

# 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<sup>®</sup> 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 (36 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](http://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
<b>GNSS</b>			
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)		-	-
<b>Satellite Communications</b>			
Iridium	-	-	-
Globalstar	-	-	-
<b>Other</b>			
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, EN61373

## Warranty:

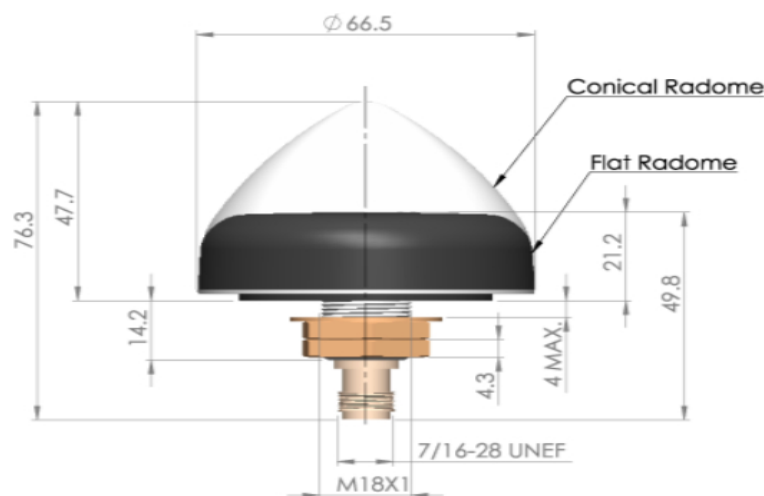
**Parts and Labour** 3-year standard warranty

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

Frequency Bandwidth		Out of Band Rejection
<b>Lower Band</b>	1164 - 1217 MHz	≥ 95 dB @ ≤ 1100 MHz ≥ 80 dB @ ≤ 1140 MHz ≥ 5.3 dB @ ≥ 1230 MHz ≥ 80 dB @ ≥ 1250 MHz ≥ 90 dB @ ≥ 1280 MHz
<b>L-Band - Correction Services</b>	No Support	
<b>Upper Band</b>	1559 - 1606 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** 36 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** 32 mA typ.  
**ESD Circuit Protection** 15 kV air discharge  
**P 1dB Output** 13dBm typ. at 1575 MHz  
**Group Delay (Maximum In-band Variation)** Lower GNSS band: 36ns typ.,  
Upper GNSS band: 38ns typ.  
**Group Delay Variation (between upper and lower GNSS bands)** 37ns typ. (1575MHz - 1191MHz)

## 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/>