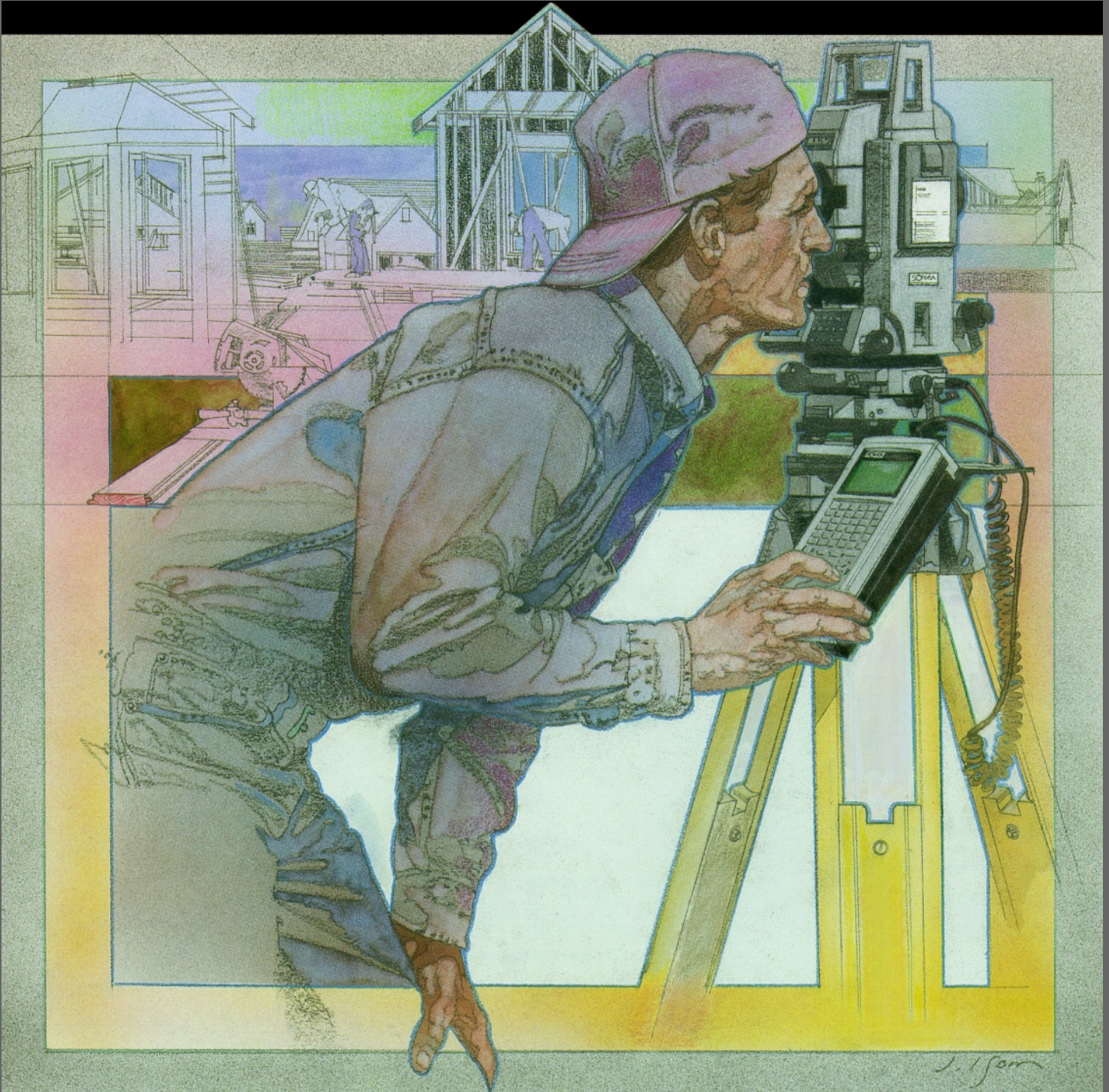# SOKKIA™

# SDR33

## ELECTRONIC FIELD BOOKS



## NOW EVEN MORE RUGGED PERFORMANCE

*from The World Leader in Data Collection*

## PUT RUGGED, DEPENDABLE POWER IN THE PALM OF YOUR HAND

You can collect, store, compute and transfer data quickly and efficiently with Sokkia's SDR33 Electronic Field Books with enhanced functionality. All are so rugged and water-resistant, they meet MilSpec 810-D (USA); you can trust them to stand up to even the toughest field conditions. All models are fully compatible with all Sokkia Total Survey System components and can communicate directly with serial printers or computers via serial interface or modem. And they're compatible with most non-Sokkia total stations, too.

Choose the model that best fits your memory requirements. SDR33 Electronic Field Books are available with the following memory capacities: 256K, 640K, 1Mb, 2Mb, 4Mb.

Three software options are available: Expert, Standard Enhanced and Standard. Select the option that meets your functionality and data storage needs. The 256K model provides the Standard software option only.

- The Expert software option is the top of the line, designed for power users like engineers, surveyors and others who require greater versatility and a greater variety of functions - including powerful roading options.

- The Standard Enhanced software option offers more sophisticated functionality than the Standard, but without the design functions of the Expert.

- The Standard software option offers a good selection of basic functionality. Its simplicity makes it ideal for someone who wants to move up from a calculator-type "data collector" or for an experienced user who needs more storage capacity.

## Reduce Field Time Up to 50%

SDR33 Electronic Field Books are designed to streamline field functions, reducing field time up to 50%. Data collection and management time are minimal, because the software is designed to make transfer of data fast and easy.

A single keystroke on the common-sense keypad starts your total station, records your measurement and assigns it a point identification. Plotter output capabilities are integrated into the SDR33 for faster generation of hard copy and reduced chance for error.

# SDR33

Electronic Field Books contain numerous software routines that make your job easier and more accurate than ever before.

- The Expert PROPOS software option provides the Professional Positioning program to calculate the coordinates of an unknown station based on observations to known target points. Advanced adjustment and mathematical techniques allow for the detection of observation errors or blunders.

- The Configuration Manager lets you reduce clutter by temporarily turning off menus not needed for your job.

- The SDR33 supports several "setting out" methods of staking out points on lines, arcs and , parallel offsets.

- The Topography program helps increase data validity by automatically calculating and displaying the difference in observed positions. When a point is observed more than once, you may choose to replace the old observation, store the new observation under a different point number, or average the two observations for a stronger result. Differences are keyed by user-defined tolerance settings.

- The Slope Staking function is streamlined and easy.

- The Traverse Adjustment feature can be used with traverse data collected in either Set Collection or Topography. 3-D traverse data can be collected in any manner, including non-consecutive set-ups. The SDR33 can then do some of the thinking for you, like calculating precision and errors of closure, adjust traverse and angle or elevation adjustment.
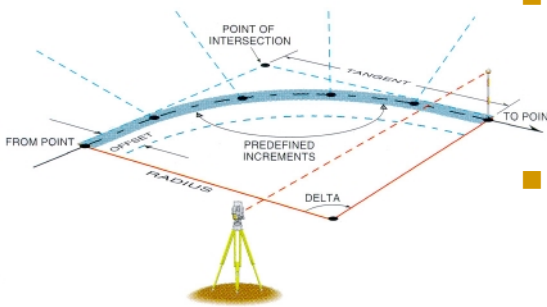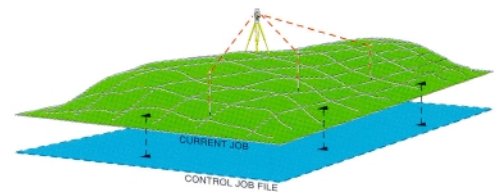
- The Control Job feature lets you mark a job which contains control point information. If you try to recall the coordinates of a control point and the point isn't in the current job file, the control job file is accessed for optimum convenience.

- All models include COGO features such as setting out coordinates, resection and inverse. The SDR33 interpolates elevations linearly  and allows you to check pipe grades and alignments. Plus, it's  easy to subdivide lines and arcs or calculate point projections.
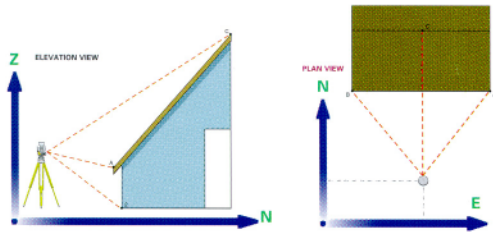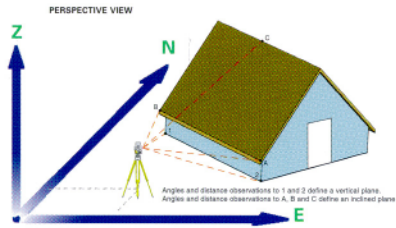
■ The *Building Face Survey* feature allows for the coordination of points in a vertical plane using angle-only observations; or, observe 3 points to solve any inclined plane. Recessed and protruding points may also be surveyed.

■ The *Leveling* program eliminates transcription and math errors; no more manual note taking. Can be used in manual mode or with an electronic level.
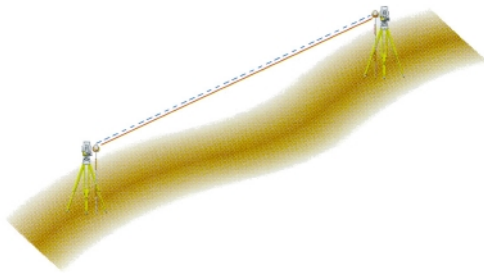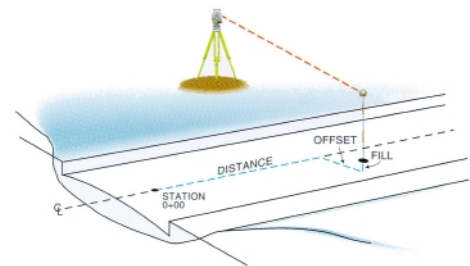


■ *Reciprocal Vertical Calculations* improves elevation accuracy by averaging two opposing measurements.

■ With the *Taping from Baseline* feature, you can pick up detail by distance and offset from a pre-defined baseline.

■ Roading is accomplished by loading or keying in the horizontal and vertical alignment and template information into the SDR33. When you tell it what stationing and offset or coordinate point you wish to set out, the SDR33 will give you angles and distances to set out that point in 3-D. Horizontal and vertical offsets and checking of roads under construction may also be easily accomplished with this program.



• *Road Surface Setting Out* gives cut and fill for any point located within the defined road alignment.

• *String Road Setting Out* lets you load design data from a road design package (such as Sokkia ROADING Software) and set them out by name of string, station and offset.

• Superelevation parameters are user-defined. Left and right definitions and calculations are independent of each other.

## FEATURES TO BOOST FIELD AND OFFICE POWER

- An RPN calculator can be called up from within any SDR33 program. The calculator supports all the common algebraic and scientific functions, including display of symbols.

- All data are stored as raw observations for instant recall. A single "softkey" stroke allows you to view stored observations in the form of coordinates or reduced data.

- Work is faster and memory space is conserved.

- Rugged SDR33 handset resists wind-driven rain and dust. It will withstand a drop from 1.5m under most conditions.

- Transferring data is quick and easy with COMMS, a Windows-based communication software. COMMS also converts SDR files into DXF, ICS, SDMS and MOSS formats, as well as converting MOSS files to SDR files which can then be transferred to an SDR instrument.

**DXF**

- Data capacity for 4-part observations ranges from 2,400 to 53,200 points, depending on the memory option and software you choose.

- Set Collection lets you structure your traverse and network data collection procedures. A sophisticated set review mechanism allows you to scan the accumulated data with as much summary or detail as you need. Differences and standard deviations are displayed. You can mark a "bad" set and recalculate. It may be re-marked as "good" and the original calculations restored.

- Intersection calculations are supported by three methods: bearing-bearing, bearing-distance, and distance-distance.

- The Helmert Transformation option lets you rotate, translate and scale a survey data set while it's constrained to known points. This process uses a least-squares technique. Or, use the simple Linear Transformation for shift in X, Y, Z and rotation.

# OPERATING SOFTWARE

*Functionality comparison of Standard, Standard Enhanced and Expert software options.*

### FUNC

| Options | S | N | E |
|---|---|---|---|
| Job | ✓ | ✓ | ✓ |
| Instrument | ✓ | ✓ | ✓ |
| Job Settings | ✓ | ✓ | ✓ |
| Configure Reading | ✓ | ✓ | ✓ |
| Tolerances | ✓ | ✓ | ✓ |
| Units | ✓ | ✓ | ✓ |
| Communications | ✓ | ✓ | ✓ |
| Date & Time | ✓ | ✓ | ✓ |
| Job Deletion | ✓ | ✓ | ✓ |
| Calculator | ✓ | ✓ | ✓ |
| Feature Code List | ✓ | ✓ | ✓ |
| Hardware | ✓ | ✓ | ✓ |
| Upgrade | ✓ | ✓ | ✓ |
| User Program |  | ✓ |  |
| Language |  | ✓ |  |

### SURV

| Options | S | N | E |
|---|---|---|---|
| Topography | ✓ | ✓ | ✓ |
| Traverse Adjustment | ✓ | ✓ |  |
| Resection | ✓ | ✓ | ✓ |
| Set Collection |  | ✓ | ✓ |
| Set Review |  | ✓ | ✓ |
| Building Face Survey |  |  | ✓ |
| Collimation |  | ✓ | ✓ |
| Remote Elevation | ✓ | ✓ | ✓ |
| Keyboard Input | ✓ | ✓ | ✓ |

### COGO

| Options | S | N | E |
|---|---|---|---|
| Set Out Coords | ✓ | ✓ | ✓ |
| Set Out line | ✓ | ✓ | ✓ |
| Set Out Arc |  | ✓ | ✓ |
| Resection | ✓ | ✓ | ✓ |
| Prof. Positioning** |  |  | ✓ |
| Inverse | ✓ | ✓ | ✓ |
| Areas | ✓ | ✓ | ✓ |
| Intersections | ✓ | ✓ | ✓ |
| Point Projection |  |  | ✓ |
| Taping From Baseline |  |  | ✓ |
| Transformation |  |  | ✓ |
| Linear |  |  | ✓ |
| Helmert |  |  | ✓ |
| Keyboard Input | ✓ | ✓ | ✓ |

### ROAD

| Options | S | N | E |
|---|---|---|---|
| Select Road |  |  | ✓ |
| Set Out Road |  |  | ✓ |
| Set Out Road Surface |  |  | ✓ |
| Road Topo |  |  | ✓ |
| Cross-Section Survey | ✓ | ✓ | ✓ |
| Define Road |  |  | ✓ |
| Review Road |  |  | ✓ |
| Define Template |  |  | ✓ |
| Review Template |  |  | ✓ |

### LEVEL

| Options | S | N | E |
|---|---|---|---|
| Leveling |  |  | ✓ |
| Report/Adjust |  |  | ✓ |
| Keyboard Input |  |  | ✓ |

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\* S - Standard; N - Standard Enhanced; E - Expert

\*\* Two versions of the Expert software are available: Expert and Expert with Professional Positioning. The latter version replaces Resection with Professional Positioning and does not include leveling functions.

Product design and specifications subject to change without notice or obligation.

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AutoCAD is a trademark of AutoCAD, Inc.
Windows is a trademark of Microsoft Corporation.

## SDR33 Hardware Specifications

| | |
|---|---|
| Dimensions | 19.8 (L) x 8.9 (W) x 4.5 (D) cm |
| | 7.8 (L) x 3.5 (W) x 1.75 (D) in |
| Weight | 0.74 kg (26 oz.) - including batteries |
| Keyboard | 56-key alphanumeric, made of water and dust-resistant latex |
| Memory | ROM-256K Flash EEPROM |
| | RAM - 640K expandable to 4Mb |
| Environmental | Wind-driven rain/dust (MilSpec 810D in the U.S.A.); 1.5 m (5 ft.) drop to concrete covered with 3 mm asphalt tile |

| | |
|---|---|
| Operating Temperature | -20° to + 50°C (-4° to + 122° F) |
| Humidity | Operates at 95% non-condensing |
| Power Source | Standard dual 9-volt alkaline batteries; optional NiCd battery pack |
| Length of Operation | 50 hours continuous use |
| Backup Battery Power | Lithium - 400 hours |

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Sokkia is a sponsor of the International Federation of Surveyors.

ISO 9001 Certified
Certificate No. JQA-0557
ISO 9001/BS EN ISO 9001/EN 29001/JIS Z9901
SOKKIA CO.,LTD.