Datasheet

CALIAN®
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10m–15m High performance antenna

Calian high performance antennas are platforms intended for a wider variety of applications beyond satcom, including electronic warfare, radar, astronomy, and fast-target tracking. These antenna platforms combine high-slew-rate motion systems, and adaptable antenna interfaces to accommodate different applications and frequencies. We offer high accuracy optics with optimized reflector shaping for elevated efficiency. Advanced control systems can be adapted to user requirements, enabling a variety of tracking or targeting capabilities.

Specifications

General configuration

Configuration	• Dual reflector Cassegrain design • 2 axis motion, elevation over azimuth
Main reflector	• 10 - 15m diameter • Precision formed aluminum • Surface accuracy below 0.008 RMS
Sub reflector	• High accuracy composite • Surface accuracy below 0.002 RMS
Hub	• Up to 10 ft. diameter for RF equipment integration available upon request
Pedestal	• State of the art cable wrap systems with ample space for customer cables
Optional	• Platform with staircase and hoist • De-icing system • Environmentally controlled hub

M&C interface

- Ethernet interface for M&C and user interface.
- Full remote operation and monitoring with multiple tracking options.
- The antenna can be controlled via the provided computer software application or via a customer interface.

Mechanical performance

Speed	• Up to 12°/s in azimuth • Up to 6°/s in elevation
Acceleration	• 3°/s2 in both axis
Travel range	• ±270° in azimuth (540° continuous) • 0°-90° in elevation
Drives	• Dual torque biased backlash-free in both axes

Power

Drive systems	• 380 to 480VAC 50/60Hz 3-phase
De-icing system	• 208/220 3 phase
Auxiliary circuits	• 208VAC split phase 60Hz • 220VAC single phase 50Hz (optional)

Optional frequency bands

- Supports single, dual, and multi-band feeds, e.g., S to Ka, S/X, C/Ku, X/Ku, X/Ka, Ku/Ka, etc.
- CP and LP Broadband feed options available

Tracking options

- Multiple open and closed loop tracking options include: Program track, NORAD TLE, IESS-412, Monopulse (optional), Step Track (optional)

Environmental performance

Temperature	• Operational -30 to +60°C • Survival -40 to +70 °C
Seismic	• 0.3g horizontal and vertical
Wind speed	• Operational, up to 100 kph gusting (62 mph gusting) • Survival, up to 200 km/hr (125 mph) in stow position • Drive-to-stow, 125 kph (77 mph)
Humidity	• 0 to 100% with condensation
Ice accumulation	• 30mm thick on all exposed surfaces
Corrosion	• Galvanized ASTM-A123, stainless and galvanized fasteners, multi-layer epoxy-based paint.

Shipping configuration and features

- Modular design to allow for easy shipping in standard 40ft containers.
- Rapid deployment, assembly, and commissioning at customer site.

15m Ka-band performance

	Rx	Tx
Frequency (GHz)	17.70 - 21.50	27.50 - 31.00
Feed Ports	2 CP + 2 Monopulse	2 CP
Antenna Gain @ mid band	67.5 dBi	70.4 dBi
Beamwidth @ -3dB	0.07°	0.05°
G/Ts at Clear Sky @ 20° Elevation		
17.70 GHz	43.4 dB/K*1	
19.60 GHz	44.1 dB/K*1	
21.50 GHz	44.3 dB/K*1	
Power handling, per port (CW)		650 watts
VSWR (Feed interface)	1.30	1.30
Cross Pol isolation	30.8 dB	30.8 dB
Port to Port isolation Rx→Tx, Tx→Rx	85 dB	85 dB
Port to Port isolation Rx→Rx, Tx→Tx	17 dB	17 dB
Sidelobes	Meets ITU-R S-580-6	

*1 The G/T is evaluated with a 110K LNA bolted at the feed interface.

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calian.com/space/antennas
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