

HC871



When precision matters.®

HC871 Dual-Band Helical Antenna

Frequency Coverage: L1/L2/G1/G2/E1/B1

Overview

The lightweight HC871 helical antenna is designed and crafted for precision positioning and covers the GPS/QZSS-L1/L2, GLONASS-G1/G2, Galileo-E1, and BeiDou-B1 frequency bands.

Weighing only 29 g, the lightweight HC871 features a 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 HC871 features an industry-leading low current, low noise amplifier (LNA) that includes an integrated low-loss pre-filter to protect against harmonic interference from high amplitude interfering signals, such as 700 MHz band LTE and other near in-band cellular signals.

The HC871 is protected by a robust, military-grade plastic enclosure with an integrated SMA connector for screw-on mounting that securely seals the unit with an O-ring, complying with IP67 standards. The enclosure also provides two threaded holes in the base for secure attachment of the unit.



Applications

- Autonomous unmanned aerial vehicles (UAVs)
- Precision GNSS positioning
- Precision land survey positioning
- Mission-critical GNSS timing
- Safety & security
- Network timing & synchronization

Features

- Very low noise preamp: 2.0 dB typ.
- Axial ratio: ≤ 0.5 dB at zenith
- LNA gain: 28 dB typ.
- Low current: 15 mA typ.
- ESD circuit protection: 15 kV
- Invariant performance from: 2.2 to 16 VDC
- IP67, REACH, and RoHS compliant

Benefits

- Extremely lightweight (29 g)
- Ideal for L1/L2 RTK surveying systems
- Great multipath rejection
- Increased system accuracy
- Excellent signal-to-noise ratio

About Tallysman: With global headquarters and manufacturing in Ottawa, Canada, Tallysman is a leading manufacturer of high-precision antennas and components for Global Navigation Satellite System (GNSS) applications. Tallysman'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.tallysman.com

Revision: 1.0

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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	1.6	≤ 0.5
	L2	1.7	≤ 0.5
	L5	-	-
GLONASS	G1	1.2	≤ 0.5
	G2	1.7	≤ 0.5
	G3	-	-
Galileo	E1	1.6	≤ 0.5
	E5A	-	-
	E5B	-	-
	E6	-	-
BeiDou	B1	1.6	≤ 0.5
	B2	-	-
	B2a	-	-
	B3	-	-
IRNSS / NavIC	L5	-	-
QZSS	L6	-	-
L-Band Services (1525 MHz - 1559 MHz)		-	-
Satellite Communications			
Iridium		-	-
Globalstar		-	-
Other			
Axial Ratio at 10°	-	Efficiency	-
PC Variation	-		

Mechanicals

Size	33.3 mm (dia.) x 63.2 mm (h.)
Weight (including O-Ring)	29 g
Available connectors	SMA
Radome	Radome and base: EXL9330
Mount	2 M2.5 screws

Environmental

Operating Temperature	-40 °C to +85 °C
Storage Temperature	-50 °C to +95 °C
Vibration	MIL STD 810D - 2 hr per axis (X,Y,Z)
Shock	-
Salt Fog	-
IP Rating	IP67 (housing)
Compliance	IPC-A-610, FCC, RED / CE Mark, RoHS, REACH

Warranty:

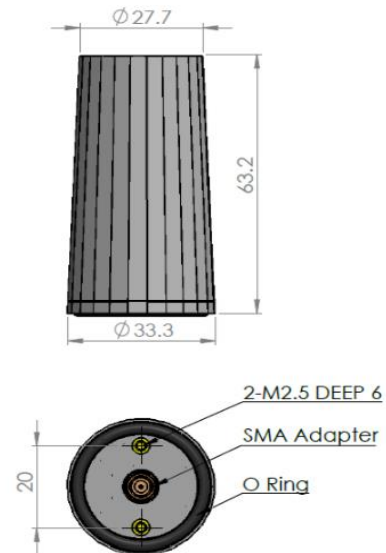
Parts and Labour	One year (extended warranty available)
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Low Noise Amplifier (LNA) - Measured at 3V and 25°C

Frequency Bandwith		Out of Band Rejection	
		Upper Band	Lower Band
1559 - 1606 MHz	1215 - 1254 MHz	< 1400 MHz > 48 dB < 1500 MHz > 39 dB > 1625 MHz > 38 dB > 1700 MHz > 57 dB	< 1100 MHz > 46 dB < 1190 MHz > 40 dB

Architecture	pre-filter → LNA
Gain	28 dB typ. 26 dB min.
Noise Figure	2.0 dB typ.
VSWR	< 1.5:1 typ. 1.8:1 max.
Supply Voltage Range	2.2 to 12 VDC
Supply Current	15 mA typ.
ESD Circuit Protection	15 kV air discharge
P 1dB Output	10 dBm
Group Delay	15 ns @ L1 10ns @ L2

Mechanical Diagram



Ordering Information

Part Number **33-HC871**

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