

GPS Receiver Comparisons

	Trimble Geo 7X Centimeter	Trimble ProXRT	Trimble Pro6H	Trimble Pro6T	Trimble Geo 7X	Trimble Juno 5	Trimble Juno3	Trimble Nomad 1050	Trimble Ranger 3	Trimble Yuma 2
Post- Processed Accuracy ³	1cm ¹¹ + 1 ppm	10–50 cm + 1ppm	10–50 cm+1ppm	50 cm + 1ppm	10–50 cm + 1ppm	2–4m ²	1–3 m ² + 1 ppm	1–3 m	N/A ¹	2–4 m
Real-Time DGPS Capable ⁴	SBAS ⁵ or External Source	SBAS , External Source, Omnistar [®]	SBAS or External Source	SBAS or External Source	SBAS ⁵ or External Source	SBAS	SBAS	SBAS	SBAS	SBAS
Real-time Accuracy ³	1 cm ¹¹ + 1 ppm	10 cm –1 m	10 cm –1 m	75 cm to 1 m	10–1 m	2–4 m ⁷ (1–2 m Enhanced version) ⁵	2–5 m ⁷	2–4 m ⁷	2–4 m	2–4 m ⁷ (1–2 m Enhanced version) ⁵
EVEREST™ multipath rejection technology	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO
GLONASS tracking	YES	Optional	YES	Optional	YES	NO	NO	NO	NO	NO
Floodlight ⁸ Technology	YES	NO	YES	Optional	YES	NO	NO	NO	NO	NO
H-Star™ Technology	YES	YES	YES	NO	Optional	NO	NO	NO	NO	NO
RTX Correction ¹⁶	CenterPoint [®]	NO	NO	NO	FieldPoint, RangePoint™ (H-Star Option) and ViewPoint™	NO	NO	NO	NO	NO
Galileo & BeiDou tracking ¹⁵	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO
Channels	220, GPS: L1C/A, L2C,L2E GLONASS: L1C/A, L1P, L2C/A, L2P	220, GPS: L1 code and carrier,SBAS, Omnistar [®]	220, GPS: L1C/A, L2C, L2E GLONASS: L1C/A, L1P, L2C/A, L2P	220, GPS: L1C/A GLONASS: L1C/A, L1P	220, GPS: L1 code and carrier, SBAS GLONASS: L1C/A, L1P	50, GPS:L1 code and carrier only	12,GPS: L1 code	50, GPS:L1 code and carrier only	NO	50,GPS: L1 code and carrier, 6 only, SBAS
External Antenna	YES, Zephyr Model 2 recommended for highest accuracy	Standard	Optional	Optional	Optional	Optional	Optional	NO	NO	Optional
Internal Antenna	Standard	NO	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Trimble [®] Supported Software ¹⁷	Terrasync Centimeter Edition v5.60 or later ¹³ and TerraFlex	TerraSync, GPSCorrect, Positions	TerraSync, TerraFlex, GPSCorrect, Positions	TerraSync, TerraFlex, GPSCorrect, Positions	TerraSync, TerraFlex, Positions, Field Inspector	Terrasync, TerraFlex, Positions, Field Inspector	TerraSync, TerraFlex, GPSCorrect, Positions, Field Inspector	TerraSync, TerraFlex, Positions, Field Inspector		TerraSync, TerraFlex, Positions,
Esri [®] Supported Software		ArcPad, ArcGIS Mobile	ArcPad ¹⁴ , ArcGIS Mobile ¹⁴	ArcPad ¹⁴ , ArcGIS Mobile ¹⁴	ArcPad, ArcGIS Mobile	ArcPad, ArcGIS Mobile	ArcPad, ArcGIS Mobile	ArcPad, ArcGIS Mobile	ArcPad, ArcGIS Mobile	ArcPad, ArcGIS Mobile
Elecdاتا [®] Supported Software		DataPlus Mobile, Everglade, WetCollect	DataPlus Mobile, Everglade, WetCollect	DataPlus Mobile, Everglade, WetCollect	DataPlus Mobile, Everglade, WetCollect	DataPlus Mobile, Everglade, WetCollect	DataPlus Mobile, Everglade, WetCollect, Sentinel	DataPlus Mobile, Everglade, WetCollect, Sentinel, FieldSeeker(ULV)	DataPlus Mobile	DataPlus Mobile, Everglade, WetCollect
NMEA Output	YES (10cm accuracy)	Optional upgrade	Optional upgrade	Optional upgrade	YES	YES	YES	YES	NO	YES
Price ⁹	\$14495 (Bundle Price) ¹²	\$5,995–\$7,900 ¹⁰	\$5,400–\$5,895 ¹⁰	\$2,700–\$4,495 ¹⁰	\$7,195–\$13,045	\$1,499–\$2,899	\$799–\$1,099	\$2,099–\$2,699	\$2,499–\$2,649	\$2,995–\$4,345
Receiver Type	Trimble Maxwell™ 6 Custom GPS Chip	Trimble Maxwell™ 6 Custom GPS Chip	Trimble Maxwell™ 6 Custom GPS Chip	Trimble Maxwell™ 6 Custom GPS Chip	Trimble Maxwell™ 6 Custom GPS Chip	U-Blox NEO 6T (Regular) U-Blox NEO-7P (Enhanced GPS)	SiRF	SiRF Star IV	SiRF	U-Blox NEO 6T (Regular) U-Blox NEO-7P (Enhanced GPS)

	Trimble Kenai	Juniper Mesa	Juniper Mesa 2	Juniper Archer 2	Juniper Allegro 2	MobileDemand xTablet T7200 and T1200	Mobile Demand xTablet T1500, T1600, T8500	Trimble R1	Trimble R2	Garmin Glo (for Cedar Tree Bundle)
Post-Processed Accuracy ³		N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹
Real-Time DGPS Capable ⁴	SBAS	SBAS	SBAS	SBAS	SBAS	SBAS	SBAS	SBAS ⁶ or External Source	SBAS ⁶ , External Source, Omnistar [®]	SBAS
Real-time Accuracy ³	2-4 m	2-5 m	2-5 m	1-2.5 m	2 m ⁷	<2 m ⁷	2-4 m ⁷	<1 m	1 cm - <1 m ⁷	3 m
EVEREST™ multipath rejection technology	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO
GLONASS tracking	YES	NO	YES	YES	YES	NO	YES	YES	YES	YES
Floodlight ⁸ Technology	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
H-Star™ Technology	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
RTX Correction ¹⁶	NO	NO	NO	NO	NO	NO	NO	ViewPoint	CenterPoint [®] , FieldPoint, RangePoint, and ViewPoint	NO
Galileo & BeiDou tracking ¹⁵	BeiDou	NO	Yes	YES	YES	NO	NO	YES	YES	No
Channels	72, GPS: L1 code and carrier, SBAS	12, GPS: L1 code	72, GPS: L1 code and carrier, SBAS	32, GPS: L1 only GLONASS: L1 only, SBAS	32, GPS: L1 only GLONASS: L1 only, SBAS	50, GPS: L1 code and carrier, SBAS	56, GPS: L1 C/A, SBAS	GPS L1 and GLONASS L1	220, GPS: L1 C/A L2 C/A GLONASS: L1 C/A, L2 C/A 4, SBAS	GPS L1 and GLONASS L1
External Antenna	Optional	NO	NO	NO	NO	NO	NO	NO	NO	NO
Internal Antenna	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	YES
Trimble [®] Supported Software ¹⁷								TerraSync, TerraFlex, Positions	TerraSync, TerraFlex, Positions	
Esri [®] Supported Software	ArcPad, ArcGIS Mobile	ArcPad, ArcGIS Mobile	ArcPad, ArcGIS Mobile	ArcPad, ArcGIS Mobile	ArcPad, ArcGIS Mobile	ArcPad, ArcGIS Mobile	ArcPad, ArcGIS Mobile	ArcPad, ArcGIS Mobile	ArcPad, ArcGIS Mobile	Collector for ArcGIS
Elecddata Supported Software		DataPlus Mobile, Everglade, WetCollect, Sentinel, FieldSeeker(ULV)	DataPlus Mobile	DataPlus Mobile, Everglade, WetCollect, FieldSeeker(ULV)	DataPlus Mobile, Everglade, WetCollect	DataPlus Mobile, Sentinel	DataPlus Mobile	DataPlus Mobile, Everglade, WetCollect	DataPlus Mobile, Everglade, WetCollect	
NMEA Output	Yes	YES	YES	YES	YES	YES	YES	YES	YES	YES
Price ⁹	\$2,399-\$3,349	\$3,495-\$3,995	\$1,599-\$2,749	\$1,650-\$2,800	\$2,695-\$3,395	\$2,000-\$5,000	\$845-\$3,690	\$2,495 ¹⁰	\$2,700-\$12,995 ¹⁰	\$549-\$959
Receiver Type	U-blox NEO-M8	SIRF	uBlox NEO-M8N	NVS08C-MCM	U-blox NEO-M8 ¹⁸	U-Blox 6 (Optional)	U-Blox 7	Trimble Maxwell™ 6 Custom GPS Chip	Trimble Maxwell™ 6 Custom GPS Chip	1600 MHz Garmin Proprietary

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1) These receivers output NMEA data only and cannot be post-processed with Trimble post-processing software.

2) Requires Trimble® DeltaPhase technology, as supported in the GPS Pathfinder® Office software version 4.20 or later, or the GPS Analyst® Extension for Esri® ArcGIS® Desktop software version 2.20 or later.

3) The distance between the base station and the rover affects accuracy. There is a degradation of 1 part per million (1ppm) as the distance between the base station and rover increases. Therefore, one millimeter of degradation occurs for every kilometer between the base and rover. The following factors increase the availability of 10 cm accuracy after H-Star™ post-processing: use of optional external antennas, longer elapsed time tracking uninterrupted L1/L2 carrier phase data, tracking of more GPS or GLONASS satellites with L2 measurements, shorter distance to the base station(s), and use of more than one base station for post-processing.

4) SBAS (Satellite Based Augmentation System). Includes WAAS available in North America, EGNOS available in Europe, and MSAS available in Japan. External real-time correction sources include VRS or real-time connection to a local base station. Requires H-Star data to be collected for up to 2 minutes. Requires a minimum of 3 good quality dual frequency reference stations within 200 km, or one good quality reference station within 80 km. With one reference station, accuracy degrades by 1ppm beyond 80km. Code processing reduces accuracy to 50 cm.

5) Enhanced GPS in the Juno 5 and Yuma 2 requires SBAS corrections (WAAS or EGNOS) to achieve the 1–2 meter accuracy.

6) SBAS+ mode is when non-GPS satellites (GLONASS satellites) remain in the position solution when using real-time SBAS corrections on GPS satellites.

7) Trimble specifies accuracy to RMS (Root Mean Square), meaning a 68% confidence interval. This indicates that 68 out of every 100 positions should meet the accuracy specifications. The Allegro MX and MobileDemand accuracy specifications are using CEP (Circular Error Probability). CEP only specifies that 50% of collected positions will be within spec. Be aware of the difference when comparing accuracies.

8) Floodlight satellite shadow reduction technology allows receivers to compute positions even with very weak satellite signals. Floodlight technology increases the number of positions that are gathered in difficult locations and boosts accuracy in those places where normally only low accuracy data is available.

9) Price does not include cost of Pathfinder® Office software \$1,995 (bundled with TerraSync™ Professional \$2,695). TerraSync Professional is \$1,195, TerraSync Standard for \$295 can be used instead. Standard version does not include Data Update, External Sensor support, Laser Offsets, or Background Map. Trimble Positions Desktop add-in is \$1,995. Trimble Positions ArcPad or Mobile Extension is \$495. One year TerrFlex Advance subscription is \$400. One year TerraFlex Advance subscription is \$250. To see the differences between TerraFlex Advanced and Basic please refer to the Technical Specifications here <http://www.trimbleinsphere.com/insphere/terraflex-data-collection>.

10) Price of Pro XRT, Pro 6, R1, and R2 does not include cost of data collector.

11) How accurate is the Geo Centimeter edition?

The accuracy users obtain depends on multiple factors including the environment, workflow, method of use, and GNSS conditions. As a general guide, the following accuracies are achievable over baselines of less than 30 km or when using VRS:

Configuration	Real-time accuracy (RMS)	Post-processed accuracy (RMS)
With Zephyr Model 2 antenna	Horizontal:1.0 cm + 1.0 ppm Vertical:1.5 cm + 2.0 ppm	Horizontal: 1.0 cm + 1.0 ppm Vertical: 1.5 cm + 1.0 ppm

12) GeoExplorer centimeter edition bundle includes:

- Laser rangefinder module
- Centimeter output option
- One license of TerraSync Centimeter edition
- GeoExplorer 7 series transport case
- Spare rechargeable battery
- Vehicle Power Adapter
- 1.5m antenna cable
- Zephyr Model 2 Antenna
- Two meter range pole
- Range pole bracket
- Note: GPS Pathfinder Office is not included in the bundle

13) Other software can be used if the Centimeter option is turned off. GPS Pathfinder Office v5.60 or later is required to post-process data collected using TerraSync v5.60. Use the Trimble Mapping and GIS Product compatibility chart to ensure compatibility: <http://trl.trimble.com/docushare/dsweb/Get/Document-160913/>

14) The Pro 6 Series require the optional NMEA output for ArcPad and ArcGIS Mobile.

15) Galileo is the GNSS system currently being developed and used in Europe. BeiDou is the GNSS system currently being developed and used in China.

16) RTX is a real-time Trimble correction service available through cellular and/or WWAN. There are four levels of RTX CenterPoint, FieldPoint, RangePoint, and ViewPoint. For more information and requirements on each level, please go to <http://www.trimble.com/positioning-services/mapping-gis-applications.aspx>.

17) Trimble Positions ArcPad Extension and GPScorrect Extension for ArcPad require ArcPad be installed prior to installing the extension. Trimble Positions Windows Mobile Extension requires ArcGIS for Windows Mobile be installed prior to installing the extension

18) The integrated GNSS receiver was transition to the U-blox Neo M8 starting January 2016. Devices prior to this date will have the NVS NV08C series integrated GNSS receiver.