

# Meridian DSP Loudspeaker User 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.
- Do not disassemble – no user-servicable parts inside.

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).

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

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

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

## To avoid overheating

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

Do not position the unit:

- In direct sunlight.
- Near heat sources, such as a radiator.
- Directly on top of heat producing equipment.

## To avoid interference

Do not position the unit:

- Near strong electrical or magnetic radiation, such as near a power amplifier.

## 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.



# Contents

<b>Introduction</b>	<b>1</b>	<b>Configuring the DSP loudspeakers</b>	<b>27</b>
Meridian DSP loudspeakers	2	Choosing standard settings	28
Sample configurations	4	Specifying information about your system	30
<b>DSP5200 and DSP5200HC</b>	<b>7</b>	Configuring the sources	33
Unpacking	8	<b>Troubleshooting</b>	<b>35</b>
Specifications	10	Troubleshooting	36
<b>DSP7200 and DSP7200HC</b>	<b>11</b>	Cleaning	37
Unpacking	12	Service and guarantee	38
Specifications	14	<b>Index</b>	<b>39</b>
<b>Connecting up the DSP loudspeakers</b>	<b>15</b>		
Connecting the loudspeakers	16		
Connecting to other equipment	17		
<b>Using the DSP loudspeakers</b>	<b>21</b>		
Selecting a source	22		
Changing the display	23		
Adjusting the volume	24		
Changing the treble, bass, or phase	25		
Changing the listening position	26		

# Copyright and acknowledgements

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Part no: DSPU/12 (P88438)

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# Introduction

Welcome to the Meridian DSP loudspeaker range.

This user guide provides full information about using the DSP loudspeakers in conjunction with your other equipment, to achieve the superb results you can expect from them.



# Meridian DSP loudspeakers

Meridian DSP loudspeakers represent the fruits of more than 30 years of continuous development of loudspeakers as musical instruments. The finest materials and state-of-the-art design are combined to create what we believe is the ultimate range of home loudspeakers.

## Digital Signal Processing

Digital Signal Processing, or DSP, is a technique pioneered by Meridian in hi-fi products for achieving extremely accurate reproduction of audio signals using high-precision mathematical processing.

DSP allows sophisticated processing to be performed without any of the cumulative noise or degradation that inevitably occurs, even with high-quality analogue circuitry. In addition, the signal improvement techniques incorporated in the Meridian DSP loudspeakers would be virtually impossible to implement in the analogue domain.

The Meridian DSP loudspeakers take advantage of DSP for several different functions:

- To remove timing variations from the incoming digital signals (de-jittering).
- To split the audio frequency band between bass, mid-range, and treble drivers (crossover).
- To perform filtering or adjustment of the frequency response; eg treble or bass.
- To provide volume control to 48-bit precision.
- To provide digital protection of the loudspeakers against high-level low-frequency transients.
- To perform electronic equalisation.

If you are using the Meridian DSP loudspeakers with a digital source, such as CD or DVD, the signals remain in digital form until the last possible stage.

## DSP loudspeaker drivers

Each DSP loudspeaker uses custom drive units carefully matched to the cabinet and driver electronics. Every design is matched tonally to maximise compatibility when used in a multichannel theatre system.

Standard models use long-throw bass units and a very high quality 25mm (1") Meridian treble unit. This is a piston in a short horn using an aluminium dome and a silver voice-coil.

Special Edition models use a variation of the bass units fitted with solid metal rings that clamp the driver more firmly in the cabinet. They use a similar treble unit but with a lighter, more rigid, beryllium dome. This combination allows the Special Edition loudspeakers to have a more controlled transient response across a wider frequency range.

## Power amplifiers

The speakers are driven by multiple independent high-power, low-feedback power amplifiers. The combination of idealised magnetic design, careful star earthing, and very fast output devices gives the amplifiers extremely low noise, high detail, and fast bass.

The whole electronic assembly is supplied from substantial toroidal transformers feeding high-quality, audiophile-grade capacitors.

## Cabinet

Each DSP loudspeaker is carefully designed with internal bracing and damping to give incredibly low levels of cabinet resonance, resulting in low coloration and excellent mid-range transparency.

The DSP5200 and DSP5200HC are constructed using lacquer finished plywood, braced and resin damped to produce an ultra-rigid cabinet.

The DSP7200 cabinet is fabricated from curved pressure-laminated panels, using multiple layers of selected woods and metal to achieve high stiffness and damping. Its narrow tapered shape gives optimum dispersion over a wide listening area.

Each cabinet stands on adjustable machined feet which can be fitted with spikes or skids.

## Mounting options

In addition to the main vertical speakers, designed for use as the left/right speakers in a system, each model includes a single horizontal centre and/or a single vertical centre, designed for use as the centre speaker in a surround system.

The DSP5200HC and DSP7200HC are horizontal centre versions, designed for use either above or below a television. If used below a screen you can use the centre elevation feature to raise the perceived source of the audio. As well as improving the sense of dialogue coming from centre stage, this enhances the integration of sounds that pan from left and right.

## Meridian High Resolution (MHR)

All Meridian DSP loudspeakers support Meridian High Resolution (MHR), to allow you to connect to other MHR-compliant Meridian products to take advantage of high-rate audio sources, and provide the additional benefits of lower jitter and improved sound quality on all sources.

MHR is a proprietary secure encoding format that uses encryption and anti-copy methods to provide a secure copyright protection environment, and allow the secure transfer of audio streams within a Meridian-only system for playback only.

## Meridian Comms

Meridian DSP loudspeakers are part of the Meridian family of advanced digital, analogue, and video

components. These incorporate a sophisticated communications link, called Meridian Comms, to allow you to control any combination of units using a single remote, and ensure that they will work together as a fully integrated system.

The Meridian SpeakerLink connectors provide both Meridian Comms control and two-channel balanced digital audio in a single convenient SpeakerLink lead.

Meridian Comms also allows you to extend your hi-fi system into two or three rooms, with the ability to control the sources in one room from the controller in another room.

The following pages show two recommended configurations based on the Meridian DSP loudspeakers to illustrate the flexibility of Meridian components.

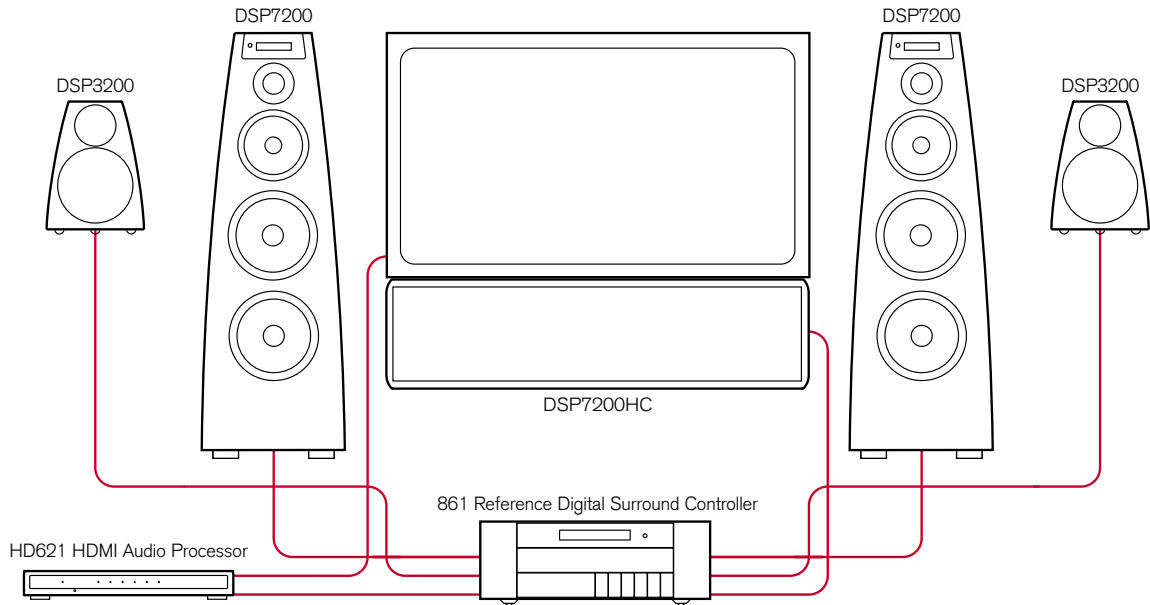
## Available accessories

Other applications, and some advanced features, may require one or more of the following accessories, which can be purchased from your Meridian dealer:

- MSR+ remote.
- Interconnecting leads.
- AC11 SpeakerLink Hub, to allow interconnection between newer products with SpeakerLink connectors, and products with Meridian BNC Comms or Meridian DIN Comms connectors.
- AC12 SpeakerLink accessory, to allow interconnection to older Meridian source or controller products.

## Sample configurations

### Meridian Digital Theatre™

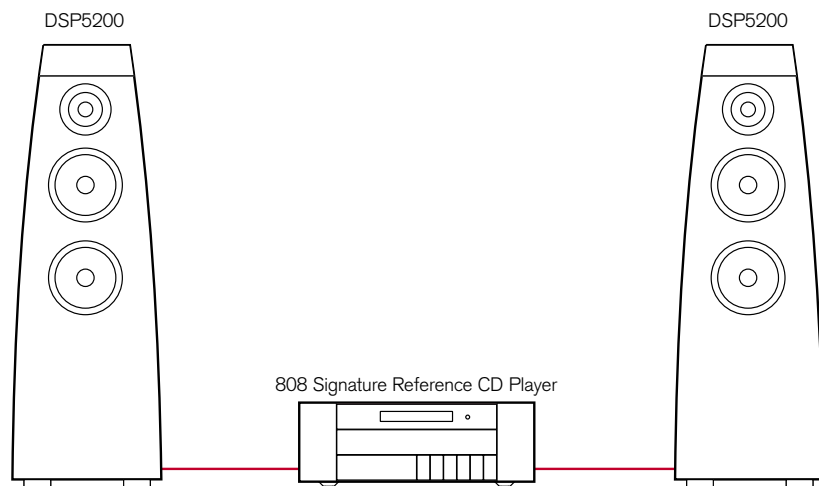


Up to eight Meridian DSP loudspeakers can be used in conjunction with a Meridian surround controller, such as the 861 Reference Digital Surround Controller, to create a digital surround system with superb music and cinema sound.

The HD621 integrates HDMI switching seamlessly into a Digital Theatre system, separating the audio from the video stream and allowing the best possible audio playback from HDMI sources.



## Meridian Digital Music System



Meridian DSP loudspeakers include DSP volume and tone controls, and be connected directly to digital sources, such as the 808 Signature Reference CD Player, to create an compact high-quality music system.



# DSP5200 and DSP5200HC

This chapter explains how to unpack and install the DSP5200 and DSP5200HC, and gives specifications.



# Unpacking

Before you begin installation you should ensure that your DSP loudspeakers are the correct voltage for your local AC supply. If they are not, do not try to install them, and contact your dealer.

You should not make any connections to the DSP loudspeakers, or to any other component in your system, while the AC power supply is connected and switched on.

## Care when unpacking

Take great care when unpacking or repacking the DSP loudspeakers that you do not put undue pressure on the face containing the drive units, as they may be damaged if pressed.

## Components

Each pair of DSP loudspeakers is supplied with the following components:

- The DSP loudspeakers complete with grilles.
- A hex wrench (3mm) for the drive units.
- Eight spikes with locknuts and washers (standard DSP5200 only).
- Four rubber bumpons (DSP5200HC only).
- One power cord per speaker.
- This user guide.

If any of these items is missing please contact your dealer. We suggest that you retain the packaging carefully for maximum protection in transit.

## Caution

Meridian Audio has taken every care in the design, assembly, finishing and packing of this product. Some models include a high-gloss finish, which is achieved by painting up to five coats of polyester lacquer onto the plywood, each one hand polished.

Due to the product size and high technology cabinet construction, small marks on the lacquer surface may

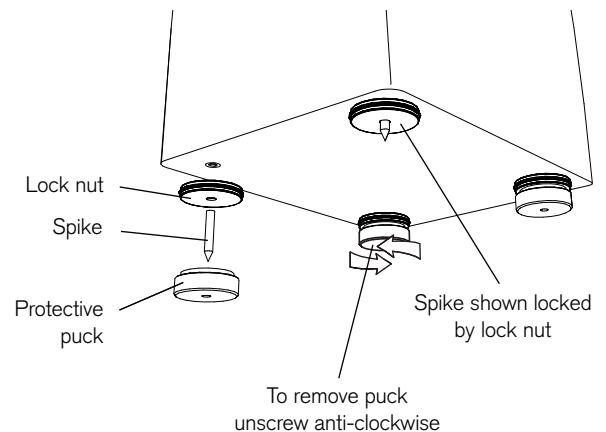
be visible when unpacked. These small marks can usually be removed as described in *Cleaning*, page 37.

It is the nature of all lacquer finishes to shrink over time. This is unavoidable and may result in cabinet joint lines becoming visible.

Meridian Audio has supplied products using lacquer finishes for many years and we are confident that when carefully used your product will return a lifetime's enjoyment.

## To adjust the feet (DSP5200 SE only)

Each DSP loudspeaker has four feet consisting of a metal spike which threads into the loudspeaker cabinet, a large silver lock nut, and a black protective puck. The spikes can be adjusted to allow for uneven floors in order to ensure that the loudspeakers have a stable base.



On carpeted floors all parts can be fitted and the spike should be adjusted so that it extends through the puck and penetrates the carpet pile to the floor underneath. Where a carpet has a deep pile you can fully unscrew and remove the puck to expose more of the spike.

Once the speakers are upright in their playing positions adjust the spikes until the loudspeakers are stable and tighten the lock nuts to prevent the spikes moving in the cabinet.

On solid floors that can be damaged by the spike the foot should be adjusted so that the spike does not protrude through the puck, leaving the puck to support the weight of the loudspeaker. Lock the spike in place with the lock nut, and screw the puck on firmly.

### To fit the spikes (standard DSP5200 only)

The standard DSP5200s are shipped with protective feet. These can be changed to spikes if you prefer. The spikes can be adjusted to allow for uneven floors in order to ensure that the loudspeakers have a stable base.

Remove the feet by unscrewing them and their attaching bolt. Replace the assembly with the supplied washer, spike, and lock nut.

Once the speakers are upright in their playing positions adjust the spikes until the loudspeakers are stable and tighten the lock nuts to prevent the spikes moving in the cabinet.

### To fit the rubber bumpons (DSP5200HC only)

- Attach four bumpons to the underside of the speaker, using the self-adhesive pads.

### To tighten the drive units

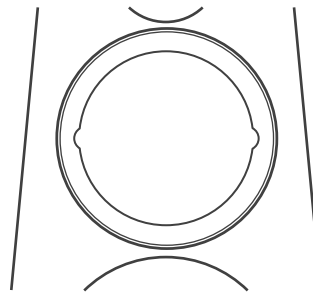
The DSP loudspeakers typically take about two weeks of normal use for the drive units to settle. It is therefore recommended that you tighten the mounting bolts on each drive unit every few days during this period. Tighten the bolts in symmetrically opposite pairs using the 3mm hex wrench supplied.

You should then check and if necessary re-tighten the drive units every few years.

### To remove the grilles

The grilles are deliberately designed to fit tightly to avoid vibration during operation, and they should be removed using the following procedure to avoid damaging the loudspeaker.

The grille consists of elastic material stretched tightly over a plastic ring. The plastic ring includes two indentations at the three o'clock and nine o'clock positions, which you can locate by gently depressing the grille fabric.



Hold the ring by one of the indentations by depressing the grille fabric with your thumb, and then wiggle the ring forwards until it comes free of the speaker. The grille fabric is very resilient and any depressions will soon disappear.

**Note:** On no account attempt to remove the grille with a hard object, or attempt to lever it out from the outside edge, as you will damage the edge of the speaker surround and the grille itself.

# Specifications

## Connections

- Meridian SpeakerLink (RJ45) input and output, providing balanced digital audio, Meridian Comms, and serial interface.
- Digital co-axial input and output.
- Meridian BNC Comms input and output.

## Signal processing

- 1 x Freescale 56367 running at 150MHz.
- Special Edition: 2 x Freescale 56367 running at 150MHz.
- 2 x 24-bit Multi-bit delta-sigma DACs with 128x oversampling.
- Crossover minimum-phase at 2.6kHz.

## Output stages

- Power amplifiers: Complementary bipolar design, with output-stage error correction and twin loop design.
- Bass: 2 x 75W.
- Treble: 75W.

## Acoustic

- 2½ way.
- Ported bass enclosure.
- Isolated mid enclosure.
- Bass drive unit: 2 x 160mm (6") custom polypropylene driver.
- Treble drive unit: 1 x 25mm (1") Meridian piston in short horn, aluminium dome with silver voice-coil.
- Special Edition treble drive unit: 1 x 25mm (1") Meridian piston in short horn, beryllium dome with silver voice-coil.

## Characteristics

- Distortion: typically <0.02% up to full power.
- Noise and hum: <-94dB at all volume settings.
- Acoustic output: typically >108dB spl @ 1m.
- Acoustic noise: <15dB spl @ 1m.
- Frequency response: in room response within 3dB, 35Hz–20kHz.
- Special Edition frequency response: in room response within 3dB, 35Hz–32kHz.

## Cabinet

- Entire speaker manufactured from interlaminated panels.
- Individually covered grilles for bass units.
- Finished in high-gloss piano lacquer.
- 8-character display with system lights.
- DSP5200: 300mm x 903mm x 356mm (11.8" x 35.6" x 14.0") (W x H x D).
- DSP5200HC: 735mm x 201mm x 267mm (29.0" x 7.9" x 10.5") (W x H x D).
- 27kg (59.5lbs) each.

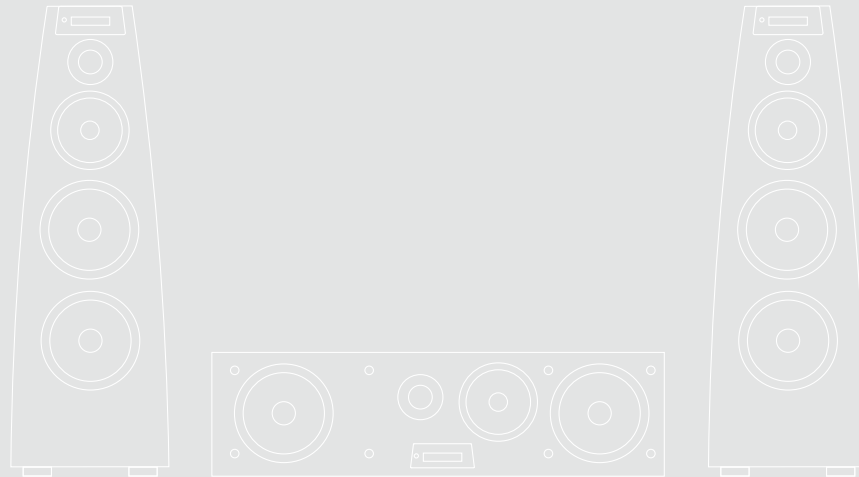
## Power

- 100-125; 200-250V AC 50-60Hz.
- 20VA standby; 600VA max.

Meridian Audio reserves the right to amend product specifications at any time.

# DSP7200 and DSP7200HC

This chapter explains how to unpack and install the DSP7200 and DSP7200HC, and gives specifications.



# Unpacking

Before you begin installation you should ensure that your DSP loudspeakers are the correct voltage for your local AC supply. If they are not, do not try to install them, and contact your dealer.

You should not make any connections to the DSP loudspeakers, or to any other component in your system, while the AC power supply is connected and switched on.

## Unpacking

The unpacking instructions are provided on a separate leaflet enclosed with the speakers. Please refer to this before proceeding.

## Care when unpacking

Take great care when unpacking or repacking the DSP loudspeakers that you do not put undue pressure on the face containing the drive units, as they may be damaged if pressed.

## Components

Each pair of DSP loudspeakers is supplied with the following components:

- The DSP loudspeakers complete with grilles.
- A hex wrench (3mm) for the drive units.
- One power cord per speaker.
- This user guide.

If any of these items is missing please contact your dealer. We suggest that you retain the packaging carefully for maximum protection in transit.

## Caution

Meridian Audio has taken every care in the design, assembly, finishing and packing of this product. The high gloss finish on parts of the cabinet is achieved by painting up to five coats of polyester lacquer onto the plywood, each one hand polished.

Due to the product size and high technology cabinet construction, small marks on the lacquer surface may be visible when unpacked. These small marks can usually be removed as described in *Cleaning*, page 37.

It is the nature of all lacquer finishes to shrink over time. This is unavoidable and may result in cabinet joint lines becoming visible.

Meridian Audio has supplied products using lacquer finishes for many years and we are confident that when carefully used your product will return a lifetime's enjoyment.

## To adjust the feet (DSP7200 only)

Each DSP loudspeaker has three feet consisting of a metal spike which threads into the loudspeaker cabinet, a large silver lock nut, and a black protective puck.

On carpeted floors the puck can be pulled off so that the spike can reach through the pile to the floor beneath. Once the speakers are upright in their playing positions adjust the spikes until the loudspeakers are stable and tighten the lock nuts to prevent the spikes moving in the cabinet.

On solid floors that can be damaged by the spike the puck should be pushed onto the spike to support the weight of the loudspeaker. Tighten the lock nuts to prevent the spikes moving in the cabinet.

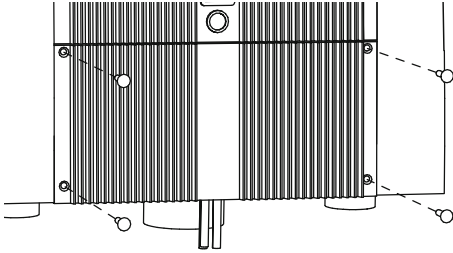
## To connect the cables (DSP7200 only)

Connections to each loudspeaker are made to the input/output panel, which is located at the base of the loudspeaker to the rear.

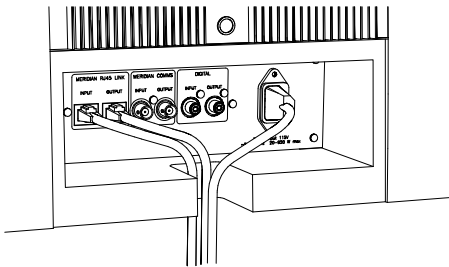
The connections are hidden by a separate plate attached with four 3mm hex bolts.



Use the supplied wrench to remove this cover plate before making any connections:



Connect the loudspeakers as required (see *Connecting the loudspeakers*, page 16), then lead all the cables neatly through the slot in the base of the cabinet:



Finally refit the cover plate into position, concealing the input/output panel and connections.

### To tighten the drive units

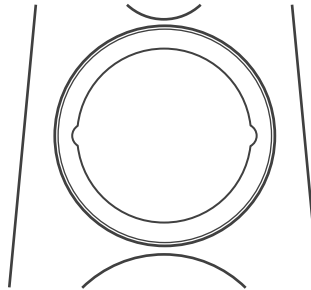
The DSP loudspeakers typically take about two weeks of normal use for the drive units to settle. It is therefore recommended that you tighten the mounting bolts on each drive unit every few days during this period. Tighten the bolts in symmetrically opposite pairs using the 3mm hex wrench supplied.

You should then check and if necessary re-tighten the drive units every few years.

### To remove the grilles (DSP7200)

The grilles are deliberately designed to fit tightly to avoid vibration during operation, and they should be removed using the following procedure to avoid damaging the loudspeaker.

The grille consists of elastic material stretched tightly over a plastic ring. The plastic ring includes two indentations at the three o'clock and nine o'clock positions, which you can locate by gently depressing the grille fabric.



Hold the ring by one of the indentations by depressing the grille fabric with your thumb, and then wiggle the ring forwards until it comes free of the speaker. The grille fabric is very resilient and any depressions will soon disappear.

**Note:** On no account attempt to remove the grille with a hard object, or attempt to lever it out from the outside edge, as you will damage the edge of the speaker surround and the grille itself.

### To remove the grilles (DSP7200HC)

The DSP7200HC grille frame has been designed to be as acoustically transparent as possible, and is quite fragile. When removing the grille, ease it carefully off by hand from the four corners, avoiding excessive bending of the frame.

**Note:** On no account use a tool to remove the grille as this can scratch the cabinet or tear the grille fabric.

# Specifications

## Connections

- Meridian SpeakerLink (RJ45) input and output, providing balanced digital audio, Meridian Comms, and serial interface.
- Digital co-axial input and output.
- Meridian BNC Comms input and output.

## Signal processing

- 1 x Freescale 56367 running at 150MHz.
- Special Edition: 2 x Freescale 56367 running at 150MHz.
- 4 x 24-bit Multi-bit delta-sigma DACs with 128x oversampling.
- Crossover minimum-phase at 2.6kHz.

## Output stages

- Power amplifiers: Complementary bipolar design, with output-stage error correction and twin loop design.
- Bass: 2 x 150W.
- Mid: 150W.
- Treble: 150W.
- Total: 600W.

## Acoustic

- 3½ way.
- Ported bass enclosure.
- Isolated mid enclosure.
- Bass drive unit: 2 x 200mm (8") high-efficiency long-throw custom drivers.
- Mid drive unit: 1 x 160mm (6") custom polypropylene driver using phase plug.
- Treble drive unit: 1 x 25mm (1") Meridian piston in short horn, aluminium dome with silver voice-coil.
- Special Edition treble drive unit: 1 x 25mm (1") Meridian piston in short horn, beryllium dome with silver voice-coil.

## Characteristics

- Distortion: typically <0.02% up to full power.
- Noise and hum: <-94dB at all volume settings.
- Acoustic output: typically >112dB spl @ 1m on music material.
- Acoustic noise: <15dB spl @ 1m.
- Frequency response: in room response within 3dB, 28Hz–20kHz.
- Special Edition frequency response: in room response within 3dB, 28Hz–32kHz.

## Cabinet

- Entire speaker manufactured from interlaminated panels.
- Finished in high-gloss piano lacquer.
- 8-character display with system lights.
- DSP7200: 350mm x 1072mm x 415mm (13.8" x 42.2" x 16.3") (W x H x D).
- DSP7200HC: 1060mm x 295mm x 478mm (41.7" x 11.6" x 18.8") (W x H x D).
- DP7200: 55kg (121lb) each.
- DP7200HC: 64kg (141lb).

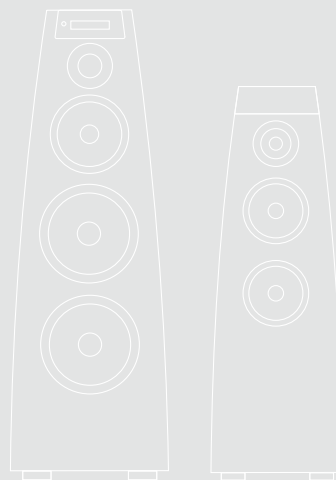
## Power

- 100-125; 200-250V AC 50-60Hz.
- 20VA standby; 920VA max.

Meridian Audio reserves the right to amend product specifications at any time.

# Connecting up the DSP loudspeakers

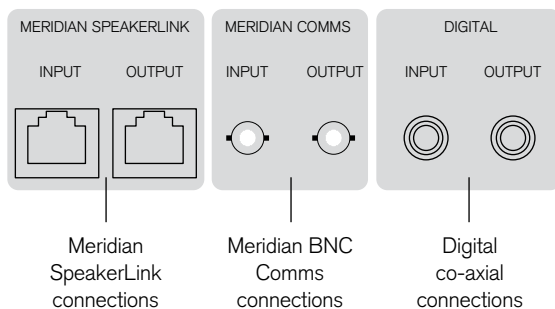
This chapter explains how you should connect your DSP loudspeakers to the other audio equipment in your system.



# Connecting the loudspeakers

## Back panel

The following diagram gives details of the back panel connections:



You can connect to the DSP loudspeakers using either the SpeakerLink connectors, or the Meridian BNC Comms and digital co-axial connectors.

## Connecting using Meridian SpeakerLink

The Meridian SpeakerLink connectors provide both balanced digital and Meridian Comms control in a single SpeakerLink lead. The following table gives details of these connections:

Use this connection	To connect to this
MERIDIAN SPEAKER-LINK INPUT	A digital source such as a Meridian Surround Controller, Audio Core, or Media Source.
MERIDIAN SPEAKER-LINK OUTPUT	A second (Slave) DSP loudspeaker.

The digital connections should be made with SpeakerLink leads. Suitable cables are available from your Meridian dealer. Standard CAT5 computer cables may also be used.

We do not recommend the use of cables longer than 50 metres. Only connect the cables to the output of a Meridian product.

## Connecting using the Meridian BNC Comms and digital co-axial connectors

The following table gives details of these connections:

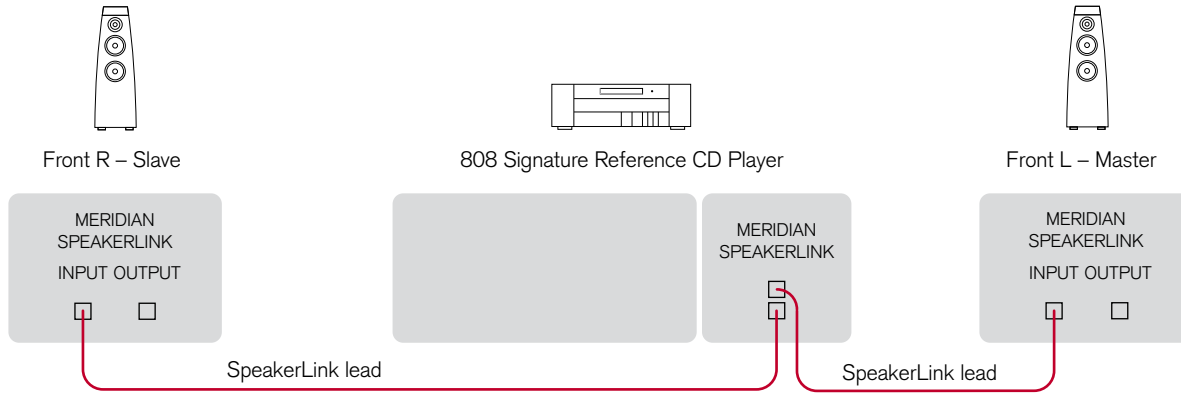
Use this connection	To connect to this
MERIDIAN COMMS INPUT	The BNC COMMS connection on a Meridian control unit or preamplifier.
MERIDIAN COMMS OUTPUT	The BNC COMMS INPUT on a second DSP loudspeaker.
DIGITAL INPUT	A digital source such as a Meridian G Series digital surround controller, digital preamplifier, CD player, or DVD player.
DIGITAL OUTPUT	A second (Slave) DSP loudspeaker.

The Comms connections should be made with BNC to BNC leads. Suitable cables are available from your Meridian dealer. Standard computer BNC to BNC cables may also be used.

The digital connections should be made with high-quality  $75\Omega$  screened cable. Suitable cables are available from Meridian. We do not recommend using audio cables, which do not have adequate shielding or the correct impedance, or cables intended for UHF applications, as these do not provide adequate shielding in the 1–30MHz region.

# Connecting to other equipment

## To connect to a Meridian product using SpeakerLink (home run)



You can create a complete system by connecting a pair of DSP loudspeakers directly to a digital source. The DSP loudspeakers include volume, balance, and tone controls allowing you to control the system using an MSR+.

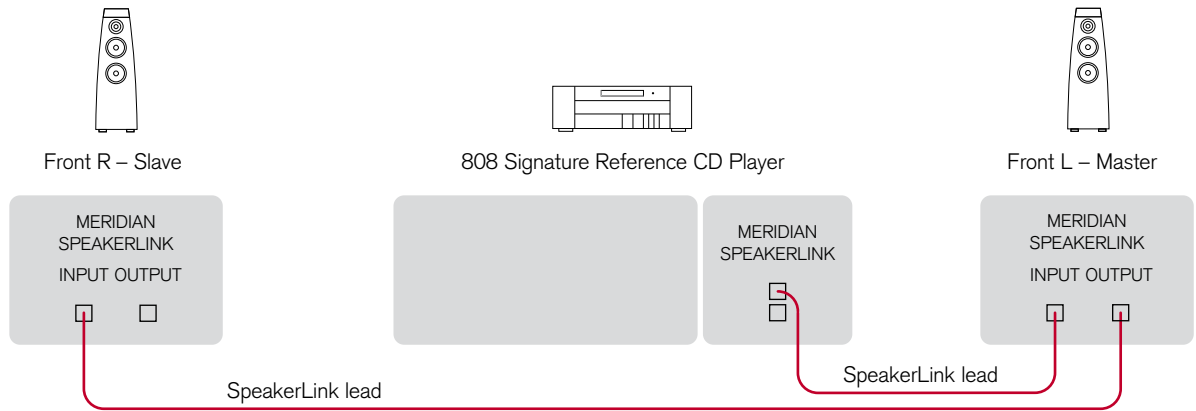
If the Meridian source or control unit includes a Meridian SpeakerLink output, such as the Meridian 808 Signature Reference CD Player, you can make all the connections using SpeakerLink leads. The Meridian SpeakerLink connection provides both two-channel digital audio and Meridian Comms control.

This is an alternative to the “daisy chain” wiring configuration shown in the next section.

- Connect the upper SpeakerLink output from the Meridian product to the SpeakerLink input on the DSP loudspeaker chosen as the Master, using a SpeakerLink lead.
- Connect the lower SpeakerLink output from the Meridian product to the SpeakerLink input on the other (Slave) DSP loudspeaker, using a second SpeakerLink lead.

- Configure the Master DSP loudspeaker as **M.RJ45** and the Slave DSP loudspeaker as **S.RJ45**; see *To choose Master or Slave and the primary connector*, page 28.

## To connect to a Meridian product using SpeakerLink (daisy chain)



You can create a complete system by connecting a pair of DSP loudspeakers directly to a digital source. The DSP loudspeakers include volume, balance, and tone controls allowing you to control the system using an MSR+.

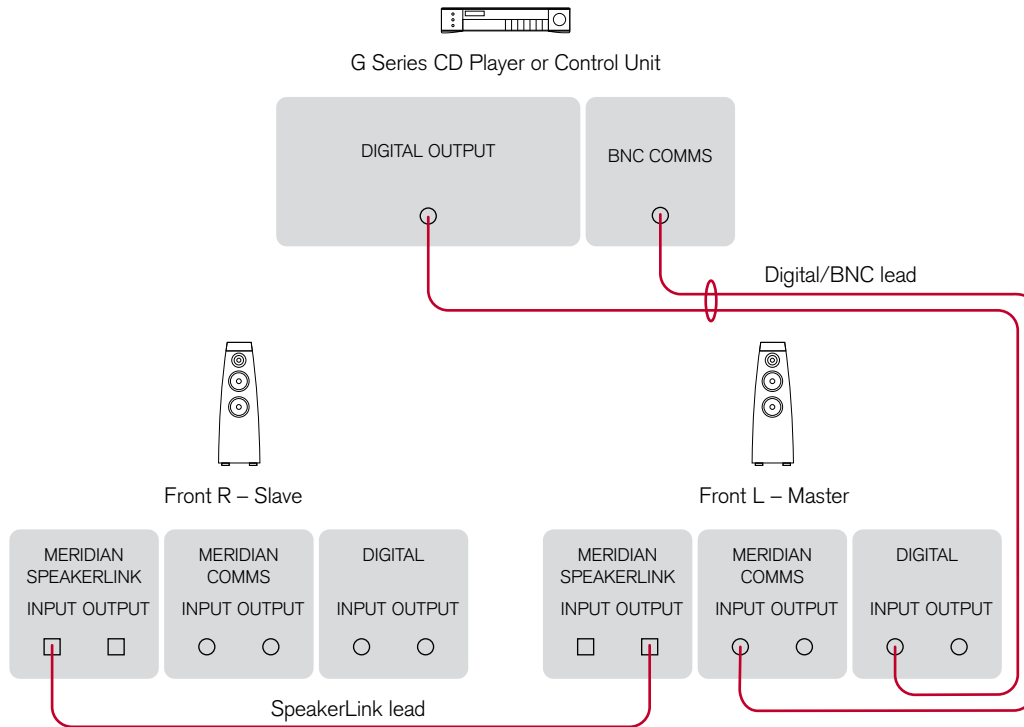
If the Meridian source or control unit includes a Meridian SpeakerLink output, such as the Meridian 808 Signature Reference CD Player, you can make all the connections using SpeakerLink leads. The Meridian SpeakerLink connection provides both two-channel digital audio and Meridian Comms control.

This is an alternative to the “home run” wiring configuration shown in the previous section.

- Connect the upper SpeakerLink output from the Meridian product to the SpeakerLink input on the DSP loudspeaker chosen as the Master, using a SpeakerLink lead.
- Connect the SpeakerLink output from the Master DSP loudspeaker to the SpeakerLink input on the other (Slave) DSP loudspeaker, using a second SpeakerLink lead.

- Configure the Master DSP loudspeaker as **M.RJ45** and the Slave DSP loudspeaker as **S.RJ45**; see *To choose Master or Slave and the primary connector*, page 28.

## To connect to a Meridian product with BNC Comms



If the Meridian source or control unit provides a Meridian BNC Comms output, you will need to connect it to the DSP Loudspeakers using a Digital/BNC lead.

- Connect the DIGITAL OUTPUT and the BNC COMMS socket from the Meridian source or control unit to the DIGITAL INPUT and COMMS INPUT on the DSP loudspeaker chosen as the Master, using a Digital/BNC lead.
- Connect the SpeakerLink output from the Master DSP loudspeaker to the SpeakerLink input on the other (Slave) DSP loudspeaker, using a SpeakerLink lead.
- Configure the Master DSP loudspeaker as **M.Coax** and the Slave DSP loudspeaker as **S.RJ45**; see *To choose Master or Slave and the primary connector*, page 28.

## Auto configuration

In a system of Meridian products one of the products acts as the controller for the system. It receives infra-red commands from the MSR+ and then, if appropriate, relays them to the other products in the system via the Comms link.

The following automatic setup procedure should be used to set up the Comms correctly between several products:

- Switch all the units to standby.
- Press **Clear** on the MSR+ remote.

Each unit will display:



One unit will then be designated as the controller.

The display shows:



All the other units will be configured as non-controllers.

The displays show:



If for any reason the automatic setup does not work, make sure you are operating the remote from a position where all the units can receive the infra-red, and try again.

If this fails:

- Restore the default operation by selecting one of the standard types; see *To select a standard setting*, page 28.

## Positioning the digital loudspeakers

For best results adjust the position of the loudspeakers while listening to music.

If possible, have the most acoustically absorbent wall in the room behind the front speakers. Ideally have each DSP loudspeaker at least 0.5m (20") from a corner, and position them approximately 0.25m (10") from the wall.

Horizontal centre loudspeakers have a centre elevation setting that raises the perceived source of the audio. This is useful if you need to position your centre loudspeaker below a screen or television. It can either be controlled by a Meridian Surround Controller with SpeakerLink menus, or set to a fixed value; see *To configure the centre elevation*, page 31.

If you are using a DSP loudspeaker as a centre channel, place the speaker centrally between the main left-right pair and, if possible, arrange for the treble units of the three speakers to be approximately the same height.

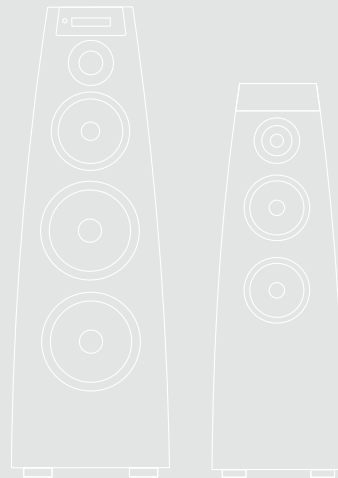
You can configure the frequency response of the DSP loudspeakers to compensate for a position close to a wall or corner; see *To adjust the frequency response*, page 31.



# Using the DSP loudspeakers

In systems with a Meridian surround controller all of the functions of the DSP loudspeakers, including volume, treble, and bass, are operated via the controller. For more information refer to the user guide for the surround controller, and you can ignore this chapter.

The DSP loudspeakers can also be connected directly to up to two digital sources to create a complete, minimum system. This chapter provides step-by-step instructions for operating the DSP loudspeakers in a system with no Meridian surround controller.



## Selecting a source

When not playing, the DSP loudspeakers should be left in the standby state. This uses a negligible amount of electricity, but ensures that the components of the loudspeakers operate at maximum efficiency from the moment you start.

If you are not going to use the DSP loudspeakers for several days you should switch each unit completely off at the back panel, and disconnect it from the AC power supply.

### To select a source

- Press the appropriate source key on the remote; eg **Radio**.

This will bring the DSP loudspeakers out of standby, and the displays will show the currently selected source and volume setting.

For example:



Initially all the sources are set to use the SpeakerLink digital input. To configure all sources to use the co-axial input, configure the speaker as **M.Coax** or **S.Coax**; see *To choose Master or Slave and the primary connector*, page 28. To configure an individual source to use a different input see *To configure a source*, page 33.

### To switch to standby

- Press **Off** on the remote.

The displays will show:



# Changing the display

The DSP loudspeakers display information about the current settings on the 8-character front-panel display.

In addition, three coloured indicators show status information.

## To change the displayed information

- Press **Display**.

Pressing **Display** steps between the following options:

Display option	Example
Source and volume	Radio 65
Meridian source display (dashes if not present)	---
Audio format	PCM 96k
Blank	

The audio format display shows PCM, Data, or MHR followed by the frequency, or NL (not locked).

## Status indicators

The display includes the following status indicators:

Indicator	Description
Red	Master loudspeaker.
Yellow	88kHz or 96kHz input.
Green	Clipping; see <i>Troubleshooting</i> , page 36.

## Adjusting the volume

The DSP loudspeakers adjust the volume in precise steps of 1dB, where 9dB is equivalent to doubling the loudness, and can be varied in the range 1 to 99dB.

When you first connect power to the DSP loudspeakers the volume is set to 65, which is similar to the midway position of the rotary volume control on a conventional preamplifier.

### To change the volume

- Press the ▲ or ▼ volume keys on the remote.

As you adjust the volume setting the display will show the current volume level.

For example:

A digital display showing the text "Radio 55" in a white, pixelated font on a black background.

### To mute (silence) the sound

- Press **Mute** on the remote.

The display will show:

A digital display showing the text "Muted" in a white, pixelated font on a black background.

### To restore the sound

- Press **Mute** again on the remote.

Alternatively the sound will be restored if you adjust the volume.

# Changing the treble, bass, or phase

The DSP loudspeakers provide sophisticated treble and bass controls, to allow you to adjust the broad balance of the system to correct for the acoustics of your listening room, or for a misbalanced recording.

The controls are more subtle than conventional tone controls, and take advantage of digital signal processing techniques to provide a more natural adjustment of the frequency response.

You can also change the absolute phase of the signal, to compensate for signals which are out of phase, giving an unnatural-sounding bass.

*If you have a Meridian Surround Controller or Audio Core product these functions are performed via the surround controller.*

## To change the treble

- Press **Function** ◀ or **Function** ▶ until the display shows the current treble.

For example:

Tre. +0.0

- Press **Function** ▲ or **Function** ▼ to change the treble.

The treble control tilts the frequency of the response over the entire frequency range to make the sound brighter or dimmer. It can be adjusted between  $\pm 10$ db in 0.5dB steps. Normally settings between +1.0 and -2.0 will give the most natural results.

## To change the bass

- Press **Function** ◀ or **Function** ▶ until the display shows the current bass setting.

For example:

Bass +0.0

- Press **Function** ▲ or **Function** ▼ to change the bass.

The bass control allows you to adjust the bass response in the room by  $\pm 5$ dB in 0.5dB steps. Normally settings between +3.0 and -2.0 will give the most natural results.

## To change the absolute phase

- Press **Function** ▶ or **Function** ◀ until the display shows the current phase.

For example:

Phase +

- Press **Function** ▲ or **Function** ▼ to change the phase.

## Changing the listening position

The balance control of the DSP loudspeakers uses digital signal processing to compensate for an off-centre listening position by delaying and diminishing the sound in one speaker, thus effectively shifting the speaker's image back.

The axis control allows you to adjust the optimum listening height of the DSP loudspeakers, like a balance control operating in the vertical plane.

*If you have a Meridian Surround Controller or Audio Core product these functions are performed via the surround controller.*

0 corresponds to the axis of the treble unit. Usually a listener will be below that position, so we recommend settings of -1 or -2.

### To change the balance

- Press **Function** ◀ or **Function** ▶ on the remote until the display shows the current balance.

For example:



- Press **Function** ▲ or **Function** ▼ to change the balance.

The display shows the direction and position of the listening position.

For example:



There are 30 steps in each direction.

### To change the axis

- Press **Function** ◀ or **Function** ▶ on the remote until the display shows the current axis setting.

For example:



- Press **Function** ▲ or **Function** ▼ to change the axis.

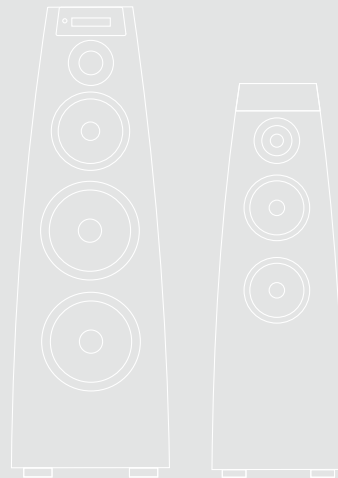
The axis can be adjusted between 3 and -2, where

# Configuring the DSP loudspeakers

This chapter explains how to configure the DSP loudspeakers to suit the other equipment in your system.

The first stage in configuring the DSP loudspeakers is to choose one of the standard settings, and these are designed to set all of the parameters to their most common values. You can also configure each setting individually for applications not catered for by one of the standard settings.

Once you have configured the DSP loudspeakers you will probably never need to change the configuration, unless you alter the equipment connected to your system at a later stage.



## Choosing standard settings

The DSP loudspeakers provide the following five alternative standard settings, called Types, which configure all aspects of the DSP loudspeakers into the most commonly needed configurations:

Type	Description
1	Standard setting for 2-channel system.
5	For use with a Meridian CD player (eg 808) connected to the SpeakerLink input; all other sources use the co-axial input.
6	For use with a Meridian Surround Controller.
7	For use in a second room.
8	For use in the second or third room of a three-room system.

Types 2, 3, and 4 are for compatibility with 200/600 series units.

In all cases except Type 5 the SpeakerLink input is used for all sources.

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

### To select a standard setting

- Switch off the DSP loudspeaker.
- Turn on the power again while holding down the number key on the remote which corresponds to the Type you want to use.

The display will show the Type number.

For example:

Type 1

- Release the remote key.

The display will show:

L.M.RJ45

You should now specify the speaker's position as follows.

### To specify the speaker position

- Press ▲ or ▼ to specify the speaker position.

The options are shown in the following table:

Display	Position
L.	Left.
R.	Right.
C.	Centre (Type 6 only).

### To choose Master or Slave and the primary connector

You should select one loudspeaker to be the Master; this will normally be the centre channel. For more information see *Connecting to other equipment*, page 17. Each other DSP loudspeaker should be configured as a Slave.

- Press the green ► (Play) key on the remote.
- For each speaker this steps between the following four options:

Option	Master/Slave	Primary input
M.RJ45	Master	Meridian SpeakerLink
M.Coax	Master	Digital co-axial
S.RJ45	Slave	Meridian SpeakerLink
S.Coax	Slave	Digital co-axial



Initially all sources will be configured to use the primary input you have specified, but you can configure individual sources to use the other input; see *To configure a source*, page 33.

For example, to define the left speaker as a Slave using the digital co-axial connectors:

The display shows:

A digital display showing the text "L.S.Coax" in a pixelated font.

When you have configured the loudspeaker:

- Switch off the DSP loudspeaker, using the power switch on the back, and then switch on again to restore normal operation.

## Specifying information about your system

You can configure the operation of the DSP loudspeakers to suit the way your system is set up, and the way in which you want to use it. These settings are configured automatically to appropriate values when you choose one of the standard Type settings, and you should not normally need to alter them; see *To select a standard setting*, page 28.

### To configure the DSP loudspeaker

- Turn off the DSP loudspeaker, using the power switch on the back panel.
- Turn on the power again while holding down the **0** key on the remote.

The display will show the current setting of the first configuration option.

For example:

L.M.RJ45

- Press **▶** or **◀** to step between the options.
- Press **▲** or **▼** to change the value of the current option.

The following table shows the options you can configure:

Option	Initial value in Type 1
Position and Master/Slave	L.M.RJ45
Compatibility (G, 500, 200 Pre, or 200 CD)*	G
Controller mode (Auto, Con, or NCon)	Auto
System address (1–8)	S.A. 1
Product address (1–8)	P.A. 1

Option	Initial value in Type 1
Volume mode (1=normal, 2/3=second or additional room)	L.E. 1
Balance control (N or Y)	Bal. Y
Enhanced Bass Alignment? (SL, N, or Y)†	EBA SL
Centre menus? (N or Y)	Centre N
Centre Elevation (SL, Off, Min, Med, or Max)†	Elev. SL
Diagnostic displays? (N or Y)	Dias. N
Position (Free, Wall, Sub1, Sub2, Corner, SL) †	Pos. SL
Ambient temperature for thermal protection ‡	Temp 24

\* G gives 500 and 800 Comms and MSR+ sources, 500 gives 500 Comms and MSR sources, and 200 Pre or 200 CD are legacy modes.

† Only available on some models. SL (SpeakerLink) allows the setting to be controlled by a suitable controller, such as the 861 Reference Digital Surround Controller, via the SpeakerLink connection.

‡ Not applicable to 5200.

## To specify the loudspeaker position

The frequency response of each loudspeaker can be individually tailored to compensate for its position in the room, or to integrate the sound with a subwoofer where no surround controller is present.

For multichannel systems with a surround controller we recommend each speaker is configured individually.

For two-channel systems you may wish to set this control to **SL** in both speakers so that it can be adjusted remotely by the system controller (eg a Meridian 818).

*When configuring the DSP loudspeakers, point the remote at the speakers, even if you have a Meridian Surround Controller.*

- Press ► or ◀ until the display shows the current position setting.

For example:

Pos.Free

- Press ▲ or ▼ to select the appropriate option as follows:

Option	What it means
Pos.Free	Flat frequency response.
Pos.Wall	Speaker closer than 0.5m (20") to a wall.
Pos.Sub1	Applies a second-order high-pass filter at 80Hz for use with a subwoofer.
Pos.Sub2	Applies a second-order high-pass filter at 120Hz for use with a subwoofer

### Option

Pos.Corn

### What it means

Speaker closer than 0.5m (20") to a corner.

Pos.SL

Frequency response controlled via SpeakerLink.

## To configure the centre elevation

The DSP5200HC and DSP7200HC include signal processing software that raises the perceived source of the audio. This is particularly useful in a home theatre when the loudspeaker is below the screen; as well as improving the sense of dialogue coming from centre stage, it enhances the integration of sounds that pan from left and right, giving a much more immersive experience.

This setting defaults to **SL**, which allows it to be controlled from the SpeakerLink menus in a Meridian Surround Controller. If you have an older Surround Controller you should set this manually.

- Press ► or ◀ until the display shows the current setting.

For example:

Elev.Min

- Press ▲ or ▼ to select between **Off**, **Minimum**, **Medium**, or **Maximum**.

A higher setting will raise the audio, but the ideal setting will depend on your particular system. When set too high some movie sequences can lose their tonal qualities. We recommend you set the centre elevation to the lowest setting that achieves a smooth transition across left, centre, and right for panning sequences.

## To specify the ambient temperature for thermal protection

The DSP 7200 drive units are protected from overheating by thermal protection software. This is already configured correctly for most domestic listening environments, but if the ambient temperature is greater than 24°C (75°F) you should adjust the ambient temperature setting.

- Press ► or ◀ until the display shows the current ambient temperature setting.

For example:

A digital display showing the text "Temp 24" in a monospace font. The text is white on a black background.

- Press ▲ or ▼ to specify the ambient temperature.

When thermal protection is active the lower left green indicator will be illuminated.

# Configuring the sources

The DSP loudspeakers provide 12 sources corresponding to the 12 source selection keys on the remote:

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

If the configuration you want is not catered for by one of the standard settings, you can configure each source individually.

For each source you can configure:

- The label used for it on the front panel display, from a range of alternative labels.
- The digital input it selects.
- The comms type and address, to control other Meridian equipment.
- Other advanced options.

You only need to configure the sources on the DSP loudspeaker you have specified as the Master.

## To configure a source

While in configuration mode:

- Press the source key on the remote corresponding to the source you want to configure.

For example, to configure the Radio source press **RADIO**.

The display shows:

RD Radio

- Press ► or ◀ to step between options.

The right-hand set of characters shows the current value of the option.

- Press ▲ or ▼ to change the value of the option.

When you have finished programming sources:

- Switch off at the back panel, and then switch on again to restore normal operation.

The options are summarised in the table below:

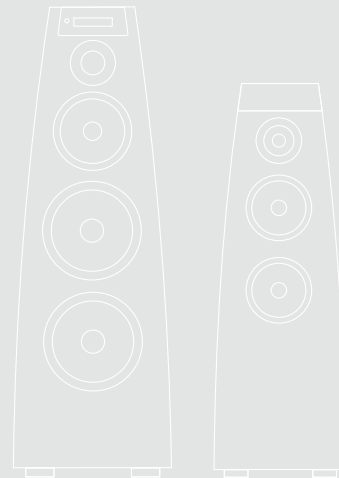
Option	Initial value	Alternatives	Explanation
Label	Radio	CD, Radio, LP, etc.	The label used to identify the source on the front panel display.
Audio input	D1	D1 or D2.	Choose D1 for the input configured as the primary connector, or D2 for the other input.
Comms type	2C	1C – 9C, or NC.	Choose 1C for a Meridian CD player, 2C for a Meridian FM Tuner, 3C for a Meridian DVD player, 4C for a Meridian Media Server, or NC otherwise.
Address	1A	1A – 8A.	Choose 1A unless you have several Meridian products of the same Comms type.
FIFO	FF. Y	Y or N.	Choose N to disable the FIFO buffer if you have difficulty locking to a poor source.



# Troubleshooting

This chapter provides suggested solutions to typical problems that may occur when setting up the DSP loudspeakers.

If you are still not able to resolve a difficulty with the help of this guide and the suggestions in the following pages, please contact your Meridian dealer.



# Troubleshooting

## Display on front panel not lit

- Check the display mode by pressing DISPLAY on the MSR+.
- Check there is AC power connected to the socket on the back of the DSP loudspeaker.
- Check the power switch on the back panel of the DSP loudspeaker is turned on.

If the display will still not illuminate, check any fuses in your power supply and the fuse in the inlet of the DSP loudspeaker. If these are all intact, contact your dealer.

## Unit stays in standby

- Check that it is connected correctly.
- Turn the system on from another Meridian product in the system.

## Remote not working

- Check the battery in the MSR+ remote.
- See if the DSP loudspeaker has been set up as not controller in the Meridian Configuration program.  
Note: This may be deliberate by your dealer.

## Configuring the DSP loudspeaker does not have any effect

- For source selection issues make sure that you are configuring the DSP loudspeaker used as the Master loudspeaker.
- For settings that can be controlled by SpeakerLink (eg centre elevation) you must specifically configure every loudspeaker, not just the Master.

## Drive units move when the speaker is switched on or off

This is normal as the speaker active electronics settle.

## Only the master loudspeaker plays

- Check the cables are connected correctly.

## There is radio interference

The DSP loudspeaker 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 DSP loudspeaker and its cabling.
- Ensure that the receiver uses well-screened antenna cable.
- Relocate the receiver with respect to the DSP loudspeaker.
- Connect the receiver and this product to different AC outlets.
- If the problem persists contact your dealer.

## Sound is odd or mono

- Check that the DSP loudspeakers are correctly configured as Left and Right respectively.

## Unit goes silent when played hard and displays 'Hot'

The DSP loudspeakers have a temperature sensing system on board, which prevents overheating of the electronics. The sound will continue when the speaker has cooled.

## The green indicator flashes or stays on

This indicates that DSP clipping is occurring.

Brief flashes indicate occasional clipping which will not be audible.

If the indicator stays on for long periods this may indicate a fault in the configuration of your system, and you should contact your Meridian dealer.



# Cleaning

## Cleaning

Small marks on the lacquer surface can usually be removed with a damp cloth.

Deeper scratches can be removed by treating with additional polyester lacquer filler and then polishing carefully. Consult your authorised Meridian dealer for advice before attempting any repair.

## Service and guarantee

### Service

The Meridian components have 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, apart from tightening the drive units as described in this user guide.

In the unlikely event that your DSP loudspeaker 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 abroad is available from Meridian Audio.

No responsibility can be accepted for the DSP loudspeakers 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

Each DSP Digital Loudspeaker System is guaranteed against defects in material and workmanship for two years from the date of purchase.

The guarantee is void if the DSP Digital Loudspeaker System 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 or SpeakerLink sockets may cause damage to the DSP Digital Loudspeaker System 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 abroad 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 United Kingdom.

### Product registration

Register your Meridian DSP loudspeakers at:

[www.meridian-audio.com/support](http://www.meridian-audio.com/support)

and receive Exclusive Meridian News and discover more about the Meridian Collection.

# Index

## A

---

- absolute phase, changing 25
- accessories 3
- ambient temperature, specifying 32
- auto configuration 20
- axis, changing 26

## B

---

- balance, changing 26
- bass, changing 25
- BNC Comms 16
  - configuring 28
  - connecting with 19

## C

---

- cabinet 2
- centre elevation 20
  - configuring 31
- centre frequency response,
  - configuring 32
- cleaning 37
- Comms 3
  - input 16
  - output 16
- communications connections 16
- configuration options 30
- configuring sources 33
- connecting 16
  - using BNC Comms 19
  - using SpeakerLink (daisy chain) 18
  - using SpeakerLink (home run) 17

- connections
  - Comms 16
  - digital co-axial 16
  - SpeakerLink 16

## D

---

- digital connections 16
  - configuring 28
- display, changing 23
- DSP5200 and DSP5200HC 7
- DSP7200 11

## F

---

- feet, adjusting
  - DSP5200 SE 8
  - DSP7200 12
- frequency response, configuring 31

## G

---

- grilles, removing
  - DSP5200 and DSP5200HC 9
  - DSP7200 and DSP7200HC 13
- guarantee 38

## L

---

- lacquer finish 8, 12
- listening position, changing 26
- loudspeaker position, specifying 31

## M

---

- Master
  - configuring 30
  - specifying 28

- Meridian Digital Music System 5
- Meridian Digital Theatre™ 4
- Meridian High Resolution (MHR) 3
- mounting options 3
- muting the sound 24

## P

---

- phase, changing 25
- position, specifying 31
- power amplifiers 2

## R

---

- registration 38
- remote, troubleshooting 36
- rubber bumpons, fitting
  - DSP5200HC 9

## S

---

- safety warnings ii
- sample configurations
  - Meridian Digital Music System 5
  - Meridian Digital Theatre™ 4
- selecting a source 22
- service 38
- Slave
  - configuring 30
  - specifying 28
- sources
  - configuring 33
  - selecting 22
- SpeakerLink 16
  - configuring 28
  - connecting with 17, 18

specifications

DSP5200 and DSP5200HC 10

DSP7000 and DSP7200HC 14

spikes, fitting

standard DSP5200 9

standard settings, configuring 28

standby, switching to 22

status indicators 23

switching to standby 22

## T

---

temperature, specifying 32

tightening the drive units

DSP5200 and DSP5200HC 9

DSP7200 and DSP7200HC 13

tilt offset, configuring 32

treble, changing 25

troubleshooting 35

## U

---

unpacking

DSP5200 and DSP5200HC 8

DSP7000 12

## V

---

volume

adjusting 24

muting 24