



# Trimble R2

## GNSS RECEIVER

### VERSATILITY IN THE FIELD. FLEXIBILITY FOR YOUR WORKFLOW.

Work the way you want with the Trimble® R2 GNSS receiver. Using trusted Trimble technology the R2 receiver gives you the freedom to configure a solution by simply selecting the accuracy and GNSS performance to suit your application. Capable of achieving submeter to centimeter level positioning accuracy the Trimble R2 is the answer to keep you working productively in a wide range of geospatial applications, no matter what your workflow requirements are.

Whether you are performing pole-based stakeouts, surveying on roads, in mines or on construction sites, locating buried assets such as pipes and cables, capturing GIS field assets, or carrying out precision survey measurements, the versatile Trimble R2 is purpose-built for surveyors and mapping and GIS professionals alike.

Simple to setup and easy-to-use, the Trimble R2 pairs with any Trimble handheld, Trimble Access™ controller, or consumer-grade smart device across a variety of operating systems and platforms, to deliver reliable, high quality real-time data every time.

#### A Simple, Rugged System for Everyday Needs

Built to withstand the rigors in the field, the rugged IP65-rated Trimble R2 receiver will work as hard as you do in tough outdoor conditions. Its one-button start up and compact, streamlined form factor makes it fast to set up and can be operated either mounted on a pole, on a backpack or on a vehicle. The field-swappable battery means all day productivity with no interruptions, keeping you focused on the job at hand.

### Technology to Keep you Productive

The Trimble R2 is capable of tracking the full range of GNSS satellite constellations and augmentation systems, and comes with an integrated Trimble Maxwell™ 6 chip and 220 channels to provide you with reliable accuracy and positioning performance. Achieve higher accuracy in real-time with the flexibility to choose correction sources from traditional RTK, VRS networks, to Trimble RTX™ correction services delivered by both satellite and Internet/cellular.

Trimble has evolved its Floodlight™ satellite shadow reduction technology to ensure the R2 receiver is able to provide reliable, accurate data even in difficult GNSS environments. Equipped with this advanced GNSS technology, you can achieve remarkable improvements to position availability and accuracy when heavy overhead cover, such as tree canopy and buildings, obstruct satellite signals, making even tough GIS workflows easier.

### A Complete Solution

Connect the Trimble R2 receiver to your preferred controller or mobile device via a wireless Bluetooth® connection and add proven Trimble field and office software workflows to complete the solution. Data can be collected with the customizable workflows of Trimble field software such as Trimble Access or Trimble TerraFlex™ software that allow your teams to easily collect and communicate information between the field and office in real-time. Collected data can then be processed with Trimble office software, including Trimble Business Center or TerraFlex, providing you with data rich, high-quality deliverables for your organization.

For a simple, configurable, field-to-office solution, the innovative and flexible Trimble R2 GNSS receiver enables you to work accurately and productively your way.

## Key Features

- ▶ A professional solution for geospatial applications ranging from sub-meter to centimeter accuracies to support any GIS or survey-grade workflow
- ▶ Easily collect data by pairing with devices such as smartphones, tablets or Trimble handhelds using Trimble Survey and GIS software
- ▶ Fast to setup, easy to use, keeping you productive and focused at your task at hand
- ▶ Supports multiple satellite constellations and correction sources for accurate data at any location
- ▶ Compact, cable-free design with integrated antenna



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## CONFIGURATION OPTION

Type	Smart antenna
Base operation	Yes. Logging only.
Rover operation	Yes
Rover position update rate	1 Hz, 2 Hz, 5 Hz
Rover operation within a VRS Now™ network	Yes

## MEASUREMENTS

- Advanced Trimble Maxwell 6 custom GNSS chip
- High-precision multiple correlator for L1/L2 pseudo-range 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
- Signal-to-noise ratios reported in dB-Hz
- Trimble EVEREST™ multipath signal rejection
- Proven Trimble low elevation tracking technology
- 220-channel GNSS
- 4-channel SBAS (WAAS/EGNOS/MSAS/GAGAN)

## POSITIONING PERFORMANCE

**SBAS (WAAS/EGNOS/MSAS/GAGAN) Positioning<sup>1</sup>**

Horizontal accuracy	±0.50 m (1.6 ft)
Vertical accuracy	±0.85 m (2.8 ft)

### Code Differential GPS Positioning<sup>2</sup>

Correction type	DGPS RTCM 2.x
Correction source	IBSS
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)

### Static GNSS Positioning

Static and Fast Static	
Horizontal	3 mm + 0.5 ppm RMS
Vertical	5 mm + 0.5 ppm RMS

### Post-Processed Kinematic<sup>2</sup> Centimeter / Decimeter Configurations

Horizontal accuracy	10 mm + 1 ppm RMS (0.033 ft + 1 ppm RMS)
Vertical accuracy	20 mm + 1 ppm RMS (0.065 ft + 1 ppm RMS)

### Post-Processed Kinematic Sub-meter Configurations<sup>2</sup>

Horizontal accuracy (baselines up to 30 km)	1 cm + 1 ppm RMS
Vertical accuracy (baselines up to 30 km)	2 cm + 1 ppm RMS
Horizontal accuracy (baselines over 30 km)	50 cm + 1 ppm RMS

### Trimble RTX Positioning<sup>3,4</sup>

CenterPoint™ RTX	
Horizontal accuracy	2 cm RMS
Vertical accuracy	5 cm RMS
FieldPoint RTX™	
Horizontal accuracy	10 cm Horizontal RMS
RangePoint™ RTX	
Horizontal accuracy	30 cm Horizontal RMS
ViewPoint RTX™	
Horizontal accuracy	50 cm Horizontal RMS

### RTK Positioning<sup>2</sup>

Horizontal accuracy	10 mm + 1 ppm RMS (0.033 ft + 1 ppm RMS)
Vertical accuracy	20 mm + 1 ppm RMS (0.065 ft + 1 ppm RMS)

### Network RTK<sup>2</sup>

Horizontal accuracy	10 mm + 0.5 ppm RMS (0.033 ft + 0.5 ppm RMS)
Vertical accuracy	20 mm + 0.5 ppm RMS (0.065 ft + 0.5 ppm RMS)

## BATTERY AND POWER

Internal	Replaceable internal battery 74 V, 2800 mA-hr, Lithium-ion
External	Power input on the Mini-B USB connector, non-charging as per the USB standard 10 W USB adapter
Power consumption	4.95 W (VFD 100%), 3.7 W (VFD 12.5%) at 18 V, in rover mode
Operation time on internal battery	
Rover	5 hours; varies with temperature

## MECHANICAL

User interface	LED indicators for receiver status On/Off key for one-button startup
Dimensions	14.0 cm (5.5 in) diameter x 11.4 cm (4.5 in) height
Weight	1.08 kg (2.38 lb) receiver only

## ENVIRONMENTAL

Temperature	
Operating <sup>7</sup>	-20 °C to +55 °C (-4 °F to +131 °F)
Storage	-40 °C to +75 °C (-40 °F to +167 °F)
Humidity	100% condensing
Waterproof	IP65
Pole drop	Designed to survive a 2 m (6.6 ft) drop onto all faces and corners onto concrete (25C)

## Shock

Non-operating	To 75 g, 6 ms, saw-tooth
Operating	To 40 g, 10 ms, saw-tooth 100 shock events at 2 Hz rate

Vibration ..... MIL-STD-810G (Operating), Method 514.6, Procedure I, Category 4, Figure 514.6C-1 (Common Carrier, US Highway Truck Vibration Exposure) Total Grms levels applied are 1.95 g

## INTERNAL ANTENNA

Frequency Range	L1/L2 (GPS, GLONASS, Galileo, BeiDou, QZSS), MSS (RTX), L1 SBAS
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## COMMUNICATIONS

USB	1 USB 2.0 (Type B) device
Wi-Fi	Simultaneous client and access point (AP) modes
Bluetooth wireless technology	Fully-integrated, fully-sealed 2.4 GHz Bluetooth module <sup>5</sup>
Network protocols..... HTTP (web browser GUI); NTP Server, TCP/IP or UDP; NTRIP v1 and v2, Client mode; mDNS/uPnP service discovery; dynamic DNS; eMail alerts; network link to Google Earth; PPP and PPPoE	
Supported data formats	
Correction inputs	CMR, CMR+™, CMRx, RTCM 2.x, RTCM 3.0, RTCM 3.1, RTCM 3.2
Correction outputs	None
Data outputs	NMEA, GSOE
External GSM/GPRS modem, cell phone support	
Integrated receiving radio (optional) ..... Integrated 450 MHz UHF Radio	
Channel spacing (450 MHz)	12.5 and 25 kHz
Sensitivity (450 MHz)	-103 dBm, GMSK 9600 baud 25kHz channel spacing
Data storage	48 MB internal memory <sup>6</sup>

## CERTIFICATIONS

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


"Made for iPhone" and "Made for iPad" mean that an electronic accessory has been designed to connect specifically to iPhone or iPad respectively, and has been certified by the developer to meet Apple performance standards. Apple is not responsible for the operation of this device or its compliance with safety and regulatory standards. Please note that the use of this accessory with iPhone or iPad may affect wireless performance.

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- Depends on SBAS system performance.
- Accuracy and reliability may be subject to anomalies such as multipath, obstructions, satellite geometry, interference and atmospheric conditions. Always follow recommended practices. Specified R2 Centimeter/Decimeter carrier (post-processed) accuracy can normally be achieved for baseline lengths of 100 km or less. Carrier post-processing accuracy requires at least 2 minutes of carrier data.
- CenterPoint RTX accuracy is typically achieved within 5 minutes in select regions, and within 30 minutes worldwide. FieldPoint RTX accuracy is typically achieved within 5 minutes in select regions, and within 15 minutes worldwide. RangePoint RTX and ViewPoint RTX accuracy is typically achieved within 5 minutes worldwide.
- Receiver accuracy and convergence time varies based on GNSS constellation health, level of multipath, and proximity to obstructions such as large trees and buildings.
- Bluetooth type approvals are country-specific. For more information, contact your local Trimble office or representative.
- The actual available capacity of the internal memory is less than the specified capacity because the firmware occupies part of the memory. The available capacity may change when you upgrade receiver firmware.
- Receiver will operate normally to -20 °C, internal batteries are rated from -20 °C to +60 °C (ambient +50 °C).

Specifications subject to change without notice.





**Vectors Inc.**  
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Contact your local Trimble Authorized Distribution Partner for more information

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