

# TRACKER® 4000

Frequency Flexibility. Platform Scalability. A Heritage of Reliability. Any Orbit. Any Network. Anywhere.

Product Sheet

# COBHAM

WHEN CONNECTION MATTERS



## The TRACKER Range – Enabling innovation and growth for constellations and service providers

**A new approach to gateways and user terminals** – scalable, easily implemented and supported, and cost-effective. TRACKER Gateways and User Terminals have been selected by LEO/MEO constellation operators, government agencies, and EO and New Space service providers based on proven performance and reliability, robust design suitable for all environments, low total cost of ownership, and Cobham SATCOM's ability to meet demanding implementation schedules.

**Modular and easily configured**, TRACKER terminals are available in a range of sizes and in single or dual frequency bands. Three-axis tracking with protective radome allows operation in the harshest environments and ensures accurate tracking at all times, with optimum signal quality, uninterrupted passes, low power consumption, and high reliability.

**Whether high speed communications, data transfers, or IoT and M2M links**, TRACKER has become the most cost-effective and dependable choice for business-critical, carrier grade gateways and landing stations.

## TRACKER 4000 – High performance, cost effective Ka-Band gateways terminals

Optimized for multi-antenna, networked operations across a broad range of installation locations and environments, the TRACKER 4000 is a proven choice for NGSO constellation gateways and landing stations. The robust, radome protected systems are highly reliable and easily implemented, combining high uptime with low operating costs. TRACKER 4000 systems provide uninterrupted, high throughput links in challenging locations, from arctic to desert.

The three-axis design, industry-leading tracking performance, and radome protection help maximize throughput and margins, while the modular design is optimized for installation, maintenance and sparing.

## Unmatched Efficiency & Throughput – True 4.0m Performance Across All Frequencies

Built upon a legacy of over 30 years of research, development and customer collaboration, Cobham SATCOM has optimized the TRACKER series to achieve industry-leading performance. The RF architecture offers the most efficient design in the industry, permitting up to

almost double the RF power with the same size antenna and enabling higher throughput and margins.

The optimized RF performance includes superior cross-pol isolation; full transmit waveguide to keep the Tx and Rx units close to the feed (OMT), minimizing loss while increasing RF performance; and full illumination of the reflector to maximize gain efficiency. Additionally, this RF design allows the user to configure and reconfigure with of a much broader range of leading commercial RF units than competing systems.

## Robust Design & Ease of Installation

The protective radome shields the antenna from all environmental conditions and yields higher tracking accuracy and throughput, with industry-leading reliability. Adding ease and flexibility of installation, and the proprietary balanced low-power tracking system ensure uninterrupted operation at a significantly lower total cost of ownership than other systems.

Systems are delivered pre-configured and pre-tested, with simple software tools and standard interfaces, allowing quick installation, configuration and connection to the user network. They also come with a full warranty, backed by Cobham SATCOM's 24/7 customer service and global support network, with optional installation and tailored support services.

## 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)

## 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	4 M (157.48 in)
Frequency TX	27.5-30.0 GHz
Frequency RX	17.7-20.2 GHz
Size	4 M (13.12 ft)
Gain TX	57.1 dBi at 29.0 GHz
Gain RX	55.7 dBi at 19.2 GHz
Pattern Mask	FCC 25.209
Mask start point	1.5 degrees
XPD	30 dB

## G/T ELEVATION

5 degree	30.5 dB/K at 19.2 GHz
10 degree	31.2 dB/K at 19.2 GHz
20 degree	31.7 dB/K at 19.2 GHz
40 degree	32.1 dB/K at 19.2 GHz

## KA-BAND FEED (TX/RX) 4-PORT OMT

Frequency TX	27.5-30.0 GHz
Frequency RX	17.7-20.2 GHz
Polarization	LHCP/RHCP
XPD	30 dB
VSWR	<1.3:1
Interface Antenna	Circular
Optics	Ring focus backfire

## RF EQUIPMENT

Various BUC's and LNB's available per customer requirements

## REDUNDANCY

Options for Dual Redundant BUC configurations are available

## RADOME ASSEMBLY

Type	Frequency Tuned
Material	Composite foam/laminate
Radome Loss	0.75 dB (Reflective loss)
Radome Life	20 Years

## SIZE

Diameter	5.49m (216 inch)
Height	5.23m (206 inch)
Side Door	.79 x .86m (31" wide x 34" high) (Angled ~36 degrees)
Number of panels	36 total Risers – 5 ea. Hexagon, lower – 5 ea. Pentagon with door opening – 1 ea. Pentagon lighting diverter – 1 ea. Pentagon, plain – 9 ea. Hexagon, plain - 15 ea.
Installed height:	5.69M (224 inch) Including 12" riser and 18" lightning diverter.

## FOUNDATION

Mounting	Contract grade cement pad
Mechanical Alignment leveling	not required
Mechanical Alignment pointing	not required

## ENVIRONMENTAL CONDITIONS

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

## REGULATORY COMPLIANCE

Survival Shock and Vibration	NA
Operational Shock and Vibration	NA
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)	NA
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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