

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.

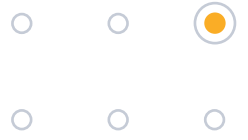
Robust IP54 rating and industry-leading 2-year standard warranty.

Flexible operation with tablet or onboard user interface.

Integration with Trimble and non-Trimble software.

Find out more at:
[geospatialX12.trimble.com](https://www.trimble.com/geospatialX12)





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

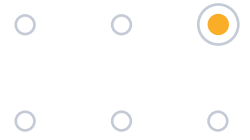
| | |
|--------------------------|--|
| Battery type | Rechargeable Li-Ion battery 14.4V, 16.8Ah |
| Battery duration | ~ 2.5 hours/battery (4 batteries included) |
| Operating time | ~ 5 hours with two batteries in the instrument |
| Instrument input voltage | 24 V DC |
| Power supply input | 100–240 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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