



Digimatic Micrometer Head

Safety Precautions

To ensure operator safety, use this instrument in conformance with the directions and specifications given in this User's Manual.

Export Control Compliance

The goods, technologies or software described herein may be subject to National or International, or Japanese Export Controls. To export directly or indirectly such matter without due approval from the appropriate authorities may therefore be a breach of export control regulations and the law.



Warning

- The silver oxide battery used for this instrument contains irritating substance. Should the liquid content accidentally come into contact with the eye or skin, rinse with water immediately, then consult a physician. Should it get into the mouth, immediately rinse inside the mouth, swallow plenty of water and vomit it, then consult a physician.
- The tip of the contact point on this micrometer is sharp. Handle it with care so as not to scratch yourself.

Disposal of Old Electrical & Electronic Equipment (Applicable in the European Union and other European countries with separate collection systems)

- This symbol on the product or on its packaging indicates that this product shall not be treated as household waste. To reduce the environmental impact of WEEE (Waste Electrical and Electronic Equipment) and minimize the volume of WEEE entering landfills, please reuse and recycle.
- For further information, please contact your local dealer or distributors.

IMPORTANT

- Do not disassemble. Do not modify this instrument. It may damage the instrument.
- Do not use and store the micrometer at sites where the temperature will change abruptly. Prior to use thermally stabilize the micrometer sufficiently at room temperature.
- Do not store the micrometer in a humid or dusty environment.
- Do not apply sudden shocks including a drop or excessive force to the micrometer.
- Wipe off dust, cutting chips, and moisture from the instrument after use.
- To clean the instrument, use a soft cloth soaked in a diluted neutral detergent. Do not use any organic solvent (Thinner, etc.). It may deform or damage the instrument.
- The spindle is designed so that it can not be removed from the inner sleeve. Do not move it past the upper limit of the measuring range. It may damage the instrument.
- Reference line of the spindle represents the measuring range. When the measuring value comes to the upper and lower limits of the measuring range, turn the thimble slowly with great care so that it never exceeds the reference line.
- Do not use an electric marking pen or other such devices on the micrometer.
- The LCD automatically turns off if it has been idle for 20 minutes. To turn on the LCD, turn the thimble or press the ZERO/ABS(ON) button.
- Do not charge or disassemble the battery. Doing so may cause short circuit.
- If the micrometer is not in use for more than 3 months, remove the battery from the micrometer for safe keeping. The battery could leak and cause damage to the micrometer.
- The warranty shall not apply if the product fails or is damaged as a result of fair wear and tear including battery drain.

Refer to the illustrations on the reverse side while reading this manual.

[1] Name of Each Part

- | | | |
|---|-------------------------------|------------------|
| 1. Spindle | 2. Stem | 3. Thimble |
| 4. Speeder | 5. LCD panel | 6. PRESET button |
| 7. ZERO/ABS(ON) button | 8. [+/-] button | |
| 9. Inch/mm select button (only on inch/metric models) | 10. Data output connector | |
| 11. Connector cap | 12. Battery compartment cover | |

[2] Installing the Battery

IMPORTANT

- When the battery has been installed, first press the PRESET button, but do not rotate the thimble while the preset values are being set (see Fig.[2] (7)(8)). Rotating the thimble during this time may result in failure in setting the default settings by the electrical unit which will prevent the obtaining of a correct count. Reinstall the battery if you should happen to have moved the thimble during this time.
- The preset values are canceled when the batteries are reinstalled. Reset the preset values if the batteries have been reinstalled (refer to section [5] of Datum Point Setting).
- Use only an SR44 button-type silver oxide cell.
(The supplied battery is used only for the purpose of checking the functions and performance of the instrument, therefore it may not satisfy the specified battery life.)
- In the rare event that an abnormal display appears, such as an error display or count failure, the battery should be removed and then reinstalled in position.
- Please dispose of the battery in accordance with local regulations regarding disposal of hazardous substances.
- Since the battery is not installed at the time of purchase, install the battery by following the procedure described below.
- Be sure to use the supplied Phillips screwdriver (No.05CAA952) when screwing or unscrewing the setscrews and tighten the setscrews at a torque of approximately 5 to 8cN·m.

- Loosen the setscrews from battery compartment cover with the supplied Phillips screwdriver.
- Remove the cover.
- Install a battery cell with their "+" side facing up.
- Replace the cover.
- Pressing the edge of the cover, tighten the setscrews to fix the cover.
- "-----" flashes on the LCD when the battery is installed.
- Press the PRESET button.
- Counting can be started when "-----" is no longer displayed and "0.000" is displayed on the LCD.

[3] Button Function and Display Indication

1. Button function

- ZERO/ABS(ON) button: Pressing once resets the display to zero. Holding it down returns the display of the measurement system at the time origin was set. Also, the LCD automatically turns off if it has been idle for 20 minutes. Press this ZERO/ABS(ON) button to turn on the LCD again.
- [+/-] button: The counting direction, either normal or reverse mode, is set by the [+/-] button. The value of the counter is decremented by spindle extending in normal mode, whereas in reverse mode, the value of the counter is incremented by spindle extending.

2. Display indicators

INC: Incremental mode for comparative measurement.

- ▼ : Appears when switching the counting direction from the normal mode to reverse mode. (Displays at the REVERSE mode.)

[4] Error Display and Remedy

- Err-oS: The battery voltage is low. Immediately replace the battery.
- Err-oS: Errors indicate when a counting error occurs by noise or overspeed. Re-set the battery again and perform origin setting.
- Err-S: Errors indicate when a counting error occurs by the initial setting error of the electronic unit or abnormal sensor signal, etc. Re-set the battery again and perform origin setting.
- Err-oF: The display value exceeds ±999.999 mm. Rotate the thimble reversely to restore correct reading.

[5] Datum Point Setting

IMPORTANT

- When the battery has been installed, first press the PRESET button, but do not rotate the thimble while the preset values are being set (see Fig.[2] (7)(8)). Rotating the thimble during this time may result in failure in setting the default settings by the electrical unit which will prevent the obtaining of a correct count. Reinstall the battery if you should happen to have moved the thimble during this time.
- Always make sure to check and set the datum point by following the procedure below prior to measurement.
- Remove any debris or grease from the measuring surfaces before making this setting.
- When datum setting is conducted, the micrometer position and conditions have to be same as actual measurement. The datum setting procedure is as follows.

1. Presetting the datum point

Example: When registering a value of 50.000mm

- Press the PRESET button. The previously registered value is displayed and "P1" flashes. (A zero is displayed after the battery has been replaced.)
- Hold down the PRESET button, and release when the digit place that you desire to change flashes.
- Press the PRESET button several times until "5" is displayed in this place.
- Hold down the PRESET button, and release when the next digit place flashes.
- Repeat steps (3) and (4) to set "0" in this and subsequent digit places.
- Hold down the PRESET button, and release when "P1" flashes.
- Press the PRESET button to stop "P1" from flashing and complete the datum point setting procedure.

CAUTION

- To cancel presetting press the ZERO/ABS(ON) button. The previous preset value will be restored.
- During presetting, the display value is not affected by thimble rotation.

2. Datum Point Setting

- Adjust the spindle to the position to be set as the origin by turning the thimble.
- When the PRESET button is pressed, "P1" flashes and the previously registered value is displayed (or a zero is displayed if a value has not been registered).
- If the display is correct, press the PRESET button to stop "P1" from flashing and complete the datum point setting procedure.

CAUTION

If the PRESET button is accidentally pressed during measurement, press ZERO/ABS(ON) button to restore. Set the datum point again if measurement is still unable to be restored.

[6] Setting

- When attaching the instrument to the holder, avoid a point-clamping with such as set screw. (Point-clamping may adversely affect the smooth spindle movement.) Clamping force of the holder must be applied equally on the circumference of the stem.

[7] Setting the LCD panel to the Best Position for Reading

- The LCD panel can be rotated up to 330° clockwise from the normal position. If the angle of the display set on the holder is not easy to read, adjust the angle by gripping the bezel and twisting the LCD panel. However, do not apply force to the following directions (1), (2), and (3), when rotating the LCD panel.
- (1) Further clockwise rotation from line A.
- (2) Further counterclockwise rotation from line B.
- (3) Either pulling or pushing the LCD panel.

[8] Specifications

- | | |
|------------------------|--|
| • Instrumental error | : ± 3 μm |
| • Resolution | : 0.001 mm (.0001") |
| • Quantizing error | : ±1 count |
| • Stem diameter | : Ø18 ⁰ _{-0.02} |
| • Display | : LCD (6 digit and a minus sign) |
| • Power supply | : Silver oxide cell (SR44 No. 938882), 2 piece. |
| • Battery life | : Approx. 1.8 years under normal operation |
| • Temperature | : 5°C to 40°C (operation), -10°C to 60°C (storage) |
| • Standard accessories | : Phillips screwdriver (No.05CAA952) |

[9] Output Function

1. Connecting cable (optional): Order No.959149 (1m), Order No.959150 (2m)

- Remove the connector cap.
- Attach the connecting cable.
- When the [DATA] switch of the connecting cable is pressed, the display value will be output to the external device.

2. Data format

3. Timing chart

*1: DATAw is Low while the [DATA] switch of the connecting cable is held down.

*2: Time interval T6 between the falling of DATAw to Low and the input of REQ depends on the performance of the data processor to be connected.

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