

Meridian C Series Installation Components

C51

5ch x 2 (bass/treble) Active Speaker Power Unit

Installation and Operation Manual



IMPORTANT: PLEASE READ THIS COMPLETE MANUAL TO ENSURE PROPER INSTALLATION AND OPERATION.

INSTALLERS:

Please review this manual carefully before contacting Technical Support.

PRODUCT OWNERS:

Please contact your authorised Meridian dealer for product or installation questions.

BOOTHROYD STUART
MERIDIAN[®]

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Please review the instructions in the following pages of this manual to help insure a smooth installation and a happy customer.

IMPORTANT SAFETY INSTRUCTIONS

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

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

Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has one prong wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

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

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

Safety warnings

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

To avoid interference

Do not position the unit:

- Near strong magnetic radiation.
- Near to a television, or where connecting cables may be subject to or cause interference.

To avoid overheating

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

Do not position the product:

- In direct sunlight.
- Near heat sources, such as a radiator.
- Stacked with any other audio products other than in a properly ventilated rack, as the heat it generates may damage the other products.

The sides and top of the C51 case contain venting holes for the internal heatsinks which should not be obstructed. Ensure that air can flow around them. The product normally runs warm to the touch when not in standby.

Warning: The C51 is moderately heavy; take care when lifting it.

Radio interference

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



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

Warning: live terminals



Terminals marked with the 'lightning flash' symbol are hazardous live and the external wiring connected to these terminals requires installation by an instructed person or the use of ready-made leads or cords.

Information for Users on Disposal of Old Equipment (EU Only)

Attention:

This symbol is only valid in the European Union.



[European Union]

This symbol indicates that the electrical and electronic equipment should not be disposed as general household waste at its end-of-life. Instead, the product should be handed over to the applicable collection point for the recycling of electrical and electronic equipment for proper treatment, recovery and recycling in accordance with your national legislation. By disposing of this product correctly, you will help to conserve natural resources and will help prevent potential negative effects on the environment and human health which could otherwise be caused by inappropriate waste handling of this product. For more information about collection point and recycling of this product, please contact your local authority, your household waste disposal service or the shop where you purchased the product. Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

(Business users)

If you wish to dispose of this product, contact your Meridian dealer or distributor or Meridian Audio Ltd to obtain information about the take-back of the product.

[Other Countries outside the European Union]

If you wish to dispose of this product, please do so in accordance with applicable national legislation or other rules in your country for the treatment of old electrical and electronic equipment.

Accessory Kit

The following items are supplied with C51 Powered Crossover/Amplifier unit

- 1 - This manual
- 1 - Power Cord

SERVICE AND GUARANTEE

Service

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

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

In case of difficulty within the UK or USA please contact Meridian Audio Limited or Meridian America Inc respectively.

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

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

Guarantee

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

The guarantee is void if the unit has been subject to misuse, accident, or negligence, or has been tampered with or modified in any way without the written authorisation of Meridian Audio Limited.

Note: Connecting anything other than the correct network lead to the COMMS sockets may cause damage to the unit which will not be covered by this guarantee. Attempted servicing by unauthorised people

may also invalidate this guarantee. Labour and carriage charges are not covered unless by local agreement.

Outside the UK, local warranty liability is restricted to equipment purchased within the territory. Our agents abroad are only under contractual obligation to service under guarantee equipment sold through them. They are entitled to make a non-refundable charge for any service carried out on other equipment. This guarantee does not limit your statutory rights within the United Kingdom.

ABOUT THE PRODUCT

The C51 powers 200 and 300 Series Remote Active installation loudspeakers.

It features active line-level crossovers, switched balanced and unbalanced inputs, and employs a powerful new amplifier design which enables multiple channels of high-level amplification to be combined in a compact unit without excessive heat.

Ten channels of approximately 100W into 8Ω (160W into 4Ω) RMS amplification are provided, grouped into five pairs, each providing bass and tweeter outputs from a full-range input.

The crossovers take the form of plug-in modules which can be inserted at the time of installation to configure the unit for the speakers in use. An appropriate card is supplied with each loudspeaker. Modules are currently available for the A320, A330 and A350, and each module includes a pair of LEDs that confirm the positive and negative power-rails are operative and identifies the crossover installed by means of the colour combination.

Thermal, short-circuit and DC fault protection circuitry is included. The C51 has soft start, fan output and trigger input.

The front panel includes five sockets for installation of the crossover cards, which can be accessed by unscrewing the transparent smoked access cover.

Front-panel indicators take the form of blue LEDs for main power and for each channel, arranged in high/low pairs so that the status can be instantly assessed.

The rear panel is divided into five channel pairs identified as HF (tweeter) and LF (bass). A single full-range input per channel pair may be switch-selected between unbalanced (gold-plated phono connector) and balanced (XLR3F).

In addition to the power input socket and power switch, the rear panel also offers a 3.5mm jack socket for connection of an industry standard trigger input (5–30V, AC or DC) for remote operation, and a 3.5mm jack socket for the connection of a 12V DC fan system. This output is controlled automatically according to temperature.

C51 Powered Crossover/Amplifier

Output power	10 channels of 100W into 8Ω / 160W into 4Ω, arranged in 5 x HF/LF pairs sourced from full-range input via crossover module
Frequency response	+0/-3dB, 10Hz–50 kHz (modified by crossover characteristics)
Output impedance	20–150mΩ, 1–20kHz
THD+Noise	Typical: 0.1% @ 60W output, 0.008% @ 1W
Full-range Inputs	5 x Mono unbalanced (phono) impedance 10 kΩ 5 x Mono balanced (XLR3F) impedance 20 kΩ/leg Switch-selected between balanced and unbalanced
Outputs	LF and HF pairs of gold-plated binding posts per channel pair
Other connections	12vdc, 5W Temperature controlled fan output (3.5mm jack) 5–30V ac/dc trigger input (3.5mm jack)
Controls	Rear-panel balanced/unbalanced input switch per input. Rear panel main power switch.

Indicators	Blue LED power indicator Per-channel blue LED operation indicator
Power	100–240Vac, 30–1200VA
Dimensions	
Main enclosure	435 x 82 x 250 mm (17.25 x 3.25 x 9.75 in) W x H x D
Front panel	485 x 87.5 x 12 mm (19 x 3.45 x 0.5 in) W x H x D
Weight	TBC kg (xx lb)

Crossover cards

Cards are supplied with each active installation loudspeaker system. These feature premium quality Burr-Brown operational amplifiers and four-layer printed circuit boards. LEDs indicate presence of rail voltages while the colour combinations confirm the type of crossover in place. Cards plug into sockets on the front panel of the C51.

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

INSTALLATION AND SETUP

Unpacking

- Inspect product box and unit for any shipping damage.
- Save product box in the event the unit needs to be shipped in the future. Shipping the unit in a generic box may void warranty.

Mounting

The C51 is primarily designed to be mounted in a standard 19in rack. Feet are provided for free-standing operation: these should not be present if the unit is to be rack-mounted.

- EXCESSIVE HEAT MAY CAUSE THE UNIT TO MALFUNCTION OR SHORTEN PRODUCT LIFE. Follow regular installation rules for proper ventilation.
- Be sure rack location has adequate ventilation. Allow a minimum of 1U rack space (1.75in) above and below unit for ventilation.
- Allow additional ventilation when mounted near other power amplifiers or other equipment that may generate excessive heat.

Connections

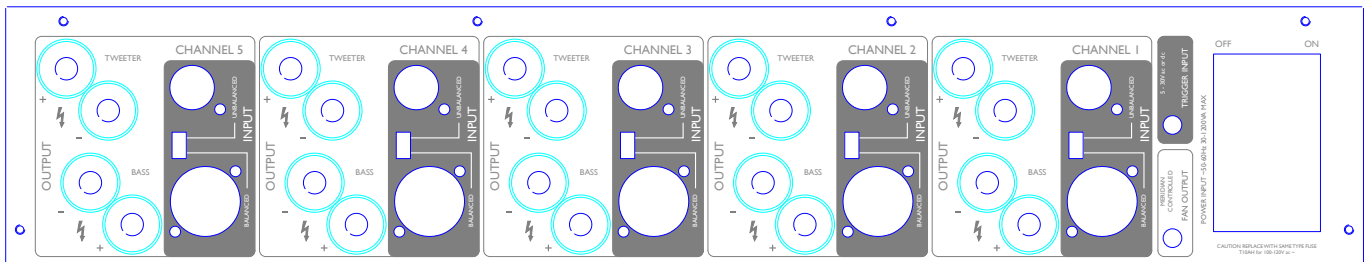
Be sure to use high quality cables for both sources and output signals.

AC Power Connector

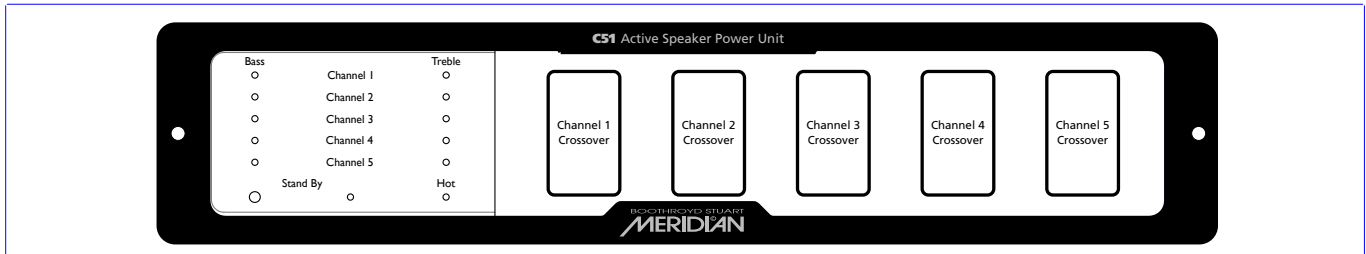
Connect to a stable AC power line. Ensure that the unit is connected to a supply of the voltage specified on the unit and that the unit is of the correct type for the territory in which it is being installed.

- To avoid ground loops, a power conditioner for the equipment rack is recommended.
- Static electricity can cause equipment problems. Be sure installer is grounded to chassis or equipment rack before connecting sources.

CONNECTING THE C51



C51 Rear Panel (above) and front panel with acrylic cover in place (below)



The C51 contains five identical channel pairs (bass/treble) of audio amplification. Unless otherwise stated, this section refers to one channel only.

Input connections

Two full-inputs are provided for each channel: balanced (XLR-3F) and unbalanced (gold-plated phono). The active input is selected with a slide switch.

The audio connections should be made with high quality audio phono leads or XLR leads.

Trigger input

The unit is designed to be switched in and out of standby by means of the application of a trigger voltage via this 3.5 mm mono jack socket. The application of an AC or DC voltage between 5 and 30 volts will turn the unit on (ie bring it out of standby). Removing the voltage will return the unit to standby. Ensure that the trigger source is configured to provide a voltage within this range when the unit is required to be switched on.

Output connections

Connect the cables from the rear-panel output terminals to the speaker units. Be sure to observe correct polarity and the source and destination of each channel.

Note that these terminals can develop significant voltages/current-passing capability when the C51 is powered up and being fed with an active signal. **Ensure that connections are made with the power disconnected from the unit.**

You can connect five Meridian Active Installation Loudspeakers (such as the A320, A330, A350, or A200Z) to the C51. The C51 is designed specifically for use with Meridian Active Installation Loudspeakers, each of which is supplied with the appropriate crossover module. As a result the unit cannot be used with other loudspeakers.

- Connect each Meridian Active Installation Loudspeaker to the appropriate outputs, using two pairs of speaker cables for each speaker connected to the BASS + and -, and the TWEETER + and - terminals.
- Plug the crossover module supplied with each Active Installation Loudspeaker into the appropriate crossover bay on the front panel of the C51, and re-fit the acrylic cover. Ensure that the card is correctly seated and that the correct card for the speaker is in the appropriate slot. Each crossover card includes indicator lights that show the presence of power and, by their colour combination, indicate the type of speaker for which the card is designed.
- Connect the input for each channel to the appropriate CHANNEL 1 to 5 INPUT, using either the BALANCED or UNBALANCED input, and setting each INPUT switch accordingly.

Meridian fan output

This 3.5mm jack provides a voltage and power suitable for driving a Meridian fan system. The voltage provided is 12vdc, tip positive. Up to 5W can be taken from this socket. The voltage is present only when the temperature of the unit exceeds 55 degrees Celsius measured at the case of the unit.

OPERATING THE C51

Removal of the smoked acrylic front panel allows access to the Standby button and for the insertion and/or removal of crossover cards. Replace the panel after use to avoid unintentional operation.

Be sure to insert the correct card in the correct slot.

The unit is normally operated via trigger input.

A front panel standby button is provided to toggle the unit in and out of standby. It is not intended that this button should be used for normal operation.

Note that when mains power is applied to the unit it will initially enter ACTIVE mode.

When the C51 is in standby mode, power rails are turned off for a significant saving in energy usage and thus reduced carbon emissions.

It is neither required nor recommended to leave the amplifiers in active mode (ie powered up) when not in use.

When the unit is brought into active mode, a 'soft start' timing circuit brings the main toroidal power transformers online gently to minimise current surges and unwanted startup sounds.

Indicators

Five pairs (bass/treble) of blue LEDs on the front panel illuminate when the unit is operating and confirm the presence of power on all channels. All ten LEDs should be illuminated during normal operation: if a channel light is not illuminated, a fault condition is indicated.

A further blue LED is situated next to the Standby button and illuminates when the unit is in standby, indicating that the unit is powered. When this light is illuminated, the channel indicators should be extinguished.

A blue LED indicates when the unit has been shut down as a result of overheating. In an overtemperature situation the entire unit will enter standby, irrespective of the status of the trigger input and whether one or several channels are the direct cause of overheating.

In this condition, normal operation will continue as soon as the temperature returns to safe levels, you are advised to be aware of what may have caused the overheating issue.

TROUBLESHOOTING

Unit goes silent when played hard

The unit has a temperature sensing system on board, which prevents overheating of the electronics. If the unit shuts down because of overheating, the front-panel "hot" LED will illuminate.

Sound will continue when the unit has cooled. However, you are strongly advised to be aware of what may have caused the overheating issue before continuing. Is the rack properly ventilated and cooled? Does the associated fan come on when the unit becomes hot (if using the fan output on the unit)? Is sound coming out of all the speakers?

It is possible that the unit will shut down if driven for abnormally long periods at unusually high levels. If this is the case, simply wait until the unit has cooled down and normal operation will resume automatically.

There is radio interference

The unit has been designed to very high standards of electromagnetic compatibility.

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

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

Drive units move when the C51 is switched on or off

This is normal as the amplifier electronics settle.

The sound from one or more speakers is either muffled (lacking in HF) or thin (lacking in bass)

Check that the crossover cards have been correctly inserted, and in particular that the

type of crossover card in each bay matches the type of loudspeaker connected to the corresponding output channel. Each crossover card includes indicator lights that show the presence of power and, by their colour combination, indicate the type of speaker for which the card is designed. Confirm that these are indicating correctly.

Unit stays in standby

This generally indicates a problem with the trigger connection and/or setup:

- Check the trigger cabling and that it is correctly wired.
- Ensure that the source device providing the trigger is configured to provide a voltage in the range 5–30v ac or dc when the unit is required to come out of standby and for the trigger voltage to be removed when the unit is to enter standby.

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