DATASHEET

TRIMBLE S8 TOTAL STATION

KEY FEATURES

Trimble's latest total station platform with flexibility for even more applications

Broader business opportunities with complete system support for specialized engineering tasks such as monitoring

MagDrive technology for maximum speed and efficiency

MultiTrack™ technology offers the choice between passive and active tracking

Trimble eProtect™ security feature locks total station from unauthorized users

The Trimble® S8 Total Station is Trimble's most advanced total station. Designed to deliver unsurpassed performance in both surveying and specialized engineering applications, the Trimble S8 offers 1" angular accuracy and EDM precision of 1 mm + 1 ppm, plus numerous features to enhance efficiency and productivity.

THE MOST ADVANCED TOTAL STATION PLATFORM
The Trimble S8 instrument is built on Trimble's latest total station platform. Whatever your application in surveying or specialized engineering, you can benefit from the latest optical technology to increase your productivity.

For instance, Trimble® MagDrive™ servo technology ensures the Trimble S8 is fast and silent, so you can survey or monitor (unobtrusively) targets up to 40% faster than conventional motorized total stations, detect movements faster, and initiate alarms earlier. Wear and tear is also greatly reduced due to the MagDrive frictionless motion, making worry-free 24/7 operation possible.

A COMPLETE SYSTEM FOR ENGINEERING APPLICATIONS
The Trimble S8 Total Station works in harmony with Trimble Survey Controller™ field software and the new Trimble® 4D Control software to provide a seamlessly connected, complete solution for specialized applications.

Trimble S8 Total Station
The Trimble S8 is equipped with unique features such as:

- Trimble® FineLock technology is a smart tracker sensor with a narrow field of view that enables the Trimble S8 to detect a target without interference from surrounding prisms. This feature makes the mounting of prisms more flexible, and offers outstanding and reliable accuracy.

- 10 Hz high-speed synchronized data output makes data collection in dynamic applications faster and more accurate. For example, for railway monitoring a trolley or ATV can move more quickly without compromising accuracy.

Trimble Survey Controller Field Software – Engineering Module
Trimble Survey Controller software now offers a separate Engineering module. Because this Trimble engineering solution uses the Trimble Survey Controller interface, it's easy for surveying businesses to broaden their offering to engineering applications—crews don't need to learn new software.

Trimble 4D Control Software
Trimble 4D Control is postprocessing software designed for engineering applications, including monitoring. It reads rounds from Trimble Survey Controller in the JobXML format as individual sessions, and indicates any movement of targets over time. Results in the highly visual interface are easy to analyze, and the software is customizable to provide features such as target movement warnings and alarms.

INTEGRATED SURVEYING
Whatever your application, the Trimble S8 Total Station offers the full Trimble® Integrated Surveying™ solution.

For engineering applications, data flow from the field to the Trimble 4D Control software is seamless, and the display of results fast as a result. When not in use for engineering applications, the Trimble S8 Total Station integrates into the Trimble solution for more typical surveying applications. For example, its optical data can be combined with GPS and 3D scanning data, or it can be used as a Trimble® I.S. Rover.

The flexibility of the Trimble S8 secures your investment and ensures a fast return on investment.

Trimble

TRIMBLE S8 DR HIGH PRECISION

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
Type . . . . . Centered dual-axis
Accuracy . . . . . .0.5" (0.15 mgon)
Range . . . . . ±6' (±100 mgon)
Distance measurement
Accuracy (S. Dev.)
Prism mode
Standard . . . . . ±(1 mm + 1 ppm) ±(0.003 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
Averaged observations[1] . . . . . 3–15 s per measurement
Range (under standard clear conditions[2,3])
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)[4] . . . . . .>120 m (394 ft)
Kodak Gray Card (90% reflective)[4] . . . . . .>150 m (492 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

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 . . . . . 3.2 sec
Positioning speed180 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 . . . . . 2.3×/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)
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[5]
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)
Trunnion axis height . . . . . .196 mm (7.71 in)
Communication . . . . . .USB, Serial, Bluetooth®[7]
Security . . . . . Dual-layer password protection

ROBOTIC SURVEYING

Autolock and Robotic range[3]
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)[3]
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)[7]. . . . . .2-10 s

FINELOCK

Pointing precision at 300m (980 ft) (standard deviation)[4] . . . <1 mm (0.003 ft)
Range to passive prisms (min–max)[3]. . . . . .20 m–700 m (64 ft–2,297 ft)
Minimum spacing between prisms at 200 m (656 ft) . . . . . < 0.8 m (2.625 ft)

GPS SEARCH/GEOLOCK WITH THE TRIMBLE MULTITRACK TARGET

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

1 Repeats for defined number of measurements up to 99.
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 °C (–5 °F) is 75% of the capacity at +20 °C (68 °F).
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.

Specifications subject to change without notice.

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