

TW3012



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CALIAN®
Confidence. Engineered.

Permanent-Mount GPS-L1 Antenna

Frequency Coverage: GPS L1

The TW3012 is a professional-grade, permanent-mount GPS-L1 antenna, specially designed for precision tracking and timing applications.

The TW3012 features a custom high performance, wide band patch element, a 26 dB gain LNA stage and a high-rejection out-of-band SAW filter. The TW3012 includes a tight SAW pre-filter to provide strong protection against out-of-band signals. It provides ± 10 MHz bandwidth centred on 1575.42 MHz and covers the GPS-L1, and SBAS (WAAS/EGNOS/MSAS) signals. It provides great axial ratio, excellent circular polarized signal reception, strong multipath rejection and very deep out-of-band signal rejection.

The TW3012 is housed in a permanent-mount industrial-grade weatherproof enclosure. Optional components include a 10 cm ground plane (provided for optimal performance), an L-bracket mount (P/N 23-0040-0), or a pipe mount (P/N 23-0065-0).



Applications

- Mission-critical GPS tracking and timing
- Precision agriculture, mining, and construction
- Law enforcement and public safety
- Fleet management and asset tracking
- Avionics

Features

- Great axial ratio
- Low noise LNA (4.3 dB typ.)
- Pre-filter
- High-rejection SAW filter
- High-gain LNA (26 dB typ.)
- Low current (9 mA typ.)
- ESD circuit protection (15 kV)
- Wide supply voltage range (2.5 to 16 VDC)
- IP69K weatherproof housing

Benefits

- Excellent multipath rejection
- Increase system accuracy
- Excellent signal-to-noise ratio
- Very deep out-of-band signal rejection
- Ideal for harsh environments
- CE RED, RoHS, and REACH 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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Permanent-Mount GPS-L1 Antenna

Frequency Coverage: GPS L1

Antenna

Technology Single-feed RHCP ceramic patch

| | | Gain dBic typ. at Zenith | Axial Ratio dB at Zenith |
|---------------------------------------|-----|-----------------------------|-----------------------------|
| GNSS | | | |
| GPS / QZSS | L1 | 4.0 | ≤ 4 |
| | L2 | - | - |
| | L5 | - | - |
| GLONASS | G1 | - | - |
| | G2 | - | - |
| | G3 | - | - |
| Galileo | E1 | - | - |
| | E5A | - | - |
| | E5B | - | - |
| | E6 | - | - |
| BeiDou | B1 | - | - |
| | 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° | | - | PCO |

Mechanicals

| | |
|----------------------|---|
| Size | 66.5 mm (dia.) x 21 mm (h.) |
| Weight | 150 g |
| Radome | LEXAN™ EXL9330, Base: Zamac Metal |
| Mount | Through-hole (100 mm ground plane provided) |
| 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-810-E - Test Method 514.5 |
| Shock | MIL-STD-810-G - Test Method 516.6 |
| Salt Fog | MIL-STD-810-F - Test Method 509.5 |
| Other Tests | Hail, Humidity, Dust, Rain, Sand, Solar |
| IP Rating | IP69K |
| Compliance | IPC-A-610, FCC, CE RED, RoHS, REACH |

Warranty

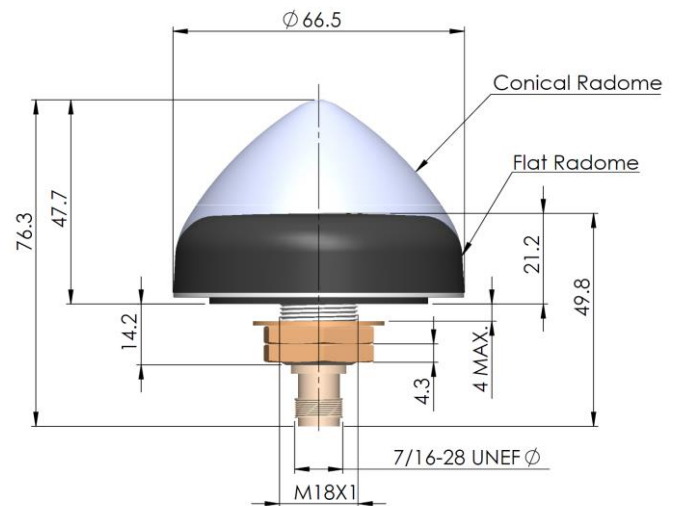
| | |
|------------------|--------------------------|
| Parts and Labour | 3-year standard warranty |
|------------------|--------------------------|

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

| Frequency Bandwidth | Out of Band Rejection |
|---------------------|-----------------------|
| Lower Band | - |
| L-Band Corr. | - |
| Upper Band | 1575.42 MHz ± 10 MHz |

| | |
|------------------------|--|
| Architecture | Pre-filtered |
| Gain | 26 dB typ., 24 dB min. |
| Noise Figure | 4.3 dB typ. |
| 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 | 9 mA typ. |
| ESD Circuit Protection | 15 kV air discharge |
| P 1dB Output | 4 dBm typ. |
| Group Delay | 35 ns typ. @ (1570.42 - 1580.42 MHz) |

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



Ordering Information

Part Number 33-3012-xx-yy-zzzz

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

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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