Accurate, Reliable and Sophisticated Technology in an Ultra-Light Body

SIGHTING PERFORMANCE

Sokkia's proven mechanical, optical and electronic technologies are embodied in the POWERSET Series within the ultra-light body weighing only 5.4 kg/11.9 lb. The award-winning POWERSET series is one of the most sophisticated total stations ever developed.

Ultra-light Total Station

The POWERSET Series total stations are extremely light, weighing a mere 5.4 kg /11.9 lb. - including tribrach, handle and battery. Carrying the instrument is no longer an arduous task.

Miniaturized Telescope

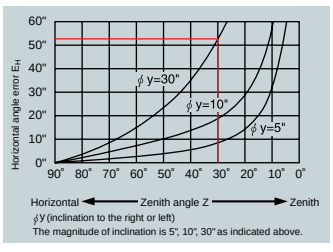
The compact telescope considerably eases the sighting of targets compared with the bulky telescope usually encountered in conventional total stations. This benefit is especially appreciated by the surveyor wearing a hardhat. The offset between the peep sight and telescope is minimized, so the short-range sighting is easier and faster.

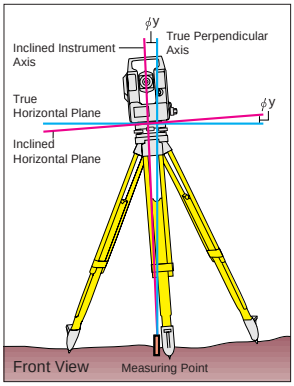
Two-Speed Controls

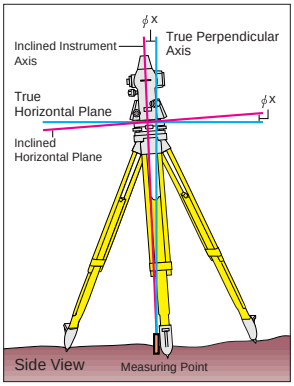
All rotating knobs, such as the telescope focusing ring and the vertical and horizontal fine motion screws, rotate at two speeds for fine and coarse control. These knobs are coated with durable non-slip rubber to give a comfortable and sure grip.

Simultaneous Automatic Compensation for the Vertical, Horizontal and Sighting Axes

Since it was first introduced with the Series C total stations in 1989, Sokkia's dual-axis compensator has proven its reliability and accuracy at survey sites all over the world. Deviations of both the X and Y axes are monitored by the dual-axis tilt sensor, and corrections for horizontal and vertical angle readings are automatically computed and applied. This makes levelling of the instrument easier and less time-consuming.
The collimation function automatically corrects the deviations of the horizontal, vertical and sighting axes.







Micro-Prism Reflective Sheet Targets Provide Simple Solutions in Demanding

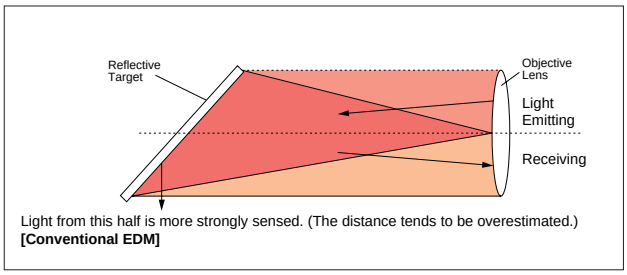
REFLECTIVE SHEET TARGETS

With the POWERSET Series total stations you have the option of measuring distances with Sokkia's innovative reflective sheet targets as well as with conventional glass prisms. Reflective sheet targets are far less expensive than glass prisms and can be quickly and easily set up in locations where glass prisms cannot.

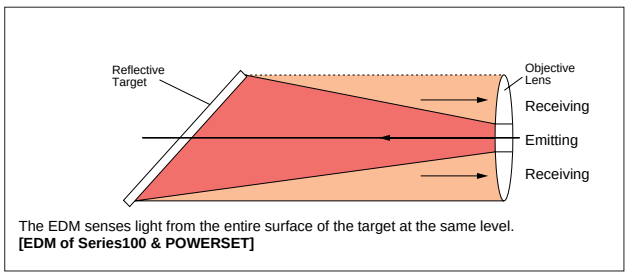
Unique EDM designed for use with both reflective sheet targets and glass prisms.

Conventional EDM's rely on vertical or horizontal partitioning of the lens, of which one half is used as the light emitter and the other half as the light receiver. This design works well with glass prisms, but it does not accommodate reflective sheet targets. When measuring the sheet targets, inclination of the sheet (setup angle) causes variations in the returned light that render measurement either impossible or erroneous. The POWERSET Series incorporates an innovative optical system in which the central portion of the objective lens acts as the light emitter and the surrounding portion acts as the receiver. With this system, errors introduced by inclination of the target are obviated (providing it is set within ±30˚) resulting in measurements accurate to ±(4+3ppm x D)mm*. With glass prisms, the POWERSET can measure the distance with an accuracy of ±(2+2ppm x D)mm*.

*D:measuring distance, unit:mm



Light from this half is more strongly sensed. (The distance tends to be overestimated.)
[Conventional EDM]



The EDM senses light from the entire surface of the target at the same level.
[EDM of Series100 & POWERSET]

Measuring Ranges

Model	Size (mm)	Measuring distance (when targets face in right angle)		
		SET1$_{010}$/SET2$_{010}$	**SET3$_{010}$**	**SET4$_{010}$**
RS10N	10x10	1m~40m	1m~30m	1m~25m
RS50N	50x50	1m~90m	1m~80m	1m~60m
RS90N	90x90	1m~120m	1m~100m	1m~80m

Full Alphanumeric Keyboards and Easy Displays are Provided on Both Faces

OPERABILITY

Only alphanumeric keyboards can offer such ease of data input, and the large displays provide certain confirmation at a glance. Rechargeable batteries (two supplied) provide enough power for a full day's work and can be charged in just over an hour.

■ Two Displays and Full Alphanumeric Keyboards for Easy and Sure Operation

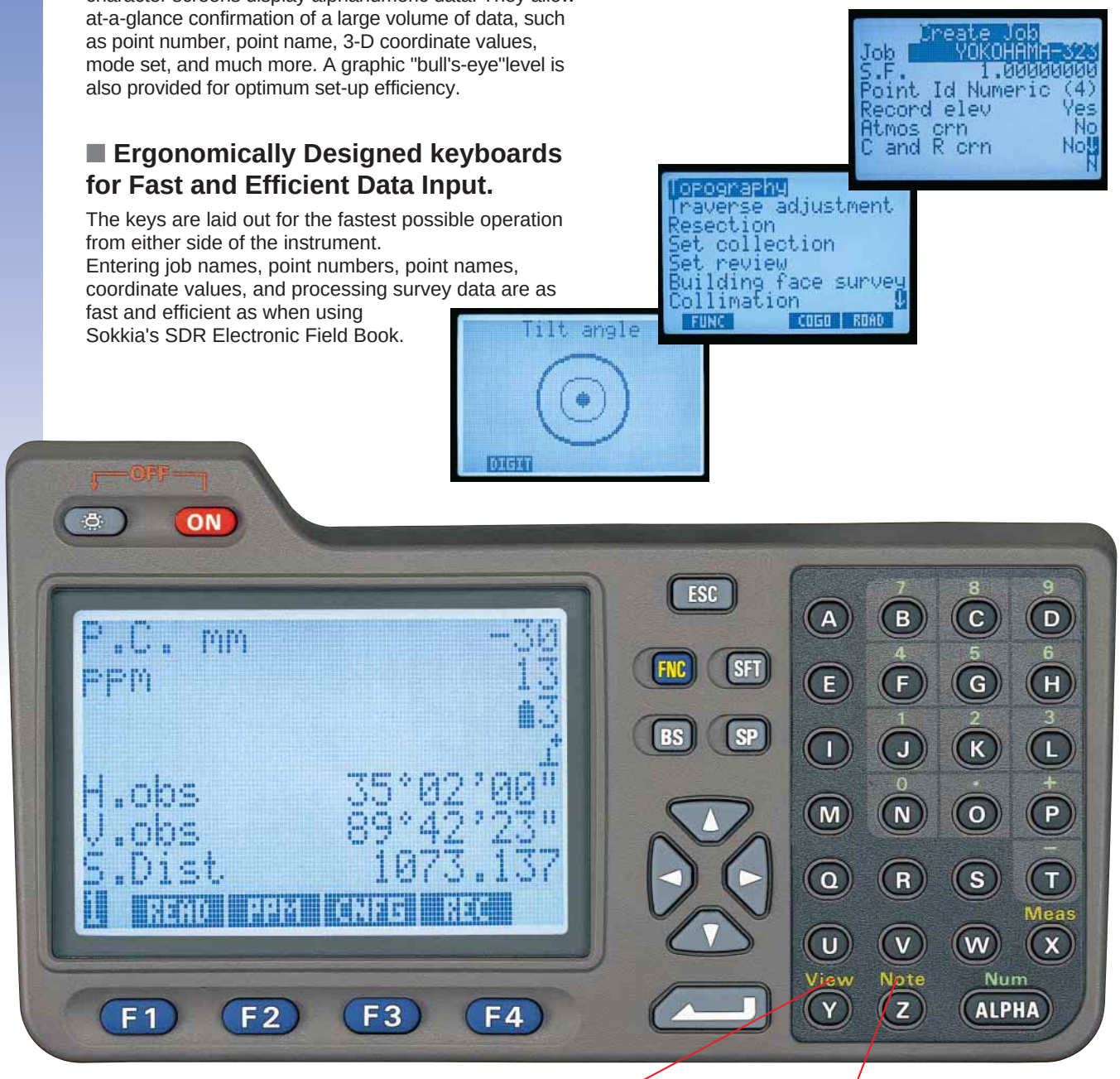
Even with a wide variety of functions, operation is remarkably easy thanks to the POWERSET's large displays and alphanumeric keyboards. The 8-line, 20-character screens display alphanumeric data. They allow at-a-glance confirmation of a large volume of data, such as point number, point name, 3-D coordinate values, mode set, and much more. A graphic "bull's-eye"level is also provided for optimum set-up efficiency.

■ Ergonomically Designed keyboards for Fast and Efficient Data Input.

The keys are laid out for the fastest possible operation from either side of the instrument.
Entering job names, point numbers, point names, coordinate values, and processing survey data are as fast and efficient as when using Sokkia's SDR Electronic Field Book.

■ Large, Easy-to-Read LCD Displays(20 characters, 8 lines)

Non-glare glass and backlighting ensure comfortable reading. Plus, displays operate in a wide range of temperatures without power- consuming display heaters.



View: Confirm or search for the recorded data at any time.

Note: Input notes at any time.

POWERSET SPECIFICATIONS

			SET1010 / 2010	SET3010	SET4010
Telescope			Fully transiting. Coaxial sighting and distance measuring optics.		
Size (without peep sights)			L165 x W62 x H80 mm (6.5 x 2.5 x 3.2 in.)		
Objective aperture			45 mm (1.8 in.) (EDM: 50 mm (2.0 in.))		
Magnification			30 x		
Image			Erect		
Resolving power			3"		
Field of view			1° 30' (26 m/1,000 m)		
Minimum focus			1.0m (3.3 ft.)		
Reticle illumination			Built-in. Bright / Dim, selectable		
Focusing ring			Fine / Coarse two speeds		
Angle measurement			Photoelectric incremental rotary encoder scanning. Both circles adopt diametrical detection and are provided with absolute 0 index points.		
Unit		H&V	360° / 400gon / Quad brng / mil, selectable		
Display resolution (selectable)		H&V	0.5" / 0.1 mgon / 0.002 mil 1" / 0.2 mgon / 0.005 mil	1" / 0.2 mgon / 0.005 mil 5" / 1 mgon / 0.02 mil	5" / 1mgon / 0.02mil 10" / 2mgon / 0.05mil
Accuracy (Standard deviation of mean of a measurement taken in position I and II, according to DIN18723)		H&V	SET1010 : 1" (0.3mgon) SET2010 : 2" (0.6mgon)	3" (1 mgon)	5"(1.5 mgon)
Measuring time		H&V	Less than 0.5 seconds, continuous		
Automatic dual-axis level compensator			ON (V&H, only V) / OFF selectable Display : Digital / Graphic, 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, angle setting, available		
		V	Zenith angle (Zenith 0°) Vertical angle (Horizontal 0°) selectable		
Distance measurement			Modulated near infrared light, 3 frequencies, Near infrared LED, Coaxial EDM transmitting and receiving optics		
Measuring range (slope distance)		Atmospheric conditions	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 target RS90N (90 x 90mm).		
	Reflective sheet target RS90N	A	1 m to 120 m (390 ft.)	1 m to 100 m (320 ft.)	1 m to 80 m (260 ft.)
	With CP01 compact prism	A	1 m to 800 m (2,600 ft.)	1 m to 700 m (2,200 ft.)	1 m to 600 m (1,900 ft.)
	With one AP01 prism	A	1 m to 2,400 m (7,800 ft.)	1 m to 2,200 m (7,200 ft.)	1 m to 1,600 m (5,200 ft.)
		G	1 m to 2,700 m (8,800 ft.)	1 m to 2,500 m (8,200 ft.)	1 m to 1,800 m (5,900 ft.)
	With three AP01 prisms	A	1 m to 3,100 m (10,100 ft.)	1 m to 2,900 m (9,500 ft.)	1 m to 2,100 m (6,800 ft.)
		G	1 m to 3,500 m (11,400 ft.)	1 m to 3,300 m (10,800 ft.)	1 m to 2,400 m (7,800 ft.)
	With nine AP01 prisms	A	1 m to 3,700 m (12,100 ft.)	1 m to 3,500 m (11,400 ft.)	1 m to 2,500 m (8,200 ft.)
		G	1 m to 4,200 m (13,700 ft.)	1 m to 4,000 m (13,000 ft.)	1 m to 2,900 m (9,500 ft.)
Unit			Meters / Feet, selectable		
Display resolution	Fine measurement		0.0001 m / 0.001 m. (0.001 ft / 0.01 ft.)	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)			9,999.9999 m (32808.333 ft.)	9,999.999 m (32808.33 ft.)	
Accuracy (D=measuring distance, unit : mm)	With glass prism	Fine meas.	±(2 + 2ppm x D) mm		
		Rapid meas.	±(5 + 5ppm x D) mm		
	With reflective sheet target*	Fine meas.	±(4 + 3ppm x D) mm		
		Rapid meas.	±(5 + 5ppm x D) mm		
Measuring time	Fine meas. Single/repeat		Every 2.0 s (initial meas. 4.1 s)		
	Rapid meas. Single/repeat		Every 0.9 s (initial meas. 2.7 s)		
	Tracking meas.		Every 0.4 s (initial meas. 2.5 s)		
Atmospheric correction			(1) Temperature / pressure input, (2) Temperature / pressure / humidity input, (3) ppm input, (4) w/o compensation, selectable		
	Temperature input range		-30°C to +60°C (0.01°C steps) / -22°F to +140°F (0.01°F steps)		
	Pressure input range		500hPa to 1,400hPa (1hPa steps), 375mmHg to 1,050mmHg (1mmHg steps),14.8inchHg to 41.3inchHg (0.1inchHg steps)		
	ppm input range		-499ppm to +499ppm (1ppm steps)		
	Humidity input range		0% to 100% (1% 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		

		SET1010 / 2010	SET3010	SET4010
Computer and data transfer				
CPU		V25 (10MHz)		
Operating system		MS-DOS compatible		
RAM		640KB		
System ROM		128KB		
ROMDISK (for application software)		1MB FLASHROM		
RAMDISK		512KB		
Data storage	Internal Memory	512KB SRAM, Data memory capacity : Approx. 5000 points** (or approx. 4400 points***)		
	Memory card	SDC5 (128KB) : SRAM, Memory capacity approx. 2000 points** (or approx. 1200 points***) SDC6 (256KB), SDC8 (512KB) are optionally available. Data transfer : Non-contact magnetic coupling system Water resistance : protected against splashing water as defined by Japanese Industrial Standard Class IPX4 in compliance with International Electrotechnical Commission Standard Class IPX4		
Calendar, clock function		Provided		
Interface		Asynchronous serial, RS-232C compatible, Centronics compatible (w / optional DOC46 Printer cable) Baud rate : 38,400 / 19,200 / 9,600 / 4,800 / 2,400 / 1,200bps Data bits : 7 / 8, Parity : Not set / Odd / Even, Stop bit 1 / 2 selectable		
General				
Display unit		Alphanumeric / graphic dot matrix LCD (120 x 64 dots, 20 characters x 8 lines) on each face Backlight, Non-reflective glass, provided		
Keyboard		43 latex keys on each face (alphanumeric, cursor, edit, power, softkey function, illumination)		
Self-diagnostic function		Automatic, Messages / Codes displayed		
Sensitivity of levels	Plate level	20" / 2 mm	30" / 2 mm	
	Circular level (in tribrach)	10' / 2mm		
Optical plummet		Image: Erect, Magnification: 3x, Minimum focus: 0.5 m (1.64 ft.)		
Clamps / Fine motion screws	H&V	Co-axial, Fine/Coarse two-speed motion		
Standing axis		Single		
Operating temperature		-20ºC to +50ºC (-4ºF to +122 ºF)		
Water resistance		Protected against falling water drops as defined by Japanese Industrial Standard Class IPX2 in compliance with International Electrotechnical Commission Standard Class IPX2		
Tilting / Trunnion axis height		236mm (9.3in.) from tribrach bottom, 193mm (7.6in.) from tribrach dish.		
Size with handle and BDC35 battery		W188 x D165 x H345 mm (W7.4 x D6.5 x H13.6 in.)		
Weight with handle, battery and memory card		5.4 kg (11.9 lbs.)		
Weight of parts		BDC35 battery : 240g (8.5oz), handle : 100g (3.5oz), tribrach : 700g (1.5lbs), carrying case : 3.7kg (8.2lbs)		
Power supply				
Operating voltage		6V DC		
Battery level display		4 steps with warning message		
Automatic power cut-off		Automatic cut-off 30 minutes after operation, ON / OFF selectable		
Resume function		ON / OFF selectable (backed up for about 1 week)		
BDC35 Rechargeable Battery		Ni-MH rechargeable battery, 2 pcs. supplied.		
	Continuous use at 25ºC (77 ºF) per battery	Angle & distance measurement: Approx. 4.5 hours (Approx. 500 points) (Fine & single measurement, measurement interval : 30 seconds) Angle measurement only : Approx. 7 hours		
	Charging time per battery	Approx. 70 minutes with CDC39, CDC40 or CDC48		
BDC12 Large External Rechargeable Battery (option)	Continuous use at 25ºC (77 ºF) per battery	Angle & distance mode : Approx. 14 hours (Approx. 1,600 points) (Fine/single measurement, measurement interval: 30 seconds) Angle measurement only: Approx. 23 hours		
	Charging time per battery	Approx. 15 hours with optional CDC14 series charger		

* When the beam's incident angle is within ±30° up and down / right and left in relation to the surface of the target.
** When using four-digit numeric point names. *** When using fourteen-digit alphanumeric point names (SDR33 format) .
Designs and specifications are subject to change without notice. Specifications not listed under specific instruments are identical to those appearing to the left.
MS-DOS & Windows are trademarks of Microsoft Corporation. The SET1010 is made only on order. Please inquire about lead times when ordering.

● Standard Configuration ●

The POWERSET Series comes with :
a tribrach, two rechargeable batteries BDC35, a quick chargerCDC39/40/48, memory card SDC5 (128KB),RS-232C cable DOC27, tubular compass CP7, sunshade,lens cap, plumb bob, vinyl cover, tool kit,basic operating manual, POWERSET SDR software reference manual, application software menu list, carrying case and shoulderstrap.

● Expert Software (optional) ●

Diskette Box containing:

- POWERSET SDR Version 4.2 - Expert (3.5" floppy disk x 1),
- COMMS Software (3.5" floppy disk x 2), COMMS Reference Manual, Document Envelope

● Accessories (optional) ●

Diagonal Eyepiece DE17A

Solar Filter (flip-up type) OF3A

Back Pack SC153