

Trimble GT

DESIGNED FOR INTEGRATION, BUILT FOR PERFORMANCE

Trimble is a leading provider of precise positioning solutions that offer high-accuracy orientation and continuous mobile positioning for applications such as autonomous vehicles and field robotics. Used by system integrators and OEM's around the world, Trimble provides uninterrupted, precise position and orientation measurements in seemingly impossible GNSS conditions.

Manufacturers and suppliers require robust position and orientation systems for autonomous testing and development. Providing high-accuracy systems for precise reference systems, POSE estimation, as well as, low-cost, high-volume solutions, Trimble is committed to providing robust and accurate position and orientation estimates using inertial navigation. Trimble enables autonomous vehicles to navigate themselves through difficult driving conditions.

Compact and simple to install or transfer between vehicles, Trimble GT family of products is simple to learn and has been designed to calibrate quickly after set-up. Trimble GT accelerates productivity while reducing data collection costs and potential roadside risk to personnel. Trimble GT may be used with DGPS and RTK corrections, and a survey-grade GNSS technology and Distance Measurement Instrument (DMI) integration are available all models to ensure superior accuracy performance.

POSPac post-processing software is also available to further enhance and refine results by producing a more accurate, representative data set.

Used by transportation departments, engineering companies, GIS consultants, and mobile mapping system integrators around the world, Trimble GT provides uninterrupted, precise position and orientation measurements in seemingly impossible GNSS conditions. The Trimble GT earns its distinguished reputation by producing reliable, repeatable, high-rate (up to 200 Hz), high-accuracy results – even in circumstances where GNSS signals are blocked or affected (multipath effects), such as with urban canyons. Whether used for pavement analysis, asset/infrastructure management, GIS data capture, vehicle dynamics, corridor measurement and visualization, or route monitoring, Trimble GT meets the requirements of any mobile surveying service specialty.

Key Features

- ▶ POS Computer System directly processes raw GNSS data from as few as one satellite, in order to compute accurate positional information in areas with intermittent or no GNSS reception
- ▶ IMU generates a true representation of vehicle motion in all three axes
- ▶ Streamlined data workflows
- ▶ Worldwide availability - "non-ITAR"
- ▶ Embedded GNSS receivers provide heading aiding to supplement the inertial data
- ▶ Operates at normal highway traffic speeds for cost-effective data capture
- ▶ Post-processing capabilities with POSpac MMS
- ▶ Quick operational capability; installation, calibration, and training completed in as little as three days



PERFORMANCE SPECIFICATIONS - WITH GNSS*

POS LV	300 PP	300 IARTK	300 DGPS	400 PP	400 IARTK	400 DGPS	600 PP	600 IARTK	600 DGPS
X,Y Position (m)	0.020	0.020	0.300	0.020	0.020	0.300	0.020	0.020	0.300
Z Position (m)	0.030	0.030	0.500	0.030	0.030	0.500	0.030	0.030	0.500
Roll & Pitch (deg)	0.015	0.020	0.020	0.008	0.015	0.015	0.0025	0.005	0.005
True Heading (deg)	0.025	0.050	0.050	0.020	0.020	0.020	0.015	0.020	0.020

PERFORMANCE SPECIFICATIONS - GNSS OUTAGE, 60 SECONDS at 60 km/h*

POS LV	300 PP	300 IARTK	300 DGPS	400 PP	400 IARTK	400 DGPS	600 PP	600 IARTK	600 DGPS
X,Y Position (m)	0.240	0.690	0.880	0.120	0.340	0.450	0.100	0.280	0.410
Z Position (m)	0.130	0.350	0.610	0.100	0.270	0.560	0.070	0.100	0.510
Roll & Pitch (deg)	0.020	0.020	0.020	0.020	0.020	0.020	0.0025	0.005	0.005
True Heading (deg)	0.030	0.070	0.070	0.020	0.030	0.030	0.015	0.020	0.020

* All accuracy values given as RMS. Assumes typical road vehicle dynamics for initialization, with DMI option.

SYSTEM SPECIFICATIONS

Component	Dimensions (L x W x H) mm	Weight kg	Power	Temperature	Humidity	Cables
PCS (all models)	167 x 185 x 68	2.4	10 to 34 Vdc power supply	-20 °C to +60 °C	5 to 95% RH**	-
DMI (Trimble)	908 x 115 x 254	2.4	Powered by PCS	-40 °C to +85 °C	-	8 m (standard)
GNSS Antenna*	146 x 146 x 62	0.4	Powered by PCS	40 °C to +70 °C	-	10 m (standard)
IMU	See below	See below	Powered by PCS	See below	-	8 m (standard)

* GT600 Single GNSS, GT200, GT400 Dual GNSS

** Non-Condensing

INERTIAL MEASUREMENT UNIT (IMU)

Type	Operational Temperature °C	Models Used In	Maximum Data Rate	Dimensions (L x W x H) mm	Weight kg
IMU-42 ¹	-20 to +55	GT200	200 Hz	158 x 158 x 124	2.6
IMU-82 ¹	-40 to +65	GT200	200 Hz	158 x 158 x 124	2.3
IMU-64 ¹	-20 to +55	GT400	200 Hz	158 x 158 x 124	2.6
IMU-57 ¹	-20 to +55	GT600	200 Hz	179 x 126 x 127	2.6

GLOBAL POSITIONING SYSTEM OPTIONS

Option	Signals	
GPS-19	GPS: L1 C/A, L2E, L2C, L5 GALILEO ² : E1, E5A, E5B, E5AltBOC, E6 ³ SBAS: L1 C/A, L5 BeiDou: B1, B2, B3 ³	GLONASS: L1 C/A, L2 C/A, L3 ³ QZSS: L1 C/A, L1 SAIF, L1C, L2C, L5, LEX ³ MSS L-Band: OmniSTAR VBS, Trimble RTX

¹These IMUs are exportable worldwide subject to statutory export declarations, and standard restrictions relating to certain international destinations. Contact your sales representative for further information.

²Typical mission profile, max RMS error

³The hardware of this product is designed to support this capability, however tracking of these is currently disabled

⁴Developed under a License of the European Union and the European Space Agency

USER SUPPLIED EQUIPMENT

- PC or laptop computer for LV-POSView™ (controller): Celeron x86 1 GHz processor (minimum), 16 MB RAM, 20 MB free disc space, Ethernet adapter (10/100 base-T, RJ45), Windows 7/10
- PC for POSpac MMS™ (post-processing): Pentium 4 (32 Bit) at 2 GHz processor, 1GB RAM, 400 MB free disc space 4+ GB for navigation data, USB port, Windows XP Professional
- 10-34 Vdc power supply, capable of supplying 60 W (peak) power from the host vehicle's electrical system

Be sure to ask about our 3 year warranty plan that includes one system upgrade at anytime throughout the warranty period. System upgrade includes PCS (latest version available at time of upgrade request), IMU tophat (as applicable to current system), and standard cables.

GENERAL – SENSORS

IMU..... Reliable high performance sensors
DMI..... Rugged construction able to withstand harsh vibration and shock environment, as well as temperature and humidity extremes

CANbus J1939

Parameters: Position, attitude, heading, velocity, track and speed, acceleration, status and performance, raw data. All data has time tag
Rate: 1 - 200 Hz (user selectable)

ETHERNET INPUT OUTPUT (10/100 BASE-T)

Function..... Operate POS LV and record data
Media..... Position, attitude, heading, velocity, track and speed, acceleration, status and performance, raw data. All data has time/distance tags
UDP Port..... Display port - low rate (1 Hz data)
UDP & TCP/IP Ports..... Real-Time Data Port - high rate (1-200 Hz data)
TCP/IP Ports..... Logging Data (buffered for data logging)
Control Port - used by LV-POSView™ (controller software)

LOGGING OUTPUT TO REMOVABLE DRIVE

Parameter..... Position, attitude, heading, velocity, track and speed, acceleration, status and performance, raw data. All data has time/distance tags

RS232 NMEA OUTPUT

Parameters..... Position (\$INGGA), Heading (\$INHDT), Track and Speed (\$INVTG), Statistics (\$INGST), Attitude (\$PASHR), Time and Date (\$INZDA), Events (\$EVTI, \$EVT2)
Rate..... 1 - 50 Hz (user selectable)

RS232 HIGH RATE DIGITAL OUTPUT

Parameters..... Roll, pitch, true heading, latitude, longitude and altitude
Rate..... 1 - 200 Hz (user selectable, IMU dependant)

RS232 BASE 1 AND BASE 2 INPUT

Formats..... CMR, CMR+, RTCM 2.3, 3.0, 3.1, 3.2

OTHER I/O

PPS..... One pulse-per-second time sync output. Normally low, active high pulse where the rising edge is the reference
Event Input..... Four input discretes used to mark external events. Discretes are TTL pulses > 1 msec width where rising or falling edge is time tagged and logged. (Maximum rate 300 Hz.)

Specifications subject to change without notice.

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