



Angle Measurement

Horizontal Accuracy (Standard deviation based on DIN 18723) 1" (1.0 mgon)

Vertical Accuracy (Standard deviation based on DIN 18723) 1" (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

Specifications

SPS930 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® |

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 $\pm (2 \text{ mm} + 14 \text{ ppm}) \pm (0.007 \text{ ft} + 14 \text{ ppm})$

Models Available

Servo, Autolock, Robotic. UTS

Upgradable

Yes

Specifications subject to change without notice.

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