



Trimble S5

TOTAL STATION

TRUSTED PERFORMANCE

All you need to perform efficient surveying campaigns is available in the Trimble® S5 Total Station solution: An accurate and reliable instrument, DR Plus EDM, MagDrive™ technology, with Trimble Access™ field software on your choice of Trimble data collector 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. 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.

The Trimble S5 Total Stations are available in robotic or Autolock® versions.

Manage Your Assets 24/7

Know where your total stations are 24 hours a day with Trimble L2P 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.

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

Key Features

- ▶ Everything you need to perform survey campaigns
- ▶ Measure further and faster with the Trimble DR Plus EDM
- ▶ Trimble L2P real-time location information
- ▶ Seamless integration with Imagine Rover and GNSS receivers
- ▶ Intuitive Trimble Access Field Software
- ▶ Trimble Business Center Office Software for quick data processing



Trimble S5 TOTAL STATION

PERFORMANCE

Angle measurement

Sensor type	Absolute encoder with diametrical reading
Accuracy ¹	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 ²	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 ^{3,4})	
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) ⁵	1,300 m (4,265 ft)	1,300 m (4,265 ft)	1,200 m (3,937 ft)
Gray card (18% reflective) ⁵	600 m (1,969 ft)	600 m (1,969 ft)	550 m (1,804 ft)

Reflective foil 60 x 60 mm	1200 m (3937 ft)
Shortest range	1 m (3.28 ft)
DR Extended Range Mode	
White Card (90% reflective) ⁵	2200 m (7218 ft)

EDM SPECIFICATIONS

Light source	Pulsed laser diode 905 nm
Beam divergence	
Horizontal	4 cm/100 m (0.13 ft/328 ft)
Vertical	8 cm/100 m (0.26 ft/328 ft)

Specifications subject to change without notice.

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

SYSTEM SPECIFICATIONS

Laser class

EDM	Laser class 1
Laser pointer coaxial (standard)	Laser class 2
Overall product laser class	Laser class 2

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

Rechargeable Li-Ion battery	10.8 V, 6.5 Ah
Operating time ⁶	
One internal battery	up to 7.5 hours
Three batteries in multi-battery adapter and one internal	up to 30 hours

Weight and Dimensions

Instrument (Autolock)	5.4 kg (11.35 lb)
Instrument (Robotic)	5.5 kg (11.57 lb)
Trimble TCU5 controller	0.44 kg (0.97 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

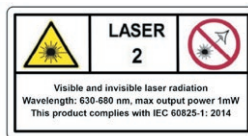
Communication	USB, Serial, Bluetooth ⁷
Operating temperature	-20 °C to +50 °C (-4 °F to +122 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Tracklight	Standard in all models
Dust and water proofing	IP65
Humidity	100% Condensing
Security	Dual-layer password protection, L2P ¹⁰

ROBOTIC SURVEYING

Autolock and Robotic Range ⁴	
Passive prisms	700 m (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) ⁹	2–10 sec

GPS SEARCH/GEOLock

GPS Search/GeoLock	360 degrees (400 gon) or defined horizontal and vertical search window
Solution acquisition time ⁹	15–30 sec
Target re-acquisition time	<3 sec
Range	Autolock & Robotic range limits



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