

SPS-8000 Precision Positioner

Cost Effective, High-Performance Positioning System

COBHAM

2009 Data Sheet

The most important thing we build is trust

SPS Series Precision Positioners

Features

- Cost-effective solution for precise positioning of payloads weighing up to 2000 lbs
- Designed to position large telescopes, lasers and even RF payloads requiring the precision dictated by large focal length optics and narrow beam directors
- Provides a large central aperture suitable for Coudé systems with output apertures up to 1.5 meters
- Easily set-up and optimized for varying payloads
- Brushless, direct-drive motors reduce EMI and maintenance
- Direct-drive, permanent magnet motors provide zero backlash by eliminating gearboxes while providing high reliability and high performance
- Angular resolution of 24 bits ($0.4 \mu\text{radians}$) with Inductosyns
- Combines high bandwidth performance with low jitter pointing
- High-speed microprocessor control
- C-based firmware for fast response, ease of use and flexibility
- Controlled by analog joystick or digitally via PC
- Suitable for military land, sea and airborne environments



SPS-8000

Cobham's standardized, commercial off-the-shelf (COTS) SPS Series of Precision Positioners are based on a scalable design resulting from over 25 years of satisfying demanding customer requirements. Precise positioning, high reliability, high payload to weight ratios, low maintenance and cost effective solutions are hallmarks of Cobham's SPS Series of Precision Positioners. As our customer, you will benefit from Cobham's proven experience in electronic imaging, signal processing, control systems and system integration.

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SPS-8000 Performance Specifications*

Resolution	24 bits (0.4 radians with Inductosyns)
Accuracy	$\pm 0.0007^\circ$ ($\pm 12 \mu\text{radians}$)
Repeatability	± 0.0003 ($\pm 6 \mu\text{radians}$)
Velocity; Acceleration	
Azimuth	$90^\circ/\text{sec}$; $90^\circ/\text{sec}^2$
Elevation	$90^\circ/\text{sec}$; $90^\circ/\text{sec}^2$
Motor Torque, Peak (nominal)	Up to 900 ft-lb AZ Up to 400 ft-lb EL
Travel	$\pm 180^\circ$ ($\pm 1^\circ$), Continuous Optional AZ -5° to $+185^\circ$ ($\pm 1^\circ$) EL
Dimensions (without payload)	Custom
Jitter	TBD - subject to analysis of operating conditions

Coatings and Fittings

The pedestal is pre-treat primed and can be marine powder-coat painted, or painted according to customer specifications. It is supplied with stow locks for safe transportation, a pedestal-safe switch allowing maintenance personnel to immobilize the pedestal during maintenance, limit switches, mechanical cushioned stops, cablewrap and other custom features.

Configuration

Pedestal Type	Direct-drive, Elevation over Azimuth T-Bar, Yoke, or 3-Axis
Drive Motors	Brushless DC
Mechanical Stops	Azimuth $\pm 185^\circ$ Elevation -10° and $+190^\circ$
Weight, Positioner	1500 lbs. (nominal)
Weight, Payload	Up to 2000 lbs.

Mechanical

Mechanical	40" dia. Bolt circle, with 24 equally spaced 0.406 inch dia. holes
Stow Positions	Azimuth 0° Elevation 0°

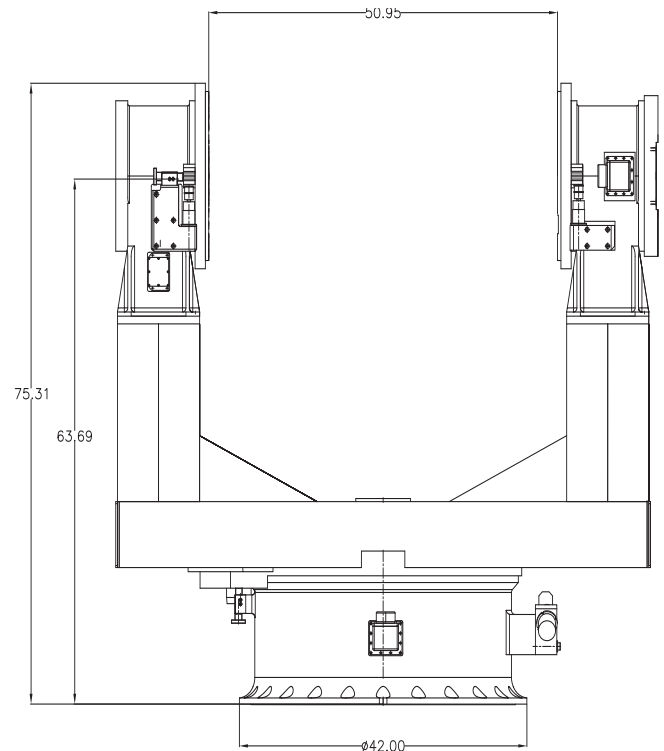
Environmental

Temperature	-30°C to $+50^\circ\text{C}$ (Pedestal Only)
Rain	Weather-tight seals
Relative Humidity	98%
Shock & Vibration	To MIL Standards

Options

		Drift Control
Sensors	LOS Stabilization	Payload/system integration
Slip rings	Risers	GPS
Leveling	F/O Gyros	Inductosyns
Coudé Optics	Autotracker	Videotracker
Trajectory Program	Manual Joystick Mode	Rotary Joints

Mechanical Data (not to scale)



Yoke Configuration

All measurements in inches
Standard yoke width is 48 inches
Payload specific yokes available

Power

The Positioner derives its power from the servo control unit. The servo control unit operates from:

- 115/240 VAC, single-phase, 50/60 Hz power;
- 208 VAC (optional), three-phase, 50/60 Hz power;

* Specifications subject to change without notice

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