Trimble R10

GNSS SYSTEM

A NEW LEVEL OF PRODUCTIVITY

Collect more accurate data faster and easier—no matter what the job or the environment—with the Trimble® R10 GNSS System. Built with powerful technologies integrated into a sleek design, this unique system provides Surveyors with a powerful way to increase productivity in every job, every day.

Trimble HD-GNSS Processing Engine

The advanced Trimble HD-GNSS processing engine provides markedly reduced convergence times as well as high position and precision reliability while reducing measurement occupation time. Transcending traditional fixed/float techniques, it provides a more accurate assessment of error estimates than traditional GNSS technology.

Trimble SurePoint

With Trimble SurePoint™ technology, advanced sensors onboard the Trimble R10 continuously stream pole tilt and heading information that is used to display an electronic level bubble on the Trimble controller screen, allowing surveyors to maintain focus where it matters most. Full tilt compensation allows the survey pole to be tilted up to 15° when measuring, allowing the Trimble R10 to capture points that would be inaccessible to other GNSS surveying systems.

Trimble 360 Receiver

Powerful Trimble 360 receiver technology in the Trimble R10 supports signals from all existing and planned GNSS constellations and augmentation systems. With two integrated Trimble Maxwell™ 6 chips, the Trimble R10 offers 440 GNSS channels.

Trimble CenterPoint RTX

Trimble CenterPoint™ RTX delivers RTK level precision anywhere in the world without the use of a local base station or VRS network.

Survey using satellite delivered, CenterPoint RTX corrections in areas where terrestrial based corrections are not available. When surveying over a great distance in a remote area, such as a pipeline or utility right of way, CenterPoint RTX eliminates the need to continuously move base stations or maintain connection to a cellular network.

Trimble xFill

Leveraging a worldwide network of Trimble GNSS reference stations and satellite datalinks, Trimble xFill® seamlessly fills in for gaps in your RTK or VRS connection stream. Maintain centimeter level accuracy beyond five minutes with a CenterPoint RTX subscription.

Smart, Versatile

A smart lithium-ion battery inside the Trimble R10 system delivers extended battery life and more reliable power. A built-in LED battery status indicator allows the user to quickly check remaining battery life.

The Trimble R10 system provides a number of communications options to support any workflow. Receive VRS corrections and connect to the Internet from the field with the integrated cellular modem. Using Wi-Fi, easily connect to the Trimble R10 system using a laptop or smartphone to configure the receiver without a Trimble controller.

The Complete Solution

Bring the power and speed of the Trimble R10 system together with trusted Trimble software solutions, including Trimble Access™ and Trimble Business Center.

Trimble Access field software provides specialized and customized workflows to make surveying tasks quicker and easier while enabling teams to communicate vital information between field and office in real time. Back in the office, users can seamlessly process data with Trimble Business Center software.

---

Key Features

- Cutting-edge Trimble HD-GNSS processing engine
- Precise position capture and full tilt compensation with Trimble SurePoint technology
- Trimble CenterPoint RTX provides RTK level precision anywhere without the need for a base station or VRS network
- Trimble xFill technology provides centimeter-level positioning during connection outages
- Advanced satellite tracking with Trimble 360 receiver technology
- Sleek ergonomic design for easier handling
## PERFORMANCE SPECIFICATIONS

### MEASUREMENTS
- Measuring points sooner and faster with Trimble HD-GNSS technology
- Increased measurement productivity and traceability with Trimble SurePoint electronic tilt compensation
- Worldwide centimeter level positioning using Trimble CenterPoint RTX satellite delivered corrections
- Reduced downtime due to loss of radio signal with Trimble xFill technology
- Advanced Trimble Maxwell 6 Custom Survey GNSS chips with 440 channels
- Future-proof your investment with Trimble 360 GNSS tracking

### Satellite signals tracked simultaneously:
- GPS: L1C/A, L1C, L2C, L2E, L5
- SBAS: L1C/A, L5 (For SBAS satellites that support L5)
- Galileo: E1, E5A, E5B, E5 AltBOC
- BeiDou (COMPASS): B1, B2, B3
- CenterPoint RTX, OmniSTAR® HP, XP, G2, VBS positioning
- QZSS, WAAS, EGNOS, GAGAN, MSAS
- Positioning Rates: 1 Hz, 2 Hz, 5 Hz, 10 Hz, and 20 Hz

### POSITIONING PERFORMANCE

#### CODE DIFFERENTIAL GNSS POSITIONING
- **Horizontal**: 0.25 m + 1 ppm RMS
- **Vertical**: 0.50 m + 1 ppm RMS
- **SBAS differential positioning accuracy**: 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 SURVEYING
- **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

- **RTK start-up time for specified precisions**
  - 2 to 8 seconds

#### TRIMBLE RTX (SATELLITE AND CELLULAR/INTERNET (IP))
- **CenterPoint RTX**
  - **Horizontal**: 4 cm RMS
  - **Vertical**: 9 cm RMS
  - **RTX convergence time for specific precisions**: < 30 min (typical)
  - **RTX QuickStart convergence time for specific precisions**: < 5 min (typical)
  - **Operating range (inland)**: Nearly worldwide

- **CenterPoint RTX Fast**
  - **Horizontal**: 2 cm RMS
  - **Vertical**: 5 cm RMS
  - **RTX convergence time for specific precisions**: 1-5 min (typical)
  - **Operating range (inland)**: In select regions

- **TRIMBLE XFILL**
  - **Horizontal**: RTK° + 10 mm/minute RMS
  - **Vertical**: RTK° + 20 mm/minute RMS

---

**TRANSFORMING THE WAY THE WORLD WORKS**
### HARDWARE

<table>
<thead>
<tr>
<th>PHYSICAL</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (W×H)</td>
<td>11.9 cm x 13.6 cm (4.6 in x 5.4 in)</td>
</tr>
<tr>
<td>Weight</td>
<td>1.12 kg (2.49 lb) with internal battery, internal radio with UHF antenna, 3.57 kg (7.86 lb) items above plus range pole, controller &amp; bracket</td>
</tr>
</tbody>
</table>
| Temperature<sup>10</sup> | 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 |
| Ingress Protection | 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 |

<table>
<thead>
<tr>
<th>ELECTRICAL</th>
<th></th>
</tr>
</thead>
</table>
| Power | 11 to 24 V DC external power input with over-voltage protection on Port 1 and Port 2 (7-pin Lemo)  
| | Rechargeable, removable 7.4 V, 3.7 Ah Lithium-ion smart battery with LED status indicators  
| | Power consumption is 5.1 W in RTK rover mode with internal radio<sup>11</sup> |
| Operating times on internal battery<sup>12</sup> |  |
| 450 MHz receive only option | 5.5 hours  
| 450 MHz receive/transmit option (0.5 W) | 4.5 hours  
| 450 MHz receive/transmit option (2.0 W) | 3.7 hours  
| Cellular receive option | 5.0 hours |

<table>
<thead>
<tr>
<th>COMMUNICATIONS AND DATA STORAGE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Serial</td>
<td>3-wire serial (7-pin Lemo)</td>
</tr>
<tr>
<td>USB v2.0</td>
<td>Supports data download and high speed communications</td>
</tr>
</tbody>
</table>
| Radio Modem | Fully integrated, sealed 450 MHz wide band receiver/transmitter with frequency range of 403 MHz to 473 MHz, support of Trimble, Pacific Crest, and SATEL radio protocols:  
| | Transmit power: 2 W  
| | Range: 3–5 km typical / 10 km optimal<sup>13</sup> |
| Cellular | Integrated, 3.5 G modem, HSDPA 7.2 Mbps (download), GPRS multi-slot class 12, EDGE multi-slot class 12, UMTS/HSDPA (WCDMA/ FDD) 850/1900/2100MHz, Quad-band EGSM 850/900/1800/1900 MHz, GSM CSD, 3GPP LTE |
| Bluetooth | Fully integrated, fully sealed 2.4 GHz communications port (Bluetooth®) <sup>14</sup> |
| Wi-Fi | 802.11 b.g, access point and client mode, WPA/ WPA2/WEP64/WEP128 encryption |
| USB v2.0 | Supports data download and high speed communications |
| External communication devices for corrections supported on Data storage | Serial, USB, TCP/IP and Bluetooth ports  
| | 4 GB internal memory; over seven years of raw observables (approx. 1.4 MB /day), based on recording every 15 seconds from an average of 14 satellites  
| | CMR+, CMRx, RTCM 2.1, RTCM 2.3, RTCM 3.0, RTCM 3.1, RTCM 3.2 input and output  
| | 24 NMEA outputs, GSOF, RT17 and RT27 outputs |
Trimble R10 GNSS SYSTEM

COMMUNICATIONS AND DATA STORAGE

WEBUI
Offers simple configuration, operation, status, and data transfer
Accessible via Wi-Fi, Serial, USB, and Bluetooth

SUPPORTED TRIMBLE CONTROLLERS
Trimble TSC3, Trimble Slate, Trimble CU, Trimble Tablet Rugged PC

CERTIFICATIONS
IEC 60950-1 (Electrical Safety); FCC OET Bulletin 65 (RF Exposure Safety); FCC Part 15.105 (Class B); Part 15.247 Part 90; PTCRB (AT&T); Bluetooth SIG; WFA IC ES-003 (Class B); Radio Equipment Directive 2014/53/EU, RoHS, WEEE; Australia & New Zealand RCM; Japan Radio and Telecom MIC

Specifications subject to change without notice.

© 2012–2017 Trimble Inc. All rights reserved. Trimble, the Globe & Triangle logo, CenterPoint, DirectSTAR, and xFill are trademarks of Trimble Inc., registered in the United States and in other countries. Access, Maxwell, SurePoint, Trimble RTX and VRS Now are trademarks of Trimble Inc. Wi-Fi is a registered trademark of Wi-Fi Alliance. The Wi-Fi Alliance logo is a trademark of Wi-Fi Alliance. The Bluetooth word mark and logos are owned by the Bluetooth SIG, Inc. and any use of such marks by Trimble Inc. is under license. All other trademarks are the property of their respective owners.

PN 022543-544I (08/17)

Contact your local Trimble Authorized Distribution Partner for more information

www.trimble.com

NORTH AMERICA
Trimble Inc.
10368 Westmoor Dr
Westminster CO 80021
USA

EUROPE
Trimble Germany GmbH
Am Prime Parc 11
65479 Raunheim
GERMANY

ASIA-PACIFIC
Trimble Navigation Singapore Pty Limited
80 Marine Parade Road
#22-06, Parkway Parade
Singapore 449269
SINGAPORE