IDEAL AEROSMITH
Earned Expertise

Datasheet

2002P/2002PG Series Precision Two-Axis Positioning and Rate Table System

STANDARD FEATURES

- Position Accuracy: ± 1 arcsec
- Position Repeatability: ± 1 arcsec
- Rate Accuracy: 0.0001%
- Direct-drive, DC brushless servo system
- High-precision, pre-loaded ball bearings
- Precision-ground anodized aluminum tabletop
- Fail-safe brakes
- Electronics Console for AERO 4000 Controller and Servo Amplifiers

AERO 4000 CONTROLLER FEATURES

- .NET interface over Ethernet
- Front panel display of status and data
- Local and remote operation
- Trapezoidal velocity profiles with programmable velocity and acceleration
- Sinusoidal motion profiles with variable amplitude and frequency
- Profile Modes for simulating complex motion

DESCRIPTION

The 2002P/2002PG Series Two-Axis Precision Positioning and Rate Table Systems provide precise angular position, rate and acceleration for the development, production and/or qualification testing of inertial sensors (MEMS, FOG, RLG, HRG, quartz, spinning mass, etc.) or inertial packages such as Inertial Measurement Units (IMU), Inertial Navigation Systems (INS), and Attitude Heading Reference Systems (AHRS) or seeker/tracker/stabilization devices for applications in the Aviation, Aerospace, Defense, Space, and Marine industries.

These tables are servo controlled and feature direct-drive DC brushless motors, precision optical encoders and a microprocessor based controller that provides accurate and reliable motion control. The table can be operated from the front panel keypad or keyboard for local control or through a computer interface for remote control. This test table system is designed for ease of operation, yet allows for the performance of complex motion profiles.

The Models 2002P or 2002PG may be configured for limited rotation or with slip rings for unlimited axis rotation based on specific customer requirements. For limited rotation applications, these tables have wire wrap allowance that provides a cost effective alternative to slip rings. Wire wrap test tables are designed for high reliability, minimal electrical noise, and low maintenance.

EASE OF INTEGRATION

- LabVIEW™ Virtual Instrument (.vi) driver included
- GPIB and 100base-T Ethernet interfaces standard
- Available control languages: ATL (Aerosmith Table Language) and MPACS (Legacy Carco and Contraves Controllers)

OPTIONS

- High-quality, low-noise slip rings for continuous rotation applications available in various package sizes
- Integral Thermal chambers with electric heating and LN_2, CO_2 or mechanical cooling.
  Testing range: -65 to +85 deg C
- Custom tabletop diameters
- Increased maximum rates for either axis
- High Frequency RF Rotary Joint
- Fiber Optic Rotary Joint
- 2nd Tabletop External to Thermal Chamber for Data Acquisition System
- High Speed Reflective Memory interface
- *For special requirements, please contact Ideal Aerosmith regarding system customization*

For much more detailed information, contact Ideal to request a 2002P Series Specification Document or AERO 4000 Controller Data Sheet

2002P / 2002PG Performance Specifications	
Rotational Freedom options for all axes	Option 1: Unlimited rotation (slipring) Option 2: ± 540 deg. (wire wrap)
Positioning	
• Accuracy, Absolute, arcsec (deg)	± 1 (0.00028)
• Repeatability, arcsec (deg)	± 1 (0.00028)
• Resolution (command and display), deg	0.00001
Rate	
• Maximum*, deg/sec	Inner Axis: ± 1080 or 1800 Outer Axis: ± 360 or ± 600
• Resolution (command and display), deg/sec	0.00001
• Accuracy, % ± Resolution (measured over 360 deg.)	± 0.0001%
• Stability, % (measured over 360 deg.)	± 0.0001%
Acceleration/Bandwidth**	
• Peak (2 sec duration), deg/sec^2	Inner Axis: 5000 Outer Axis: 585
• Max Continuous, deg/sec^2	Inner Axis: 1000 Outer Axis: 190
• -3dB Bandwidth	Inner Axis: 75 Hz Outer Axis: 20 Hz
Axis Wobble, arcsec, max	3
Orthogonality, arcsec, max	± 5

* For a limited rotation axis, maximum rate is dependent upon acceleration capabilities (varies with load) and travel limits.

** Acceleration based on 24 inch (610 mm) tabletop with no load, does not extend through entire rate range for all values.

2002P / 2002PG System Physical Configuration	
Table Dimensions	
• Tabletop, diameter, standard sizes	18, 24, 28 or 32 inches (457, 610, 711, or 813 mm)
• Overall table dimensions	2002P: 98.4 W x 29.2 D x 66.3 inches H (2499 x 742 x 1684mm) 2002PG: 102.4 W x 36.0 D x 66.3 inches H (2601 x 914 x 1684mm)
• Height of axis intersection	48.3 inches (1227 mm)
Test Load Capacity	150 lbs (68 Kg) Centered. With thermal chamber: 125 lbs (57 Kg) Note: The accuracy performance specifications shown are based on a centered, 150 lb maximum payload. The system is rated for much larger loads, but some performance specifications may be affected.
User Harness/Slipring Options	Standard wire wrap package is 156 lines. Standard slipring packages are 100, 120, 180 and 210 lines. (Availability varies by axis configuration.) Custom slipring packages are available.
Thermal Chamber	An integral Thermal Chamber is available with max tabletop diameters of 24 in (610 mm) for 2002P; 28 in (711 mm) for 2002PG
Controller	Consult AERO 4000 Data Sheet for more detailed information
• Type & Configuration	AERO 4000 Test Table Controller configured in a 19 inch Cabinet
• Communication Interfaces	IEEE-488 and Ethernet ports available to user
• Architecture	DSP based Motion Control installed on a PCI bus with distributed processing
• Servo Update frequency	5 kHz
• Control Modes	Position, Rate, Profile, Stop
• Miscellaneous Features	• 19 inch flat panel monitor with powerful, user-friendly GUI • Digital capture, display and logging of data variables • Multiple control options including local, ATL, MPACS emulation, real-time reflective memory, analog and a .NET interface.

For additional information or special requirements, contact Ideal Aerosmith. Specifications subject to change without notice. Please call for pricing. Rev G