ACUTRONIC

The Driving Force in Motion Simulation

Inertial Guidance Test and Calibration System

One-Axis Angular Vibration Simulator AC1190-140

The single-axis angular vibration table is a precision system specifically designed to provide vibration stimuli to angular sensors such as gyroscopes, accelerometers or complete Inertial Measurement Unit's (IMU). The table utilizes a highly reliable closed-loop direct drive servo system, consisting of a drive assembly, a servo controller and power amplifier.

The drive assembly comprises direct drive brushless torque motors, an Inductosyn® or optical encoder, a precision-machined tabletop, and a slipring assembly. Water cooled motors extend the duration of high dynamic testing. Control and readout functions are performed by the advanced instrumentation ACUTROL®3000.

ACUTRONIC tables are integrated with the ACUTROL®3000 digital control system. The ACUTROL®3000 has a touch screen and can be configured as determined by the customer's application. The controller is installed into a 19" cabinet using only 6U (10.5 in) of vertical space.

The ACUTROL®3000 is a second generation digital controller, combining microprocessor, discreet logic, and analog inputs/outputs in one chassis. It is capable of providing position, rate and acceleration control either manually from the touch panel or remotely through the standard in IEEE-488 or Ethernet (TCP/IP) computer interfaces.

The system utilizes a 720-pole Inductosyn® and a two-pole resolver as position transducers. A highly precise digital rate mode is derived from the Inductosyn's incremental position data.

ACUTRONIC offer a full range of precision rate tables and motion simulation systems matching system components. Performance can be precisely tailored to the requirements of the test or simulation task. Drive assemblies, power amplifiers, optional control features and accessories can be combined to accommodate present needs and permit future growth and flexibility.

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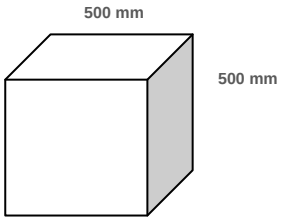
Unit Under Test (UUT)	
Nominal mass	60 kg (max. 100 kg)
Nominal inertia	2.5 kgm^2
Maximum dimensions	500 mm w x 500 mm d x 500 mm h
Table top diameter	720 mm dia.
Sliprings to UUT	signal 50 ways, 2 amps power 5 ways, 20 amps (custom options available)

UUT Outline Dimensions



Specifications	
Angular freedom	continuous
Position	
Accuracy	1 arc sec RSS
Command resolution	0.00001 deg
Repeatability	<1 arc sec
Rate	
Range	± 600 deg/sec
Stability over 360 deg	0.0005%
Command resolution	± 000001 deg/sec
Dynamic	
Bandwidth (w/ nominal load)	300 Hz at -3dB Gain / 250 Hz at -90°
Acceleration (w/ nominal load)	50'000 deg/sec2
Max excitation frequency	1'000 Hz
Oscillation duration with load at: -Peak acceleration 50'000 deg/sec^2	 continuous (with water cooling)
Mechanical	
Wobble	2 arc sec max

Major Simulator Dimensions	
Simulator (L x W x H)	1'450 mm x 900 mm x 1'000 mm
Payload / table top height (from floor)	1'000 mm

Options

- Custom UUT mounting arrangements and fixtures
- Water cooled motors
- Custom tabletop/mounting surfaces and/or boom
- Customer defined performance characteristics
- Optional real time computer interfaces; SCRAMNet+, or VMIC
- Sliprings available with:
  - 1553 Data Bus
  - Gas or fluid rotary joints
  - RF rotary joints
  - Fiber optic rotary joints

The specifications identified in this data sheet are representative of standard systems. To satisfy customer specific requirements ACUTRONIC is able to design systems with specifications that are increased or decreased relative to standard systems.