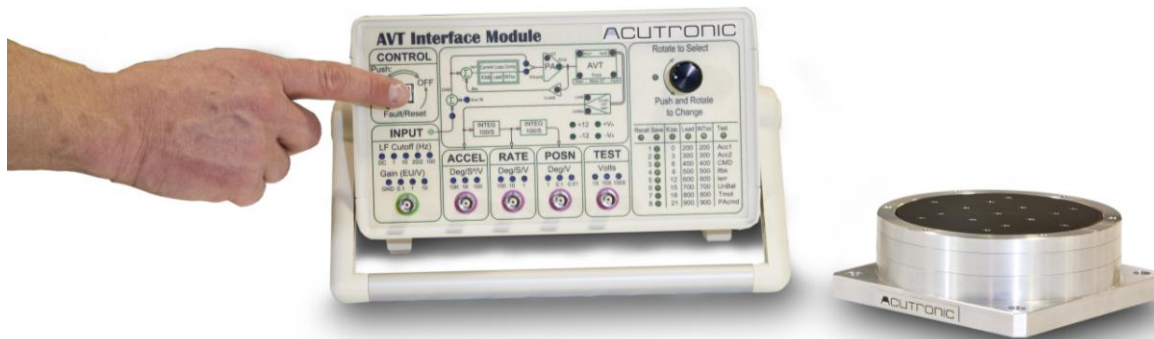




## Inertial Guidance Test and Calibration System Angular Vibration Table 105-AVT



The 105-AVT is a versatile Angular Vibration Table (AVT), designed for bench-top testing of inertial sensors and other electro-mechanical devices. The design and construction of the table is the rotational counterpart to a linear shaker. Built 'low to the ground', the AVT is virtually free of structural dynamics.

### Features Angular Vibration Table

- Cost-effective; high performance
- portable and desktop installation
- Flexible mounting hole patterns
- Built-in angular acceleration sensor
- > 1,000 radians/sec<sup>2</sup> peak acceleration
- ± 5 deg displacement
- Ultra-high fidelity motion
- Flat acceleration response
- Low noise linear power amplifier
- Built-in safe operation detection

### Applications Angular Vibration Table

- Inertial sensor test and calibration
- MEMS development & qualification
- Device characterization
- Simulation of environmental vibration
- Angular shock/vibration sensitivities
- Off-axis linear acceleration stimulation
- Accelerated stress/life testing
- Failure analysis

The AVT Interface Module provides all of the electronics required to safely drive and monitor a vibration system such as the 105-AVT over its full dynamic range. The bench-top module offers a rugged form factor that is portable and easily connected to the vibration table and to third party (analog) vibration controllers.

### Features Interface Module

- User defined configuration presets
- Linear drive amplifier with voltage and current command modes
- Scalable motion state outputs (Position, Rate, Acceleration)
- Configurable gain and low frequency cutoff of the excitation input
- Scalable TEST output for monitoring internal analog signals
- Selectable 115/230 volt power source

### Failsafe tests/interlocks to ensure safe operation

- Loss of accelerometer signals
- Acceleration limit
- Current limit
- Payload unbalance
- Power supply out of range
- Over temperature of drive amplifier
- Over temperature warning and fault of motor



### Unit Under Test (UUT)

Max. weight (mass)	2 lbs (0.9 kg)
Center of gravity (CoG)	Maintain CoG on axis
Electrical connection to UUT	User maintained service loop

### Specifications

#### Position

Range	$\pm 5$ deg
Analog position output	1, 0.1 or 0.01 deg/V
Null hysteresis	< 5 arc min

#### Rate

Range	550 deg/sec
Analog rate output	100, 10 or 1 deg/sec/V

#### Acceleration

Range	$> \pm 60,000$ deg/sec <sup>2</sup> (no load)
Analog acceleration output	10K, 1K or 100 deg/sec <sup>2</sup> /V

#### Dynamic

Frequency response	$\pm 1$ db; 25 Hz to 2.5 kHz
Usable frequency range	DC to 5 kHz
Harmonic distortion	< 1% THD
Angular vibration noise	0.1 deg/sec <sup>2</sup> /√Hz

#### Mechanical

Inertia (no load)	0.16 in-oz-sec <sup>2</sup> (1.13 x 10 <sup>-3</sup> kgm <sup>2</sup> )
Wobble	< 5 arc sec
Moment stiffness	20 arc sec/in-lb (3 min/Nm)
Suspension resonance	5 - 14 Hz (over load range)

### AVT Physical Specifications

Weight	6 lbs (2.72 kg)
Outline dimensions (base footprint / height)	6 in square / 2.15 in (152 mm / 55 mm)
Base mounting holes	Qty 4, 0.4 in dia., 5 in squared pattern
Table top diameter	5 in (127 mm) dia.
Table top mounting holes (two patterns)	Qty 15 holes, 10-32 (opt. M5) Helicoil - 3x3 on 1 in grid; 6 holes on Ø 4 in
Stationary tooling holes	(6) 10 - 32 on Ø 5.5 in base curve (opt. M5)
Tightening torque (all mounting holes)	5 ft-lb (6.78 Nm)

### AVT Interface Module Physical Specifications

Weight	approx. 11 lbs (5 kg)
Outline Dimensions	6.2 in (157.5 mm) high (including feet). Handle width 11.5 in (292 mm), dept 9.8 in (249 mm)

### General Information

Input power	115/230 VAC $\pm 5\%$ , 1-ph, 250 W
Analog input filter	DC, 1, 10, 20/2 <sup>nd</sup> order & 100 Hz LFCut
Built-in angular acceleration sensors	2 linear accelerometers
Command interface	Analog, $\pm 10$ V; 3 gains 0.1, 1, and 10
Vibration controller	Third party (see factory for options)

More information online: [www.acutronic.com](http://www.acutronic.com)