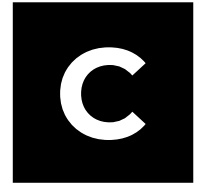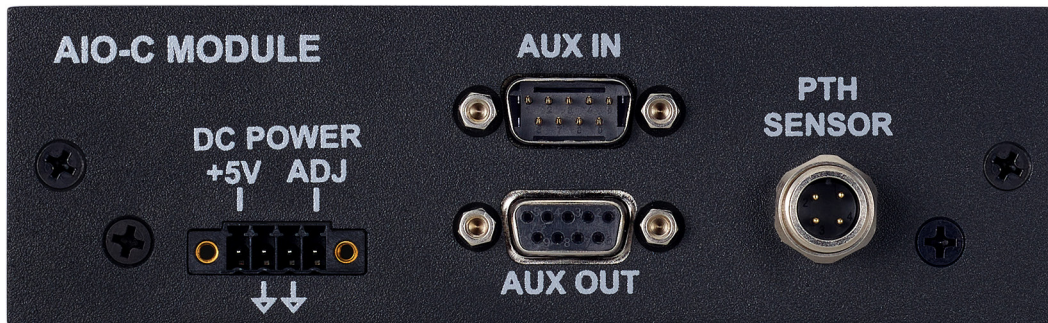# ECHO
TEST + MEASUREMENT

Combo Test Module
option for
AIO Test System

ADMESS

C

The Combo Test Module (AIO-C) is designed to provide non-audio connectivity and control options for driving various fixtures associated with acoustic measurements. AIO-C is a configuration option for the AIO Test System and requires the AIO chassis to operate.

HARDWARE FEATURES:

- **5 VDC 1A fixed power supply**
- **5 VDC variable battery simulator with current monitoring**
- **8 TTL level aux inputs (GPIO)**
- **8 TTL level aux outputs (GPIO)**
- **Pressure, temperature, and humidity monitoring**

KEY APPLICATIONS:

- **Test environment documentation**
- **Stress testing**
- **Power usage**
- **Battery drain performance**
- **Interfacing to fixtures, devices, indicators, and other test gear.**

FIXED 5 VDC POWER SUPPLY:

A stable +5 VDC power supply is provided to power the DUT or test fixture.

BATTERY SIMULATOR:

The variable +1 mV to +5 VDC supply is ideal for battery simulation, and may be programmatically controlled to analyze audio performance, as well as shut-down and charging/switchover characteristics of the DUT under low-battery conditions. Additionally, output current may be monitored and an over-current shutdown threshold may be set.

CONTROL PANEL, COMMAND-LINE, API:

All the inputs and outputs of the AIO-C module may be monitored and controlled via the AIO control panel or via the provided command-line and API interfaces.

AUX GPIO:

Eight TTL-level GPIO inputs and eight GPIO outputs provide logic-level monitoring and control of DUTs, test fixtures, pass/fail lights, conveyers, switch closures, and other test devices. The open-drain outputs can sink up to 250 mA.

PRESSURE, TEMPERATURE, HUMIDITY:

The Pressure, temperature, and humidity monitoring capability of the AIO-C module has numerous applications. In routine testing, the documentation of environmental conditions helps verify that testing was done correctly. In stress testing, the sensors verify the conditions. In addition, the device temperature can be monitored under audio signals to check for excessive heating. The PTH sensor is available as an optional accessory from Echo.

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.

COMBO 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-AC	AIO-A	AIO-C	4			2			Yes	8/8	Yes
AIO-C1		AIO-C							Yes	8/8	Yes

SPECIFICATIONS:

GPIO

Inputs and outputs	8/8

Environmental Sensor (PTH)

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

DC Power

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

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.
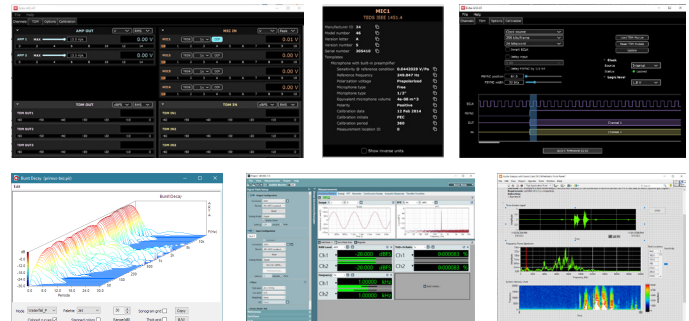
TEST & MEASUREMENT SOFTWARE:

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
402 E Carrillo St Ste A, Santa Barbara CA 93101 USA
echotm.com sales@echotm.com +1 805-880-5590

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.