

NETR9 GEOSPATIAL GNSS RECEIVER

KEY FEATURES

Cutting-edge **Trimble HD-GNSS** processing engine

Trimble CenterPoint RTX provides RTK level precision anywhere without the need for a base station or VRS network

Trimble xFill technology provides seamless RTK coverage during connection outages

Advanced satellite tracking with **Trimble 360** receiver technology

Convenient front panel display and configuration

Bluetooth®, Ethernet, Serial and USB support

Large capacity internal memory

Multiple data file formats

Powerful remote configuration and access

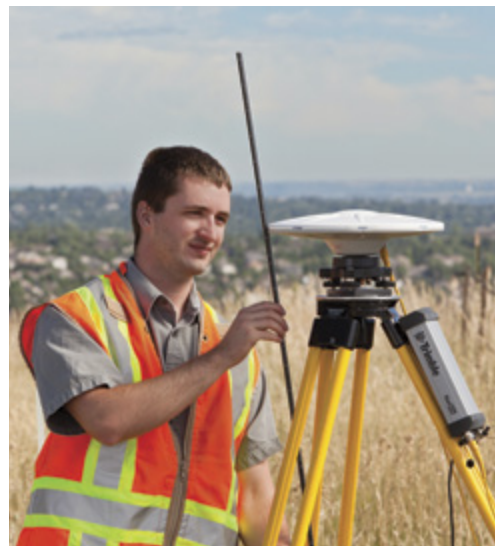
COMPREHENSIVE GNSS MODULARITY

The Trimble® NetR9 Geospatial is a GNSS receiver designed to provide Survey professionals with maximum features and flexibility. The Trimble technologies provided in the NetR9 Geospatial are a unique and comprehensive combination.

Trimble HD-GNSS technology, Trimble CenterPoint™ RTX, Trimble xFill™ and Trimble 360 are integrated into this receiver system to provide Surveyors with an outstanding option for their modular requirements.

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 CENTERPOINT RTX

Trimble CenterPoint RTX delivers RTK level precision anywhere in the world without the use of a local base station or Trimble 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 a base station or maintain connection to cell coverage.

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. In combination with a CenterPoint RTX subscription, survey level precisions are maintained for an infinite duration.

TRIMBLE 360 RECEIVER

Powerful Trimble 360 receiver technology in the Trimble NetR9 Geospatial supports signals from all existing and planned GNSS constellations and augmentation systems. With two integrated Trimble Maxwell™ 6 chips, the NetR9 Geospatial offers an unparalleled 440 GNSS channels. Trimble delivers business confidence with a sound GNSS investment for today and long into the future.

SMART FOR MANY APPLICATIONS

The Trimble NetR9 Geospatial receiver's compact form factor, low power consumption and powerful feature set make for an ideal combination supporting a wide range of high-accuracy positioning applications, including:

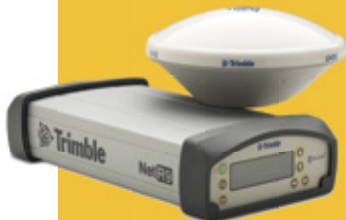
- RTK and RTX rover
- Mobile field base station
- Post Processed data collection

The familiar Trimble web user interface provides full receiver status, configuration, data access, as well as a variety of security levels and access controls.

For simple hands-on configuration, the Trimble NetR9 Geospatial receiver offers a seven-button, two line display and status information so that performing in-field configuration is practically effortless. Best of all, no handhelds are required to get data logging started.

The Trimble NetR9 Geospatial receiver has eight gigabytes of physical memory built into the circuit board, providing a high level of data protection.

The NetR9 Geospatial integrated lithium-ion battery that can provide up to 15 hours of continuous power, easily spanning one days work. With stringent environmental specifications, the Trimble NetR9 Geospatial is fully rugged to IP67 for dust and water and meets MIL-STD-810F standards for shock, vibration, humidity and temperature, to keep working even in harsh conditions.



NETR9 GEOSPATIAL GNSS RECEIVER

SATELLITE TRACKING

- Two advanced Trimble Maxwell 6 GNSS chipsets for a total of 440 channels
- Trimble EVEREST™ multipath signal rejection
- Trimble 360 receiver technology
- 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: L1 C/A, L2C, L2E (Trimble method for tracking unencrypted L2P), L5
 - GLONASS: L1 C/A and unencrypted P code, L2 C/A and unencrypted P code, L3 CDMA
 - Galileo: L1 CBOC, E5A, E5B, and E5AltBOC
 - Beidou (COMPASS): B1, B2
- CenterPoint RTX, OmniStar HP, XP, G2, VBS Positioning
- QZSS, WAAS, EGNOS, GAGAN
- Positioning Rates: 1 Hz, 2 Hz, 5 Hz, 10 Hz, and 20 Hz

POSITIONING PERFORMANCE¹

Code Differential GNSS Positioning

Horizontal	0.25 m + 1 ppm RMS
Vertical	0.50 m + 1 ppm RMS
SBAS differential positioning accuracy ²	typically <5 m 3DRMS

Static GNSS surveying

High Accuracy 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 ³	
Horizontal	8 mm + 0.5 ppm RMS
Vertical	15 mm + 0.5 ppm RMS
RTK start-up time for specified precisions ⁴	
Trimble CenterPoint RTX	2 to 8 seconds
Horizontal	
Vertical	4 cm
Vertical	
RTX convergence time for specified precisions ⁹	30 minutes or less
RTX QuickStart convergence time for specified precisions ⁹	5 minutes or less
Trimble xFill ⁵	
Horizontal	RTK ⁸ + 10 mm/minute RMS
Vertical	RTK ⁸ + 20 mm/minute RMS

1 Accuracy 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 accuracy static specification.

2 Depends on WAAS/EGNOS system performance

3 Network RTK PPM values are referenced to the closest physical base station.

4 May be affected by atmospheric conditions, signal multipath, obstructions and satellite geometry. Initialization reliability is continuously monitored to ensure highest quality.

5 Precisions are dependent on GNSS satellite availability. xFill positioning without a RTX subscription ends after 5 minutes of radio downtime. xFill positioning with a RTX subscription will continue beyond 5 minutes providing RTX has converged, with typical precisions not exceeding 6 cm horiz, 14 cm vert. xFill is not available in all regions, check with your local sales representative for more information.

6 Bluetooth type approvals are country specific. Contact your Trimble distribution partner for more information.

7 The internal battery will operate from -10° C to +55° C (-14° F to 131° F). The internal battery charger will operate from 0° C to +45° C (32° F to 113° F). All temperatures listed are ambient.

8 RTK refers to the last reported precision before the correction source was lost and xFill started.

9 Receiver convergence time varies based on GNSS constellation health, level of multipath, and proximity to obstructions such as large trees and buildings. Convergences times decrease significantly when using a "RTX Quickstart" on a previously surveyed point or a known survey control point.

HARDWARE

Physical

Dimensions (L x W x H)	26.5 cm x 13.0 cm x 5.5 cm (10.43 in x 5.12 in x 2.16 in)
Weight	1.75 kg (3.85 lb)
Ingress Protection	IP67 and MIL-STD-810F
Operating Temperature ⁷	-40° C to +65° C (-40° F to 149° F)
Storage temperature	-40° C to +80° C (-40° F to 176° F)
Humidity	100% condensing
Shock	Survival: Non-operating 75 g, 6 ms; Operating: to 25 g, 10 ms, sawtooth; designed to survive a 1 m drop onto hard surface
Vibration	Operating: 7.5 Hz to 350 Hz 0.015 g2/Hz; 350 Hz to 500 Hz 0.006 g2/Hz -6dB/Octave; Non-Operating: 10 Hz to 300 Hz 0.04 g2/Hz; 300 Hz to 1000 Hz -6 dB/Octave

ELECTRICAL

- Power over Ethernet (PoE) 802.3af; requires a Class 3 PoE supply
- 9.5 V DC to 28 V DC input on Lemo port
 - User-configurable power-on AND power-down voltage
- Operating Times on integrated internal battery 7.4 V, 7800 mA-hr, Li-Ion;
 - 15 hours of continuous operation, dependent on user settings
 - Internal battery will charge from external power source when input voltage is > 12 V DC
 - Power consumption 3.8 nominal, dependent on user settings
- Integrated charging circuitry

INPUT/OUTPUT FORMATS

- Correction Formats:
 - CMR, CMR+, CMRx, RTX, RTCM 2.1, RTCM 2.2, RTCM 2.3, RTCM 3.0, RTCM 3.1
- Observables:
 - RT17, RT27, RTCM 3.x
- Position/Status I/O:
 - NMEA-0183 v2.30, GSOF
- 1 PPS Output
- Event Input

COMMUNICATION AND DATA STORAGE

- Serial Ports
 - One D9 Male, EIA-574 RS-232/V.24 full 9 wire serial
 - One Lemo 7 pin Oshell, 3 wire serial with power input, 1 PPS output and event input
 - One Mini B USB 5 pin; supports Device and Host mode operations
 - Bluetooth⁶
 - Integrated 2.4 GHz Bluetooth; supports 3 simultaneous connections
 - Ethernet
 - Integrated RJ45 jack
 - Full-duplex, auto-negotiate 100 Base-T
 - Power over Ethernet (PoE) support with a Class 3 PoE supply
- | | |
|---------------------------------|---|
| Onboard Memory Storage Capacity | 8 GB |
| Maximum Logging Rate | 20 Hz |
| File durations | 5 minutes to continuous |
| File formats | T02, RINEX v2.xx, RINEX v3.xx, Google Earth KMZ |

CERTIFICATIONS

RoHS; China RoHS; FCC Part 15.247; Class B Device FCC Part 15 and ICES-003; RSS-310 and RSS-210 industry Canada; CE mark; C-Tick; UN ST/SG/AC.10.11/Rev 3 Amend 1 (Li-Ion battery); UN ST/SG/AC.10.27/Add.2 (Li-Ion battery); WEEE

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Specifications subject to change without notice.



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