

# TW1889

## Multi-Constellation Dual-Band Antenna

Frequency Coverage: GPS L1, L2 | GALILEO E1, E5b | BEIDOU B1, B2b | GLONASS G1, G2, G3

### Overview

The TW1889 employs Calian's patented Accutenna<sup>®</sup> technology providing dual-band GPS/QZSS L1/L2, GLONASS-G1/G2/G3, Galileo E1/E5b, and BeiDou B1/B2 coverage and is especially designed for precision dual frequency positioning where light weight is important.

The TW1889 features a precision-tuned, 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 TW1889 offers excellent axial ratio and a tightly-grouped phase centre variation.

The TW1889 covers GPS/QZSS L2 (1227.6 MHz, centre), GLONASS G2 (1248 MHz, centre), GLONASS G3 (1202.02 MHz, centre), GPA/QZSS L1/WAAS/EGNOS/MSAS (1575.42 MHz), GLONASS G1 (1602 MHz, centre), Galileo E1 (1575.42 MHz, centre), Galileo E5b (1207.14 MHz, centre), BeiDou B1 (1575.42 MHz, centre), and BeiDou B2 (1207.14 MHz, centre).

The TW1889 it has a pre-filter that increases the antenna's immunity to high-amplitude interfering signals, such as LTE and other cellular signals.



### Applications

- Autonomous unmanned aerial vehicles (UAVs)
- Precision GNSS position
- Dual-frequency RTK and PPP receivers
- Mission Critical GNSS Timing
- Network timing & synchronization

### Features

- Compact Dual-feed Patch Element
- Low noise figure, 1.0 dB typ.
- Axial ratio:  $\leq 2.0$  dB typ. over the full bandwidth
- Tight phase centre variation
- High-gain LNA (26 dB typ.)
- Low current (12 mA typ)
- ESD circuit protection (15 kV)
- Invariant performance from 2.5 to 16 VDC
- IP67, REACH, and RoHS compliant

### Benefits

- Lightweight (37 g excluding cable and connector)
- Excellent multipath rejection
- Increased system accuracy
- Excellent signal-to-noise ratio

**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](http://www.calian.com)

Revision:

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Antenna - Measured with a 100 mm ground plane

Technology Dual-feed Stacked RHCP ceramic patch

		Gain	Axial Ratio
		dBic typ. at Zenith	dB at Zenith
<b>GNSS</b>			
GPS / QZSS	L1	4.0	≤ 2
	L2	4.0	≤ 2
	L5	-	-
GLONASS	G1	4.0	≤ 2
	G2	3.0	≤ 2
	G3	1.0	≤ 2
Galileo	E1	4.0	≤ 2
	E5A	-	-
	E5B	1.0	≤ 2
	E6	-	-
BeiDou	B1	4.0	≤ 2
	B2	3.7	≤ 2
	B2a	-	-
	B3	-	-
IRNSS / NavIC	L5	-	-
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	-		

## Mechanicals

Size	48 mm (dia.) x 13.1 mm (h.) [100 mm ground plane recommended]
Weight	37 g
Radome	-
Mount	Adhesive   4 · M2 screws
Available Connectors	Refer to Ordering Guide

## Environmental

Operating Temperature	-40 °C to +85 °C
Storage Temperature	-55 °C to +95 °C
Vibration	MIL-STD-810D
Shock	Vertical axis: 50 G, other axes: 30 G
Salt Fog	-
IP Rating	-
Compliance	IPC-A-610, FCC, RED / CE Mark, RoHS, REACH

## Warranty

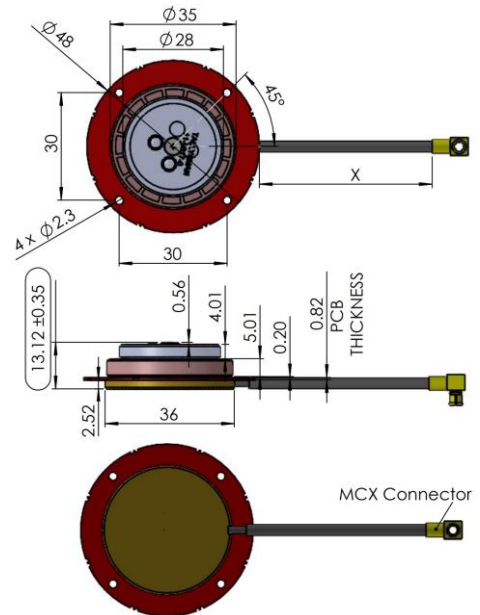
Parts and Labour	1-year standard warranty
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Low Noise Amplifier (LNA) - Measured at 3 V and 25°C

Upper Band	Lower Band
Frequency Bandwidth	
1559 - 1606 MHz	1189 - 1254 MHz
Out-of-band Rejection	
> 47 dB @ < 1450 MHz > 35 dB @ < 1520 MHz > 30 dB @ > 1650 MHz > 49 dB @ > 1800 MHz	> 36 dB @ < 1100 MHz > 30 dB @ < 1130 MHz > 51 dB @ > 1340 MHz

Architecture	Pre-filtered
Gain	26 dB typ.
Noise Figure	2.5 dB 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	12 mA typ.
ESD Circuit Protection	15 kV air discharge
P 1dB Output	-
Group Delay	-
PCO	-

## Mechanical Diagram



## Ordering Information

Part Number 33-1889-xx-yyyy-zz

Where xx = connector type, yyyy = cable length (in mm)  
zz = reserved for Calian's use

Please refer to our **Ordering Guide** to review available radomes and connectors at:  
<https://www.tallysman.com/resource/tallysman-ordering-guide/>