



Trimble Forensics GNSS Solution

KEY FEATURES

- ▶ Trimble® Forensics Capture supports GNSS based workflows.
- ▶ Designed to specifically work with the Trimble R4sLE receiver, or any R-series receivers.
- ▶ Built-in ground scaling and local coordinate system for every scene. No need for site calibrations.
- ▶ GNSS and SX10 or total station integrated surveying workflows.
- ▶ All collected data is stored within the same Capture file, regardless of using GNSS or total stations or SX10.
- ▶ Trimble R4sLE is waterproof, impact resistant and rated for -40°C to $+65^{\circ}\text{C}$. Extremes in temperature are not a problem.

Learn more:

<https://forensics.trimble.com/gnss-solution>



GNSS CHARACTERISTICS¹

- 240 GNSS channels
 - GPS L1C/A, L1P(Y), L2P(Y), L2C
 - GLONASS L1C/A, L2C/A, L3
 - BeiDou B1 (phase 2), B2
 - Galileo E1, E5b
 - QZSS L1C/A, L2C, L1SAIF
 - SBAS L1C/A
 - L-band
- Support for Trimble RTX™ real-time correction services
- Patented Z-Blade technology for optimal GNSS performance
 - Full utilization of signals from all 6 GNSS systems (GPS, GLONASS, BeiDou, Galileo, QZSS and SBAS)
 - Enhanced GNSS-centric algorithm: fully-independent GNSS signal tracking and optimal data processing, including GPS-only, GLONASS-only or BeiDou-only solution (autonomous to full RTK)
 - Fast search engine for quick acquisition and re-acquisition of GNSS signals
- Patented SBAS ranging for using SBAS code & carrier observations and orbits in RTK processing
- Patented Strobe™ Correlator for reduced GNSS multi-path
- Up to 10 Hz real-time raw data (code & carrier and position output)
- Supported data formats: ATOM, CMR, CMR+, RTCM 2.1, 2.3, 3.0, 3.1 and 3.2 (including MSM), CMRx and sCMRx (rover only)
- NMEA 0183 messages output

REAL-TIME ACCURACY (RMS)^{1,2}

SBAS (WAAS/EGNOS/MSAS/GA)

Horizontal < 50 cm (19.7 in)
 Vertical < 85 cm (33.5 in)

Real-Time DGPS position

Horizontal 25 cm (9.8 in) + 1 ppm
 Vertical50 cm (19.7 in) + 1 ppm

Real-Time Kinematic position (RTK)

Horizontal8 mm (0.3 in) + 1 ppm
 Vertical15 mm (0.6 in) + 1 ppm

GIS accuracy modes

30/30
 Horizontal30 cm (11.8 in)
 Vertical30 cm (11.8 in)
 7/2 (firmware option needed)
 Horizontal7 cm (2.8 in)
 Vertical 2 cm (0.8 in) GAN

REAL-TIME PERFORMANCE

Instant-RTK⁴ Initialization

- Typically 2 sec for baselines < 20 km
- Up to 99.9% reliability
 RTK initialization range over 40 km (25.0 mi)

POST-PROCESSING ACCURACY (RMS)^{1,2}

Static & Fast static

Horizontal 3 mm (0.1 in) + 0.5 ppm
 Vertical5 mm (0.2 in) + 0.5 ppm

High-Precision Static³

Horizontal 3 mm (0.1 in) + 0.1 ppm
 Vertical35 mm (0.14 in) + 0.4 ppm

Post-Processed Kinematic (PPK)

Horizontal8 mm (0.3 in) + 1 ppm
 Vertical15 mm (0.6 in) + 1 ppm

DATA LOGGING CHARACTERISTICS

Recording interval 0.1 – 999 seconds

PHYSICAL CHARACTERISTICS

Size 21 x 21 x 7 cm (8.3 x 8.3 x 2.3 in)
 Weight 930 g (2.08 lb)

User interface

- Five LEDs for Power, Tracking, Bluetooth, Recording, Radio operations

I/O interface

- RS232 serial link
- USB 2.0/UART and USB OTG
- Bluetooth 2.1 + EDR. Long range Class 1 (17dbm)

Memory

- 256 MB internal memory NAND Flash
- Over a month of 15 sec. raw GNSS data from 14 satellites

Operation

- RTK rover & base
- RTK network rover: VRS, FKP, MAC
- NTRIP, Direct IP
- Post-processing
- Trimble RTX (satellite and cellular/IP)

ENVIRONMENTAL CHARACTERISTICS

Operating temperature –40 °C to +65 °C / (–40 °C to +149 °F)⁴
 Storage temperature –40 °C to +85 °C / (–40 ° to +185 °F)⁵
 Humidity 100% condensing
 IP67 waterproof, sealed against sand and dust
 Drop2 m (6.6 ft) pole drop on concrete
 Shocks MIL STD 810 (fig 516.5-10) (01/2000)
 Vibration MIL-STD-810F (fig 514.5C-17) (01/2000)

Trimble RTX Initialization ^{1,2,6}			
	Horizontal (RMS)	Initialization	GNSS
CenterPoint® RTX	< 4 cm	< 30 mins, < 5 mins	L1 + L2
FieldPoint RTX™	< 10 cm	< 15 mins, < 5 mins	L1 + L2
RangePoint® RTX	< 30 cm	< 5 mins	L1 + L2
ViewPoint RTX™	< 50 cm	< 5 mins	L1

- 1 Accuracy and TTFF specifications may be affected by atmospheric conditions, signal multipath, satellite geometry and corrections availability and quality.
- 2 Performance values assume minimum of five satellites, following the procedures recommended in the product manual. High multipath areas, high PDOP values and periods of severe atmospheric conditions may degrade performance.
- 3 Long baselines, long occupations, precise ephemeris used.
- 4 At very high temperatures UHF module should not be used in the transmitter mode. With UHF transmitter on radiating 2W of RF power, the operating temperature is limited to +55 °C (+131 °F).
- 5 Without batteries. Batteries can be stored up to +70 °C (+158 °F).
- 6 Receiver initialization time varies based on GNSS constellation health, level of multipath, and proximity to obstructions such as large trees and buildings.



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