

SPS-250 Precision Positioners

For Stabilized Applications

COBHAM

Cobham Advanced Electronic Solutions, Lansdale, PA - USA

The most important thing we build is trust

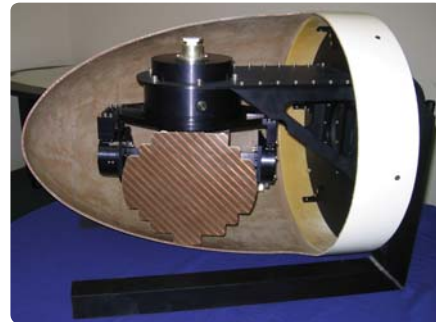
SPS Series Precision Positioners

Cobham Advanced Electronic Solutions has developed a series of small positioners for mobile applications. As in the remainder of the product line, the positioners are direct drive brushless motor based gimbals with brushless resolvers and rugged construction for military applications. Combined with a proprietary control system design, the SPS-250 offers a turnkey terminal requiring only power, a communications port and a signal I/O to implement an RF or E/O solution. Applications include SATCOM-On-The-Move, Mobile Datalink, Lasercom, E/O imaging, laser beam control and ESM systems. These positioners can be combined with antennas to implement SATCOM, Datalink and ESM subsystems scalable to a wide variety of performance requirements.

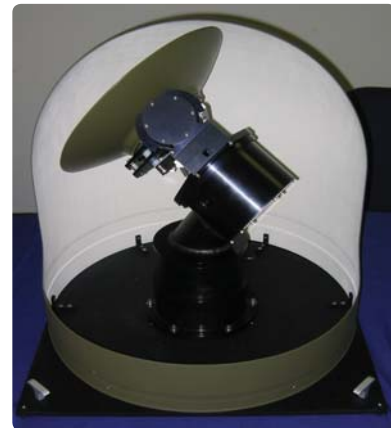
Features

- Lightweight for Airborne/UAV Application
- 2 or 3 Axis Configuration
- Electronics in Gimbal or ATR Case
- Modular Construction for Tailoring to Payload Configuration
- Hi-Rel Brushless Motor/Resolver Design
- Software Tailored Performance
- Use for RF or EO Applications
- MIL Quality Design
- 28 VDC/115 VAC Operation
- Multiple RS-232/422/485 or Ethernet Interfaces for Communication, Control and Platform Position/Altitude Inputs
- Stabilized LOS Operation
- High dynamic rates/high bandwidth response
- No Gears, Belts or Indirect Coupling of the Drives

2 Axis Gimbal in Radome



3 Axis Gimbal in Radome



For further information please contact:

Cobham Advanced Electronic Solutions
305 Richardson Road, Lansdale, PA 19446-1485 USA
Tel. +1 (215) 996-2000 or (215) 996-2416
Fax +1 (215) 996-2076
E-mail: RFQLansdale@Cobham.com
Local Contact: Alex.Doig@cobham.com or
Alvin.Penton@cobham.com

SPS-250 Precision Positioners

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RF Basic Specifications

Typical

Antenna

Flat Panel / Prime Focus Tx / Rx

Size

Variable by Function

Frequency

X, Ku, Ka, Q Bands

Gain

As Required

Beam Width

Set by Antenna Size

Polarization

RHCP, LHCP, or Rotating Linear

Gimbal

AZ

± 180 or Continuous (slip ring)

EL

-10 to $+95^\circ$ (Typical)

Cross Level

Optional 3 Axis

Rates

$0-300^\circ/\text{sec}$, up to $3000^\circ/\text{sec}^2$

Static Accuracy

$>0.05^\circ$

Peak Torque

AZ = 10ft-lb, EL = 5ft-lb or smaller

Weight (Std Unit)

22 lb (2 Axis), 30 lb (3 Axis)

E/O Basic Specifications

Typical

Payload

Mirrors, EO Sensors, Lasers

Size

Consistent with Payload and Torque

Frequency

Visible, Near, Mid & LW / IR, Laser

Gain

Set by Optic Focal Length

Beam Width

Set by Optics

Gimbal

AZ

± 180 or Continuous (slip ring)

EL

-10 to $+95^\circ$ (Typical)

Cross Level

Optional 3 Axis

Rates

$0-300^\circ/\text{sec}$, up to $3000^\circ/\text{sec}^2$

Static Accuracy

$>0.002^\circ$

Peak Torque

AZ = 10ft-lb, EL = 5ft-lb or smaller

Weight (Std Unit)

22 lb (2 Axis), 30 lb (3 Axis)

Application Flexibility



SPS-250



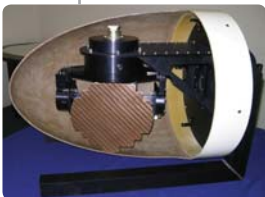
SPS-350



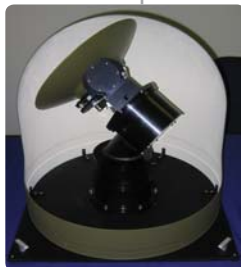
MDC



SPS-500



UAV Datalink



EHF SATCOM



Airborne EHF
SATCOM



Lasercom



Mobile EO
Surveillance

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Technical Description

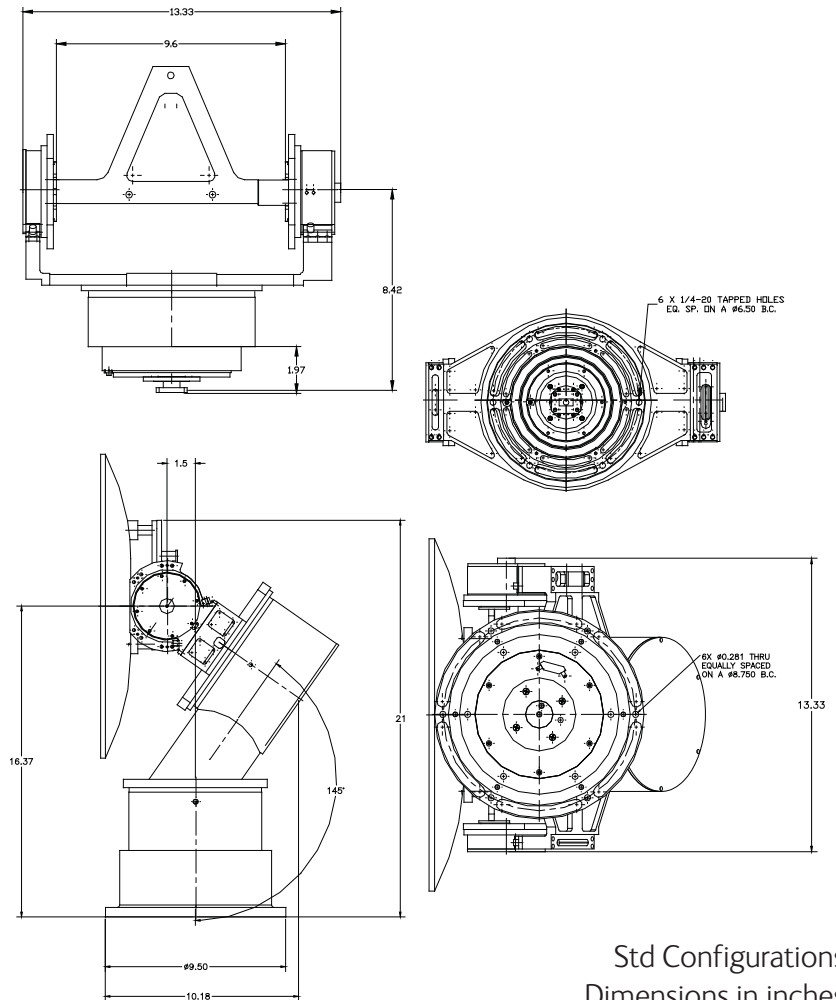
The Cobham Advanced Electronic Solutions SPS-250/350 has been developed for the Airborne and On-The-Move market. The modular design makes it easily adaptable for a large variety of Antennas, EO Sensors, Mirrors and Laser Beam Sources by varying the yoke design (or T-Bar) with minimal NRE. The application flexibility shown on the following page shows the adaptability to varied platforms and payloads. Combined with the possibility of integrating the Micro Digital Controller (MDC) into the positioner, for an integrated terminal.

The rugged design combined with MIL Grade Fiber Optic Gyros make this an ideal product for stabilized gimbals for ground, air or shipboard platforms. The use of brushless motors and resolvers directly coupled to the payload eliminates backlash, reduces jitter, achieves high reliability and meets MIL-STD-810 & RTCA/DO-160 environments. The direct drive system also allows the gimbal to achieve high rates of acceleration for near zenith targets for tracking applications.

Performance

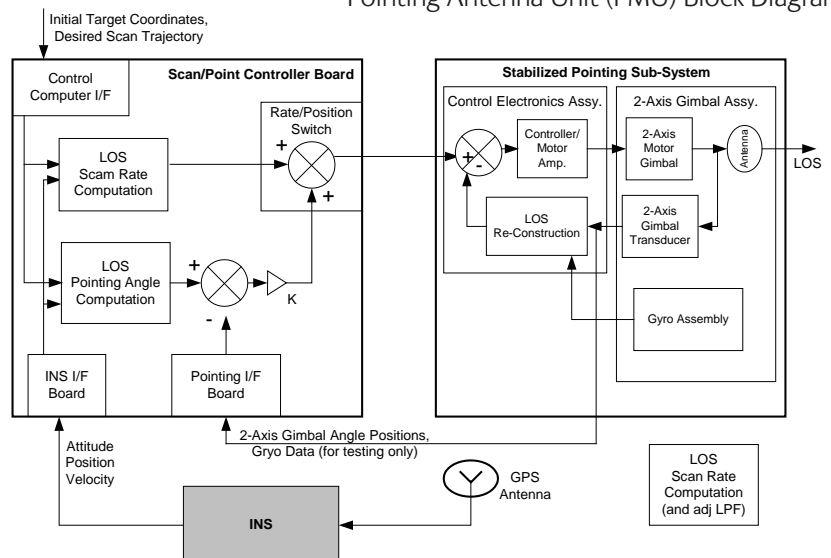
Data: 20 bits resolution
Bandwidth: > 20Hz (100 Hz FOG)
Jitter: < 50 urad
Temperature: -30° to 55°C
(To -55°Cw/Heaters)
Weather-Tight: 98% RH
Shock & Vibration: MIL-STD-810 & RDTC/DO-160
Weight: 15 to 35 lb
(Based on Std Configuration)

Mechanical Data



Std Configurations
Dimensions in inches

Pointing Antenna Unit (PMU) Block Diagram



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