ABS Digimatic Depth Gage

(en)

Safety Precautions

To ensure operator safety, use this product in conformance with the directions, functions and specifications given in this User's Manual.
Use under other conditions may compromise safety.

⚠ WARNING

- Always keep batteries out of reach of children. If swallowed, consult a physician immediately.
- Batteries should never be short-circuited, disassembled, deformed or come in contact with extreme heat or flames.
- If battery alkaline liquid comes in contact with the eyes, flush eyes immediately with clean water and consult a physician. If battery alkaline liquid comes in contact with the skin, flush the exposed area thoroughly with clean water.

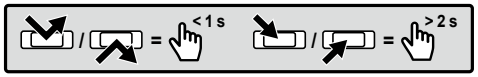
⚠ CAUTION

- Never attempt to charge the primary battery. Never reverse the positive-negative terminals when mounting. Improper battery handling or mounting may cause the battery to explode, cause battery leakage and/ or serious bodily injury or malfunctioning.
- The measuring faces of this product are sharp. Always handle with care to avoid injury.

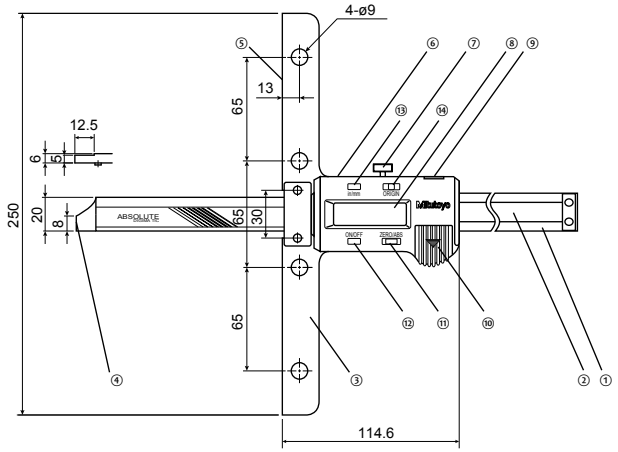
NOTICE

- Before using this depth gage for the first time, wipe the rust preventive oil from the depth gage with a soft cloth soaked with cleaning oil, and install the supplied battery.
- If the depth gage will not be used for more than three months, remove the battery from and store it properly. Otherwise, liquid may leak from the battery and damage the depth gage.
- Do not use an electric engraver to put marks on the depth gage such as numbers.
- Do not scratch the main scale surface.
- If rust preventive oil is dried, the depth gage might not operate smoothly. Wipe a sliding surface with a cloth and then apply a little oil to use the depth gage. This can make the depth gage operate smoothly.
- After use, take corrosion prevention measures. Corrosion can cause the depth gage to malfunction.

Button icon operation



1. Part Names and Functions



① Main scale
② Scale
③ Base
④ Measurement surface
⑤ Reference surface
⑥ Slider
⑦ Clamp screw
⑧ LCD display unit
⑨ Output connector
⑩ Battery lid
⑪ [ZERO/ABS] switch (used to switch between comparison and absolute measurements. See "3. Comparison Measurement (INC mode) and Absolute Measurement (ABS mode)".)
⑫ Battery ON/OFF switch
⑬ [in/mm] switch (only for the in/mm model)
⑭ [ORIGIN] switch (used to set the absolute origin)

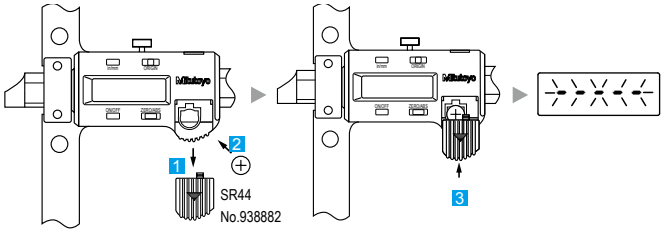
2. Installing the Battery and Setting the Origin

Note

- Be sure to use SR44 (a silver oxide battery).
- The supplied battery is used to check functions and performance. Therefore, it might not provide the specified life.
- Be sure to set the origin after installing the battery.
- When disposing the battery, comply with ordinances and regulations.
- "-----" blinks immediately after the battery is installed. Continue to set the origin.
  If "-----" does not blink, reinstall the battery.
- Be careful not to damage battery terminals when installing the battery.

1) Setting the battery

1. Slide the battery lid to the specified direction (▼) and remove it.
2. Install the battery (SR44) with its positive side facing upward.
3. Return the battery lid to the original position.
   ⇨ "-----" blinks.



Note

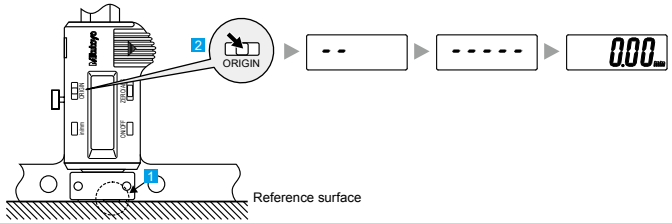
An arbitrary value or an "E" will appear on the display immediately after setting the battery. Ignore the display and perform the origin setting.

2) Setting the origin

1. Align the measuring surface with the reference surface
2. Hold down the [ORIGIN] switch for one second or longer.
   ⇨ "0.00" appears indicating that the origin has been set.

Note

When the battery has been installed, do not move the slider until "0.00" appears as the origin. Otherwise, the depth gage might not count values correctly.



3. Comparison Measurement (INC mode) and Absolute Measurement (ABS mode)

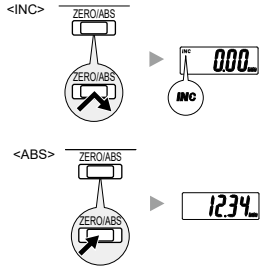
- An absolute value always appears at the time of power-on.
- Unless "INC" appears, absolute measurement can be performed in that condition.

● Comparison Measurement (INC mode)

Align the measuring surface with the surface to be specified as a reference (zero), and press the [ZERO/ABS] switch short (for shorter than one second).
-> The reading is set to zero, and then "INC" appears (measurement can be performed from the reference position).

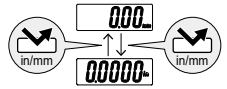
● Absolute measurement (ABS mode)

With "INC" displayed, hold down the [ZERO/ABS] switch (for two seconds or more).
-> "INC" disappears (absolute measurement can be performed).



4. Switching between in and mm (Only for the Exported Type)

Press the [in/mm] switch.
-> Every time it is pressed, the display switches between "in" and "mm."

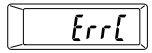


5. Errors and Countermeasures

1) "Err C" display and display flickering

The scale surface is contaminated. Clean the scale surface and apply a small amount of low viscosity oil to repel water.

1)



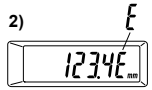
2) "E" display in the last digit

The slider is being moved at a high speed. This does not affect measurement results.

Note

If the last digit shows "E" even when the slider is static, it means "Err C". Use the same remedy as for "Err C".

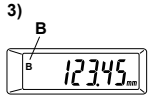
2)



3) "B" display

"B" indicates the voltage drop of the battery. Replace the battery immediately. (For instructions on replacing the battery, see "2.")

3)



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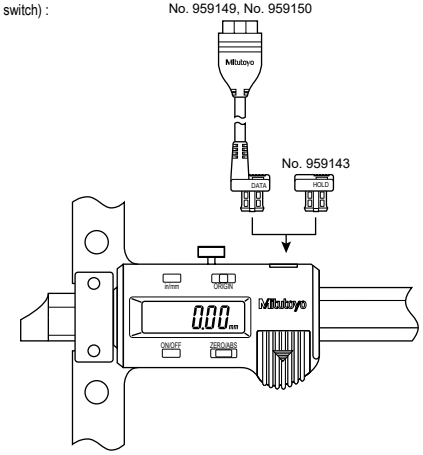
6. Specifications

- Resolution	: 0.01 mm			
- Repeatability	: 0.01 mm			
- Measuring range	: 450 mm	600 mm	750 mm	1000 mm
- Maximum permissible error (E_{MPE})	: ±0.05 mm	±0.05 mm	±0.06 mm	±0.07 mm
- Maximum response speed	: No limit (no miscount caused by speed)			
- Power supply	: SR44 (silver oxide battery), 1 pc			
- Battery life	: About 3.5 years under typical use			
- Operating temperature	: 0 °C to 40 °C			
- Storage temperature	: -10 °C to 60 °C			

7. Optional Accessories

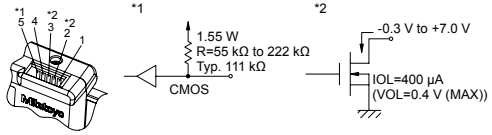
- Digimatic connection cable (with the output switch) :
  No. 959149 (1 m)
  No. 959150 (2 m)
- Hold unit (capable of holding readings) :
  No. 959143

No. 959149, No. 959150

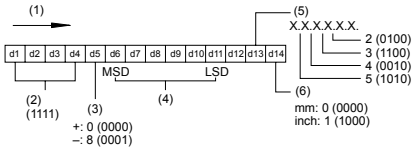


8. Connector Pin Alignment

Pin No.	I/O	Signal
1	-------	GND
2 (*1)	O	DATA
3 (*1)	O	CLOCK
4	-------	-------
5 (*2)	I	REQUEST

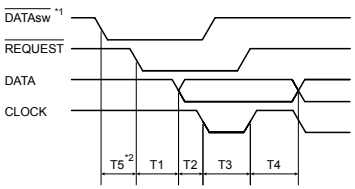


9. Data Format



(1) Order of output
(2) All "F"
(3) Sign
(4) Measured value
(5) Decimal point
(6) Unit

10. Timing chart



0 ms ≤ T1 ≤ 93.75 ms
110 µs ≤ T2 ≤ 140 µs (TYP:122 µs)
110 µs ≤ T3 ≤ 140 µs (TYP:122 µs)
230 µs ≤ T4 ≤ 260 µs (TYP:244 µs)

*1: $\overline{\text{DATAsw}}$ is at the LOW level while the data output switch is pressed.
*2: $\overline{\text{DATAsw}}$ changes to the LOW level. T5 indicating the time to a $\overline{\text{REQUEST}}$ entry depends on performance of a data processor.

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