Digital Inclinometer

Instruction Sheet

INTRODUCTION

This instrument is a new-type digital inclinometer, which can be used to substitute for traditional spirit level. It can be used in road engineerings, machine measurements, industrial platforms, antenna placements, and etc. It can be used as an independent unit or integrated in another tool, measuring tool, instrument, or device.

Features

1. The instrument measures angle accurately and is easy to operate.
2. The instrument can be used as an independent unit or integrated in another tool, measuring tool, instrument, or device.
3. The display shows angle directly.
4. Low battery indication
5. Error indicator " **Err** " appears when the front surface of the instrument is horizontal.
6. The instrument can be calibrated by user.
7. Two bar graphs help indicate the instrument's state relative to level or plumb.

SPECIFICATION

Measuring Range: 4×90° (360°)
Resolution: 0.05°
Accuracy: ±0.3°
Power Supply: 1.5V button cell, LR44 or equivalent, 4 pieces
Low Battery Indication: " " shown on the display
Operating Environment: Temperature: 0°C to 40°C
Relative Humidity: 0% to 80%
Storage Environment: Temperature: -10°C to 50°C
Relative Humidity: 0% to 85%
Size: 50×50×25mm
Weight: About 179g (including button cell)

INSTRUCTION

Structure

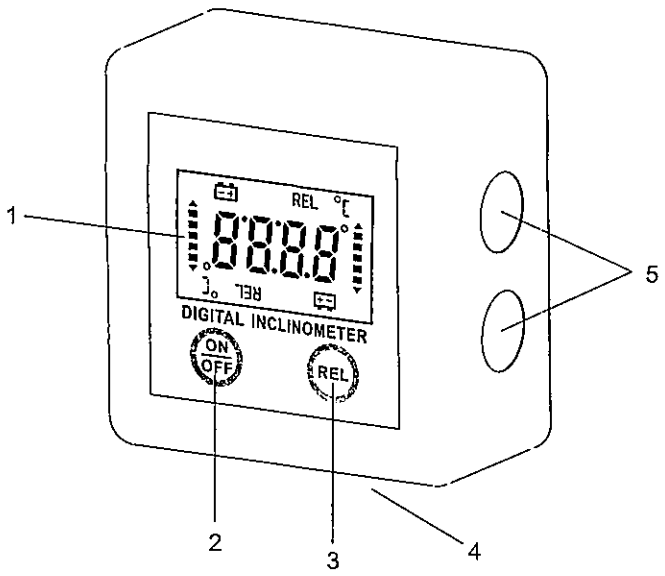


Figure 1

1. **Display**
   The display reads right side up when the instrument is upside down.
2. **" ON/OFF " Key**
   Press this " **ON/OFF** " key to turn on or off the instrument. The instrument will turn off automatically if the reading does not change for about 5 minutes.
   Note: In Calibration mode, the instrument can not turn off automatically and manually.
3. **" REL" Key**
   - In angle measurement mode, press this " **REL** " key to enter or exit Relative mode.
   - In angle measurement mode, press and hold the " **ON/OFF** " and " **REL** " keys simultaneously for about 5 seconds to enter Calibration mode.
4. **Measuring Surface/Bottom Surface**
   When you perform angle measurement, you must place this measuring surface (bottom surface) of the instrument against the surface to be measured.
5. **Magnetic Iron**
   There are 2 round magnetic irons on each of the two sides of the instrument, these magnetic irons can be used to attach the instrument to iron object when necessary.

Understanding the Display

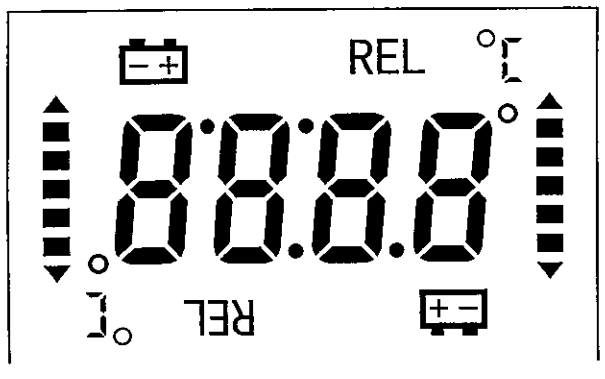


Figure 2

Symbol Meanings:

---- The button cells are low and must be replaced immediately.

REL ---- The instrument is in Relative mode.

---- Degree, unit of angle

---- Unit of celsius temperature

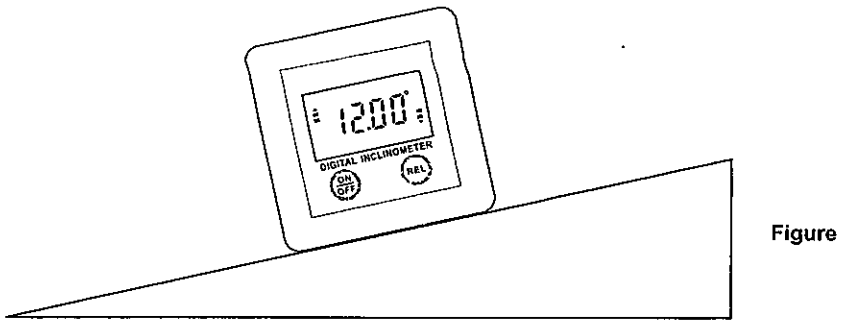
---- Left and right indicators that point toward level or plumb (whichever is closer). The indicators shorter as the instrument gets closer to level (0°) or plumb (90°).

OPERATING INSTRUCTION

Turning on the Instrument and Measuring Inclination

Press the " **ON/OFF** " key to turn on the instrument. The display shows the approximate environmental temperature (measuring range: 0°C - 40°C, accuracy: ±2°C). About 2 seconds later, the instrument enter measurement mode and now it is ready for inclination measurement.

Place the instrument's measuring surface against the surface to be measured, as indicated in Figure 3. W the reading is stable, then read the reading on the display.



Figure

Relative Measurement

Relative measurement allows you to set any angle as a 0° reference point from which to take measureme For example, you may want a surface that is actually 6° off horizontal plane to be displayed as 0° so that y can measure all other angles from that benchmark.

Use the following procedure to make relative measurement:

- Pace the instrument's measuring surface against a surface. The display shows the angle of this surface Press the " **REL** " key once. The instrument store this angle as a reference for subsequent measureme The instrument enters Relative mode and the symbol " **REL** " appears as an indication. The display rea
- In the subsequent measurements, the display will show angles using the reference.
- To exit Relative mode, press the " **REL** " key again. The symbol " REL " disappears and the instrument r to normal operation.

Calibrating the Instrument

Some factors (for example, the ambient temperature changes dramatically or the instrument is bumped) cause the instrument's measurement accuracy to change. In this condition, you should calibrate the instru to ensure correct measurement results. The calibration process is simple and takes about 2 minutes. Just remember:

1. The surface on which you want to calibrate the instrument does not have to be exactly level (horizontal it should be as close to level (horizontal) as possible.
2. Always place the instrument in the same, exact place on the level surface for each step.
3. Do not tamper with the internal circuit of the instrument. If you make a mistake during calibration, remov reinstall the button cells correctly. (Refer to the " **BATTERY REPLACEMENT** " section for information a how to install button cells, make sure that polarity of button cell connection is correct.) Then recalibrate instrument.

Use the following procedure to calibrate the instrument:

1. Press the " **ON/OFF** " key to turn on the instrument. Then place the instrument on a platform in a manne the instrument's front panel faces you and the instrument's measuring surface is against the platform as indicated in Figure 4. Make sure that the instrument is in angle measurement mode, then press and hol down the " **ON/OFF** " and " **REL** " keys simultaneously for about 5 seconds until the display shows " **CA** (Figure 5). Now the instrument is in Calibration mode.

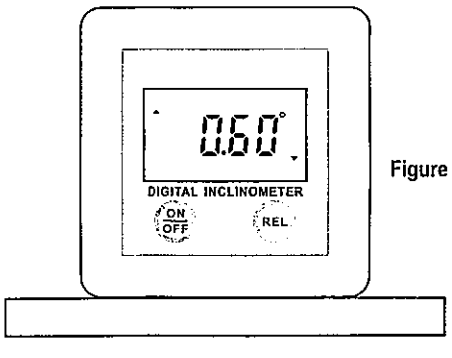
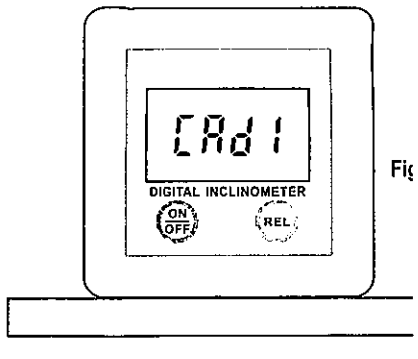


Figure 4



Fig

2. Wait until the number " **1** " of the displayed " **CAd 1** " flashes, then rotate the instrument by 180° along the vertical axis so that the front panel of the instrument faces away from you; the result placement of the instrument is shown in Figure 6. Press the " **REL** " key once. The display shows " **CAd 2** ".

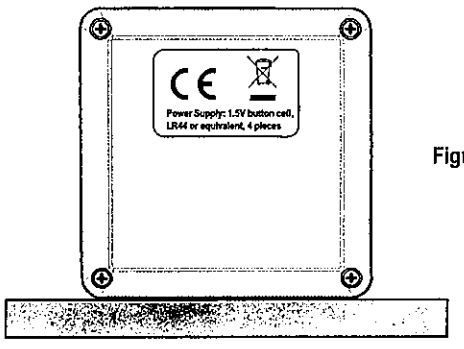


Figure 6

3. Wait until the number " **2** " of the displayed " **CAd 2** " flashes, then rotate the instrument by 180° along the horizontal axis so that its front panel faces you as indicated in Figure 7. Press the " **REL** " key once. The display shows " **CAd 3** " (Figure 8).

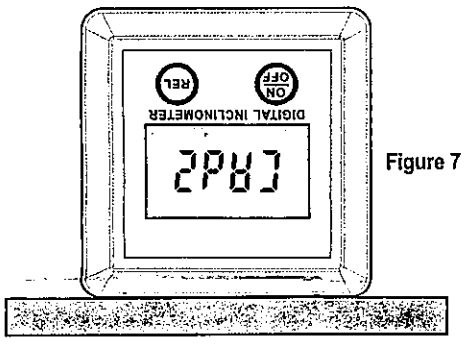


Figure 7

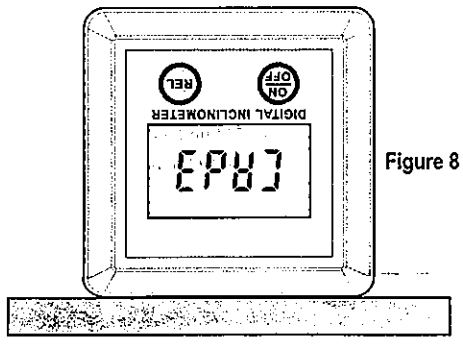


Figure 8

4. Wait until the number " **3** " of the displayed " **CAd 3** " flashes, then rotate the instrument by 180° along the vertical axis so that the front panel of the instrument faces away from you; the result placement of the instrument is shown in Figure 9. Press the " **REL** " key once. The display shows " **CAd 4** ".

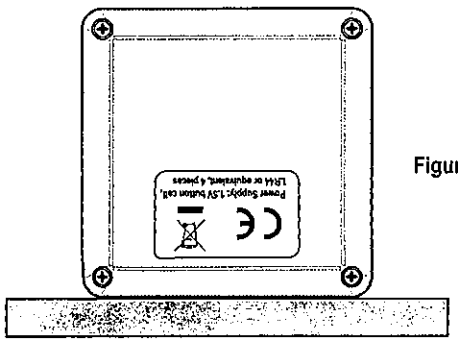


Figure 9

5. Wait until the number " **4** " of the displayed " **CAd 4** " flashes, then rotate the instrument by 180° along the horizontal axis so that the instrument is placed in a manner indicated in Figure 10. Then rotate the instrument clockwise by 90° with its front panel still facing you; the result placement of the instrument is shown in Figure 11. Press the " **REL** " key once. The display shows " **CAd 5** ".

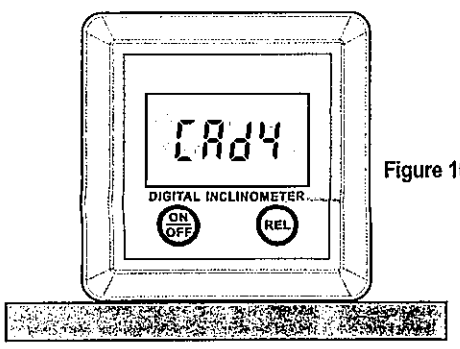


Figure 10

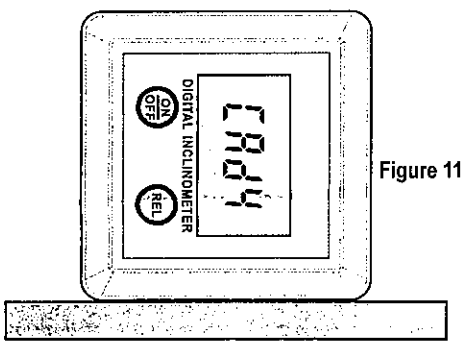


Figure 11

6. Wait until the number " **5** " of the displayed " **CAd 5** " flashes, then rotate the instrument by 180° along the vertical axis so that the instrument's front panel faces away from you; the result placement of the instrument is shown in Figure 12. Press the " **REL** " key once. The display shows " **CAd 6** ".

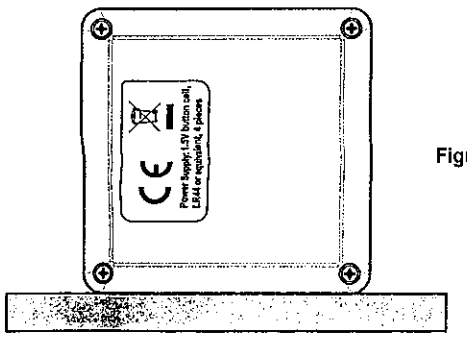


Figure 12

7. Wait until the number " **6** " of the displayed " **CAd 6** " flashes, then rotate the instrument by 180° along the horizontal axis so that the instrument's front panel faces you as indicated in Figure 13. Press the " **REL** " key once. The display shows " **CAd 7** ".

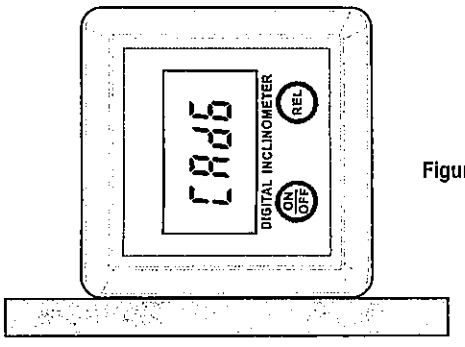


Figure 13

8. Wait until the number " **7** " of the displayed " **CAd 7** " flashes, then rotate the instrument by 180° alc vertical axis so that the front panel of the instrument faces away from you; the result replacement o instrument is shown in Figure 14. Press the " **REL** " key once. The display shows " **CAd 8** ". Wait u number " **8** " of the displayed " **CAd 8** " flashes, then press the " **REL** " key once more. The instrum off and then turns on immediately and automatically. Now the factory preset accuracy has been res the calibration finishes.

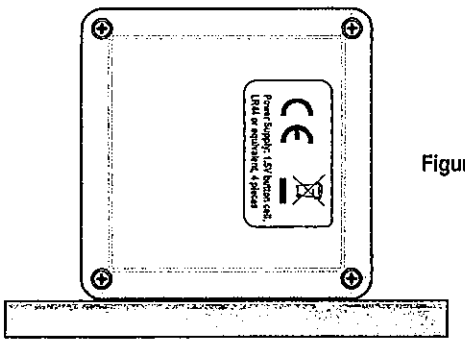


Figure 14

BATTERY REPLACEMENT

When the low battery indicator " 🔋 " appears on the display, the button cells are low and must be repl immediately.

To replace the button cells, press the " **ON/OFF** " key to turn off the instrument. Then remove the scre back cover and remove the back cover. Replace the exhausted button cells with 4 new button cells of t type, make sure that the polarity connections are correct (refer to Figure 15). Reinstall the back cove screws.

Warning:

The polarity of button cell connection must be correct; otherwise the button cells may explode.

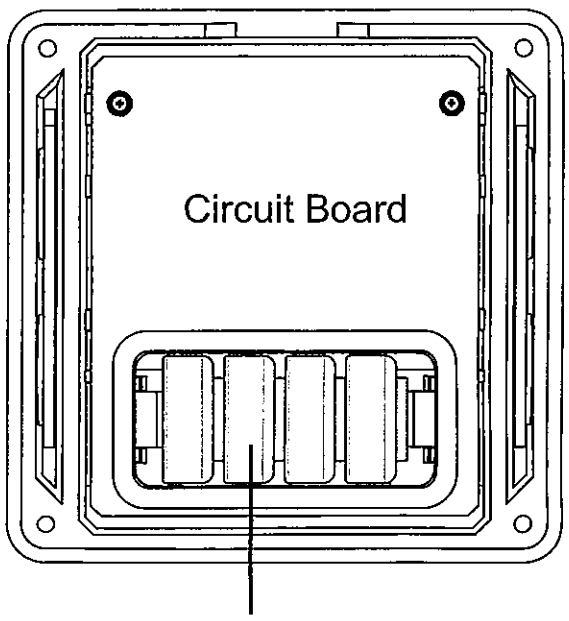


Figure 15

NOTE

1. Keep the instrument clean.
2. The instrument is not waterproof. Don't let any liquid enter the case.
3. Handle the instrument carefully, do not bump or drop the instrument.
4. If the instrument operates abnormally or measurement is not accurate, calibrate it immediately.

DECLARATION

1. This Instruction Sheet is subject to change without notice.
2. Our company will not take the other responsibilities for any loss.
3. The contents of this Instruction Sheet can not be used as the reason to use the instrument for any s application.

DISPOSAL OF THIS ARTICLE

Dear Customer,
If you at some point intend to dispose of this article, then please keep in mind that many of its components consist of valuable materials, which can be recycled.

Please do not discharge it in the garbage bin, but check with your local council for recycling facilities in your area.