SETX

SOKKIA CLASSIC

SOKKIA

A New Epic to a Legacy of Breakthrough Technology

Far from home, in the most demanding worksites, you need to rely on toughness and accuracy to pull you through. In the middle of the desert, deep in the heart of the jungle, or on a windswept mountain top, new discoveries are made and new trails are blazed. This is what surveying is all about.

Nobody knows this like SOKKIA, which is why we made the SOKKIA CLASSIC SET X total station, a rugged partner in a journey into undiscovered territory.

SETX

SET1X, SET2X, SET3X, SET5X

RED-tech EX — High-precision Reflectorless EDM

RED-tech EX EDM provides pinpoint accuracy using an ultra-narrow red laser beam. It performs fast and stable reflectorless measurements up to 500m (1,640ft.) from the industry's shortest 30cm (1ft.) distance. Advanced digital signal processing technology offers greater reliability even under harsh environmental conditions.
Using prisms, RED-tech EX measures up to 10,000m (32,800ft.), and with convenient reflective sheet targets up to 500m (1,640ft.).

RED Ex -tech
REvolutionary Digital processing EDM technology

Distance	2m (6.6ft.)	10m (33ft.)	40m (131ft.)	100m (328ft.)	300m (984ft.)	500m (1,640ft.)
Beam spot size (height x width)	5 x 7mm (0.2 x 0.28in.)	7 x 9mm (0.28 x 0.35in.)	14 x 14mm (0.55 x 0.55in.)	29 x 24mm (1.14 x 0.95in.)	76 x 56mm (2.99 x 2.2in.)	123 x 89mm (4.84 x 3.5in.)

Measuring beam spot size (Reflectorless mode)

Single Optimized Beam

RED-tech EX uses only one visible red laser beam for measuring and pointing, allowing you to visually confirm the exact measurement point.

Advanced Angle Measurement System

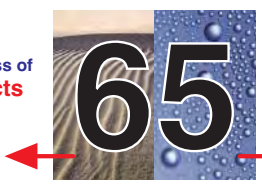
All models are equipped with market-proven absolute encoders. Advanced coding and digital processing technologies provide long-term reliability in any work-site conditions. The 1" and 2" high-precision models incorporate IACS (Independent Angle Calibration System) to further enhance measurement reliability.

IP65 Environmental Protection

SET X offers the highest in environmental protection for Windows CE total stations. SET X has an IP65 rating, meaning it is able to withstand the harshest conditions in the most demanding jobsites. SET X maintains its IP65 rating even with the external battery connected.

IP

Protection against ingress of solid foreign objects
Highest level: 6
7 levels: 0 to 6.
X: unspecified.



Protection against ingress of water
Highest level: 8
9 levels: 0 to 8.
X: unspecified.

The International Electrotechnical Commission standard IEC 60529 describes a system for classifying degrees of protection provided by enclosures of electrical equipment. The IP Code consists of the letters IP and two numerals. Larger numbers represent greater levels of protection.

User-friendly Design

Ergonomic Handle

SET X features a redesigned ergonomic handle and new attachment mechanism. The handle facilitates a tight grip for use in severe conditions. The handle can be easily and quickly removed for vertical and near vertical measurements and securely reattached in a flash.

Bluetooth® Wireless Communications

SET X features Class 1 *Bluetooth* wireless modem for license-free long range data communication of up to 200m (650ft.). Enjoy a wireless connection with your data collector or tablet PC for expanded data collection possibilities and seamless data handling.

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

Guide Light Unit

SET X comes standard with a guide light unit to assist in setting out measurements. The guide light unit consists of two different color LED's emitted from a single aperture. The lateral position of a prism can be easily determined at both long and short ranges. A special flashing pattern is also included to assist users with color weakness.

Color Display/Illuminated Keyboard

SET X has a color LCD touch screen display. The display has high angle visibility and subtle contrast for maximum visibility even in direct sunlight. The full alphanumeric keyboard has concave keys that can be easily pressed by hand or with the stylus and is illuminated to let you see what you are doing under any environmental condition.

An additional control panel on face 2 is available as a factory option.

Trigger Key

SET X features an ergonomically placed trigger key that greatly facilitates taking measurement while looking through the telescope and even while turning the fine motion screws. Measurement can be taken at any time with just the push of a button.

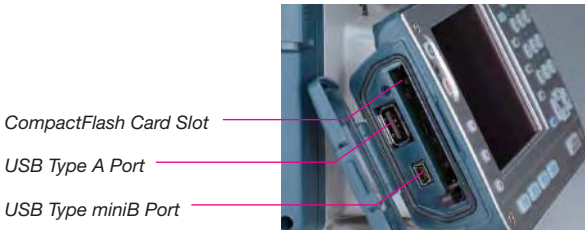
Rechargeable Li-ion Battery

SET X offers a flexible power system to support long hours in the field. SET X comes standard with 2 BDC58 rechargeable Li-ion batteries. Each standard accessory battery provides 14 hours of operational time for a total of 28 hours of battery life. The optionally available BDC61 external battery offers an astounding 38.5 hours of operation. The combination of the two provides enough power to work for a week without having to stop and recharge. SET X has no problem measuring long hours on remote jobsites.

A BDC46B battery can also be used with the provided SB178 adapter.

Multiple Data Interfaces

Up-to-date interfaces enhance convenience in data storage and transmission.



CompactFlash Card Slot

CF cards (Type II, 3.3V, max. 4GB), SD cards (with CF adapter, max. 1GB) and CF type modems are supported.

USB Port

Up to 4GB USB flash memory (FAT32 format) is supported. A USB card reader can be used to further broaden media usability.

SFX

SFX technology enables data transfer via e-mail to and from anywhere in the world using an Internet-capable mobile phone or a CompactFlash modem.

Weatherproof Multi Port

Data transmission and external power connection are available in a single weatherproof port. The port boasts an environmental rating of IP65 with a cable connected.

Standard Accessories

BDC58 rechargeable Li-ion batteries (2 pcs.) ● CDC68 charger with EDC113A/113B/113C AC power cable ● SB178 battery adapter for BDC46B batteries ● Stylus (2 pcs.) ● CP9 tubular compass ● Lens hood ● Lens cap ● Plumb bob ● Tool kit ● Wiping cloth ● Vinyl cover ● Operator's manual ● Carrying case ● Shoulder strap ● Laser caution sign board ● Protective film (for LCD screen) and manual

Optional Accessories

For more information, please consult your local sales representative.

SSF Onboard software with a superior

See everything clearer

Of the many features in the Spectrum Survey Field software, the large graphical user interface (GUI) is one of the best. With the big icons you can point and touch with your finger, instead of using a stylus.

Survey with speed and convenience

Create, edit, upload, and download faster using advanced data management techniques. Compatibility problems? We know there are several programs that require specific file formats, so we've given SSF numerous file formatting export options.

Experience the Sokkia edge

SSF data collection software comes with superior data exchange methods, making data management easier.

Real-Time Field-to-Finish

Make a code, or code and string, edit and see the map update in real-time as we store points.

Design References

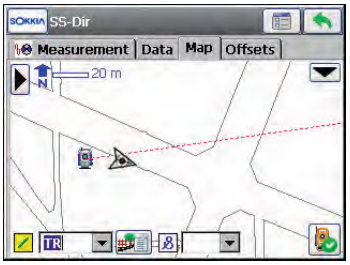
When staking out a road, SSF allows the user to graphically select up to 50 additional surface or segment point references. Each reference is report to the stakeout store point screen, and the current stake report.

Intuitive User Interface

SSF maintains the familiar large icon menu structure for fast and easy touch navigation. Select a function with the touch of a finger, or use the arrow keys to move the blue selection box around the screen.

MAP-based Topography

SSF provides a superior MAP view in Topo that allows the user to measure and code while showing their current position.



More Viewable MAP Area

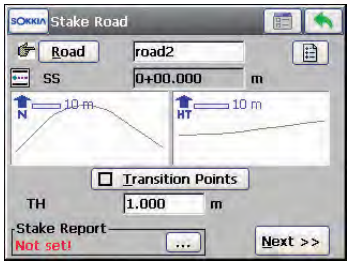
By adding collapsible toolbars for status and zoom icons, the SSF map provides more viewable area.

The way is clear: simplify surveying with SSF onboard.

graphical user interface and fast performance.

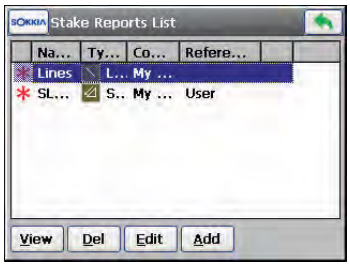
Stakeout Transition Points

The opening dialog of the Road and Slope stakeout routines offers options for stopping at various Transition Points along the design, for both horizontal and vertical critical stations.



Current Stake Report

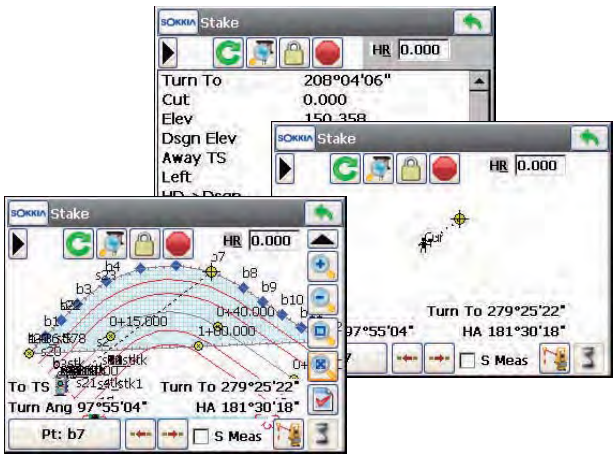
The opening dialog of every stakeout routine now displays the current Stake Report.



User-defined Stakeout Interface

Stakeout supports up to four different views for the graphical information that is displayed.

Additional customization can be done through user-defined data labels. Simply click on the data label to select from the data label options list.



Stake Reports

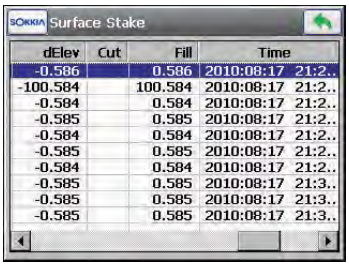
SSF has industry leading user-defined stake reports. Unlimited configurations and reports can be stored, and up to 5 current reports can be active based on the routines you use.

Sokkia Logo Context Menu

Get access to several features through the Sokkia logo button. This context menu allows the user to quickly Set References in road staking routines, or View Report in every stakeout routine.

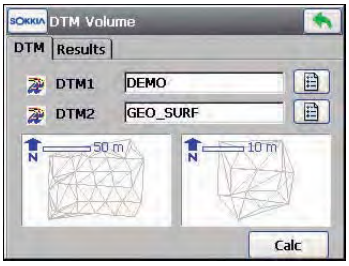
Your Stake Report Format

The stakeout report viewer and store point dialog display the information that you configure in the Stake Report Configuration.



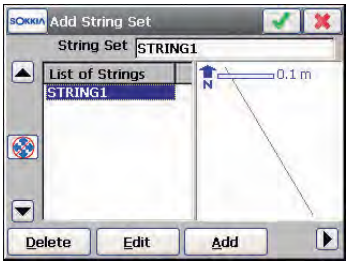
Two Surface Volumes

SSF allows the user to store a measured surface while staking a DTM, and provides the ability to calculate two surface volumes in COGO.



Road Strings

Road Strings and the ability to define String Sets that define the true road design surface sets SSF apart from products limited to cross section road staking.



SETX Total Stations

SET1X · SET2X · SET3X · SET5X

SPECIFICATIONS

Model		SET1X	SET2X	SET3X	SET5X
Telescope		Fully transiting, coaxial sighting and distance measuring optics			
		Length: 173mm (6.8in.), Objective aperture: 45mm (1.8in.) (EDM 48mm (1.9in.)), Magnification: 30x, Resolving power: 2.5", Image: Erect, Field of view: 1°30' (26m/1,000m), Minimum focus: 1.3m (4.3ft.), Reticle glass: ∞ mark printed, Reticle illumination: 5 brightness levels			
Angle measurement		Absolute encoder scanning. Both circles adopt diametrical detection.			
Unit		Degree / Gon / Mil, selectable			
Display resolutions (selectable)		0.5" / 1", 0.0001 / 0.0002gon, 0.002 / 0.005mil		1" / 5", 0.0002 / 0.001gon, 0.005 / 0.02mil	
Accuracy (ISO 17123-3:2001)		1" / 0.3mg / 0.005mil	2" / 0.6mg / 0.01mil	3" / 1mg / 0.015mil	5" /1.5mg / 0.025mil
IACS (Independent Angle Calibration System)		Provided		n/a	
Measurement mode		H: Clockwise / Counterclockwise, selectable. V: Zenith 0 / Horizontal 0 / Horizontal 0±90° / Slope in %, selectable			
Automatic dual-axis compensator		Dual-axis liquid tilt sensor, Working range: ±4' (±74 mg)			
Collimation compensation		Yes / No, selectable			
Fine motion screws		Fine / Coarse 2-speed motion			
Distance measurement		Modulated laser, phase comparison method with red laser diode.			
Laser output		Reflectorless mode: Class 3R (max. 5mW), Prism/Sheet mode: Class 1 equivalent (max. 0.22mW)			
Unit		Meters / feet / US feet, selectable			
Measuring range (slope distance)	Reflectorless*1 (using Kodak Gray Card)	0.3 to 500m (1 to 1,640ft.) (White side, 90% reflective) 0.3 to 250m (1 to 820ft.) (Gray side, 18% reflective)			
	With reflective sheet target*2	RS90N-K: 1.3 to 500m (4.3 to1,640ft.)			
	With mini prisms	Under average conditions*3: w/ CP01: 1.3 to 2,500m (4.3 to 8,200ft.), w/OR1PA: 1.3 to 500m (4.3 to 1,640ft.)			
	With 1 AP prism	Under average conditions*3: 1.3 to 5,000m (4.3 to 16,400ft.), Under good conditions*4: 1.3 to 6,000m (4.3 to 19,680ft.)			
	With 3 AP prisms	Under average conditions*3: to 8,000m (to 26,240ft.), Under good conditions*4: to 10,000m (to 32,800ft.)			
Display resolutions	Fine mode	0.0001 / 0.001m (0.001 / 0.01ft.)		0.001m (0.01ft.)	
	Rapid single / Tracking	Rapid single: 0.001m (0.01ft.) / Tracking: 0.01m (0.1ft.)			
Accuracy (ISO 17123-4:2001) (D=measuring distance, unit:mm)	Reflectorless*1 (Fine mode)	0.3 to 200m (1 to 650ft.): (3 + 2ppm x D)mm Over 200 to 350m (over 650 to 1,140ft.): (5 + 10ppm x D)mm Over 350 to 500m (over 1,140 to 1,640ft.): (10 + 10ppm x D)mm			
	Reflectorless*1 (Rapid mode)	0.3 to 200m (1 to 650ft.): (6 + 2ppm x D)mm Over 200 to 350m (over 650 to 1,140ft.): (8 + 10ppm x D)mm Over 350 to 500m (over 1,140 to 1,640ft.): (15 + 10ppm x D)mm			
	With reflective sheet target*2	Fine: (3+2ppm x D)mm, Rapid: (6+2ppm x D)mm			
	With prism Fine mode	(2+2ppm x D)mm			
	With CPS12 precision prism system	(1.5+2ppm x D)mm	n/a		
	With prism Rapid mode	(5+2ppm x D)mm			
Measuring time	Fine mode / Rapid / Tracking	0.9s (initial1.5s) / 0.6s (initial 1.3s) / 0.4s (initial 1.3s)			
Measuring mode		Fine (single, repeat, average), Rapid (single, repeat), Tracking			
Atmospheric correction, Prism constant correction		Temperature, Pressure, Humidity, ppm input available / -99 to +99mm (1mm steps). 0 fixed in reflectorless mode.			
Refraction & earth-curvature correction		Yes (K=0.14 / 0.20) / No, selectable			
OS, data storage and transfer					
Operating system / Application		Microsoft Windows CE / SDR Data Collection Software			
Data storage	Internal memory	64MB (More than 1MB available for data)			
	Memory card drive	Support up to 4GB CF Type II (3.3V only), SD card (max. 1GB) with CF type adapter, USB flash memory up to 4GB (FAT32 format)			
Interface		Asynchronous serial RS232C compatible, Baud rate 1,200 to 38,400bps USB1.1 Type A and Type miniB			
Bluetooth wireless modem*5		Class 1, Ver.2.0 + EDR. Operating range: up to 200m (650ft.)			
SFX data transfer		Provided			
General					
Display		3.5in. Transreflective TFT QVGA color LCD on single face (Face 1) with backlight (Bright / Dim selectable), 324x240 dots (active area: 72.5mm x 49.5mm), touch screen, 2nd control panel on Face 2 is a factory option.			
Keyboard		Alphanumeric, 32 keys with backlight			
Laser-pointer function		ON / Auto Off in 1/5/10/30 minutes / OFF, selectable. (does not work simultaneously with the Guide Light)			
Guide Light		Two color LEDs, single aperture, Class 1 LED product. Operating range: 1.3 to 150m (4.3 to 490ft.)			
Sensitivity of levels	Plate level	20" / 2mm	30" / 2mm		
	Circular / Graphic	Circular level: 10' /2mm / Graphic LCD level: ±4.5' (±81mgon, ±1.35mil) / outer circle			
Optical plummet	Magnification	5.5x	3x		
Tribrach		Detachable			
Dust and water protection / Operating temperature		IP65 (IEC 60529:2001) / -20 to +50°C (-4 to +122°F)			
Instrument height / Size with handle and battery		236mm (9.3in.) from tribrach bottom / W 201 x D 202 x H 375 mm (W 8.0 x D 8.0 x H 14.8in.)			
Weight with handle and battery		Approx. 6.9kg (15.2lb.), With optional F2 control panel: approx. 7.1kg (15.7lb.)			
Power supply		7.2 to 12V DC			
Battery	BDC58 (standard)	Li-ion rechargeable battery (4.3Ah, 2pcs. included standard)			
	BDC46B (optional)	Li-ion rechargeable battery (2.45Ah) (Use with the SB178 adapter included as a standard accessory)			
	External batteries (optional)	Ni-MH rechargeable battery, BDC60 (6.5Ah), BDC61 (13Ah)			
Operating time at 20°C (68°F) (single measurement every 30 seconds)	BDC58	Approx. 14 hours			
	BDC46B	Approx. 6.5 hours			
	External batteries (optional)	BDC60: approx. 19 hours, BDC61: approx. 38.5 hours.			
Automatic power cut-off		5/10/15/30 minutes after operation / Off, selectable			

Laser Class 3R conforms to: IEC 60825-1 Amd.2: 2001 / FDA CDRH 21 CFR Part 1040.10 and 1040.11

*1 With Kodak Gray Card white side (90% reflective). Reflectorless range/accuracy may vary according to measuring objects, observation situations and environmental conditions.

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

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

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

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

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2011 04-1 P-117-1 GE