

Model Number

C9110D

PORTABLE VIBRATION CALIBRATOR

Revision: NR

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	24.5 m/s ² 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 500 Calibration Records Stores 30 Data Points per Calibration Record Stores Model Number, Serial Number, Mounting Orientation & Notes for each Record	
Non-Volatile Memory	Storage of Calibration Settings for Accuracy Stores Semi-Automated Test Routine	
Programmability	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.	

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	¼-28 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	mV/EU, mA/EU, µA/EU, or pC/EU	
Pass/Fail Notification	After Each Test Point (CALROUTE Mode)	

All specifications are at room temperature unless otherwise specified.
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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

INPUT/OUTPUT

Sensor Under Test Input	ICP [®] , Voltage, Modulated Current ^[6] , Single-ended Charge ^[7] , Differential Charge ^[7]
Bias Fault Indication (ICP [®])	Yes
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) ^[8]
Export File Format	CSV (comma-separated values)

CALIBRATION REPORT GENERATION WORKBOOK

Certificates Generated Via C9110D 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)

Project Engineer:

NMA

Product Manager:

MRS

SAM Team Leader:

Spec Number:

PS-0159

Date: 6/10/20

Date: 6/10/20

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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 [9] 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 Charge Sensor Mating Cable, 7/16 2-pin MIL to BNC, Model 045ET005AC
- Quick Start Guide: English, Chinese, Polish, Japanese, Russian, French, or German

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] Requires external power supply.
 - [7] Integral charge amp low operating frequency limit is 10 Hz.
 - [8] And provides power for optional external power supplies.
 - [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

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
- 1/4" 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
- Adhesive Mounting Target, Model 9155-MNT07
- Right-Angle Triaxial Mounting Block and Support Shim, Model 9100-MNT03

POWER & CABLING

- 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
- Differential DC Voltage Power Supply for Honeywell 7310 & 8866-1 Velocimeters, Mating Connector Included Model 9100-PS06
- Triaxial ICP® Accelerometer Mating Cable, 4-socket Bendix to Three Labeled BNC, Model 9100-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. Model 9100-PS02-CBL01
- 15 VDC Power Supply for Testing Pruftechnik CLD Vibration Sensors & Other Modulated Current Sensors with Same Power Scheme. USB Powered. TNC Input. Plug & Play. BNC Output. Model 9100-PS07-PT

TRAINING

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

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Product Manager:

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SAM Team Leader:

[Signature]

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