C61R Digital Surround Controller
Installation Guide

Important safety instructions

- Read the instructions.
- Keep these instructions.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with a dry cloth.
- Install only in accordance with the manufacturer's instructions.
- Refer all servicing to approved service personnel.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

This apparatus has been designed with Class 1 construction and must be connected to a mains socket outlet with a protective earthing connection (the third grounding pin).

This apparatus uses a single-pole power switch. As a result it is not isolated from AC mains power when switched off at the rear panel. The apparatus may be isolated from mains power either by unplugging the power connector from the rear of the unit, or by unplugging the connector at the opposing end of the power cord or cable from its supply outlet. As a result, either or both of these connectors should remain accessible

Safety warnings

- Do not expose the product to dripping or splashing.
- Do not place any object filled with liquid, such as a vase, on the product.
- Do not place naked flame sources, such as lighted candles, on the product.

To avoid interference

Do not position the product:

- Near strong magnetic radiation, such as near a power amplifier.
- Near to a television, or where connecting cables may be subject to or cause interference.

To avoid overheating

- Leave at least 10cm around the equipment to ensure sufficient ventilation.

Do not position the product:

- In direct sunlight.
- Near heat sources, such as a radiator.
- Stacked with any other audio products, as the heat it generates may damage the other products.
- On a soft surface, such as a carpet, which would obstruct the ventilation holes in the base.

The product normally runs warm to the touch.

Radio interference

FCC Warning: This equipment generates and can radiate radio frequency energy and if not installed and used correctly in accordance with our instructions may cause interference to radio communications or radio and television reception. It has been type-tested and complies with the limits set out in Subpart J, Part 15 of FCC rules for a Class B computing device. These limits are intended to provide reasonable protection against such interference in home installations.

EEC: This product has been designed and type-tested to comply with the limits set out in EN55013 and EN55020.

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Contents

Copyright and acknowledgements

Sales and service in the UK

Meridian Audio Ltd

Latham Road

Huntingdon

Cambridgeshire

PE29 6YE

England

Tel +44 (0)1480 445678

Fax +44 (0)1480 445686

World Wide Web – http://www.meridian-audio.com/

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Part no: C61R/1 (P80404)

Sales and service in the USA

Meridian America Inc

8055 Troon Circle

Suite C

Austell

GA30168-7849

USA

Tel +1 (404) 344 7111

Fax +1 (404) 346 7111

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Introduction

This guide provides full information about unpacking the C61R Digital Surround Controller, connecting it to the other equipment in the system, and configuring it using the front panel. Once you have connected and configured the product, refer to the *G Series System Guide* for information about operating it.

The C61R is a powerful, flexible surround controller, with 8 unbalanced analogue outputs and 10 digital outputs.

At the heart of the C61R is a powerful DSP engine consisting of three Motorola 56367s running at 150MHz – delivering an incredible 450MIPS (million instructions per second) capability. Processing is performed at high sample rates and with 48-bit precision throughout, ensuring that all filtering, processing, and other operations are carried out beyond the limits of human hearing. The C61R is thus a perfect processor for the very latest in digital audio, such as DVD-Audio and DVD-Video.

Inputs

Analogue signals are converted via a 24-bit Delta-Sigma converter to high-sample-rate digital on input to the processor, while all digital signals are reclocked to minimise jitter and maintain total data integrity. The C61R includes two six-channel S/PDIF digital inputs (coax), a USB audio input, four TOSlink optical inputs, and six more stereo coax digital inputs. In addition, there is a six-channel analogue input, and five stereo analogue inputs.

Formats supported

The C61R combines controller and surround processor functions, meeting the latest THX specifications and including MPEG, DTS, Dolby, Trifield, and Ambisonic decoding. In many cases the decoders incorporate our own code, giving them superior integration with the Meridian design philosophy, as well as superior performance. As a result, the C61R can decode surround signals from all PCM optical discs. The C61R is thus an ideal complement to a G Series optical disc player like the G98.

Smart Source feature

The C61R's 'Smart Source' feature continually monitors the digital inputs and automatically loads the correct decoding software for the format, speaker layout, and encoding of the incoming signal. This capability is enhanced by MHR SmartLink, which provides a digital link between a Meridian optical disc player and processor,

carrying explicit information about the nature of the datastream as well as encrypted high-resolution digital signals from DVD-Audio – the first system of its kind to be approved. Virtually all other manufacturers oblige you to go through an analogue connection, losing quality in the process.

You can also store separate parameters for each source (such as DVD) depending on whether the incoming signal is stereo or surround, so that any source material is played with the DSP mode of your choice.

Meridian Room Correction

The C61R incorporates Meridian Room Correction, a unique system that compensates for acoustic deficiencies in your listening room, particularly at the bass end. It achieves this by automatically analysing the room response and then using powerful Digital Signal Processing (DSP) technology to build a set of filters, called a profile. This audibly improves the sound by eliminating resonances and making the decay time consistent for frequencies below about 250Hz.

Specifications

Digital coax inputs	6 coax digital inputs, 2 6-channel coax inputs, all MHR.
USB input	1 USB digital input allows connection to a Windows PC or Macintosh.
Digital optical inputs	5 optical digital inputs.
Analogue inputs	8 stereo unbalanced inputs; A1-A3 and A4-A6 can be used as two 6-channel unbalanced inputs.
Digital outputs	Main, Centre/Sub, Sides, Rears, A/B*.
Unbalanced analogue outputs	Main L/R, Centre/Sub, Rears, LZ/RZ†.
Trigger outputs	3 12VDC/100mA trigger outputs configurable by source.
Comms	2 5-pin 240º DIN sockets, BNC socket, USB, RS232 interface.
Conversion	Up to 192kHz, 24-bit Sigma-Delta conversion on all analogue inputs and outputs.
Formats	Include Dolby Digital, DTS, MPEG Surround, and AAC.
DSP modes	Direct, Music, Trifield, Ambisonics, Super, Stereo, MusicLogic, Mono, TV Logic, PLIIx Music, PLIIx Movie, PLIIx THX, Discrete, Cinema, PLIIx Mov6, PLIIx Mus6, THX, THX Surround EX, THX Ultra2 Cinema, THX Music.
Power	Universal supply 100-240V, 50-60Hz, 40W.
Processing	3 Motorola 56367s running at 150MHz to give a total of approximately 450MIPS. 48-bit arithmetic throughout.
Dimensions	440mm x 90mm x 350mm (17.32" x 3.54" x 13.78") WHD.
Weight	8.5kg (18lb) approx.
Controls	Front-panel soft keys include control of Source, Preset, etc. Standby and display buttons, volume control, mute. Full remote control of all features via MSR+.
Display	Multi-character dot-matrix Vacuum Fluorescent Display.
Indicators	Standby button lit when off.

*A/B: Subs if two or three subs are used. Optional ceiling speakers with future software update.

†LZ/RZ: May be chosen to be any pair from: Main L/R, Centre/Sub, Sides, Rears, Subs.

Note: Current software supports a maximum of eight outputs. Future software may support up to 12.

Installing the digital surround controller

This chapter explains how to install the digital surround controller. It describes what you should find when you unpack the product, and how you should connect it to the other equipment in the system.
You should not make any connections to the product or to any other component in the system while the AC power supply is connected and switched on.
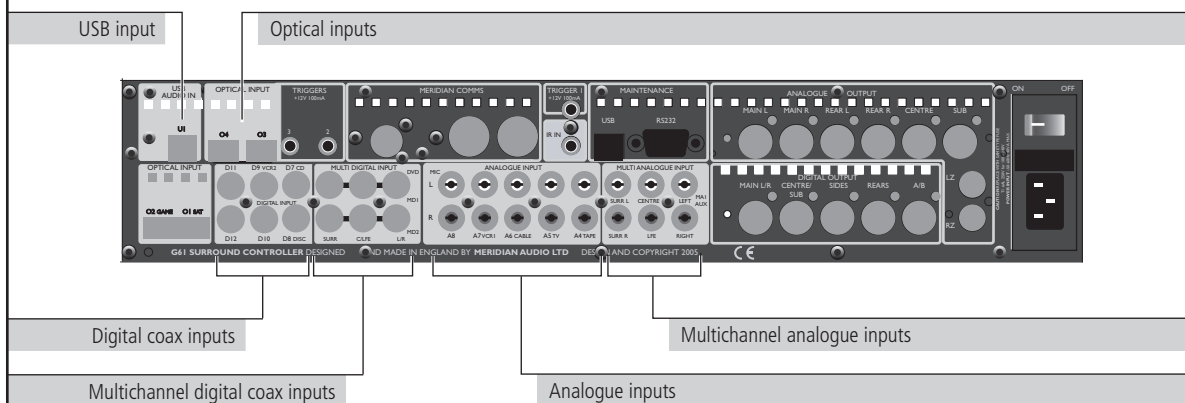
Unpacking

The C61R Digital Surround Controller is supplied with the following accessories:

• MSR+ remote control with batteries, manual, and spare key caps.
• Meridian Comms lead.
• Power cord.
• This manual.
• *Meridian G Series System Guide.*

If any of these items are missing please contact your dealer.

Note: You should retain the packaging in case you need to transport the unit.

Audio inputs

USB input   Optical inputs

Digital coax inputs

Multichannel digital coax inputs

Multichannel analogue inputs

Analogue inputs

Use this connector	To connect to this
MULTI DIGITAL INPUT 1 (DVD) or D1-D3, MULTI DIGITAL INPUT 2 or D4-D6	The multichannel digital output of a source such as the G98DH DVD Audio Transport, or three digital sources.
DIGITAL INPUT D7 (CD), D8 (DISC), D9 (VCR2), D10-D12	The digital output of a source such as a G07 24-bit CD Player or DAB tuner.
MULTI ANALOGUE INPUT 1 (AUX) or A1-A3	A multichannel analogue source such as an SACD player.
ANALOGUE INPUT A4 (TAPE), A5 (TV), A6 (CABLE), A7 (VCR1) *	The unbalanced analogue output of a source such as a tape recorder, TV tuner, cable box, or VCR.
USB INPUT U1	A computer USB port.
OPTICAL INPUT O2 (GAME), O3-O5	The optical output of a source such as a satellite receiver or computer game console.
ANALOGUE IN MIC (A8-L)	An SPL meter for use in room correction configuration.

* A4-A6 can be used as MULTI ANALOGUE INPUT 2 to connect to a second multichannel analogue source such as an SACD player.

The default assignment of the sources to each input is shown in brackets after the input name in the above table. To assign a different input to a source see *Configuring sources*, page 22.

To connect to a digital source (eg G06 24-bit CD Player)

G06 24-bit CD Player	C61R Digital Surround Controller

COMMS

DIG IN
D7 CD

DIGITAL OUT   COMMS

COMMS LEAD
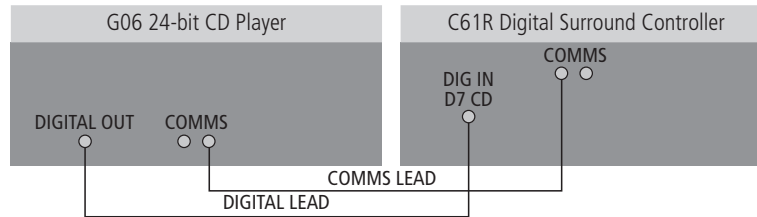
DIGITAL LEAD

You can connect up to 12 digital coax sources to the C61R Digital
Surround Controller.

• Connect the digital source to one of the digital input sockets of
the digital surround controller, using a 75Ω screened coax phono
lead.

If the source is a Meridian product connect together the COMMS
sockets using the Comms lead provided.

To connect to an analogue source (eg TV tuner)

TV tuner	C61R Digital Surround Controller

ANALOGUE INPUT
A5 TV

OUTPUT
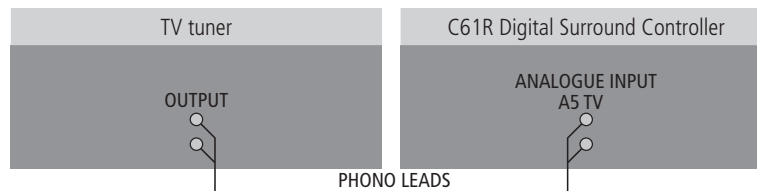
PHONO LEADS

You can connect up to eight analogue sources to the C61R Digital
Surround Controller.

• Connect the analogue source to one of the analogue input
sockets of the digital surround controller, using screened coax
phono leads.

To connect to a computer via USB

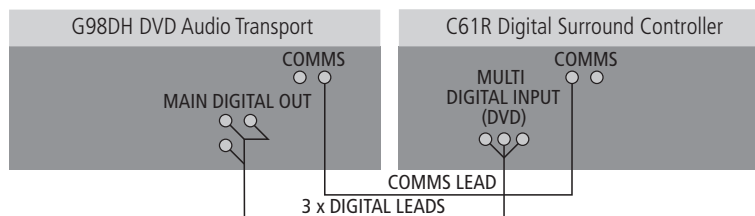| Computer	C61R Digital Surround Controller
	USB INPUT
USB	
USB A-B CABLE	
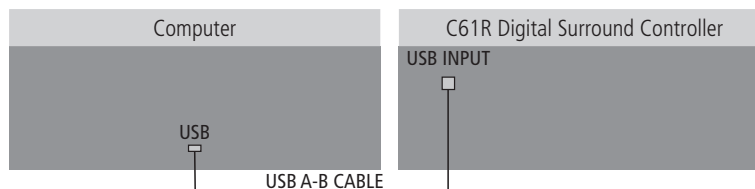
You can connect a Windows PC or Macintosh to the C61R via the USB input to allow you to use the C61R as a digital audio output device.

On a PC, Windows XP/SP2 or later is required. On a Macintosh, OSX 10.4 or later is recommended. Linux computers that support USB audio class drivers can also be used.

• Connect the computer's USB port to USB INPUT U1 on the C61R using a standard USB A-B cable. The flat rectangular end plugs into the PC and the square end into the C61R.
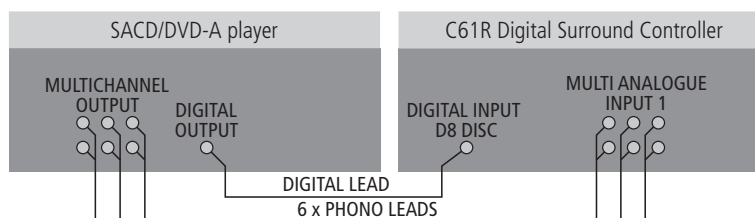
The first time that the C61R is plugged in to the PC or Macintosh it will automatically be recognised, and appropriate drivers will be installed. The C61R will then appear as a sound output device called **Meridian 48k/16** in the **Sound** control panel (PC) or **Sound** system preferences panel (Macintosh).

Note: The computer volume control will have no effect on the playback volume; use the Meridian system control instead.

To connect to a DVD-Audio player with digital multichannel outputs (eg G98DH DVD Audio Transport)

G98DH DVD Audio Transport	C61R Digital Surround Controller
COMMS	COMMS
	MULTI
MAIN DIGITAL OUT	DIGITAL INPUT
	(DVD)
COMMS LEAD	
3 x DIGITAL LEADS	

The C61R Digital Surround Controller provides 12 digital coax inputs, six of which can be used as two multichannel inputs from a source with a suitable digital multichannel output, such as the G98DH DVD Player.

• Connect the MAIN DIGITAL OUT on the G98DH to the MULTI DIGITAL INPUT 1 on the C61R, using three 75Ω screened coax phono leads.

• Connect together the COMMS sockets using the Comms lead provided.

To connect to a source with analogue multichannel outputs (eg SACD or DVD-A player)

SACD/DVD-A player	C61R Digital Surround Controller

MULTICHANNEL
OUTPUT   DIGITAL
            OUTPUT

DIGITAL INPUT
D8 DISC

MULTI ANALOGUE
INPUT 1

DIGITAL LEAD
6 x PHONO LEADS

Analogue inputs A1 to A3 can be used as a multichannel input
from a source with a suitable analogue multichannel output, such
as an SACD player. Analogue inputs A4 to A6 can optionally be
used as a second multichannel analogue input.

• Connect the ANALOGUE OUTPUT sockets from the source to the
  analogue multichannel inputs on the digital surround controller
  using six phono leads.

• Optionally connect a digital output from the source to digital
  input D8 (DISC) on the digital surround controller, using a digital
  phono lead.

You can then select the source corresponding to the multichannel
input (AUX) for playing surround material, and the source
corresponding to the digital input (DISC) to decode other formats.

Note: Multichannel analogue sources may have subwoofer level
outputs that vary by up to 10dB, so it may be necessary to reduce
the LFE level to give correct bass integration; see *DSP presets*, page
85.

Audio outputs
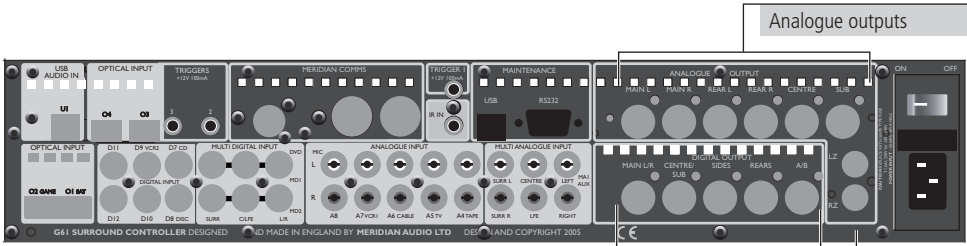
Analogue outputs

Analogue outputs
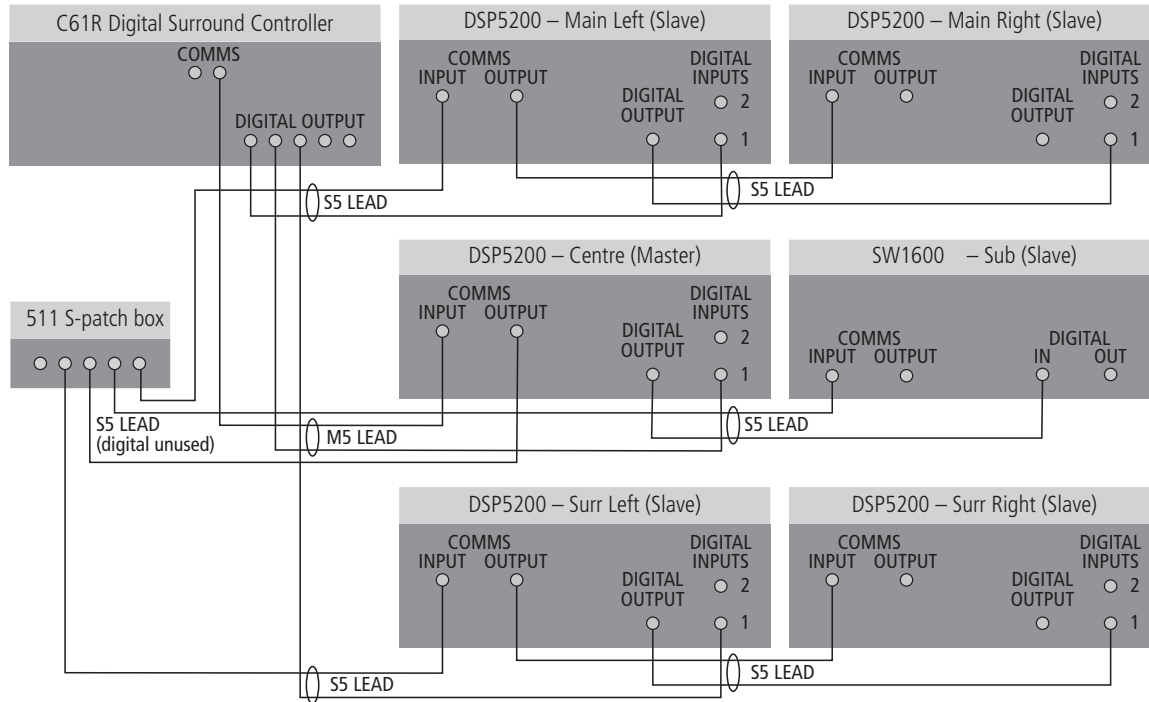
Digital outputs

Use this output	To connect to this
DIGITAL OUTPUT MAIN L/R, CENTRE/SUB, SIDES, REARS, A/B	Digital loudspeakers, using digital coax cables.
ANALOGUE OUTPUT LEFT, RIGHT, REAR L, REAR R, CENTRE, SUB, LZ, RZ	The unbalanced analogue input of a power amplifier or active loudspeakers, using screened coax phono leads.

The C61R hardware architecture is designed to process up to 12 completely independent output channels. Currently the software limits the number of outputs to a total of eight: Main L/R, Centre, Sub, Rears, and either Sides or two more additional subwoofers.

The C61R provides analogue and/or digital output sockets for these eight speakers.

To connect the C61R to Meridian DSP loudspeakers

C61R Digital Surround Controller	DSP5200 – Main Left (Slave)	DSP5200 – Main Right (Slave)
COMMS	COMMS INPUT OUTPUT	COMMS INPUT OUTPUT
DIGITAL OUTPUT	DIGITAL INPUTS / DIGITAL OUTPUT / 2 / 1	DIGITAL INPUTS / DIGITAL OUTPUT / 2 / 1

S5 LEAD

S5 LEAD

511 S-patch box

DSP5200 – Centre (Master)	SW1600 – Sub (Slave)
COMMS INPUT OUTPUT	COMMS INPUT OUTPUT
DIGITAL INPUTS / DIGITAL OUTPUT / 2 / 1	DIGITAL IN OUT

S5 LEAD
(digital unused)

M5 LEAD

S5 LEAD

DSP5200 – Surr Left (Slave)	DSP5200 – Surr Right (Slave)
COMMS INPUT OUTPUT	COMMS INPUT OUTPUT
DIGITAL INPUTS / DIGITAL OUTPUT / 2 / 1	DIGITAL INPUTS / DIGITAL OUTPUT / 2 / 1

S5 LEAD

S5 LEAD

• Use the Comms part of an M5 lead to connect one of the COMMS sockets on the C61R to the digital speaker you have chosen as the master (typically the centre speaker).

• Use the audio part of the M5 lead to connect the digital speaker to the appropriate digital output socket.
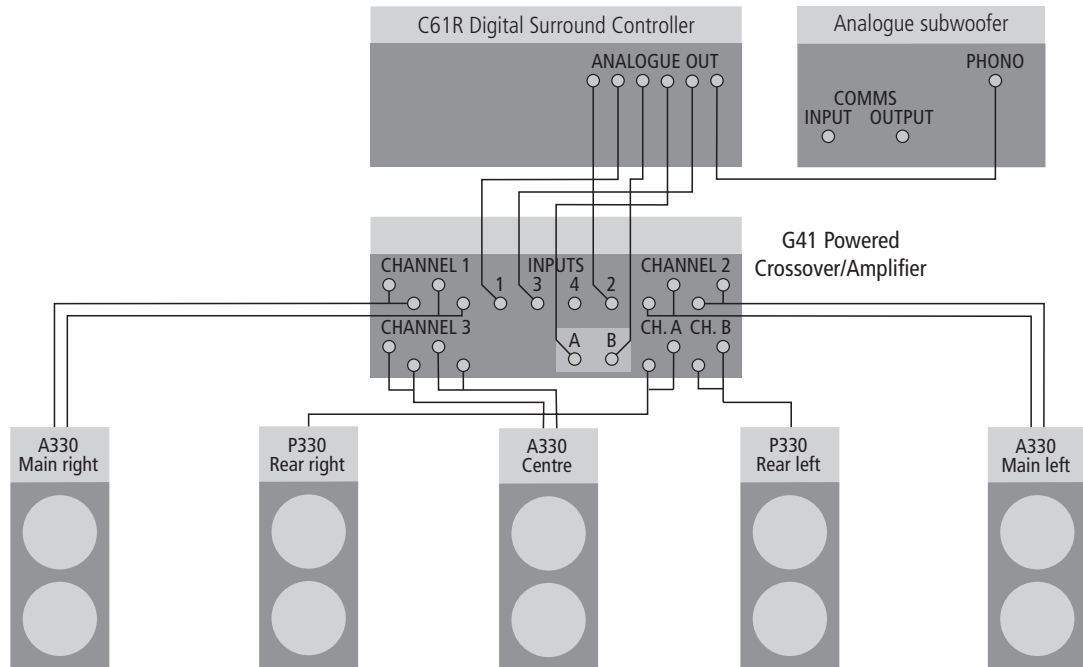
If the system includes more than two Meridian DSP loudspeakers you may use a 511 S-patch box (available separately) to link together the S5 leads from each speaker.

• Connect the COMMS output from the master digital speaker to one socket on the 511 using an S5 lead.

• Link each pair of speakers together with an S5 lead, out of the first speaker and into the second speaker, as shown in the diagram.

• Connect the inputs to the first speaker of each additional pair to the 511 (Comms) and the appropriate output of the C61R (audio), using an S5 lead.

The speakers should then be configured appropriately as master and slaves, and Left, Right, Centre, Surround; see *Meridian DSP Loudspeaker User Guide* for more details.

To connect the C61R to power amplifiers or to analogue active and passive speakers powered by a Meridian G41

C61R Digital Surround Controller

ANALOGUE OUT

Analogue subwoofer

PHONO

COMMS
INPUT   OUTPUT

G41 Powered
Crossover/Amplifier

CHANNEL 1   INPUTS   CHANNEL 2
                3   4
            1   2

CHANNEL 3   CH. A CH. B
                A   B

A330
Main right

P330
Rear right

A330
Centre

P330
Rear left

A330
Main left

The C61R provides six analogue outputs to allow you to connect to six power amplifiers and passive loudspeakers, or 300 Series Active and Passive Installation Loudspeakers powered by the G41 Active Crossover Amplifier.

• Connect the LEFT and RIGHT analogue outputs to the power amplifier inputs for the main front loudspeakers.

• Connect the SURR L and SURR R analogue outputs to the power amplifier inputs for the rear loudspeakers.

• Connect the CENTRE analogue output to the power amplifier input for the centre loudspeaker.

• If the system includes a subwoofer connect the SUB analogue output to an active analogue subwoofer, such as the Meridian SW1600.

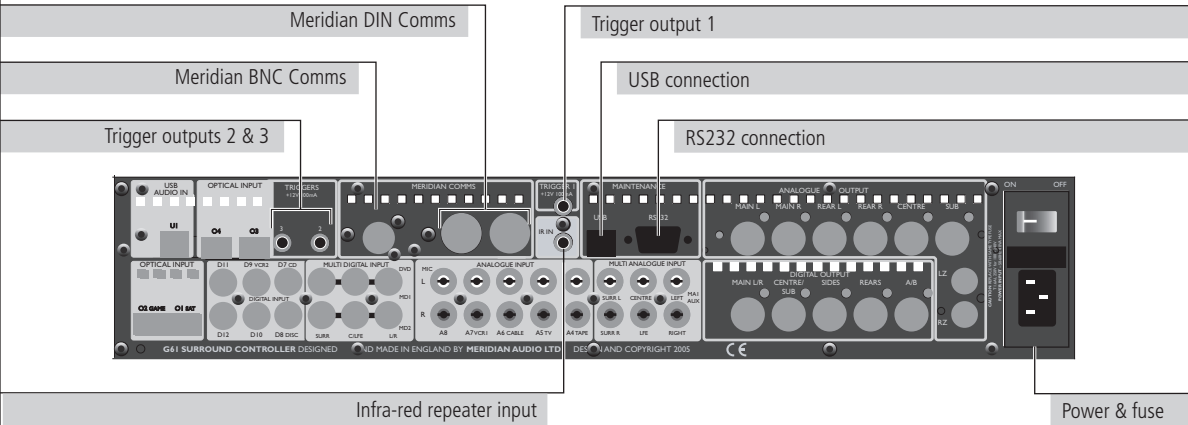**To connect to an active subwoofer (eg Meridian SW1600 or SW5500)**
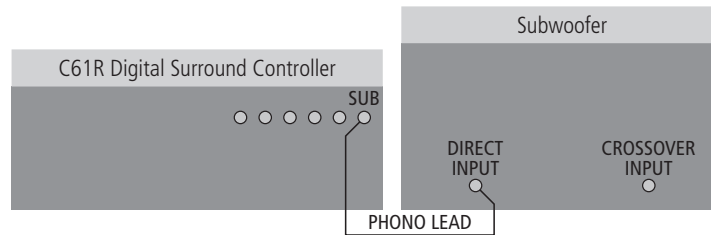
The Meridian SW1600 and SW5500 subwoofers provide both digital and analogue inputs, allowing you to connect them to either the digital or analogue subwoofer outputs of the C61R. The analogue connection must be used if you do not have a digital main speaker.

• Connect the SUB analogue output socket from the C61R Digital Surround Controller to the subwoofer's line-level input using a phono lead.

Use RZ and LZ if you have two subwoofers.

The digital surround controller provides a very high-quality crossover for the subwoofer, and for best results you should use this instead of the subwoofer's crossover. To do this remove any crossover in the subwoofer or set it to its highest setting (eg 200Hz). The subwoofer crossover can be set from the front panel of the C61R; see *Subwoofer crossover frequency*, page 32.

Communications connections

Meridian DIN Comms

Meridian BNC Comms

Trigger outputs 2 & 3

Trigger output 1

USB connection

RS232 connection

Infra-red repeater input

Power & fuse

Use this connector	To connect to this
DIN COMMS	Other Meridian C Series, G Series, or 800 Series equipment, or Meridian DSP loudspeakers.
BNC COMMS	Other Meridian C Series or G Series equipment, or some Meridian DSP loudspeakers.
RS232 connection*	A computer, for configuring the digital surround controller.
USB connection	A computer, for configuring the digital surround controller.
IR IN	A G12 IR Receiver, or approved alternative infra-red repeater. Contact your dealer for details.
TRIG 1, TRIG 2, TRIG 3	Other equipment, via mono 3.5mm jack plug outputs (centre pin hot) providing 12VDC. They are always low in standby. By default they are high for all sources, so can be used to bring a G Series power amplifier out of standby. Alternatively you can program them to be high for specific sources; eg to control a projection screen.

*A second RS232 socket is provided on the front panel, and a switch allows you to select the active connector.

To connect to other Meridian C Series, G Series, or 800 Series equipment

C61R Digital Surround Controller	C Series, G Series, or 800 Series unit
COMMS	
○ ○	COMMS
	○ ○
◄──── COMMS LEAD	COMMS LEAD ────►
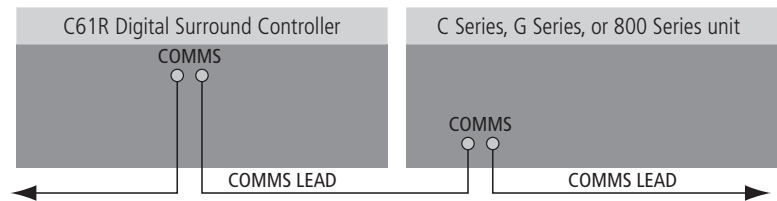
In a system of Meridian products the products should be linked together in a chain, via the COMMS sockets, using the Comms leads supplied with each product. The sequence in which you connect the units is not important.

One of the products acts as the controller for the system, receiving infra-red commands from the MSR+, and then, if appropriate, relaying them to the other products via the Comms link. The following procedure should be used to set up the Comms correctly between several products:

• Switch all the units to standby.

• Press **Clear** (MSR+).

Each unit will display:

$$\text{Auto}$$

One unit will then be designated as the controller, and display:

$$\text{Con.}$$

All the other units will be configured as non-controllers, and display:

$$\text{Not Con.}$$

The system is now ready for use.

If the automatic setup does not work, first make sure you are operating the MSR+ from a position where all the units can receive the infra-red, and try again. Then:

• Check that none of the units have been configured to be IR Controller; see *Settings*, page 25. Either all products should be set to Auto, or one should be configured as Controller and the others as Not Controller.

Note: Do not, under any circumstances, connect any equipment other than Meridian C Series, G Series, or 800 Series to any socket marked COMMS on the back of the product.

Configuring the digital surround controller

This chapter explains how to configure the digital surround controller using the Configuration Wizard. Alternatively, for complete control over all aspects of the product's configuration you can set up the unit from a computer using the Meridian Configuration Program; see *Meridian Configuration Program*, page 35.

Configuration Wizard

The **Configuration Wizard** leads you through the correct sequence to configure your digital surround controller. Alternatively, you can skip between the configuration stages, which allow you to reset the configuration, or configure the sources or other settings of the digital surround controller.

To run the Configuration Wizard
• If necessary press **On/Off** to put the digital surround controller into standby.
• Press **More**.

If the product is locked the display shows:

```
Version                 Unlock
```

• Press **Unlock** to unlock it, then press **More**.

The displays then shows:

```
Version  IR  Wizard Calib  Lock
```

• Press **Wizard**.

Follow the sequence of configuration stages described in the following pages, pressing **Next** to proceed after each stage.

At any stage in the Configuration Wizard the following options are available:

To do this	Press
Go back to an earlier configuration option	Back
Return to the title screen for the stage	Home
Exit from the configuration menus	On/Off
Display help about the current option	More

Stage 1: Resetting the product

The digital surround controller provides several alternative standard settings, called Types, which configure all aspects of the product into the most commonly needed configurations.

Choosing one of the Types overrides any other configuration you may have performed, and so can be used to reset the configuration of the unit.

To reset the configuration
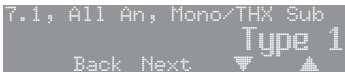• Press **Wizard**.

The display shows the title screen for stage 1:

```
     Press More for help
1: Reset settings
Back        Enter        Skip
```

• Press **Enter** to proceed or **Skip** to go stage 2.

If you pressed **Enter** the display shows:

```
Reset all settings?
     Back  Yes
```

• Press **Yes** to proceed or **Back** to exit.

The display shows the current Type:

```
7.1, All An, Mono/THX Sub
                 Type 1
     Back  Next    ▼    ▲
```

• Press ▲ or ▼ to step through the available Types.

A description of the speakers for each type is shown on the top line of the display. As you select each Type the digital surround controller is reset to that Type.

When you have selected the Type you want:

Either:
• Press **Next** to proceed to configuring speakers, as described in the next section.

Or:
• Press **On/Off** to return to standby.

Types

The following table lists the available Types:

Type	Speakers	Music Sub	Logic Sub	5.1 Movie Sub
0	All analogue.	LFE	Centre	LFE
1	All analogue.	Mono	Mono	Mono
2	All digital.	LFE	Centre	LFE
3	All digital, large centre.	None	None	None
4	Digital left, right, and centre.	LFE	Centre	LFE
5	Digital left and right.	LFE	Centre	LFE

Music Sub refers to a subwoofer used for all Music DSP presets, Logic Sub to a subwoofer used for all Logic DSP presets, and 5.1 Movie Sub to a subwoofer used for all 5.1 Movie DSP presets; see *Speaker layouts*, page 85.

LFE subwoofer is only active in multichannel presets. Mono and Centre Subwoofers are active in all presets.

Note that any Types stored using the Meridian Configuration Program will also be available in this list; see the *Meridian Configuration Program Guide* for more information.

Stage 2: Configuring speakers

The Speakers configuration stage allows you to set up the digital surround controller for the particular arrangement of loudspeakers in your system.

To configure the speakers
Either:

• Press **Next** after resetting the product; see page 18.

Or:

• Press **Wizard**; see page 17.

• Press **Skip** to skip past the **Reset settings** menu.

The display shows the title screen for stage 2:

```
        Press More for help
2: Select speakers
Back        Enter        Skip
```

• Press **Enter** to proceed or **Skip** to go to stage 3.

The display shows the first speaker configuration option:

```
     Number of Subwoofers:
                       one
   Back  Next     ▼      ▲
```
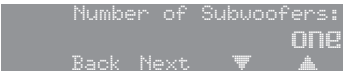
• Press **Next** or **Back** to step between options.

A description of each option is shown on the top line of the display, and its current value is shown below this to the right.

The options are summarised in the table on the next page.

To change an option

• Press ▲ or ▼ to step between the alternative values for the option.

When you have stepped through all the speaker options the display shows:

```
   Speaker choice finished.

        Back  Next
```
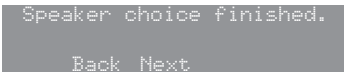
Either:

• Press **Next** on the last option of the last speaker to proceed to configuring sources, as described in the next section.

Or:

• Press **On/Off** to return to standby.

If you press **On/Off** before completing the configuration a warning is displayed, giving you the option of continuing or abandoning the configuration.

Speaker options

The following table summarises the speaker options:

Option	Values	Description
Number of Subwoofers:	none, one, two, three	How many subwoofers.
The main L&R speakers are:	small analogue/THX, small DSP, large analogue, large DSP	The types of the main left and right speakers. If you have no subwoofers, you cannot specify small main speakers.
The Centre is used:	always, never, for music, for movies	When the centre speaker is to be available.
The Centre speaker is a:	small analogue/THX, small DSP, large analogue, large DSP	The type of the centre speaker.*
Number of Surrounds:	none, two, four	The total number of rear and side surround speakers.
The Side speakers are:	small analogue/THX, small DSP, large analogue, large DSP	The types of the side speakers.*
The Rear speakers are:	small analogue/THX, small DSP, large analogue, large DSP	The types of the rear speakers.*
The Subs are used:	for movies only, always	When the subwoofers are used. If you have small main speakers, the subwoofer must always be used.
The Sub handles:	all the bass, only the LFE	Whether to use the subwoofer for all bass or just the LFE channel. Only available if there is only one subwoofer.
The bass balance is:	neutral, heavy	Whether the bass is distributed to all the large speakers and subwoofer (heavy) or just the subwoofer (neutral – recommended). Only available if there is only one subwoofer, and it handles all the bass not just the LFE.
The 2 Subs are used for:	Left and Right, Front and Surround	If there are two subwoofers, their position. Only available if there are two subwoofers.
The sub is:	analogue, digital	The type of subwoofer(s).

*If you have small main speakers, you cannot specify large centre or surrounds.

Stage 3: Configuring sources

The digital surround controller provides up to 12 sources corresponding to the 12 source keys on the MSR+:

CD, RADIO, DVD, AUX, DISC, TAPE, TV, CABLE, SAT, VCR1, VCR2, GAME.

For each source the Configure sources stage allows you to configure a series of options, including:

• Whether it is in use.
• The label used for it on the front-panel display.
• The audio input it selects.
• The TRIGGER output level it selects.

The procedure for doing this is as follows.

To configure a source
Either:
• Press **Next** after configuring speakers; see page 20.

Or:
• Press **Wizard**; see page 17.

• Press **Skip** to skip past the **Reset settings** and **Select speakers** menus.

The display shows the title screen for stage 3:

```
         Press More for help
3: Configure sources
Back        Enter        Skip
```

• Press **Enter** to proceed or **Skip** to go to stage 4.

The display shows the first source and the first configuration option for that source, whether it is in use:

```
              This source is:
CD                    in use
Source Back  Next     ▼    ▲
```

• Press **Next** or **Back** to step between options.

The top line of the display shows a description of each option, and its current value is shown to the right of the source name.

When changing the source name, **Next** and **Back** step between character positions.

The options are summarised in the table on the next page.

To change an option
• Press ▲ or ▼ to step through the alternative values for the option.

To move to the next source
• Press **Source**.

When you have finished configuring sources:

Either:
• Press **Next** on the last option of the last source (Game) to proceed to configuring settings, as described in the next section.

Or:
• Press **On/Off** to return to standby.

Source options

The following table summarises the source options:

Option	Values	Description
The source is:	in use, not in use	Whether the source is enabled.
Audio input:	D1-D12, MD1-MD2, U1, O2-O5, A1-A8, MA1, MA2, Last Valid*	The audio input used for the source; digital, multichannel digital, USB, optical, tuner, analogue, or multichannel analogue.
Source name:		Any name of up to five characters.
Trigger #1:	High, Low, Last Valid	Trigger outputs for the source.
Trigger #2:	High, Low, Last Valid	Trigger outputs for the source.
Trigger #3:	High, Low, Last Valid	Trigger outputs for the source.
Comms Type:	CD 1C, Tuner 2C, DVD 3C, 4C-8C, No Comms NC	Set to NC unless the source is a Meridian product.
Comms Address:	1A-8A	Allows you to have up to eight of each source type.

*Last Valid leaves the input set to the last input you selected.

Stage 4: Configuring other settings

The next stage allows you to configure other aspects of the product's operation.

To configure other settings
Either:

• Press **Next** after configuring the sources; see page 22.

Or:

• Press **Wizard**; see page 17.

• Press **Skip** to skip past the stages 1 to 3.

The display shows the title screen for stage 4:

```
          Press More for help
4: Other settings
Back        Enter        Skip
```

• Press **Enter** to proceed or **Skip** to go to the calibration procedure.

The first setting is displayed:

```
                 The fan is:
used as necessary
        Back  Next   ▼    ▲
```

A description of each setting is shown on the top line of the display, and its current value is shown to the right of the display.

The settings are summarised in the table on the next page.

To change a setting

• Press ▲ or ▼ to step through the alternative values for the setting.

When you have finished configuring the settings:

Either:

• Press **Next** to proceed to calibrating the system, as described in the next chapter.

Or:

• Press **On/Off** to return to standby.

Settings

The following table summarises the product settings:

Option	Values	Description
The fan is:	used as necessary, never used	Specifies how the optional temperature controlled fan operates.
Distance measurement:	feet/inches, metres	Units for displaying and entering distances.
Do your subs play to 20Hz?	No, THX Ultra2/yes	Subwoofer frequency response.
Boundary Gain Compensation:	off, on	Reduces the bass to compensate for listening positions close to a wall.
Rear speaker separation	<12"/0.3m, 12-48"/0.3-1.2m, >48"/1.2m	Separation between rear speakers; only available when there are four surrounds.
Timeout to Home buttons:	on, off	Whether the soft keys revert to the home keys after a delay.
Diagnostic displays:	on, off	Whether diagnostic displays are shown.
Is the C61R IR Controller?	Auto, Controller, Not Controller	Whether the product is the infra-red controller for the system.
Main System Address	1-8	Advanced setting (normally 1).
Product Address	1-8	Advanced setting (normally 1).

To toggle the IR mode

• If necessary press **On/Off** to put the surround controller into standby.

• Press **More**.

The display shows:

> Version IR Wizard Calib Lock

• Press **IR** to toggle between **IR Auto** (auto setup), **IR Con.** (controller), and **IR N.Con.** (not controller).

After a short delay the surround controller will return to standby.

Calibrating the system

To help you to set up the installation to give the best possible sound with any particular
combination of associated equipment, the C61R Digital Surround Controller includes a built-in
calibration procedure.
This calibration procedure uses test signals to present a series of sounds, which you use to
adjust certain aspects of the system to their optimum settings.
You should use the calibration procedure the first time you set up the system, and whenever
you want to check the calibration, such as after changing the layout of the room.

Introduction

We recommend that you perform the calibration procedure using
the MSR+ and from the listening position.

As you run the calibration procedure the name of each calibration
test is shown on the front-panel display, followed by the
parameters adjusted in the test.

Each calibration test uses a test signal designed to give the best
results.

Using a Sound Pressure Level meter

Although you can perform the calibration procedure by ear, it is
recommended that you perform the tests using a Sound Pressure
Level meter. These are available fairly cheaply from Tandy/Radio
Shack, or your Meridian dealer may be able to lend you one.

Set the Sound Pressure Level meter to C weighted, and Slow. Take
readings with the meter at the listening position, pointing vertically.
You should hold the meter with an outstretched arm to minimise
reflections from your body.

You can choose to display and enter distances in either feet and
inches or metres.

To start the calibration procedure
Either:

• Press **Next** on the last option of configuring settings; see page 24.

Or:

• Press **On/Off** to put the digital surround controller into standby.
• Press **More**.

If the product is locked the display shows:

Version   Unlock

• Press **Unlock**.

The display shows:

Version IR Wizard Calib Lock

• Press **Calib**.

The displays shows **Please wait…**.

After a few seconds the display shows the first calibration test:

Press More for help
Left   Level   +0.0dB

For more detailed information about this and the other calibration tests see the following sections.

To exit from the calibration procedure
You can exit from the calibration procedure at any time, and any parameters you have set will be retained:

• Press **On/Off**.

To complete the calibration procedure
When you reach the end of the calibration procedure the following display confirms that you have completed the calibration of the system:

Calibration complete.
Back   Next   Restart
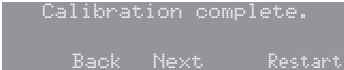
• Press **Restart** to restart the calibration procedure, or **Next** to complete the wizard.

The display shows:

Press More for help
Wizard complete
Back   Exit   Restart

Either:

• Press **Exit** to return to standby.

Or:

• Press **Restart** to return to stage 1; see page 18.

Calibration tests

Levels

These tests allow you to adjust the output level to each speaker individually, and it follows the general guidelines from Dolby Laboratories and THX.

In each test the display shows the speaker being tested, and the current relative level. For example:

```
Press More for help
Left    Level   +0.0dB
        ◄    ►    ▼    ▲
```

- Use ► and ◄ to move between each of the speakers in the layout in the sequence: Left, Centre, Right, Side R, Rear R, Rear L, Side L, and subwoofers.
- Use ▲ and ▼ to adjust the level of the speaker. Ignore any tonal difference.

For correct THX reproduction you should adjust each speaker to 75dB SPL using an SPL meter. Even if the speakers are not THX approved this setting is recommended.

If you have Meridian DSP loudspeakers they cannot be set above +0dB.

Note: You cannot set the level of a subwoofer by ear, because low-frequency noises sound quieter. To set the subwoofer correctly either use an SPL meter, or set it by ear and then reduce the subwoofer gain by 15dB to correct for human hearing.

- When you have completed the Levels section press ► to proceed to the next test.

Distance

These tests allow you to adjust the delay of each of the speakers in the layout to time-align the system so that sounds are coincident when they arrive at the listening position.

Before setting up the speaker outputs you need to measure the distance to each speaker from the listening position:
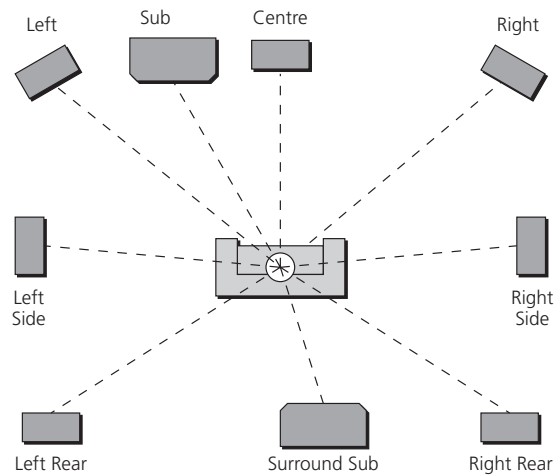
Measure from ear height at the listening position to the tweeter on each speaker (where applicable), in the distance units you have chosen; see *Settings*, page 25.

• Use ▶ and ◀ to move between each of the speakers in the layout.

The display shows the speaker being tested, and the distance:

```
        Press More for help
Left    Distance 18'0
Units  ◀      ▶      ▼      ▲
```

• Use ▲ and ▼ to change the distance.

• You can press **Units** to change between feet/inches and metres.

Repeat this for each of the speakers in your layout.

• Press ▶ to proceed to the next calibration stage.

Fine tuning

These tests allow you to fine-tune the phase and delay of each speaker when used in conjunction with other speakers on the layout.

• Use ▶ and ◀ to move between each of the speakers in the layout.

The first display allows you to adjust the phase. For example:

```
        Press More for help
Left    Phase              +
       ◀      ▶      ▼      ▲
```

The next display shows the distance for the same speaker. For example:

```
        Press More for help
Left    Distance 18'0
       ◀      ▶      ▼      ▲
```

• Choose the correct setting as follows:

Setting	What it sounds like
Correct	The sound between the speakers is very even, and does not change radically as you move your head.
Incorrect	The sound appears diffused, and changes in timbre and apparent location as you move your head.

Pay particular attention to the centre channel, as this can have a dramatic effect on the overall sound.

• Press ▶ to proceed to the next calibration stage.

Speaker size

These tests allow you to determine the bass handling capability
of subwoofers and large analogue speakers. Once set, the digital
surround controller will limit the bass level to protect the speakers
from potential damage.

On starting the test the speaker sizes are set to zero to avoid the
possibility of damaging the speakers, and the display shows:

```
        Press More for help
Sizes set to zero
      ◄      ►      ▼      ▲
```

The display then shows the first large analogue speaker; for
example:

```
        Press More for help
Left   Size    0
      ◄      ►      ▼      ▲
```

• Press ▲ or ▼ to adjust the size value for the speaker until it just
  begins to distort distinctly, and then reduce the value by one.

• Press ► or ◄ to move between each of the speakers to be
  adjusted.

This is the last test in the calibration procedure; see *To complete
the calibration procedure*, page 28.

Using the Sine/Sub/Sens controls

This section explains how to use the Sine/Sub/Sens controls
to check for room resonances, adjust the subwoofer crossover
frequency, or adjust the sensitivity of the analogue sources.

To display the Sine/Sub/Sens controls
- If necessary, unlock the digital surround controller as described in
  Configuration Wizard, page 17.
- Select a source and press **More** until the bottom line of the
  display shows:

> Radio Trifield   65
>   Sine/Sub/Sens.

- Press **Sine/Sub/Sens**.

The bottom line of the display shows the **Sine/Sub/Sens** controls:

> Radio Trifield   65
> Sine -Xover+   -Sens.+

Subwoofer crossover frequency

The C61R Digital Surround Controller allows the crossover
frequency for any subwoofers which you have to be adjusted
between 30 and 150Hz. The crossover can be set independently
for Music, Logic, and 5.1 Movie layouts. The default is the THX
standard of 80Hz.

To adjust the subwoofer crossover frequency
- Select a source, then display the **Sine/Sub/Sens** controls as
  described above.

- Press **Xovr-** or **Xovr+** to decrease or increase the crossover
  frequency.

The display shows the current crossover frequency:

> CD   Xover   85Hz
> Sine -Xover+   -Sens.+

For THX loudspeaker systems you should not adjust these settings;
they should be left at 80Hz. 80Hz is also the recommended setting
for all movie listening. You may prefer, however, to lower the
crossover frequency for music if the main speakers have good bass
handling down to, say, 50Hz.

Sinewave sweep test

The C61R includes a sinewave signal test, to help you set the
subwoofer crossover frequencies, or check for room resonances. To
avoid possible damage to the speakers the volume is reduced to
50, if necessary, on entering the test.

**Warning: This test is very loud. Bass protection is turned
off during this test, and very loud low-frequency signals
may damage the speakers.**

To use the sinewave sweep test
- Select a source, then display the **Sine/Sub/Sens** controls as
  described above.
- Press **Sine** to turn on the sinewave signal.

The display shows:

```
CD      Sine      80.0Hz
Chan    ▼    ▲    Sound Exit
```

An 80Hz sinewave will be played through all channels.

You can change the test signal using the menu keys, as described in the following sections.

To select the channel
• Press **Chan**.

You can select any individual channel, or **All Channels**.

To change the sweep rate
• Press ▲ or ▼ to change the sweep rate and direction, as follows:

Display	Description
CD >> 88.5Hz Chan ▼ ▲ Sound Exit	Fast sweep up.
CD > 81.5Hz Chan ▼ ▲ Sound Exit	Slow sweep up.
CD Pause 80.0Hz Chan ▼ ▲ Sound Exit	Paused.
CD < 78.5Hz Chan ▼ ▲ Sound Exit	Slow sweep down.
CD << 70.5Hz Chan ▼ ▲ Sound Exit	Fast sweep down.

To change the volume
• Use the volume keys in the usual way.

To change the input
• Press **Sound**.

You can select between the following inputs:

Option	Description
Input	The current input.
Sine	A sinewave.
Noise	Pink noise, band bass 500Hz to 2kHz for main channel.
Silent	Silence.

Alternatively you can switch between inputs using the menu keys on the MSR+.

Setting up sources

This section explains how to use the **Sine/Sub/Sens** controls to adjust the sensitivity of the analogue sources.

To adjust the sensitivity of a source
To obtain the best signal-to-noise ratio for each analogue source you can adjust its sensitivity to give the highest level that does not produce clipping.

• Select the source you want to adjust, with loud source material playing.
• Display the **Sine/Sub/Sens** controls as described above.
• Press **Sens-** or **Sens+** to decrease or increase the sensitivity.

The display shows the current sensitivity and the peak level; for example:

```
TV      1.4V   Peak -3
Sine   -Xover+    -Sens.+
```

You can adjust the sensitivity between 0.7, 1.0, 1.4, 2.0, and 2.8V (least sensitive).

If the sensitivity is set too high the input will clip the loudest passages, and the peak will be 0dB.

The display shows, for example:

```
TV      2.0V   Clip -0
Sine   -Xover+    -Sens.+
```

In this case reduce the sensitivity by selecting a higher number.

If you have selected a digital source you cannot adjust the sensitivity and the display shows, for example:

```
DVD    Not Analogue
Sine   -Xover+    -Sens.+
```

Meridian Configuration Program

This chapter explains how to install the Meridian Configuration Program, with a general
overview of its key features, and then gives complete step-by-step instructions for creating a
complete configuration for a typical simple system.

Overview

The Meridian Configuration Program is a Windows application that
lets you design the configuration of your G Series or 800 Series
products to suit both your own personal preferences and the
particular configuration of other equipment in your system.

It uses an intuitive graphical interface that prompts you at every
stage for the information it needs to complete the system. When
you have designed the system to your requirements you can save
the configuration to the appropriate Meridian products in the
system via a serial link connected to the back of each product.

How it works

The Meridian Configuration Program reflects Meridian's system
approach to designing audio products and presents a graphical
representation of your whole system. It allows you to create a
single configuration file representing the settings of each product in
your system and the way they are interconnected. This file is stored
in the controller of the system for future reference. As well as being
far more convenient than configuring each product independently,
this approach also enables the Meridian Configuration Program to
check that the settings you are proposing are appropriate for the
particular combination of products in the system.

The Meridian Configuration Program is structured as a wizard;
it leads you through a series of stages from the **Welcome**
page through to the **Finish** page, which is reached when the
configuration has been completed. A Breadcrumb Trail below the
toolbar at the top of the **Meridian Configuration Program**
window shows your current position in the sequence of pages and
allows you to jump back to an earlier page to check a particular
setting you made.

Benefits of using the Meridian Configuration Program

Configuring your system with the Meridian Configuration Program offers several important benefits. In particular:

- You can configure the entire system in a single operation.
- It is more convenient and more intuitive than using the front-panel menus.
- You have access to many advanced configuration options that are not available from the front-panel menu.
- You can conveniently edit the names of sources, DSP presets, and radio presets using the keyboard.
- You can edit the G Series soft keys.
- If your controller is a C61R, G61R, G68, or 861 you can take advantage of Meridian Room Correction.
- You can set up multiple systems far more conveniently than by manually configuring each product.
- You can keep a record of the configuration of your entire system in a single document on your PC.

If you have made manual adjustments to the configuration of a product from the front panel, you can fetch the product's configuration into the Meridian Configuration Program as the starting point for the configuration of your system, in order to retain the settings, such as calibration settings.

Meridian Control Window

The Meridian Configuration Program is supplied with the Meridian Control Window utility, a separate PC application that allows you to control any Meridian product via a serial cable (or USB cable on certain products) using a simple push button interface that emulates a Meridian MSR+ or MSR remote control. Alternatively it allows you to submit commands by name, and supply parameters for commands that take a value, such as the volume setting.

The Products page

The following illustration shows the key features of the **Products** page, which lets you specify how your system is interconnected:

Breadcrumb Trail

Tabs to add new products

Resource Bar

Toolbar

Information Bar

Sources

Speakers

Controller
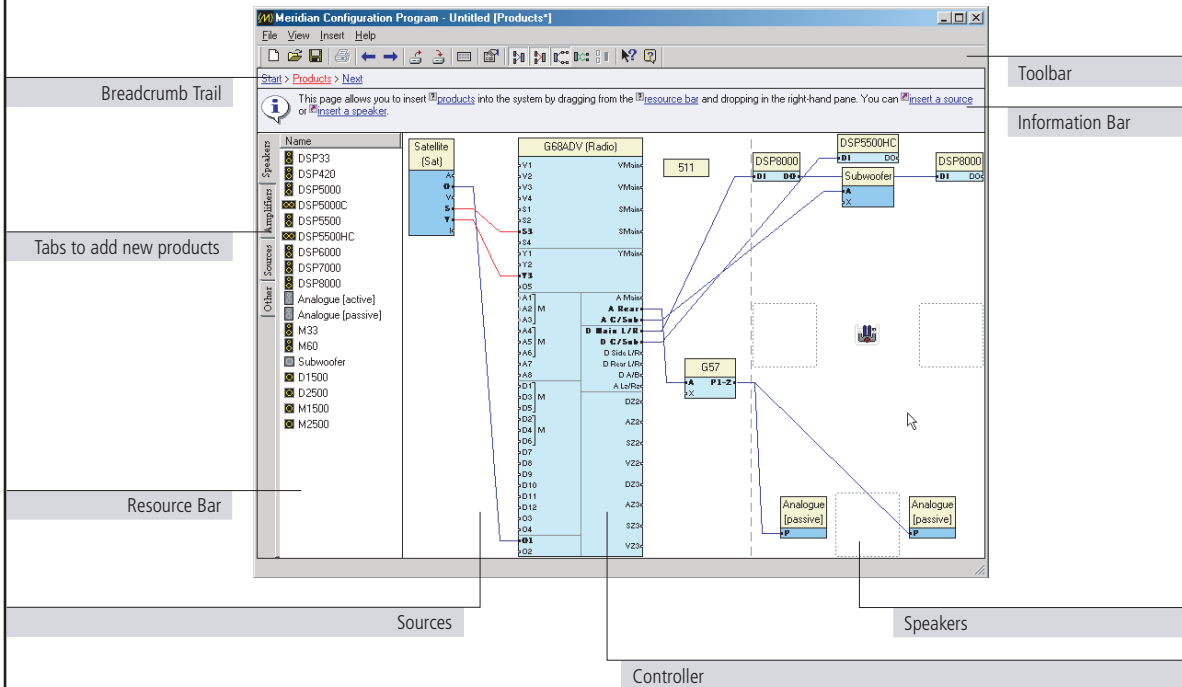
Installing and running the Meridian Configuration Program

Requirements

To use the Meridian Configuration Program you need:

• A computer running Windows 95, 98, 2000, NT 4, ME, or XP.
• 10Mbytes of free disk space.

The Meridian Configuration Program communicates with the products you are setting up via a serial cable. The computer you are using needs to have a nine-pin serial port available, or you can use a USB/serial adaptor.

Alternatively some G Series products include a USB port, in which case the Meridian Configuration Program can communicate with them via a USB cable connected to the computer's USB port.

The software requires a mouse or similar pointing device – it cannot be operated solely from the keyboard.

To install the Meridian Configuration Program
• Insert the Meridian Configuration Program Installation CD-ROM.

The Setup program should run automatically when the CD-ROM is inserted. If not, locate **setup.exe** on the CD-ROM and run it.

The Setup program **Welcome** page will be displayed.

• Follow the wizard.

On the **Preferences** page:

• Leave **Install for all users** selected, unless you want to restrict use of the program to yourself on a multi-user machine.

Running the Configuration Program

• Click **Start**, point at **All Programs**, **Meridian**, then click **Configuration Program**:

The **Welcome** page will be displayed. This provides links to useful information.

Quick tour

This section gives complete step-by-step instructions for creating a complete configuration for a typical simple system. Even if this does not correspond to your own system we recommend you follow the tutorial to give you a quick tour of the Meridian Configuration Program.

At each stage the Quick tour shows information in grey tinted boxes about the more advanced features of the program, and the additional options for configuring 800 Series products.

Using the Meridian Configuration Program

The simplest way to use the Meridian Configuration Program is to click the links in the Breadcrumb Trail and Information Bar at the top of the window; for example:
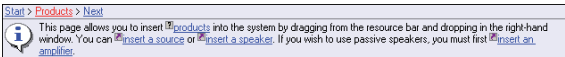
The Breadcrumb Trail shows a sequence of hyperlinks to pages you have already visited; this is indicated by the blue underline. Clicking one of the links takes you to the corresponding page to allow you to check your settings on that page, or make changes. The last entry on the Breadcrumb Trail is usually **Next**, which takes you to the next page.

The Information Bar provides help about the current page, and tells you what to do next. The Information Bar contains two types of hyperlink: definitions, prefixed by a question mark icon, which display a pop-up window with a definition of the item, and jumps, prefixed by an arrow icon, which perform an action or jump to another page.

Starting a configuration

To start creating a configuration from the **Welcome** page:

• Click the **Next** link in the Breadcrumb Trail:

The **Products** page will then be displayed. This allows you to define the products in your system and indicate how they are connected together.

Getting help

For more detailed information about the Meridian Configuration Program see the on-line help. To display the help:

• On the **Help** menu, click **Configuration Program Help**.

Products: Adding a controller

The controller is defined as the product that selects sources and controls the volume for the system; it is the digital surround controller, preamplifier, or combination product. In this example it is a G68 Digital Surround Controller.

• Click the **insert a controller** link in the Information Bar.

An **Insert** dialogue box is displayed to allow you to specify the type of controller.

• Select **G68ADV** from the drop-down list and click the **OK** button to add the product:
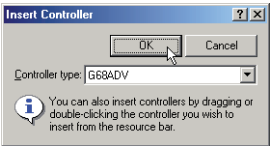
You will then be asked whether you want to fetch an existing configuration from the controller. If you are starting from scratch, as in this Quick tour, you do not need to do this. For more information see the *Advanced tips* on the next page.

• Click the **No** button to indicate that you do not want to fetch data from the digital surround controller:
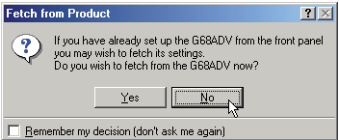
The **Products** page will then show a block representing the G68ADV Digital Surround Controller:
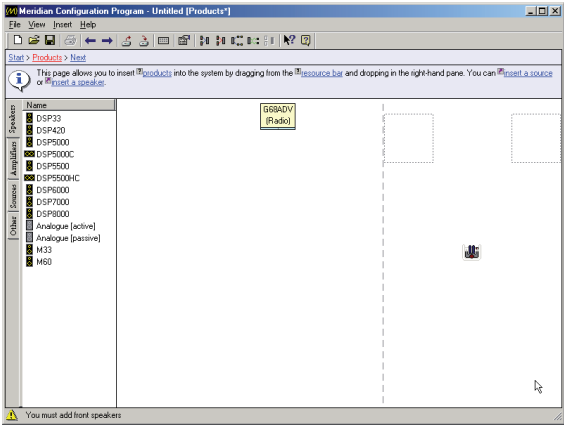
Advanced tips

Adding products by dragging them from the Resource Bar
The most flexible way of adding products is to drag an appropriate icon from the **Resource Bar** (to the left of the **Products** page) onto the **Products** page:
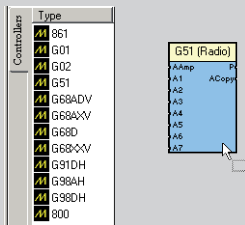
Fetching settings from a product
If you have changed any settings on a product from the front panel since making a previous configuration, you can retain the settings by using the Meridian Configuration Program to fetch the configuration from the product, rather than starting from a default configuration as described above. This is also useful if you cannot locate the file on the computer.

• Connect a serial cable between the product and your PC, as described in *To connect the serial cable*, page 56.

• When the **Fetch from Product** dialogue box is displayed, click the **Yes** button.

Performing other actions
Right-clicking on most objects on the **Products** page displays a context menu of actions appropriate to that object:
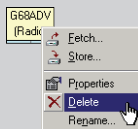
For example, to delete a product:

• Right-click the product, then click **Delete** on the context menu.

Note: If you delete the controller you will need to restart the configuration from scratch.

Displaying or changing product properties
Many products provide a range of properties that you can change for specific situations. To display the product properties:

• Right-click the product, then click **Properties** on the context menu, or double-click the product.

The **Properties** dialogue box shows a list of the properties associated with the product, and allows you to view or change their values:
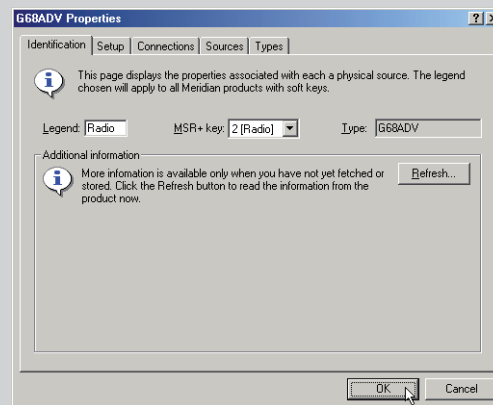
For detailed information about each of the properties refer to the *Configuration chapter* in the *Installation Guide* for the product, or the **FAQs** section in the on-line help. To display this, click **Configuration Program Help** on the **Help** menu.

Changing the value of a property

• Click the value of the property.

• Choose an option from the drop-down list:

Mono mode | Auto Left+Right ▾
Auto Left+Right
Left
Right
Left+Right
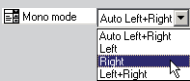
If it is a numeric property you will get a spin button rather than a drop-down list:

Lipsync | 8.5 ms
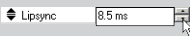
If it is an on/off property you can click the checkbox to change the value:

☑ Fan | On as necessary
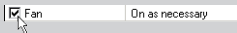
If you have changed the value of a property an asterisk (*) is shown after its name.

Reverting a property to its default value

• Right-click the property, then click **Revert to Default** on the context menu:

Centre depth* | 1.0 ms
Revert to Default [0.0 ms]
Edit
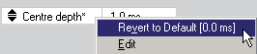
The menu option shows the default value.

Configuring 800 Series products

Adding an 800 Series controller

If you are adding an 800 Series controller a dialogue box will allow you to specify one of the product's standard card configurations. Alternatively select **Minimal** to add a minimum set of cards at this stage, in which case you will be prompted to add further cards as you make connections to the product:

Insert 861

You can populate the 861 you have inserted to match it to one of the configurations below.

OK

○ Analogue Theatre

IE42, IA00, CD20, EF20, TP00, VS00 and two OA03 cards will be added.

⦿ Digital Theatre

IE42, IA00, CD20, EF20, OE12, SL00, TP00 and VS00 cards will be added.

○ Minimal

Only those cards essential for the operation of the surround controller will be added at this stage.

☐ Do not display this dialog again

Adding cards

You will be automatically prompted to add cards as required when you add sources or speakers to the 800 Series product. Alternatively you can add cards explicitly if you prefer:

Either:

• Drag the appropriate card icon from the **861 Cards** or **800 Cards** tab in the Resource Bar (to the left of the **Products** page).

Or:

• Right-click the product icon, then click **Add Card…** on the context menu:

Fetch…
Store…
Properties
Delete
Rename…
Add Card…
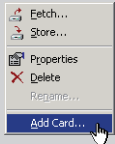
The following dialogue box allows you to specify the card type and, when appropriate, the position of the jumper identifying the card:
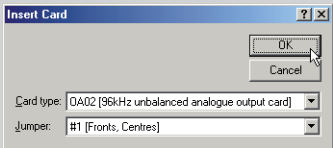
Removing a card
• Right-click one of the outputs on the card, then click **Remove Card** on the context menu.

Displaying the properties of a card
• Right-click one of the outputs on the card, then click the **Properties** item on the context menu.

A **Properties** dialogue box shows information about the type of card, its slot positions, and the jumper setting:
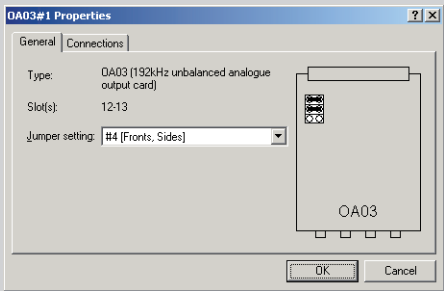
Displaying information about the cards
• In the **Properties** dialogue box click the **Cards** tab.

Initially this shows a graphic of the card positions:
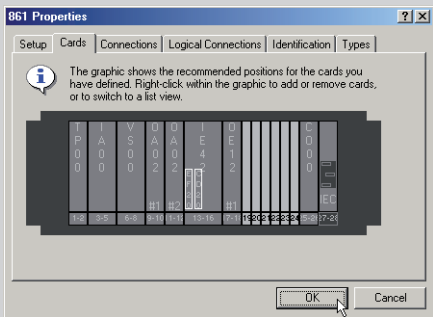
To show a list of the cards:

• Right-click, then click **Details** on the context menu:
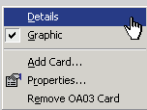
This shows a list of the installed cards:
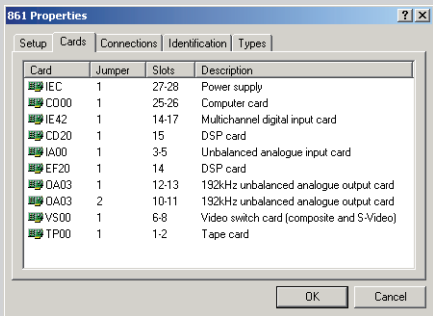
You can also add a card, remove a card, or display a card's properties in the **Graphic** or **Details** view by right-clicking, then clicking **Properties** on the context menu.

Products: Inserting a source

The next step is to add the sources in your system. For this Quick tour we will assume a satellite receiver is required.

• Click the **insert a source** link in the Information Bar.

Start > Products > Next

This page allows you to insert products into the system by dragging from the resource bar and dropping in the right-hand window. You can insert a source or insert a speaker. If you wish to use passive speakers, you must first insert an amplifier.
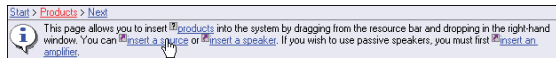
An **Insert Source** dialogue box is displayed to allow you to select the type of source.

• Choose **Satellite** from the drop-down list, and click the **OK** button to add the source:

Insert Source

OK   Cancel

Source type: Satellite

You can also insert sources by dragging or double-clicking the source you wish to insert from the resource bar.
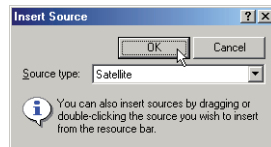
The **Connection Wizard** is then displayed to assist you in connecting the source to your other equipment:

Connection Wizard

This wizard will help you connect products to your controller. You can use the Meridian default connections (as labelled on the back panel) or specify your own connections.

Do you wish to use Meridian defaults to connect to the G68ADV?

○ Yes (recommended)   Details...

To remove existing connections, apply the Meridian defaults, and exit the wizard, click Finish.

○ No (advanced)

Let me specify my own connections.
To continue, click Next.

☐ In future do not run the wizard when inserting products

Finish   Cancel

• Leave **Yes** selected to make the recommended connections between the source and the controller.

The Meridian Configuration Program will use a set of connections which match the back panel screening of the controller to make wiring up straightforward

• Click the **Finish** button to make the recommended connections.

The connections will be displayed on the **Products** page:
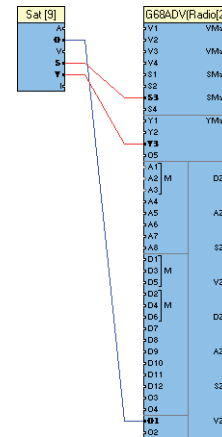
This shows the audio connection between the satellite receiver optical output and the optical input O1 on the digital surround controller, and the S-video and component video connections between the satellite receiver and the digital surround controller.

You can now proceed to add the other sources in your system in a similar way. In this example we are only inserting a single source.

See the *Advanced tips* on the next page for information about modifying these connections; eg to use analogue rather than optical for audio.

Advanced tips

Showing a list of the recommended connections

• Click the **Details…** button in the **Connection Wizard** dialogue box.

This shows the connections that will be made if you choose the **Yes (recommended)** option:
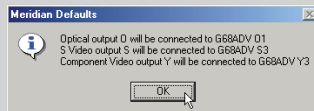
Specifying connections manually

• Choose the **No (advanced)** option in the **Connection Wizard** dialogue box.

• Click the **Next** button to continue.

• Specify each connection that you want to make from the source to the controller, using the **From:** and **To:** drop down lists, then click the **Connect** button to make the connection:
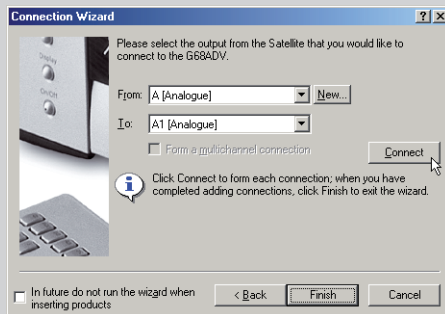
• Click the **Finish** button to close the **Connection Wizard** dialogue box.

Renaming a source

You can give each source a name of up to five characters to identify it on the front-panel display:

• Right-click the source, then click **Rename…** on the context menu:
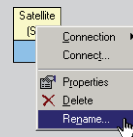
The following dialogue box allows you to enter a new name:
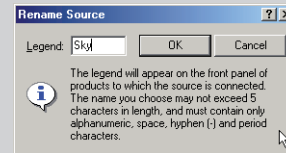
Changing the MSR+ key for a source

You can choose which MSR+ key selects each source:

• Right-click the source, then click **Properties** on the context menu.

• Click the **Identification** tab in the **Properties** dialogue box.

• Choose the MSR+ key from the **MSR+ key** drop-down list:
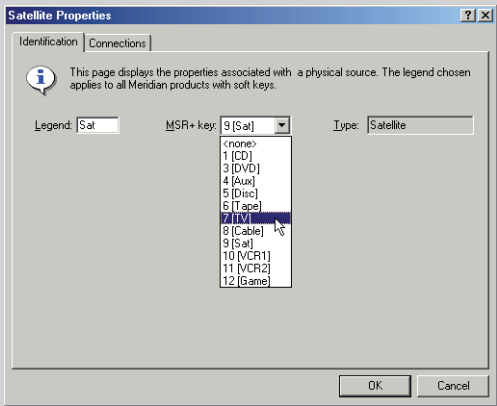
Showing and hiding connections
You can choose whether or not source connections are displayed
by clicking the View or Hide Source Connections button in the
toolbar:

**Displaying information about the style of each
connection line**
• On the **View** menu, click **Legend**.

Connecting using drag and drop
You can also connect between any two compatible connectors
using drag and drop:

• Drag between the output on the source and the input on the
controller that you want to connect:
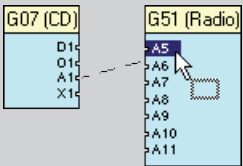
When you release the mouse button the cable will be connected:
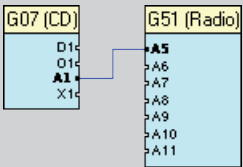
If the connectors are incompatible a stop cursor will be displayed:
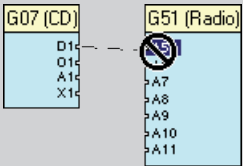
Removing a connection
• Drag from one of the connectors and release the mouse button:
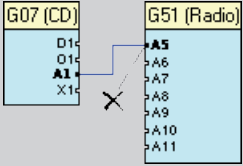
The cable connecting the two products will be removed.

Making a multichannel connection

If you are connecting a product with multichannel outputs, such as a G98DH DVD Player, to a digital surround controller with multichannel inputs, the Meridian Configuration Program can create a multichannel configuration when you drag between two appropriate connectors:
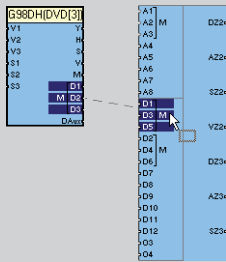
A prompt allows you to choose whether to make a single or multichannel connection.

If you choose **Yes** the multichannel connection will automatically be made:
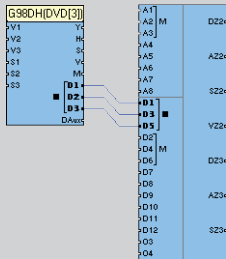
Adding or removing inputs or outputs

With non-Meridian sources you can add new inputs or outputs, or remove inputs or outputs, to reflect the connectors provided by your source. For example, if your satellite receiver includes a digital coax output you can add a connector for this:

• Right-click one of the source's existing connectors, point to **Connection** on the context menu, then click **New…** on the submenu:
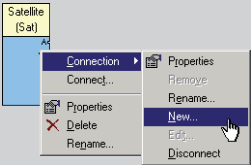
The **Add Connector** dialogue box allows you to define the new connector.

• Specify the type of connector using the **Class** and **Type** drop-down list, enter a name, and choose **Output** or **Input** as appropriate:
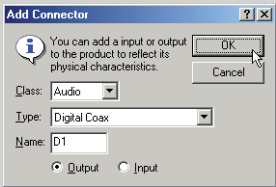
• Click the **OK** button to add the connector.

Products: Adding speakers

The next step is to add the speakers in your system.

• Click the **insert a speaker** link in the Information Bar.

The **Insert Speaker** dialogue box allows you to select which type of speaker you want to add, and the positions in which to add it.

• Select **DSP8000** from the **Type** drop-down list.

The **Location** will automatically be set to **Front left/right**:
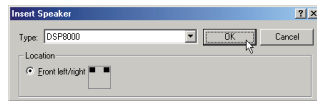
• Click the **OK** button to add the speakers.

The speakers will be added to the appropriate points in the layout, and the connections will automatically be made between the speakers and the controller:
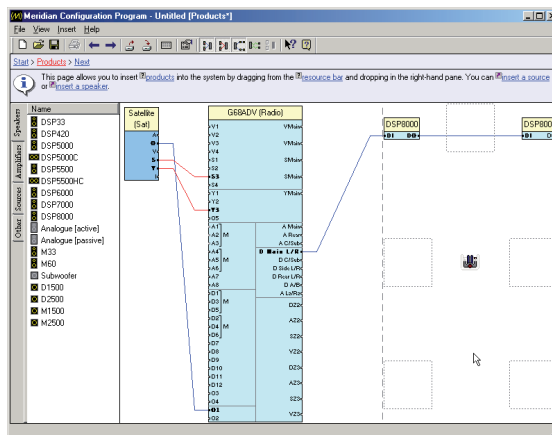
• Click the **insert a speaker** link again and select **DSP5500HC** from the **Type** drop-down list to add a centre speaker:
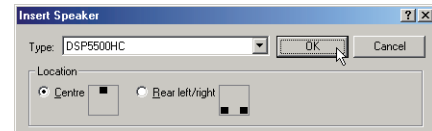
The program will offer to add a 511 patch box to the layout to connect the Comms cables for the speakers:
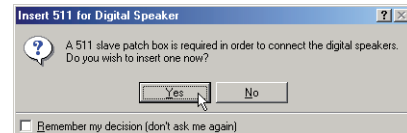
• Click the **Yes** button to confirm.

• Click the **insert a speaker** link again and click **Analogue (passive)** on the **Type** drop-down list to add small analogue rear speakers:
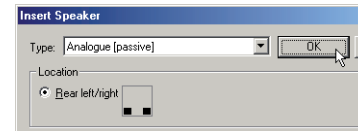
• Click the **OK** button to add the speakers.

The Meridian Configuration Program will automatically prompt you to add an amplifier to the layout to drive the passive speakers:
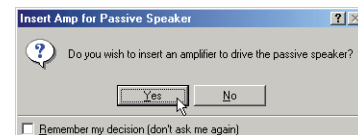
• Click the **Yes** button.

• Click **G57** on the **Amplifier type** drop-down list, and click the **OK** button to add the amplifier:

The G57 will automatically be connected up to the appropriate analogue output on the digital surround controller:
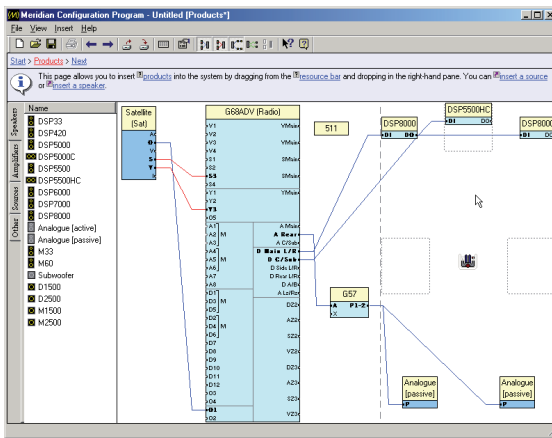
Finally insert a subwoofer into the layout:

• Click the **insert a speaker** link in the Information Bar and select **Subwoofer** from the **Type** drop-down list:
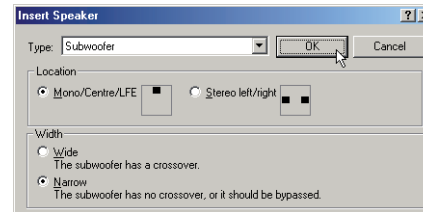
You can proceed to add any other speakers in your layout in a similar way.

• Click the **Next** link in the Breadcrumb Trail to proceed to the next page.

Advanced tips

Adding a speaker by dragging it from the Resource Bar

• Drag an icon from the **Speakers** tab of the Resource Bar (to the left of the **Products** page):
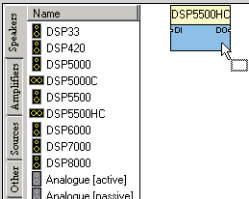
• Drop it onto the appropriate speaker position.

Adding a speaker at a specific position

• Right-click the position, point to **Insert** on the context menu, then click **Speaker…** on the submenu:
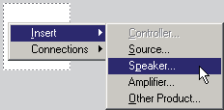
Alternatively, double-click or right-click the speaker position.

Reviewing and printing the source and speaker connections

Additional **Speaker connections** and **Controller connections** pages can be displayed to allow you to check the source and speaker connections, or print out a copy for help in wiring up the system.

• On the **View** menu, click **Review Pages**.

The **Speaker connections** and **Controller connections** pages will appear in the Breadcrumb Trail after the **Soft keys** page:
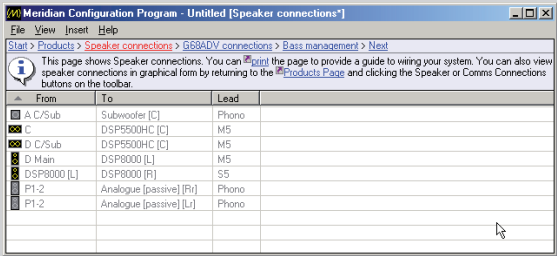
Displaying or changing the speaker properties

To display the speaker properties right-click the speaker symbol, then click **Properties** on the context menu, or double-click the speaker symbol:
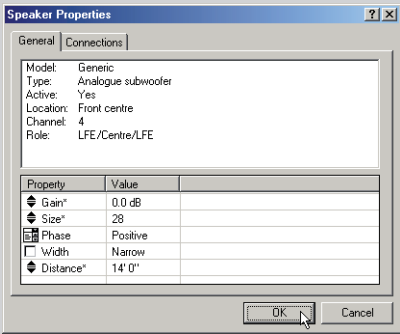
You can edit the properties in the same way as for source properties.

Soft keys

The **Soft keys** page allows you to customise the soft keys for each of the G Series products in the system, starting with the controller. In this example the only applicable product is the G68ADV.

An initial recommended layout is provided for each product; for example, for a G68 this provides soft keys for each of the sources in the system, plus a DSP key in the rightmost position.

• Click the **Next** link in the Breadcrumb Trail to proceed to the next page.
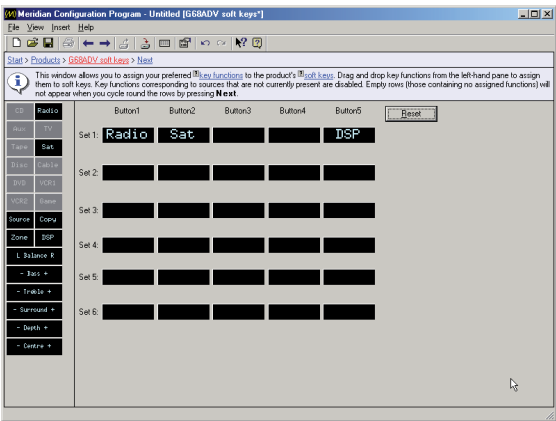
Advanced tips

Changing the soft key layout

• Drag a soft key, or pair of keys, from the left-hand pane onto the set of soft keys you want to edit:
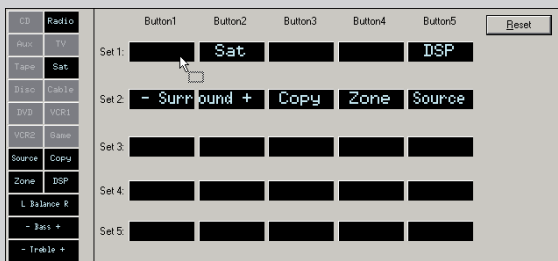
• Hold down Ctrl to insert the key(s), moving existing keys right to make space.

You can undo or redo changes to the soft key layout by clicking the Undo or Redo buttons in the toolbar:

The first 12 soft keys correspond to the 12 MSR+ keys. Only the ones corresponding to the sources you have defined in your system will be available – the others will be greyed out. Their names will reflect the names you have given to the sources on the **Products** page.

Soft keys that work in pairs, such as balance, bass, treble, and bright, automatically occupy two adjacent soft key positions.

Renaming a source

• Right-click a soft key corresponding to a source, then click **Rename Source…** on the context menu:

All occurrences of the source in the soft key sets will be changed.

Clearing a soft key

• Right-click the soft key, then click **Remove** on the context menu:

Restoring the recommended layout

• Click the **Reset** button for a recommended assignment of soft keys.

Bass management

The **Bass management** page specifies how bass is handled in the system for each of the three speaker layouts. The settings are automatically set to recommended values and can be ignored for a simple configuration.

Advanced tips

Meridian digital surround controllers allow you to define three different speaker layouts for use with different types of material: **Music**, **Logic**, and **5.1 Movie**. The **Bass management** page allows you to specify how the bass is handled in each speaker layout:
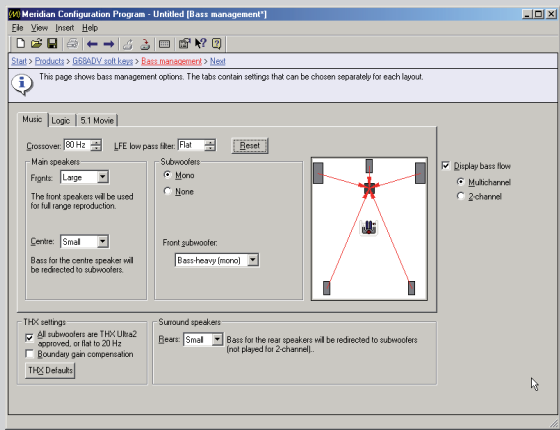
Specifying which speakers should handle the bass
The **Main speakers** and **Surround speakers** sections allow you to specify whether each speaker is **Large**, in which case it will handle the bass for that channel, or **Small**, in which case the bass for that channel will be redirected to another speaker.

• Click the **Next** link in the Breadcrumb Trail to proceed to the next page.

You can choose whether the main front and centre speakers are specified as **Large** or **Small** for each of the **Music**, **Logic**, and **5.1 Movie** speaker layouts.

The diagram to the right of each tab represents the selected speaker layout; select **Display bass flow** to display red arrows on the diagram indicating how the bass for each channel is handled by the speakers in the layout for either **Multichannel** or **2-channel** sources as specified (see below).

Specifying which subwoofers are used in the layout
In the **Subwoofers** section you can specify how many of the subwoofers are used in the layout. Subwoofers used in the layout are indicated by a black square in the layout diagram, and subwoofers not in use are indicated by a white square.

If there are no subwoofers in the layout the front speakers must be specified as **Large**, and they will handle the bass for any other small speakers in the layout.

If there is one subwoofer in the layout, and you have specified the front speakers as **Small**, the subwoofer will be used for the bass and LFE. If the front speakers are **Large** and the centre speaker is **Small**, the **Front subwoofer** option allows you to choose from the following options:

Option	Use of subwoofer
LFE Only *	Handles just the LFE.
Bass-neutral (centre)	Handles all the bass.
Bass-heavy (mono)	Shares the bass with the front speakers.

* Not available for the **Logic** layout.

If the layout includes two or more subwoofers, the subwoofers will handle the bass and LFE for the system irrespective of the size of the front speakers.

Specifying the crossover settings
For each speaker layout the **Crossover** option allows you to set the crossover frequency for the subwoofers. This is ignored if the subwoofers are only handling the LFE.

The Meridian digital surround controllers provide very high-quality crossovers for the subwoofers, and for best results you should use these instead of the subwoofer's crossover. To do this set the subwoofer **Width** property to **Narrow**, and remove any crossover in the subwoofer, or set it to the highest setting (eg 200Hz). If you cannot do this, set the subwoofer **Width** property to **Wide** to switch off the digital surround controller's crossover and use Sine/Sub mode to match the subwoofer's crossover frequency.

The **LFE low pass filter** option sets the low-pass filter for the LFE channel, for the Music and 5.1 Movie speaker layouts.

• Click the **Reset** button to reset the crossover and low-pass filter to recommended values in all layouts.

Specifying the THX settings
The **THX settings** tab allows you to specify that your subwoofers are **THX Ultra2 approved**, and select **Boundary gain compensation** to reduce bass levels if listeners are close to a wall. Click the **THX Defaults** button to set the crossover and low-pass filter to 80Hz in all layouts, as recommended by THX.

Speaker distances

The **Speaker distances** page gathers information about the relative positions of the full-range speakers in your system, and the distance of each speaker from the listening position. First choose the units you would like to work in.

• On the **View** menu, click **Metric** or **Imperial**.

• Measure the distance to each speaker in the specified units.

• Drag the speakers until they are in the correct positions, with the correct distance shown on each speaker icon.

This information is used to calculate the speaker delays, and generate the aspect ratio and rear speaker separation.
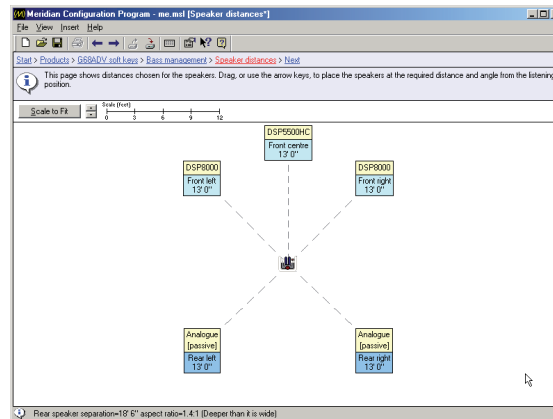
• Click the **Next** link in the Breadcrumb Trail to proceed to the next page.

Advanced tips

• Click the ▲ or ▼ buttons to the left of the scale indicator to change the scale of the whole diagram.

• Click a speaker to select it, and then use the arrow keys to move the speaker in the corresponding direction.

• Use Ctrl ↑ and Ctrl ↓ to move a speaker away from or towards the listening position. Hold down Shift to move all the speakers at once.

• Use Ctrl ← and Ctrl → to move a speaker in a circle around the listening position.

• Click the **Scale to Fit** button to increase the scale so the loudspeakers fit neatly in the window.

Speaker calibration

The **Speaker calibration** page allows you to calibrate the speakers attached to your controller while listening to the product. You can use the Meridian Configuration Program to step between speakers, and change the properties of the currently selected speaker, using the on-screen buttons.

To connect the serial cable
• Connect one end to the RS232 connector on the back panel of the controller in your system.

• Connect the other end to one of the serial ports on your computer.

The default is COM1. If you have to use a different port see *Advanced tips* overleaf.

The **Speaker calibration** page shows a list of the speakers connected to your controller and the current distance, level, and phase settings of each speaker:
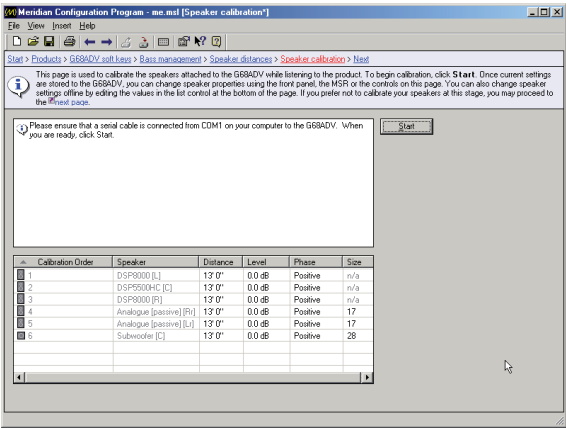
• Click the **Start** button.

The Meridian Configuration Program stores the settings you have created to the controller and then automatically starts the calibration sequence so you can tune your speakers by ear using a series of listening tests:
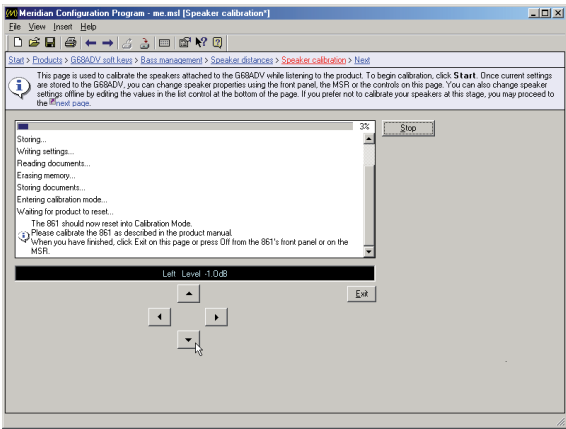
• Use the ◄, ►, ▲, and ▼ buttons on the **Speaker calibration** page to control the product; refer to the appropriate guide for your product for details of the calibration procedure.

The product's display is shown above the arrow keys on the **Speaker calibration** page.

• When you have completed the calibration procedure click the **Exit** button on the **Speaker calibration** page, or the **Off** button on the product, to fetch the calibration settings from the controller.

The calibration settings will be shown in the speaker list on the **Speaker calibration** page.

• Click the **Next** link in the Breadcrumb Trail to proceed to the next page.

Advanced tips

Specifying the serial port

• Click the **Options…** button on the **Pre-calibration** store page
  to display the **Comms Port** tab on the **Options** dialogue box:
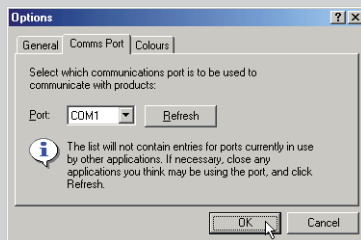
• Select the port you want to use from the drop-down list and click
  the **OK** button.

A warning triangle will be displayed against the port number if it is
already in use by another program.

Room correction

The **Room correction** page runs the Meridian Room Correction procedure. This is optional and you can skip this stage by clicking the **Next** link in the Breadcrumb Trail:
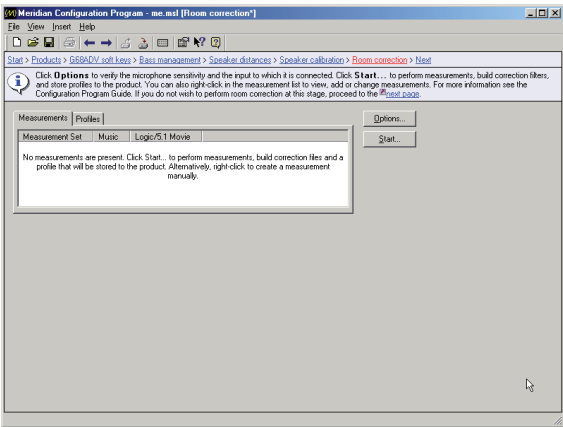
For information about running the Room Correction procedure see the chapter *Room Correction*, page 65.

• Click the **Next** link in the Breadcrumb Trail to proceed to the next page.

DSP presets

The **DSP presets** page shows a list of the DSP presets available to the digital surround controller, and allows you to edit the properties of each preset. You can also edit the preset mappings, to change the default DSP preset selected for each source and each audio format.

For a simple configuration you can skip this page.

• Click the **Next** link in the Breadcrumb Trail to proceed to the next page.

Advanced tips

The **Preset Properties** pane shows the name and value of each of the preset properties:
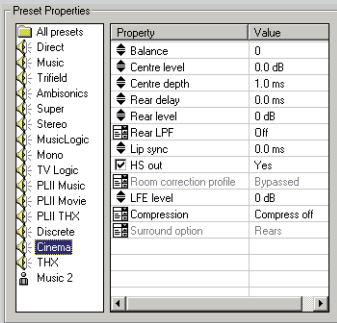
Some properties apply globally to all presets; to edit these select **All presets** in the **Preset Properties** list.

Displaying and changing the properties for a preset
• Select the preset in the left-hand list.

You can then edit the properties in exactly the same way as for product properties; see *Changing the value of a property*, page 9, or *Reverting a property to its default value*, page 9.

For full information about the parameters for each DSP preset see the Installation Guide for your product.

Creating user-defined presets
You can create additional user-defined presets with specific properties:

• Right-click the preset you want to use as the basis for the new preset, point to **Copy to** on the context menu, then click **New Preset** on the submenu:
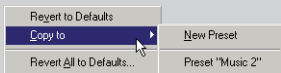
If you have already created one or more user-defined presets, you also have the option of overwriting an existing user-defined preset.

Restoring presets to their default values
• Right-click the preset, then click **Revert to Defaults** on the context menu:
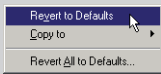
• Alternatively click **Revert All to Defaults…** to revert all the built-in and user-defined presets to their default properties.

Changing the preset mapping

The **Preset Mapping** pane shows the default DSP preset selected
for each source and each audio format.

• Click the preset in the appropriate audio format column and
  select the preset you want to use for the default from the drop-
  down list:
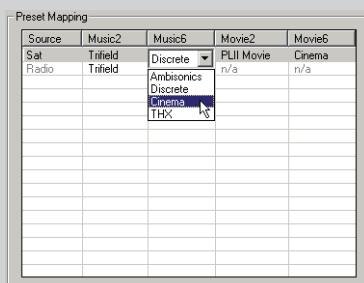
Tuner presets

For each product in your system that includes a radio tuner, a **Tuner presets** page allows you to define the legend displayed on the front panel display for each tuner preset, and the waveband, frequency, and audio mode it selects:
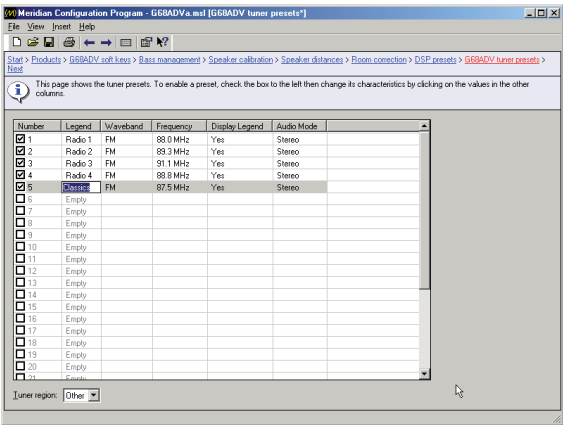
• Click the checkbox in the **Number** column to enable the corresponding tuner preset, and edit the **Legend**, **Frequency**, and **Audio Mode** as required.

• Set **Display Legend** to **No** if you want the display to show the RDS station name, or frequency if no RDS station name is available, rather than a predefined legend.

When you have edited the tuner presets as required:

• Click the **Next** link in the Breadcrumb Trail to proceed to the next page.

Store settings

This page stores the settings to the controller:
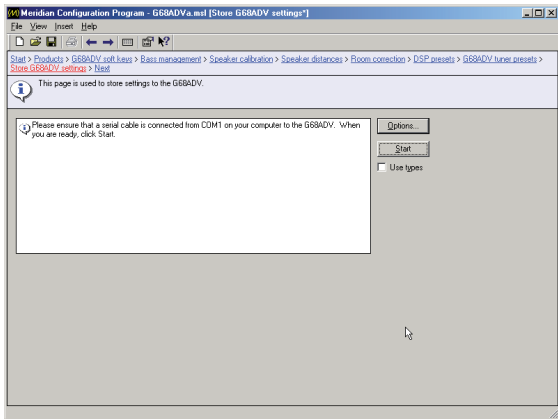
• Connect the serial cable.

For more information see *To connect the serial cable*, page 56.

• Click the **Start** button to store the settings.

When the store has completed:

• Click the **Next** link in the Breadcrumb Trail.

Finish

The **Finish** page confirms that you have successfully completed the
configuration of your system.

Save a copy of your configuration

Although a copy of the configuration document is saved in the
controller for your system, it is recommended that you also save
a copy of the final configuration document on your PC, with an
appropriate name, so that you can refer to it again at a later date,
if necessary.

• On the **File** menu, click **Save**, or click the Save button in the
  toolbar:

Room Correction

The C61R digital surround controllers incorporate room correction, which takes advantage
of advanced digital signal processing techniques to compensate for room artefacts, including
resonances and reflections, to give a significant improvement in the sound.
This chapter explains how to use Meridian Room Correction to create profiles for use with the
digital surround controller.

Introduction

The Meridian Room Correction procedure creates a set of one or more room correction profiles matched to your room. These are then downloaded to the digital surround controller and can be associated with particular presets, or selected from the front panel. Selecting a profile applies a set of digital filters individually to each speaker to achieve the required room correction.

If you use a single speaker layout you may choose to have one room correction profile, and use this with all presets. If you have separate speaker layouts for use with Music, Logic, and 5.1 Movie sources you will need to calculate a separate room correction profile for each speaker layout. These will then be selected automatically by the digital surround controller depending on the audio format. In addition, you can create separate room correction profiles to take account of changes to the room, such as the position of large items of furniture, or with curtains open or closed.

How room correction profiles are calculated

Calculating a room correction profile is a time-consuming and mathematically complicated process. Meridian Room Correction performs the necessary sequence of measurements and calculations automatically, using a PC connected to the digital surround controller, with the minimum of interaction. It works as follows:

First you need to set up a microphone close to the listening position, and connect this to an appropriate input on the digital surround controller. On the C61R, G61R, or G68 Digital Surround Controller this will be A8 (L). On the 861 Reference Digital Surround Controller this can be any analogue input; input A1 on card IA00 is chosen by default.

Usually a standard sound pressure level meter will be used as a microphone; this can be the same one used for setting the

speaker levels during the Calibration procedure. After an initial short test sequence, designed to check that the microphone is set up correctly, a test signal is presented to each loudspeaker and measured at the microphone to determine how the room response affects the sound from each speaker. This stage of the procedure takes about one minute per speaker, and can be left to run unattended.

Finally, after a complete set of measurements has been made for each channel and speaker layout, the program calculates a set of filters for each channel, and stores these to the digital surround controller. A copy of the measurements, together with the calculated filters in each profile, is also stored on the PC so they can be accessed at a later date if required.

Examples

Most domestic rooms tend to be rectangular, or at the very least have one pair of parallel facing walls, and unfortunately these are the ideal conditions for low frequency resonances within the room. The wavelength of low frequency sounds is relatively large, so even bookcases and curtains act as an almost perfect mirror for low frequencies.

Frequencies close to the resonant frequency, determined by the distance between the two reflective surfaces, will sound louder and take longer to decay than other frequencies. In practice this means that when listening to music some notes will sound louder, giving a roughness or unevenness to the sound.

Other problems that can be corrected by room correction are imbalances between the speakers due to positioning constraints.

For example, in an L-shaped room one loudspeaker may need to be close to the wall whereas its partner is in an open area, giving rise to an imbalanced sound field.

Unless your listening room has been specially designed for acoustic performance, you will almost certainly hear distinct benefits after incorporating room correction into your digital surround controller, and if the room has major resonances or imbalances the difference should be quite dramatic.

You can find more information about the theory behind Meridian Room Correction on the Meridian Web Site at: http://www.meridian-audio.com/p_rc.htm

Auto Build

This section explains how to create a basic room correction using default settings.

The room should be as you would normally use it for listening. Close/open doors, close/open curtains, and position your screen and furniture as they would normally be for listening.

If you are creating room correction profiles as part of the initial configuration of your system, follow the procedure described in this chapter when you get to the **Room correction** page in the sequence of Meridian Configuration Program pages.

If you decided not to create room correction profiles when you first configured the system, start from the saved configuration file, or fetch the configuration from the digital surround controller, and then step forward to the **Room correction** page in the Breadcrumb Trail:
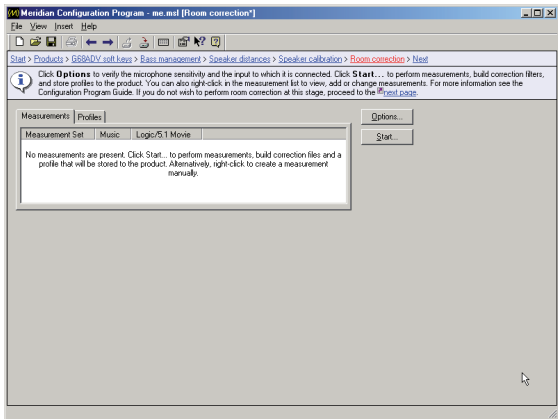
To set up the room correction options
The first step is to specify options for the room correction procedure.

• Click the **Options…** button to display the room correction options:
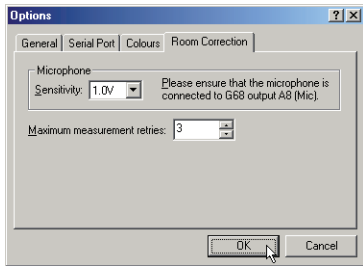
• Specify the sensitivity for the microphone.

When first running room correction it is recommended that you leave this at its initial setting.

If you are using an 861 Reference Digital Surround Controller you will also need to specify the card and input you are using for the microphone.

• Specify the maximum number of measurement retries; by default this is set to 3, but you can enter a lower value to reduce the time taken by retries.

• Click the **OK** button to confirm the options you have specified.

• If you are using a C61R, G61R, or G68 Digital Surround Controller connect the SPL meter or microphone to the analogue input A8 (L).

• If you are using an 861 Reference Digital Surround Controller connect the SPL meter or microphone to the analogue input you specified in the **Options** dialogue box.

• Position the SPL meter or microphone at the listening position and, if you are using an SPL meter, switch it on.

When using an SPL meter, the C weighting must be used. The 90dB range is recommended unless the loudspeakers measured less than 75dB SPL during the calibration, in which case the 80dB range is recommended.

To run the Auto Build procedure

• Click the **Start…** button.

A countdown dialogue box will give you time to leave the room:
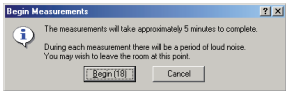
A test tone will then be presented to each loudspeaker in turn for each of the distinct layouts defined in the digital surround controller configuration file.

Depending on the number of channels and layouts in your configuration this may involve up to 24 tests and take up to 20 minutes to complete.

The **Room correction** page shows information about each test and a progress bar indicates the percentage completed:
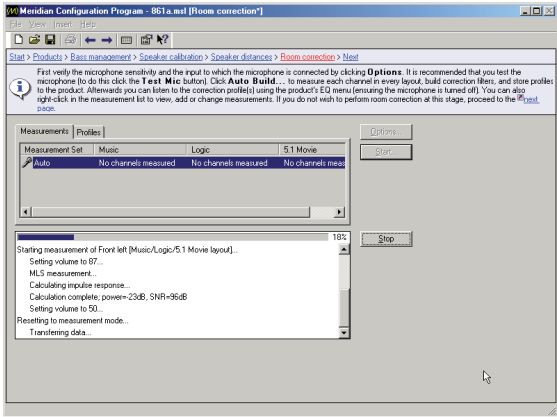
When the measurements have been completed the following dialogue box allows you to apply the room correction profiles:
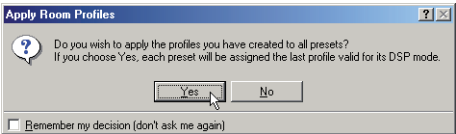
• Click the **Yes** button to assign an appropriate profile to each preset.

Each preset will be assigned the profile designed for the layout used with the preset. The wizard creates profiles called Mus, Log, and Mov for the Music, Logic, and 5.1 Movie speaker layouts respectively. If two or more layouts share the same settings, the profile name will include all the layouts it applies to; for example, MusLog or MusLogMov.

What next?

You have now completed the Auto Build procedure, which creates a recommended set of room correction profiles. In most situations this is all you need to do in order to take advantage of room correction with your digital surround controller.

The next sections describe some of the more advanced options available on the **Room correction** page, including the options for re-measuring channels, selecting different filter parameters, and manually editing the filters.

Viewing and repeating measurements

The **Measurements** tab shows a list of the measurement sets you have created. Each measurement set shows the channels measured for each of the speaker layouts set up in the digital surround controller configuration:
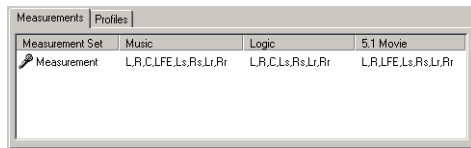
You can also create additional measurement sets; for example to cater for different furniture layouts. For each measurement you can view the effect of applying different profiles.

The **Measurements** tab gives you the option of viewing or comparing the measurements. You can also repeat the measurements for individual speakers; for example, if an external noise interfered with the test procedure.

To view the measurements
• Right-click the measurement you want to view, then click **View Plot** on the context menu, or double-click the measurement:
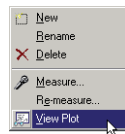
The **Plot Measurement** window allows you to see the measurement for the specified channel:
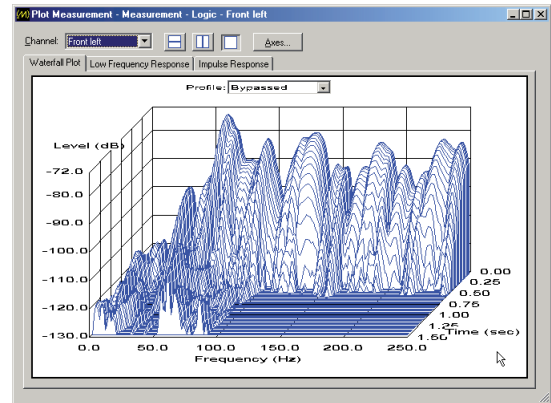
• Select the profile from the **Profile** drop-down list.

To show the uncorrected response select **Bypassed**.

You can compare the effect of two **Profile** settings on the same plot by clicking one of the split pane buttons:

You can then set different **Profile** settings for each plot:
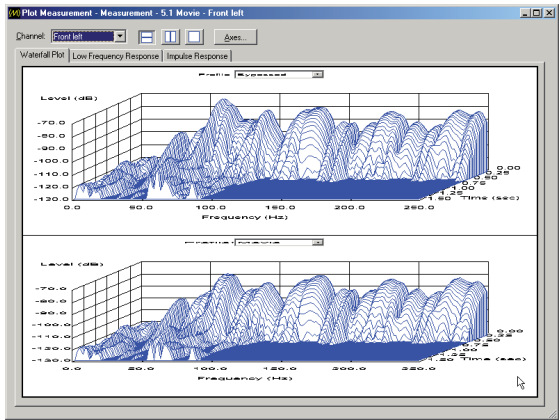
You can select one of the following three graph types by clicking the corresponding tab. All three views of the measurement are calculated from the same measured test signal:

Waterfall plot
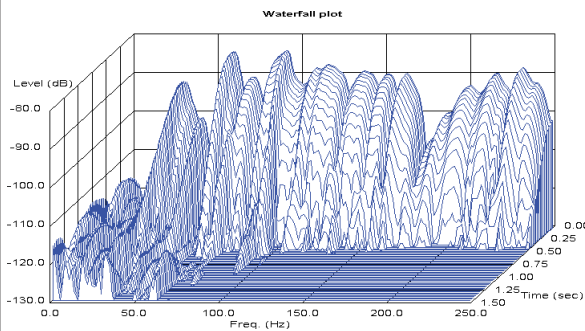
Shows the response of the room to a series of short sine wave pulses of frequencies between 0 and 250Hz. It shows how the response decays over time at each of those frequencies.

The ideal waterfall plot would have a smooth profile and decay evenly to a low level within 0.5 to 0.8 seconds. Peaks or dips in the waterfall plot indicate resonances or absorption at the corresponding frequency. Ridges extending forwards in time indicate reverberation at the corresponding frequency.

The room correction profile aims to identify the strongest resonances and to reduce the decay time of each strong resonance to the average decay time for the room.

Impulse response
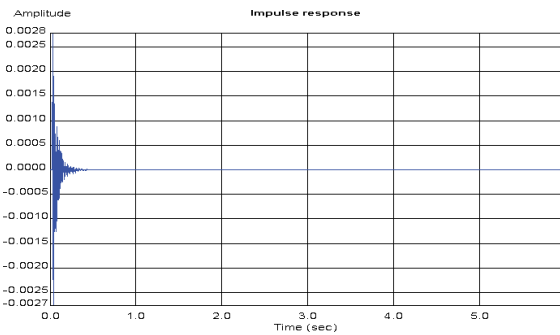
Shows the response over time of the loudspeaker to a click. The curve shows a maximum just after time zero, and then decays rapidly depending on the amount of reverberation in the room. Any additional peaks in the response indicate resonances set up by the initial impulse.

Low frequency response
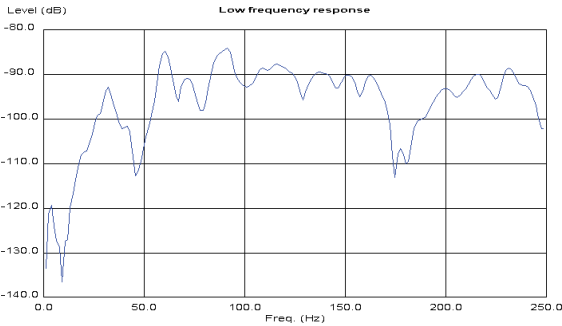
Shows the loudspeaker-room response to a low frequency sine wave, swept between 0 and 250Hz. The ideal low frequency response would be smooth. A peak in the response indicates a resonance at the corresponding frequency. A dip in the response indicates absorption or cancellation at the corresponding frequency.

To display the value of the curve at any point
• Drag to position the vertical red cursor.

The values of the curve at the current point are displayed in the top right-hand corner of the plot:
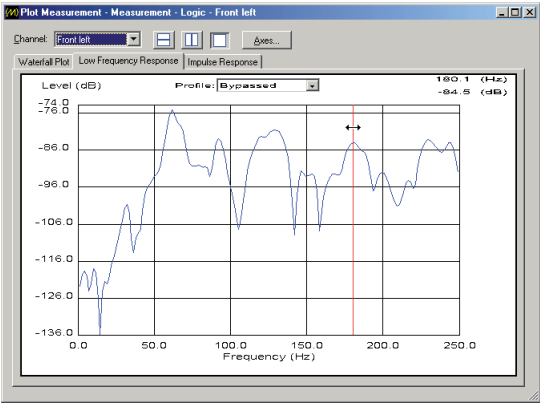
In the Waterfall Plot the values displayed correspond to Time = 0.

To change the axes
• Click the **Axes…** button to display the axis parameters.

The **Data Range** section on each tab shows the range of the data measured by the Room Correction procedure.

The **View Range** section on each tab allows you to set the range of the Frequency, Level, Time, and Amplitude axes as appropriate for each plot:

To repeat measurements
You can repeat measurements for one or more channels; for example, if an external sound interfered with an existing measurement.

• Right-click the measurement you want to repeat, then click **Re-measure…** on the context menu:
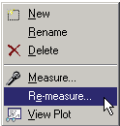
The following dialogue box allows you to select which channels you want to repeat:
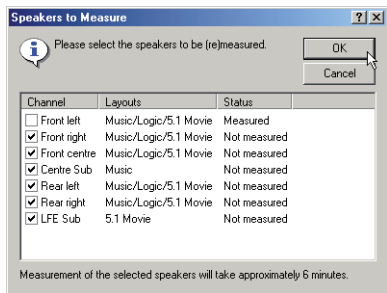
• Select the channels you want to repeat.

• Click the **OK** button to confirm your selection.

The following dialogue box warns you that the existing measurements will be overwritten:
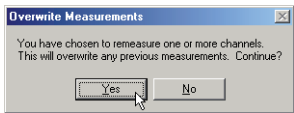
• Click the **Yes** button to continue, or the **No** button to retain the existing measurements.

The following dialogue box then indicates how long the selected measurements will take, and gives you an opportunity to leave the room before the test sequence begins:
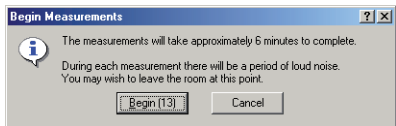
To create multiple measurements
You can create additional measurement sets to take account of different configurations of the room, such as with curtains open or closed.

• Right-click the **Measurements** tab, then click **New** on the context menu.

A new measurement set will be added to the list, and the **Speakers to Measure** dialogue box will be displayed to allow you to specify which speakers you want to measure.

• Click the **OK** button to proceed with the measurement.

To rename a measurement set
• Right-click the measurement set, then click **Rename** on the context menu, or press F2.

• Edit the name as required and press ↵.

To delete a measurement set
• Right-click the measurement set, then click **Delete** on the context menu, or select the measurement set and press Del.

Viewing profiles

The **Profiles** tab shows a list of the profiles that have been calculated, together with the number of filters used for each profile and the number of remaining filters available:
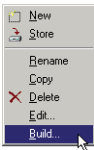

Each profile can use up to 60 filters; if a profile requires more filters than this, filters will be allocated in order of priority.

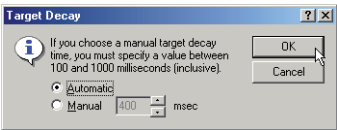Each channel is limited to a maximum of 20 filters; a two-channel system therefore has a limit of 40 filters.

To build the filters for a profile
• Right-click the profile in the **Profiles** list, then click **Build…** on the context menu:

The following dialogue box then allows you to specify a target decay time:

• Leave **Automatic** selected, or click **Manual** and enter a delay time between 100 and 1000 milliseconds.

• Click the **OK** button to continue.

If you have more than one measurement set the following dialogue box is displayed to allow you to select which measurement set you want to use for the filters:
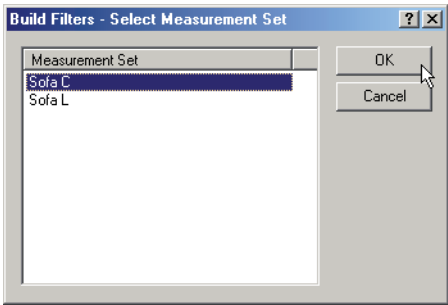
Note: The process of building filters is computationally intensive, and it is recommended that you do not try to run other programs at the same time.

As the filters are calculated the status is shown in the lower half of the **Room correction** page.

To store profiles temporarily to the digital surround controller
You can store profiles temporarily to the digital surround controller so you can listen to them while using Meridian Room Correction.

• Right-click the profile in the **Profiles** list, then click **Store** on the context menu.

The lower half of the **Room correction** page shows the progress as the profile is stored to the digital surround controller.

Editing filters

After building the filters for a profile you can edit the filters numerically or graphically to adjust their parameters, or change the response of each filter.

Note: This should only be attempted by users with an understanding of filter design. It is strongly recommended that you copy the profile first and then edit the copied profile. There is no undo function within **Edit filters**.

To display the filters for a profile
• Right-click the profile in the **Profiles** list, then click **Edit…** on the context menu, or double-click the profile in the **Profiles** list.

The **Edit Filters** window shows a numeric or graphical display of the filters in the profile.

• Choose a channel from the **Channel** drop-down list to display the filters for that channel, or choose **All Channels** to show all the filters for all channels on a single display.

To view the filters numerically
• Select **Numeric**.

The columns give the Centre Frequency (Hz), Gain (dB), Filter Bandwidth (Hz), Room Mode Bandwidth (Hz), Equalized Bandwidth (Hz), RT_{60} (s), Target RT_{60} (s), and Channel:
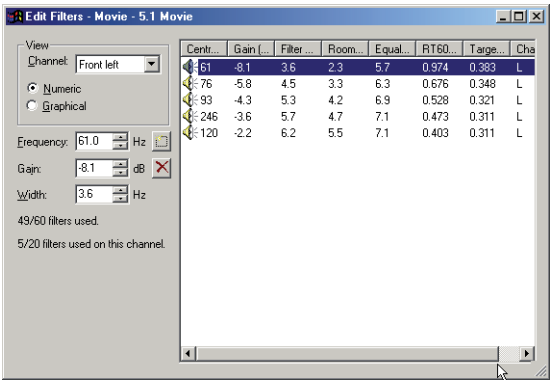
The fields on the left of the filters list allow you to adjust the **Frequency**, **Gain**, and **Width** of the currently selected filter.
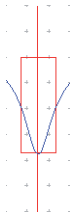
To view the filters graphically
• Select **Graphical**:

To edit a filter
• Select the filter you want to edit by clicking on the filter:

Alternatively if the filters are close together you can step right or left between filters using Ctrl Tab or Ctrl Shift Tab.

The currently selected filter is displayed with a red vertical bar at the filter centre frequency, and a rectangle indicating the bandwidth and gain of the filter.

You can edit each parameter of the filter interactively as described in the following sections.

Centre frequency
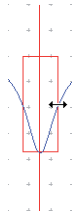• Drag the vertical bar to the left or right on the filter response curve, or press ← or →:
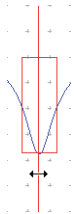
Gain
• Drag the base of the filter, or press ↑ or ↓:
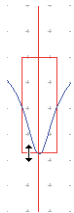
Bandwidth

• Drag one of the sides of the filter, or press `Ctrl` `←` or `Ctrl` `→`:

To add a filter

• Click the Add button on the **Numeric** or **Graphical** tab:

• Edit the parameters of the filter as described above.

To delete a filter

• Select the filter you want to delete in the **Filters** list, or on the
  Graphical tab.

• Press `Del`, or click the Delete button:

Changing settings at a later date

This section describes how to change the room correction or configuration settings of the digital surround controller at a later date, subsequent to storing the original version.

Note: You can only edit or add to existing profiles if you have the MSL file originally used to design the profile. If you do not have the original MSL file you will need to make new measurements, create new profiles, and then store these to the digital surround controller.

To edit an existing profile, or add a new profile
• Run the Meridian Configuration Program and open the MSL file used to create the original profiles.

If you have changed settings on the digital surround controller since the original profiles were made, and you want to retain these changes:

• On the **File** menu, click **Save as** to save the MSL file under a new name.

To fetch the settings from the digital surround controller:

• On the **Products** page, right-click the controller, then click **Fetch…** on the context menu.
• Step forward to the **Room correction** page in the Breadcrumb Trail.
• Select the **Profiles** tab, and proceed as described in *Editing filters*, page 75.

To change other settings if you have the original MSL file
• Run the Meridian Configuration Program and open the original MSL file.

If you want to keep the original settings:

• On the **File** menu, click **Save as** to save a copy of the MSL file under a new name.
• Change the settings as required and store the new settings to the digital surround controller.

For more information about changing configuration settings using the Meridian Configuration Program refer to the Installation Guide for your product.

To change other settings if you have lost the original MSL file
If the original MSL file is not available you will be able to change all non-room correction settings, and which room correction profile you want to use with a given preset.

• Start a new document.
• On the **File** menu, click **Fetch…** to fetch the settings from the digital surround controller.

The newly created file will contain the profile labels and these can be used to choose the profile you want to use with a given preset. It will not contain measurements or profile data for Meridian Room Correction. If you use Meridian Room Correction to create new

measurements and profiles and store these to the digital surround controller, the old profiles will be overwritten.

• Change the settings as required and store the new settings to the digital surround controller.

For more information about changing configuration settings using the Meridian Configuration Program refer to the Installation Guide for your product.

To change other settings directly on the digital surround controller

For information about changing other configuration settings on the digital surround controller refer to the Installation Guide for your product.

After making changes on the digital surround controller you can add these changes to an existing MSL file as follows:

• Run the Meridian Configuration Program and open the original MSL file.

• On the **Products** page, right-click the controller, then click **Fetch…** on the context menu to fetch the new settings from the digital surround controller.

If you want to keep the original settings:

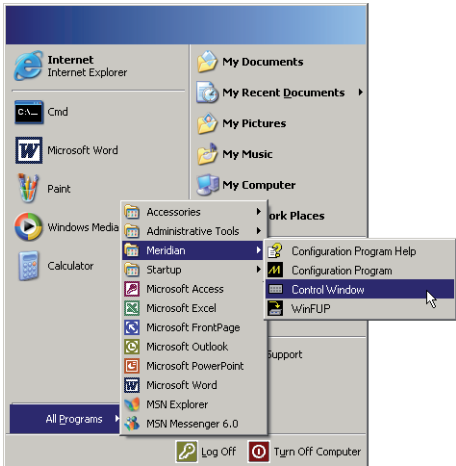• On the **File** menu, click **Save as** to save a copy of the MSL file.
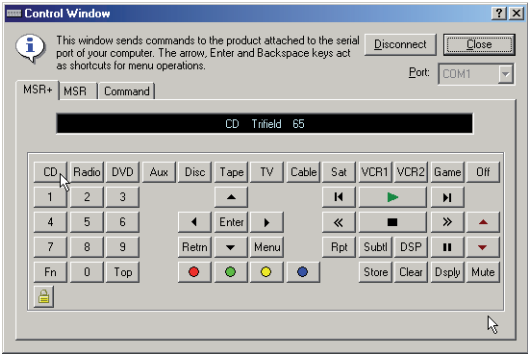
Control Window

The Meridian Control Window emulates an MSR+ to allow you to control a Meridian product
from a PC via a serial or USB cable.

Running the Meridian Control Window

• Click **Start**, point to **Programs**, **Meridian**, then click **Control Window**:

The Meridian **Control Window** will be displayed:

This provides the following tabs:

Tab	Description
MSR+	Emulates an MSR+ Controller.
MSR	Emulates an MSR Controller.
Command	Allows you to send predefined commands, and optionally specify arguments for the commands, and then see the response from the product in a terminal-style window.

Emulating an MSR+ or MSR

To send a command to the product
• Click the corresponding button on the Control Window.

The bar above the buttons shows the response from the product, corresponding to the front panel display.

To enter a function key
Either:
• Click the **Fn** button followed by the button you want to enter.

Or:
• Right-click the button or click the button while holding down [Ctrl].

The legends of the buttons change to show the function options.

To lock the Fn button down
• Click the **Lock** button:

Subsequent button presses will then enter function keys.

Press the **Lock** button or **Fn** button again to release the **Lock** button.

To see the command corresponding to each button
Each button transmits a two-letter code to the product.

• Point to the button with the mouse pointer.

A tooltip shows the description of the key followed by the key's command:
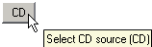
You can also give commands by typing the key's command on the computer keyboard. **Note:** Commands are case sensitive.

For example, to select the CD source type **CD**.

In addition, the following keys on the keyboard provide shortcuts for the menu buttons:

Computer key	MSR button
[↑], [↓], [←], [→]	▲, ▼, ◄, ►
[↵]	Enter
[←] (backspace)	Return

To disconnect the Control Window
• Click the **Disconnect** button.

To connect the Control Window
• Select the COM port you want to use from the **Port** drop-down list.
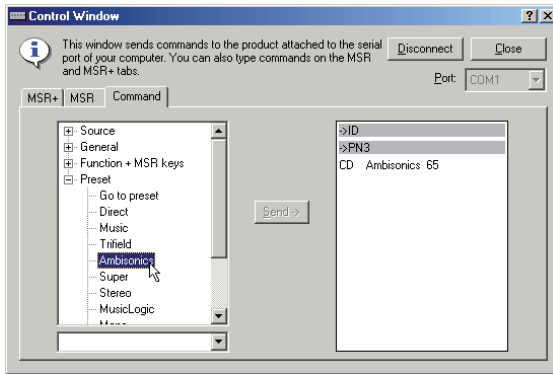• Click the **Connect** button.

A warning triangle next to a port number indicates that it is in use by another application.

To close the Control Window
• Click the **Close** button or press [Esc].

Using the Command tab

The **Command** tab lists all the available commands under four headings: **Source**, **General**, **Function + MSR keys**, and **Preset**:
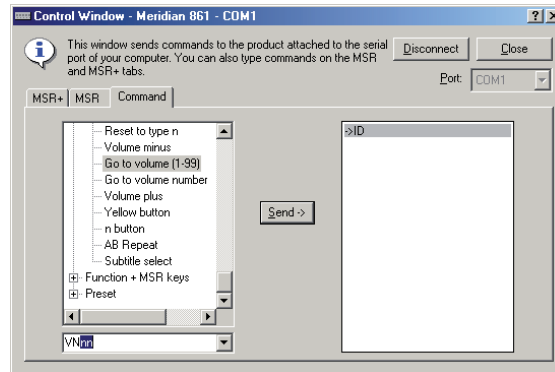

To display the commands
- Click the **+** button to the left of one of the headings to show the commands under that heading.

- Double-click the command you want to send.

To send a command with arguments
- Click the command in the **Command** list.

You will be prompted for the argument in the box below the **Command** list.

• Enter the argument from the keyboard:

• Click the **Send** button, or press ↵, to enter the command.

DSP presets

This chapter gives details of the DSP presets and their parameters, and describes how to modify them.

DSP presets

The C61R Digital Surround Controller provides two types of DSP preset. One set is available if the input is two-channel; eg from a traditional stereo source or a two-channel DVD-A. The other set is available if the input is 5.1 or 6 channels of discrete audio; eg from a Dolby Digital DVD-V or a music DVD-A. The DSP presets available in each set are described in the following pages.

Speaker layouts
The C61R Digital Surround Controller provides great flexibility in the way in which you use the loudspeakers in your system. For example, the speaker step of the Configuration Wizard allows you to use the subwoofers and centre speaker only for movie material see *Configuring speakers*, page 20. With the Meridian Configuration Program you can specify three different speaker layouts, each with a different use of subwoofers and centre speaker:

Layout	Description
Music	For music presets: two-channel (eg Trifield) and multichannel (eg Discrete).
Logic	For two-channel movie presets: eg PLIIx Movie.
5.1 Movie	For multichannel movie presets: eg Cinema.

Standard parameters

All DSP presets (except Mono and Direct) provide the following standard parameters.

Individual DSP presets provide additional parameters, to allow you to adjust specific features provided by that preset. For full details refer to information about each preset later in this chapter.

Parameter	Range	Default	What it changes
Treble*	-10dB to +10dB	+0dB	The slope of the frequency response.
Bass*	-5dB to +5dB	+0dB	The bass response.
Phase*	+ or -	+	The phase of all loudspeakers.
Axis†	-2 to +3	-1	The vertical balance.
Balance	<10 to 10>	<0>	The L-R balance.
HS Output?*	Y or N	Y	Select **Y** for high-rate audio, upsampled if necessary. Select **N** for standard-rate audio, downsampled if necessary.
Centre	-3.0dB to +3.0dB	+0.0dB	The level of the centre.
Depth	-2.5ms to +5.0ms	+0.0ms	The delay of the centre.
Rear	-30dB to +10dB	+0dB	The level of the rears.
Sides	-30dB to +10dB	+0dB	The level of the sides.
R Delay	0ms to 30ms	Varies	The delay of the rears.
S Delay	0ms to 30ms	Varies	The delay of the sides.
LipSync	0ms to 30ms	0ms	The sync. delay.
RC	As defined	Bypassed	The Room Correction profile, or **Bypassed** for no room correction.

*These parameters apply to all DSP presets.
†Axis is only available with Meridian DSP loudspeakers.

DSP presets for two-channel material

The C61R provides several signal processing options for two-channel material. The Music DSP presets are designed for use with music from sources such as CD, radio, or two channel DVD-A:

• Music, Trifield, Ambisonics, Super Stereo, Music Logic, PLIIx Music, Stereo, and Direct.

The Logic DSP presets are designed for use with film soundtracks or TV programmes:

• PLIIx Movie, PLIIx THX, TV Logic, and Mono.

The Music and Logic DSP presets use the Music and Logic speaker layout respectively; see *Speaker layouts*, page 85.

Music

The Music DSP preset extracts the mono and surround components of the original recording. These components provide an alternative representation of the original sound, and this is sometimes used for recording systems or in broadcasts such as FM radio. The mono element is equalised using a proprietary Meridian technique to match the tone colour of the centre speaker, and to compensate for the fact that the frequency response of human hearing changes with direction.

The Music DSP preset is recommended for recordings made with spaced omnidirectional microphones, or using a mono-surround technique.

Trifield

As for the Music DSP preset, the Trifield preset extracts the mono and surround components of the original recording. It then calculates the signals for the front, left, centre, and right speakers, using the phase and amplitude differences between the three front channels, to redistribute the sounds on a frequency-dependent basis.

This gives a significant improvement over traditional stereo, which converts the differences between the microphone signals into amplitude differences in the speaker signals. This version of the Trifield algorithm is virtually impossible to implement without digital signal processing.

Trifield is recommended for well-made recordings and stereo television broadcasts that are not Dolby Surround encoded. An advantage over the Music DSP preset is that the front stereo image is more focused, and the width of the image can be adjusted.

Music and Trifield DSP preset parameters

Parameter	Options	What it changes
Centre	Flat, EQ1-3	The timbre of the centre loudspeaker.
Width†	0-1.5	The width of the image.
Surr. Rear	Surr. Rear, Surr. Side, Surr. All	Switches the surround signal between the side and rear speakers.
R Filter	Off, 1kHz, 3kHz, 7kHz	The cutoff of high frequencies from the rear surrounds.
S Filter	Off, 1kHz, 3kHz, 7kHz	The cutoff of high frequencies from the side surrounds.

†Trifield only.

Ambisonics

The Ambisonics DSP preset can decode UHJ format, the two-channel stereo-compatible encoding found on Ambisonically-recorded discs and broadcasts. This material is specifically encoded for surround reproduction and can give breathtakingly realistic sound when replayed using the digital surround controller.

Ambisonics surround sound is quite unlike conventional stereo. A special microphone technique picks up the sound of the original performance in all three dimensions, allowing an archive to be made which describes the soundfield exactly at that position. The microphone signals are then encoded using a phase-amplitude matrix to allow the effect to be conveyed on two-channel carriers (like FM radio, LP, or CD).

The digital surround controller uses accurately matched, frequency-dependent, phase-amplitude matrices to decode the signal and construct the signals for each speaker feed.

The fundamental difference between Ambisonics surround sound and conventional stereo is that the signals from all the speakers combine to produce a coherent soundfield at the listening position, giving the illusion that you are sitting inside the recording space whether you are at the exact central seat or well off to one side.

Of all the signal-processing options, Ambisonics is the one that requires the greatest attention to speaker choice and positioning.

Super

Super synthesises a signal from a conventional stereo recording or broadcast so that it can be decoded using the Ambisonic decoder. The result is especially effective for two particular types of recordings:

• Those using true coincident microphone techniques.
• Multi-tracked or multi-miked recordings.

Ambisonics and Super DSP preset parameters

Parameter	Options	What it changes
Width*	0 to 1	The width of the image.
Row†	A, C, E, G, I, K, M	The seating position; the letters are like rows in a hall.
Channels	7, 6, 5, 4	The number of speakers.
R Filter	Off, 3kHz, 7kHz, 9kHz	The cutoff of high frequencies from the rear surrounds.
S Filter	Off, 3kHz, 7kHz, 9kHz	The cutoff of high frequencies from the side surrounds.

*Super only.
†Ambisonics only.

MusicLogic

MusicLogic is a music DSP preset based on Pro Logic II with the addition of user-adjustable steering, designed to provide an exciting experience with many types of studio-produced music.

MusicLogic DSP preset parameters

Parameter	Options	What it changes
Roll	Off, Low, Med, Max	The degree of left-right steering.
Yaw	Off, Low, Med, Max	The degree of front-rear steering.
Steered All	Steered Rear, Steered Side, Steered All	Which of the four surround channels are generated by steering.

PLIIx Music

The PLIIx Music preset is designed to use the Pro Logic IIx DSP processing mode to decode music sources. It provides additional **Width**, **Dimension**, and **Panorama** preset parameters to allow you to adjust the soundfield.

PLIIx Music DSP preset parameters

Parameter	Options	What it changes
Steered All	Steered Rear, Steered Side, Steered All	Which of the four surround channels are generated by steering.
Width	0 to 7	The centre spread, where **0** is full centre and **7** is full left and right.
Dimension	-3 to +3	The spatial soundfield, where **-3** puts the balance to the rear of the room and **+3** puts it to the front.
Panorama	No, Yes	Extends the front stereo image to include the surround speakers, providing a wrap-around effect new to Pro Logic.

Stereo and Direct

The Stereo preset passes the left and right input signals directly to the left and right main speakers. Any mono or front left and right subwoofers continue to be used.

With the Direct preset only the left and right main speakers are used, bypassing any spatial processing and bass management.

There are no additional DSP preset parameters for Stereo and Direct.

PLIIx Movie and PLIIx THX

PLIIx Movie and PLIIx THX use the Dolby Pro Logic IIx DSP processing mode, and are the recommended choice for Dolby Surround encoded material. They also give excellent results with two-channel sources not specifically encoded for Dolby Surround, including two-channel Dolby Digital sources.

Pro Logic IIx re-creates 7.1-channel movie surround from the two-channel source, using improved decoding techniques that preserve the directness of the soundfield, resulting in enhanced image

stability compared with the original Pro Logic decoding. Meridian's implementation of Pro Logic IIx uses proprietary code based on 48-bit precision to give outstanding clarity.

The PLIIx THX DSP preset uses the same PLIIx processing as PLIIx Movie, but adds THX Cinema processing. THX is a set of standards and technologies developed by Lucasfilm Ltd. with the aim of making your experience of the film soundtrack as faithful as possible to what the director intended.

Re-equalistion is used to restore the correct tonal balance for watching a film soundtrack in a small home environment.

Timbre matching filters the information going to the surround speakers so that they more closely match the tonal characteristics of the sound coming from the front speakers. This ensures seamless panning between the front and surround speakers.

THX can also be used with the 5.1 Movie DSP presets; see *THX*, page 93.

PLIIx Movie and PLIIx THX DSP preset parameters

Parameter	Options	What it changes
Surrounds	Rear, Side, All	Which of the four surround channels are generated by steering.
Pro Logic	Off, On	**On** selects an emulation of the original Pro Logic decoding.

TV Logic

TV Logic is a Logic preset based on Pro Logic IIx with the addition of user-adjustable steering, designed to give higher intelligibility and a more appropriate spatial presentation for studio-based TV material.

TV Logic DSP preset parameters

Parameter	Options	What it changes
Roll	Off, Low, Med, Max	The degree of left-right steering.
Yaw	Off, Low, Med, Max	The degree of front-rear steering.
Surrounds	Rear, Side, All	Which of the surround channels are generated by steering.

Mono

In the Mono DSP preset you can choose to listen to:

• Only one of two input channels, such as when different languages or material are carried on each channel.
• A combined version of the two input channels, such as if the material was originally mono and has been conveyed on a two-channel carrier.

If **Party?** is set to **No**, the combined or selected signal is played only through the centre speaker, or the left and right speakers if there is no centre, to centrally localise high-frequency hiss and clicks.

Note: If **Party?** is set to **Yes**, full range bass is played through any speakers that are not supplemented by a subwoofer, and this may damage small speakers at high volume levels.

Mono DSP preset parameters

Parameter	Options	What it changes
Input	Auto L+R, Input L, Input R, Input L+R	The channel selected.
Academy	Off or On	Select **On** to include an equalisation (recommended by Lucasfilm Ltd) to correct for a high-frequency balance in some old mono films.
Party?	No or Yes	Select **Yes** to play the mono signal through all speakers, including subwoofers.

DSP presets for multichannel material

Multichannel audio signals can come from either encoded data streams (such as Dolby Digital) or as discrete channels from a DVD player. If you are using Meridian SmartLink then all formats will reach the C61R as discrete channels. With suitable loudspeakers the C61R can upsample these to provide a more enjoyable surround experience.

The C61R Digital Surround Controller will automatically select the right decoder algorithm and present the same set of preset choices for all streams. **Note:** Some presets are only available if there are four surround speakers in the system.

There are four multichannel Music presets:

• Discrete, PLIIx Mus6, THX Music, and Ambisonics B format (discrete inputs only).

There are five multichannel Movie presets:

• Cinema, PLIIx Mov6, THX, THX Surround EX, and THX Ultra2 Cinema.

The multichannel Music presets all use the Music speaker layout and the multichannel Movie presets all use the 5.1 Movie speaker layout; see *Speaker layouts*, page 85.

Cinema
The Cinema preset is recommended for listening to multichannel movie soundtracks when no further processing is required.

Discrete
The Discrete preset is similar to Cinema, except that it uses the Music speaker layout and sets the LFE level to -10dB.

Discrete and Cinema DSP preset parameters

Parameter	Options	What it changes
2+2+2*	Off, 5.1, Side, 7.1	Allows you to specify how DVD Audio channels 3+4 should be interpreted: **Off** ignores them, **5.1** and **7.1** use them for centre and LFE, **Side** uses them for the side speakers, **7.1** adds side speakers to 5.1.
Surround†	Surr. Rear, Surr. Side, Surr. All	Allows you to specify which speakers the surround channels should be sent to in a system with four surrounds.
R Filter	Off, 1kHz, 3kHz, 7kHz	The cutoff of high frequencies from the rear surrounds.
S Filter	Off, 1kHz, 3kHz, 7kHz	The cutoff of high frequencies from the side surround.
LFE	-28dB to 0dB	The relative level of the LFE bass channel.

*Discrete only.
†Cinema only.

THX

As with the PLIIx THX DSP preset, THX re-equalises the signals to suit domestic listening conditions, and applies frequency-response correction and decorrelation to the surround channels to make the surround sound more realistic. It can be used whether or not your other equipment is THX approved.

THX DSP preset parameters

Parameter	Options	What it changes
Surround	Surr. Rear, Surr. Side, Surr. All	Switches the surround signal between the side and rear speakers.

PLIIx Mov6, THX Surround EX, PLIIx Mus6, THX Ultra2 Cinema, and THX Music

These presets are available if you have four surround speakers. They use Dolby Pro Logic IIx, Dolby Surround EX, and THX Ultra2 Cinema processing to generate multiple signals for larger home theatres.

PLIIx Mov6 uses extended PLII technology from Dolby to generate four surround signals from traditional multichannel source material like Dolby Digital 5.1. It is intended for use with movie soundtracks.

PLIIx Mus6 also creates four surround signals; it is intended for multichannel music playback from sources such as DVD-A or SACD music discs.

THX Ultra2 Cinema and THX Music use a THX proprietary process called advanced speaker array to provide a mix of ambient and directional surround sounds using four surround speakers. Optimum performance of THX Ultra2 Cinema and THX Music is produced when the two rear speakers are placed close together behind the listening position. THX Ultra2 Cinema is recommended for movie soundtracks that are not Dolby Surround EX encoded, and THX Music is recommended for listening to multichannel music.

PLIIx Mov6, THX Surround EX, PLIIx Mus6, THX Ultra2 Cinema, and THX Music preset parameters

Parameter	Options	What it changes
LFE	-28dB to 0dB	The relative level of the LFE bass channel.

Ambisonics
The Ambisonics preset allows you to decode multi-channel sources
which have been encoded in Ambisonics B format.

Ambisonics B format contains four independent channels of
information to give a three-axis representation of the sound at the
recording position. The signals are: mono sound pressure, left-right
velocity component, front-back velocity component, and up-down
velocity component.

Using dynamic range control
If the input format is Dolby Digital, the 5.1 Movie DSP presets
provide an additional **Compress** parameter to allow you to take
advantage of the dynamic range information provided in the
Dolby Digital format to provide dynamic range control without the
distortion involved in analogue methods.

Defining your own presets

The C61R Digital Surround Controller allows you to modify any of the built-in presets, and save them for future use.

You can either save the changes to the built-in preset, or you can create up to 10 presets of your own, with names of your choice, so you can use them alongside the built-in presets.

To save the preset settings
• Make sure the menus are unlocked; see *To run the Configuration Wizard,* page 17.
• Press **DSP** to select the preset you want to modify.
• Change the preset parameters to the values you want to store.
• Press **More** then **Store**, or **Function** + **Store** on the MSR+.

The display shows the next available user-defined preset. For example:

```
Pick Preset    User 1
to overwrite
        Store        ▼    ▲
```

• If you want to overwrite an existing user-defined preset press ▲ to select the preset you want to overwrite.

For example:

```
Pick Preset    Classical
to overwrite
        Store        ▼    ▲
```

Alternatively press ▼ to choose the built-in preset you started with. For example:

```
Pick Preset    Trifield
to overwrite
        Store        ▼    ▲
```

• Press **Store**.

The settings have been stored in the new or existing preset you selected.

If you are defining a user preset you can now edit the name of the preset if you wish.

A flashing cursor shows the letter you are editing:

```
Write label    User 1
for preset
    ◄    ►    ▼    ▲    Store
```

• Press ► or ◄ to select the character position you want to edit.
• Press ▲ or ▼ to change the character.

Each press steps through the sequence A to Z, a to z, 0 to 9, full stop, and blank. You can also select a blank directly by pressing **Clear** on the MSR+.

For example, you could change the name to:

```
Write label   Concert
for preset
  ◄    ►    ▼    ▲  Store
```

• When you have entered the name you want to use press **Store**.

The display shows:

```
Stored
  ◄    ►    ▼    ▲  Assign
```

To make the new preset the default for the current source and audio format:

• Press **Assign**.

To clear a user-defined preset
• Make sure the menus are unlocked; see *To run the Configuration Wizard*, page 17.
• Press **DSP** to select the preset you want to clear.
• Press **More** then **Clear**, or **Function** + **Clear** on the MSR+.

The display shows **Preset Clear**.

If you clear a preset that was saved over a built-in preset, the original settings are restored.

Troubleshooting

We expect you to achieve superb results with your digital surround controller. If, however, you encounter any problems, either when installing and configuring it, or during operation, please check the following pages for suggested solutions.
If these suggestions fail to cure the problem, please contact your Meridian dealer for further assistance.

General operating problems

Standby light not lit
• Check that the AC power supply is connected correctly.
• Check that the **ON OFF** switch on the back panel is in the **ON** position.

If the light still does not illuminate, check any fuses in your power supply and the fuse in the inlet of the C61R. If these are all intact, contact your dealer.

Erratic or unexpected system behaviour
Redo the Auto Configure process as follows:

• Put the whole system into standby.
• Make sure you are operating the MSR+ from a position where all the units can receive the infra-red.
• Press **Clear** on the MSR+.
• Observe all units responding correctly.

In extreme cases, the memory of the C61R may have been corrupted. If this is suspected perform a full reset; see *Resetting the product*, page 18.

Remote not working
Check the following:

• The battery in the MSR+.
• Remove the Comms connections from the C61R and check whether it responds now. If so, replace the connections and perform an Auto Configure procedure; see *To connect to other Meridian C Series, G Series, or 800 Series equipment*, page 15.
• See if the C61R has been set up as Not Controller in the Configuration Menu; see *Configuring other settings*, page 24. **Note:** This may be deliberate by your dealer.

When playing a Dolby Digital DVD, the C61R selects a two-channel preset
DVDs include a two-channel Dolby Digital soundtrack, which will use the default two-channel preset.

• Select a six-channel soundtrack, if it is available.

Unit is overheating
Check that there is adequate ventilation around the unit.

Audio problems

Hum on analogue input
• Check the source equipment. Disconnect each source in turn.
• If the hum originates from a ground loop, an antenna or cable supply may be the cause. In this case an antenna-lead isolator should be fitted.
• If the C61R seems to be the cause of hum consult your dealer.

There is radio interference
The C61R is a digital audio and computing device which has been designed to very high standards of electromagnetic compatibility.

If this equipment does cause or suffer from interference to/from radio or television reception then the following measures should be tried:

• Reorient the receiving aerial (or antenna) or route the antenna cable of the receiver as far as possible from the C61R and its cabling.
• Ensure that the receiver uses well-screened antenna cable.
• Relocate the receiver with respect to the C61R.
• Connect the receiver and this product to different AC outlets.
• If the problem persists contact your dealer.

Sound not clear
• If speech sounds muffled in a system with a centre speaker, check that sound is coming from the centre as there may be a connection problem. In a digital or Meridian feed to the centre you may have set it up to be right instead of left so that it is playing a subwoofer signal.

• If speech sounds muffled in a system with no centre speaker, you may have selected a layout that expects one. See *Configuring speakers*, page 20.

Audible hiss at high volume settings
The input dynamic range of most current recordings is at maximum 16 bit. The reason for this is that currently CD, DVD, and LaserDisc use a 16-bit standard, although DVD can support up to 24-bits. The analogue sources you have cannot achieve this kind of range. For comparison, analogue sources are likely to be of the order of:

• VCR, 12 bits.
• FM radio, 13 bits.
• Reel to reel tape, 13 bits.
• Cassette tape, 12 bits.
• LP, 11 bits.

Note: There may be a difference between the dynamic range of the source channel when it is operating, and the noise you hear in standby. For example, LP normally has lower noise when the stylus is not in the groove; similarly tape will be quieter when it is stopped. CD may also be quieter when it is stopped, producing so called 'digital silence'.

The C61R has a 24-bit capability on its internal analogue-to-digital converter, which is used for analogue sources. When the volume is turned up high you may hear its dither as a hiss when the sources are stopped. This hiss is lower than the background noise of your recordings and should be of no consequence.

Centre not working
There may be a connection problem.

• In a digital or Meridian feed to the centre, you may have set it up to be right instead of left, and therefore it may be playing a subwoofer signal.

There is a hiss when starting DTS LaserDiscs or CDs
The DTS audio stream is indistinguishable from a PCM audio stream; the C61R takes 30ms to identify the encoding, during which a hiss is heard.

• With non-video DTS sources you can add a 30ms delay to avoid this.
• With video sources you can create a DTS-only source to avoid any hiss.

For more information about each of these options see *Meridian Configuration Program*, page 35.

The preset changes unexpectedly with a multichannel source
If you are using a non-Meridian source on the MHR SmartLink input, proprietary data may cause preset switching.

• Select **Force this source to be six-channel** for the source. See *Meridian Configuration Program*, page 35.

Room Correction problems

This section gives suggested solutions to typical problems that may occur when using Meridian Room Correction. If problems still persist after working through the following steps please send an email to support@meridian.co.uk with a zip file containing your MSL file. Please also supply details of the loudspeakers and amplifiers you are using.

Failed microphone/SPL meter test
During the first measurement a microphone test is performed to ensure that the power and SNR (signal to noise ratio) are acceptable. The larger the SNR the better the measurement.

The following sections describe some of the most likely problems which will cause the power and SNR values to go outside these ranges.

Power result "Bad"
This indicates that there is very little or no signal on the connector you have chosen as your microphone input.

• Check that there was sound from the front left speaker during the test.

If in doubt, repeat the measurement. If there is still no sound check the connections from the digital surround controller to the left loudspeaker. Switch the digital surround controller off and then on again, select **Calibrate** as described in the installation guide for your digital surround controller, and check that the left speaker plays the calibration signal.

• Ensure that the lead from the SPL meter is intact.
• Check that the SPL meter is switched on and set to the 90dB band, or the band which includes 90dB, and with C weighting.

If the loudspeakers measured less than 75dB SPL during the calibration phase it may be better to use the 80dB range.

• Check that the lead from the SPL meter is connected to the correct input,
A8 (L) on the G68.
• Ensure that the **Sensitivity** setting is adequate for the SPL meter or microphone.

The sensitivity value for analogue inputs is given in rms volts (Vrms). For example, a sensitivity of 1Vrms allows a signal of 2.8Vpp. A sensitivity of 1V is recommended for use with most SPL meters though 0.7V may be preferable for those with lower level output.

Power OK, SNR result "Bad"
The most likely cause of this problem is that an analogue source is connected to the input chosen for the microphone.

• Check that the lead from the SPL meter is connected to the input you have chosen for the microphone test.

Another possibility is that the lead from the SPL meter is in bad condition and only making a poor connection.

Power OK, SNR result "Poor"
The reasons for this are described in detail in the following section where example measurements are also shown.

Repeated measurements due to poor SNR
Measurements are retried until the SNR is acceptable or the maximum number of retries has been completed. The maximum number of times each measurement will be retried due to poor SNR can be set in the **Preferences** dialogue box, accessed from the **Options** menu:
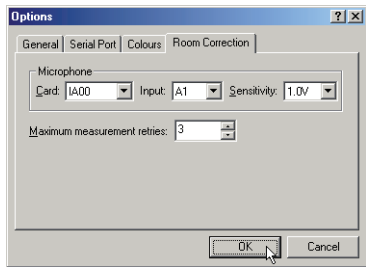
The default number of retries is 3. If the measurements are consistently giving poor SNR figures you can reduce the number of retries. However, it is better to follow the steps described below to improve the measurement conditions. The better the measurement the more accurate the results when calculating the filters for a profile.

SPL meter is set on a low band
The following graph shows an impulse response obtained when a Radio Shack SPL meter was set on the 60dB band. The SNR value was "Poor":
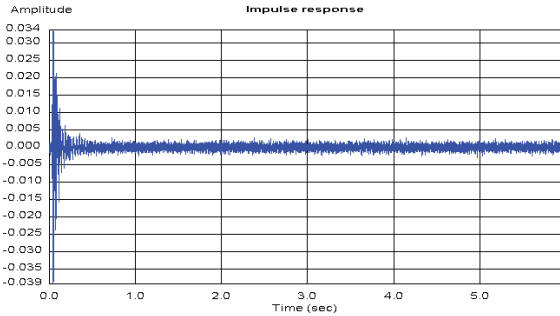
SPL meter is set on a high band
The following graph shows an impulse response obtained when a Radio Shack SPL meter was set on the 120dB band. The tail of the response is generally noisy. The SNR value was acceptable but the power was "Bad":
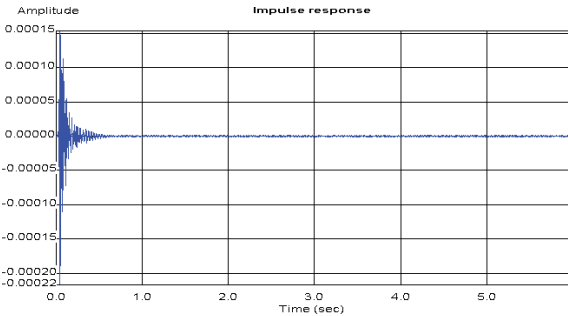
Loudspeaker is running in a non-linear range

The effects of a loudspeaker running in a non-linear range is most easily observed in the impulse response. The tail of the response has small spikes, as shown in the plot below, where it should be zero. The larger these spikes are relative to the largest value at the beginning of the impulse response the smaller the SNR value:
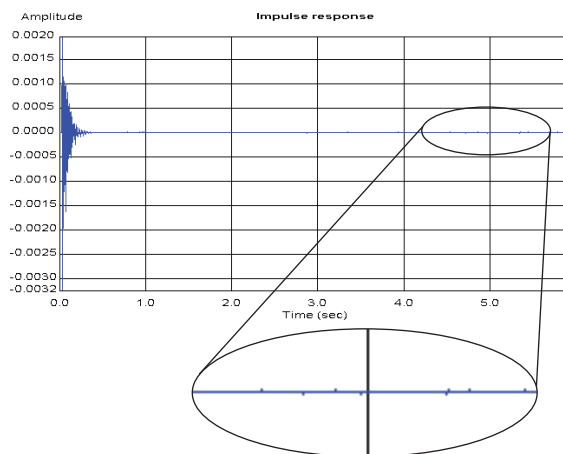
• Check that the bass protection size has been correctly set – see the Installation Guide for your product.
• Check that the bass drive unit in your loudspeaker is not rubbing.
• Check that your amplifier is not clipping.

If problems are still encountered, use the **Speaker calibration** page to reduce the gain of the channel. Use the reduced gain setting for the room correction measurements, then return to the correct level for a calibrated system after running room correction measurements.

Hum in the system

The effect of hum on the measurement is most easily observed in the waterfall plot. The continuing signal at 50Hz and 150Hz in the waterfall plot shown below indicates a mains hum loop:
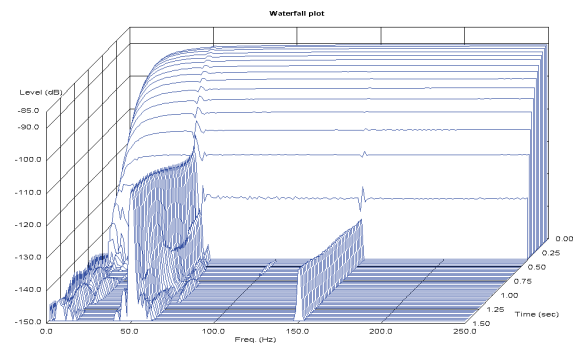
You are likely to have heard this level of hum when playing analogue sources connected to the same analogue input card as the microphone/SPL meter.

In order to get a better measurement disconnect analogue sources from the analogue input card used for the room correction measurements. Reorganise your speaker wiring to remove the hum loop.

Hum may also be picked up by the lead from the microphone/SPL meter. It is best to use a shielded cable to reduce the chances of picking up hum.

Maintenance

Cleaning

To clean the case, display panel, and keypad
• Disconnect the power cord before cleaning the unit.

The exterior surfaces of Meridian G Series products are made from solid anodised aluminium, powder coated steel, thermoplastic rubber, and glass.

They are designed to be easily wiped clean with a dry, lint free cloth. Greasy marks should be removed by light rubbing with a slightly damp cloth and a trace of proprietary glass cleaner. Do not use any other solvent or abrasive based cleaners.

Ensure that no liquid enters the casework and that the product is completely dry before re-connection.

To clean the audio and video connections
The audio and video sockets on the back of the product are gold plated and do not need to be cleaned if gold-plated phono plugs are used. Otherwise, it is recommended that you unplug and reconnect the plugs at least once a year. A proprietary contact cleaner can be used to some advantage.

The electrical digital output should be treated in a similar way.

To change the mains fuse
• Remove the mains connector, and pull out the drawer above the power input to access the fuse.

Before replacing a blown fuse, it is best to ascertain the cause of the failure.

The fuse drawer includes a spare fuse. This should be replaced by a fuse of the same rating.

Service and guarantee

Service

The Meridian C Series of hi-fi components has been carefully designed to give years of untroubled service. There are no user-serviceable parts inside the case, nor do the units require any form of maintenance.

In the unlikely event that your product fails to function correctly, it should be returned, in its original packaging, to your Meridian dealer.

In case of difficulty within the UK or USA please contact the appropriate sales and service address shown on page iv.

In case of difficulty outside the UK or USA, contact the importing agent for the territory. A list of Meridian agents outside the UK is available from Meridian Audio.

No responsibility can be accepted for the product whilst in transit to the factory or an agent, and customers are therefore advised to insure the unit. When seeking service under guarantee, proof of the date of purchase will be required.

Guarantee

The product is guaranteed against defects in material and workmanship for two years from the date of purchase.

The guarantee is void if the product has been subject to misuse, accident, or negligence, or has been tampered with or modified in any way without the written authorisation of Meridian Audio Limited. **Note:** Connecting anything other than the correct network lead to the Comms sockets may cause damage to the product which will not be covered by this guarantee. Attempted servicing by unauthorised people may also invalidate this guarantee. Labour and carriage charges are not covered unless by local agreement.

Outside the UK, local warranty liability is restricted to equipment purchased within the territory. Our agents outside the UK are only under contractual obligation to service under-guarantee equipment sold through them. They are entitled to make a non-refundable charge for any service carried out on other equipment.

This guarantee does not limit your statutory rights within the country of purchase.