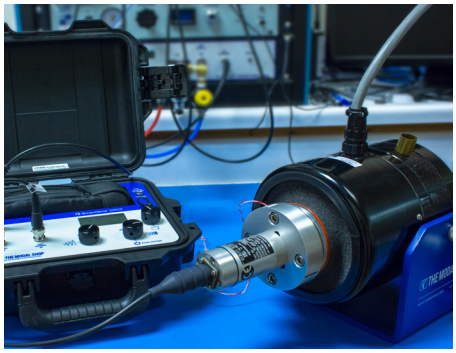
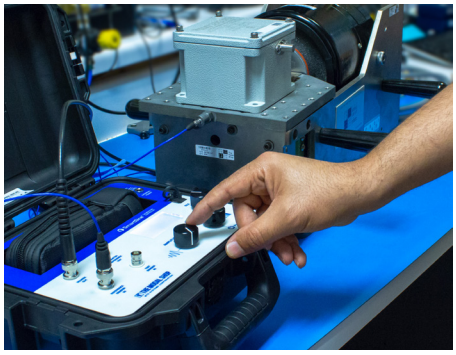
THE MODAL SHOP
AN MTS COMPANY





MODEL **9000A**

SMARTSINE™ CALIBRATION DRIVER

- Acceleration, velocity, displacement, and acoustic readout units
- Battery-powered unit is self-contained solution
- Compact and integrated sinusoidal source, ICP inputs, and meter system
- Offers sinusoidal calibration closed loop control over a 0.5 Hz to 20 kHz frequency range
- Portable by design with heavy duty case

TYPICAL APPLICATIONS

- Accelerometer or velocity sensor calibration
- Large sensor verification (Geophones, Vibration Switches, Seismoprobes, etc.)
- Acoustic calibration: drive acoustic couplers for “back-to-back” calibration of array microphones
- Testing of Electronic devices with embedded vibration measurement capability

DRIVE SHAKERS & CREATE CALIBRATION CERTIFICATES

The SmartSine™ Calibration Driver Model 9000A is a battery-powered sinusoidal signal source used to drive shaker systems to predefined vibration levels and frequencies to calibrate individual sensors, vibration switches and data collectors. The 9000A can also be used to drive an acoustic coupler for calibration of array microphones.

Model 9000A offers two sensor input channels and one output channel. The output channel provides signal input to drive shaker systems and other excitation sources over a wide amplitude and adjustable frequency range. Built-in CALROUTE functionality adds semi-automation capability with pre-programmed frequency and amplitude points using Microsoft Excel®.

The 9000A displays test sensor sensitivity on the readout screen in real-time by comparing output against a known reference sensor. Both channels feature ICP® (IEPE) inputs for common piezoelectric accelerometer and microphone signal conditioning. In addition, users can save up to 500 calibration records directly to the unit’s internal memory. Records are transferable via the unit’s USB port to a flash drive and imported as an Excel spreadsheet, allowing the creation of ISO 17025-compliant customizable calibration certificates on a computer.

CE

SPECIFICATIONS

Performance	
Test Sensor In	
Sensor Type	Voltage or ICP® (IEPE) [1]
Input Voltage (Max)	5 V pk [2]
Reference Sensor In	
Sensor Type	ICP® (IEPE) [1] ONLY
Input Voltage (Max)	1 V pk [2]
Reference Sensitivity	Single point or curve (up to 60 points)
Bias Fault Indication (ICP® Sensors)	Yes
Source Out	Sine wave form of 1 V RMS amplitude Max [3]
Monitor Reference Out	Buffered reference output
Electrical Connector (Input/Output)	BNC Jack
Operating Range [4]	0.5 Hz–20 kHz (30–1200k CPM)
Units of Readout	
Acceleration (pk and RMS)	[g], [m/s^2]
Velocity (pk and RMS)	[in/s], [mm/s]
Displacement (pk to pk)	[mils], [µm]
Sound Pressure Level [5]	[dB]
Frequency	Hz, (CPM)
Test Sensor Sensitivity	mV/EU [6]
Shaker Displacement Limit Setting (Max) [7]	10 in pk-pk (254 mm pk-pk)
Storage	Up to 500 calibration records
Points Per Record	30 calibration data points
Sensor Information	Model number, serial number, mounting orientation (x, y, z), and user notes
Export File Format	Export calibration records to USB flash drive (FAT 32) in CSV (comma-separated values) format
AC Power (for recharging battery)	110 V–240 V, 50 Hz–60 Hz
Input Power Rating from Charger	18 VDC, 1 A
Internal Battery (Li-ion)	11.1 VDC, 2200 mAh
Operating Battery Life [8]	16 hours
Physical	
Dimensions (H x W x D)	4.7 x 9.8 x 11.8 in (12 x 25 x 30 cm)
Weight	7.8 lb (3.56 kg)
Operating Temperature	32 °F to 122 °F (0 °C to 50 °C)

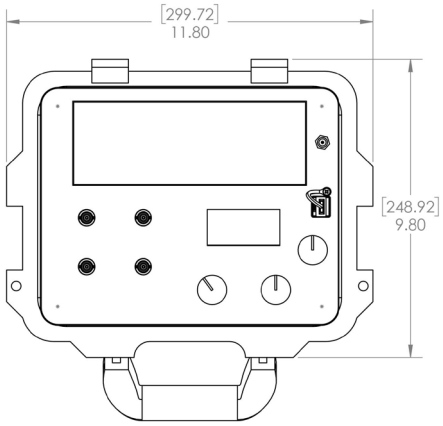
[1] 5 mA constant current excitation to ICP® (IEPE) reference sensor
[2] Recommended SUT voltage > 20 mV pk; REF voltage > 4 mV pk
[3] 50 Ω output impedance
[4] Or limited to frequency range of reference sensitivity curve input
[5] Reference 20 µPa
[6] EU: [g], [m/s^2], [in/s], [mm/s], [mils], [µm], or [Pa] for acoustics
[7] Actual Max. amplitude may be limited by exciter specifications and amplifier gain
[8] As shipped from factory in new condition

Supplied Accessories [8]
Accessory Pouch Containing:
USB Flash Drive with Calibration Report Generation Worksheet
Universal Power Supply (Power Charger) with interchangeable plug adaptors

Ref Sensitivity	Vibration					
(mV/g)	g pk	in/s pk	mils pk-pk	m/s^2 pk	mm/s pk	µm pk-pk
10	100	61.45	195.59	981	1561	4968
100	10	6.14	19.56	98	156	497

Ref Sensitivity	Sound Pressure Level
(mV/Pa)	dB [5]
12.5	130
50	115

Maximum Testing Amplitudes



Model 9000A
Technical Drawing
Dimensions in inches [mm]

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The Modal Shop, Inc. offers structural vibration and acoustic sensing systems and services for various applications in design and test laboratories as well as manufacturing plants. An extensive sound and vibration rental program, precision calibration systems, and both modal and vibration shakers are designed to simplify test phases. Non Destructive Testing Systems help manufacturers provide 100% quality inspection of metal components. The Modal Shop, Inc. is a subsidiary of PCB Piezotronics, Inc., and PCB® is a wholly owned subsidiary of MTS Systems Corporation.

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