2102C SERIES TWO AXIS POSITION AND RATE TABLE SYSTEM

STANDARD FEATURES

- Position Accuracy: ±15 arc seconds (both axes)
- Rate Accuracy: ± 0.001%
- Max Rate (varies depending on axis configuration):
  - Inner Axis: 2000 deg/sec
  - Outer Axis: 300 deg/sec
- Direct-drive, brushless servo system
- Precision-ground anodized aluminum tabletop
- 14 or 18 inch diameter tabletop
- Fail-safe brakes (both axes)
- Rotational freedom option of ±370° or unlimited for each axis.
- AERO 3500 Commander Controller mounted in a short cabinet
- RS-232, IEEE-488 and Ethernet interface
- 2 kHz servo update rate
- Front panel display of status and data
- Local and remote operation
- User-friendly Ideal Aerosmith Table Language (ATL)
- Trapezoidal velocity profiles with programmable velocity and acceleration
- Sinusoidal motion profiles with variable amplitude and frequency
- Position Profile, Velocity Profile, and Flight Profile Modes 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

DESCRIPTION

The Model 2102C Two Axis Position 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 rate and position sensors.

Model 2102C

easily customized with a wide range of options to meet your specific requirements.

Accurate and reliable motion control of the 2102C Test Table is achieved 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, two 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

- Custom tabletop
- Unlimited rotation for inner or both axes
- Custom user line or slip ring packages
- Vacuum/pressure line routed through the axis
- Vacuum chamber system
- Rack-mount cabinet for controller and servo amplifier chassis
- *For special requirements, please contact Ideal Aerosmith regarding system customization.*

For much more detailed information, contact Ideal to request a 2102C Series Specification Document or AERO 3500 Commander Controller Data Sheet.

2102C Series Performance Specifications

	Inner Axis		Outer Axis	
Range of Motion, deg	± 370 or unlimited		± 370 or unlimited	
Position				
• Accuracy, arc sec (deg)	± 15 (0.00417)		± 15 (0.00417)	
• Repeatability, arc sec (deg)	± 3 (0.00083)		± 3 (0.00083)	
• Command/Display Resolution, deg	0.0001		0.0001	
Rate				
• Maximum, deg/sec*	Limited rotation axis: ±300 With optional slipring: ±2000		Limited rotation axis: ±100 With optional slipring: ±300	
• Command/Display Resolution, deg/sec	0.0001		0.0001	
• Accuracy, % ± Resolution (average of 10 readings, measured over 1 rev)	± 0.001%		± 0.001%	
Acceleration / Bandwidth	14 inch tabletop	18 inch tabletop	14 inch tabletop	18 inch tabletop
• Peak, deg/sec^2 (2 sec. duration, sinusoidal motion, no payload)	6700	6700	650	650
• Max Continuous, deg/sec^2	2900	2900	280	280
• -3dB Bandwidth (no load)	10	10	5	5
• Tare Inertia, lbm*in^2 (kg*m^2)	295 (0.09)	690 (0.20)	7711 (2.26)	7511 (2.20)
Axis Wobble, arc sec (deg)	10 (0.00278)		10 (0.00278)	
Axis Orthogonality, arc sec (deg)	± 10 (0.00278) between axes			

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

2102C Series System Physical Configuration

Table Surface Characteristics	
• Diameter	Standard sizes: 14 and 18 inches (356 and 457 mm) Test load mounting provisions are 1/4-20 threaded holes on a two-inch (50 mm) grid pattern. Custom tabletop and interface patterns available upon request.
• Face Flatness	0.005 inches (0.127 mm) TIR (for 14 inch diameter tabletop)
• Face Runout	0.002 inches (0.051 mm) @ 3.5 inch (89 mm) radius
• Material and Surface Finish	Aluminum with 32 RMS surface finish
Test Load Capacity	40 lb. (18.1 Kg) centered. Maximum height 8 inches (203 mm). Center of gravity must be less than 4 inches (102 mm) above tabletop
User Harness/Slip Ring Options	• Limited rotation for both axes: 54 lines at 5A each • Unlimited rotation inner axis, limited rotation outer axis: 34 lines at 2A each or 48 lines at 3A each • Unlimited rotation for both axes: 34 lines at 2A each or 46 lines at 2A each Custom user harnesses are available. Please consult Ideal Aerosmith
Vacuum/Pressure Line	Available for tables with limited rotation both axes, or limited rotation outer axis with 48 line slipring. 100 milli-torr. 15 psig.
Test Table Dimensions and Weight	
• Dimensions, in (cm)	44.7 Wide x 27.2 Deep x 31.6 High (113.5 Wide x 69.1 Deep x 80.3 High)
• Weight, lb (kg)	435 (197)
Controller	Consult AERO 3500 Commander Data Sheet for detailed information
• Type and Configuration	AERO 3500 Commander mounted in a small cabinet
• Local Interface	Touch screen flat panel monitor
• Communication Interface	RS-232, IEEE-488 and Ethernet ports available to user
• Operating System	Windows 10 Enterprise 2016 LTSB (Long Term Servicing Branch)
Analog Input	±10 V input proportional to position or velocity with resolution of 0.31 mV
Analog Output	±10 V output proportional to position, velocity or position error. Res: 0.31 mV

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