



## 2.4AEHP-2.4m

### Elevation-Over-Azimuth Antenna Positioner

The Orbital Systems, Ltd. 2.4AEHP-2.4m antenna positioner is designed and built to withstand severe environmental conditions anywhere in the world. It is a high-quality, high-precision elevation-over-azimuth satellite tracking system suitable for X-band and L-band operation. The 2.4AEHP-2.4m antenna positioner provides long service life paired with unsurpassed accuracy, reliability, and durability. Precision manufacturing and strict quality control standards result in maintenance-free operation, which makes the 2.4AEHP-2.4m an optimal choice for service in remote locations and in hostile climates.

### Standard System Features

The Orbital Systems, Ltd. 2.4AEHP-2.4m antenna positioner is equipped with a 2.4-meter reflector; mounting poles for the feed; a remote GPS antenna and cable; and a complete tool kit.

#### Reflector

- Manufactured from a single piece of spun aluminum
- Maintains surface accuracy to 18 GHz
- Designed to drain and deflect rainwater away from electrical system components

#### Pressurization

- Antenna positioner and feed are pressurized with dehydrated air or nitrogen to prevent corrosion of system components
- 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

#### Motors and Gears

- Mechanical system components are fully integrated, with IP65-rated brushless motors and integrated brakes, corresponding motor drives, and heavy duty gears.
- Gears and motor drives are automatically heated to maintain full performance at temperatures as low as -40°C
- Gears are completely enclosed in a cast housing and operate inside a controlled, regulated environment to increase their service life; no annual lubrication is required

#### Tracking

- Internal precision GPS location and timing references
- System controller is housed inside the electrical cabinet and does not require indoor rack space
- Azimuth axis speed enables tracking of X-band satellites without keyhole effect
- System stores the TLE for each satellite and initiates tracking using a simple command for the named satellite

#### Feed

- Several types of feeds are available for different applications
- High-performance capability; typical X-L performance is 24.5 dB/K and 8 dB/K
- Cables to the feed are routed internally and are rated for the life of the product
- Feed control is integrated with the antenna positioner controller module



### Applications

The 2.4AEHP-2.4m antenna positioner and its ancillary RF components can be used for the following applications.

- Reception of EOS-DB X-band satellites:
  - TERRA
  - AQUA
  - NPP
  - JPSS1
  - Other X-band and L-band EOS satellites
- SARSAT reception of MEO satellites
- General telemetry downlinks and uplinks in X-S-L band

### Operational Specifications (Subject to change without notice)

	Required	Continuous Capable
Azimuth Maximum Velocity.....	57°/ Sec .....	>60°/ Sec
Azimuth Maximum Acceleration.....	39°/ Sec <sup>2</sup> .....	>60°/ Sec <sup>2</sup>
Azimuth Maximum Torque .....	900 Nm (664 ft/lbs) .....	>1500 Nm (1106 ft/lbs)
Azimuth Maximum Travel.....	420° .....	420°
Elevation Maximum Velocity.....	9°/ Sec .....	>20° / Sec
Elevation Maximum Acceleration .....	0.9°/ Sec <sup>2</sup> .....	>60° / Sec <sup>2</sup>
Elevation Maximum Torque .....	900 Nm (664 ft/lbs) .....	>936 Nm (690 ft/lbs)
Elevation Maximum Travel.....	182° .....	182°
Brake Holding Torque .....	2300 Nm (1696 ft/lbs) .....	2300 Nm (1696 ft/lbs)
Mechanical Total Tracking Accuracy .....	0.1° .....	0.1°
Absolute Position Feedback Accuracy.....	±0.02° .....	±0.02°

### Electrical, Mechanical, and Environmental Specifications

Input Voltage, Frequency .....	208-240 VAC, 20 A, 50 to 60 Hz, Single Phase
Input Amperage.....	Typical 5 A; Maximum 14 A; Fuse at 20 A
Operating Temperature .....	-40° C to +55° C
Operating Maximum Wind Speed .....	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.....	565 kg (1245 lbs)
Safety, Emissions, and Machinery Directive Ratings .....	CE Compliant; Tested in Independent Labs

### CE Machinery Directive Compliance

2.4AEHP antenna positioners manufactured after May 2012 are compliant with the CE International Machinery Directive IEC 60204-1. 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



Visual Warning Indicator (Left)  
And Emergency Stop Switch (Right)



Padlock  
(Typical Left and Right Sides)