

# SOKKIA

# SDL1X

## DIGITAL LEVEL

0.2mm Standard Deviation for 1km Double-run Leveling

# Ultimate Benchmark

The SDL1X is designed to achieve the highest precision and productivity in leveling and height measurement applications. From Intelligent Auto Focus to wireless operation, a number of innovative technologies are implemented for unmatched reliability while eliminating error factors during measurement. The SDL1X sets the ultimate benchmark for the precision digital levels.



**Auto Focus**



**0.2mm Precision**



### ■ Saving Measurement Time by up to 40%

- The combination of advanced "Auto Focus" and "View Finder" dramatically increases measurement speed.
- Measuring time – from sighting staff to completion of data storage – can be reduced by up to 40% compared to manual focus digital levels.

### ■ Seamless Switching Between Auto Focus and Manual

- No need to switch the focusing mode.
- Trigger key operation automatically starts Auto Focus.
- Manual focusing is possible at any time by rotating the focusing knob that supersedes the Auto Focus.

### ■ View Finder for Quick Sighting

- Innovative View Finder provides fast, easy and accurate sighting to the staff.
- In combination with Auto Focus, the SDL1X drastically reduces eye fatigue.

### Eight innovative features never before available in the industry:\*

1. 0.2mm precision (ISO17123-2)
2. Auto Focus for high-end digital level
3. View Finder for quick sighting
4. Remote Trigger for wireless operation
5. Dual-axis Tilt Sensor that ensures precision
6. SD card slot for data storage
7. 100m (320ft.) Bluetooth® wireless communication
8. BIS30A staff with  $\pm 0.1\text{ppm}/^\circ\text{C}$  linear expansion coefficient

\* As of June 1, 2009

# When Precision Has Top Priority, and Measurement Speed Also Matters, SDL1X is the Ideal Digital Level that Fully Satisfies Both Demands



## ■ Intelligent Auto Focus

- The SDL1X automatically focuses exclusively on the RAB-Code staff.
- This technology completely eliminates false focusing on undesirable objects, enhancing measurement efficiency and reliability.
- Furthermore, Auto Focus eliminates the incomplete focusing that often causes inaccurate measurement with digital levels.

## ■ Remote Trigger

- The wireless Remote Trigger DLC1 prevents accidental jolts from touching the instrument.



DLC1

## ■ Dual-axis Tilt Sensor

- The liquid dual-axis tilt sensor alerts the users by LCD display and beeps when instrument tilt exceeds  $\pm 8.5^\circ$ , disabling measurement to avoid misreading.
- The LCD graphic circular level facilitates instrument setup.

## ■ Measurement and Recording Programs

- Onboard software supports height difference measurement and data recording in the following procedures:

**BF, BFFB, BBFF, BFBF, aBF, aBFFB, aBFFB**

(B: Backsight, F: Foresight, a: alternating)

- Measurement tolerance can be set in each route for on-site accuracy checks.

## ■ Up-to-date Data Memory and Interface

- 10,000-point internal memory.
- USB port and SD card slot for improved usability.

## ■ 100m (320ft.) Bluetooth Wireless Modem (Optional)

- License-free Bluetooth technology enables wireless operation via various devices such as a data collector.

## ■ New Super-Invar Staff for 0.2mm Precision

- The SDL1X achieves the highest in precision when combined with the New Super-Invar RAB-Code Staff BIS30A that boasts the industry's lowest linear expansion coefficient  $\pm 0.1 \text{ ppm}/^\circ\text{C}$ .
- Ideal for first-order leveling as well as sub-millimeter height and subsidence measurement applications.



BIS30A

### RAB-Code Staff

Material	Model	Length	Linear expansion coefficient
New Super-Invar	BIS30A	3m (9.84 ft.)	$\pm 0.1 \text{ ppm}/^\circ\text{C}$
	BIS20	2m (6.56 ft.)	$1 \text{ ppm}/^\circ\text{C}$
Invar	BIS30	3m (9.84 ft.)	$1 \text{ ppm}/^\circ\text{C}$
	BIS40	4m (13.12 ft.)	Metric
Fiberglass	BGS50	5m (16.40 ft.)	Metric
	BGS50G3	5m (16.40 ft.)	feet / 10th / 100th

Product names mentioned in this brochure are trademarks of their respective holders. The Bluetooth® word mark and logo are registered trademarks of Bluetooth SIG, Inc. Product colors in this brochure may vary slightly from those of actual products owing to limitations of the printing process. Designs and specifications are subject to change without notice.

### SDL1X Advanced Specifications

Height accuracy (ISO 17123-2)*1	Electronic	0.2mm (0.008in.) <sup>2</sup> with BIS30A staff 0.3mm (0.012in.) with BIS20/30 staffs 1.0mm (0.04in.) with BGS staffs
	Visual	1.0mm (0.04in.)
Distance accuracy (0 measuring distance)	Electronic	$< \pm 10 \text{mm}$ ( $< \pm 0.4 \text{in.}$ ): up to 10m (33ft.) $< \pm 0.1\% \times D$ : to 50m (to 164ft.) $< \pm 0.2\% \times D$ : to 100m (to 328ft.)
	Visual	from 1.5m (5.0ft.)
C & R correction		$K=0.142 / 0.20 / \text{none}$ , selectable
Measuring range	Electronic	1.6 to 100m (5.3 to 328ft.)
	Visual	from 1.5m (5.0ft.)
Measuring mode		Single / Repeat / Average / Rapid-repeat
Display resolution (selectable in all modes)	Height	0.00001 / 0.0001 / 0.001m (0.0001 / 0.001 / 0.01ft.)
	Distance	0.001 / 0.01 / 0.1m (0.01 / 0.1 / 1ft.)
Measuring time	Single/Repeat	$< 2.5 \text{ s}$
	Average	$< 2.5 \text{ s} \times [\text{number of measurements}]$
	Rapid-repeat	$< 1 \text{ s}$
Auto Focus	Method	Distance and Contrast measurement (Passive)
	Range	1.6 to 100m (5.3 to 328ft.)
	AF/MF modes	Automatic conversion
Telescope		Objective aperture: 45mm (1.8in.) Magnification: 32x, Resolving power: 3" Minimum focus: 1.5m (5ft.), Field of view: $1^\circ 20'$
View Finder		Magnification: 4.5x, Field of view: $3^\circ$
Compensator	Type	Pendulum compensator with magnetic damping system
	Working range	$\pm 12^\circ$
	Setting accuracy	$\pm 0.3''$
Tilt warning	Sensor	Dual-axis liquid tilt sensor
	Functions	Graphic display, Beep tones, Disabling measurement at $\pm 8.5^\circ$ tilt (On/Off selectable)
Display		LCD graphic display with LED backlight
Keyboard		Alphanumeric, 27 keys with backlight
DLC1 remote trigger		Infrared, 3 keys (Trigger, ESC, Enter)
Data storage	Internal memory	10,000 points
	External memory	SD card (max.2GB), USB flash memory (max.4GB)
Interface	RS-232C	Baud rate 1,200 to 57,600bps
	USB	USB 1.1 Host Type A
Bluetooth wireless modem (optional)		Ver. 2.0, Class 1, Range: 100m (328ft.)
Sensitivity of levels	Circular level	8'/2mm
	LCD graphic level	$\pm 12'$ /inner circle, $\pm 24'$ /outer circle
Horizontal circle Graduation		$1^\circ$ (1gon) Estimation: $0.1^\circ$ (0.1gon)
Dust and water protection		IP54 (IEC60529:2001)
Operating temperature		$-20$ to $+50^\circ\text{C}$ ( $-4$ to $122^\circ\text{F}$ )
Size		W226 x D260 x H200mm (W8.9 x D10.2 x H7.9in.)
Weight with battery		3.7kg (8.2 lb.)
Power supply	Input voltage	7.2V DC (nominal)
	Standard battery	BDC58 (Rechargeable Li-ion, 4.3Ah)
	Operating time (at $20^\circ\text{C}$ ( $68^\circ\text{F}$ ))	Approx. 12 hours w/o Auto Focus Approx. 9 hours w/ Auto Focus
Battery level display		4 levels and low level message
Auto power cut-off		30 minutes after operation / none, selectable

\*1 Standard deviation for 1km double-run leveling.

\*2 Conditions for the highest accuracy: Low level of atmospheric turbulence, stable ambient temperature, no direct sunlight on instrument and staff.

#### Standard Accessories

●BDC58 rechargeable battery ●CDC68 quick charger with EDC113A/113B/113C power cable ●DLC1 Remote Trigger ●Tool kit ●Operator's manual ●Carrying case

#### Optional Accessories

●DE28 diagonal eyepiece (32x) ●DE29 diagonal eyepiece (44x) ●DOC129 interface cable

www.sokkia.co.jp

75-1, HASUNUMA-CHO, ITABASHI-KU, TOKYO, 174-8580 JAPAN

Survey Topo Solutions SRL

www.survey-solutions.ro

office@survey-solutions.ro

Tel: +40753.343626

Teo Peter, 11a, Ap.2, Cluj-Napoca, RO.