



2.4RX01-1.8m Elevation-Over-Azimuth Radar Positioner

Suitable for radar applications operating in X band

The Orbital Systems, Ltd. 2.4RX01-1.8m radar positioner is designed and built to provide high reliability and to withstand severe environmental conditions. It is a high-quality, high-precision elevation-over-azimuth radar antenna positioner system suitable for operation in X-Band. The 2.4RX01-1.8m utilizes the proven Orbital Data Bus (ODB) 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, which makes the 2.4RX01-1.8m the optimal choice for service in remote locations and hostile climates.

Standard System Features

The Orbital Systems 2.4RX01-1.8m radar positioner is available with customizable mounting options. Standard equipment includes internal ACU-2 antenna control unit, and a complete tool kit. Gold-on-gold contact slip rings facilitate unlimited azimuth rotation. The 2.4RX01-1.8m positioner provides options for one or two RF channels to a maximum of 4 GHz. The positioner is also available with standard options to provide AC or DC power and up to 4 channels of 100BASE-T Ethernet on the elevation arm

System Control and Tracking

- Built in ACU-2 antenna control unit is standard and enables flexible control options
- Offers smoothly controlled high speed slewing and precision scanning speeds
- Customized controller interface options are available including rapid precision position readout

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 their service life; no annual lubrication is required

Pressurization

- Radar positioner and associated cabinets are pressurized with dehydrated air to prevent corrosion of system components
- Dry air is supplied using conventional transmission line dehydrator technology included
- Temperature, Pressure and humidity sensors in the electrical cabinet are monitored by the antenna control unit, which automatically purges the system of moisture
- System remains operational if pressurization fails

Special Order Options

- Pressurized radar equipment cabinets mounted on elevation arm
- Up to 30A of 220VAC A/C power supplied through antenna positioner for powering elevation arm-mounted radar electronics controlled on separate internal breaker
- Up to 4 channels of Gigabyte Ethernet through antenna positioner
- Up to 2 RF channels through antenna positioner each operational from DC to 4 GHz
- Additional data pairs through antenna positioner
- Optical multimode fiber through antenna positioner
- Internal POE inserter and Ethernet switch for external network camera attachment
- On site integration and testing facility access



Applications

The 2.4RX01-1.8m radar antenna positioner is typically used for the following applications:

- Radar applications for advanced meteorological and environmental analysis

Operational Specifications

| | Continuous Capable |
|--|----------------------------|
| Azimuth Maximum Velocity..... | 60°/ sec |
| Azimuth Maximum Acceleration..... | 60°/ sec ² |
| Azimuth Continuous Torque..... | 1500 Nm (1106 ft/lbs) |
| Azimuth Maximum Travel..... | Continuous Rotation |
| Elevation Maximum Velocity..... | 30°/ sec, opts to 60°/ Sec |
| Elevation Maximum Acceleration..... | 60°/ sec ² |
| Elevation Continuous Torque..... | 1000 Nm (737 ft/lbs) |
| Elevation Maximum Travel..... | 184° |
| Brake Holding Torque..... | >2300 Nm (>1696 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 Temperature..... | -40° C to +55° C |
| Operating Maximum Wind Speed..... | 122 km/h (75 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 |

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

2.4RX01-1.8m antenna positioners are compliant with CE Machinery Directive IEC 60204-1

