

# MAE 2017 price sheet

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## Ares Modules

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Ares is a Windows GUI program which provides access to multiple measurement, design, and simulation tools organized into different "modules". The modules are designed to work together and are sold separately.

### Acoustic Modeler

Flagship Ares Module. Icon based modeler for acoustical systems. Also includes electrical and mechanical elements for dynamic analysis. The Modeler is designed to work with the other Ares modules to import measured system frequency response data, acoustic flow and surface impedance data. Licenses are available on a permanent, yearly or 6 month basis.

MAE300-AM-V100	Permanent Acoustic Modeler license	\$10,000.00
MAE300-AM-V100-MF	Yearly Acoustic Modeler upgrades/support	\$1,500.00
MAE300-AM-V100-1YL	One year Acoustic Modeler license	\$3,500.00
MAE300-AM-V100-6MO	Six Month Acoustic Modeler license	\$2,500.00

### Frequency Response Module

Module that uses PC sound card to measure the frequency response of a linear system. Transfer functions between left/right channels, and between left/output and right/output channels are measured along with the spectrum magnitudes of the left and right inputs, and the output signal. SNR and THD are also computed. Measurements can be made with stepped sine, chirp, and arbitrary waveform excitation (such as recorded speech). Computes RLR, SLR, TCLw, STMR, and channel noise telephony metrics. Frequency Response Module data can be loaded into the Acoustic Modeler elements for comparing measured results to predicted results, as well as importing the data into the transfer function elements to allow for measured system responses to be included in the modeler.

MAE300-FR-V100	Permanent Frequency Response Module license	\$1,500.00
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### Surface Impedance Measurement Apparatus (SIMA) Module and Hardware

SIMA devices measure the acoustical impedance into an acoustical surface or system. Examples are the rear volume of a loudspeaker enclosure, the ports of an earbud, the acoustic load seen by the front of a headphone speaker, and a person's ear. This can also be used to detect small leaks such as around a microphone boot.

MAE300-SIMA-V100	Surface Impedance Measurement Module	\$4,500.00
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## Flow Impedance Measurement Module and Hardware

Software and hardware required to measure the flow impedance of acoustical elements such as porous materials, complex port shapes, microphone membranes, etc. The flow impedance data can be directly imported into the Acoustic Modeler's acoustic material or acoustic resistor elements so measured impedance data can be directly incorporated into the module. (This module also requires instrument quality 1/4" microphones/preamplifiers and a B&K NEXUS computer controlled amplifier, not included in the price given below. If your lab has this equipment, it may not have to be purchased. Contact us for more information.)

MAE300-ZF-V100	Flow Impedance Measurement Module Measures from 20 to 5000 Hz, samples sizes from 5 to 24 mm in diameter. (Pus an additional \$10,500.00 for B&K NEXUS and two 1/4" instrument grade microphones.)	\$17,000.00
MAE102-A	Add on to MAE300-ZF-V100 for high frequency measurements. Measures from 50 to 12000 Hz, sample sizes from 5 to 12 mm in diameter	\$3000.00
MAE103-A	Add on to MAE300-ZF-V100 for small, high impedance measurements. Measures from 100 to 15000 Hz, sample sizes from 1 to 4 mm in diameter.	\$3000.00

## Coordinate Mapper Module

Module to provide the ability to obtain x-y coordinates from an image such as a graph or a photograph of a machined part. Useful to measure the size of parts when directly measuring them with a caliper isn't convenient.

MAE300-CM-V100	Coordinate Mapper Module	free (included with any module purchase)
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## Yearly Software Maintenance and Support

MAE300-MAINT	Software Maintenance and Support	\$1,500.00
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## Hardware

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### Sound card input voltage calibrator

The MAE200 produces a 100 mV Peak-to-base 1 kHz sine wave voltage reference. This voltage reference is useful for calibrating sound card inputs.

MAE200-ACVC-A	Sound Card input voltage calibrator	\$250.00
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## Digital gain controlled stereo microphone amplifier

The MAE206 is a USB powered and controlled instrument amplifier with independent gains for the left and right channels. The gains range from -20 to 40 dB in 6 dB steps. Gain is controlled through a Windows GUI. Inputs for both analog MEMS microphones with separate power lines and well as electret phantom powered microphones are supported. Phantom power can disabled through the Windows GUI. The MAE206 also has an internal 100 mV Peak-to-base 1 kHz sine wave voltage reference that can be selected as the amplifier output instead of the microphone signal. This voltage reference is useful for calibrating sound card inputs.

MAE206-MICAMP-B	Digital controlled stereo microphone amplifier	\$600.00
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## Portable wind generation

The MAE110 is primarily designed for microphone wind noise testing. It measures 18 inches long by 12 inches wide and 9 inches tall. It generates a very fast air flow that can be continuously varied from 5 to 35 MPH. The wind exits from a 2.5 inch by 2.5 inch rectangular port and forms a "jet" that stays together up to a foot from the exit.

MAE110-WND-A	Portable Wind Generator	\$3200.00
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## Wind generation

The MAE112 is primarily designed for microphone wind noise testing. It measures 36 inches long by 20 inches wide and 20 inches tall. It generates a fast air flow that can be continuously varied from 0 to 25 MPH. The wind exits from a 7 inch by 7 inch rectangular port. The speed is set by a digital frequency drive that can be controlled either at the MAE111 or remotely through and RS232 connection. The digital control allows for the wind condition to be completely repeatable across tests. (This is an updated version of the MAE111-WND-A generator which is available upon special request.)

MAE112-WND-A	Lab Wind Generator with digital controller	\$4950.00
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## Training and services

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### Onsite training for MAE products

MAE Onsite Training	\$1,200.00/day + Travel
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### Micro Speaker Parameterization

Parameterization of speakers 20mm or smaller. The parameterization process provides an Ares proprietary parameterization file that can be loaded into the Modeler's speaker element . These parameters capture all of the

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internal behavior of the speaker, including higher order diaphragm modes and internal volumes. Moving coil, balanced armature (i.e. single port hearing aid speakers), and peizo electric speaker elements can be parameterized. The Thiele-Small parameters will also be provided for moving coil speakers.

Micro Speaker Parameterization

\$250.00