

# TRIMBLE S3 TOTAL STATION

## KEY FEATURES

Everything you need to perform **efficient surveying jobs**

Built on **proven, reliable**, Trimble technology

Dependability backed by **world-class training, service, and support**

Foundation for **Integrated Surveying**



## EVERYTHING YOU NEED FOR EFFICIENT SURVEYING CAMPAIGNS

All you need to perform efficient surveying campaigns is included in the Trimble® S3 Robotic Total Station solution: An accurate and reliable instrument, integrated robotic radio and popular Trimble TSC3 controller optimized for Trimble Access field software, integrated high capacity battery and dual charger. The Trimble TSC3 controller, included in the robotic solution, is a groundbreaking handheld field computing solution that streamlines the flow of everyday surveying work and the number of peripheral devices you need in the field.

The new Trimble S3 Total Station is backed by Trimble's extensive and knowledgeable dealer network providing world-class training, service, and support to maintain your productivity. Whether you need to equip a new survey crew, replace older gear, or start a new office, the Trimble S3 Total Station can be depended on to get the job done well.

## PROVEN, RELIABLE TRIMBLE TECHNOLOGY

The Trimble S3 Total Station is built upon proven Trimble technologies. The instrument contains the reliable servo drives based on MagDrive™ electro-magnetic technology with fewer moving parts which reduce servicing requirements. It also includes intelligent battery and power management systems for 6 hours of operation on a single battery, and Trimble DR technology providing exceptional measurement performance and accuracy.

## TRIMBLE DR TECHNOLOGY

Direct Reflex (DR) technology from Trimble enables measurement without a prism on almost any type of surface. Operators in the field can capture information on hard-to-reach targets in dangerous/unsafe locations. Measure quickly and safely without compromising accuracy. Overhead cables, tunnels, bridges, quarry faces, stockpiles, buildings, and elevations can all be measured quickly, easily, and safely.

## COAXIAL OPTICS, EDM, TRACKER, LASER POINTER

The Trimble S3 Total Station optics by Carl Zeiss are fully coaxial for measurement confidence and reliability. With over 100 years of high accuracy optical instrument knowledge and expertise, Trimble builds the Trimble S3 system with the same high standards of quality that Trimble is known for.

## HIGH CAPACITY INTERNAL BATTERY WITH INTELLIGENT SYSTEM CHARGER

The Trimble S3 runs for six hours in Robotic mode on one internal integrated lithium-ion battery, with no cable needed. With intelligent batteries, you can immediately check how much power each battery contains. The convenient, all-in-one battery charger included in the Trimble S3 package, allows you to simultaneously recharge your total station and GPS/GNSS system batteries in the same charger.

## SERVO AND AUTOLOCK

The Trimble S3 Total Stations are also available in servo or autolock only versions. The Trimble S3 Servo and Autolock versions contain a fixed Control Unit with Trimble Access on board for convenient, simple operation in any environment.

## STEPPING INTO INTEGRATED SURVEYING

The Trimble S3 Total Station provides the foundation for Trimble's Integrated Surveying™ solutions. With Integrated Surveying, you can seamlessly integrate complementary technologies on the job site, such as Trimble GPS/GNSS and optical measurements, which allows you to use the most appropriate tool for the jobsite conditions. Trimble's field and office software combine and manage all the data, making it easy to take advantage of the best that each technology has to offer. Combine the Trimble S3 with Trimble's GNSS receivers to create a Trimble I.S. Rover and start reaping the productivity gains from Integrated Surveying.

For more information about the benefits of Trimble's Integrated Surveying, check out the technical white paper at [www.trimble.com/IntegratedSurveyingWP](http://www.trimble.com/IntegratedSurveyingWP).

# TRIMBLE S3 TOTAL STATION

## PERFORMANCE

Angle measurement  
Accuracy (Standard deviation based on DIN 18723) . . . . . 2" (0.6 mgon)  
5" (1.5 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' (±100 mgon)

Distance measurement  
Accuracy (RMSE)  
Prism mode  
Standard . . . . . 2 mm + 2 ppm (0.0065 ft + 2 ppm)  
Standard deviation according  
to ISO17123-4 . . . . . 1.5 mm + 2 ppm (0.0049 ft + 2 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 . . . . . 0.2 sec  
Tracking . . . . . 0.4 sec  
DR mode  
Standard . . . . . 3–15 sec  
Tracking . . . . . 0.4 sec  
Range (under standard clear conditions<sup>1,2</sup>)  
Prism mode  
1 prism . . . . . 2,500 m (8,202 ft)  
3 prism . . . . . 5,000 m (16,404 ft)  
Shortest possible range . . . . . 1.5 m (4.92 ft)

## DR mode

	Good	Normal	Difficult
<b>White card (90% reflective)<sup>3</sup></b>	>400 m (>1,312 ft)	400 m (1,312 ft)	200 m (656 ft)
<b>Gray card (18% reflective)<sup>3</sup></b>	>250 m (>820 ft)	250 m (820 ft)	150 m (492 ft)

Reflective foil 20 mm . . . . . >200 m (656 ft)  
Reflective foil 60 mm . . . . . >500 m (1,640 ft)  
Shortest possible range . . . . . 1.5 m (4.9 ft)

## EDM SPECIFICATIONS

Light source . . . . . Laser diode 660 nm; Laser class 1 in Prism mode,  
Laser class 3R in DR mode

Laser pointer coaxial (standard) . . . . . 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

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 . . . . . 86 degrees/sec

Rotation time Face 1 to Face 2 . . . . . 3.2 sec

Positioning speed . . . . . 3.2 sec

Clamps and slow motions . . . . . Servo-driven, endless fine adjustment

Centering  
Centering system . . . . . Trimble 3-pin  
Optical plummet . . . . . In Tribrach  
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)

Tracklight built in . . . . . Standard

Operating temperature . . . . . -20 °C to +50 °C (-4 °F to +122 °F)

Dust and water proofing . . . . . IP55

Humidity . . . . . 100% condensing

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

Weight  
Instrument (Servo & Autolock) . . . . . 5.6 kg (12.35 lb)  
Instrument (Robotic) . . . . . 5.25 kg (11.57 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

## ROBOTIC SURVEYING

Robotic Range<sup>2</sup>  
Passive prisms (Active prisms optional) . . . . . 300–500 m (984–1,640 ft)

Shortest search distance . . . . . 0.2 m (0.65 ft)

Type of radio internal/external . . . . . 2.4 GHz frequency-hopping,  
spread-spectrum radios

Search time (typical)<sup>5</sup> . . . . . 2–10 sec

## SERVO & AUTOLOCK CONTROL PANEL

Display . . . . . QVGA, 16 bit color, TFT LCD, backlit (320x240 pixel)

Keyboard . . . . . 19-key alpha-numeric + 4-way arrow key,  
dedicated navigation and instrument control key(s)

Audio . . . . . Integrated speaker for audio systems events,  
warnings and notifications

Operating system . . . . . Windows Embedded CE 6.0

Memory . . . . . 128 MB SDRAM, 128 MB Flash Memory

Processor . . . . . 624 MHz Marvell ARM920T-PXA300 CPU

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 Dependent on selected size of search window.



Specifications subject to change without notice.

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