

**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" (0.3 mgon)

Tracking

2" (0.6 mgon)

Automatic Level Compensator

Dual-axis compensator +/- 5.4' (+/- 100 mgon)

Distance Measurement Accuracy (Standard Deviation), Prism Mode

Standard

 $\pm(2 \text{ mm} + 2 \text{ ppm}) \pm(0.0065 \text{ ft} + 2 \text{ ppm})$

Tested standard deviation according to ISO17123-4

 $\pm(1 \text{ mm} + 1 \text{ ppm}) \pm(0.003 \text{ ft} + 1 \text{ ppm})$

Tracking

 $\pm(4 \text{ mm} + 2 \text{ ppm}) \pm(0.013 \text{ ft} + 2 \text{ ppm})$ **Dynamic Measurement Capability (Standard Deviation)**

Synchronized Angle and Distance Measurements

Yes

Maximized Position Update Rate

20 Hz

DR Mode

Standard Measurement

 $\pm(2 \text{ mm} + 2 \text{ ppm}) \pm(0.0065 \text{ ft} + 2 \text{ ppm})$

Tracking

 $\pm(4 \text{ mm} + 2 \text{ ppm}) \pm(0.013 \text{ ft} + 2 \text{ ppm})$ **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

0.2 m (0.65 ft)

Range (under clear conditions), DR Mode

Kodak Gray Card (18% reflective)

>600 m (1969 ft)

Kodak Gray Card (90% reflective)

>1300 m (4265 ft)

Range (under difficult conditions), DR Mode

Kodak Gray Card (18% reflective)

>550 m (1804 ft)

Kodak Gray Card (90% reflective)

>1200 m (3937 ft)

Typical ranges, DR Mode

Concrete

600 – 800 m (1968 – 2624 ft)

Wood construction

400 – 800 m (1312 – 2624 ft)

Metal construction

400 – 500 m (1312 – 1640 ft)

Light rock

400 – 600 m (1312 – 1968 ft)

Dark rock

300 – 400 m (984 – 1312 ft)

Reflective foil 20 mm x 20 mm (0.7 in x .07 in)

1000 m (3280 ft)

Reflective foil 60 mm x 60 mm (2.3 in x 2.3 in)

1600 m (5,249 ft)

Shortest possible range

1m (6.56 ft)

DR Extended Range Mode

Kodak Gray Card (18% reflective)

900-1000 m (2952 - 3280 ft)

Kodak Gray Card (90% reflective)

2000 - 2200 m (6560 - 7216 ft)

Accuracy

 $\pm(10 \text{ mm} + 2 \text{ ppm}) \pm(0.033 \text{ ft} + 2 \text{ ppm})$ **DR surface scan and surface profile speed**

3 Hz / 1.3 points per second - turn and measure

Specifications

SPS630 DR+ Total Station

Light Source	Pulsed laser diode 905 nm, Laser class 1
Laser pointer coaxial (standard)	Laser class 2
Beam Divergence in Prism Mode	
Horizontal	4 cm/100 m (0.13 ft/328 ft)
Vertical	8 cm/100 m (0.26 ft/328 ft)
Beam Divergence in DR Mode	
Horizontal	
Vertical	
Atmospheric Correction	–130 ppm to 160 ppm continuous
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 360/180 degrees (400/200 gon)	3.2 sec / 2.6 sec
Positioning speed - Change Face I to Face II	2.6 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 and autofocus
Power Supply	
Internal battery	Rechargeable Li-Ion battery 11.1 V, 4.4 Ah
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)
Trunnion axis Height	196 mm (7.71 in)
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)
Autolock to Trimble MT1000 Target	800 m (2625 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" (0.3 mgon)
Tracking	2" (0.6 mgon)
Averaged observations	0.1" (0.03 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
Communication	USB, Serial, Bluetooth®

Specifications

SPS630 DR+ Total Station

Machine Control Specifications

Machine Control Capable

Range to target (MT900)

Optional
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

± (2 mm + 14 ppm) ± (0.007 ft + 14 ppm)

Vertical

± (2 mm + 14 ppm) ± (0.007 ft + 14 ppm)

Slope Distance

± (2 mm + 14 ppm) ± (0.007 ft + 14 ppm)

Models Available

Servo, Autolock, Robotic, UTS

Upgradable

Yes

Specifications subject to change without notice.

© 2010, Trimble Navigation Limited. All rights reserved. Trimble, and the Globe & Triangle logo are trademarks of Trimble Navigation Limited, registered in the United States and in other countries. All other trademarks are the property of their respective owners. PN 022482-1535

Trimble Heavy and Highway Business Area

5475 Kellenburger Road

Dayton, Ohio 45424

USA

800-538-7800 (Toll Free)

+1-937-245-5154 Phone

+1-937-233-9441 Fax

www.trimble.com

Trimble Authorized Distribution Partner