

5.0AEBP-5m Two Axis Elevation-Over-Azimuth Antenna Positioner

Two axis antenna positioner for applications in Ku band and below

Orbital Systems 5.0AEBP-5m antenna positioner is designed and built to provide high reliability while withstanding severe environmental conditions. The high quality, high precision, elevation-over-azimuth two axis satellite tracking system 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 5.0AEBP-5m the optimal choice for service in remote locations.

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. In the uncommon event of a satellite passing directly overhead the 5.0AEBP two axis antenna will experience what is sometimes referred to as a "keyhole effect". Orbital's optional **5.0AE3BP three axis** antenna positioner completely eliminates reception loss by utilizing 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
- 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 through antenna positioner



Applications:

The 5.0AEBP-5m two axis system is typically used for the following applications:

- TT&C - General satellite uplink and downlink telemetry
- EOS - Tracking LEO and MEO Earth Observation Satellites

Operational Specifications

Azimuth Maximum Velocity.....	>20°/ Sec
Azimuth Maximum Acceleration	Up to 60°/ Sec ²
Azimuth Maximum Torque.....	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.....	6646 Nm (4900 ft/lbs)
Minimum Tracking Elevation	-3°
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
Continuous Wind Speed for Operational Tracking	88 +km/h (55 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	1973 kg (4350 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

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

