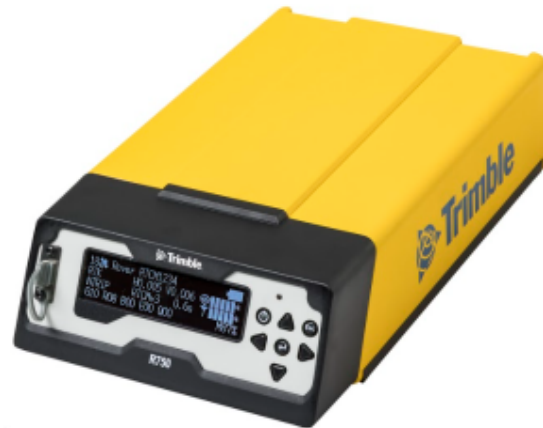


Specifications

Trimble R750 GNSS Modular Receiver



| | |
|--|---|
| Receiver Name | R750 GNSS Receiver |
| Configuration Option | Modular |
| Base and Rover interchangeability | Yes, upgradeable to Rover, Base or Rover and Base |
| Rover position update rate | 1 Hz, 2 Hz, 5 Hz, 10 Hz, 20Hz, 50Hz |
| Rover maximum range from base | Unrestricted |
| Rover operation within a VRS network | Yes |
| Heading and Moving Base operation | Yes |
| Factory options | GPS, GLONASS, Triple Frequency, Wi-Fi (AP, Client), LTE, Logging, Field Radio, Moving Base |
| Internal Memory | 9.25 GB logging |
| General | |
| Keyboard and display | Display 32 characters by 4 rows On/Off key for one-button startup Escape and Enter keys for menu navigation 4 arrow keys (up, down, left, right) for option scrolls and data entry |
| Dimensions (L x W x D) | 269 mm (10.6 in) L x 141 mm (5.5 in) W x 61 mm (2.4 in) H |
| Weight | 2.05 kg (4.52 lb) |
| GNSS Antenna (Recommended) | |
| Zephyr 3 or Zephyr™ Model 2 series [Base, Rover, Rugged, Geodetic] | Triple-frequency GNSS (GPS, GLONASS, Galileo, BeiDou, QZSS, NavIC) MSS, SBAS |
| GA830 | Triple-frequency GNSS (GLONASS, Galileo, BeiDou, QZSS), MSS, SBAS |
| Temperature | |
| Operating[1] | -40 °C to +65 °C (-40 °F to +149 °F) |
| Storage | -40 °C to +80 °C (-40 °F to +176 °F) |
| Humidity | 93% humidity at 40 °C for a duration of 3 hours (IEC-60945 Method 8.3) |
| Water Ingress Protection | IP67 for submersion to depth of 1 m (3.3 ft), dustproof |
| Shock and Vibration | |
| Pole drop | Designed to survive a 1.1 m (3.6 ft) pole drop onto a hard surface |
| Shock – Non-operating | To 75 g, 6 ms |

Specifications

Trimble R750 GNSS Modular Receiver

Shock – Operating To 40 g, 10 ms, saw-tooth

Vibration IEC 60945 Method 8.7
Random 6.2 g RMS operating
9.8g RMS 24-2000 Hz for 1 hrs each axis survival

Measurements

Advanced Trimble Maxwell™ 7 Custom GNSS Chip

High-precision multiple correlator for GNSS pseudorange measurements

Unfiltered, unsmoothed pseudo-range measurements data for low noise, low multipath error,
low-time domain correlation, and high-dynamic response

Very low noise carrier phase measurements with <1 mm precision
in a 1 Hz bandwidth

Trimble EVEREST™ multipath signal rejection

MSS Band (2-channels): Trimble CenterPoint® RTX correction service and
Omnistar®/Marinestar® by subscription

Trimble xFill® technology for short gaps in correction messages

Multi channel GNSS [336 channels]

GPS: L1 C/A, L1C, L2C, L5, L2E (Trimble method for tracking unencrypted L2P)

GLONASS: L1-C/A, L2-C/A, L1P, L2P, L3 Full Cycle Carrier

NavIC (IRNSS): L5-C/A

Upgradeable to Galileo: L1 CBOC, E5A, E5B & E5AltBOC[8]

Upgradeable to BeiDou: B1, B2, B3, B1C, B2A, B2B [Tracks 3rd generation BeiDou signals]

4-channel SBAS L1 C/A, L5 (WAAS/EGNOS/MSAS/GAGAN)

QZSS: L1 C/A, L1C, L1S, L2C, L5, L6

SBAS (WAAS/EGNOS/MSAS) Positioning[3]

Horizontal accuracy Horizontal ± 0.50 m (1.6 ft)

Vertical accuracy Vertical ± 0.85 m (2.8 ft)

Code Differential GPS Positioning[2]

Horizontal accuracy ±(0.25 m + 1 ppm) RMS ±(0.8 ft + 1 ppm)

Vertical accuracy ±(0.50 m + 1 ppm) RMS ±(1.6 ft + 1 ppm)

OmniSTAR Positioning

VBS service accuracy Horizontal <1 m (3.3 ft)

XP service accuracy Horizontal 0.2 m (0.66 ft), Vertical 0.3 m (1.0 ft)

HP service accuracy Horizontal 0.1 m (0.33 ft), Vertical 0.15 m (0.5 ft)

CenterPoint RTX Positioning[7]

Accuracy Horizontal 2 cm (0.06 ft) RMS, Vertical 5 cm (0.16 ft) RMS

Convergence time for specified precisions Near real-time in select regions, and within 5 minutes worldwide

xFill Positioning

xFill accuracy RTK + 10 mm(0.03 ft)/min Horiz. + 20 mm(0.06 ft)/min Vert. RMS

Location RTK Positioning

Horizontal accuracy Standard 30 cm + 1 ppm RMS (1 ft + 1 ppm)

Vertical accuracy Standard 30 cm + 1 ppm RMS (1 ft + 1 ppm)

Real-Time Kinematic Positioning[2]

Horizontal accuracy Precise Rover 8 mm + 1 ppm RMS (0.026 ft + 1 ppm RMS)

Specifications

Trimble R750 GNSS Modular Receiver

Vertical accuracy Precise Rover 15 mm + 1 ppm RMS (0.05 ft +1 ppm RMS)

Trimble VRS[6]

Horizontal accuracy 8 mm + 0.5 ppm RMS (0.026 ft +0.5 ppm)

Vertical accuracy 15 mm + 0.5 ppm RMS (0.05 ft +0.5 ppm)

Precise Heading

Heading accuracy Combined with another R750

2 m antenna separation 0.09° RMS

10 m antenna separation 0.05° RMS

High Precision Static

Horizontal accuracy 3 mm + 0.1 ppm RMS (0.01 ft +0.1 ppm)

Vertical accuracy 3.5 mm + 0.4 ppm RMS (0.011 ft +0.4 ppm)

Velocity

Doppler Horizontal accuracy H 0.008 m/s RMS

Doppler Vertical accuracy V 0.025 m/s RMS

Initialization Time

Regular RTK operation with base station Single/Multi-base typically less than 8 seconds

Initialization reliability[4] >99.9%

Power

Internal Integrated internal battery 7.26 V, 6700 mAh, Lithium-ion
Internal battery operates as a UPS during an ext power source failure
Internal battery will charge from USB-PD source or approved AC power supply
Integrated charging circuitry

External Power input on 7-pin 0-shell Lemo connector is optimized for lead acid batteries with a cut-off threshold of 11.5 V. Max 28 V DC
Power input on the 26-pin D-sub connector has a cut-off threshold of 10.5 V
Power supply will hot-swap between internal and external sources.
USB-PD input from device capable of 15V @ 2A
DC external power input with over-voltage protection
Receiver automatically turns on when connected to external power

Power over Ethernet (PoE) N/A

Power consumption 6.6 W in rover mode with internal receive radio
8.5 W in base mode with internal transmit radio

Operation Time on Internal Battery

Rover 7 hrs: CMRx over UHF
7 hrs: VRS/IBSS over LTE (Internal or Controller via BT)

Base station
450 MHz 5.5 hrs (0.5W), 4.8 hrs (2W): CMRx over UHF and LTE

900 MHz 6.2 hrs: CMRx over UHF and LTE

Adding a USB-PD Powerpack (30,000mAh) to a fully charged internal battery will provide ~13.9 hrs @11.4W for a 450MHz at 2W

Regulatory Approvals

Specifications

Trimble R750 GNSS Modular Receiver

[Country Compliance Notices](#)

https://receiverhelp.trimble.com/R750-gnss/ComplianceNotices_R750.html

Communications

| | |
|--------------------------------|--|
| Serial 1 (COM1) | 7-pin 0S Lemo, Serial 1, 3-wire RS-232 |
| Serial 2 (COM2) | 26-pin D-sub, Serial 2, 5-wire RS232, using adaptor cable (Selectable) 26-pin D-sub, Serial 2, 4-wire RS422, using adaptor cable (Selectable) |
| Serial 3 (COM3)/CAN | 26-pin D-sub, Serial 3, 3-wire RS232, using adaptor cable (Selectable) 2 wire CAN Output [NMEA 2000] (Selectable) |
| Serial 4 (COM4) | 26-pin D-sub, Serial 4, 4-wire RS422, using adaptor cable (Selectable) |
| 1PPS (1 Pulse-per-second) | Supported on both Lemo and 26-pin D-sub |
| Event In | Supported on Lemo |
| USB | USB v2 (Supports USB-PD charging) |
| Ethernet | Through a multi-port adaptor (PN 57168) |
| Wi-Fi | Fully-integrated, fully-sealed 2.4 GHz Wi-Fi module Simultaneous Access Point (AP) and Client modes |
| Bluetooth® wireless technology | Fully-integrated, fully-sealed 2.4 GHz Bluetooth module[5] |
| Cellular | Fully-integrated, fully-sealed LTE compliant module Bands 1:2:3:4:5:7:8:12:18:19:20:28 [Verizon not supported] |

Network Protocols

| | |
|-----------------------------|--|
| HTTP (web browser GUI) | HTTP, HTTPS |
| NTP Server | Yes |
| TCP/IP or UDP | Yes |
| NTRIP | NTRIP v1 and v2, Client, Server and Caster modes |
| mDNS/uPnP Service discovery | Yes |
| Dynamic DNS | Yes |
| eMail alerts | Yes |

Integrated UHF radio

| | |
|-----------------------------------|--|
| 450 MHz | Fully-integrated, internal 403-473 MHz, 12.5 kHz or 25 kHz spacing configurable by Trimble |
| Sensitivity | -114 dBm (12 dB SINAD) |
| Transmit power (450 MHz) | 0.5 W, 2.0 W (2.0 W available only in certain countries) |
| 900 MHz | Fully-integrated, internal 900 MHz; Tx/Rx [1.0 W] |
| Frequency approvals (902-928 MHz) | USA/Canada/Australia/NZ |

Cellular support

| | |
|--|---|
| Internet-based correction streams: (IBSS, VRS, NTRIP) | Internal LTE modem Connected smartphone Connected Trimble Controller [SiteWorks, Trimble Access™] |
| Carriers | Bands 1:2:3:4:5:7:8:12:18:19:20:28 [Verizon not supported] |
| Remote Access | Using DynDNS and appropriate service |

Input/Output

| | |
|--------------------|---|
| Correction inputs | CMR, CMR+, CMRx, RTCM 2.x, RTCM 3, RTCM 3.3(MSM) |
| Correction outputs | RTCM 2.x (Standard), CMR, CMR+, CMRx, RTCM 3, RTCM 3.3(MSM) (with Precise Base upgrade) |
| Data outputs | NMEA 0183, NMEA 2000, GSOFF, 1PPS Time Tags |

Specifications

Trimble R750 GNSS Modular Receiver

| | |
|---------------------------------|---|
| Data inputs | Event |
| Maximum data rate | 50Hz (depending on data type) |
| Features and Upgrades | |
| Standard features [8] | GPS, GLONASS, Triple Frequency, Wi-Fi (AP, Client), LTE, Logging, DGNSS Base, Field Radio, Moving Base |
| Raw data logging (*.T02, *.T04) | 9.25 GB Internal |
| Precision upgrades | Precise Base, Precise Rover Premium Precise Base, Premium Precise Rover |
| Signal / Constellation upgrades | GALILEO, BeiDou |
| Feature upgrades | Programmatic Interface, Binary Outputs 2 Watt upgrade for 450 MHz radio [Free via Virtual Warehouse] |

Notes

- 1 Operating up to +65 °C ambient when the device is powered by external DC supply and the battery is fully charged or is not being charged.
Operating up to +30 °C ambient when the battery is being charged by an external DC supply
Operating up to +48 °C ambient when the device is powered by a USB-PD battery or charger.*
- 2 Accuracy and reliability may be subject to anomalies such as multipath, obstructions, satellite geometry, interference and atmospheric conditions. Always follow recommended survey practices.*
- 3 Depends on SBAS system performance.*
- 4 May be affected by atmospheric conditions, signal multipath, and satellite geometry. Initialization reliability is continuously monitored to ensure highest quality.*
- 5 Bluetooth type approvals are country specific. For more information, contact your local Trimble office or representative.*
- 6 Networked RTK PPM values are referenced to the closest physical base station*
- 7 Receiver accuracy and convergence time varies based on GNSS constellation health, level of multipath, and proximity to obstructions such as large trees and buildings.*
- 8 Standard options are dependent on country compliance for WiFi and LTE*

Specifications subject to change without notice.

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Trimble Civil Engineering and Construction Division

10368 Westmoor Drive
Westminster, Colorado 80021
USA
800-361-1249 (Toll Free)
+1-937-245-5154 Phone

www.trimble.com

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