



Comprehensive system for calibrating accelerometers

Applications

- Cabling and wiring troubleshooting
- Vibration signal simulation—accelerometers and velocity probes
- Machinery speed signal simulation
- Calibration of:
 - Accelerometers
 - Proximity probes and drivers
 - Monitoring systems
 - Charge amplifiers
 - Avionics equipment

Advanced Features

- Sensor simulation
- Built-in sensor signal conditioner
- Custom sensor can be configured to meet specific sensor needs
- Built-in charge amplifier
- Programmable sensor voltage
- Automatic mass load correction
- Dual USB ports
- Advanced computer algorithms for accurate readout

AT-2050

Accelerometer Test System

AT-2050 Accelerometer Test System is designed to provide precision calibration of velocity pickups, transmitters, IEPE accelerometers, piezoelectric accelerometers, both single-ended charge accelerometers and differential output charge accelerometers, piezo resistive (PR) accelerometers, and variable capacitance (VC) accelerometers.

AT-2050 is the only calibrator capable of measuring these signals directly without external equipment or external charge signal converter. AT-2050 is a fully self contained, loop controlled, system with a vibration exciter and amplifier.

AT-2050 also features the same award winning simulation feature found on Agate AT-2040 model for simulation of various sensor types. This is the fastest and most efficient way to test and calibrate meters, control equipment, or cables.

The shaker includes 8 mounting adapters consisting of, 5 threaded adapters, one adhesive mount, and two universal disc – one for velocity pickups and the other for triangular accelerometers.

Full automatic test mode requires absolutely no user interaction. Simply setup your required frequency and amplitude plot points and AT-2050 does all the work for you. Results are saved to the 16 GB internal memory with virtually unlimited report storage capabilities. Certificate test can then be exported in PDF or CSV.

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.
- Test and verify performance of vibration system meters, portable data collectors, and cabling by using an accurate and traceable signal generator to simulate a variety of sensors.
- Identify and quickly address issues in vibration system setup with the assistance of user-friendly software tools.
- Control AT-2050 from a remote location by ethernet connection

Specifications

Performance		
Frequency Range (operating) ^[1]	7 Hz to 10 kHz	420 to 600000 CPM
Maximum Amplitude (100 Hz, with no payload)	20 g pk	196 m/s ² pk
	15 in/s pk	380 mm/s pk
	50 mils p-p	1270 μm p-p
Maximum Payload ^[2]	800 grams	
Sensor Test Method	Automatic sweep or manual operation	
Test Types	Manual sensitivity Automatic sweep	Sensor simulation Certification
Sensor Select	Built-in transducer library	
Calibration Sheets	Automatic creation to memory Export to USB drive in PDF or CSV format No spreadsheet or user input required Certificate includes test point with graph	
Memory	16GB (internal storage) MicroSD slot for additional storage	

Simulation Performance		
Frequency Range	0.1 to 11,000 Hz	
Maximum Amplitude Examples:	1 V	1000 pF
	100 g at 10mV/g	10pF/g@100g
	10 g at 100mV/g	100pF@10g
Test Type	Manual	

Accuracy	
Simulation (1 Hz to 11 kHz)	± 1 %
Acceleration (7 Hz to 10 kHz)	± 3 %
Velocity (10 Hz to 1000 Hz)	± 3 %
Displacement (30 Hz to 150 Hz)	± 3 %
Amplitude Linearity (100 gram payload, 100 Hz)	< 1 % up to 10 g pk
Waveform Distortion (100 gram payload, 30 Hz to 2 kHz)	< 5 % THD (typical) up to 5 g pk

Input/Output	
Test Sensor Inputs	Accelerometer: <ul style="list-style-type: none"> • Charge • Voltage • IEPE • Piezoresistive • Variable Capacitance Velocity Sensor Proximity probes
Bias Measurement	Yes
Built-in Excitation Current and Supply Voltages for Transducers	IEPE current source
External Source In (Max)	1 V AC RMS
Transducer Simulation	Charge IEPE bias and signal Proximity probe driver
Monitor Reference Out	10 mV/g (nominal) Internal Reference

AT-2050 Portable Vibration Test Set

Readout		
Acceleration	g pk	g RMS
	m/s ² pk	m/s ² RMS
Velocity	mm/s pk	mm/s RMS
	in/s pk	in/s RMS
Displacement (peak to peak)	mils p-p	μm p-p
Frequency	Hz	CPM

Power		
Internal Battery (sealed solid gel lead acid)	12 V DC	6 amp hours
AC Power (for recharging battery)	100-240 V	50-60 Hz
Operating Battery Life	100 gram payload, 100 Hz 1 g pk	10 hours
	100 gram payload, 100 Hz 10 g pk	3 hours
Charger Type	Internal / Built In	
Plug Type	Standard Wall Plug	

Physical		
Sensor Connectors	BNC	DIN
	Terminal strip	
Display	4.3" TFT LCD with 480x272 resolution	
Controls	2 dials with touch screen	
Dimensions (H x W x D)	10.62 x 9.68 x 6.87	27 x 24.6 x 17.4 cm
Weight	15.2 lb	6.9 kg
Sensor Mounting Platform Thread Size	1/4-28	
Operating Temperature	32 °F - 122 °F	0 °C - 50 °C
Agency Requirements and Certifications	NIST Traceable Accredited NIST Certified NVLAP Laboratory Tested EMC: EN61326-1 LVD: EN61010-1 RoHS	

Accessories	
Included Accessories	<ul style="list-style-type: none"> • Power cable • Micro dot (10-32) • 1/4-28 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 setup software for custom sensor
Optional Accessories ^[3]	<ul style="list-style-type: none"> • 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:

Frequency	0-100 Grams	100-250 Grams	250-500 Grams	500-800 Grams
10-100 Hz	10 g	4 g	2 g	1 g
100-1000 Hz	7 g	4 g	2 g	1 g
1000-10000 Hz	3 g	1.5 g	0	0

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