

GNSS-850

Cutting-edge antenna technology
with superior tracking performance



Innovative design with multiple patents

The VEXXIS GNSS-800 series antennas feature a patented multi-point feeding network and radiation pattern optimisation technology. In addition to having enhanced performance in multipath environments, the GNSS-850 antenna is able to maintain a low profile while achieving both high peak zenith gain and low gain roll-off from zenith to horizon, without sacrificing tracking performance. This new technology significantly enhances the low elevation angle tracking capabilities, extending operation to the entire GNSS constellation. Furthermore, the antenna is able to achieve greater phase centre stability through our innovative element design. This directly translates into improved carrier phase measurement and a better RTK solution.

Tracking in challenging environments

The ability to track low elevation satellites while maintaining a high gain for higher elevation satellites makes the GNSS-850 an excellent choice for any applications where the sky is partially visible, such as operating close to tree lines, under foliage, or in urban canyons. The antenna is able to track any visible satellites from horizon to zenith, providing maximum number of observations for an enhanced positioning solution.

Toughest precision antenna from Hexagon | NovAtel

GNSS-800 antennas are the toughest high-precision antennas NovAtel has designed to date, ensuring their survivability even in the harshest operating environments. The antennas feature ultra-durable watertight enclosures and have been proven to sustain intense vibration, earning the MIL-STD-810G rating.

Features

- Supports all GNSS constellations and frequencies
- L-Band capable, supporting correction services such as TerraStar
- Multi-point antenna feed provides stable phase centre and enhanced multipath rejection
- Radiation pattern optimisation technology yields exceptional low elevation satellite tracking
- Provides exceptional tracking performance previously unachievable in a small form factor
- Hermetically-sealed enclosure to endure the toughest environments

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 |
| NavIC (IRNSS) | L5 |
| SBAS | L1, L5 |
| L-Band | |

Pass Band (typical)

| | |
|----------------|-------------------|
| Upper passband | 1569.0 ± 43.0 MHz |
| Lower passband | 1232.0 ± 68.0 MHz |

Out-of-Band Rejection

| | |
|----------------------|---------------|
| Band edges ± 50 MHz | 40 dB minimum |
| Band edges ± 100 MHz | 60 dB minimum |

| | |
|---------------------------|-------|
| LNA Gain (typical) | 29 dB |
|---------------------------|-------|

Gain at Zenith (90°)

| | |
|-----------------|-------------------|
| L1/B1/E1/G1 | +5.0 dBic minimum |
| L2/B2/E5b/G2/G3 | +5.0 dBic minimum |
| L5/E5a | +3.0 dBic minimum |
| L-Band | +5.0 dBic minimum |

Gain Roll-Off (from Zenith to Horizon)

| | |
|-----------------|-------|
| L1/B1/E1/G1 | 10 dB |
| L2/B2/E5b/G2/G3 | 12 dB |
| L5/E5a | 12 dB |
| L-Band | 10 dB |

| | |
|-------------------------------|---------|
| Phase Centre Stability | <2.0 mm |
|-------------------------------|---------|

| | |
|-------------------------------|---------|
| Noise Figure (typical) | <2.0 dB |
|-------------------------------|---------|

| | |
|-------------|----------|
| VSWR | ≤2.0 : 1 |
|-------------|----------|

| | |
|---|----------------|
| L1-L2 Differential Propagation Delay | 5 ns (maximum) |
|---|----------------|

| | |
|---------------------------|--------|
| Group Delay Ripple | <15 ns |
|---------------------------|--------|

| | |
|--------------------------|------|
| Nominal Impedance | 50 Ω |
|--------------------------|------|

Physical and Electrical

| | |
|-------------------|--------------------|
| Dimensions | 176 mm D × 55 mm H |
|-------------------|--------------------|

| | |
|---------------|-------|
| Weight | 507 g |
|---------------|-------|

| | |
|------------------|------------|
| Connector | TNC female |
|------------------|------------|

| | |
|-----------------|-------------------|
| Mounting | 5/8" thread mount |
|-----------------|-------------------|

| | |
|---------------|-------------------|
| Power | |
| Input voltage | +3.8 to +18.0 VDC |
| Current | 55 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 |
|-----------------|---------------------------|

| | |
|------------------------------|-------|
| Dust/Water Resistance | IP69K |
|------------------------------|-------|

Vibration (operating)

| | |
|--------|--|
| Random | MIL-STD-810G (CH1), 514.7 (7.7 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

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