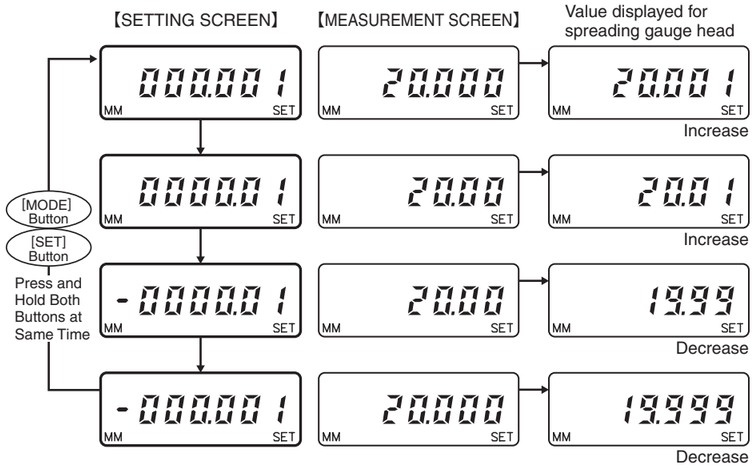
CONTROLLING READOUT DIGITS AND POLARITY

Press and hold the [MODE] button and [SET] button simultaneously to change the number of digits displayed to the right of the decimal point, and the direction of increasing display value.

The options are represented as: 0.001/ 0.01 / -0.001 / -0.01 on the display for the available choices.

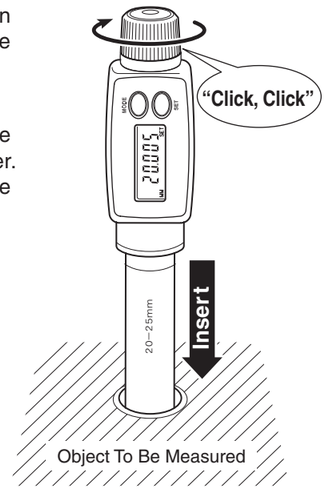


OPERATION

①Remove any grease and dust from the measuring surfaces with a clean cloth, such as a lens cleaning cloth. Make sure no foreign objects are adhered to the surfaces.

②Turn on power and make sure measurement screen is displayed.

③Insert the measurement head into object to be measured and turn spindle until the measuring surfaces make contact with the inside diameter. Continue turning until ratchet stop『clicks』1～3 times and read the measurement off the LCD display.



⚠ CAUTION

- Always allow sufficient time for instrument and object to be measured to reach the same temperature before taking measurement.
- Always remove dirt from measuring surfaces with a lens cloth before use.
- Keep instrument away from direct sunlight or high temperatures such as in a car, or near a stove or heat source.
- Do not turn ratchet stop above or below measurement range.
- When low battery indicator is displayed, please replace battery as soon as possible. Continued use may cause reading errors.
- This is a precision instrument, handle with care. Do not drop or subject to excessive forces.
- Remove dust and cutting chips after use and apply rust preventative oil to metallic surfaces. Please keep out of reach of children.
- Please do not use organic solvents to clean the instrument body.
- Please do not disassemble or modify.
- Only use as directed. Improper use may cause accident or injury.

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I221-K 1411

DIGITAL S-LINE 3-POINT MICROMETER

INSTRUCTION MANUAL

Model No. : MCD-****IPS <combined>

Thank you for purchasing the DIGITAL S-LINE 3-POINT MICROMETER. Please read this manual thoroughly before use for proper operation.
Ring gauge calibration standard (not included) is required for zero setting. Please prepare ring gauge appropriate for the instrument's measurement range.

FEATURES

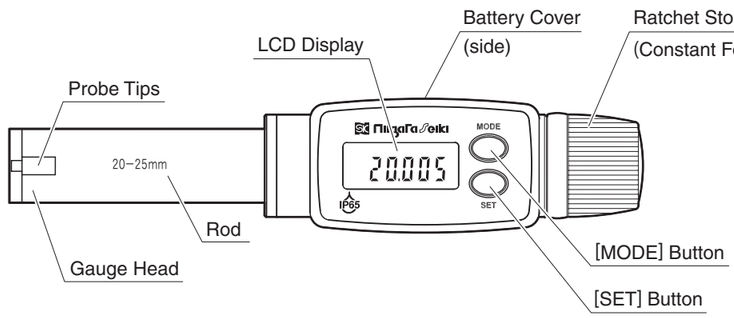
- Easy to read digital display.
- High accuracy 3-point ID measurements.
- Capable of storing up to three preset values.
- With tolerance setting capability.
- Auto display off function (approx. 4 hrs.)

SPECIFICATIONS

- Resolution:0.001mm
- Accuracy:4μm
- Operating Temperature Range:15～40℃
- Storage Temperature Range:0～50℃
- Electronic Unit Waterproof Grade:IP65 Spec.
- Power:CR2032 (Lithium Battery)
  ※1x included for testing

	Measurement Range (mm)	Measuring Part Material
MCD-0608IPS	6 – 8	Alloy Steel Tip
MCD-0810IPS	8 – 10	
MCD-10125IPS	10 – 12.5	
MCD-12516IPS	12.5 – 16	Carbide Tip
MCD-1620IPS	16 – 20	
MCD-2025IPS	20 – 25	
MCD-2535IPS	25 – 35	
MCD-3550IPS	35 – 50	

PART IDENTIFICATION



【ACCESSORIES】

- CR2032 (Lithium Battery)
  ※Provided for testing. Please replace with new battery before use.
- ⊕Driver for battery replacement

(Ring gauge not included.)

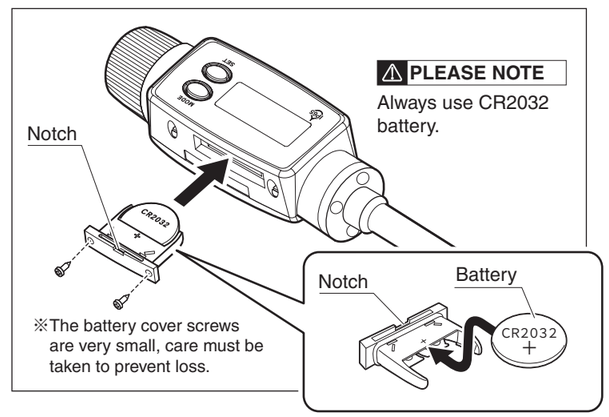
REPLACING THE BATTERY

①Using accessory ⊕ driver, remove the two battery cover screws. A flat-head driver can be used in the notch to gently pry open the cover. Pull out the battery cover.

②Insert the new battery following the marks on the battery cover.

③Replace the cover and tighten the screws.

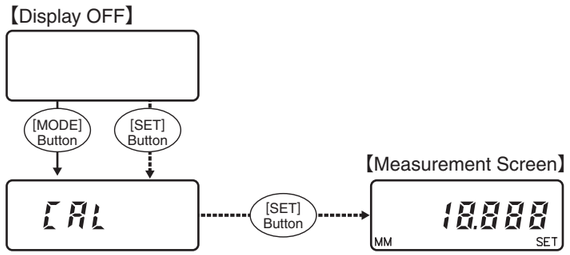
※When battery level is low,『 B 』indicator will display on the LCD. With continued use, the display will become unstable and readout may not be correct.



※Use care not to bend the terminals when inserting the battery.

POWER

【POWER ON】
Press either [MODE] or [SET] button to turn on instrument -- screen will display “CAL”. Press the [SET] button again to recall the Preset Value and display the measurement screen.



【AUTO DISPLAY OFF】
After approx. 4 hours of inactivity, the display will turn off. Press [MODE] or [SET] button to turn it on.

【POWER OFF】
Press the [SET] button and hold for 1 sec. to turn off power.
※When inputting preset values, pressing the [SET] button for more than one sec. does not turn off power.

TROUBLESHOOTING

ERROR CONDITION	CORRECTIVE ACTION
Measured value is wrong	●Check if origin point is set properly. Re-set. ●Check if measuring surfaces are dirty. Clean with lens cloth.
● Nothing is displayed on LCD ● Display is not stable ● Display is not clear	●Remove and reinsert battery to cycle power. ●Replace the new battery. ●Make sure the battery cover terminals are not damaged.
Gauge head does not retract	●When stored at low temperature, or not used for a while, the internal grease may become stiff. Allow sufficient time for grease to warm up. ●Wearing dust-free gloves, use hand to push in.
LCD displays: “ERR 0”	●Sensor reading error. Please re-set origin point.
LCD displays: “ERR 6”	●Oscillation circuit error.Please remove and reinsert battery to cycle power.
LCD displays: “ERR 8”	●Memory error.Please remove and reinsert battery to cycle power.
LCD displays: “ERR 9”	●Please contact distributor or place of purchase for service.

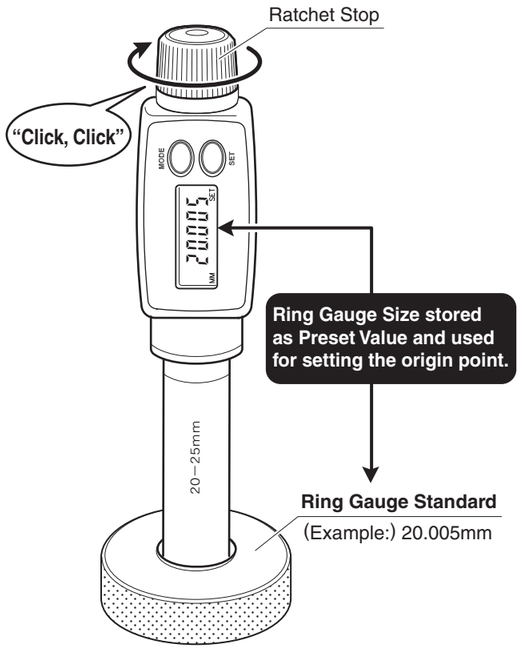
※If problem does not resolve,or if you have any questions, please contact distributor or place of purchase.
※Please note, manufacturer is unable to respond to inquires or provide service directly. Please contact distributor or place of purchase.

ORIGIN-POINT SETTING

※Use ring gauge appropriate for instrument measuring range.

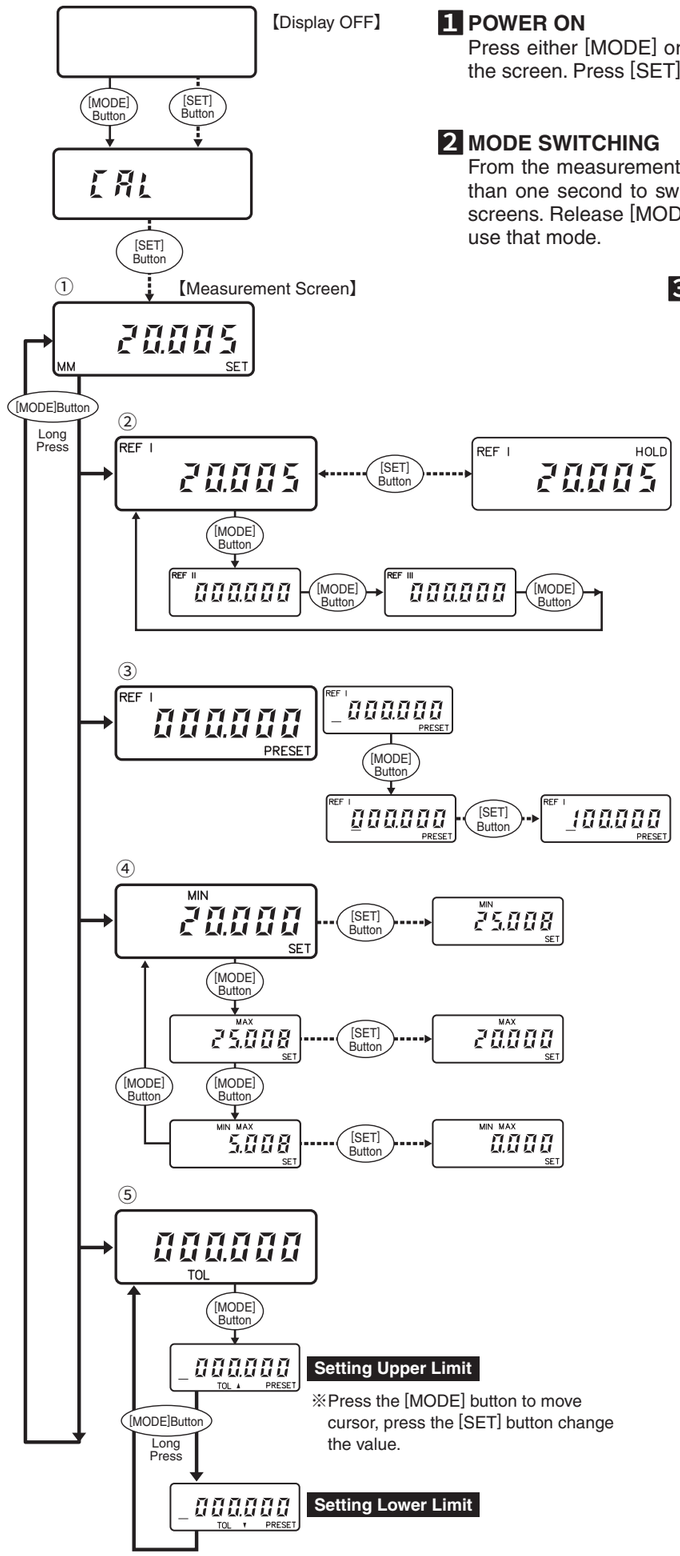
The Origin point will be reinitialized after power off or battery replacement. Please reset origin using ring gauge before measurement.

1 .Prepare instrument and ring gauge by cleaning measurement head and ring gauge inner diameter with appropriate cleaner.
2 .Turn on instrument power and enter the ring gauge size as a preset.
（Refer to **SETTINGS and MODES** **3** -③Preset Function）
3 .Insert the measurement head into the ring gauge and turn the ratchet stop until the measuring surfaces make contact with the inside of the ring gauge. Continue turning until ratchet stop “clicks” 1~3 times.
4 .Press the [SET] button to recall the preset value. The origin point is now set and instrument is ready for use.



SETTINGS and MODES

A long press of [MODE] button selects the display mode. [MODE], [SET] buttons change the settings.



1 POWER ON

Press either [MODE] or [SET] button to turn on power and display “CAL” on the screen. Press [SET] button again for measurement screen.

2 MODE SWITCHING

From the measurement screen, press the [MODE] button and hold for more than one second to switch to: Reference, Preset, MIN MAX, and Tolerance screens. Release [MODE] button at desired screen to change the settings or use that mode.

3 SETTINGS IN EACH MODE

①Preset Recall Feature
When [SET] button is pressed upon power up, or in the measurement screen, the Preset Value set in ③ below is used.

②Reference Function
Different Preset Values (origin) for REFI, REFII, and REFIII can be selected using the [MODE] button. This feature is useful when multiple measurement criteria are required. While in this mode, the [SET] button will function to HOLD the display.

③Preset Function
The Preset Value is displayed in measurement mode by pressing the [SET] button. Use the [MODE] button to move the underscore cursor, and the [SET] button to change the value. When complete, a long press on the [MODE] button will fix the value and return to the measurement screen.

④MIN MAX Mode
This screen displays the Minimum Reading, Maximum Reading, and Maximum Displacement during measurement.
A short press of the [MODE] button switches from “MIN” (minimum reading,) “MAX” (maximum reading,) and “MIN MAX” (maximum displacement) on the display and their corresponding value.
Press the [SET] button to reset the stored values.

⑤Tolerance Mode
Allows easy verification that a measurement is within preset tolerance range.

Example) With the measurement range set to 20.005mm ~ 20.000mm