Code	Measuring range (L) *	Indicator	Data output cable (optional)
2933-330	48-330mm/1.89-13"	Button function: on/off, inch/mm, zero, data preset, change measuring direction, absolute/incremental measurement	**7315-50M** (need receiver), **7302-40M**
2933-331	48-330mm/1.89-13"	With transmission button and signal light Reading in digital and analog Display can be rotated by 320° Button function: on/off, inch/mm, zero, data preset, change measuring direction, absolute/incremental measurement, max./min./TIR measurement, tolerance Go and No-Go display	**7315-51** (need receiver), **7302-40M**

*The measuring range will change accordingly for different measuring points
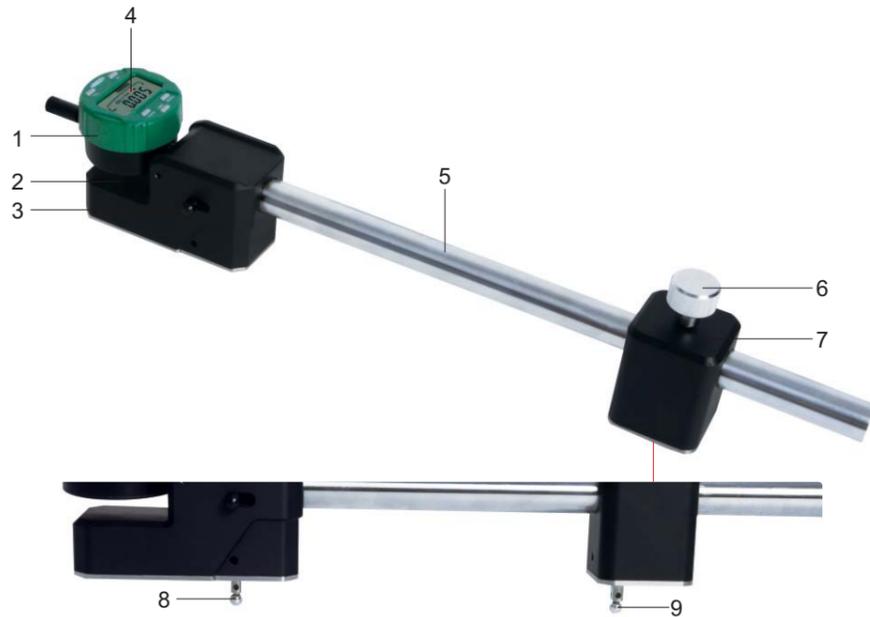
1-Digital display meter
2-Case
3-Toggle lever
4-Data acquisition indicator (2933-331 with)
5-Crossbar
6-Fixed point holder locknut
7-Fixed point holder
8-Movable point
9-Fixed point

1. Measure internal dimensions
   Resolution：0.001mm/0.00005"
   Accuracy: 5μm
   Repeatability: 1μm
   Movable point stroke: 5mm/0.02"
   Point height is adjustable, h=2-25mm
   CR2032 battery, automatic power off (time is adjustable)

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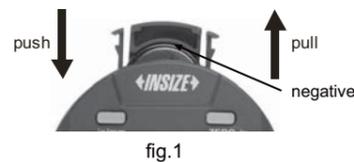
push   pull   negative

fig.1

2. Buttons:
   2933-330:
   'in/mm' ---short press: inch and mm conversion; long press: change measuring direction.
   'ABS' --- short press: absolute and relative measuring mode conversion; long press : set initial reading, short press "in/mm" to change the digit from 0 to 9, short press "ZERO" button to position the digit, long press "ABS" again to exit.
   'ZERO' --- short press: set zero; long press: power off (It's fake shutdown).

   2933-331:
   M/TOL---Long press until "TOL" appears to enter 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. Short press "M/TOL" button to exit tolerance measuring mode.
   ---Long press until "TOL" and "▼" appears to enter tolerance set mode. 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 "M/TOL" button, "▲" appears and the last digit blinks. Set the upper limit as setting the lower limit way. Short press "M/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.
   ---Short press, "MAX" appears and enter maximum reading tracking mode. Short press again, "MIN" appears and enter minimun reading tracking mode. Short press for the third time, "TIR" appears and to get the difference between the maximum and minimum reading of one measurement.
   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 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.
   DATA---Short press for data port output current display value, When the transmission is successful, the LED light will be on once, but if the transmission is failed, the LED light will not be on.
   ---Long press for switch analog resolution.

Fake shutdown function:
Long press the ZERO button to shut down or leave the screen without any operation for about 2 hours. At this time, it is in a fake shutdown state. In this state, it has a data memory function, and the original data is still retained when it is turned on.

High and low frequency switching settings:
After shutting down, press and hold the in/mm key, and shortly press the ZERO key to turn on, after displaying "----", release the in/mm key to enter the high and low frequency switching mode setting, short press the in/mm key to adjust the switching mode, display "Fr-on" means that the automatic frequency switching function is turned on. After 3 seconds without button operation and push rod operation, it will automatically switch to high frequency. Display "Fr-oF", which means that the automatic frequency switching function is turned off, and the sensor keeps the high frequency state unchanged. Short press the ZERO button to confirm and save the high and low frequency switching mode settings, and exit to the working state.

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V0

When the automatic frequency hopping is enabled, the meter is powered on again or short press the ZERO button to turn it on, and LL will be displayed for one second, indicating that the automatic frequency hopping is currently enabled.
When the meter is not operated for 3 seconds in this mode, the meter will automatically switch to low frequency, so the power consumption is lower, and it is more power-saving, suitable for use in the routine measurement state.

When the automatic frequency hopping is turned off, the meter is powered on again or short press the ZERO button to turn it on, and HH will be displayed for one second, indicating that the meter is currently maintaining high frequency without frequency hopping.
In this mode, the gauge will continue to maintain high frequency, high power consumption, and reduced battery life. It is suitable for occasions where high-speed movement of the measuring rod is required.
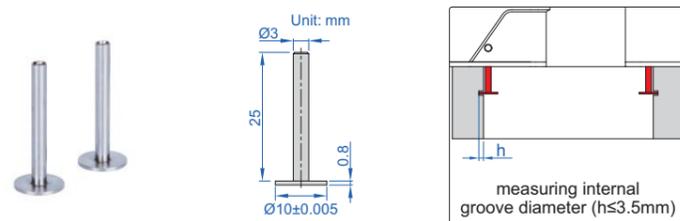
Shutdown time setting (It's real shutdown):
After shutting down, press and hold the ABS button, short press the ZERO button to turn on, after displaying "----", release the ABS button to enter the shutdown time mode setting, the default display is "6.0", which means it will automatically shut down after 6 hours of standing, short press ABS The key can switch the value, and it can switch between 0 and 99 hours every 1 hour. When the switch display is "0.0", it means that the gauge will not automatically shut down.
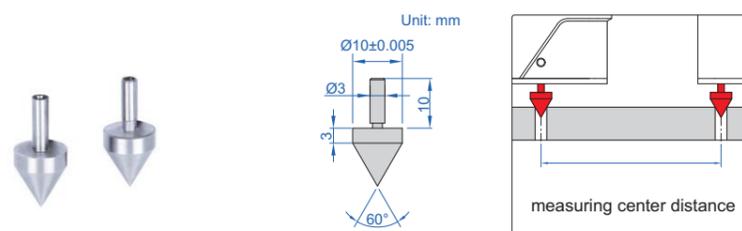
4. Installation of different points for use：
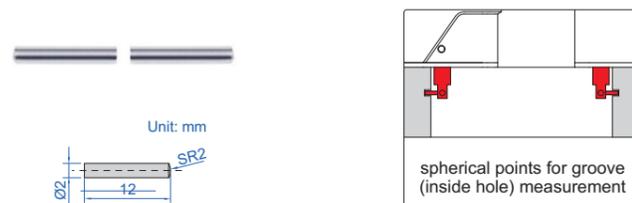
(1) Point selection：
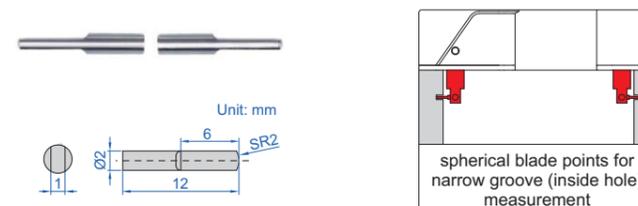--- Disk points (optional, supplied in pair, code 2932-S101)

Unit: mm

Ø3
25
0.8
Ø10±0.005

measuring internal groove diameter (h≤3.5mm)

--- Conical points (optional, supplied in pair, code 2932-S102)

Unit: mm
Ø10±0.005
Ø3
3
10
60°

measuring center distance

--- Spherical points (optional, supplied in pair, code 2932-S103)

Unit: mm
SR2
Ø2
12

spherical points for groove (inside hole) measurement

--- Spherical blade points (optional, supplied in pair, code 2932-S104)

Unit: mm
6
SR2
Ø2
1
12

spherical blade points for narrow groove (inside hole) measurement

--- Ball points (optional, supplied in pair, code 1527)

Unit: mm
Ø3
20
D

ball points for internal diameter measurement
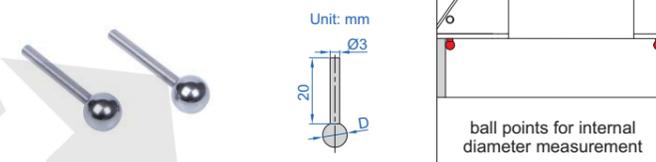
--- Point sleeve (optional, supplied in pair, code 1526-T101)
Screw thread points (optional, supplied in pair, code 7321)
Multifunctional points (optional, supplied in pair, code 7392)
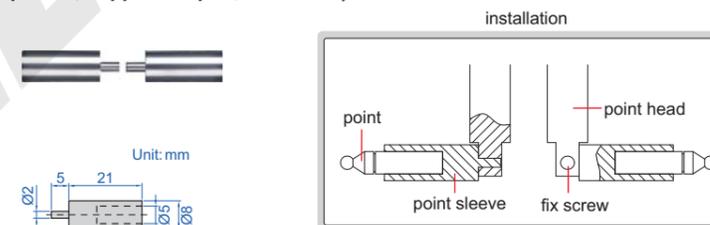Ball points (optional, supplied in pair, code 7391)

installation

Unit: mm
Ø2
5
21
Ø5
Ø8

point
point head
point sleeve
fix screw

5. With a pair of parallel pads, the parallel pads are placed on a flat plate or plane before measurement, the position of the fixed point holder is adjusted according to the size to be measured, and the bottom surface of both ends of the measuring instrument is placed on the pads, and then the locking nut of the fixed point holder is locked in order to control the consistency of the bottom surface of both ends.

6. If the battery symbol appears on the display, 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 be used for a long period of time, please remove the battery. Otherwise, liquid may leak from the battery and damage the indicator.

7. Matters needing attention：
---Pay attention to product protection after measurement. If it is not used for a long time, it should be stored.
---Oil shall be applied for protection during long-term storage to avoid rusting of products.

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