TRIMBLE S8 TOTAL STATION

THE POWER TO EXCEL
Delivering major workflow innovations for both typical surveying and specialized applications, you now have the power to redefine your performance potential.

ADVANCED SURVEYING PERFORMANCE
For typical survey tasks, choose the 1° angle accuracy and exceptional EDM range of Trimble DR Plus™. Extend your reach on the job for increased production from fewer setups.

Trimble Business Center office software provides a complete range of processing and analysis tools. Together with the Trimble S8, you have the most comprehensive solution for general surveying available today.

• **Video-Assisted Control**
  Trimble VISION™ 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, with point-and-click efficiency.

• **Visual Verification**
  The on-board camera integrates surveyed data with the live scene image, so you can verify the work that you’ve done before leaving the job. Calibrated photo documentation provides customers with deliverables they know they can trust.

UNSURPASSED TOTAL STATION TECHNOLOGY
Trimble MagDrive™ Servo Technology provides for exceptional speed and accuracy with smooth, silent operation.

Trimble SurePoint™ Technology ensures accurate measurements by automatically correcting for unwanted movement due to wind, sinkage, and other factors.

SPECIALIZED ENGINEERING APPLICATIONS
For precision-build applications, you need a measurement solution with optimal speed, accuracy and reliability. Combine the Trimble DR HP Precision EDM with your choice of angular accuracies and Trimble VISION or Long Range FineLock and you have the flexibility to tackle the most demanding projects.

Specialized modules in Trimble Access™ software such as Tunnels, Monitoring, or Mines provide dedicated workflows. Trimble 4D Control™ provides a comprehensive solution for the management of monitoring projects—both real time and post-processed—to rapidly detect critical structural movements.

• **Trimble FineLock™ Technology**
  Detect targets without interference from surrounding prisms for high precision applications in close quarters such as rail alignment, deformation monitoring, and tunneling applications. The Trimble Long-Range FineLock option extends this functionality to 2500 m with 1 cm accuracy.

OTHER ENGINEERING-SPECIFIC FEATURES
• Visually mark points, at greater range, in tunnels or underground mines with the Class 3R Laser Pointer.

• **Automatic Servo Focus** sets the optical focus for quick manual aiming when monitoring points in DR mode – with Trimble Access.

• Silent, frictionless movement ensures unobtrusive operation in urban or residential settings.

TRIMBLE S8 CONFIGURATION OPTIONS

<table>
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<th>EDM</th>
<th>Servo Control</th>
<th>Angle Accuracy</th>
<th>Hardware Options</th>
<th>FineLock</th>
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<td>DR HP</td>
<td>Servo only</td>
<td>0.5° or 1°</td>
<td>Tracklight</td>
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</tbody>
</table>

KEY:  • = Included    • = optional
## GENERAL SPECIFICATIONS

### PERFORMANCE (DR PLUS)

**Angle measurement accuracy (Standard deviation based on DIN 18723)**
- 1" (0.3 mgon)

**Angle display (least count)**
- 0.1" (0.01 mgon)

**Sensor type**
- Absolute encoder with diametrical reading

**Other 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 s
  - Tracking: 0.4 s

- **DR mode**
  - Standard: 1–5 s
  - Tracking: 0.4 s

**Range**
- **Prism mode (under standard clear conditions\(^1,2\))**
  - 1 prism: 2,500 m (8,202 ft)
  - 1 prism Long Range mode: 5,500 m (18,044 ft) (max. range)
  - Shortest range: 0.2 m (0.65 ft)

- **DR mode**
  - Good (Good visibility, low ambient light): 1,300 m (4,265 ft)
  - Normal (Normal visibility, moderate sunlight, some heat shimmer): 1,300 m (4,265 ft)
  - Difficult (Haze, object in direct sunlight, turbulence): 1,200 m (3,937 ft)

### DR Ranges (typically)
- **Concrete**: 600 m–800 m (1968 ft–2624 ft)
- **Wood construction**: 400 m–800 m (1312 ft–2624 ft)
- **Metal construction**: 400 m–600 m (1312 ft–1968 ft)
- **Light rock**: 400 m–600 m (1312 ft–1968 ft)
- **Dark rock**: 300 m–400 m (984 ft–1312 ft)
- **Reflective foil 20 mm**: 1000 m (3280 ft)

### DR Extended Range Mode
- **White Card (90% reflective)**: 2000 m–2200 m
- **Gray Card (18% reflective)**: 900 m–1000 m

<table>
<thead>
<tr>
<th><strong>Good</strong> (Good visibility, low ambient light)</th>
<th><strong>Normal</strong> (Normal visibility, moderate sunlight, some heat shimmer)</th>
<th><strong>Difficult</strong> (Haze, object in direct sunlight, turbulence)</th>
</tr>
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<tbody>
<tr>
<td>White card (90% reflective)(^3)</td>
<td>1,300 m (4,265 ft)</td>
<td>1,300 m (4,265 ft)</td>
</tr>
<tr>
<td>Gray card (18% reflective)(^3)</td>
<td>600 m (1,969 ft)</td>
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</table>

Shortest range: 1 m (3.28 ft)

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<td>300 m–400 m (984 ft–1312 ft)</td>
<td>1000 m (3280 ft)</td>
</tr>
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</table>

**Camera (also available as an option in the DR High Precision version)**
- **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 (DR PLUS)

Light source ........................................ Pulsed Laser diode 905 nm; Laser class 1
Laser pointer coaxial ................................ Laser class 2
Beam divergence Prism mode
  Horizontal ........................................ 4 cm/100 m (0.13 ft/328 ft)
  Vertical ............................................ 8 cm/100 m (0.13 ft/328 ft)
Beam divergence DR mode
  Horizontal ........................................ 4 cm/100 m (0.13 ft/328 ft)
  Vertical ............................................ 8 cm/100 m (0.13 ft/328 ft)
Atmospheric correction ................................ –130 ppm to 160 ppm continuously

PERFORMANCE (DR HP)

Angle measurement accuracy (standard deviation based on DIN 18723) . . . . . .0.5° (0.15 mgon) or 1° (0.3 mgon)
Angle display (least count) ............................................................. 0.1° (0.01 mgon)
Distance measurement
Accuracy (RMSE)
  Prism mode
    Standard ............................................ 1 mm + 1 ppm (0.003 ft + 1 ppm)
    Standard deviation according to ISO17123-4 0.8 mm + 1 ppm (0.0026 ft + 1 ppm)
    Tracking ............................................ 5 mm + 2 ppm (0.016 ft + 2 ppm)
  DR mode
    Standard measurement ................................ 3 mm + 2 ppm (0.01 ft + 2 ppm)
    Tracking ........................................... 10 mm + 2 ppm (0.032 ft + 2 ppm)
Measuring time
  Prism mode
    Standard ............................................. 2 s
    Tracking ............................................ 0.4 s
    Averaged observations 2 s per measurement
  DR mode
    Standard ............................................. 3–15 s
    Tracking ............................................ 0.4 s
Range (under standard clear conditions1,2)
  Prism mode
    1 prism ........................................... 3,000 m (9,800 ft)
    1 prism Long Range mode 5,000 m (16,400 ft)
    3 prism Long Range mode 7,000 m (23,000 ft)
    Shortest range .................................. 1.5 m (4.9 ft)
  DR mode
    Good ............................................. (Good visibility, low ambient light)
      White card (90% reflective)3 >150 m (492 ft)
      Gray card (18% reflective)3 >120 m (394 ft)
    Normal ........................................... (Normal visibility, moderate sunlight, some heat shimmer)
      150 m (492 ft) 120 m (394 ft)
    Difficult ........................................... (Haze, object in direct sunlight, turbulence)
      70 m (229 ft) 50 m (164 ft)
      70 m (229 ft) 50 m (164 ft)

EDM SPECIFICATIONS (DR HP)

Light source ........................................ Laserdiode 660 nm; Laser class 1 in Prism mode
  Laser class 2 in DR mode
Laser pointer coaxial (standard) ................................ Laser class 2
Laser pointer non-coaxial (not available in all models) ................................ Laser class 3R
Beam divergence Prism mode
  Horizontal ........................................ 4 cm/100 m (0.13 ft/328 ft)
  Vertical ............................................ 4 cm/100 m (0.13 ft/328 ft)
Beam divergence DR mode
  Horizontal ........................................ 2 cm/50 m (0.066 ft/164 ft)
  Vertical ............................................ 2 cm/50 m (0.066 ft/164 ft)
Atmospheric correction ............................................................ –130 ppm to 160 ppm continuously
GENERAL SPECIFICATIONS (DR PLUS AND DR HP)

Leveling
- Circular level in tribrach: 8/2 mm (8'/0.007 ft)
- Automatic level compensator
- Type: Centered dual-axis
- Accuracy: ±0.5° (0.15 mgon)
- Range: ±3° (±100 mgon)
- Servo system: MagDrive servo technology, integrated servo/angle sensor, electromagnetic direct drive
- Rotation speed: 115 degree/s (128 gon/s)
- Rotation time Face 1 to Face 2: 2.6 s
- Positioning speed: 180 degrees (200 gon): 2.6 s
- 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 to infinity

Telescope
- Magnification: 30×
- Illuminated crosshair: Variable (10 steps)
- Shortest focusing distance: 1.5 m (4.92 ft) to infinity
- Field of view at 100 m (328 ft): 2.6 m at 100 m (8.5 ft at 328 ft)
- Operation time: Approx. 18 hours
- Robotic holder with one internal battery: 13.5 hours
- One battery: Approx. 17 hours
- Three batteries in multi-battery adapter: 5.5 hours
- One internal battery: Approx. 6.5 hours
- Internal battery: Approx. 5.5 hours
- Three internal batteries in multi-battery adapter: 13.5 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)
- Trichab: 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®
- Security: Dual-layer password protection

Specifications subject to change without notice.

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