

Portable Shakers

Model DI 823
Model DI 813
Model DI 803



Three Portable Shakers

Three shakers to choose from! All three shakers are battery powered, portable and have a built-in reference accelerometer and indicator with calibration traceable to the National Institute of Standards and Technology (NIST). The shakers are designed to be used in the field or shop to verify the performance of vibration transducers, connectors, cabling, instruments or permanently installed machine vibration condition monitoring systems or indicators.

Accelerometers, velocity transducers and non-contacting Eddy Probe displacement measuring systems can be checked. Simply attach the transducer to the shaker head (Displacement Probes require a mounting fixture and target), set the shaker to a known vibration reference level, and verify readings. The reference test level can be set in acceleration (g's), velocity (ips) or displacement (mils), English or Metric.

The three shakers also offer specific testing capabilities which are reviewed in the following paragraphs.

Model DI 823

The Model DI 823 Fixed Frequency Portable Shaker is Hardy Instruments' lowest cost and easiest to use shaker. The vibration test frequency is fixed at 80 Hz, but the vibration level is adjustable. A built-in digital indicator allows precise test level setting. Its primary function is to verify the performance of transducers, cables and instruments or instrumentation systems. The DI 823 weighs less than the other shakers, which makes it easy to transport.

Standard accessories include a variety of threaded adapters and a charger. Operating voltage (120 or 240 Vac) for the charger must be specified.



Model DI 803

Model DI 823

Model DI 813

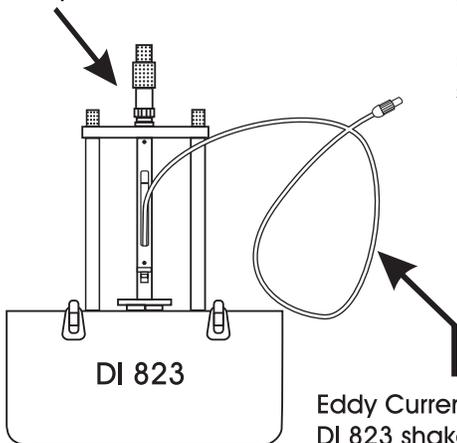
Model DI 813

The Model DI 813 Portable Shaker System is Hardy Instruments' mid-range shaker for testing between 25 Hz and 10,000 Hz. The DI 813 offers adjustable vibration level and adjustable frequency. This provides a reference source for verifying the accuracy of vibration transducers, connectors, cabling and instruments or instrumentation systems. To find intermittent cables or loose connections, testing in the frequency range of 500 Hz to 2,000 Hz is usually required.

The DI 813 has a ruggedized suspension system that can support heavy transducers (up to 750 grams) that require testing in a horizontal direction instead of the normal vertical direction. The added support from the ruggedized suspension system makes this shaker a good choice for heavy duty field use.

The DI 813 Portable Shaker System has a built-in battery charger that can operate on 120 or 240 Vac. Standard accessories include a mounting plate and a variety of threaded adapters.

DI 223
Eddy
Current
Probe
Adapter



Model DI 803

The Model DI 803 Transducer Test Set is Hardy Instruments' top-of-the-line shaker, with more operational functions. In a manual mode, the vibration test level and the test frequency can be set from 10 Hz to 10,000 Hz. In a sensitivity mode, the DI 803 not only vibrates the transducer being tested, but also measures its output and calculates its output sensitivity (mV/unit of motion). A built-in display reads the output sensitivity which can be stored in memory as well. Complete testing sequences and data can be stored in memory for each sensor being tested.

A built-in printer logs this data on the spot or later from stored data. An RS-232 port and data transfer program are standard. ASCII II test data files can be transferred to a computer for use with most spreadsheet programs.

For testing of heavy transducers or for testing at high frequencies, the DI 803 automatically corrects the sensitivity calculation for the effects of transducer mass loading. It also measures and displays transducer phase, which is important for balancing applications. A built-in self-test program checks for accuracy of all calculations.

Standard accessories include two mounting plates, a variety of threaded adapters, and general cables (for the sensitivity mode). Operating voltage (120 or 240 Vac) for the built-in charger must be specified.

Sensor Verification and Compliance

Hardy Instruments' portable shakers allow for compliance with OSHA 1910, ISO 9000 or API 670 by providing a means for verification of sensors and associated indicators. The portable design allows for minimal disruption during system checks. (Please note that strict compliance with API 670 cannot be accomplished with most portable shakers. The DI 803 and DI 813 meet most of the frequency and amplitude measurement requirements.)

Probe Mounting Accessories

For dynamic verification of Eddy Probe Systems, specify DI 224 Mounting Fixture. For dynamic verification and linearity testing, specify DI 223 Mounting Fixture with Dial Micrometer (English or Metric). Both of these mounting fixtures attach to all of the shakers.



PORTABLE SHAKER SPECIFICATIONS AND CAPABILITY COMPARISON

	Model DI 803	Model DI 813	Model DI 823
Battery Type	Sealed Rechargeable	Sealed Rechargeable	Sealed Rechargeable
Charger	Internal, specify 120 or 240 Vac	Internal, 120 or 240 Vac	External, specify 120 or 240 Vac
Frequency Range	10 to 10,000 Hz	25 to 10,000 Hz	Fixed at 80 Hz
Acceleration Readout (±1 digit)	10 to 2,000 Hz, ±.3 dB 2,000 to 10,000 Hz, ±1 dB	50 to 500 Hz, ±.3 dB 30 to 2,000 Hz, ±.5 dB 25 to 10,000 Hz, ±1 dB	80 Hz, ±.3 dB
Velocity Readout	10 to 500 Hz, ±.3 dB	50 to 400 Hz, ±.3 dB	80 Hz, ±.3 dB
Displacement Readout	25 to 200 Hz, ±.3 dB	50 to 150 Hz, ±.3 dB	80 Hz, ±.3 dB
Maximum Output	10 g at 100 Hz, 100 gram load (3 g above 1,000 Hz) 1 g at 100 Hz, 750 gram load	10 g at 100 Hz, 100 gram load (3 g above 1,000 Hz) 1 g at 100 Hz, 750 gram load	3.2 g at 80 Hz, 100 gram load .8 g at 80 Hz, 750 gram load
Calibration	NIST traceable standard	NIST traceable standard	NIST traceable standard
Waveform Distortion	< 5% THD, 30 to 2,000 Hz	< 5% THD, 30 to 2,000 Hz	< 5% THD
Reference Output	50 mV/g	50 mV/g	None
Maximum Unsupported Load	750 grams, Vertical or 500 grams, Horizontal	750 grams, Vertical or Horizontal	1000 grams, Vertical
Physical Size and Weight	11" x 7" x 10" H, 21 lbs.	11" x 7" x 10" H, 19 lbs.	8.5" x 6.5" x 5.5" H, 12 lbs.
Sensor Mounting Thread	1/4-28 thd hole, 1/4" deep	1/4-28 thd hole, 3/8" deep	1/4-28 thd hole, 1/4" deep
English and Metric Readout	Yes	Yes	Yes
Indicates Test Sensor Output	Yes, normalized sensitivity, mass loading compensation, phase	No	No
Internal Memory	Yes, stores test data	No	No
Built-in Printer	Yes, thermal type, prints current or stored test data	No	No
RS-232 Output	Yes, stored data transfer	No	No
Self Test	Yes, verifies operation	No	No



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