MODEL 9200D

# Low Frequency Portable Shaker Table

The 9200D Low Frequency Portable Shaker Table is the world's first and only ISO 17025-accredited, NIST-traceable portable shaker table designed for verifying critical vibration instrumentation used to protect slow speed rotating equipment. Until now, technicians were required to remove moving coil velocity sensors, low frequency accelerometers and proximity probes during an outage and send these instruments to a separate lab for calibration. Battery-powered, rugged and portable, the 9200D brings low frequency calibration to the plant floor, allowing users to verify all aspects of their measurement chain and confirm correct operation of critical alarm thresholds.

An internal high-resolution quartz reference accelerometer provides unparalleled accuracy while the rugged carbon fiber composite armature supports heavy payloads. A durable Pelican® Storm Case and long battery life make it ideal for use on the plant floor. Closed-loop control shortens calibration time. The 9200D can be scaled in displacement, velocity or acceleration (metric or English units) with 0.7 Hz to 2 kHz frequency range (42 to 120,000 CPM).

## Benefits:

- Verify alert & alarm settings on vibration monitoring systems protecting slow speed machinery such as turbines used in hydro power plants
- Simulate vibration in velocity, displacement or acceleration scales at actual machine running speeds
- Rugged, lightweight and battery-powered design is ideal for industrial applications
- Confirms entire measurement channel: sensor, cabling, signal conditioning and data acquisition systems
- High payload capability allows for calibration of moving coil velocity transducers
- Proximity probe adaptor kit ensures proper cabling and operation of non-contact displacement sensors

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# SPECIFICATIONS

## General

| | |
|---|---|
| Frequency Range (operating, 100 gram payload) | 0.7 Hz to 2 kHz (42 to 120k CPM) |
| Maximum Amplitude (100 Hz with no payload) | 2 g pk (19.6 m/s² pk)<br>12 in/s pk (305 mm/s pk)<br>200 mils pk-pk (5 mm pk-pk) |
| Maximum Payload[1] | 800 grams |

## Accuracy of Readout (measured with 66 gram quartz reference accelerometer)

| | |
|---|---|
| Acceleration and Velocity (2 Hz to 2 kHz)[2] [5] | ±3% |
| Acceleration and Velocity (0.7 Hz to 2 kHz)[2] [5] | ±10% |
| Displacement (3 Hz to 15 Hz)[3] | ±3% |
| Displacement (1 Hz to 150 Hz)[3] | ±10% |
| Displacement (0.7 Hz to 150 Hz)[3] | ±2 dB |
| Amplitude Linearity (100 gram payload, 100 Hz) | < 1% up to 2 g pk |
| Waveform Distortion (1 Hz to 5 Hz) | Typically < 15% |
| Waveform Distortion (>5 Hz to 20 Hz) | Typically < 10% |
| Waveform Distortion (>20 Hz to 2 kHz) | Typically < 7% |

## Units of Readout

| | |
|---|---|
| Acceleration (peak and RMS) | g, m/s² |
| Velocity (peak and RMS) | in/s, mm/s |
| Displacement (peak to peak) | mils, µm |
| Frequency | Hz, CPM |

## Input/Output

| | |
|---|---|
| External Source In (Max) | 1V AC RMS |
| Monitor Reference Out | 100 mV/g (nominal), buffered internal reference output |

## Power Requirements

| | |
|---|---|
| Internal Battery (sealed solid gel lead acid) | 12 VDC, 4 amp hours |
| AC Power (for recharging battery) | 110-240 Volts, 50–60 Hz |
| Operating Battery Life[4] | |
| 100 gram payload, 100 Hz 1 g pk | 14 hours |
| 100 gram payload, 1 Hz 0.02 g pk | 7 hours |

## Temperature

| | |
|---|---|
| Operating | 32° – 122° F (0° – 50° C) |

## Physical

| | |
|---|---|
| Dimensions (H x W x D) | 8.5 in x 12 in x 10 in (22 cm x 30.5 cm x 28 cm) |
| Weight | 18 lb (8.2 kg) |
| Sensor Mounting Platform Thread Size | ¼-28 |

[1] Operating range reduced at higher payloads. Reference manual for full details.
[2] Measured with 66 gram quartz reference accelerometer.
[3] Measured with laser displacement interferometer.
[4] As shipped from factory in new condition.
[5] Depending upon payload at higher frequencies transverse motion may cause localized increased measurement uncertainty

## Included Accessories

Accessory Pouch Includes: Power Supply and Plug Adaptors, ¼-28 to ¼-28 Adaptor, 10-32 to ¼-28 Adaptor and Mounting Pad. Product ships with shipping lock installed (remove before use).

## Optional Accessory Products for 9200D

| | |
|---|---|
| **9100-MNTKIT** | Mounting accessory kit to adapt to ¼-28 threaded mounting platforms. Includes studs/inserts (¼-28, 10-32, 6-32 and 5-40) and bases (for adhesive, magnetic and custom thread patterns). |
| **9105C** | Transfer standard reference accelerometer and ICP® sensor signal conditioner, for calibration and system verification of the 9200 Series Calibrators. |
| **9100-MPPA01** | Proximity probe adaptor kit, supports probes with common case threads ranging from M6 to 3/8 in. Includes Mitutoyo micrometer (metric) and 9100-PPA02 nickel-plated 4140 steel target. |
| **9100-PPA01** | Proximity probe adaptor kit, supports probes with common case threads ranging from M6 to 3/8 in. Includes Mitutoyo micrometer and 9100-PPA02 nickel-plated 4140 steel target. |
| **9100-PPA02** | Target for 9100-PPA01 or 9100-MPPA01 proximity probe adaptor kit, nickel-plated 4140 steel. |
| **9100-PS01** | 18 V, 1 A power supply/charger for 9200 Series Calibrator, universal 100-240 VAC, 50/60 Hz. |
| **9100-BAT01** | Replacement battery for 9200 Series Calibrators. |

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