



MERIDIAN

REDEFINE THE POSSIBLE

Prime Headphone Amplifier



Reference Quality for Headphones

Meridian's Prime Headphone Amplifier is a reference-quality analogue headphone amplifier that can replay audio from both analogue and USB-based sources. Built into an elegant and compact Allen Boothroyd-designed metal case, Meridian's Prime Headphone Amplifier also provides a preamp output to drive an external audio system or analogue active loudspeakers and fully supports Meridian's revolutionary MQA technology for studio-quality replay.

The Prime Headphone Amplifier is designed to appeal to audio enthusiasts who seek the highest possible performance from conventional analogue audio sources including personal stereo players, or from a computer via USB, listening on headphones, a conventional audio system or analogue active loudspeakers.

The Meridian Prime Headphone Amplifier can be powered by the wall-mounted supply provided or, for even higher audio quality, by the Meridian Prime Power Supply. The use of this external power supply means that AC noise is kept well away from the pure analogue stages of the Headphone Amplifier.

"Outside the Head"

Analogue Spatial Processing

In addition to simply replaying stereo audio at the highest possible quality via headphones, Meridian Prime's headphone outputs also include two "Analogue Spatial Processing" modes, i and ii, which replace

the typical "in the head" experience of headphone listening with a smooth, natural feeling of spatiality that is much more like listening on a pair of loudspeakers in front of the listener.

Most recordings are made with loudspeaker listening in mind. When listening to stereo recordings on loudspeakers, your ears pick up signals from both channels. The sound from the right loudspeaker reaches your left ear a little later than it reaches your right (it's further away) and vice versa. In addition, the high frequencies from the source that is a little further away are slightly attenuated.

The Prime Headphone Amplifier's Analogue Spatial Processing simulates these effects with pure analogue circuitry and a choice of two settings (plus bypass – useful if you are listening to binaural or coincident-pair recordings). The processing is carried out entirely in the analogue domain and is switched in and out from the front panel by logic-controlled analogue switches, ensuring that the audio signal path through the unit remains as short and pristine as possible.

In addition, relays are used to mute the outputs during switch on and off.

Quality throughout

Throughout the Meridian Prime headphone Amplifier, the highest quality analogue audio components are employed to maximise audio quality. A 6-layer circuit

Product highlights

USB 2.0 asynchronous playback at up to 192kHz/24-bit featuring Meridian resolution-enhancement technology including low-jitter clocking, upsampling, Apodising and now MQA.

Analogue signal path and analogue logic switching throughout

6-layer PC board for maximum signal isolation and enhanced performance

Analogue Spatial Processing offers dual-mode loudspeaker-like listening on headphones – with bypass

Audio components mounted near rear-panel sockets for ultra-short signal path

Externally-powered USB input: disconnecting deactivates all digital electronics

Dual ¼in stereo headphone sockets with separate-wire grounding (may be used with separately-wired headphones) plus 3.5mm stereo jack

High-quality gold-plated sockets

Headphone-only mode powers down preamp output

Analogue volume control driven from front panel via flexible coupling to minimise microphony

Relay muting on power-up and power-down for thump-free operation.

Hand made in Meridian's state-of-the-art headquarters near Cambridge, UK.

New, elegant and durable metal enclosure design by Allen Boothroyd, double-skinned for lower noise, offers the distinctive Meridian look with no visible mounting screws



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board provides ground-planes and maximises signal isolation.

The product is DC-coupled, for outstanding low frequency control and overall audio reproduction, and absolute phase is maintained throughout.

USB Input

In addition to a pair of gold-plated phono connectors for line-level input, plus a 3.5mm mini-jack for connection of personal stereo players, the Meridian Prime Headphone Amplifier includes a USB mini-B type connector for the replay of computer music sources.

The USB conversion system is powered from the interface, so that when it is disconnected, all digital circuitry in the unit is deactivated. The fully asynchronous USB 2.0 interface supports signals at up to 192kHz/24-bit sampling and the USB input features a full complement of Meridian Resolution Enhancement technologies including an Apodising filter that improves the quality of digital signals, and upsampling of 44.1/48kHz sources to 88.2/96kHz prior to the built-in DAC.

MQA – Master Quality Authenticated

The Prime Headphone Amplifier now fully supports Meridian's revolutionary MQA process, which brings the true sound of the studio to listeners at home, on the road, or on the go. The Prime Headphone Amplifier includes full MQA decoding and rendering to headphones for astonishing realism. When replaying an MQA file or stream, a blue LED illuminates to confirm authentic master reproduction.

Headphone & Preamp Outputs

On the output side, the Meridian Prime Headphone Amplifier includes a pair of gold-plated line-level phonos on the rear panel that can be used to drive an external amplifier or pair of analogue active loudspeakers.

Three front-panel headphone sockets are provided. One is a 3.5mm stereo socket for the connection of earbuds and similar devices, which presents an output impedance of 2Ω to suit these devices.

The other two sockets offer an exceptionally low impedance (around $3m\Omega$) and are standard $\frac{1}{4}$ in stereo (tip-ring-sleeve) types, carrying both channels. They can be used either to connect two pairs of headphones or to attach a single pair of headphones wired with separate cords for left and right drivers, thus offering the opportunity to reduce headphone crosstalk.

Virtually all the active audio components are all at the rear of the unit, as close to the connectors as possible to minimise the audio path length, and are essentially remote-controlled from the front panel. This is even true of the high-quality analogue volume potentiometer, which controls the level of all the outputs. A special flexible shaft coupling is employed to avoid microphony resulting from operation of the volume knob.

In addition to its use with headphones, the Prime Headphone Amplifier is also an outstanding analogue preamplifier, allowing multiple inputs to be managed effectively and brought up to line level at extraordinarily high quality for driving external power amplifiers or powered analogue speakers.

Headphone-Only Mode

A useful feature is the ability to turn off the preamplifier output when the unit is to be used solely for headphone listening.

This is achieved by holding down the power button. When in standby, the power indicator within the power button is blue; switched on with all outputs enabled it shows white; and when the preamp output is disabled it shows green.

Prime Headphone Amplifier Outline Specifications

Inputs

- 1x pair Phono (stereo) (A1)
Gain 3dB; 1.4Vrms in for 2Vrms out
- 1x 3.5mm analogue stereo (A2)
Gain 12dB; 500mVrms in for 2Vrms out
Analogue inputs overload capability >40dB
- 1x Asynchronous USB 2.0 interface,
44.1–192kHz \leq 24-bit. Jitter <90ps p-p.
Apodising filter and upsampling of
44.1/48kHz inputs to 88.2/96kHz;
MQA decode and render

Outputs

- 1x pair phono (stereo) preamp out
Maximum output 3.1Vrms @ 1kHz
THD <0.001% @ 1kHz up to 3V rms
Crosstalk <-70dB @ 1kHz
Output can be disabled via power button
- 2x $\frac{1}{4}$ in A-type stereo phone jacks
Maximum output 3Vrms off load,
THD <0.002%
Output impedance <100m Ω
Power output 250mW up to 42 Ω
Short-circuit protected
- 1x 3.5mm stereo phone jack
Max output 3Vrms off-load, THD <0.002%
Output impedance 2.2 Ω

Overall Audio performance

- Output noise (input A1)
< -100dBV CCIR or A weighted
- Frequency response
+0/-1dB DC-70kHz
+0/-3dB DC-200kHz

Headphone compatibility

Suitable for impedances in the range 16–1k Ω or more. Suitable for open, closed, in-, on- or over-ear models. Recommended sensitivity >80dBspl/mW or >96dBspl/V

Controls

- Volume with precise tracking, 70dB range
- Input switch
- Processing (off/i/ii)
- Power including rear output mute

Processing

- 'Out-of-head' Analogue Spatial Processing with dual settings plus bypass (headphone outputs only)

Power

- 12V DC
- Consumption <0.5W standby
- <1W in quiescent

Construction

- Silver metal finish similar to G Series

Dimensions

- Width: 160mm (6.3in); Depth: 150mm (5.9in) plus connectors; Height: 50mm (2.0in)

Weight

- 0.9 kg (2.0 lbs)

