HC882SXF

CALIAN
Confidence. Engineered.

Multi-Constellation Dual-Band Antenna

Frequency Coverage: GPS L1, L2 | GALILEO E1, E5b | BEIDOU B1, B2b | GLONASS G1, G2, G3 + L-Band

The patented HC882SXF helical antenna is designed for precision positioning, covering the GPS/QZSS-L1/L2, GLONASS-G1/G2/G3, Galileo-E1/E5b, and BeiDou-B1/B2b frequency bands, including the satellite-based augmentation system (SBAS) available in the region of operation [WAAS (North America), EGNOS (Europe), MSAS (Japan), or GAGAN (India)], as well as L-Band correction services.

Weighing only 32 g, the light and compact HC882SXF features the 2nd generation Tallysman precision-tuned helix element that provides excellent axial ratios and operates without the requirement of a ground plane, making it ideal for a wide variety of applications, including unmanned aerial vehicles (UAVs). The miniaturized 2nd generational helical element is about 25% lighter and 20% (1 cm) shorter than the first generational helical, without compromising on performance such as peak gain at zenith, low roll-off, and bandwidth.

The HC882SXF features an industry-leading low current, low-noise amplifier (LNA) that includes an integrated low-loss pre-filter. eXtended Filtering was added to the HC882 antenna to mitigate new radio frequency bands that interfere with GNSS signals. For example, new LTE bands have been activated, and their signal or harmonic frequencies can affect GNSS antennas and receivers. In North America, the planned Ligado service, which will broadcast in the frequency range of 1526 to 1536 MHz, can affect GNSS antennas that receive space-based L-band correction service signals (1539 - 1559 MHz). Similarly, new LTE signals in Europe [Band 32 (1452 - 1496 MHz)] and Japan [Bands 11 and 21 (1476 – 1511 MHz)] have also affected GNSS signals. Lastly, the Inmarsat satellite communication uplink (1626.5 - 1660.5 MHz), commonly used on maritime vessels, can also affect nearby GNSS antennas.

Field tests have confirmed that Calian's custom XF technology mitigates the new (Europe and Japan) and existing LTE signals, enabling the XF antenna to produce clean and pure GNSS radio frequency data.

Calian's 2nd generation housed helical antenna elements are protected by a robust military-grade IP67 plastic enclosure. The enclosure's base provides two 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

- Autonomous unmanned 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

- Very low noise preamp (2.5 dB typ.)
- Axial ratio (≤ 0.5 dB at zenith)
- LNA gain (28 dB typ., 35 dB typ.)
- Low current (26 mA typ., 32 mA typ.)
- ESD circuit protection (15 kV)
- Invariant performance from 2.5 to 16 VDC
- IP67, REACH, and RoHS compliant

Benefits

- Extremely light (32 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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Revision: 202203

Multi-Constellation Dual-Band Antenna

Frequency Coverage: GPS L1, L2 | GALILEO E1, E5b | BEIDOU B1, B2b | GLONASS G1, G2, G3 + L-Band

Antenna

Technology: Triple-frequency, RHCP quadrifilar helix

		Gain	Axial Ratio
		dBic typ. at Zenith	dB at Zenith
GNSS			
GPS / QZSS	L1	2.6	≤ 0.5
	L2	2.5	≤ 0.5
	L5	-	-
GLONASS	G1	1.5	≤ 0.5
	G2	1.2	≤ 0.5
	G3	2.2	≤ 0.5
Galileo	E1	2.6	≤ 0.5
	E5A	-	-
	E5B	2.0	≤ 0.5
	E6	-	-
BeiDou	B1	2.5	≤ 0.5
	B2b	2.0	≤ 0.5
	B2a	-	-
	B3	-	-
IRNSS / NavIC	L5	-	-
QZSS	L6	-	-
L-Band Services (1525 MHz - 1559 MHZ)		2.7	≤ 0.5
Satellite Communications			
Iridium		-	-
Globalstar		-	-
Other			
Axial Ratio at 10°	-	Efficiency	-
PC Variation	± 3.0 mm (all freq.)	PCO (mm)	-

Mechanicals

Mechanical Size	44.6 mm (dia.) x 52.6 mm (h.)
Weight	32 g
Radome	LEXAN™ EXL9330
Mount	3x M2.5 screws
Available Connectors	SMA (male)

Environmental

Operating Temperature	-40 °C to + 85 °C
Storage Temperature	-50 °C to + 95 °C
Vibration	MIL-STD-810-G - Test Method 514.6
Shock	MIL-STD-810-G - Test Method 516.6
Salt Fog	-
IP Rating	IP67
Compliance	IPC-A-610, FCC, RED / CE Mark, RoHS, REACH

Warranty

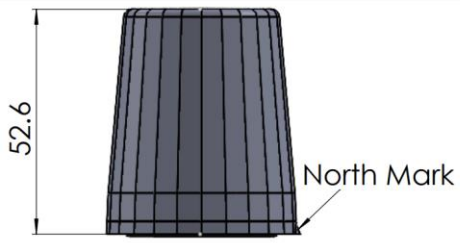
Parts and Labour: 3-year standard warranty

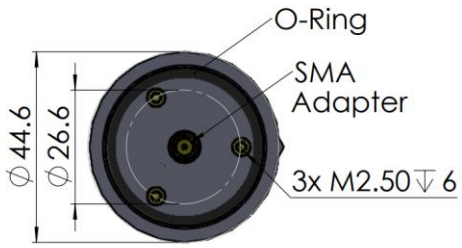
Low Noise Amplifier (LNA) - Measured at 3V and 25°C

Frequency Bandwith		Out of Band Rejection
Lower Band	1559 - 1606 MHz	> 64 dB @ > 1400 MHz > 30 dB @ < 1526 MHz > 05 dB @ < 1536 MHz > 65 dB @ > 1626 MHz > 64 dB @ > 1700 MHz
L-Band Corr.	1540 - 1559 MHz	> 70 dB @ < 700 MHz > 60 dB @ < 1000 MHz > 76 dB @ < 1100 MHz > 39 dB @ < 1325 MHz > 75 dB @ < 1400 MHz
Upper Band	1192 - 1254 MHz	

Architecture	eXtended Filtering
Gain	28 dB typ., 35 dB typ.
Noise Figure	2.5 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	26 mA typ. (28 dB), 32 mA typ. (35 dB)
ESD Circuit Protection	15 kV air discharge
P 1dB Output	11 dBm typ.
Group Delay	5 ns (L1), 12 ns (L2/E5b)

Mechanical Diagram - Units in 'mm'





Ordering Information

Part Number **33-HC882SXF-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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