IDEAL AEROSMITH
Earned Expertise

Datasheet

1542C-12-TL SERIES TWO AXIS POSITIONING AND RATE TABLE SYSTEM

STANDARD FEATURES

- Position Accuracy:±15 arc sec
- Rate Accuracy: ±0.005% ± Resolution
- Max Rate (varies depending on axis configuration):
  Inner Axis: 1080 deg/sec
  Outer Axis: 360 deg/sec
- Direct-drive, brushless servo system
- Precision-ground anodized aluminum tabletop
- 12-inch diameter tabletop
- Fail-safe brakes (both axes)
- Integral Thermal Chamber
- Rotational freedom options of ±720°
- AERO 3500 Commander Digital 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, acceleration and position error output
- Absolute Optical Encoders
- Capable of querying the current position, velocity, and acceleration
- CE Mark

DESCRIPTION

The 1542C-12-TL Series Automatic Positioning and Rate Table System is designed to provide precise position, rate and acceleration motion for

the development and/or production testing of inertial packages and their components.

The 1542C-12-TL Series test table is a servo-controlled systems featuring direct-drive brushless torque motors, precision absolute optical encoders and a microprocessor based controller that provides accurate and reliable motion control. The table can be operated from the AERO 3500 COMMANDER front panel for local control or remotely through a host PC via the Ideal Aerosmith Table Language (ATL) over an RS-232, IEEE-488 or Ethernet communication interface.

OPTIONS

- Custom tabletop
- ±8 arc second position accuracy
- Unlimited rotation for inner or both axes
- Custom user line or slip ring packages
- Rotary Joints for RF or Fiber Optic signals
- High-speed inner axis
- *For special requirements, please contact Ideal Aerosmith regarding system customization.*

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

1542C-12-TL Series Performance Specifications

	Inner Axis	Outer Axis
Range of Motion, deg	± 720 or unlimited	± 720 or unlimited
Position		
• Accuracy, arc sec (deg)	Standard: ± 15 (0.0041667) Optional: ± 8 (0.0022)	Standard: ± 15 (0.0041667) Optional: ± 8 (0.0022)
• Repeatability, arc sec (deg)	± 3 (0.00083)	± 3 (0.00083)
• Display Resolution, deg (approx)	X.XXXX	X.XXXX
Rate		
• Maximum, deg/sec*	Standard ± 1080 Optional** ± 2000	± 360
• Minimum, deg/sec (approx)	1.72×10^{-4}	1.72×10^{-4}
• Display Resolution, deg/sec (approx)	X.XXXX	X.XXXX
• Accuracy, % ± Resolution (average of 10 readings, measured over 1 rev)	± 0.005%	± 0.005%
Acceleration / Bandwidth		
• 2 Second Peak, deg/sec^2	44,000***	150
• Max Continuous, deg/sec^2	12,300***	39
• -3dB Bandwidth (no load)	75 Hz	15 Hz
Axis Wobble, arc sec (deg)	10 (0.00278)	10 (0.00278)
Axis Orthogonality, arc sec (deg)	± 10 (0.00278) between consecutive axes	

* For a limited rotation axis, maximum rate may not be achievable as it is dependent upon acceleration capabilities, which vary with payload.
** High speed option requires unlimited rotation.
*** Accelerations listed are for a maximum rate of 1,080 deg/sec. Performance diminishes at higher rates.

1542C-12-TL Series System Physical Configuration

Tabletop Surface Characteristics	
• Diameter	12 inches (305 mm) Test load mounting provisions are 1/4-20 tapped holes on a two-inch (50.8 mm) grid pattern. Custom tabletop and interface patterns available upon request.
• Face Flatness, inches (mm)	0.005 (0.127) TIR
• Face Runout, inches (mm)	0.002 (0.051) at a 3.5 inch (89 mm) radius measured over 1 revolution
• Material & Surface Finish	Aluminum with 32 RMS Surface Finish
• Tabletop Connectors	One or two 66 pin MS style connectors
Test Load Capacity, lbs (Kg)	30 (13.7) (Centered) CG <8 inches (203 mm) above the tabletop
User Harness/Slip ring Options	• Limited rotation for both axes: 130 lines at 3A each • Unlimited rotation for Inner axis, limited rotation outer axis: SR30: 30 lines at 2A per line or SR120: 120 lines at 3A per line • Unlimited rotation for both axes: SR30 (2A each), SR100 or SR120 (3A each) Custom slip ring packages are available. Please consult Ideal Aerosmith.
Table Dimensions and Weight	82.2 x 32.5 x 67.5 in Height (2090 x 828 x 1715mm); 1600 lbs (726 Kg)
Integral Thermal Chamber	LN2 cooling and electrical resistance heaters, test range of -55 to +150° C
Controller	Consult AERO 3500 COMMANDER Data Sheet for detailed information
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 additional information or special requirements, contact Ideal Aerosmith. Specifications subject to change without notice. Please call for pricing. Rev -

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