



DATASHEET

Trimble R4s GNSS System

Reliable, Accurate GNSS Deliverables at an Affordable Price

KEY FEATURES

- High accuracy
- 240-channel 6G ASIC
- Z-blade GNSS-centric technology
- SBAS ranging
- Inside-the-rod UHF antenna
- Trimble CenterPoint RTX correction service
- Trimble TSC3 controller
- Trimble Access field software
- Trimble Business Centre (TBC) office software



GNSS CHARACTERISTICS

- 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, L1 SAIF
 - SBAS L1C/A
 - L-band
- Supports 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 for fully independent GNSS tracking and optimal data processing (Incl. GPS-only and GLONASS-only)
 - Fast search engine for quick acquisition and re-acquisition of GNSS signals
 - Patented SBAS ranging (code & carrier observations)
 - Patented Strobe Correlator for reduced GNSS multi-path
 - Up to 10 Hz real-time raw data output
 - Supported data formats: ATOM, CMR, CMR+, RTCM 2.1, 3.0, 3.1 and 3.2 (Incl. MSM), CMRx and sCMRx
 - NMEA 0183 message output

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

SBAS (WAAS/EGNOS/MSAS/GAGAN)

- Horizontal: < 50 cm
- Vertical: < 85 cm

Real-time DGPS position

- Horizontal: 25 cm + 1 ppm
- Vertical: 50 cm + 1 ppm

Real-time Kinematic position (RTK)

- Horizontal: 8 mm + 1 ppm
- Vertical: 15 mm + 1 ppm

Real-time performance

- Instant-RTK initialization
 - Typically 2 sec for baselines < 20 km
 - Up to 99,9% reliability
- RTK initialization range: over 40 km

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

Static & Fast static

- Horizontal: 3 mm + 0,5 ppm
- Vertical: 5 mm + 0,5 ppm

High-precision Static ³

- Horizontal: 3 mm + 0,1 ppm
- Vertical: 3,5 mm + 0,4 ppm

Post-processed Kinematic (PPK)

- Horizontal: 8 mm + 1 ppm
- Vertical: 15 mm + 1 ppm

DATA LOGGING CHARACTERISTICS

Recording interval 0,1 - 999 seconds

PHYSICAL CHARACTERISTICS

Size 21 x 21 x 7 cm

Weight 930 g

User Interface

Five LED's - Power, Tracking, BlueTooth, Recording and Radio operation

I/O Interface

- RS-232 serial link
- USB 2.0/UART and USB OTG
- Bluetooth 2.1 + EDR / Long range: Class 1 (19dbm)

Memory

- 256 Mb internal memory NAND Flash
- 30+ Days of 15 sec raw GNSS Data (14 Satellites)

Operation

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

Environmental characteristics

- Operating temperature: -40°C to +65 °C ⁴
- Storage temperature: -40°C to +85 °C ⁵
- Humidity: 100% condensing
- IP67 waterproof (sealed against sand & dust)
- Drop: 2m Pole-drop on concrete
- Shock: MIL STD 810 (fig. 516.5-10) (01/2000)
- Vibration: MIL STD 810 (fig. 516.5-10) (01/2000)

Power characteristics

- Li-on battery, 7,4V / 2600 mAh
- Battery life: 10 hrs (GNSS On ; UHF Rx Off)
- 8 hrs (GNSS On ; UHF Rx On)
- External DC power: 9 - 28V

Standard system components

- Trimble R4s GNSS receiver
- Li-on battery
- Dual battery charger, power supply & cord kit
- Tape measure (3,6m)
- 7cm Pole extension
- USB to mini-USB comm cable
- R4s internal UHF Kit (410-470 MHz, 2W, TRx)
- 2 Year receiver warranty
- Trimble TSC3 Data collector
- Trimble ACCESS field software

Optional system components

- R4s Field power kit
- R4s Office power kit

- 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
- 5 Without batteries. Batteries can be stored up to +70°C.
- 6 Receiver initialization time varies based on GNSS constellation health, level of multipath, and proximity to obstructions such as large trees and buildings.

| TRIMBLE RTX INITIALIZATION ^{1,2,6} | Horizontal (RMS) | Initialization | GNSS |
|---|------------------|-------------------|---------|
| CenterPoint® RTX | < 4 cm | <30 mins, <5 mins | L1 + L2 |

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