

TW3885T



TW3885T Dual-Band (L1/L5) Timing GNSS Antenna

Frequency Coverage: GPS/QZSS-L1/L5, GLONASS-G1, Galileo-E1/B5a, BeiDou-B1/B2a, NavIC-L5

Overview

The TW3885T is a precision-tuned dual-band Accutenna® technology, timing antenna providing GPS/QZSS-L1/L5, GLONASS-G1/G3, Galileo-E1/E5a/E5b, BeiDou-B1/B2a/B2 and NavIC-L5, including the satellite-based augmentation system (SBAS) available in the region of operation [WAAS (North America), EGNOS (Europe), MSAS (Japan), or GAGAN (India)].

Tallysman's eXtended Filter (XF) antenna technology has been designed to mitigate out-of-band signals and prevent GNSS antenna saturation. The radio frequency spectrum has become more congested as new LTE bands are activated and their signals or harmonic frequencies [e.g. 800MHz x 2 = 1600MHz (GLONASS-G1)] can affect GNSS antennas and receivers. In North America, planned Ligado signals at 1525 - 1536 MHz can especially impact GNSS antennas that support space-based L-band correction services (1539 - 1559 MHz). New LTE signals in Europe [Band 32 (1452 - 1496 MHz)] and Japan [Bands 11 and 21 (1476 - 1511 MHz)] have also been observed to interfere with GNSS signals. In addition, Inmarsat satellite communication (uplink: 1626.5 - 1660.5 MHz) can also affect GNSS signals. Tallysman's custom XF filtering mitigates all existing signals and new Ligado and LTE signals, enabling the antennas and attached GNSS receivers to perform optimally.

The TW3885T features a precision-tuned, twin 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 TW3885T offers excellent axial ratio and a tightly grouped phase centre variation.

Ideal for timing, the TW3885T provides superior multipath signal rejection, a linear phase response, and tight phase centre variation (PCV).

The TW3885T is housed in a through-hole mount, weatherproof enclosure for permanent installations. L-bracket (PN 23-0040-0) or pipe mount (23-0065-0) are available. A 100-mm ground plane is recommended for all installations.



Applications

- Precise Timing

Features

- Very low noise preamp (< 2.5 dB typ.)
- Low axial ratio (< 2.0 dB typ.)
- Tight phase centre variation
- High-gain LNA 40 dB typ.
- Low current (32 mA typ.)
- ESD circuit protection (15 kV)
- Invariant performance from 2.5 to 16 VDC
- IP69K, REACH, RoHS compliant

Benefits

- Excellent multipath rejection
- Increased system accuracy
- Excellent signal-to-noise ratio

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

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Antenna

Technology Dual-feed Stacked RHCP ceramic patch

		Gain	Axial Ratio
		dBic typ. at Zenith	dB at Zenith
GNSS			
GPS / QZSS	L1	4.5	≤ 2
	L2	-	-
	L5	4	≤ 2
GLONASS	G1	2.5	≤ 2
	G2	-	-
	G3	2.5	≤ 2
Galileo	E1	4	≤ 2
	E5A	4	≤ 2
	E5B	2.5	≤ 2
	E6	-	-
BeiDou	B1	4	≤ 2
	B2	2.5	≤ 2
	B2a	4	≤ 2
	B3	-	-
IRNSS / NavIC	L5	4	≤ 2
QZSS	L6	-	-
L-Band Services (1525 MHz - 1559 MHz)		-	-
Satellite Communications			
Iridium		-	-
	Globalstar	-	-
Other			
Axial Ratio at 10°	-	Efficiency	-
PC Variation	-	PCO	-

Mechanicals

Size	66 mm (dia.) x 21 mm (h.) [100 mm ground plane recommended]
Weight	185 g
Radome	Radome: EXL9330, Base: Zamak White Metal
Mount	Through-hole
Available Connectors	Please refer to ordering guide

Environmental

Operating Temperature	-70 °C to 85 °C
Storage Temperature	-70 °C to 95 °C
Vibration	MIL-STD-810D Method 514.4 and 514.5
Shock	MIL-STD-810G Method 516.6
Salt Fog	MIL-STD-810F Method 509.4
IP Rating	IP69K
Compliance	IPC-A-610, FCC, RED / CE Mark, RoHS, REACH, S-9401.V1.0, EN45545-2, EN50121, EN50155,

Warranty:

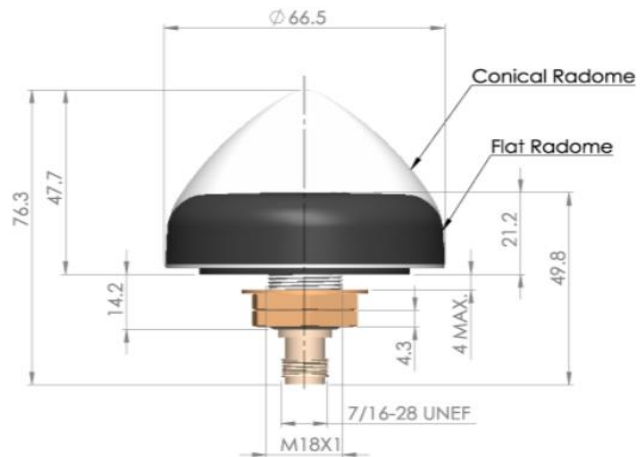
Parts and Labour	3-year standard warranty
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Low Noise Amplifier (LNA) - Measured at 3V and 25°C

Frequency Bandwidth		Out of Band Rejection
Lower Band	1559 - 1606 MHz	≥ 95 dB @ ≤ 1100 MHz ≥ 80 dB @ ≤ 1140 MHz ≥ 5.3 dB @ ≥ 1230 MHz ≥ 80 dB @ ≥ 1250 MHz ≥ 90 dB @ ≥ 1280 MHz
L-Band - Correction Services	No Support	
Upper Band	1164 - 1217 MHz	≥ 66 dB @ ≤ 1518 MHz ≥ 54 dB @ ≤ 1536 MHz ≥ 40 dB @ ≤ 1540 MHz ≥ 23 dB @ ≤ 1545 MHz ≥ 28 dB @ ≥ 1616 MHz ≥ 90 dB @ ≥ 1626 MHz

Architecture	Pre-Filter -> LNA ... several stages
Gain	40 dB typ.
Noise Figure	Lower GNSS band: 2dB typ., Upper GNSS band: 2.7dB 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	26 mA typ.
ESD Circuit Protection	15 kV air discharge
P 1dB Output	13dBm typ. at 1575 MHz
Group Delay	Lower GNSS band: 36ns typ., Upper GNSS band: 38ns typ.

Mechanical Diagram



Ordering Information

Part Number	33-3885T-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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