

Blue Level Digital

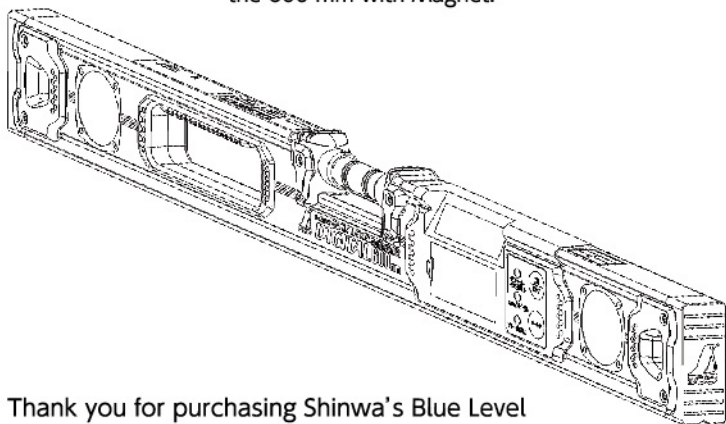
350 mm/350 mm with Magnet

450 mm/450 mm with Magnet

600 mm/600 mm with Magnet

Instruction Manual

*The device illustrated in this instruction manual is the 600 mm with Magnet.



Thank you for purchasing Shinwa's Blue Level Digital. Before using the product, please read the instructions contained in this manual to ensure correct use. After having read this manual, always keep it with you or in a safe place.

Shinwa Rules Co., Ltd.

<https://www.shinwasokutei.co.jp/english/>

3-18-21 Koya, Sanjo, Niigata, 955-8577 JAPAN

MADE IN CHINA

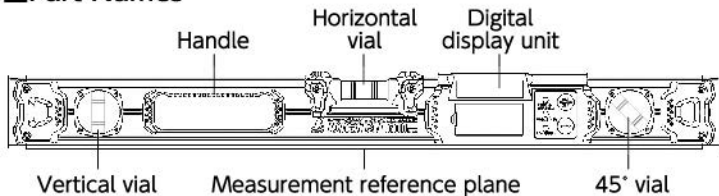
■ Features

- Can also measure angle, gradient, and rise in addition to horizontal and vertical measurements
- If the level body is used in reverse, the display automatically shows in reverse as well
- Alarm sounds when horizontal or vertical (with an alarm ON/OFF switch)
- Hold Function
- Calibration function for digital display
- Zero set function that enables a base angle to be set
- Auto power off function
- Backlight LCD display
- Horizontal vial with luminous sheet
- Types with magnet use strong neodymium magnets

■ Use

For angle and gradient measurement in various kinds of work such as piping, construction, equipment and civil engineering

■ Part Names



*No vertical vial, 45° vial, nor handle on the 350 mm/350 mm with Magnet types

*No handle on the 450 mm/450 mm with Magnet types

●Digital display unit

Zero Set/Calibrate (long press) switch

Set zero at any angle.
Press and hold to enter calibration mode.

ON/OFF switch

Liquid crystal display

Battery cover

Alarm/Light (long press) switch

Switches the alarm sound ON/OFF.
Press and hold to turn on the backlight.

mm/M·°·% switch

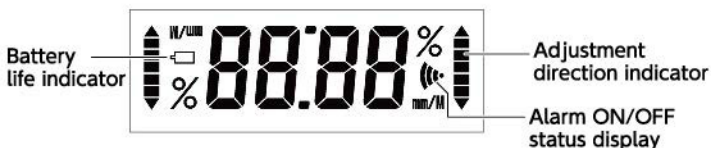
Changes the unit displayed.

HOLD switch

Conveniently fixes the display for measurements in places where it cannot be seen.

●Liquid crystal display

A protective sticker is attached to the display at the time of shipment. Peel off before using.



■ Specifications

Vial Sensitivity*1, Precision	Sensitivity 0.35 mm/m = 0.0201° Precision ±1.0 mm/m = less than ±0.0573°	
Digital Display Precision*2	0°, 90°	Angle: ±0.1° Gradient: ±0.2% Rise: ±2 mm/m
	Other Degrees	Angle: ±0.2° Gradient: ±0.7% Rise: ±4 mm/m (300 mmUP: ±7 mm/m)
Minimum Unit for Digital Display	Angle: 0.1° Gradient: 0.1% Rise: 1 mm/m	
Power Source	1x 9V battery (Battery included is for trial use only and may not last as long)	
Use Temperature	0 - 50°C	


*1 The sensitivity is the gradient when the bubble starts to move.

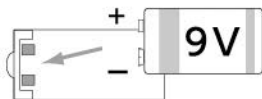
*2 For details about accuracy, see ■ Digital Display Accuracy on page 7.

Caution

- Measured values may not match as the accuracy differs between the vial and the digital display.
- The accuracy of this product is described in the ■ Specifications section. If higher accuracy is required, use a measuring instrument with greater accuracy.

■ Replacing the Battery

- Open the battery cover and carefully insert the battery in the direction of its + or -
- When the battery is low, the  icon will flash, indicating that it is time to change the battery

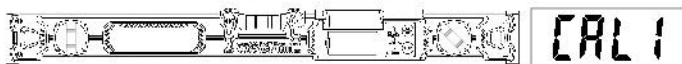


■ Calibration

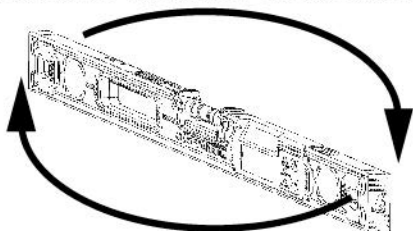
Be sure to calibrate the digital display in the following situations.


- When the battery has been changed
- If the device is subjected to a strong impact such as from being dropped or bumped
- If the error exceeds 0.1° when checking accuracy
- If the temperature changes significantly

1. Place on a level surface and press the ON/OFF switch to turn on the power.
2. Press and hold the "Zero Set/Calibrate (long press)" switch. "CAL1" will be displayed and the figures will blink.



3. Next, turn the device around 180° on the same surface.



*Tilting or bumping the device during calibration will cause an error, and after  is displayed a "beep beep" alarm will sound and numerical values will return to the display. If this happens, retry from the beginning.

4. Press and hold the "Zero Set/Calibrate (long press)" switch again and a beep will sound, and after "CAL2" is displayed, numerical values will be displayed. This completes the calibration.





■ Checking Accuracy (Must be done before use)

- Make sure that there is neither debris nor protuberances due to scratches on the measurement reference side
- Check the accuracy of the horizontal vial
 - (1) Place the device on a horizontal surface and check the position of the air bubble.
 - (2) Turn the device around 180° on the same surface, and check that the position of the air bubble does not change.
- Check the accuracy of the digital display
 - (1) Place the device on a horizontal place.
 - (2) Press the ON/OFF switch to turn on the power, then check the display value after about 10 seconds.
 - (3) Turn the device around 180° on the same surface, and check that the display value after about 10 seconds is within the accuracy range.


■ How to Change the Display Unit

Pressing the "mm/M · ° · %" switch will change the display unit in the order of rise per 1 m (mm/M) → angle (°) → gradient (%) per 1 m.

■ Turning the Alarm ON/OFF

If you want the alarm to sound when horizontal or vertical, press the "Alarm/Light (long press)" switch to display the  icon. If you do not want the alarm to sound, press the "Alarm/Light (long press)" switch again and the  icon will turn off.

■ How to Use the HOLD Function

If you press the "HOLD" switch while measuring an angle, the measured value will remain fixed and the adjustment direction indicator's  icon will blink.

Press the "HOLD" switch again to cancel the HOLD function.

■How to Use the Zero Set Function

Press the "Zero Set/Calibrate (long press)" switch at the angle you want to use as the base angle.

For example, in the case of angle display, the display will be



and measurement can begin. Press the "Zero

Set/Calibrate (long press)" switch again to return to normal measurement.

■Turning On the Backlight

The backlight turns on when you press and hold the "Alarm/Light (long press)" switch. Press and hold the "Alarm/Light (long press)" switch again to turn off the backlight.

■Auto Power Off

The power will turn off after approximately 10 seconds pass without operation.

■Digital Display Accuracy

Angle [°]	Gradient [%]	Rise [mm/m]
5	8.7 ±0.6	87 ±6
10	17.6 ±0.6	176 ±6
15	26.8 ±0.6	268 ±6
20	36.4 ±0.6	364 ±6
25	46.6 ±0.7	466 ±7
30	57.7 ±0.8	577 ±8
35	70.0 ±0.8	700 ±8
40	83.9 ±0.9	839 ±9
45	100.0 -1.1	1000 -11

■ When There Seems to Be a Malfunction...

Symptoms	Solution
● Nothing is displayed	Change the battery.
● Accuracy is poor	Try calibrating the device.

If a problem occurs and the above measures do not resolve it, please contact us and explain the usage situation and symptoms.

Warning

- If the vial is damaged and liquid leaks out
 - If liquid gets in the eyes: Immediately rinse with clean water and seek treatment from an ophthalmologist.
 - If liquid gets on the skin: Take off any affected clothing, then use soap and plenty of water to wash the affected area of the skin.

Caution

- Be sure to check the accuracy before use.
- Do not drop or subject to strong impacts/vibrations
- Do not allow the device to get wet as it is not waterproof
- Never disassemble the device.
- Remove the battery when the device will not be used for a long time.
- Take care to avoid electric shock as aluminum conducts electricity
- Do not measure outside of the measurement reference plane
- If the device gets dirty, wipe it clean with a soft, dry cloth.
Do not rinse with water, or wipe with a volatile oil such as thinner, or alcohol.
- The operating temperature range is 0 to 50°C. Do not use the device outside of this range.
- Keep out of the reach of children.
- Magnet adsorption power may vary depending on the surface finish/thickness of the iron plate/material, etc. Use only after confirming that the device will not fall down.
- Some types of this device use strong magnets. Under no circumstances should they be used near clocks, directional compasses, computers, and other precision equipment.