



MODEL 9100D

PORTABLE SHAKER TABLE

- Confirm Critical Vibration Shutdown Alarms & Logic
- Detect Sensor Drift & Amplified Outputs at Key Frequencies
- Prevent Early or Late Shutdowns Due to Proximity Probe Errors
- Compliance to API 670 & ISO 9001
- Reduce Replacement Instrumentation Costs
- Protect Against Catastrophic Failures
- Validate Channel Setup Prior to Critical Tests

TYPICAL APPLICATIONS

- 4-20 mA Loop Velocity Vibration Transmitters
- Proximity Probe Testing and Checks for Mismatched Systems
- Moving Coil Vibration Sensors
- Condition Monitoring System, Process Control, DCS, and SCADA
- Portable Vibration Meters and Analyzers

VIBRATION FIELD TESTING

The 9100D Portable Shaker Table is the ideal tool to field check accelerometers, velocity transducers and proximity probes over a wide operating frequency and amplitude range. The unit is a small, self-contained vibration reference source, used to validate the entire channel of transducers through measurement, monitoring, or recording systems.

With an integral, precision quartz reference accelerometer, the shaker table is built with robust carbon fiber composite armature flexure supports, capable of simulating vibration on payloads up to 800 grams. The unit allows calibrations over a frequency range of 5 Hz to 10 kHz, and closed-loop level control makes the shaker much easier to use than other portable field calibrators. Direct BNC connection to the reference accelerometer allows users to check the integrity of the shaker and reference. The device is supplied with an A2LA accredited calibration certificate.

New CALROUTE firmware allows technicians to program repetitive test points such as alert and shutdown thresholds at machine running speed. Once programmed via supplied Microsoft Excel® CALROUTE Generation Workbook, the Instrumentation and Controls personnel can test system linearity, accuracy, and shutdown logic in seconds. No additional software is needed.

The Model 9100D mechanically simulates vibration in acceleration, velocity, and displacement in both English and metric scales, running on battery power for up to 18 hours. Vibration is controlled via the internal reference accelerometer, eliminating the need for technicians to manually enter the payload of the sensor under test.

SPECIFICATIONS		
Performance		
Frequency Range (operating) ^[1]	5 Hz to 10 kHz	300 to 600k CPM
Maximum Amplitude (50 Hz, 10-gram payload)	20 g pk	196 m/s ² pk
	20 in/s pk	500 mm/s pk
	150 mils pk-pk	3.8 mm pk-pk
Maximum Amplitude (50 Hz, 500-gram payload)	2.5 g pk	24.5 m/s ² pk
	3.5 in/s pk	90 mm/s pk
Maximum Payload ^[2]	800 grams	
Test Operation	Manual (Closed Loop) or Semi-Automatic	
Auto-Payload Calculation	Controlled via Reference Accelerometer, No User Entry Required	
Memory	Stores Semi-Automated Test Routine	
Non-Volatile Memory	Storage of Calibration Settings for Accuracy	
Programmability	Up to 30 Test Points per Routine	
Accuracy of Readout ^[3]		
Acceleration (10 Hz to 10 kHz)	±3 % ^[4]	
Acceleration (5 Hz to 10 Hz)	±5 % ^[4]	
Velocity (10 Hz to 1000 Hz)	±3 %	
Displacement (30 Hz to 150 Hz)	±3 %	
Amplitude Linearity (100 Hz) ^[1]	< 1 % up to 10 g pk	
Waveform Distortion (30 Hz to 2 kHz) ^[1]	< 5 % THD (typical) up to 5 g pk	
Accuracy Verification Test	Field Drift Test Procedure Provided ^[5]	
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
Frequency	Hz	CPM
Physical		
Internal Battery (sealed solid gel lead acid)	12 VDC, 4 amp hours	
AC Power (for recharging battery)	110–240 VAC, 50–60 Hz	
Input Power Rating from charger	18 Volts DC, 1 A	
Operating Battery Life ^[6]		
100 Hz, 1 g pk ^[1]	18 hours	
100 Hz, 10 g pk ^[1]	1 hour	
External Source In (max)	1 VAC RMS	
Monitor Reference Out	10 mV/g (nominal) Quartz Reference Accelerometer, BNC Jack Output	
USB Port	Used for Loading Semi-Automated Test Routines (Model CALROUTE) & provides power for external power supplies	
Dimensions (H x W x D)	8.5 x 12 x 10 in	22 x 30.5 x 28 cm
Weight	18 lb	8.2 kg
Operating Temperature	32 °F–122 °F	0 °C–50 °C
Sensor Mounting Platform	¼-28 Thread Size	

Supplied Accessories ^[7]	
081B20	¼-28 to ¼-28 Adaptor
081A08	10-32 to ¼-28 Adaptor
9100-CAL01	NIST Traceable Certificate of Calibration, Accredited to ISO 17025 by A2LA
M081A63	M8 x 1.25 M to ¼-28 M Mounting Stud
PVC-MNT01	M8 x 1.25 F Thru Hole Mounting Pad
PVC-HTMNT01	Mounting Plate, 3- & 4-Hole High-Temp Vibration Sensors ^[9]
PVC-HTMNT02	Mounting Plate, 3- & 4-Hole High-Temp Vibration Sensors ^[9]
CALROUTE	USB Flash Memory Drive: Loaded with CALROUTE Workbook
Quickstart Guide	Available in English, Chinese, Japanese, Polish, & Russian
Warranty	2 Years, Inclusive of Drift/Accuracy
Technical Support	Training Webinars Available Upon Request, 24/7 Video Library
Optional Accessories ^[7]	
9100-PPASH	Proximity probe adaptor kit for testing probes mounted inside a probe holder
9100-PPA01	Proximity probe adaptor kit for probes with 5 mm or 8 mm tip diameter ^[8]
9155-MNT93	½-20 F to ¼-28 F Mounting Pad
9155-MNT43	¼" NPT F Mounting Adaptor to ¼-28 M
9155-MNT73	3/8-24 M to ¼-28 M Mounting Stud
9100-PS02	24 VDC Power Supply for testing 4-20 mA Loop-Powered Vibration Transmitters, Non-ICP 24 VDC Velocity Sensors & Modulated Current Output Vibration Sensors and Charge Amplifiers. USB Powered.
9100-PS02-CBL01	3-socket MIL cable used with 9100-PS02 for testing GE/Bently Nevada® 3-pin MIL case mounted vibration sensors. Spade Lug terminations & BNC output for signal.
9100-PS04-TM	5 VDC Power Supply for testing GE/Bently Nevada® Trendmaster® Vibration Sensors. USB powered. Integral 5-pin Mating Cable.
9100-PS07-PT	15 VDC Power Supply for Testing Pruftechnik CLD Vibration Sensors
9100-TRAINING	On-Site Seminars Available Upon Request

Meets API 670 requirements for all required test points in acceleration or velocity from 10 Hz to 1000 Hz & payloads to 800 grams.

- [1] 100-gram payload
 [2] Operating range reduced at higher payloads. Reference manual for full details.
 [3] Measured with 10-gram quartz reference accelerometer
 [4] Calculated by measuring the % difference between the known sensitivity of a reference accelerometer as calibrated by laser primary system per ISO 16063-11 and the measured sensitivity of same reference accelerometer when tested at the same points
 [5] Test is conducted independently of product firmware with calibrated voltmeter.
 [6] As shipped from factory in new condition
 [7] For a comprehensive list of available accessories, see Product Spec Sheet or call
 [8] For metric unit micrometer, use Model 9100-MPPA01
 [9] Mounting plates support sensors listed. Multi-hole mounting plates are convenient but not optimized for the best calibration results. The Modal Shop offers a full line of customized mounting pads validated in our calibration lab for precise results. Contact us for more information.
- B&K:** 8324
Bently Nevada: 330450, 330750, 350900
CEC: 4-123, 4-125, 4-126, 4-128, 4-130, 4-137, 4-138, 4-170, 4-171
Dytran: 3085C and 3235 series
Endevco: 6233C, 6222M, 6222S, and 6240 Series
- Metrix:** 5485C, SA6350
PCB Piezotronics: 357 & EX600B series, EX615A42 and EX619A11
Vibro-Meter: CA 134, CE 134, CA 202, CA 280, CE 281, CA 303, CA 306, CE 311



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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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