



Self-Contained L1 GPS+GLONASS Receiver and Antenna Ideal for Harsh Agriculture Environments

Benefits

Sub-metre real-time accuracy

Two SBAS channels and GLONASS increase position availability

Smooth, consistent positions for pass-to-pass applications

Features

GL1DE® and AdVance® RTK positioning

Simulated radar ground speed output

Integrated Bluetooth® Communication (opt)

Integrated tilt compensation (opt)

Three daylight readable status LEDs

Compatible with 12V or 24V vehicle power

Integrated GNSS Design

NovAtel's SMART-AG provides an integrated L1 GPS+GLONASS receiver and antenna in a single rugged housing. Designed to meet or exceed stringent MIL-STD-810F specifications, the SMART-AG delivers built-in magnets to simplify mounting. Fixed mounting is also supported.

Precision Performance

The SMART-AG features 14 channels for L1 GPS and 12 channels for L1 GLONASS code and phase tracking. An additional two channels are dedicated for Satellite-Based Augmentation System (SBAS: WAAS, EGNOS and MSAS) signals. Measurement and position data are provided at up to 20 Hz.

Tilt Compensation for Increased Accuracy

NovAtel's SMART-AG is available with optional, integrated tilt compensation. This unique feature allows the user to receive a position message, compensated for the tilt of the machine. Fully adjustable, the tilt compensation provides more accurate positioning in uneven topography. The result is more accurate guidance and auto steer performance.

Integrated Bluetooth Connectivity

The SMART-AG is available with optional, integrated Bluetooth connectivity. All messages from the receiver can be delivered via Bluetooth, allowing for wireless connectivity and innovative applications.

Smooth, Pass-to-Pass Accuracy with GL1DE Technology

NovAtel's exclusive GL1DE technology is integrated into every SMART-AG antenna. GL1DE uses the very accurate carrier phase calculations to provide ultra smooth positions and excellent pass-to-pass accuracy for agricultural applications. GL1DE functions with most available corrections as well as in autonomous situations, and will bridge through short periods of poor satellite availability. Its steady, smooth output is especially well suited for manual guidance and autosteer installations.

Multiple Interfaces Deliver Maximum Flexibility

Two NMEA 0183 compatible RS-232 serial ports, an NMEA2000 compatible CAN port and built-in Bluetooth ensure the SMART-AG delivers maximum flexibility. A simulated radar ground speed output, a one pulse per second output (1PPS) and an event mark input are also provided. Three daylight readable status LEDs simplify diagnoses in the event of field problems.

If you require more information about SMART, visit novatel.com/products/gnss-receivers/smart-antennas

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Performance

Channel Configuration

14 GPS L1
12 GLONASS L1 (optional)
2 SBAS¹

Horizontal Position Accuracy (RMS)²

	Absolute	P2P ³
Autonomous	1.2 m	25 cm
SBAS ¹	0.8 m	18 cm
DGPS	0.4 m	23 cm
RT-20 ^{®4} (optional)	0.2 m	2 cm

Measurement Precision

L1 C/A Code 18 cm RMS
L1 Carrier Phase 1.5 mm RMS

Maximum Data Rate

Measurements 20 Hz
Position 20 Hz

Time to First Fix

Cold Start⁵ 65 s
Hot Start⁶ 35 s

Signal Reacquisition

L1 0.5 s (typical)

Time Accuracy⁷

20 ns RMS

Velocity Accuracy²

0.03 m/s RMS

Physical and Electrical

Dimensions 155 mm diameter
x 68 mm height

Weight 500 g

Power

Input Voltage +8 to +36 VDC
Power Consumption 2.5 W (typical)

Connector

14-pin Tyco Ampseal

Mounting

Built in magnets
4 x 8-32 inserts

Communication Ports

2 RS-232 serial ports (460 800 BPS max)
1 CAN Bus NMEA 2000
1 Bluetooth module (optional)
1 PPS
Ground speed output
Event mark input

Environmental

Temperature

Operating -40°C to +75°C
Storage -55°C to +90°C

UV Protection MIL-STD-810F, 505.4

Salt Fog MIL-STD-810F, 509.4

Sand and Dust MIL-STD-810F, 510.4

Immersion MIL-STD-810F, 512.4

Vibration MIL-STD-810F, 514.5

Shock MIL-STD-810F, 516.5

Compliance FCC, CE,
Industry Canada

Emissions CE, ISO 7637, ISO 15003

Vehicular Standards

ISO 7637: Compliance ensures product's ability to withstand vehicular electrical system surges (including inductive load switching transients and load dump)

ISO 15003: Compliance ensures product's ability to withstand vehicular electrical system abnormal conditions (IO short circuits to battery or ground and abnormal power voltage)

Optional Accessories

- Mounting plate
- Interface cable



Version 3 - Specifications subject to change without notice.

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For the most recent details of this product:
novatel.com/assets/Documents/Papers/SMART-AG.pdf

¹ Satellite Based Augmentation Systems (SBAS) include WAAS (North America), EGNOS (Europe) and MSAS (Japan).

² Typical values with GL1DE enabled. 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. Export licensing restricts operation to a maximum velocity of 515 metres per second.

³ "Pass to pass" or time relative position error is the one dimensional horizontal (cross track) position error after 15 minutes or less after an initial convergence of at least 10 minutes.

⁴ Expected accuracy after convergence. RT-20 is independent of GL1DE.

⁵ Typical value. No almanac or ephemerides and no approximate position or time.

⁶ Typical value. Almanac and recent ephemerides saved and approximate time entered.

⁷ Relative time accuracy does not include biases due to RF or antenna delay.

