HEAD acoustics

DATA SHEET

Code 2450

playPro

Binaural High-End Playback Unit

OVERVIEW

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Binaural High-End Playback Unit

playPro is the small, handy high-end playback frontend among the HEAD acoustics equalizers for playback with up to two high-quality headphones with class AB amplifiers.

Use playPro to listen to sounds binaurally and aurally-accurately, evaluate them, and compare your assessments with colleagues. Thanks to its handy dimensions, playPro is ideally suited for both desktop use and working from home.

playPro can be directly connected to a Windows computer via USB-C. In addition to playback, you can use your computer to perform firmware updates, manage various equalizations, or adjust the limiter, for example. Once you connect playPro to another device (e.g., a smartphone or tablet[1]) via USB-C, it will work like a standard USB playback device.

Operation is solely via software (e.g., HEAD Companion (as of version 3.3), SQala (as of version 4.5), ArtemiS SUITE (as of version 17.5)).

The e-paper display on the top of playPro provides information on the current settings (equalization, volume, limiter) and the headphone equalizers installed. There are also LEDs on all connectors to indicate the status.

KEY FEATURES

Handy system

Two headphone outputs for shared listening

Integrated playback equalization

Hardware limiter to protect against hearing damage

Free Field (FF), Diffuse Field (DF), Independent of Direction (ID), earDrum Reference Point (DRP), Linear (LIN, without equalization), and User (USR, user-defined) playback equalizations controlled via the playback software

Customized level adjustment and equalization for maximum playback quality

Direct Path Audio Output

E-paper display for important information

APPLICATIONS

Aurally-accurate binaural playback

Aurally-accurate playback for SQala

Use as a universal USB playback device

Shared listening

1 Compatible with iPhone and iPad

DETAILS

Binaural Playback

In combination with appropriate playback software, playPro is the ideal solution for uncomplicated, aurally-accurate binaural playback. Simply connect the playPro playback frontend to a Windows computer, smartphone, or tablet via USB-C, and playPro will automatically be recognized as an audio device. Now connect up to two compatible headphones to playPro and start playback immediately using the playback software.

The Player of ArtemiS SUITE, SQala, or HEAD Companion is available for playback.

Equalization filters for two different headphones can be installed on the playPro playback frontend.

Interfaces

- Two 6.3 mm headphone sockets on the front to connect compatible headphones, e.g., HD OP II.1, HD CL II.1, or HD NC III.1
- Factory-adjusted, customized equalization for compatible headphones
- Two USB-C ports

Scope of Delivery

- playPro (Code 2450)
  Binaural high-end playback unit
- CUSB V.1 (Code 5474-1)
  Cable USB-C to USB-C, 1 m
- Manual

Optional Accessories

- Headphones
  - HD OP I.1 (Code 2511.1)
    Premium open-back dynamic headphones
  - HD OP II.1 (Code 2512.1)
    High-end open-back dynamic headphones
  - HD CL I.1 (Code 2521.1)
    Premium closed-back dynamic headphones
  - HD CL II.1 (Code 2522.1)
    High-end closed-back dynamic headphones
  - HD NC III.1 (Code 2533.1)
    Headphones with active and passive damping and customizable equalization
- CUSB V.xx (Code 5474-xx)
  Cable USB-C to USB-C
  Available lengths: 1 m; 1.5 m

playPro with HD OP II.1 and HD CL II.1

ELEMENTS ON THE FRONT AND ON THE TOP

E-Paper

The e-paper display provides information on the current playback, including details on the limiter, playback level, and headphone equalization.

It displays the headphone type, the serial number of individually equalized headphones, the equalization, and the playback level.

The display changes if you change any of the above information or activate the limiter or mute function.

The color scheme of the display can be changed from dark mode (white text on a black background) to light mode (black text on a white background).

Headphone Outputs


HD OP I.1


HD OP II.1


HD CL I.1


HD CL II.1


HD NC III.1

You can connect our compatible headphones to the two headphone outputs to achieve correctly equalized playback.

Two headphone outputs enable shared listening.

Available equalizations are Free Field (FF), Diffuse Field (DF), Independent of Direction (ID), earDrum Reference Point (DRP), Linear (LIN, without equalization), and User (USR, user-defined).

The serial number of the corresponding individually equalized headphones can be seen on the e-paper display.

The color of the respective status LED indicates whether headphones are plugged in, the limiter is engaged, or the output signal is overloaded.

ELEMENTS ON THE BACK

USB Ports


Computer

The USB-C port on the left (⚡) is used solely for power supply when more power is required.

Use the USB-C port on the right (⇄) to play back data on your playPro. The data transfer is performed via USB 2.0 (high-speed).

The color of the respective status LED indicates whether an active USB connection exists or whether an error has occurred.

PLAYBACK AND CONTROL

ArtemiS SUITE (as of Version 17.5)

In ArtemiS SUITE, the software for sound and vibration analysis, playback for listening and monitoring is controlled via the Player (included in APR 000, APR Framework), which is easy and convenient to operate. The output of a defined excitation signal in the Recorder (APR 040, Recorder is required) enables precise, high-quality audio output, which is essential for acoustic measurements and analyses.

If a signal contains information on the equalization and dynamic range used during recording, ArtemiS SUITE will transmit this information to playPro, thus ensuring that both the equalization and the playback level are automatically set correctly.

SQala Listening Studio (as of Version 4.5)

In listening studios, all the playback systems used are controlled by the SQala jury testing software. SQala uses these systems to ensure precise, high-quality audio reproduction. Playback systems enable SQala to be connected with various audio output devices such as headphones, ensuring that the playback meets the specific requirements of the listening tests.

In listening studios, SQala plays a central role by optimizing the planning, implementation, and evaluation of listening tests. The software is designed to maximize ease of use while delivering precise and reliable results.

HEAD Companion (as of Version 3.3)

Use the license-free HEAD Companion software to perform a wide range of functions that support both the management and the use of audio and measurement data. For example, HEAD Companion enables you to perform firmware updates to ensure that you are using the latest features and improvements. The software also supports binaural, aurally-accurate playback of HDF files (HEAD Data File format), which is important for acoustic tests and analyses. HEAD Companion can also be used to configure the limiter, set equalizations, and change equalization filters. HEAD Companion can also be used to change the color scheme of the display.

Therefore, HEAD Companion is the ideal tool for users who need a simple and free solution for managing acoustic files, while ArtemiS SUITE is intended for professional users who require comprehensive analysis and editing functions. However, ArtemiS SUITE is vital when it comes to complex acoustic analyses and specific applications.

HEADscape

HEADscape, the software solution for analyzing and classifying soundscape measurements in accordance with ISO 12913-2, also enables aurally-accurate playback.

Equalization Filters

playPro provides the following equalizations: Free Field (FF), Diffuse Field (DF), Independent of Direction (ID), earDrum Reference Point (DRP), and Linear (LIN, without equalization).

In addition, a maximum of two user-defined FIR filters can be installed. The FIR filters enable you to create and customize specific transfer functions to optimize audio quality.

Headphones

HEAD acoustics provides dynamic headphones that are individually equalized at the factory to ensure aurally-accurate playback. The serial numbers of the headphones are displayed on the e-paper display.

Usage as a Windows audio device

playPro can be used as a Windows audio device. In this case, playPro behaves like a normal sound card, making the use of an additional sound card unnecessary. However, aurally-accurate playback cannot be guaranteed in this mode.

TECHNICAL DATA

GENERAL

Data acquisition / data generation connections	2 x headphone output
Communication interfaces	1 x USB device
Supply connection	1 x USB-C
Supply voltage	5 V_{DC}
Reverse polarity protection	Yes
Maximum power consumption during operation	4.5 W (right-hand side USB-C only: 2.5 W)
System sampling rate	44.1 kHz, 48 kHz
Max. sampling rate	48 kHz
Operating temperature	-10 °C–+60 °C (+14 °F–+140 °F), not permanently due to e-paper
Storage temperature	-10 °C–+50 °C (+14 °F–+122 °F), not permanently due to e-paper
Shock according to EN 60068-2-27	20 g (six axes)
Vibration according to EN 60068-2-6	4 g (5 Hz–500 Hz)
Dimensions (W x H x D)	84 mm x 26 mm x 84 mm
Weight	185 g

Display

Display	EPD a-Si TFT active matrix (e-paper)
Touch capable	No
Resolution	200 x 200 pixels
Dimensions	27.3 mm x 27.3 mm
Color depth	s/w
Backlight	No

COMMUNICATION INTERFACES

USB Device

Plug connector	1 x USB-C
Number of interfaces	1
USB specification	USB 2.0
Data rate (gross)	480 Mbit/s
Electrical isolation	No

ANALOG OUTPUTS

Headphones

Plug connector	2 x jack 6.3 mm
Number of channels	2 (per plug connector)
Output impedance	< 0.3 Ω
DC capable	Yes
Frequency range	0 Hz–22 kHz
Frequency response 20 Hz..20 kHz re 1 kHz	< ±0.06 dB
Digital lowpass filter @ f_s = 48 kHz, proportional to f_s	24 kHz
S/N	> 118 dB(A)
THD+N at 1 kHz	< -94 dB
Crosstalk at 1 kHz	< -120 dB
Phase coherence	< 0.45°, 20 Hz–20 kHz
Resolution	32 bits
Equalization	FF, DF, ID, DRP, LIN, USR (max. 1024 taps)
Maximum voltage	10.5 V_p
Maximum level	17 dB(V) 116 dB_{SPL} (depending on the type of headphones)
Maximum output power per channel	0.44 W

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