

Model Number
9110F

PORTABLE VIBRATION CALIBRATOR

Revision: D
ECN#:

GENERAL

Frequency Range (operating) ⁽¹⁾	5 Hz–10 KHz	300–600k CPM
Maximum Amplitude (50 Hz, 10-gram payload)	20 g pk 20 in/s pk 150 mils pk-pk	196 m/s ² pk 500 mm/s pk 3.8 mm pk-pk
Maximum Amplitude (50 Hz, 500-gram payload)	2.5 g pk 3.5 in/s pk 800 grams	24.5 m/s ² pk 90 mm/s pk
Test Operation Auto-Payload Calculation	Manual (Closed Loop) or Semi-Automatic Controlled via Reference Accelerometer, No User Entry Required	
Memory	Stores 500 Calibration Records Stores 30 Data Points per Calibration Record Stores Model Number, Serial Number, Mounting Orientation & Notes for each Record Storage of Calibration Settings for Accuracy	
Non-Volatile Memory	Up to 30 Test Points per Routine with Pass/Fail Upper & Lower Bound Tolerances, Flexible Pass/Fail Based Upon Deviation from Sensitivity at Reference Frequency or Hard Values and Supports Asymmetric Tolerances.	
Programmability		

PHYSICAL

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	1/2-28 Thread Size	
Internal Battery (sealed solid gel lead acid)	12 VDC, 4 amp-hours, commercially available	
AC Power (for recharging battery)	110–240 VAC, 50–60 Hz	
Input Power Rating from Charger	18 VDC, 1 A	
Battery Life ⁽³⁾ - 100 Hz, 1 g pk ⁽¹⁾	18 hours	
Battery Life ⁽³⁾ - 100 Hz, 10 g pk ⁽¹⁾	1 hour	

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
Sensor Under Test Sensitivity	m/VEU, mA/EU, µA/EU, or pC/EU	
Pass/Fail Notification	After Each Test Point (CALROUTE Mode)	

ACCURACY OF READOUT ⁽⁴⁾

Acceleration (10 Hz to 10 KHz)	± 3% ⁽⁵⁾
Acceleration (5 Hz to 10 Hz)	± 5% ⁽⁵⁾
Velocity (10 Hz to 10 KHz)	± 3%
Velocity (5 Hz to 10 Hz)	± 5%
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	Independent of Product Firmware, Utilizes Internal Quartz Reference Accelerometer, Performed On-Site, Procedure Provided, Recommended but not Required After Battery Replacement
Factory Calibration Accuracy Stability	Survives Loss of Power, Battery Replacement
Measurement Uncertainty (100 Hz, Accelerometer and Velocimeter)	1.25%

INPUT/OUTPUT

Sensor Under Test Input	ICP [®] Voltage, Modulated Current, Single-ended Charge ⁽⁶⁾ , Differential Charge ⁽⁶⁾ Yes
Bias Fault Indication (ICP [®])	
Monitor Reference Out	10 mV/g (nominal) Quartz Reference Accelerometer, BNC Jack Output
USB Port	Export Calibration Records to Flash Drive Used for Loading Semi-Automated Test Routines (Model CALROUTE) ⁽⁷⁾ Or Direct computer control through SCPI CSV (comma-separated values)
Export File Format	

CALIBRATION REPORT GENERATION WORKBOOK

Certificates Generated Via 9110F Memory: Frequency Response & Linearity for AC Voltage Output Transducers such as Accelerometers, Proximity Probes, Moving Coil Vibration Sensors, and Dynamic Velocity Sensors.
Certificates Generated Via User-Input: Vibration Analyzer/Meter Linearity & Frequency Response Accuracy, Linearity for 4-20 mA Vibration Transmitters, Proximity Probe Curves (Gap vs. DC Voltage)

All specifications are at room temperature unless otherwise specified.
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In the interest of constant product improvement, specifications may change without notice.



Project Engineer:	Product Manager:	SAM Team Leader:	Spec Number:
	MS		PS-0155
Date:	Date: 11/27/23	Date:	Page 1 of 2



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SAM-F020 revB 05/17/18

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SUPPLIED ACCESSORIES

Mounting Wrench **Model PD-1320-01**
 Power Supply and Plug Adaptors **Model 9100-PS01**
 1/4-28 to 1/4-28 Mounting Stud **Model 081B20**
 10-32 to 1/4-28 Mounting Stud **Model 081A08**
 M8 x 1.25 M to 1/4-28 M & F Mounting Stud/Pad **Model M081A63/ PVC-MNT01**
 M8 x 1 M to 1/4-28 M & F Mounting Stud/Pad **Model 081M165/ Model PVC-MNT02**
 Mounting Plate, 3- & 4-Hole High-Temp Vibration Sensors ^(R) **Model PVC-HTMNT01/02**
 NIST Traceable Certificate of Calibration, Metric & English Units, Accredited to ISO 17025 by A2LA, 18-point Certificate of Calibration, Published Uncertainties on www.a2la.org, Reference Accelerometer Calibrated via ISO 16063-11 Laser Primary Method **Model 9100-CAL01**
 USB Flash Memory Drive: Loaded with Microsoft Excel[®] Macro-Enabled Calibration Report Generation & CALROUTE Semi-Automated Test Programming Workbook **Model 9110-USB**
 Warranty: 2 Years, Inclusive of Drift/Accuracy

Differential DC Voltage Power Supply for Honeywell 7310 & 8866-1 Velociometers, Mating Connector Included **Model 9100-PS06**
 DC Voltage Power Supply for 3-wire, 9 VDC Sensors, Wilcoxon 991D & Similar, Mating Connector Included **Model 9100-PS09**
 DC Voltage Power Supply for Modulated Current and Loop-Powered, 24 VDC Sensors, **Model 9100-PS02**
 Single Axis ICP[®] & Charge Mode Accelerometer Mating Cable, 10-32 to BNC, **Model 003C03**
 Triaxial ICP[®] Accelerometer Mating Cable, 4-socket Bendix to Three Labeled BNC, **Model 9100-CBL01**
 Moving Coil Velocity Sensor Mating Cable, 7/16 2-pin MILL to BNC for CEC Series 4-128 & Similar, **Model 045ET005AC**
 Triaxial ICP[®] Accelerometer Mating Cable, Glenair 800-006-06Z16-4SX to Three Labeled BNC, **Model 9100-CBL02**
 Biaxial ICP[®] Accelerometer Mating Cable, Glenair 257-132-3S to Two Labeled BNC, **Model 9100-CBL03**
 Engine Accelerometer Mating Cable, 3-socket threaded MILL to BNC, **Model 9100-CBL07**
 Adhesive Mounting Target, **Model 9155-MNT07**
 Right-Angle Triaxial Mounting Block and Support Shim, **Model 9100-MNT03**
 USB to USB Communication Cable, **Model 9100-USB00**
 Accuracy Verification Accelerometer with ISO 17025 Accredited Frequency Sweep Calibration Certificate, **Model 353B03**
 Quick Start Guide: English, Chinese, Polish, Japanese, Russian, French, or German

OPTIONAL ACCESSORIES

PROXIMITY PROBE CALIBRATION

Proximity probe adaptor kit for probes with 5 mm or 8 mm tip diameter. Includes Mitutoyo micrometer scaled in mils and 4140 steel calibration target.
Model 9100-PPA01
 Proximity probe adaptor kit for probes with 5 mm or 8 mm tip diameter. Includes Mitutoyo micrometer scaled in microns and 4140 steel calibration target.
Model 9100-MPPA01
 Proximity probe adaptor kit for probes with 11 mm tip diameter. **Model 9100-PPA05**
 Proximity probe adaptor kit for testing probes mounted inside a probe holder. Includes digital micrometer scaled in mils or microns. Fine adjustment via positional micrometer.
Model 9100-PPASH

MOUNTING

1/2-20 F to 1/4-28 F Mounting Pad **Model 9155-MNT93**
 1/2" NPT F Mounting Adaptor to 1/4-28 M **Model 9155-MNT43**
 3/8-24 M to 1/4-28 M Mounting Stud **Model 9155-MNT73**

TRAINING

On-Site Seminars Available Upon Request **Model 9100-TRAINING**

NOTES:

- [1] 100-gram payload.
- [2] Operating range reduced at higher payloads. Reference manual for full details.
- [3] As shipped from factory in new condition.
- [4] Measured with 10-gram quartz reference accelerometer.
- [5] 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
- [6] Low operating frequency limit is 10 Hz.
- [7] And provides power for optional external power supplies.
- [8] 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.

R&K: 8324.

Bentley 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

Matrix: 5485C, 5A6350

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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