



### KEY FEATURES

MultiTrack™ technology offers the choice between passive and active tracking

MagDrive™ servo technology gives incredibly fast, smooth performance

SurePoint™ accuracy assurance automatically corrects instrument pointing

Upgradable from servo to Autolock® function to Robotic

Integrate GPS technology with GPS Search/GeoLock and the Trimble® I.S. Rover

100% cable-free instrument and Robotic rover

### MAGDRIVE SERVO TECHNOLOGY

The Trimble® S6 Total Station redefines instrument performance with unsurpassed integration of servos and angle sensors. The instrument's advanced error compensation provides fast, accurate measurements every time. With the smooth, silent servo motors of MagDrive servo technology, the Trimble S6 offers exceptional speed and accuracy.

### CHOOSE TARGET MODE: ACTIVE OR PASSIVE

The Trimble S6 will lock and track a wide variety of targets and conventional prisms to exceptional range. Additionally, surveyors can choose between passive and active tracking with the new Trimble® MultiTrack™ Target. Its flexibility expands opportunities in all surveying applications.

### Active Tracking with Target ID: Always find your correct target

With the Trimble MultiTrack Target you will always find and lock to the correct target. Nearby reflective surfaces, including road signs, cars, warning vests and other on-site prisms, will not disrupt your surveys. Active tracking also offers longer range, and the 360 degree active LED rings ensure that your correct target is tracked from any angle.

### GPS Search target location

GPS Search is a feature in Trimble Survey Controller™ field software that works with the Trimble MultiTrack Target to maximise Trimble S6 Total Station speed. GPS Search uses GPS positioning at the robotic rover to locate a prism anywhere, anytime, so that with a Trimble® I.S. Rover, or even a GPS card or Bluetooth® receiver, the Trimble S6 can lock onto the prism in just a few seconds.

### HIGH CAPACITY INTERNAL BATTERY WITH INTELLIGENT SYSTEM CHARGER

The Trimble S6 runs for six hours in Robotic mode on one internal lithium-ion battery, with no cables needed. The battery is intelligent, so you can quickly check how much power each battery contains.

With three batteries in the multi-battery holder, you'll spare yourself the task of changing batteries during your work day. Recharge your Trimble S6 and GPS system batteries in the same charger.

### SUREPOINT ACCURACY ASSURANCE

The Trimble S6 Total Station aims and stays ... through windy weather, vibrations, handling, and sinkage, by actively correcting unwanted movement. This technology, Trimble's unique SurePoint accuracy assurance, ensures accurate pointing and measurement every time. Reduce aiming error and avoid costly re-measurement for supreme confidence in your results.

### DIRECT REFLEX TECHNOLOGY

Direct Reflex (DR) technology from Trimble enables measurement without a prism even to exceptional distances. Hard-to-reach or unsafe targets are no obstacle for the Trimble S6. Measure quickly and safely without compromising accuracy.

### COAXIAL OPTICS, EDM, TRACKER, LASER POINTER

Whether measuring in Face 1 or Face 2, or aiming manually or with the tracker, with Trimble S6 what you see is what you measure. The Trimble S6 optics by Carl Zeiss are fully coaxial for full measurement confidence.

### INTEGRATED SURVEYING

Only a Trimble total solution offers field-proven optical and GPS integration from field to office. The Trimble controller of your choice connects without cables to your Trimble S6 or GPS system. It can be switched between sensors, collecting all data into one job file for seamless data transfer. Simply use the sensor that best suits your environment or job requirement.



## PERFORMANCE

Angle measurement	
Accuracy (Standard deviation based on DIN 18723)	.2" (0.5 mgon) 3" (1.0 mgon), or 5" (1.5 mgon)
Angle reading (least count)	
Standard	.1" (0.1 mgon)
Tracking	.2" (0.5 mgon)
Averaged observations	0.1" (0.01 mgon)
Automatic level compensator	Dual-axis compensator $\pm 6'$ ( $\pm 100$ mgon)
Distance measurement	
Accuracy (S. Dev.)	
Prism mode	
Standard	$\pm(3 \text{ mm} + 2 \text{ ppm}) \pm(0.01 \text{ ft} + 2 \text{ ppm})$
Tracking	$\pm(10 \text{ mm} + 2 \text{ ppm}) \pm(0.032 \text{ ft} + 2 \text{ ppm})$
DR mode	
Standard measurement	$\pm(3 \text{ mm} + 2 \text{ ppm}) \pm(0.01 \text{ ft} + 2 \text{ ppm})$
Tracking	$\pm(10 \text{ mm} + 2 \text{ ppm}) \pm(0.032 \text{ ft} + 2 \text{ ppm})$
>300 m (656 ft)	
Standard measurement	$\pm(5 \text{ mm} + 2 \text{ ppm})$ $\pm(0.016 \text{ ft} + 2 \text{ ppm})$
Measuring time	
Prism mode	
Standard	1.2 s
Tracking	0.4 s
Averaged observations <sup>1</sup>	1.2 s per measurement
DR mode	
Standard	1–5 s
Tracking	0.4 s
Averaged observations <sup>1</sup>	1–5 s per measurement
Range (under standard clear conditions <sup>2,3</sup> )	
Prism mode	
1 prism	2500 m (8202 ft)
1 prism Long Range mode	5500 m (18,044 ft) (max. range)
3 prism	3500 m (11,482 ft)
3 prism Long Range mode	5500 m (18,044 ft) (max. range)
Shortest possible range	0.2 m (0.65 ft)
DR mode (typically)	
Kodak Gray Card (18% reflective) <sup>4</sup>	>300 m (984 ft)
Kodak Gray Card (90% reflective) <sup>4</sup>	>800 m (2625 ft)
Concrete	300–400 m (984–1312 ft)
Wood construction	200–400 m (656–1312 ft)
Metal construction	200–250 m (656–820 ft)
Light rock	200–300 m (656–984 ft)
Dark rock	150–200 m (492–656 ft)
Reflective foil 20 mm	800 m (2,625 ft)
Reflective foil 60 mm	1600 m (5,249 ft)
Shortest possible range	2 m (6.56 ft)

## EDM SPECIFICATIONS

Light source	Pulsed laserdiode 870 nm, Laser class 1
Laser pointer coaxial (standard)	Laser class 2
Beam divergence	
Horizontal	4 cm/100 m (0.13 ft/328 ft)
Vertical	8 cm/100 m (0.26 ft/328 ft)
Atmospheric correction	-130 ppm to 160 ppm continuously

# TRIMBLE S6 HIGH PRECISION EDM WITH DR

## PERFORMANCE

### Angle measurement

Accuracy (Standard deviation based on DIN 18723)	1" (0.3 mgon)
Angle reading (least count)	
Standard	1" (0.1 mgon)
Tracking	2" (0.5 mgon)
Averaged observations	0.1" (0.01 mgon)
Automatic level compensator	Dual-axis compensator $\pm 6'$ ( $\pm 100$ mgon)

### Distance measurement

#### Accuracy (S. Dev.)

##### Prism mode

Standard	$\pm(1 \text{ mm} + 1 \text{ ppm}) \pm(0.003 \text{ ft} + 1 \text{ ppm})^5$
Tracking	$\pm(5 \text{ mm} + 2 \text{ ppm}) \pm(0.016 \text{ ft} + 2 \text{ ppm})$

##### DR mode

Standard measurement	$\pm(3 \text{ mm} + 2 \text{ ppm}) \pm(0.01 \text{ ft} + 2 \text{ ppm})$
Tracking	$\pm(10 \text{ mm} + 2 \text{ ppm}) \pm(0.032 \text{ ft} + 2 \text{ ppm})$

### Measuring time

#### Prism mode

Standard	2 s
Tracking	0.4 s
Averaged observations <sup>1</sup>	2 s per measurement

#### DR mode

Standard	3–15 s
Tracking	0.4 s
Averaged observations <sup>1</sup>	3–15 s per measurement

### Range (under standard clear conditions<sup>2,3</sup>)

#### Prism mode

1 prism	3000 m (9,800 ft)
1 prism Long Range mode	5000 m (16,400 ft)
3 prism	5000 m (16,400 ft)
3 prism Long Range mode	7000 m (23,000 ft)
Shortest possible range	1.5 m (4.9 ft)

#### DR mode (typically)

Kodak Gray Card (18% reflective) <sup>4</sup>	>120 m (394 ft)
Kodak Gray Card (90% reflective) <sup>4</sup>	>150 m (492 ft)
Concrete	80–150 m (262–492 ft)
Wood construction	80–180 m (262–590 ft)
Metal construction	80–120 m (262–394 ft)
Light rock	80–120 m (262–394 ft)
Dark rock	60–80 m (197–262 ft)
Reflective foil 20 mm	600 m (1,968 ft)
Reflective foil 60 mm	1200 m (3,937 ft)
Shortest possible range	1.5 m (4.9 ft)

## 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
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

## GENERAL SPECIFICATIONS

### 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 electromagnet direct drive
Rotation speed	115 degrees/sec (128 gon/sec)
Rotation time Face 1 to Face 2	3.2 sec
Positioning speed 180 degrees (200 gon)	3.2 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)

Tracklight built in	Standard
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>6</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

### 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)

© 2005–2007, 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 other countries. MagDrive, MultiTrack, SurePoint, and Trimble Survey Controller 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 022543-098G (05/07)

Trunnion axis height	196 mm (7.71 in)
Communication	USB, Serial, Bluetooth <sup>®7</sup>

## ROBOTIC SURVEYING

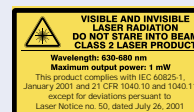
Autolock and Robotic Range <sup>3</sup>	
Passive prisms	500–700 m (1,640–2,297 ft)
Trimble MultiTrack Target	800 m (2,625 ft)
Autolock pointing precision at 200 m (656 ft) (Standard deviation) <sup>3</sup>	
Passive prisms	<2 mm (0.007 ft)
Trimble MultiTrack Target	<2 mm (0.007 ft)
Shortest search distance	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>8</sup>	2–10 s

## GPS SEARCH/GEOLOCK WITH THE TRIMBLE MULTITRACK TARGET

GPS Search/GeoLock	360 degrees (400 gon) or defined horizontal
Solution acquisition time	15–30 seconds <sup>9</sup>
Target re-acquisition time	<3 seconds
Range	Autolock & Robotic range limits

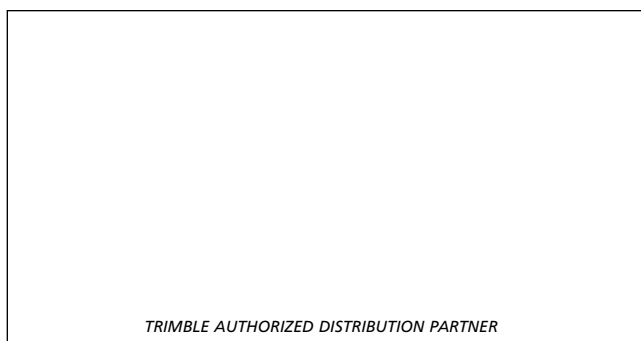
## TRIMBLE I.S. ROVER

(Integrated Trimble GPS/GNSS and Trimble S6 robotic rover)	
Trimble S6 Robotic Total Station	
Trimble GPS/GNSS System	Any Trimble R8, Trimble R6, or 5800 system
Controller	Trimble TSC2 or Trimble CU



- Repeats for defined number of measurements up to 99.
- 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.
- Limited temperature range for high-precision  $\pm(1 \text{ mm} + 1 \text{ ppm})$ : 5 °C to 45 °C (41 °F to 113 °F).
- 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.

A Trimble I.S. Rover comprising the Trimble R8 GNSS with the Trimble MultiTrack Target.



TRIMBLE AUTHORIZED DISTRIBUTION PARTNER

### NORTH AMERICA

Trimble Engineering & 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

### EUROPE

Trimble GmbH  
Am Prime Parc 11  
65479 Raunheim • GERMANY  
+49-6142-2100-0 Phone  
+49-6142-2100-550 Fax

### ASIA-PACIFIC

Trimble Navigation  
Singapore Pty Limited  
80 Marine Parade Road  
#22-06, Parkway Parade  
Singapore 449269 • SINGAPORE  
+65-6348-2212 Phone  
+65-6348-2232 Fax



www.trimble.com