

TW3012

TW3012 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 28 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 (P/N 23-0067-0), 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 (28 dB typ.)
- Low current (9 mA typ.)
- ESD circuit protection (15 kV)
- Wide supply voltage range (2.5 to 12 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
- RoHS and REACH compliant

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: 1.1

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Antenna

Technology

Single-feed RHCP ceramic patch

		Gain	Axial Ratio
		dBic typ. at Zenith	dB at Zenith
GNSS			
GPS / QZSS	L1	4.0	≤ 4
	L2	-	-
	L5	-	-
GLONASS	G1	-	-
	G2	-	-
	G3	-	-
Galileo	E1	-	-
	E5a	-	-
	E5b	-	-
	E6	-	-
BeiDou	B1	-	-
	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	66.5 mm (dia.) x 21 mm (h.)
Weight	150 g
Available Connectors	-
Radome / Enclosure	Radome: EXL 9330, Base: Zamak White Metal
Mount	-

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)	IP69K
Compliance	IPC-A-610, FCC, RED / CE Mark, RoHS, REACH

Warranty:

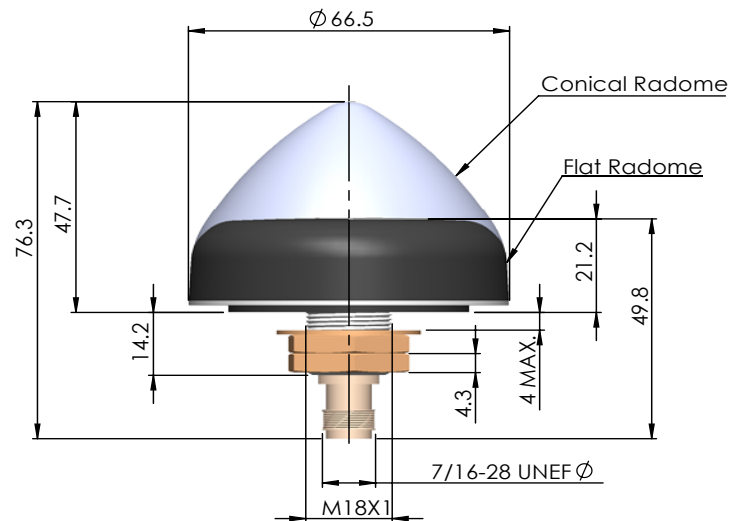
Parts and Labour	3-year standard warranty
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Low Noise Amplifier (LNA) - Measured at 3.0 VDC and 25°C

Frequency Bandwidth	Out-of-Band Rejection
Lower Band	-
Upper Band	1575.42 Mhz ± 10 Mhz
	≥ 60 dB @ < 1560 MHz ≥ 56 dB @ > 1600 MHz ≥ 80 dB @ > 1620 MHz

Architecture	Pre-filter → LNA stage 1 → filter → LNA stage 2
Gain	28 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 12 VDC nom. (16 VDC max.)
Supply Current	9 mA typ. across all input voltages
ESD Circuit Protection	15 kV air discharge
P 1dB Output	4.0 dBm @ 1575.42 MHz
Group Delay Variation	35 ns typ. @ (1570.42 - 1580.42 MHz)

Mechanical Diagram



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/>