

TW3742AJ



Anti-Jam Multi-Constellation Antenna

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

The TW3742AJ is a precision high-gain GNSS antenna built with Calian'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 °.

Calian'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 (40 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 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/gnss

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Antenna

Technology Dual-feed RHCP ceramic patch

		Gain dBic typ. at Zenith	Axial Ratio 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
	B2b	-	-
	B2a	-	-
	B3	-	-
IRNSS / NavIC	L5	-	-
QZSS	L6	-	-
L-Band Services (1525 MHz - 1559 MHz)		-	-
Satellite Communications			
Iridium		-	-
Globalstar		-	-
Other			
Axial Ratio at 10°	-	Efficiency	-
PC Variation	-	PCO	-

Mechanicals

Size	100.0 mm (dia.) x 102 mm (h.)
Weight	370 g
Radome	Radome: EXL9330 , Base: Zamak White Metal
Mount	Through-hole
Available Connectors	Please refer to ordering guide

Environmental

Operating Temperature	-40 °C to + 85 °C
Storage Temperature	-50 °C to + 95 °C
Vibration	MIL-STD-810D Method 514.4 and 514.5
Shock	Vertical axis: 50 G, other axes: 30 G
Salt Fog	MIL-STD-810F Section 509.4
IP Rating	IPX7
Compliance	IPC-A-610, FCC, RED / CE Mark, RoHS, REACH

Warranty

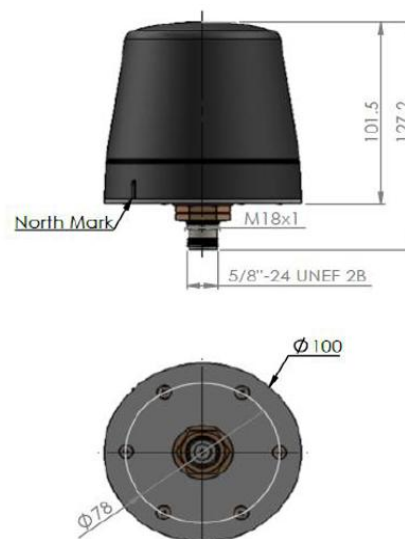
Parts and Labour	3-year standard warranty
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Low Noise Amplifier (LNA) - Measured at 3V and 25°C

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

Architecture	Pre-filter → LNA stage 1 → another stage
Gain	40 dB (typ.) 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	17 ns @ GPS-L1 <1.0 ns @ GLONASS-G1

Mechanical Diagram



Ordering Information

Part Number 33-TW3742AJ-xx-y-zzzz

where xx = connector type, y = W - White Radome, G - Grey Radome and zzzz = cable length in mm

Please refer to our **Ordering Guide** to review available radomes and connectors at:
<https://at.calian.com/gnss/information-support/part-number-ordering-guide/>