

Model Number  
**C9110D-T**

# PORTABLE VIBRATION CALIBRATOR

Revision: **A**  
ECN#:

## GENERAL

Frequency Range (operating) <sup>(1)</sup>	5 Hz-10 kHz
Maximum Amplitude (50 Hz, 10-gram payload)	20 g pk 20 in/s pk 150 mils pk-pk 2.5 g pk 3.5 in/s pk
Maximum Amplitude (50 Hz, 500-gram payload)	300-500k CPM 196 m/s <sup>2</sup> pk 500 mm/s pk 3.8 mm pk-pk 24.5 m/s <sup>2</sup> pk 90 mm/s pk
Maximum Payload <sup>(2)</sup>	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 Stores Semi-Automated Test Routine
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
Weight	18 lb 22 x 30.5 x 28 cm 8.2 kg
Operating Temperature	32 °F-122 °F 0 °C-50 °C
Sensor Mounting Platform	1/4-28 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 <sup>(3)</sup> - 100 Hz, 1 g pk <sup>(1)</sup>	18 hours
Battery Life <sup>(3)</sup> - 100 Hz, 10 g pk <sup>(1)</sup>	1 hour

## UNITS OF READOUT

Acceleration (pk and RMS)	g	m/s <sup>2</sup>
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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In the interest of constant product improvement, specifications may change without notice.



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## ACCURACY OF READOUT<sup>(4)</sup>

Acceleration (10 Hz to 10 kHz)	± 3% <sup>(5)</sup>
Acceleration (5 Hz to 10 Hz)	± 5% <sup>(5)</sup>
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) <sup>(1)</sup>	< 1% up to 10 g pk
Waveform Distortion (30 Hz to 2 kHz) <sup>(1)</sup>	< 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 <sup>(6)</sup> , Single-ended Charge <sup>(7)</sup> , Differential Charge <sup>(7)</sup>
Bias Fault Indication (ICP®) Monitor Reference Out	Yes
USB Port	10 mV/g (nominal) Quartz Reference Accelerometer, BNC Jack Output Export Calibration Records to Flash Drive Used for Loading Semi-Automated Test Routines (Model CALROUTE) <sup>(8)</sup>
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:  
**DJB**

Product Manager:  
**MRS**

SAM Team Leader:  
**[Signature]**

Spec Number:  
**PS-0180**

Date: 8/20/24

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## SUPPLIED ACCESSORIES

Mounting Wrench Model PD-1320-01  
Power Supply and Plug Adaptors Model 9100-PS01  
1/2-28 to 3/4-28 Mounting Stud Model 081B20  
10-32 to 1/2-28 Mounting Stud Model 081A08  
5-40 F to 1/2-28 M Mounting Pad Model 9155-MINT05  
10-32 F to 1/2-28 M Mounting Pad Model 9155-MINT06  
Adhesive mounting plate to 1/2-28 M Model 9155-MINT07  
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

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-grain 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.

## 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 1.1 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

3/20 F to 1/2-28 F Mounting Pad Model 9155-MINT93

1/2" NPT F Mounting Adaptor to 1/2-28 M Model 9155-MNT43

3/4-24 M to 1/2-28 M Mounting Stud Model 9155-MINT73

M4 triangular thread pattern 30.2mm diameter circle Model 9155-MNT19

6-32 F to 1/2-28 M Mounting Pad Model 9155-MINT08

8-32 triangular thread pattern 1.20" diameter circle Model 9155-MNT01

6-32 square thread pattern 1.375" diameter circle Model 9155-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

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/Bentley 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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