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# Introduction

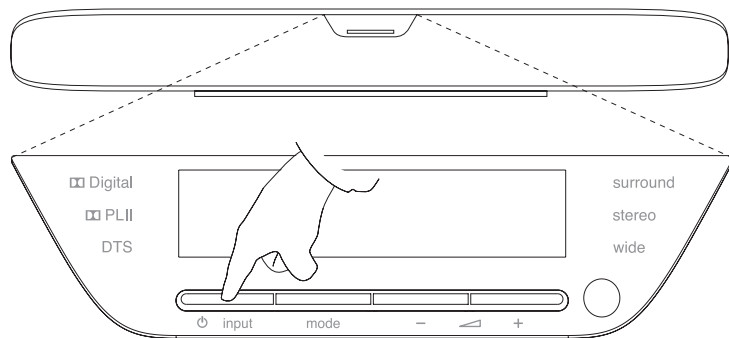
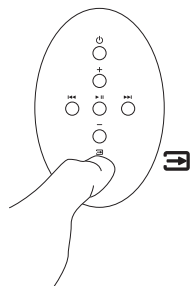
Panorama™ is far more than a one-box home theatre system. Its five audio inputs mean you can connect a wide range of products to expand and enhance your listening experience.

Whether you want to share audio from a device that you normally listen to on headphones, improve the quality of sound from your games console, or listen to iPod video soundtracks in sumptuous surround sound, Panorama provides an effective, simple and stylish solution.

In this guide, we show you some of the options you may like to try – how to connect the components and how to control them. The guide also provides technical information for those wishing to control Panorama using a universal remote control handset or when integrated within a RS232 home automation system.

Panorama offers three digital and two analogue audio inputs. One or two of the inputs will probably already be in use reproducing your TV/ DVD audio leaving three or four spare. In order to use these inputs you will have to connect the source component (iPod, Games Console, etc) to one of them and select the input by pressing the Panorama handset input key or front panel input button.

Panorama's two analogue inputs each comprise pairs of RCA-phono sockets and its three digital inputs comprise a single RCA-phono socket and two TOSLINK™ optical sockets.



# Playing audio from a source with headphone jack

This category includes any device that you normally listen to through headphones and where the headphone socket is the only way to output audio.

Examples are:

Most portable CD players

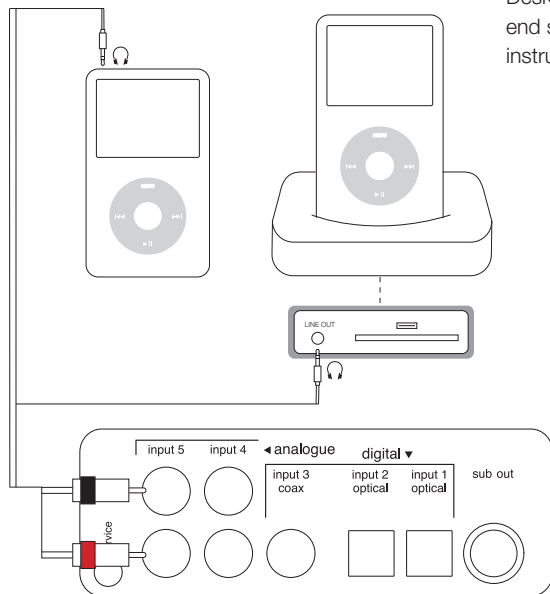
MP3 players (including iPod)

Mobile phones

Table radios

Laptop computers

Desktop computer sound cards (other than high-end sound cards, where you should follow the instructions for component audio/video equipment)



You will need a cable that has a stereo mini jack at one end and two RCA-phono plugs at the other end. Simply plug the mini jack end into the headphone socket of the source device and the RCA-phono plugs into one pair of the Panorama analogue inputs. The headphone sockets of computers are usually coloured green as well as having the headphone icon.

The source device will have its own volume control. To minimise noise, the level should be set a little below that which might overload Panorama's input. Start at three-quarters full scale and then play your loudest tracks. Listen for clipping overload – a scratchy noise during the loudest parts, even when Panorama's own level is not very high – and reduce the level until you don't hear it.

Some source devices may have a relatively low output signal level so it may be necessary to set Panorama's input gain to +6dB in order to compensate.

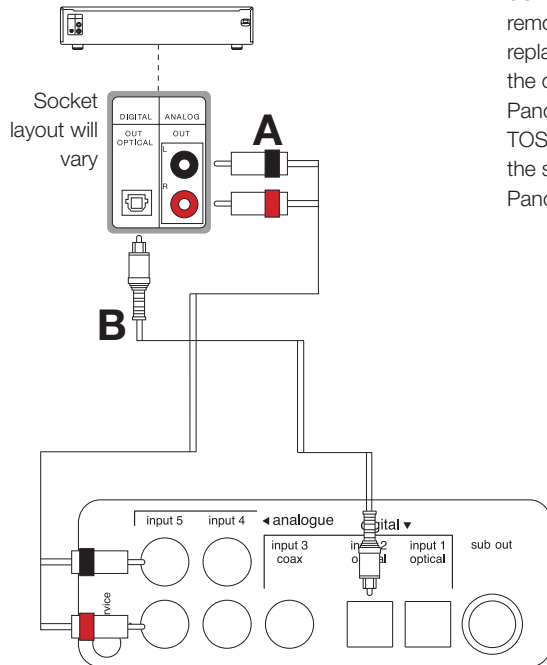
Leave the source's volume at this level and thereafter vary the loudness using Panorama's controls.



**Some mini jacks have wide bodies that prevent them fully engaging with the headphone socket in the source device, so check for this before you buy your cable. You need to be able to feel the soft click of the catch engaging fully round the ball tip of the plug.**

# Playing audio from a single audio/video component

CD player  
DVD player  
Blu-ray Disc™ player  
Tuner  
Squeezebox™



An audio source, such as a CD, DVD player, Blu-ray Disc™ player, radio tuner, Squeezebox™ Sonos Zone™ or Sky Box will most likely be fitted with either a stereo pair of analogue outputs in the form of RCA-Phono sockets (Option A) and/or a digital audio output in the form of a TOSLINK™ optical™ socket (Option B). Use the digital option, if available, in preference to the analogue option.

The digital audio output may be labelled either Optical, TOSLINK™ or S/PDIF and may have a blanking plug fitted. The blanking plug must be removed before the socket is used and retained for replacement should you subsequently disconnect the cable. To connect a digital optical output to Panorama you will need an optical cable with a TOSLINK™ plug at both ends. Connect one end to the source output socket and one end to one of the Panorama digital optical inputs.

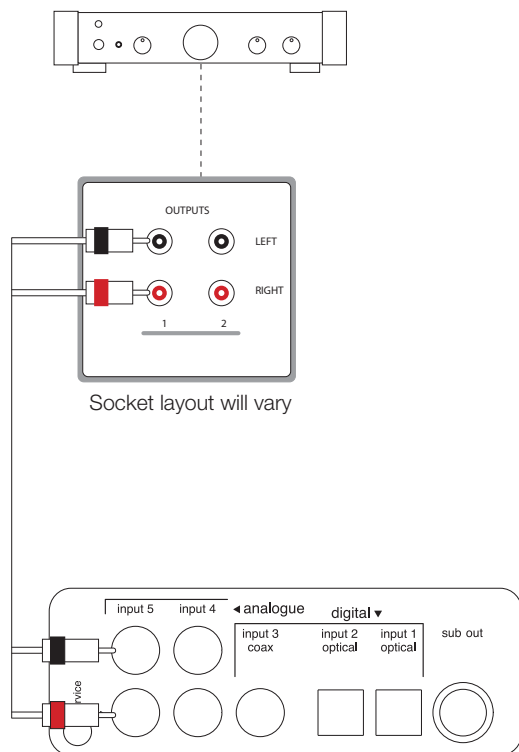
To use the analogue option you will need a cable with a pair of RCA-phono plugs at both ends. Plug one pair of RCA-phono plugs into the source output sockets and one pair into one of the Panorama analogue inputs. The RCA plugs should be coded to identify left and right channels. This may be by the letters L and R or colour coding, where the convention is that red identifies the right channel.

It is also possible that the audio source may have a coaxial digital output (Option C) in the form of a single RCA-phono socket. To connect a coaxial optical output to Panorama you will need a cable with a single RCA-phono plug at each end. Connect one end to the source output socket and one end to the Panorama digital coaxial input.

Source equipment of the type discussed here will normally not have its own volume control, but if it does, set the level to approximately 90% and use Panorama's controls to vary the loudness.

Some audio components may have a relatively low output signal level so it may be necessary to set Panorama's input gain to +6dB in order to compensate.

# Playing audio via a stereo pre-amplifier



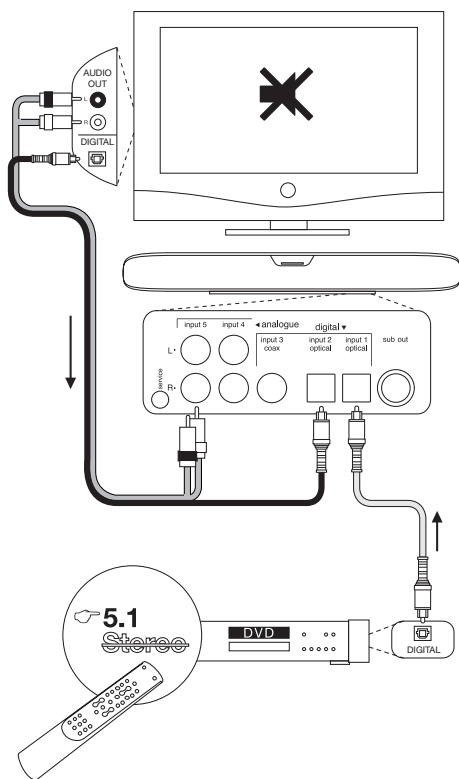
If you have several stereo audio sources – CD player, tuner etc. – you may want to use a stereo pre-amplifier to control source selection and connect an output from the pre-amplifier to a Panorama input.

Pre-amplifiers generally offer only analogue outputs, usually in the form of RCA-phono sockets, so to connect to Panorama you will need a cable with a pair of RCA Phono plugs at both ends. The RCA plugs should be coded to identify left and right channels. This may be by the letters L and R or colour coding, where the convention is that red identifies the right channel. Plug one pair of RCA-phono plugs into the pre-amplifier output sockets and one pair into one of the Panorama analogue inputs.

The pre-amplifier's volume control will affect the signal level output to Panorama so the system will effectively have two volume controls (the preamplifier and Panorama itself). If this is inconvenient, connecting the cable to a pre-amplifier tape output (which most likely will not be affected by the volume control) may be more convenient.

Some pre-amplifiers may have a relatively low output signal level so it may be necessary to set Panorama's input gain to +6dB in order to compensate.

# Playing audio from a TV and DVD combination.



You will probably have already connected your TV and DVD player to Panorama and the information here repeats that provided in the Panorama Owners Manual. The recommended TV connection scheme is as follows:

- Connect the digital audio output from the DVD player to either Panorama's input 1 (digital optical) or input 3 (digital coaxial). Use a cable with TOSLINK™ connectors at each end or a cable with a single RCA-phono plug at each end respectively.
- Connect the optical digital audio output from the TV (if fitted) to Panorama's digital input 2 using a cable with TOSLINK™ connectors at each end.
- Connect the analogue audio output from the TV to Panorama's analogue input 5 using a cable with a pair of RCA-phono plugs at each end. The RCA plugs should be coded to identify left and right channels. This may be by the letters L and R or colour coding, where the convention is that red identifies the right channel.

Use the digital optical cables supplied with Panorama to connect the DVD player and TV digital audio outputs. The caps must be removed from the ends of the digital optical cables before they are used and retained for replacement should you subsequently disconnect the cables.

With the recommended connection scheme in place the majority of audio/visual programme formats can be reproduced through selection of the appropriate Panorama input. For example:

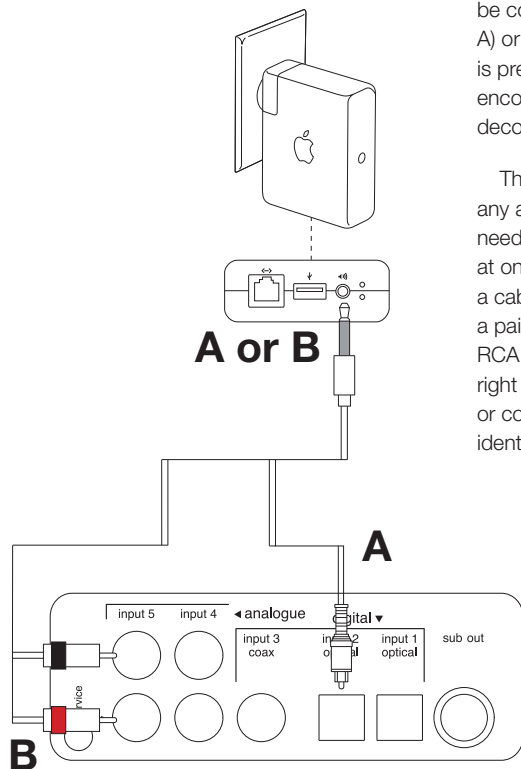
- Input 1 or 3: Digital, 5.1 channel, DVD soundtracks.
- Input 2: Digital audio from, or routed through, the TV.
- Input 5: Analogue stereo audio (analogue TV audio or Dolby Pro Logic surround encoded audio for example).

Some televisions pass 5.1 channel digital audio from their HDMI inputs to their digital audio outputs (the remainder down-mix 5.1 signals to stereo). In these cases, the direct connection between the DVD player and Panorama will not be necessary. Confirm however with the manufacturer of your TV that it is capable of 5.1 channel digital audio output from external inputs before dispensing with the connection from DVD to Panorama.

When using Panorama it may be necessary to mute the television's internal speakers. Some television screens will display a permanent on-screen symbol when mute is selected. If this is the case the television volume can alternatively be reduced to zero using its remote handset volume controls.

Some televisions have a relatively low output signal level so it may be necessary to set Panorama's input gain to +6dB in order to compensate.

# Playing audio wirelessly from an Apple AirPort Express®



Apple's AirPort Express wireless base station can be used to receive wirelessly streamed audio and replay it via a locally connected audio system such as Panorama. It incorporates a combined analogue/optical digital mini jack output that can be connected to either a Panorama digital (Option A) or analogue (Option B) input. Digital connection is preferable because any digital multi-channel encoding carried by the signal will be preserved for decoding and reproduction by Panorama.

The Apple AirPort Express does not ship with any audio cables so to connect Panorama you will need either a cable with a digital optical mini jack at one end and a TOSLINK™ plug at the other end, or a cable with an analogue mini jack at one end and a pair of RCA-phono plugs at the other end. The RCA plugs should be coded to identify left and right channels. This may be by the letters L and R or colour coding, where the convention is that red identifies the right channel.

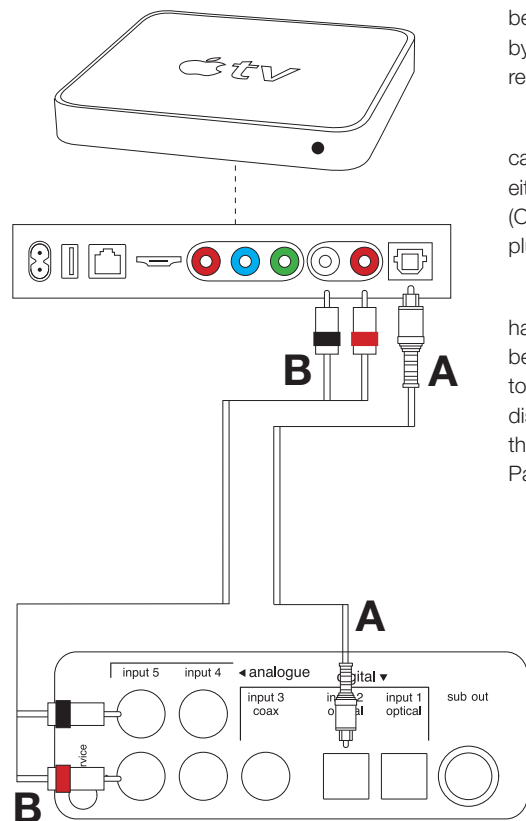
For digital connection connect the digital mini-jack to the AirPort Express and the TOSLINK™ plug to one of the Panorama optical digital inputs.

For analogue connection connect the analogue mini-jack to the AirPort Express and the pair of RCA-phono plugs to one of the Panorama analogue inputs.

Depending on the source of the audio replayed by the AirPort Express, there may or may not be a preceding volume control. If there is, set the volume level to 90% and use Panorama's controls to vary the loudness. If there is no preceding volume control and the streamed audio is at a fixed level, volume can be controlled by Panorama's own controls alone. In either case it may be necessary to set Panorama's input gain to +6dB in order to compensate for the relatively low output signal level of the Apple AirPort Express.



# Playing audio from an Apple TV®



The Apple TV is a dedicated audio-visual device that connects wirelessly to the Internet to download audio-visual material for storage and later playback on your TV. It incorporates both analogue and optical digital audio outputs that can be connected to Panorama. Digital connection is preferable because any digital multi-channel encoding carried by the signal will be preserved for decoding and reproduction by Panorama.

The Apple TV does not ship with any audio cables, so to connect Panorama you will need either a cable with TOSLINK™ plugs at each end (Option A), or a cable with a pair of RCA-phono plugs at each end (Option B).

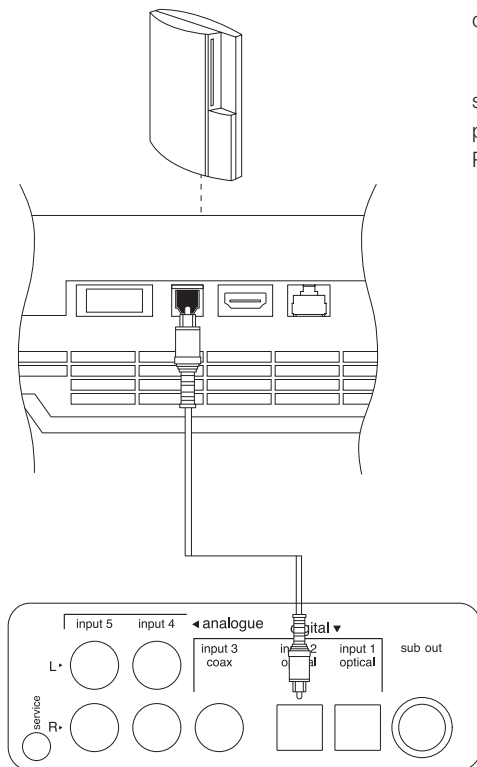
The Apple TV digital optical output socket may have a blanking plug fitted. This must be removed before connecting the cable but should be retained to protect the end of the optical fibre should you disconnect the cable. Connect the cable from the Apple TV digital optical output to one of the Panorama digital optical inputs.

If you decide to use the Apple TV analogue audio output, connect the cable from the Apple TV's left and right analogue audio outputs to one of the Panorama analogue inputs. The RCA-phono plugs should be coded to identify left and right channels. This may be by the letters L and R or colour coding, where the convention is that red identifies the right channel.

If the Apple TV is also connected to your TV via an HDMI cable you will need to switch off the TV's own speakers when Panorama is in use by selecting "mute" from the TV remote handset. Some televisions will display a permanent on-screen symbol when mute is selected. If this is the case the television volume can alternatively be reduced to zero using its remote handset volume controls.

The audio signal output from the Apple TV to Panorama will be at a fixed volume level and not controlled by the Apple TV's remote handset so volume is controlled by Panorama's own volume controls. It may also be necessary to set Panorama's input gain to +6dB in order to compensate for the relatively low output signal level of the Apple TV.

# Playing audio from a PlayStation® 3 games console



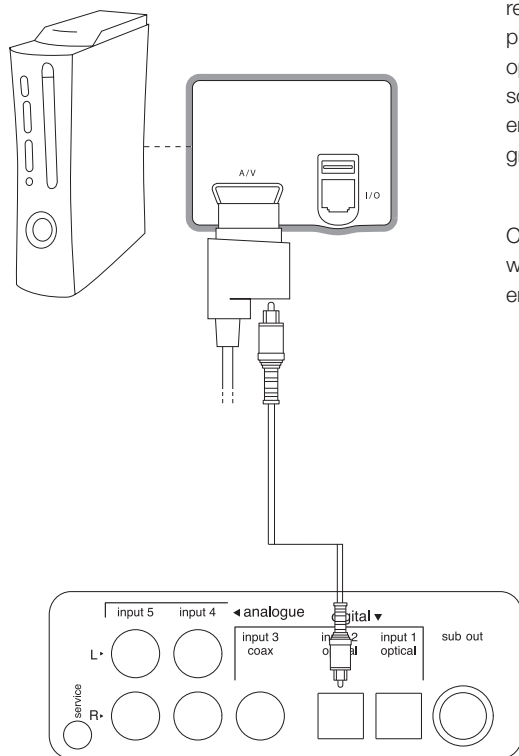
The PS3 can output audio via either a TOSLINK™ digital optical socket or its combined analogue audio-video socket and cable. Digital connection is preferable because any digital multi-channel encoding carried by the signal will be preserved for decoding and reproduction by Panorama.

To connect Panorama to the PS3 digital optical socket you will need a cable with a TOSLINK™ plug at each end. The two RCA audio plugs of the PS3 AV cable (all types) should be left unused.

The PS3 TOSLINK™ socket may have a blanking plug fitted. This must be removed before connecting the cable but should be retained to protect the end of the optical fibre should you disconnect the cable. Connect the TOSLINK™ cable to the PS3 optical digital output and one of the Panorama digital optical inputs. The PS3 output will be at a fixed level so volume is managed by Panorama's controls.

If the PS3 is simultaneously connected to a TV by an HDMI connector it may be necessary to switch off the TV audio when Panorama is in use by selecting "mute" from the TV remote handset. Some televisions will display a permanent on-screen symbol when mute is selected. If this is the case the television volume can alternatively be reduced to zero using its remote handset volume controls.

# Playing audio from an Xbox 360™ games console



The Xbox 360™ can output analogue or digital audio only via its AV port and one of the AV Cable options. Digital connection is preferable because any digital multi-channel encoding carried by the signal will be preserved for decoding and reproduction by Panorama. The proprietary console plug of all the AV cable options incorporates an optical digital TOSLINK™ optical digital output socket. The two RCA audio plugs at the other end of the AV cable (coloured red and white and grouped separately) should be left unused.

To connect Panorama to the Xbox 360™ Component AV HD Cable digital optical socket you will need a cable with a TOSLINK™ plug at each end.

The AV Cable TOSLINK™ socket may have a blanking plug fitted. This must be removed before connecting the cable but should be retained to protect the end of the optical fibre should you disconnect the cable. Connect the TOSLINK™ cable to the Component AV HD Cable socket and one of Panorama's digital optical inputs. The Xbox 360™ output will be at a fixed level so volume is managed by Panorama's own controls.

If the Xbox 360™ is simultaneously connected to a TV by an HDMI connector it may be necessary to switch off the TV audio when Panorama is in use by selecting "mute" from the TV remote handset. Some televisions will display a permanent on-screen symbol when mute is selected. If this is the case the television volume can alternatively be reduced to zero using its remote handset volume controls.

# Playing audio from alternative games consoles

Games consoles provide a variety of audio output connections, some of which require non-standard cables, so you may need to contact the console manufacturer or retailer for advice on the appropriate one. Whoever provides the advice will need to know that Panorama can be connected with either analogue RCA-phono plugs, a digital optical TOSLINK™ plug or a digital coaxial RCA-phono plug.

If your games console carries one of the following audio output connectors you can connect it to a Panorama input using a standard cable:

- Analogue mini jack (possibly a headphone output).
- Analogue RCA-Phono sockets.
- TOSLINK™ digital optical socket.
- Digital optical mini-jack socket.
- Digital coaxial RCA-phono socket.

If both analogue and digital options are available, a digital connection is preferable because any digital multi-channel encoding carried by the signal will be preserved for decoding and reproduction by Panorama.

To connect digitally you will need either a cable with a TOSLINK™ plug at each end, a cable with a TOSLINK™ plug at one end and an optical mini-jack at the other, or a cable with a single RCA-phono plug at each end. The use of optical mini-jack to TOSLINK™ converters is not recommended as these can be unreliable.

If a games console TOSLINK™ socket is to be used it may have a blanking plug fitted. This must be removed before connecting the cable but should be retained to protect the end of the optical fibre should you disconnect the cable. Connect the TOSLINK™ end of the cable to the games console optical digital output and to one of the Panorama optical digital input sockets.

If the games console has a mini-jack optical digital output socket connect it using a cable with an optical mini-jack at one end and a TOSLINK™ plug at the other end to one of the Panorama optical digital input sockets.

If a games console RCA-phono coaxial digital output socket is to be used connect it using a cable with a single RCA-phono plug at each end to the Panorama coaxial digital input socket.

If the games console analogue audio output is to be used you will need either a cable with a pair of RCA-phono plugs at each end, or a cable with a stereo mini jack plug at one end and two RCA-phono plugs at the other end. The RCA-phono plugs should be coded to identify left and right channels. This may be by the letters L and R or colour coding, where the convention is that red identifies the right channel and white identifies the left channel.

# Playing audio from alternative games consoles (continued)

If the games console has analogue RCA-phono sockets connect them using a cable with a pair of RCA-phono plugs at both ends to one of the Panorama analogue inputs.

If the games console has a single analogue mini-jack socket (possibly its headphone socket) connect it using a cable with a mini-jack plug at one end and a pair RCA-phono plugs at the other end to one of the Panorama analogue inputs.

Unless you are using the games console's headphone output to connect to Panorama, its audio signal output will most likely be at a fixed volume. In this case, volume is controlled by Panorama's own volume controls. Alternatively, if the games console's headphone output is used to connect to Panorama start by setting its volume level at around three-quarters and then play your loudest games. Listen for clipping overload - a scratchy noise during the loudest parts, even when Panorama's own level is not very high - and reduce the games console volume level until you don't hear it.

Some games consoles may have a relatively low output signal level so it may be necessary to set Panorama's input gain to +6dB in order to compensate.

If the games console is simultaneously connected to a TV by an HDMI connector it may be necessary to switch off the TV audio when Panorama is in use by selecting "mute" from the TV remote handset. Some televisions will display a permanent on-screen symbol when mute is selected. If this is the case the television volume can alternatively be reduced to zero using its remote handset volume controls.

# Using universal remote control handsets

The remote control handset codes used by Panorama are listed below. These codes can be used to programme infra-red, RC6 (Mode 6A) universal remote control handsets.

<b>System Address Code (Decimal)</b>	<b>Function Code (Decimal)</b>	<b>Function Name</b>	<b>Function Description</b>
016	012	Power	Toggles between On and Standby
016	016	Volume Up	Increases the volume setting
016	017	Volume Down	Decreases the volume setting
016	013	Mute/Unmute	Toggles between Mute On and Mute Off
016	130	Voice Mode On/Off	Toggles between Voice Mode On and Off. Hold down to enter/exit setup.
016	083	Sound Mode	Toggles between Surround Mode, Stereo Mode and Wide Mode
016	232	Input Selector	Toggles between inputs 1, 2, 3, 4 and 5.
016	220	On	Switches Panorama On.
016	221	Standby	Switches Panorama to Standby
016	056	Input Select 1	Directly selects Input 1
016	057	Input Select 2	Directly selects Input 2
016	134	Input Select 3	Directly selects Input 3
016	135	Input Select 4	Directly selects Input 4
016	136	Input Select 5	Directly selects Input 5
016	226	Sound Mode – Surround	Directly selects Surround Mode
016	227	Sound Mode – Wide	Directly selects Wide Mode
016	228	Sound Mode – Stereo	Directly selects Stereo Mode
016	222	Mute On	Engages Mute
016	223	Mute Off	Disengages Mute
016	224	Voice On	Engages Voice Mode
016	225	Mute Off	Disengages Voice Mode

# Controlling Panorama via RS232

Panorama can be integrated and controlled within RS232 home automation systems using its service socket: this is basically an RS232 interface with a non-standard connector and voltage levels.

The service socket is located on the Panorama connection panel. It is indicated by the word "Service". The socket accepts a 3.5mm stereo jack plug as illustrated on the following page.

## Interface for Panorama service port

A small interface is required to convert the Panorama service port signals to standard RS232 signals and physical DB-9 connector. Use of the interface illustrated on the following page.

## RS232 Communication Parameters

The RS232 parameters settings are:

- 19200 baud
- 8 databits
- No parity
- 1 stopbit
- no handshaking

## Command Protocol

Panorama can be controlled by sending strings of characters via the service port.

Every string consists of:

- 1 character indicating the command
- body with variable number of characters
- <CR>
- <LF> (optional)

## 1.5 Command List

Each command strings should be terminated with <CR> and optionally <LF>.

(\*) This setting is not remembered after mains disconnect (not stored in permanent memory). After poweron, the keys are always enabled.

(\*\*) "x" is the ASCII character of (**vol** + 48)  
(**vol** is a value between 0 and 34)

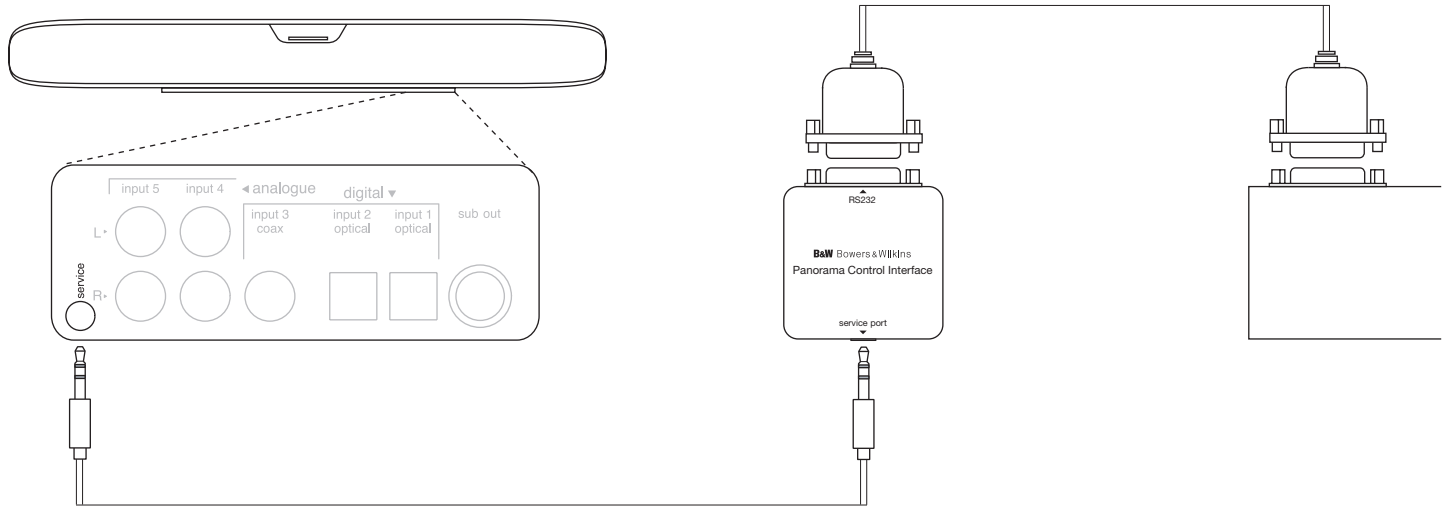
Example: set volume 18: **vB** <CR>

Following commands are used to request information from Panorama:

Command	Description	Answer from Panorama
N	Ask for firmware version	N2xx2yy xx = version of microcontroller yy = version of DSP

Command	Description
R1	On/standby toggle
R2	Volume up (1 step)
R3	Mute toggle
R5	Mode toggle (stereo – wide – surround)
R6	Volume down (1 step)
R7	Input toggle (IN 1, 2, 3, 4, 5)
R8	Voice toggle
R:	Select IN5
R;	Select IN4
R<	Select IN1
R=	Select IN2
R>	Select IN3
R?	Standby
R@	On
RA	Stereo
RB	Wide
RC	Surround
RD	Mute off
RE	Mute on
RF	Voice off
RG	Voice on
K0	Keylock disable (local and remote keys)
K1	Keylock activated (local and remote keys) (*)
vx (*)	Set volume directly to x (**)

# Connecting Panorama to RS232





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