DATASHEET

# 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

The Trimble S3 Total Station takes its key elements of practicality from the Trimble S-series and shrinks it into an efficient and convenient package for your everyday surveying campaigns.

### 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, popular Trimble TSC2® controller with your choice of field software, integrated high capacity battery and dual charger, and prism. The Trimble TSC2 controller, included in this solution, is one of the most trusted and reliable data controllers and works with your choice of Trimble field software: Trimble Access™, Trimble Survey Controller™, Trimble Survey Manager™. The Trimble S3 robotic system 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 Robotic Total Station can be depended on to get the job done well.

### PROVEN, RELIABLE TRIMBLE TECHNOLOGY

The Trimble S3 Robotic 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 Robotic Total Station optics by Carl Zeiss are fully coaxial for full measurement confidence and reliability. With over 100 years of high accuracy optical instrument knowledge and expertise, Trimble builds the Trimble S3 and its components with the same standards of quality as other Trimble optical total stations. We make no compromise on delivering the highest expectations you require from a highly accurate optical instrument.

### 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. The battery is intelligent, so you can immediately check how much power each battery contains. With the convenient, all-in-one battery charger included in the Trimble S3 package, you can recharge your total station and GPS/GNSS system batteries in the same charger.

### STEPPING INTO INTEGRATED SURVEYING

The Trimble S3 Total Station provides the foundation for taking advantage of the productivity benefits of 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.

Trimble

# 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 (S. Dev.)
Prism mode
Standard . . . . . ± (3 mm + 2 ppm) ±(0.01 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 . . . . . .2 s
Tracking . . . . . 0.4 s
DR mode
Standard . . . . . .3–15 s
Tracking . . . . . 0.4 s
Range (under standard clear conditions[1,2])
Prism mode
1 prism . . . . . 2,500m (8,202 ft)
3 prism . . . . . .5,000 m (16,404 ft)
Shortest possible range . . . . . .0.2 m (0.65 ft)
DR mode (typically)
Kodak Gray Card (18% reflective)[3] . . . . . .>250 m (820 ft)
Kodak Gray Card (90% reflective)[3] . . . . . >400 m (1,312 ft)
Concrete . . . . . 150–350 m (492–1,148 ft)
Wood construction. . . . . 150–400 m (492–1,312 ft)
Metal construction. . . . . .150–300 m (492–984 ft)
Light rock . . . . . .150–300 m (492–984 ft)
Dark rock. . . . . .100–150 m (328–492 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 . . . . . 4.0 sec
Positioning speed . . . . . 4.0 sec
Clamps and slow motions. . . . . Servo-driven, endless fine adjustment
Centering
Centering system . . . . . .Trimble 3-pin
Optical plummet . . . . . .In Tribrach
Magnification/shortest
focusing distance . . . . . .2.3×/0.5 m to infinity (1.6 ft to 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 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
Power supply
Internal battery. . . . . .Rechargeable Li-Ion battery 11.1 V, 4.4 Ah
Operating time[4]
One internal battery . . . . . Approx. 6 hours
Three internal batteries in
multi-battery adapter. . . . . Approx. 18 hours
Weight
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

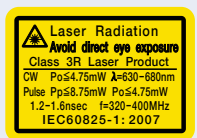
Robotic Range[2]
Passive prisms . . . . . 300–500 m (984–1,640 ft)
Shortest search distance . . . . . .0.2 m (.65 ft)
Angle reading (least count)
Standard . . . . . .1" (0.3 mgon)
Tracking . . . . . 2" (0.6 mgon)
Averaged observations. . . . . 0.1" (0.03 mgon)
Type of radio internal/external . . . . . .2.4 GHz frequency-hopping,
spread-sprectrum radios
Search time (typical)[5] . . . . . .2–10 s

## TRIMBLE I.S. ROVER

(Integrated Trimble GPS/GNSS and Trimble S6 robotic rover)
Trimble S3 Robotic Total Station
Trimble GPS/GNSS System. . . . . Any Trimble R8, Trimble R6,
or 5800 system
Controller . . . . . .Trimble TSC2

*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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