

## 2103C SERIES THREE AXIS POSITION AND RATE TABLE SYSTEM

### STANDARD FEATURES

- Position Accuracy:  $\pm 15$  arc sec (all axes)
- Rate Accuracy:  $\pm 0.001\%$  (for unlimited rotation axes)
- Max Rate (varies depending on axis configuration)
  - Inner Axis: 1080-2000 deg/sec
  - Middle Axis: 150-350 deg/sec
  - Outer Axis: 150-350 deg/sec
- Direct-drive, brushless servo system
- Precision-ground anodized aluminum tabletop
- 10 (254 mm) or 14 (356 mm) inch diameter tabletop
- Fail-safe brakes (all axes)
- Rotational freedom
  - Inner Axis: Unlimited
  - Middle Axis:  $\pm 185$  deg or unlimited
  - Outer Axis:  $\pm 370$  deg or unlimited
- AERO 3500 Commander Digital Controller mounted in a cabinet
- RS-232, IEEE-488 and Ethernet interface
- 2 kHz servo update rate
- Front panel display of status and data
- Local or remote operation
- User-friendly Ideal Aerosmith Table Language (ATL)
- Trapezoidal motion profiles with programmable velocity and acceleration
- Sinusoidal Motion profiles with variable amplitude and frequency
- Position Profile, Velocity Profile and Flight Profile Mode for simulating complex motion profiles
- Analog position and velocity input
- Analog position, velocity and position error output
- Absolute Optical Encoders
- Capable of querying the current position, velocity, and acceleration
- CE Mark

### DESCRIPTION

The Model 2103C Three-Axis Positioning and Rate Table System is designed to provide precise position, rate, and acceleration motion for the development and/or production testing of military and/or commercial antenna stabilization systems and/or heading sensors.



The 2103C test table achieves accurate and reliable motion control with a servo-controlled system consisting of direct-drive brushless torque motors, precision absolute optical encoders and the Ideal Aerosmith AERO 3500 Commander microprocessor based three-axis motion controller. The table can be operated from the AERO 3500 Commander Controller front panel for local control or remotely through a host PC via Ideal Aerosmith Table Language (ATL) over an RS-232, IEEE-488 or an Ethernet communication interface using .NET.

### OPTIONS

- Unlimited rotation available on all axes
- Customer defined user lines to the tabletop
- 19 inch controller console, approximately 73 inches tall
- Custom tabletop mounting hole pattern
- *For special requirements, accuracies, or custom specifications, please contact Ideal Aerosmith, Inc.*

***For much more detailed information, contact Ideal to request a 2103C Series Specification Document or AERO 3500 Commander Controller Data Sheet.***

Performance Specifications						
Rotational Freedom (standard)*	Inner Axis		Middle Axis		Outer Axis	
	Unlimited		± 185 deg or Unlimited		± 370 deg or Unlimited	
<b>Position</b>						
• Accuracy, arc sec (deg)	±15 (0.00417)		±15 (0.00417)		±15 (0.00417)	
• Repeatability, arc sec (deg)	± 3 (0.00083)		± 3 (0.00083)		± 3 (0.00083)	
• Command/Display Resolution, deg	0.0001		0.0001		0.0001	
<b>Rate *</b>						
• Maximum, deg/sec (optional rates require unlimited rotation) *	±1080 Optional: 2000		Limited rotation axis: ±150 Optional: ±350		Limited rotation axis: ±150 Optional: ±350	
• Command/Display Resolution, deg/sec	0.0001		0.0001		0.0001	
• Accuracy, % ± resolution	±0.001%		For limited rotation: ±0.5% For unlimited rotation: ±0.001%		For limited rotation: ±0.5% For unlimited rotation: ±0.001%	
<b>Acceleration / Bandwidth</b>	<b>Inner Axis</b>		<b>Middle Axis</b>		<b>Outer Axis</b>	
	10 inch tabletop	14 inch tabletop	10 inch tabletop	14 inch tabletop	10 inch tabletop	14 inch tabletop
• Peak, deg/sec <sup>2</sup> (2 second duration)	10000	6700	1000	850	200	195
• Max Continuous, deg/sec <sup>2</sup>	10000	2900	420	375	85	80
• -3dB Bandwidth, Hz (no load)	5	5	5	5	5	5
• Tare Inertia, lbm*in <sup>2</sup> (kg*m <sup>2</sup> )	104 (0.031)	288 (0.084)	4507 (1.32)	5082 (1.49)	22063 (6.46)	22631 (6.62)
<b>Axis Wobble, arc sec (deg)</b>	10 (0.00278)		10 (0.00278)		10 (0.00278)	
<b>Axis Orthogonality, arc sec (deg)</b>	± 10 (0.00228) between consecutive axes					

\* For limited rotation axis, the maximum rate may not be achievable as it is dependent upon acceleration capabilities, which may vary with payload.

System Physical Configuration	
<b>Table Surface Characteristics</b>	
• Diameter	Standard: 10 inches (254mm) Optional: 14 inches (356mm)
• Hole Pattern	10 inch table top: 1/4-20 threaded holes on a one inch (25 mm) grid pattern. 14 inch table top: 1/4-20 threaded holes on a two inch (51 mm) grid pattern. (Other interface patterns available upon request.)
• Face Flatness; Material; Finish	0.003 TIR (.076); Aluminum; 32 RMS
<b>Test Load Capacity</b>	15 lbs (6.8 Kg) (Centered) Height: 12.5 inches (318 mm) for 10 inch table top Height: 12 inches (305 mm) for 14 inch table top Center of Gravity: less than 6 inches (152mm) above tabletop
<b>Electrical Access to the UUT</b>	User lines: 34 lines @ 2A each, 17 twisted shielded pair
<b>Table Configuration</b>	
• Dimensions	39.5 W x 28.25 D x 54.2 H inches (1003 W x 718 D x 1377 H mm)
• Weight	500 lbs. (226 Kg)
<b>Axis Lock</b>	Fail-Safe Electric Brake (all axes)
<b>Leveling Range</b>	± 1 degree
<b>Controller</b>	Consult AERO 3500 Commander Data Sheet for more detailed information
• Type and Configuration	AERO 3500 Commander mounted in a cabinet
• Local Interface	Touch screen flat panel monitor
• Communication Interface	RS-232, IEEE-488 and Ethernet ports available to use
• Operating System	Windows Embedded Standard 7
<b>Analog Input</b>	±10V input proportional to position or velocity with resolution of 0.31 mV
<b>Analog Output</b>	±10V input proportional to position or velocity with resolution of 0.31 mV.

For special requirements or custom specifications, contact Ideal Aeromsmith. Specifications subject to change without notice. Please call for pricing.

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