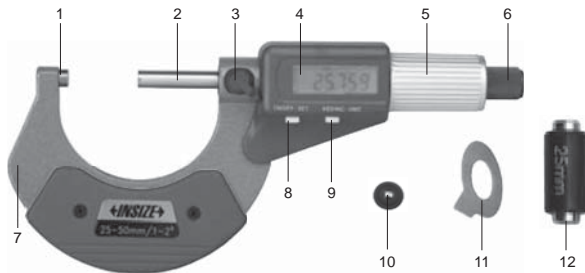




## OPERATION INSTRUCTION

### Digital Outside Micrometer Series 3109

Resolution: 0.001mm/0.00005"  
Accuracy:  $\pm 0.002\text{mm}/0.00008\text{"}$  (Range: 0-50mm/0-2")  
 $\pm 0.003\text{mm}/0.00012\text{"}$  (Range: 50-100mm/2-4")



- |                                       |  |
|---------------------------------------|--|
| 1-Anvil with carbide measuring face   | 7-Frame                                  |
| 2-Spindle with carbide measuring face | 8-'ON/OFF...SET' button                  |
| 3-Locking screw                       | 9-'ABS/INC...UNIT' button                |
| 4-LCD display                         | 10-Spherical anvil                       |
| 5-Ratchet thimble                     | 11-Spanner                               |
| 6-Ratchet on speeder                  | 12-Setting standard (except 0-25mm/0-1") |

1. Please prevent liquid or dust from getting into micrometer to damage electronics.
2. Install battery:
  - Turn the battery cover 45° counterclockwise with the spanner (fig.1), then remove it
  - Put SR44 or LR44 battery into battery house, the positive side of battery (+) should face out (fig.2)
  - Put the battery cover back and turn clockwise to fix it (fig.3)

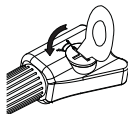


fig.1

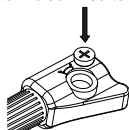


fig.2

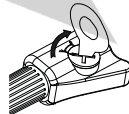


fig.3

### 3. Buttons:

ON/OFF...SET-----short press(<2 sec.): power on/off  
---long press(>2 sec.): set the initial reading in absolute measuring mode ("ABS" on the display). For 0-25mm/0-1", close the two measuring faces and long press the button to set zero reading. For other sizes, let the setting standard ends be in contact with the measuring faces of micrometer (micrometer measures the setting standard), then long press the button and the reading shows the length of the setting standard.

ABS/INC...UNIT---short press(< 2 sec.): for absolute and relative measuring mode conversion. The normal mode is absolute measuring mode, "ABS" is on display. Press the button to enter relative measuring mode at any point (this point is called 'relative zero point'), "INC" appears 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(>2 sec.): for metric and inch conversion

4. Please clean the measuring faces and setting standard ends, then set initial reading (refer to the instructions of "ON/OFF...SET" button). Micrometer should be checked regularly to make sure that it is properly initial reading set.
5. During measurement, let anvil contact with the piece first, then rotate ratchet thimble until you hear click, or rotate ratchet on speeder until spindle is close to, but not in contact with the piece, which will damage the internal precision threads.  
Caution: When the measuring faces is close to, but not in contact with the piece, do not apply excessive force to rotate the ratchet thimble, as it will lead to inaccurate results and may damage the internal precision threads.

6. Install spherical anvil on the anvil, the micrometer can measure tube thickness (fig.4).

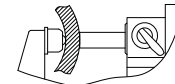


fig.4

7. Automatic power off in about 5 minutes. Press any button or rotate ratchet thimble to turn on micrometer.
8. 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 digits do not change when buttons are pressed or ratchet thimble is rotated, take out battery and put it back after 1 minute. Remove battery if micrometer is not be used for a long period of time, otherwise, liquid may leak from the battery and damage the micrometer.
9. Working temperature is 0-40°C/32-104°F, relative humidity should not exceed 80%.

MN-3109-E