

**SOKKIA**

CERGIO CULACIATI RICS  
INSTRUMENTAL TOPOGRAFICO  
REPRESENTANTE SOKKIA  
SEMINARIO N° 976 NUÑO  
FONO: 2255870 - FONO FAX: 2255865

**PL1S**

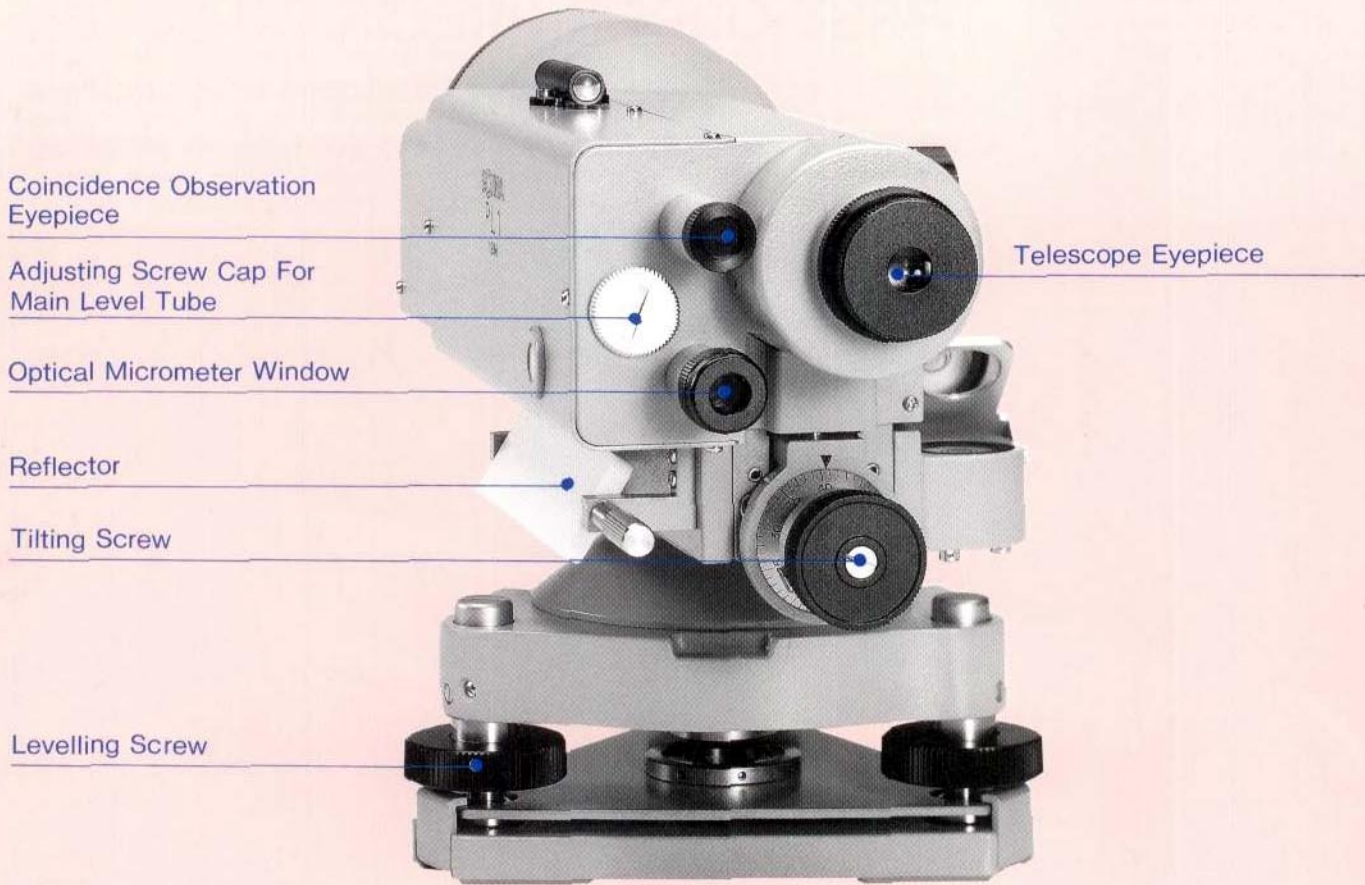
**FIRST-ORDER PRECISION LEVEL**

**42X Telescope magnification**

**0.2mm Standard deviation for 1km double-run levelling**



# First-order Precision Level **PL1** The foremost instrument in its field; free from

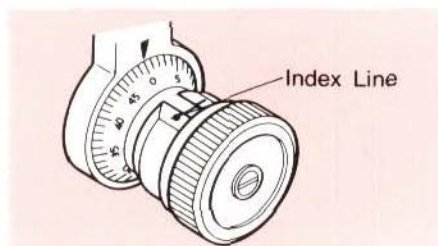


## HIGH PERFORMANCE GIVING THE HIGHEST POSSIBLE

Sokkia's PL1 is the product of extensive experience in the field of high technology and sophisticated instrument making. The PL1 First Order Precision Level was developed after long and thorough research into every aspect of use under all possible working conditions. The PL1 has been subject to strict quality control to ensure high accuracy and ease of use. The combination of a tilting mechanism with a sensitivity of  $10''/2\text{mm}$ , a coincidence type observation mechanism, and an optical micrometer with a direct reading of 0.1mm, combine to guarantee precise levelling and accurate measurement.

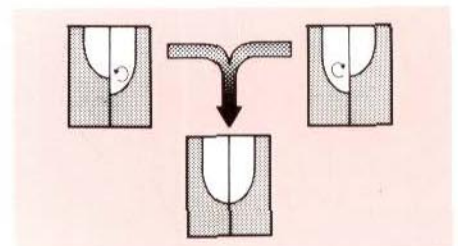
### TILTING SCREW MECHANISM FOR FINE ADJUSTMENT OF LINE OF SIGHT

The tilting screw used to level the line of sight is engraved with graduations that accurately indicate the inclination, and index lines that indicate the number of turns of the tilting screw. The tilting screw is divided into 50 equal divisions, each division equalling  $2''$  of inclination.

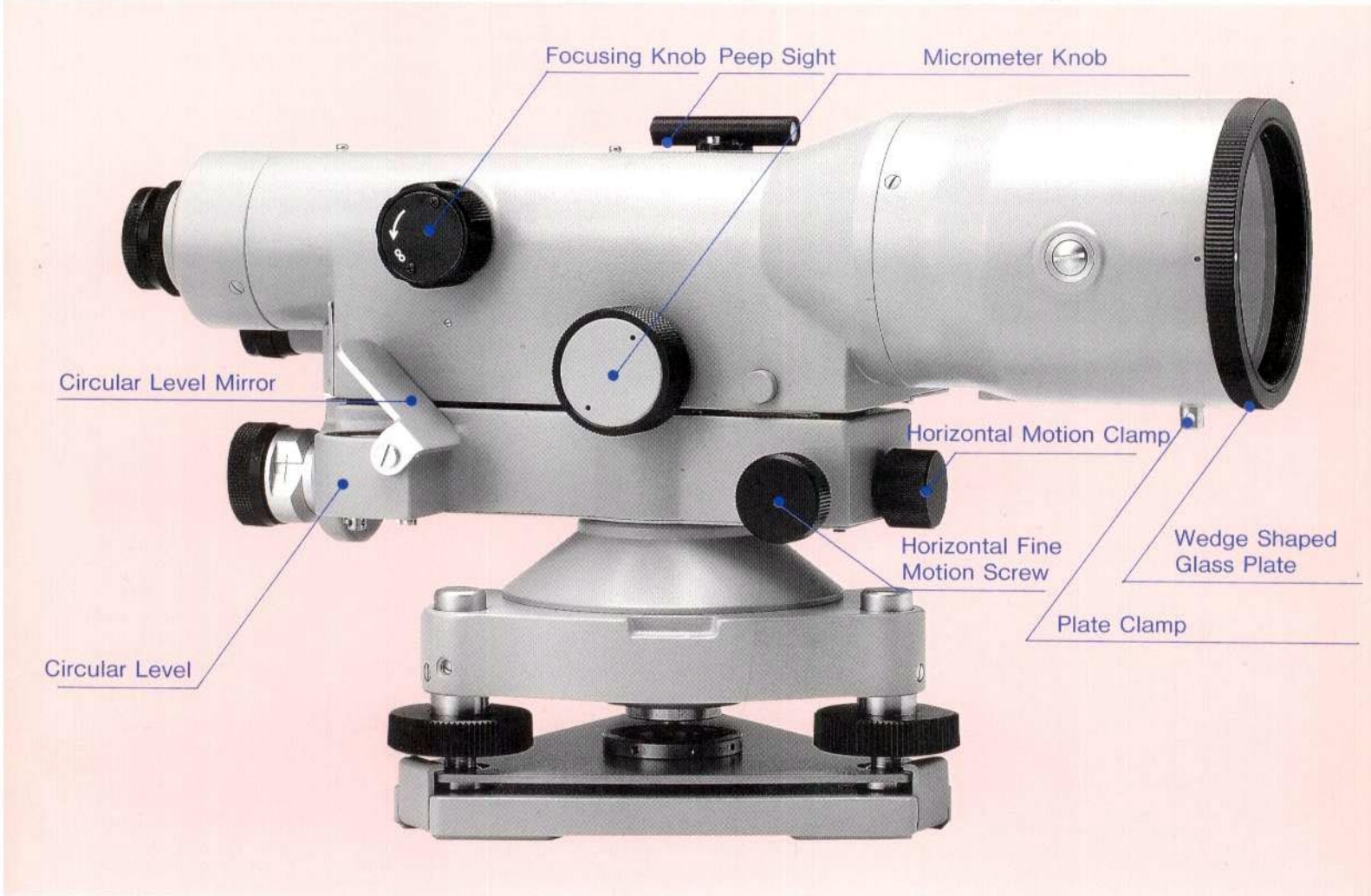


### COINCIDENCE TYPE OPTICS GIVE SHARP BUBBLE IMAGE.

Innovative optical design has been used in the coincidence bubble reading optics to ensure a sharp image of the bubble which is magnified to twice normal size. The  $\odot$  or  $\ominus$  mark that appears on the bubble image quickly indicates the direction in which the tilting screw is to be turned to achieve coincidence.



1 error even under the most difficult surveying conditions, yet convenient and easy to use.



# ACCURACY — FIRST-ORDER PRECISION LEVEL PL1

### OPTICAL MICROMETER ALLOWS PRECISE READING

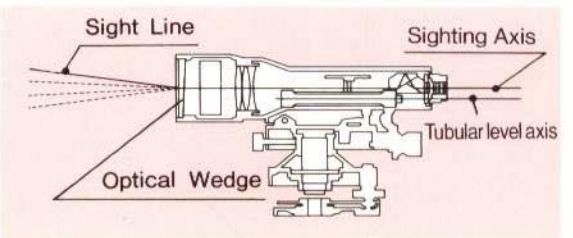
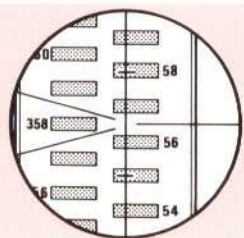
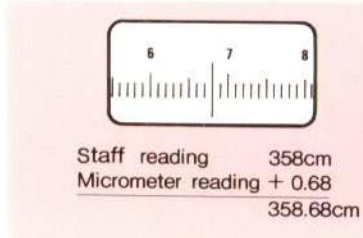
The PL1 is equipped with an optical micrometer which enables staff graduations to be subdivided directly to 0.1mm, and to 0.01mm by estimation. The micrometer knob is turned until the graduation line on the staff bisects the wedge-shaped reticle lines of the PL1 telescope. The shift is numerically displayed in the optical micrometer window, and this reading is added to the staff reading to give direct reading accuracy to 0.01mm.

### WEDGE SHAPED RETICLE FOR PRECISE READING

The high resolution telescope, which gives a sharp image of the target, is provided with a wedge-type reticle to read staff graduations more accurately. The distance to the staff can be easily obtained by using the stadia lines.

### OPTICAL WEDGE PROVIDES EASY AND FINE ADJUSTMENT OF LINE OF SIGHT.

The adjustment to the line of sight is simple. It is not necessary to adjust screws on the tubular level. Simply turn the optical wedge until the line of sight is horizontal to get exact results.



## SPECIAL TRIPOD FOR PL1, PLW1

PLW1 is a wooden, non-telescopic precision tripod exclusively designed for the first-order precision level, PL1. Made of seasoned wood carefully selected and dried over a long period, and designed for effective absorption of vibrations, this tripod is barely affected by sunlight or the passage of time. The red marking, which is helpful for setting up in the desired direction at any survey point, the wear-resistant leg tips made of a special alloy, and many other design considerations make this tripod durable and easy to use.

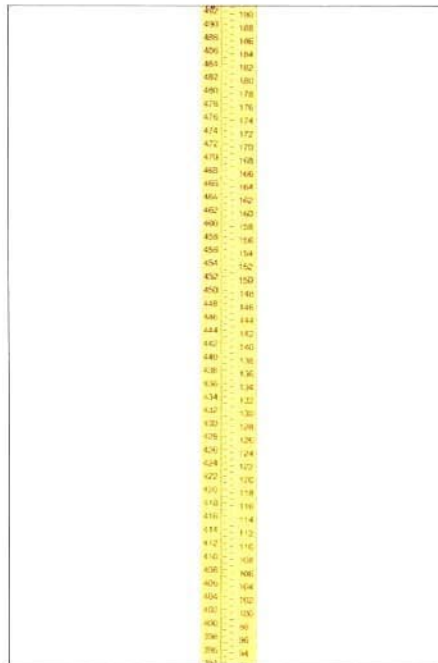


## GS1 NEW SUPER INVAR STAFF

Designed exclusively for first-order surveying. Graduations are calibrated using laser interferometer technology and inscribed on New Super invar tape. The tape and the frame offset expansion yielding coefficients of thermal expansion of  $-0.04 \times 10^{-6}/^{\circ}\text{C}$ .

Effective length .....3m  
 Scale divisions .....10mm  
 Size .....3069(L) × 100(W) × 51(H)mm  
 Weight (1 pc.) .....5.6kg

A complete set includes two staves in a wooden case.



## SPECIFICATIONS

### Telescope

Length ..... 303mm  
 Objective aperture ..... 50mm  
 Image ..... Erect  
 Magnification ..... 42 ×  
 Resolving power ..... 2"  
 Field of view (at 100m) ..... 1°10' (2.0m)  
 Minimum focus ..... 0.45m  
 Stadia multiplication constant ..... 100

### Main Level

Sensitivity ..... 10"/2mm  
 Observation ..... Bubble Coincidence  
 Magnification ..... × 2

### Levelling Accuracy

Standard deviation for 1km (1mile)  
 double run levelling ..... 0.2mm (0.001ft)

### Circular Level

Sensitivity ..... 3.5"/2mm

### Micrometer

Measuring Range ..... 0 ± 2.5 mm  
 Scale division ..... 0.1mm

### Tilting Mechanism

Tilting Range ..... ± 5.8  
 One Revolution of Knob ..... 100°

### Size

Dimensions ..... 303(L) × 140(W) × 180(H)mm

### Weight

Main Unit ..... 4.8kg

## STANDARD SET

PL1 main unit ..... 1  
 Lens cap ..... 1  
 Vinyl cover ..... 1  
 Tool kit ..... 1  
 Operator's manual ..... 1  
 Carrying case ..... 1

## SOKKIA CO., LTD.

1-1, TOMIGAYA 1-CHOME, SHIBUYA-KU, TOKYO, 151 JAPAN  
 PHONE 03-3465-5211 FAX 03-3465-5203 TELEX SURSOK J28518  
 INTERNATIONAL DEPT. PHONE 03-3465-5201 FAX 03-3465-5202

### ISO 9001 Certified



Certificate No. JQA 19557  
 ISO 9001:1987 (EN-ISO 9001) EN 29001:1991  
 SOKKIA CO., LTD.