

SMART ANTENNA

Features

Carrier phase tracking

RS-232 or RS-422
interface

Standard support for SBAS
(WAAS, EGNOS) corrections

Benefits

Provides improved positioning
accuracy and reliability

Ensures flexibility and ease of
integration, even for installations
with long cable lengths

Offers increased accuracy without
extra cost or additional equipment

NovAtel's SMART ANTENNA™ is a rugged, self-contained GPS receiver and antenna designed for harsh tracking environments.

Carrier phase capability

The SMART ANTENNA features 12-channel code and carrier phase tracking for improved positioning accuracy and reliability. It provides position, velocity, and time (PVT) output at rates up to 5 Hertz or raw carrier phase measurement data at rates up to 10 Hertz. For precise timing applications, the SMART ANTENNA also features an optional 1PPS accuracy of 50 nanoseconds (typical).

SBAS support standard

The SMART ANTENNA also includes standard support for Satellite-Based Augmentation System (SBAS) corrections provided by WAAS, EGNOS, and MSAS systems. Use of SBAS correction data provides increased positioning accuracy without additional cost or equipment.

Ease of integration

A combined GPS receiver and antenna, the SMART ANTENNA requires minimal installation effort. Available in multiple configurations, including an RS-232 or RS-422 interface, the SMART ANTENNA is designed to meet or exceed MIL-STD-810E specifications for shock and environmental contaminants such as salt spray, sand, and dust.

Flexible interface

The SMART ANTENNA offers a flexible command and log interface. System integrators can choose either NovAtel's proprietary L1 family binary format, which allows for high throughput, or the industry-standard NMEA format, to ensure compatibility. For DGPS applications, the SMART ANTENNA features RTCM SC-104 messages.



Precise thinking

SMART ANTENNA

Performance¹

Position Accuracy

Single Point L1	< 5 m CEP
WAAS L1	< 1.5 m CEP
DGPS (L1, C/A)	< 1 m CEP

Measurement Precision

L1 C/A Code	75 cm RMS
L1 Carrier Phase	1 cm RMS (differential channel)

Data Rate

Measurements	10 Hz
Position	5 Hz

Time to First Fix

Cold Start ²	120 s
Warm Start ³	45 s
Hot Start ⁴	15 s

Signal Reacquisition < 1 s (typical)

Velocity Accuracy 0.05 m/s RMS

Dynamics

Velocity ⁵	514 m/s
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Altitude⁵ 18,288 m

Physical & Electrical

Size 115 mm diameter x 90 mm height

Weight 575 g

Power

Input Voltage	+9 or +36 VDC
Power Consumption	1.4 W (typical)

Communication Ports

- 1 RS-232 or RS-422 serial port capable of 300 to 19,200 bps
- 1 RS-232 or RS-422 DGPS port capable of 300 to 19,200 bps

Input/Output Connectors

RS-232	7-pin plastic or 6-pin metal
RS-422	12-pin standard or cable mount

Environmental

Temperature	
Operating	-30°C to +75°C
Storage	-40°C to +85°C
Humidity	SAE J1455/4.2, procedure I, II
Waterproof	IEC 60529 IPX7
Salt Spray	MIL-STD-810E 509.3
Sand and Dust	MIL-STD-810E 510.3
UV Light Protection	ASTM G53-88
Shock	MIL-STD-810E 516.4, procedure I, IV
Transient Protection	SAE J1455 4.11.2

Regulatory FCC Class A, CE

- 1 Typical values. Performance specifications subject to GPS system characteristics, US DOD operational degradation, ionospheric and tropospheric conditions, satellite geometry, baseline length, multipath effects and the presence of intentional or unintentional interference sources.
- 2 Typical value. No almanac or ephemerides and no approximate position or time.
- 3 Typical value. Almanac saved and approximate position and time entered. No recent ephemerides.
- 4 Typical value. Almanac and recent ephemerides saved and approximate position and time entered.
- 5 Export licensing restricts operation to a maximum of 18,288 meters and 514 meters per second.

Optional Accessories



RS-232 interface cables, with optional DB-9 and automotive power adapter



RS-422 interface cables, in 5, 15, and 30 meter lengths

Additional Features

- 12 channel "all-in-view" parallel tracking
- PVT output at rates up to 5 Hz
- Carrier phase measurement output at rates up to 10 Hz
- Precise timing model accurate to ± 50 ns (typical)
- DGPS base station model (RS-422 version only)
- Supports NMEA 0183 version 2.20 and RTCM SC-104 version 2.1 (types 1, 2, and 9) message types, as well as NovAtel's L1 binary message format
- Rapid time to first fix after power interruption
- Field-upgradeable firmware



Precise thinking



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