Trimble S5
TOTAL STATION

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 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.

Trimble AllTrak™ software lets you view usage and keep up-to-date on firmware, software and maintenance requirements. With Trimble L2P and AllTrak, 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

Key Features

- Everything you need to perform survey campaigns
- Measure further and faster with the Trimble DR Plus EDM
- Trimble L2P 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

Trimble.

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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)[4]	1,300 m (4,265 ft)	1,300 m (4,265 ft)	1,200 m (3,937 ft)
Gray card (18% reflective)[4]	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
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.

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 ºC (−5 ºF) is 75% of the capacity at +20 ºC (68 ºF).
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.

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 . . . . .2.3×/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)

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 and Dimensions
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 ºC to +50 ºC (−4 ºF to +122 ºF)
Storage temperature . . . .−40 ºC to +70 ºC (−40 ºF to +158 ºF)
Tracklight built in . . . . Available in all models
Dust and water proofing IP65
Humidity. . . . . .100% condensing
Security . . . . Dual-layer password protection, L2P[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

VISIBLE AND INVISIBLE LASER RADIATION
DO NOT STARE INTO BEAM
CLASS 2 LASER PRODUCT
Wavelength: 630-680 nm
Maximum output power: 1 mW
This product complies with IEC 60825-1:2014 and IEC 60825-1:2007 and 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007

Contact your local Trimble Authorized Distribution Partner for more information