OEM-GNSS-503

High-performance antenna module for OEM integrators


Patented technology

The VEXXIS GNSS-500 series antennas provide outstanding circularly polarized, symmetric radiation patterns with superior multipath rejection performance. This is achieved with a patented, multi-point feeding network which provides uniquely low loss and frequency independent amplitude/phase balance. Strictly balancing signals and sequentially feeding the GNSS antenna at multiple points is the key to achieving remarkable performance.

Designed for integration

The OEM-GNSS-503 antenna module provides VEXXIS antenna technology in an easy to integrate assembly ideal for use in ground vehicle applications such as agriculture, machine control and mobile mapping. The OEM-GNSS-503 offers maximum flexibility when creating high performance antenna and smart antenna products using your own industrial design.

Proven ruggedness and reliability

When integrated into a properly designed enclosure, the GNSS-500 series sub-assemblies have been shown to endure over 1000 hours of intense vibration testing to earn a MIL-STD-810G rating.
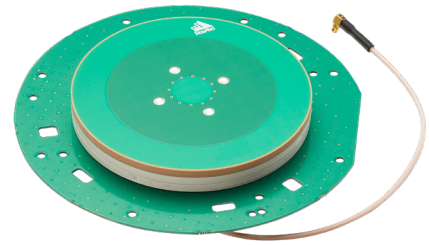
Features

- Supports multi-frequency GPS, GLONASS, Galileo, BeiDou, QZSS and IRNSS/NavIC signal reception

- L-Band capable, supporting correction services such as TerraStar

- Multi-point antenna feed provides stable phase centre and enhanced multipath rejection

- Designed for high quality performance when used with STEADYLINE technology from Hexagon | NovAtel

- Compact, lightweight assembly with single DC/RF cable eases integration into various enclosures and applications

Performance

Signal Received

GPS	L1, L2, L5
GLONASS	G1, G2, G3
Galileo	E1, E5a/b, E6
BeiDou	B1, B2, B3
QZSS	L1, L2, L5, L6
IRNSS/NavIC	L5
L-Band	

Pass Band (typical)

Upper passband	1577.5 ± 32.5 MHz
Lower passband	1232.0 ± 68.0 MHz

Out-of-Band Rejection (typical)

Band edges ± 50 MHz	15 dB
Band edges ± 100 MHz	25 dB

LNA Gain (typical)

Upper passband	34 dB
Lower passband	38 dB

Gain at Zenith (90°)

L1/B1/E1/G1/L-Band	+4.0 dBic (minimum)
L2/G2	+4.0 dBic (minimum)
G3/E5/B2	+3.5 dBic (minimum)
L5	+2.5 dBic (minimum)
L6/E6/B3	+1.0 dBic (minimum)

Gain Roll-Off (Zenith to Horizon)

Upper passband	12 dB (typical)
Lower passband	13 dB (typical)

Phase Centre Stability
<5.0 mm

Noise Figure
2.5 dB (typical)

VSWR
≤2.0 (typical)

L1-L2 Differential Propagation Delay
7 ns (maximum)

Group Delay Ripple
<15 ns

Nominal Impedance
50 Ω

Physical and Electrical

Dimensions
127 mm D × 24.5 mm H

Weight
134 g

Cable and Connector
20.0 cm RG178 with right-angle MCX
27.8 cm RG178 with right-angle MMCX

Power

Input voltage	+3.3 to +18.0 VDC
Current	20 mA (typical)

Environmental

Temperature

Operating	-40°C to +85°C
Storage	-55°C to +85°C

Humidity
95% non-condensing

Vibration (operating)[1]

Random	MIL-STD-810G (CH1), 514.7 (15 g)
	Annex E, Procedure 1, Category 24

Shock
MIL-STD-810G (CH1), 516.7 (40 g)
Procedure 1

Bump
IEC 68-2-27 Ea (25 g)

Compliance[2]

Designed to meet FCC, ISED, CE

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1. These results were met with the OEM-GNSS-503 in a NovAtel enclosure.
2. Integrator needs to determine their own certifications based on product needs.

Contact Hexagon | NovAtel