Model CAACS
Commercial Automated Accelerometer Calibration System

Features
- Vibration calibration 0.5 Hz to 40 kHz
- Shock calibration 20 g to 10,000 g
- Calibration of different type of transducers, PE, IEPE, PR, VC, Servo, Velocity
- Calibration certificates may be customized by user
- Electrical self-calibration
- Compliance with ANSI/NCSL Z540-1-1994 and ISO 9000
- All calibrations performed are traceable to The National Institute of Standards and Technology (NIST)

Description
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 Commercial Automated Accelerometer Calibration System 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.

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]

Calibration method
Back-to-back comparison per ISO 16063-21

Measurements
Sensitivity, amplitude, phase, bias, resonance, linearity, shock, ZMO, resistance, capacitance

Accelerometers and sensors supported
Piezoelectric, IEPE, Piezoresistive, Variable Capacitance, Voltage, Servo, Acceleration, Velocity

TEDS sensor support
IEEE P1451.4

Excitation type
Stepped sine

Acceleration levels
0.5 to 20 g

Calibration data management
Yes

Automatic pass/fail classification
Yes

Measurement units
English, metric

Main voltage supply
115 volts – optional 220 volts

Shaker type
Air-bearing

Reference accelerometer
2270M18

Type
IEPE

Sensitivity
20 mV/g

Frequency range
2 Hz to 40 kHz

Resonance frequency
>45 kHz

Test sensor mounting hole
1/4-28 UNF (10-32 UNF, 6-32 UNC, 2-56 UNC adapters),

Armature
Beryllium
The Endevco® model 2911 shaker is designed specifically for demanding requirements of comparison accelerometer calibration.

The internal quartz design 2270M18 reference accelerometer built in the beryllium alloy armature is the most stable design over time, temperature and frequency and a resonance frequency far above the armature resonance.

The 2911 performs 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 signal-to-noise ratio at low frequencies, by generating larger accelerations at low frequencies. Frequency response from <1 Hz to 160 Hz.

The Endevco® model 2925 POP provides an accurate a controlled means of shock sensitivity calibration of accelerometers. The POP is designed to be used with the model 2270 family of back-to-back comparison calibration standard accelerometers.

Calibrations are performed at accelerations from 10 g to well above 10 000 g at half-sine pulse durations from 3 ms to 100 µs.

The system can be used manually in a stand-alone mode, or in a fully computer controlled mode.
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Screens and certificates

User customized reports and certificates

Sweep screen

Typical sweep certificate

Shock screen

Typical shock certificate
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Ordering information

P/N: CAACS-XX-Y-ZZ
CAACS must be sold with X and/or Y option to be a complete system

Configurations:

XX—Vibration option

00 - No vibration package

Standard (S) comes with power amplifier 120 V, 60 Hz
S0 - Vibration calibration module without shaker (standard, 120 V)
S1 - 2911 (high freq)
S2 - 2924/2924A (low freq)
S3 - Both 2911 (high freq) and 2924/2924A (low freq)

Euro / Asia (V) comes with power amplifier 230 V, 50 Hz
V0 - Vibration calibration module without shaker
V1 - 2911 (high freq)
V2 - 2924/2924A (low freq)
V3 - Both 2911 (high freq) and 2924/2924A (low freq)

Y—Shock option

0 - No shock package
1 - N/A
2 - 2925, POP

ZZ

Service plan option

0 - No service plan
1 - Basic maintenance for 1 year
2 - Basic maintenance for 2 years
3 - Basic maintenance for 3 years
4 - Premium maintenance for 1 year
5 - Premium maintenance for 2 years
6 - Premium maintenance for 3 years

Domestic or International

0 - No service plan
S - U.S. customer
V - International customer
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Warranty
The CAACS is sold with a one year warranty.

Service plans
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.