



### KEY FEATURES

Accurate, reliable and rugged system

Built on proven, dependable Trimble technology

Scalable from postprocessing to VRS to multi-constellation RTK configurations

Cable-free for convenience

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.



# TRIMBLE R4 GPS SYSTEM

## PERFORMANCE SPECIFICATIONS

### Measurements

- Trimble R-Track™ 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: L1C/A, L2E (Trimble method for tracking L2P)
  - GLONASS<sup>1</sup>: L1C/A, L1P, L2C/A (GLONASS M only), L2P
  - SBAS: L1C/A

### POSITIONING PERFORMANCE<sup>2</sup>

#### Code differential GNSS positioning

Horizontal . . . . . 0.25 m + 1 ppm RMS  
 Vertical . . . . . 0.50 m + 1 ppm RMS  
 SBAS differential positioning accuracy<sup>3</sup> . . . . . 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 FastStatic

Horizontal . . . . . 3 mm + 0.5 ppm RMS  
 Vertical . . . . . 5 mm + 0.5 ppm RMS

#### Real Time Kinematic Surveying<sup>4</sup>

##### 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 time<sup>5</sup> . . . . . typically <15 seconds  
 Initialization reliability<sup>5</sup> . . . . . typically >99 %

## HARDWARE

### Physical

Dimensions (W×H) . . . . . 19 cm × 10.9 cm (7.5 in × 4.3 in), including connectors

Weight . . . . . 1.34 kg (2.95 lb) with internal battery, internal radio, standard UHF antenna  
 3.70 kg (8.16 lb) entire RTK rover including batteries, range pole, controller and bracket

### Temperature<sup>6</sup>

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

© 2009–2012, Trimble Navigation Limited. All rights reserved. Trimble and the Globe & Triangle logo, and TSC2 are trademarks of Trimble Navigation Limited, registered in the United States and in other countries. Access, Maxwell, R-Track, Trimble Survey Controller, and VRS are trademarks of Trimble Navigation Limited. The Bluetooth word mark and logos are owned by the Bluetooth SIG, Inc. and any use of such marks by Trimble Navigation Limited is under license. All other trademarks are the property of their respective owners. PN 022543-490C(02/12)

Humidity . . . . . 100%, condensing  
 Water/dustproof . . . . . IP67 dustproof, protected from temporary immersion to depth of 1 m (3.28 ft)  
 Shock and vibration . . . . . Tested 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 msec, sawtooth  
 Vibration . . . . . MIL-STD-810F, FIG.514.5C-1

### 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 hours<sup>8</sup>
  - 450 MHz receive/transmit option . . . . . 3.7 hours<sup>9</sup>
  - GSM/GPRS . . . . . 4.1 hours<sup>8</sup>
- 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-wire serial (7-pin Lemo) on Port 1. Full RS-232 serial on Port 2 (D-sub 9 pin)
- Fully Integrated, fully sealed internal 450 MHz receiver/transmitter option:
  - Transmit power: 0.5 W
  - Range<sup>7</sup>: 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®)<sup>10</sup>
- 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
- CMR+, CMRx, RTCM 2.1, RTCM 2.3, RTCM 3.0, RTCM 3.1 Input and Output
- 16 NMEA outputs, GSOE, 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 ephemeris 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.  
 Contact your local Trimble Authorized Distribution Partner for more information.



Specifications subject to change without notice.



Monnikenwerve 43  
8000 Brugge  
T. +32 50 38 98 14

Av. des Dessus-de-Lives 2  
5101 Loyers  
T. +32 81 58 02 04

TRIMBLE AUTHORIZED DISTRIBUTION PARTNER

### NORTH AMERICA

Trimble Engineering & Construction Group  
 5475 Kellenburger Road  
 Dayton, Ohio 45424-1099 • USA  
 800-538-7800 (Toll Free)  
 +1-937-245-5154 Phone  
 +1-937-233-9441 Fax

### EUROPE

Trimble GmbH  
 Am Prime Parc 11  
 65479 Raunheim • GERMANY  
 +49-6142-2100-0 Phone  
 +49-6142-2100-550 Fax

### ASIA-PACIFIC

Trimble Navigation  
 Singapore Pty Limited  
 80 Marine Parade Road  
 #22-06, Parkway Parade  
 Singapore 449269 • SINGAPORE  
 +65-6348-2212 Phone  
 +65-6348-2232 Fax



www.trimble.com