



Portable Tiltmeter



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INDEX

Warnings	5
Application	6
Description	7
Identification	8
Installation	9
Taking Measurements	10
Calculations & Formulas	11

Portable Tiltmeter



WARNINGS



This instrument must be utilized only for the application it has been designed for, OTR declines all responsibility for any improper use.



Keep out of reach of children;



Do not put the instrument in flammable liquids or potentially explosive gases.



Clean the instrument and its cable with alcohol or water, do not use acetone or aggressive liquids for plastics or labels;



Use protective gloves.

Futhermore

- Do not open the instrument, contact the manufacturer for checks and repairs;

Application

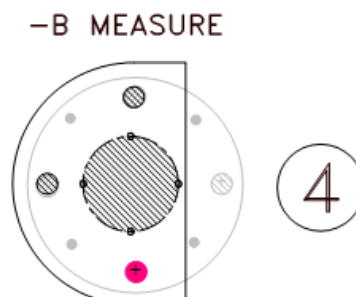
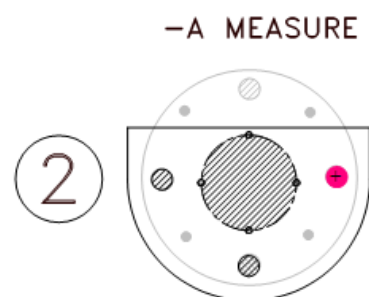
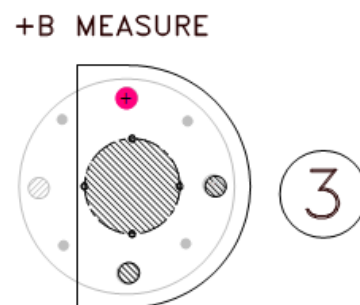
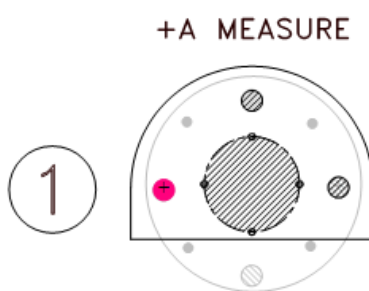
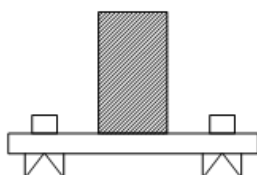
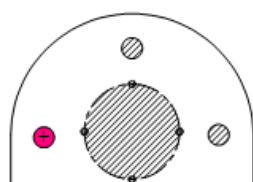
The portable Tiltmeter is used to monitor the rotation by manual measurements of structures such as buildings, walls of containment.

It can be used in the following situations:

- Monitoring buildings damaged by landslides or earthquakes
- retaining walls, bridges and docks
- Towers, bell

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(www.DoubleCAD.com)

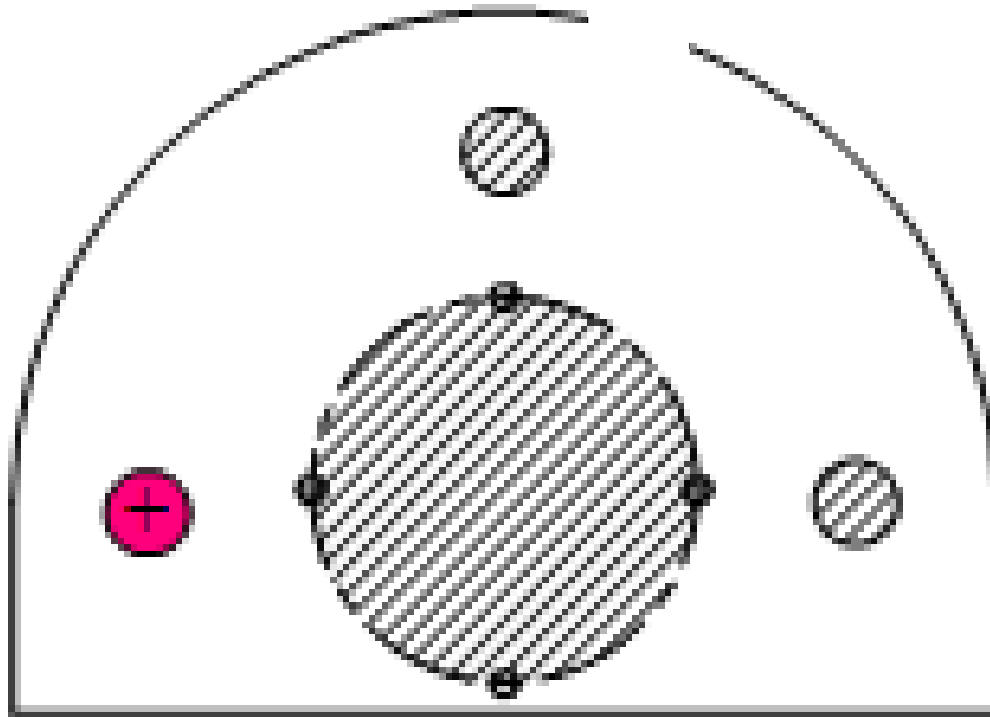


Particolare
TILTMETER MEASURE
Materiale

Assieme
INCLINOMETRO
Disegnato



Description



The portable Tiltmeter is used to measure the inclination of an horizontal or vertical surfaces. The tiltmeter is composed by a stainless steel container for the tilt sensor with MEMS technology or Servo-accelerometer.

The mechanics allows perfect positioning of the instrument on the measuring plate which is anchored to the surface under control. For the execution of the measures tiltmeter is placed on the measuring plate in all directions. Measures are obtained in the two directions orthogonal to each other simply by rotating the instrument 90° degree. Any systematic errors of the instrument or assembly errors of the measuring plate are eliminated by performing opposite measures.

Identification

Every tiltmeter unit is identified by:

- Serial number associated with calibration report;
- Model;
- Full scale;
- Sensitivity.



Installation

Installing procedure proceed fixing a bracket or a shelf to support measurement plate, which one has been supplied of centering balls to the correct positioning of the instrumentation.

Readouts are made positioning the instrument on the centering balls and effectuating many measurements on both the axes in upright and inverted position.

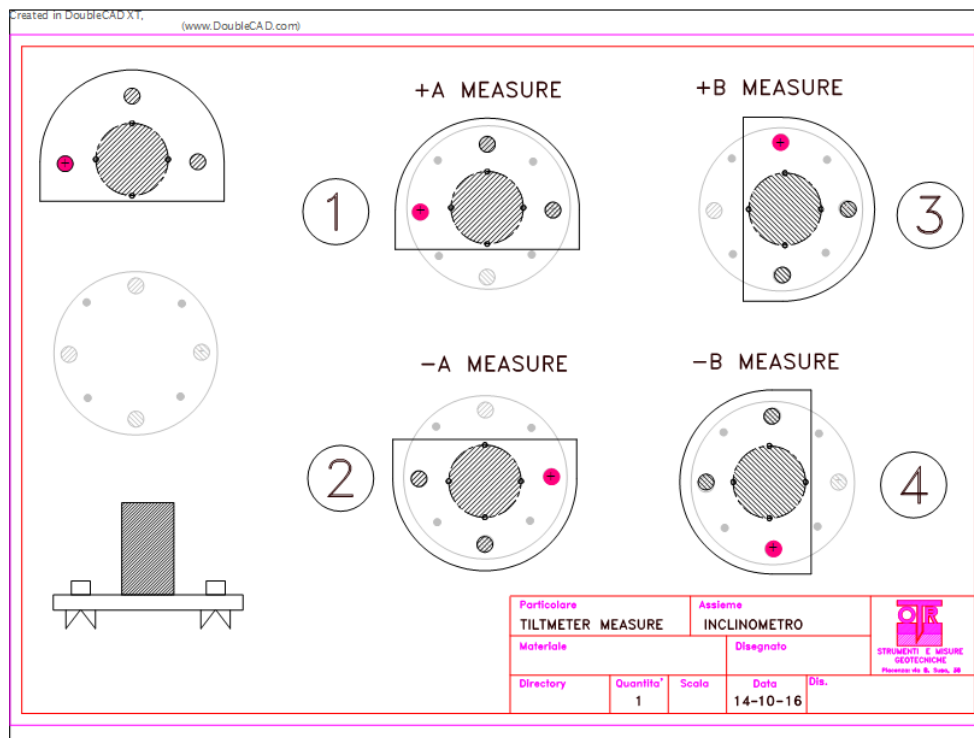
Readouts

In order to measure the tiltmeter unit an OG180 readout unit is needed:

Output is 25000 sin a for MEMS model and 100000 sin a for Servo Accelerometer model.



Taking Measurements



A+ Measure

1. Position the tiltmeter on the plate;
2. Connect the sensor using its connector;
3. Turn On readout unit positioning the switch in On position;
4. Waiting for sensor stabilization (usually 3-4 seconds)

A- Measure

1. Position the tiltmeter on the plate;
2. Read and record Value -A.

B+ Measure

1. Position the tiltmeter on the plate;
2. Read and record Value +B.

B- Measure

1. Position the tiltmeter on the plate;
2. Read and record Value -B.

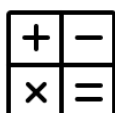
Calculations & Formulas

In order to have A inclination apply this simple formula :



$$A = \frac{+A - (-A)}{2}$$

Output is expressed in 25000 or 10000 sin a



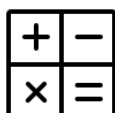
$$B = \frac{+B - (-B)}{2}$$

Output is expressed in 25000 or 10000 sin a



Considering that base of rotation is 1000 mm, is sensitivity is 100.000 sin : di

$$100'000 \sin a: \quad \delta a(\text{mm}) = 1000 \times \left(\frac{A}{100000}\right) \quad \delta b(\text{mm}) = 1000 \times \left(\frac{B}{100000}\right)$$



Considering that base of rotation is, e.g., 1000 mm, is sensitivity is 25.000

$$\sin : \text{di } 25'000 \sin a: \quad \delta a(\text{mm}) = 1000 \times \left(\frac{A}{25000}\right) \quad \delta b(\text{mm}) = 1000 \times \left(\frac{B}{25000}\right)$$

Low Battery Indicator

If battery is low the reader shows ":" symbols between the numbers.
Refer to the label of Low Batt positioned on the readout unit.

Battery Replacement

Open the grey battery older and change the battery. Use only 9V PP3 alkaline batteries. Keep the front panel clean and dry. Do not take measures whe connectors are wet. Check the calibration at least every 2 years.