The HC872 helical antenna is designed and crafted 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 (North America), EGNOS (Europe), MSAS (Japan), or GAGAN (India)], as well as and L-band correction services.

Weighing only 42 g, the lightweight and compact 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 prevent harmonic interference from high-amplitude signals, such as 700 MHz band LTE and other nearby in-band cellular signals.

All Tallysman® helical antenna elements are protected by a robust military-grade IP67-compliant 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 SMA connector.

Tallysman®’s HC872 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.

**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: 2.0 dB
- Axial ratio: ≤ 0.5 dB at zenith
- LNA gain 28 dB typ. or 35 dB typ.
- Low current: 12 mA typ. or 18 mA typ.
- ESD circuit protection: 15 kV
- Invariant performance from 2.2 to 16 VDC
- IP67, REACH, and RoHS compliant

**Benefits**
- Extremely lightweight (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 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](http://www.tallysman.com)
# HC872 Dual-band Helical Antenna + L-band

**Frequency Coverage:**
- GNSS/QZSS-L1/L2, GLONASS-G1/G2, Galileo-E1, BeiDou-B1 + L-band correction services

## Antenna

<table>
<thead>
<tr>
<th>Technology</th>
<th>Dual-frequency, RHCP quadrifilar Helix</th>
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</table>

### Gain (dbic typ. at Zenith) | Axial Ratio (db at Zenith)
-----------------------------|-----------------------------
| **GNSS**                   |                            |
| GPS / QZSS                 |                            |
| L1                         | 2.5                        | ≤ 0.5                      |
| L2                         | 2.8                        | ≤ 0.5                      |
| L5                         | -                          | -                          |
| **GLONASS**                |                            |
| G1                         | 1.8                        | ≤ 0.5                      |
| G2                         | 1.9                        | ≤ 0.5                      |
| G3                         | -                          | -                          |
| **Galileo**                |                            |
| E1                         | 2.5                        | ≤ 0.5                      |
| E5a                        | -                          | -                          |
| E5b                        | -                          | -                          |
| E6                         | -                          | -                          |
| **BeiDou**                 |                            |
| B1                         | 2.5                        | ≤ 0.5                      |
| B2                         | -                          | -                          |
| B2a                        | -                          | -                          |
| B3                         | -                          | -                          |
| **IRNSS / NavIC**         |                            |
| L5                         | -                          | -                          |
| **QZSS**                   |                            |
| L6                         | -                          | -                          |

### L-band correction services
- Gain (dbic typ. at Zenith) | ≤ 0.5
- **Architectures**
- Pre-filter → LNA
- **Gain**
- 28 dB typ. or 35 dB typ.
- **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**
- 12 mA (28 dB gain) | 18 mA (35 dB gain)
- **ESD Circuit Protection**
- 15 kV air discharge
- **Group Delay Variation**
- -
- **Supply Current**
- 12 mA (28 dB gain) | 18 mA (35 dB gain)
- **ESD Circuit Protection**
- 15 kV air discharge
- **Group Delay Variation**
- -

## Mechanicals

- **Mechanical Size**
  - 44.2 mm (dia.) x 62.4 mm (h.)
- **Weight**
  - 42 g
- **Available Connectors**
  - SMA
- **Mechanical Size**
  - 44.2 mm (dia.) x 62.4 mm (h.)
- **Weight**
  - 42 g
- **Available Connectors**
  - SMA
- **Radome / Enclosure**
  - Radome and Base: EXL9330
- **Mount**
  - 3 M2.5 screws
- **Environmental**
  - **Operating Temperature**
    - -40 °C to +85 °C
  - **Storage Temperature**
    - -50 °C to +95 °C
  - **Random Vibration**
    - MIL-STD-810E - Test method 514.5
  - **Shock and Drop**
    - -
  - **Salt Fog**
    - -
  - **IP Rating (housing)**
    - IP67
  - **Compliance**
    - IPC-A-610, FCC, RED / CE Mark, RoHS, REACH
- **Environmental**
  - **Operating Temperature**
    - -40 °C to +85 °C
  - **Storage Temperature**
    - -50 °C to +95 °C
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    - -
  - **Salt Fog**
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  - **Compliance**
    - IPC-A-610, FCC, RED / CE Mark, RoHS, REACH

## Compliance

- **Compliance**
  - IPC-A-610, FCC, RED / CE Mark, RoHS, REACH

## Ordering Information

- **Part Number**
  - 33-HC872-xx
- **Available Connectors**
  - SMA
- **Radome / Enclosure**
  - Radome and Base: EXL9330
- **Mount**
  - 3 M2.5 screws
- **Environmental**
  - **Operating Temperature**
    - -40 °C to +85 °C
  - **Storage Temperature**
    - -50 °C to +95 °C
  - **Random Vibration**
    - MIL-STD-810E - Test method 514.5
  - **Shock and Drop**
    - -
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    - IP67
  - **Compliance**
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