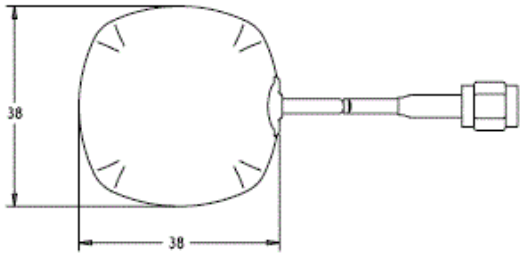
TW4020/TW4022 Wideband GPS Antenna

The TW4020/TW4022 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/TW4022 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.

The TW4022 includes a pre-filter designed to mitigate strong intermodulated or near frequency signals.

Even with the wider bandwidth, the TW4020/TW4022 antenna is among the smallest high performance antenna available. It is housed in a compact IP67 magnetic mount enclosure.



Applications

- Cost Sensitive Positioning
- Fleet Management & Asset Tracking
- Covert surveillance

Features

- 40% wider bandwidth, small footprint
- Axial ratio: 1dB 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
- IP67 weather proof housing

Benefits

- Increased system accuracy
- Excellent signal to noise ratio
- RoHS compliant
- Ideal for harsh environments
- Excellent out of band signal rejection

When precision matters.™

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Specifications

Antenna

Architecture	Wideband Single Feed Patch
1 dB Bandwidth	31 MHz
Antenna Gain (with 100mm ground plane)	4.5 dBic
Axial Ratio over Bandwidth (over full bandwidth)	<1dB @ Fcenter,

Electrical

Architecture	LNA stage 1 -> SAW filter-> LNA stage 2 (TW4020) SAW filter LNA stage 1 -> SAW filter-> LNA stage 2 (TW4022) Filtered LNA Frequency Bandwidth 1565 to 1585 MHz
Polarization	RHCP
Gain	TW4020: 26dB min., TW4022: 25dB min,
Gain flatness	+/- 2 dB, 1575 to 1606 MHz
Out-of-Band Rejection (typ)	

	TW4020	**TW4022**
<1500 MHz	-45dB	->70dB
<1550 MHz	-25dB	->65dB
>1640 MHz	-40dB	->60dB

VSWR (at LNA output)	<1.5:1 typ 1.8:1 max.
Noise Figure	1 dB typ. (TW4020) 3.5dB typ. (TW4022)
Supply Voltage Range (over coaxial cable)	+2.5 to 16 VDC nominal (12VDC recommended maximum)
Supply Current	12 mA max.
ESD Circuit Protection	15 KV air discharge

Mechanicals & Environmental

Mechanical Size	38mm x 38mm dia. x 14.3mm H
Cable	RG174
Operating Temp. Range	40 to +85 °C
Enclosure	Radome and base: EXL9330
Weight	73g (enclosure 34gm, 3m cable 39gm)
Attachment Method	Magnetic
Environmental	IP67 and RoHS compliant
Shock	Vertical axis: 50 G, other axes: 30 G
Vibration	3 axis, sweep = 15 min, 10 to 200 Hz sweep: 3 G

Ordering Information

TW4020 – Wideband GPS Antenna	33-4020-xx-yyyy
TW4022 - Prefiltered Wideband GPS Antenna	33-4022-xx-yyyy

Where xx = connector type and yyyy = length of cable in mm

Please refer to the Ordering Guide (http://www.tallysman.com/orderingguide.php) for the current and complete list of available radomes and connectors.

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