Trimble X9

3D LASER SCANNING SYSTEM

Versatile advanced 3D laser scanning system you can depend on, built on proven Trimble laser scanning technologies.

The power to do more

Proven

Simple and efficient field workflows suitable for all users.

Powerful Trimble® Perspective software to easily manage and validate projects in the field with auto-registration.

Smart auto-calibration and self-leveling optimized to increase productivity and function.

Laser pointer for georeferencing and single point measurements.

Versatile

High speed scanning to save time and effectively increase scan density.

Range, accuracy and data quality to support a wide range of applications.

High sensitivity with all scan modes to capture dark and shiny surfaces fast.

Flexible operation with tablet, phone or one-button workflow.

Durable, compact and lightweight with backpack for safe and easy transport.

Reliable

Trusted auto-calibration and survey grade self-leveling for dependable data quality.

High IP55 rating for dust and water protection.

Wide operating temperature range for demanding environments.

Backed by 2-year standard warranty.

Trimble®

DATASHEET

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3D laser scanning system

SYSTEM OVERVIEW

Trimble X9 3D laser scanning system	New Trimble X-Drive center unit design with combined servo drive/scanning mirror, integrated HDR imaging, automatic calibration, survey-grade self-leveling and laser pointer now provides higher speed, range, accuracy and sensitivity.
Trimble Perspective software	Easy to use software for scanner control, automatic infield registration, georeferencing, 3D visualization, annotations, measurements, processing and export for delivery.

SCANNING PERFORMANCE

GENERAL

	Scanning EDM laser class	Laser class 1, eye safe in accordance with IEC EN60825-1
	Laser wavelength	1530–1570 nm, invisible
	Field of view	360° x 282°
	Beam divergence/Beam diameter	0.8 mrad/7.95 mm @ 10 m
	Scan speed	Up to 1000 kHz

RANGE MEASUREMENT

	Range principle	High speed, digital time-of-flight distance measurement
	Range noise[1, 2]	< 1.5 mm @ 30 m
	Range[3]	0.6 m–150 m
	High sensitivity EDM	Dark (asphalt) and reflective (stainless steel) surfaces

SCANNING ACCURACY

	Validation	Guaranteed over lifetime with auto-calibration
	Range accuracy[1,2]	2 mm
	Angular accuracy[1,4]	< 16"
	3D point accuracy[1,4]	2.3 mm @ 10 m, 3.0 mm @ 20 m, 4.8 mm @ 40 m

SCANNING PARAMETERS

SCAN MODE	DURATION[5,6,7] (MIN:SEC)	SPACING (MM) @ 10 M	SPACING (MM) @ 35 M	SPACING (MM) @ 50 M	NUMBER OF POINTS (MPTS)	MAX FILE SIZE (MB)
Indoor	0:50	15	-	-	6.8	32
Standard	2:03	8	26	38	27.2	95
	3:33	5	18	25	61.2	204
	5:36	4	13	19	108.8	340
High speed	1:27	8	26	38	27.2	175
	3:15	4	13	19	108.8	610
	6:08	3	9	13	244.8	1,250

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)	6.045 kg (13.33 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	3.5 hours per battery (3 batteries included)
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)
	Relative humidity	95%
	Equipment pollution degree	4
OTHERS		
	Laser pointer	Class 2 laser with a wavelength of 620–650 nm
	Remote control	Trimble T10x 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 (32 GB SDHC included)
	Accessories	Backpack for easy transport and airline carry-on Lightweight carbon fiber tripod with bell connector Quick release adapter for X9 and carbon fiber tripod
	Warranty	2 year standard

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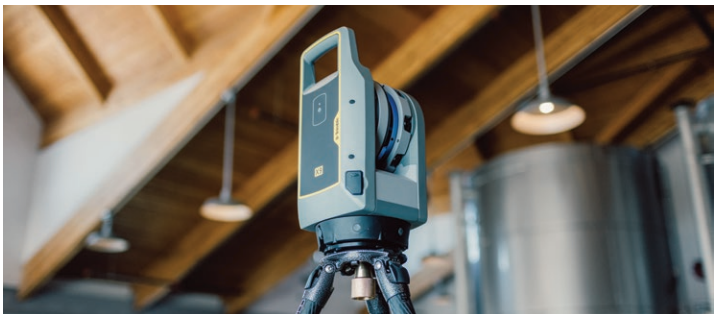
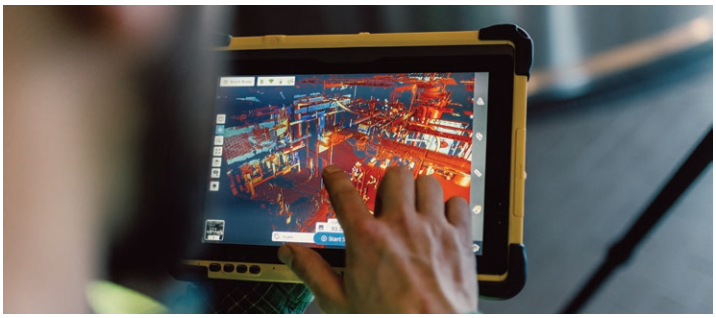
TRIMBLE PERSPECTIVE		
SYSTEM REQUIREMENTS		
	Operating system	Microsoft®Windows®10
	Processor	Intel®8th Generation Core™ i5 processor or better
	RAM	16 GB or better
	VGA card	Intel HD Graphics 620 or better
	Storage	512 GB Solid State Drive (SSD), 1 TB recommended
FEATURES		
	Scanner operation	Remote 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. High speed range of 120 m.
4 After automatic calibration and self-leveling within ± 10°.
5 Durations for scan times include self-leveling time within ± 10°.
6 Self-leveling will take ~ 10 seconds longer when scanner is not within ± 10°.
7 Scan times can increase up to 45 seconds for full calibrations after startup or idle time until thermal stabilization. Full system checks occur every 30 min.

Specifications subject to change without notice.

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