

SMART2

Multi-constellation GNSS SMART antenna offering flexible positioning solutions



Scalable performance

From single-frequency standalone positioning to dual-frequency Precise Point Positioning (PPP), the SMART2 positions you for success. The SMART2 integrates a Hexagon | NovAtel OEM GNSS receiver and precision antenna in a single, rugged enclosure. Software upgradable, the SMART2 eliminates the need for costly hardware replacement as requirements change, while delivering scalable accuracy and performance.

Multi-constellation for enhanced positioning

The SMART2 is able to receive dual-frequency GPS, GLONASS, BeiDou, Galileo and QZSS signals. Multiple GNSS signals and constellations deliver better satellite availability under variable terrain and environmental conditions. The SMART2 also receives L-Band signals providing easy access to the world-wide TerraStar-L and TerraStar-C PRO Correction Services.

Terrain compensation for increased accuracy

With optional integrated terrain compensation, the SMART2 improves guidance and autosteer performance on uneven terrain and slopes by providing positions automatically corrected for vehicle pitch and roll.

Integrated Bluetooth® connectivity

The SMART2 is available with optional Bluetooth technology to provide wireless connectivity that simplifies integration with tablets and other devices commonly used for guidance and mapping applications.

Multiple interfaces for maximum flexibility

Three NMEA 0183 compatible RS-232 serial ports, a NMEA2000 compatible CAN port and Bluetooth wireless technology provide maximum flexibility. The SMART2 also provides simulated radar ground speed output, 1 PPS output, an event mark input, as well as a daylight-readable status LED. Built-in magnets simplify mounting. Fixed mounting options are also available.

Benefits

- Flexible positioning accuracy from entry level sub-metre to centimetre-level using TerraStar-C PRO
- 15 cm pass-to-pass accuracy using TerraStar-L
- Smooth, consistent positions for pass-to-pass applications with optional GLIDE technology
- Dual-frequency tracking increases position reliability and mitigates ionospheric effects
- Wireless connectivity to Bluetooth tablets and devices
- Terrain compensation corrects for vehicle roll and pitch to improve performance on uneven terrain
- Compact, waterproof, one-piece GNSS receiver and antenna solution

Features

- GPS, GLONASS, BeiDou, Galileo, QZSS plus TerraStar correction signal reception
- Optional Bluetooth
- Optional terrain compensation
- Simulated radar ground speed output
- Integrated magnetic mounting

Performance¹

Signal tracking

GPS	L1, L2, L2C
GLONASS	L1, L2
Galileo	E1, E5b
BeiDou	B1I, B2I, B2b
QZSS	L1, L2
SBAS	L1
L-Band	

Horizontal position accuracy (RMS)

Single point L1	1.5 m
Single point L1/L2	1.2 m
SBAS ²	60 cm
DGPS	40 cm
	(95%) (RMS)
TerraStar-L ^{3,4}	50 cm 40 cm
TerraStar-C PRO ^{3,4}	2.5 cm 2 cm

Pass-to-pass accuracy (95%)

L1/L2 GLIDE single point	35 cm
TerraStar-L	15 cm
TerraStar-C PRO	2 cm

Maximum data rate

Measurements	up to 20 Hz
Position	up to 20 Hz

Time to first fix⁵

Cold start	<50 s (typ)
Hot start	<35 s (typ)

Signal reacquisition

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

Velocity accuracy

< 0.055 m/s RMS

Time accuracy⁶

20 ns RMS

Terrain compensation accuracy (deg)⁷

Roll/Pitch	<1.0 RMS
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Physical and electrical

Dimensions

155 diameter x 81 height mm

Weight

470 g

Connector

14-pin Tyco Ampseal

Mounting

4 x M4 screw inserts
Integrated magnetic mount

Power

Input voltage range	+7 to +30 VDC
Power consumption ⁸	2.5 W (typical)

Status LED

Multi-colored, daylight viewable

Communication ports

RS-232 dedicated ports	3
CAN Bus	1
Event mark input	1
1 PPS	1
Ground speed output	1
Bluetooth	optional

Environmental

Temperature

Operating	-40°C to +70°C
Storage	-45°C to +75°C

Humidity

MIL-STD-810G(CH1), Method 507.6

Immersion

MIL-STD-810G(CH1), Method 512.6

Shock

MIL-STD-810G(CH1), Method 516.7

Solar radiation

MIL-STD-810G(CH1),
Method 505.6

Salt fog

MIL-STD-810G(CH1), Method 509.6

Sand and dust

MIL-STD-810G(CH1),
Method 510.6

Vibration random

MIL-STD-810G(CH1),
Method 514.7

Ingress protection rating

IP67 and IP69

Compliance

FCC, ISCED, CE and Global Type Approvals

Standard features

- GPS L1 position, velocity and time with SBAS support
- 20 Hz data rates
- Field upgradable software
- PAC multipath mitigating technology
- Navigation output support for NMEA 0183 and detailed NovAtel ASCII and binary logs
- 1 PPS output
- Ground speed output

Correction services

- TerraStar-L
- TerraStar-C PRO

Available hardware options

- SMART2
- SMART2-B with Bluetooth
- SMART2-TB with Bluetooth and terrain compensation

Firmware solutions

- GLONASS tracking
- Galileo tracking
- BeiDou tracking
- Dual-frequency tracking
- L-Band tracking
- GLIDE smoothing algorithm

Optional accessories

- Mounting plate
- Pole mount adapter
- Interface cable

1. Typical values under ideal, open sky conditions.

2. GPS-only.

3. Requires subscription to TerraStar data service.

4. RMS/95% accuracy under ideal conditions and may vary based upon user's geographic region, ionospheric activity, scintillation levels, GNSS availability and constellation health, multipath conditions and presence of interference sources.

5. Cold start: no almanac or ephemerides and no approximate position or time.

Hot start: almanac and recent ephemerides saved and approximate position and time entered.

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

7. With optional Terrain Compensation software and hardware installed.

8. Power consumption values for GPS L1/L2.

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