5.0AE3BP-5m Elevation-Over-Azimuth Antenna Positioner
Three axis positioner for applications in Ku band and below

Orbital Systems 5.0AE3BP-5m antenna positioner is designed and built to provide high reliability while withstanding severe environmental conditions. The high-quality, high-precision, elevation-over-azimuth three axis satellite tracking system with 7° tilt is suitable for operation at Ku-Band and below. Superior engineering, precision manufacturing, and strict quality control standards result in near maintenance free operation making the 5.0AE3BP-5m the optimal choice for service in remote locations.

System Features
Standard equipment includes, positioner, feed mounting poles, ACU-3 antenna control unit and a complete maintenance tool kit. The positioner also provides standard options for AC or DC power and 100BASE-T Ethernet on the elevation arm. Gold-on-gold contact slip ring and rotary joint facilitate unlimited azimuth rotation with two RF channels.

Completely eliminating reception loss caused by what is sometimes called a “keyhole effect” in a near overhead pass the 5m positioner utilizes three axis tracking to reduce the worst case maximum tracking velocity requirements for a low LEO to about 7°/sec allowing use at any practical frequency.

System Control and Tracking
- ACU-3 antenna control unit supports TLE and vector tracking
- Tracks satellites at Ku band and below without keyhole effect
- Customized controller interface options available

Motors and Gears
- Mechanical system components are fully integrated with IP65-rated brushless servomotors and integrated brakes, matched and tuned motor drives and heavy duty gears
- Gears are automatically heated to maintain optimal performance at temperatures as low as -40°C
- Gears are completely enclosed in a cast housing and operate inside a humidity controlled, environment to increase service life; lubrication not required for at least 10 years.

Pressurization
- Antenna positioner and feed are pressurized with dehydrated air to prevent corrosion of system components
- Dry air is supplied using transmission line dehydrator technology
- Temperature and humidity sensors in the electrical cabinet and feed are monitored by the antenna control unit which automatically purges the system of moisture
- System remains operational if pressurization fails

Premium Features
- External structure made from aluminum and stainless steel to prevent corrosion
- Red silicone seals and gaskets rated for the life of the system; silicone remains pliable
- Remote control stow pin operation
- Built-in maintenance ladder and platform

Reflectors and RF Options
- Supplied with a 5.0m composite reflector
- Enclosure containing HPA and other RF electronics mounts on elevation arm
- Feeds available with optional downconverters and polarity switching
- Communication with RF components is integrated into the ACU-3 over the ODB

Special Order Options
- Mains A/C power supplied through antenna positioner to arm-mounted electronics
- Gb Ethernet (1000BASE-T) through antenna positioner
- Additional data pairs through antenna positioner
- Single mode fiber is through antenna positioner

Applications
The 5.0AE3BP-5m is typically used for the following applications:
- TT&C - General satellite uplink and downlink telemetry
- EOS - Tracking LEO and MEO Earth Observation Satellites
5.0AE3BP-5m Antenna Positioner

Specifications

Operational Specifications

Azimuth Maximum Velocity............................................................................................................................................. >20°/ Sec
Azimuth Maximum Acceleration................................................................................................................................ Up to 60°/ Sec ²
Azimuth Maximum Torque........................................................................................................................................... Continuous: 6646 Nm (4900 ft/lbs)
Azimuth Maximum Travel.................................................................................................................................... Unlimited Rotation
Elevation Maximum Velocity............................................................................................................................................... >20°/ Sec
Elevation Maximum Acceleration................................................................................................................................ Up to 60°/ Sec ²
Elevation Maximum Torque........................................................................................................................................... Continuous: 6646 Nm (4900 ft/lbs)
Minimum Tracking Elevation ............................................................................................................................................... -5°
3rd Axis Maximum Velocity............................................................................................................................................. >20°/ Sec
3rd Axis Maximum Acceleration................................................................................................................................ Up to 60°/ Sec ²
3rd Axis Maximum Torque........................................................................................................................................... Continuous: 6646 Nm (4900 ft/lbs)
3rd Axis Maximum Travel.................................................................................................................................... Unlimited Rotation
Brake Holding Torque.................................................................................................................................................. 19,659 Nm (14,500 ft/lbs)
Total System Tracking Accuracy............................................................................................................................................. 0.10°
Absolute Position Feedback Accuracy............................................................................................................................ ±0.006°

Electrical, Mechanical and Environmental Specifications

Input Voltage, Frequency................................................................................................................................. 208 - 240 VAC, 30 A (5A Typical), 50/60 Hz, Single Phase
Operating Altitude.................................................................................................................................................. 3000m Above Sea Level
Operating Temperature.......................................................................................................................................... -40° C to +55° C
Operating Maximum Wind Speed......................................................................................................................... Continuous 88 km/h (55 mph), gusts to 105 Kmh (65 mph)
Maximum Wind Speed With Stow Pins Installed............................................................................................... 200 km/h (125 mph)
Non-Operating Maximum Rain Load .................................................................................................................... 25 cm (10 inches) Per Hour
Maximum Ice Load.................................................................................................................................................. 13 mm (0.5 inches)
Weight............................................................................................................................................................... 2,268 kg (5000 lbs)
Safety, Emissions, and Machinery Directive Ratings.......................................................................................... CE Marked - Tested by Independent Labs

Electrical Cabinet and External Controls

The electrical cabinet is equipped with the following safety devices:

- Emergency stop switch
- Audible warning annunciator
- Main Steps / Tie and Handle Points
- Visual warning indicator
- Padlocks to lock the left and right sides of the electrical cabinet

5.0AE3BP antenna positioners are compliant with CE Machinery Directive IEC 60204-1

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Product specifications subject to change without notice
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For additional information: sales@orbitalsystems.com ■ www.orbitalsystems.com ■ +1 (972) 915-3669