HC860

CALIAN®
Confidence. Engineered.

Multi-Constellation Dual-Band and Active Iridium Antenna

Frequency Coverage: GPS L1, L2 | GALILEO E1 | BEIDOU B1 | GLONASS G1, G2 | Iridium + L-Band

The patented dual-purpose (GNSS and Iridium signal reception) HC860 helical antenna is designed for precision positioning, covering the GPS/QZSS-L1/L2, GLONASS-G1/G2, Galileo-E1, and BeiDou-B1 frequency bands, including the satellite-based augmentation system (SBAS) available in the region of operation [WAAS (NorthAmerica), EGNOS (Europe), MSAS (Japan), or GAGAN (India)] and for active Iridium signal reception. The HC860 also supports active Iridium® reception in the 1616.0-1626.5 MHz band.

Weighing only 42 g, the light and compact HC860 features a precision-tuned helix element that provides excellent axial ratios and operates without the requirement of a ground plane, making it ideal for many applications, including autonomous vehicle navigation (land, sea, and air), handheld land survey devices, automotive positioning, timing and other precise positioning applications

The HC860 features an industry-leading low current, low-noise amplifier (LNA) that includes an integrated low-loss pre-filter to prevent harmonic interference from high-amplitude signals, such as 700 MHz band LTE and other nearby in-band cellular signals.

Calian's helical family has passed a rigorous 30-hour vibration test procedure, consisting of five cycles of 2-hour tests per axis (x, y, z):

- Cycle 1: 1.05 Grms;
- Cycle 2: 1.20 Grms;
- Cycle 3: 1.35 Grms;
- Cycle 4: 3.67 Grms;
- Cycle 5: 3.67 Grms.

All Tallysman housed helical antenna elements are protected by a robust military-grade IP69K-compliant plastic enclosure. The enclosure's base provides three threaded inserts for secure attachment, as well as a rubber O-ring around the outer edge to seal the antenna base and its integrated male SMA connector.

Mounting instructions available on our product page.

Applications

- Iridium® data applications
- Autonomous uncrewed aerial vehicles (UAVs)
- Precision GNSS positioning
- Precision land survey positioning
- Mission-critical GNSS timing
- Network timing and synchronization
- Sea and land container tracking
- Fleet management and asset tracking
- Marine and avionics systems
- Law enforcement and public safety

Features

- Low noise preamp (1.7 dB typ.)
- Axial ratio (≤ 0.5 dB at zenith)
- LNA gain (28 dB, 35 dB typ.)
- Low current (15 mA (28 dB), 21 mA (35 dB) typ.)
- ESD circuit protection (15 kV)
- Invariant performance from 2.5 to 16 VDC
- IP69K, REACH, and RoHS compliant

Benefits

- Extremely light (42 g)
- Ideal for RTK and PPP surveying systems
- Excellent RH circular polarized signal reception
- Great multipath rejection
- Increased system accuracy
- Excellent signal-to-noise ratio
- Industrial temperature range
- Rugged design, ideal for harsh environments

About Calian: With global headquarters and manufacturing in Ottawa, Canada, Calian is a leading manufacturer of high-precision antennas and components for Global Navigation Satellite System (GNSS) applications. Calian's mission is to support the needs of a new generation of positioning systems by delivering unprecedented antenna precision at competitive prices. Learn more at www.calian.com

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Antenna

Technology: Dual-frequency, RHCP quadrifilar helix

		Gain (dBic typ. at Zenith)	Axial Ratio (dB at Zenith)
GNSS			
GPS / QZSS	L1	2.2	≤ 0.5
	L2	2.4	≤ 0.5
	L5	-	-
GLONASS	G1	2.6	≤ 0.5
	G2	2.1	≤ 0.5
	G3	-	-
Galileo	E1	2.2	≤ 0.5
	E5A	-	-
	E5B	-	-
	E6	-	-
BeiDou	B1	2.2	≤ 0.5
	B2b	-	-
	B2a	-	-
	B3	-	-
IRNSS / NavIC	L5	-	-
QZSS	L6	-	-
L-Band Services (1525 MHz - 1559 MHZ)		-	-
Satellite Communications			
Iridium		2.5	≤ 0.5
Globalstar		-	-
Other			
Axial Ratio at 10°	-	Efficiency	-
PC Variation	± 3.0 mm (all freq.)	PCO (mm)	30 (L1), 35 (L2)

Mechanicals

Mechanical Size	44.2 mm (dia.) x 62.4 mm (h.)
Weight	42 g
Radome	LEXAN™ EXL9330
Mount	3x M2.5 screws
Available Connectors	SMA (male)

Environmental

Operating Temperature	-40 °C to +85 °C
Storage Temperature	-55 °C to +95 °C
Vibration	MIL-STD-810-G - Test Method 514.6
Shock	MIL-STD-810-G - Test Method 516.6
Salt Fog	MIL-STD-810-G - Test Method 509.6
IP Rating	IP69K
Compliance	IPC-A-610, FCC, RED / CE Mark, RoHS, REACH

Warranty

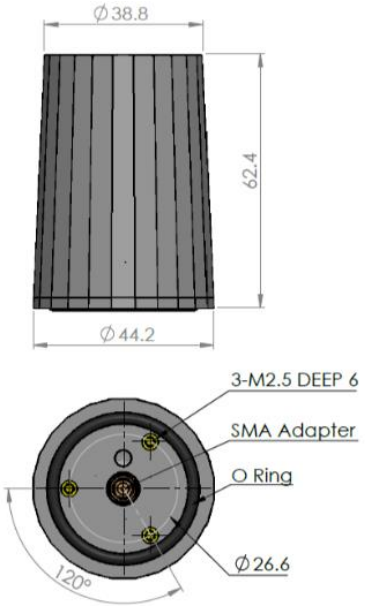
Parts and Labour: 3-year standard warranty

Low Noise Amplifier (LNA) - Measured at 3V and 25°C

Frequency Bandwith		Out of Band Rejection
Lower Band	1217 - 1255 MHz	> 43 dB @ < 1100 MHz > 30 dB @ < 1200 MHz > 32 dB @ > 1300 MHz
L-Band Corr.	-	> 26 dB @ ≤ 1450 MHz > 50 dB @ ≥ 1700 MHz
Upper Band	1559 - 1626.5 MHz	

Architecture	Pre-filtered
Gain	28 dB typ., 35 dB typ.
Noise Figure	1.7 dB typ.
VSWR	< 1.5:1 typ., 1.8:1 max.
Supply Voltage Range	2.5 to 16 VDC nominal, up to 50mV p-p ripple
Supply Current	15 mA typ. (28 dB), 21 mA typ. (35 dB)
ESD Circuit Protection	15 kV air discharge
P 1dB Output	11 dBm typ.
Group Delay	15 ns (L1), 12 ns (L2)

Mechanical Diagram - Units in 'mm'



Ordering Information

Part Number **33-HC860-xx**

where xx = gain (28 or 35 dB)

Please refer to our **Ordering Guide** to review available radomes and connectors at:
https://www.tallysman.com/resource/tallysman-ordering-guide/

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