

## KEY FEATURES

Video-assisted robotic measurement

Visual verification with data overlay

Trimble DR Plus for longer range and fewer setups

Specialized configuration options include 0.5" angular accuracy



## 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. The Trimble S8 Total Station family includes two main models with a broad base of standard inclusions and configuration options for unmatched flexibility. Whether you need solutions to drive productivity for day to day survey tasks or precision solutions for demanding engineering projects, the Trimble S8 is the most advanced total station solution available today.

### OPTION A: VIDEO-ROBOTIC

For typical survey tasks, the 2" angle accuracy and exceptional EDM range of Trimble DR Plus™ inside, you can extend your reach on the job for fewer setups and more measurements.

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.
- Trimble MagDrive™ Servo Technology**  
 Fast and precise, you can capture more measurements per day with Trimble MagDrive technology. Survey or monitor targets up to 40% faster.
- Trimble SurePoint™ Technology**  
 Measure accurately even after the instrument has moved due to wind and other factors. The Trimble S8 actively corrects unwanted movement to avoid aiming errors and costly re-measure.

### OPTION B: ENGINEERING

For precision-build applications, you need a measurement solution with optimal speed, accuracy and reliability. Specialized configuration options for angular accuracy up to 0.5", combined with the Trimble DR High Precision EDM, provides the flexibility to tackle the most demanding projects.

To expedite data collection, specialized modules in Trimble Access™ software such as Tunnels, Monitoring, or Mines provide dedicated workflows to streamline your work. 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 pushes this functionality to 2500m with 1cm accuracy.

### OTHER ENGINEERING-SPECIFIC FEATURES

- With **Class 3R Laser Pointer** option, you can visually mark points, at greater range, in tunneling and underground mining applications
- When monitoring reflective foil targets in DR mode, **Automatic Servo Focus** sets the optical focus for quicker aiming
- Silent, frictionless movement ensures unobtrusive operation in urban or residential settings

## PERFORMANCE (DR PLUS)

Angle accuracy	2" (0.6 mgon)
Sensor type	Absolute encoder with diametrical reading
Automatic level compensator	
Type	Centered dual-axis
Accuracy	.05" (0.15 mgon)
Range	±5.4' (±100 mgon)
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 sec
Tracking	0.4 sec
DR mode	
Standard	1–5 sec
Tracking	0.4 sec
Range	
Prism mode (under standard clear conditions <sup>1,2</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	

	<b>Good</b> (Good visibility, low ambient light)	<b>Normal</b> (Normal visibility, moderate sunlight, some heat shimmer)	<b>Difficult</b> (Haze, object in direct sunlight, turbulence)
<b>White card (90% reflective)<sup>3</sup></b>	1,300 m (4,265 ft)	1,300 m (4,265 ft)	1,200 m (3,937 ft)
<b>Gray card (18% reflective)<sup>3</sup></b>	600 m (1,969 ft)	600 m (1,969 ft)	550 m (1,804 ft)

Shortest possible range	1 m (3.28 ft)
DR Ranges (typically)	
Concrete	600–800 m (1,968–2,624 ft)
Wood construction	400–800 m (1,312–2,624 ft)
Metal construction	400–500 m (1,312–1,640 ft)
Light rock	400–600 m (1,312–1,968 ft)
Dark rock	300–400 m (984–1,312 ft)
Reflective foil 20 mm	1,000 m (3,280 ft)
Extended Range Mode	
White Card (90% reflective) <sup>3</sup>	2,000–2,200 m
Gray Card (18% reflective) <sup>3</sup>	900–1,000 m
Accuracy	10 mm + 2 ppm (0.033 ft + 2 ppm)
Camera	
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

## EDM SPECIFICATIONS

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 reading (least count)	
Standard.....	1" (0.3 mgon)
Tracking .....	2" (0.6 mgon)
Averaged observations .....	0.1" (0.03 mgon)
Automatic level compensator	
Type .....	Centered dual-axis
Accuracy.....	0.5" (0.15 mgon)
Range .....	±5.4' (±100 mgon)
Distance measurement	
Accuracy (RMSE)	
Prism mode	
Standard.....	.1 mm + 1 ppm (0.003 ft + 1 ppm)
Standard deviation according to ISO17123-4 .....	.08 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 conditions <sup>1,2</sup> )	
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 possible range .....	1.5 m (4.9 ft)
DR mode	

	<b>Good</b> (Good visibility, low ambient light)	<b>Normal</b> (Normal visibility, moderate sunlight, some heat shimmer)	<b>Difficult</b> (Haze, object in direct sunlight, turbulence)
<b>White card (90% reflective)<sup>3</sup></b>	>150 m (492 ft)	150 m (492 ft)	70 m (229 ft)
<b>Gray card (18% reflective)<sup>3</sup></b>	>120 m (394 ft)	120 m (394 ft)	50 m (164 ft)

Shortest possible range .....

## EDM SPECIFICATIONS

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)  
 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 speed 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 to infinity  
 (1.6 ft to 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) to infinity  
 Illuminated crosshair ..... Variable (10 steps)  
**Autofocus** ..... Standard  
**Tracklight built in** ..... Not available in all models  
**Operating temperature** ..... -20 °C to +50 °C (-4 °F to +122 °F)  
**Dust and water proofing** ..... IP55  
**Power supply**  
 Internal battery ..... Rechargeable Li-Ion battery 11.1 V, 4.4 Ah  
**Operating time<sup>4</sup>**  
 One internal battery ..... Approx. 6 hours  
 Three internal batteries  
 in multi-battery adapter ..... Approx. 18 hours  
**Robotic holder with one internal battery** ..... 12 hours  
**Operating time with video robotic<sup>4</sup>**  
 One battery ..... 5 hours  
 Three batteries in multi-battery adapter ..... 15 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)  
 Tribrach ..... 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®<sup>5</sup>  
**Security** ..... Dual-layer password protection

**ROBOTIC SURVEYING**

**Autolock and Robotic range<sup>2</sup>**  
 Passive prisms ..... 500–700 m (1,640–2,297 ft)  
 Trimble MultiTrack Target ..... 800 m (2,625 ft)  
**Autolock pointing precision at 200 m (656 ft) (standard deviation)<sup>2</sup>**  
 Passive prisms ..... <2 mm (0.007 ft)  
 Trimble MultiTrack™ Target ..... <2 mm (0.007 ft)  
**Shortest search distance** ..... 0.2 m (.65 ft)  
**Angle reading (least count)**  
 Standard ..... 1" (0.1 mgon)  
 Tracking ..... 2" (0.5 mgon)  
 Averaged observations ..... 0.1" (0.01 mgon)  
**Type of radio internal/external** ..... 2.4 GHz frequency-hopping,  
 spread-spectrum radios  
**Search time (typical)<sup>6</sup>** ..... 2–10 s

**FINELOCK**

**Standard on Autolock and Robotic versions**  
**Pointing precision at 300 m (980 ft)**  
 (standard deviation)<sup>2</sup> ..... <1 mm (0.003 ft)  
**Range to passive prisms (min–max)<sup>2</sup>** ..... 20 m–700 m  
 (64 ft–2,297 ft)  
**Minimum spacing between prisms**  
 at 200 m (656 ft) ..... <0.8 m (2.625 ft)  
**Long Range (not available in all models)**  
**Pointing precision at 2,500 m (8,200 ft)**  
 (standard deviation)<sup>2</sup> ..... <10 mm (0.039 ft)  
**Range to passive prisms (min.–max.)<sup>2,7</sup>** ..... 20 m–2,500 m  
 (64 ft–8,200 ft)  
**Minimum spacing between prisms**  
 at 2,500 m (8,200 ft) ..... <10.0 m (32.808 ft)

**GPS SEARCH/GEOLock WITH TRIMBLE MULTITRACK TARGET**

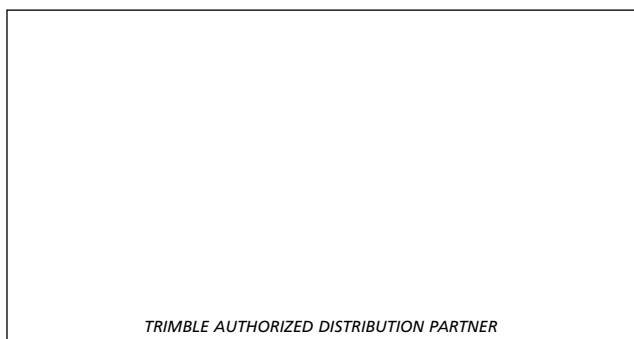
**GPS Search/GeoLock** ..... 360 degrees (400 gon)  
 or defined horizontal and vertical search window  
**Solution acquisition time** ..... 15–30 seconds<sup>8</sup>  
**Target re-acquisition time** ..... <3 seconds  
**Range** ..... Autolock and Robotic range limits



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

Specifications subject to change without notice.

© 2007–2010, Trimble Navigation Limited. All rights reserved. Trimble, the Globe & Triangle logo, and Autolock are trademarks of Trimble Navigation Limited, registered in the United States and in other countries. 4D Control, Access, FineLock, MagDrive, MultiTrack, SurePoint, and VISION are trademarks of Trimble Navigation Limited. The Bluetooth word mark and logos are owned by the Bluetooth SIG, Inc. and any use of such marks by Trimble Navigation Limited is under license. All other trademarks are the property of their respective owners. PN 022543-410C (01/10)



<p><b>NORTH AMERICA</b>                  Trimble Engineering                  &amp; Construction Group                  5475 Kellenburger Road                  Dayton, Ohio 45424-1099 • USA                  800-538-7800 (Toll Free)                  +1-937-245-5154 Phone                  +1-937-233-9441 Fax</p>	<p><b>EUROPE</b>                  Trimble Germany GmbH                  Am Prime Parc 11                  65479 Raunheim • GERMANY                  +49-6142-2100-0 Phone                  +49-6142-2100-550 Fax</p>	<p><b>ASIA-PACIFIC</b>                  Trimble Navigation                  Singapore Pty Limited                  80 Marine Parade Road                  #22-06, Parkway Parade                  Singapore 449269 • SINGAPORE                  +65-6348-2212 Phone                  +65-6348-2232 Fax</p>
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------



www.trimble.com