



Portable Vibration Calibrator

AT-2030 Gen 2

Portable Vibration Calibrator

Overview

AT2030 portable calibration shaker table is designed for simple accelerometer and vibration transducer calibration without the need for advanced features.

AT2030 is a variable frequency, variable amplitude, battery operated portable shaker capable of calibrating accelerometers, transducers, and proximity probes. Applications are producing a known vibration signal in g's, mils, or ips for sensor, wiring, instrumentation, and system checkout in vibration condition monitoring applications.

The superior accuracy of the AT2030 is ensured using a laser-calibrated primary reference, a precision quartz reference accelerometer, and closed-loop control employing distortion compensation algorithms. Calibration of the AT2030 and its accuracy has been accredited to ISO 17025 by a 3rd party, A2LA. Visit our website for details: www.agatetechnology.com/wp-content/uploads/2021/08/6156-01.pdf.

Functionality

- Create calibration certificates for vibration instruments.
- Test all types of vibration sensors and transducers from a variety of accelerometer and eddy current probe manufacturers.

APPLICATIONS

- Troubleshoot cabling and wiring
- Calibrate:
 - Accelerometers
 - Monitoring systems
 - Proximity probes and drivers
 - Avionics equipment

ADVANCED FEATURES

- Digital closed-loop control
- Long battery life
- Class-leading frequency and amplitude range
- High-resolution color touch screen

LITHIUM IRON PHOSPHATE BATTERY

- Longer lifespan & longer cycle life of up to 5,000 cycles at 80% depth of discharge, or 10 years.
- Lighter weight
- More environmentally friendly than lead-acid batteries
- Higher constant power ensures full battery power at low charge
- Ten times faster charging than lead-acid batteries
- Can withstand high temperatures without decomposing, and is non-flammable and non-toxic

Performance		
Frequency Range (operating) ¹	5 Hz to 10,000Hz	300 to 600,000RPM
Maximum Payload ²	800 grams	
Waveform Type	Sine	
PureWave™ Distortion Correction	- Active harmonic cancellation system - Reduces total harmonic distortion (THD) - Corrects up to 30 harmonics	

Maximum Sinusoidal Output (Sinusoidal Excitation)			
Parameter Value	(Imperial)	Value (Metric)	Frequency (Typical)
Maximum Acceleration	20 g pk	196 m/s² pk	≈ 50 Hz
Maximum Velocity	20 in/s pk	508 mm/s pk	≈ 50 Hz
Maximum Displacement	0.20 in pk-pk	5.1 mm pk-pk	≈ 40 Hz
Test Conditions: Measured with bare table and reference accelerometer. Maximum achievable output is limited by frequency, payload mass, and shaker dynamics.			

System Architecture	
Linux Kernel	OS embedded, optimized for real-time I/O
Memory	16 GB (internal storage) - MicroSD slot for additional storage
Hardware Architecture	- FPGA-based signal generation and acquisition 24-bit codec for high-resolution signal processing - Digital signal routing for multiple input/output configurations - GPIO-controlled relay matrix for signal path selection
Signal Processing	- DFT-based amplitude and phase measurement - Real-time harmonic analysis - Configurable high-pass filtering - Automatic gain ranging
Safety Features	- Automatic amplitude limiting based on frequency - Over-displacement protection (200 mils p-p maximum) - Low-frequency amplitude reduction to prevent mechanical damage - Automatic shutdown on alarm conditions

Vibration Signal Accuracy	
Acceleration (5 Hz to 9 Hz)	± 3.2 %
Acceleration (10 Hz to < 5 kHz)	± 2.2 %
Acceleration (5 kHz to 10 kHz)	± 3.0 %
Displacement (30 Hz to 150 Hz)	± 2.2 %
Amplitude Linearity (100 gram payload, 100 Hz)	< 1 % up to 10g pk
Waveform Distortion (100 gram payload, 30 Hz to 2 kHz)	< 1 % THD (typical) up to 5g pk

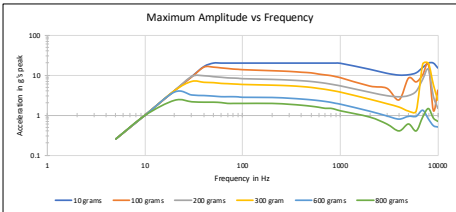
Readout				
Acceleration	g pk	m/s² pk	g RMS	m/s² RMS
Velocity	mm/s pk	in/s pk	mm/s RMS	in/s RMS
Displacement (peak to peak)	mils p-p	mm p-p	µm p-p	
Frequency	Hz		RPM	

Power		
Internal Battery	12V DC	6 amp hours
Battery Type [3]	LiFePO4	
Battery Charge Time	1 hour	
Battery Life Expectancy	5,000 cycles @ 80% depth-of-discharge, or 10 years	
AC Power Input (for recharging battery)	100–240 V AC, 50–60Hz, integrated charger with IEC C13 power cord	
Operating Mode Battery Life	- Low output: Up to 18 hours - Typical testing (mixed use): ~4-12 hours - Continuous high-output vibration: ~1 hour	

Physical		
Sensor Connectors	N/A	
Display	4.3" capacitive TFT LCD (480x272 px), high-brightness, anti-glare surface	
Controls	2 dials with touch screen	
Dimensions (H × W × D)	10.6 × 9.7 × 6.9 in	27 × 24.6 × 17.4 cm
Weight	13.0 lb, 12 oz.	6.24 kg
Sensor Mounting Platform Thread Size	¼-28	
Operating Temperature	32–122 °F	0–50 °C
Agency Requirements and Certifications	- A2LA Accredited - NIST Traceable - EMC:EN61326-1 - LVD:EN61010-1 - ISO/IEC17025:2017 - RoHS - ANSI/NCSL Z540 Traceable	

Accessories		
Included Accessories	- Power cable ¼-28 stud 2-56 UNC adapter - Universal Velocity Adapter Disc - Universal Accelerometer Adapter Disc - Short-handle wrench	10-32 UNF stud 6-32 UNC adapter 10-32 UNF adapter - USB drive: loaded with templates for sensor CSV import and manual
Optional Accessories ³	- Proximity Probe Adapter Kit (digital or manual micrometer) - Chadwick-Helmuth Velocimeter Cable - Triaxial Accelerometer Adapter	
Warranty	2 years (includes drift/accuracy)	
Tech Support	Training webinars, email support	

1 100 gram payload.
2 Maximum weight recommendations for sine signal; see figure below). Visit our website for a larger chart: www.agatetechnology.com/wp-content/uploads/2022/08/weightvsfrequency.png. Limited at lower frequencies to 0.1 inch (2.54mm) Peak displacement.



3 For comprehensive list, please consult the Product Spec Sheet or contact sales.