

TW3742AJ

TW3742AJ Accutenna[®] Anti-Jam Single-Band GNSS Antenna

Frequency Coverage: GPS/QZSS-L1, GLONASS-G1, Galileo-E1, BeiDou-B1

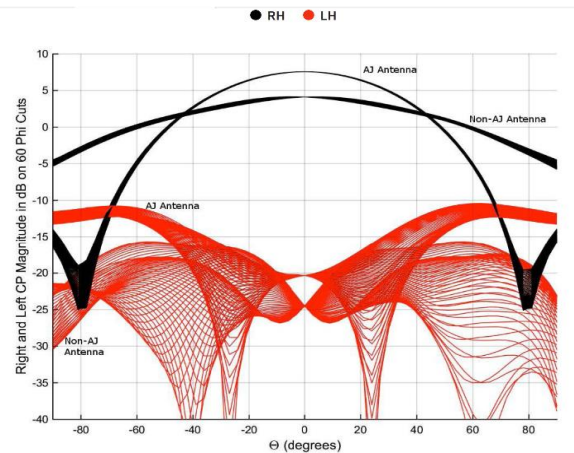
The TW3742AJ is a precision high-gain GNSS antenna built with Tallysman's unique Accutenna[®] technology, providing single-band GPS/QZSS-L1, GLONASS-G1, Galileo-E1, and BeiDou-B1 coverage, including the satellite-based augmentation system (SBAS) available in the region of operation [WAAS (North America), EGNOS (Europe), MSAS (Japan), or GAGAN (India)].

The Tallysman anti-jam feature modifies the radiation pattern of the GNSS antenna such that it is "deaf" to signals arriving from 10° below and 15° above the horizon while slightly increasing the gain of the antenna at zenith. Since jamming signals typically originate at low elevations, the TW3742AJ antenna mitigates signals below 15°.

Tallysman's patented Accutenna[®] technology enables the TW3742AJ antenna to provide a truly circular right-hand polarized signal through the entire bandwidth, thereby enabling superior multipath signal rejection and out-of-band signal rejection. This feature makes the TW3742AJ ideal for professional precision timing and positioning applications.

The TW3742AJ features a precision-tuned, dual-feed 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 and further amplified before recombination at the output. The antenna also has a strong pre-filter to mitigate inter-modulated signal interference from LTE and other cellular bands. The TW3742AJ offers an excellent axial ratio and a tightly grouped phase centre variation.

The TW3742AJ is housed in a permanent-mount metal base with two nickel-coated nuts and an IP67 weather-proof enclosure. Two mounting options are available: an L-bracket (P/N 23-0040-0); or a pipe mount (P/N 23-0065-0).



Applications

- High-accuracy & mission-critical global positioning
- Timing applications
- Law enforcement and public safety

Features

- Accutenna[®] technology
- Great axial ratio (2.0 dB typ.)
- Low LNA noise (3.0 dB typ.)
- High-rejection SAW filter
- High-gain LNA (38 dB typ.)
- Low current (19 mA typ.)
- Wide voltage input range (2.5 to 12 VDC)
- ESD circuit protection (15 kV)
- IP67 weather-proof housing
- RoHS and REACH compliant

Benefits

- Operates under ground-based jamming
- Circular polarisation throughout the full bandwidth
- Superior multipath signal rejection
- Excellent signal-to-noise ratio
- Excellent out-of-band signal rejection
- Increased system accuracy
- 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: 2.9

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Frequency Coverage: GPS/QZSS-L1, GLONASS-G1, Galileo-E1, BeiDou-B1

Antenna

Technology Dual-feed RHCP ceramic patch

| | | Gain | Axial Ratio |
|---------------------------------|-----|---------------------|--------------|
| | | dBic typ. at Zenith | dB at Zenith |
| GNSS | | | |
| GPS / QZSS | L1 | 6.3 | ≤ 2 |
| | L2 | - | - |
| | L5 | - | - |
| GLONASS | G1 | 6.3 | ≤ 2 |
| | G2 | - | - |
| | G3 | - | - |
| Galileo | E1 | 6.3 | ≤ 2 |
| | E5a | - | - |
| | E5b | - | - |
| | E6 | - | - |
| BeiDou | B1 | 6.3 | ≤ 2 |
| | B2 | - | - |
| | B2a | - | - |
| | B3 | - | - |
| IRNSS / NavIC | L5 | - | - |
| QZSS | L6 | - | - |
| L-band correction services | | - | - |
| Satellite Communications | | | |
| Iridium | | - | - |
| Globalstar | | - | - |
| Other | | | |
| Axial Ratio at 10° | - | Efficiency | - |
| Phase Centre Variation | - | | |

Mechanicals

| | |
|----------------------|---|
| Mechanical Size | 100.0 mm (dia.) x 102 mm (h.) |
| Weight | 370 g |
| Available Connectors | see Ordering Guide |
| Radome / Enclosure | Radome: EXL9330 , Base: Zamak White Metal |
| Mount | Though-hole |

Environmental

| | |
|-------------------------|--|
| Operating Temperature | -40 °C to +85 °C |
| Storage Temperature | -50 °C to +95 °C |
| Mechanical Vibration | MIL-STD-810D Method 514.4 and 514.5 |
| Shock and Drop | Vertical axis: 50 G, other axes: 30 G |
| Salt Fog | MIL-STD-810F Section 509.4 |
| Low Pressure - Altitude | - |
| IP Rating (housing) | IP67 |
| Compliance | IPC-A-610, FCC, RED / CE Mark, RoHS, REACH |

Warranty:

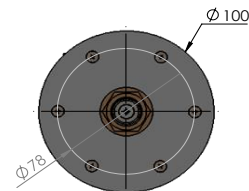
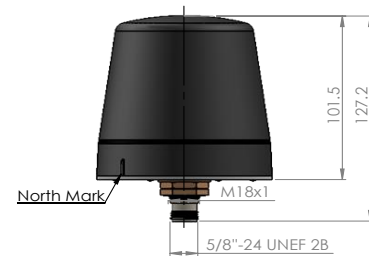
| | |
|------------------|--------------------------|
| Parts and Labour | 3-year standard warranty |
|------------------|--------------------------|

Low Noise Amplifier (LNA) - Measured at 3.0 VDC and 25°C

| Frequency Bandwidth | Out-of-Band Rejection |
|---------------------|---|
| Lower Band | - |
| Upper Band | 1559 - 1606 MHz > 50 dB @ < 1500 MHz > 70 dB @ > 1640 MHz |

| | |
|------------------------|---|
| Architecture | Pre-filter → LNA stage 1 → filter → LNA stage 2 |
| Gain | 38 dB min. |
| Noise Figure | 3.0 dB typ. |
| VSWR | < 1.5:1 typ. 1.8:1 max. |
| Supply Voltage Range | 2.5 to 16 VDC nominal (12 VDC rec. max..) |
| Supply Current | 19 mA typ. |
| ESD Circuit Protection | 15 kV air discharge |
| P 1dB Output | 11 dBm |
| Group Delay Variation | 17 ns @ GPS-L1 <1.0 ns @ GLONASS-G1 |
| Group Delay | L1 (1575.42 MHz): 31 ± 1 ns |

Mechanical Diagram



Ordering Information

Part Number **33-3742AJ-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/>