

**SOKKIA**

# Construction instruments



# Visions translated into instruments

From the beginning in 1920, the Sokkia development team has not only been developing construction instruments, surveying instruments and industrial measuring solutions. They developed visions and translated them to the needs of the user. To make sure Sokkia stays a major player in the world construction market, thinking and acting with vision is more important than ever. Sokkia keeps on developing new solutions to simplify people's jobs all around the world.

Sokkia instruments give the professional user a clear advantage. The new construction total station range offers three models, of which two are equipped with the well known and technically advanced RED-tech electronic distance meter that delivers high accuracy reflectorless measurements up to 350 meter.

The legendary LP30 and LP31 for example have been one of the most popular horizontal construction lasers ever. Thousands of professional builders and construction workers have been using this laser for years. Nowadays their successors; the LP30A and LP31A still serve a large number of people all around the world.

Sokkia Europe introduced the Triax laser product range in the year 2000. This range was especially developed to meet the needs of the European customer. Nowadays it's a complete range of lasers and receivers used for utility construction, house building, road construction, interior finishing and laying sewer pipe. All Sokkia instruments from total station to laser undergo heavy testing to make sure that they are able to withstand tough working conditions. This reduces down time and need for repair. As evidence for the confidence in it's products Sokkia Europe has increased the warranty period for both Sokkia and Triax products to 3 years\*.

Sokkia realizes that a buying decision is based on a mixture of product features that should fulfill the customers demand and the overall benefit on longer term. In other words, what are the costs in relation to the product life cycle? With the 3-year warranty Sokkia in Europe provides to keep the total costs of ownership at a reasonably low level.

In addition to the construction instruments Sokkia offers a complete range of universal, product related accessories like laser staffs and tripods.

*\*The 3-year warranty policy is applicable to all countries in Europe, Russia and other CIS countries and applies to instruments sold from January 1, 2007, except for laser tools.*



# Total Stations

## Series30R Series30RK

### Reflectorless Total Stations

The Series30R & 30RK further enhance Sokkia's RED-tech II total station line-up. These compact yet versatile reflectorless total stations with a wealth of user-friendly features are especially suited for construction applications. Both models are the perfect solution for your day-to-day surveying challenges.

- Sokkia-developed absolute encoders feature the RAB (RANdom Bi-directional) code technology which provides high precision and reliability for angle measurement.

- The Series30RK control panel features a backlit, 10-key alphanumeric keypad equipped on both faces of the instrument (one face for SET630R & SET630RK).
- The password function prevents unauthorized use of the instrument.
- CompactFlash card unit is available as an option (not available for SET630R & SET630RK).
- SF14 wireless keyboard is optionally available (not available for SET630R & SET630RK).
- GDL1 guide light unit is available as an option for all models.
- Highest level of robustness complying with IP66 dust & water protection.



SF14

SET230R3

SET230R

IP  
66

#### SERIES30R & SERIES30RK SPECIFICATIONS

	SET230R3 SET230RK3	SET330R3 SET330RK3	SET530R3 SET530RK3	SET230R SET230RK	SET330R SET330RK	SET530R SET530RK	SET630R SET630RK
Telescope Magnification	30x						26x
Angle Measurement	Photoelectrical absolute rotary encoder scanning						
Display Resolutions (selectable)	1"/5", 0.2 / 1mg, 0.005 / 0.02mil						
Accuracy (ISO 12857-3:2001 & ISO17123-3:2001)	2" / 0.6mg	3" / 1mg	5" / 1.5mg	2" / 0.6mg	3" / 1mg	5" / 1.5mg	6" / 1.9mg
Compensator	Automatic dual-axis compensator with working range 3' (55mg)						
Distance Measurement	Modulated laser, phase comparison method with red laser diode, coaxial optics						
Measuring Range	Reflectorless*1 0,3 to 350m (1 to 1,140ft.)		0,3 to 200m (1 to 650ft.)			150m (490ft.)	
	Reflective Sheet RS90N-K One AP01 Prism*2		1.3 to 500m (1,640ft.)			500m (1,640ft.)	
			1.3 to 5,000m (16,400ft.)			4,000m (13,120ft.)	
Accuracy	Reflectorless*1 0.3 to 200m (1 to 650ft.): (3 + 2ppm x D)mm Over 200 to 350m (over 650 to 1,140ft.): (5 + 10ppm x D)mm		0.3 to 100m (1 to 320ft.): (3 + 2ppm x D)mm Over 100 to 200m (over 320 to 650ft.): (5 + 10ppm x D)mm			0.3 to 100m (1 to 320ft.): (3 + 2ppm x D)mm Over 100 to 150m (over 320 to 490ft.): (5 + 10ppm x D)mm	
	Prism/Sheet		Glass Prism: (2 + 2ppm x D)mm Reflective Sheet: (3 + 2ppm x D)mm				
Data Storage	Internal Memory		Approx. 10,000 points				
	Memory Card		CF card unit available as option				
General	Keyboard		15 keys on both faces (Series30R), 27 keys with backlight on both faces (Series30RK)				15 keys on one face (Series30R), 27 keys with backlight on one face (Series30RK)
	Weight w/handle and battery		5.4kg (12lb.)				5.3kg (11.6lb.) (Series30R) 5.4kg (11.8lb.) (Series30RK)

\*1 With the white side of a KODAK Gray Card (90% reflective).

\*2 Under good condition s: no haze, visibility about 40km (25miles), overcast, no scintillation.

# Total Stations

## Series 10 Series 10K

### Entry Level Total Stations

The Series10 & Series10K models are compact and versatile total stations for a wide range of construction applications. The Series10K features backlit alphanumeric keys to facilitate easy and quick operation. Both model ranges incorporate absolute encoders to eliminate the need for zero indexing allowing streamlined operation. To further enhance the ease of use, an infrared wireless keyboard is available.

- The pre-installed, versatile survey programs enhance work efficiency in the field allowing an operator to perform a wide variety of survey tasks with ease.
- The Series10K control panel features a backlit, 10-key alphanumeric keypad equipped on both faces of the instrument (one face for SET610 & SET610K).
- The password function prevents unauthorized use of the instrument.
- A CompactFlash card unit can be added as a factory option to the SET210/310/510/210K/310K/510K.
- Supreme dust and water resistance compliant with IP66.
- The 10,000-point internal memory.



#### SERIES10 & SERIES10K SPECIFICATIONS

		SET210 SET210K	SET310 SET310K	SET510 SET510K	SET610 SET610K
Telescope	Magnification		30x		26x
Angle Measurement		Photoelectrical absolute rotary encoder scanning			
Display Resolutions (selectable)		1" / 5", 0.2mgon/1mgon, 0.005mil/0.02mil			
Accuracy (ISO 17123-3:2001)		2" / 0.6mg	3" / 1mg	5" / 1.5mg	6" / 1.9mg
Compensator		Automatic dual-axis compensator with working range 3'(55mg)			
Distance Measurement		Modulated near infrared light (IEC Class 1 LED), coaxial optics			
Maximum Measuring Range		One AP01 Prism*1: 1 to 2,700m (8,850ft.), Reflective sheet RS90N-K: 2 to 120m (390ft.)			
Accuracy		Glass Prism: (2 + 2ppm x D)mm, Reflective Sheet: (4 + 3ppm x D)mm			
Data Storage	Internal Memory	Approx. 10,000 points			
	Memory Card	CF card unit is available as a option			n/a
General	Keyboard	15 keys on both faces (Series10), 27 keys with backlight on both faces (Series10K)			15 keys on one face (Series10), 27 keys with backlight on one face (Series10K)
	Weight w/handle and battery				5.0kg (11.1lb.) (Series10)/ 5.1kg (11.2lb.) (Series10K)

\*1 Under good conditions: no haze, visibility about 40km (25miles), overcast, no scintillation.

# Theodolites

## DT210 · DT510

## DT510A · DT610

### Electronic Digital Theodolites

The DT210, DT510, DT510A, and DT610 feature ultra-low power consumption and Sokkia's advanced absolute encoders. IP66-compliant bodies securely protect the instruments against dust and water. The power consumption has dramatically been reduced.

- Powered by 2 standard LR14/C alkaline batteries, the DT210 and DT510 will operate for 75 hours, while the DT510A and DT610 will work for an astonishing 110 hours.
- Sokkia's market-proven absolute encoders, utilize which RAB (RAndom Bi-directional) code and digital sampling technology, further enhance the reliability of angle measurement.
- Angle display units are selectable from 1", 5", 0.2mgon, 1mgon, 0.005mil, or 0.02mil (DT210, DT510, DT510A); or 5", 10", 1mgon, 2mgon, 0.02mil, or 0.05mil (DT610).
- For increased convenience, once the zero (0) horizontal angle direction is determined, all models emit audible tones for each of the four right-angle directions.
- Measurement data can be output via the RS-232C data port (DT210, DT510, DT510A).
- The DT610 has a fixed base. Shifting tribrach model is also available as a factory option (DT610S).



DT510



DT210, DT510, DT510A & DT610 SPECIFICATIONS

	DT210	DT510	DT510A	DT610
Telescope Magnification	30x			26x
Display Resolutions	1"/5", 0.2 / 1mg, 0.005 / 0.02mil, selectable			5"/10", 1 / 2mg, 0.02 / 0.05mil
Accuracy (ISO 12857-2 : 1997)	2" / 0.6mg	5" / 1.5mg		7" / 2.2mg
Display	LCD, 8 digits x 2 lines with backlight			
Display location	On both faces		On one face	
Compensator	Dual-axis compensator, working range 3' (55mgon)		n / a	
Dust and Water Protection	IP66 (IEC60529)			
Weight w/handle	4.7kg (10.3lb.)	4.5kg (9.9lb.)		4.2kg (9.3lb.)
Battery	LR14/C batteries x 2			
Continuous use with alkaline batteries	Approx. 75 hours		Approx. 110 hours	



## Levels



**B20 · B21 · C300 · C310 · C320 · C330 · C410**

## Automatic Levels

Sokkia provides a wide range of fast, easy-to-use and accurate automatic levels, suited for both indoor and outdoor use. All models are simple to sight and immune to vibration and shock. All models incorporate exclusively designed precision compensators that employ a magnetic damping system for outstanding accuracy and

dependability. The B20, B21 and the C3 series guarantee superior performance regardless of weather conditions (IPX4). Even in sudden weather changes you won't be disturbed by fogging of the instrument.



B20-B21-C300-C310-C320-C330-C410 SPECIFICATIONS

		B20	B21	C300	C310	C320	C330	C410
Telescope	Objective aperture	42mm (1.7in.)		36mm (1.4in.)		32mm (1.3in.)		30mm (1.2in.)
	Magnification		30x	28x	26x	24x	22x	20x
	Minimum focus	0.3m (1.0ft.)						0.9m (3.0ft.)
Accuracy	Standard deviation for 1km double-run leveling							
	Without micrometer	1.0mm (0.04in.)	1.5mm (0.06in.)	2.0mm (0.08in.)			2.5mm (0.1in.)	
	With micrometer	0.8mm (0.03in.)	1.2mm (0.05in.)	n / a				
Compensator	Type	4 wire pendulum compensator with magnetic damping system						
	Working range	±15'						
Horizontal circle graduation		1°(1gon)						
Water resistance		IPX4 (IEC60529)						n / a
Weight		1.85kg (4.1lb.)		1.7kg (3.7lb.)			1kg (2.2lb.)	

# Levels

## SDL50

### Digital Level

The SDL50 is a reliable, easy to use digital level ideal for the construction field. Functionality and performance of higher class models are available at an affordable price. Automatic operation eliminates conventional errors arising from misreading or variant results depending on the operator. Measurements are completed in less than 3 seconds. Displays of measurement results and calculations of height differences are also carried out with remarkable speed. The SDL50 delivers unprecedented efficiency in completing all measurement tasks.

- Height accuracy of 1.5mm can be achieved using fiberglass RABCode staffs (Standard deviation for 1km double-run levelling).
- The SDL50 is equipped with the same compensator as the SDL30, assuring a reliable, wide compensating range more than ±15'.
- The SDL50 incorporates the same programs to help speed up construction work.
- The internal memory holds 2,000 points of data in a maximum of 20 job files.
- Measured data can be exported in CSV format using the software "SDL TOOL".



SDL50



BGS40-BGS50

### RAB-Code Staves

The SDL50 employs Sokkia's uniquely designed "RAB-Code (RANdom BI-directional Code)" staves. They provide superior accuracy in both height and distance measurement applications even where light and shade are uneven. The SDL50 can read the staff when it is positioned upside-down without changing measuring mode, making for simple leveling of ceilings and the like.



#### SDL50 SPECIFICATIONS

Height accuracy* (with RAB-Code staves)	1.5mm (0.06in.) (with Fiberglass BGS40/50/50G3)
Distance accuracy (with RAB-Code staves)	Up to 10m (33ft.) : Within ± 10mm (± 0.4in.), 10 to 50m (33 to 160ft.) : Within ± 0.1% x D (D=measuring distance)
Measuring range (with RAB-Code staves)	1.6 to 100m (5.3 to 320ft.)
Minimum display (Single, Repeat, Average)	Height : 0.0001m / 0.001m, 0.001ft. / 0.01ft. or 1/8in., Distance: 0.01m (0.1ft. or 1in.)
Measuring time	Single mode: Less than 3s, Tracking: Less than 1s
Telescope magnification	28x
Compensator	Type: Pendulum compensator with magnetic damping system, Working Range: More than ± 15'
Horizontal circle	Graduation: 1° (1gon)
Data storage	2,000 points in max. 20 job files, (Job name user-definable)
Weight w/battery	2.4kg (5.3lb.)

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

# Laser Instruments

## LP30A · LP31A

### Levelling Lasers

Whether used indoors or outdoors, the LP30A and LP31A lasers cover a wide range of levelling applications in construction, civil engineering and interior finishing work. With brushed up accuracy and extended battery life, working efficiency has been even further enhanced. The LP30A is a high grade model offering the highest accuracy in it's class and a wide measuring range. For less demanding measuring situations, the highly dependable LP31A offers similar performance at a lower price.

- LP30A and LP31A employ Sokkia's precision pendulum compensator with air damper which is unaffected by temperature variations.
- Both models operate for 90 hours with four alkaline batteries and 40 hours with a Ni-Cd rechargeable battery BDC39A.
- The LR100 detector has displays on both faces. Two sensitivity settings can be selected.



IP X4

LP30A

IP X4

LP31A

IP 67

LR100

LP30A & LP31A SPECIFICATIONS

	LP30A	LP31A
Rotation Speed	600rpm	
Typical Measuring Range (Diameter)	600m (2,000ft.)	240m (800ft.)
Horizontal Accuracy	1mm at 30m	1.5mm at 30m
Compensator	Pendulum compensator with air damper	
Weight w/battery	2.5kg (5.5lb.)	

### LV1

### Precision Laser Plummet

The LV1 offers a high level of plumb precision. Since the laser beams are directed both up and down, it easily locates points

vertically above and directly below a given reference point. The LV1 is not susceptible to changes in temperature, so you can always be sure of doing very accurate measurements. A dual damping system (air and magnetic) is employed for the compensator, ensuring laser beam stability even on sites subject to frequent vibration.



LV1

IP X4

LV1 SPECIFICATIONS

Beam Accuracy	Upward: ± 5", Downward: ± 1"
Measuring Range	Upward: 100m (330ft.), Downward: 5m (16ft.)
Beam Spot Diameter (at emission)	Upward: 7mm (9/32in.), Downward: 2mm (1/12in.)
Weight w/battery	2.5kg (5.5lb.)

## LP310

### Self Levelling Laser

From foundation work to interior finishing and civil engineering projects, the LP310 can satisfy any leveling requirements. As well as market-proven reliability and precision, you can now look forward to greater work efficiency. The LP310 is equipped with high-high performance tilt sensors. Compliant with the IP55 (IEC60529) standard, it offers superb resistance to dust and water.

- Horizontal self levelling.
- Tilt Alarm.
- Detector and clamp.
- Option to ignore small vibrations.



IP 66

MD310

IP 67

LR100

IP 55

LP310

LP310 SPECIFICATIONS

Rotation Speed	600rpm
Typical Measuring Range (Diameter)	600m (2,000ft.)
Accuracy	1.5mm at 30m
Weight w/battery	2.3kg

# Laser Instruments

## TRIAX EL400H TRIAX EL400HV

### Electronic Laser levels

The EL400 lasers are economical lasers that provide versatility for horizontal and vertical construction leveling applications. They allow professional construction contractors to position and measure in many different ways. The EL400 lasers are ideal for outside work such as digging footings, slab work, leveling, checking elevations, setting concrete forms and checking foundations.

- Horizontal self levelling.
- Semi automatic vertical levelling (EL400HV).
- Visible class 3R laser.
- Automatic "TILT" function.
- Single Slope.
- Detector and clamp.



#### EL400H/HV SPECIFICATIONS

Rotation speed	from 0 to 600rpm
Typical Measuring Range (Diameter)	300m (1,000ft.)
Accuracy	3mm at 30m
Weight w/battery	1.3kg

## TRIAX UL300

### Universal Laser

Site work and leveling, machine control, pipe laying, alignment and interior finishing. The Triax UL300, the ultimate multi-application laser, covers a broad range of applications.

- Horizontal/vertical self levelling.
- Scanning mode.
- Automatic "TILT" function.
- Remote grade input up to 10%.
- Can be used for laying sewer pipe.
- Including detector and remote.



#### UL300 SPECIFICATIONS

Rotation speed	60, 150, 300, 450, 600, 720rpm
Typical Measuring Range (Diameter)	300m (1,000ft.)
Accuracy	10mm at 100m
Weight w/battery	3.5kg

## TRIAX MC550

### Universal Laser Receiver

The MC550 is a laser grade control tool that you can put to work immediately, mounted to your machine or staff.



MC550

- 240° angular reception for increased laser visibility.
- Suitable for machines and staffs.
- Works with all rotating lasers.
- Rugged Lexan™ housing stands up to harsh construction environments.
- Clamp included.

#### MC550 SPECIFICATIONS

Beam Reception	240 degrees
Battery Life	160 hours



# Laser Instruments

## TRIAX PL100

### Pipe Laser

The PL100 is engineered to withstand heavy usage during many years. The housing is manufactured in aluminium. Even the waterproof remote control is made out of metal. The battery is completely enclosed to make sure that it's 100% waterproof.

- Rugged waterproof aluminium housing.
- Cross axis self leveling.
- Rapid setup and beam alignment.
- 4 Mw Laser diode.
- Remote control.
- Waterproof IP67.



#### PL100 SPECIFICATIONS

Range	200m (670ft.)
Grade Range	-10% to 40%
Side Alignment Range	20m at 100m
Accuracy	5mm at 100m
Weight w/battery	4.5kg

## TRIAX MC510

### Machine control receiver

The MC510 machine control receiver with wireless remote display offers accurate grade information for all visual machine control applications. Large 360° detection windows pick up any rotating laser, from any angle. The built-in vertical indicator monitors the angle of the stick, signaling if it's plumb, under- or over extended. Vertical position ensures consistent and accurate grade readings saving money by reducing over- or under-cutting.

- Wireless remote display (RD510).
- Used for graders and excavators.
- Vertical indication built-in.
- Beam reception 360°.
- Works with all rotating lasers.
- Waterproof IP67.



#### MC510 SPECIFICATIONS

Beam reception	360°
Operating range	200m
Battery life	40 hours

# Interior Laser Instruments

## TRIAX MP400

### Multi Purpose Laser

- Sets 90° angle.
- Horizontal/vertical self levelling.
- Visible class 3R laser.
- Scanning mode.
- Chalk line mode.
- Automatic "TILT" function.
- Single slope.
- Remote control/detector including clamp.



#### MP400 SPECIFICATIONS

Rotation speed	from 0 to 600rpm
Typical Measuring Range (Diameter)	300m (1,000ft.)
Accuracy	3mm at 30m
Weight w/battery	1.3kg

## TRIAX LT40

### Cross Line Laser Tool

- Horizontal/vertical self levelling.
- Simultaneous horizontal/vertical line.
- Plumb up and down.
- Sets 90° angle.
- Optional detector.



#### LT40 SPECIFICATIONS

Typical measuring range	15m
Accuracy	3mm at 10m; Plumb Beams 1,5mm at 5m
Weight	0.47kg

## TRIAX LS101

### Cross Line Laser Tool

- Horizontal/vertical self levelling.
- Simultaneous horizontal/vertical line.
- Sets a 90° angle with laser line.



#### LS101 SPECIFICATIONS

Typical Measuring Range	10m (33ft.)
Accuracy	1.5mm at 3m
Weight with Mount	0.75kg

# Accessories

In addition to the construction instruments Sokkia offers a complete range of universal, product related accessories like wall mounts, laser staffs, laser jamps, tripods, etc. Below a small choice from the total range.

## Tripods

### Interior tripods

- WS-2** Economy mini elevating tripod, flat head (max 1.20m)
- WS-3** Economy mini elevating tripod, flat head (max 1.45m)
- LSP4** Laser jamb (max 3.80m)
- 117SK-4** High range elevating tripod, flat head (max 3.40m)

### Interior/exterior tripods

- CPT27** Mid range elevating tripod, flat head (max 2.70m)
- TRP360** High range elevating tripod, flat head (max 3.60m)

### Exterior tripods

- M1N-ST-S** Economy mini elevating tripod, flat head (max 0.90m)
- T2NC-L** Economy tripod, flat head (max 1.65m)\*1
- T1NC-A** Economy tripod, dome head (max 1.65m)\*1
- Kombo-F** Mid range tripod with level staff (max 1.65m)\*2
- PFW5B-E** Mid range wooden tripod, flat head (max 1.70m)
- 117SKX** High range elevating tripod, flat head (max 1.70m)
- TRPHD** High range elevating tripod, flat head (max 4.00m)

## Staffs

- CASC44E** Telescopic level staff (3m, 4m and 5m)
- 8820** Laser staff with clamp

\*1 Available with domed head, flat head, clamps and screws  
 \*2 Available with dome head and flat head

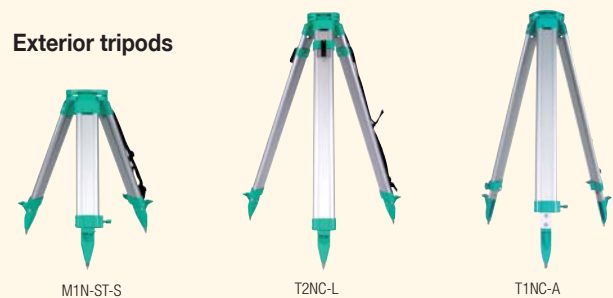
### Interior tripods



### Interior/exterior tripods



### Exterior tripods



### Staffs



# SOKKIA



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SOKKIA's line-up of surveying instruments includes everything from Global Positioning Systems (GPS), software, electronic total stations and distance meters, to electronic and optical theodolites, levels and laser products. Whether you're involved in construction, building a highway, bridge or tunnel, or charting a nationwide map, SOKKIA surveying instruments and systems always provide the best solution.

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