

TW4020

GPS Antenna

Frequency Coverage: GPS L1

Overview

The TW4020 is a commercial grade wideband GNSS antenna covering the GPS-L1, frequency band. It features a small patch element with 40% wider bandwidth than typical GPS-L1 antennas.

The TW4020 features a high performance custom tuned ceramic patch element, 15 kV ESD circuit protection, a high-gain two-stage low-noise amplifier (LNA) with a mid-section high-rejection SAW filter. It covers the GPS-L1 and SBAS (WAAS/EGNOS/MSAS) frequency band (1572.5 to 1578 MHz), and it offers great circular polarized signal reception.

Even with the wider bandwidth, the TW4020 antenna is among the smallest high performance antenna available.

It is housed in a compact IP68 magnetic mount enclosure. The antenna can be ordered without the magnet. In such cases, the magnet is replaced with a plastic plug to provide a smooth under surface, with the option of ordering it with or without 1.1 mm thick doublesided VHB tape on the bottom.



Applications

- Cost Sensitive Positioning
- Fleet management and asset tracking
- Covert surveillance

Features

- 40% wider bandwidth, small footprint
- Axial ratio: 1 dB typ. (GPS)
- Low noise LNA: 1 dB
- High-rejection SAW filter
- High-gain (28 dB typ.)
- Wide voltage input range: 2.5 to 16 VDC
- IP68 weather proof housing

Benefits

- Increased system accuracy
- Excellent signal-to-noise ratio
- CE RED, REACH, and RoHS compliant
- Ideal for harsh environments
- Excellent out-of-band signal rejection

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

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Contact us:
info@tallysman.com
T: +1 613 591-3131

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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 | 4.5 | ≤ 1 |
| | L2 | - | - |
| | L5 | - | - |
| GLONASS | G1 | - | - |
| | G2 | - | - |
| | G3 | - | - |
| Galileo | E1 | - | - |
| | E5A | - | - |
| | E5B | - | - |
| | E6 | - | - |
| BeiDou | B1 | - | - |
| | B2b | - | - |
| | B2a | - | - |
| | B3 | - | - |
| IRNSS / NavIC | L5 | - | - |
| QZSS | L6 | - | - |
| L-Band Services (1525 MHz - 1559 MHz) | | - | - |
| Satellite Communications | | | |
| Iridium | | - | - |
| Globalstar | | - | - |
| Other | | | |
| Axial Ratio at 10° | - | Efficiency | - |
| PC Variation | - | | |

Mechanicals

| | |
|----------------------|------------------------------|
| Size | 38.6 mm (sq.) x 14.7 mm (h.) |
| Weight | 34 g (without cable) |
| Radome | LEXAN™ EXL9330 |
| Mount | Adhesive, magnetic |
| Available Connectors | Please see ordering guide |

Environmental

| | |
|-----------------------|--|
| Operating Temperature | -40 °C to +85 °C |
| Storage Temperature | -55 °C to +95 °C |
| Vibration | MIL-STD-810-G - Test Method 514.6 |
| Shock | MIL-STD-810-G - Test Method 516.6 |
| Salt Fog | MIL-STD-810-F - Test Method 509.5 |
| IP Rating | IP68 |
| Compliance | IPC-A-610, FCC, RED / CE Mark, RoHS, REACH |

Warranty

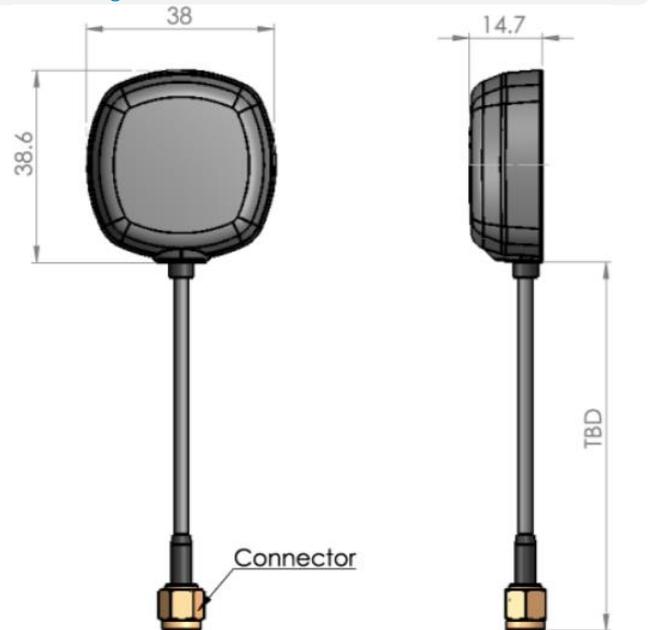
| | |
|------------------|--------------------------|
| Parts and Labour | 3-year standard warranty |
|------------------|--------------------------|

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

| Frequency Bandwidth | Out of Band Rejection |
|----------------------|--|
| 1575.42 MHz ± 10 MHz | > 45 dB @ < 1500 MHz > 25 dB @ < 1550 MHz > 40 dB @ > 1640 MHz |

| | |
|------------------------|--|
| Architecture | Non pre-filtered |
| Gain | 28 dB typ., 26 dB min. |
| Noise Figure | 1 dB typ. |
| VSWR | < 1.5:1 typ., 1.8:1 max. |
| Supply Voltage Range | 2.5 to 16 VDC nominal (12 VDC rec. max.) |
| Supply Current | 12 mA typ. |
| ESD Circuit Protection | 15 kV air discharge |
| P 1dB Output | - |
| Group Delay | - |
| PCO | - |

Mechanical Diagram



Ordering Information

Part Number 33-4020-xx-yyyy

Where xx = connector type and yyyy = 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/>