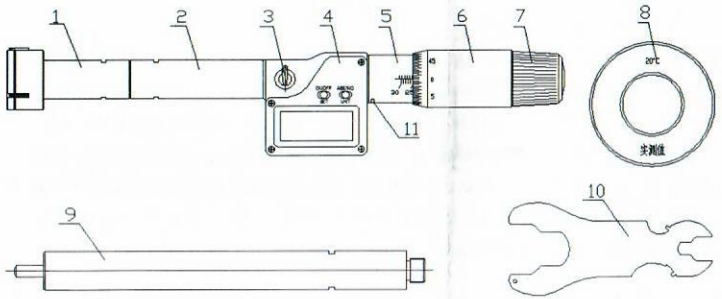
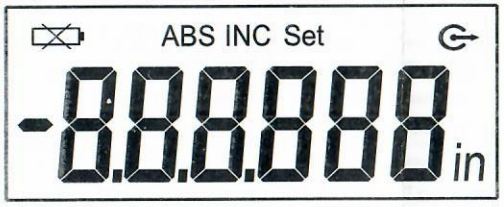
ELECTRONIC THREE-POINT INTERNALMICROMETER

1. Functional elements



1. Measuring-head
2. Sleeve
3. Locking device
4. Elec. component
5. Fastness sleeve
6. Thimble
7. Ratchet
8. Setting ring
9. Extension
10. LCD display
11. Adjusting screw

2. LCD Display



in : Inch mode
INC : Relative measuring
ABS: Absolute measuring
: Battery voltage is low
: Data output to PC
Set : Set the origin

3. Key Operation

Two ways of pressing key are used in the following illustration:

(1) Press and release. (2) Press and hold (more than 1 sec.).

3.1 ON/OFF•••SET key

: **ON/OFF** Power on/off.

: **SET** Set the origin for absolute measurement.

3.2 ABS/INC•••UNIT key

: **ABS/INC** Absolute/Relative measuring mode conversion.

: **UNIT** Metric/Inch measuring mode conversion.

3.3 The key on SPC cable

: Output the data to PC once, "" flashes once.

: Output the data to PC continuously and "" keeps displaying. Press the key again to stop outputting

4. Set zero and origin

4.1 Set zero

Clean the measuring jaws and the hole of the setting ring with soft cloth. Rotate ratchet stop until the measuring jaws contact the hole of the setting ring. Repeat the above process until displayed value not change. Set the origin according with the setting ring..

4.2 Set a new origin

a. Press and hold "**SET**" key until "**Set**" flashes and the preset origin is displayed. Go to **g** if not changing the origin.

b. Press and hold "**SET**" key >1sec, "**Set**" stops flashing and the first digit starts flashing.

c. Press and hold "**SET**" key the next digit will flash, and not release the key until it is the digit desired.

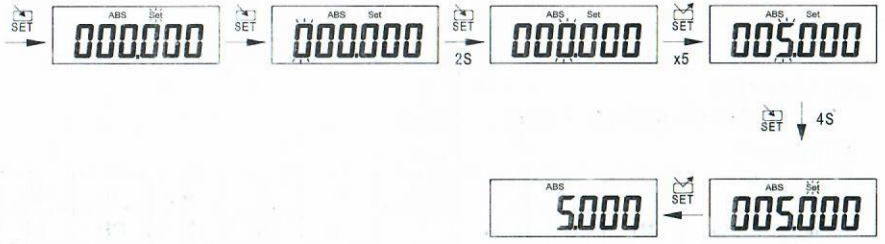
d. Press "**SET**" key, the flashing digit +1 until it is desired.

e. Repeat steps **c** and **d** until all the data on LCD are desired.

f. Press and hold "**SET**" key until "**Set**" flashes.

g. Press "**SET**" key, the data on LCD will be set to the origin. This value is the origin for absolute measurement at the spindle position.

- The origin will not be lost after reset the battery.

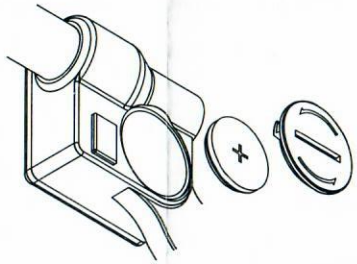


5 Install extension rod

Install extension rod with the spanner when measure deep holes. Set zero again after Installing extension rod.

6. Power

- Battery is a CR2032, 3V. Change the battery when voltage under 2.8V.
- Make sure the positive (+) side is up when changing new battery.
- If not used in about 20 minutes, the power will auto-off. The micrometer will wake up when pressing "**ON/OFF**" key or turning the spindle.
- Power off the micrometer by pressing "**ON/OFF**" key to save battery if not use.
- Take out the battery if not use for long time



7. Data output

- Data output interface is RS232C. The micrometer can be connected to PC's serial port through SPC cable P1104. The micrometer can be connected to PC's USB port through SPC cable P1502 or P1505. SPC cable P1502 is a USB com port which need driver and apps. SPC cable P1505 is a plug-and-play device(no driver device), which converts the measuring data to keyboard signal and inputs it to such software as Word or Excel etc..
- SPC cable P1104, P1502 and P1505 can connect an individual button P1601 or a pedal switch P1602.
- Press the button or switch: Output the data to PC once, "⇔" flashes once.
- Press and hold the button or switch more than 1 sec: Output the data to PC continuously and "⇔" keeps displaying. Press the button again to stop outputting.
- Output interface can be plugged into with our Bluetooth module P1802 and P1805 for wireless communication. The using of our Bluetooth module see its operation manual.
- Series port format:
  2400 baud rate, 8 ASCII bits, 1 start bit, 1 stop bit.
- Data format:

Order	1	2	3	4	5	6	7	8	9	10
Metric	S	N1	N1	N	•	N	N	N	CR	LF
Inch	S	N	•	N	N	N	N	N	CR	LF

S: Minus or space N1: Minus or space or digit 0-9 N: Digit 0-9

8. Specifications

Resolution: 0.001mm/0.00005" Measuring force: 5~10N

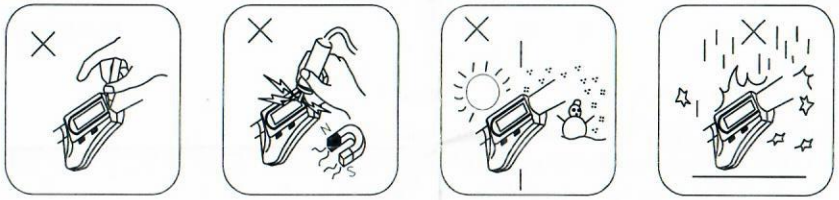
Power: 3V battery CR2032 Power consumption: <=40μA

Operating temperature: 0 ~ 40℃ Storage temperature: -20 ~ 60℃

Protection class: **IP65**(protect water Spraying)

9. Precautions

Do not subject the gauge to blows or knocks • Do not drop the gauge or apply excessive force to the gauge • Do not moving spindle too fast, it may cause measuring error • Do not press the key with a pointed object •Do not use or store the gauge under direct sunlight, or in an excessively hot or cold environment •Do not subject the gauge in strong magnetic fields and high voltage environment •Use soft cloth or cotton cleaning the gauge. Do not use any organic solvent such as acetone etc. • The spindle is designed so that it cannot be removed from the inner sleeve. Do not move it past the upper limit of the measuring range • Remove the battery if the gauge not use for a long time



10. Trouble shooting

Failure	**Causes**	**Repairing**
Display "E 1" Display "Exxxxx"	Measuring value over display range.	Reset the origin or convert to relative measuring mode.
Display "E 2"	The origin is too great.	Reset the origin.
Display "E 3" Display "E 8"	1. The micrometer is disturbed. 2. Something wrong with sensor.	1. Reset the battery. 2. Return the micrometer for repair.
Measuring value is inaccuracy	1. Measuring surfaces are dirty. 2. The origin isn't correct. 3. Spindle moving is too fast.	1. Clean measuring surfaces. 2. Reset the origin. 3. Moving spindle smoothly
Display is confusing or dead	Suffer to strong disturb.	Reset battery.
No display Display is blurring ⌧ " appears The output data is wrong	Battery voltage under **2.8V**.	Replace battery.