

**SOKKIA**

IEC60529  
IP66

**SET300**  
**SET500**  
**SET600**  
TOTAL STATIONS



Photo:  
SET300 with optional  
memory card unit



## Sokkia's Tradition of Excellence and Value Redesigned for the New Millennium

- **Introducing Sokkia's new total stations—engineered for top performance on any job site. With rugged physical enhancements, the SET300, SET500 and 600 are undemanding instruments even under the most demanding conditions.**

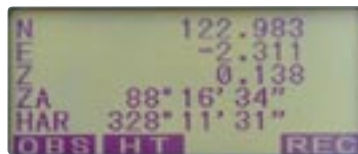
### Water and dust resistant

With advanced protection against water and dust infiltration, the SET300/500/600 operates dependably in sudden showers or drizzling rain, or in humid or dusty construction environments (complies with IP66 of international standard IEC60529).



### Ultra-light body

Weighing in at 5.2 kg (11.5 lbs.) with battery and tribach, the SET300/500/600 is always easy to handle.



### Extra-wide screen

Never lose sight of your project. SET300/500/600's high density screen (192 x 80 pixels) provides optimum data visibility in the field.

### Compact Lithium Ion Battery

Take ten hours of continuous angle and distance measurements with SET300/500/600's rechargeable Lithium Ion battery pair. Unlike Ni-Cd cells, SET300/500/600's Li-Ion batteries can be fully recharged at anytime, without diminishing the batteries' energy capacity.



### SET300/500/600 Quick Specs

	SET300	SET500	SET600
Measuring Range (using one AP01 prism)*	1m to 2000m (6,500 ft.)		1m to 1600m (5,200 ft.)
Display Resolution ( Selectable )	1"/0.2mgon/0.005 mil, 5"/1 mgon/0.02 mil,		5"/1mgon/0.02 mil 1"/0.2mgon/0.005 mil
Accuracy ( ISO/DIS 12857-2 :1995 ) H&V	3" / 1 mgon	5" / 1.5mgon	6" / 1.9 mgon
Magnification	30x		26x
Data Storage Internal Memory	About 4000 points		About 2000 points
Compact flash memory card unit	Optional		—
Display Unit	Alphanumeric/graphic dot matrix LCD (192 x 80 dots) on each side. Backlight, non-reflective glass provided.		Alphanumeric/graphic dot matrix LCD (192 x 80 dots) on one side. Backlight, non-reflective glass provided

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



## ● Enhanced technology assures accuracy and efficiency under any work conditions.

### New EDM and Optical System

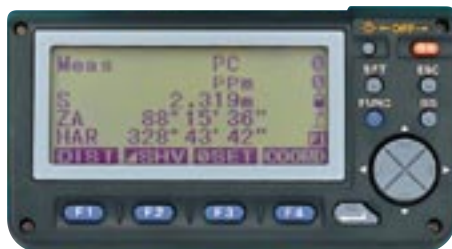
SET300/500/600's improved EDM and optical system have the range and speed to keep your project ahead of schedule. Operating with only one AP01 prism in normal conditions, the SET300/500 and SET600 measure to 2000 m (6,500 ft.) and 1600 m (5,200 ft.) respectively in 2.8 seconds at an accuracy of  $\pm(3+2\text{ppmXD})\text{mm}$ .



SET300/500/600's innovative optical system is designed for optimal performance with both reflective sheet targets and glass prisms. With standard optical systems, inclination of the sheet target can introduce error or prohibit measurement entirely. The central portion of SET300/500/600's objective lens acts as the light emitter and the surrounding portion acts as the receiver, ensuring accuracy even when the reflective sheet target faces the SET300/500/600 at an angle.

### Easy-to-Use Keyboard

Enjoy an efficient workflow and greater productivity thanks to SET300/500/600's ergonomic keyboard. Access frequently used functions with pre-programmed keys or assign functionality to programmable softkeys to meet your requirements.



### Sophisticated Dual-Axis Compensator

Sokkia's time-tested, dual-axis compensator assures accurate angle measurements. The dual-axis tilt sensor monitors deviations of both the X and Y axes, and corrections for horizontal and vertical angle readings are automatically computed and applied. The collimation function automatically corrects the deviations of the horizontal, vertical and sighting axes.

### Extended Memory

Whether storing point data from large sites, downloading data from a PC for setting out or applying feature codes, the SET300/500/600's large memory capacity supports all your surveying needs. The SET300/500 stores up to 4000 points, and the SET600 stores 2000 points.

### Compact Flash Memory Card Unit (Optional)

A card unit for commercially available compact flash memory cards can be added as an option to the SET300/500. 72,000 points (eighteen 4,000-point files) can be stored with an 8MB memory card, while a 16MB memory card provides 144,000 points of data storage (thirty-six 4,000-point files).



### RS series Reflective Sheets

The 0.4 mm thick targets self-adhere easily to almost any dry surface and can be used where glass prisms cannot.

### Pin Pole Reflective Target RT50P

The 50 x 50 mm, 360-degree rotating sheet targets can be connected to narrow pin poles.



### Detachable Rotary Target RT90C

The 90 x 90 mm, 360-degree rotating sheet targets can be mounted on a tribach with the AP41 adapter, or mounted directly to the AP61 prism pole.

### Two-point Target 2RT500

Measure hidden points where other prisms cannot be placed with this two-point target. The 500mm distance between the two targets can be extended with additional poles.

### Reflective Staff RF3

Use the RF3 leveling staff, with special reflective surface, to simultaneously measure horizontal distance and take height readings.

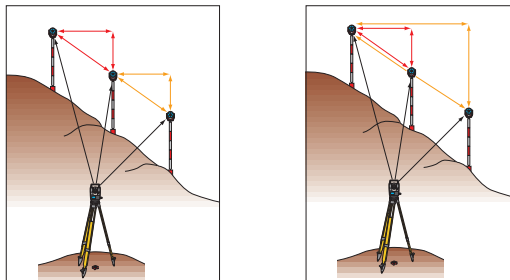


**Comprehensive software with robust functionality guarantees precision.**

- **SET300/500/600 is outfitted with versatile software that enhances any surveying project. Partnered with the SET300/500/600's ergonomic keyboard, you can spend less time learning to operate the software, and more time concentrating on your project. Use the SET300/500/600's onboard software to perform a wide variety of survey functions including the following:**

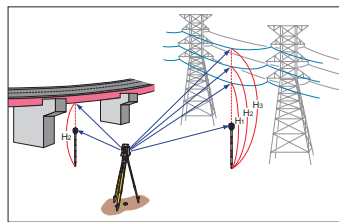
**Missing Line Measurement (MLM)**

At the touch of a key, the SET300/500/600 measures horizontal distance, slope distance, height difference and percentage of slope between two prisms.



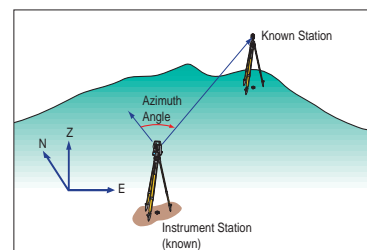
**Remote Elevation Measurement (REM)**

The SET300/500/600 easily determines the height of a point where a prism cannot be placed. Sight a prism either directly above or directly below the target point, and then sight the target point.



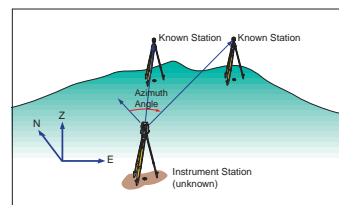
**Azimuth Angle Setting**

The SET300/500/600 can automatically set the horizontal angle to the azimuth of a back sight by using the coordinates of the instrument station and the backsight point.



**Resection**

The SET300/500/600 can determine the azimuth and coordinates of an unknown instrument station with 2 to 10 known points. When using two points, measure both angles and distances. When using three or more points, the distance is not required.



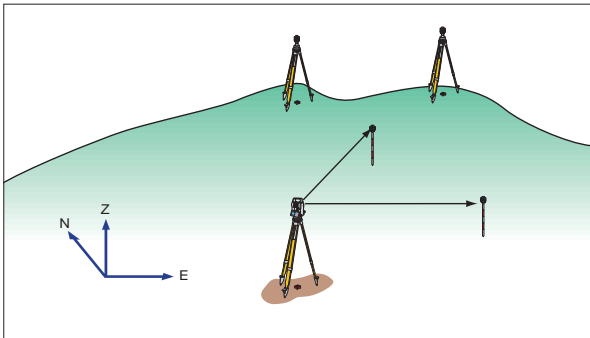


**Boost your SET300/500/600's** functionality—and your own productivity—with Sokkia's acclaimed SDR software. Available on a number of hardware devices, SDR software gives you the power to accomplish complex field operations, such as traverse adjustment, COGO and roading, with remarkable ease and speed.



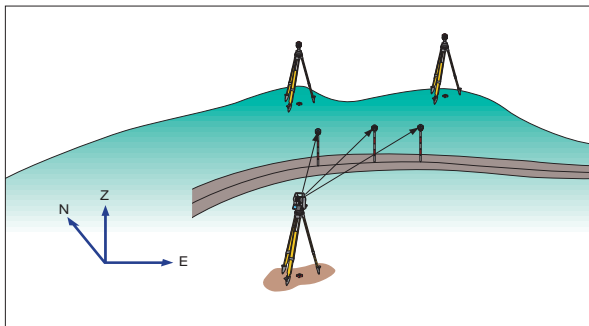
### 3-D Coordinate Measurement

The SET300/500/600 calculates 3-D coordinate values of measuring points and displays them either as N,E,Z or E,N,Z.



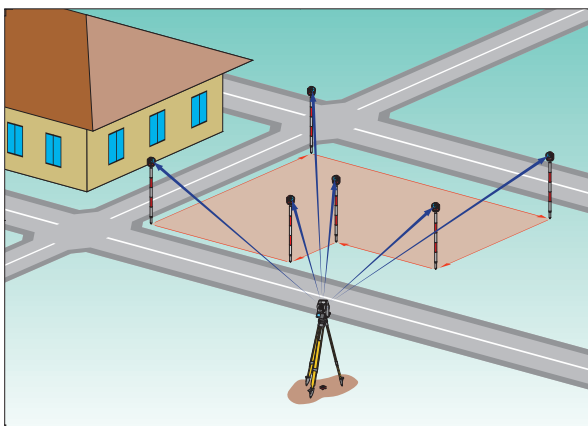
### Setting Out

The SET300/500/600 performs three-dimensional setting out with N,E and Z coordinates. The setting out position is indicated graphically on the screen.



### Area Calculation

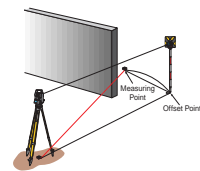
The SET300/500/600 can use measured points or file data to calculate an area.



### Offset Measurement

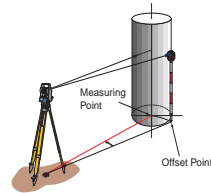
#### Offset/Distance

The SET300/500/600 calculates the angles and distance, or the coordinates of the measuring point by inputting the distance and direction between the measuring point and the prism.



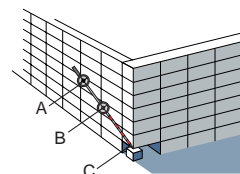
#### Offset/Angle

The SET300/500/600 automatically calculates the position of measuring points. First, set the prism on either side of the measuring point at the same distance from the SET300/500/600. Measure the prism, then sight the measuring point.



#### Two-Distance Offset

With the use of a two-point target, the SET300/500/600 can measure hidden points easily and efficiently. Set the two-point target on the measuring point (the target does not have to be perpendicular). Measure targets A and B, and input the length between target B and the measuring point. The SET300/500/600 calculates the position of the measuring point in angles and distance, or in coordinate values.



			SET300	SET500	SET600
<b>Telescope</b>			Fully transiting. Coaxial sighting and distance measuring optics.		
Size (without peep sights)			L 170 x W 64 x H 125 mm (L 6.7 x W 2.6 x H 5.0 in.)		
Objective aperture			45 mm (1.8 in.) [EDM: 48 mm (1.9 in.)]		
Magnification			30 x		26 x
Image			Erect		
Resolving power			3"		3.5"
Field of view			1°30' (26 m/1,000 m)		
Minimum focus			1.0m (3.3 ft.)		
Reticle illumination			Built-in. 5 brightness levels		
<b>Angle measurement</b>			Photoelectric incremental rotary encoder scanning. Both circles adopt diametrical detection and are provided with absolute 0 index points.		
Unit		H&V	360° / 400gon / mil, selectable		
Display resolution (selectable)		H&V	1" /0.2 mgon /0.005 mil, 5" /1 mgon/0.02 mil		5"/1 mgon /0.02 mil, 1" /0.2 mgon /0.005 mil
Accuracy (ISO/DIS 12857-2:1995)		H&V	3" (1 mgon)	5" (1.5 mgon)	6" (1.9 mgon)
Automatic dual-axis level compensator			ON (V&H, only V) / OFF selectable		
Type			Dual-axis liquid tilt sensor		
Range			±3' (±55 mgon), out-of-range warning displayed		
Display resolution			According to selection of display resolution		
Collimation program			ON / OFF selectable		
Display mode		H	Clockwise / Counterclockwise, selectable ; 0 set, Hold, angle setting, available		
		V	Zenith angle (Zenith 0°) Vertical angle (Horizontal 0°) Height angle (Horizontal 0° ± 90°), Slope %, selectable		
<b>Distance measurement</b>			Modulated near infrared light, Near infrared LED, Coaxial EDM transmitting and receiving optics (Class 1 LED product)		
Measuring range (slope distance)			A: Average conditions: slight haze, visibility about 20 km (12 miles), sunny periods, weak scintillation. G: Good conditions: no haze, visibility about 40 km (25 miles), overcast, no scintillation. The range is achieved by using Sokkia's AP prism system, CP01 Compact prism and reflective sheet RS90N (90 x 90mm).		
Reflective sheet target RS90N		A	3 m to 70 m (220 ft.)		3 m to 60 m (190 ft.)
With CP01 compact prism		A	1 m to 700 m (2,200 ft.)		1 m to 600 m (1,900 ft.)
With one AP01 prism		A	1 m to 2000 m (6,500 ft.)		1 m to 1600 m (5,200 ft.)
		G	1 m to 2200 m (7,200 ft.)		1 m to 1800 m (5,900 ft.)
With three AP01 prisms		A	1 m to 2200 m (7,200 ft.)		1 m to 1800 m (5,900 ft.)
		G	1 m to 2400 m (7,800 ft.)		1 m to 2000 m (6,500 ft.)
Unit			Meters / Feet / Inch, selectable		
Measurement mode			Fine meas. (single/repeat/average) / Rapid meas. (single/repeat) / Tracking		
Display resolution			Fine measurement 0.001 m (0.01 ft.) Rapid measurement 0.001 m (0.01 ft.) Tracking measurement 0.01 m (0.1 ft.)		
Unambiguous measuring range (Slope distance)			4200 m (13780 ft.)		
Accuracy		With AP prism	Fine meas.	± (3 + 2ppm x D) mm	
(D=measuring distance unit: mm)			Rapid meas.	± (5 + 5ppm x D) mm	
		With reflective sheet target*1	Fine meas.	± (4 + 3ppm x D) mm	
			Rapid meas.	± (5 + 5ppm x D) mm	
Measuring time			Fine measurement Every 1.6 s (initial meas. 2.8 s) Rapid measurement Every 0.8 s (initial meas. 2.3 s) Tracking measurement Every 0.3 s (initial meas. 1.8 s)		
Atmospheric correction			(1) Temperature / pressure input, (2) ppm input, (3) w/o compensation, selectable		
Temperature input range			-30°C to +60°C (1°C steps) / -22°F to +140°F (1°F steps)		
Pressure input range			500 hPa to 1,400 hPa (1 hPa steps), 375 mmHg to 1,050 mmHg (1 mmHg steps), 14.7inchHg to 41.3 inchHg (0.1 inchHg steps)		
ppm input range			-499 ppm to + 499 ppm (1 ppm steps)		
Prism constant correction			-99 mm to +99 mm (1 mm steps)		
Refraction & earth-curvature correction			ON (K=0.14 / K=0.20) / OFF, selectable		
Audio target acquisition			Display and audio; ON / OFF, selectable		
Automatic light intensity control			Provided		
<b>Software and data transfer</b>					
Onboard programs			Remote Elevation, Offset, 3-D Coordinate, 3-D Setting-out, Resection, Missing Line, Area Calculation, Azimuth Angle Setting		

		SET300	SET500	SET600
Data storage	Internal memory	About 4000 points		About 2000 points
	Compact flash memory card unit *2	Optional		—
Interface		Asynchronous serial, RS-232C compatible, direct data output to a Centronics compatible printer is possible via the optional DOC46 printer cable. Baud rate : 38,400 / 19,200 / 9,600 / 4,800 / 2,400 / 1,200 bps		
<b>General</b>				
Display unit		Alphanumeric / graphic dot matrix LCD (192 x 80 dots) on each side. Backlight, Non-reflective glass, provided		Alphanumeric / graphic dot matrix LCD (192 x 80 dots) on one side. Backlight, Non-reflective glass, provided
Keyboard		4 soft keys and 11 keys on each side		4 soft keys and 11 keys on one side
Self-diagnostic function		Automatic, Messages / Codes displayed		
Sensitivity of levels	Plate level	30° / 2 mm	40° / 2 mm	60° / 2 mm
	Circular level ( in tribrach )	10' / 2mm		
Optical plummet		Image: Erect, Magnification: 3x, Minimum focus: 0.3 m (0.99 ft.)		
Standing axis		Single		
Operating temperature		-20° C to +50° C (-4° F to +122° F)		
Protection against water and dust		Protected against powerful water jets and dust-tight as defined by IEC60529 IP66		
Tilting / Trunnion axis height		236mm (9.3in.) from tribrach bottom, 193mm (7.6in.) from tribrach dish.		
Size with handle and BDC46 battery		W 165 x D 170 x H 341 mm (W 6.5 x D 6.7 x H 13.5 in.)		
Weight with handle and battery		5.2 kg (11.5 lb.)		5.1 kg (11.3 lb.)
<b>Power supply</b>				
Operating voltage		7.2 V DC		
Battery level display		4 steps with warning message.		
Automatic power off		Automatic off 30 minutes after operation, ON / OFF selectable		
Resume function		ON / OFF selectable (backed up for about 1 week)		
BDC46 Rechargeable		Li-Ion rechargeable battery (SET300/500: 2 pcs., SET600: 1 pc. supplied)		
Battery	Continuous use at 25° C ( 77° F ) per battery	Angle & distance measurement: About 5 hours (About 600 points) (Fine & single measurement, measurement interval: 30 seconds) Angle measurement only: About 7 hours		
	Charging time per battery	Less than 2 hours with CDC61 or CDC62		
BDC12 Large External Rechargeable Battery ( optional )	Continuous use at 25° C ( 77° F ) per battery	Angle & distance measurement: About 17.5 hrs. (About 1,980 points) (Fine/single measurement, measurement interval: 30 seconds) Angle measurement only: about 22.5 hrs.		n/a
	Charging time per battery	15 hours with optional CDC14 series charger		n/a

\*1 When the beam's incident angle is within  $\pm 30^\circ$  up and down / right and left in relation to the surface of the target.

\*2 The 8MB compact flash memory card provides approximately 72,000 points of data storage.

Flash memory card not included.

Flash memory cards of up to 64MB can be used.

May not be compatible with some commercially available flash cards.

Designs and specifications are subject to change without notice.



### Electronic Field Books (optional)

The SET300/500/600's functions can all be accessed by an external controller. By connecting one of Sokkia's acclaimed SDR Electronic Field Books, complex field operations, such as traverse adjustment, intersection, area calculations and roading, can be carried out with remarkable ease.

### Standard Configuration

The SET300/500/600 come with: a tribrach, rechargeable battery BDC46 (SET300/500: 2 pcs., SET600: 1 pc.), a charger CDC61/62/64, sunshade, lens cap, plumb bob, tool kit, operator's manual, carrying case and shoulder strap.

### Optional Accessories

- DOC46 Printer Cable (to connect to a Centronics compatible printer that supports ESC/PTM)
- EL6 Eyepiece 30 x for SET600
- DOC26 Interface Cable 25 pin
- CP7 Tubular Compass
- OF3A Solar Filter
- SC189 Back Pack
- DE25 Diagonal Eyepiece 30 x

### Shifting Tribrach Models (optional)

The SET300S, SET500S and SET600S are also available with shifting tribrach. This tribrach's permanently-mounted shifting base facilitates rapid centering. The base screw is  $\phi 35$  mm.



SC189



DE25

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ISO9001 Certified (JQA-0557)  
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