

# HA 200

## Headphone Amplifier



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### D/A-Converter

PCM: Double-Differential-Quadruple Converter up to 32 Bit/768 kHz

DSD: T+A True 1-Bit Converter, native Bitstream up to DSD 1024 (49,2 MHz)

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### Digital Inputs

USB Audio Input, AES-EBU, BNC, Coax, TOS-Link, HDMI (optional)

USB Receiver conforming to UAC2 and UAC3 standards

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### Digital Section

Separate PCM und DSD signal paths and processing

Additional „Non Oversampling“ DAC mode (NOS-DAC)

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### Amplifier

Double Mono „State of the Art“ discrete HV Amp technology

Pure Class A power stage

3 separately switchable outputs (Pentaconn, XLR, 6.3 barrel socket)

Adjustable output impedance

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### Special Features

Complete galvanic isolation between digital and analog sections

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2020 will be remembered as the year in which we introduced a whole new family of products: headphones.

We plan to develop a range of extremely innovative headphones and headphone amplifiers, evincing the same consistently systematic approach and commitment which we have always adopted in the development of our audio systems and loudspeakers. Our first model of headphone amplifier is the HA 200, and it benefits from our extensive expertise and several decades of experience in the development and manufacture of amplifiers and transducers. We have not been content simply to adopt existing technologies, preferring instead to develop and optimise them for the particular requirements of headphones. The result is a device the like of which has never before existed, but it is far more than that: it sets completely new standards in respect of sound quality, performance, connection facilities and appearance. In fact, the HA 200 encompasses the combined requirements of professional users active in studio technology and those of audiophile music lovers, who wish to run multiple headphones from a single device.



# HA 200

## Back panel

In addition to the conventional high-quality analogue inputs we have equipped the HA 200 with a large number of professional digital inputs. This makes it possible to operate the unit as a stand-alone control centre for a High End system, and connect it to various digital and analogue sources according to personal taste and requirements.

All inputs can be selected individually using the front panel or the FM8 remote control handset. Two inputs are available for analogue sources: gold-plated XLR and RCA sockets, which are screwed to the heavy-duty

back panel. Professional AES/EBU and BNC inputs are provided for digital sources, as well as two RCA and two optical S/P-DIF sockets.

The USB IN socket can be used to connect PCs, streamers or network adapters (NAA), while the USB SYS socket is intended for connecting future source devices.

The Bluetooth receiver aerial supplied in the set is a screw-fitting in the gold-plated socket.

The CTRL input is designed to accept RS 232 control systems, while the SYS IN and E2 Link sockets are designed to accept future devices.

An optional HDMI module is available. BluRay players and other devices with an HDMI output can be connected to the inputs IN 1 and IN 2; TV sets to the OUT (ARC) socket. Only stereo signals are processed.

The Charge socket is used for recharging the remote control handset, and for powering other devices.







# HA 200

## Front panel

The amplifier's wide range of connection facilities requires a very sophisticated control system and display for the amplifier as a whole. Thirteen inputs are present in all, although those not in use can be suppressed. Functions which are only rarely required are adjusted using the Menu button. In fact, the HA 200 is intuitive and simple to operate, thanks to an ingenious combination of operating buttons and menu control system. All operating states are displayed in clear, distinct form, and can be identified at a glance. The brightness of the screen, the LEDs and the VU meters is user-variable, and it is even possible to adjust the colours of the VU meters. The two VU meters (QPPM = Quasi Peak Programme Meter) are

accurate indicators which display the variation in various parameters, as in studio applications and measurement engineering. The level at the D/A converter and the amplifier output can both be displayed, as can temperature and streaming quality (which can be used to check the frequency of the data stream and even the cable quality).

The pin-sharp screen displays the user's selected operating modes, such as output impedance, volume, data rate, oversampling filter type, crossfeed and much more.

Three different outputs are provided: high-quality XLR 4-pin and 4.4 mm Pentaconn sockets, with fully channel-separate signal transfer (4-conductor technology), as well as the

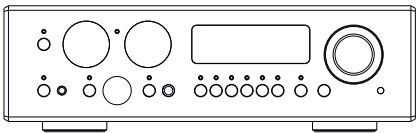
classic 6.3 mm barrel socket. Each output is switchable, and its impedance can be selected from six levels in the menu. The impedance affects the damping of the transducer, enabling the user to carry out ultra-fine, individual tuning of the headphones' sound.

A supplementary stereo output stage can be connected to the XLR 4-pin output.



Since we also designed the HA 200 for use in professional applications, the case is designed to be extremely solid and robust. The heatsinks are manufactured using an extrusion tool, the front panel is machined from solid metal, and the top, bottom and back panels are made from aluminium plates. Ultra-close tolerances and accurate fits are the hallmarks of this case.

# Specifications



|                                   |                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Analogue section</b>           |                                                                                                                                                                                                                                                                                                                                                                                               |
| Frequency response + 0 / – 3 dB   | 0,1 Hz – 200 kHz                                                                                                                                                                                                                                                                                                                                                                              |
| Signal / noise ratio              | 110/114 dB                                                                                                                                                                                                                                                                                                                                                                                    |
| THD / Intermodulation             | < 0,001 % / < 0,001 %                                                                                                                                                                                                                                                                                                                                                                         |
| Channel separation                | > 108 dB                                                                                                                                                                                                                                                                                                                                                                                      |
| Class A operation                 | up to 700 mA                                                                                                                                                                                                                                                                                                                                                                                  |
| Volume control                    | Relais controlled in 1 dB steps, - 90 dB to 0 dB                                                                                                                                                                                                                                                                                                                                              |
| Loudness                          | switchable, adjustable on the speaker efficiency                                                                                                                                                                                                                                                                                                                                              |
| Sound control                     | switchable, channel separated, Bass and treble -6 dB to + 8 dB                                                                                                                                                                                                                                                                                                                                |
| Headphone outputs                 | 6.3 mm plug, 4.4 mm Pentaconn, XLR-4 pin                                                                                                                                                                                                                                                                                                                                                      |
|                                   | Impedances: 8, 12, 18, 25, 40, 80 Ohms                                                                                                                                                                                                                                                                                                                                                        |
| <b>Analogue inputs</b>            |                                                                                                                                                                                                                                                                                                                                                                                               |
| High level (RCA) / balanced (XLR) | 250 mV <sub>eff</sub> ... 4,5 V <sub>eff</sub> / 10 kOhms   500 mV <sub>eff</sub> ... 9 V <sub>eff</sub> / 20 kOhms                                                                                                                                                                                                                                                                           |
| <b>Digital inputs</b>             |                                                                                                                                                                                                                                                                                                                                                                                               |
|                                   | 1 x AES-EBU 32...192 kHz / 16-24 Bit<br>S/P-DIF: 2 x Standard Coax, 2 x optical TOS-Link 32...192 kHz / 16-24 Bit,<br>1 x BNC 32...192 kHz / 16-24 Bit,<br>2 x USB DAC: Device-Mode up to 768 kSps (PCM) and DSD1024*, supports asynchronous data transfer. *DSD 512 and DSD 1024 with Windows PC and appropriate driver installed only.<br>2 x HDMI IN, 1 x HDMI OUT with ARC (as an option) |
| Bluetooth                         | A2DP (Audio), AVRCP 1.4 (Control) / aptX <sup>®</sup> HD, SBC, AAC                                                                                                                                                                                                                                                                                                                            |
| <b>D/A converter section</b>      |                                                                                                                                                                                                                                                                                                                                                                                               |
| PCM                               | Double-Differential-Quadruple-Converter with four 32-Bit Sigma-Delta D/A converter per channel, 705,6 / 768 kSps conversion rate                                                                                                                                                                                                                                                              |
| DSD                               | T+A-True-1Bit DSD D/A converter, up to DSD 1024 (49,2 MHz), native bitstream                                                                                                                                                                                                                                                                                                                  |
| Upsampling                        | T+A signal-processor – synchronous upsampling with four selectable oversampling algorithms. FIR short, FIR long, Bezier/IIR, Bezier, NOS (non-oversampling)                                                                                                                                                                                                                                   |
| Analogue filter                   | Phase-linear Bessel filter 3rd order, switchable with 60 or 120 kHz cut of frequency                                                                                                                                                                                                                                                                                                          |
| Mains                             | 100 – 120 V or 200 – 240 V, 50 – 60 Hz, 100 Watts                                                                                                                                                                                                                                                                                                                                             |
| Standby                           | < 0,5 Watts                                                                                                                                                                                                                                                                                                                                                                                   |
| Dimensions (H x W x D)            | 10 x 32 x 34 cm, 4 x 12.6 x 13.4 inch                                                                                                                                                                                                                                                                                                                                                         |
| Accessories                       | Remote control FM8, power cord, USB-cabel for charging RC, USB cabel 2.0 for DAC, RCA cabel                                                                                                                                                                                                                                                                                                   |
| Weight                            | 6,5 kg, 14.4 lbs                                                                                                                                                                                                                                                                                                                                                                              |
| Finishes                          | Alu silver anodized (43), Alu black anodized (42)                                                                                                                                                                                                                                                                                                                                             |

Technical modifications reserved



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