



861

REFERENCE
DIGITAL
SURROUND
CONTROLLER

USER GUIDE



Meridian 861 Reference Digital Surround Controller User Guide



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Introduction

Welcome to the Meridian 861 Reference Digital Surround Controller!
This User Guide provides full information about using the Surround Controller in conjunction with your other equipment, to achieve the superb results you can expect from it.



The 861 Reference Digital Surround Controller

Digital signal processing, or DSP, is a technique pioneered by Meridian in hi-fi products for achieving extremely accurate reproduction of audio signals. Unlike conventional analogue systems – which process signals using electronic circuits based on resistors, capacitors, and inductors – DSP works by performing exact mathematical calculations on digital versions of the signals.

The advantage of DSP over analogue circuitry is that the signals are held as precise numbers, rather than voltages in a circuit. This means that any number of stages of processing can be performed with high precision, and without any of the cumulative noise or degradation that inevitably occurs, even with high-quality analogue circuitry. In addition, several of the surround-sound decoding techniques and signal improvement techniques available in the 861 would be virtually impossible to implement in analogue circuitry.

At Meridian we have taken advantage of the availability of high speed DSP microprocessors to incorporate DSP in hi-fi products, and the 861 is the result of several years of our research and development in this field.

The 861 takes advantage of DSP for several different functions:

- To de-jitter incoming digital signals and expand the precision of the signal.
- To perform filtering or adjustment of the frequency response; eg treble or bass.
- To decode digitally-encoded signals from Dolby Digital (AC-3), DTS, or MPEG Audio.
- To process the audio into a multi-channel signal, and match the source channels to the configuration of main loudspeakers and subwoofers in the system.

The 861 converts analogue input signals to digital format, using high-quality analogue-to-digital converters (ADCs). Digital signals, from CD, DVD, LaserDisc or digital broadcasting, are already in digital format and do not need to be converted.

The signals are then retained in digital form throughout the 861 until they are converted back to analogue form at the analogue outputs, to drive power amplifiers. If you are using the 861 with Meridian DSP Loudspeakers, the signals remain in digital form until the last possible stage.

DSP presets

The 861 provides an extremely comprehensive range of options for decoding both analogue and digital audio signals and processing them for multi-channel reproduction.

The Digital Surround Controller provides several digital signal processing options, called DSP presets, and these are designed to provide the best results with a range of different types of music and film material.

In addition to selecting built-in DSP presets, the Digital Surround Controller allows you to create your own presets based on the standard ones. For example, you may want to add more delay to the rear speakers to create a more spacious sound. You can store your modified preset with a name of your choice, and recall it for use at a later date.

This section gives information about each of the built-in DSP presets, and gives recommendations for the best preset to choose for different types of material.

Multi-channel digital sources

Several alternative multi-channel digital formats are currently available which encode up to 8 different channels onto a digital signal. Four alternatives are currently in use: Dolby Digital, DTS, MPEG Surround, and MLP. However, the 861 has been designed so that it can be upgraded by downloading a software update, to cater for new formats as they are introduced.

Dolby Digital

Dolby Digital, previously called AC-3, is the preferred sound format for DVD in NTSC territories, and is widely used on LaserDisc soundtracks. It is also the audio standard for US digital television.

DTS

DTS uses a carefully-designed audio compression technique to encode five channels of audio onto a digital signal. The DTS format is used to encode multi-channel film soundtracks on LaserDiscs and DVD video discs.

In addition, a high data-rate version of DTS can be used to compress five channels of CD-quality audio into the same space as two channels of unencoded sound, allowing a DTS music CD to provide over an hour of five-channel music, at a quality indistinguishable from conventional CD.

MPEG Surround

MPEG Surround is the preferred audio format for DVD in PAL territories, and along with Dolby Digital is a contender as the standard for music and performance videos on DVD worldwide.

THX

THX versions of Dolby Digital, MPEG Surround, and DTS are provided to give a better match between the original soundtrack and typical domestic listening conditions.

MLP

MLP (Meridian Lossless Packing) is an audio format that increases the amount of information that can be recorded on a CD or DVD, without any loss of quality.

Multi-channel sources encoded onto two channels

Several systems have been developed for encoding multi-channel sources onto a standard two-channel analogue signal so that they can be reproduced by a conventional stereo system, or decoded with special equipment for multi-channel reproduction. The 861 provides decoding of the two most important of these, Ambisonic and Dolby Surround. Although the channel separation cannot be as good as with the digital multi-channel formats, the 861 produces excellent results with these formats.

Pro Logic

The **Pro Logic** preset is recommended for decoding Dolby Surround encoded video and LaserDisc soundtracks, and films on television. Such materials are usually identified by a Dolby Surround symbol on the packaging, or displayed on the film before the programme.

TV Logic

TV Logic provides user-adjustable steering, and is recommended for use with TV broadcasts that are not surround encoded, where **Pro Logic** may give reduced intelligibility.

THX Cinema

THX Cinema enhances **Pro Logic** to replicate the sound of a dubbing stage or theatre, whether or not the other equipment in your system is THX approved.

Ambisonic

Ambisonic decodes material specifically encoded for surround sound reproduction, using a two-channel stereo-compatible encoding. Recordings encoded in Ambisonic format are available on CD from several sources including Nimbus Records and York Ambisonic. Some radio broadcasts are also broadcast in Ambisonic format.

Conventional stereo sources

The Digital Surround Controller can also accept a conventional two-channel source, such as music on compact disc or a video soundtrack, and by analysing the information in the signal separate the two-channel recording into multiple channels to give better reproduction and a more stable spatial image.

Four alternative DSP presets are provided for reproducing material originally designed for a conventional stereo pair of speakers, and the choice of which preset to choose largely depends on your own personal preferences.

All four presets use similar procedures to extract the surround component of the original recording, which is delivered to the rear surround speakers, and side surround speakers if present.

Music

Music uses a special technique developed by Meridian to divide the sound between the left, right, and centre speakers and give a wide, spacious sound. We recommend this option for large-scale music, such as orchestral and choral music.

Trifield

Trifield uses a different processing technique to give a stable, three-dimensional image, with the ability to adjust the width of the image. Because of its precision we recommend this option for solo, chamber, or vocal music.

Super Stereo

Super Stereo provides a form of Ambisonic decoding suitable for material that is not specially encoded. We recommend this option for multi-miked or multi-tracked music, such as rock music.

MusicLogic

MusicLogic provides user-adjustable steering to give an exciting sound with many types of music. We recommend this option for studio-produced music, ie material not produced using natural soundfield recording.

Special DSP presets

The Digital Surround Controller also includes the following special DSP presets, for specific applications:

Mono

The **Mono** preset is designed for reproducing mono materials through a centre speaker, so that any high-frequency hiss or clicks are centrally localised. It is intended for mono recordings, and multi-language LaserDiscs and video soundtracks.

The **Mono** preset includes an **Academy** option, designed to correct for a high-frequency balance in some old black and white films, and a **Party** option, which plays the mono signal through all loudspeakers.

Stereo and Direct

Stereo and **Direct** are provided for comparison with the other DSP presets. **Direct** uses just the main left and right speakers for traditional two-speaker stereo reproduction. **Stereo**, in addition, uses any subwoofers in the layout to enhance the bass or to protect small speakers.

Overview

The architecture of 861 allows for wide flexibility – future sources and formats can be handled by upgrading either software or cards.

Inputs

The 861 is a full-system controller preamp that provides seamless control of up to 12 sources.

The optional Tape card provides additional internal 20-bit A/D and D/A converters to give full support for both tape recorders, extensive 2- and 3-zone multi-room capability (analogue or digital formats), and headphones.

By providing digital as well as analogue inputs the 861 can give radically higher sound quality for sources that are originally digital – like CD, LaserDisc, Digital Radio and DVD.

As well as accepting 2-channel digital audio, the 861 will handle SPDIF-encoded Dolby Digital, DTS or MPEG from sources like DVD, Satellite and LaserDisc (via an RF00 LaserDisc Demodulator Card).

Processing

The Meridian 861 routes all signals – if necessary via a 20-bit Delta-Sigma A/D converter – into the digital domain for processing in the highly developed Meridian 24-bit DSP cards.

This processing engine can consist of between 2 and 10 modular processor cards, each housing 1 or 2 ultra-fast 24-bit processors with high-speed cache memory. In each DSP core, the incoming signals are processed using a variety of proprietary algorithms and up to 8 output signals are generated. These output signals can be used to feed a number of speaker layouts, ranging from 2-speaker to 7-speaker stereo with up to 8 Meridian digital subwoofers.

The on-board algorithms include Meridian's own highly transparent Dolby Pro Logic and Dolby Digital, MPEG Surround, DTS, THX extensions, TV Logic and a variety of award-winning music programs including Trifield and Ambisonic.

Outputs

The 8+ outputs can be provided as digital signals to feed Meridian DSP Loudspeakers, or as variable analogue outputs using a proprietary on-board 24-bit resolution conversion method.

Video control and OSD

The Meridian 861 provides broadcast-grade video switching options for monitors, projectors and video tape routing. The comprehensive setup and customising facilities allow the user to link any video and audio combinations to the 12 Sources (accessed from Source switching on the front panel or the remote control).

In addition to providing high-quality video amplification, the 861 has the ability to give help and system control feedback information in an On-Screen Display. Video formats supported include Composite, S, and Component.

Typical specification

Audio in and out

- Up to 12 analogue inputs. User-adjustable sensitivity. Re-nameable legends.
- Up to 12 digital inputs. Re-nameable legends. 32 to 96kHz sampling, and up to 24-bit precision.
- Digital and analogue tape loops.
- Independent copy and 2-room+ capability.
- 2 to 8 digital outputs.
- 2 to 8 analogue outputs.
- Optional 5.1-channel analogue input.

Control signals

- 3 trigger outputs, programmable by source.
- Meridian Comms and RS232 for control and setup.

Signal processing

The 861 uses Meridian's proprietary DSP software to provide the following powerful Modes:

- Pro Logic
- THX
- TVLogic
- Dolby Digital
- DTS Coherent Surround
- MPEG Audio and MPEG Surround
- Music
- Trifield
- Ambisonics
- Super Stereo
- MusicLogic
- MLP (Meridian Lossless Packing)

Controls, etc.

Front-panel facia controls for:

- Source, DSP, Mute, Volume and Off.

Hinged control panel provides additional switches for:

- Display
- Copy
- Store and Assign
- Parameter menus
- Setup

Display

- 20-character dot-matrix display: adjustable brightness and contrast.
- Lights for Dolby, Digital, THX, DTS, and MPEG.

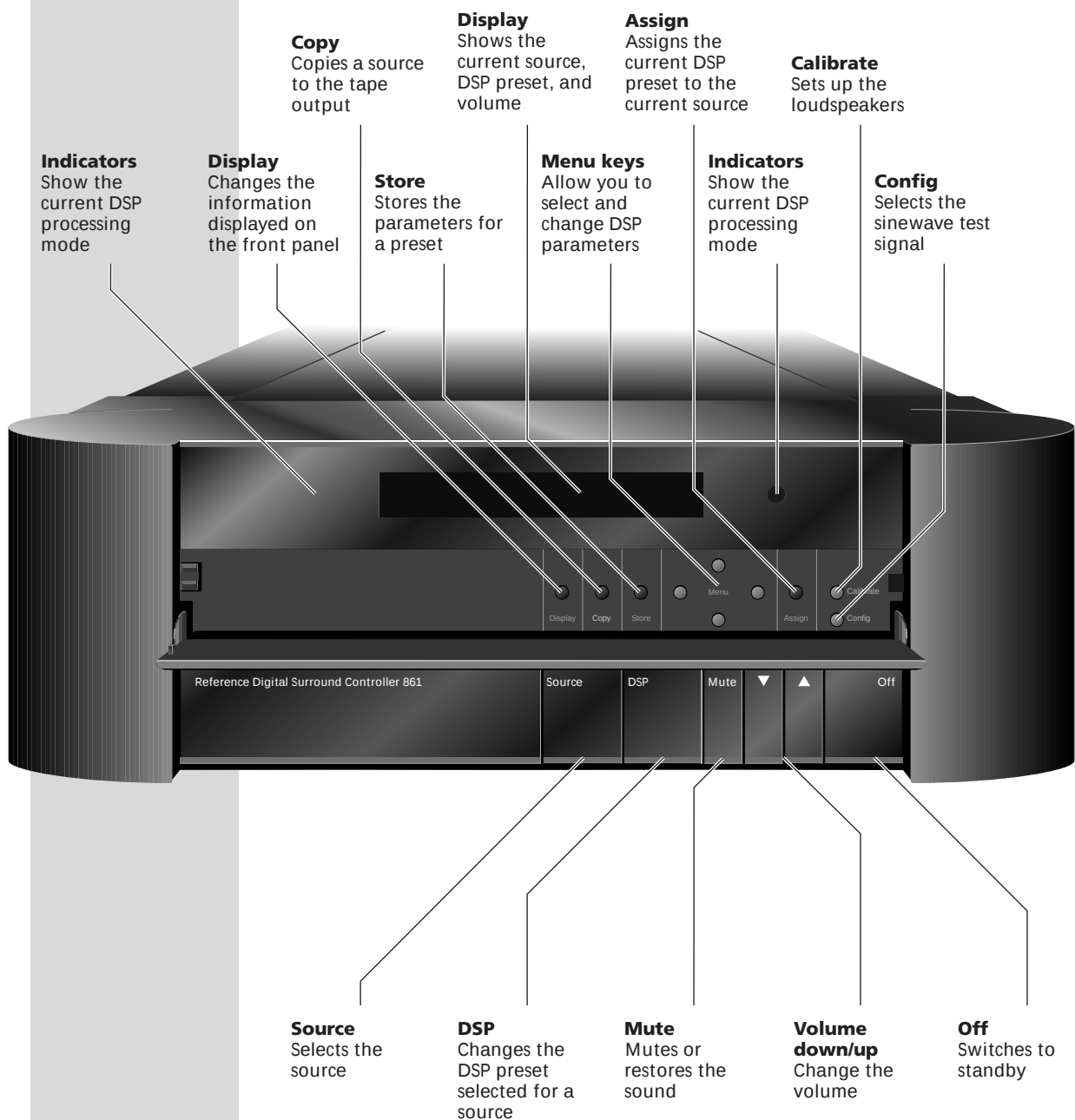
Using the 861 Reference Digital Surround Controller

This chapter provides a summary of the functions of the 861 Reference Digital Surround Controller to identify the controls which you use to operate the unit.

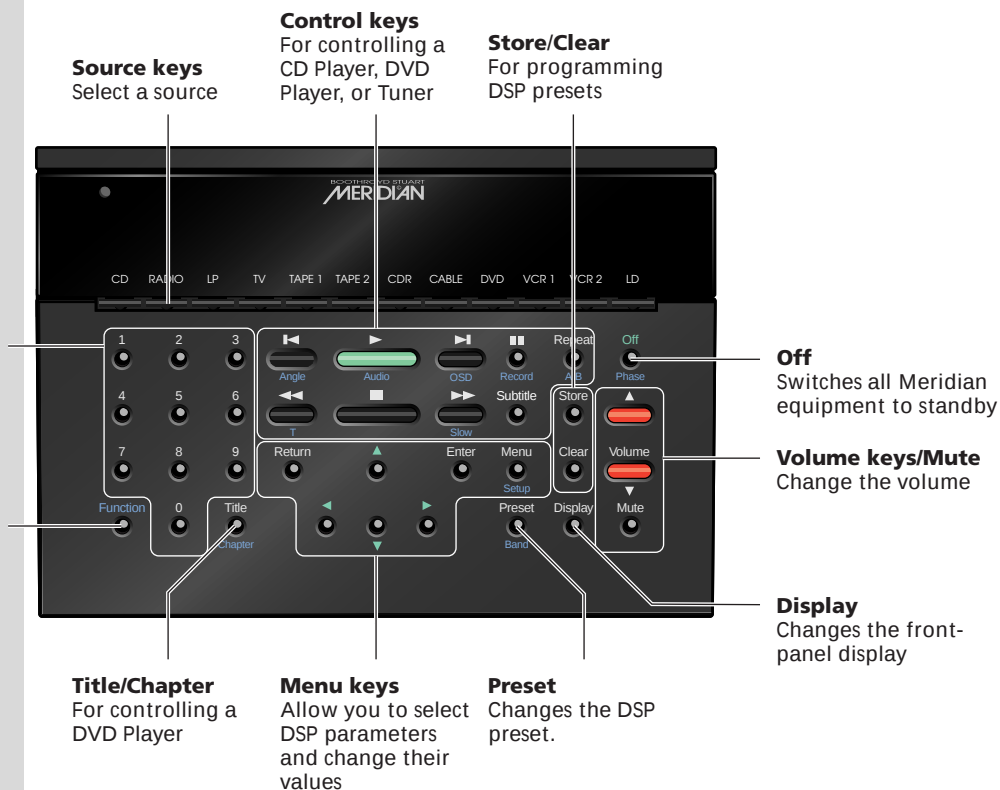
It also provides step-by-step instructions for operating the Digital Surround Controller, using either the front panel or the Meridian System Remote.



Front panel keys



Meridian System Remote keys



Switching on and off

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

If you are not going to use the Digital Surround Controller for several days you should switch the unit off completely at the rear panel, and disconnect it from the AC power supply.

To switch on from standby

- Press **Source** (front panel), or select a source by pressing the appropriate source key on the remote; eg **CD**.

If the Digital Surround Controller is part of a Meridian system it will automatically switch on any other unit in the system, such as the 800 Reference DVD/CD Player and Meridian DSP Loudspeakers.

To switch to standby

- Press **Off** (front panel or remote).

If you have other Meridian equipment or Meridian DSP Loudspeakers connected to the Digital Surround Controller these units will also switch to standby.

Selecting a source

The sound processor provides the following 12 sources:

CD, Radio, LP, TV, Tape 1, Tape 2, CDR, Cable, DVD, VCR1, VCR2, LDisc.

Your installer may have customised the labels displayed for each source to suit your other equipment.

The input and DSP preset associated with each source depends on how the Digital Surround Controller has been set up; for more information see *Setting up sources*, page 75.

To select a source

- Press **Source** (front panel) until the display shows the source you require, or press the appropriate source key on the remote; eg **CD**.

The display shows the source, DSP preset, and volume setting.

For example, if you select the CD source the display might show:



CD Trifield 65

The Digital Surround Controller mutes the sound while you change source, to avoid clicks in the speakers.

A setting of 87 corresponds to THX reference gain, the level at which film soundtracks are mixed.

Adjusting the volume

The 861 Reference Digital Surround Controller adjusts the volume in precise steps of 1dB, where 9dB is equivalent to doubling the loudness. The current volume setting is displayed in dB on the front panel display, and can be varied in the range 1 to 99dB. When you first connect power to the Digital Surround Controller the volume is set to 65, which is similar to the mid-way position of the rotary volume control on a conventional preamplifier.

For normal to high level listening you should expect to use volume levels in the range 60 to 90.

To change the volume

- Press ▲ or ▼ (front panel), or the red ▲ or ▼ keys on the remote.

As you adjust the volume setting the display shows the current volume level.

For example:

A digital display with a black background and white text. It shows 'CD' on the left, 'Trifield' in the center, and '70' on the right.

To mute the sound

- Press **Mute** (front panel or remote).

The display will show:

A digital display with a black background and white text. It shows the word 'Mute' in the center.

To restore the sound

- Press **Mute** again.

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

Changing the DSP preset

Each source has a set of DSP presets associated with it, one for each of the alternative audio formats: two-channel (PCM), Dolby Digital, DTS, MPEG, and MLP.

When you choose a source an appropriate DSP preset is selected for the incoming audio format.

For example, if you have selected the CD source and are playing a conventional CD, the **Trifield** DSP preset will initially be selected.

You may then wish to choose a different DSP preset, such as **Music** or **Ambisonic**.

You can also change the default DSP preset assigned to the source; see *To assign a DSP preset to a source*, page 32.

The sequence of DSP presets for each audio format is as follows:

Audio format	Presets
Two-channel (PCM or 2-channel Dolby Digital)	Direct, Music, Trifield, Ambisonic, Super, Stereo, MusicLogic, ProLogic, THX Cinema, Mono, Academy, TV Logic
Dolby Digital	Digital, Digital THX
DTS	DTS, DTS THX, DTS Music
MPEG	MPEG, MPEG THX, MPEG Music
MLP	MLP

In each case these will be followed by any user-defined presets you have stored for the appropriate audio format.

To change the DSP preset

- Press **DSP** (front panel) or **Preset** (remote) to step between the different DSP presets.

The Digital Surround Controller mutes the sound while you change DSP preset, to avoid clicks in the speakers.

You will be able to choose any of the predefined DSP presets, or any user-defined presets you have stored.

Changing the display

The 861 Reference Digital Surround Controller displays information about the current settings on the 20-character front panel display. In addition, it can display the same information superimposed on a video image.

You can adjust the contrast and brightness of the front-panel display for optimum viewing, and choose what information is displayed.

The Digital Surround Controller automatically stores these settings, even with the power off.

To change the contrast

- Press ► or ◀ (remote), or the corresponding **Menu** buttons under the front panel, until the display shows:

A close-up of the front panel display showing the text 'CD Contrast 8' in a monospaced font. The 'CD' is on the left, 'Contrast' is in the middle, and '8' is on the right.

- Press ▲ or ▼ (remote), or the corresponding **Menu** buttons under the front panel, to change the display contrast.

You can change the contrast between 0 and 15.

To change the brightness

- Press ► or ◀ (remote), or the corresponding **Menu** buttons under the front panel, until the display shows:

A close-up of the front panel display showing the text 'CD Bright 11' in a monospaced font. The 'CD' is on the left, 'Bright' is in the middle, and '11' is on the right.

- Press ▲ or ▼ (remote), or the corresponding **Menu** buttons under the front panel, to change the display brightness.

You can change the brightness between 0 and 15.

To change the displayed information

- Press **Display**.

Each time you press **Display** the display will step between the options shown in the following table.

Display option	Example
Source, DSP preset, and volume	CD Ambisonics 65
DSP preset, source, and THX reference level	CD Ambisonics -22
Audio format and sampling rate	CD PCM 44k
Blank	

If your Digital Surround Controller is fitted with a video card, the same information can be displayed on an on-screen display.

For example:



You can choose the position of the on-screen display for each DSP preset; see *To change the position of the on-screen display*, page 31.

If the Diagnostic display option has been selected additional diagnostic displays are included; refer to the Meridian Web site at <http://www.meridian-audio.com> for details.

In addition, the following symbols on the front panel display indicate which of the DSP processing modes are operating:

Symbol	What it means
 DIGITAL	Dolby processing is operating. Input is Dolby Digital.
 THX	THX processing is operating.
 MPEG	Input is DTS.
	Input is MPEG.

Recording a source

The 861 Reference Digital Surround Controller allows you to copy any of the standard sources to the tape outputs, independently of the source you are listening to.

If you are using the Digital Surround Controller in a two-room system, you copy a source to the tape output to make it available to the second room.

To copy a source

- Press **Copy** (remote or under the front panel).

Each time you press **Copy** the Digital Surround Controller will step between the options shown in the table below.

For example, to record the DVD sound on a tape recorder:

- Press **Copy** until the display shows:



You can now listen to a different source, such as CD, by selecting the source, without affecting what is being recorded.

Display	Option
Copy Source	The current audio and video inputs are fed to the tape/VCR outputs.
Copy Mute	The tape and VCR outputs are muted.
Copy CD	Copies the first source to the tape and VCR outputs.
Copy Radio	Steps through each source in turn, etc.

To change the headphone volume

You can connect headphones to the Digital Surround Controller using the optional Tape expansion card. The source copied to the tape output is also fed to the headphones.

To change the headphone volume:

- Press **Function** with the red ▲ or ▼ keys on the remote.

The display will show the current headphone volume; for example:



Customising the 861 Reference Digital Surround Controller

In addition to being able to change the source, volume, and DSP preset, the 861 Reference Digital Surround Controller provides a sophisticated range of more advanced adjustments for each DSP preset, to allow you to tailor the sound.

This chapter explains how to change these parameters, and gives detailed instructions for adjusting the parameters that are common to most of the DSP presets.

For information about the parameters specific to individual presets see *DSP presets*, page 35.



Locking and unlocking the menus

To simplify the normal operation of the Digital Surround Controller, and to protect the settings from accidental changes, you can lock the menus so that the DSP parameters cannot be accessed.

The only parameters available with the menus locked are **Brightness** and **Contrast**.

To display or change the DSP presets, or to define your own presets, you first need to unlock the Digital Surround Controller menus.

To unlock the menus

- Press **Off** (front panel or remote) to put the Digital Surround Controller in standby.
- Press and hold down the **Store** button under the front panel for a few seconds until the display shows:



Unlocked

To lock the menus

- Repeat the above sequence so that the display shows:



Locked

Changing the DSP parameters

Each DSP preset provides a series of parameters that you can vary to customise the behaviour of the preset to your specific requirements. For example, most presets provide **Balance** and **Depth** parameters to allow you to alter the characteristics of the sound.

For each of the built-in DSP presets these parameters are set to standard values, designed to give the best sound in typical listening conditions and with most source materials. Each time you select a different DSP preset the parameters are reset to these standard values, even if you have previously altered them.

You can save the changes you have made to one or more DSP parameters in place of the original DSP preset. Alternatively you can create a new user-defined DSP preset, with a name of your choice. User-defined presets appear in the list of DSP presets after the built-in ones. For more information about doing this see *Defining your own presets*, page 33.

Standard parameters

All DSP presets (except Mono, Stereo, and Direct) provide the following parameters:

Parameter	Range	Default	What it changes
Treble	-10dB to +10dB	+0.0dB	The slope of the frequency response.
Bass	-5dB to +5dB	+0.0dB	The bass response.
Phase*	+ or -	+	The phase of all loudspeakers.
Balance	<10 to 10>	<0>	The L-R balance.
Centre	-3.0dB to +3.0dB	+0.0dB	The level of the centre.
Depth	-2.5ms to +5ms	+0.0	The relative delay of the centre.
Rear	-30dB to +10dB	+0dB	The relative level of the rears.
Sides	-30dB to +10dB	+0dB	The relative level of the sides.
R Delay	15ms to 30ms	0.0	The relative delay of the rears.
S Delay	15ms to 30ms	0.0	The relative delay of the sides.
LipSync	0ms to 30ms	0.0	The sync. delay.
Contrast*	0 to 15	10	The front panel display contrast.
Bright*	0 to 15	10	The front panel display brightness.
OSD*	Off, Low, Med, High	Low	The position of the on-screen display.

* These parameters apply to all DSP presets.

Individual DSP presets provide additional parameters, to allow you to adjust specific features provided by that preset. For full details refer to *DSP presets*, page 35.

To change a DSP parameter

- Make sure the menus are unlocked; see *To unlock the menus*, page 24.
- Press ► or ◀ (remote) until the display shows the name of the parameter you want to change.

For example:



CD Depth +0.0

- Press ▲ or ▼ (remote) to change the value of the parameter.

Alternatively you can use the corresponding **Menu** buttons under the front panel.

As you change the value you will be able to hear the effect on the sound, and the display will show the current value.

After a short delay the display will revert to the normal display of DSP preset and volume.

*If you have a Meridian
DSP Loudspeaker the **Treble** and
Bass settings apply to all DSP
presets.*

Changing treble, bass, or phase

The Digital Surround Controller provides 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 recordings which are out of phase.

In each case all the outputs of the Digital Surround Controller are given the same frequency adjustment, to ensure a correct surround effect.

To change the treble

- Press ◀ or ▶ (remote) until the display shows the current treble setting.

For example:

A digital display with a black background and white text. It shows 'CD' on the left, 'Treble' in the center, and '+0.0' on the right.

- Press ▲ or ▼ (remote) to change the treble.

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

To change the bass

- Press ◀ or ▶ (remote) until the display shows the current bass setting.

For example:

A digital display with a black background and white text. It shows 'CD' on the left, 'Bass' in the center, and '+0.0' on the right.

- Press ▲ or ▼ (remote) to change the bass.

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

To change the absolute phase

- Press ▶ or ◀ (remote) until the display shows the current phase.

For example:

A digital display with a black background and white text. It shows 'CD' on the left, '+ Phase' in the center, and nothing on the right.

- Press ▲ or ▼ (remote) to change the phase.

Changing the listening position

A conventional stereo system provides a single balance control, which changes the relative loudness of the two speakers. The 861 Reference Digital Surround Controller provides a more sophisticated adjustment which corresponds to moving the listening position to the left or right.

You can also change the level of the centre, side, or rear loudspeakers relative to the main speakers.

To move the listening position to the left or right

- Press ◀ or ▶ (remote) until the display shows:

A black rectangular display with white text showing 'CD Balance <0>'. The 'CD' is on the left, 'Balance' is in the middle, and '<0>' is on the right.

- Press ▲ or ▼ (remote) to move the listening position.

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

For example:

A black rectangular display with white text showing 'CD Balance <3>'. The 'CD' is on the left, 'Balance' is in the middle, and '<3>' is on the right.

The arrow indicates the direction, and the number indicates the position where 0 is central, 8 is in line with the corresponding main speaker, and 10 is fully to one side.

Note that this adjustment is not available for the **Mono** preset.

To change the relative level of the side or rear loudspeakers

- Press ◀ or ▶ (remote) until the display shows the speaker(s) you want to adjust; for example:

A black rectangular display with white text showing 'CD Rear +0dB'. 'CD' is on the left, 'Rear' is in the middle, and '+0dB' is on the right.

- Use ▲ or ▼ to change the relative level of the speakers, in dB.

You can change the relative loudness of the rear loudspeakers from -30dB (about one-eighth of the loudness) to +10dB (about double the loudness).

For example, to double the loudness of the loudspeakers:

- Adjust their level until the display shows:

A black rectangular display with white text showing 'CD Rear +10dB'. 'CD' is on the left, 'Rear' is in the middle, and '+10dB' is on the right.

Note that this adjustment is not available for the **Direct**, **Stereo**, or **Mono** presets.

Changing the integration of the centre

If you have a centre loudspeaker you can adjust its relative loudness, to provide the best integration of the centre with the main left and right speakers.

You can also adjust the relative delay of the centre speaker to give the best perspective between the three front speakers.

Note that these adjustments are not available for the **Direct**, **Stereo**, or **Mono** presets.

To change the relative level of the centre speaker

- Press ► or ◀ until the display shows the current centre level; for example:



- Press ▲ or ▼ to change the relative level of the centre speaker.

You can change the relative level by $\pm 3\text{dB}$.

To change the relative delay of the centre speaker

- Press ◀ or ► until the display shows the current centre depth; for example:



- Press ▲ or ▼ to change the relative depth of the centre speaker.

You can change the depth between -2.5ms , which corresponds to moving the centre speaker $2\frac{1}{2}$ feet nearer to the listening position, and $+5\text{ms}$, which corresponds to moving it 5 feet further away from the listening position.

Increasing the depth makes the sound more open. Decreasing it makes the sound more focused.

Changing the spaciousness of the sound

You can adjust the spaciousness of the sound by altering the delay on the rear and side channels.

Note that these adjustments are not available for the **Direct**, **Stereo**, or **Mono** presets.

To change the relative delay of the rear or side speakers

- Press ► or ◀ until the display shows:



- Press ▲ or ▼ to change the relative delay of the rear speakers.

You can change the rear delay between 15ms, which is equivalent to moving the rear speakers 15 feet away, and 30ms, which is equivalent to moving the rear speakers 30 feet away.

If you have side speakers an additional **S Delay** option allows you to adjust the delay on the side speakers between 15ms and 30ms.

*For best results you should never set the **S Delay** to be less than the **R Delay**.*

The **Dolby Digital**, **Music**, **Trifield**, and **Ambisonic** presets allow you to vary these delays down to 0ms.

Changing the lip sync and on-screen display

To adjust the lip sync

The LipSync parameter is a unique Meridian feature which allows you to adjust the delay between the sound and the video image by up to one video frame.

Most movies are mixed for a viewing distance of 30 feet, and when viewed from 12 feet or less the sound arrives too early, giving a disconcerting effect. Using the LipSync parameter you can add an overall delay to the sound to accommodate your closer home viewing distance.

Many TV broadcasts delay the picture by half a frame, and can benefit from a LipSync setting of 12ms.

- Press ► or ◀ until the display shows:

A black rectangular box with white text. The text is 'CD LipSync 0.0' in a monospaced font. 'CD' is on the left, 'LipSync' is in the middle, and '0.0' is on the right.

- Press ▲ or ▼ to change the delay in milliseconds.

You can adjust the delay between 0 and 30ms, where 30ms corresponds to sitting 30 feet further away from the screen.

If your video display system has a long latency, this can be corrected using the source's video frame delay option; see *To set the advanced source options*, page 78.

To change the position of the on-screen display

For each DSP preset you can specify the position of the on-screen display (OSD), or blank the on-screen display altogether.

For example, you may prefer to have the on-screen display at the top of the screen when watching videos, but at the bottom of the screen when listening to music.

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

For example:

A black rectangular box with white text. The text is 'CD OSD Low' in a monospaced font. 'CD' is on the left, 'OSD' is in the middle, and 'Low' is on the right.

- Press ▲ or ▼ to change the position.

You can choose between Off, Low, Med, or High.

Changing the DSP preset for a source

Each source has an appropriate DSP preset associated with it for each music format. For example, for a standard stereo (PCM) signal the CD source uses **Trifield** and the TV source uses **TV Logic**.

This section explains how to change the DSP preset associated with any source.

To assign a DSP preset to a source

- Make sure the menus are unlocked; see *To unlock the menus*, page 24.
- Select the source you want to change by pressing the **Source** key on the front panel or the appropriate source button on the remote, eg **CD**.
- If necessary, select a signal in the appropriate format. For example, to change the DSP preset used for DTS compact discs, play a DTS CD.

The display will show the source and the DSP preset currently assigned to that source.

For example:



- Press **▲** or **▼** until the display shows the new DSP preset you want to assign.

For example:



- Press the **Assign** button to save the new assignment.

Defining your own presets

The 861 Reference Digital Surround Controller allows you to modify one of the built-in presets, and save it for future use.

You can either save the changes to the built-in preset, or you can create up to 12 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 unlock the menus*, page 24.
- Press **DSP** (front panel) or **Preset** (remote) to select the preset you want to modify.
- Change the preset parameters to the values you want to store; see *To change a DSP parameter*, page 26.
- Press **Store** (remote or under the front panel).

The display shows the next available user-defined preset.

For example:

A black rectangular display with white text showing 'CD' on the left and 'User 1' on the right.

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

For example:

A black rectangular display with white text showing 'CD' on the left and 'Classical' on the right.

Alternatively you can choose the built-in preset you started with.

For example:

A black rectangular display with white text showing 'CD' on the left and 'Trifield' on the right.

- Press **Store** on the remote.

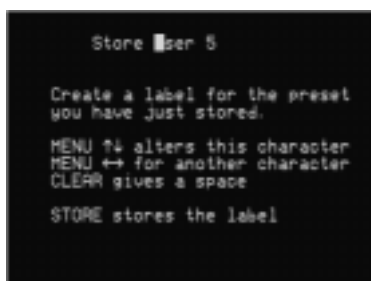
The settings have been stored in the new or existing preset you selected.

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:

A black rectangular display with white text showing 'CD' on the left and 'User 1' on the right. A small white vertical bar (cursor) is positioned under the 'U' in 'User'.

If you have an on-screen display it shows:



- 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 remote.

For example, you could change the name to:

A black rectangular box with white text. The text reads: 'CD La Scala'.

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

The display shows:

A black rectangular box with white text. The text reads: 'Stored'.

To clear a user-defined preset

- Make sure the menus are unlocked; see *To unlock the menus*, page 24.
- Press **DSP** (front panel), or **Preset** (remote) to select the preset you want to clear.
- Press and hold down **Clear** (remote) for several seconds.

The display shows:

A black rectangular box with white text. The text reads: 'Preset Clear'.

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



DSP presets

This chapter gives technical information about each of the DSP presets built in to the 861 Reference Digital Surround Controller.

It explains the processing performed by each DSP preset, and gives details of the types of material you should use with each preset.

It also gives details of the special DSP parameters available for each preset.

The DSP presets are divided into three categories: Logic, Music, and 5.1 Movie. You can set up the Digital Surround Controller to use a different subwoofer configuration for each category of DSP preset.



Logic DSP presets

The Digital Surround Controller provides five DSP presets specifically designed for reproducing film soundtracks. Three of these presets, **Pro Logic**, **THX Cinema**, and **TV Logic**, are designed for Dolby Surround encoded material. Most films, and many TV programmes and series, are encoded using Dolby Surround, and it is increasingly being used to encode music.

The 861 Reference Digital Surround Controller follows the Meridian philosophy of performing all the signal processing digitally, and the Dolby Surround decoding operates purely in a digital mode. This gives it a far higher performance and a better subjective sound than other analogue-based decoders.

The remaining Logic preset, **Mono** is designed for films with mono soundtracks.

Pro Logic

Dolby Surround is an encoding system based on a phase-amplitude matrix whose output can be decoded by a very simple passive matrix. Such a decoder gives quite a poor separation.

The Pro Logic system uses psychoacoustically optimised directional enhancement to increase the separation in both left-right and front-back directions. It does this by continuously calculating the position and degree of the currently-dominant sound. This sound is then steered to a greater or lesser extent to that position in the arriving sound. This technique is very successful for cinema and other dramatic programmes.

Further refinements in the Pro Logic decoder include the filtering and delay of the rear surround signal to reduce any tendency for the surround signals to divert attention or become dominant. The Pro Logic decoder also uses a modified digital Dolby noise-reduction process in the surround signal. Since Dolby Surround material is encoded with this in mind the noise-reduction is permanently operating in this mode.

THX Cinema

The **THX Cinema** DSP preset provides Pro Logic decoding, followed by additional signal processing refinements developed by Lucasfilm Ltd.

The THX extensions to Pro Logic decoding are designed to provide a better match between the sound of the movie theatre and a home cinema in the following ways:

- The front channels are re-equalised to correct for the higher treble often found in film soundtracks.
- The surround channels are frequency-corrected using a timbre-matching process so that sounds moving front-back are more convincing.
- The surround channels are decorrelated to break up any artificial localisation of the rear signals due to the speakers being nearby. In the 861 Reference Digital Surround Controller this decorrelation is optimised to give spacious surround sound that has no artefacts disturbing to music or other sensitive sounds in the mix.
- The time synchronisation between loudspeakers is adjusted to compensate for the fact that the speakers in a home system tend to be a lot closer to the listener than in a movie theatre.

THX can also be used with the 5.1 Movie DSP presets; see *Dolby Digital THX*, *DTS THX*, and *MPEG THX*, page 43.

Pro Logic and THX Cinema DSP preset parameters

Parameter	Options	What it changes
Mono Rear	Steered Rear, Steered Side, Steered All, Mono All, Mono Rear, Mono Side	Which of the surround channels are generated by steering. Mono gives conventional Pro Logic surrounds. Steered gives stereo surrounds.

TV Logic

TV Logic is a logic preset, with user-adjustable steering, that can 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, High	The degree of left-right steering.
Yaw	Off, Low, Med, High	The degree of front-rear steering.
Mono Rear	Steered Rear, Steered Side, Steered All, Mono All, Mono Rear, Mono Side.	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 that 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. Ignored if Party? is set to Yes.
Party?	No or Yes	Select Yes to play the mono signal through all speakers, including subs.

Music DSP presets

The Digital Surround Controller provides seven alternative music DSP presets designed for the reproduction of well recorded material, originally intended for replay over a traditional stereo pair of loudspeakers.

In addition, it provides DSP presets for reproducing music in the digitally encoded DTS, MPEG, and MLP formats.

Music format	Presets
Conventional stereo (PCM)	Direct, Music, Trifield, Ambisonic, Super, Stereo, Music Logic
DTS	DTS Music
MPEG	MPEG Music
MLP (Meridian Lossless Packing)	MLP

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 representation 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
HS Out?*	Y or N	Select Y for high-rate audio to the front speakers (left, right, centre, and subwoofer) upsampled if necessary. Select N for standard-rate audio using all speakers, downsampled if necessary.
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.

* Only available with compatible hardware; contact your Meridian dealer.

† **Trifield** only.

Ambisonic

The **Ambisonic** DSP preset is designed for replaying material encoded in 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.

Ambisonic 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 sound field 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 Ambisonic surround sound and conventional stereo is that the signals from all the speakers combine to produce a coherent sound field 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, **Ambisonic** is the one that requires the greatest attention to speaker choice and positioning.

Super Stereo

Super Stereo 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.

Ambisonic and Super Stereo DSP preset parameters

Parameter	Options	What it changes
Width*	0 to 1	The width of the image.
Position†	A, C, E, G, I, K, M	The seating position; the letters are like rows in a hall.
5 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 Stereo** only.

† **Ambisonic** only.

Music Logic

Music Logic is a music DSP preset with user-adjustable steering, designed to provide an exciting experience with many types of studio-produced music.

Music Logic DSP preset parameters

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

DTS Music

DTS Music is a special version of the **DTS** preset designed with a lower LFE level of -10dB to match the bass levels applied to DTS music CDs.

MPEG Music

MPEG Music is a special version of the **MPEG** preset designed for listening to MPEG encoded music CDs.

MLP

MLP (Meridian Lossless Packing) is an audio format that increases the amount of information that can be recorded on a CD or DVD, without any loss of quality.

For details of the **DTS Music**, **MPEG Music**, and **MLP** DSP preset parameters see *5.1 Movie DSP preset parameters*, page 44.

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.

Stereo and Direct DSP preset parameters

Parameter	Options	What it changes
HS Out?*	Y or N	Select Y for high-rate audio to the front speakers (left, right, centre, and subwoofer) upsampled if necessary. Select N for standard-rate audio using all speakers, downsampled if necessary.

* Only available with compatible hardware; contact your Meridian dealer.

5.1 Movie DSP presets

The discrete digital formats can encode up to eight separate channels, which can be decoded to provide separate signals to the eight speakers in a surround configuration.

Dolby Digital

Dolby Digital is a totally digital format capable of encoding five full frequency-range channels, together with one restricted frequency-range channel used for extreme bass.

The Digital Surround Controller's **Dolby Digital** preset is capable of decoding the range of different options provided by Dolby Digital. In addition, it provides bass power management to protect systems from the potentially high bass levels that Dolby Digital can produce.

Dolby Digital THX

As with the standard **THX Cinema** DSP preset, **Dolby Digital 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, and can be used whether or not your other equipment is THX approved.

DTS

DTS is unusual among the compressed surround formats in that it can deliver high quality music at high bit rates.

CDs, DVDs, and LaserDiscs are currently available which provide a DTS signal in place of the normal digital audio.

MPEG

MPEG surround is the preferred audio format for DVD in PAL territories.

Dolby Digital THX, DTS THX, and MPEG THX

As with the standard **THX Cinema** DSP preset, **Dolby Digital THX**, **DTS THX**, and **MPEG THX** re-equalise 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, and can be used whether or not your other equipment is THX approved.

5.1 Movie DSP preset parameters

Parameter	Options	What it changes
Surr. Rear	Surr. Rear, Surr. Side, Surr. All	Switches the surround signal between the side and rear speakers.
LFE	0 to -30dB	The relative level of the LFE bass channel.
Max SPL*	105 to 120dB SPL	The peak-level limit for an LFE subwoofer.
Limit*	-15 to -5dBFS	The peak-level limit of the total bass signal added to the main speakers.
Compress†	Off, Low, Med, Top, Max, Mix	The dynamic range control; see below.

* **Dolby Digital** and **Dolby Digital THX** only.

† See *Using peak-level limiting*, page 45.

Using dynamic range control

Because Dolby Digital is a digital format it allows dynamic range control without the distortion involved in analogue methods. The **Compress** parameter allows you to set one of the following options:

Option	Description
Off	No compression.
Low	Provides a moderate amount of bottom-up compression. This raises quiet sounds above the background noise, which is ideal for demonstration and quiet listening.
Med	Provides moderate amounts of both bottom-up and top-down compression.
Top	Provides a moderate amount of top-down compression. This reduces loud sounds.
Max	Provides full bottom-up and top-down compression. Quiet sounds are raised to be audible and loud passages are minimised to avoid disturbance, which is useful for late-night listening.
Mix	Bypasses dialogue normalisation and references the sound pressure level in the studio where the material was mixed.

Using peak-level limiting

The **Max SPL** or **Limit** parameters allow you to set up peak-level limiting for bass signals, and the setting applies to all the discrete digital DSP presets.

If your loudspeaker layout includes one or more subwoofers the parameter is named **Max SPL**, and it sets the peak-level limit for the LFE channel.

If your loudspeaker layout contains no subwoofer the parameter is named **Limit**, and it sets the peak-level limit of the bass signal added to the main loudspeakers. For loudspeaker layouts using Meridian DSP loudspeakers as the main left and right, or centre speakers, the **Limit** value is fixed at -11dBFS and the parameter does not appear in the menu.

Multi-channel presets

The IA40 multi-channel analogue input card provides 5.1 channel discrete multi-channel inputs to the 861. This allows you to connect a source such as a DVD-Audio player or film projector with multi-channel analogue outputs. If such an input has been selected, then two built-in presets are available: **Discrete** and **Ambisonic**.

The **Discrete** preset treats the inputs very much like 5.1 channel compressed sources; for example the same dynamic bass limiting is used to protect the speakers. The menus are the same as for the **DTS** preset with the addition of an extra **LFE Cut?** parameter, which allows an analogue 10dB cut to be applied to the LFE input. This is useful for some discrete music material which has the LFE channel recorded 10dB higher than the LFE level of standard 5.1 movie material.

The **Ambisonic** preset allows B Format Ambisonic devices to be connected to the IA40 with B Format automatically selected rather than the UHJ format normally used on Ambisonic CDs.

Configuring the Digital Surround Controller without a computer

The 861 Digital Surround Controller can be set up for most standard configurations of loudspeakers and sources using just the front-panel controls and Meridian System Remote.

This chapter explains how to configure the Digital Surround Controller without using a computer, and then how to calibrate the loudspeakers and sources for your particular system.

Alternatively, for complete control over all aspects of the Digital Surround Controller's configuration you can set up the unit from a computer using the Meridian Configuration program. For full information refer to the next chapter.



Choosing a standard setting

The Digital Surround Controller provides six standard settings, called Types, which configure all aspects of the 861 into the most commonly needed configurations. In addition, any User Types you create using the Meridian Configuration program are also available.

Types 0 to 5 are factory settings, designed to cater for the most commonly needed configurations of associated equipment.

These standard Types are shown in the following table:

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

In this table 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.

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. Note that selecting a Type will clear any configuration and calibration changes you have made, or any DSP presets you have defined.

If your Digital Surround Controller is fitted with a video card, and you have a video source connected, the on-screen display also provides additional text explaining about each Type.

To select a standard setting

Warning: this procedure will reset any configuration and calibration changes you have made.

- Select a video source to produce an on-screen display.
- Put the Digital Surround Controller into Standby by pressing **Off** (front panel or remote).

- Hold down the ▲ key on the front panel until the display shows:

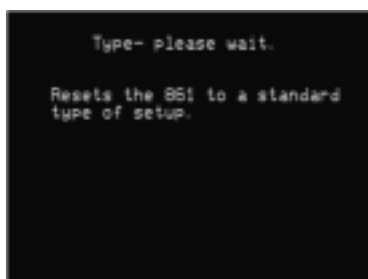
Type in... 3

- Keep holding down the ▲ key for a further 3 seconds.

The display will show:

Type- please wait.

If you have an on-screen display it shows:

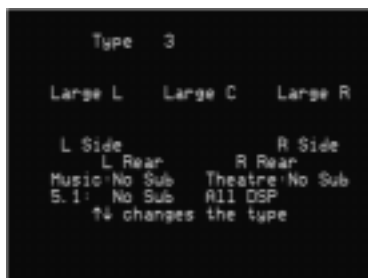


Then after a short delay the display shows the current Type.

For example:

Type 3

If you have an on-screen display it shows information about the Type; for example:

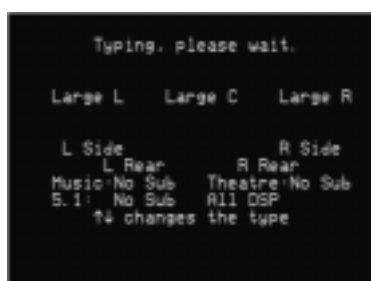


- Press ▲ or ▼ on the front panel to change the Type number.

The display shows:

Typing, please wait.

If you have an on-screen display it shows:



- Wait for one second, and then put the Digital Surround Controller into standby by pressing **Off** (front panel or remote).
- Switch on again to use the standard settings you have selected.

Setting up the Digital Surround Controller with other Meridian equipment

If you are using the 861 with other Meridian equipment, such as the 800 Reference DVD/CD Player, you should set up the Comms with the following automatic setup procedure:

- Switch all the units to standby.
- Press **Clear** (remote).

Each unit will display:

Auto Setup

The 861 will then be designated as the controller, and display:

Controller

This is the unit that will respond to the remote.

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

Not Controller

Your system is now set up and ready for use.

- If for any reason the automatic setup does not give the configuration you want, restore the default operation by selecting one of the standard Types; see *Choosing a standard setting*, page 48.

Calibrating the system

To help you to set up your installation to give the best possible sound with any particular combination of associated equipment, the 861 Reference 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 work through the calibration procedure the first time you set up your surround sound system, and whenever you want to check the calibration, such as after changing the layout of your room.

Using the calibration procedure

We recommend that you perform the calibration procedure using the Meridian System Remote 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.

If your Digital Surround Controller is fitted with a video card, and you have a video source connected, the on-screen display also provides additional text explaining what to do.

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, 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.

To start the calibration procedure

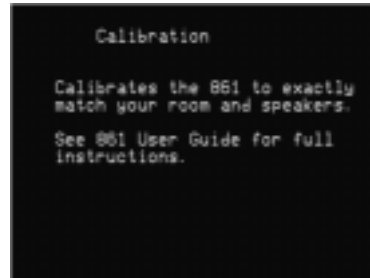
- Put the Digital Surround Controller into standby by pressing **Off** (front panel or remote).
- Press and hold the **Calibrate** button, under the front panel, for at least five seconds.

The display shows:



Calibration

If you have an on-screen display it shows:



After a few seconds the
display shows:



Left Level +0.0dB

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

To move between the calibration tests

- Press ► (remote), or the corresponding **Menu** button under the front panel.
- Press ◀ (remote), or the corresponding **Menu** button under the front panel, to move back to an earlier test.

To jump to the next set of tests

- Press **Store**.

The calibration tests are described in 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 **Off** (front panel or remote).

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 Lucasfilm. A Sound Pressure Level (SPL) meter can be useful at this stage; ask your dealer for more information.

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

For example:

Left Level +0.0dB

If you have an on-screen display it shows:



- Use the ► and ◀ keys 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 your speakers are not THX approved this setting is recommended.

Note that 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.

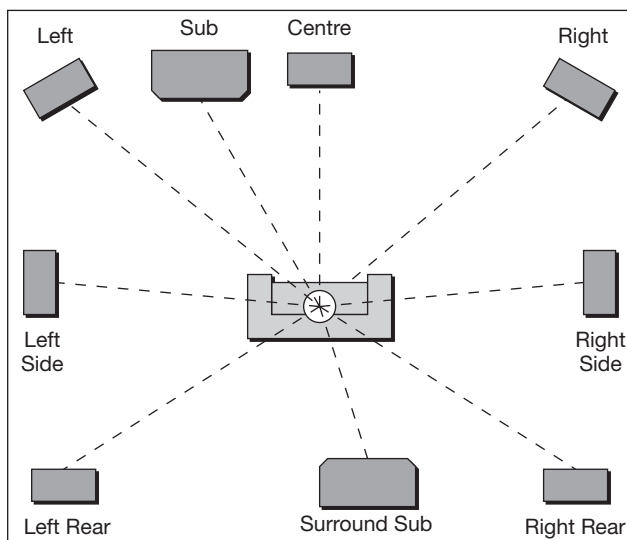
- When you have completed the Levels section press ► or **Store** to proceed to the next test.

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

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, in feet and inches, to each speaker from the listening position:



Measure from the ear height at the listening position to the tweeter on each speaker (where applicable).

- Use the ► and ◀ keys to move between each of the speakers in the layout.

The display shows the speaker being tested, and the distance in feet.

For example:

Left Distance 18'0

If you have an on-screen display it shows:

```

Left Distance 18'0

Measure from the tweeter to
the listening position.
(1'=12 inches=300mm)
MENU ↑↓ adjusts the distance
MENU ←→ changes test
STORE moves to next stage
  
```

- Use ▲ and ▼ to change the distance, in feet.

Repeat this for each of the speakers in your layout.

- Press ► or **Store** 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.

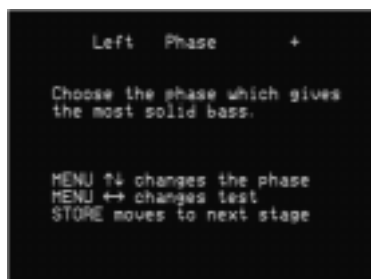
- Use the ► and ◀ keys to move between each of the speakers in the layout.

The first display allows you to adjust the phase.

For example:

Left Phase +

If you have an on-screen display it shows:

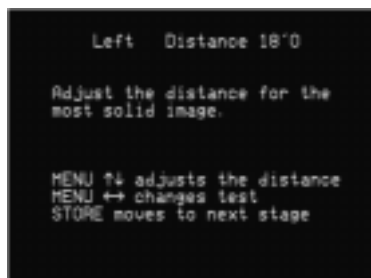


The next display shows the distance (or delay) for the same speaker.

For example:

Left Distance 18'0

If you have an on-screen display it shows:



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.

As you increase the delay the speaker will appear to move away from you.

You have now completed the calibration of your system.

- Press **Off** (front panel or remote) to exit from the calibration procedure.

Setting up sources

This section explains how to use Gain/Sub mode to set up the sources connected to the Digital Surround Controller, and configure them to suit your other equipment.

You can also adjust the subwoofer crossover frequency to suit the subwoofers in your system.

To turn on Gain/Sub mode

- Put the Digital Surround Controller into standby by pressing **Off** (front panel or remote).
- Press and hold the **Config** key under the front panel for at least five seconds.

The display shows:

Gain/Sub On

The Digital Surround Controller will then return to standby with Gain/Sub mode turned on.

Gain/Sub mode adds two extra options to the DSP parameter menus: **Sensitivity** and **Xover**.

To turn off Gain/Sub mode

- Repeat the above procedure until the display shows:

Gain/Sub Off

To adjust the sensitivity of a source

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

- Turn on Gain/Sub mode, as described above.
- Select the source you want to adjust, with loud source material playing.
- Press ◀ or ▶ (remote or under the front panel) until the display shows the current sensitivity.

For example:

Radio 2.0V In

- Press ▲ or ▼ (remote or under the front panel) to change the sensitivity.

You can select between sensitivities of 0.5V (most sensitive), 1.0V, 2.0V, or 2.5V (least sensitive).

If the sensitivity is set too high the input will clip the loudest passages.

The display shows, for example:

Radio 0.5V In Clip

In this case reduce the sensitivity.

If you have selected a digital source you cannot adjust the sensitivity.

The display shows, for example:

CD Not Analogue

To adjust the subwoofer crossover frequency

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

- Turn on Gain/Sub mode, as described above.
- Press ◀ or ▶ (remote or under the front panel) until the display shows the current crossover frequency.

For example:

Radio Xover 80Hz

- Press ▲ or ▼ (remote or under the front panel) to set the crossover frequency.

For THX loudspeaker systems you should leave the crossover setting at 80Hz.

80Hz is also the recommended setting for all movie listening. You may prefer, however, to lower the crossover frequency for music if your main speakers have good bass handling down to, say, 50Hz.

Sinewave sweep test

The 861 Reference Digital Surround Controller includes a sinewave signal test, to help you set the subwoofer crossover frequencies, or check for room resonances.

- Select a PCM source; eg an analogue source or CD.
- Press **Config** (under the front panel).

The displays shows:



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 change the sweep rate

- Press ◀ or ▶ (remote or under the front panel) until the display shows:
- Press ▲ or ▼ to change the sweep rate and direction, as follows:



Display	Description
CD >> 88.5Hz	Fast sweep up.
CD > 81.5Hz	Slow sweep up.
CD Pause 80.0Hz	Paused.
CD < 78.5Hz	Slow sweep down.
CD << 70.5Hz	Fast sweep down.

The sine sweep will stop when it reaches 0.5Hz or 200Hz.

To change the volume

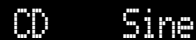
- Use the volume keys in the usual way.

Warning: very loud low-frequency signals may damage speakers.

To select other test signals

- Press ◀ or ▶ (remote or under the front panel) until the display shows the current signal.

For example:



- Press ▲ or ▼ to choose between the following test signals:

Display	Description
CD Sine	A sinewave.
CD Silent	Silence
CD Input	The source signal in mono (left + right)
CD Noise	Pink noise (band pass 500Hz to 2kHz for main channels).

To select the channel

- Press ◀ or ▶ (remote or under the front panel) until the display shows the current channels.

For example:



- Press ▲ or ▼ to select a specific channel, or All Channels.

Configuring the Digital Surround Controller using a computer

The 861 Reference Digital Surround Controller provides a flexible range of customisation options which you can change to suit your own preferences and the other equipment in your system.

This chapter explains how to install the Meridian Configuration program, and use it to create your own configurations of the Digital Surround Controller.



The Meridian Configuration program

The Meridian Configuration program is a stand-alone Windows-based application that lets you design your own configuration of each 800 Series product to suit your own personal preferences, and the particular configuration of other equipment in your system.

The Meridian Configuration program provides the following sections to allow you to control the corresponding aspects of each 800 Series product's operation:

Setup



Setup

Lets you specify general features of the product's operation, including the position of the on-screen display, the information provided on the front-panel displays, the startup volume, and settings affecting its operation in multi-room systems.

Speakers



Speakers

Lets you configure the product's outputs to suit the type of each amplifier and loudspeaker in your system, and if appropriate the layout of the loudspeakers, to ensure that you get perfect surround sound performance.

Presets



Presets

Lets you customise the settings of the built-in DSP presets, and create additional presets of your own based on the built-in presets.

Sources



Sources

Lets you customise the operation of each of the sources, including the presets used by each source for each of the audio formats, the digital, analogue, and/or video inputs used for that source, and additional information about the type of each source.

Cards



Cards

Displays information about each of the cards in the product, and lets you change the configuration of a card, and add or remove cards.

Installing the Meridian Configuration program

Requirements

To use the Meridian Configuration program you need:

- A computer running Windows 95 or Windows NT 4.
- A 100MHz or faster Pentium-class processor.
- At least 16 Mbytes of RAM.
- 5 Mbytes of free disk space.
- A vacant 9-pin serial port assigned to one of COM1 to 4.

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 first Meridian Configuration program installation disk.
- Choose **Run...** from the **Start** menu.
- Type `A: setup` and press 
- Follow the on-screen instructions, inserting the second installation disk when prompted.

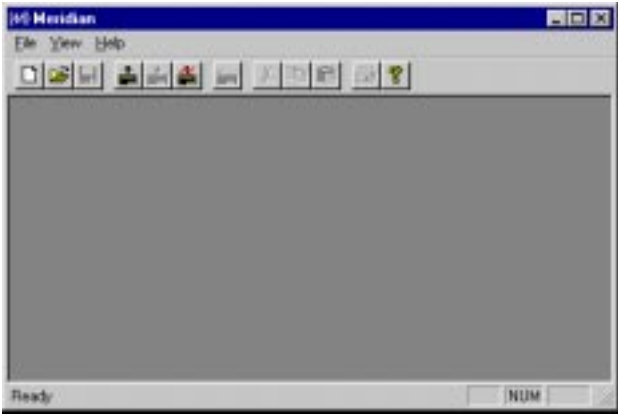
If you have an 800 Reference DVD/CD Player

If your equipment includes both an 861 Reference Digital Surround Controller and an 800 Reference DVD/CD Player configure the DVD/CD Player first as described in the corresponding chapter of the *800 Reference DVD/CD Player User Guide*.

To run the Meridian Configuration program

- Click **Start**, point at **Programs**, then click **Meridian Configuration**.

The **Meridian** window will be displayed:



The toolbar provides a convenient way of accessing the most important menu options:

Button	Option	Function
	New	Creates a new settings file.
	Open	Opens an existing settings file.
	Save	Saves the current settings file to disk.
	Fetch	Fetches the current configuration of the attached product(s).
	Store	Stores the current settings and User Types to attached products.
	Disconnect	Disconnects the program from attached products.
	Add product	Allows you to add a product to the settings file.
	Copy	Copies text or settings onto the clipboard.
	Paste	Pastes text or settings from the clipboard.
	Print	Allows you to print a copy of your settings.

To connect the serial cable

The serial cable is symmetrical, and can be connected either way round.

- Connect one end to the RS232 connector on the COMPUTER card on the back panel of the 861 Reference Digital Surround Controller.
- Connect the other end to one of the serial ports on the PC or PC notebook computer.

Then specify the serial port you are using as follows:

- Choose **Options** from the **View** menu to display the **Options** dialogue box:



- Select the port you want to use and click the **OK** button.

Creating a new settings file

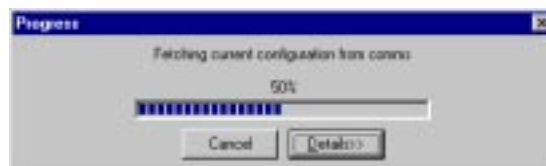
This section explains how to create a new settings file, using the Meridian Configuration program, and how to enter personal information to identify the settings in your product.

The first step is to fetch the initial settings from the Digital Surround Controller, to use as a starting point for your configuration.

- Click the **Fetch** button in the toolbar.



The **Progress** dialogue box will show you the progress as the settings are fetched:



A new settings file will be created for you, with the initial name **MSF1**, and the **Meridian** window will show **Surround controller** icon to identify the product you are configuring.

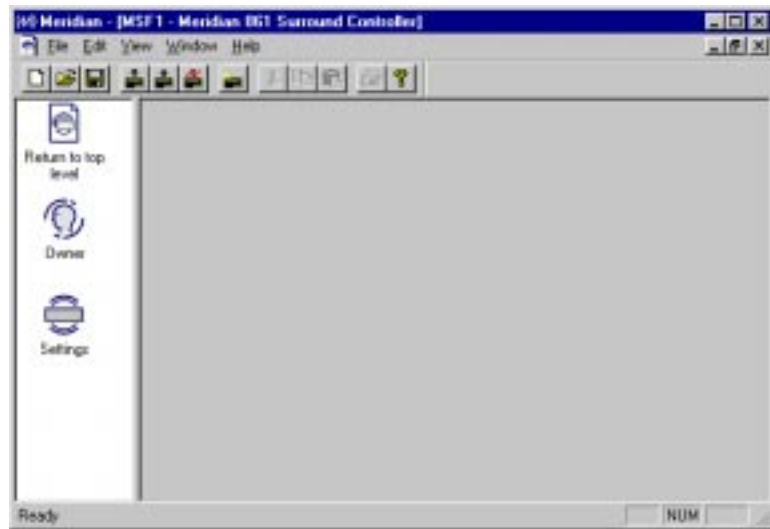


- Choose **Save As** from the **File** menu, enter an appropriate name for the file and click the **Save** button.

To display the settings

- Double-click the **Surround controller** icon, to open it and display the settings it contains.

The left-hand panel of the **Meridian** window will change to show the following four icons:



Owner lets you enter personal information, for future reference, and choose the message displayed when you first switch the unit on, and **Settings** is the initial configuration in the settings file.

Double-clicking **Return to top level** takes you back to the previous level.

To enter your personal details

- Click the **Owner** icon in the left-hand panel.
- Enter any text you like in the **Dealer**, **Owner**, and **Description** fields.

You can enter up to 20 characters in each field, the size of the DVD/CD Player front-panel display.



The **Owner** text will be displayed when you turn the product on. The **Dealer** and **Description** text are displayed after the product version and serial numbers if you hold down the front-panel **Display** key in standby.

The options on the **Advanced** tab are for use by a dealer in setting up a multi-room system, and to upload a new version of the software to the product, and it is recommended that you do not change these settings.

To display or edit the settings

- Double-click the **Settings** icon.

The **Meridian** window will change to show the five categories of settings contained in the settings file: **Setup**, **Speakers**, **Presets**, **Sources**, and **Cards**.

The options available in each case are explained in the following sections.

At this stage you may find it useful to maximise the **Meridian** window so you can see all the options on each screen.

Setting up speakers

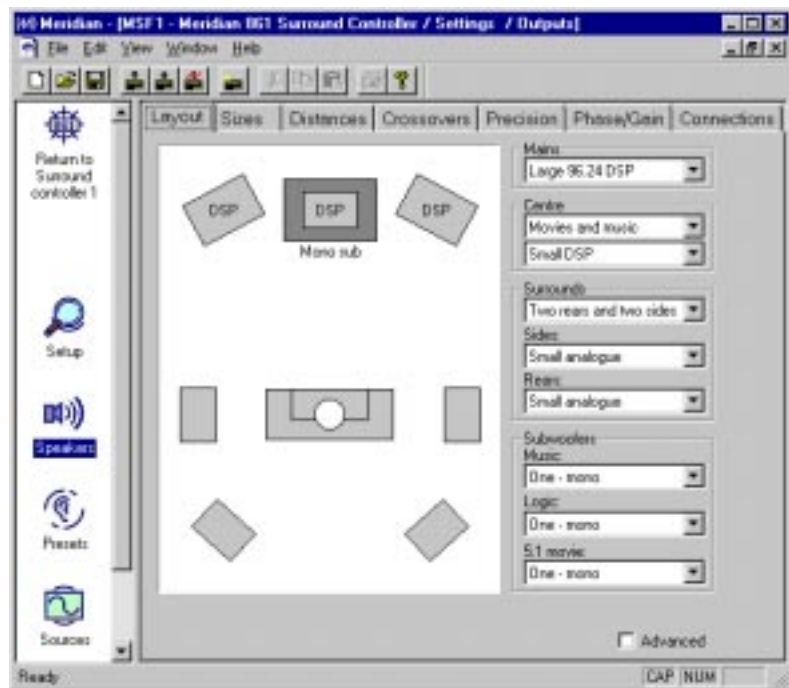
This section describes how to use the Meridian Configuration program to configure the 861 Reference Digital Surround Controller for the configuration of loudspeakers in your system, and specify information about the type of each speaker, for optimum performance.

The first stage in setting up the speakers is to specify the number of speakers in the layout, and the type and size of each speaker.

The 861 Reference Digital Surround Controller can support up to 8 loudspeakers.

To specify the speaker layout

- Click **Speakers** in the left-hand panel of the **Meridian** window.
- If necessary click the **Layout** tab to display the **Layout** page of speaker settings:



- Specify the type of each speaker by selecting the appropriate option from each of the drop-down menus.

As you change the options the layout illustration will change to show the resulting layout.

If you select a combination of options that is not supported, the other options will be adjusted accordingly to ensure that the whole configuration is valid.

For example, if you specify **Two rears and two sides**, and then select two subwoofers, the side speakers will be removed to allow you to have the subwoofers.

The options available for the **Mains**, **Centre**, **Surrounds**, and **Subwoofers** drop-down menus are explained in the following sections.

Mains

Use the **Mains** drop-down menu to specify the size and type of the main Speakers.

- Choose **Large** if your main left and right speakers are large, with good bass performance, and you want to use them for full range reproduction.
- Choose **Small** if your main left and right speakers do not have a good bass response, or your room is large and you want to use one or more subwoofers to handle the bass for the system.
- Choose **analogue**, **DSP**, or **96.24 DSP** according to the type of each speaker.

The following table gives recommended settings for Meridian loudspeakers:

Loudspeaker	Recommended setting
DSP5000, DSP5500, DSP6000, or DSP6000C	Large DSP or Large 96.24 DSP*
DSP5000C	Small DSP or Small 96.24 DSP*
M60	Large analogue
M60C, M33, or A500	Small analogue
DSP33	Small 96.24 DSP

*96.24 versions.

Centre

Use the **Centre** drop-down menus to specify which presets use the centre speaker, and its size and type.

- From the first drop-down menu choose one of the following options:

Option	Description
None	If you do not have a centre speaker.
Movies only	If you want to use the centre speaker for Logic and 5.1 Movie DSP presets only.
Movies and music	If you want to use the centre speaker for all presets.

- From the second drop-down menu specify the type of the centre speaker; the options are as for the main speakers.

Surrounds

Use the **Surrounds** drop-down menus to specify the number and type of the surround speakers.

- From the first drop-down menu specify the number of rear speakers and side speakers you have in your surround system.
- Use the **Sides** and **Rears** drop-down menus to specify the types of the rear and side speakers.

Subwoofers

Use the **Subwoofers** drop-down menus to specify the number of subwoofers, and the DSP presets that use them.

If your main left and right speakers are small you will need to use one or more subwoofers to handle the bass. You can choose between appropriate combinations of mono (front), centre, left and right, or surround.

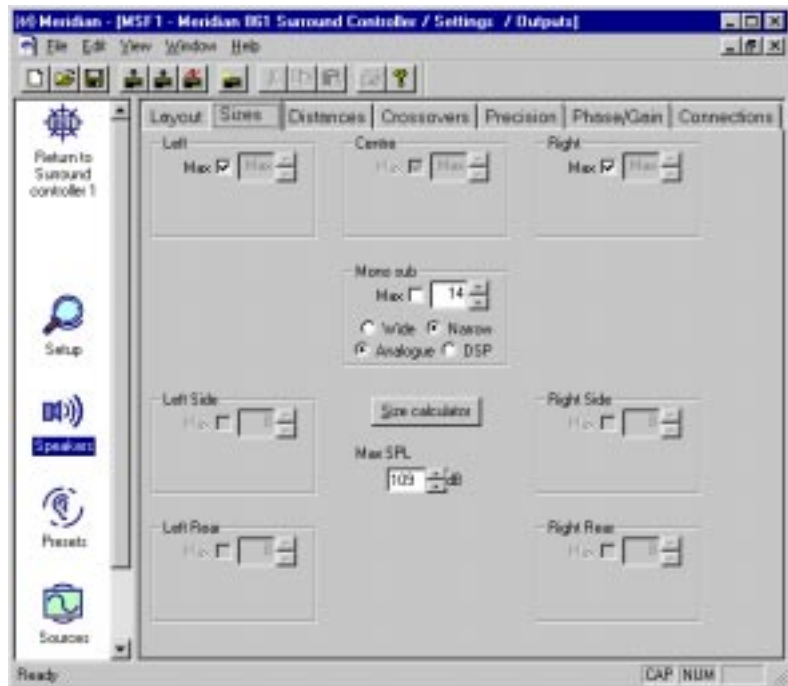
If your main left and right speakers are large you can use one or more subwoofers to augment the bass from the centre channel. With 5.1 sources an additional option is to use the subwoofer only for the LFE channel.

You can specify a different subwoofer configuration for Music, Logic, and 5.1 Movie DSP presets.

The **Advanced** checkbox is for dealer use only, and it is recommended that you leave this unchecked unless you have special requirements.

To specify the speaker sizes

- Once you have specified the speaker layout for your system, click the **Sizes** tab to display the **Sizes** page of speaker settings:



This allows you to set up speaker protection for the 5.1 sources, the type of each subwoofer, and peak-level limiting.

Speaker protection

Because of the high bass levels that 5.1 materials are capable of reproducing, the Digital Surround Controller allows you to set up automatic protection of each full-range speaker or subwoofer.

A setting of **Max** corresponds to no protection, and 0 corresponds to full protection. By default any Meridian DSP loudspeakers in your system are set to **Max**, as these include built-in protection.

You can use **SizeCalc** to help you calculate the correct value for your speakers:

- Click the **Size calculator** button to display the **SizeCalc** window:



- Specify the number of bass units in each speaker (woofers), the size of each unit, and the design of the speaker.

The size value is displayed in the **SizeCalc** display.

- Type the size into the appropriate field.

If you prefer you can copy and paste the size directly.

Subwoofer filtering and type

For each subwoofer in the system you can specify the subwoofer filtering, and its type.

- Specify the filtering from the following options:

Option	Description
Narrow	The Digital Surround Controller provides a low-pass cut off; the subwoofer's crossover should be bypassed. This is the recommended option.
Wide	The subwoofer includes a crossover.

- Specify the type of subwoofer as **Analogue** or **DSP**.

Peak-level limiting

The **Max SPL** or **Bass limit** parameter allows you to set up peak-level limiting for bass signals, and the setting applies to all the discrete digital DSP presets.

If your loudspeaker layout includes one or more subwoofers the parameter is named **Max SPL**, and it sets the peak-level limit for the LFE channel.

If your loudspeaker layout contains no subwoofer the parameter is named **Bass limit**, and it sets the peak-level limit of the bass signal added to the main loudspeakers. For loudspeaker layouts using Meridian DSP loudspeakers as the main left and right, or centre speakers, the **Bass limit** value is fixed at -11dBFS and you cannot adjust it.

To complete the speaker setup

You have now completed the first stage of setting up the Digital Surround Controller, and you should save the changes you have made by choosing **Save** from the **File** menu.

You can ignore the **Distances**, **Crossovers**, **Precision**, **Phase/Gain**, and **Connection** pages of settings for the moment; these will allow you to check the values you have set up when you calibrate the Digital Surround Controller.

Setting up sources

This section describes how to use the Meridian Configuration program to configure the sources provided by the Digital Surround Controller.

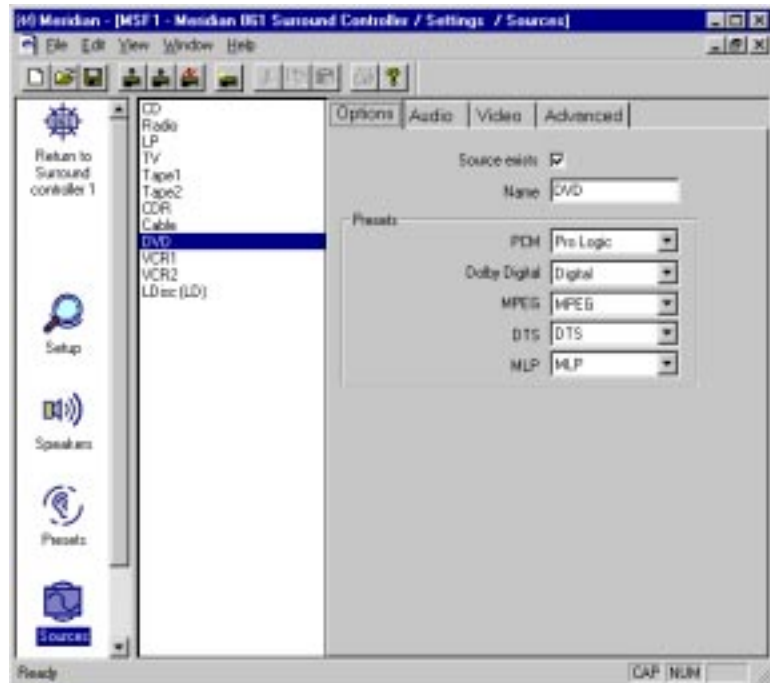
To set up sources

- Click the **Sources** icon in the left-hand panel of the **Meridian** window.

The right-hand panel shows a list of the 12 sources that are available. For each source you can display four pages of settings by clicking on the **Options**, **Audio**, **Video**, or **Advanced** tabs.

To configure the source options

- Select the source in the list of sources.
- Click the **Options** tab.



- Select **Source exists** if you want to use this source.

Disabling this options prevents the source from appearing when you press the **Source** key, or the corresponding source key on the Meridian System Remote.

- If you want, you can change the name displayed when the source is selected by editing the **Name** field.

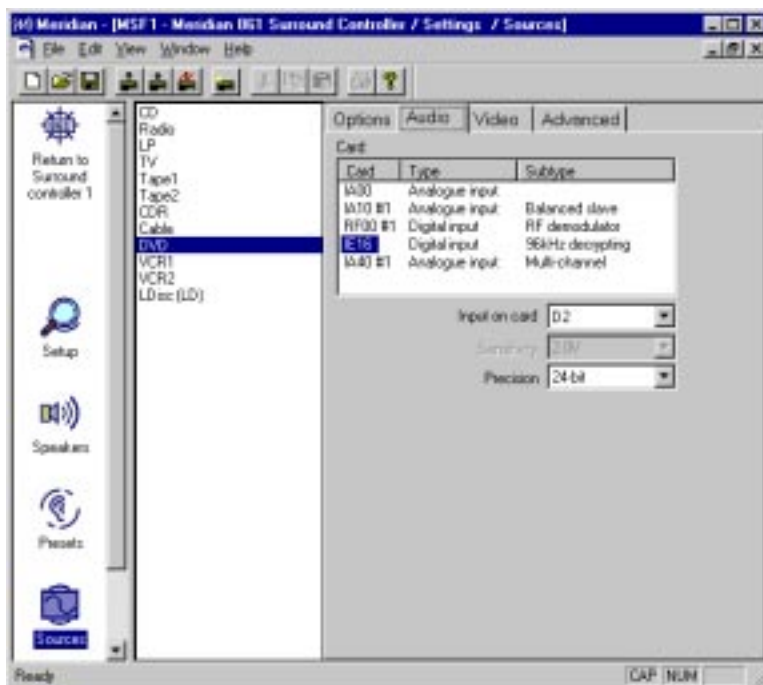
The name can consist of up to five letters, digits, or the characters space, full-stop, and minus. The name you specify is shown in the list of sources, followed by the Meridian System Remote key used to select the source in brackets.

- In the **Preset** section specify the DSP preset you want to use for each of the five alternative audio formats: PCM, Dolby Digital, MPEG, DTS, or MLP.

Each drop-down menu gives the built-in and user-defined DSP presets appropriate for that audio format.

To specify the audio connections

- Click the **Audio** tab to show the connections for the audio inputs.



- Select the card in the **Card** list to specify the location of the connector used for the source.
- From the **Input on card** drop-down menu specify the digital or analogue audio input you want to use for the source, or **Last valid** to leave the input unchanged when you select the source.

You can create a source with **Input on card** set to **Last valid** if you want it to change some other aspect of the current source, such as its DSP preset, without changing the selected input.

If you have specified a digital input for the main audio input:

- Specify the precision for the source by choosing an option from the **Precision** drop-down menu.

All CDs and laserdiscs are currently 16 bits. The 800 DVD/CD Player provides 24 bits. If in doubt choose **24-bit**.

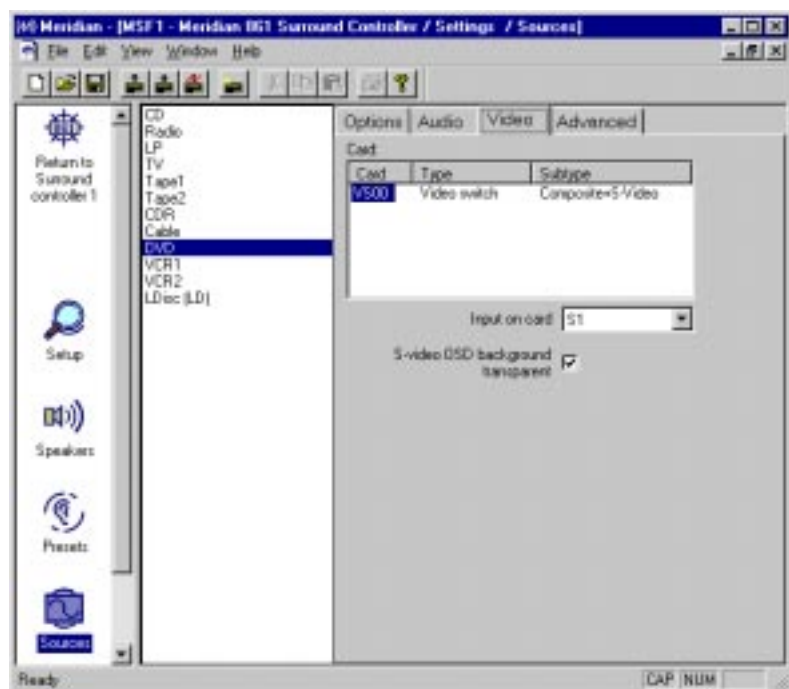
If you have chosen an analogue input for the main audio input:

- Specify the sensitivity of the input by choosing an appropriate option from the **Sensitivity** drop-down menu.

Note that you can also adjust the sensitivity of any analogue source interactively, using Gain/Sub mode. See *To adjust the sensitivity of a source*, page 57.

To specify the video connections

- Click the **Video** tab to show the connections for the video inputs.

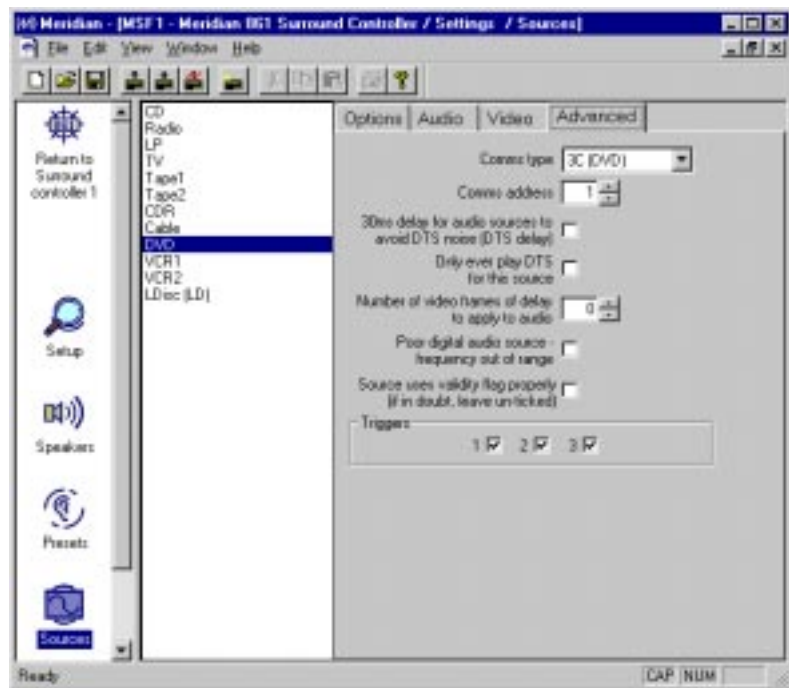


- Select the card in the **Card** list to specify the location of the connector used for the source.
- From the **Input on card** drop-down menu specify the video input you want to use for the source, or **Last valid** to leave the video input unchanged when you select the source.

You would usually set **Input on card** to **Last valid** for audio sources such as CD, Radio, Tape1, and Tape2.

To set the advanced source options

- Click the **Advanced** tab to show the **Advanced** page of settings.



- If the source is a Meridian product set **Comms type** to **1C** for a CD player, **2C** for an FM tuner, and **3C** for a DVD player. Otherwise set it to **none**.
- If you have two Meridian source units of the same type you can configure them to have different Comms addresses. You can then select the appropriate source by specifying its Comms address in the **Comms address** field.

The following additional options are available. You should only change these with advice from your dealer:

Option	Description
30ms delay for audio sources to avoid DTS noise (DTS delay)	Avoids the noise caused by switching to a DTS source. Should not be selected for video sources as it will cause the sound to be out of sync with the picture.
Only ever play DTS for this source	Creates a video DTS source that will avoid any DTS noise when switching audio formats.
Number of frames of delay to apply to audio	Adds a delay required by certain video systems.
Poor digital audio source – frequency out of range	Select this if you have difficulty locking to the source.
Source uses validity flag properly	May reduce switching noise on certain sources where this is a problem; should be left unchecked unless advised otherwise.

- Select any of **Triggers 1, 2, or 3** to activate the specified trigger outputs when this source is selected.

Configuring presets

The 861 Reference Digital Surround Controller provides 21 built-in presets and the Meridian Configuration program lets you configure the DSP parameters of any of the built-in presets to suit your own preferences.

You can also create up to 12 additional user-defined presets. Each user-defined preset is based on one of the built-in presets, and can have any name of your choice.

To set up presets

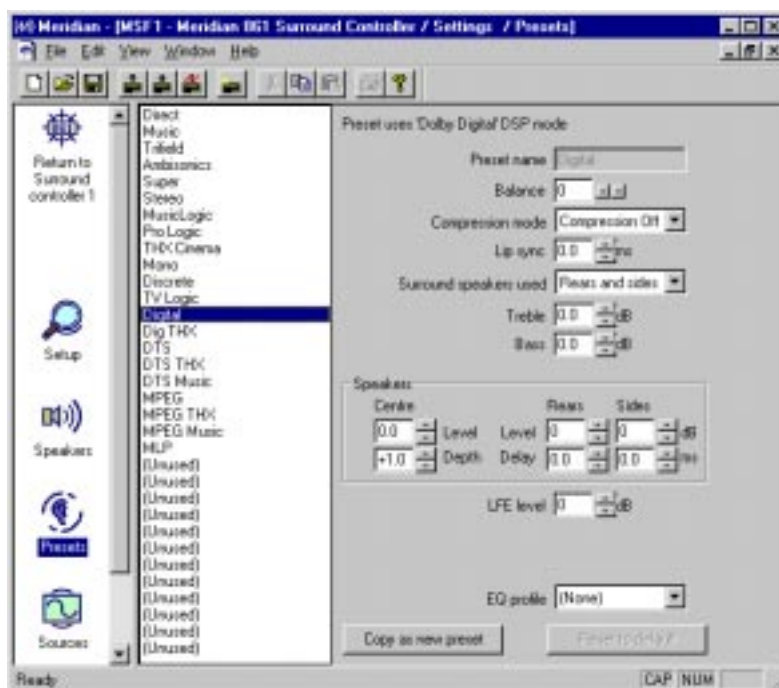
- Click the **Presets** icon in the left-hand panel of the **Meridian** window.

The right-hand panel shows a list of the 21 built-in presets, and the 12 unused user-defined presets.

To modify a built-in preset

- Select the preset in the list of presets.

The default DSP parameters will be displayed:



- Adjust the parameters as required.

Note that the treble and bass settings will not be available if your system includes DSP loudspeakers, because in this case the DSP speakers handle the treble and bass adjustments.

For more information about the DSP parameters available for each DSP preset see *DSP presets*, page 35.

If you have modified the DSP parameters from their defaults, **(modified)** is displayed after the preset name in the list of presets.

To restore the DSP parameters to their defaults

- Select the preset in the list of presets.
- Click the **Reset to default** button.

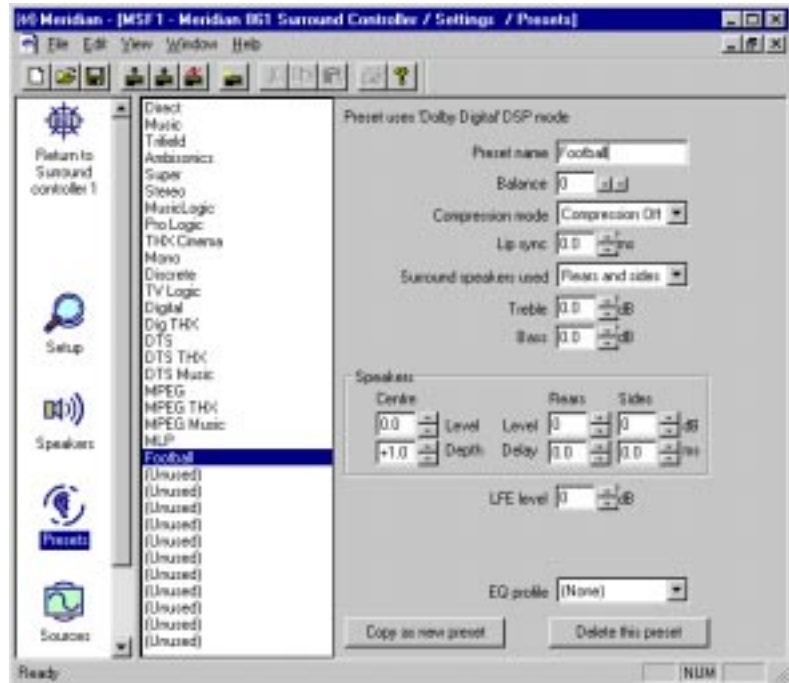
To create a user-defined preset

- Select the preset you want to use as the basis for the user-defined preset.
- Click the **Copy as new preset** button.

The new preset is created in the first available space after the built-in presets.

- Select the new preset you have created.
- Edit the preset name to identify the preset.

Initially the name is set to be the same as the built-in DSP preset it was based on, but you can choose any name of up to 8 letters, digits, or the characters space, full-stop, or minus; eg **Football**.



To delete a user-defined preset

- Select the preset in the list of presets.
- Click the **Delete this preset** button.

To copy a preset to a specific position in the list of user-defined presets

- Highlight the preset you want to copy.
- Choose **Copy** from the **Edit** menu, or click the Copy button in the toolbar: 
- Highlight the user-defined preset or empty position you want to replace.
- Choose **Paste** from the **Edit** menu, or click the Paste button in the toolbar: 

Configuring cards

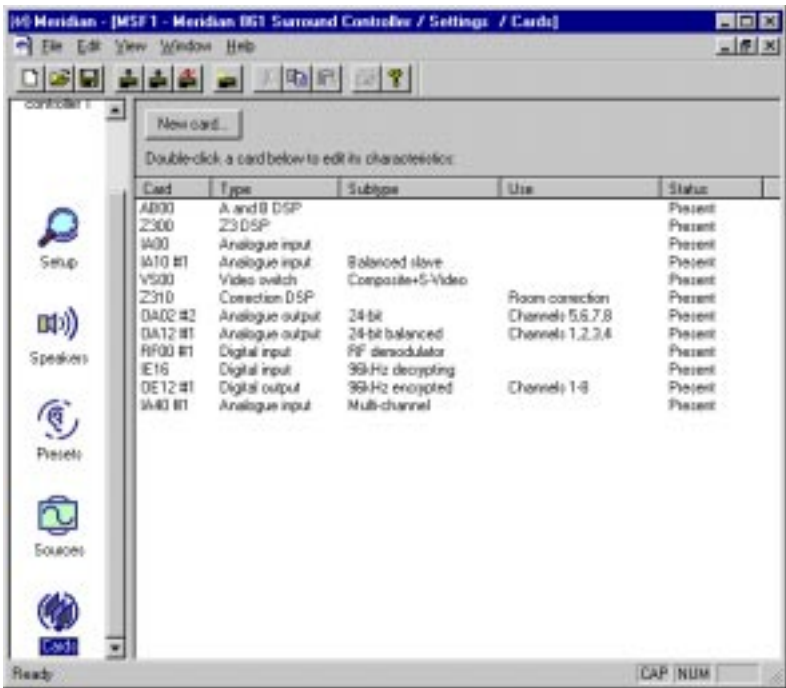
The **Cards** panel displays information about each of the cards in the product, and lets you change to configuration of a card, and add or remove cards.

You will normally only need to use this panel if you upgrade the 861 Reference Digital Surround Controller by adding a new card.

To set up cards

- Click the **Cards** icon in the left-hand panel of the **Meridian** window.

The right-hand panel shows a list of the cards fitted to the product, and allows you to add cards or remove cards.



Note that after adding or removing cards, **New** or **Missing** will be shown in the **Status** column. The Digital Surround Controller will still function correctly, and the status will be updated when you next reset its configuration to one of the standard or user-defined types; see *Choosing a standard setting*, page 48.

To change the address for a card

If you have fitted two cards of the same type you will need to assign a different address to each card to identify them.

- Double-click the card in the **Card** column.

The **Card properties** dialogue box shows the card's current setting:



- Select the address you want to use and click the **OK** button.

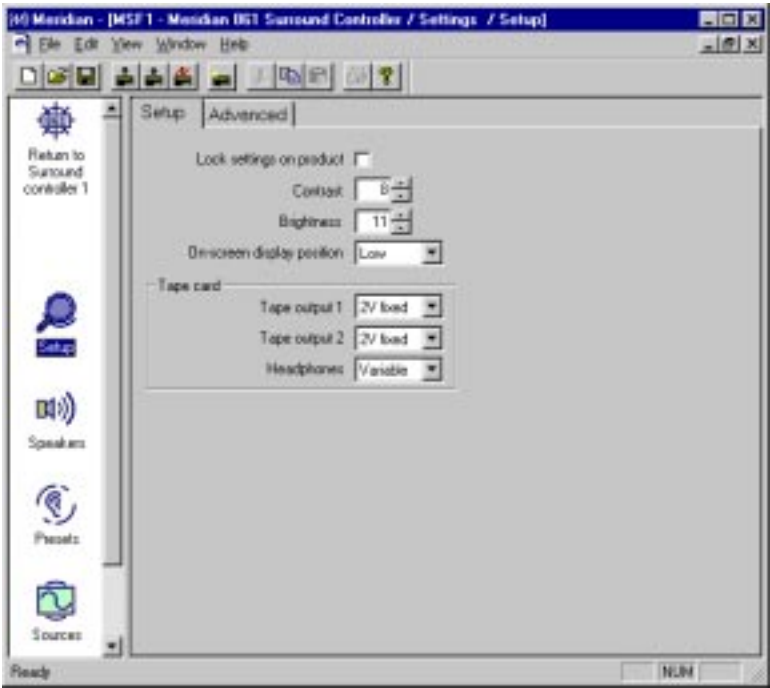
Changing the setup options

The final stage in editing the settings is to configure the general **Setup** options.

To change the setup options

- Click the **Setup** icon in the left-hand panel of the **Meridian** window.
- If necessary click the **Setup** tab to display the **Setup** page of options:

The **Setup** options will be displayed:



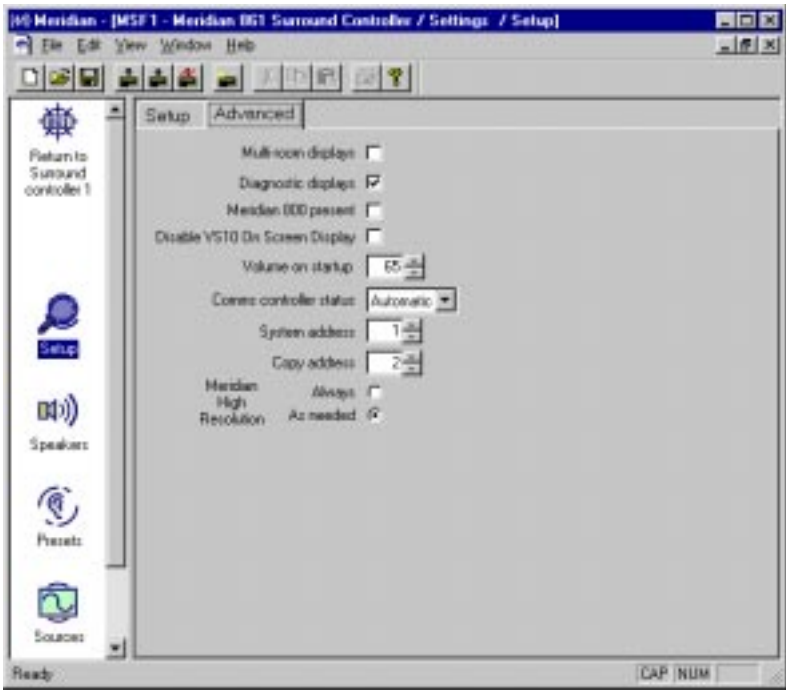
The options are described in the following table:

Option	What it means
Lock settings on product	Locks the parameters.
Contrast and Brightness	Set the default brightness and contrast for the front-panel display.
On-screen display position	Specifies the default position of the on-screen display.
Tape card	Specifies the level for each of the two tape outputs and the headphone output available on the optional Tape Card.

To change the advanced setup options

Additional setup options are provided on the **Advanced** page.

- Click the **Advanced** tab to display the advanced options.



The options are described in the following table:

Option	What it means
Multi-room displays	Includes displays of information from Meridian sources; eg CD track number or FM tuner frequency.
Diagnostic displays	Includes diagnostic displays in the display options.
Meridian 800 present	If selected, the menu keys on the Meridian System Remote operate the DVD/CD Player menus rather than the Digital Surround Controller menus.
Disable VS10 On-Screen Display	Select this if you are using a VS10 Video Card with a VS00 card for S-video to composite conversion.
Volume on startup	Specifies the startup volume; only available for analogue speakers.
Comms controller status	Specifies whether the Digital Surround Controller is controller, not controller, or set automatically.
System and Copy address	For multi-room setups.
Meridian High Resolution	If the 861 is Meridian High Resolution compatible, and the left, right, and centre speakers are 96.24 DSP types, specifies whether the digital output uses Meridian High Resolution for all sources, or only when necessary.

Calibrating the settings with your system

Once you have edited the settings to suit the configuration of your system, the next step is to store the settings to the Digital Surround Controller and use the calibration listening tests built into the 861 to calibrate it for optimum performance.

Alternatively to omit this step proceed to *Creating a User Type*, page 89.

To save the settings

First save the settings to your PC hard disk.

- Choose **Save** from the **File** menu, or click the Save button in the toolbar:



To print a summary of settings

At this stage it is useful to print a summary of the speaker and source settings, so that you can check that they correspond to your system configuration.

- Check that there is a printer connected to your PC.
- Click the **Settings** icon in the left-hand panel of the **Meridian** window.
- Click the **Print sources and output summary** button.

To store the settings to the Digital Surround Controller

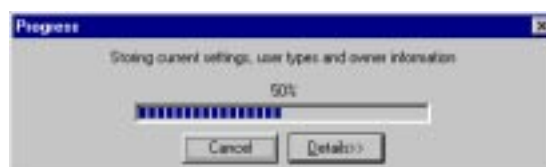
- Switch on the 861 Reference Digital Surround Controller, and check that the serial cable is connected between the Digital Surround Controller and the PC.
- Click the **Store** button in the toolbar.



The Digital Surround Controller will display:

Receiving Data...

The following **Progress** dialogue box shows how the operation is progressing.



If there is a problem click the **Details** button to see more information about the problem.

When the download is complete the Digital Surround Controller will automatically reset itself to use the new settings, and show the owner name you defined:

For example:

Zachary Ford

To calibrate the loudspeakers

Now proceed through the calibration procedure to set the correct relative level, delay, and phase for each of the loudspeakers in the system. See *Calibration tests*, page 53.

To adjust the sources

The second calibration stage involves adjusting the sensitivity of the analogue sources; see *Setting up sources*, page 57.

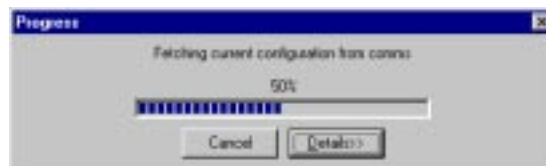
To fetch the calibrated settings

Finally fetch the calibrated settings back from the Digital Surround Controller as follows:

- Make sure your settings file is loaded into the Meridian Configuration program.
- Click the **Fetch** button in the toolbar.



The **Progress** dialogue box will show you the progress as the settings are fetched:



You can verify that the source adjustments you made are now included in the settings by checking the **Audio** page of the **Sources** settings option.

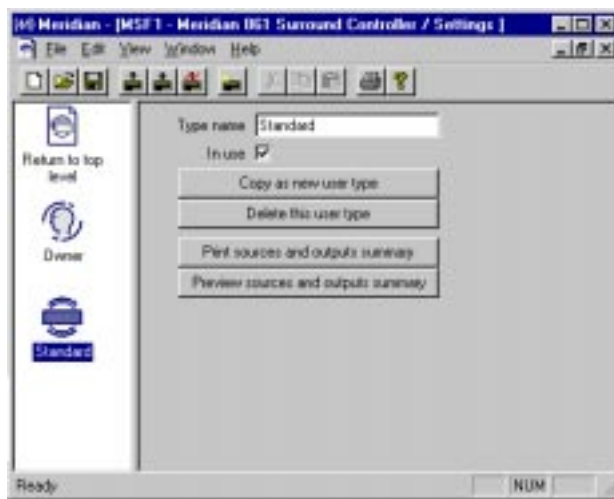
Creating a User Type

Once you have fetched the calibrated settings from the Digital Surround Controller, the final step is to store them permanently to the product as a User Type, so that you can reset the unit to them whenever you need to.

When you store one or more User Types to the Digital Surround Controller they become available in the list of Types, alongside the built-in Types. For more information about selecting one of the Types see *Choosing a standard setting*, page 48.

To name the User Type

- Click the **Settings** icon in the left-hand panel of the **Meridian** window:



- Enter a suitable name in the **Type name** field to identify your User Type, such as **Standard**.

The name can have up to 12 characters.

To create additional User Types

If you wish you can create several User Types, and store them all to the Digital Surround Controller. You can then reset the Digital Surround Controller to any of the User Types by selecting the appropriate Type name.

To create a new User Type:

- Select the User Type you want to base it on in the left-hand panel of the **Meridian Setup** window; eg **Standard**.

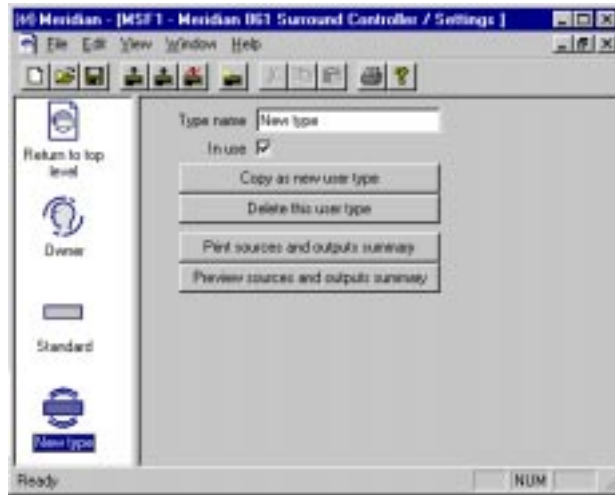
- Click the **Copy as new user type** button.

The new User Type will be specified as **In use**, as identified by the circle icon in the left-hand panel of the **Meridian** window:



New type

Initially the new type will be created with the same settings as the type you based it on, and with the name **New type**:



You can then change the name of the new Type, and configure its settings, in exactly the same way as for the original Type.

A suggested naming convention is to name User Types with the date they were created: for example, 06/05/98.

To copy settings between User Types

- Highlight the User Type you want to copy the settings from.
- Choose **Copy** from the **Edit** menu, or click the Copy button in the toolbar:
- Highlight the User Type you want to copy the settings to.
- Choose **Paste** from the **Edit** menu, or click the Paste button in the toolbar:



You can also copy and paste source and preset settings from one section of a user type to the same section of another user type as follows:

- Highlight the icon corresponding to the section of settings you want to copy: **Sources**, **Presets**, or **Cards**.

- Choose Copy from the Edit menu, or click the Copy button in the toolbar:
- Highlight the same icon in the User Type you want to copy to.
- Choose Paste from the Edit menu, or click the Paste button in the toolbar:



Completing the configuration

The final stage in creating a settings file is to save it, and then store it to the Digital Surround Controller.

To save the current settings

- Choose **Save** from the **File** menu or click the Save toolbar button, to save the changes you have made to the settings file to your PC hard disk.



To store the settings to the Digital Surround Controller.

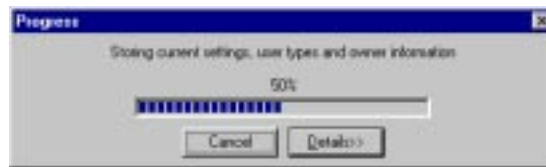
- Click the **Store** button.



The settings will then be downloaded to the product, and the display shows:

Receiving Data...

As the download proceeds the following dialogue box shows its progress:



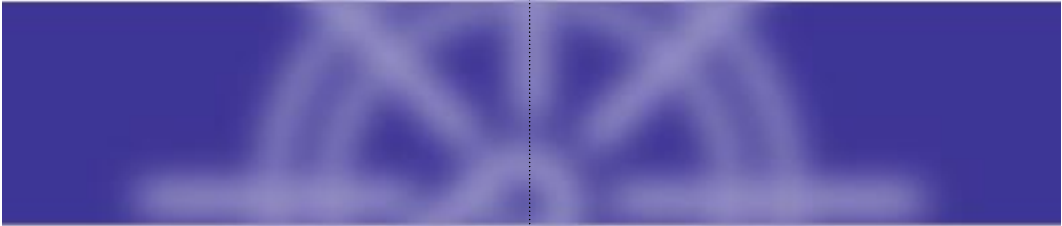
If the download was successful the product will briefly display the owner name you have defined;

For example:

Zachary Ford

It will then switch itself to standby.

The User Type you have created will now be available in addition to the built-in Types, and will be selected by default if you need to reset the configuration of the Digital Surround Controller; see *Choosing a standard setting*, page 48.



Glossary



Absolute phase

A control which changes the phase of the signals to all the speakers.

AC-3

An alternative name for the Dolby Digital format.

Ambisonic

A music encoding and decoding system designed to recreate the original soundfield using an array of loudspeakers.

Aspect ratio

The overall shape of the speaker layout.

Compress

A DSP parameter providing dynamic range control for Dolby Digital sources.

Controller

The product in a Meridian system that uses the infra-red signals from the remote to control the system. The controller is normally chosen automatically, but the installer can override this.

Dolby Digital

A digital surround-sound which provides five full-frequency range channels (left, centre, right, left surround, and right surround) and an additional Low Frequency Effects (LFE) channel which is band limited to 120Hz.

Dolby Surround

The encoding system used for the majority of movies on video and many TV broadcasts. Dolby Surround encoded material can be replayed with a surround decoder connected to an array of loudspeakers which normally include at least left, centre, right, and rear surround.

DTS

Digital Theatre Systems originally produced digital audio tracks for motion pictures. A version of this format adapted for consumer video and audio products is referred to as DTS Entertainment. Like Dolby Digital it provides five full-frequency range channels (left, centre, right, left surround, and right surround) and an additional Low Frequency Effects (LFE) channel.

DVD

Digital Video Disc or Digital Versatile Disc, a versatile CD-sized disc with nearly 30 times the storage capacity of CD. It is capable of storing digital video, high-quality multi-channel audio, or computer data.

Layout

Refers to a particular arrangement of speakers and subwoofers. You can select different layouts for the Logic, Music, and 5.1 Movie DSP presets.

LFE

The Low Frequency Effects (LFE) channel which enhances movie soundtracks with sound effects and ambient sounds. It is band limited to 120Hz in a Dolby Digital system.

LFE sub

A subwoofer which, in addition to any bass which it handles from the main channels, plays the full 120Hz bandwidth LFE signal in Dolby Digital, DTS, and MPEG presets.

Limit

A DSP parameter that sets the peak-level limit of the bass signal added to the main loudspeakers.

Max SPL

A DSP parameter that sets the peak-level limit for the LFE channel.

Menus

The flexible system for choosing options and configuring settings in Meridian products. On the 861 the menus are controlled by the and ▼ keys under the front panel or on the MSR.



MHR

Meridian High Resolution is a proprietary secure encoding format using encryption and anti-copy methods that allows secure transfer of audio streams between elements of a Meridian-only system for the purpose of playback only. It provides a secure copyright protection environment and has the very important benefit of lowering jitter and improving sound quality on all material.

MLP

MLP (Meridian Lossless Packing) is an audio format that increases the amount of information that can be recorded on a CD or DVD, without any loss of quality.

Mono sub

A subwoofer which handles all the bass for the system. A THX standard subwoofer has a crossover at 80Hz.

Mono surrounds

Surrounds which have a common signal steered to them. This may then be decorrelated by the THX process to give more spaciousness.

MPEG

MPEG Surround is a digital encoding system developed by the Motion Picture Expert Group. Like Dolby Digital it provides five full-frequency range channels and an additional Low Frequency Effects (LFE) channel.

MSF

Meridian Settings File, a file containing settings and User Types for one or more Meridian products.

MSR

The Meridian System Remote, or handset.

OSD

On-Screen Display, which the 861 can superimpose on a composite video signal to give information about the state of the system, and to help during configuration.

PCM

Pulse Code Modulation, the method used to encode music digitally, as used on audio CDs.

Preset

A DSP decoding option in the 861. You can create user-defined presets based on the built-in presets, and with specific parameter values; see *Defining your own presets*, page 33.

Source

An input to the system, such as CD or TV. The Meridian 500 and 800 Series provide 12 named sources, corresponding to the names of the 12 source keys on the MSR. In the 861 you can choose the logo displayed for each source, and the input used for it.

SPL

Sound Pressure Level, a physical measurement of the level of sound at a particular location which can be obtained using an SPL meter.

Steered surrounds

Surrounds which have individual signals steered to them by the Digital Surround Controller's steering matrix.

Surround

A sound reproducing system with more than two loudspeakers, and usually with speakers behind or to the side of the listener.

THX

Additional processing that follows Dolby Pro Logic Surround decoding to give a more faithful reproduction of cinema sound in the home.

Trifield

A music decoding system designed to extract centre and surround signals from a conventional two-channel stereo source.

Type

A standard configuration of the Digital Surround Controller. Selecting a Type resets any configuration and calibration changes to either a factory default, or a stored set of user settings.

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