Specifications SPS730 DR+ Total Station

Angle Measurement	
Horizontal Accuracy (Standard deviation based on DIN 18723)	3" (1.0 mgon)
Vertical Accuracy (Standard deviation based on DIN 18723)	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 + 1 ppm) ±(0.003 ft + 1 ppm)
Tracking	±(4 mm + 2 ppm) ±(0.013 ft + 2 ppm)
Dynamic Measurement Capability (Standard Deviation)	
Synchronized Angle and Distance Measurements	Yes
Maximized Position Update Rate	20 Hz
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	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	±(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

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Specifications SPS730 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
Magnifcation/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)
Built-in tracklight	Standard
Operating temperature	–20 ºC to +50 ºC (–4 ºF to +122 ºF)
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 batery	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®

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Specifications SPS730 DR+ 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	± (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.

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

Trimble