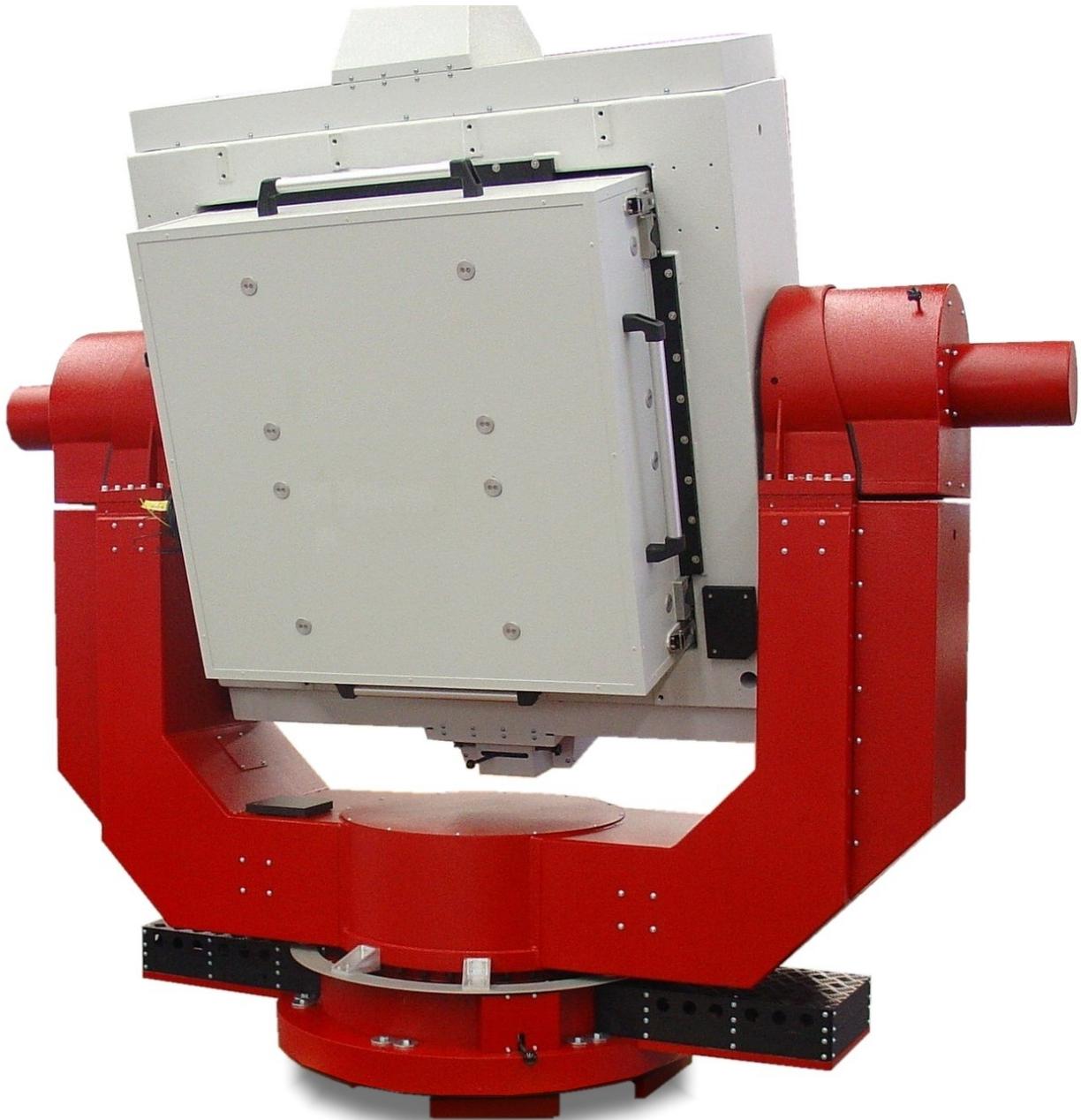


Inertial Guidance Test Instrument, Motion Simulator

Three Axis Motion Simulator Model AC3380-TC



Description

The AC3380-TC 3-Axis Motion Simulator has three degrees-of-freedom. The middle gimbal (Pitch Axis) and inner gimbal (Roll Axis) are closed frames offering high torsional stiffness. The inner gimbal has mounting plates with M8 hole patterns to fasten the payload.

A temperature chamber with gas cooling and electric heating is fastened to the middle axis gimbal. Large removable doors allow access to the UUT. The chamber can be specified with either LN₂ (TCN) or CO₂ (TCC) cooling. CO₂ gas can pass through tubes in the slipping shaft and enters the system through the table base, whereas LN₂ requires insulated piping and a rotary joint suspended from a gantry above the simulator.

Slipring assemblies in all axes provide electrical access to the Unit Under Test (UUT). Signal lines have four brush contacts per ring to avoid micro interruptions, which could corrupt digital signals. A wide variety of slipring capsule designs and wiring schematics are optionally available.

The ACUTROL® 3000 controls the table. The digital controller has a large, colour, 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; IEEE-488 and Ethernet can be supplemented with VMIC or SCRAMNet real time computer interfaces.

Dimensions

Height of outer axis	2'500 mm
Width across outer axis	2'500 mm
Base, diameter	1010 mm
UUT Interface	Plates with M6 hole pattern

Unit under Test (UUT)

Payload, nominal (peak)	60kg (100kg)
Clearance envelope	640mm cube
UUT Inertia (for test)	2kgm ²

Slipring Ways to UUT

100 ways total	- Power 10 x 20A, 400VAC
(Standard)	- Signal 90 x 2A, 150VDC
Data Lines	Option
RF or GPS Line	Option

	ROLL , inner axis	PITCH , middle axis	YAW , outer axis
Orthogonality	4 arcsec	4 arcsec	
Wobble	2 arc sec peak	4 arc sec peak	3 arc sec peak

Dynamic Parameters

	ROLL , inner axis	PITCH , middle axis	YAW , outer axis
Angular freedom	Continuous	Continuous	Continuous
Positioning accuracy	1 arc sec RSS	1 arc sec RSS	1 arc sec RSS
Position resolution	0.00001 deg	0.00001 deg	0.00001 deg
Rate range	+/-600 deg/s	+/-400 deg/s	+/-200 deg/s
Rate stability 360 deg	0.0001%	0.0001%	0.0001%
Inertia with load	7kgm ²	160kgm ²	600kgm ²
Acceleration, with load	2'500 degs/s ²	600 deg/s ²	600 deg/s ²
Bandwidth (-3dB)	60 Hz	15 Hz	20 Hz

Temperature Chamber

	CO₂ Cooling (TCC)	LN₂ Cooling (TCN)
Coolant	CO ₂ Cooling (TCC)	LN ₂ Cooling (TCN)
Range	-40 to +85 °C	-40 to +85 °C
Stability	+/-1°C	+/-1°C
Gradients	-3 °C/min +6°C/min	-5 °C/min +6°C/min

Options

- Digital interface in addition to the std. IEEE-488 and Ethernet; optional available are: RS-422, VMIC or SCRAMNet
- Non standard sliprings
- Larger torque motors for increased acceleration
- Extended rate ranges
- Extended temperature range (-55°C to +125°C)
- Special UUT adapters

For further information, contact:

ACUTRONIC USA Inc.
640 Alpha Drive, Pittsburgh, PA 15238
USA
Phone: 412 963 9400 Fax: 412 963 0816
Email: marketing@acutronic.com

Internet: www.acutronic.com

ACUTRONIC Switzerland Ltd.
Techcenterstrasse 2, 8608 Bubikon
Switzerland
Phone: +41 55 253 23 23 Fax : +41 55 253 23 33
Email : marketing@acutronic.ch