

TrackSat Antennas 4.2m

- **Professional X/Y Antennas for Low Earth Orbiting (LEO) Satellites.**
- **Applications - Ideal for Remote Sensing, Communications, and TT & C.**
- **Science Missions - EOS, NASA - ESSP, Disaster Monitoring Constellation.**
- **Fixed and Transportable Systems.**
- **Smooth Tracking to better than 0.1°.**
- **Low Slew Rates.**
- **Complete Hemispherical Coverage - No Cone of Silence or cable wrap.**
- **Antenna Sizes range from 1.8m to 7m.**
- **Antenna Control and Satellite Scheduling Software.**
- **Options include: Radomes, Anti - Ice Kits, Lightning Protection, Extended Temperature Range, and GPS Time Synchronisation.**
- **Custom Design of Antenna Pedestals and Support Structures.**
- **Site Installation, Civil Engineering, and Maintenance Contracts.**



TrackSat Antennas 4.2m S/X-Band Specification

Positioning System

Degrees of Freedom	Two (X/Y)
Velocity	4°/Sec
Acceleration	10°/Sec/Sec
Lost Motion	0.035°
Position Step Resolution	0.00004°
X/Y Drive Motors	DC Brushless Servo

Reflector

Reflector	4.2m Solid Aluminium
Type	Prime Focus
Surface Accuracy	0.040"
Focal Length	63"
F/D	0.375

Environmental (No Radome)

Humidity	0 to 100% RH
Rain	Driving, up to 10cm/hr
Temperature	Operating: -10° to +45° C Survival: -20° to +60° C
Wind	Operating: 35 MPH Survival: 80 MPH
Corrosion	Resistant to salt air and spray.

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Radome

Type	Sandwich Foam Core
Outside Diameter	6.7m
Outside Height	5.3m
Panels	22
Weight	620 kg
Wind Speed (Max Gust)	200 km/hr
Design Gust Factor	1.0

Electromagnetic Performance

Transmission Loss	X-Band	<0.6 dB
	S-Band	<0.3 dB
Noise Temperature (5°)	X-Band	<11 K
	S-Band	<7 K
Cross Polarization	X-Band	<-50 dB
	S-Band	<-70 dB
Wet Transmission Loss	X-Band	<0.7 dB
	S-Band	<0.15 dB

Environmental

Temperature Range	-45°C to +65°
Solar Radiation Rejection	>90%
Relative Humidity	0 to 100% RH
Fungus Resistance	Fed Std 454
Salt Atmosphere	Mil - Std 810
Precipitation	40lb/ft ²
Sand and Dust	0.006g/m ³

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S/X-Band Feed

Frequency Range	X-Band	8.025 - 8.4GHz
	S-Band	2.025 - 2.3GHz
Polarization		LHCP or RHCP
Axial Ratio		2 dB (max)
VSWR		1.7:1 (max)

X-Band LNA

Frequency Range	7.70 - 8.50GHz
Gain	50.0 dB (min)
Noise Figure	45K (max)
Operating Temperature	-40°C to +60°C

X-Band Downconverter

Frequency Range	8.02 - 8.42GHz
Conversion Gain	10 dB
Noise Figure	16 dB
IF Output	720MHz
Operating Temperature	-40°C to +60°C

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Clinometer

Angular Range	+/-10 degrees
Resolution	0.002 degrees
Repeatability	0.01 degrees
Hysteresis	0.02 degrees
Time Constant	0.15 seconds
Natural Frequency	7Hz
Temperature Coefficient	10 arc seconds/°C
Output	RS232 NEMA
Operating Temperature	-40°C to +85°C

GPS Time Synchronization

General	12 ch digital GPS Receiver
Output	RS232 NEMA messages
Update Rate	1 second
Synchronization	1PPS
Datum	WGS - 84
Acquisition Time	15 sec to 350 sec
Operating Temperature	-40°C to +85°C



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