

Series50RX Specifications

Reflectorless Total Stations SET250RX-SET350RX-SET550RX-SET650RX

Model	SET250RX	SET350RX	SET550RX	SET650RX
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	Clockwise / Counterclockwise, 0 set, Hold, Angle input, Repetition			
	Zenith 0 / Horizontal 0 / Horizontal 0± / Slope in %			
Dual-axis compensator / Collimation compensation	Dual-axis liquid tilt sensor, working range: ±6' (±111mgon) / Collimation compensation available			
Fine motion screws	2-speed motion		1-speed motion	
Distance measurement	Modulated laser, phase comparison method with red laser diode (690nm)			
Laser output ¹	Reflectorless mode: Class 3R / Prism/sheet mode: Class 1			
Measuring range	0.3 to 400m (1.0 to 1,310ft.)			
(under average conditions ²)	Reflective sheet ³	RS90N-K: 1.3 to 500m (4.3 to 1,640ft.), RS50N-K: 1.3 to 300m (4.3 to 980ft.), RS10N-K: 1.3 to 100m (4.3 to 320ft.)		
	Mini prisms	CP01: 1.3 to 2,500m (8,200ft.), OR1PA: 1.3 to 500m (1,640ft.)		
	One AP prism	1.3 to 4,000m (4.3 to 13,120ft.) / Under good conditions ⁵ : 1.3 to 5,000m (16,400ft.)		
	Three AP prisms	to 5,000m (16,400ft.) / Under good conditions ⁵ : to 6,000m (19,680ft.)		
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)	Reflective sheet ³	0.3 to 200m: (3 + 2ppm x D) mm, over 200 to 350m: (5 + 10ppm x D) mm, over 350 to 400m: (10 + 10ppm x D) mm		
	Reflective sheet ⁴	(3 + 2ppm x D) mm		
	AP/CP prism	(2 + 2ppm x D) mm		
Measuring mode	Fine (single / repeat / average), Rapid (single / repeat), Tracking			
Measuring time ⁶	Fine: 0.9s (initial 1.7s), Rapid: 0.7s (initial 1.4s), Tracking: 0.3s (initial 1.4s)			
Measuring beam spot size in reflectorless mode	Height x Width	3 x 5mm@2m, 6.5 x 7mm@10m, 19 x 14mm@40m .12 x .2in.@6.6ft., .26 x .28in.@33ft., .75 x .55in.@131ft.		
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 / Keyboard	Graphic LCD, 192 x 80 dots, backlight, contrast adjustment / Alphanumeric keyboard, 27 keys with backlight			
Control panel location	On both faces			On one face
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) ⁷ / SFX data transfer	Bluetooth Class 2, Ver.1.2. / SFX data transfer via Bluetooth connection with a cellular phone supporting GPRS			
General				
Laser pointer ⁸	Coaxial red laser using EDM beam			
Guide light ⁹	Green LED (524nm) and Red LED (626nm), Operating range: 1.3 to 150m (4.3 to 490ft.), Class 1 LED			
Levels	Plate level	30" / 2mm		40" / 2mm
	Graphic / Circular	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 (11.8in.) from tribrach bottom			
Dust and water protection / Tribrach	IP66 (IEC 60529:2001) / Detachable tribrach (WA200)			
Operating temperature	Standard models	-20 to +50°C (-4 to +122°F)		
	High Temperature models ⁹	-20 to +60°C (-4 to +140°F) ¹⁰		
	Low Temperature models ⁹	-30 to +50°C (-22 to +122°F)		
Size with handle & battery		W166 x D180 x H341mm (W6.5 x D7.1 x H13.5in.)	W166 x D173 x H341mm (W6.5 x D6.8 x H13.5in.)	
Weight with handle & battery	Standard/High Temp. models	5.6kg (12.3 lb.)	5.5kg (12.1 lb.)	5.4kg (11.9 lb.)
	Low Temperature models	5.6kg (12.3 lb.)		
Power supply				
Battery	BDC46B detachable battery	Li-ion rechargeable battery (7.2V, 2.4Ah), two batteries included in 2", 3", 5" models, one for 6" model		
Operating time (distance & angle) ¹¹	BDC46B detachable battery	Approx. 8.5 hours, approx. 12.5 hours in angle measurement only		
	External battery (option) ¹²	BDC60: approx. 25 hours, BDC61: approx. 50 hours		
External power ¹²	Input voltage	6.0 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 Amd.2:2001 / FDA CDRH 21 CFR Part 1040.10 and 11 *2 Average conditions: Slight haze, visibility about 20km (12 miles), sunny periods, weak scintillation. *3 With Kodak Gray Card White Side (90% reflective). When brightness on measured surface is 30,000 lx. or less. Reflectorless range/accuracy may vary according to measuring objects, observation situations and environmental conditions. *4 When the measuring beam's incidence angle is within 30° in relation to the reflective sheet target. Measuring range in temperatures of -30 to -20°C (-22 to -4°F) with Low Temperature models: RS90N-K: 1.3 to 300m (4.3 to 980ft.), RS50N-K: 1.3 to 180m (4.3 to 590ft.), RS10N-K: 1.3 to 60m (4.3 to 190ft.) *5 Good conditions: No haze, visibility about 40km (25 miles), overcast, no scintillation. *6 Typical, under good conditions. Reflectorless measurement time may vary according to measuring objects, observation situations and environmental conditions. *7 Usage approval of Bluetooth wireless technology varies according to country. Please consult your local Sokkia office or representative in advance. *8 The laser-pointer and the guide light do not work simultaneously. *9 Low Temperature models and High Temperature Models are available on built-to-order basis. *10 The instrument should be kept from direct sunlight at over +50°C (+122°F). *11 Single distance measurement every 30 seconds at 25°C (77°F). *12 Applicable to 2" model and Low Temperature models only.

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LASER RADIATION
AVOID DIRECT EYE EXPOSURE
MAX 5mW LD 635-690nm
CLASS II LASER PRODUCT
IEC 60825-1 Am.2 2001

SOKKIA

Series50RX

Reflectorless Total Stations

Ultimate in Reliability

All Weather - All Temperature - Consistent Speed



Challenging Environments Measure the Dimensions of Reliability

The Series50RX operates in heat or frost, in sand or snow, in powder dust or driving rain with unprecedented dependability. Enhanced RED-tech II EDM consistently measures to a wide variety of objects without downtime.



Environmentally Durable

The Series50RX total stations offer the industry's highest durability that withstands the severest climates as well as the harshest work site conditions.

Maximum Reliability in Extreme Temperatures

In addition to the standard and Low Temperature models, the High Temperature models are also available for use in extreme heat.

High Temperature Models

- The Series50RX sets a new standard for use of a total station in extremely high temperatures.
- Dependably operates in the heat of up to +60°C (+140°F).
- Ideal for use in deserts, equatorial regions and tropical reefs.

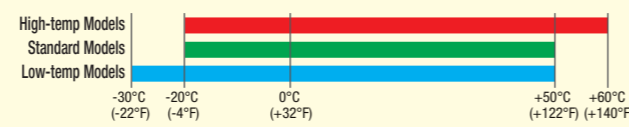


Low Temperature Models

- Ensures operations in freezing climates as low as -30°C (-22°F).
- Large external Ni-MH batteries are available as options for long-term operation in low temperatures.



Operating temperature range



*High Temperature Models and Low Temperature Models are available on built-to-order basis.

Highest Protection against Dust and Water

The Series50RX withstands the finest powder dust as well as the hardest driving rain. The industry-leading IP66 protection provides unparalleled reliability in the harshest work site conditions.

Dust-tight

- IP6x is the highest grade of protection against ingress of solid foreign objects.
- The IEC international standard defines IP6x as a "dust-tight" enclosure that does not allow any dust penetration.
- Shuts out powder dust, sand, mud and other fine particles that are commonly seen in construction sites and desert areas.

Water-protection

- IP66 rating means the instrument is protected against powerful water jets from any direction.
- The Series50RX does not allow penetration of heavy rain, dripping water in tunnels and underground sites, and water from sprinklers, etc.



Enhanced RED-tech II EDM

Further enhanced RED-tech II EDM provides pinpoint precision in reflectorless measurement as well as greater range with consistent measurement speed.



400m (1,310ft.) Reflectorless Range

Extended reflectorless measurement range increases work efficiency by reducing shift of instrument locations.

- Measures from the industry's shortest distance -30cm (1ft.). Ideal for measurements to benchmarks close to the instrument or to points on the ground in archaeological survey.
- Narrow visible laser beam is also used as a laser pointer; the EDM precisely measures the point the laser dot indicates.

Beam spot size

Distance	10m (33ft.)	40m (130ft.)
Spot size	6.5 x 7mm (.26 x .28in.)	19 x 14mm (.75 x .55in.)

- Laser output level is automatically switched to Class 1 specifications in "prism" and "reflective sheet" modes to ensure safety.

1.7 seconds – Max. 4.2 seconds

With refined digital signal processing algorithms, the Series50RX reduced variation of reflectorless measurement time due to the ranges and object types by 30 percent.

- 1.7 seconds – typical initial measurement time.
- 4.2 seconds – maximum time before results are displayed.
- Consistent, high-speed measurement eliminates operator's stress and increases overall productivity.

* Compared to the previous models.

World-proven, Time-tested Angle Reading System

Sokkia's innovative absolute encoder system provides unsurpassed, extra long-term reliability that has been proven in all 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 Series50RX the capability to automatically detect and correct misreading of encoder patterns.
- The 2" model incorporates IACS (Independent Angle Calibration System) for the highest reliability yet.

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 wireless keyboard is optionally available for 2", 3" and 5" models.



Guide Light Speeds Up Setting-out Tasks

Green/Red guide light is built into the telescope as a standard feature.

- The lateral position of a prism can be easily determined in a wide range of 1.3 to 150m (4.3 to 490ft.).
- A special flashing pattern is also included to assist users with color perception disability.



Security and Data Management

- Password function prevents unauthorized use.
- 10,000-point internal memory
- SD/SDHC card
- USB 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 for optimum visibility.

