

Trimble S5 Total Station

Key Features

Everything you need to perform survey campaigns

Measure further and faster with the Trimble DR Plus EDM

Locate2Protect **real-time equipment management**

Seamless integration with the Trimble V10 Imagine Rover and GNSS receivers

Intuitive **Trimble Access Field Software**

Trimble Business Center Office Software for **quick data processing**



TRUSTED PERFORMANCE

All you need to perform efficient surveying campaigns is available in the Trimble® S5 Robotic Total Station solution: An accurate and reliable instrument, DR Plus EDM, MagDrive™ technology, the popular Trimble TSC3 controller with Trimble Access™ field software and quick data processing with Trimble Business Center office software.

Trimble has been manufacturing the industry's leading robotic total stations for over a decade. You can depend on the Trimble S5 Total Station to keep you productive in the field no matter what you encounter.

Trimble Technology

The Trimble S5 Total Station is built upon proven Trimble technologies like SurePoint™, MagDrive and our DR Plus EDM, helping you work more efficiently while maintaining the highest accuracy possible. Smooth and silent, Trimble MagDrive electro-magnetic technology means fewer moving parts, which reduces servicing requirements. Trimble SurePoint ensures accurate pointing and measurements by actively correcting for unwanted movements like wind, handling, and sinkage. The Trimble DR Plus EDM allows you to measure with fewer instrument set-ups and enhance your direct reflex performance.

Manage Your Assets 24/7

Know where your total stations are 24 hours a day with Trimble Locate2Protect technology. See where your equipment is at any given time and get alerts if your instrument leaves a jobsite or experiences unexpected equipment shock or abuse.

Trimble InSphere™ Equipment Manager system lets you view usage and keep up-to-date on firmware, software and maintenance requirements. With Trimble Locate2Protect and InSphere Equipment Manager, you can rest assured knowing your equipment is up-to-date and where it should be.

Robotic and Autolock

The Trimble S5 Total Stations are available in robotic or Autolock®-only versions. The Trimble S5 robotic and Autolock versions have an optional TCU data collector with Trimble Access field software for convenient, simple operation in any environment.

Integrated Surveying

The Trimble S5 Total Station provides the foundation for Trimble's Integrated Surveying™ solutions. With Integrated Surveying, you can seamlessly integrate complementary technologies on the job site, such as Trimble GNSS receivers and optical measurements.

Powerful Field and Office Software

Choose from a variety of Trimble controllers operating the feature rich, intuitive Trimble Access field software. Streamlined workflows guide crews through common project types, helping to get the job done faster with less distractions. Trimble Access workflows can also be customized to fit your needs.

Back in the office, trust Trimble Business Center software to help you check, process and adjust your optical, leveling, and GNSS data in one software solution. No matter what Trimble instruments you use in the field, you can trust that Trimble Business Center office software will help you generate industry-leading deliverables.

Trimble S5 Configurations

EDM	Angle Accuracy	Servo Control	Active Track
DR Plus	1", 2", 3", 5"	Robotic, Autolock	Optional

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PERFORMANCE

Angle measurement

Sensor type	Absolute encoder with diametrical reading
Accuracy (Standard deviation based on DIN 18723)	1" (0.3 mgon) 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 (ISO)	
Prism mode	
Standard ¹	1 mm + 2 ppm (0.003 ft + 2 ppm)
Accuracy (RMSE)	
Prism mode	
Standard	2 mm + 2 ppm (0.0065 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)
Extended Range	10 mm + 2 ppm (0.033 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

Measurement Range

Prism mode (under standard clear conditions ^{2,3})	
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)
Reflective foil 20 mm	1000 m (3280 ft)		
Shortest range	1 m (3.28 ft)		
DR Extended Range Mode White Card (90% reflective) ⁴	2200 m		

EDM SPECIFICATIONS

Light source	Pulsed laserdiode 905 nm, Laser class 1
Beam divergence	
Horizontal	.4 cm/100 m (0.13 ft/328 ft)
Vertical	.8 cm/100 m (0.26 ft/328 ft)

1 Standard deviation according to ISO17123-4.
 2 Standard clear: No haze. Overcast or moderate sunlight with very light heat shimmer.
 3 Range and accuracy depend on atmospheric conditions, size of prisms and background radiation.
 4 Kodak Gray Card, Catalog number E1527795.
 5 The capacity in -20 °C (-5 °F) is 75% of the capacity at +20 °C (68 °F).
 6 Bluetooth type approvals are country specific. Contact your local Trimble Authorized Distribution Partner for more information.
 7 Dependent on selected size of search window.
 8 Solution acquisition time is dependent upon solution geometry and GPS position quality.
 9 Functionality and availability dependent on region.

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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 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	2.3x/0.5 m-infinity (1.6 ft-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)-infinity
Illuminated crosshair	Variable (10 steps)

Power supply

Internal battery	Rechargeable Li-Ion battery 11.1 V, 5.0 Ah
Operating time ⁵	
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

Weight

Instrument (Autolock)	5.4 kg (11.35 lb)
Instrument (Robotic)	5.5 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)

Other

Communication	USB, Serial, Bluetooth ^{®6}
Operating temperature	-20° C to +50° C (-4° F to +122° F)
Tracklight built in	Not available in all models
Dust and water proofing	IP65
Humidity	100% condensing
Laser pointer coaxial (standard)	Laser class 2
Security	Dual-layer password protection, Locate2Protect ^{®9}

ROBOTIC SURVEYING

Autolock and Robotic Range ³	
Passive prisms	500 m–700 m (1,640–2,297 ft)
Trimble MultiTrack™ Target	800 m (2,625 ft)
Trimble Active Track 360 Target	500 m (1,640 ft)
Autolock pointing precision at 200 m (656 ft) (Standard deviation) ³	
Passive prisms	<2 mm (0.007 ft)
Trimble MultiTrack Target	<2 mm (0.007 ft)
Trimble Active Track 360 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) ⁷	2–10 sec

GPS SEARCH/GEOLock

GPS Search/GeoLock	360 degrees (400 gon) or defined horizontal and vertical search window
Solution acquisition time ⁸	15–30 sec
Target re-acquisition time	<3 sec
Range	Autolock & Robotic range limits

Specifications subject to change without notice.



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