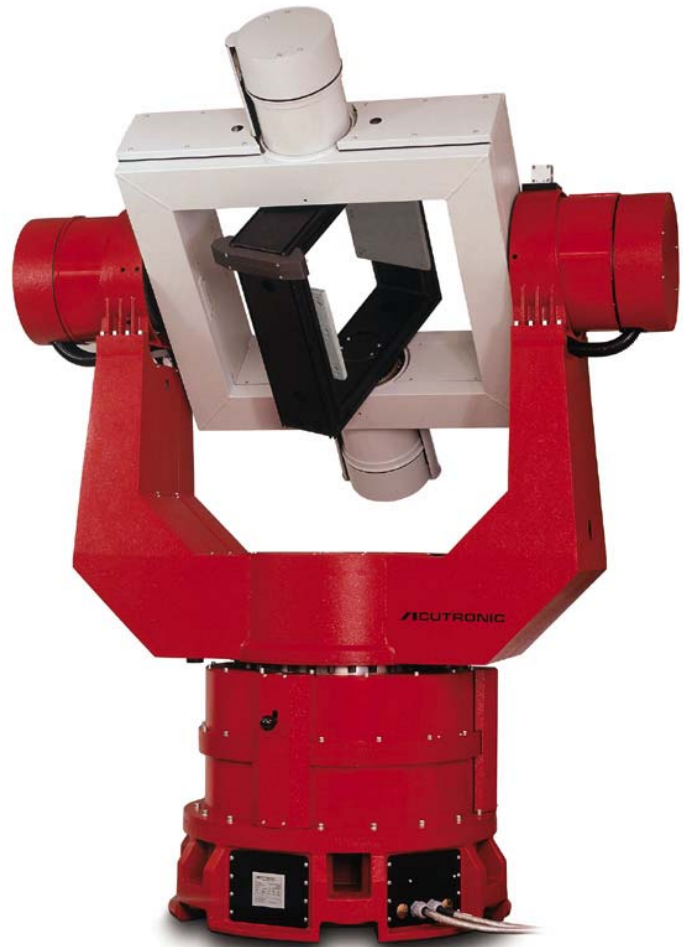


Inertial Guidance Test Instrument, Motion Simulator

Three Axis Motion Simulator Model AC3350-70

Modes of Operation

- Absolute Positioning:
0.00001 deg. 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



Feature

Large direct drive brushless torquers offering high acceleration and rate power all axes. High bandwidth results in high fidelity real time motion simulation. The dynamic simulation can be enhanced with the optional available gas cooled temperature chamber.

Description

The AC3350-70 Motion Simulator has three degree-of-freedom. The middle gimbal (Pitch Axis) inner gimbal (Roll Axis) are closed frames offering high torsional stiffness. The inner gimbal has T-slots to fasten the payload. Since the gimbals are symmetrical about the axis of rotation, the balancing weights can be minimized to compensate for unbalances due to the payload. The no-load inertia of the axis is smaller, then with the open gimbal design concept.

Slipping assemblies feature power rings and single shielded signal rings. Signal lines have four brush contacts per ring to avoid micro interruptions, which could corrupt digital signals. A wide variety of slipping capsule designs and wiring schematics are optional available.

The ACUTROL® Model ACT3000 controls the table. The digital controller has a touch sensitive operator interface and scalable analog input/output interface. Programmable Event Pulses can be used for calibration and synchronization with external computers or test equipment. Optionally, the standard digital interfaces, Ethernet (TCP/IP) and IEEE-488 can be supplemented with real time reflective memory interfaces SCRAMNet or VMIC.

Dimensions

Height, max	2715 mm
Height of outer axis	1890 mm
Width across outer axis	2000 mm
Base, diameter	1000 mm
Inner Gimbal clearance	550 mm x 550 mm
T-slots	Seized for M6 bolts

Unit under Test (UUT)

Payload, nominal (peak)	30kg, (100) 2 kgm ² nominal
Clearance envelope	550mm cube
Electrical lines to UUT	70 lines total: 4 x 20A 6 x 6A 60 x 2A

	<u>ROLL, inner axis</u>	<u>PITCH, middle axis</u>	<u>YAW, outer axis</u>
Orthogonality	5 arcsec	5 arcsec	
Wobble	2 arc sec	3 arc sec	3 arc sec
Dynamic Parameters			
Angular freedom	continuous	continuous	continuous
Positioning accuracy	1.5 RSS arc sec	2 RSS arc sec	1.5 RSS arc sec
Position resolution	0.00001 deg	0.00001 deg	0.00001 deg
Rate range	+/-900 deg/s	+/-400 deg/s	+/-300 deg/s
Rate resolution (command)	0.00001 deg/s	0.00001 deg/s	0.00001 deg/s
Rate accuracy	0.0010%	0.0010%	0.0010%
Acceleration, with load 2 kgm ²	10000 deg/s ²	2000 deg/s ²	1800 deg/s ²
Bandwidth (-90deg)	50Hz	22Hz	30Hz

Options

- Digital interface in addition to the std. IEEE-488 and Ethernet (TCP/IP) optional available are: SCRAMNet, or VMIC
- Temperature chamber range -40 deg C to 100 deg C
- Non standard sliprings
- Special UUT adapters