

## 3.0AE3BP-2.8m Elevation-Over-Azimuth Antenna Positioner

Three axis positioner for applications in Ka band and below

Orbital Systems 3.0AE3BP-2.8m antenna positioner is designed and built to provide high reliability while withstanding severe environmental conditions. A high-quality, high-precision, elevation-over-azimuth three axis satellite tracking system with 7° tilt suitable for applications in Ka band and below. Utilizes the orbital data bus (ODB) technology providing integrated control of the antenna positioner and RF payload. Superior engineering, precision manufacturing and strict quality control standards result in maintenance free operation and the optimal choice for service in remote locations and hostile climates.

### Features

Standard equipment includes positioner, feed mounting poles, ACU-2 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 rings facilitate unlimited azimuth rotation and operates on one or two RF channels. Completely eliminating reception loss caused by what is sometimes called a "keyhole effect" in a near overhead pass the 3.0AE3BP 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-2 antenna control unit supports TLE and vector tracking
- Tracks satellite applications in Ka band and below
- 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 controlled environment to increase service life with no lubrication 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, and silicone remains pliable
- Remote control stow operation

### Reflectors and Feeds

- Supplied with a 2.8m composite reflector with options for 3.0m or 3.7m available
- Equipped with feed poles for use with Orbital Systems feeds
- Feeds available with optional downconverters and polarity switching
- Communication with RF components integrated into the ACU-2 over the ODB

### Special Order Options

- Mains A/C power supplied internally through the antenna positioner to arm-mounted electronics
- Gigabyte Ethernet (1000BASE-T) run internally through the antenna positioner
- Additional data pairs run internally through the antenna positioner
- Optical multi mode fiber supplied internally through the antenna positioner



### Applications

The 3.0AE3BP positioner is typically used for the following applications

- Telemetry, Tracking & Control (TT&C) - General satellite uplink and downlink telemetry
- Earth Observation Satellite (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.....	1586 Nm (1170 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.....	1586 Nm (1170 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.....	1586 Nm (1170 ft/lbs)
3rd Axis Maximum Travel.....	Unlimited Rotation
Brake Holding Torque.....	3284 Nm (>2422 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, 20 A, 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.....	1043 kg (2300 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
- Visual warning indicator
- Padlocks to lock the left and right sides of the electrical cabinet

3.0AE3BP antenna positioners are compliant with CE Machinery Directive IEC 60204-1

