3.0AEBP-3m Elevation-Over-Azimuth Antenna Positioner

Suitable for 3.0m antenna systems operating in X-, S- and L- band applications

The 3.0AEBP-3m antenna positioner is designed and built to provide high reliability while withstanding severe environmental conditions. A high-quality, high-precision elevation-over-azimuth satellite tracking antenna suitable for operation in X- Band and below. The 3.0AEBP utilizes orbital data bus technology to provide integrated control of the antenna positioner and RF payload. Superior engineering, precision manufacturing, and strict quality control standards result in maintenance free operation making it the optimal choice for service in remote locations and hostile climates.

Features

Standard equipment includes the positioner, feed mounting poles, antenna control unit, uncomplicated and easy to understand operation and maintenance manuals, and functional tool kit. The positioner provides standard options for AC or DC power and 100BASE-T Ethernet within the elevation arm-mounted electronics enclosure. 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/sec^2. These very high speeds serve to reduce loss of signals on a worst case near overhead pass.

System Control and Tracking

- ACU-2 antenna control unit is standard and enables flexible control options
- Tracks satellites at X Band and below
- 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 and optimal environment increasing their service life; no annual lubrication required

Pressurization

- Antenna positioner and feed are pressurized with dehydrated air or nitrogen to prevent corrosion of internal 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 when detected
- System remains operational if pressurization fails

Reflectors and Feeds

- Supplied with a 3.0m spun aluminum reflector
- Equipped with feed poles for use with Orbital Systems' feeds
- Single or Multi-Band feeds available with optional downconverters and polarity switching
- Feeds are equipped with purge valves to expel moisture from the system
- Feed communication is integrated into the antenna control unit over the orbital data bus (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-3m antenna is typically used for the following applications

- (EOS-DB) - Earth Observation Satellite - Direct Broadcast data, tracking LEO and MEO satellites*
- 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

*Reference EOS Data Sheet for additional information

3.0AEBP-3m Elevation-Over-Azimuth Antenna Positioner Specifications

Operational Specifications

	Required	Continuous Capable
Azimuth Maximum Velocity	57°/ Sec	>60°/ Sec
Azimuth Maximum Acceleration	39°/ Sec ^{2}	>60°/ Sec^2
Azimuth Maximum Continuous 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 Continuous Torque		>1586 Nm (>1170 ft/lbs)
Elevation Maximum Travel		184°
Brake Holding Torque		1947 Nm (>1436 ft/lbs)
Mechanical Total Tracking Accuracy		0.10°
Absolute Position Feedback Accuracy		±0.02°

Electrical, Mechanical, and Environmental Specifications

Input Voltage, Frequency	208 -240 VAC, 20 A, 50/60 Hz, Single Phase
Input Amperage	Typical 5 A; Maximum 15 A; Uses Standard 20 A Breaker
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	710 kg (1565 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

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

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