

Meridian C Series Installation Components C50 10-Channel Class D Power Amplifier

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 C50 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 C50 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 of 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 C50 10-Channel 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 Meridian C50 is a ten-channel power amplifier designed for installation applications. It features an innovative new Class D amplifier design which produces minimal heat, even at high power outputs, as well as delivering extremely high audio quality.

The amplifier design offers a very low output impedance and a load-independent frequency response that is flat up to 20kHz and falls off slowly above that. THD and noise are extremely low and effectively independent of frequency.

The C50 features an unbalanced input on gold-plated phono connector, and a balanced input via XLR3-F connector, for each channel plus a pair of gold-plated terminals per channel. Each channel will deliver 100 watts into 8 ohms or 160W into 4 ohms.

A temperature-controlled fan output is provided to operate 12v fan systems. An industry standard trigger input is also provided, suitable for AC or DC operation in the range 5–30V.

Behind the transparent smoked front-panel inset, blue LEDs indicate power and per-channel operation.

Where higher levels of power output are required, a similar 5-channel unit is also available, the C59, offering per-channel power outputs of 200W into 8Ω or 360W into 4Ω.

C50 SPECIFICATIONS

C50 Rack-mount 10-Channel Power Amplifier

Audio output 10 x 160W into 4Ω /
10 x 100W into 8Ω

Frequency response +0/–3dB, 10Hz–50 kHz

Output impedance 20–150mΩ, 1–20kHz

THD+Noise Typical: 0.1% @ 60W output,
0.008% @ 1W

Inputs 10 x Mono unbalanced (phono)
impedance 10 kΩ
10 x Mono balanced (XLR3-F)

Outputs Twin pairs of gold-plated binding
posts per channel

Other connections
Temperature controlled 12v fan
output (3.5mm jack)
5–30V ac/dc trigger input
(3.5mm jack)

Indicators Blue LED power indicator
Per-channel blue LED operation
indicator

Power 100–240Vac, 30–1200VA, rear
panel switch

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)

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 C50 is primarily designed to be mounted in a standard 19in rack. For free-standing operation, four feet are provided. These should not be fitted 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

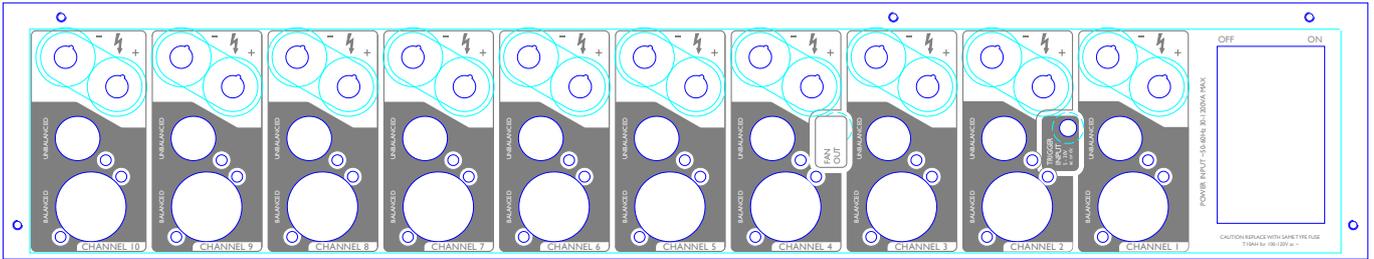
Be sure to use high quality cables for both sources and output signals.

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 C50



C50 Rear Panel (above) and front panel with acrylic cover removed (below)

The C50 contains ten identical channels of audio amplification. Unless otherwise stated, this section refers to one channel only.

Input connections

Two inputs are provided for each channel: balanced (XLR-3F) and unbalanced (gold-plated phono). Both inputs are simultaneously active. As a result it is not recommended to connect sources to both inputs on a channel simultaneously as the output level and behaviour will be unpredictable. In general, the balanced inputs will be found to offer approximately 6 dB gain compared to the unbalanced inputs.

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 loudspeakers. 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 C50 is powered up and being fed with an active signal. **Ensure that connections are made with the power disconnected from the unit.**

Temperature-controlled fan output

This 3.5mm jack provides a voltage and power suitable for driving a 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 C50

Removal of the smoked acrylic front panel allows access to the Standby button. Replace the panel after use to avoid unintentional operation.

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 C50 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 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

Ten 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.

The 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 C50 is switched on or off

This is normal as the amplifier electronics settle.

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.

Meridian Audio Limited

Latham Road,
Huntingdon, Cambridgeshire PE29 6YE
United Kingdom
Tel +44 (0) 1480 445678
Fax +44 (0) 1480 445686

Web: www.meridian-audio.com

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Meridian America Inc

8055 Troon Circle, Suite C
Austell, Atlanta GA 30168-7849
USA
Tel +1 (404) 344 7111
Fax +1 (404) 346 7111

Email: info@meridian-audio.com