

SOKKIA

Series50X

Total Stations

Ultimate Standard

Dependable – Affordable – User-friendly

The Series50X total stations provide exceptionally dependable performance at affordable costs. Extended measuring range, increased measurement speed, field-proven accuracy, all-weather dependability, easy-to-use powerful onboard software, and a variety of data management capabilities -- all the advanced features are packaged in a tough and compact body. The Series50X – Ultimate Standard from Sokkia.

High-Speed, Long-Range Laser EDM

Sokkia's advanced digital signal processing technology significantly enhances distance measurement capability that maximizes work efficiency under all jobsite conditions.

- 1.7 seconds typical measurement time in fine mode -40% faster than previous models
- Every 0.3 seconds high-speed tracking
- 5,000m (16,400ft.) long range measurement -20% further than previous models
- 2mm + 2ppm accuracy with prisms;
3mm + 2ppm with reflective sheets



World-proven, Time-tested Angle Reading System

Sokkia's innovative absolute encoder system provides unsurpassed, extra long-term dependability that has been proven in all types of worksite conditions across the globe since its introduction in 2002.

- Extremely simplified optical and mechanical structure maximizes reliability even in the harshest environmental conditions.
- Advanced coding and digital processing technologies have given the Series50X the capability to automatically detect and correct misreading of encoder patterns.
- The 2" model incorporates IACS (Independent Angle Calibration System) for maximizing dependability.

Highest Protection against Dust and Water

Fine dust or driving rain is no deterrent to the Series50X. The industry-leading IP66 protection provides unparalleled dependability in the harshest work site conditions.

Dust-tight

- IP6x is the highest grade of protection against ingress of solid foreign objects.
- Shuts out powder dust, sand, mud and other fine particles.

Water-protection

- IPx6 rating means the instrument is protected against powerful water jets from any direction.
- Does not allow penetration of sudden shower or dripping water in tunnels and underground sites, etc.



Quick Operation in All Conditions

Easy-to-use control panel is clearly viewable both in direct sunlight and in underground construction sites.

- The LCD display automatically maintains optimal contrast and visibility using a built-in temperature sensor.
- Fully backlit keys greatly facilitate operation in low lighting conditions.
- The SF14 full-alphanumeric wireless keyboard is optionally available for 2", 3" and 5" models.

Security and Data Management

- Password function prevents unauthorized use.
- 10,000-point internal memory
- SD/SDHC card
- USB flash memory devices
- An optional built-in Bluetooth® module for wireless connection with a data collector.



Built-in Laser Plummet (option)

Built-in laser plummet allows for quick instrument setting. 5 brightness levels are selectable for optimum visibility.



Series50X Specifications

Total Stations SET250X · SET350X · SET550X · SET650X

Model	SET250X	SET350X	SET550X	SET650X
Telescope	Fully transiting, coaxial sighting and distance measuring optics			
Magnification / Resolving power	30x / 2.5"			26x / 3.5"
Others	Length: 171mm (6.7in.), Objective aperture: 45mm (1.8in.) (48mm (1.9in.) for EDM), Image: Erect, Field of view: 1°30' (26m/1,000m), Minimum focus: 1.3m (4.3ft.), Reticle illumination: 5 brightness levels			
Angle measurement	Absolute rotary encoder scanning, both circles adopt diametrical detection			
Display resolution	1" / 5", 0.0002 / 0.001gon, 0.005 / 0.02mil, selectable			
Accuracy (ISO 17123-3:2001)	2" / 0.6mgon / 0.01mil	3" / 1mgon / 0.015mil	5" / 1.5mgon / 0.025mil	6" / 1.9mgon / 0.03mil
IACS (Independent Angle Calibration System)	Provided			
Measurement mode	H V	Clockwise / Counterclockwise, 0 set, Hold, Angle input, Repetition		
Dual-axis compensator / Collimation compensation	Zenith 0 / Horizontal 0 / Horizontal 0± / Slope in %			
Fine motion screws	2-speed motion		1-speed motion	
Distance measurement	Modulated laser, phase comparison method with red laser diode (690nm)			
Laser output ¹	Class 1			
Measuring range (under average conditions ²)	One AP prism	1.3 to 3,500m (4.3 to 11,480ft.) / Under good conditions ⁴ : 1.3 to 4,000m (13,120ft.)		
	Three AP prisms	to 4,500m (14,760ft.) / Under good conditions ⁴ : to 5,000m (16,400ft.)		
	Mini prisms	CP01: 1.3 to 1,000m (3,280ft.), OR1PA: 1.3 to 600m (1,960ft.)		
	Reflective sheet ³	RS90N-K: 1.3 to 150m (4.3 to 490ft.), RS50N-K: 1.3 to 60m (4.3 to 190ft.), RS10N-K: 1.3 to 25m (4.3 to 82ft.)		
Unit	Meter, Foot, Foot + inch, US foot, US foot + inch			
Display resolution	Fine/Rapid: 0.001m / 0.01ft. / 1/8in. Tracking: 0.01m / 0.1ft. / 1/2in.			
Accuracy ² (ISO 17123-4:2001)	Prism	(2 + 2ppm x D) mm		
	Reflective sheet ³	(3 + 2ppm x D) mm		
Measuring mode	Fine (single / repeat / average), Rapid (single / repeat), Tracking			
Measuring time ⁵	Fine: 0.9s (initial 1.7s), Rapid: 0.7s (initial 1.4s), Tracking: 0.3s (initial 1.4s)			
Corrections	Earth curvature & refraction (K=0.142/0.20/none) / Sea level correction / Scale factor (0.5 to 2.0)			
Interface and Data management				
Display	Graphic LCD, 192 x 80 dots, backlight, contrast adjustment			
Keyboard	Alphanumeric keyboard, 27 keys with backlight			
Control panel location	On both faces			On one face
Wireless keyboard SF14 (option)	Full alphanumeric keyboard with infrared communication			-
Data storage	Internal memory	Approx. 10,000 points		
	Plug-in memory device	SD card and SDHC card (max. 4GB) USB flash memory (max. 4GB)		
Interface	Serial RS-232C (baud rate: 1,200 to 38,400bps)			
Bluetooth modem (option) ⁶ / SFX data transfer	Bluetooth Class 2, Ver.1.2. / SFX data transfer via Bluetooth connection with a cellular phone supporting GPRS			
General				
Levels	Plate level	30" / 2mm		40" / 2mm
	LCD display	Graphic display range: ±6' (inner circle), Digital display range: ±6'30"		
	Circular level	10' / 2mm		
Laser plummet (option)	Red laser diode (635nm±10nm), Beam accuracy: ≤1.0mm@1.3m, Class 2 laser product			
Optical plummet	Magnification: 3x, Minimum focus: 0.3m (11.8 in.) from tribrach bottom			
Dust and water protection / Tribrach	IP66 (IEC 60529:2001) / Detachable tribrach (WA200)			
Operating temperature	-20 to +50°C (-4 to +122°F)			
Storage temperature	-30 to +70°C (-22 to +158°F)			
Size with handle & battery	W166 x D180 x H341mm (W6.5 x D7.1 x H13.5 in.)			W166 x D173 x H341mm (W6.5 x D6.8 x H13.5 in.)
Weight with handle & battery	5.5kg (12.1 lb.)		5.4kg (11.9 lb.)	
Power supply				
Battery	BDC46B detachable battery	Li-ion rechargeable battery (7.2V, 2.45Ah), two batteries included in 2", 3", 5" models, one for 6" model		
Operating time (distance & angle) ⁷	BDC46B detachable battery	Approx. 8.5 hours, approx. 12.5 hours in angle measurement only		
	External battery (option) ⁸	BDC60: approx. 25 hours, BDC61: approx. 50 hours		
External power ⁸	Input voltage	6.7 to 8.0V DC		
Automatic power cut-off	5/10/15/30 minutes after operation / none, selectable			
Software				
Onboard programs	Resection, 3D Coordinate Measurement, Setting-out, Set-out Line, Set-out Arc, Point Projection, Intersection, Traverse Adjustment, Single-distance offset, Two-distance offset (hidden point), Offset-angle, MLM (Missing Line Measurement), REM (Remote Elevation Measurement), Area Calculation			

*1 IEC60825-1 Ed.2:2007 / FDA CDRH 21 CFR Part 1040.10 and 11

*2 Average conditions: Slight haze, visibility about 20km (12 miles), sunny periods, weak scintillation.

*3 When the measuring beam's incidence angle is within 30° in relation to the reflective sheet target.

*4 Good conditions: No haze, visibility about 40km (25 miles), overcast, no scintillation.

*5 Typical, under good conditions.

*6 Usage approval of Bluetooth wireless technology varies according to country. Please consult your local Sokkia office or representative in advance.

*7 Fine-single distance measurement every 30 seconds at 20°C (68°F).

*8 Applicable to 2" model only.

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