The ideal solution for surveyors that need proven, straightforward GPS technology that performs under the most rigorous conditions, the Trimble R4 with Trimble Survey Controller software delivers when every point counts.

Surveyors around the world depend on Trimble to deliver every time. With over 25 years of GNSS leadership, Trimble GNSS solutions are established in the industry to provide the characteristics that surveyors appreciate every day on the job – accuracy, stability, and rugged dependability.

A COMPLETE GPS SYSTEM
Lightweight, ergonomic and cable-free, the Trimble® R4 GPS system with Trimble Survey Controller™ software provides the ease of use of an integrated receiver with the rugged reliability of the popular Trimble TSC2 controller. Couple the easy-to-learn Trimble Survey Controller with Trimble’s powerful GNSS and optical data processing and analysis software, Trimble Business Center (optional) to complete the system. Founded on proven Trimble GPS technology, the Trimble R4 RTK system comes standard with GPS L1 and L2 with an upgrade available to GLONASS.

The dual-frequency antenna enhances tracking capacity and delivers sub-millimeter phase center stability, for precise results in demanding conditions. Internally powered with removable batteries, this system provides 11 hours of uninterrupted field operation.

VRS ROVER, RTK ROVER OR FIELD BASE STATION
Use as a lightweight rover for static surveying or RTK. The Trimble R4 with Trimble Survey Controller is also completely compatible with Trimble VRS™ solutions, creating an attractive VRS rover for use inside real-time networks. With built-in 450 MHz receive radio or a fully integrated GSM/GPRS radio, this system can be adapted to meet a variety of needs. As a base station, The Trimble R4 with the integrated UHF transmit option is rugged, weather-resistant and compatible with a range of radio solutions.

TRIMBLE SOLUTIONS FOR BROADER HORIZONS
Designed to bring the Trimble experience to more surveyors, the Trimble R4 with Trimble Survey Controller system helps shorten training time and simplify data collection. As your business needs grow and change, leverage the workflows and software knowledge your crew has developed with Trimble Survey Controller software as you move up to the advanced capabilities of Trimble Access™ software.

With Trimble’s extensive global network of highly qualified training, support and service teams, you can be certain that Trimble and our partners will be there for you. Trimble solutions make surveying easy today and position your team for a future of growth.
PERFORMANCE SPECIFICATIONS

Measurements
- Advanced Trimble Maxwell™ technology
- Advanced Trimble Maxwell™ 6 Custom Survey GNSS chip with 72 channels
- High precision multiple correlator for GNSS pseudorange measurements
- Unfiltered, unsmoothed pseudorange measurements data for low noise, low multipath error, low time domain correlation and high dynamic response
- Very low noise GNSS carrier phase measurements with <1 mm precision in a 1 Hz bandwidth
- Signal-to-Noise ratios reported in dB-Hz
- Proven Trimble low elevation tracking technology
- Satellite signals tracked simultaneously:
  - GPS: L1CA, L2E (Trimble method for tracking L2P)
  - GLONASS1: L1CA, L1P, L2CA (GLONASS M only), L2P
  - SBAS: L1CA

POSITIONING PERFORMANCE2

Code differential GNSS positioning

Horizontal ...................... 0.25 m + 1 ppm RMS
Vertical ........................ 0.50 m + 1 ppm RMS
SBAS differential positioning accuracy3 ................................ typically <5 m 3DRMS

Static GNSS Surveying

High-precision static
Horizontal .......................... 3 mm + 0.1 ppm RMS
Vertical ........................... 3.5 mm + 0.4 ppm RMS

Static and Fast Static
Horizontal .......................... 3 mm + 0.5 ppm RMS
Vertical ........................... 5 mm + 0.5 ppm RMS

Real Time Kinematic Surveying4

Single Baseline <30 km
Horizontal .......................... 8 mm + 1 ppm RMS
Vertical ........................... 15 mm + 1 ppm RMS

Network RTK

Horizontal .......................... 8 mm + 0.5 ppm RMS
Vertical ........................... 15 mm + 0.5 ppm RMS

Initialization time5 .......................... typically <15 seconds

Initialization reliability6 ................................ typically >99.9%

HARDWARE

Physical

Dimensions (WxH) ..................... 19 cm × 10.9 cm (7.5 in x 4.3 in), including connectors

Weight ................................ 1.34 kg (2.95 lb) with internal battery, internal radio, standard UHF antenna

Temperature6

Operating ......................... -40 °C to +65 °C (−40 °F to +149 °F)
Storage ............................. -40 °C to +75 °C (−40 °F to +167 °F)

Humidity ................................................. 100%, condensing

Water/dustproof ............................... IP67 dustproof, protected from temporary immersion to depth of 1 m (3.28 ft)

Shock and vibration Test and meets the following environmental standards:
- Shock ........................................ Non-operating: Designed to survive a 2 m (6.6 ft) pole drop onto concrete. Operating: to 40 G, 10 m/sec, sawtooth vibration

Electrical

- Power 11 V DC to 28 V DC external power input with over-voltage protection on Port 1 (7-pin Lemo)
- Rechargeable, removable 7.4 V, 2.4 Ah Lithium-ion battery in internal battery compartment. Power consumption is 3.2 W, in RTK rover mode with internal radio. Operating times on internal battery:
  - 450 MHz receive only option .................................................. 5.8 hours8
  - 450 MHz receive/transmit option ........................................... 3.7 hours9
  - GSM/GPRS ................................................................. 4.1 hours9

- Certification Class B Part 15, 22, 24 FCC certification, 850/1900 MHz. Class 10 GSM/GPRS module. CE Mark approval, and C-tick approval

Communications and Data Storage

- 3-8 frequency (7-pin Lemo) on Port 1. Full RS-232 serial on Port 2 (Dsub 9 pin)
- Fully Integrated, fully sealed internal 450 MHz receiver/transmitter option:
  - Transmit power: 0.5 W
  - Range6: 3–5 km typical / 10 km optimal
- Fully integrated, fully sealed internal GSM/GPRS option
- Fully integrated, fully sealed 2.4 GHz communications port (Bluetooth®)10
- External cellphone support for GSM/GPRS/3G modems for RTK and VRS operations
- Data storage on 11 MB internal memory: 302 hours of raw observables, based on recording every 15 seconds from an average of 6 satellites
- 1 Hz, 2 Hz, 5 Hz, and 10 Hz positioning
- CMRs, CMRx, RTCM 2.1, RTCM 2.3, RTCM 3.0, RTCM 3.1 Input and Output
- 16 NMEA outputs, GSOF, RT17 and RT27 outputs. Supports BINEX and smoothed carrier

1 Optional upgrade.
2 Precision and reliability may be subject to anomalies due to multipath, obstructions, satellite geometry, and atmospheric conditions. The specifications stated recommend the use of stable mounts in an open sky view, EMI and multipath clean environment, optimal GNSS constellation configurations, along with the use of survey practices that are generally accepted for performing the highest-order surveys for the applicable application including occupation times appropriate for baseline length. Baselines longer than 30 km require precise ephemera and occupations up to 24 hours may be required to achieve the high precision static specification.
3 Depends on WAAS/EGNOS system performance.
4 Network RTK PPM values are referenced to the closest physical base station.
5 May be affected by atmospheric conditions, signal multipath, obstructions and satellite geometry. Initialization reliability is continuously monitored to ensure highest quality.
6 Receiver will operate normally to −40 °C, internal batteries are rated to −20 °C.
7 Varies with terrain and operating conditions.
8 Varies with temperature.
9 Varies with temperature and wireless data rate.
10 Bluetooth type approvals are country specific.

Specifications subject to change without notice.

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