## HC882 Dual-band Helical Antenna + L-band

Frequency Coverage: GNSS/QZSS-L1/L2, GLONASS-G1/G2/G3, Galileo-E1/E5b, BeiDou-B1/B2 + L-band correction services

The HC882 helical antenna is designed and crafted for precision positioning, covering the GPS/QZSS-L1/L2, GLONASS-G1/G2/G3, Galileo-E1/E5b, and BeiDou-B1/B2 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 42 g , The HC882 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 HC882 features an industry-leading low current, low-noise amplifier (LNA) that includes an integrated low-loss pre-filter to prevent harmonic interference from highamplitude signals, such as 700 MHz band LTE and other nearby in-band cellular signals.

All Tallysman ${ }^{\otimes}$ helical antenna elements are protected by a robust military-grade IP67compliant 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 HC882 has passed a rigorous 30 -hour vibration test procedure, consisting of five cycles of 2-hour tests per axis ( $\mathrm{x}, \mathrm{y}, \mathrm{z}$ ):

- 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: 1.6 dB typ
- Axial ratio: $\leq 0.5 \mathrm{~dB}$ at zenith
- LNA gain 28 dB typ. or 35 dB typ.
- Low current: 15 mA typ. or 21 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 Revision:

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|  |  | Gain | Axial Ratio |
| :---: | :---: | :---: | :---: |
|  |  | dBic typ. at Zenith | dB at Zenith |
| GNSS |  |  |  |
| GPS / QZSS | L1 | 2.5 | $\leq 0.5$ |
|  | L2 | 2.7 | $\leq 0.5$ |
|  | L5 | - | - |
| GLONASS | G1 | 1.5 | $\leq 0.5$ |
|  | G2 | 2.0 | $\leq 0.5$ |
|  | G3 | 1.0 | $\leq 0.5$ |
| Galileo | E1 | 2.5 | $\leq 0.5$ |
|  | E5a | - | - |
|  | E5b | 1.0 | $\leq 0.5$ |
|  | E6 | - | - |
| BeiDou | B1 | 2.5 | $\leq 0.5$ |
|  | B2 | 1.1 | $\leq 0.5$ |
|  | B2a | - | - |
|  | B3 | - | - |
| IRNSS / NavIC | L5 | - | - |
| QZSS | L6 | - | - |
| L-band correction services |  | 1.5 | $\leq 0.5$ |
| Satellite Communications |  |  |  |
| Iridium <br> Globalstar |  | - | - |
|  |  | - | - |

Phase Centre

| Phase Centre Variation (PCV) | $\pm 3.0 \mathrm{~mm}$ (all freq.) |
| :--- | :--- |
| Phase Centre Offset (PCO) | $34 \mathrm{~mm} @$ L1 $\mid 38 \mathrm{~mm} @$ L2/E5b |


| Mechanicals |  |
| :--- | :--- |
| Mechanical Size | 44.2 mm (dia.) $\times 62.4 \mathrm{~mm}(\mathrm{~h})$. |
| Weight | 42 g |
| Available Connectors | SMA |
| Radome / Enclosure | Radome and Base: EXL9330 |
| Mount | 3 M 2.5 screws |
| Environmental |  |
| Operating Temperature | $-40^{\circ} \mathrm{C}$ to $+85^{\circ} \mathrm{C}$ |
| Storage Temperature | $-50^{\circ} \mathrm{C}$ to $+95^{\circ} \mathrm{C}$ |
|  | MIL-STD-810E - Test method 514.5 |
| Random Vibration | 4 hours per axis (x, y, z) at 3.674 Grms |
| Shock and Drop | - |
| Salt Fog | - |
| IP Rating (housing) | IP67 |
| Compliance | IPC-A-610, FCC, RED / CE Mark, RoHS, REACH |


| Warranty: |
| :--- |
| Parts and Labour $\quad$ 3-year standard warranty |

Low Noise Amplifier (LNA) - Measured at 3.0 VDC and $25^{\circ} \mathrm{C}$

| Frequency Bandwith |  | Out-of-Band Rejection |
| :--- | :---: | :---: |
| Lower Band |  | $1192-1255 \mathrm{MHz}$ |
|  |  | $>63 \mathrm{~dB} @<1000 \mathrm{MHz}$ <br> $>38 \mathrm{~dB} @<1100 \mathrm{MHz}$ <br> $>30 \mathrm{~dB} @<1130 \mathrm{MHz}$ |
| L-band corrections services | $1539-1559 \mathrm{MHz}$ |  |
|  |  | $>36 \mathrm{~dB} @<1400 \mathrm{MHz}$ |
| Upper Band | $1559-1606 \mathrm{MHz}$ | $>44 \mathrm{~dB} @<1450 \mathrm{MHz}$ <br> $>28 \mathrm{~dB} @>1700 \mathrm{MHz}$ |
|  |  |  |


| Architecture | Pre-filter $\rightarrow$ LNA |
| :--- | :--- |
| Gain | 28 dB typ. or 35 dB typ. |
| Noise Figure | 2.0 dB typ. |
| VSWR | $<1.5: 1$ typ. $\mid 1.8: 1$ max. |
| Supply Voltage Range | 2.2 to 16 VDC |
| Supply Current | $15 \mathrm{~mA}(28 \mathrm{~dB}$ gain $) \mid 21 \mathrm{~mA}(35 \mathrm{~dB}$ gain $)$ |
| ESD Circuit Protection | 15 kV air discharge |
| P 1dB Output | - |
| Group Delay Variation | - |
| Mechanical Diagram |  |




Ordering Information

## Part Number

33-HC882-xx
where $\mathrm{xx}=$ 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/

