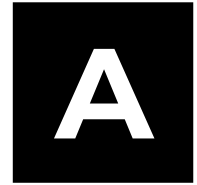


# Acoustic Test Module

option for

## AIO Test System



The Acoustic Test Module (AIO-A) is designed for making basic acoustic measurements of a device under test (DUT)—typically a speaker or driver. Ideal for use with measurement microphones, ear simulators, artificial heads, speakers, actuators, and mouth simulators. AIO-A is a configuration option for the AIO Test System and requires the AIO chassis to operate.



### HARDWARE FEATURES:

- Four mic/line inputs
- CCP/IEPE/ICP microphone power
- TEDS reader for microphone data
- Two 10 W class-D amplifier outputs

### KEY APPLICATIONS:

- Speakers
- Headphones & earbuds
- Mobile devices
- Microphones

### MIC/LINE INPUTS:

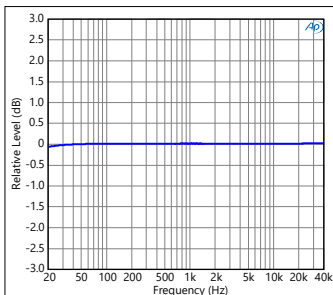
Four low-noise inputs accommodate a very wide range of input voltages, from dynamic microphones to line-level inputs. Features include adjustable gain, constant current power, and TEDS readers.

### AMPLIFIER OUTPUTS:

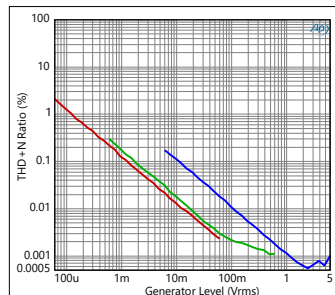
Two high-quality 10 Watt class-D floating amplifier outputs with output protection.

### PERFORMANCE GRAPHS:

Mic/Line Inputs

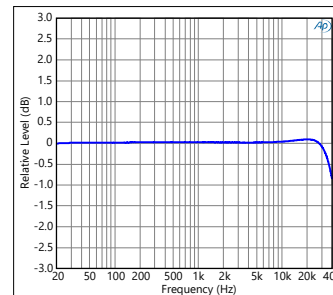


Frequency Response

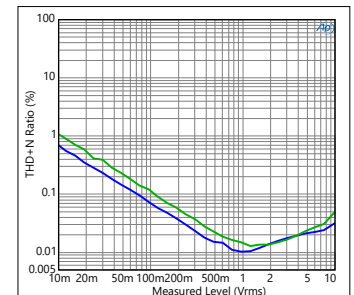


THD+N, A-wtd (gain 1x, 10x, 100x)

Amplifier Outputs



Frequency Response (8 Ω load)



THD+N (8 Ω load) (A-wtd, un-wtd)

The Echo AIO™ is a modular audio test platform ideally suited for high-volume production-line testing and QA/QC verification. The AIO combines the functionality of multiple standalone devices into a single, integrated unit, making test stations both more reliable and less expensive.

**ACOUSTIC MODULE COMMON CONFIGURATIONS:** (Other configurations may be available—check with your dealer.)

| Model  | Inner Module | Outer Module | Mic/Line Inputs | Line Outputs | Headphone Outputs | Amp Outputs | Impedance | Digital   | 5VDC & Battery Simulator | GPIO | PTH |
|--------|--------------|--------------|-----------------|--------------|-------------------|-------------|-----------|-----------|--------------------------|------|-----|
| AIO-A1 | AIO-A        |              | 4               |              |                   | 2           |           |           |                          |      |     |
| AIO-A2 | AIO-A        | AIO-A        | 8               |              |                   | 4           |           |           |                          |      |     |
| AIO-AC | AIO-A        | AIO-C        | 4               |              |                   | 2           |           |           | Yes                      | 8/8  | Yes |
| AIO-AH | AIO-A        | AIO-H        | 6               |              | 2                 |             | 1         |           |                          |      |     |
| AIO-AT | AIO-A        | AIO-T        | 4               |              |                   | 2           |           | TDM 10/10 |                          |      |     |
| AIO-SA | AIO-S        | AIO-A        | 6               |              |                   | 3           | 1         |           |                          |      |     |

**SPECIFICATIONS:**

| Microphone / Line Inputs           |                           |
|------------------------------------|---------------------------|
| Input bandwidth                    | 72 kHz                    |
| Input impedance                    | 1 MΩ                      |
| Input gain                         | 1x, 10x, and 100x         |
| Full-scale input voltage (1x gain) | 8.75 Vpk                  |
| Maximum input voltage              | 15 Vpk                    |
| Dynamic range (1x gain, A-wtd)     | > 110 dB                  |
| THD+N (1x gain, A-weighted)        | < -95 dB (20 Hz – 20 kHz) |
| Frequency response                 | ±0.5 dB (20 Hz – 20 kHz)  |
| Constant current supply            | CCP/IEPE/ICP, 4 mA        |
| TEDS                               | IEEE 1451.4 Class 1       |

| Amplifier Outputs          |                          |
|----------------------------|--------------------------|
| Output power (THD+N < .1%) | 10 W continuous at 1 kHz |
| Maximum output voltage     | 13.5 Vpk                 |
| Frequency response         | ±0.5 dB (20 Hz – 20 kHz) |

| Interface                   |                               |
|-----------------------------|-------------------------------|
| Sample rates                | 44.1 kHz – 192 kHz            |
| USB                         | USB 2.0 audio class compliant |
| Supported operating systems | Windows 10 or later, macOS    |
| Audio APIs                  | ASIO, WASAPI, Core Audio      |
| AC power                    | 90 – 264 VAC, 50/60 Hz, 60 W  |

| Dimensions and Weight         |  |
|-------------------------------|--|
| Single unit                   | 17.5" (44.4 cm) x 8.75" (22.2 cm) x 1.75" (4.4 cm), 7.2 lbs (3.3 kg) |
| Single unit boxed with cables | 21" (53 cm) x 10" (25.4 cm) x 5" (12.7 cm), 8.75 lbs (4 kg)          |
| Carton (4 units)              | 22" (55.8 cm) x 22" (55.8 cm) x 12.6" (32 cm), 42.5 lbs (19.3 kg)    |

For more information, please contact:



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**AIO Test System**

(see system datasheet for more details)



Shown: AIO-AC rear view with **A** acoustic and **C** combo test modules.

**FEATURES:**

- High accuracy
- Cost effective
- Silent—no fan!
- Standard USB audio interface
- Wide test & measurement software compatibility
- ASIO, WASAPI, & Core Audio protocols



**CONTROL PANEL SOFTWARE:**

Provides comprehensive level monitoring and control over hardware settings, including transducer power, TEDS data, gain, TDM format, and calibration. Command-line and API access to settings is also available.

**TEST & MEASUREMENT SOFTWARE:**

Choose from a wide variety of third-party test and measurement software, including APx500 Flex, ARTA, LabVIEW, and MATLAB. The AIO system works just like a standard sound card for Windows, Mac, or Linux.

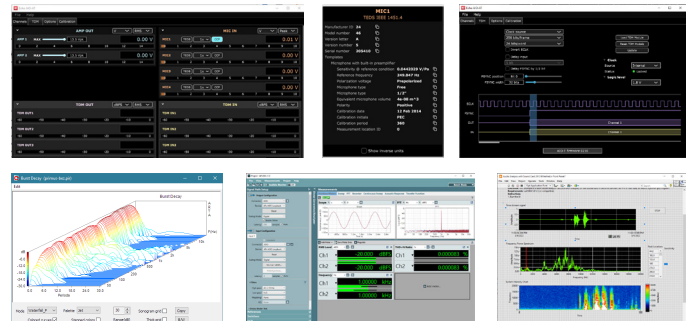
**Echo Test + Measurement**

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**MODULE OPTIONS:**

(see individual datasheets for details and configurations)

- A Acoustic:** Four mic/line inputs with CCP, TEDS; two 10 W class-D amplifier outputs.
- C Combo:** GPIO; 5 VDC fixed supply; 5 VDC battery simulator; Pressure, temperature, and humidity sensor.
- H Headphone:** Four mic/line inputs with CCP, TEDS; two headphone/earbud outputs with impedance measurement.
- L Line Level:** Four mic/line inputs with CCP, TEDS; two balanced line-level outputs.
- S Speaker:** Two mic/line inputs with CCP, TEDS; two 10 W class-D amplifier outputs; built-in speaker impedance measurement.
- T TDM:** Digital TDM, up to 10 channels, 24 or 32 bit samples, 192 kHz.



Specifications are subject to change without notice. All trademarks or registered trademarks are the property of their respective owners. The AIO Test System is CE compliant.

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