

# 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, Trimble 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.

### Key features

- Everything you need to perform survey campaigns
- Measure further and faster with the Trimble DR Plus EDM
- Trimble Sentinel real-time location information
- Intuitive Trimble Access field software
- Trimble Business Center office software for quick data processing



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## Trimble technology

The Trimble S5 total station is built upon proven Trimble technologies like Trimble SurePoint™ technology, 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 Trimble Autolock® versions.

## Trimble S5 configurations

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

## Integrated surveying

The Trimble S5 total station provides the foundation for Trimble Integrated Surveying™ software. With Integrated Surveying, you can seamlessly integrate complementary technologies on the job site, such as Trimble GNSS receivers and optical measurements.

## Manage your assets 24/7

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

## 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 customised 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.



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### System specifications

| Laser class                                                                           |                                                           |                                       |
|---------------------------------------------------------------------------------------|-----------------------------------------------------------|---------------------------------------|
| EDM                                                                                   | Laser Class 1                                             |                                       |
| Laser pointer coaxial (standard)                                                      | Laser Class 2                                             |                                       |
| Overall product laser class                                                           | Laser Class 2                                             |                                       |
| Levelling                                                                             |                                                           |                                       |
| 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 |
| Centring                                                                              |                                                           |                                       |
| Centring 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                                                                          |                                                           |                                       |
| Rechargeable Li-Ion battery                                                           | 10.8 V, 6.5 Ah                                            |                                       |
| Operating time <sup>1</sup>                                                           | 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)                                          |                                       |



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| Other                   |                                                                |
|-------------------------|----------------------------------------------------------------|
| Communication           | Model dependent: 2.4 GHz, USB, Serial, Bluetooth® <sup>2</sup> |
| 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, Trimble Sentinel <sup>3</sup>  |

| Performance                 |                                                              |                         |                                              |                                                                     |                                                            |
|-----------------------------|--------------------------------------------------------------|-------------------------|----------------------------------------------|---------------------------------------------------------------------|------------------------------------------------------------|
| Angle measurement           |                                                              |                         |                                              |                                                                     |                                                            |
| Sensor type                 | Absolute encoder with diametrical reading                    |                         |                                              |                                                                     |                                                            |
| Accuracy <sup>4</sup>       | 1" (0.3 mgon)                                                |                         |                                              |                                                                     |                                                            |
|                             | 2" (0.6 mgon), 3" (1.0 mgon), or 5" (1.5 mgon)               |                         |                                              |                                                                     |                                                            |
| Display (least count)       | 0.1" (0.01 mgon)                                             |                         |                                              |                                                                     |                                                            |
| Automatic level compensator | Type                                                         | Centred dual-axis       |                                              |                                                                     |                                                            |
|                             | Accuracy                                                     | 0.5" (0.15 mgon)        |                                              |                                                                     |                                                            |
|                             | Range                                                        | ±5.4' (±100 mgon)       |                                              |                                                                     |                                                            |
| Distance measurement        |                                                              |                         |                                              |                                                                     |                                                            |
| Accuracy (ISO)              | Prism mode                                                   | Standard <sup>5</sup>   | 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 <sup>6,7</sup> ) | 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<br>(Good visibility, low ambient light) | Normal<br>(Normal visibility, moderate sunlight, some heat shimmer) | Difficult<br>(Haze, object in direct sunlight, turbulence) |
|                             | White card (90% reflective) <sup>8</sup>                     | 1,300 m (4,265 ft)      | 1,300 m (4,265 ft)                           | 1,200 m (3,937 ft)                                                  |                                                            |
|                             | Gray card (18% reflective) <sup>8</sup>                      | 600 m (1,969 ft)        | 600 m (1,969 ft)                             | 550 m (1,804 ft)                                                    |                                                            |
| Reflective foil 60x60 mm    | 1,200 m (3,937 ft)                                           |                         |                                              |                                                                     |                                                            |
| Shortest possible range     | 1 m (3.28 ft)                                                |                         |                                              |                                                                     |                                                            |
| DR Extended Range Mode      | White Card (90% reflective) <sup>8</sup>                     | 2,200 m (7,218 ft)      |                                              |                                                                     |                                                            |



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### EDM specifications

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

### Robotic surveying

|                                                                                       |                                 |                  |
|---------------------------------------------------------------------------------------|---------------------------------|------------------|
| <b>Autolock and Robotic Range<sup>7</sup></b>                                         | 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) |
|                                                                                       | Trimble ST30 smart target       | 600 m (1,968 ft) |
| <b>Autolock pointing precision at 200 m (656 ft) (Standard deviation)<sup>5</sup></b> | 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) |
|                                                                                       | Trimble ST30 smart target       | <2 mm (0.007 ft) |
| <b>Shortest search distance</b>                                                       | 0.2 m (0.65 ft)                 |                  |
| <b>Search time (typical)<sup>9</sup></b>                                              | 2–10 sec                        |                  |

### GeoLock

|                                               |                                                                        |
|-----------------------------------------------|------------------------------------------------------------------------|
| <b>Trimble GeoLock™ technology</b>            | 360 degrees (400 gon) or defined horizontal and vertical search window |
| <b>Solution acquisition time<sup>10</sup></b> | 15–30 sec                                                              |
| <b>Target re-acquisition time</b>             | <3 sec                                                                 |
| <b>Range</b>                                  | Autolock & Robotic range limits                                        |

### Trimble Protected protection plans

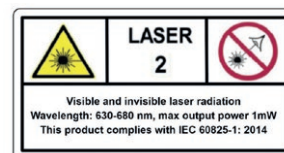
Add a Trimble Protected protection plan for worry-free ownership over and above the standard Trimble product warranty. Added enhancements include coverage for wear & tear, environmental damage, and more. Accidental damage is covered with Premium plans, available only at point-of-sale in selected regions. For details, visit [trimbleprotected.com](https://trimbleprotected.com) or contact a local Trimble dealer.

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



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