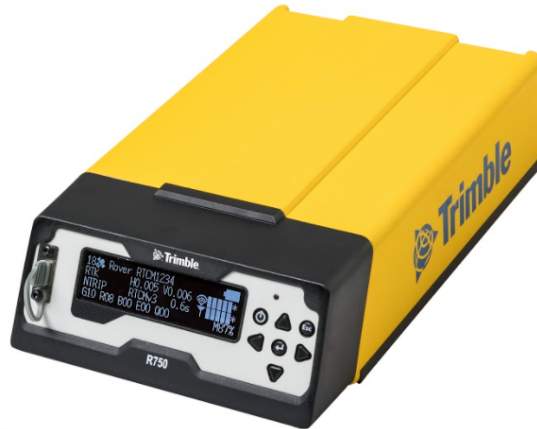


Specifications

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] GA830	Triple-frequency GNSS (GPS, GLONASS, Galileo, BeiDou, QZSS, NavIC) MSS, SBAS 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
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

Specifications

Trimble R750 GNSS Modular Receiver

Multi channel GNSS
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, E6[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, L1 SAIF, 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 $\pm(0.25$ m + 1 ppm) RMS $\pm(0.8$ ft + 1 ppm)

Vertical accuracy $\pm(0.50$ m + 1 ppm) RMS $\pm(1.6$ 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 5 minutes in select regions, and within 30 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)

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 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

Specifications

Trimble R750 GNSS Modular Receiver

Power supply will hot-swap between internal and external sources.

USB-PD 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

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

Regulatory Approvals

FCC: Part 15 Subpart B (Class B Device),

Subpart C Section 15.247,

Part 90,

Part 22/24/27,

Part 2, KDB 447498 D01, IEEE C95.3,

UL IEC 62368-1, IEC 60950-1, EN38.3, IEC 62311, UL 2054,

PTCRB,

BT SIG

Canada: ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

RSS-GEN, RS-102, RSS-247, RSS-130/132/133/139/199.

Cet appareil est conforme à la norme CNR-GEN, CNR-102, CNR-247, CNR-130/132/133/139 et CNR-199 du Canada.

EU: Radio Directive (RED 2014/53/EU),

EN 300 113, EN 300 328, EN 301 908,

EN 303 413,

EN IEC 62368-1,

RoHS Directive 2011/65/EU,

WEEE Directive 2012/19/EU.

UKCA: S.I. 2017 No. 1206, S.I. 2016 No. 1091, S.I. 2016 No. 1101.

ACMA: AS/NZS 4268, AS/NZS CISPR 32

Japan MIC

More certification information is available upon request

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

Supports SSL/TLS secure Email Servers

Specifications

Trimble R750 GNSS Modular Receiver

Integrated UHF radio

900 MHz Fully-integrated, internal 900 MHz; Tx/Rx [1.0 W]
Frequency approvals (902-928 MHz) USA/Canada

Cellular support

Internet-based correction streams: Internal LTE modem
(Trimble IBSS, Trimble VRS Now, NTRIP) Connected smartphone
Carriers Connected Trimble Controller [SiteWorks, Trimble Access™]
Remote Access Bands 1:2:3:4:5:7:8:12:18:19:20:28 [Verizon not supported]
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+, CMRx, RTCM 3, RTCM 3.3(MSM) (with Precise Base upgrade)
Data outputs NMEA 0183, NMEA 2000, GSOF, 1PPS Time Tags
Data inputs Event
Maximum data rate 50Hz (depending on data type)

Features and Upgrades

Standard features GPS, GLONASS, Triple Frequency, Wi-Fi (AP, Client), LTE, Logging, DGNSS Base, Field Radio
Raw data logging (*.T02, *.T04) 9.25 GB Internal
Precision upgrades Premium Precise Base, Precise Base
Premium Precise Rover, Precise Rover, 10/2 Rover, 10/10 Rover
Signal / Constellation upgrades GALILEO, BeiDou
Feature upgrades Programmatic Interface, Binary Outputs, Moving Base (included in Rover upgrades)

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
- 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 Galileo Commercial Authorization
Developed under a Licence of the European Union and the European Space Agency.

Specifications subject to change without notice.

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