

Embedded Multi-Constellation Dual-Band Antenna

Frequency Coverage: GPS L1, L2 | GALILEO E1 | BEIDOU B1 | GLONASS G1, G2

TW3872E employs Calian's patented Accutenna® technology providing dual-band GPS/QZSS L1 & L2, GLONASS-G1 & G2, BeiDou B1, and Galileo E1 coverage and is especially designed for precision dual frequency positioning.

The antennas feature a precision tuned, circular dual-feed, stacked patch element. The signals from the two orthogonal feeds are combined in a hybrid combiner, amplified in a wideband LNA, then band-split for narrow filtering in each band and further amplified prior to recombination at the output.

The TW3872E has a strong pre-filter to mitigate inter-modulated signal interference from LTE and other cellular bands.

The TW3872E antenna offers excellent axial ratio and a tightly grouped phase centre.

The TW3872E covers GPS/QZSS L2 (1227.6 MHz), GLONASS G2 (1248 MHz centre), GPS/QZSS L1/WAAS/EGNOS/MSAS (1575.42 MHz), GLONASS-G1 (1602 MHz, centre), BeiDou B1 (1575.42 MHz), and Galileo E1 (1575.42 MHz).

This OEM antenna is supplied with a standard 60 mm (dia.) diameter circular ground plane, with a coaxial cable terminated with your choice of connector (right angle MCX is shown in the drawing).

Mounting holes are provided for attachment to larger ground planes. Custom tuning and ground plane options may be available, depending on purchase level commitment.



Applications

- Precision GPS position
- Dual-frequency RTK receivers
- Mission Critical GPS Timing
- Law enforcement and public safety
- Network timing & synchronization

Features

- Very low noise preamp
- Low axial ratio (< 2.0 dB typ.)
- Tight phase centre variation
- High-gain LNA (35 dB typ.)
- Low current (24 mA typ.)
- ESD circuit protection (15 kV)
- Invariant performance from 2.5 to 16 VDC

Benefits

- Ideal for L1/L2 RTK surveying systems
- Great multipath rejection
- Increased system accuracy
- Great signal-to-noise ratio
- IP69K, REACH, and RoHS compliant

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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Antenna - Measured with a 100 mm ground plane

Technology Dual-feed Stacked RHCP ceramic patch

| | | Gain | Axial Ratio |
|---------------------------------------|---------|---------------------|--------------|
| | | dBic typ. at Zenith | dB at Zenith |
| GNSS | | | |
| GPS / QZSS | L1 | 4.5 | ≤ 1 |
| | L2 | 3.8 | < 1.5 |
| | L5 | - | - |
| GLONASS | G1 | 4.0 | ≤ 1 |
| | G2 | 4.0 | < 1.5 |
| | G3 | - | - |
| Galileo | E1 | 4.0 | ≤ 1 |
| | E5A | - | - |
| | E5B | - | - |
| | E6 | - | - |
| BeiDou | B1 | 4.0 | ≤ 1 |
| | B2b | - | - |
| | B2a | - | - |
| | B3 | - | - |
| IRNSS / NavIC | L5 | - | - |
| QZSS | L6 | - | - |
| L-Band Services (1539 MHz - 1559 MHz) | | - | - |
| Satellite Communications | | | |
| Iridium | | - | - |
| Globalstar | | - | - |
| Other | | | |
| Axial Ratio at 10° | - | Efficiency | - |
| PCV Φ > 15° | ± 10 mm | PCO | |

Mechanicals

| | |
|----------------------|---|
| Size | 62 mm (dia.) x 17 mm (h.) (see diagram) |
| Weight | 185 g |
| Radome | - |
| Mount | 5 x M2 screws |
| Available Connectors | Please refer to ordering guide |

Environmental

| | |
|-----------------------|---------------------------------------|
| Operating Temperature | -40 °C to +85 °C |
| Storage Temperature | -55 °C to +95 °C |
| Vibration | MIL-STD-810D Method 514.3-1 |
| Shock | Vertical axis: 50 G, other axes: 30 G |
| Salt Fog | MIL-STD-810F Section 509.4 |
| Other Tests | - |
| IP Rating | - |
| Compliance | IPC-A-610, FCC, CE RED, RoHS, REACH |

Warranty

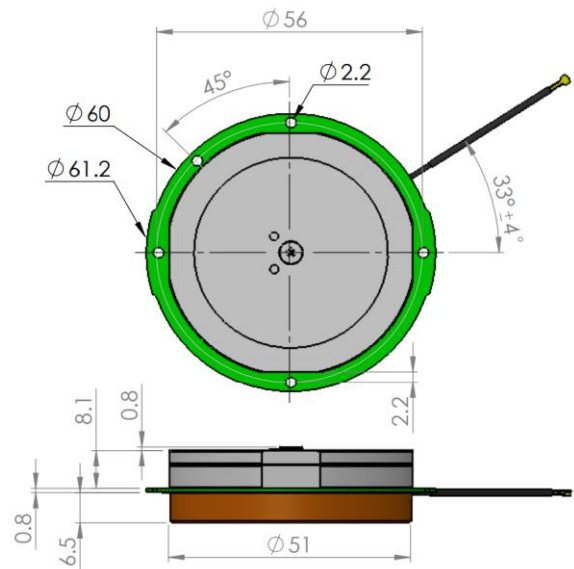
| | |
|------------------|--------------------------|
| Parts and Labour | 1-year standard warranty |
|------------------|--------------------------|

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

| Frequency Bandwidth | | Out of Band Rejection |
|---------------------|-----------------|--|
| Lower Band | 1215 - 1254 MHz | > 40 dB @ < 1180 MHz > 30 dB @ < 1190 MHz > 32 dB @ > 1284 MHz |
| L-Band Corr. | - | > 40 dB @ < 1450 MHz > 30 dB @ > 1520 MHz > 35 dB @ > 1650 MHz |
| Upper Band | 1559 - 1606 MHz | |

| | |
|------------------------|--|
| Architecture | Pre-filtered |
| Gain | 35 dB typ., 32 dB min. |
| Noise Figure | 2.5 dB typ. @25 °C |
| 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 | 24 mA typ., 25 mA max. at 75 °C. |
| ESD Circuit Protection | 15 kV air discharge |
| P 1dB Output | - |
| Group Delay | - |

Mechanical Diagram - Units in 'mm' or 'inches' where specified



Ordering Information

Part Number **33-3872-xx-yy-zzzz**

Where xx = connector type, yy = shape and colour of radome and zzzz = cable length in mm (where applicable)

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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