TRACKER 3700 EO

Optimised tracking and data acquisition from Earth Observation satellites

Product Sheet

When Connection Matters

The TRACKER 3700 EO is a versatile, modular and cost-effective ground station antenna system that provides secure and resilient data and control links for a growing range of smallsat and CubeSat service providers. Today TRACKER is a leading choice for Earth Observation providers, satellite search and rescue organisations, marine traffic and safety services, and emerging satellite IoT and M2M service providers.

With best-in-class reliability, high accuracy and maximum throughput, and low installation and operating costs, this proven, easily configurable 3.7-metre satellite tracking antenna system powers a growing range of New Space initiatives. Whether established service provider, EO entrant, or space agency, the TRACKER 3700 EO provides a dependable platform for mission-critical and commercial-critical services, combining leading performance with a low total cost of ownership.

Ultra-Fast Installation – Low Capital Expenditure

Unlike traditional small satellite ground stations, which can take weeks to install and commission, the Cobham SATCOM TRACKER 3700 EO can be installed and operational in days. The lightweight and small footprint open up a range of installation options, with TRACKER systems operating from rooftops, small structures, and on simple outdoor pads.

Unmatched Efficiency – Low Operational Expenditure

TRACKER 3700 EO took a fresh approach to small ground stations, with innovative technology that enhances tracking performance while offering significant cost efficiencies and environmental benefits. A proprietary 3-Axis inertial balancing technology is at the core of the TRACKER range stabilising the system for accurate tracking and maximum throughput while consuming far less power compared to traditional EO antenna platforms. As a result, operators realise impressive cost savings, along with a reduced environmental impact and carbon footprint.

Robust Design – High Service Availability

Capable of withstanding hurricane force winds, the TRACKER 3700 EO protective radome ensures uninterrupted, error-free passes in even the most extreme environmental conditions. With no wind load or weather effects on the antenna, pointing accuracy is unaffected, ensuring fast acquisitions and full throughput, pass after pass. The radome protection further ensures high up-time and system reliability, reduces maintenance requirements, and eliminates outages and unforeseen costs due to damage or environmental degradation.

Streamlined Support – High Speed Troubleshooting

The robust radome protects all electrical and mechanical components, yielding an industry-leading Mean Time Between Failures. When replacements or upgrades are required, components are easily accessed so that most replacement tasks can be completed in less than an hour.

Standard network interfaces and intuitive software tools allow easy commissioning and integration into the user network, enabling user to perform on-site or remote monitoring. The combination of reliability, monitoring tools, and easy access for maintenance further reduce operational costs. The Cobham SATCOM service team is available 24/7 to help keep systems in service, pass after pass and year after year.

STABILIZED ANTENNA PEDESTAL ASSEMBLY	
Type	Three-axis (Level, Cross Level and Azimuth)
Pointing	Torque Mode Servo
Azimuth, level, cross level motors	Size 34 FOV controlled step motors operating in torque mode
Inertial reference	3 axis solid state rate sensors
Gravity reference	3 axis solid state accelerometers
AZ transducer	16 bit absolute encoder
Pointing accuracy (open loop)	0.5 degrees
Pointing accuracy (closed loop)	0.05 degrees (0.02 degrees Typ)

POWER REQUIREMENTS	
Input power	200-264 VAC, 47-63Hz, single phase

PEDESTAL RANGE OF MOTION	
Elevation Joint Angle	0 to + 180 degrees
Cross Level	+/- 15 degrees
Azimuth	+/- 270 nominal
Elevation Pointing	+5 to +175 degrees
Tracking modes	Dishscan (Autotrack), Program Track (TLE, ECEF)

ANTENNA REFLECTOR	
Type	Prime focus, parabola (2 piece)
Diameter	3.7 m (145.67 in)
Frequency TX	2.025 - 2.120 GHz (S-band)
Frequency RX	2.20 - 3.30 GHz (S-band), 8.0 - 8.5 GHx (X-band)
Size	3.7 m (12.14 ft)
Gain TX	34.9 dBi at 2.025 GHz
Gain RX	35.8 dBi at 2.25 GHz

G/T ELEVATION	
40 degree	12.5 dB/K (S Band) 25.5 dB/K (X Band)

FEED S-BAND (TX/RX) - X-BAND RX	
Frequency TX	2.025-2.120 GHz (S-band)
Frequency RX	2.20-2.30 GHz (S-band) 8.0-8.5 GHz (X-band)
Polarization	Single Pol TX/RX LHCP/RHCP Co Pol selectable
for S	Band, Dual Pol RX LHCP/RHCP for X-band
XPD	20 dB
VSWR	<1.3:1
Interface Antenna	Circular
Optics	Prime focus

RF EQUIPMENT	
	100 Watt Psat 50 Watt P1dB S-band SSPA

REDUNDANCY	N/A

RADOME ASSEMBLY	
Type	Frequency tuned
Material	Composite foam/laminate
Radome loss	0.75 dB (Reflective loss)
Radome life	20 Years

SIZE	
Diameter	4.30 m (168 inch)
Height	4.38 m (172 inch)
Side door	18" wide x 36" high
Number of panels	(8 upper, 8 lower & 8 extension panels + 1 cap
Installed height	4.38 m (190 inch) Including 18" lightning diverter

FOUNDATION	
Mounting	Contract grade concrete pad
Mechanical alignment leveling	Not required
Mechanical alignment pointing	Not required

ENVIRONMENTAL CONDITIONS	
Temperature range (operating)	-40º to +55º C (-40º to +131º F)
Humidity	100% Condensing
Wind Speed	56 m/sec (125 mph)
Solar Radiation	1,120 Watts per square meter, 55º Celsius
Icing	Survive ice loads of 4.5 pounds per square foot. Degraded RF performance will occur under icing conditions
Rain RF	Up to 101.6mm (4 inches) per hour. Degraded performance may occur when the radome surface is wet
Ingress Protection Rating	IP56

REGULATORY COMPLIANCE	
Survival shock and vibration	N/A
Operational shock and vibration	N/A
Safety	IEC 60950
EMI/EMC Compliance	ETSI EN 301 489-1 V1.4.1 (2002-08) ETSI EN 300 339 (1998-03)
Satellite earth stations and system (SES)	N/A
Safety compliance	IEC EN 60950-1:2001 (1st Edition)
Environmental compliance	RoHS Green Passport
Lightning/surge protection	IEC 61643-1, IEC 6143-12 & NFPA-780

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