



Angle Measurement

Horizontal Accuracy (Standard deviation based on DIN 18723)	5" (1.5 mgon)
Vertical Accuracy (Standard deviation based on DIN 18723)	5" (1.5 mgon)

Angle Reading (least count)

Standard	1" (0.1 mgon)
Tracking	1" (0.1 mgon)

Automatic Level Compensator

Dual-axis compensator +/- 6' (+/- 100 mgon)

Distance Measurement Accuracy (Standard Deviation), Prism Mode

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

Dynamic Measurement Capability (Standard Deviation)

Synchronized Angle and Distance Measurements	Yes
Maximized Position Update Rate	20 Hz

DR Mode

Standard Measurement	$\pm(3 \text{ mm} + 2 \text{ ppm}) \pm(0.01 \text{ ft} + 2 \text{ ppm})$
Tracking	$\pm(10 \text{ mm} + 2 \text{ ppm}) \pm(0.032 \text{ ft} + 2 \text{ ppm})$
Standard Measurement >300 m (974 ft)	$\pm(5 \text{ mm} + 2 \text{ ppm}) \pm(0.016 \text{ ft} + 2 \text{ ppm})$

Measuring Time, Prism Mode

Standard	1.2 seconds
Tracking	0.4 seconds

Measuring Time, DR Mode

Standard	1 to 5 seconds
Tracking	0.4 seconds

Range (under clear conditions), Prism Mode

1 prism	2,500 m (8,202 ft)
1 prism Long Range mode	5,500 m (18,044 ft) max range
3 prism	3500 m (11,482 ft)
Shortest possible range	2 m (6.5 ft)

Range (under clear conditions), DR Mode

Kodak Gray Card (18% reflective)	>300 m (984 ft)
Kodak Gray Card (90% reflective)	>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 x 20 mm (0.7 in x .07 in)	800 m (2,625 ft)
Reflective foil 60 mm x 60 mm (2.3 in x 2.3 in)	1600 m (5,249 ft)
Shortest possible range	2m (6.56 ft)

Light Source

Pulsed laser diode 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 continuous

Specifications

SPS630 Total Station

Leveling

Circular level in Tribrach	8/2 mm (8/0.007 ft)
Electronic 2-axis level in the LCD	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)
Positioning speed 360 degrees (400 gon)	3.2 sec
Clamps and slow motions	Servo-driven, endless fine adjustment

Centering

Centering system	Trimble 3-pin
Optical plummet	Alidade optical plummet
Magnification/shortest focusing distance	2.3x/0.5 m – infinity (1.6 ft – infinity)

Telescope

Magnification	30x
Aperture	40 mm (1.57 inches)
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)
Built-in tracklight	Standard
Operating temperature	–20 °C to +50 °C (–4 °F to +122 °F)
Dust and water proofing	IP55
Focus type	Servo assisted on side cover

Power Supply

Internal battery	Rechargeable Li-Ion battery 11.1 V, 4.4 Ah
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Operating Time

One internal battery	Approximately 6 hours
Three internal batteries in multi-battery adaptor	Approximately 18 hours
Robotic holder with one internal battery	Approximately 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)
	196 mm (7.71 in)

Trunnion axis Height

Handle

Detachable and eccentric for unrestricted sighting

Range

Robotic	500–700 m (1,640–2,297 ft)
Autolock	500–700 m (1,640–2,297 ft)
Shortest search distance	0.2 m (.65 ft)
Autolock pointing precision at 200 m (656 ft) (Standard deviation)	<2 mm (0.007 ft)

Angle Reading

Standard	1" (0.1 mgon)
Tracking	2" (0.1 mgon)
Averaged observations	0.1" (0.01 mgon)
Type of radio	2.4 GHz frequency-hopping, spread-spectrum radios
Search time	2 – 10 s
Search area	360 degrees (400 gon) or defined horizontal and vertical search window

Specifications

SPS630 Total Station

Machine Control Specifications

Machine Control Capable	Optional
Range to target (MT900)	5m – 500-700 m, from 2m with reduced performance
Search time	2 to 10 seconds
Search area	360 degrees (400 gon) or defined horizontal and vertical search window
Maximum acceleration of target at short distance 2 m (6.5 ft) radial acceleration	148°/sec

Maximum velocity of target

Radial speed	114°/sec
Axial speed	6m/s

Data Output

Rate	20 Hz
Data Timing	+/- 1 ms
Data Latency	40 ms over Cirronet radio, 23 ms over USB connection
Synchronized measurement data	<1 ms

Accuracy to a target moving at 1 m/s (Standard deviation)

Horizontal	$\pm (2 \text{ mm} + 14 \text{ ppm}) \pm (0.007 \text{ ft} + 14 \text{ ppm})$
Vertical	$\pm (2 \text{ mm} + 14 \text{ ppm}) \pm (0.007 \text{ ft} + 14 \text{ ppm})$
Slope Distance	$\pm (2 \text{ mm} + 14 \text{ ppm}) \pm (0.007 \text{ ft} + 14 \text{ ppm})$

Specifications subject to change without notice.

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