



# OPERATION INSTRUCTION

## Digital Indicator Series 2103

**Caution: Prevent liquid from getting into indicator to damage electronics.**

Resolution: 0.001mm/0.00005"

Code	Range	Accuracy( $f_{ges}$ )	Hysteresis( $f_u$ )	Remark
2103-10	12.7mm/0.5"	5 $\mu$ m	2 $\mu$ m	lug back
2103-25	25.4mm/1"	5 $\mu$ m	3 $\mu$ m	lug back
2103-50	50.8mm/2"	6 $\mu$ m	3 $\mu$ m	lug back
2103-10F	12.7mm/0.5"	5 $\mu$ m	2 $\mu$ m	flat back
2103-25F	25.4mm/1"	5 $\mu$ m	3 $\mu$ m	flat back
2103-50F	50.8mm/2"	6 $\mu$ m	3 $\mu$ m	flat back

- 1-Battery cover
- 2-"TOL" button
- 3-LCD display
- 4-"in/mm" button
- 5-"ABS" button
- 6-Stem(diameter  $\varnothing$ 8mm)
- 7-Spindle
- 8-Contact point(thread M2.5X0.45)
- 9-"M" button
- 10-USB data output
- 11-"ZERO" button



- Display
- 1-Analog pointer
- 2-Tolerance sign
- 3-Analog pointer resolution
- 4-Metric mode
- 5-Inch mode
- 6-Preset mode
- 7-Absolute measuring mode
- 8-Tolerance measuring mode
- 9-Measuring direction sign
- 10-Difference between the max. and min. measuring value
- 11-Minimum value track measurement
- 12-Maximum value track measurement
- 13-Set upper/lower limit



1. Install and remove battery(CR2032), the negative side of battery should face out(fig.1).



fig.1

2. Display can be rotated by 320°.

3. Buttons:

Long press: longer than 2 seconds; short press: less than 2 seconds.

TOL---Short press to enter into tolerance measuring mode. Under this mode, "►" at the upper right corner blinks if the reading is larger than the upper limit; "◄" at the top left corner blinks if the reading is less than the lower limit.

---Long press to enter into tolerance set mode. "▼" appears and the last digit blinks. Short press "ZERO" button to position the digit, the digit blinks when it is positioned. Short press "in/mm" button to change the digit from 0 to 9. After setting the lower limit, short press "TOL" button, "▲" appears and the last digit blinks. Set the upper limit as setting the lower limit way. Short press "TOL" button to finish set and enter into tolerance measuring mode.

If the lower limit is larger than the upper limit, "EEE" will appear and the digital indicator enter into tolerance set mode again automatically.

M---Short press, "MAX" appears and enter into maximum reading tracking mode. Short press again, "MIN" appears and enter into minimum reading tracking mode. Short press for the third time, "TIP" appears and to get the difference between the maximum and minimum reading of one measurement.

---Long press to change the analog pointer resolution between 0.001mm, 0.002mm, 0.004mm, 0.01mm in metric mode or 0.00005", 0.0001", 0.0002", 0.0005" in inch mode.

in/mm---Short press for inch and metric reading conversion

---Long press to change measuring direction. "▲" appears, the value increases if the spindle moves up. "▼" appears, the value decreases if the spindle moves up.

ABS---Short press for absolute and relative measuring mode conversion. The normal mode is absolute measuring mode("ABS" is on display). Short press the button to enter relative measuring mode at any point(this point is called "relative zero point"), "ABS" disappears and the reading is zero. In this mode, the reading is the distance to the "relative zero point". Press the button again to return back to absolute measuring mode.

---Long press to enter into initial reading set mode. "SET" appears and the last digit blinks. Short press "ZERO" button to position the digit, the digit blinks when it is positioned. Short press "in/mm" button to change the digit from 0 to 9. Long press "ABS" button to exit set mode.

ZERO---When display is powered on: short press to get initial reading on absolute measuring mode("ABS" is on display); long press to turn off display.

---When display is powered off: short press to turn on display.

4. Automatic power off in about 6 hours. Press "ZERO" button to turn on indicator.

5. Digital indicator should be mounted on a rigid holder to use.

6. Clamping: clamping the stem for flat back dial indicator. For lug back, the dial indicator can be mounted by clamping the lug or stem. If the dial indicator is mounted by clamping the stem, please do not apply excessive clamping force, which will affect the movement of the spindle.

7. During measurement, the spindle should be vertical to the workpiece surface, otherwise, the measurement may not be correct. Caution: please do not move the spindle quickly or apply lateral force on the spindle.

8. After measurement, please oil the contact point. The spindle should not be oiled, otherwise, the movement of the spindle will not be smooth.

9. If the digital indicator drops or be shocked, please inspect the measuring accuracy before using.

10. Optional accessories: SPC cable(7302-SPC3 or series 7304), backs(7330-L5/F5), contact points(series 6282).

In order to get accurate measurement, it is necessary to choose contact point according to the shape of the workpiece. Measuring columned workpiece should choose knife edge point, measuring spherical workpiece should choose flat point, the needle point should be chosen when measuring concave or complex shape workpiece.

11. One battery can last for one year use. If there is nothing on display or digits blurring, battery voltage is too low, please replace battery. If the digits do not change when buttons are pressed or spindle is moved, take out battery and put it back after 1 minute. If the indicator is not used for a long period of time, please remove the battery. Otherwise, liquid may leak from the battery and damage the indicator.

12. Working temperature is 0-40°C/32-104°F, relative humidity should not exceed 80%.

MN-2103-C/E