TRIMBLE S6 TOTAL STATION

KEY FEATURES

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

Powerful and flexible, ready for anything

Trimble DR Plus technology for long range and superior accuracy

Unmatched fast and smooth performance with **MagDrive servo technology**

Trimble SurePoint accuracy assurance automatically corrects instrument pointing

POWERFUL AND FLEXIBLE

The Trimble® S6 Total Station provides the power and flexibility required by today's Surveying Professionals. With the industry's most advanced technology and available feature set, the Trimble S6 Total Station will meet the changing needs of your business, allowing your investment to go further.

TRIMBLE VISION TECHNOLOGY

Now available with optional Trimble VISION™ technology, the Trimble S6 gives you the power to see everything the instrument sees without a trip back to the tripod. Direct your survey with live video images on the controller. Now you are free to capture measurements, to prism or reflectorless surfaces, remotely, and with point-and-click efficiency.

The on-board camera integrates surveyed data with the live scene images, so you can verify the work that you've done before leaving the job site. Calibrated photo documentation provides customers with deliverables they know they can trust.

TRIMBLE DR PLUS TECHNOLOGY

Trimble DR Plus™ range measurement technology provides extended range of Direct Reflex measurement without a prism to exceptionally long range distances. Hard-to-reach or unsafe targets are no obstacle to the Trimble S6. Trimble DR Plus, combined with MagDrive™, creates unmatched capability for quick and safe measurements, without compromising on accuracy.

MAGDRIVE SERVO TECHNOLOGY

The Trimble S6 Total Station redefines surveying instrument performance with unsurpassed integration of servos, angle sensors and measurement technology. The instrument's advanced error compensation provides fast, accurate measurement every time. With smooth, silent MagDrive servo motors, the Trimble S6 offers exceptional speed.

TRIMBLE SUREPOINT ACCURACY ASSURANCE

The Trimble S6 Total Station aims and stays on target through windy weather, vibrations, handling, and sinkage. Trimble SurePoint™ technology enables the Trimble S6 to actively correct for unwanted movement ensuring accurate pointing and measurement every time. Reduce aiming error, avoid costly re-measurement and be confident in your results with Trimble SurePoint.

With its exclusive MultiTrack™ technology and Target ID capabilities, surveyors can choose the type of target, passive or active, that best suits the jobsite conditions and be confident that they will find and lock to the correct target.

ELIMINATE SEARCH TIME WITH GPS SEARCH

With GPS Search the Trimble S6 locks onto a prism in just seconds. Using a consumer grade GPS card with Bluetooth receiver or your survey grade GNSS in a Trimble I.S. rover configuration, GPS Search uses GPS positioning at the robotic rod to locate or reacquire targets rapidly. With GPS Search, waiting for target search becomes a thing of the past.

INTEGRATED SURVEYING

Put the equipment in your truck or van to the best possible use by combining your GNSS with your robotic rod into a Trimble I.S. Rover™. In clear sky, enjoy the high productivity of GNSS measurements. In obstructed areas, Trimble Access seamlessly switches to optical measurements. Or collect both GNSS and optical data simultaneously for redundant results. With the Trimble I.S. Rover, you have the freedom to use the best tool for the jobsite conditions, optimizing your productivity.

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TRIMBLE S6 DR PLUS

PERFORMANCE

Angle measurement
Sensor type . . . . . Absolute encoder with diametrical reading
Accuracy (Standard deviation based on DIN 18723) . . . . . 2" (0.6 mgon)
3" (1.0 mgon), or 5" (1.5 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)
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[1,2])
1 prism . . . . . 2500 m (8202 ft)
1 prism Long Range mode . . . . . 5500 m (18,044 ft) (max. range)
Shortest 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)[3]	1,300 m (4,265 ft)	1,300 m (4,265 ft)	1,200 m (3,937 ft)
Gray card (18% reflective)[3]	600 m (1,969 ft)	600 m (1,969 ft)	550 m (1,804 ft)

Shortest range . . . . . 1 m (3.28 ft)
DR Ranges (typically)
Concrete . . . . . 600 m–800 m (1968–2624 ft)
Wood construction . . . . . 400 m–800 m (1312–2624 ft)
Metal construction . . . . . 400 m–500 m (1312–1640 ft)
Light rock . . . . . 400 m–600 m (1312–1968 ft)
Dark rock . . . . . 300 m–400 m (984–1312 ft)
Reflective foil 20 mm . . . . . 1000 m (3280 ft)
DR Extended Range Mode
White Card (90% reflective)[3] . . . . . 2000 m–2200 m
Gray Card (18% reflective)[3] . . . . . 900 m–1000 m
Accuracy . . . . . 10 mm + 2 ppm (0.033 ft + 2 ppm)
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

GENERAL SPECIFICATIONS

EDM SPECIFICATIONS

Light source	Pulsed laserdiode 905 nm, Laser class 1
Laser pointer coaxial (standard)	Laser class 2
Beam divergence	
Horizontal	4 cm/100 m (0.13 ft/328 ft)
Vertical	8 cm/100 m (0.26 ft/328 ft)
Atmospheric correction	–130 ppm to 160 ppm continuously

Leveling	
Circular level in tribrach	8'/2 mm (8'/0.007 ft)
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 time 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	2.3×/0.5 m–infinity (1.6 ft–infinity)
Telescope	
Magnification	30×
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)–infinity
Illuminated crosshair	Variable (10 steps)
Tracklight built in	Not available in all models
Operating temperature	–20 °C to +50 °C (–4 °F to +122 °F)
Dust and water proofing	IP55
Humidity	100% condensing
Power supply	
Internal battery	Rechargeable Li-Ion battery 11.1 V, 5.0 Ah
Operating time[4]	
One internal battery	Approx. 6.5 hours
Three internal batteries in multi-battery adapter	Approx. 20 hours
Robotic holder with one internal battery	13.5 hours
Operating time for video robotic[4]	
One battery	5.5 hours
Three batteries in multi-battery adapter	17 hours
Weight	
Instrument (servo/Autolock)	5.15 kg (11.35 lb)
Instrument (Robotic)	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®[5]
Security	Dual-layer password protection; available on some models

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TRIMBLE S6 TOTAL STATION

ROBOTIC SURVEYING

Autolock and Robotic Range[2]
- Passive prisms . . . . . 500 m–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)[2]
- 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-sprectrum radios
Search time (typical)[6] . . . . . .2–10 sec

GPS SEARCH/GEOLOCK WITH THE TRIMBLE MULTITRACK TARGET

GPS Search/GeoLock. . . .360 degrees (400 gon) or defined horizontal and vertical search window
Solution acquisition time[7] . . . . . .15–30 sec
Target re-acquisition time . . . . . <3 sec
Range. . . . . Autolock & Robotic range limits

1 Standard clear: No haze. Overcast or moderate sunlight with very light heat shimmer.
2 Range and accuracy depend on atmospheric conditions, size of prisms and background radiation.
3 Kodak Gray Card, Catalog number E1527795.
4 The capacity in –20 °C (–5 °F) is 75% of the capacity at +20 °C (68 °F).
5 Bluetooth type approvals are country specific. Contact your local Trimble Authorized Distribution Partner for more information.
6 Dependent on selected size of search window.
7 Solution acquisition time is dependent upon solution geometry and GPS position quality.

Specifications subject to change without notice.

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