AIO Test System

The Echo AIO™ test system 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.

Shown: AIO-AC rear view with **A** acoustic and **C** combo test modules. Other configuration combinations available—see chart on back.

APPLICATIONS:

- **Speakers & headphones**
- **Mobile devices**
- **Car audio**
- **Microphones**
- **Analog and digital audio**
- **And more...**

FEATURES:

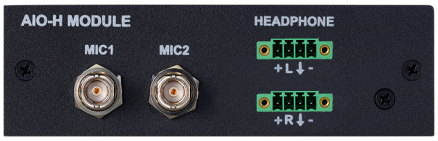
- **High accuracy**
- **Cost effective**
- **Silent—no fan!**
- **Standard USB audio interface**
- **Wide test & measurement software compatibility**
- **ASIO, WASAPI, & Core Audio protocols**

MODULES:

The AIO Test System is a modular design consisting of an AIO Chassis, an AIO Interface Module, and one or two test modules. Individual modules not sold separately. (See chart on back for available configurations.)

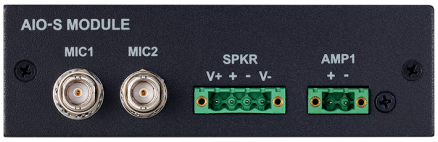
A **Acoustic:** Four mic/line inputs with CCP, TEDS; two 10 W class-D amplifier outputs.

C **Combo:** GPIO; 5 VDC fixed supply; 5 VDC battery simulator; Pressure, temperature, and humidity sensor.



H **Headphone:** Two 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.

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.

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-C1		AIO-C							Yes	8/8	Yes
AIO-H1	AIO-H		2		2		1				
AIO-H2	AIO-H	AIO-H	4		4		2				
AIO-L1	AIO-L		4	2							
AIO-L2	AIO-L	AIO-L	8	4							
AIO-LT	AIO-L	AIO-T	4	2				TDM 10/10			
AIO-S1	AIO-S		2			2	1				
AIO-S2	AIO-S	AIO-S	4			4	2				
AIO-SA	AIO-S	AIO-A	6			3	1				
AIO-SL	AIO-S	AIO-L	6	2		2	1				
AIO-T1		AIO-T						TDM 10/10			

SPECIFICATIONS:

Microphone / Line Inputs A H L S	
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

Line Outputs L	
Minimum load	600 Ω
Full-scale output voltage	2 Vrms (+6 dBV)
Frequency response	±0.02 dB (20 Hz – 20 kHz)
Output bandwidth (-3 dB)	90 kHz
Dynamic range (A-weighted)	> 117 dB
THD+N (A-weighted)	< -100 dB (20 Hz – 20 kHz)

Amplifier Outputs A S	
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)

Headphone Outputs H	
Output power (THD+N < .1%)	375mW (125 mA max)
Maximum output voltage	3 Vrms
Frequency response	±0.1 dB (20 Hz – 20 kHz)
Minimum load	16 Ω

Impedance Measurement H S	
Frequency response	±0.5 dB (20 Hz – 20 kHz)
Full-scale input voltage	3 Vrms (H), 17.5 Vpk (S)
Full-scale input current	125 mA (H), 8.75 Apk (S)
THD+N (A-wtd)	< -95 dB (20 Hz – 20 kHz)

TDM T	
Channels	2, 4, 8, or 10
Clock source	Internal or external
Bits per frame	64, 128, or 256
Bits per sample	24 or 32
Frame sync width	1 – 128 bits
Frame sync position	Bit 0 – 255

GPIO C	
Inputs and outputs	8/8

Environmental Sensor (PTH) C	
Atmospheric pressure	260 to 1260 hPa absolute
Ambient temperature	-40 °C – 90 °C ±0.2°
Humidity	±1.5 % relative humidity

DC Power C	
Fixed DC power supply	5 VDC, 1 A max
Battery simulator	1 mVDC – 5 VDC, 1 A max, with current measurement

Interface (all)	
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 (all)	
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)

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