



Alloy

GNSS Reference Receiver

The Future of GNSS is here

The Trimble® Alloy GNSS receiver offers powerful performance with the latest GNSS technology in a sleek new design that is easy and intuitive to use. Whether you need GNSS for campaign work or in permanent installations, the flexible configuration delivers reliable, robust data when and where you need it.

Modernized GNSS Tracking

Using powerful Trimble 360 receiver technology in combination with dual Trimble Maxwell™ 7 chipsets, the Alloy GNSS receiver supports all known and planned GNSS constellations, ensuring your GNSS data is robust and reliable including GPS Block IIIA and BeiDou Generation III.

Intelligent Design

Review Key Info at a Glance

With a four-line angled display you can read all important information such as satellite tracking, position solution type, data logging, IP address, Wi-Fi, firmware information and battery status right on the home screen. Setup and verifying status information is now quick and easy.

Plug in and get to work

Multiple ports are easily accessible without the need for adapters in a configuration that makes it simple to plug in a variety of external sensors and antennas.

Power when you need it

The Alloy receiver provides the most robust power options for any GNSS system. Featuring multiple power inputs with dual hot-swappable batteries, power over Ethernet, and advanced power management features, the Trimble Alloy GNSS receiver is ideal for any GNSS base station deployment.

Stackable Design

With a versatile, stackable design the Alloy GNSS receiver is built with a lightweight rugged aluminum alloy chassis which features IP68 certification. When you need to organize multiple units for deployment, simply stack and prep.

Benefits

- Dual Trimble Maxwell 7 chipsets combined with a powerful processor provides the ultimate in tracking and processing power
- Ethernet and Wi-Fi support provide ease of access, configuration, and transfer of data. Using the built-in web interface gives instant access to a simple-to-use configuration suite
- Dual hot-swappable internal batteries with integrated charging makes the Alloy receiver suitable for use in the office or remote locations, and anywhere in between
- The intelligent design features multiple connectors and stackable housing, making the Alloy receiver easy to configure for deployment
- Seamless integration to Trimble Pivot™ platform software for easy Real-Time Network operations
- Designed to an IP68 certification the Alloy receiver is ready for any environment
- Includes firmware for life so it's easy to keep your Alloy reference receiver up-to-date with the latest features, enhancements and security updates, free to install from alloy.trimble.com





Alloy

GNSS Reference Receiver



Security 24/7

Using Trimble Sentry™ technology, you can easily configure alerts that will automatically inform you of any changes to the position, data logging, configuration, tracking, power, communications, and system access events. Combined with advanced security measures such as anti-spoofing, Trimble Sentry technology ensures continued operation of your Trimble Alloy GNSS receiver.

Trimble RTX on Board

The Alloy GNSS receiver is available with Trimble RTX™ advanced positioning technology allowing for rapid real-time network coordination. Whether this is for base station deployment or monitoring, Trimble RTX technology remains locked onto your real world absolute position.

Communication

The Trimble Alloy GNSS receiver supports a wide range of communication protocols including Ethernet (IPv4 / IPv6), Bluetooth®, and Wi-Fi for flexible easy access via the built-in multi-language web interface and mini-web interface for mobile devices.

Data

Storage

The Alloy GNSS receiver can store more data in less space by using specialized compression formats. Up to twelve independent high-rate data logging sessions can be stored internally. USB compatibility ensures data portability with external data transfer and temporary external storage.

Access

Leveraging advanced communication protocols, data can be accessed via the web interface, built-in FTP server, or configured to be pushed to remote FTP sites or email accounts in multiple industry formats.

SPECIFICATIONS¹

GNSS TECHNOLOGY

Trimble RTX worldwide corrections

Advanced Trimble dual Maxwell 7 GNSS chipset provide 672 channels for simultaneous satellite tracking and anti-spoofing capabilities

Trimble ProPoint[®] GNSS positioning engine. Engineered for improved accuracy and productivity in challenging GNSS conditions.

Trimble EVEREST[™] Plus multipath signal rejection

Trimble 360 receiver technology

High-precision multiple correlator for GNSS pseudorange measurements

Spectrum Analyzer to troubleshoot GNSS jamming

Trimble Sentry delivers anti-spoofing security

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

SATELLITE TRACKING

GPS: L1C, L1 C/A, L2E (L2P), L2C, L5

GLONASS: L1 C/A² and unencrypted P code, L2 C/A and unencrypted P code, L3 CDMA

Galileo: E1, E5A, E5B and E5AltBOC, E6

BeiDou: B1, B2, B3, B1C, B2A, B2B

QZSS: L1 C/A, L1C, L1S, L2C, L5, LEX/L6³

IRNSS: L5, S-Band

SBAS: L1 C/A (EGNOS/MSAS GAGAN/SDCM), L1 C/A and L5 (WAAS)

L-Band: Trimble RTX

INPUT/OUTPUT FORMATS

Correction formats: CMR, CMR+, CMRx, GAGAN, RTX, RTCM 2.x, RTCM 3.x

Observables: RT17, RT27, BINEX, RTCM 3.x

Position/Status I/O: NMEA-0183 v2.30, GSOF

Up to 100 Hz output

10 MHz external frequency input

Normal input level 0 to +13 dBm

Maximum input level +17 dBm, ±35 V DC

Input impedance 50 Ohms @ 10 MHz; DC blocked

1 PPS output

Event input

Met/Tilt sensor support

POSITIONING PERFORMANCE

Differential positioning

Code differential GNSS positioning ⁴	Horizontal	0.25 m + 1 ppm RMS
	Vertical	0.50 m + 1 ppm RMS
SBAS differential positioning accuracy ⁵	Horizontal	0.50 m RMS
	Vertical	0.85 m RMS

Static GNSS surveying⁴

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 surveying⁴

Single baseline < 30km	Horizontal	8 mm + 1 ppm RMS
	Vertical	15 mm + 1 ppm RMS
Networked RTK ⁶	Horizontal	8 mm + 0.5 ppm RMS
	Vertical	15 mm + 0.5 ppm RMS

Initialization time typically < 10 seconds

Initialization reliability typically > 99.9%

SPECIFICATIONS¹

COMMUNICATION

Serial Ports:	Two 9-pin Male
	Two 7-pin Lemo
USB: one Mini-B USB 5-pin / RDNIS (Device and Host modes)	
Ethernet: one RJ45 (Full-duplex, auto-negotiate 100Base-T)	HTTP, HTTPS, TCP/IP, IPv4 / IPv6, UDP, FTP, NTRIP Caster, NTRIP Server, NTRIP Client, Proxy server
	Routing table, NTP Server, NTP Client support
	Email Alerts and File Push
	DNS client support
	SNMP Agent
Wi-Fi: 802.11 b/g, access point and client mode, WPA/WPA2/WEP64/WEP128 encryption	
Bluetooth ⁷ : Integrated 2.4 GHz Bluetooth; supports three simultaneous connections	

DATA LOGGING

Storage capacity:	Onboard Memory (Journaling)	up to 24 GB ⁸
Maximum data logging rate	100 Hz	
Maximum combined data logging rate	188 Hz	
File durations	1 minute to continuous	
Storage sessions	12 concurrent independent sessions with dedicated memory pooling	
File formats	T02, T04, BINEX, RINEX v2.x/3.0x, Google Earth KML/KMZ	
File naming conventions	Multiple	
Data retrieval and transfer	HTTP, FTP Server, USB	
Events	Definable file protection on events	

PHYSICAL SPECIFICATIONS

Alloy receiver dimensions (L x W x H)	20.98 cm x 21.36 cm x 7.62 cm (8.41 in x 8.26 in x 3 in)	
Alloy receiver dimensions with brackets attached (L x W x H)	26.77 cm x 21.36 cm x 8.3 cm (8.41 in x 10.54 in x 3.27 in)	
Weight	2.34 kg (5.17 lbs)	

ENVIRONMENT

Operating temperature ^{9,10}	-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	Operating	40 g per MIL-STD-810G Table 5.16.6-VII
	Non operating	75 g per MIL-STD-810G Table 5.16.6-VII Designed to survive 1 m bench drop
Vibration	Operating	MIL-STD-810G Fig. 5.14.6C-1 Category 4
	Ingress protection	IP68 Certified per IEC-60529 - waterproof/dustproof (1 m submersion for 1 hr)

USER INTERFACE

Front panel display	4-line x 32 character reversible OLED display
	7 button input configuration
	Adjustable LED backlighting
Multiple language support for front panel and web UI – Chinese, Dutch, English, Finnish, French, German, Italian, Japanese, Norwegian, Polish, Portuguese, Russian, Spanish, Swedish	
Web user interface: Allows remote configuration, data retrieval, and firmware updates over HTTPS/HTTP	

ANTENNA SUPPORT

Output voltage	5 V DC nominal
Maximum output current	150 mA
Maximum cable loss	12 dB
Recommended antennas	Trimble Zephyr™ 3 Geodetic, Trimble GNSS-Ti v2 Choke Ring



GNSS Reference Receiver

SPECIFICATIONS¹

SECURITY

HTTP login

HTTPS/SSL

Programmatic interface authentication

NTRIP

IP filtering

ELECTRICAL

Power over Ethernet (PoE) 802.3af (Type 1), 802.at (Type 2)

10.8 to 28.0 V DC input on 2 Lemo ports

User-configurable power-on voltage

User-configurable power-down voltage

User-configurable 12 V DC power output on serial port #2

Integrated dual hot-swappable smart batteries (7.4 V, 7800 mA-hr, Li-Ion batteries) with up to 15 hours of continuous operation

Seamless switching between external/internal power sources

Configurable minimum input voltage for battery charging

Integrated battery charging circuitry

Power consumption – 3.8 W or higher, dependent on user settings

REGULATORY COMPLIANCE

FCC Part 15 (Class B device), CISPR 32, 24

RED CE Mark

RCM

UN 38.3 – ST/SG/AC.10/27/Add.2 Rev.5 (Li-Ion battery)

IEC 62133(Ed.2) and EN 62133: 2013 (Li-Ion battery)

RoHS, China RoHS, WEEE

¹ Specifications subject to change without notice.

² L2 C/A on GLONASS-M satellites.

³ LEX/L6 supported on QZSS Block I satellites.

⁴ Accuracy may be subject to degradation by multipath interference, obstructions, satellite geometry and atmospheric conditions. Always follow recommended survey practices.

⁵ Depends on WAAS/EGNOS system performance.

⁶ Networked RTK PPM values are reference to the closest physical base station.

⁷ Bluetooth type approvals are country specific.

⁸ Trimble's highly efficient T02 data logging format makes this equivalent to 32 GB to 55 GB for competitive receivers.

⁹ Operating temperature when connected to external DC supply. To protect the removable Li-Ion batteries from extreme temperatures, the battery charger only operates from 5 °C to 35 °C (41 °F to 95 °F).

¹⁰ If operated only with batteries and no external DC supply, operating temperature is -20 °C to +55 °C (-4 °F to +131 °F).

Contact your local Trimble Authorized Distribution Partner for more information

NORTH AMERICA

Trimble Inc.
10368 Westmoor Dr
Westminster CO 80021
USA

EUROPE

Trimble Germany GmbH
Am Prime Parc 11
65479 Raunheim
GERMANY

ASIA-PACIFIC

Trimble Navigation
Singapore PTE Limited
3 HarbourFront Place
#13-02 HarbourFront Tower Two
Singapore 099254
SINGAPORE