

**SOKKIA**

**SET5F**

Version 01-00  
TOTAL STATION

**Enhanced software with 3,000-point data memory.**





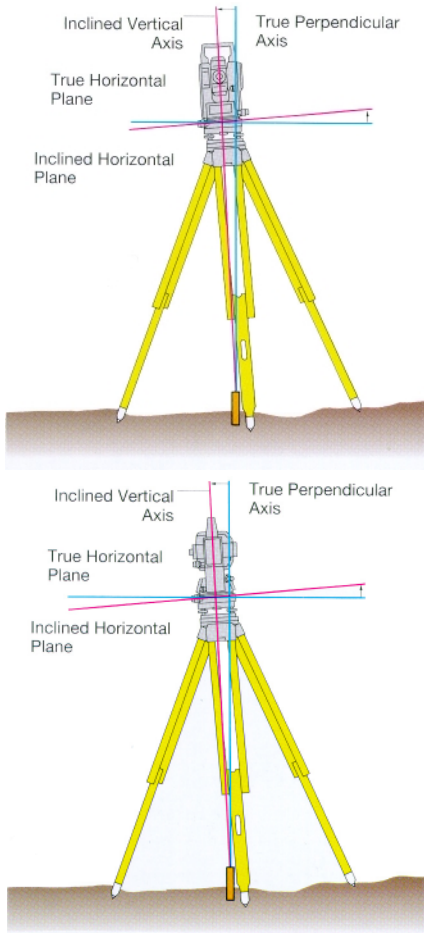
# Flexible, Friendly and Featherweight

The SET5F's powerful EDM, dependable dual-axis compensator and 3,000-point data memory are conveniently packaged in a compact, lightweight body. Software [Version 01-00] has been enhanced for more effective survey work, and "softkey" assignments can be freely customized to suit all user needs.

## Dependable Hardware

### Proven Dual-axis Compensator

- Since its introduction with the Series C total station in 1989, Sokkia's dual-axis compensator has proven its reliability and accuracy at survey sites all over the world.
- The dual-axis tilt sensor monitors deviations of both the X and Y axes and the correct horizontal and vertical angle readings are automatically computed and applied. The result is easier and faster instrument leveling.



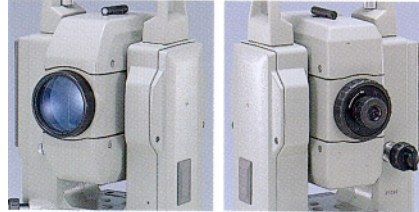
deviation of a mere  $\pm 3.2\text{mm}$  at a distance of 100m and  $\pm 5\text{mm}$  at 1,000m.

- Supreme speed; only 1.7 seconds initial measuring time in the rapid measurement mode.

|                    | Average Conditions | Good Conditions   |
|--------------------|--------------------|-------------------|
| CP01 Compact Prism | 700 m/2,300 ft.    |                   |
| One AP01 Prism     | 1,200 m/3,900 ft.  | 1,500 m 4,900 ft. |
| Three AP01 Prisms  | 1,600 m/5,200 ft.  | 2,000 m 6,500 ft. |

### Powerful Telescope

- Highest magnification in its class: 30x
- Easy, accurate sighting of prisms or targets



### Outstanding Mobility

- Total carrying weight (including instrument, tribrach, battery and hard case) is a mere 8 kg/18 lbs. The secret lies in the lightest and most compact carrying case of its kind (W390 x D255 x H220mm / W15.3 x D10.0 x H8.6in.), making the SET5F supremely portable.
- A convenient shoulder strap is provided as standard. An optional back pack (SC94) is ideal for longer day treks.



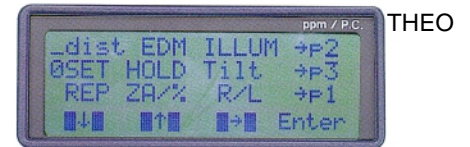
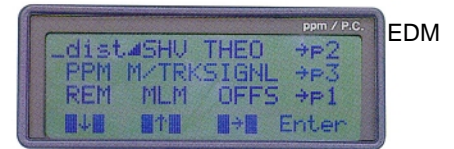
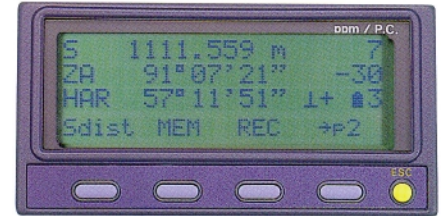
## Enhanced Software

The SET5F can be easily customized to your preferred key assignments.

- The SET5F offers optimum keyboard flexibility. Any keyboard layout can be configured. For example, functions can be assigned to any key position on any page, and unused functions can be temporarily deleted.
- A powerful "softkey" feature facilitates input of coordinate values, feature codes, etc.

### The High-performing EDM

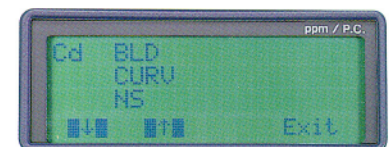
- 1,500m/4,900ft range with a single prism under good ambient conditions (40km/25miles visibility, with no haze, overcast, no scintillation).
- Outstanding precision;  $\pm(3+2\text{ppm}\times D)\text{mm}$ . This corresponds to a



Key assignment mode

### Spacious 3,000-point Internal Memory

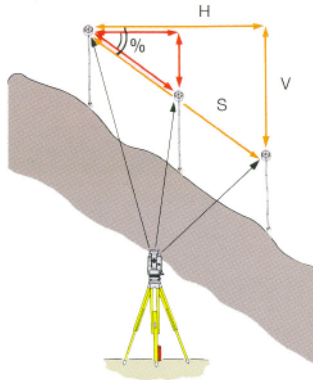
- The SET5F's internal memory is large—holding a full 3,000 data points—and secure. For optimum convenience, measurements can be performed and recorded at the touch of a key.
- Up to five (5) job files can be created to efficiently organize multiple survey tasks.
- Forty (40) feature codes (max.13 characters each) can be kept in the memory for easy recall as needed.



### Sophisticated Application Software Missing Line Measurement (MLM)

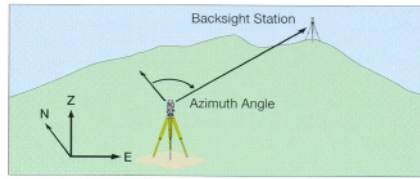
- The SET5F measures horizontal distance, slope distance, height difference, and slope in percent (%) between two prisms, all at the touch of a key.

# The SET5F brings full freedom to survey work.



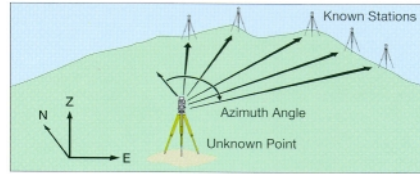
## Azimuth Angle Setting

•Using the coordinates of the instrument station and a backsight point, the SET5F can automatically set the horizontal angle to the azimuth of the backsight.



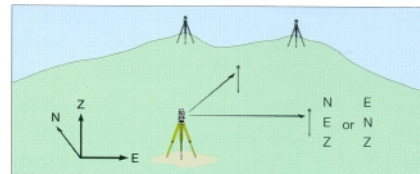
## Resection

•With 2 to 5 known points, the SET5F can be used to determine the azimuth and coordinates of the unknown instrument station.  
 •When using 2 known points, both angles and distances are measured. When using 3 or more points, the distance does not always have to be measured.



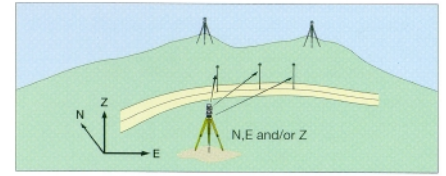
## 3-D Coordinate Measurement

•The SET5F calculates 3-D coordinate values of measuring points.  
 •The operator may choose display settings either of "N, E, Z" or "E, N, Z."



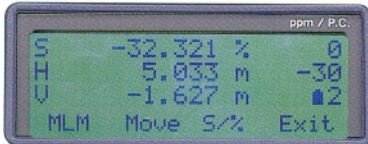
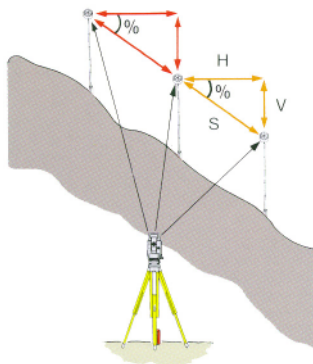
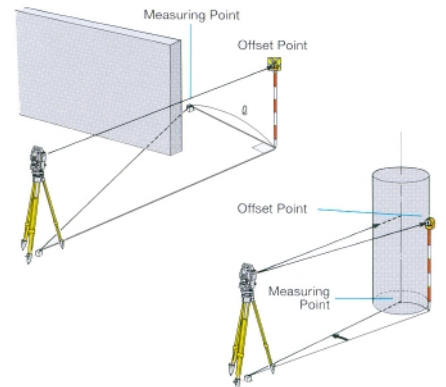
## 3-D Setting-out

•The SET5F can be used to perform 3-dimensional setting-out with N, E and/or Z coordinates.



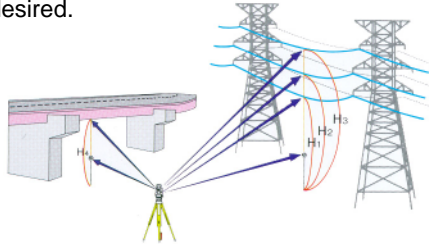
## Offset Measurements

Two basic offset measurement methods are provided to measure the hidden points. One calls for input of the offset distance and the direction between the measuring point and the prism. The other uses a prism set on the left or right side of the measuring point at the same distance from the SET5F; the angles and distance to the prism are measured, and the measuring point is sighted. In both cases, the SET5F calculates the horizontal and vertical angles and distance, or the N, E, Z coordinates.



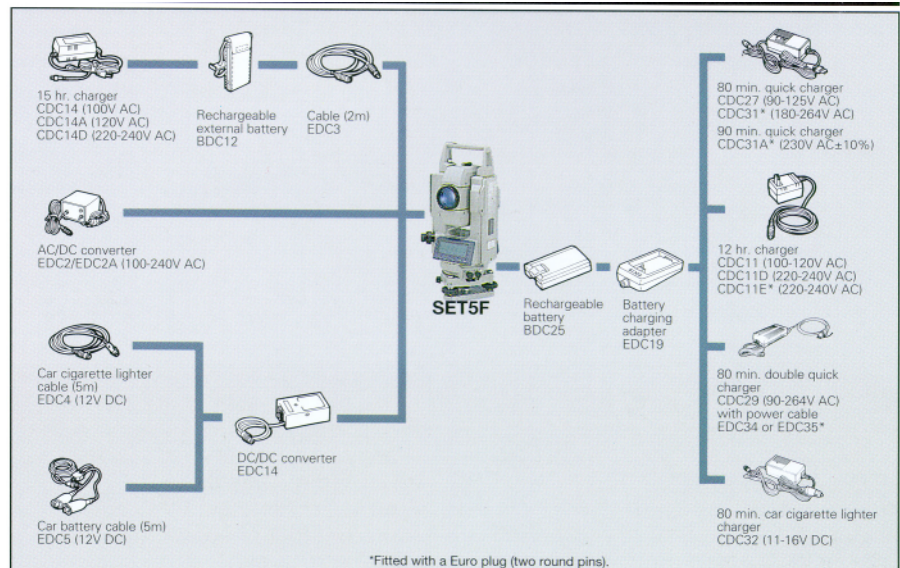
## Remote Elevation Measurement (REM)

•The SET5F can be used to easily determine the height of a point where a prism cannot be placed. The system sights a prism directly above or below the target point, and then sights the point desired.



## Angle Repetition

•For enhanced accuracy in the horizontal angle measurement, the SET5F can measure in repetition. It then calculates and displays the average of the multiple angle measurements.





## Standard Configuration

The SET5F comes with two (2) BDC25 rechargeable batteries EDC19 battery charging adapter CDC27, CDC31 or CDC31A quick charger, CP7 tubular compass, sunshade, lens cap, plumb bob, vinyl cover, tool kit, operator's manual, carrying case and shoulder strap.

## Electronic Field Books (SDR33/SDR31)

Thanks to its advanced two-way communications port, the SET5F's functions can all be accessed by external controller. For example, by connecting one of the Sokkia's acclaimed Electronic Field Books (SDR33 or SDR31), complex field operations such as traverse adjustment, intersection, area calculations and roading can be carried out with remarkable ease.



## Optional Accessories

|          |                   |
|----------|-------------------|
| DE17A    | Diagonal Eyepiece |
| OF1/OF1A | Solar Filters     |
| SC94     | Back Pack         |

## SET5F Specifications

| Telescope   |          | Fully transiting, coaxial EDM   |
|---|----------|---|
| Length  |          | 165mm (6.5in)   |
| Objective aperture                                  |          | 45mm (1.8in)  |
| Magnification, image                                |          | 30x, Erect  |
| Resolving power                                     |          | 3.0"  |
| Field of view                                       |          | 1°30'(26m/1,000m)   |
| Minimum focus                                       |          | 1.3m (4.3ft.)   |
| Reticle illumination                                |          | Bright or Dim, selectable   |
| Angle measurement                                   |          | Incremental encoder, diametrical detection  |
| Display resolution                                  | H&V      | 1"/0.2 mgon/ 0.005 mil, 5"/1 mgon/ 0.02 mil   |
| Angle unit  | H&V      | Degree/Gon/Mil  |
| Accuracy  | H&V      | 5" (1.5 mgon/ 0.02 mil) according to DIN18723   |
| Dual-axis compensator                               |          | Liquid dual-axis tilt sensor, range: ±3' (±55 mgon)   |
| Display mode  | H<br>V   | Clockwise/ Counterclockwise, Repetition, Oset, Hold available<br>Zenith 0°/ Horizontal 0°/ Horizontal 0°±90°/ Slope%  |
| Distance measurement                                |          | Electro-optical with modulated infrared LED.  |
| Measuring range (slope distance)                    |          | A: Average conditions; slight haze, visibility about 20km (12 miles), sunny periods, weak scintillation.<br>G: Good conditions; no haze, visibility about 40km (25 miles), overcast, no scintillation.<br>Maximum ranges are achieved with Sokkia CP/AP prisms. |
| With CP01 compact prism                             |          | A: 1.3m (4.3ft.) to 700m (2,300ft.)   |
| With one AP01 prism                                 |          | A: 1.3m (4.3ft.) to 1,200m (3,900ft.), G: 1,500m (4,900ft.)   |
| With three AP01 prism                               |          | A: 1.3m (4.3ft.) to 1,600m (5,200ft.), G: 2,000m (6,500ft.)   |
| Distance unit                                       |          | Meters or feet, selectable  |
| Accuracy (Fine measurement)                         |          | ±(3+2ppmxD)mm D=measuring range, unit=mm  |
| Measuring unit and time (slope distance)            | Fine     | 0.001 m Every 3.2 seconds (initial 4.7 seconds)   |
|   | Rapid    | 0.001 m 1.7 seconds   |
|   | Tracking | 0.01 m Every 0.3 seconds (initial 1.4 seconds)  |
|   | Average  | 0.0001 m (average of 2 to 9 times measurement)  |
| Atmospheric correction                              |          | Key-in the temperature and pressure, or -499 to +499ppm.  |
| Prism constant                                      |          | -99 to 0mm (1 mm steps)   |
| Refraction & Earth-curvature correction             |          | On/off selectable (K=0.142)   |
| General   |          |   |
| Display   |          | LCD dot matrix display (20 characters x 4 lines) on both faces with back light.   |
| Keyboard  |          | 5 keys on both faces, free assignment of functions.   |
| Resume function                                     |          | On/off selectable   |
| Sensitivity of levels                               |          | Plate level: 40"/2mm, Circular level: 10"/2mm (in tribrach)   |
| Optical plummet                                     |          | Image: erect, Magnification: 3x, Minimum focus: 0.5m (1.6ft.)   |
| Interface   |          | Asynchronous serial, RS-232C compatible, baud rate 1200/9600bps   |
| 2-way communication                                 |          | Provided  |
| Data storage  |          | 3,000-point data memory   |
| Operating temperature                               |          | -20°C to +50°C (-4°F to +122°F)   |
| Tilting/Trunnion axis height                        |          | 236mm (9.3in) from tribrach bottom, 193mm (7.6in) from tribrach dish.   |
| Size with handle and battery                        |          | W150 x D165 x H353mm, W5.9 x D6.5 x H13.9in.  |
| Weight with handle and battery                      |          | 5.4kg (11.9lbs)   |
| Weight of parts                                     |          | BDC25 battery: 240g (8.5oz.), Handle: 100g (3.5oz.), Tribrach: 740g (1.6 lbs), Case: 2.4kg (5.3lbs)   |
| Power supplies                                      |          |   |
| Battery level display                               |          | 4 steps with warning message.   |
| Automatic power cut-off                             |          | On/off selectable (30 minutes after the last operation)   |
| Power source  |          | BDC25 rechargeable battery, Ni-Cd 6V, 2 supplied as standard.   |
| Working duration at 25°C (77°F) w/one BDC25 battery |          | Distance & angle measurement: about 5 hours, about 600 points (Fine & single measurement with 30 seconds intervals).<br>Angle measurement only: about 9 hours.  |
| Charging time                                       |          | CDC27/31: about 80 minutes, CDC31A: about 90 minutes  |

Designs and specifications are subject to change without notice.

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