Trimble X12

3D LASER SCANNING SYSTEM

Accessible high-end 3D laser scanning system with superior speed, accuracy, range, and incredible image clarity.

Enhance your perspective

Accessible

Simple field workflows suitable for all users.

Trimble® Perspective software to auto-register, refine and export scan data in the field.

Clearly view and validate scans and images on the fly.

Leave the field with confidence the project is complete.

Productive

Collect superior scan data and imagery faster than ever.

Speed, accuracy and range to effectively complete any job ahead of schedule.

Unmatched HDR image quality and integrated LED spots to capture dark environments.

Quickly produce indisputable results to satisfy the most demanding requirements.

Dependable

State-of-the-art technology for reliable scan and image acquisition.

Robust IP54 rating and industry-leading 2-year standard warranty.

Flexible operation with tablet or onboard user interface.

Integration with Trimble and non-Trimble software.

Find out more at:
geospatialX12.trimble.com

Trimble®

DATASHEET

Trimble X12

3D laser scanning system

SYSTEM OVERVIEW	
Trimble X12 3D laser scanning system	Ultra-high speed 3D laser scanner with the accuracy, range and HDR imaging to effectively capture the highest quality data available to produce impressive deliverables for demanding projects.
Trimble Perspective software	Easy to use software for scanner control, 3D visualization, automatic in-field registration, refinement, reporting, annotations, measurements and exports to simplify and expand what's possible in the field.

SCANNING PERFORMANCE			
GENERAL			
Scanning EDM laser class	Laser class 1, eye safe in accordance with IEC 60825-1		
Laser wavelength	1500 nm, invisible		
Beam diameter/divergence	~ 3.5 mm @ 1 m/~ 0.3 mrad (1/e2, half angle)		
Deflection system	Enclosed rotating mirror with integrated HDR camera and LED spotlights		
Field of view	360° x 320°		
Rotation speed	Max. 55 rps (3,280 rpm)		
Scan speed	Up to 2.187 million pts/sec (2,187 kHz)		
RANGE MEASUREMENT			
Range principle	Ultra-high speed, phase-shift distance measurement		
Range	0.3 m–365 m (Ambiguity Interval)		
Effective working range	250 m		
Range accuracy	≤ 1 mm + 10 ppm/m		
Range resolution	0.1 mm		
Temperature drift	Negligible		
Range noise	Black 14%	Grey 37%	White 80%
@ 10 m[1]	0.30 mm	0.25 mm	0.20 mm
@ 25 m[1]	0.39 mm	0.28 mm	0.25 mm
@ 50 m[1]	0.8 mm	0.5 mm	0.3 mm
@ 100 m[1,2]	2.6 mm	1.1 mm	0.7 mm
@ 200 m[1,2]	9.6 mm	3.6 mm	1.7 mm
ANGULAR ACCURACY			
Angular accuracy[3]	0.004° (14.4")		
Angular resolution, vertical	0.00026° (0.93")	Angular resolution, horizontal	0.00018° (0.65")

SCANNING PARAMETERS						
Scan mode	Scan time[4]	Spacing mm @ 10 m	Spacing mm @ 35 m	Spacing mm @ 50 m	Max number of points	Max file size
Preview[5]	0:23	50.3	176.0	251.3	698.3 Kpts	5.4 MB
Low	0:46	25.1	88.0	125.6	2.8 Mpts	21.4 MB
Middle	1:34	12.6	44.0	62.8	11.2 Mpts	85.3 MB
High	3:07	6.3	22.0	31.4	44.7 Mpts	341.2 MB
High x2	6:14	3.1	11.0	15.7	178.8 Mpts	1.3 GB
High x4	12:28	1.6	5.5	7.8	715.1 Mpts	5.3 GB
High x10[6]	38:58	0.6	2.2	3.1	4469.1 Mpts	33.3 GB

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IMAGING PERFORMANCE	
Type	HDR, automatic, up to 11 exposures, parallax free
Acquisition time[7]	~ 2 min (Fast Mode 2–5 exposures) ~ 2:30 min (Higher Quality 3–11 exposures)
Focus area	1 m–∞
Resolution	~ 80 MP Panorama
Illumination system	Integrated LED spotlights, 700 lm
DYNAMIC TILT COMPENSATION	
Type	Dual axis compensator corrects angular tilt for each point during scan acquisition.
Resolution	0.001°
Range	+/- 0.5°
Accuracy	< .004° (14.4")
GENERAL SPECIFICATIONS	
WEIGHT AND DIMENSIONS	
Instrument weight	6.7 kg (14.77 lbs) and 7.7 kg (16.97 lbs) with batteries
Instrument dimensions	150 mm (W) x 258 mm (D) x 328 mm (H)
Battery weight	0.5 kg (1.1 lbs)
Battery dimensions	150 mm (W) x 80 mm (D) x 45 mm (H)
POWER SUPPLY	
Battery type	Rechargeable Li-Ion battery 14.4V, 16.8Ah
Battery duration	~ 2.5 hours/battery (4 batteries included)
Operating time	~ 5 hours with two batteries in the instrument
Instrument input voltage	24 V DC
Power supply input	100–240 V AC/12–24 V DC
ENVIRONMENTAL	
Operating temperature	-10 °C to +45 °C (14 °F to 113 °F)
Storage temperature	-20 °C to +50 °C (-4 °F to 122 °F)
Lighting conditions	Independent of lighting conditions
Humidity	Non-condensing
Ingress protection rating	IP54 (dust and water spray protected)
OTHERS	
Remote control	Trimble T10x tablet or comparable Windows® 10 tablet or laptop via WLAN or Ethernet cable
Onboard display panel	5.7" touch screen, multi-touch color display for instrument control and viewing scan data and color images
Communications/data	WLAN 802.11 A/G/N standard, dual band up to 240 MB/sec or 1GB Ethernet cable
Data storage	128 GB SATA internal hard drive and 128 GB SD Card
Interfaces	Micro D-Sub connector for external sensors and synchronization (PPS pulse, odometer, line sync, etc.)
Warranty	2-year standard

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TRIMBLE PERSPECTIVE REGISTRATION ASSIST	
Inertial measurement unit	Instrument IMU tracks instrument position, orientation and movement
Auto-registration	Automatic scan orientation and alignment with last or pre-selected scan
Manual registration	Manual alignment or split screen cloud to cloud
Visual checks	Dynamic 2D and 3D viewing for QA
Refinement	Automatic registration refinement
Registration report	Report with project and station average error, overlap and consistency results
TRIMBLE PERSPECTIVE SOFTWARE	
SYSTEM REQUIREMENTS FOR TRIMBLE X12	
Operating system	Microsoft® Windows 10 IoT Enterprise
Processor	Intel® 10th Generation Core™ i7 processor
RAM	32 GB or better
Storage	1 TB solid state drive (SSD)
Internal batteries	Hot swappable
FEATURES	
Scanner operation	Remote control or cable
Trimble registration assist	Automatic and manual registration, refinement and reporting
Data interaction	2D, 3D and Station View
In-field documentation	Scan labels, annotations, pictures and measurements
Reports	Registration reports
Georeference	Import survey control files to georeference scans to a known coordinate system
Data redundancy	Data stored on X12 internal hard drive and tablet
Data integration	Export formats to support Trimble and non-Trimble software file formats: TDX, TZF, E57, PTX, RCP, LAS, POD

1 Data rate 136,719 pts/sec (equivalent to "High Resolution/Good Quality" setting), 1 Sigma range noise, unfiltered raw data.
2 Not fully production tested, only verified for a small number of units.
3 Specification given as 1 Sigma.
4 Scan times are based on full dome scans with Balanced Quality setting.
5 Not intended for surveying purposes. To be used only for locating higher resolution area scans.
6 Very high amounts of data will be generated. Only recommended for small area scans.
7 Acquisition time depends on lighting conditions and if integrated LED spotlights are used.

Specifications subject to change without notice.

Contact your local Trimble Authorized Distribution Partner for more information

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