

REVOX

Re:source

**5.1 Decoder Module
MK3**

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5.1 Decoder Module

The **5.1 Decoder module** forms the core of the **M51**'s audio processing with all functions, which the puristic Stereo and the inspired home cinema listener expects. It monitors and controls all the audio signals; it generates all the home cinema signals and sends them on to the outputs.

You can use all normal audio formats such as Dolby Surround, Dolby Pro Logic II, Dolby Digital, DTS or MPEG with the **5.1 Decoder Module**, naturally in high resolution 24 bit as well.

These signals are also made available to external devices through 6 cinch sockets.

Additionally, using the Lipsync function, a time delay of up to 170 ms can be defined for the audio signal.

The **5.1 Decoder Module** handles the conversion of the symmetrical analogue signals in ultra-linear stereo operation. From here, it also goes through gold-coated silver contact relays to the output stages.

A further task, which the **5.1 Decoder Module** handles is the connection of three digital sources. In this case, you can either feed the digital signals in using an optical fibre or coax cable.

ⓘ Important

The **5.1 Decoder module** plays a very significant role for the whole system. Since it represents the **Audio Control Centre**, the system will not operate without the decoder module.

Installation

The 5.1 Decoder plug-in card has the most modern technology on it and should be handled with care.

Before you start to install the card, the **M51** must be switched off and the power plug must be removed from the power socket.

Slot 7 is reserved for the Decoder module, right next to the speaker connections. No other module should be plugged in to this slot because this provides the shortest possible signal route to the outputs.

Loosen the two screws with the TORX screwdriver supplied and remove the slot blanking plate.

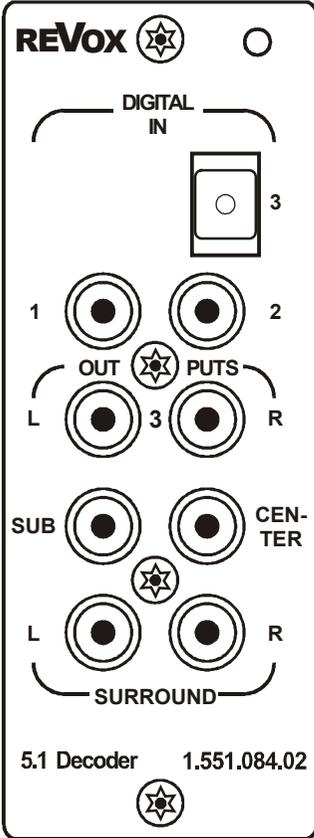
Before removing the Decoder module from its packaging, make sure that you are not charged with any static electricity. This could cause a damaging power discharge when you touch the module.

To be on the safe side, you should discharge any static from yourself by touching an earthed metal object such as a radiator.

Remove the decoder module from its packaging and insert it into the slot position, using the two tracks within the **M51** to guide it into position. The lettering on the card must be at the top. Just before the card is fully inserted, you will feel a certain mechanical resistance as the card meets the **M51** contact strip. Push the card fully home by pushing in the area where the 2 screw holes are located and fix it in place with the two screws.

All further steps needed to integrate the new module into the **M51** will be carried out automatically next time the unit is switched on.

5.1 Decoder connections



Line outputs

The 5.1 Decoder offers 6 line outputs where audio signals are available in 5.1 format. The following is an overview of the individual signals:

- **OUTPUT L**
Line output for the left-hand front channel
- **OUTPUT R**
Line output for the right-hand front channel
- **SUB**
Line output for the active subwoofer
- **CENTER**
Line output for the centre channel
- **SURROUND L**
Line output for the rear left-hand surround channel
- **SURROUND R**
Line output for the rear right hand surround channel



These line outputs are used to supply external outputs. In the same way, active speakers can be connected. In Home cinema operation, the active subwoofer is principally controlled by the **SUB** output.

The level of the 6 line outputs is controlled synchronously to the total volume.



Active loudspeakers are speakers with integrated outputs which don't need any amplifier.



The line outputs are not muted during headphone operation.

Digital inputs

The 5.1 Decoder Module can play back digital sources such as a CD, MD or DAT player using the three digital inputs **DIGITAL IN 1-3**. You should connect the external devices to the 5.1 Decoder Module using either a Cinch cable (**Digital IN 1/2** input / Softkey **Coaxial 1/ Coaxial 1**) or with a fibre-optic cable with a TOSLink plug (**Digital IN 3** input/ Softkey **Optical**).



The external digital sources are activated with the softkeys in the **Source** menu:

- **Optical**
- **Coaxial1**
- **Coaxial2**

The externally connected digital sources are not available at the **REC OUT** output. They also can't be used in neighbouring rooms in Multiroom operation.

Edit source name

The 5.1 Decoder Module offers you the option to select your own name for the inputs. In this way, you no longer have to remember which external device you have connected to which input. You can label it accordingly.

Select the digital source in the **SOURCE** menu whose name you want to change.

You call this function by pressing the **Setup** button for approx. 2 seconds and then pressing the **Source** softkey.

The following display appears:



Edit function

You will move to the following menu display by pressing the **Edit Name** softkey.



The following Edit functions are available:

The softkey **← Cursor** moves the [] cursor to the left.

The softkey **Cursor→** moves the [] cursor to the right.

The softkey **Delete** deletes the cursor at the current [] cursor position.

The softkey **Insert** inserts a character to the left of the [] cursor.

The softkey **Store** saves the currently displayed name and returns you to the source menu.

The softkey **Cancel** returns you to the source menu without saving any modifications made.

5.1 Decoder menu

As the 5.1 Decoder module is the central unit for the processing of audio signals, this module has been assigned its own function key, namely the large key labelled as **Amplifier** on the front of the **M51**.



The five large buttons on the front of the **M51** are shown as

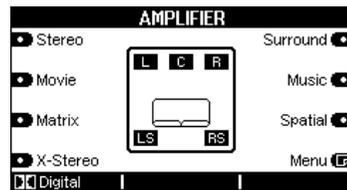


in the following chapters.

Room sound programs

The **Amplifier** button brings you directly into the **5.1 Decoder Main Menu**. Here, you can choose between 6 Surround sounds and an ultra-linear stereo playback:

- DOLBY SURROUND
- Movie
- Music
- Matrix
- Spatial
- X-Stereo
- Stereo



The individual programmes can be selected by pressing the corresponding softkey and each programme can be set individually for each source.

The inner part of the display shows a graphic of up to 5 speakers, including seating positions. The speakers which are activated by the individual programs are shown dark; the deactivated speakers are shown light.

Sound field description



Pro Logic II is a further development of *Dolby Pro Logic* and was developed especially for the surround-sound playback of pure stereo sources, alongside the other well-known decoding of Pro Logic sound material (mainly films).

With *Pro Logic II*, this part handles the **Music** sound field, with the freely definable parameters *Center Width*, *Dimension* and *Panorama*. Through this, you get a realistic, enveloping sound, which you would expect from 1 5.1 Channel System. It greatly enriches the usual stereo sound that you get from the *Dolby Digital multi-channel system*.

□□ Surround

With this setting, the 5.1 Decoder always adapts itself to the current audio format of the selected source. This setting is recommended for use with *Pro Logic* quality television films, which are being shown in your living room with the original studio mix.

When you play a DVD, whether using the **M51's** internal drive or an external device over **DIGITAL IN**, the 5.1 audio format that the DVD requires is automatically selected. These are:

Dolby Digital, DTS, MPEG

In this case, all other surround sound programmes are blocked.

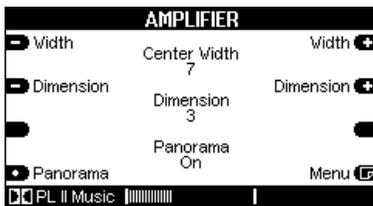
□□ Movie

The Movie mode has been optimised for use with films or programmes with a sound track in *Dolby Surround*. It is also suitable for video games. Movie mode has all the important properties of *Pro Logic*, while the Stereo Surround outputs, which cover the whole frequency range, give you a sound experience that much more closely resembles the quality of Dolby Digital.

🔊 Music

With pure stereo music recordings, the Music mode delivers a new level of live atmosphere, which satisfies the most discerning listener. You can set up every conceivable combination of settings using the **Center Width**, **Dimension** and **Panorama** parameters.

The choice of parameters is made through the second **Menu**  page of **Music**.



Center Width

This parameter allows you to define the centre settings, allowing you to choose to hear the centre range just from the Center speaker, to hear it as a "phantom centre" using the right and lefthand speakers or to set-up a combination of all three speakers.

Depending on the requirements of your living room, you can choose, for instance, to have a partial mixture of the three front speakers or a wider or more compact sound picture.

Dimension

This parameter allows you to position the sound field more to the back or to the front. This enables you to get a better balance between the speakers with different recordings.

Panorama mode

This mode widens the output from the front speakers. In combination with the surround boxes, this gives you a fascinating and enveloping effect with those sounds that are located at the edges of the sound picture.

→ **Matrix**

This parameter primarily increases the surround effect for programmes sources recorded in stereo sound, by using an elaborate Dolby Matrix decoder.

→ **Spatial**

This is a living sound picture, which was developed in the Revox sound studios. It emulates a small hall where you might expect to hear some live jazz or chamber music. For this reason, **Spatial** is particularly well suited for listening to this or similar music types.

→ **X-Stereo**

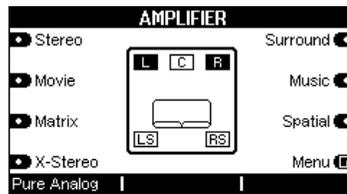
With this stereo sound, the stereo signal is also sent to the rear surround speakers but as a mirror image. This means that you have stereo reproduction between each pair of speaker.

With a square layout, this can give a fantastic feeling of space.

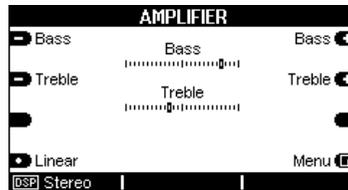
→ **Stereo**

Additionally, it is possible to listen to music in pure stereo with out the influence of any room sound program. In the lower display field this is indicated with **Pure Analog**.

In this case, the audio cables are connected directly to the outputs on an ultra linear amplifier path.



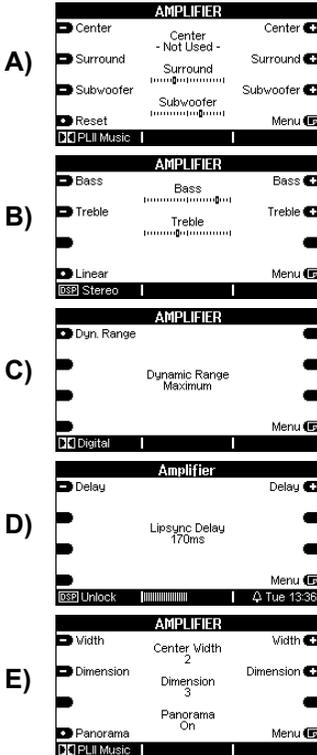
If, however, you want to modify the treble and bass settings in stereo mode, this will take you out of the ultra linear path. Playback is then done through a DSP as shown by the **DSP Stereo** display field at the bottom of the screen.



All surround speakers are deactivated in this function and are therefore shown as light symbols on the display.

Amplifier sub-menu

The sound fields have different sub-menus where you can define your specific sound requirements. Not each sub-menu is available for all sound fields.

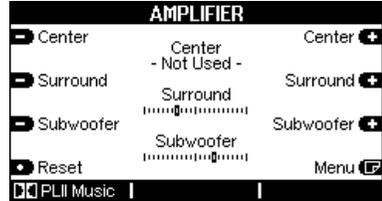


You can get to the **Amplifier** sub-menu by pressing the **menu** softkey or by repeated pressing of the **Amplifier** key.

E) Description P. 9: Music

A) Level setting

The sub-menu shown below suggests level settings for the surround speakers, including Center and Subwoofer:



The speakers can be adjusted to the correct volume ratio to the main speakers using the softkeys.

This function allows you to make a *temporary* adjustment to the **Center** and **Surround** volumes. The settings are automatically reset as soon as another source is selected or the **M51** is switched off.

The setting for the **Subwoofer**, on the other hand is saved until the next modification of the subwoofer level or until a complete reset using the **Reset** key.

A) Adjusting the Subwoofer

Unlike the normal passive speakers that are connected to the **M51** speaker outputs, active subwoofers have their own volume control.

To set the correct basic volume, you should first bring the subwoofer level to the neutral mid-position with the **Reset** key. Then you should adjust the volume at the subwoofer itself to suit your listening position.

The right basic volume setting for the subwoofer is achieved when the subwoofer doesn't dominate the sound picture but nevertheless gives a sustained support to the bass tone ranges.

Tip: Automatic switch-on

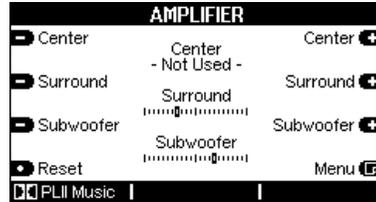
Many active subwoofers have a function that automatically switches the subwoofer on as soon as there is a bass signal with a particular level.

If your subwoofer doesn't switch on automatically at normal room volume levels, because the bass signal is too low, you could increase the level on the subwoofer output through the amplifier menu, until the auto switch-on function is activated. After this, of course, the volume at the subwoofer must be adjusted again.

Resetting the level

 Reset

Level settings can be reset to the neutral mid-position with the **Reset** key.





Speakers, like the Center in the above example, which are deactivated in the basic settings, are identified by the text **-Not Used-**.

The basic volume setting for all speakers is set through the **Setup Adjusting volume** menu.

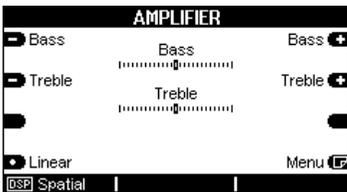
B) Bass and treble

 Bass Treble 

As well as the sound field settings, you also have the option of increasing or decreasing the bass and treble levels in the range of ± 12 dB.

This option is only available with the sound fields *Stereo*, *X-Stereo* and *Spatial*.

You can access the bass/ treble menu by pressing the **Menu** softkey twice:



Now with the **Bass +/-** and the **Treble +/-** softkeys you can adjust the bass and treble ranges respectively.

If you press the **Linear** softkey, you will restore the neutral middle range settings.

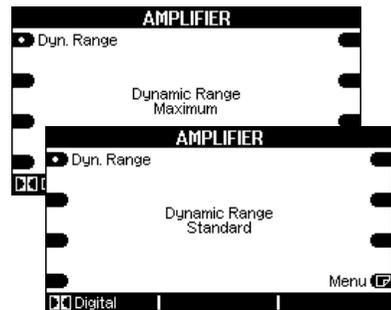
C) Dynamic range

 Dyn. Range

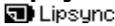
With **DVD playback**, you can modify the volume dynamic range.

If you select the setting **Maximum**, the dynamics are played back in an unmodified form. This means that the quietest and the loudest passages maintain the whole level range.

If you select the setting **Standard**, the dynamic range is cropped. This means that the volume in the loudest passages is lowered and in the quietest passages, it is increased. This is particularly useful if listening to DVDs later in the evening and you don't want to disturb other people in the house.



D) Lipsync Delay



Using the **Lipsync Delay** setting, you can modify the timing of the audio signal, to allow for the time delay of the video signal caused by the system. Because of the digital calculations required for the picture signal in the plasma or LCD screen, the sound signal can get ahead of the picture signal. This can be seen, for example, when the lip movements are no longer synchronous to the sound. Using the Lipsync function, the sound can also be delayed sufficiently, that the picture and the sound get back in sync.

This time delay can be set in a range from 0 – 170 ms.



The Lipsync function appears as the last menu field within the Amplifier menu and affects all sources that the M51 can play. The Lipsync function is not available in the **Pure Analog** sound field.

You can adjust the time delay in steps of 5 ms using the two softkeys – **Delay +**. To do this, you are advised to select a DVD which features drums or other percussion instruments. This is the easiest way to be able to synchronise picture and sound with each other.

Lipsync in Multiroom system

In Multiroom operation, the M51 and the rooms in Zone 1 share a common audio source, i.e. both play the same source. This is particularly advantageous in open living areas, where the rooms in Zone 1 adjoin the main room with the **M51**.

If the M51 audio signal experiences a delay through the 5.1 Decoder module, the **M51** will transmit its sound later than that in the rooms of Zone 1. This time delay will be perceived as an echo in the adjoining rooms.

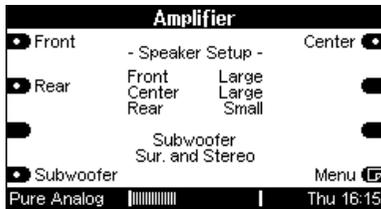
Amplifier Setup

Using the Setup menu, you can adapt your loudspeakers to the optimum acoustics with the **M51**.

This menu is called by pressing and holding the **Setup** key for some 2 seconds and then pressing the **Amplifier** key in the display that follows.



Now you are in the 5.1 Decoder **Setup** menu.

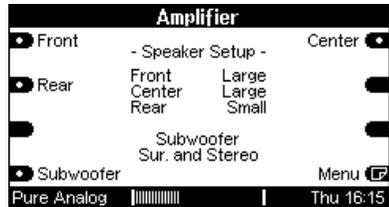


Speaker configuration

The first page in the Amplifier setup covers the configuration of home cinema speakers.

Here, you can define which speakers you have connected and whether these are large speakers with the full frequency range or smaller speakers with limited bass reproduction.

There are three options for each speaker type that can be selected by repeated pressing of the corresponding softkey:

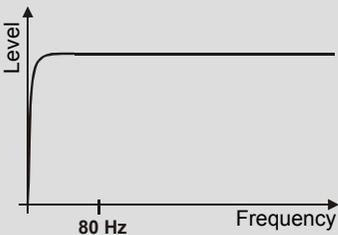


1 Large

The speaker receives the full frequency range.

This is the right setting for speakers whose bass speaker has a diameter of at least 12cm and as a result can reproduce frequencies under 80 Hz.

Frequency response: Large



2 Small

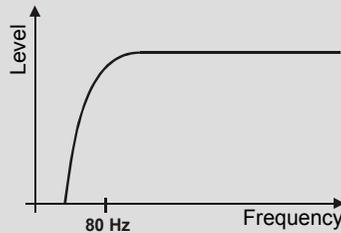
The speaker only receives frequencies **above** 80 Hz.

This is the right setting for smaller speakers, which because of their smaller size cannot reproduce frequencies under 80 Hz.

As a rule, these are small or satellite speakers with bass cones smaller than 12cm. The bass part below 80 Hz is not “lost”. Instead, it is added to the subwoofer or the two front speakers.

Small speakers benefit from the **small** setting by an increased load capability and a non-distorted sound picture.

Frequency response: Small

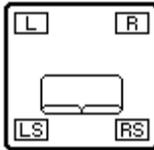


3 None

The setting **None** deactivates the speaker output. There is no signal at the output available.

This setting is selected if you want to work without this speaker. This setting is only available for the Center and rear surround speakers.

Speakers with the setting **None** do not appear in the amplifier menu. In the above example, the Center is deactivated.



Speaker settings

Main speaker

Front

The settings **Large**, **Small** and **Digital** are available here. Optically, the status of the speakers is shown in the display with the symbol  or .

Center speaker

Center

The Center can also be configured as **Large**, **Small** or **None**. With the None setting, the Center signal is split between the two front speakers. Optically, the status of the speaker is shown in the display with the symbol .

Surround speakers

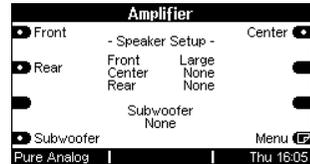
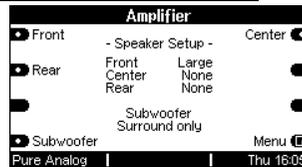
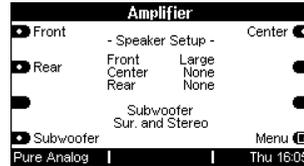
Rear

The surround speakers can also be configured as **Large**, **Small** or **None**. With the None setting, the surround signal is split between the two front speakers. Optically, the status of the speakers is shown in the display with the symbol  or .

Subwoofer

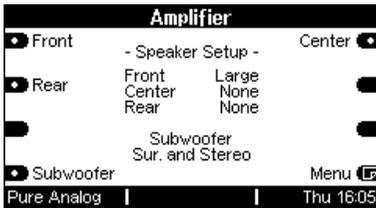
Subwoofer

Using the **Subwoofer** menu, you can setup the operation of an active subwoofer in the whole speaker concept.



By repeatedly pressing the **Subwoofer** key, you will reach the menus shown where you can make the appropriate settings for your use.

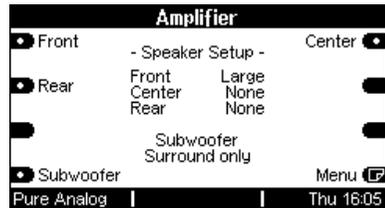
Subwoofer Sur. and Stereo



This mode is recommended if the active subwoofer should work with multi-channel reproduction (**DSP** Spatial, Dolby Pro Logic, e.g.) **and** in Pure Stereo operation.

Such a setting is particularly beneficial if the other speakers can produce bass tones, but only within a limited range. Main compact or shelf-mounted speakers with limited bass reproduction belong to this category.

Subwoofer Surround only

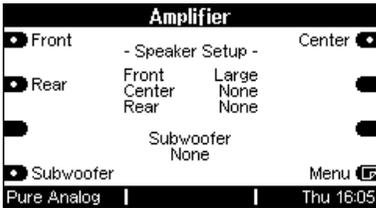


In this mode, the subwoofer is only activated if a surround sound such as **DD** Movie, **DD** Matrix, **DSP** Spatial e.g. is selected.

In Pure Analog operation such as **Pure Analog**, **DSP** Stereo or **DD** Digital Stereo, the subwoofer remains silent.

This setting is ideal for the purist listener who likes to experience films and concerts on DVD with all six channels, including the subwoofer, but is happy to rely on just the main speakers for normal stereo operation such as CD or Phono. This assumes, of course, that both main speakers can produce the required deep base tones cleanly.

Subwoofer None



This mode should be selected if no subwoofer is available.

In this case, the main speakers must be capable of reproducing the deepest bass sounds. This is particularly necessary in the action scenes of DVD films in order to achieve the maximum live atmosphere.

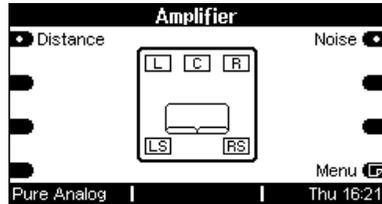
Quit

To quit the **Subwoofer** menu, simply press a softkey.

Adjusting volumes

Noise

The second page of the setup menu gives you the option of adjusting the volume to the listening position.



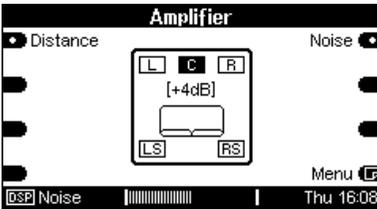
The layout in the centre of the display mirrors your listening area. The seating is in the middle with the individual speakers distributed around it. The sixth speaker with a 5.1 system, the subwoofer, is not shown in this layout.

As soon as the **Noise** key is pressed, the **M51** produces a noise on the front left speaker for some 3 seconds. During this time, you can set up the volume of the noise using the rotary control knob.

Once this time has elapsed, the 5.1 Decoder starts the adjusting process itself. In this case, the sounds are moved in a clockwise direction around the listener.

Setting the levels on passive speakers

The signal from each individual speaker can be heard for about 3 seconds. During this time, you can set the optimum volume in a range of ± 10 dB, using the rotary volume control or the remote control.



The activated speaker is shown dark.

The goal

The aim of this exercise is that the sound should be experienced at the same intensity from each speaker. This guarantees that effects, dialogue or music reaches the ear in the correct relationship.

This procedure continues until you press the **Noise** softkey again.

! Subwoofer level !

The basic subwoofer volume setting is not defined through the **Noise** menu, as there are very different recording levels, particularly in the case of DVDs, which often require an individual adjustment.

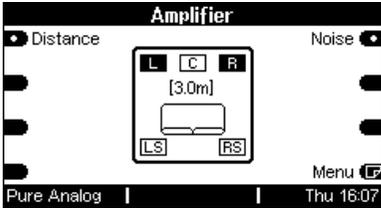
This adjustment can be carried out simply and comfortably in the normal amplifier menu. You can reach this directly through the **Amplifier** key on the **M51** or using the remote control.

Please refer to the Chapter *level setting* on page 13.

Speaker distances

Distance

Distance selection between the listening position and the individual speakers.



The **M51** offers the option to make sure that the acoustic signal reaches you at the right time at the listening position. Here, the **M51** needs to know the exact distance from the speaker to the listener.

Main speaker distance

The first time you press the **Distance** softkey, you can set the distance to the front speakers **L** and **R** using the rotary control knob. These two speakers should be the same distance from the listener and you can select in the range from 2.0 to 9.9 metres.



1m ≈ 40 inch

1m ≈ 3.3 feet

Center distance

Distance

You can setup the centre speaker distance by pressing the **Distance** softkey again. Here, you also use the rotary control knob to set the distance.



In order to achieve optimum acoustic reproduction, there should be a certain relationship between the front speaker distances and the centre speaker distance. For this reason, the **M51** offers you exactly the correct range to make your selection from.

Example:

Selected distance:

L and **R** = 4.5 m

Optimum distance:

C = 3.0 – 4.5 m

If you can't position the Center speaker within this distance range, you will just have to select a distance which most closely approximates to it.

Surround speaker distance

As opposed to the main speakers, the rear surround speakers can be set at different distances from the listener.

By pressing the **Distance** softkey one more time, you can set up first the right and then the left rear surround speaker. Also here, you use the rotary control knob to set the distance.



In the same way as with the centre speaker, the **M51** only allows a certain distance range in relation to the main speakers

Example:

Selected distance:

[L] and **[R]** = 4.5 m

Optimum distance:

[RS] and **[LS]** = 0.0 – 4.5 m

If you can't position the surround speakers within this distance range, just choose the nearest alternative distance available to you.

Quit Distance

Simply press one of the other softkeys in the Setup menu if you want to quit the **Distance** menu field.

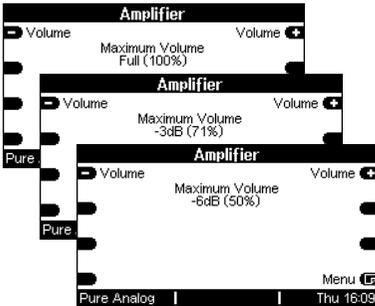
If you don't want to make any more settings through the Setup menu, press either the **Source** or **Amplifier** keys.

Adjusting amplifier power

The **M51** can be equipped with two outputs with different power levels; either an analogue output [5 x 60 watt] or the more powerful digital alternative [5 x 200 watt].

If you want to connect speakers to the digital output, which are not set up for this power level, there is a menu point in the Setup menu where you can adjust the output power level.

The three screenshots below show you three of the six power steps that can be selected:



The power adjustment can be used for the analogue and the digital outputs and is applied equally over all five channels.

The following table shows you the relative volume reductions and the remaining power:

Full	-	100%
-1 dB	-	90%
-2 dB	-	80%
-3 dB	-	71%
-4 dB	-	63%
-5 dB	-	56%
-6 dB	-	50%

Example Analogue output

Reduction: -2 dB
Power: 80% of 60W = **48W**

Example: Digital output

Reduction: -2 dB
Power: 80% of 200W = **160W**

Volume display

The reduction in volume is visible in the display field if you select a volume that is higher than the reduction; the volume bars flash in the corresponding area as shown in grey in the following graphic:



Technical data

Formats:

Dolby Prologic II, Dolby Digital (AC3), dts
 MPEG 1 Layer 2, MPEG 2 with/ without extension
 MP3

Inputs:

Digital In 1	SPDIFF	32, 44.1, 48 kHz	Coaxial1 (Cinch)
Digital In 2	SPDIFF	32, 44.1, 48 kHz	Coaxial2 (Cinch)
Digital In 3	SPDIFF	32, 44.1, 48 kHz	Optical (TOSLink)

Analogue outputs:

Front	L / R	1.75 V / 100 kOhm	(based on 0dBFS DD)
Sub		Min. 6.00 V / 100 kOhm	(based on 0dBFS DD)
Center		1.75 V / 100 kOhm	(based on 0dBFS DD)
Rear	L / R	1.75 V / 100 kOhm	(based on 0dBFS DD)

Harmonic distortion:	0.006%	Pure Analog
	0.009%	Dolby Digital DD

D / A conversion	6 x 24 bit
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Low noise spacing :	92dB	CCIR-ARM	Pure Analog
	90dB	CCIR-ARM	Dolby Digital DD

Operating conditions	+10°...40 °C / 50°...104°F	(DIN 40040)
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Errors excepted

Product subject to modification

Description: ACC-3 version 1.10

Notes

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Guarantee

The guarantee period is 24 months from the date of purchase.

Your dealer should be your first contact if you need service.

If he can't give you the help you need, send Decoder module carriage free and without any accessories to your national Sales Office.

Please supply a complete description of the problem and a full return postal address.