Trimble SX12

SCANNING TOTAL STATION

KEY FEATURES

Trimble® SX12 is the one instrument you need to handle any survey project by integrating surveying, imaging and 3D scanning capabilities into your everyday workflow.

Integrated System

- **Collect** survey data, VISION™ imagery, and high-speed scans easily with Trimble Access™ field software and the SX12's Lightning 3DM
- **Process** seamlessly with Trimble Business Center™ office software, or with Trimble RealWorks® Office Software for more advanced scan processing
- **Share** with anyone using web-based Trimble Clarity
- **Rely** on your equipment for years to come with the Trimble Service and Warranty guarantee

Our Smallest and Brightest Laser Pointer

- **Aim, measure, and mark** effortlessly. A green focusable laser pointer yields the smallest spot size in the industry, just 6 mm at 100 m, letting you work from longer range
- **Stay eye-safe** without compromising laser visibility

Learn more: geospatial.trimble.com/SX12

SURVEY PERFORMANCE

ANGLE MEASUREMENT		
	Sensor type	Absolute encoder with diametrical reading
	Angle measurement accuracy[1]	1" (0.3 mgon)
	Angle display (least count)	0.1" (0.01 mgon)
AUTOMATIC LEVEL COMPENSATOR		
	Type	Centered dual-axis
	Accuracy	0.5" (0.15 mgon)
	Range	±5.4' (±100 mgon)
	Electronic 2-axis level, with a resolution of	0.3" (0.1 mgon)
	Circular level in tribrach	8'/2 mm
DISTANCE MEASUREMENT		
Accuracy		
Prism mode	Standard[2]	1 mm + 1.5 ppm
	Tracking[2,3]	2 mm + 1.5 ppm
DR mode	Standard[2]	2 mm + 1.5 ppm
Measuring time		
Prism mode	Standard	1.6 s
DR mode	Standard	1.2 s
Range		
Prism mode[4]	1 prism	1 m – 5,500 m
DR mode	Kodak White Card (Catalog number E1527795)	1 m – 800 m
	Kodak Grey Card (Catalog number E1527795)	1 m – 450 m
Autolock® and Robotic Range		
	Autolock range - traverse 50 mm[5]	1 m – 800 m
	Autolock range - 360 prism	1 m – 300 m[6] / 700 m[5]
	Angle accuracy[1]	1"

SCANNING PERFORMANCE

GENERAL SCANNING SPECIFICATIONS		
	Scanning principle	Band scanning using rotating prism in telescope
	Measurement rate	26.6 kHz
	Point spacing	6.25 mm, 12.5 mm, 25 mm or 50 mm @ 50 m
	Field-of-view	360° x 300°
	Coarse scan; Full Dome - 360° x 300° Density: 1 mrad, 50 mm spacing @ 50 m	Scan time: 12 minutes
	Standard scan; Area Scan - 90° x 45° Density: 0.5 mrad, 25 mm spacing @ 50 m	Scan time: 6 minutes
RANGE MEASUREMENT		
	Range principle	Ultra-high speed time-of-flight powered by Trimble Lightning technology
Range		
	Kodak White Card (Catalog number E1527795)	0.9 m – 600 m
	Kodak Gray Card (Catalog number E1527795)	0.9 m – 350 m
Range noise		
	@ 50 m on 18–90% reflectivity	1.5 mm
	@ 120 m on 18–90% reflectivity	1.5 mm
	@ 200 m on 18-90% reflectivity	1.5 mm
	@ 300 m on 18-90% reflectivity	2.5 mm
Scanning Accuracy		
	Scanning Angular Accuracy	5" (1.5 mgon)
	3D position Accuracy @ 100 m[7]	2.5 mm

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EDM SPECIFICATIONS		
	Light source	Pulsed laser 1550 nm; Laser class 1M
	Beam divergence DR mode	0.2 mrad
	Laser spot size at 100 m (FWHM)	14 mm
	Atmospheric correction	Available through field and office software
LASER POINTER		
	Color	Green, 520 nm
	Eye Safety	Laser Class 1
	Focusing	Automatic, Manual
	Operating modes	Low-light, Standard, Extended Range Flashing
Laser Pointer Spot Size (Full Width Half Maximum)		
	1.3 - 50 m	3 mm ± 1 mm
	100 m	6 mm ± 1 mm
	150 m	9 mm ± 1 mm
IMAGING PERFORMANCE		
	Imaging principle	3 calibrated cameras in telescope powered by Trimble VISION™ technology
	Cameras total field of view	360° x 300°
	Live view frame rate (depending on connection)	Up to 15 fps
	File size of one total panorama with overview camera	15 MB – 35 MB
Panorama Measurement Time and Resolution		
Overview Panorama	Full dome 360° x 300° with 10% overlap	2.5 mins, 40 images, 15 mm @ 50 m per pixel
Primary Panorama	Area capture 90° x 45° with 10 % overlap	2.5 mins, 48 images, 3.5 mm @ 50 m per pixel
CAMERAS SPECIFICATIONS		
General Camera Specifications		
	Resolution of each camera chip	8.1 MP (3296 x 2472 pix)
	File format of images	.jpeg
	Field of view max	57.5° (horizontal) x 43.0° (vertical)
	Field of view min	0.51° (horizontal) x 0.38° (vertical)
	Total zoom (no interpolation)	107 x
	35 mm equivalent focal length	36–3850 mm
	Exposure modes	Auto, spot exposure
	Manual exposure brightness	±5 steps
	White balance modes	Auto, daylight, incandescent, overcast
	Temperature compensated optics	Yes
	Calibrated cameras	Yes
Overview Camera		
	Position	Parallel to measurement axis
	One pixel corresponds to	15 mm @ 50 m
Primary Camera		
	Position	Parallel to measurement axis
	One pixel corresponds to	3.5 mm @ 50 m
Telescope Camera		
	Position	Coaxial
	Focusing	Automatic, manual
	Focusing distance	1.7 m to infinity
	One pixel corresponds to	0.69 mm @ 50 m
	Pointing precision (std dev 1 sigma)	1" (HA: 1,5 cc, VA: 2,7 cc)
Plummet Camera		
	Usable range	1.0–2.5 m
	Resolution on ground - one pixel corresponds to	0.2 mm @ 1.55 m instrument height
	Accuracy	0.5 mm @ 1.55 m instrument height
GENERAL SPECIFICATIONS		
	Communication	WiFi, 2.4 Ghz Spread Spectrum, cabled (USB 2.0)
	IP-rating	IP55
	Operating temperature range	–20 °C to 50 °C
	Security	Dual layer password protection

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SYSTEM SPECIFICATIONS		
SERVO SYSTEM		
	MagDrive™ servo technology	Integrated servo/angle sensor electromagnetic direct drive
	Clamps and slow motions	Servo-driven
CENTERING		
	Centering system	Trimble 3-pin
	Plummets	Built-in video plummet
		Split optics tribrach with optical plummet
POWER SUPPLY		
	Internal battery	Rechargeable Li-Ion battery 11.1 V, 6.5 Ah
Operating time[8]		
	One internal battery	Up to 2.25 hours
	Three batteries in multi-battery adapter and one internal	Up to 7 hours
WEIGHT AND DIMENSIONS		
	Instrument	7.5 kg
	Tribrach	0.7 kg
	Internal battery	0.35 kg
	Trunnion axis height	196 mm
	Front lens aperature	56 mm

1 Standard deviation according to ISO17123-3.
2 Standard deviation according to ISO17123-4.
3 Single measurement, target static.
4 Standard clear conditions (No haze. Overcast or moderate sunlight with very light heat shimmer, visibility about 10 km).
5 Under perfect conditions (Overcast, visibility about 40 km, no heat shimmer).
6 Normal conditions (Moderate sunlight, visibility about 10 km, some heat shimmer).
7 Standard deviation of fitted position of a sphere target.
8 The capacity in –20 °C is 75% of the capacity at +20 °C.

Specifications subject to change without notice.

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