GNSS-503

High-performance antenna for terrestrial applications

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.

Optimised for terrestrial applications

The GNSS-503 antenna is designed with a low profile, aerodynamic enclosure, ideal for ground vehicles in applications such as agriculture, machine control and mobile mapping. Magnetic mounts make the antenna easy to install or move between ground vehicle platforms. The combination of intelligent enclosure design along with multi-constellation and L-Band support makes it ideal for any terrestrial application.

Ruggedized for challenging environments

The GNSS-503 has been thoroughly tested to withstand even the most challenging environments. It endured over 1000 hours of intense vibration testing to earn its MIL-STD-810G rating. It is also water resistant under heavy rainfall or high pressure spray, ensuring its long survivability under the toughest operating conditions.

Features

- Supports multi-frequency GPS, GLONASS, Galileo, BeiDou and SBAS signal reception
- L-Band signal reception, 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
- Low-profile design ideal for machine control applications

Performance

Signal Received

GPS	L1, L2, L5
GLONASS	L1, L2
Galileo	E1, E5a/b, E6
BeiDou	B1, B2
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)

L1	34 dB
L2	38 dB

Gain at Zenith (90°)

L1/B1/E1/G1/L-Band	+4.0 dBic (minimum)
L2/B2/E5a/E5b/G2	+3.5 dBic (minimum)
L5	+2.5 dBic (minimum)
E6	+1.0 dBic (minimum)

Gain Roll-Off (Zenith to Horizon)

Upper passband	12 dB (typical)
Lower passband	13 dB (typical)
L-Band	12 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 155 mm D × 45 mm H

Weight 450 g

Connector TNC female

Mounting 2 × magnetic mounts
2 × M4 screw inserts

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

Salt Fog MIL-STD-810G (CH1), 509.6

Water/Dust Resistance IP67, IP69K

Vibration (operating)

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 60068-2-27 Ea (25 g)

Compliance

FCC, ISED, CE

Contact Hexagon | NovAtel

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For the most recent details of this product: novatel.com

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