
# SUUNTO CLINOMETER

STANDARD OPERATING PROCEDURE (SOP) FOR OPERATING THE SUUNTO CLINOMETER FOR MEASURING PROJECTED HEIGHTS FOR DISTANT OBJECTS

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|---|---|
| LOCATION - FACILITY | MOSELEY MORAMORO |
| SUBDIVISION | MINING – OK TEDI LABORATORY |
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STANDARD OPERATING PROCEDURE (SOP)

FOR OPERATING SUUNTO CLINOMETER

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# NOTE

## USAGE POLICIES & INSTRUCTIONS

- This equipment can only be operated upon approval from either the Laboratory Manager or a Technical Officer, or operated with the assistance or supervision of a technical officer.

- Strict compliance to operating procedures and safety requirements is required to operate this equipment. No Exceptions for substandard practices!

- If this equipment is acting unusual while operating STOP IMMEDIATELY! Please REPORT this malfunction to the Technical Officer and discuss the severity of the fault before proceeding or tag-out as faulty equipment.

- Any accidental damage to equipment or incidents encountered while operating this equipment must be reported immediately.

# EQUIPMENT DETAILS

## Suunto Clinometer

**Purpose:**

This SOP ensures that the operator may operate this equipment appropriately according to the operating procedures to get reliable output without damages to the equipment or causing injuries to the operator. The Suunto Clinometer is used out in the field to measure by projecting heights of distant objects.

This Suunto Clinometer is a pam-sized portable handheld survey equipment/device operated manually to measure projected height of distant objects by viewing through the optical lens of the clinometer, which has graduated scales for heights.

**Hazards:**

- Footwear (safety boots) for foot protection out in the field.

**Safety Requirements:**

Personal Protective Equipment (PPE)

1. Safety boots
2. Industrial Hardware Clothing (Reflector ware)

**Tools & Materials Required:**

1. Pen and paper to sketch and calculate the projected height of the object
2. Scale ruler

## Specifications

**OPTICAL LENS**

| No | Specifications | Capacities |
|---|---|---|
| 1 | Dimensions | 50 mm x 40 mm x 12 mm |
| 2 | Weighing | 650 grams |
| | Minimum graduation | Millimetres |
| 3 | Divided in | 1/100 |

## Compositions

# SETTING UP

## Setting-Up Procedures

**Setting up equipment**

The Suunto Clinometer is a portable hand device with not many features that does not require setting those features before use, just to ensure the scale are understood and the dial is freely moving according to the tilt.


# OPERATING PROCEDURE

## Operating Procedures

**Using the Clinometer**

To use a Clinometer to measure a height of a structure or frame and the angle it projects to the surface

## Overview

To calculate the height of a tree or part of a building:

**Height** = (tangent of its angle from horizontal) x (its distance in plan).

The Suunto clinometer is used to measure a point's degrees from horizontal and a surface's slope in percent or slope angle.

## Take an Optical Reading

1. **Keep both eyes open and align clinometer cross hairs with distant object.** Use one eye to view the distant object and the other to see numbers through clinometer lens.

**Figure 2: Both eyes open and clinometer vertical**

**Figure 3: Sighting a point along top of building**

2. **Take a reading.** Two scales appear through the clinometer lens. The scale on the left indicates angle from horizontal in degrees. The scale on the right indicates percent slope (rise/run x 100). *Figure 4* shows that a point on the building edge has a slope of 15 degrees from horizontal and the line connecting the clinometer to that point has a slope of 26.5 percent.

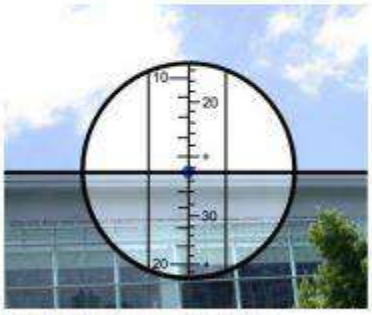


**Figure 4: Composite view**