



3.0AEBP-3.7m Elevation-Over-Azimuth Antenna Positioner

Suitable for 3.7m antenna systems operating in X, S and L band applications

Orbital Systems 3.0AEBP-3.7m antenna positioner is designed and built to provide high reliability while withstanding severe environmental conditions. The high-quality, high-precision, elevation-over-azimuth satellite tracking system is suitable for operation at X band and below. Utilizes the proven 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 making the 3.0AEBP-3.7m the optimal choice for service in remote locations and hostile climates.

System 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. Optional reflector sizes are available with the 3.0AEBP antenna positioner.

Reception loss caused by what is sometimes called a “keyhole effect” is eliminated by the high speed of azimuth rotation in Orbital Systems’ two axis products. When tracking a near overhead pass the antenna uses a predictive motion with a peak azimuth velocity of 60 degrees/sec, and acceleration at up to 60 degrees/sec². These very high speeds completely eliminate loss of signals on a worst case near overhead pass in X-Band and below.

System Control and Tracking

- ACU-2 antenna control unit is standard and enables flexible control options
- Tracks satellites at X- Band and below without keyhole effect
- Customized controller interface options are 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, optimal environment to increase service life with no annual lubrication required

Pressurization

- Antenna positioner and feed are pressurized with dehydrated air to prevent corrosion of system components
- Dry air is supplied using conventional 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 falls

Reflectors and Feeds

- Supplied with a 3.7m spun aluminum reflector
- Equipped with feed poles for use with Orbital Systems feeds
- Many feeds are available with optional downconverters and polarity switching
- Feeds are equipped with purge valves to expel moisture
- Feed communication is integrated into the antenna control unit over ODB

Special Order Options

- Mains A/C power supplied through antenna positioner for elevation arm-mounted electronics
- Gigabyte Ethernet through antenna positioner
- Additional RF channels through antenna positioner
- Additional data pairs through antenna positioner
- Optical multi mode fiber through antenna positioner



Applications

The 3.0AEBP-3.7m is typically used for the following applications

- (EOS-DB) - Earth Observing Systems - Direct Broadcast data, tracking LEO and MEO satellites:
 - TERRA
 - AQUA
 - SNPP
 - JPSS-1
 - FY3
 - METOP
 - NOAA POES
 - DMSP*
- TT&C - general satellite uplink and downlink telemetry, including microsats
- RADAR applications for advanced meteorological and environmental analysis
- SARSAT - Search and Rescue reception of MEO satellites in S- and L- Bands

*encrypted except when passing over the north and south poles

Operational Specifications

	Required	Continuous Capable
Azimuth Maximum Velocity.....	57°/ Sec.....	>60°/ Sec
Azimuth Maximum Acceleration.....	39°/ Sec ²	>60°/ Sec ²
Azimuth Maximum Torque.....		>1586 Nm (1170 ft/lbs)
Azimuth Maximum Travel.....		Continuous Rotation
Elevation Maximum Velocity.....	9°/ Sec.....	>20°/ Sec
Elevation Maximum Acceleration.....	0.9°/ Sec ²	>60°/ Sec ²
Elevation Maximum Torque.....		>1586 Nm (>1170 ft/lbs)
Elevation Maximum Travel.....		184°
Brake Holding Torque.....		3284 Nm (>2422 ft/lbs)
Mechanical Total Tracking Accuracy.....		0.10°
Absolute Position Feedback Accuracy.....		±0.02°
X-Band and below.....		7db loss due to keyhole effect

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
Operating Maximum Wind Speed.....	Continuous 65 km/h (45 mph), gust to 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.....	1134 kg (2500 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

3.0AEBP-3.7m antenna positioners are compliant with CE Machinery Directive IEC 60204-1

