HC872 GPS L1/L2 + GLONASS G1/G2 + Galileo E1 + BeiDou B1 + L-band Services Helix Antenna

The HC872 is a lightweight helical antenna covering the GPS L1/L2, GLONASS G1/G2, Galileo E1, and BeiDou B1 frequency bands, as well as L-band correction services coverage, is designed and crafted for precision positioning.

Weighing 37 grams, the lightweight HC872 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 HC872 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 signals, such as the 700MHz band LTW and other near in-band cellular signals.

The HC872 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 3/32” x 48tpi threaded holes in the base for secure attachment of the unit.

Applications

• Airborne Unmanned Autonomous Vehicles
• Precision GPS position
• Dual Frequency RTK receivers
• Mission Critical GPS Timing
• Military & Security
• Network Timing and Synchronization

Features

• Very low Noise Preamp, 2.5dB
• Axial ratio: <0.5dB max @zenith
• LNA Gain 28/35 dB typ.
• Low current: 12/18 mA typ.
• ESD circuit protection: 15 KV
• Invariant performance from: +2.5 to 16VDC

Benefits

• Lightweight
• Ideal for L1/L2 RTK surveying systems
• Great multipath rejection
• Increased system accuracy
• Excellent signal to noise ratio
• IP67, REACH, and RoHS compliant
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Specifications (Measured at Vcc = 3V, and Temperature = 25°C)

### Antenna

- **Element Architecture**: Dual Frequency Quadrifilar Helix
- **L1/L2 Peak Gain @zenith**: 3.3dBi/1.8dBi
- **G1/G2 Peak Gain @zenith**: 2.8dBi/1.5dBi
- **Galileo E1**: 3.3dBi
- **BeiDou B1**: 3.1dBi
- **L-Band @zenith**: 2.9dBi
- **Axial Ratio**, over full bandwidth, both L1 & L2: 0.5 dB max. at Zenith
- **Polarization**: RHCP

### Electrical

- **Bandwidth**: 
  - L2: 1215MHz-1254MHz
  - L1: 1559MHz-1606MHz
  - L-band: 1525-1559MHz
- **Overall LNA Gain**: 28 dB typ, 26 dB min or 35 dB typ, 33 dB min, each of L1 and L2 Bands
- **LNA Noise Figure**: 2.0 dB typ @ 25°C
- **VSWR (at LNA output)**: <1.5:1 typ, 1.8:1 max.
- **Supply Voltage Range**: +2.5 to 16VDC nominal, up to 50mV p-p ripple
- **EMI Immunity**: 50V/Meter, excepting L1+/-100MHz and L2 +/− 100MHz
- **Supply Current**: 12/18mA typ. At 25°C
- **ESD Circuit protection**: 15 KV air discharge
- **Out-of-Band Rejection**:
  - **L1**:
    - <1400 MHz: >36 dB
    - <1450 MHz: >32 dB
    - >1700MHz: >45dB
  - **L2**:
    - <1100 MHz: >35 dB
    - <1190 MHz: >47 dB
    - >1350MHz: >48dB

### Mechanicals & Environmental

- **Mechanical Size**: 62.4mm (h) x 44.5mm (d)
- **Connector**: SMA Male
- **Enclosure**: Radome: EXL9330, Base: EXL9330
- **Operating Temperature Range**: -40°C to +85°C
- **Weight**: 24 g
- **Environmental**: RoHS and REACH compliant
- **Shock**: Vertical axis: 50 G, other axes: 30 G
- **Vibration**: 3-axis, sweep = 15 min, 10 to 200 Hz sweep: 3 G

### Ordering Information

HC872 – Helical GPS L1/L2 + GLONASS G1/G2 + Galileo E1 + BeiDou B1 + L-band
(where xx = 30 for 28dB amplifier or 35 for 35dB amplifier)


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