AVR600 and AV888 can support 1080p, 24 frames per second source materials. To enjoy 24p playback both the source device (e.g. a Blu-ray disc player) and the display device (e.g. a TV or projector) must be capable of supporting 24p.

To enjoy 24p playback, set the **Video Source** to **HDMI** in the **Input Config.** menu, and set the **Output resolution** to **1080p** (i.e. not to **Preferred**) in the **Video Outputs** menu. Also, ensure that the **Frame Rate** is set to **Auto**.

## Video Outputs

The settings in this menu control the output resolution from the video processor in the unit as well as the operation of the two HDMI outputs.

These settings are applied to all video inputs and are stored in memory and recalled each time the unit is powered up.

### NOTE

#### Important points to remember:

##### For analogue outputs

The analogue output resolution should be chosen carefully; Composite and S-Video connections can only carry 480i (525-line NTSC) or 576i (625-line PAL) signals. If an output resolution higher than this is chosen in Out 1 Resolution, the Composite and S-Video main zone outputs will be disabled.

You should also set the frame rate (50Hz Interlaced for PAL, 60Hz Interlaced for NTSC) and the aspect ratio (4:3 standard or 16:9 widescreen) to match your display device. Note that S-Video and Composite can only carry Interlaced video. If you select Progressive analogue video, Zone 1 S-Video and Composite outputs will be disabled.

##### For HDMI outputs

The output resolution, frame rate and display aspect ratio can be automatically determined by the unit. Alternatively these settings can be manually selected. If you have two HDMI display devices connected, you can also configure which of the two HDMI outputs takes priority.

**Zone 1 OSD** – Selects whether the main zone pop-up OSD messages are On or Off. It is stored in memory and recalled each time the unit is powered up.

- When **On**, all user adjustments that are made during the general use of the unit are displayed on screen as well as the front panel display. This includes the adjustment of volume, subwoofer level, lip sync, tone controls, etc. It is stored in memory and recalled each time the unit is powered up.
- When **Off**, the above user adjustments will not appear on screen, only on the front panel display. This leaves the picture on your display device clear of pop-up text. However, regardless of this setting the Setup menus are always displayed on screen.

**Analogue Output** – This setting controls the output resolution of the analogue video outputs of Zone 1. This applies to all Zone 1 analogue video outputs: Component, S-Video and Composite. This setting is only valid if neither of the HDMI outputs **OUT 1** or **OUT 2** are being used at the time. See 'Important points to remember' above regarding analogue resolutions.

The dropdown list shows all the resolutions that the unit's video processor can output.

**Analogue Frame Rate** – This setting controls the output frame rate of the analogue video outputs of Zone 1. This applies to all Zone 1 analogue video outputs: Component, S-Video and Composite. This setting is only valid if neither of the HDMI outputs **OUT 1** or **OUT 2** are being used at the time. See the Note 'Important points to remember' regarding analogue frame rates.

**Display Type** – Set the aspect ratio of your display device; 4:3 standard or 16:9 widescreen.

**Output Switching** – This setting controls the operation of the two HDMI outputs.

- **Auto-Priority Out 1/Out 2** senses which display device is turned on and gives priority to the named output (**OUT 1** or **OUT 2**) if both display devices are on at the same time. When both display devices are on at the same time, the output with the highest priority is used to configure the settings of the unit's video processor.
- **Output 1 or Output 2:** forces only the named HDMI output to be enabled.
- **Output 1 & 2:** enables both HDMI outputs simultaneously. In order to do this however, the settings of the unit's video processor are reduced down to the highest common set that can be supported by both display devices.

**Out 1 Resolution** – This setting controls the output resolution of HDMI output **OUT 1**. This setting is only valid if HDMI output **OUT 1** is the only active HDMI output at the time.

- The dropdown list shows all the resolutions that the video processor can output. Resolutions that are not supported by the connected display device are greyed out and cannot be selected.
- **Preferred:** sets the **OUT 1** resolution to be the preferred resolution that is requested by the display device. This is often the highest resolution the display device can receive.

**Out 1 Frame Rate** – This setting controls the output frame rate of HDMI output **OUT 1**. This setting is only valid if HDMI output **OUT 1** is the only active HDMI output at the time.

- The dropdown list shows all the frame rates that the video processor can output. Frame rates that are not supported by the connected display device at the above resolution are greyed out and cannot be selected.
- **Auto** sets the **OUT 1** frame rate to be the preferred frame rate that is requested by the display device for the currently used resolution.

**Lipsync 1** – (Information only) Displays how much lip sync is automatically applied to HDMI output **OUT 1** to compensate for video processing delays in the attached display device. Not all display devices support this function.

**Out 2 Resolution** – This setting controls the output resolution of HDMI output **OUT 2**. This setting is only valid if HDMI output **OUT 2** is the only active HDMI output at the time.

- The dropdown list shows all the resolutions that the AVR600 or AV888 video processor can output. Resolutions that are not supported by the connected display device are greyed out and cannot be selected.
- **Preferred:** sets the **OUT 2** resolution to be the preferred resolution that is requested by the display device. This is often the highest resolution the display device can receive.

**Out 2 Frame Rate** – This setting controls the output frame rate of HDMI output **OUT 2**. This setting is only valid if HDMI output **OUT 2** is the only active HDMI output at the time.

- The dropdown list shows all the frame rates that the video processor can output. Frame rates that are not supported by the connected display device at the above resolution are greyed out and cannot be selected.
- **Auto:** sets the **OUT 2** frame rate to be the preferred frame rate that is requested by the display device for the currently used resolution.

**Lipsync 2** – (Information only) Displays how much lip sync is automatically applied to HDMI output **OUT 2** to compensate for video processing delays in the attached display device. Not all display devices support this function.



**Out 1 & 2 Resolution** – This setting controls the output resolution when both HDMI outputs are used simultaneously. This setting is only valid if Output Switching is set to Output 1 & 2.

- The dropdown list shows all the resolutions that the video processor can output. Resolutions that are not supported by the connected display devices are greyed out and cannot be selected.
- **Best:** sets the HDMI output to be the highest common resolution that is supported by both display devices.

**Out 1 & 2 Frame Rate** – This setting controls the output frame rate when both HDMI outputs are used simultaneously. This setting is only valid if Output Switching is set to Output 1 & 2.

- The dropdown list shows all the frame rates that the video processor can output. Frame rates that are not supported by the connected display devices at the above resolution are greyed out and cannot be selected.
- **Auto:** sets the HDMI output to be the highest preferred common frame rate that is supported by both display devices for the above resolution.

**Lipsync 1 & 2** – (Information only) Displays how much lip sync is automatically applied to HDMI outputs **OUT 1** and **OUT 2** simultaneously to compensate for video processing delays in the attached display devices. Not all display devices support this function.

## Mode

Lists the decode and downmix options you wish to include when cycling through the options on the **MODE** button. Settings are Yes or No. The list is divided into two sections depending on the source audio type. See section 'Multichannel source modes' on page 41 for more information on each processing a decoding mode.

These settings are applied to all audio inputs and are stored in memory and recalled each time the unit is powered up.

### For Stereo sources:

**Dolby ProLogic** –  
**Dolby PLIIx Movie** –  
**Dolby PLIIx Music** –  
**Dolby PLIIx Matrix** –  
**Dolby PLIIx Game** –  
**Neo:6 Cinema** –  
**Neo:6 Music** –

The first section, 'Stereo sources' is the list of processing modes you wish to make available for stereo signals (analogue stereo, digital PCM stereo, Dolby 2.0, DTS 2.0, etc). When a stereo signal is applied, each press of the **MODE** button cycles through the processing modes you have enabled in the 'Stereo sources' section. The unprocessed Stereo option is always available for stereo signals therefore it is not shown in the list.

### For Multichannel sources:

**Stereo Downmix** –  
**Dolby Digital EX** –  
**Dolby PLIIx Movie** –  
**Dolby PLIIx Music** –

The second section, 'Multichannel sources' is the list of processing modes you wish to make available for multichannel digital signals (any Dolby or DTS digital stream that has more channels than stereo 2.0). When a multichannel digital signal is applied, each press of the **MODE** button cycles through the processing modes you have enabled in the 'Multichannel sources' section.

## Zone Settings

Lists the volume and control settings for Zone 2 and Zone 3. These settings are applied to all audio inputs and are stored in memory and recalled each time the unit is powered up.

**Z2 Audio Input** – Selects the analogue audio to be routed to Zone 2.

**Z2 Video Output** – Selects the analogue video to be routed to Zone 2 for the current audio input.

**Zone 2 Volume** – The current volume in Zone 2.

**Zone 2 Max. Vol** – Limits the maximum volume setting the system can be turned up to in the Zone 2. This is a useful feature to prevent accidental overdriving of low power-handling speakers, for example.

**Zone 2 Fixed Vol** – The Zone 2 volume control can be locked at the current value for use with an external amplifier with its own volume control in Zone 2.

**Zone 2 Max On Vol** – Limits the maximum volume the system operates in the Zone 2 when it is switched on or comes out of Standby. The system comes on at this volume if the last used (possibly very loud) volume exceeds this value.

**Zone 3 Volume** – The current volume in Zone 3.

**Zone 3 Max. Vol** – Limits the maximum volume setting the system can be turned up to in the Zone 3. This is a useful feature to prevent accidental overdriving of low power-handling speakers (for example).

**Zone 3 Fixed Vol** – The Zone 3 volume control can be locked at the current value for use with an external amplifier with its own volume control in Zone 3.

**Zone 3 Max On Vol** – Limits the maximum volume the system operates in the Zone 3 when it is switched on or comes out of Standby. The system comes on at this volume if the last used (possibly very loud) volume exceeds this value.

**Standby** – When a Standby command is received by an infra-red eye in Zone 2, this setting controls which parts of the AVR600 or AV888 to turn on and off:

When **Local Only**, the Standby IR command only affects the zone it was received in (Zone2 or Zone3).

When **All Off**, the Standby IR command affects the entire system in all zones.

## Network

The AVR600 and AV888 are fitted with a network audio client which is capable of playing internet radio stations as well as stored music on a network storage device such as a PC, or on a USB flash drive.

**Use DHCP** – Select if your network uses DHCP

- **No:** To assign a fixed IP address manually.
- **Yes:** To use network parameters given by the DHCP server.

**MAC address** – (Information only) The unique address of the network card in your AVR600/AV888.

**IP Address** – If not using DHCP, enter the IP address you have assigned to the AVR600/AV888 for your network.

**Subnet Mask** – If not using DHCP, enter the subnet mask for the AVR600/AV888 on your network.

**Gateway** – If not using DHCP, enter the IP address of the router the AVR600/AV888 is connected to.

**Primary DNS** – If not using DHCP, enter the Primary DNS IP address of your internet service provider.

**Alternate DNS** – If not using DHCP, enter the Secondary DNS IP address of your internet service provider.

**Use Proxy** – Select if you connect to the network via a Proxy Server.

- **No:** If you connect directly onto the network.
- **Yes:** If you connect to the network via a Proxy Server.

**Proxy Address** – If connecting via a Proxy Server, enter its IP address.

**Proxy Port** – If connecting via a Proxy Server, enter the port number to which the Proxy responds.

# decoding modes

## Introduction

Your AVR600 receiver or AV888 pre-amp provides all the key decoding and processing modes for analogue and digital signals, including the latest high definition audio formats over HDMI.

### Modes for digital sources

Digital recordings are usually encoded to include information about their format type. The unit detects automatically the relevant format in a digital signal – such as Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio, Dolby Digital, or DTS – and switches in the appropriate decoding.

### Modes for analogue sources

Analogue recordings do not contain information about their encoding formats, so the desired mode – such as Dolby Pro Logic – needs to be selected manually.

### Mode memory

Dolby Digital or DTS audio (including the high definition formats) can be output in two mix modes, selected using the **MODE** button:

- Surround (e.g., five main channels plus a subwoofer for a 5.1 source)
- Stereo downmix.

Two-channel audio, regardless of whether it is analogue or digital can also be output in two mix modes, selected using the mode button:

- Surround (e.g., Dolby Pro Logic II Movie, Neo:6 Music, etc.)
- Stereo.

The AVR600/AV888 stores the settings for each source (except MCH). Thus the decoding mode for the following groups of source material can be stored independently:

- Dolby Digital (multichannel) and DTS source material
- Two channel Dolby, PCM or Analogue source material

## Two-channel source modes

The following decoding and surround modes are available for standard and high definition Dolby Digital 2.0, DTS 2.0, PCM or analogue sources:

Stereo

Pro Logic II Movie

Pro Logic II Music

Pro Logic II Game

Pro Logic IIx Movie

Pro Logic IIx Music

Pro Logic IIx Game

Pro Logic

Neo:6 Cinema

Neo:6 Music

### NOTE

Pro Logic IIx modes are only selectable when Surround Back speakers are present.

### Stereo

In this mode the unit works as a conventional high quality audio amplifier. Note that if the subwoofer is enabled in stereo mode, then some processing of the signal will be carried out. To achieve ultimate sound quality with analogue sources, select the Stereo Direct function if an analogue connection is present.

### Dolby Pro Logic II

Dolby Pro Logic II decoding is designed to produce five-channel output from two-channel source material.

There are three different modes available in Pro Logic II: 'Movie', 'Music' and 'Game' modes, which are intended for use as their names suggest. Due to the different recording methods used for movies, music and video games, it is recommended that the correct decoding mode for your source material is used to obtain best results.

- **Movie mode:** This is intended for use with 'cinematic' material, which is mixed and monitored in a calibrated multichannel environment. Movie mode is a 'fixed' mode that is designed to give a similar sound when listening using a home cinema system to that obtained in a cinema.
- **Music mode:** Stereo music is not designed for surround processing, although good surround effects can be obtained through careful production. As the optimum decoding method varies according

to the recording, Music mode allows the user adjustment of the processing characteristics.

- **Game mode:** Video games today are extremely sophisticated, with dramatic 5.1 surround audio tracks. Game mode gives augmented bass management to capture the full effect of game sounds panned to the surrounds, ensuring the bass impact from purer surround effects are fully delivered to the subwoofer.

### Dolby Pro Logic IIx

Dolby Pro Logic IIx is an extension of the Dolby Pro Logic matrix-decoding method. The decoder allows the processor to derive seven outputs from a two or multichannel (up to 5.1 with EX) source to take better advantage of all amplifiers and speakers in a 7.1 setup. As with Pro Logic, there are three different modes available: Movie, Music and Game. Due to different recording methods used for movies and music, you should select the correct mode for your source material.

### Dolby Pro Logic

Dolby Pro Logic is a legacy mode that is designed to produce a five-channel output from two-channel source material. It should be used only when the source material is encoded as Dolby Pro Logic; otherwise, we recommend the use of Dolby Pro Logic II. This is because Pro Logic processing on straight stereo sources can sound muffled and compressed.

### DTS Neo:6

DTS Neo:6 provides up to six full-band channels of decoding from stereo material. The AVR600 or AV888 will derive separate channels corresponding to the standard home theatre layout.

- **Cinema:** A movie mode designed to reproduce a movie theatre environment. Neo:6 technology allows various sound elements within a channel or channels to be steered separately, and in a way which follows the original presentation naturally.
- **Music:** A music mode designed to produce a lively, high-integrity surround-effect from most two-channel music sources from all available speakers. Neo:6 music mode expands stereo recordings into the five or six-channel layout without diminishing the subtlety and integrity of the original stereo recording.

## Multichannel source modes

Digital multichannel source material is normally provided as '5.1 audio'. The '5.1 channels' comprise of: left, centre and right front speakers, two surround speakers and a low frequency effects (LFE) channel. Since the LFE channel is not a full range channel, it is referred to as '.1'.

Surround systems decode and reproduce the 5.1 channels directly. Dolby Digital EX and DTS-ES matrix enhanced decoding systems create one extra rear channel from information buried in the two surround signals of the 5.1 source. These EX and ES enhanced systems are sometimes referred to as '6.1' systems. This extra surround back channel is normally reproduced through two separate loudspeakers, creating a '7.1' system.

DTS-ES discrete is a true '6.1' source, with six discretely encoded channels, plus the '.1' LFE channel.

Dolby Digital Plus, Dolby True-HD and DTS-HD are high-resolution surround formats found on Blu-ray and HD-DVD discs

### Decoding modes

The modes given in the following table are available for multichannel digital sources.

Special modes such as DTS-ES 6.1 discrete, Dolby Digital Plus, Dolby Tru-HD and DTS-HD are only available from the correct source material.

<b>High resolution audio sources</b>	
Dolby True-HD	Provides up to 7.1 full channel at 96kHz, 24bit resolution, with potentially no losses in the compression process. Data rates can be up to 18Mbps.
Dolby Digital Plus	Provides up to 7.1 discrete channels of audio with less compression than traditional Dolby Digital encoding. Data rates can be up to 6Mbps.
DTS-HD Master Audio	Provides up to 7.1 full channel at 96kHz, 24bit resolution, with potentially no losses in the compression process. Data rates can be up to 24.5Mbps.
<b>For Dolby Digital sources</b>	
Dolby Digital 5.1	The most commonly used sound format for DVD video, and is also the standard for US television. Dolby Digital 5.1 sources deliver sound with five discrete full-range channels; left, centre, right, surround left, surround right, plus a low frequency effects (LFE) channel.
Dolby Digital 5.1 Stereo Downmix	Provides a stereo downmix of the source material for use with headphones.
<b>For DTS sources</b>	
DTS 5.1	Less common than the Dolby Digital format, but generally recognised within the audio industry as being of superior sound quality. DTS 5.1 delivers surround sound with five full range channels plus an LFE channel.
DTS 5.1 Stereo Downmix	Provides a stereo downmix of the source material for use with headphones.
DTS-ES 6.1 Matrix	This is a 6.1 channel format based on DTS 5.1. It has the sixth channel matrix encoded into the surround left and surround right channels. The sixth channel is a surround centre channel and is directed to the surround back left and surround back right speakers.
DTS-ES 6.1 Discrete	This is a true discrete 6.1 channel sound format (unlike DTS-ES Matrix). DTS-ES discrete mode operates only on sources with DTS-ES 6.1 discrete audio encoding.
DTS96/24	Provides up to 5.1 channels of audio at 96kHz, 24bit resolution for superior sound quality compared to standard DTS 5.1
<b>Post-processing</b>	
Dolby Digital EX decoding can be applied to any source if one or two surround speakers are present. Pro Logic IIX decoding can be applied to any source if two surround back speakers are present.	
Dolby Digital EX	This is an extension to Dolby Digital decoding that provides a 6-channel output from a 5-channel input. The extra channel is the centre-surround channel (for which the two surround back speakers are used), and is derived from the left and right surround channel information. This decode mode should be used only when the source material is 'Surround EX' encoded (which is normally indicated on the disc packaging and should be detected automatically by the AVR600/AV888), but may be used at other times if desired.
Pro Logic IIX Movie	This mode is used to derive information for the individual surround back channels from the surround channels, using the Pro Logic IIX Movie decoder.
Pro Logic IIX Music	This mode is used to derive information for the individual surround back channels from the surround channels, using the Pro Logic IIX Music decoder. The controls for adjusting Pro Logic IIX Music in 'General Setup' can be used in this mode.

# Dolby volume



Dolby Volume is a sophisticated new technology that resolves the problem of different volume levels between programme content (e.g. a TV show and advert breaks) and between sources (e.g. a rock radio station and DVD, or between two TV stations). It lets the listener enjoy everything at the same preferred listening level without having to reach for the volume control to compensate for the different recording/output levels. This is the Volume Leveller function of Dolby Volume.

Dolby Volume also works in conjunction with the AVR600 or AV888 volume control setting to compensate for the ear's changing sensitivity at different frequencies depending on how loud the audio is. It is based on a model of how human hearing works. It properly balances low, mid and high frequencies to maintain all the nuances and impact of the original audio regardless of the actual selected playback volume level. This is the Volume Modeller function of Dolby Volume.

Dolby Volume measures, analyses and maintains volume levels based on how people perceive sound. A variety of audio parameters are monitored including spectral- and time-based loudness to ensure that perceived dynamics, timbre and bass performance remain consistent at all volume levels.

Dolby Volume also lets the listener control a programme's dynamic range – the range between loud and quiet sounds. For example, with the volume turned down for late-night viewing, dynamic range can be adjusted so that speech remains clear and loud effects or music passages retain their impact without waking up the family.

## Settings

Dolby Volume can be applied to any analogue or digital stereo source or any digital multichannel source. *It is not available in Stereo Direct or on the analogue multichannel input.* Dolby Volume can even be applied to processing of stereo signals (e.g. PLII Music) or when down-mixing a digital multichannel source (e.g. Dolby Digital 5.1 down to stereo).

Dolby Volume can be enabled and configured separately for each audio input in the Input Config menu. The default is Off for 'audiophile' listening to analogue or digital stereo sources, however you may wish to enable Dolby Volume on some or all inputs to maintain the

same perceived overall listening level between sources and frequency response regardless of the volume setting. There are two modes for Dolby Volume: 'Cinema' and 'Music', which calibrate the system to match the type of audio material generally played on each input. Movie should be selected for sources which typically play movie soundtracks. Music should be selected for all other sources (CD, TV, Satellite, Tuner, etc.). Most of the controlling parameters of Dolby Volume are automatic as they are dependent on analysis of the audio signal and the volume setting of the AVR600 or AV888. However, the Volume Leveller and Calibration Offset controls (see below) can be adjusted to your preference.

## Volume Leveller

The Volume Leveller function of Dolby Volume controls how closely quiet and loud sources and programme content are matched to each other, based on the ear's perception of loudness. The range of values is 0 (minimal levelling) to 10 (maximum levelling). The default setting is 9. If the Volume Leveller function is turned off, no level matching between sources and programme material is performed. This is not the same as turning Dolby Volume off as volume related frequency response processing is still active.

When Dolby Volume is being applied to the current input, a Dolby Volume processing mode indicator is shown on the OSD and the front panel display.

## Calibration Offset

The Calibration Offset parameter of Dolby Volume allows you to compensate for speaker efficiencies and listening position – effectively moving the reference listening level up or down the volume scale. The default value is 0 and this should normally produce a good result when the speaker levels are set using a sound pressure level meter at the listening position (75dB SPL, 'C' weighting, slow response).



# tuner operation

## Tuner – AVR600 only

The AVR600 is fitted with an internal AM/FM tuner. Depending on your location, it may also be fitted with a DAB tuner (Europe) or Sirius satellite radio connection (Americas). Sirius requires the purchase of the ‘SiriusConnect™ Home Tuner’ kit and Sirius subscription – please visit [www.sirius.com](http://www.sirius.com) for details.

This section deals with tuner operation, for information on setting up the tuner and installing aerials, see page 14.

When a tuner input is selected, the OSD shows a list of radio presets plus an information panel giving all available information about the current frequency (for AM and FM) or channel (for DAB or Sirius).

The front panel will also give the same information, pressing the **INFO** key will cycle through the various items of information:

<b>AM</b>
<ul style="list-style-type: none"> <li>• Processing mode (default)</li> <li>• Frequency</li> <li>• Signal strength</li> </ul>
<b>FM</b>
<ul style="list-style-type: none"> <li>• Processing mode (default)</li> <li>• Radiotext (if available; shows ‘No radiotext’ if none present)</li> <li>• Programme type (if available)</li> <li>• Signal strength</li> </ul>
<b>DAB</b>
<ul style="list-style-type: none"> <li>• Processing mode (default)</li> <li>• Radiotext (if available; shows ‘No radiotext’ if none present)</li> <li>• Programme type</li> <li>• Signal quality</li> <li>• Bit-rate of transmission</li> </ul>
<b>Sirius</b>
<ul style="list-style-type: none"> <li>• Processing mode (default)</li> <li>• Artist Name: Song Title</li> <li>• Composer (if available)</li> <li>• Category Name</li> <li>• Signal quality</li> </ul>

## Tuning/Channel Selection

When switching to the internal **TUNER** source, the AVR600 enters the last used tuner band, be it AM / FM / DAB (if fitted) / Sirius (if fitted). Repeatedly pressing **TUN** cycles through the available tuner bands on your AVR600.

### FM/AM analogue radio

Frequency tuning on FM and AM radio is done using the **◀** and **▶** buttons on the CR102 remote control in **TUN** device mode. Individual presses move the frequency down and up one step. If you press and hold either of the tuning buttons for two seconds, the tuner scans to the next strong signal. You can stop a scan at any time by pressing one of the tuning buttons again.

In Europe, the internal FM radio is capable of receiving RDS (Radio Data System) radiotext signals that are transmitted on some stations. The RDS information typically includes the radio station name, the music or speech genre as well as additional information related to the current programme. On music stations this is often information on the currently playing track.

### DAB digital radio

If your AVR600 is fitted with the optional DAB tuner you will need to scan for available stations before being able to listen to them.

To scan for DAB stations, first select the DAB tuner then press and hold **OK** until the display indicates scanning has started. The AVR600 will then scan all the DAB radio frequencies and compile a list of the stations that are available.

When the scan is complete, you can scroll through the station list using the **◀** and **▶** buttons on the CR102 remote control. To listen to the currently displayed station press the **OK**. If you do not press **OK** within two seconds, the display will revert to displaying the currently playing station.

### Internet radio

Please see the Network/USB Operation section on page 46 for details of internet radio operation.

## Saving and selecting Presets

Preset selection uses the **▲** and **▼** keys on the remote to browse and **OK** to select the preset when the CR102 is in **TUN** device mode.

Up to 99 presets can be stored and these can be from any band, for example Preset 1 could be an AM station, preset two a DAB station, etc. Pressing the **OK** key causes the next available preset number to be displayed, then pressing the **OK** key again stores the current frequency/channel in that preset. If a different preset number is required, press the **▲** or **▼** keys until the desired number is displayed before pressing the **OK** key for a second time.

## Deleting Presets

When in tuner browse mode (using **▲** and **▼** to scroll through the presets), the yellow button on the CR102 remote is used to delete the currently highlighted (but not playing) station or frequency.

## Sirius satellite radio

In this section it is assumed that you already have a ‘SiriusConnect™ Home Tuner’ kit and a Sirius subscription, and that the antenna is already correctly placed to receive Sirius broadcasts. Please visit [www.sirius.com](http://www.sirius.com) for more information.

### Add to your subscription

Before being able to receive satellite radio broadcasts you will need to update your Sirius subscription to add the ID number of the Sirius receiver module in your AVR600. The Sirius ID can be found by switching to the Sirius source and selecting channel 0. The AVR600 displays the 12-digit number on the OSD and on the front panel display. You should make a note of this ID number, then select Sirius channel 184 while you apply this ID number to your account at [www.sirius.com](http://www.sirius.com) or by calling 1.888.539.SIRIUS (7474).

Once your subscription is updated, a code is sent over Sirius channel 184. When this code is received the AVR600 displays ‘SUBSCRIPTION UPDATED’. This display remains until cleared by pressing any button. The Sirius radio module is now fully operational.

Please note that, depending on your subscription, some channels may not be available. If a channel is not part of your subscription package, you are invited to subscribe to the station - ‘CALL 888-539-SIRIUS To Subscribe’ is displayed and audio is muted. If you have any queries about your subscription, please contact Sirius.

## Operation

In addition to the channel and preset selection, previously mentioned, you can also cycle through the station categories (Rock, Pop, Country, etc.) using the **◀** and **▶** keys. The first station in each category is displayed. You can then scroll through other stations in that particular category using the **◀** or **▶** buttons on the CR102 remote. On the OSD a star (" \* ") is shown before the category name to show you are scrolling through stations only in the current category. Press **OK** to select the currently displayed station to listen to it otherwise the display times out and returns to the currently playing station information.

## Locking Channels

The Sirius module in the AVR600 has a parental lockout feature which allows you to assign a 4-digit code to any stations you do not wish to be generally available to users.

Channels can be locked out individually by pressing and holding the **MODE** key. 'Lock?' also appears on the lower line of the On Screen Display. Pressing **OK** confirms and applies the parental lock to the channel and the display returns to the channel name.

If a locked channel is selected, the audio will be muted and the user prompted on the display to enter the unlocking code. 'Unlock code : \_\_\_\_' is displayed.

The default unlock code is 0000.

If the code is entered correctly the audio for this channel unmutes. If the code is not entered correctly, the previously played channel is re-selected.

To remove the parental lock from one of the locked channels (so that the unlocking code is no longer required to listen to them), navigate to the channel, select it and enter the unlocking code to unmute the channel. Press and hold the **MODE** key until the display shows 'Unlock ?'. Press **OK** to remove the lock from the channel.

To change your locking code, in **TUN** device mode on the remote, press and hold the **SUBT** key.

### NOTE

The locking code is reset to 0000 if a factory reset of the AVR600 is performed.

## Sirius errors

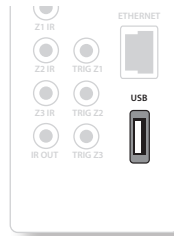
If an invalid channel is selected, the AVR600 displays 'INVALID CHANNEL' and the channel reverts to the previous valid channel.

If there is a loss of signal, the AVR600 displays 'ACQUIRING SIGNAL'.

If the antenna is disconnected, the AVR600 displays 'ANTENNA ERROR'.

During the channel map update, the message 'Updating channels - %%' is displayed. Note that audio is muted until the update is complete. When complete, the AVR600 retunes to the original channel and restores the audio.

## network/usb operation



The AVR600 and AV888 are fitted with a network audio client which is capable of playing internet radio stations as well as stored music on a network storage device such as a PC, or from a USB flash drive.

For information on installing the AVR600 or AV888 on your network, see page 16.

The unit supports the following file formats:

- MP3
- WMA (Windows Media Audio)
- WAV
- FLAC (Free Lossless Audio CODEC)
- MPEG-4 AAC (iTunes) with DRM10 support
- Ogg Vorbis

### Favourites

You can store tracks or radio stations in your 'favourites' folder for easy access later. Once playing, pressing the **FAV+** key adds the track to the 'favourites' folder. Pressing **FAV-** removes the track from the 'favourites' folder (this key only has an effect if the track is in the favourites folder).

## Selecting the playback source

Selecting the network client will allow playback of internet radio stations and stored music on a networked storage device or USB memory device.

To select the network source the CR102 remote must first be in **AMP** device mode (press **AMP**). Then press **SHIFT** + **iPOD** on the remote to select the Network source. You can also cycle to it using the **-INPUT / INPUT+** keys on the front panel.

The 'home' page will display all available storage devices, as well as your 'favourites' folder. Navigate through these devices using the **▲**, **▼**, **◀** and **▶** keys. Folders that may contain playable files have a **□** symbol, playable files have a **♪** symbol. Once you reach the track you wish to play, press **OK** or the **▶** key.

Once playing, pressing **OK** again or **||** will pause the track.

Pressing the **▶** key skips forward one track. If the last track is reached the key is ignored.

Pressing the **◀** key skips back one track. If the first track is reached, the key is ignored.

Pressing and holding the **OK** or **■** key for two seconds stops playback.

Pressing the **RND** key on the remote plays the tracks in the current folder in a random order.

Pressing the **RPT** key on the remote repeats the current track, pressing it again repeats all the files in the current folder, pressing it again cancels the repeat function.

### NOTE

For playback from a network device, the network device needs to be running a universal plug and play (uPnP) service, such as Windows Media Player 11. This can be downloaded free of charge from [www.microsoft.com](http://www.microsoft.com) or installed via the Windows update installer. Windows Vista™ has this functionality built in.

Other free and paid-for uPnP services are available for other computer operating systems. Some network attached storage (NAS) systems include a built-in version of a uPnP service.

## USB playback

Insert a USB device into the socket on the rear panel and select the network client input. The USB device appears in the list of folders that can be navigated. Navigate to the music file and press the **OK** or **▶** key.

## Internet radio stations

Although you can manually enter the URL of an internet radio station, the unit uses the vTuner service to allow easy browsing of internet radio stations and podcasts. To set up this service for your AVR600 or AV888, please visit [www.arcamradio.co.uk](http://www.arcamradio.co.uk)

There, you will be asked to enter the Media Access Controller (MAC) address which is the unique ID of your AVR600/AV888. This MAC address can be found in the network section of the setup menu.

Once you have entered the MAC address, you can then browse stations and podcasts and set up groups of favourite stations. When you next connect your unit to the internet, these groups will appear in the selection list.

Pressing the **INFO** key will cycle what is shown on the lower right portion of the front panel display between:

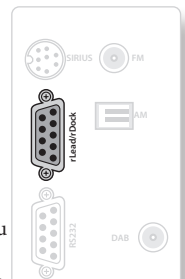
- Elapsed Time (default)
- Processing mode
- Album (if available)
- Artist (if available)
- File information (bitrate, type).

## iPod

It is possible to connect an iPod to your AVR600 or AV888 using either the Arcam **rLead** or **rDock** accessories (please contact your dealer).

Connect the 9-way plug into the socket marked 'rLead/rDock' and the audio leads to the AV input. If your iPod has video output and you are using the **rDock**, connect the composite and S-Video leads to the AV video inputs.

To select the iPod input, press the **iPOD** key on the remote while in **AMP** Device Mode, or cycle to it using the **-INPUT / INPUT+** keys on the front panel.

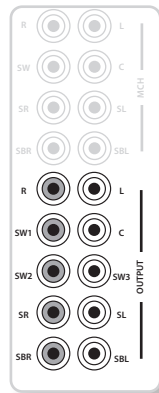




## external amplifiers

### Analogue pre-amplifier outputs

All pre-amplifier analogue outputs are buffered, have a low output impedance and are at line level. They are able to drive long cables or several inputs in parallel if required.



#### **R, L, C**

Connect these to the equivalent (Right, Left and Centre) front channels of your power amplifier.

#### **SW1**

Main subwoofer output. Connect this to the input of your active subwoofer, if present.

#### **SW2, SW3**

Subwoofer 2 and Subwoofer 3 auxiliary outputs. These are equivalent to SW1 but they allow the use of multiple subwoofers.

#### **SR, SL**

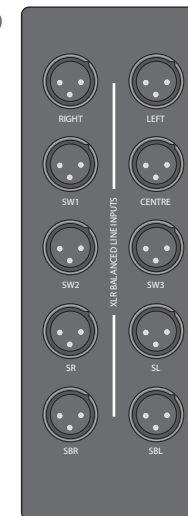
Surround Right and Surround Left outputs. Connect these to the Surround Right and Left power amplifier inputs.

#### **SBR, SBL**

Surround Back Right and Surround Back Left outputs (only used in 6.1 and 7.1 channel systems). Connect these to the Surround Back Right and Surround Back Left power amplifier inputs.

For 6.1 channel speaker configurations, connect the single Surround Back power amplifier to the SBL output.

AV888



### XLR balanced line outputs – AV888 only

The AV888 processor provides XLR connectors for each of seven channels, to an XLR-equipped amplifier (e.g. the Arcam P777). Three XLR subwoofer outputs are provided in addition.

#### **RIGHT, LEFT, CENTRE**

Connect these to the equivalent (Right, Left and Centre) front channels of your power amplifier.

#### **SW1**

Main subwoofer output. Connect this to the input of your active subwoofer, if present.

#### **SW2, SW3**

Subwoofer 2 and Subwoofer 3 auxiliary outputs. These are equivalent to SW1 but they allow the use of multiple subwoofers.

#### **SR, SL**

Surround Right and Surround Left outputs. Connect these to the Surround Right and Left power amplifier inputs.

#### **SBR, SBL**

Surround Back Right and Surround Back Left outputs (only used in 6.1 and 7.1 channel systems). Connect these to the Surround Back Right and Surround Back Left power amplifier inputs.

For 6.1 channel speaker configurations, connect the single Surround Back power amplifier to the SBL output.

## multi-room set up

The AVR600 and AV888 allow independent routing and control of analogue audio, Composite and S-Video to a separate set of equipment, typically used for a second living space, e.g., bedroom or lounge. The AVR600 and AV888 also allow a copy of the Zone 2 analogue audio to be routed to and controlled in a third living space, Zone 3.

The connection guide on the facing page shows how the AVR600 or AV888 is normally connected in a multi-room installation.

### Zone 2

Zone 2 receives only signals obtained by the AVR600 or AV888 from the analogue audio, Composite and S-Video inputs. The analogue inputs are required because there is no analogue-to-digital, digital-to-analogue or DSP processing available for Zone 2 signals – the unit only converts video formats for Zone 1.

For this reason, we recommend that in addition to any digital connections, the Composite and/or S-Video outputs from your source devices are connected to the AVR600 or AV888.

### Video outputs

The Z2 S-Video and/or Composite output connectors of the AVR600/AV888 should be connected to the analogue video inputs (usually labelled S-VIDEO IN or COMPOSITE VIDEO IN) of the display device in Zone 2.

If you wish to make an HDMI connection to Zone 2, you must accept the limitations of the AVR600/AV888 video processing system.

HDMI OUT 1 and OUT 2 both carry the same signals (as there is only one video processing engine) and are primarily intended for use in Zone 1. Full HDMI video functionality in Zone 2 can only be achieved if Zone 1 is not being used at the same time.

If Zone 1 is being used at the same time as Zone 2, Zone 2 must follow the Zone 1 source selection if you wish to receive HDMI signals in Zone 2. Zone 2 must also be the same video resolution as Zone 1. If you wish to watch a different source in Zone 2 than is currently showing over HDMI in Zone 1, Zone 2 will be forced to use the analogue video connections into and out of the AVR600/AV888.

Due to the complications of using HDMI in Zone 2 we recommend the use of analogue video connections instead, particularly as it is not possible to apply audio lip sync to Zone 2 audio to compensate for video processing delays.

### Audio outputs

The Z2 OUT, R and L phono sockets should be connected to the analogue audio inputs (Usually labelled ANALOGUE AUDIO IN) of the Zone 2 display device, or to the inputs of an additional stereo power amplifier in Zone 2 (for example, the Arcam P38).

### Zone 3

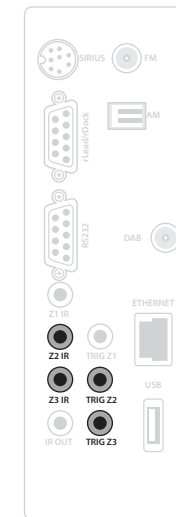
A line-level signal from the stereo analogue audio is available for Zone 3. This is a copy of the Zone 2 audio signal, but has its own independent volume control.

### Audio outputs

The Z3 OUT, R and L phono sockets should be connected to the inputs of an additional stereo power amplifier in Zone 3 (for example, the Arcam P38).

## Zone 2 and 3 control outputs

The AVR600 and AV888 also allow remote control from Zones 2 and 3.



### Z2 IR and Z3 IR

This allows the AVR600/AV888 to be controlled remotely from Zone 2 or Zone 3 via Infra-red remote control. Connect a remote IR receiver in Zone 2 or Zone 3 to allow control of the AVR600/AV888 from these listening/viewing areas.

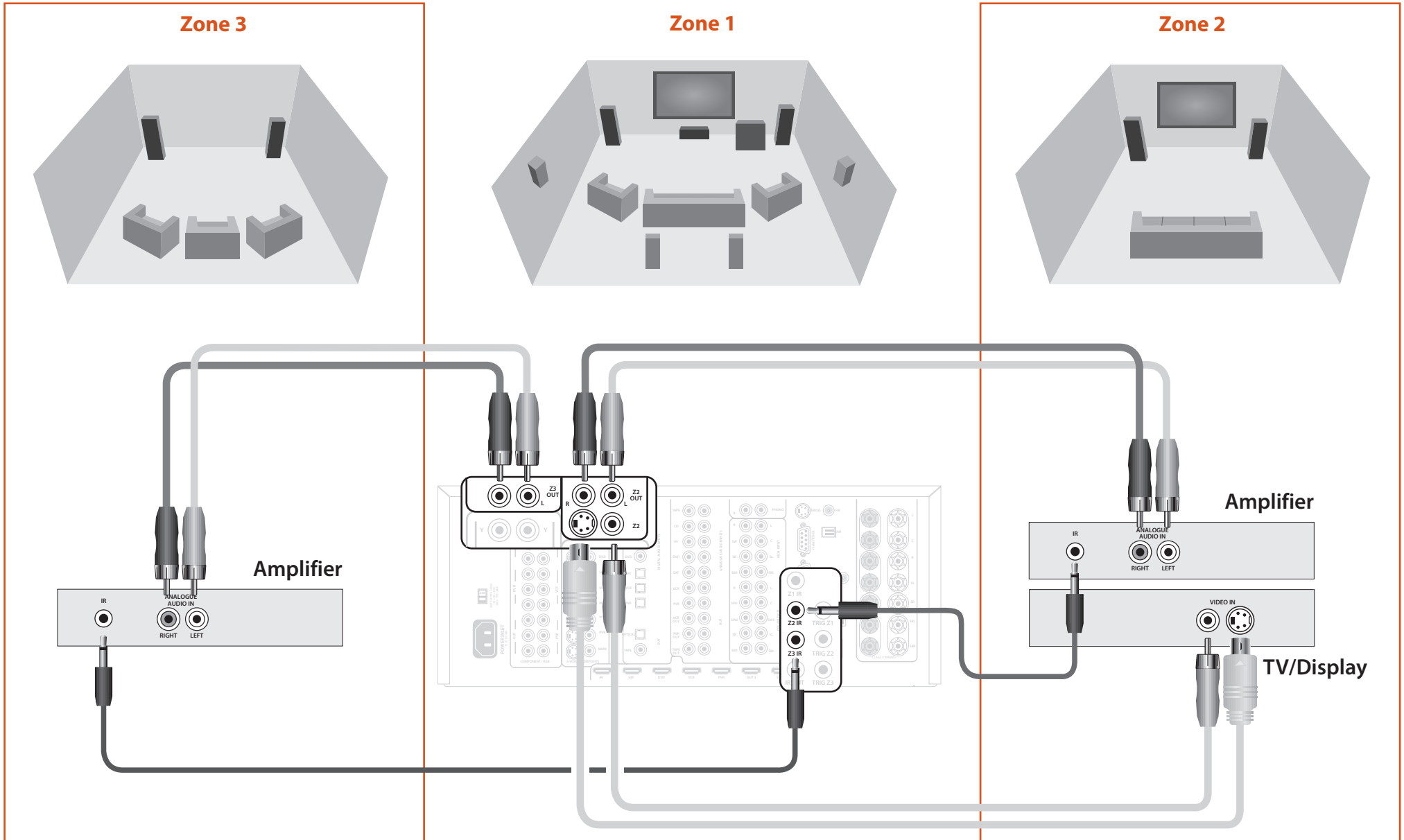
For more information on remote IR receivers, see 'Z1 IR' on page 17.

### TRIG Z2 and TRIG Z3

This allows the AVR600/AV888 to remotely switch on devices in Zone 2 or 3 when the appropriate Zone is selected. For example you could set your television in Zone 2 to switch on when 'Zone 2' is selected on AVR600/AV888.

For more information on triggers, see 'Trigger connectors' on page 17. Please note that not all AV devices have this feature, nor are triggers essential for listening and viewing in a separate zone.

# Multi-room connection guide



# customising the CR102

## Code Learning
















The CR102 comes with a complete library of preprogrammed codes. After you have set up the CR102 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 CR102 keypad. For convenience, the CR102 offers a Code Learning feature that allows you to copy up to 16 functions from an original remote control onto the CR102 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.

Learned functions are mode-dependent: You could theoretically assign up to eight different functions to a single key (the CR102 can handle a total of 16 learned functions).

### Example: To copy the 'text hold' function from a TV remote onto the key of your CR102





1. Place both remotes on a flat surface, 2 to 5cm apart, with the IR ports facing each other.
2. On the CR102, press and hold  until the power LED blinks twice:  .
3. Press   . The power LED blinks twice:  .
4. On the CR102, press the device key that matches the 'source' device (e.g. if you're learning a TV function, press ).
5. On the CR102, 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 CR102 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  until the device key blinks twice:  .



9. To use the learned function on the CR102, press the Device Mode key, followed by the function key.

In this example, you'd press  followed by .

## Shifted Learning

You can assign a learned function to a CR102 key without sacrificing its original function.










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

1. To assign a Shifted Learning function, simply follow Code Learning steps in the previous section. During step 5, press  once before you press the key to which you want to assign the learned function.
2. To access the shifted function, press  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 CR102 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  until the power LED blinks twice:  .
2. Press   . 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 .
4. Press twice on the key you want to deassign. The handset blinks twice:   to confirm.

The original function of the CR102 is restored.

## To delete a Shifted Learned function:

To delete a Shifted Learned function, press  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  until the power LED blinks twice:  .
2. Press    – the power LED blinks twice:  .
3. Press the appropriate Device Mode key twice.

## Creating Macros

You can program your CR102 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 CR102 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 CR102 controls the AVR600 or AV888 volume. You don't need to press **(AMP)** on your CR102; 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 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 CR102 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 CR102 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 AVR600/AV888 **DIRECT** function from the CR102 **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 CR102. 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:  

3. 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 CR102 to control the second device, using one of the methods on page 25.

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 CR102 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 DVD player, for example – you will first need to unlock DVD Mode before setting up the CR102 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
DVD	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:







DVD (system code 12) 1655  
AMP (system code 19) 1954

You will need to change the system code on the product you wish to control, as well as the CR102.

### NOTE

The **AMP** Device Mode can only be used to control Arcam amplifiers like the 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 CR102

Resetting the CR102 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   

### Library search

(e.g. AV mode)

**AV** **SHIFT** **9 9 1**     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**    (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**   

### 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**  **VCR**  **SAT**  **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. DVD mode)

**DVD** **SHIFT**   **9 8 2**  

(i.e. two blinks for lock)

**DVD** **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 .

# trouble- shooting

Problem	Check that...
There are no lights on the unit	<ul style="list-style-type: none"> <li>the power cord is plugged into the unit and the mains socket it is plugged into is switched on.</li> <li>the power button is pressed in.</li> </ul> <p>If a red LED is present, the unit is in standby mode. Press any button on the front panel or remote control.</p>
The unit responds erratically or not at all to the remote control	<ul style="list-style-type: none"> <li>there are fresh batteries in the remote control.</li> <li>the front panel window is visible and you are pointing the remote control towards it.</li> </ul>
The front panel display is blank	<ul style="list-style-type: none"> <li>the display hasn't been turned off. Press the <b>DISPLAY</b> button on the front panel or remote control.</li> </ul>
No picture is being produced	<ul style="list-style-type: none"> <li>your viewing device is turned on and switched to display your AVR600/AV888. Test by pressing the <b>MENU</b> button on the AVR600/AV888 or on the remote and look for the main menu screen on your display device.</li> <li>the correct video input is selected on the AVR600/AV888.</li> <li>the video source is on, is operating normally, and is in 'play' mode if appropriate.</li> <li>you have the AVR600/AV888 in a video resolution that is compatible with the connection you are using and with your display device. For example, composite video is only capable of carrying 480i and 576i resolutions. Test this by pressing and holding the OK key for more than two seconds to force 480i / 576i output resolutions.</li> </ul>
There are bright edges or 'ghosts' on the picture	<ul style="list-style-type: none"> <li>the cables used for analogue video connections are designed to carry video (i.e., they are 75Ω coaxial cables).</li> <li>ensure the 'sharpness' control on your display device is switched off or set to near minimum.</li> <li>for HDMI connections, try using a shorter cable or alternatively a different brand.</li> </ul>
No sound is produced	<ul style="list-style-type: none"> <li>the correct input has been selected.</li> <li>the source equipment is on, is operating normally and is in 'play' mode if appropriate.</li> <li>the volume is turned up to a reasonable level and the unit is not in mute mode.</li> </ul>
The sound is poor or distorted	<ul style="list-style-type: none"> <li>you have not excessively increased the input sensitivity (i.e. reduced the maximum input signal voltage) in the Input Config. menu if an analogue input is being used.</li> <li>you have selected the correct size of speakers to suit your system in the setup menu.</li> </ul>



Problem	Check that...
Sound only comes from some of the speakers	<ul style="list-style-type: none"> <li>■ you have an appropriate surround source selected and playing.</li> <li>■ the DVD disc is encoded in the appropriate format, and the correct format has been selected in the disc start menu of the DVD player (if applicable).</li> <li>■ the DVD player has been set to output 'bitstream' audio on the digital output.</li> <li>■ the display window indicates that the disc you are playing is a multichannel recording (you may need to press the <b>INFO</b> key several times until you get to the 'incoming format' display).</li> <li>■ all the speakers are correctly connected to the speaker terminals and are secure.</li> <li>■ you have not selected 'Stereo' as the decoding mode.</li> <li>■ your speaker balance is correct.</li> <li>■ you have configured the unit to include all the speakers in your system.</li> </ul>
Unable to select Dolby Digital or DTS decoding modes	<p>The AVR600/AV888 can only apply Dolby Digital and DTS decoding to sources which have been encoded in the same format.</p> <p>Check that:</p> <ul style="list-style-type: none"> <li>■ digital source is selected and connected.</li> <li>■ the source is playing appropriately encoded material.</li> <li>■ the DVD disc is encoded in the appropriate format and that the correct format has been selected in the disc start menu of the DVD player (if applicable).</li> <li>■ the DVD player has been set to output 'bitstream' audio on the digital output (not PCM).</li> </ul>
When playing a Dolby Digital DVD, the AVR600 selects Dolby Pro Logic	<ul style="list-style-type: none"> <li>■ you have a digital connection from your DVD player.</li> <li>■ sometimes Dolby Digital DVD discs contain material at either the beginning or the end of the main movie that is not in full 5.1 format, but in two-channel or Pro Logic decoding.</li> </ul>
Hum on the analogue input	<ul style="list-style-type: none"> <li>■ all cables are making a good connection. If necessary withdraw the cable from the connector and plug it fully in again (turn the power off before doing this).</li> <li>■ the connections inside the source cable connector are not broken or badly soldered.</li> <li>■ if the hum originates only when one particular source component is connected, that an aerial cable, or dish connection to this source is ground isolated. Contact your installation contractor.</li> </ul>
There is radio or television reception interference	<ul style="list-style-type: none"> <li>■ where the interference is coming from. Switch off each source component in turn, then any other equipment. Most electronic equipment does generate low levels of interference.</li> <li>■ try re-arranging cabling from the nuisance source away from other cabling.</li> <li>■ ensure that the cabling used is high quality, specified for its purpose, and is properly screened.</li> <li>■ if the problem persists, contact your dealer.</li> </ul>

Problem	Check that...
The source switching changes randomly or freezes on one source	<ul style="list-style-type: none"> <li>■ there are no static or impulse interference problems caused by nearby power equipment switching, e.g., heating or air conditioning control. Switch the unit off, wait ten seconds, then switch it on again to clear an operating problem. Contact your installer if the problem returns or persists.</li> <li>■ there is no direct sunlight shining on the infra-red detector behind the front panel display.</li> </ul>
Volume is always too loud when I turn on	<ul style="list-style-type: none"> <li>■ the 'max on volume' setting is not set too high.</li> </ul>
When Zone 2 or 3 is put into standby, the main zone is also switched off	<ul style="list-style-type: none"> <li>■ the 'zone standby' setting in the setup menu is set to LOCAL.</li> </ul>
When a USB memory device is connected, 'USB' is not shown in the network client's list of folders	<ul style="list-style-type: none"> <li>■ a USB memory device is connected that conforms to the mass storage class.</li> <li>■ a USB hub is not being used.</li> </ul>
If files on a USB memory device cannot be played:	<ul style="list-style-type: none"> <li>■ the USB device is formatted in FAT16 or FAT32.</li> <li>■ the USB device does not have multiple partitions.</li> <li>■ the files are in a compatible format.</li> </ul>
If files on a computer cannot be played	<ul style="list-style-type: none"> <li>■ the files are in a compatible format.</li> <li>■ the computer is connected via a network and not USB – the AVR600/AV888 USB port cannot be used for a direct connection to a computer</li> </ul>
If you cannot connect to a wired network	<ul style="list-style-type: none"> <li>■ the Ethernet cable you are using is correctly connected between the AVR600/AV888 and the network hardware.</li> <li>■ the network is set up for fixed IP addressing and you have the AVR600/AV888 set to use DHCP.</li> <li>■ the network is set up for DHCP and you have the AVR600/AV888 set to use fixed IP addressing.</li> </ul>
If you cannot connect to a favourite internet radio station	<ul style="list-style-type: none"> <li>■ the station is still broadcasting or is not congested – try again later.</li> </ul>
If the internet radio station sound quality is poor or broken	<ul style="list-style-type: none"> <li>■ the radio station does not have a low bit rate (use the <b>INFO</b> key to find this or look on the OSD).</li> <li>■ the network is not slow or congested.</li> </ul>



<b>Continuous power output (20Hz—20kHz at 0.05% THD), per channel (AVR600 only)</b>	
2 channels driven	150W
All channels driven	120W
THD at full rated power	<0.2%
Residual noise & hum	<0.25mV unweighted 20Hz – 22kHz
<b>Inputs</b>	
Phono input:	
Input sensitivity at 1kHz	5mV
Input impedance	47kΩ
Signal/noise ratio (CCIR, 65W)	88dB
Overload margin	31dB
Line inputs:	
Nominal sensitivity	500mV–4V (user adjustable)
Input impedance	47kΩ
Signal/noise ratio (CCIR, 65W)	100dB
<b>Preamplifier outputs</b>	
Max output level	6V RMS
Output impedance	<50Ω
THD+N (20Hz—20kHz)	-100dB
<b>Video inputs</b>	
Component video signal/noise	85dB
Composite video signal/noise	70dB
<b>Headphone output</b>	
Maximum output level into 600Ω	4V p-p
Output impedance	<5Ω

<b>General</b>	
Mains voltage	110–120V or 220–240V
Power consumption (maximum)	
AVR600	1.5kVA (Thermal dissipation approx. 2300 BTU/hour)
AV888	120VA (Thermal dissipation approx. 410BTU/hour)
Power consumption (idle, typical)	
	120VA (Thermal dissipation approx. 410 BTU/hour)
Power consumption (standby)	
	3VA
Dimensions W x D x H (including feet)	
	432 x 450 x 180mm
Weight (net)	
AVR600	25.0kg
AV888	12.0kg
Weight (packed)	
AVR600	28.0kg
AV888	17.0kg
Supplied accessories	
	Mains lead CR102 remote control 4 x AAA batteries Manual HDMI lead support bar DAB aerial (if DAB module fitted) FM aerial (if AM/FM fitted) AM loop aerial (if AM/FM fitted) Calibration microphone
E&OE	
<b>NOTE:</b> All specification values are typical unless otherwise stated.	

### Continual improvement policy

Arcam has a policy of continual improvement for its products. This means that designs and specifications are subject to change without notice.

## product guarantee

### Worldwide Guarantee

This entitles you to have the unit repaired free of charge, during the first two years after purchase, at any authorised Arcam distributor provided that it was originally purchased from an authorised Arcam dealer or distributor. This is extended by a further three years (five years total) on the return of your product registration card. The manufacturer can take no responsibility for defects arising from accident, misuse, abuse, wear and tear, neglect or through unauthorized 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 (or five years total on return of your product registration card) from the purchase date. After two years (or five years total on return of your product registration card) 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, or failing this, directly to the Arcam distributor in the country of residence.

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](http://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](http://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

## TV

888	0294
A.R. Systems	0067 0382 0586 0404 0485
Accent	0039 0067 0586
Acoustic Research	1299
Acura	0039
Adcom	0655
Addison	0683 0138
ADL	1247
Admiral	0123 0193 0448 0294
Advent	0906
Adyson	0247 0246
AEA	0067 0586
AEG	0636 1193
Agashi	0246 0294 0247
Aiko	0039 0067 0586 0246 0065 0463 0294 0247
Aim	0067 0586 0783 0238 0736
Aiwa	1535
Akai	0039 0632 0238 0586 0067 0463 0065 0783 0193 0759 0744 0745 0578 0510 0247 0661 0246 0294 0208 0407 0636 1067 0503 1289 1278
Akashi	0890 0039
Akiba	0485 0067 0586
Akira	0448
Akito	0067 0586
Akura	0067 0294 0586 0698 0039 0744
Alaron	0246
Alba	0039 0067 1067 0586 0744 0448 0400 0698 0246 0193 0517 0473
Alkos	0065
All-Tel	0895
Allorgan	0247
Allstar	0067 0586
Amplivision	0247 0400
Amstrad	0039 0067 0294 0463 0586 1067

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	0039 0090 0123 0138 0208
Aolingpike	0294
Apex Digital	1247
Apollo	0503
Arc en Ciel	0139
Arcam	0246 0247
Ardem	0516 0744 0067 0663 0586
Aristona	0586 0067
Arthur Martin	0193
ASA	0135 0376 0100
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 0139 0586 0744 0745 0247 0400 0294 0516
Audioton	0247 0516 0400 0294
Audioworld	0728
Autmark	0090
Autovox	0247
AWA	0039 0404 0067 0586 0246 0636 0247 0138 0294 1406
Axxent	0039
Axxon	0744
B&D	1247
Baier	0906
Baihe	0039 0294
Baile	0039 0404 0691
Baird	0139 0373 0247 0238 1226

Bang & Olufsen	0595
BaoHuaShi	0294
Baosheng	0039
Barco	0193
Basic Line	0039 0404 0067 0193 0698 0586 0247 0485 1067
Bastide	0247
Bauer	0039
Baur	0039 0067 0542 0225 0586 1535
Bazin	0247
Beaumarck	0208
Beijing	0039 0238 0256 0294 0404 0512 0691
Beko	0400 0744 0065 0516 0745 0067 0448 1067 0586 0636 0838
Belson	1221
Bennett	0586 0067
Beon	0067 0586 0448
Berthen	0698
Best	0400
Bestar	0067 0586 0400 0404
Bestar-Daewoo	0404
Binatone	0247
Black Diamond	0850 1067 0586 0783 1193
Black Strip	0065
Blaupunkt	0225 0230 0357 0485 0200
Blue Sky	0067 0586 0698 0744 1067 0517 0745 1939 0485 1221 0838 1393
Boots	0247 0039
Bosch	0357
BPL	0067 0586 0926
Brandt	0139 0655 0365
Brandt Electronique	0365
Brinkmann	0067 0586 0698 0448 0516
Brionvega	0067 0586
Britannia	0246 0247
Brother	0294
Bruns	0516
BSR	0193
Bush	0039 1067 0067 0744 0698 0193 0404 0728 0294 0517 0238 0247 0586 0808 1289 1278
C-Tech	0926 0921
Caihong	0039
Caishi	0921
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
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
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	0139 0517
Edison	0039 0067 0586
Cosmel	0039 0067 0586
Crosley	0104 0193
Crown	0039 0742 0067 0400 0516 0586 0448 0517 0744 0636 0745 0238 0683 1067
CS Electronics	0246
Curtis Mathes	0090 0123
Cytronix	1328
D-Vision	0067 0586
Daewoo	0664 0691 0404 1939 0529 0067 0586 0039 0246 0247 1167 0208 0200 0910 0138 0906 0895
Dainichi	0246
Dansai	0067 0586 0294 0065 0246 0039 0247 0238
Dantax	0400 0516 0744 0636 0745
Datsura	0238
Dawa	0039 0067 0586
Daytek	0728 0736 1406
Dayton	0039
Daytron	0039 0404 0067 0586
Dayu	0404 0691
de Graaf	0238 0578 0193
DEC	0890 0921

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
Digatron	0067 0586
Digihome	1179
Digiline	0067 0586 0135 0698
DigiLogic	0067 0586
Digitex	0850
Digitator	0067 0586
DigiX	0910
DiK	0067 0586
Dixi	0039 0067 0586 0247
DL	0921 0810 0067 0617 0895
Domeos	0698
Domland	0424
Dongda	0039
Donghai	0039
Dream Vision	1734
Drean	0067
DSE	0850
DTS	0039
Dual	0247 0373 0067 0586 0382 0424 0193 1167 0661 1179 1067
Dual Tec	0247
Dumont	0100 0247
Dunai	0193
Durabrand	0067 0586 0208
Dux	0067 0586
DVX	0921
Dynatech	0247
Dynatron	0067 0586
e:max	0636
Ecco	0803 0736
Easy Living	1278 1289
Edison-Minerva	0517
Elbe	0400 0193 0067 0586 0640 0247
Elcit	0193
Electrograph	1785
Elekta	0039 0067 0586 0294
Elfunk	1238 1067
ELG	0067 0586
Elin	0067 0246 0578 0193 0039 0382 0039
Elite	0067 0586
Elta	0039 0294 0246
Emerson	0208 0744 0067 0586 0100 1939 0516 0400 0193 0698
Enzer	0783
Erae	1401
Erres	0067 0586
ESC	0067 0586 0247
Estèle	0193
Ether	0039

Etron	0039 0067 0586 0193 0850
Eurofeel	0294 0247
EuroLine	0067
Euroman	0246 0294 0067 0586 0247 0400
Europa	0067 0586
Europhon	0067 0193 0247 0586 0246
Evesham	1278 1289
Excel	0067 0586
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
Fidelity	0193 0246 0542 0067 0586 0294
Filsai	0247
Finlandia	0238 0376 0578 0193 0373
Finlux	0067 0135 0100 0586 0744 0376 0247 0193 0745 0661 0522 0510 0503 0448 0636 0838
Firstar	0039
Firstline	0039 0067 0246 0586 0247 0404 0698 0744 0193 1939 0238 1067 1221 0838 1393 1193 1401
Fisher	0247 0238 0400 0193
Flint	0067 0485 0586 0640 0294
Force	1179
Formenti	0067 0193 0586 0516 0246
Formenti-Phoenix	0246
Fortress	0123
Fraba	0067 0586 0400
Friac	0039 0067 0586 0400 0529 0640
Frontech	0193 0294 0247 0039
Fujimaro	0895
Fujitsu	0713 0883 0247 0193 0039 0382 0067 0586
Fujitsu General	0039 0247 0193
Fujitsu Siemens	1328 1289 1278 1193
Funai	0698 0294
Furi	0294
Furichi	0890
Futronic	0294 0890
Future	0067 0586
Galaxi	0067 0586 0193
Galaxis	0400 0448 0067 0586
Galeria	0039
Gateway	1785

GBC	0193 0039 0404
GE	0373 0208 0123 0590 0139 0365 0655
Geant Casino	0193
GEC	0067 0193 0247 0586
Geloso	0039 0193 0404
General	0139
General Electric	0373
General Technic	0039
Genesis	0039 0067 0586
Genexxa	0193 0067 0586 0039
Gericom	0895 1328 1247 0910
Gevalt	1401
Giant	0247
Go Video	0090
Goldfunk	0698
Goldhand	0246
GoldStar	0039 0067 0208 0400 0407 0247 0586 0246 0193 0139 0636 0744 0745 0485
Gooding	0517
Goodmans	0664 1289 1278 0067 1067 0529 0247 0586 0744 0373 0698 1939 0404 0294 0039 0517 0065 0510 0590 0365 0691 0910 0617 1406
Gorenje	0400
Gradiente	0067 0683 0200 0586
Graetz	0193 0744 0067 0586 1193
Granada	0067 0586 0238 0256 0247 0138 0503 0365 0590 0193 0373 0578
Grandin	0067 0586 0039 0193 0640 0744 0745 0698 0404 0485 1067 0895 1221 0910
Gronic	0247 0193
Grundig	0225 0538 1401 0067 0100 0517 0586 0617 0473 0736 0039 0400 0208 1406 0373
Grunkel	1193
H&B	0838
Haaz	0736
Haier	0728 0921 0294
Haihong	0039
Haiyan	0294
Halifax	0294 0246 0247
Hallmark	0208
Hammerstein	0294 0090
Hampton	0246 0247
Hankook	0208
Hanseatic	0067 0586 0529 0193 0691 0424 0664 0400 0039 0247 0407 0744 0838 0516
Hantarex	0039 0067 0586
Hantor	0067 0586
Harsper	0895
Harwa	0803 1226 1299

Harwood	0039 0067 0586	Innova	0067	Kingsley	0246	Luxor	1193 0510 0522	Mitsubishi	0138 0123 0542	Nurnberg	0193	Pioneer	0790 0067 0139
	0517	Innovation	0067 0586	Kioto	0736 0586		0238 0578 0193		0067 0208 0586	Oceanic	0193 0238 0503		0200 0193 0586
Hauppauge	0067 0586	Innowert	0895 1328	Kiton	0586 0067 0698		0376 0503 1067		0238 1067		0578 0510		1290 0400 0373
Havermy	0123	Innotech	0803 0850	KLL	0067		0247 0661	Mitsuri General	0193	Odeon	0294		0516 0542
HCM	0039 0067 0586	Interactive	0067 0586 0542	Kneissel	0067 0400 0640	LXI	0208	Mivar	0246 0400 0639	Okano	0400 0067 0586	Pionier	0400 0516
	0247 0448 0294		0357 0193 0400		0404 0529 0586	Madison	0067 0586		0247		0294 0039	Plantron	0067 0586 0294
Hedzon	0586 0067		0139	Kolin	0138	Magnadyne	0193	Monaco	0039	Olidata	1406		0039
helios	0895	Interbuy	0039 0067 0294	Kolster	0067 0586	Magnafon	0246	Morgan's	0067 0586	Omni	0294	Playsonic	0744 0067 0247
Hema	0247 0039		0542 0586	Kongque	0039 0294	Magnavox	0067 0586 0736	Motorola	0123	Onwa	0810 0921 0728		0745
Hifivox	0139	Interfunk	0067 0193 0586	Konichi	0039		0810	MTC	0090 0400 0542	Opera	0632 0463	Polaroid	0895
Higashi	0246		0542 0357 0400	Konka	0067 0586 0744	Magnum	0744 0067 0586		0193 0246	Optima	0067 0586	Policom	0139 0193 0100
Highline	0294 0067 0586	Internal	0067 0586 0529		0448 0617 0784		0745 1319	MTlogic	0744	Optimus	0680		0104
Hinari	0039 0238 0067		0404 1939	Kontakt	0517	Mandor	0294	Mudan	0039 0238 0256	Orbiton	0123	Poppy	0039
	0586 0193 0473	International	0246	Korpel	0067 0586	Manesth	0067 0247 0586		0294	Orbit	0067 0586	Portland	0404 1939
	0517 0294	Intervision	0067 0247 0485	Korting	0400		0294 0065 0193	Multitec	0067 0586 0516	Orion	0067 0473 0586	Powerpoint	0517 0067 0586
Hisawa	0485 0640 0744		0294 0407 0516	Kosmos	0067 0586	Manhattan	0067 0906 0586		0698 1067		0744 0039 0294		0728
HiSense	1393 0238 0039		0400 0424 0517	Kotron	0294		0698 1067 0193	Multitech	0039 0246 0516	Orline	0910 1226	Precision	0247
	0538 0783 1200	Irradio	0039 0067 0586	Koyoda	0039	Marantz	0067 0586		0067 0247 0400	Ormond	0067 0586	Premier	0039 0294
	1238 0810 0586	IRT	0728	Kreisen	0906	Mark	0067 0586 0247	Murphy	0246 0193		0698 1067 0067	President	0890
Hitachi	0193 0208 1255	Isukai	0067 0586 0485	KTV	0247		0246 0404 0039	Musikland	0067 0586	Osaki	0247 0294 0067	Prima	0039 0294 1299
	0039 0608 0135	ITC	0247	Kuaile	0039 0294		0744 0745	MyCom	1406 0208		0404 0586	Princess	0728
	0138 0503 0373	ITS	0067 0294 0246	Kuba	0193	Master's	0529 0067	Myryad	0586 0067	Osio	0067 0586	Prinston	1067
	0247 0139 0511	ITT	0039 0586	Kuba Electronic	0193	Mastro	0810 0728	NAD	0208 0193		0067 0586	Profex	0039 0193
	0529 0067 0538	ITT Nokia	0193 0510 0578	Kulun	0039	Masuda	0039 0294 0067	Naiko	0067 0636 0586	Otto Versand	0067 0586	Profi	0039
	0586 0578 0664		0503 0376 0238	Kunlun	0238 0256 0294		0247 0586	Nakimura	0404 0067 0586		1535 0067 0247	Profitronic	0067 0586
	0774 1067 1167		0640	Kyoshu	0448 0294	Matsui	0039 0067 0586	Nanbao	0039 0294		0373 0123 0542	Proline	0067 0586 0655
	1200 0522 1511		0578 0193 0503	Kyoto	0193 0246 0247		0065 0517 0238	Nansheng	0294	Pacific	0067 0586 1167		0664 1406
	0542 0510 1606		0510 0376 0238	L&S Electronic	0895 0744		0247 0473 0463	Naonis	0193		0067 0586 1167	Prosonic	0067 0586 0400
Hitachi Fujian	0138	ITV	0294 0067 0586	LaSAT	0516 0400		0485 0193 0225	NAT	0256		0744 1067 0473		0246 0247
Hitsu	0039 0640 0485		0404	Lavis	1067 0067 0193	Matsushita	0680	National	0256 0238 0538	Pael	0246	Protech	0039 0067 0586
Höher	0744 0895	IX	0907	Leader	0039	Matsuyama	0617	NEC	0200 0617 1200	Palladium	0400 0067 0448		0247 0294 0448
Home Electronics	0636	Jean	0039	Legend	0039	Maxam	0294		0208 0039 0485		0744 1167 1535		0698 0193 0516
Hongmei	0039 0123 0294	JEC	0065	Lenco	0067 0039 0193	Maxdorf	0803		0404 0247 0067	Palsonic	0294 0803 0067	Proton	0208 0039 0674
Hongyan	0294	Jialicai	0039 0294		0404 0586 0617	Maxent	1785	Neckermann	0067 0400 0586		0247 0407 0728	Provision	0529 0067 0586
Hornynphon	0067 0586	Jinfeng	0238 0256	Lenoir	0039	MCE	0039		1535 0230 0193		0586 0448 0808		1067 0744
Hoshai	0485	Jinque	0039 0294	Levis Austria	0067 0586	Meck	0921 0728	NEI	0067 0586 0193	Panama	0039 0247 0294	PVision	1221 0906
Hua Tun	0039	Jintu	0039 0294	Lexus	1226	Mediator	0067 0586	Neovia	0895 1401 0906		0246 0067 0586	Pye	0067 0586 0404
Huafa	0039	Jinxing	0039 0586 0067	Leyco	0067 0294 0586	Medion	0067 0698 0744		1406	Panasonic	0680 0256 0138	Pymi	0039
Huanghaime	0039	JMB	0067 0529 0664	LG	0067 0208 0400		1067 0838 0586	Netsat	0067 0586		1340 0067 0586	Qingdao	0238 0256 0294
Huanghe	0039	Jocel	0404 0586 0473		0039 0407 1295	Megas	0640	Neufunk	0067 0039 0586		0193 0238 0538	Quasar	0680 0895 0039
Huanglong	0039	Jubilee	0586		0586 0247 0744	Megatron	0208		0640 0744	Panavision	0926 0578 0883	Quelle	0067 1535 0100
Huangshan	0039 0294	Juhua	0294	Liesenk & Tter	0067 0357 0586	MEI	1067 0067 0586	New Tech	0067 0039 0586	Panda	0039 0810 0238		0104 0139 0542
Huanyu	0246 0404 0294	Juice	0683 0761 0538	Liesenkotter	0067 0357 0586	Meile	0294		0373 0247		0256 0294 0736		0247 0357 0135
Huaqiang	0294	Kaige	0039 0294	Lifetec	0067 0039 0404	Meletronic	0039 0376 0067	Newwave	0039 0208 0123		0230 0294 1067	R-Line	0067 0586 0193
Huari	0294	Kaisui	0039 0246 0067		0698 0542 1067		0542 0139 0373	Nicamagic	0246	Papouw	0067 0586	Radialva	0139 0193 0067
Hugoson	0920 1247	Kambrook	0247 0586 0485		1167 0586 0294		0193 0135 0247	Nikkai	0065 0067 0586	Pathe Cinema	0193 0246 0400		0586
Hygashi	0247 0246	Kamp	0246		0713 1278 1289	Memorex	0039 1067 0208		0246 0247 0294	Pausa	0039	Radiola	0067 0586 0247
Hyper	0039 0246 0247	Kanghua	0926	Lloyd's	0039		0680 0090	Nikkei	0744	Pathe Marconi	0139	Radiomarelli	0067 0586
Hypson	0067 0294 0586	Kangli	0039 0294 0404	Local Malaysia	0728	Mercury	0067 0039 0586	Nikko	0208	Peng Sheng	0921	RadioShack	0067 0586 0208
	0744 0745 0247	Kapsch	0193	TV	0698	Merrmaid	0067	Nishi	0512	Penney	0208 0090	Radiotone	0039 0067 0586
	0485 1067 0698	Karcher	0067 0586 0400	Lifetec	0067 0357 0586	Merritt	0578 0193	Noblex	0067 0294 0512	Perdio	0193 0067 0246		0400 0448 0698
	0516	Kathrein	0586 0067		0246 0586 0664	Metronic	0655	Nobluko	0100 0246		0586		0294 1067
Hyundai	0067 0895 0586	Kawasho	0246	Lifetec	0067 0039 0404	Metz	0418 0477 0776		0246 0247 0294	Perfekt	0067 0586	Rank	0100
	0736 0890 0783	KB Aristocrat	0193		0698 0542 1067		1193 0225 0067	Nogamatic	0039	Philco	0067 0104 0448	Rank Arena	0632 0783
	0906	Kendo	0067 0640 0586		1247 1067		0586 0617 0698	Nokia	0139		0586 0193 0400	RBM	0100
Iberia	0067 0586		0193	Logix	0698		1067 1563		0193 0503 0510	Panavision	0067 0586	RCA	0090 0648 0123
ICE	0247 0294 0067		0067 0640 0586	Longjiang	0294		0208 0067 0586	Newave	0578 0636 0522	Panda	0039 0810 0238		0655 0208 0590
	0039 0586 0246		0193 0542 0400	Luma	0067 0193 0586		0225 0691 0744	Nicamagic	0661 0238 0404		0921 0538 0728		0365 0373 0783
Ices	0246		0407 1067 0516		0404 0039		0225 0691 0744	Nikkai	0376 0640 0139	Panavision	0067 0586		0247 0357 0135
Ict	0067 1167 0586		0067 0586 0400		0067 0586 0193		0225 0691 0744		0067 0039 0586	Panavision	0067 0586		0698 0586 0225
ILsonic	1406		0640 0193 0294		0713 1278 1289		0225 0691 0744		0640 0744	Panda	0039 0810 0238		0230 0294 1067
Iiyama	1247 0920		0808 0744 0636		0744		0225 0691 0744		0640 0744		0256 0294 0736		0921 0538 0728
Imperial	0067 0104 0193		0586 0067		0744		0225 0691 0744		0640 0744	Papouw	0067 0586		0067 0586
	0400 0448 0586		0246		0744		0225 0691 0744		0640 0744	Pathe Cinema	0193 0246 0400		0067 0586
Imperial Crown	0039 0294 0404		0193		0744		0225 0691 0744		0640 0744	Pausa	0039		0067 0586 0208
	0691		0067 0640 0586		0744		0225 0691 0744		0640 0744	Peng Sheng	0921		0039 0067 0586
Indiana	0067 0586		0193 0542 0400		0744		0225 0691 0744		0640 0744	Penney	0208 0090		0400 0448 0698
InFocus	0782 1194		0407 1067 0516		0744		0225 0691 0744		0640 0744	Perdio	0193 0067 0246		0294 1067
Ingelen	0193 0517 0640		0067 0586 0400		0744		0225 0691 0744		0640 0744	Perfekt	0067 0586		0100
	0744		0193 0542 0400		0744		0225 0691 0744		0640 0744	Philco	0067 0104 0448		0632 0783
Ingersoll	0039		0407 1067 0516		0744		0225 0691 0744		0640 0744		0586 0193 0400		0100
Inno Hit	0039 0067 0586		0067 0586 0400		0744		0225 0691 0744		0640 0744	Philco	0067 0104 0448		0090 0648 0123
	0247 1193		0193 0542 0400		0744		0225 0691 0744		0640 0744		0586 0193 0400		0655 0208 0590
			0407 1067 0516		0744		0225 0691 0744		0640 0744	Philharmonic	0247		0365 0373 0783
			0067 0586 0400		0744		0225 0691 0744		0640 0744	Philips	0067 0586 0373		0247 0357 0135
			0193 0542 0400		0744		0225 0691 0744		0640 0744		0208 0138 0404		0067 0448 0586
			0407 1067 0516		0744		0225 0691 0744		0640 0744		0802 0039 0230		0067 0586
			0067 0586 0400		0744		0225 0691 0744		0640 0744	Phocus	1319 0744		0578 0376
			0193 0542 0400		0744		0225 0691 0744		0640 0744	Phoenix	0067 0586 0400		0067 0586
			0407 1067 0516		0744		0225 0691 0744		0640 0744		0516 0193 0246		0067 0586 1067
			0067 0586 0400		0744		0225 0691 0744		0640 0744	Phonola	0067 0586 0246		0698
			0193 0542 0400		0744		0225 0691 0744		0640 0744	Pilot	0586 0067 0742		0067 0586 1067
			0407 1067 0516		0744		0225 0691 0744		0640				

## TV (cont.)

RFT	0400	0294	0067
	0586	0516	
Rhapsody	0246		
Ricoh	0067	0586	
Rinex	0803	0448	
Roadstar	0039	1067	0294
	0448	0067	0586
	0744	0698	1219
Rodex	0067	0586	
Rover	0907		
Rowa	0067	0294	0728
	0039	0247	0742
	0246	0617	0586
Royal Lux	0400	0365	
Rukopir	0586	0067	
Saba	0139	0655	0193
	0590	0365	0373
	0578	0680	0744
Sagem	0640	0485	0860
	1343	0648	
Saige	0039		
Saisho	0039	0294	0247
	0193		
Saivod	0067	0586	1193
	0698	0742	1067
Sakaï	0193		
Sakyno	0485		
Salora	0193	0578	0238
	0510		
Salsa	0365		
Sampo	1785	0039	0123
	0208	0680	
Samsung	0090	0648	0674
	0512	0617	0796
	0067	0208	0586
	1279	0039	0123
	1265	0247	0400
	0294	0246	0238
	0193	0256	0655
Sandra	0246	0247	
Sanjian	0294		
Sansui	0067	0759	0586
	0736	0632	0485
	0783	1401	
Santon	0039		
Sanyo	0238	1238	0400
	0246	0247	0039
	0538	0193	0067
	0138	0586	0516
	0200		
Sanyuan	0039	0123	
Save	0067	0586	
SBR	0067	0586	
Schaub Lorenz	0578	0744	0636
	0516	0404	1221
Schneider	0067	1167	0586
	0698	0424	0382
	0373	0247	1067
	0193	0744	1939
	0100		
Scotch	0208		
Scotland	0193		
Scott	1219	0208	
Sears	0208		
Seaway	0664		
Seelver	0586	1067	0067
SEG	0067	0247	0586
	0294	1067	0698
	0517	0039	0193
	0664	0246	1193
	1939	0744	
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	0039	1223
	1423	0683	0680
	0230	0790	1193
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	
Siam	0067	0586	
Siarem	0193		
Siemens	0067	0225	0230
	0357	0586	
Siera	0067	0586	0617
Siesta	0400		
Silva	0067	0586	0246
Silver	0067	0485	0586
	0745	0193	
SilverCrest	1067	0067	0586
Singer	0039	0067	0586
	0365	0193	
Sinotec	0803		
Sinudyne	0193	1535	0067
	0586		
Sky	0067	0910	0208
	0586		
SKY Brasil	0910		
Skymaster	0135		
Skysonic	0783		
Skyworth	0067	0586	0039
	0294	0728	0783
Sliding	0895	0910	
SLX	0698		
Smaragd	0517		
Soemtron	0895	1328	
Solavox	0193	0578	0067
	0586		
Songba	0039		
Soniko	0067	0586	
Sonitron	0238	0400	0247
Sonneclair	0067	0586	
Sonoko	0039	0067	0586
	0294	0247	
Sonolor	0193	0238	1535
	0578		
Sontec	0067	0586	0400
	0039		
Sony	1535	0104	1681
	0680	0683	1781
	0383	0067	0586
	0123	0200	
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
Starlite	0039	0193	0067
	0586	0294	
Stern	0193	0294	
Strato	0067	0586	0294
	0039		
Strong	1193	1179	1067
	0067	0586	
Stylandia	0247		
Sunic Line	0067	0586	
Sunkai	0485	0640	0067
	0586	0517	0895
Sunstar	0067	0586	0039
	0294		
Sunwatt	0485		
Sunwood	0067	0586	0039
Superla	0246	0247	
SuperScan	0123		
Supersonic	0238	0586	0728
	0294	0485	
SuperTech	0039	0246	0067
	0586		
Supra	0208	0404	0039
Susumu	0365		
Sutron	0039		
SVA	0617	0895	
Swisstec	0910		
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		
Tashiko	0247	0680	0200
	0246	0193	
Tatung	0039	0067	0586
	0090	0247	1401
	1289	1278	1221
TCL	0736	0728	
TCM	0744	1319	0838
Teac	0039	0728	0067
	0542	0294	1067
	0448	0586	0485
	0742	0698	0247
	0736	1939	0208
	0200	0744	1179
	1785		
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	
Technosonic	0067	0586	
Techwood	1193		
Tecnimagen	0586		
Teco	0039	0123	0208
	0294	0683	
Tedelex	0247	0448	0636
	0039	0736	0238
	0728	0617	0921
	0067	0586	
Teiron	0039		
Teknika	0090		
Tele System	0906		

Teleavia	0139	0373	
Telecor	0067	0586	0193
	0247	0424	
Telefunken	0655	0104	0590
	0139	0617	0365
	0728	0373	0742
	0850	0926	0784
	0067	0586	0516
	0744	0376	
Telefusion	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	0067		
Tevion	1278	1328	0067
	1289	0586	0838
	0698	1167	0744
	1067	1319	
Textet	0246	0247	0404
	0039		
Thomson	0139	0655	0590
	0373	0365	0067
	0586	0246	
Thorn	0065	0138	0067
	0139	0104	0373
	1535	0529	0542
	0586	0365	0404
	0100		
Thorn-Ferguson	0138	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	
Topline	1067	0698	
Toshiba	0538	0090	0680
	1538	0039	0065
	0123	1734	1194
	1319	0100	1295
	0744	0294	0247
	0139	0225	0648
	0674	0728	0067
	1193		
Towada	0247		
Toyoda	0039	0294	
Trakton	0039	0294	0247
Trans Continens	0698	0247	1067
	0067	0586	0516
TRANS-	0895		
continents			
Transonic	0067	0728	0586
	0742	0485	0617
	0542	0294	0448
	0039		

Transtec	0246		
Triad	0067	0586	
Trident	0247		
Tristar	0294		
Triumph	0376	0586	0067
Tuntext	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	0067	0376	0104
	0135	0225	0294
	0503	0400	0522
	0510	0230	0448
	0542	0100	0193
	0586	0357	1535
	0698	0247	0139
	0661	0039	1067
	0200	1193	1179
	0648		
Univox	0067	0586	0193
Utax	0193		
V7 Videoseven	1785	0208	0910
	1406	1247	
Vestel	0067	0193	0247
	0586	0698	1067
	1193		
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		
Vortec	0067	0586	
Voxson	0193	0208	0067
	0586	0448	
Waltham	0247	0448	0067
	0586	0698	0139
	1067	0193	0473
Wards	0208		
Warumaia	0404	0691	
Watson	0067	1067	1278
	1289	0586	0193
	0039	0698	0424
	1406	0357	
Watt Radio	0193	0246	

# VCR

Accent	0102
Admiral	0078
Adventura	0030
Adyson	0102
Aiko	0308
Aim	0308 0672 0378
Aiwa	0030 0378 0382 0667 0772 1167 0662
Akai	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
America Action	0308
Amstrad	0030 0308 0102
Anam	0067 0256 0270 0308
Anitech	0102
Ansonic	0030
Aristona	0111
ASA	0067 0111
Asha	0270
Asuka	0102 0067 0111 0030
Audiosonic	0308
Audiovox	0067 0308
AVP	0382 0030
AWA	0067 0308 0672 0073
Baird	0136 0308 0134 0030
Basic Line	0308 0102 0134
Beaumarck	0270
Beko	0134
Bell & Howell	0134
Bestar	0308
Black Diamond	0672 0308
Black Panther	0308
Blaupunkt	0256 1592 0111
Blue Sky	0067 0378 0102 0382 0308 0030 0510 0672 1167
Bondstec	0102
Brandt	0350
Brinkmann	0378
Broksonic	0378
Bush	0102 0308 0345 0382 0030 0378 0111 0672 0772
Calix	0067
Carena	0111
Carrefour	0075
Carver	0111
Casio	0030
Cathay	0308
CCF	0102 0308
CGE	0030
Cimline	0102
Cineral	0308
CineVision	1167
Citizen	0067 0308
Clatronic	0102 0030
Colt	0102

Combitech	0382
Condor	0308
Craig	0067 0102 0270
Crown	0067 0308 0102 0510
Cybernex	0270
Cyrus	0111
Daewoo	0308 0672 0667 1167 0075 0378 0382
Dansai	0102 0308
Dantax	0382
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
Digiton	0672
DSE	0672
Dual	0111 0308 0030 0378
Dumont	0030 0111 0134
Durabrand	0672
Dynatech	0030
Elbe	0308
Elcatech	0102
Electrohome	0067
Electrophonic	0067
Elin	0270
Elsay	0102
Elta	0102 0308
Emerex	0062
Emerson	0030 0102 0067 0075 0073 1167 0308
ESC	0308 0270
EuroLine	0378
Ferguson	0350 0030 0308
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
Garrard	0030
GE	0350 0078 0270
GEC	0111
General Electric	0067
General Technic	0378
Genexxa	0134
Go Video	0462 1167
Goldhand	0102
GoldStar	0067 0510 0030 1167

Goodmans	0030 0102 0270 0308 0067 0111 0378 0667 0382 0672
GPX	0067
Gradiente	0030
Graetz	0134 0270
Granada	0134 0078 0111 0270 0067 0256 0072 0030
Grandin	0102 0067 0030 0308
Grundig	0270 0377 0111 0256 0350 0378 0102 0382 0772
Haaz	0378
Hanimex	0382
Hanseatic	0067 0308 0111
Harley Davidson	0030
Harman/Kardon	0111
Harwood	0102
HCM	0102
Hinari	0102 0382 0308 0270
Hisawa	0382
Hischito	0075
Hitachi	0072 0196 0030 0270 0111 0134
Höher	0308 0672
Hornlyphon	0111
Hughes Network Systems	0072
Hypson	0102 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
KEC	0067 0308
Kendo	0136 0345 0378 0102 0067 0308
Kenwood	0097
KIC	0030
Kioto	0378
KLH	0102
Kneissel	0382 0378 0067 0308
Kodak	0067
Kolster	0378
Korpel	0102
Kyoto	0102
Lenco	0308
Leyco	0102
LG	0067 0510 0030 0308 1167
Lifetec	0378
Lloyds	0030

Loewe	0111 1592 0256 0067
Logik	0270 0102 0136
Lumatron	0308
Lux May	0102
Luxor	0136 0073 0102 0134 0078 0345
LXI	0067
Magnasonic	0308
Magnavox	0111 0030 0672
Magnin	0270
Magnum	0672
Manesth	0102 0075 0111
Marantz	0111
Mark	0308 0030
Marta	0067
Mastec	0672
Master's	0308
Matsui	0378 0067 0270 0382 0030 0772
Mediator	0111
Medion	0378 0382
Melectronic	0030 0067
Memorex	0134 0030 0067 0078 0378 0270
Memphis	0102
Metronic	0111
Metz	1592 0377 0866 0111 0256 0067
MGA	0073 0270
MGN Technology	0270
Micormay	0378
Micromaxx	0378
Migros	0030
Minolta	0072
Mitsubishi	0073 0097 0078 0111 0510 0030 0672
Motorola	0078
MTC	0270 0030
Multitec	0067
Multitech	0030 0102 0134
Murphy	0030
Myryad	0111
NAD	0134
Naiko	0672 0378
National	0256 1592
NEC	0097 0070 0134 0067 0308 1167
Neckermann	0111
Nesco	0102 0030 0382
Neufunk	0067
Nikkai	0102 0308
Nikko	0067
Noblex	0270
Nokia	0134 0136 0345 0308 0270 0078 0072 0111
Nordmende	0350 0097
NU-TEC	0378
Oceanic	0030 0078 0136 0111 0134
Okano	0345 0378 0102 0308
Olympus	0256
Onimax	0672
Optimus	0067 0078 0134 0462
Orbit	0102
Orion	0382 0378 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	0256 1592 0866
Pathe Cinema	0073
Penney	0067 0070 0072 0270
Pentax	0072
Perdio	0030
Philco	0102
Philips	0111
Phoenix	0308
Phonola	0111
Pilot	0067
Pioneer	0097 0111 0072
Portland	0308 0667
Prinz	0030
Profitronic	0111 0270
Proline	0030 0308 0350 0672
Proso	0308
Prosonic	0308 0030
Protech	0102 0111 0308
Provision	0308
Pye	0111 0030
Quasar	0308
Quelle	0111
Radialva	0067 0102 0111 0078
Radiola	0111
Radionette	1167 0067
RadioShack	0030
Radix	0067
Randex	0067
RCA	0136 0072 0078 0350 0270
Realistic	0030 0067 0078 0134
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 0075
Sanky	0078
Sansei	0078
Sansui	0097 0030 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
Scott	0073 0075
Sears	0030 0067 0072 0134
Seaway	0308
SEG	0102 0270 0308 0672 0111 0667
SEI	0111

Sei-Sinudyne	0111
Seleco	0067
Semivox	0075
Semp	0075
Sentra	0102
Setron	0102
Sharp	0078 0067 0599
Shintom	0102 0134
Shivaki	0067
Shogun	0270
Siemens	0067 0134 0111 0350 0377
Siera	0111
Silva	0067
Silver	0308
SilverCrest	0672
Singer	0378 0075 0102
Sinudyne	0111 0382
Smaragd	0378
Sonneclair	0102
Sonoko	0308
Sonolor	0078
Sontec	0067 0308
Sonwa	0672
Sony	0062 0030 0136
Soundwave	0067 0378
Ssangyong	0102
Standard	0308
Starlite	0067 0134
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
Tedelex	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
Unittech	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

**CBL**

ADB	1260 1299
Amstrad	1252
Auna	1299 1260
Austar	0306
Canal Plus	0473
Comcrypt	0473
Comtec	0049
Contec	0049
Daeryung	0507
Fastweb	1660
Filmnet	0473
Foxtel	1252
France Telecom	0847 1764
freebox	1512
Funai	0049
General	0306
Instrument	
Jerrold	0306 0049
Macab	0847
Madritel	1260
MNet	0473 0049
Motorola	0306 1136 1513
Multichoice	0049 0473
Nokia	1599
Noos	0847 1654
NTL	1090 1098
Oak	0049
Ono	1098
Optus	0306 1090
Pace	1098 1607 1090
Philips	0847
Sagem	0847 1654
Samsung	1696
Scientific Atlanta	0507
Tele+1	0473
Telepiu	0473
Telewest	1098 1090
Telsey	1660
Thomson	1764 1612
Trans PX	0306
UPC	1612
US Electronics	0306
Visiopass	0847

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Gateway	1302
Hewlett Packard	1302
Microsoft	1302
Pinnacle Systems	1477
Sony	1302

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Advantage	0062
Aiwa	0187
Arcam	0187 2010
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
CCE	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
Zonda	0187

**TUNER**

AEG	1420
AFK	1419
Aiwa	0151 0219 1088
	1188 1288 1652
Akai	0639 1250 1420
All-Tel	1420
Anam	0639
Arcam	0219 1119 1219
	1299 1319 2009
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
Bose	1259 1385
Bush	1119 1219 1299
	1319
Cairn	0219
Cambridge Audio	0219 1219
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
Electrocompanion	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
Hiteker	1419
Integra	0165 1350
JVC	0104 1404 1229
	1525
Kenwood	1057 1343 1599
	0216
KLH	1420
KXD	1419
Lenoxx	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	0219 1119 1219
	1299 1319
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
Mitsubishi	0206
Mustek	1382
Myryad	1219 1119 1299
	1319 0219
NAD	0350 0639
Naim	1119 1219 1299
	1319
Nikkai	1419
Nikko	0639
Norcent	1419
Okano	0639
Onkyo	0165 1350
Optimus	0216 1053
Palladium	1250
Panasonic	1548 1338 1339
	1793 1809 1795
Philco	1420
Philips	0219 1219 1299
	1119 1319
Pioneer	1053 0216 1119
	1219 1299 1319
	1489
Polk Audio	1319
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
Restek	0219
Revox	1119 1219 1299
	1319 0219 0216
Revoy	1119 1219 1299
	1319
Roadstar	1641
Rotel	0823
Saba	1184
Samsung	1325 1229
Sansui	0219 1119 0639
Sanyo	1831
Schneider	1420 1229 1250
SEG	1584
Sharp	0216 1664 1644
Sherwood	0683
Siemens	0639
Silva Schneider	1323
Sony	1188 1288 1888
	1789 1088 1688
	1752 1652 1142
Soundwave	0639
Sunfire	1343

Sunstech	1450
Tag McLaren	1219
Teac	1229 0639 1420
Technics	1338 1339 1793
	1548 1795
Techwood	0639 1584
Telefunken	1419
Tevion	1641
Thomson	1184 1384
Thorens	1219 1119 1299
	1319 0219
Toshiba	1602
United	1420
Universum	1250 0639 1420
	1119 1219 1299
	1319 0219
Venturer	1420
Victor	0104
Voxson	1450
Waitec	1382
Wards	0219
Wharfedale	0639 1420
Yamaha	0206 1361 1306
	0216 0742
Yukai	1382

**DVD**

3D LAB	0569
4Kus	1188
A-Trend	0744
Acoustic Solutions	0760 0743 1258
AEG	0818 0800 0820
AFK	1258 1182
Aim	0808 0702
Airis	1254 1351 0702
	1035 1375
Aiwa	0725 0899 0563
Akai	0820 0809 0800
	0818 0725 1145
	0928 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
AMW	0902
Ansonic	0789 0861
Apex Digital	0702 0747 1034
Arcam	0762
Arena	0882
Asono	1254
ATACOM	1254
Audiovox	0820 0747
Audioworld	0820
Audix	1134 1182
Autovox	0743
Auvio	0873
Avious	1195
AWA	0760 0902
Axion	0760
Base	1481
Basic Line	0743
Baze	1195 0928 0702
BBK	0892 1254
Bel Canto Design	1601
Bellagio	0902
Best Buy	0887
Black Diamond	0743 0863
Blaupunkt	0747
Blusens	1263
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
C-Tech	0798 1182
Cambridge Audio	1139 0781
Campomatic	1081
Digital	
CAT	0819
Celestial	0702
cello	1760
Centrex	0702 1034
Centrum	0743 0819 0809 1035
CGV	0800 0781
Cinea	0871
Cineral	0760
Cinetec	0743 0902
CineVision	0899 0863
Classic	0760 1760
Clatronic	0818 0809 0848 0702 1195 0705
Clayton	0743
Coby	0808 1137 0760 1195 0882
Codex	1263
Conia	0702 0882 0546 0865 1351
Contel	0818
Continental	0902 0861
Edison	
Craig	0861
Crown	0800 0681
Crypto	1258
Cybercom	0861
CyberHome	0744 0846
Cytron	0746 0681 0735 0861 1377
D-Vision	1145
Daenyx	0902
Daewoo	0800 0863 0899 1513 0735 0744 1466 0902 0808
Dalton	1066
Dansai	0800 1145 1725
Dantax	0753 0725
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 0781 0808 0753 0820
Digihome	0743
DigiLogic	0743
digiRED	0747
Digitor	1035
Digitrex	0702 1034
DiK	0861
Dinamic	0818
DiViDo	0735
DK digital	0861
DMTECH	0820 1301
Dragon	0861
DSE	1760 0863 1182

Dual	0861 0743 0695 0681 0760 0809 0820
Durabrand	0861 0743
DVX	0798
E-Boda	0753
E-Dem	1254
emax	1263 1351
EagleTec	0744
eBench	1182
Eclipse	0753 0781
Electrohome	0800
Elfunk	0880 0743
Elin	0800
Ellion	0880 1451
Elta	0800 0818 0820 1145 1181 1263 1081
Eltax	1351
Emerson	0621 0705 0735 0899
ENG	1601
Enterprise	0621
Enzer	0695
EuroLine	0818 1145 1263 0705
Ferguson	0681 1760 0928 0743
Finlux	0771 0800 0621 0702 0781 1195
Fintec	0743
Firstline	0899 0681 1560
Fisher	0700
Funai	0725 0705
Gateway	1188
GE	0747
General Electric	0747
Geriatric	1081
Global Link	1254
Global Solutions	0798
Global Sphere	0798
Go Video	0774 1188 0899 0863
GoldStar	0621 0771
Goodmans	0743 1034 0753 0781 0760 0681 0820 0848 0863 1170 1760
GP Audio	1170
GPX	0681 0771
Gradiente	0681
Graetz	0695
Gran Prix	0861
Grandin	0746 0702
Greenhill	0747
Grundig	0725 0735 0805 0569 0681 0820 0743 0700 0753 1725 1034 1760 1466 1513
Grunkel	0800 0861
H&B	0848 0743 0871 0880 1263 1451
Haaz	0798 0781
Haier	0873
Hanseatic	0771 0820
Harman/Kardon	0732
HCM	0818
HDT	0735
HE	0760
Henß	0743
HiMAX	0887 0873

Hitachi	0694 0725 0809 0695 0603 0887 0743
Hiteker	0702
Höher	0861 1034 1254
Home Electronics	0760 0800
Home Tech	1254
Industries	
Hyundai	0880 1258
Ileki	1137
Ingelen	0818
Inno Hit	0743
Integra	0657
Irradio	0771 1145 1254 1263 0899 0800
ISP	0725
Jaton	0695
JBL	0732
JDB	0760
JDV	1258
Jeken	0808
Jepssen	1213
JMB	0725
JNC	0702 1301
JVC	0653 0588 1194 0569 0533 0897
jWIN	1081
Kansai	1137
Kansas Technologies	1263 1560
Kendo	0743 0861 0702 1377
Kennex	0800 0743 0928
Kenwood	0564 0520
KeyPlug	0800
Kiuro	0800
Kingavon	0848
Kiss	0871 0695
KLH	0820
KLH Digital	0747
Kodak	0848
Koss	0681
Kreisen	1451
KXD	0887 1137 1351
Lawson	0735 0746 0798
Leiker	0902
Lenco	0681 0800 0808 0848 0743 0861 1195
Lenoir	1258
Lennox	0868
LG	0771 0601 0621 1936 0899
Lifetec	0681 0861 1377
Limit	0746 0798
LiteOn	1188
Lodos	0743
Loewe	0569 0771
LogicLab	0798
Logik	0743
Logix	0735
Lumatron	0735 1145 0771 0863 1351 0743 0760 0928
Luxman	0603
Luxor	1034 0743 1760 0760
HCM	0818
Magnasonic	0681
Magnavox	0533 0705 0848 1170 0569 0743
Magnex	0753 1195
Magnum	1466
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
Medion	0861 1377 0681 0746 1375 0660 1195 1036
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
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
Nintaus	1081
Nordmende	0861
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	0798 0820 0789 0743 0861
Packard Bell	0861
Palladium	0725 0809
Palsonic	0865 0702 0882
Panasonic	0520 1864 1938

Panda	0747 1137
Papouw	0563
peekTON	1254 0928
Philco	0753 0892 0818 0820
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
Prosonic	1137
Provision	0848 1351 1137 0760
Pye	0676 0569
QONIX	0808 1081
Qwestar	0681
Radionette	0771 0899 1936
Raite	0695
RCA	0552 0681 0820 1995
REC	0520
Red Star	0789 0793 0800 0818 0928 1137 1375
Relisys	1377
Reoc	0798
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
Saba	0681 0581
Sabaki	0798
Saivod	0789 0861 0800
Salora	0771
Sampo	1377
Samsung	0603 0774 1962 0520
Sansui	0725 0746 0798 0753 0800 0781 1258 1725
Sanyo	0700 0903 0725 0820 0743 1227 0863 1257 1195 0705
Scan	0735 0865 0880
ScanMagic	0760 1760
ScanSonic	0887
SCE	0819
Schaub Lorenz	0818 1195 0800

Schneider	0861 0809 0569 0735 0818 0743 0681 0899 0820 0676
Scientific Labs	0798 1182
Scott	0681 0702 1066 1263
Seeltech	1254 1481
SEG	0743 0695 0798 0902 0793 1560
Semp	0533
Shanghai	0702
Sharp	0660 1286 0743 0725 1449
Sherwood	0747 0771
Shinco	0747
Siemssen	1412
Sigmatek	0887 1254
Silva	0818 0928 0861
Silva Schneider	0861 1936
SilverCrest	1182
Singer	0746 0753 0781 0798
Sinudyne	1170
Sistemas	0702
Skymaster	0760 0798
Skyworth	0928
Sliding	1145
Slim Art	0800
Slim Devices	0653 0563
SM Electronic	0760 0798
Smart	0735 0743
Sonashi	0746 0861
Sonic Blue	0899
Soniko	0818
Sony	0563 0894 1663 0802 1100 2011 1463 0603
Sound Color	1263
Soundmaster	0798
Soundmax	0798
Spectra	0902
Standard	0681 0798 0818 0861 0928
Star Clusters	0798 1257 1182
StarLogic	1035
Starmedia	0848 1254 1035
Strong	0743
Sunfly	0887
Sunkai	0800 0880
Sunstech	0861
Sunwood	0818
SuperDigital	1217
Supervision	0760 0798
SVA	0702 0747
Sylvania	0705 0660
Symphonic	0705
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Tandberg	0743 1725
Tangent	1351
Targa	0771 1188 1257
Tatung	0800
Tchibo	0771
TCM	0771
Teac	0747 0771 0546 0601 0798 0621 0789 1036 0820 1227 0863 1257 1195 0705
TEC	0928
Technics	0520 1938
Technika	0800 1145 0861 1195

Technosonic	1081 1145
Techwood	0743 1560 0569
Telex	1258
Telefunken	0820 0819 0818 1258
Teletech	0743
Tensai	0681 0800
Tevion	0681 1066 1412 0798 1257 0863 1377 1760
Theta Digital	0601
Thomson	0581 0552
Tokai	0695 0928 0818
Tokiwa	0735 0746
Tom-Tec	0819
Top Success	1254
Toshiba	0533 0725 1075 1540
TRANS-continents	0902 0861 1195
Trasonic	0702 1195
Tredex	0873
Trio	0800
TruVision	0887 1481
TSM	1254
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Umux	1181
United	0818 0760 0820 1258 0702 1195 0725 1145 0798 1263 0743 1182 0705
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Universum	0771 0743 0621 0809 1257 0820 1560
Uptek	0793
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Waitec	1254
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Waltham	1560
Welkin	0861
Wellington	0743
Weltstar	0743
Wharfedale	0798 0753 0781
Wilson	0861 1263
Windy Sam	0603
Wintech	1217
Woxter	1181 1254
XBox	0552
XLogic	0800 0798 1258
XMS	0818 0800
Xoro	1213
Yakumo	1034
Yamada	1034 0902 1181 1188
Yamaha	0569 0520 0676
Yamakawa	0695 0902 1134
Yukai	0760
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Arnio	1330
ASCI	1364
Astro	1130
Aurora	1463
Austar	1206
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British Sky Broadcasting	1205
BSkyB	1205
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CanalSatellite	1369
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CityCom	1206
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DigiFusion	1675
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Foxtel	1206 1386
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Orbis	1364 1442
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Pace	1205 1386 1453 1880
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Sky XL	1442
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@sat	1330
@Sky	1364
ABsat	1353 0743
ADB	0672 0917 1289 1397 1503 1521
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Anglo	0743
Ankaro	0399 0743 1309
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Arcon	1309 0162 1105
Armstrong	0230
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Astro	0163 0203 0399 0688 1143 1129 1130 0230
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BSkyB	0877 1205
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Foxtel	1386 0909 0750 1206 1192
Fracarro	0155
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Fuba	1831 0399 0203 1191 0329 1281
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Galaxis	1141 1206 0883 0399 0909

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Garnet	1105
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HE@D	1309
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Huth	0162 1047 1105
Hyundai	1189 1105
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Imperial	1459 1364 1129 1130 1225 1227 0230 1702
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Kamm	0743
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KaTelco	1141
Kathrein	0534 1597 0510 1591 0688 0203 0230 0743 0848 1353 1446
Kennex	0155
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Kyostar	0162
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Labgear	1326
LaSAT	0399 0162 0329
Lenco	0743 0399
Lennox	0399
Lennox	1641
Lexus	0230
LG	1444 1105
Lifesat	0162 0399 0329 0743
Lodos	1314
Logik	1314

Logix	1047 1105
Lorenzen	0329 1324 1191 0162
Lupus	0399
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Madritel	0672
Manata	0743 0162
Manhattan	1047
Marantz	0230
Maspro	0743 0203
Matsui	0203 1773
Maximum	1105 1364
MDS	1255
Mediabox	0883
Mediacom	1236
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Medion	1262 0329 0743 0162 1105 1442 1656 1364 0399
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Mega	0230
Meletronic	0848
Metronic	0743 1309 1313 0848 0162
Metz	0203
Micro	0743 1324
Micro electronic	0743
Micro Technology	0743
Micromaxx	0329 0399
Microstar	1105
Microtec	0743
Morgan's	0230 0743 0162 1439
Motorola	0886
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Myryad	0230
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Neuf TV	1352
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Neveling	1191
NextWave	1047
Nikko	0743 0753 0230
Nokia	1144 1253 1053 0753 0883 1753
Nordmende	1641
Nova	0909
OctalTV	1324
Opentel	1262 1442
Optex	1313 0743 1641
Optus	0909 0883
Orbis	1364 1442
Orbitech	1129 1130 0230
P/Sat	1262
Pace	0877 0917 1205 1386 1880 0271 1353 0821 0750 0230 0883 1453
Pacific	1314
Packard Bell	1141
Palcom	0329 1191 1439
Panasat	0909
Panasonic	0877 1334 1434
Panda	0203
Patriot	0162
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Philips	0230 1144 0883 0129 0163 0848 1702 0203 1459
Phoenix	1303
Phonotrend	1047 1230
Pilotime	1369
Pino	1364
Pioneer	0883 1338 0382
Portland	1326
Power Sky	1309
Preisner	0162 1143 1396
Premiere	0883 1144 0753 1141 1206 1225 1130 0688
Primacom	1141
QNS	1397 1434
Quadral	0399 1353
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Radiola	0230
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Rebox	1244
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Regal	1281
RFT	0230
Roadstar	0743 0883
Rover	0743 0399
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S-ZWO	1237
SAB	1281
Sagem	1144 1283 1720
Samsung	1273 1600 1488 1047 1236 0883
Sat Control	1330
Sat Team	0743
SAT+	1439
Satec	0743
Satelco	0399
Satplus	1130
Schaub Lorenz	1244
Schneider	1281 1236
Schwaiger	0534 1364 1487 1442 1141 0162 1105
SCS	0329
Sedeae Electronique	0155 0162 1313 1656 1309
SEG	1281 0399 1656 1105
Serino	0640
Servimat	1641
ServiSat	1281 0743
Sherwood	1641
Siemens	0203 1459 1364
Silva	0329
Skantin	0743
SKR	0743
Sky	0129 0877 0886 0917 1205 0741
SKY Brasil	0672 0917
SKY Italia	1878 1880
Sky XL	1442 1281
SKY+	1205
Skymaster	0743 1439 1230 1105 1641 1364
Skymax	0230
skyplus	1262 1364 1442
SkySat	0743
SL	0162 1702
SM Electronic	0743 1230 1105

Smart	1303 0162 0329
	1143 1262 0743
	1443
Soniq	1597
Sony	0877 1588 0312
	0883
SR	0162
Star Sat	0162
Starland	0743
Stream	1878
Strong	0155 1397 1439
	1656 0399 0909
	0883 1189 1330
	1503 1314
Sunny	1330
Sunny Sound	0399
Sunsat	0743
Sunstar	0399 0162 0672
Supermax	1313
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Tarbs	1255
TBoston	1487
Teac	1257 1255 1352
Tecatel	1230
TechniSat	1129 1130 1225
	1227 0230 1352
Technomate	1313
Technosat	1236
Technosonic	1702
Technotrend	1459
Technowelt	0162
Techsan	1047
Techwood	1314 1656
tekComm	1047
Tele System	1281 1439 1641
	1831
Tele System Electronic	1641
TeleClub	1397
Telecom	0743
Telestar	1129 1130 0230
	1281 1364 1656
Televés	0162 1244 1330
	1364 1439
Televisa	0917
Telewire	1262
Tevion	1364 1702 0743
	1439 1597
Thomson	0741 0877 1321
	1930 0743 1205
	0883 1076
Tiny	1702
Tioko	0162
Tokai	0230
Tonna	1641 0743
Topfield	1236 1237 1575
	1813
TPS	1283
Triax	0230 0743 0883
	1281 1326 1321
	0162 1129 1143
	1257 1656
Trio	1105
TT-micro	1459
Turnsat	0743
Twinner	0162 0743
UEC	0909 1192 1386
Unimax	1577
Unisat	0230 0162
United	1281
Universum	0203 0329 1129
Van Hunen	1191 0329
Variosat	0203

Vega	0399
Ventana	0230
Vestel	1281
VH-Sat	1191 0329
Viasat	1353 1053
Visionic	0155 1309
Visiosat	0743 1159 1487
Vivid	1192
VTech	0848
Wavelength	1262 1443
Wharfedale	1314
Winbox	1831
Wisi	0203 0329 0162
Worldsat	1503 1244 1281
XMS	1105
Xrypton	0399
XSat	0743 1244 0877
	1353
Xtreme	1330
YES	0917
Yess	1577
Zehnder	1281 1262 1364
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