

# Model CAACS

## Commercial automated accelerometer calibration system

The Endevco® Commercial Automated Accelerometer Calibration System (CAACS) provides NIST traceable calibration of most accelerometer types, whether self-generating piezoelectric or accelerometers requiring current or voltage excitation. The output of the test accelerometer can be charge or voltage, signal-ended or differential, AC or DC-coupled, isolated or grounded.

The CAACS controls up to four excitation sources, such as the pneumatically driven exciter for shock measurements, and the high frequency or low frequency shaker for vibration measurements.

Test configurations and test data are stored and managed using Microsoft® Access database. Tests may be automatically set up by recalling a particular test definition file which is specific to each transducer model.

No operator adjustments are required for the particular gain, grounding, vibration levels, etc. Computer control helps eliminate operator error, enhances repeatability and ensures optimum signal-to-noise ratio and calibration accuracy.

### Features

- > Shock calibration 20 g to 10,000 g
- > Vibration calibration 0.5 Hz to 40 kHz
- > Calibration certificates may be customized by user
- > Compliance with ANSI/NCSL Z540-1-1994 and ISO 9000
- > Electrical self-calibration – save on annual calibration cost
- > Calibration in accordance with ISO/IEC 17025-2005 (A2LA)
- > All calibrations traceable to The National Institute of Standards and Technology (NIST)
- > Calibration of different type of transducers: Piezoelectric, IEPE, Piezoresistive, Capacitive, Servo



#### Note

Endevco model 2924/2924A long-stroke, low frequency shaker also available (optional).

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## Specifications

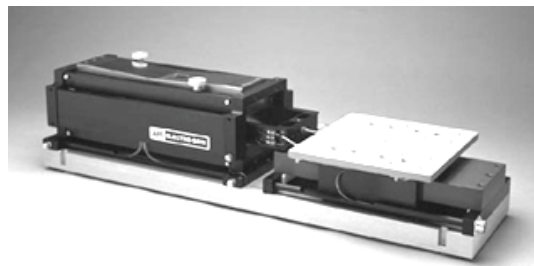
Frequency range	2 Hz – 40 kHz with model 2911 high frequency shaker 0.5 Hz – 160 Hz with optional model 2924/2924A low frequency shaker
Typical measurement uncertainty	Direct traceability to NIST using Endevco shakers 1.5% (1 Hz to < 100 Hz) 1.2% (100 Hz to 2.5 kHz) 2.5% (> 2.5 kHz to 10 kHz) 5% (> 10 kHz to 20 kHz)
Acceleration levels	0.5 to 20 g
Calibration method	Back-to-back comparison per ISO 16063-21
Measurements	Sensitivity, amplitude, phase, bias, resonance, linearity, shock, ZMO, resistance, capacitance
Accelerometers supported	Piezoelectric, IEPE, Piezoresistive, Variable Capacitance, Voltage, Servo
TEDS sensor support	IEEE P1451.4
Excitation type	Stepped sine
Calibration data management	Yes
Automatic pass/fail classification	Yes
Main voltage supply	115 volts – optional 220 volts
Shaker type	Air-bearing with beryllium armature
Built-in Reference accelerometer	Model 2270M18
Test sensor mounting hole	1/4-28 UNF (10-32 UNF, 6-32 UNC, 2-56 UNC adapters)

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## Available exciters



The **Endevco® model 2911** is an air-bearing shaker with beryllium armature designed specifically for precise measurements of sensitivity and frequency response from 2 Hz to 40 kHz.



The **Endevco® model 2924** long-stroke low frequency comparison vibration shaker supports the need for high accuracy measurement at frequencies from <1 Hz to 160 Hz.



The **Endevco® model 2925** POP provides an accurate and controlled means of shock sensitivity calibration of accelerometers by using the model 2270, a back-to-back comparison calibration standard accelerometer. Calibrations are performed at accelerations from 10 g to well above 10 000 g at half-sine pulse durations from 3 ms to 100  $\mu$ s. The system can be used manually in a stand-alone mode, or in a fully computer controlled mode.

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## Warranty & service plans

The CAACS is sold with a one year warranty. Service plans are available for continued support after the initial product warranty expiration. With loaner equipment options and special access to the CAACS technical support team, the plans offer a known cost of ownership and a means of accurately budgeting support requirements, ensuring that any technical issues with the system can receive immediate troubleshooting, and be back up and running with minimal downtime. For more details refer to “CAACS Service Plans” datasheet.

## Other accelerometer calibration equipment



### Portable accelerometer calibrator 28959g

- » NIST traceable calibration for PE, IEPE, DIFFPE, PR and VC accelerometers
- » User-controlled and customized calibration printout format
- » PC remote control for all testing parameters, via wireless interface
- » Automatic frequency calibration sweep
- » Frequency range 7 Hz to 10 kHz
- » User customizable DIN input connector scheme to allow interface with any style connector
- » Calibration data stored internally and transferred via USB memory stick
- » Raw calibration data available in Excel spreadsheet format
- » Automatic power off to save battery life after 10 minutes of non-use, manual override for longer test requirements
- » Internal storage and recall for most Endevco datasheets
- » Field replaceable battery
- » Touch screen test setup and control

### Handheld accelerometer simulator 4830B

- » Battery operated, portable accelerometer simulator
- » Simplifies troubleshooting, verification and calibration processes for test systems
- »  $\pm 1\%$  accuracies for simulated signals: single-ended PE, differential PE, IEPE and voltage levels
- » Frequency response 1 Hz to 20 kHz
- » TTL compatible tachometer output for tracking filter center frequencies
- » 40 custom simulated profiles can be configured and stored



### Handheld accelerometer calibrator REF 2520R

- » 1g vibration reference source with peak or RMS g output
- » Verify and adjust entire systems from accelerometer to data acquisition
- » 3 frequency set points: 61.4 Hz, 100 Hz and 159.2 Hz
- » 4 AA battery life; 40 hour life
- » Test vibration accelerometer load up to 250 grams

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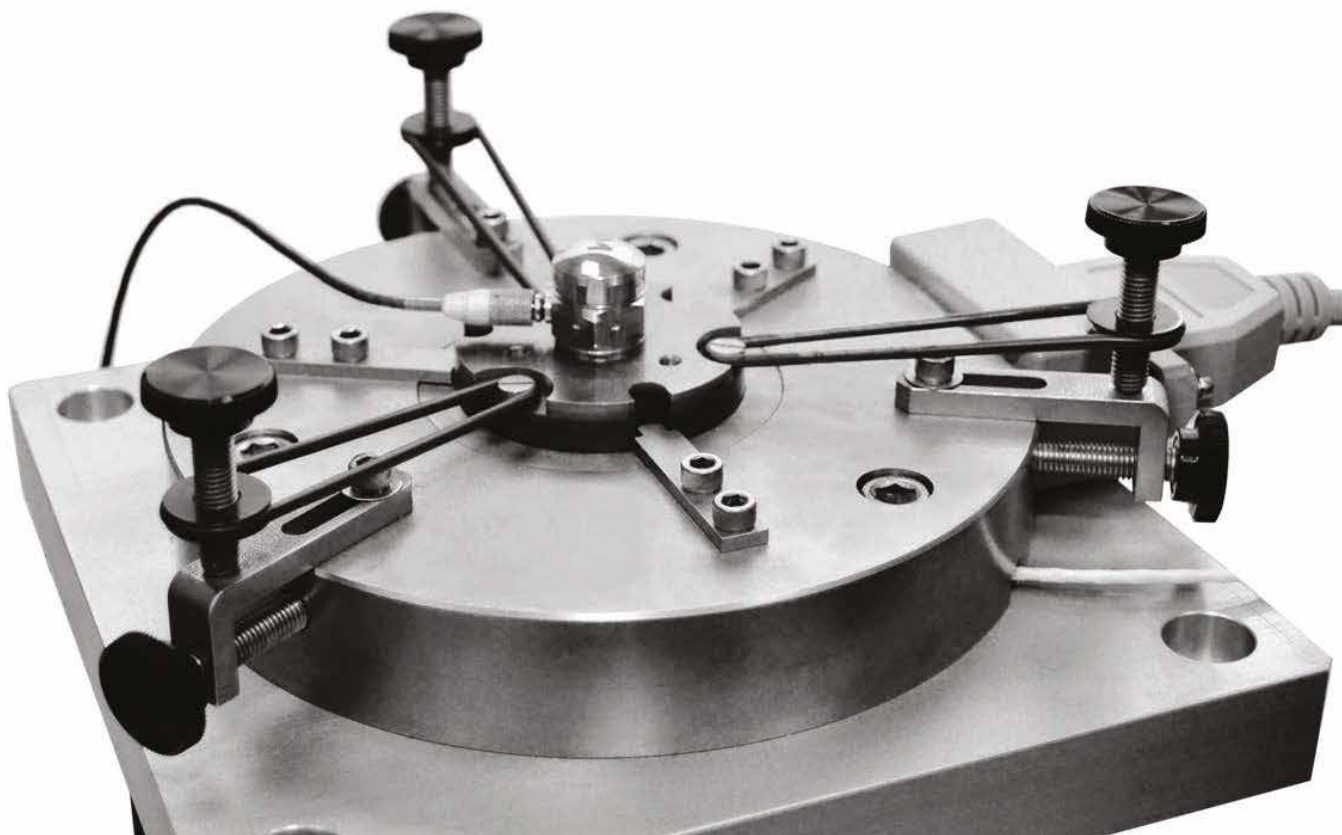
## Calibration services

Annual calibration is recommended for accelerometers and their associated instrumentation to ensure the continued accuracy of your dynamic measurements. Endeveco offers complete calibration services to regularly calibrate sensors and maintain a high level of precision and accuracy. Many types of calibrations are available, including absolute vibration calibration for the lowest uncertainty, as well as comparison techniques for shock and vibration. Endeveco can also perform customized calibrations including environmental calibrations to verify amplitude linearity or frequency, or high shock impact testing. Our calibration team is committed to providing the most accurate calibrations available with conformance to the National Metrology Institute (NMI: NIST, PTB, etc.). All calibration services are A2LA accredited.

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## Traceability and accreditation

Accelerometer calibrations are conducted in our A2LA accredited laboratory. The methods used are in accordance with ANSI/NCSL Z540-1-1994 and ISO/IEC 17025-2005. Traceability to the National Metrology Institute (NMI: NIST, PTB, etc.) is shown as required by military quality control standards.



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