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 °C. Extremes in temperature are not a problem.

Learn more:
https://forensics.trimble.com/gnss-solution

Trimble Forensics GNSS Solution

GNSS CHARACTERISTICS[1]
- 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
Vertical . . . . 50 cm (19.7 in) + 1 ppm

Real-Time Kinematic position (RTK)
Horizontal . . . . 8 mm (0.3 in) + 1 ppm
Vertical . . . . 15 mm (0.6 in) + 1 ppm

GIS accuracy modes
30/30
    Horizontal . . . . 30 cm (11.8 in)
    Vertical . . . . 30 cm (11.8 in)
7/2 (firmware option needed)
    Horizontal . . . . 7 cm (2.8 in)
    Vertical . . . . 2 cm (0.8 in) GAN

REAL-TIME PERFORMANCE

Instant-RTK® 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
Vertical . . . . 5 mm (0.2 in) + 0.5 ppm

High-Precision Static [3]
Horizontal . . . . 3 mm (0.1 in) + 0.1 ppm
Vertical . . . . 3.5 mm (0.14 in)+ 0.4 ppm

Post-Processed Kinematic (PPK)
Horizontal . . . . 8 mm (0.3 in) + 1 ppm
Vertical . . . . 15 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
Drop . . . . 2 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.