



Trimble X7

3D LASER SCANNING SYSTEM

High-speed 3D laser scanning system with new innovations to simplify adoption, increase efficiency and provide confidence in the field.

Simple

- ▶ Reliable field workflows suitable for all users
- ▶ Intuitive Trimble Perspective software to operate, manage, view and validate scan data
- ▶ Fast image capture with Trimble® VISION™ technology
- ▶ Compact and lightweight for easy transport and mobility

Smart

- ▶ Breakthrough innovations for reliable data collection
- ▶ New Trimble X-Drive deflection system enables automatic calibration to ensure accuracy on every scan with no downtime for calibration service
- ▶ Unique Trimble Registration Assist for automatic registration, refinement, and reports to leave the site with confidence
- ▶ Laser pointer for georeferencing and single point measurements
- ▶ Automated survey grade self-leveling

Professional

- ▶ Reliable IP55 rating and industry leading 2-year standard warranty
- ▶ High sensitivity time-of-flight EDM to effectively capture dark and reflective surfaces
- ▶ Flexible operation with tablet or one-button workflow
- ▶ Data integration with Trimble and non Trimble software

Learn more: [geospatial.trimble.com/trimble-x7-scanner](https://www.geospatial.trimble.com/trimble-x7-scanner)



SYSTEM OVERVIEW						
Trimble X7	High-speed 3D laser scanner with combined servo drive/scanning mirror, integrated HDR imaging, automatic calibration, survey-grade self-leveling and laser pointer.					
Trimble Perspective	Easy to use software for scanner control, 3D data visualization and processing. Capabilities include automated infield registration, annotations, measurements and georeferencing.					
SCANNING PERFORMANCE						
GENERAL						
Scanning EDM Laser Class	Laser class 1, eye safe in accordance with IEC EN60825-1					
Laser Wavelength	1550nm, invisible					
Field of View	360° x 282°					
Scan Duration	Fastest 2 min 34 sec with images, 1 min 34 sec without					
Scan Speed	Up to 500 kHz					
RANGE MEASUREMENT						
Range Principle	High speed, digital time-of-flight distance measurement					
Range Noise ^{1,2}	< 2.5 mm @ 30 m					
Range ³	0.6 m – 80 m					
High Sensitivity Mode	Dark (asphalt) and reflective (stainless steel) surfaces					
SCANNING ACCURACY						
Validation	Guaranteed over lifetime with auto-calibration					
Range Accuracy ^{1,2}	2 mm					
Angular Accuracy ^{1,5}	21"					
3D Point Accuracy ^{1,5}	2.4 mm @ 10 m, 3.5 mm @ 20 m, 6.0 mm @ 40 m					
SCANNING PARAMETERS						
SCAN MODE	DURATION ⁴ (MIN:SEC)	SPACING (MM) @ 10 M	SPACING (MM) @ 35 M	SPACING (MM) @ 50 M	NUMBER OF POINTS (MPTS)	MAX FILE SIZE (MB)
Standard	1:25	11	40	57	12	160
	3:33	5	18	26	58	420
	6:29	4	12	18	125	760
High Sensitivity	3:23	9	33	47	17	190
	6:44	6	21	30	42	330
	15:29	4	13	19	109	710
IMAGING PERFORMANCE						
Sensors	3 coaxial, calibrated 10MP cameras					
Resolution	3840 x 2746 pixels for each image					
Raw Image Capture	Fast - 15 images - 158 MP - 1 minute - with HDR 3 minutes Quality - 30 images - 316 MP - 2 minutes - with HDR 6 minutes					
Settings	Auto Exposure and HDR Auto White Balance correction and indoor/outdoor presets					
AUTOMATIC LEVEL COMPENSATION						
Type	Automatic Self-leveling, Selectable on/off					
Range	± 10° (Survey Grade), ± 45° (Coarse)					
Upside Down	± 10° (Survey Grade)					
Survey Grade Accuracy	< 3" = 0.3 mm @ 20 m					

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AUTOMATIC CALIBRATION	
Integrated Calibration System	Full auto-calibration of range and angular systems when required with no user interaction or targets
Angular Calibration	Applies a correction to the collimation error, i.e., the deviation of the horizontal, vertical or sight axis
Range Calibration	Applies a distance correction in the albedo and the distance measurement
Smart Calibration	Monitors environmental temperature, ambient light, vibration, instrument temperature and vertical speed for optimum performance
TRIMBLE REGISTRATION ASSIST	
Inertial Navigation System	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
GENERAL SPECIFICATIONS	
WEIGHT AND DIMENSIONS	
Instrument (including battery)	5.8 kg (12.78 lbs)
Internal Battery	0.35 kg
Dimensions	178 mm (W) x 353 mm (H) x 170 mm (D)
POWER SUPPLY	
Battery Type	Rechargeable Li-Ion battery 11.1V, 6.5Ah (Standard for Trimble Optical Instruments)
Typical Duration	4 hours per battery
ENVIRONMENTAL	
Operating Temperature	-20 °C to 50 °C (-4 °F to 122 °F)
Storage Temperature	-40 °C to 70 °C (-40 °F to 158 °F)
Ingress Protection Rating	IP55 (dust protected and water jet)
OTHERS	
Laser Pointer	Class 2 laser with a wavelength of 620–650 nm
Remote Control	Trimble T10 tablet or comparable Windows® 10 tablet or laptop via WLAN or USB cable
Push Button	One-button scan operation
Communications / Data Transfer	WLAN 802.11 A/B/G/N/AC or USB Cable
Data Storage	Standard SD Card (32GB SDHC included)
Accessories	<ul style="list-style-type: none"> • Backpack for easy transport and airline carry-on • Lightweight carbon fiber tripod with bell connector • Quick release adapter for X7 and carbon fiber tripod
Warranty	2 year standard

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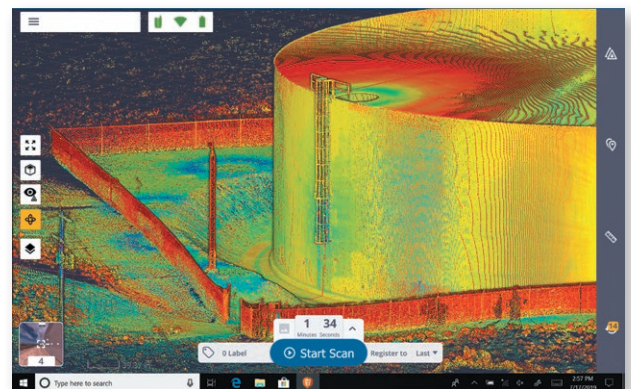
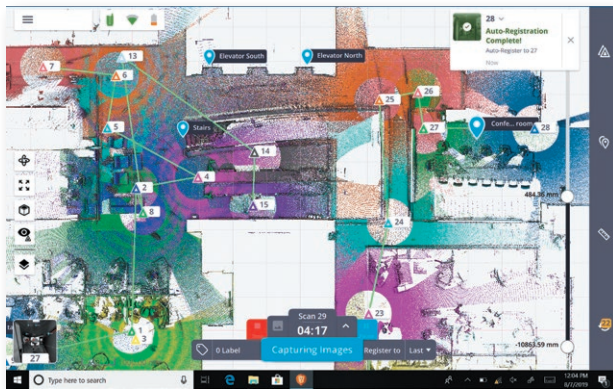
TRIMBLE PERSPECTIVE SOFTWARE

SYSTEM REQUIREMENTS

Operating System	Microsoft® Windows® 10
Processor	Intel® 6th Generation Core™ i7 2.5 GHz processor or better
RAM	8GB or better
VGA Card	Intel HD Graphics 520 or better
	256 GB Solid State Drive (SSD), (512GB or more for best performance)

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
Auto Sync	Automatic data sync from one-button operation
Georeferencing	Laser pointer for georeferencing and precision point measurement
Reports	Registration, Field Calibration and Diagnostics reports
Data Redundancy	Data stored on SD Card and tablet
Data Integration	Export formats to support Trimble and non-Trimble software File formats: TDX, TZF, E57, PTX, RCP, LAS, POD



- 1 Specification given as 1 sigma.
- 2 On 80% albedo. Albedo given @ 1550 nm.
- 3 On matte surface with normal angle of incidence.
- 4 Durations for scan times include the average time for auto-calibration and self-leveling.
- 5 When instrument leveled within $\pm 10^\circ$.

Specifications subject to change without notice.

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