2003VE SERIES THREE AXIS PRECISION MOTION SIMULATION TABLE SYSTEM

STANDARD FEATURES

- **Position Accuracy**: ±1 Arc Sec
- **Position Repeatability**: ±1 Arc Sec
- **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 5 ELITE Controller and Servo Amplifiers

AERO 5 ELITE CONTROLLER FEATURES

- Aerosmith Table Language (ATL) for remote operation over Ethernet
- Data Acquisition streaming at up to 20 kHz over Ethernet
- Highly-customizable Graphical User Interface
- Local and remote operation
- Trapezoidal velocity profiles with programmable velocity and acceleration
- Signal Generator to execute motion based on sine, sine sweep, step, triangle, or sawtooth signals, with configurable amplitude and frequency
- Motion Files for simulating complex motion
- Analog Input control in Position or Velocity modes

DESCRIPTION

The 2003VE Series Three-Axis Precision Positioning and Rate Table Systems provide precise angular position, rate and acceleration motion stimuli generally used for the development, production and/or qualification testing of precision 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, direct-drive table with an AERO 5 ELITE Controller. The Table System can be controlled locally via the controller interface, or remotely via a host PC. This test table system is designed for ease of operation, yet allows for the performance of complex motion profiles.

The 2003VE Series Table Systems 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 INTERGRATION

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

OPTIONS

- High-quality, low-noise slip rings for continuous rotation applications available in various package sizes
- Integral LN_2 cooled thermal chamber
- Custom tabletop diameters
- Increased maximum rates for any axis
- High Frequency RF Rotary Joint
- Fiber Optic Rotary Joint
- High Speed Reflective Memory interface

For much more detailed information, contact Ideal to request a Specification Document.

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2003VE Performance Specifications	
Range of Motion, deg	Inner Axis: Standard Unlimited, Optional ±540 Middle Axis: Standard ±540, Optional Unlimited Outer Axis: Standard ±540, Optional Unlimited
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 Middle Axis: ± 500 Outer Axis: ± 500
• Resolution (command and display), deg/sec	0.00001
• Accuracy, % ± Resolution (average of 10 readings, measured over 1 rev)	± 0.0001%
• Stability, % ± Resolution (average of 10 readings, measured over 1 rev)	± 0.0001%
Acceleration/Bandwidth**	
• Peak (2 sec duration), deg/sec^2	Inner Axis: 7500 Middle Axis: 525 Outer Axis: 250
• Max Continuous, deg/sec^2	Inner Axis: 1800 Middle Axis: 170 Outer Axis: 150
• -3dB Bandwidth	Inner Axis: 75 Hz Middle Axis: 10 Hz Outer Axis: 15 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.

2003VE System Physical Configuration	
Table Dimensions	
• Tabletop, diameter, standard sizes	18, 24, 28 or 32 inches (457, 610, 711, or 813 mm)
• Overall table dimensions	121.8 W x 46 D x 118.5 H (3094 x 1168 x 3010)
• Height to pitch axis	74.8 inches (1900 mm)
Test Load Capacity	165 lbs (75 Kg) Centered
User Harness/Slipring Options	Standard wire wrap package is 156 lines. Standard slipring packages are 70, 100, 120, 160, 180 and 210 lines. (Availability varies by axis configuration.) Custom slipring packages are available.
Thermal Chamber Option	An integral Thermal Chamber is available with max tabletop diameters of 24 in (610 mm)
Controller	Consult AERO 5 ELITE Data Sheet for more detailed information
• Type & Configuration	AERO 5 ELITE Controller configured in a console
• Communication Interfaces	IEEE-488, RS-232 and Ethernet ports available to user
• Servo Update frequency	20 kHz
• Control Modes	Position, Rate, Profile, Stop

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