



Inertial Guidance Test and Calibration System **Three-Axis Motion Simulator AC350**



The model AC350 is a three degree-of-freedom test stand designed for characterization, testing and calibration of motion sensors such as gyroscopes, accelerators and combinations of them. All three axes are servo controlled to provide repeatedly precise position, stable rate and dynamic motion.

The UUT (Unit Under Test) attaches to the inner (roll) gimbal. For this purpose the inner gimbal has T-slots for sliding nut. The design offers convenient flexibility in the mounting of the UUT or the holding fixture. All three axes of rotation have a single point of intersection.

Sliprings allow connection between the UUT and external test equipment while the system turns. The slipring capsule features power rings and single shielded signal rings and one MIL1553B data line.

Signal lines have four brush contacts per ring to avoid micro interruptions, which could corrupt digital signals.

The model AC350 is controlled by the ACUTROL®3000 digital motion control system, commanded from a touch-screen operator interface or from a host computer via a remote interface (IEEE-488 and Ethernet are standards).

The system is adequately equipped to measure Scale Factors and its nonlinearities, axis misalignments, cross-axis sensitivities, bias (in-run, power cycled), drift rates, angular random walk, etc. at ambient temperature.

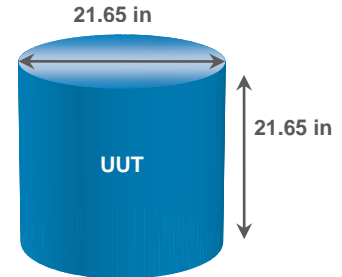
It represents the state-of-the-art system providing motion, instrumentation and data acquisition at your service.

The Driving Force in Motion Simulation



Unit Under Test (UUT)

Mass/ max.	66 lbs (30 kg) / 220 lbs (100 kg)
Maximum envelope	21.65 in W x 21.65 in D x 21.65 in H (550 mm W x 550 mm D x 550 mm H)
Sliprings to UUT	Signal 70 ways, 3 A @ 150 VDC Power 6 ways, 6 A @ 150 VDC Power 4 ways, 20 A @ 150 VDC Databus 1 MIL-STD-1553



Specifications

	Roll (Inner Axis)	Pitch (Middle Axis)	Yaw (Outer Axis)
Angular freedom	continuous	continuous	continuous
Position			
Accuracy	< 1.5 arc sec RSS	< 1.5 arc sec RSS	< 1.5 arc sec RSS
Rate			
Range (peak)	± 1,000 deg/sec	± 800 deg/sec	± 500 deg/sec
Range (simultaneous)	± 150 deg/sec	± 150 deg/sec	± 150 deg/sec
Stability			
- over 360 deg	< 0.0001%	< 0.0001%	< 0.0001%
- over 10 deg	< 0.005%	< 0.005%	< 0.005%
Command resolution	0.00001 deg/sec	0.00001 deg/sec	0.00001 deg/sec
Dynamic			
Bandwidth (no load)	40 Hz at -3dB Gain	15 Hz at -3dB Gain	20 Hz at -3dB Gain
Acceleration (no load)	2,000 deg/sec ²	400 deg/sec ²	200 deg/sec ²
Mechanical			
Wobble	< 3 arc sec max	< 3 arc sec max	< 2 arc sec max
Orthogonality	< 5 arc sec	< 5 arc sec	

Major Simulator Dimensions

Simulator (L x W x H)	70 in x 70 in x 83.5 in (1780 mm x 1780 mm x 2120 mm)
Intersection of Axes	57 in (1450 mm)

Features & Options

- Axis Stow Locks on all axes
- Optional real time (reflective memory) computer interfaces: SCRAMNet GT200, or VMIC on request
- Custom UUT mounting arrangements and fixtures on request as part of ITS services
- Custom tabletop/mounting surfaces on request

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.