SHINWA
Work Together

Item Code 76447

Digital Angle Meter Mini with Magnet

Instruction Manual

Shinwa Rules Co., Ltd.
http://www.shinwasokutei.co.jp/english/
3-18-21 Koya, Sanjo, Niigata, 955-8577 JAPAN
MADE IN CHINA

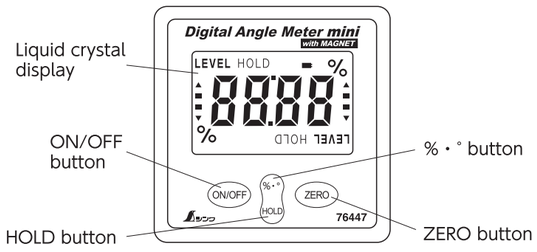
■Use

For angle measurement in various situations, such as assembly of steel frames, installation of mechanical equipment, sheet metal bending and piping work

■Features

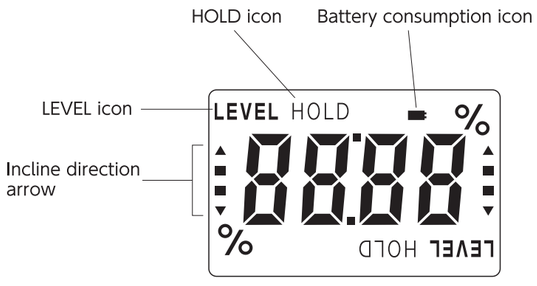
- ●All four surrounding surfaces can be used as the measurement reference plane
- ●Tough, drop/impact-resistant design
- ●Strong neodymium magnets are arranged on three surfaces, which is convenient for steel frame assembly
- ●Compact size for use in a wide range of locations including narrow places
- ●Hold function to enable convenient measurement in difficult-to-see places
- ●Angle can be measured in increments of 0.1°/0.1%
- ●Any angle can be set as the reference point (0.0°)
- ●The display can be switched between angle (°) and gradient (%)

■Part Names



■Specifications

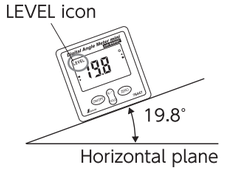
Range	90°×4 directions (360°)
Minimum Indication	Angle: 0.1° Gradient: 0.1%
Accuracy	±0.2° (±3.5 mm/m)
Use Temperature	0 – 40℃
Power Source	1x 9 V battery (Battery included is for trial use only and may not last as long)
Battery Life	Approximately 40 hours of continuous use (when using an alkaline battery)
Auto Power Off	5 minutes
Material	Body: Zinc alloy Panel: Polycarbonate resin Magnet: Neodymium magnet
Body Size	56 × 56 × 30 mm
Weight	189 g (including battery)



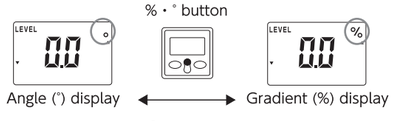
■How to Use

1. Normal measurement

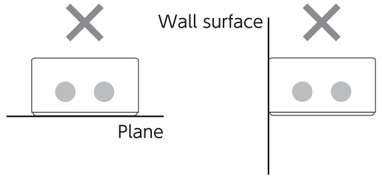
After pressing the ON/OFF button to turn on the power, the LEVEL icon will appear and the device will display the angle from the horizontal plane.



Angle (°) is always displayed when power is turned on. Pressing the % • ° button will change to gradient (%) display.

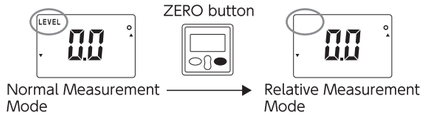


*Measurement cannot be performed if either the liquid crystal display or its reverse side is facing down, as shown in the figure on the right.

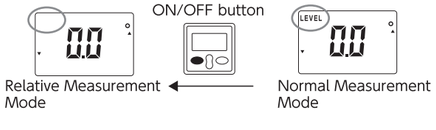


2. Relative Measurement

After turning on the power and pressing the ZERO button at an arbitrary angle, the LEVEL icon will disappear and the display becomes 0.0°.

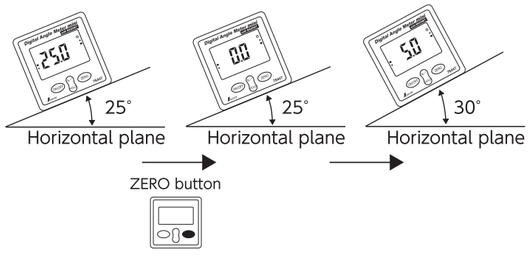


To return to Normal Measurement Mode turn the power off and on again.



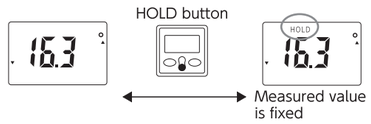
Any angle can be as the reference point (0.0°) to enable relative measurement.

(Example) Set 25° as the reference point



■HOLD Function

Press the HOLD button and the HOLD icon will turn on, causing the measured value to be fixed.
Pressing the button again will cancel the HOLD function and the HOLD icon will disappear.



■Calibration

It is recommended to calibrate the device according to the following procedure before using. Please note that it will not be calibrated correctly if the calibration is not done in a horizontal place.

1. Place the bottom side down on a flat surface plate and turn on the power.
2. Press the ON/OFF button and the ZERO button together at the same time for 5 seconds while making sure the bottom side does not separate from the surface plate. Release the button when the display changes to "CAd 1." (see Figure 1)
3. After a few seconds the number on the display will blink. Push the ZERO button while making sure the bottom side does not separate from the surface plate, and when the display changes to "CAd 2," immediately rotate the device 90 degrees to the right.
4. Repeat the procedure in step 3 in a clockwise direction as shown in Figure 2 for all four sides. When you press the ZERO button for each side, the display will change to “CAd 2”/”CAd 3”/”CAd 4”/”CAd 5.” (See Figure 2)
5. At "CAd 5" the original bottom side will have returned to the lower position. Do not press the ZERO button at this time. The entire display will turn on momentarily after a few seconds, then when it displays the Normal Measurement Mode the calibration will be complete. (See Figure 3)

*If Normal Measurement Mode is not displayed, repeat again from step 1.

Figure 1

Figure 2

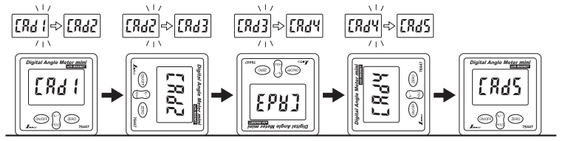
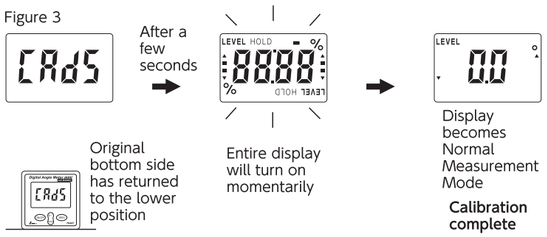


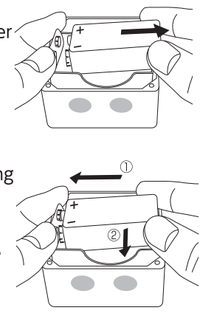
Figure 3



■Changing the Battery

If the battery consumption icon turns on, replace the battery as described below.

1. Remove the four screws on the back with the supplied screwdriver and open the cover.
   ※Take care not to lose the screw you removed.
2. Slowly separate the old battery while holding down the connecting part as shown in the illustration.
3. Fit the new battery firmly into the connecting part (arrow ①), then push it in (arrow ②).
4. Replace the cover and tighten the four screws securely.



■If you think the device is malfunctioning

○Liquid crystal display is faint/blinking
…The battery level may be low. Replace with a new battery.

○The display angle is warped
…Calibrate on a horizontal surface plate according to the procedure in the "Calibration" section.

⚠ Caution

- ●The accuracy of this product is described in the Specifications section.
  If higher accuracy is required, please use a measuring instrument with greater accuracy such as a level.
- ●Dust may adhere to the magnet surface.
  Please wipe clean before use.
- ●The absorption power of the magnet may vary depending on the surface finish/thickness of the iron plate/material, etc.
  Use only after confirming that the device will not fall.
- ●Do not drop or subject this product to strong impacts/vibrations.
- ●Do not use around plumbing or in an environment where cutting oil could splash as the device is not waterproof.
- ●Remove the battery when the device will not be used for a long time.
- ●Measurement cannot be performed on surfaces other than the measurement reference plane.
- ●If the device gets dirty, wipe it clean with a soft cloth. Do not wipe with water, a volatile oil such as thinner, or alcohol.
- ●Do not bring a computer/watch/precision instrument/direction compass close to this product.
- ●Keep out of the reach of children.