**TRIMBLE R8 GNSS SYSTEM**

**THE INDUSTRY LEADING TOTAL GNSS SOLUTION**
The Trimble® R8 GNSS system has long set the bar for advanced GNSS surveying systems. Through advanced Trimble 360 tracking technology and a comprehensive set of communication options integrated into a flexible system design, this integrated GNSS system delivers industry-leading performance. For surveyors facing demanding RTK applications, the Trimble R8 is an invaluable GNSS partner.

**TRIMBLE 360 RECEIVER TECHNOLOGY**

**Future-proof your investment**
Powerful Trimble 360 receiver technology integrated in the Trimble R8 supports signals from all existing and planned GNSS constellations and augmentation systems providing unmatched GNSS tracking performance. With this leading-edge technology, it is now possible for surveyors to expand the reach of their GNSS rovers into areas that were previously too obscured, such as under trees and in dense urban areas.

With two integrated Trimble Maxwell™ 6 chips, the Trimble R8 offers an unparalleled 440 GNSS channels. Also capable of tracking carrier signals from a wide range of satellite systems, including GPS, GLONASS, Galileo, BeiDou (COMPASS), and QZSS, the Trimble R8 provides a robust solution for surveyors.

The CMRx communications protocol in the Trimble R8 provides unprecedented correction compression for optimized bandwidth and full utilization all of the satellites in view, giving you the most reliable positioning performance.

Designed with the future in mind, Trimble 360 technology is optimized to receive future planned signals as the number of available satellites continues to grow. With Trimble 360 technology, the Trimble R8 delivers business confidence with a sound GNSS investment for today and long into the future.

**FLEXIBLE SYSTEM DESIGN**
The Trimble R8 combines the most comprehensive feature set into an integrated and flexible system design for demanding surveying applications. Connect directly to the controller, receive RTK network corrections, and connect to the Internet via comprehensive communication options. With a built-in transmit/receive UHF radio, the Trimble R8 enables ultimate flexibility for rover or base operation. As a base station, the internal NTRIP caster provides you customized access to base station corrections via the Internet.

Trimble’s exclusive Web UI™ eliminates travel requirements for routine monitoring of base station receivers. Now you can assess the health and status of base receivers and perform remote configurations from the office. Likewise, you can download post-processing data through Web UI and save additional trips out to the field.

**AN INDUSTRY LEADING FIELD SOLUTION**

If you’re seeking the industry leading field solution, pair the Trimble R8 GNSS receiver with one of our powerful Trimble controllers, such as the Trimble TSC3, Trimble CU or Trimble Tablet Rugged PC featuring Trimble Access™ field software. These rugged controllers bring the power of the office to the field through an intuitive Windows-based interface.

Trimble Access field software offers numerous features and capabilities to streamline the flow of everyday surveying work. Streamlined workflows such as Roads, Monitoring, Mines, and Tunnels—guide crews through common project types and allows crews to get the job done faster with less distractions. Survey companies can also implement their unique workflows by taking advantage of the customization capabilities available in the Trimble Access Software Development Kit (SDK).

Need to get data back to the office immediately? Benefit from real-time data sharing via Trimble Access Services, now available with any valid Trimble Access maintenance agreement.

Back in the office, seamlessly transfer your field data using Trimble Business Center. Edit, process, and adjust collected data with confidence.

The Trimble R8 GNSS system—the industry leader for GNSS surveying applications.

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1. Cellular modem required.
**PERFORMANCE SPECIFICATIONS**

**Measurements:**
- Advanced Trimble Maxwell 6 Custom Survey GNSS chips with 440 channels
- Future-proof your investment with Trimble 360 tracking
- 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, L1C, L2C, L2E, L5
  - SBAS: L1C/A, L5 (for SBAS satellites that support L5)
  - Galileo: E1i, E5a, E5b
  - Beidou (COMPASS): B1, B2
- SBAS: QZSS, WAAS, EGNOS, GAGAN
- Positioning rates: 1 Hz, 2 Hz, 5 Hz, 10 Hz, and 20 Hz

**Initialization time** typically <8 seconds

**Initialization reliability** typically >99.9%

**Horizontal positioning performance**
- Single Baseline <30 km
  - 8 mm + 1 ppm RMS
  - 15 mm + 1 ppm RMS

**Vertical positioning performance**
- Single Baseline <30 km
  - 5 mm + 1 ppm RMS
  - 10 mm + 1 ppm RMS

**SBAS differential positioning accuracy**
- Typically <5 m 3DRMS

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- Typically <5 m 3DRMS

**Network RTK2**
- 8 mm + 0.5 ppm RMS
- 15 mm + 0.5 ppm RMS

**Initialization reliability** typically <8 seconds

**Temperature5**
- 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

**Waterproofing**
- IP67 dustproof, protected from temporary immersion to depth of 1 m (3.28 ft)

**Shock and vibration**
- Non-operating: Designed to survive a 2 m (6.6 ft) pole drop onto concrete
- Operating: to 40 G, 10 msec, sawtooth

**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, 2.6 Ah Lithium-ion battery. Power consumption is 3.2 W in RTK rover mode with internal radio and Bluetooth in use.
- Operating times on internal battery:
  - 450 MHz receive only option: 5.0 hours
  - 450 MHz receive/transmit option (0.5 W): 2.5 hours
  - Cellular receive option: 4.0 hours

**Communications and Data Storage**
- Serial: 3-wire serial (7-pin Lemo) on Port 1; full RS-232 serial on Port 2 (Dsub 9 pin)
- Radio modem: fully integrated, sealed internal 450 MHz receiver/transmitter option:
  - Transmit power: 0.5 W
  - Range: ≤3–5 km typical/10 km optimal
- Cellular: fully integrated, sealed internal GSM/GPRS/EDGE/UMTS/HSPA+ modem option. CSD (Circuit-Switched Data) and PSD (Packet-Switched Data) supported.
- Global Operation:
  - Penta-Band UMTS/HSPA+ (850/800, 900, 1900, and 2100 MHz)
  - Quad-Band GSM/EDGE (850, 900, 1800, and 1900 MHz)
  - Bluetooth: fully integrated, sealed 2.4 GHz communications port (Bluetooth®)

**Environmental standards:**
- Non-operating: Designed to survive a 2 m (6.6 ft) pole drop onto concrete
- Operating: to 40 G, 10 msec, sawtooth

**Data formats:**
- CMR: CMRx, CMRx input and outputs
- RTCM: RTCM 2.1, RTCM 2.3, RTCM 3.0, RTCM 3.1 input and outputs
- Other outputs: 23 NMEA outputs, GSOF, RT17 and RT27 outputs, supports BINEX and smooth carrier

**Web UI**
- Offers simple configuration, operation, status and data transfer
- Accessible via Serial and Bluetooth

**Supported Trimble Controllers**
- Trimble TSC3 controller, Trimble CU controller, Trimble Tablet Rugged PC

**Specifications subject to change without notice.**

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**HARDWARE**

**Physical**
- Dimensions (WxH): 19 cm × 10.4 cm (7.5 in × 4.1 in). Including connectors
- Weight: 1.52 kg (3.35 lb) with internal battery, 3.81 kg (8.40 lb) items above plus range pole, controller, and bracket
- Temperature:
  - Operating: -40°C to +65°C (-40°F to +149°F)
  - Storage: -40°C to +75°C (-40°F to +167°F)
- Humidity: 100%
- Waterproofing: IP67 dustproof, protected from temporary immersion to depth of 1 m (3.28 ft)
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**Certifications**
- FCC Part 15 (Class B device), Part 15.247 and Part 90; ICES-003, RSS-210 and RRS-119, CE Mark, C-Tick, Bluetooth EPL