

TRIMBLE VX SPATIAL STATION

KEY FEATURES

Now available with **Trimble VISION** technology for video robotic control and scene documentation

Surveying, imaging and 3D scanning in **one powerful solution**

Increase your agility to **adapt to any situation**

Create enhanced **2D and 3D deliverables** for rich information management



Capture and combine scanning, imaging and surveying deliverables with the singular solution designed for surveyors. Integrating the technologies of advanced optical surveying, metric imaging and 3D scanning, the Trimble® VX™ Spatial Station is the only surveying instrument that does it all and does it with ease.

CAPTURE THE SHAPE OF THE REAL WORLD – EVERY DAY

Expectations from surveying customers are evolving. To improve the efficiency of capturing advanced Spatial Imaging deliverables, Trimble provides an integrated solution for bringing these technologies together within the traditional workflows surveyors already use. So you have the flexibility to perform feature-rich scans every day, without the complexity of setting up a separate scanning system or switching to specialized field software.

With the Trimble VX Spatial Station, you can efficiently capture the information you need to create digital terrain models (DTMs), volume calculations, and perform topographic measurements faster than with traditional surveying methods.

HARNESS THE POWER OF TRIMBLE REALWORKS SOFTWARE

Advanced 3D models and image-rendered 3D surfaces are within your reach with the rich data delivered by Trimble Spatial Imaging sensors. With the ability to capture metric images with the Trimble VX in the field, you are also able to make additional measurements and attribute the data back in the office. It's all accessible to surveyors with the Trimble VX and Trimble RealWorks® software. Your clients will immediately see the detail of your work via 3D walkthroughs of the job site using your survey data, images, and scanned information all from the Trimble VX.

VIDEO-ASSISTED CONTROL

Trimble VISION™ gives you the power to see everything the instrument sees. Direct your work with live video images on the controller. Now you are free to capture measurements to prism or reflectorless surface with a point and click.

COMBINE GNSS AND OPTICAL DATA

Take your productivity even further by adopting Trimble Integrated Surveying™ workflows – simply add your GNSS receiver to your robotic rod and powerful Trimble field software will seamlessly take care of the rest. This allows you to collect GNSS and optical data while simultaneously scanning a surface or site. With the built-in imaging and 3D scanning capabilities, you can capture the shape of objects of interest, such as a nearby building or power lines while you perform your traditional survey work.

With the long range capabilities of the Trimble DR Plus EDM, you measure further with fewer instrument set-ups and enhance your scanning performance.

GENERAL SPECIFICATIONS

PERFORMANCE

Scanning (not enabled on all models)

Range ^{1,2}	from 1 m up to 250 m (3.28 ft–820 ft)
Speed ³	up to 15 points/sec, typical 5 points/sec
Minimum point spacing	10 mm (0.032 ft)
Standard deviation	3 mm @ ≤150 m (0.0098 ft @ ≤492 ft)
Single 3D point accuracy	10 mm @ ≤150 m (0.032 ft @ ≤492 ft)
Angle accuracy	0.1" (0.3 mgon)
Sensor type	Absolute encoder with diametrical reading
Automatic level compensator	
Type	Centered dual-axis
Accuracy	0.5" (0.15 mgon)
Range	±5.4' (±100 mgon)

Other distance measurement

Accuracy (RMSE)

Prism mode	
Standard	2 mm + 2 ppm (0.0065 ft + 2 ppm)
Standard deviation according to ISO17123-4	1 mm + 2 ppm (0.003 ft + 2 ppm)
Tracking	4 mm + 2 ppm (0.013 ft + 2 ppm)
DR mode	
Standard	2 mm + 2 ppm (0.0065 ft + 2 ppm)
Tracking	4 mm + 2 ppm (0.013 ft + 2 ppm)

Measuring time

Prism mode	
Standard	1.2 sec
Tracking	0.4 sec
DR mode	
Standard	1–5 sec
Tracking	0.4 sec

Range

Prism mode (under standard clear conditions ^{4,5})	
1 prism	2,500 m (8,202 ft)
1 prism Long Range mode	5,500 m (18,044 ft) (max. range)
Shortest possible range	0.2 m (0.65 ft)
DR mode	

	Good (Good visibility, low ambient light)	Normal (Normal visibility, moderate sunlight, some heat shimmer)	Difficult (Haze, object in direct sunlight, turbulence)
White card (90% reflective)²	1,300 m (4,265 ft)	1,300 m (4,265 ft)	1,200 m (3,937 ft)
Gray card (18% reflective)²	600 m (1,969 ft)	600 m (1,969 ft)	550 m (1,804 ft)

Shortest possible range	1 m (3.28 ft)
DR Ranges (typically)	
Concrete	600–800 m (1,968–2,624 ft)
Wood construction	400–800 m (1,312–2,624 ft)
Metal construction	400–500 m (1,312–1,640 ft)
Light rock	400–600 m (1,312–1,968 ft)
Dark rock	300–400 m (984–1,312 ft)
Reflective foil 20 mm	1,000 m (3,280 ft)
Extended Range Mode	
White Card (90% reflective) ²	2,000–2,200 m
Gray Card (18% reflective) ²	900–1,000 m
Accuracy	10 mm + 2 ppm (0.033 ft + 2 ppm)

ROBOTIC OPERATION

Range ⁵	
Passive prisms	500–700 m (1,640–2,297 ft)
Trimble MultiTrack Target	800 m (2,625 ft)
Autolock pointing precision at 200 m (656 ft) (Standard deviation) ⁵	
Passive prisms	<2 mm (0.007 ft)
Trimble MultiTrack Target	<2 mm (0.007 ft)
Shortest search distance	0.2 m (0.65 ft)
Type of radio internal/external	2.4 GHz frequency-hopping, spread-spectrum radios
Search time (typical) ⁶	2–10 sec

GENERAL SPECIFICATIONS

SYSTEM SPECIFICATIONS

Leveling	
Circular level in tribrach	.8'/2 mm (8'/0.007 ft)
Electronic 2-axis level in the LC-display with a resolution of	.0.3" (0.1 mgon)
Servo system	MagDrive servo technology, integrated servo/angle sensor electromagnetic direct drive
Rotation speed	115 degrees/sec (128 gon/sec)
Rotation time Face 1 to Face 2	2.6 sec
Positioning speed 180 degrees (200 gon)	2.6 sec
Clamps and slow motions	Servo-driven, endless fine adjustment
Centering	
Centering system	Trimble 3-pin
Optical plummet	Built-in optical plummet
Magnification/shortest focusing distance	2.3x/0.5 m to infinity (1.6 ft to infinity)
Telescope	
Magnification	.30x
Aperture	40 mm (1.57 in)
Field of view at 100 m (328 ft)	2.6 m at 100 m (8.5 ft at 328 ft)
Shortest focusing distance	1.5 m (4.92 ft) to infinity
Illuminated crosshair	Variable (10 steps)
Autofocus	Standard
Camera	
Chip	Color Digital Image Sensor
Resolution	2048 x 1536 pixels
Focal length	23 mm (0.07 ft)
Depth of field	3 m to infinity (9.84 ft to infinity)
Field of view	16.5° x 12.3° (18.3 gon x 13.7 gon)
Digital zoom	4-step (1x, 2x, 4x, 8x)
Exposure	Automatic
Brightness	User-definable
Contrast	User-definable
Image storage	Up to 2048 x 1536 pixels
File format	JPEG
Compression ratio	User-definable
Video streaming ⁷	5 frames/sec
Operating temperature	-20 °C to +50 °C (-4 °F to +122 °F)
Dust and water proofing	IP55
Power supply	
Internal battery	Rechargeable Li-Ion battery 11.1 V, 4.4 Ah
Operating time ⁸	
One internal battery	Approx. 5 hours
Three internal batteries in multi-battery adapter	Approx. 15 hours
Robotic holder with one internal battery	Approx. 12 hours
Weight	
Instrument	5.25 kg (11.57 lb)
Trimble CU controller	0.4 kg (0.88 lb)
Tribrach	0.7 kg (1.54 lb)
Internal battery	0.35 kg (0.77 lb)
Trunnion axis height	196 mm (7.71 in)
Communication	USB, Serial, Bluetooth [®]
Security	Dual-layer password protection

EDM SPECIFICATIONS

Light source	Pulsed Laser diode 905 nm; Laser class 1
Laser pointer coaxial	Laser class 2
Beam divergence Prism mode	
Horizontal	4 cm/100 m (0.13 ft/328 ft)
Vertical	8 cm/100 m (0.13 ft/328 ft)
Beam divergence DR mode	
Horizontal	4 cm/100 m (0.13 ft/328 ft)
Vertical	8 cm/100 m (0.13 ft/328 ft)
Atmospheric correction	-130 ppm to 160 ppm continuously

- 1 Target color, atmospheric conditions, and scanning angles will impact range.
- 2 Kodak Gray Card, Catalog number E1527795.
- 3 Target shape, texture, and color; grid size; and distance and angle to target; will impact speed.
- 4 Standard clear: No haze. Overcast or moderate sunlight with very light heat shimmer.
- 5 Range and accuracy depend on atmospheric conditions, size of prisms and background radiation.
- 6 Dependent on selected size of search window.
- 7 0.5 frames per second with remote operation.
- 8 The capacity in -20 °C (-5 °F) is 75% of the capacity at +20 °C (68 °F).
- 9 Bluetooth type approvals are country specific.

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Specifications subject to change without notice.



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