DATASHEET

TRIMBLE GX 3D SCANNER

KEY FEATURES

A unique 3D scanner designed for surveying professionals

Versatile to meet surveying needs in new and traditional applications

Complements other Trimble surveying systems in an Integrated Surveying™ solution

An important component of the Connected Survey Site

THE TRIMBLE GX 3D SCANNER IS AN ADVANCED SURVEYING INSTRUMENT THAT USES HIGH SPEED LASER AND VIDEO TO CAPTURE COORDINATES AND IMAGE DATA

A SURVEYING WORKFLOW

The Trimble® GX™ 3D scanner is the first 3D laser scanner to offer a true surveying workflow. As such, the Trimble GX 3D scanner offers unique possibilities for surveying businesses: it opens doors to new opportunities and increases efficiency in traditional applications.

The surveying workflow is supported via features such as leveled station setup, flexible power supply options, and support for the rugged Trimble controllers popular among surveyors[1]. By thus "thinking like a surveyor" the Trimble GX 3D scanner offers significant benefits:

- Faster and fewer setups[2]
- Portability
- The ability to complement other surveying systems, such as the Trimble® S6 Total Station or Trimble ® R8 GPS System

The Trimble GX 3D scanner enables surveying professionals to immediately incorporate 3D laser scanning into their business portfolio. With its short learning curve, the Trimble GX 3D scanner quickly provides optimal productivity gains and a fast return on investment.

EXCEPTIONAL VERSATILITY

The Trimble GX 3D scanner is remarkably versatile. Unique features allow the Trimble GX 3D scanner to adapt to each job's individual needs:

- The instrument suits multiple surveying applications. On many traditional surveying jobs, the instrument saves up to 80% of human resource costs, particularly when combined with Trimble ® RealWorks Survey™ office software, which easily manages the enormous amounts of data in scan files.
- For some jobs you can set up on a known point or perform a traditional resection to determine the coordinates and orientation of the project. For other jobs, set up anywhere and take care of the coordinates later.
- Real-time autofocus helps collect highly precise data in a short time; a 360 servo-driven system scans indoors and outdoors.
- When a job requires less detail but longer range, the Trimble ® OverScan™ technology boosts data acquisition capability up to 350 m. This feature allows fewer setups for shorter survey times, and the scanning of larger objects.

The versatility of the Trimble GX 3D scanner ensures that your investment is always working and always increasing your profitability.

THE ORIGINAL INTEGRATED SURVEYING SOLUTION AND BEYOND

Trimble's 3D scanning systems support Integrated Surveying and are an important part of Trimble's total surveying solution.

On a survey site you can combine surveying techniques to complete the requirements of a job. For example, set up a traverse using an optical solution such as the Trimble S6 Total Station, then on the control point, scan the survey area with high resolution using the Trimble GX 3D scanner.

In the office, RealWorks Survey imports scan files to a PC for manipulation. The software also supports processed GPS and optical data, so all your information from a survey site can be combined in one project file.

Whenever you're facing new surveying challenges, your partnership with Trimble places the right tools and techniques, including 3D scanning, at your fingertips. Each Trimble system seamlessly integrates via shared workflows and technologies, making your everyday job site a place where the whole is greater than the sum of its parts: Welcome to the Connected Survey Site.

1 For example, the Trimble Recon ® Controller, a Pocket PC device.
2 A typical setup takes less than 5 minutes.

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TRIMBLE GX 3D SCANNER

PERFORMANCE

Range . . . . . standard: 200 m[1]; extended: 350 m (w/ OverScan)[2]
Scanning speed . . . . . up to 5000 points per second
Standard deviation [3] . . . . . .1.4 mm @ ≤50 m: 2.5 mm @ 100 m
3.6 mm @ 150 m: 6.5 mm @ 200 m
Single point accuracy . . . . . position = 12 mm @100 m:
distance = 7 mm @ 100 m
Hz angle = 12" (60 µrad): Vt angle = 14" (70 µrad)
Target acquisition . . . . . std dev. <1 mm (Trimble targets)
Modeled surface precision . . . . . ± 2 mm (depending on method)
Leveling . . . . . circular level in tribrach: 8'
Electronic dual axis level: resolution 6", range: ±14'
Real-time automatic level compensation
Data integrity . . . . . periodic zero index calibration
real-time thermo-compensation
Scan enhancement . . . . . .atmospheric corrections (user definable)
user-definable multishot averaging
autofocus: user-controlled or auto-implementation
Scan resolution . . . . . spot size: 3 mm @ 50 m
Spot size with autofocus: . . . . . 0.3 mm @ 5 m; 0.9 mm @ 15 m;
1.5 mm @ 25 m
Point spacing: down to 3.2 mm @ 100 m
(available 1.6 mm Vt = 18 pts/cm^2 / 105 points/sq.in)
Scan row (hz): 200,000 points ; Scan row (vt): 65,536 points

SYSTEM SPECIFICATIONS

Laser . . . . . .type: pulsed 532 nm, green
Class: IEC 60825-1 – Class 3R; 21 CFR §1041.10: Class 2
Field of view . . . . . .360° x 60° continuous single scan
Optics . . . . . patented scanning optical system
Data transfer . . . . . USB link for available extensions
Digital imaging . . . . . real-time integrated color video with
5.5x optical zoom
Status indicators . . . . . system ready, laser on, comm. status

PHYSICAL

Servo-Driven 3D Laser
Scanner . . . . . .dimensions: 323 D x 343 W x 404 H mm
weight: 12.2 kg (26.8 lb); power consumption: <100 W
Power supply . . . . . super compact unit. AC 90–240 V, 50–60 Hz;
DC 24 V nominal
dimensions: 169 D x 65 W x 37.5 H mm;
weight: 0.7 kg (1.5 lb)
Transport case . . . . . .airline checkable
dimensions: 645 D x 490 W x 435 H mm;
weight: 14.2 kg (32.4 lb)
Environmental . . . . . .operating temp: 0 °C to 40 °C ;
storage temp: –20 °C to 50 °C
light: fully operational under all light conditions
sealing: IP53 (I.E.C.); shock: IEC 60721-3-2: 2M2 (scanner)
2M3 (scanner in case) transportation compliant
humidity: non-condensing atmosphere

Standard accessories . . . . . airline checkable transport case
super-compact power supply unit with AC cables;
Trimble tribrach; ethernet cable for connection of
scanner to data collector; 50 adhesive flat targets;
Trimble 3D Scanner Field Software installation kit
Optional accessories . . . . . .Trimble Recon controller with
PocketScape field software
Trimble 3D scanner backpack; car battery cable kit
target kits; (planar, spherical); batteries

FIELD SOFTWARE

PointScape field software for the Trimble GX 3D scanner runs on a Notebook PC. PocketScape field software runs on a Pocket PC device, such as the Trimble Recon controller. Both applications offer advanced scanning functionality:

Survey workflow:

- Electronic level
- Dual axis compensation
- Atmospheric corrections
- Station setup and resection routines

Framing tools:

- Rectangular framing
- Video zoom control
- Sphere, target and single point measurement

Scanning options:

- Pre-set or custom scan settings
- Return intensity and colored point cloud
- Estimated scan time and resolution control

Additionally, PointScape offers the following advanced features:

- Live video streaming
- Automatic panorama
- Automatic scan imaging
- Fast interactive framing on video, panorama or image
- Polygonal framing
- Multiple scan framing
- Automatic target and sphere recognition
- Real-time 3D visualization, pan and zoom, even while scanning
- Visualization of scanner location
- True color or intensity mapped point cloud display
- Simulated surface rendering and environmental lighting
- Measure and inverse computations

1 Measured to 90% white surface (albedo).
2 Data acquisition dependent on surface type.
3 Figures (typical values) given for standard data capture of four shots, on distance measurement.

Specifications subject to change without notice.

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