TEXAS SPACE COMMUNICATIONS™

NEBULA 73

7.3M 3-AXIS X-BAND RX S-BAND RX/TX

Product Overview

The 7.3m Full Motion Tracking Antenna is a high-performance premium solution engineered for reliable satellite communications, supporting both S-Band and X-Band operations for critical applications such as Earth observation, satellite telemetry, and remote sensing. This antenna is built to withstand rugged environments and ensure reliable performance under harsh conditions. It features advanced tracking capabilities, polarization options, and flexible frequency conversion, all while providing full-sky coverage without keyhole limitations.

Positioner Features

Reflector Size: 7.3m diameter

Feed System: Prime focus feed for S band, Cassegrainian feed for X band. Optimized for S/X-band simultaneous operations

Polarization Options: Dual Circular Polarization (LHCP/RHCP) selectable or simultaneous operation

Autotrack Option: Autotrack system for X and S available 2026

High-Efficiency HPA: Integrated 100W HPA for high power transmission in S-Band, for an EIRP of 58 dBW

3-Axis Design: Provides full-motion tracking without keyhole limitations, ensuring uninterrupted satellite communication across all elevation angles

Radome Option: Available for added protection and enhanced operational longevity in extreme environments

Performance Data

Parameter	Specification
S-Band Receive Frequency	2.200 – 2.300 GHz
S-Band Transmit Frequency	2.025 – 2.120 GHz
S-Band Polarization	Selectable LHCP and RHCP Tx, with simultaneous operation capability for Rx
S-Band G/T	20 dB/K (typical) at 25°C, high elevation
S-Band EIRP	58 dBW (integrated 100W HPA)
S-Band Receive IF Frequency	Tunable to 70 MHz or no conversion
S-Band Upconversion	Tunable from 70 MHz or no conversion
X-Band Receive Frequency	8.000 – 8.400 GHz
X-Band Polarization	Selectable LHCP and RHCP, with simultaneous operation capability
X-Band G/T	34.5 dB/K (typical) at 25°C, high elevation
X-Band Receive IF Frequency	Tunable to 720MHz ±200MHz or 1250 MHz ±200 MHz

Antenna Control & Tracking System

Tracking Mode: Program Track
Postioner : Tri-Axis, No keyhole

Azimuth Axis Range: 360° continuous
Wedge Axis Range: 360° continuous
Elevation Axis Range: -5° to +185°

Velocity & Acceleration:
Software-limited to 15 deg/s angular velocity and 15 deg/s² angular acceleration

Pointing Accuracy: < 0.05° RMS for highly accurate satellite acquisition and tracking

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Electrical and Environmental

Operating Temperature: -40°C to +55°C
Wind Speed: Operational < 88 km/h, survival < 200 km/h
Humidity: 100% outdoor conditions
Operating Altitude: 3000m
Input Power: 200 - 240 VAC, 20 A, 50/60 Hz, Three Phase
Weight: 8200 kg (Estimated)

Warranty

Warranty Period: 2 years

* Specifications subject to change.

Control Systems

Antenna Control Unit

Full Ethernet-based control with web interface, supporting REST or JSON protocols for easy integration to M&C software. Includes integrated safety interlocks, auto-shutdown features, and multi-satellite tracking capability.

Security

All external interfaces are encrypted with TLS1.3 or SSH with support for advanced features such as mTLS and JWT.

Dehydration System

Built-in pressurization technology to protect sensitive components from environmental damage.

Overview