

# TW1012

## GPS-L1 Antenna

Frequency Coverage: GPS L1

### Overview

The TW1012 is low cost, high-gain, high performance, embedded GPS-L1 antenna, specially designed for OEM industrial, military, precision positioning and timing applications.

The TW1012 features a precisely tuned single-feed ceramic patch element. It has a two stage low-noise amplifier (LNA) with a mid-section SAW. A tight pre-filter on the TW1012 protects against saturation by high-level sub-harmonics and L-Band signals.

The TW1012 covers the GPS-L1 and SBAS (WAAS /EGNOS/MSAS) frequency band (1572.5 to 1578 MHz), and it offers great circular polarized signal reception, multipath rejection and out-of-band signal rejection. The TW1012 has a built-in 35 mm circular ground plane that can be augmented with host system ground surfaces. Patch elements are susceptible to detuning by the local environment.

Calian offers custom services to assist with integration of OEM modules into an end user solution.



### Applications

- High-accuracy & mission-critical global positioning
- Precision agriculture, mining, and construction
- Law enforcement and public safety
- Avionics
- Law enforcement and public safety
- Fleet management and asset tracking

### Features

- Great axial ratio,  $\leq 4$  dB at Zenith
- High-rejection SAW filter
- LNA gain (28 dB typ.)
- Low current (9 mA typ.)
- ESD circuit protection (15 kV)
- Wide Supply voltage: 2.5V to 16V

### Benefits

- Low Profile: 7.7 mm
- Great multipath rejection
- Increase system accuracy
- Excellent signal-to-noise ratio
- Great out-of-band signal rejection
- Compact form factor
- RoHS compliant

**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)

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Antenna - Measured with a 100 mm ground plane

Technology Single-feed RHCP ceramic patch

		Gain	Axial Ratio
		dBic typ. at Zenith	dB at Zenith
<b>GNSS</b>			
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 Services (1525 MHz - 1559 MHz)			
<b>Satellite Communications</b>			
Iridium		-	-
Globalstar		-	-
<b>Other</b>			
Axial Ratio at 10°	-	Efficiency	-
PC Variation	-		

## Mechanicals

Size	35 mm (dia.) x 7.7 mm
Weight	13 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: 50G, other axes: 30G
Salt Fog	-
IP Rating	-
Compliance	IPC-A-610, FCC, RED / CE Mark, RoHS, REACH

## Warranty

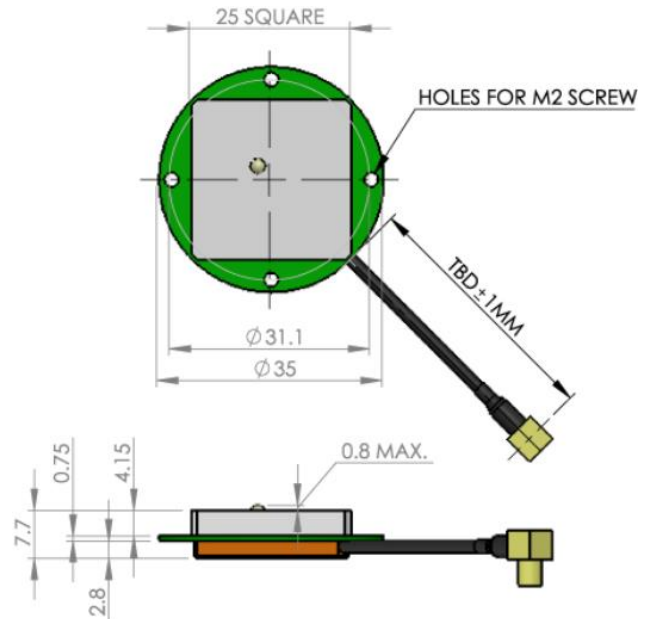
Parts and Labour	1-year standard warranty
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Low Noise Amplifier (LNA) - Measured at 3 V and 25°C

Upper Band	Lower Band
Frequency Bandwidth	
1575.42 MHz ± 10 MHz	-
Out-of-band Rejection	
> 70 dB @ < 1500 MHz > 55 dB @ < 1550 MHz > 65 dB @ > 1650 MHz	-

Architecture	Pre-filtered
Gain	26 dB typ., 24 dB min.
Noise Figure	3.5 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	9 mA typ.
ESD Circuit Protection	15 kV air discharge
P 1dB Output	-
Group Delay	-
PCO	-

## Mechanical Diagram



## Ordering Information

Part Number **33-1012-xx-yyyy-zz**

Where xx = connector type yyyy = cable length (in mm) and 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/>