



# SET230R

Reflectorless Total Station

## A High-Performance Model for Pinpoint Reflectorless Measurements Over a Wide Range

Featuring **RED-tech\*** EDM and an ultra-narrow visible laser, the SET230R offers accurate reflectorless measurements of distances as far as **150 meters (490 ft.)**. Angles are given with **2-second (0.6 mgon)** accuracy. The SET230R also has diverse built-in programs and optional accessories, and can be relied on in tough environments thanks to its outstanding durability.

\* **REvolutionary Digital processing technology**



### Guide Light Unit GDL1 (Optional)

Boost your efficiency when setting out by adding a guide light to the telescope. Left and right positions are indicated with different colors, making it simple to locate prisms along the telescope's sight line.

*Sokkia factory option. Request for it specifically with your order.*

### CompactFlash Memory Card Unit (Optional)

Expand your available data storage with CompactFlash cards. Up to 72,000 points (eighteen 4,000-point files) can be stored on an 8MB card.

### Wireless Keyboard SF14 (Optional)

This keyboard lets you operate the instrument quickly and easily, and makes data collection as effortless as possible.



**LASER RADIATION**  
DO NOT STARE INTO BEAM  
MAX 0.99mW LD 635-690nm  
CLASS2 LASER PRODUCT  
IEC 60825-1 Am.2 2001



- |               |              |                  |               |             |              |            |        |                  |
|---------------|--------------|------------------|---------------|-------------|--------------|------------|--------|------------------|
| Reflectorless | Sheet Target | Prism            | Laser Pointer | Absolute    | Compensator  | Repetition | %      | LCD Level        |
| Guide Light   | Ex-Keyboard  | RS-232C          | Printer-Out   | Memory Card | 10,000points | Battery    | Li-ion | IP 66 * Optional |
| Missing Line  | REM          | Coordinate       | Auto Azimuth  | Resection   | Offset       | Offset     | Offset | Set Out          |
| Set Out Line  | Area         | Point Projection |               |             |              |            |        |                  |

# SET230R Reflectorless Total Station

## ● A new level of speed and precision with RED-tech EDM

RED-tech EDM features an innovative digital signal processing technology that maximizes the speed and precision of reflectorless distance measurement. An ultra-narrow visible laser ensures pinpoint accuracy with narrow objects, walls and corners, and measurements of small incident angles, such as with manholes on road surfaces. Precise measurements are obtainable through fences and tree branches. Accuracy is  $\pm(3 + 2\text{ppm} \times D)$  mm\* with a continuous measurement speed of 1.3 seconds. Distances of 150m (490 ft.) can be measured without a reflector.

\* Range up to 100m (320 ft.)

## ● Safe, convenient visible laser

A red visible laser beam provides confirmation of measurement points, so you don't always have to look into the telescope. It conforms to IEC Class 2/FDA Class II, which means anyone can safely handle the SET230R without supervision.

## ● Long-range measurement with reflectors

Using the SET230R with a single AP prism, you can make measurements of 5,000m (16,400 ft.) with an accuracy of  $\pm(2 + 2\text{ppm} \times D)$  mm. Reflective sheet targets give you a range up to 500m (1,640 ft.) with  $\pm(3 + 2\text{ppm} \times D)$  mm precision.

## ● User-friendly operation

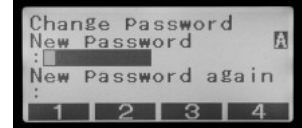
The SET230R is ready to go from day one, and you may not even need to look at the user's manual. Target types can be switched at the touch of a button, with the active mode indicated on the display for your convenience.

## ● Sokkia's original absolute encoders

The Sokkia-developed absolute encoders ensure high stability and reliability with angle measurements. Dual-axis compensation and collimation functions are also provided for maximum precision.

## ● Enhanced security

A password-protection function is included for security purposes. You can assign your own password to the instrument to prevent unauthorized use.



## ● Exceptional durability

Offering advanced protection against dust and water, the SET230R is ideal for use in inclement weather, humid environments, or at dusty construction sites (IP66 compliant).

## ● Large internal memory

An enormous built-in memory stores up to 10,000 data points in 10 different job files.

### ■ Standard accessories

- BDC46A rechargeable Li-Ion batteries (2 pcs.)
- CDC61/62/64 quick charger
- CP7 tubular compass
- Lens hood
- Lens cap
- Plumb bob
- Tool kit
- Operator's manual
- Carrying case
- Shoulder strap

## SET230R Specifications

Telescope	Fully transiting, Coaxial sighting and distance measuring optics.
	Magnification: 30x, Resolving power: 3", Minimum focus: 1.3m (4.3 ft.)
Angle measurement	Photoelectrical absolute rotary encoder scanning. Both circles adopt diametrical detection.
Display resolutions	1" / 5", 0.2 mgon / 1mgon, 0.005 mil / 0.02 mil, selectable
Accuracy (ISO/DIS12857-2 1997)	2" (0.6 mgon) (0.01 mil)
Measurement mode	H Clockwise / Counterclockwise; 0 set, Hold, angle setting, repetition V Zenith 0°, Horizontal 0°, Horizontal 0° ±90°, slope in %
Automatic dual-axis compensator	Type: Dual-axis liquid tilt sensor, Range: ±3' (±55 mgon)
Collimation program	ON / OFF selectable
Fine motion screws	Fine / Coarse two-speed motion
Distance measurement	Modulated LASER, Laser diode, Coaxial EDM transmitting and receiving optics
Measuring range	Reflectorless*1 1.3m to 150m (4.3 ft. to 490 ft.) With reflective sheet 1.3m to 500 m (4.3 ft. to 1,640 ft.) With one AP01 prism*2 1.3m to 5,000 m (4.3 ft. to 16,400 ft.)
Display resolution	0.001 m (0.01 ft. / 1/8 inch)
Accuracy (Fine meas.) Reflectorless*1	± (3 + 2ppm x D) mm for 1.3m to 100m (4.3 ft. to 320 ft.), (D=measuring distance; unit: mm) ± (5 + 10ppm x D) mm for over 100m to 150m (320 ft. to 490 ft.) With reflective sheet ± (3 + 2ppm x D) mm With AP prism ± (2 + 2ppm x D) mm
Measuring time	Fine meas: Every 1.3 s (initial 2.6 s), Tracking: Every 0.3 s (initial 1.6 s)
Measurement mode	Fine (single/repeat/average) / Tracking
Laser	Wavelength: 690nm, Max. output: 0.99mW, IEC Class2 / FDA Class II LASER

Data storage and transfer	
Data storage	Internal memory About 10,000 points Memory card unit (optional) The 8MB compact flash memory card stores approx. 72,000-point data
Scale factor setting	0.5 to 2.0
Interface	RS-232C compatible, baud rate : 1,200 to 38,400 bps
Printer output	Centronics compatible (w/optional DDC46 printer cable)
General	
Laser-pointer function	ON (automatic off 5 minutes after operation) / OFF, selectable
Guide light (optional)	Red & Green LED (IEC Class 1 LED), Visible range: 1.3m to 150m (490 ft.)
Display	Alphanumeric/graphic dot matrix LCD (192 x 80 dots) on both faces
Keyboard	4 soft keys and 11 keys on both faces
Wireless keyboard (optional)	SF14 IR wireless keyboard with 37 keys
Sensitivity of levels	Plate level: 20' / 2 mm, Circular level: 10' / 2mm, Graphic LCD: 3' / outer circle
Optical plummet	Image: Erect, Magnification: 3x, Minimum focus: 0.3 m (0.98 ft.)
Water and dust resistance	Conforms to class IP66 (IEC60529)
Operating temperature	-20°C to +50°C (-4°F to +122°F)
Tilting / Trunnion axis height	236 mm (9.3 in.) from tribrach bottom
Size with handle and battery	W 165 x D 171 x H 341 mm (W 6.5 x D 6.7 x H 13.5 in.)
Weight with handle and battery	5.4 kg (11.9 lb.)
Power supply	Operating voltage : 7.2 V DC
BDC46A detachable battery	Li-Ion rechargeable battery
	Working duration at 25°C (77°F) About 5 hours (About 600 points)*3
	Recharging time Less than 2 hours with standard chargers CDC61/62/64

\*1 With the white side of a KODAK Gray Card (Reflectivity: 90%). Range and/or accuracy may be varied according to measurement objects, observation situations and environmental conditions.

\*2 In good conditions: no haze, visibility about 40km (25 miles), overcast, no scintillation.

\*3 Angle and distance measurement with 30-second intervals.


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