

SMART

SMART-V1™/SMART-V1G™



Rugged, Self-Contained L1 GPS+ L-band or L1 GPS+GLONASS Receiver and Antenna Designed for Harsh Environments

Benefits

Improved position accuracy

Increased position availability

Smooth, consistent positions for
efficient pass-to-pass applications

Reduced system hardware
requirements

Features

20 cm real-time accuracy
with RT-20® technology

Integrated L-band on SMART-V1

L1 GPS+GLONASS on SMART-V1G

GL1DE® Positioning

Application Programming
Interface (API) option

Precision GNSS Integration

The SMART-V1 antenna provides an integrated L1 GPS receiver, L-band receiver and antenna in a single, rugged housing. It is available with an RS-232 or RS-422 interface, as well as support for either CAN or USB. The SMART-V1G antenna provides an integrated L1 GPS+GLONASS receiver and antenna and is available with an RS-232 or RS-422 interface with support for USB. Both antennas are designed to meet or exceed MIL-STD-810F specifications.

Powerful Performance

The SMART-V1 antenna features 14 channels for L1 GPS code and phase tracking, as well as one dedicated channel for L-band signals. The SMART-V1G features 14 channels for L1 GPS and 12 channels for L1 GLONASS code and phase tracking. Both antennas provide two dedicated channels for Satellite-Based Augmentation System (SBAS) signals, measurement or position data at up to 20 Hz and can provide a 1PPS signal to within 20ns (typical).

Corrections

These SMART antennas include standard support for SBAS corrections provided by WAAS, EGNOS and MSAS. An integrated L-band capability also allows the SMART-V1 to receive corrections from the Canadian DGPS (CDGPS) service, and subscription-based corrections for an OmniSTAR® VBS solution. Both antennas are compatible with RTCM differential corrections.

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

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Performance¹

SMART-V1	SMART-V1G
14 GPS L1	14 GPS L1
1 L-band	12 GLO L1
2 SBAS	2 SBAS
Horizontal Position Accuracy (RMS)	
Single Point L1	1.8 m
SBAS	1.2 m
CDGPS ²	1.0 m
DGPS	0.7 m
OmniSTAR VBS ²	0.9 m
RT-20 ³	0.2 m
Measurement Precision	
L1 C/A Code	18 cm RMS
L1 Carrier Phase	1.5 mm RMS
Data Rate⁴	
Measurements	20 Hz
Position	20 Hz
Time to First Fix	
Cold Start ⁵	60 s
Hot Start ⁶	35 s
Signal reacquisition	
L1	0.5 s (typical)
Time Accuracy⁷	
	20 ns RMS
Velocity Accuracy⁸	
	0.03 m/s RMS

Physical & Electrical

Dimensions	115 mm diameter x 90 mm height
Weight	575 g
Power	
Input Voltage	+9 to +28 VDC
Power Consumption	1.8 W (typical)
Connectors	
18-pin plastic bulkhead connector	
Mounting	
<ul style="list-style-type: none"> • 1" - 14 UNS threads for center mounting • 3 x 10-32 UNF screws for plate mounting 	

Communication Ports

2 RS-232 or RS-422 serial ports
1 CAN ⁹ Bus or 1 USB 1.1 port
1 PPS

Environmental

Temperature	
Operating	-40°C to +75°C
Storage	-55°C to +90°C
Immersion	
MIL-STD-810F, 512.4, Procedure I, IEC 60529 IPX7	
Humidity	
SAE J1455/4.2	
Salt Spray	
MIL-STD-810F, 509.4	
Sand and Dust	
MIL-STD-810F, 510.4	
UV Light Protection	
ASTM G-151	
Shock	
MIL-STD-810F, 516.5	
Vibration	
Random	MIL-STD-810F, 514.5 C17
Sinusoidal	SAE EP455
Compliance Emissions	
FCC Part 15B	
EN 55022	
Immunity	
EN 55024	
Safety	
EN 60950-1	

Optional Accessories

- Interface cable with bare leads
- Interface cable with connectors (DB9 or DB9 plus USB)



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/SMARTV1_ant.pdf

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 CDGPS corrections may not be available in all areas. A subscription is required for OmniSTAR VBS service, which may not be available in all areas. SMART-V1 only.

³ Expected accuracy after static convergence.

⁴ Slower data rates are expected for API customers. The maximum data rate is dependent on the size of the application.

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

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

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

⁸ Export licensing restricts operation to a maximum of 515 metres per second.

⁹ SMART-V1 is hardware-capable. Requires software support via API for CAN functionality.

