ACUTRONIC
Simulation & Test

Inertial Guidance Test and Calibration System

One-Axis AC130

The AC130 is a one-axis test table that was specifically designed to provide stimuli in the form of angular rates, accelerations, and positions to angular sensors such as gyroscopes, accelerometers and rate switch assemblies. The AC130 features a very reliable closed-loop direct-drive AC torque motor servo system consisting of a drive assembly, a servo controller and power amplifier.

The AC130 is controlled by the ACUTROL®3000e digital motion control system which allows precise measurement and closed-loop control of positions, rates and accelerations. The system is commanded from a touch-screen operator interface or from a host computer via a remote interface.

The standard table top and slipring configuration may be tailored to the requirements of the testing or simulation task. The system may also be used to satisfy the testing of single test units or multiple units during high volume production testing. Temperature chambers may be provided with the one-axis table or added at a later date.

The temperature chamber exposes the unit under test to high and low temperature extremes.

The AC130 rate tables are configured with high torque, low inertia AC brushless drive motors and AC drive power amplifiers. The AC brushless drive motors will provide very high rate and acceleration performance without the inherent brush wear that occurs on brush-type servo motors.

All AC130 tables come complete with a single axis table, rack mountable controller, drive power amplifier (rack mountable for the AC130-80; integral to the controller for the AC130-20), one set of mating customer connectors, interconnect cables from controller to table and documentation.

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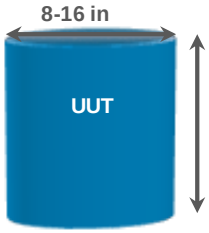
Unit Under Test (UUT)	
Mass	500 lbs (227 kg)
Maximum envelope	8 in dia. to 16 in dia. x 17.5 in (203 mm dia. to 406 mm dia. x 444 mm)
Table top diameter	14 in dia. or 22 in dia. (355 mm dia. to 559 mm dia.) [standard size] [custom options available]
Sliprings to UUT [Standard configuration]	90 lines @ 3A (31 TPS, 14 SS, 14 primaries) and 17 lines @ 5A (3 TTS, 4 TPS) [custom options available]



Specifications		
Position	(all models)	
Accuracy	1 arc sec RSS	
Command resolution	0.00001 deg	
Repeatability	± 0.1 arc sec	
Rate	**AC130-20**	**AC130-80**
Range	± 1,000 deg/sec	± 3,500 deg/sec
Stability over 360 deg	0.0001%	0.0001%
Command resolution	± 0.00001 deg/sec	± 0.00001 deg/sec
Dynamic		
Bandwidth (no load)	>50 Hz at -3dB Gain	
Acceleration	**AC130-20**	**AC130-80**
with 14 in Ø, 0.75 in thickness TT (no load inertia: 0.132 ft-lb-s^2, 0, 179kg.m^2)	7,500 deg/sec^2	15,000 deg/sec^2
with 22 in Ø, 0.75 in thickness TT and shaft extension (no load inertia: 0.5 ft-lb-s^2, 0, 678kg.m^2)	2,100 deg/sec^2	4,200 deg/sec^2
Mechanical		
Wobble	2 arc sec RMS max	

Major Simulator Dimensions	
Simulator (L x W x H) w/o chamber	22 in x 21 x 46 in (559 mm x 533 mm x 1'168 mm)
Simulator (L x W x H) w/ chamber (-TC)	41 in x 37 x 71 in (1'041 mm x 940 mm x 1'803 mm)
Payload / table top height w/o chamber	46 in (1'168 mm) - from floor
Payload / table top height w/ chamber (-TC)	50 in (1'270 mm) - from floor

Temperature Chamber (-TC)	
Controller	EZ Zone [custom options available]
Working volume	28 in dia. x 17.5 in height (711 mm x 444 mm)
Temperature range	-55°C to +85°C [extended range upon request]
Temperature stability (working volume)	± 1°C
Thermal Rate of change with LN_2 (-TC**N**)	5°C/min / 5°C/min (heating or/and cooling)

Options

- Temperature chamber cooled and heated by customer supplied air flow
- Temperature chamber cooled by CO2 (-TC**C**) or by mechanical refrigeration (-TC**M**)
- Custom UUT mounting arrangements and fixtures
- Custom tabletop/mounting surfaces and/or boom
- Mechanical brake, Stow Lock, or Slow Motion Clamp
- Optional real time computer interfaces; SCRAMNet+, SCRAMNet GT200, or VMIC
- LabVIEW user interface for playback and recording of motion profiles with data acquisition system
- Installation support, training and calibration
- Customized sliprings upon request including 2A lines, 10A lines, 20A lines, high voltage (kV) lines, high pressure gas line or fluid joints, RF rotary joints, Fiber Optic rotary joints...

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.