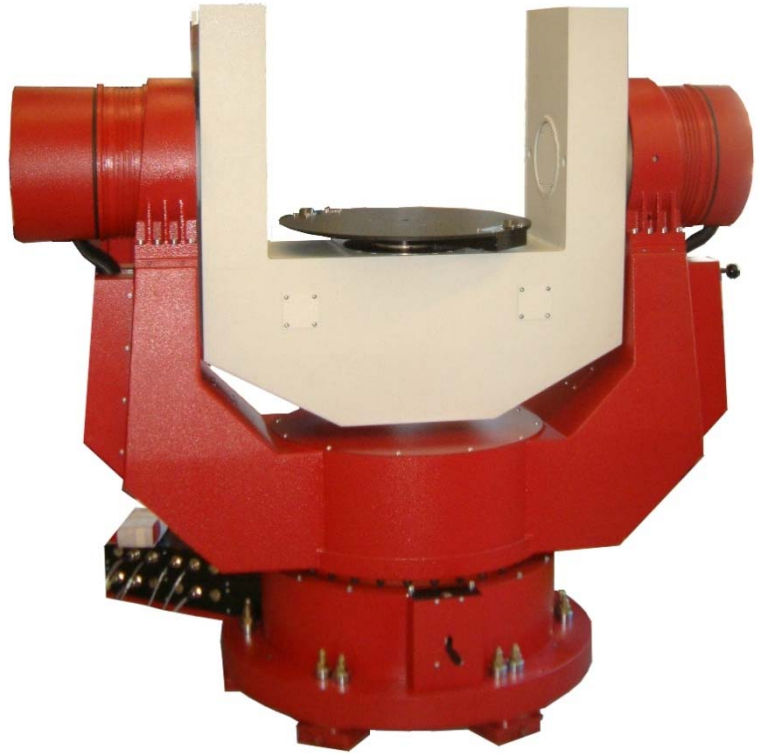


## Inertial Guidance Test Instrument

# Three Axis Motion Simulator Series AC3367-70

### Modes of Operation

- Absolute Positioning: 0.00001° resolution
- Rate – absolute and relative, excellent instantaneous rate stability
- Track Mode – for real time simulation of motion profiles
- Synthesis mode – Sinusoidal motion, command amplitude and frequency
- Local or remote control via touch sensitive operator panel or digital interface
- Analog readout and command with 16 bit resolution



### Description

The AC3367-70 High Dynamic Motion Simulator has three axes of motion. The middle, pitch axis gimbal has an open design allowing an unobstructed optical line of sight to the tabletop. For this reason the simulator is often used for the development, test and calibration of stabilized optical sights or seekers. The offset between the mounting surface for the UUT and the intersection of the axes offers the possibility to locate the optical axis at the intersection of the axes.

Slipring assemblies with power and signal rings give electrical access to the UUT. Signal lines have four brush contacts per ring to avoid micro interruptions which could corrupt digital signals. Standard slipring capsules are offered as the most economic option. There is also a wide

variety of customer specified slipping capsules available. Direct drive permanent magnet brushless torquers drive the axes. The servo feedback transducers are mounted directly to the axis shaft.

The ACUTROL® Model ACT3000 controls the table. The digital controller has a touch sensitive display and scalable analog input/output interface. Standard digital interface are GPIB (IEEE-488) and Ethernet (TCP/IP). VMIC or SCRAMNet reflective memory Real Time interface are optionally available.

The dynamic simulation can be enhanced with an optional available gas cooled temperature chamber allowing environmental testing over a wide temperature range.

**Design Concept**

Vertical outer yaw axis; horizontal middle pitch axis; open, yoke like, middle gimbal design; inner axis with table top.  
 All axes offer continuous rotation and utilize direct drive brushless torquers. Smooth and precise low rates for space applications.

Controller: Three Axis ACUTROL Model ACT3000 with analog and digital interfaces for command and readout.  
 Power Amplifier with power supply, chokes and filters

**Major Dimensions**

Height of simulator, max	1'813 mm
Width across outer axis	2'450mm
Base diameter	1'050mm
Mass	2'200kg

**Unit under Test (UUT)**

Table top diameter	660mm hard anodized
Mounting hole pattern	M6 x 50 mm grid
Table top flatness	0.05mm
Offset, table top to axis intersection	160mm
Payload mass, nominal (peak)	30kg, 2.5kgm <sup>2</sup> for test (100kg)
Payload size, nominal	550mm dia x 500h
Electrical lines to UUT	100 lines : 10x 20A, 400VAC 90x 2A, 150VDC

	<u>ROLL, inner axis</u>	<u>PITCH, middle axis</u>	<u>YAW, outer axis</u>
Orthogonality	5 arcsec	5 arcsec	
Wobble	3 arcsec	4 arcsec	3 arcsec
<b>Dynamic Parameters</b>			
Angular freedom	continuous	continuous	continuous
Positioning accuracy	1 arc sec RSS	1 arc sec RSS	1 arc sec RSS
Rate range	+/-1'000°/s	+/-500°/s	+/-400°/s
Rate resolution (cmd)	0.00001°/s	0.00001°/s	0.00001°/s
Rate stability over 360°	0.0005%	0.0005%	0.0005%
Acceleration, (2.5kgm <sup>2</sup> Load)	4'000°/s <sup>2</sup>	2'000°/s <sup>2</sup>	1'500°/s <sup>2</sup>
Bandwidth (-3db)	80Hz	25Hz	30Hz

**Temperature with optional temperature chamber**

AC3367-TCC	Range	-40°C to +70°C
(CO <sub>2</sub> cooling)	Stability	+/- 1°C

**Options**

- Special Table Tops and UUT fixtures
- Slipping options: consult ACUTRONIC
  - Gas rotary joint
  - RF Rotary joint
- Digital Interfaces; RS232, VMIC or SCRAMNet