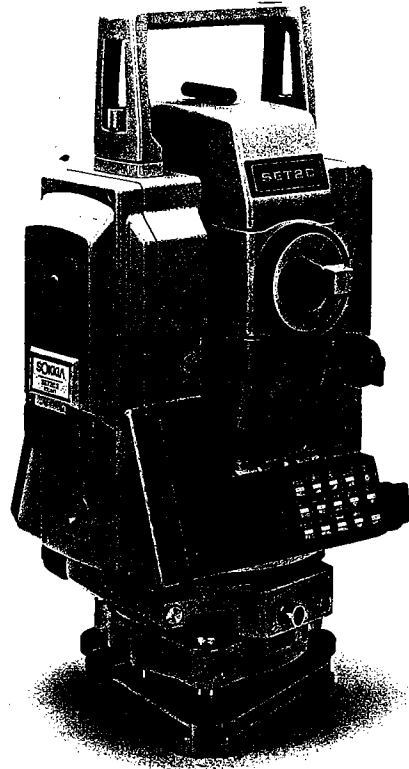


SOKKIA

**SET2CII**  
**SET3CII**  
**SET4CII**

Intelligent Total Station



OPERATOR'S MANUAL

**SET2C<sub>II</sub>**

**SET3C<sub>II</sub>**

**SET4C<sub>II</sub>**

Intelligent Total Station

OPERATOR'S MANUAL

Congratulations on your purchase of the SET CII Series!  
Before using the instrument, please read this operator's manual  
and verify that all equipment is included, refer to P. 232  
"STANDARD EQUIPMENT".

A version

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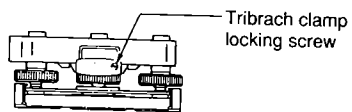
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<Important>



When the new SET C is shipped, the tribrach clamp is fixed with a screw.

Loosen it and leave it loose.

And if the SET C is again shipped, fix the tribrach clamp with the screw to stop the tribrach becoming detached from the instrument.

The specifications and general appearance of the instrument may be altered at any time and may differ from those appearing in catalogues and this operator's manual.

# QUICK GUIDE TO THIS MANUAL

- Ensure that the battery is charged before measurement.

## Preparation for measurement

- Battery mounting 17
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1

2

3

4

5

6

1



# 1. FEATURES

## < SET CII ADVANCED MEASUREMENT FUNCTIONS >

- Resection measurement
- Traverse-style coordinate measurement
- Offset measurement
- REM measurement
- Missing line measurement
- Setting-out measurement

## < MEMORY CARD OPERATION >

- Set the job name
- Record and review the data  
Instrument data/Instrument station data/Measured data/Note/Coordinate data/Feature code  
One 64Kb card can store approximately 1000 measured target points in angle and distance (S, V, H) format.
- Recall the data stored on Card to Instrument  
Feature code/Coordinate data

## < TILT ANGLE COMPENSATION >

- Dual axis tilt sensor
- The index error of the tilt angle can be eliminated

## < COLLIMATION PROGRAM >

- The collimation error between the centre of the telescope reticle and the sighting line can be calculated, and the correction value specified is set. (for angle measurement of high accuracy.)

## < DATA OUTPUT >

- The SET CIIRS232C-compatible data output connector allows 2-way communication with an external device.
- Key operations allow the SET C to output the data stored on the card via the data output connector to an external device using an interface cable.

# INTRODUCTION

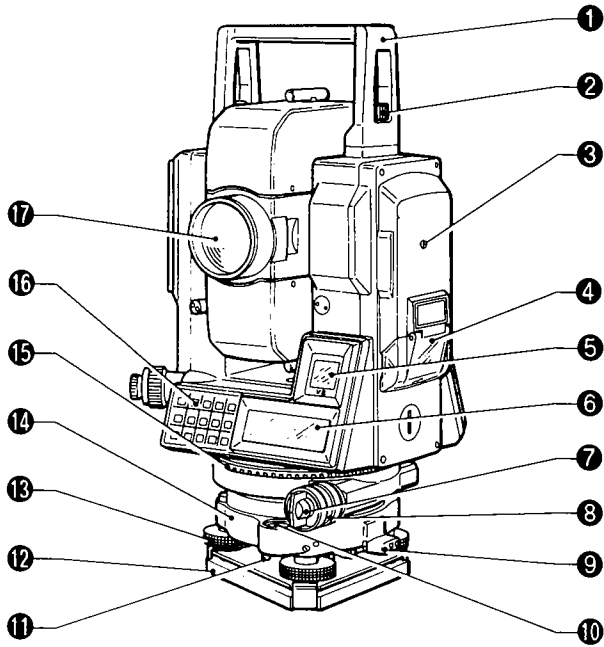
- 2. PRECAUTIONS ☞ P.5
  
- 3. PARTS OF THE INSTRUMENT ☞ P.6
  
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- 6. MODE DIAGRAM ☞ P.12
  
- 7. DISPLAY SYMBOLS ☞ P.13



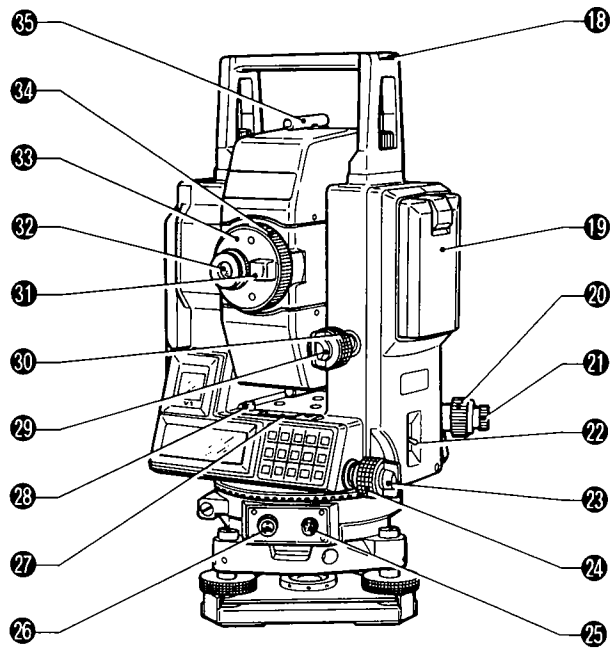
## 2 PRECAUTIONS

- **Never place the SET C directly on the ground.**  
Avoid damaging the tripod head and centring screw with sand or dust.
- **Do not aim the telescope at the sun.**  
Avoid damaging the LED of the EDM.
- **Protect the SET C with an umbrella.**  
against direct sunlight, rain and humidity.
- **Never carry the SET C on the tripod to another site.**
- Handle the SET C with care. Avoid heavy shocks or vibration.
- When the operator leaves the SET C, the vinyl cover should be placed on the instrument.
- Always switch the power off before removing the standard battery.
- Remove the standard battery from the SET C before putting it in the case.
- When the SET C is placed in the carrying case, follow the layout plan.
- Make sure that the SET C and the protective lining of the carrying case are dry before closing the case. The case is hermetically sealed and if moisture is trapped inside, damage to the instrument could occur.

### 3. PARTS OF THE INSTRUMENT

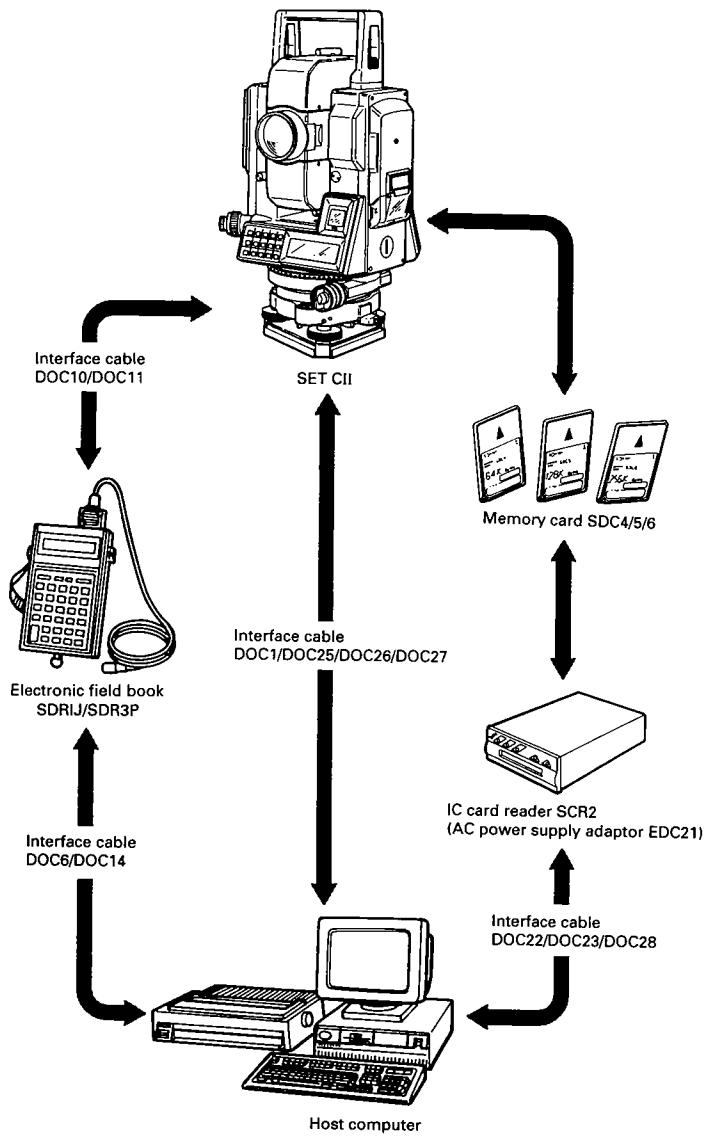


- |                          |                                      |
|--------------------------|--------------------------------------|
| ① Handle                 | ⑪ Circular level adjusting screws    |
| ② Handle securing screw  | ⑫ Base plate                         |
| ③ Instrument height mark | ⑬ Levelling foot screw               |
| ④ Card cover             | ⑭ Tribrach                           |
| ⑤ Sub display            | ⑮ Horizontal circle positioning ring |
| ⑥ Main display           | ⑯ Keyboard                           |
| ⑦ Lower clamp            | ⑰ Objective lens                     |
| ⑧ Lower clamp cover      |                                      |
| ⑨ Tribrach clamp         |                                      |
| ⑩ Circular level         |                                      |



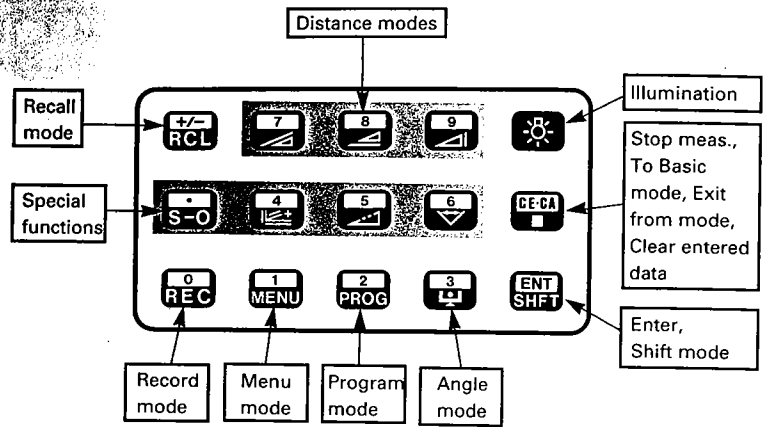
- |                                    |                                       |
|------------------------------------|---------------------------------------|
| 18 Tubular compass slot            | 27 Plate level                        |
| 19 Battery BDC25                   | 28 Plate level adjusting screw        |
| 20 Optical plummet focussing ring  | 29 Vertical clamp                     |
| 21 Optical plummet eyepiece        | 30 Vertical fine motion screw         |
| 22 Power switch                    | 31 Telescope transitting knob         |
| 23 Horizontal clamp                | 32 Telescope eyepiece                 |
| 24 Horizontal fine motion screw    | 33 Telescope reticle adjustment cover |
| 25 Data output connector           | 34 Telescope focussing ring           |
| 26 External power source connector | 35 Peep sight                         |

# 4. COMMUNICATION SYSTEM

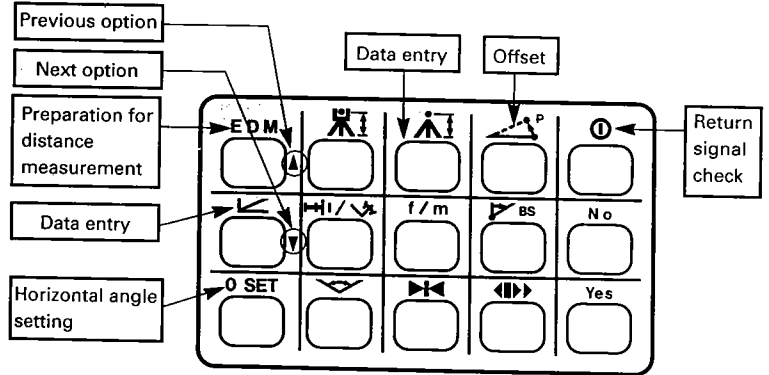


# 5 KEY FUNCTIONS

## <Main functions>



## <Shift functions>







- < **ENT** **SHFT** + > : Prism constant ppm Distance mode
- (Data input mode): Change the sign of the data input value  
(Parameter/Input mode): Move to previous option
- **Recall data from the memory**



- < **ENT** **SHFT** + > : Input Instrument station coordinates/  
Input Backsight station coordinates/  
Input coordinates of point to be set out
- (Data input mode): Input "." (Decimal point)  
(Parameter/Input mode): Move to next option
- **Setting out measurement (+ mode key)**



- < **ENT** **SHFT** + > : Set Horizontal angle to 0/  
In Missing line measurement, change the starting point
- (Data input mode): Input "0"
- **Output data to Card or an External device**



- < **ENT** **SHFT** + > : Input Instrument height
- (Data input mode): Input "7"
- **Measure Slope distance**



- < **ENT** **SHFT** + > : Input distance & horizontal angle  
Setting-out data
- (Data input mode): Input "4"
- **Measure 3-dimensional coordinates**



- < **ENT** **SHFT** + > : Set horizontal angle to the required value
- (Data input mode): Input "1"
- **Menu mode: Configuration/Card settings/Code settings**



- < **ENT** **SHFT** + > : Input target height
- (Data input mode): Input "8"
- **Measure Horizontal distance**



- < **ENT** **SHFT** + > : Change metres ↔ feet for 5 seconds
- (Data input mode): Input "5"
- **Measure remote elevation**





- < **ENT SHFT** + > : Hold/Release Horizontal angle
- (Data input mode): Input "2"
- **Program mode: Resection/Correction/**  
**Set Instrument station coordinates and azimuth angle**



- < **ENT SHFT** + > : Offset measurement
- (Data input mode): Input "9"
- **Measure Height difference**



- < **ENT SHFT** + > : Set Azimuth angle from Instrument station and Backsight station coordinates
- (Data input mode): Input "6"
- **Missing line measurement**



- < **ENT SHFT** + > : Select horizontal angle right/left/repetition
- (Data input mode): Input "3"
- **Transfer to Theodolite mode /**  
**Display tilt angle (when Instrument is in Theodolite mode and: "Tilt correction" parameter is on)**



- < **ENT SHFT** + > : Return signal check(stop: **CE-CA** )
- **Display and Reticle illumination ON/OFF**



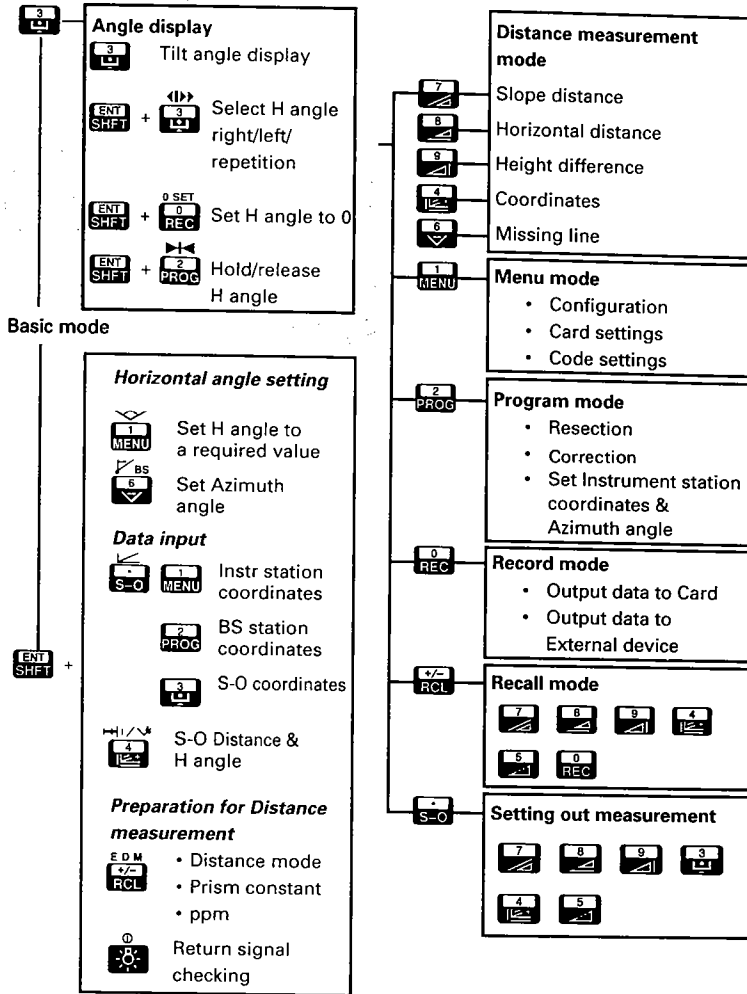
- Input "No"
- (Data Input mode): Clear input data
- **Stop measurement and transfer to Basic mode/**  
**Exit from mode**



- Input "Yes"
- (Data input mode): Input data into memory
- **Select/Release Shift mode**

# 6. MODE DIAGRAM

Switch on → H & V circle indexing



# 7. DISPLAY SYMBOLS

## <Sub display>

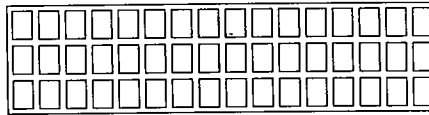
ppm/P.C/MODE



V1

- ppm(Atmospheric correction value)
- P.C.(Prism constant correction value)
- └+ : Tilt angle compensation on
- SHFT : Shift
- SO : Setting-out measurement mode
- MENU : Menu mode
- PROG : Program mode
- REC : Record mode
- RCL : Recall mode
- Stn : Instrument station coordinates
- BS : Backsight station coordinates
- Pt : Coordinate setting-out data

## <Main display>



- ▲ : Select options
- ▼ : Select options
- ZA : Zenith angle (Z 0°)
- VA : Vertical angle (H 0°)
- Vertical angle (H 0°±90°)
- HAR : Horizontal angle right
- HAL : Horizontal angle left
- HARp : Horizontal angle repetition
- HAh : Horizontal angle hold
- dHA : Horizontal angle from setting-out data
- X : Tilt angle in sighting direction
- Y : Tilt angle in horizontal axis direction
- S : Slope distance
- H : Horizontal distance
- V : Height difference
- Ht : REM value/Instrument height/Target height
- D : Distance setting-out data/Offset distance




## PREPARATION FOR MEASUREMENT

8. MOUNTING THE BATTERY  P.17


9. SETTING UP THE INSTRUMENT  P.18


9.1 Centring 


9.2 Levelling 


10. POWER ON  P.21

11. PREPARATION FOR MEASUREMENT  P.23

11.1 Indexing the vertical and horizontal circles 


11.2 Focussing and target sighting 


11.3 Display and reticle illumination 

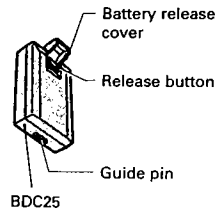
11.4 Setting the Instrument options 



## 8. MOUNTING THE BATTERY

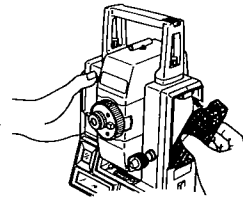
- Charge the battery fully before measurement.  P.211

**Note:** Turn off the power supply switch  before replacing the battery.



### < Mounting the battery >

- 1) Close the battery release button cover.
- 2) Match the battery guide with the hole in the instrument battery recess.
- 3) Press the top of the battery until a click is heard.



### < Removing the battery >

- 1) Open the battery release cover.
- 2) Press the release button downward.
- 3) Remove the battery.

- If the power is to be turned on immediately after replacing the battery, please refer to P. 21.

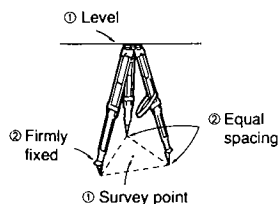


## 9. SETTING UP THE INSTRUMENT

- Mount the battery in the instrument before performing this operation, because the instrument will tilt slightly if the battery is mounted after levelling.

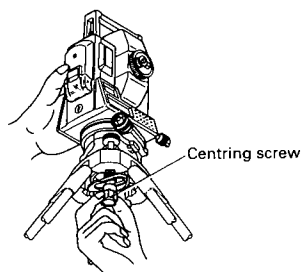
### 9.1 Centring

#### Set up the tripod



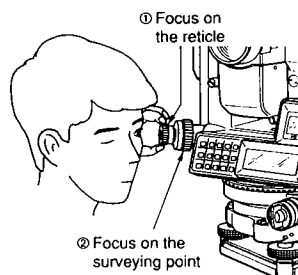
- 1) Make sure the legs are spaced at equal intervals and the head is approximately level.
- 2) Set the tripod so that the head is positioned over the surveying point.
- 3) Make sure the tripod shoes are firmly fixed in the ground.

#### Install the instrument



- 4) Place the instrument on the tripod head.
- 5) Supporting it with one hand, tighten the centring screw on the bottom of the unit to make sure it is secured to the tripod.

#### Focus on the surveying point



- 6) Looking through the optical plummet eyepiece, turn the optical plummet eyepiece ① to focus on the reticle.
- 7) Turn the optical plummet focusing ring ② to focus on the surveying point.

