

Flight Motion Simulator for Radar Testing

## Three Axis Motion Simulator Model GA3397

### Modes of Operation

- Absolute Positioning: 0.00001 deg. resolution
- Rate – absolute and relative, excellent instantaneous rate stability
- Tracking Mode – for real time simulation of motion profiles
- Synthesized 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

The GA3397 is designed to accommodate an aircraft radar and associated electronics. The large diameter inner axis supports the payload. The inner axis is driven by a direct drive brushless torque motor. Due to the large imbalance caused by the offset of the inner axis, the middle axis is driven by Harmonic Drive gear actuators. The Harmonic drive is chosen for its low backlash and high gearing ratio in a compact size. The outer axis is driven by a direct drive brushless motor.

Rotary joint assembly connects gas services to the Radar Under Test. Electrical access to the Radar under test is performed through twist cables.

Optionally, a Slipping assembly in the inner axis connects the electric services to the Radar Under Test. 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 interface TCP/IP, can be supplemented with an IEEE-488 interface or many other commercially available, real time computer interfaces.

### Options

- Digital interface in addition to the std. TCP/IP optional available are: IEEE-488, SCRAMNet, 16Bit parallel or VMIC
- Unlimited roll axis with slipping assembly
- Special UUT adapters

<b>Dimensions</b>	Height, max	3760mm
	Height of outer axis	2205mm
	Width across outer axis	3095mm
	Base, diameter	1000mm
	Table top diameter	1260mm
	Table top offset	723mm
<b>Unit under Test (UUT)</b>	Payload, nominal (peak)	170kg (250kg)
	Clearance envelope	Cone of 1260mm x 3000mm (length)

	<b>ROLL, inner axis</b>	<b>PITCH, middle axis</b>	<b>YAW, Outer axis</b>
<b>Mech. specifications</b>			
Orthogonality	18"		18"
Wobble	18"	18"	18"
<b>Static and dynamic performances</b>			
Angular freedom	+/-100°	+/-60°	+/-120°
Positioning accuracy	+/-10 arcsec RSS	+/-10 arcsec RSS	+/-10 arcsec RSS
Rate range	+/-100°/s	+/-60°/s	+/-60°/s
Acceleration, with nominal load	500°/s <sup>2</sup> (load 21kgm <sup>-2</sup> )	200°/s <sup>2</sup> (load 47kgm <sup>-2</sup> )	200°/s <sup>2</sup> (load 47kgm <sup>-2</sup> )
Bandwidth (-3dB)	15Hz	8Hz	8Hz

