



## 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

## Operational Specifications

Azimuth Maximum Velocity.....	>20°/ Sec
Azimuth Maximum Acceleration .....	Up to 60°/ Sec <sup>2</sup>
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 <sup>2</sup>
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 <sup>2</sup>
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 Km/h (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

