

## 1281 Series Technical Specification Single Axis Position and Rate Table System

### DESCRIPTION

The 1281 Single Axis Position and Rate Table System is designed to provide precise position, rate, and acceleration motion for development or production testing of inertial sensors. The 1281 was specifically designed for testing today's considerably smaller inertial sensors and systems.

Accurate and reliable motion control of the 1281 test table is achieved with a servo-controlled system consisting of a direct drive brushless torque motor, a precision absolute encoder, and an internal microprocessor-based motion control system. Position, rate, and acceleration are commanded from a host PC (not provided) via the RS-232 or Ethernet communication interfaces. The user can utilize an Ideal-provided LabVIEW™ Application Program or their own communication software package with Ideal's software (ATL command set) to control the 1281.

### STANDARD FEATURES

- Position Accuracy:  $\pm 50$  Arc Sec
- Position Repeatability:  $\pm 25$  Arc Sec
- Rate Accuracy over  $360^\circ$ :  $\pm 0.01\%$
- Maximum Rate: 1,000 deg/sec
- Tabletop Diameter: 12 inches (305 mm)
- Direct drive brushless motor
- 34 line slip ring
- Digital closed loop servo control
- RS-232 and Ethernet Control Interface
- LabVIEW™ Interface
- User-friendly Ideal Aerosmith Table Language (ATL)
- Tests in a Vertical or Horizontal Configuration
- Precision-ground anodized aluminum tabletop
- Sinusoidal Motion with programmable frequency and amplitude
- Capable of querying the current position and velocity
- Indicator LEDs: Power, Error, Servo Active, E-Stop Button, and E-Stop External
- CE Listed



### OPTIONS

- Pedestal for floor mounting
- Custom fixture plates
- Mating connector kit
- Vacuum line
- Custom mounting hole patterns

## Physical Configuration and Specifications

<b>Tabletop Surface Characteristics:</b>	
• Diameter	12 inches (305 mm)
• Hole Pattern	Square pattern 10-32 UNF threaded on 3 inch centers
• Face Flatness	0.003 inches (0.076 mm) TIR
• Face Runout	0.003 inches (0.076 mm) @ 3 inch (76.2 mm) Radius
• Material	Aluminum, black anodized
• Surface Finish	32 RMS
• Usable tabletop surface:	12 inches in diameter
• Axis Wobble, arc sec	<20
<b>Test Load Capacity:</b>	
• Vertical Orientation	50 lbs. (22.7 kg) centered
• Horizontal Orientation	25 lbs. (11.3 kg) CG < 3 inches
<b>Electrical Access to the UUT:</b>	
• Slip ring lines	34 lines at 2A each (17 twisted shielded pair)
• Slip ring resistance variation per line, with table rotating at 30 deg/sec.	60 milliohms
• Connectors	Tabletop: (1) 37pin Female D-sub connector Base: (1) 37pin Male D-sub connector
<b>Test Table:</b>	
• Dimensions	14.5 W x 15.6 L x 11.8 H inches (368 x 396 x 300 mm)
• Table Top Height	12.5 to 13.0 inches (317.5 to 330.2 mm)
• Weight, approximate	60 lbs. (27.2 kg)
• Leveling Range	+/- 1 degree
<b>Controller:</b>	
	NOTE: A user supplied PC with RS-232, or Ethernet is required
• Type	Internal
• Communication Interface	RS-232 (Max 115,200 Baud), Ethernet (10/100TX)
• Control Language	ATL commands via host PC
<b>Operating Environment:</b>	
• Temperature	50 to 95° F (10 to 35° C)
• Relative Humidity	20% to 85% non-condensing
<b>Non-Operating Environment:</b>	
• Temperature	-20 to 120° F (-29 to 49° C)
<b>Power Requirements:</b>	
	IEC 60320 Power Entry Connection 115/230VAC ± 10%, 1Ø, 50/60 Hz, 3A(FLA), 5A Fused, 5kA SCCR

## Performance Specifications

<b>Range of Motion, Degrees</b>	Unlimited
<b>Position</b>	
• Accuracy (absolute), arc sec (deg)	±50 (0.01389)
• Repeatability, arc sec (deg)	±25 (0.00694)
• Initialization Accuracy, arc sec (deg)	±25 (0.00694)
• Command/Display Resolution, deg	0.0014
• System Resolution (approx), deg	0.000343
• Encoder Resolution, counts per rev	1,048,576
<b>Rate</b>	
• Maximum, deg/sec	1,000
• Command/Display Resolution, deg/sec	0.001
• System Resolution (approx), deg/sec	0.0014
• Accuracy (average of 10 readings, measured over 1 revolution)	0.01% of commanded rate ± resolution
• Stability (measured over 1 revolution)	0.01%

## Acceleration Performance Specifications

• Motor Torque (stall)	3.7 lbf-ft (5 Nm)
• Acceleration, Minimum	1.4 deg/sec/sec
• Acceleration, 2 Second Peak	10,000 deg/sec/sec
• Acceleration, Sinusoidal Continuous	2,000 deg/sec/sec
• Tare Inertia, lbm in <sup>2</sup> (kg m <sup>2</sup> )	55 (0.016)
• Frequency, Maximum, -3dB (no load)	20 Hz

## LIST OF DELIVERABLES

### Documentation

Distribution Media to include;

1. Owner's manual which includes, but is not limited to, proper facility preparation, operation, maintenance, troubleshooting, mechanical and wiring schematics, spare parts list and remote interface instructions.
2. One (1) Acceptance Test Procedure including In-process and Factory Acceptance Test results

### Standard Hardware

1. Model 1281 Single Axis Automatic Position and Rate Table
2. Fuse Kit
3. User Connectors (Qty 2)
4. Power Cord

An expedited lead-time may be available on any of the tables and options. Please contact Ideal. Specifications, options and pricing are subject to change without notice.

1281 Rev C