SMART6™

SMART6-L

Dual-Frequency GNSS SMART® Antenna Featuring Powerful OEM6® Technology

Benefits

Dual-frequency tracking increases position reliability and mitigates ionospheric effects

Centimetre level accuracy using AdVance® RTK positioning

Increased position availability with GLONASS tracking

Smooth, consistent positions for pass-to-pass applications with GL1DE® technology

Features

120 channels

Multi-constellation tracking

Rugged, integrated design

Proven NovAtel® Pinwheel™ antenna technology inside

Scalable Performance

From single-frequency GL1DE autonomous tracking to dual-frequency Real Time Kinematic (RTK), the SMART6-L positions you for success. The SMART6-L integrates NovAtel's OEM6 receiver and Pinwheel antenna technologies in a single, rugged housing. Software upgradable, the SMART6-L eliminates the need for costly hardware replacement, as requirements change, while delivering scalable accuracy and performance.

Multi-Constellation for Enhanced Postioning

Capable of tracking L1+ L2 GPS/GLONASS and L-Band, the SMART6-L improves position availability in obstructed sky conditions. Dual-frequency tracking minimizes the impact of ionospheric disturbances, further enhancing field productivity. Optional L-Band tracking improves positioning accuracy outside of L1 SBAS coverage areas.

Smooth Pass-to-Pass Accuracy using GL1DE

SMART6-L features NovAtel's GL1DE technology to provide ultra-smooth positioning and exceptional pass-to-pass accuracy. GL1DE's steady, smooth output is especially suited for manual guidance and auto-steer applications and will bridge through short periods of poor satellite availability. Dual-frequency GL1DE further improves the absolute accuracy of the GL1DE position and creates a robust solution, resistant to the effects of high ionospheric activity.

Multiple Interfaces for Maximum Flexibility

NMEA 0183 compatible RS-232 serial ports and a NMEA2000 compatible CAN port provide maximum flexibility. The SMART6-L also provides 1 PPS output, an event mark input and three daylight readable status LEDs. Built-in magnets simplify mounting although fixed mounting options are also available.

If you require more information about our smart antenna products, visit novatel.com/products/smart-antennas

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SMART6™ SMART6-L

Performance[1]

Channel Configuration
120 channels[2]

Signal Tracking

GPS	L1, L2, L2C
GLONASS	L1, L2
Galileo	E1
BeiDou	B1
SBAS[3]	
L-Band	

Horizontal Position Accuracy (RMS)

Single Point L1	1.5 m
Single Point L1/L2	1.2 m
SBAS	0.6 m
DGPS	0.4 m
RT-2™	1 cm + 1 ppm
L-Band	
VBS	0.6 m RMS
XP	0.15 m RMS
HP	0.1 m RMS

Measurement Precision (RMS)
Fully independent code and carrier measurements

	GPS	GLO
L1 C/A codes	4 cm	15 cm
L1 carrier phase	0.5 mm	1.5 mm
L2 P(Y) code[4]	8 cm	8 cm
L2 carrier phase[4]	1.0 mm	1.5 mm
L2C code[5]	8 cm	8 cm
L2C carrier phase[5]	1.0 mm	1.5 mm

Maximum Data Rate[6]

Measurements	Up to 50 Hz
Position	Up to 50 Hz

Time to First Fix

Cold Start[7]	<50 s (typical)
Hot Start[8]	<35 s (typical)

Signal Reacquisition

L1	0.5 s (typical)
L2	<1.0 s (typical)

Velocity Accuracy[9] 0.03 m/s RMS

Time Accuracy[10] 20 ns RMS

Physical and Electrical

Dimensions 155 mm diameter x 81 mm height

Weight <550 g

Connector 14-pin Tyco Ampseal

Mounting
2 x magnetic mount
4 x M4 screw inserts
Optional mounting plate

Power

Input Voltage Range	+8 to +36 VDC
Power Consumption	2.9 W (typical)[11]

Status LEDs
Power
Error
Position Valid

Power Input and I/O Protection
ISO 7637-2:2004: Compliance ensures product's ability to withstand vehicular system electrical disturbances

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

Emissions and Immunity

ISO 14982: EMC for Agricultural machinery

Environmental

Temperature

Operating	-40 to +75°C
Storage	-55 to +90°C
Humidity	MIL-STD-810G Method 507.5
Immersion	MIL-STD-810G Method 512.5
Shock	MIL-STD-810G Method 516.6
Solar Radiation	EN60950-22 8.2 MIL-STD-810G Method 505.5
Salt Fog	MIL-STD-810G Method 509.5
Sand and Dust	MIL-STD-810G Method 510.5
Vibration	
Random	MIL-STD-810G, Method 514.6E-I
Sinusoidal	ASAE EP455, 5.15.2 Level 1
Compliance	FCC, IC, CE
Ingress Protection Rating	IP67

Communication Ports

RS-232 dedicated ports	3
CAN Bus	1
1 PPS	1
Event Mark Input	1

Standard Features

- GPS L1 position, velocity and time with SBAS support
- 20 Hz data rates
- Field upgradable software using RS-232 serial ports
- PAC multipath mitigating technology
- Differential correction support for RTCM 2.1, 2.3, 3.0, 3.1, CMR, CMR+ and RTCA
- Navigation output support for NMEA-0183 and detailed NovAtel ASCII and binary logs
- Single-frequency GL1DE smoothing algorithm

Firmware Options

- Dual-frequency GL1DE
- GLONASS tracking
- Galileo tracking
- BeiDou tracking
- L-Band tracking
- 50 Hz data rates
- ALIGN®
- RT-2™
- RAIM

Optional Accessories

- Mounting plate
- Interface cable

Version 1 -Specifications subject to change without notice.

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For the most recent details of this product:
novatel.com/assets/Documents/Papers/SMART6-L.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] Tracks up to 60 L1/L2 satellites.
[3] GPS only.
[4] L2 P for GLONASS.
[5] L2 C/A for GLONASS.
[6] 50 Hz while tracking up to 20 satellites.
[7] Typical value. No almanac or ephemerides and no approximate position or time.
[8] Typical value. Almanac and recent ephemerides saved and approximate position and time entered.
[9] Export licensing restricts operation to a maximum of 515 metres per second.
[10] Time accuracy does not include biases due to RF or antenna delay.
[11] Power consumption values for GPS L1/L2.

RoHS COMPLIANT