Specifications SPS720 DR+ Total Station

Angle Measurement	
Horizontal Accuracy (Standard deviation based on ISO 17123-3)	3" (1.0 mgon)
Vertical Accuracy (Standard deviation based on ISO 17123-3)	2" (0.6 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	±(2 mm + 2 ppm) ±(0.0065 ft + 2 ppm)
Tested standard deviation according to ISO17123-4	±(1 mm + 2 ppm) ±(0.0013 ft + 1 ppm)
Tracking	±(4 mm + 2 ppm) ±(0.013 ft + 2 ppm)
Dynamic Measurement Capability (Standard Deviation)	
Synchronized Angle and Distance Measurements	No
Maximized Position Update Rate	2.5Hz
DR Mode	
Standard Measurement	±(2 mm + 2 ppm) ±(0.0065 ft + 2 ppm)
Tracking	±(4 mm + 2 ppm) ±(0.013 ft + 2 ppm)
Measuring Time, Prism Mode	
Standard	2.0 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	3,500 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)

Specifications SPS720 DR+ Total Station

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 (5249 ft)
Shortest possible range	1m (3.28 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	±(10 mm + 2 ppm) ±(0.033 ft + 2 ppm)
DR surface scan and surface profile speed	3 Hz / 1.3 points per second - turn and measure
Light Source	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	4 cm/100 m (0.13 ft/328 ft)
Beam Divergence in 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 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	86 degrees/sec (96 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	2.3×/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)

Specifications SPS720 DR+ Total Station

Built-in tracklight	Standard
Operating temperature	–20 ºC to +50 ºC (–4 ºF to +122 ºF)
Dust and water proofing	IP65
Focus type	Servo assisted on side cover
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	N/A
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	300 - 500 m (984 - 1,640 ft)
Autolock	300 - 500 m (984 - 1,640 ft)
Autolock to Trimble AT360 Target	500 m (1,640 ft)
Autolock to Trimble MT1000 Target	500 m (1,640 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
Machine Control Specifications	
Machine Control Capable	No
Range to target (MT900)	N/A
Search time	N/A

Specifications SPS720 DR+ Total Station

Search area	N/A
Maximum acceleration of target at short distance 2 m (6.5 ft) radial acceleration	N/A
Maximum velocity of target	
Radial speed	N/A
Axial speed	N/A
Data Output	
Rate	N/A
Data Timing	N/A
Data Latency	N/A
Synchronized measurement data	N/A
Accuracy to a target moving at 1 m/s (Standard deviation)	
Horizontal	N/A
Vertical	N/A
Slope Distance	N/A
Models Available	Robotic only
Upgradable	No

Specifications subject to change without notice.

Trimble Heavy Civil Construction Division
10368 Westmoor Drive
Westminster, Colorado 80021
USA
800-361-1249 (Toll Free)
+1-937-245-5154 Phone
+1-937-233-9441 Fax
www.trimble.com

Trimble Authorized Distribution Partner