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Accelerometer Calibrator

Type 8921B...

Reference Shaker

The Type 8921B... portable shaker is a small, self-contained, battery powered vibration exciter specifically designed to verify/ calibrate the sensitivity of accelerometers in a field environment.

- Test measurement system integrity
- Convenient, self-contained and portable
- Rechargeable battery for laboratory and field use
- Automatic shut-off
- Tests sensors up to 1.3 lbs of weight
- Conforming to CE
- Traceable to national standard

Type 8291B01

Type 8291B02

Description

Type 8921B... provides an accurate, controlled vibration level to verify the sensitivity of vibration sensors or the complete measuring system. The internal control and excitation system provides a constant (Type 8921B01) or selectable (Type 8921B02) precise frequency, while a closed-loop control maintains a constant (Type 8921B01) or selectable (Type 8921B02) amplitude independent of the mass of the test article. Should the test article exceed the capacity of the shaker, the unit provides an audible and visual warning to the operator. A self-contained, rechargeable battery can power the shaker up to approximately five hours between recharging. Operator convenience and measurement confidence are of primary importance. The unit is portable, weighing 4.8 lbs. Front panel indicators provide information as to the condition of the internal battery. An automatic shut-off circuit switches off the power automatically after 10 minutes of continuous operation. Type 8921B... has sufficient force to test every sensor from the smallest laboratory accelerometer to large industrial sensors.

Application

The Type 8921B... reference shaker can be used to confirm the sensitivity of acceleration, velocity and displacement sensors. Additionally, it provides convenient and accurate means of testing the integrity of the vibration measurement system from end-to-end. The unit is rugged and meant to withstand factory environments, while providing years of reliable operation in the laboratory.

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Technical Data

Type	Unit	8921B01	8921B02						
Reference frequency	Hz (rad/s)	159.2 (1,000)	15.92 (100)	40 (251)	80 (503)	159.2 (1,000)	320 (2,011)	640 (4,021)	1,280 (8,042)
Amplitude:									
Acceleration rms, ±3 %	g (m/s^2)	1.019 (10)	0.102 (1) 0.204 (2)	0.102 (1) 0.204 (2) 0.510 (5)	0.102 (1) 0.204 (2) 0.510 (5) 1.019 (10)	0.102 (1) 0.204 (2) 0.510 (5) 1.019 (10) 2.039 (20)	0.102 (1) 0.204 (2) 0.510 (5) 1.019 (10) 2.039 (20)	0.102 (1) 0.204 (2) 0.510 (5) 1.019 (10) 2.039 (20)	0.102 (1) 0.204 (2) 0.510 (5) 1.019 (10) 2.039 (20)
Velocity rms, ±3 % (at 100 rad/s and 1,000 rad/s)	mm/s	10	10 20			1 2 5 10 20			
Displacement rms, ±3 % (at 100 rad/s and 1,000 rad/s)	µm	10	100 200			1 2 5 10 20			
Maximum load:									
1 m/s^2	gram	-	500	500	500	500	500	500	500
2 m/s^2	gram	-	500	500	500	500	500	500	500
5 m/s^2	gram	-	-	500	500	500	500	500	500
10 m/s^2	gram	600	-	-	500	500	500	400	200
20 m/s^2	gram	-	-	-	-	250	200	100	50
Amplitude error (max.)	%	±3 (32 ... 100 °F); ±5 (14 ... 130 °F)							
Frequency error (max.)	%	±0.05							
Transverse vibration (14 mm above shaker)	%	<10	<10	<10	<10	<10	<20	<20	<10
Harmonic distortion	%	<1	<5	<1	<1	<1	<1	<1	<1
Operating temperature range	°F	14 ... 130							
Operating time	hours	approximately 5, with 100 g weight							
Switches off automatically after	min	10	1 ... 30 (adjustable)						
Supply	type	built-in rechargeable battery (NiMH battery pack; 7.2 V/1.6 Ah)							
Battery charger									
Charging voltage	VDC	11 ... 18							
Charging current	A	<1							
Charging time	hour	approximately 4							
Sensor mounting	type	M5 tapped hole (90° ±1°; 7 mm deep), magnet							
Dimensions (HxWxD)	in	3.9x3.9x4.7							
Weight	kg	2.2							

1 g = 9.80665 m/s^2, 1 in = 25.4 mm, 1 Gram = 0.03527 oz, 1 lbf-in = 0.113 N·m

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Accessories Included

- Plastic carrying case
- Main plug adapter
  (100 ... 240 VAC; 50/60 Hz)
- Thread adapters:
  (M3, M5, M8, ¼–28, 10-32)

Ordering Key

Reference shaker

	Type 8921B ☐
159.2 Hz fixed frequency, 10 m/s^2 fixed amplitude	**01**
Selectable vibration frequencies and amplitudes	**02**

8921B_003-090a-12.14