



ABS Digimatic Indicator ID-CX

Safety Precautions

To ensure operator safety, use this product in conformance with the directions, functions and specifications given in this User's Manual.
Use under other conditions may compromise safety.

WARNING

- Always keep batteries out of reach of children. If swallowed, consult a physician immediately.
- Batteries should never be short-circuited, disassembled, deformed or come in contact with extreme heat or flames.
- If battery alkaline liquid comes in contact with the eyes, flush eyes immediately with clean water and consult a physician. If battery alkaline liquid comes in contact with the skin, flush the exposed area thoroughly with clean water.

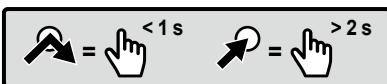
CAUTION

Never attempt to charge the primary battery. Never reverse the positive-negative terminals when mounting. Improper battery handling or mounting may cause the battery to explode, cause battery leakage and/ or serious bodily injury or malfunctioning.

NOTICE

- Do not disassemble or modify. This may cause damage.
- Do not use or store the product in a place with sudden temperature changes. Adapt the product to ambient temperature before use.
- Do not store the product in a place with high humidity or a lot of dust. Also, avoid usage in places exposed to splashes of water or coolant.
- Do not apply excessive force or subject to sudden impacts such as dropping.
- Be sure to perform reference point setting before measurement.
- Remove dust, cutting chips, etc. before and after use.
- Do not write numbers, etc. with an electric pen. This may cause damage.
- Do not operate the keys with a pointed object (such as a screwdriver or ballpoint pen).
- Avoid loads in the vertical direction relative to the spindle or usage involving torsion to the spindle.
- This product is shipped without installing a battery. Install a battery before use.
- The battery supplied is for confirming the functions and performance of the product. Note that this battery may not fulfill the expected life.
- When disposing of batteries, follow local laws, regulations, etc.
- Malfunction or damage due to depleted batteries, etc. is not covered by the warranty.

Key icon operation

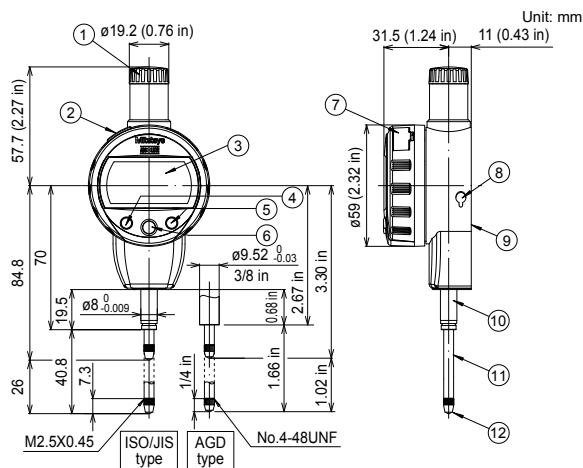


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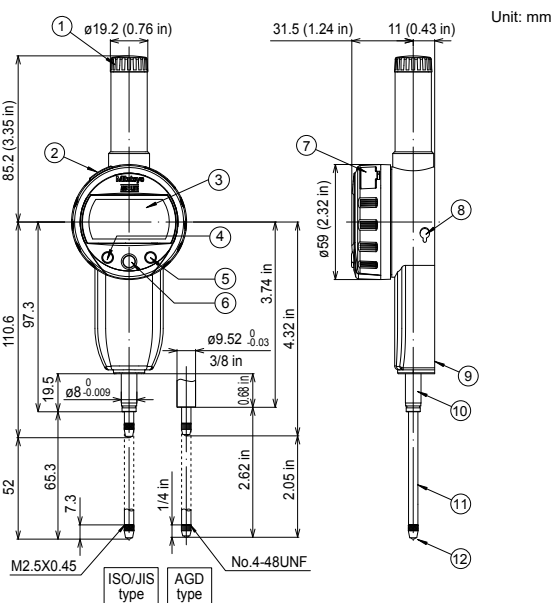
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1. Names and Dimensions of Components

- 25.4 mm stroke model
ID-C125XB, ID-C125MXB, ID-C125EXB, ID-C1025XB, ID-C1025MXB, ID-C1025EXB



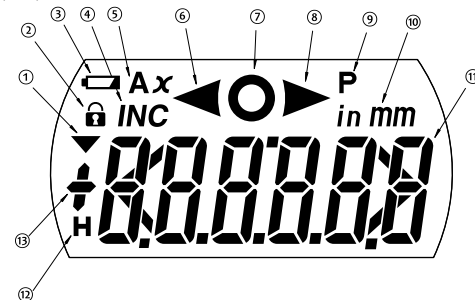
- 50.8 mm stroke model
ID-C150XB, ID-C150MXB, ID-C150EXB, ID-C1050XB, ID-C1050MXB, ID-C1050EXB



- ① Cap
- ② Output connector (with cap)
- ③ Display (LCD)
- ④ [MODE] key/[MODE in/mm] key*
- ⑤ [DATA ON/OFF] key
- ⑥ [SET] key
- ⑦ Battery holder
- ⑧ Release mounting hole (with rubber cap)
- ⑨ Flat back
- ⑩ Stem
- ⑪ Spindle
- ⑫ Contact point

*Except ID-C125XB, ID-C1025XB, ID-C150XB, and ID-C1050XB

Display (LCD)

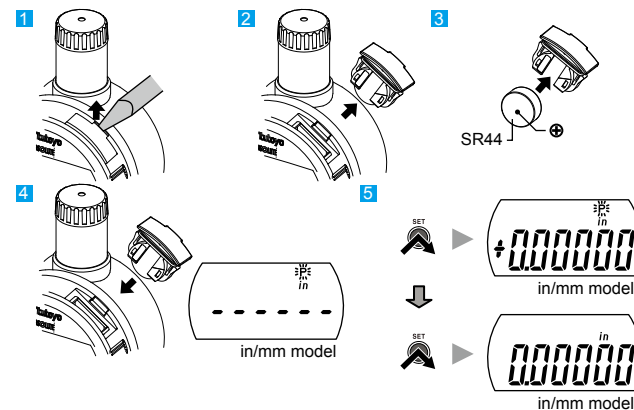


- ① Reverse count display
- ② Function lock display
- ③ Low battery voltage display
- ④ INC display
- ⑤ Calculation function display
- ⑥ Tolerance judgment result display (-NG)
- ⑦ Tolerance judgment result display (OK)
- ⑧ Tolerance judgment result display (+NG)
- ⑨ Preset display
- ⑩ Unit display
- ⑪ Measured value display (tolerance judgment enlarged display)
- ⑫ Hold display
- ⑬ Sign display

2. Installing (Replacing) the Battery

NOTICE

- Be sure to use SR44 (silver oxide button battery, part No. 938882) for the battery.
- The product may display an error or malfunction if the battery holder is not mounted correctly.
- If the product will be out of use for 3 months or more, remove the battery and store it separately, to prevent damage to the product due to battery fluid leakage.
- Do not use a pointed object or excessive force to remove the battery holder. This may damage the battery holder.



- 1 Use a flathead screwdriver or similar to remove the battery holder.
- 2 If replacing an existing battery, remove the old battery.
- 3 Insert a new battery into the battery holder with the "+" symbol facing the display (LCD).
- 4 Attach the battery holder.
⇒ [-----] display lights up.
- 5 Press the [SET] key twice.
⇒ Measurement mode (absolute measurement) starts.

Tips

- If absolute measurement does not begin even after pressing the [SET] key twice, reinstall the battery.
- All settings are cleared when the battery is removed. All settings must be reconfigured.

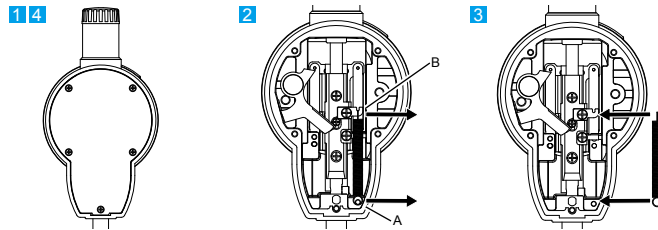
3. Setup

1) When used facing up

The product can be used in orientations up until the contact point becomes horizontal. The spindle will not return to the reference point, so when using the product with the contact point facing upward, replace the internal coil spring with a reverse orientation coil spring (optional).

Part No. 02ACA571 (25.4 mm stroke model)

Part No. 02ACA773 (50.8 mm stroke model)



- 1 Remove the five screws on the back using a #0 Phillips screwdriver, and then remove the back.
- 2 Use tweezers or the like to pinch the spring attachment hooks in the order of (A) and (B), and then remove the coil spring.
- 3 Attach the new coil spring to the spring attachment pins in the order of (B) and (A).
- 4 Attach the back by tightening the five screws on the back using a #0 Phillips screwdriver.

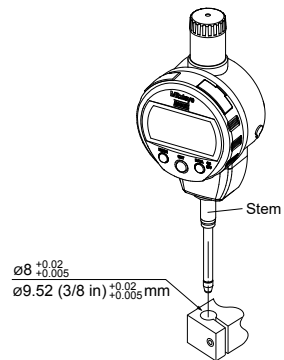
Tips

- Do not forcibly pull the removed coil spring by hand.
- Using the product with the contact point facing downward with a reverse orientation coil spring installed will cause the measuring force in the specifications to increase.
- Store the removed coil spring to prevent loss.

2) Mounting to a stand, jig, etc.

NOTICE

- Whenever possible, avoid fixing the stem directly with a set screw, etc.
- The spindle may not be able to move smoothly if the screw is tightened with a tightening torque of 300 cN·m or more to secure the stem.



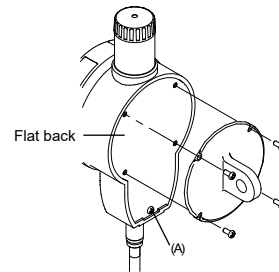
Tips

When mounting the product to a stand or jig, use the stem or a back with lug (optional). If using the stem, use a slotted holder with a $\varnothing 8$ mm hole (ISO/JIS type) or $\varnothing 9.52$ mm hole (AGD type) with G7 (+0.005 to +0.02 mm).

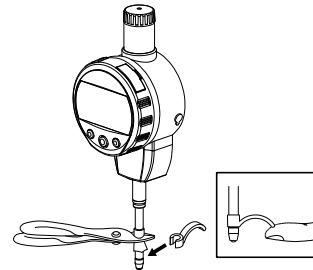
3) Mounting the back (optional)

Various backs (optional) for dial gage can be used to secure the product.

- 1 Remove the four screws (excluding (A)) on the flat back.
- 2 Line the optional back up with the flat back, and then fix it using the screws that were removed in step 1.



4) Mounting the lifting lever



- 1 Fix the spindle, using pliers padded with a rag, etc., from the opposite side so that it does not turn.
- 2 Insert the lifting lever into the spindle.
- 3 Rotate the lifting lever to adjust the orientation.

5) Mounting the lifting knob (optional)

Part No. 21EZA197 (25.4 mm stroke model)

Part No. 21EZA200 (50.8 mm stroke model)

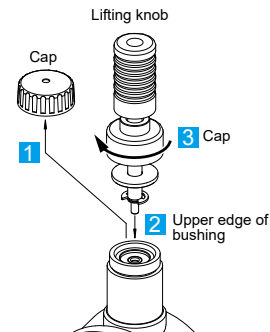
NOTICE

- Using the product while the lifting knob is not secured firmly may damage internal components or the workpiece.
- Dust, mist, or other substances could enter the gap between the spindle and main body, causing malfunction or failure. Avoid using the product in very dusty or misty environments.

- 1 Rotate the cap counterclockwise to remove it from the product.
- 2 Fix the spindle, using pliers padded with a rag, etc., so that it does not turn, and then insert the lifting knob to the screw (M2.5) on the upper edge of the spindle. During this process, push the spindle upward.
- 3 Turn the cap on the lifting knob to fix it to the upper edge of the bushing.

Tips

Store the removed cap to prevent loss.



6) Mounting the release (optional: part No. 540774)

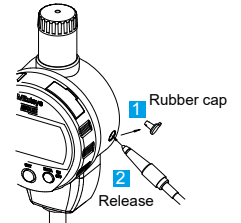
NOTICE

- Always mount the rubber cap if a release is not mounted.
- The rubber cap is a screw-in type.
- The product may be damaged if an item other than the release is inserted or if excessive force to push in is applied.
- Raising or lowering the spindle with the release while the release is not secured firmly may damage the internal components or the workpiece.

- 1 Remove the rubber cap from the release mounting hole.
- 2 Screw the release firmly into the hole.

Tips

- Store the removed rubber cap to prevent loss.
- The spindle can be moved a maximum of 25.4 mm with the release.



7) Contact point replacement

NOTICE

When replacing the contact point, turn the contact point while fixing the spindle. Otherwise, the product may be damaged.



Mount and remove the contact point with a rag and 2 pairs of pliers (one for fixing the spindle) as shown in the figure.

Tips

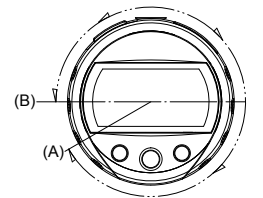
- Changing the contact point may cause changes in external dimensions and measuring force, or restrictions on the possible measurement directions.
- Errors due to the contact point (perpendicularity of flat contact point, center runout of roller contact point, etc.) are added to the measurement accuracy.
- Various contact points are available as options. Refer to the Measuring Instruments Catalog for details.

4. Display Angle Adjustment

NOTICE

- Do not rotate beyond the stoppers at (A) and (B) positions. This may cause damage.
- Do not pull or push the display. This may cause damage.

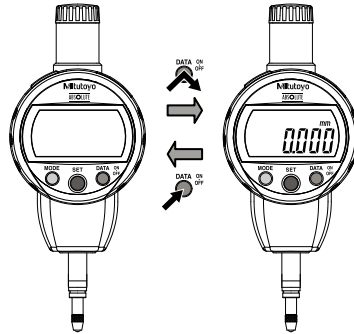
The display can rotate up to 240° (A) clockwise or 90° (B) counterclockwise from the initial position. Adjust it to an angle from which it can be easily read.



5. Power ON/OFF

1) Turning the power on

- Press the [DATA ON/OFF] key.
⇒ Power turns on.



2) Turning the power off

- Press and hold the [DATA ON/OFF] key.
⇒ Power turns off.

Tips

- The product always starts up in measurement mode when the power is turned on.
- The measurement system when the power is turned on is the same as it was when turned off. (Refer to "7. Switching Measurement Systems" for details about measurement systems.)
- If the power does not turn on even when the [DATA] key is pressed, the battery may be depleted. Replace the battery.
- Turning the power off while making settings will cancel the setting and return the product to the status before setting.

6. Operation Modes

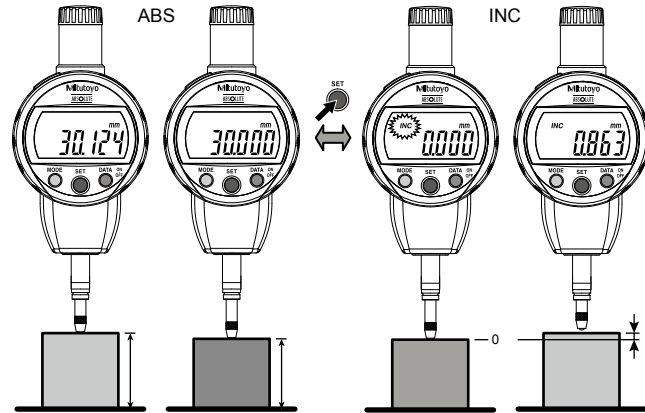
This product is equipped with the following two operation modes.

- Measurement mode:**
This mode is used for tasks such as normal measurement, calculation measurement, tolerance judgment, holding displayed values, and outputting displayed values to an external device.
- Parameter setting mode:**
This mode is used to set parameters.
Refer to "10. Setting Parameters" for details on how to set parameters.

7. Switching Measurement Systems

Measurement mode includes the following two measurement systems.

- Absolute measurement (ABS):** Measures the distance from a set (preset) reference point. The reference point can be set to any desired value to support a wide range of workpieces.
- Incremental measurement (INC):** Zeros the displayed value with the master and measures a difference between the master and a workpiece.

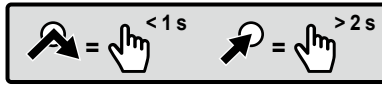


- Press and hold the [SET] key.
⇒ Measurement system switches.

Tips

The displayed value is simultaneously reset to zero when switching the measurement system from ABS to INC.

Key icon operation



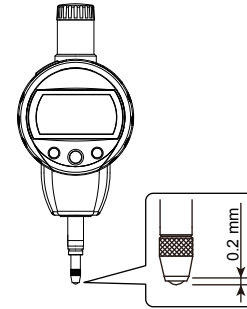
8. Switching Unit System

Press the [MODE in/mm] key to switch the unit system between in (inches) and mm (millimeters).

9. Measurement Method

NOTICE

When setting or presetting the origin, be sure to lift the spindle at least 0.2 mm above the bottom dead center.



1) For absolute measurement (ABS)

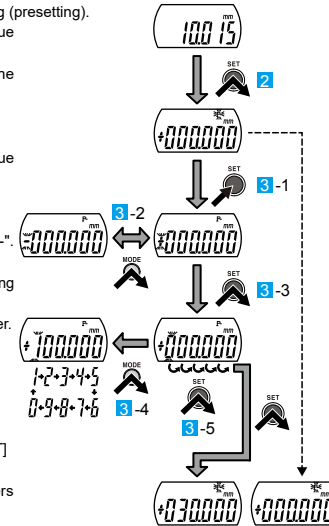
For absolute measurement, first set (preset) the origin using the following procedure, and then measure.

A preset value can be set for normal measurement and calculation measurement respectively.

- Confirm that the product is in absolute measurement.
⇒ If in incremental measurement, switch the measurement system to absolute measurement. (Refer to "7. Switching Measurement Systems" for details.)
 - Press the [SET] key to start the origin setting (presetting).
⇒ [P] will blink and the previous preset value will be displayed.
⇒ Continue to step 4-3 if not changing the preset value.
 - Setting the preset value
 - Press and hold the [SET] key.
⇒ The sign will blink and the preset value can be changed.
 - Press the [MODE] key to change the sign.
⇒ Each time the [MODE] key is pressed, it will switch the sign between "+" and "-".
 - Press the [SET] key.
⇒ The sign is confirmed and the neighboring digit blinks.
 - Press the [MODE] key to change the number.
⇒ Each time the [MODE] key is pressed, it will switch values in the order of "0 → 1 → 2... → 9 → 0".
 - Press the [SET] key.
⇒ The number is confirmed and the neighboring digit blinks. Press the [SET] key again to skip over the digit.
- Repeat steps 4 and 5 above until the numbers for all digits are confirmed.
⇒ Confirming the last digit will cause [P] to blink.

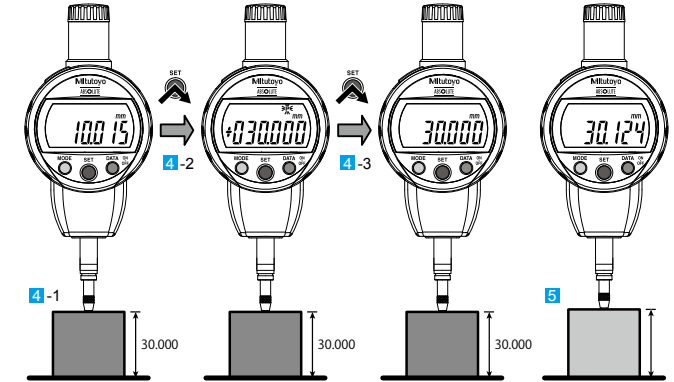
Tips

If the preset value is incorrect, press and hold the [SET] key and redo from step 4.



4) Setting the origin (origin point)

- Set the master to use for reference.
- Press the [SET] key.
⇒ Registered preset value is displayed (example: 30.000 mm).
- Confirm the preset value, and then press the [SET] key.
⇒ The preset value is set as the origin, and the product returns to absolute measurement.
- Replace the master with the workpiece and perform absolute measurement.



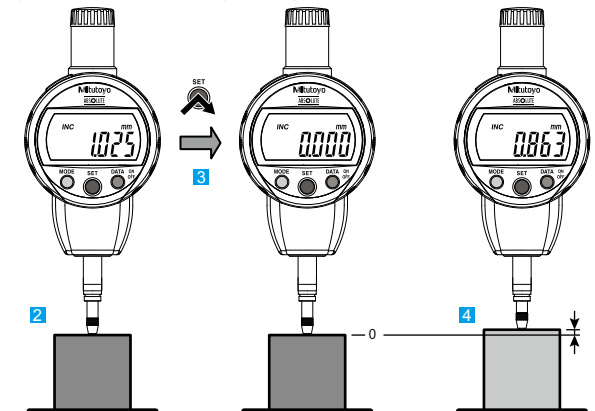
Tips

- The set preset value and origin are retained even when the power is turned off. However, they are cleared when replacing the battery and must be reset.
- The preset value is automatically converted when the unit system or resolution is changed. In this case, however, a conversion error may be produced. It is therefore recommended to check the preset value after changing the unit system or resolution.
- Press and hold the [MODE] key to stop or cancel settings midway through.

2) For incremental measurement (INC)

Incremental measurement is used to measure the dimensional difference between the master (used as reference) and a workpiece.

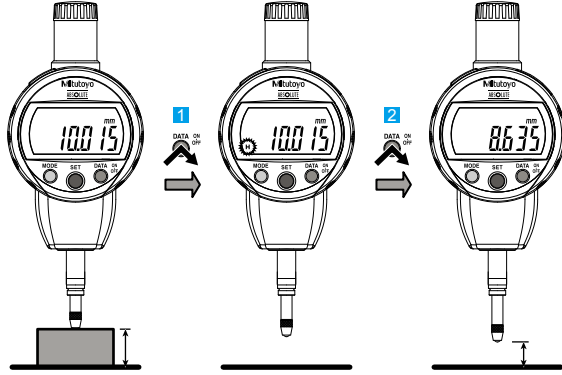
- Confirm that the product is in incremental measurement.
⇒ If in absolute measurement, switch the measurement system to incremental measurement. (Refer to "7. Switching Measurement Systems" for details.)
- Set the master to use for reference.
- Press the [SET] key.
⇒ Displayed value is reset to zero.
- Replace the master with the workpiece and perform incremental measurement.



3) Holding the displayed value (if not connected to an external device)

The displayed value can be held (fixed).

- Press the [DATA] key.
 - [H] will appear and the displayed value will be held (the displayed value will be retained even if the workpiece is removed).
- Press the [DATA] key while the displayed value is held.
 - [H] will go out and the held displayed value will be released.



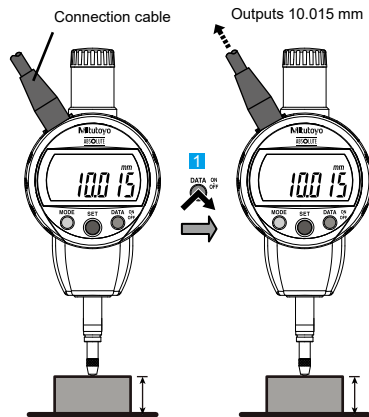
Tips

During tolerance judgment enlarged display, the Hold function will not work even if the [DATA] key is pressed.
Refer to "10.2) Setting Tolerance Judgment function" for details on the tolerance judgment enlarged display.

4) Externally outputting the displayed value (if connected to an external device)

This function is enabled only when connected to an external device. The display value is output to the connected external device.

- Press the [DATA] key during measurement mode.
 - The displayed value is output to the connected external device.

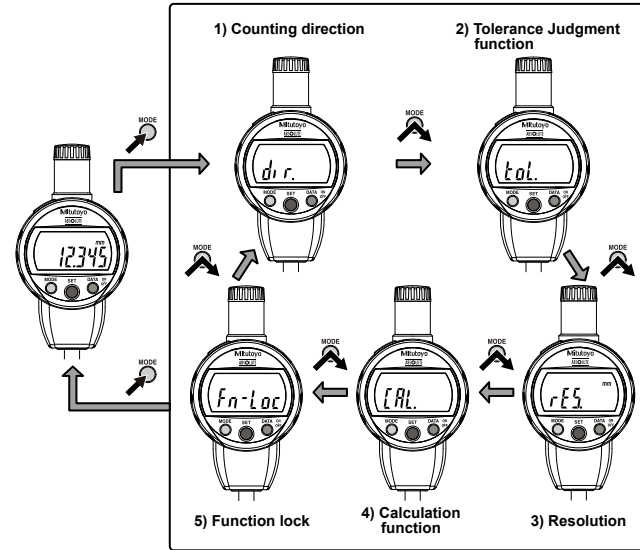


Tips

- Refer to "13. Output Function" for details on installing connection cables, pin assignments, output data format, and timing chart.
- Carefully read the User's Manual of the data processing device to be connected when using the External Output function.
- If inputting an output request (REQ) from the connected external device, do so only when the spindle is stopped. If an output request (REQ) is received while the spindle is operating, it may output an incorrect value or data output may not be possible.
- If output requests (REQ) are received over short intervals, data output may not be possible.
- Data output using the [DATA] key is not possible during tolerance judgment enlarged display. The measured value is externally output only when an output request (REQ) from an external device is received.

10. Setting Parameters

There are five types of parameter items to set.

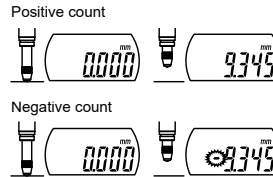


Tips

- Press and hold the [MODE] key to cancel the parameter setting. Note that unconfirmed settings will not be reflected.
- All parameter settings are retained even when the power is turned off. However, they are cleared when replacing the battery and must be reset.

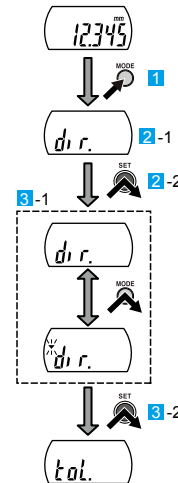
1) Setting counting direction

The counting direction can be set with regard to the spindle movement direction.



- Press and hold the [MODE] key to enter parameter setting mode.
 - Shifts to parameter setting mode.
- Selecting the parameter item to set
 - Confirm that [dir.] is blinking.
 - Press the [SET] key.
 - Counting direction can be set.

- Setting the counting direction
 - Press the [MODE] key to select the counting direction.
 - [▼] off: Counts up when the spindle is raised.
 - [▼] blinking: Counts down when the spindle is raised.
 Each time the [MODE] key is pressed, it will switch the counting direction between up and down.
 - Press the [SET] key.
 - Settings are confirmed; shifts to next parameter item. (Proceed to step 3 in "2) Setting Tolerance Judgment function".)



2) Setting Tolerance Judgment function

The tolerance values can be set to provide a GO/NG judgment (pass/fail judgment) for the measured value. Tolerance values can be set independently for ABS/INC measurement systems and normal/calculation measurement (total of 4 types).

Normal display (measured value and judgment result)



Enlarged display (judgment result only)

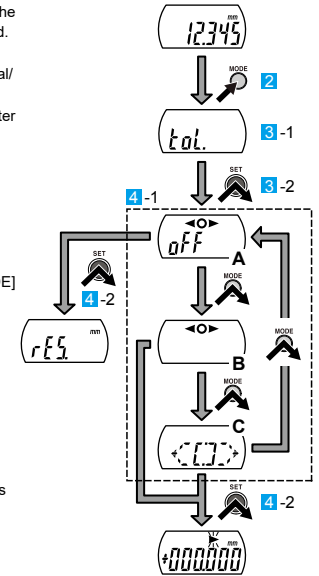


- Confirm that the measurement mode to which the tolerance judgment function is applied is selected.
 - Refer to "4) Setting Calculation function" for information on how to switch between normal/calculation measurement.
- Press and hold the [MODE] key to enter parameter setting mode.
 - Shifts to parameter setting mode.

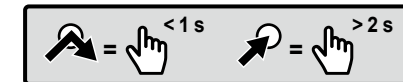
- Selecting the parameter item to set
 - Press the [MODE] key until [tol.] is displayed.
 - Press the [SET] key.
 - Tolerance Judgment function can be set.

- Setting the measurement result display method
 - Select display method by pressing the [MODE] key.
 - Each time the [MODE] key is pressed, it will switch display methods in the order of "A→B→C→A."
 - A: Display off
 - B: Normal display
 - C: Enlarged display

- Press the [SET] key.
 - Selection is confirmed.
 - If "Normal display" or "Enlarged display" was selected:
 - [▶] blinks and the upper limit can be set. To skip setting the upper limit, press the [SET] key again (proceed to step 6).
 - If [oFF] was selected:
 - 0.001 mm models: Proceed to step 2 in "3) Switching resolution".
 - 0.01 mm models: Proceed to step 2 in "4) Setting Calculation function".



Key icon operation



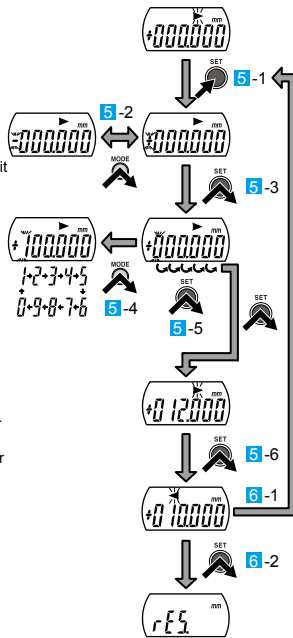
5) Setting the upper limit

- 1 Press and hold the [SET] key.
 - ⇒ The sign will blink and can be changed.
 - Continue to step 3 if not changing the sign.
- 2 Press the [MODE] key to change the sign.
 - ⇒ Each time the [MODE] key is pressed, it will switch the sign between "+" and "-".
- 3 Press the [SET] key.
 - ⇒ The sign is confirmed and the neighboring digit blinks.
- 4 Press the [MODE] key to change the number.
 - ⇒ Each time the [MODE] key is pressed, it will switch values in the order of "0→1→2...→9→0".
- 5 Press the [SET] key.
 - ⇒ The number is confirmed and the neighboring digit blinks. Press the [SET] key again to skip over the digit.

- Repeat steps 1 and 2 above until the numbers for all digits are confirmed.
- ⇒ Confirming the last digit will cause [▶] to blink.
- 6 Press the [SET] key.
 - ⇒ The upper limit is set, [◀] blinks, and the lower limit can be set.

6) Setting the lower limit

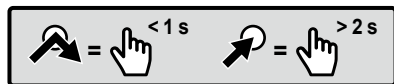
- 1 Set in the same way as the upper limit (step 5).
 - 2 Press the [SET] key.
 - ⇒ Settings are confirmed.
- For 0.001 mm models:
Proceed to step 2 in "3) Switching resolution".
- For 0.01 mm models:
Proceed to step 2 in "4) Setting calculation function".



Tips

- If the upper limit is set below the lower limit, the error display [Err 90] appears and the set value is cleared. Clear the error display by pressing the [SET] key and amend the settings, starting with the upper limit. (Refer to "12. Error Displays and Countermeasures")
- The tolerance values cannot be set for "normal display" and "enlarged display" separately.
- The tolerance limit values are automatically converted when the unit system or resolution is changed. In this case, however, a conversion error may be produced. It is therefore recommended to check the tolerance limit values after changing the unit system or resolution.
- Press and hold the [MODE] key to stop or cancel settings midway through. Note that unconfirmed settings will not be reflected.
- All settings are retained even when the power is turned off. However, they are cleared when replacing the battery and must be reset.

Key icon operation



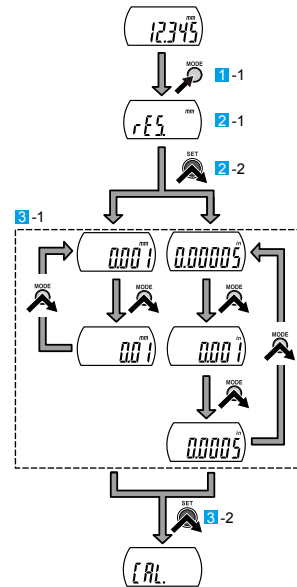
3) Switching resolution (0.001 mm or 0.0005 in models only)

The resolution setting can be changed for 0.001 mm or 0.0005 in models only.

- 1 Press and hold the [MODE] key to enter parameter setting mode.
 - ⇒ Shifts to parameter setting mode.
- 2 Selecting the parameter item to set
 - 1 Press the [MODE] key until [RES.] is displayed.
 - 2 Press the [SET] key.
 - ⇒ Resolution can be set.
- 3 Setting the resolution
 - 1 Press the [MODE] key to select the resolution.
 - ⇒ Each time the key is pressed, it will switch the resolution in the order as follows:

For mm display:
0.001 mm → 0.01 mm → 0.001 mm

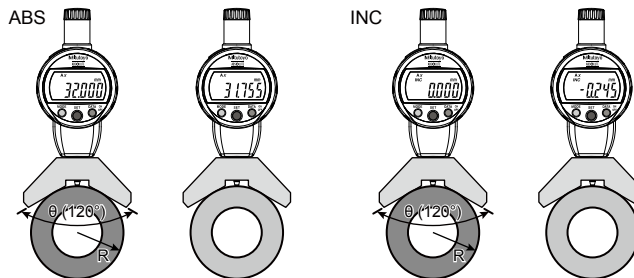
For inch display:
0.0005 in → 0.0001 in → 0.0005 in
- 2 Press the [SET] key.
 - ⇒ Settings are confirmed; shifts to next parameter item. (Proceed to step 2 in "4) Setting Calculation function".)



4) Setting Calculation function

In addition to normal measurement, this product can also perform calculation measurement, in which results are displayed by multiplying the spindle movement amount by a calculation coefficient. The calculation method differs as follows for each measurement system (ABS/INC).

- Absolute measurement (ABS): Displayed value = (preset value) + (calculation coefficient) x (spindle movement amount)
- Incremental measurement (INC): Displayed value = (calculation coefficient) x (spindle movement amount)



$$R=Ax \quad A = \frac{-\sin \theta/2}{1 - \sin \theta/2} = \frac{-\sin 30}{1 - \sin 30} = -0.245$$

1) Press and hold the [MODE] key to enter parameter setting mode.

⇒ Shifts to parameter setting mode.

2) Selecting the parameter item to set

- 1 Press the [MODE] key until [CAL.] is displayed.
- 2 Press the [SET] key.
 - ⇒ Calculation function can be set.

3) Setting the execution (on/off) of the calculation function

- 1 Press the [MODE] key to select between on/off.
 - ⇒ Each time the [MODE] key is pressed, it will switch the calculation function between "on" and "oFF".
 - 2 Press the [SET] key.
 - ⇒ Selection is confirmed.
- If [on] was selected:
[Ax] will blink and the calculation coefficient can be set.
- If [oFF] was selected:
The display switches to the next parameter item. (Proceed to step 2 in "5) Executing/canceling function lock function".)

4) Setting the calculation coefficient

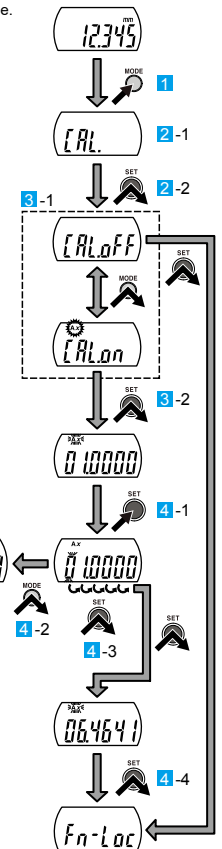
- 1 Press and hold the [SET] key.
 - ⇒ The first digit will blink and can be set.
 - 2 Press the [MODE] key to change the number.
 - ⇒ Each time the [MODE] key is pressed it will switch values in the order of "0→1→2...→9→0".
 - 3 Press the [SET] key.
 - ⇒ The number is confirmed and the neighboring digit blinks. Press the [SET] key again to skip over the digit.
- Repeat steps 2 and 3 above until the numbers for all digits are confirmed (example: 6.4641).
- ⇒ Confirming the last digit will cause [Ax] to blink.
- 4 Reconfirm the numerical value set and press the [SET] key.
 - ⇒ Calculation coefficient is confirmed; shifts to next parameter item. (Proceed to step 2 in "5) Executing/canceling function lock function".)

Tips

- The calculation coefficient can be set to a value between 0.0001 and 99.9999.



- Calculation coefficient is not converted even when the unit system or the resolution is switched.
- If the calculation coefficient is set to 0.0000, [Err 00] is displayed. Clear the error display by pressing and holding the [SET] key and amend the settings with the correct value. (Refer to "12. Error Displays and Countermeasures")

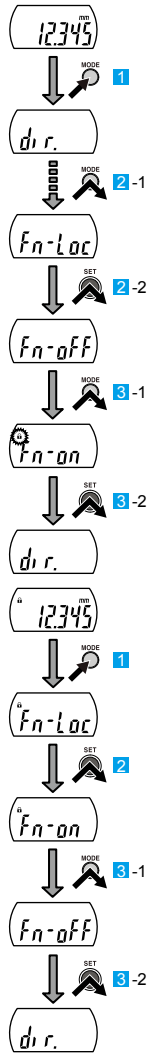


5) Executing/canceling Function Lock function

This product has a Function Lock function which ignores origin operation in order to avoid accidentally changing the origin. When function lock is executed, will appear on the display and operations other than turning the power on/off, holding/releasing the displayed value, outputting the displayed value, and canceling the Function Lock function will be disabled.

● Executing Function Lock function

- 1 Press and hold the [MODE] key to enter parameter setting mode.
⇒ Shifts to parameter setting mode.
- 2 Selecting the parameter item to set
 - 1 Press the [MODE] key until [Fn-Loc] is displayed.
 - 2 Press the [SET] key.
⇒ Function Lock function can be set.
- 3 Setting the function lock function
 - 1 Press the [MODE] key and select execute (on).
 - 2 Press the [SET] key.
⇒ Settings are confirmed; shifts to next parameter item.
(Proceed to step 2 in "1) Setting counting direction".)



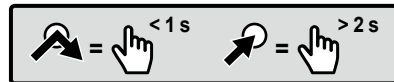
Tips

- The Function Lock function is executed as soon as parameter setting is confirmed and the product returns to measurement mode.
- To set an item for which the function has been locked, first cancel the Function Lock function.

● Canceling Function Lock function

- 1 Press and hold the [MODE] key to enter parameter setting mode.
⇒ Shifts to parameter setting mode [Fn-Loc].
- 2 Press the [SET] key to confirm the parameter item (function lock) to set.
⇒ Function Lock function can be set.
- 3 Setting the function lock function
 - 1 Press the [MODE] key and select cancel (oFF).
 - 2 Press the [SET] key.
⇒ Settings are confirmed; shifts to next parameter item.
(Proceed to step 2 in "1) Setting counting direction".)

Key icon operation



11. Precautions After Use

- When cleaning, wipe this product with a soft cloth moistened with diluted neutral detergent. Do not use an organic solvent such as thinner, which may cause the product to deform or malfunction.
- Dirt on the spindle may lead to malfunction. Clean with a cloth moistened with alcohol, etc. before use.
- Do not lubricate the spindle with lubricating oil, etc.
- If the product is to be out of use for 3 months or more, remove the battery before storage. Liquid leakage from the battery may damage the product.
- Do not store the product in a place with a high temperature or humidity, or a lot of dust or oil mist.

12. Error Displays and Countermeasures

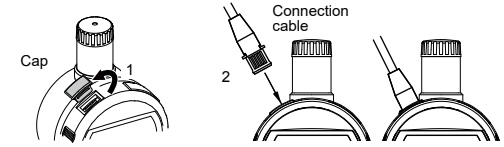
Error Display	Causes and Countermeasures
<p>ABS Synthesis Error</p>	<p>Although this may be momentarily displayed while the spindle is moving, it is a normal artifact of internal processing. If it occurs while the spindle is not moving, the internal sensor has failed. In this case, repair is required: contact your dealer or agent or our sales office.</p>
<p>Low Battery Voltage</p>	<p>Battery is depleted. Replace with a new battery.</p>
<p>Display Overflow</p>	<p>The measured value exceeds the number of digits that can be displayed.</p> <ul style="list-style-type: none"> In ABS, press the [SET] key to enter the origin setting and reset (re-press) the origin. In INC, press the [SET] key at the appropriate position and set to zero. Press and hold the [MODE] key to enter parameter setting mode and change the resolution to an appropriate value. (0.001 mm or 0.00005 in models only)
<p>Sensor Contamination Detection Error</p>	<p>A sudden change in temperature may create condensation on the detector, or it may be contaminated by other sources.</p> <ul style="list-style-type: none"> Turn the power off and allow the product to adapt to the temperature for about 2 hours. If it does not recover after adapting to the temperature, repair is required: contact your dealer or agent or our sales office.
<p>Preset Value Setting Error (Normal Measurement)</p>	<p>The preset value set for normal measurement exceeds the number of digits that can be displayed.</p> <ul style="list-style-type: none"> Press and hold the [SET] key to return to preset value settings, and then reset to an appropriate value. Press the [SET] key to return to measurement mode, and then switch to an appropriate resolution in parameter setting mode. (0.001 mm or 0.00005 in models only)
<p>Preset Value Setting Error (Calculation Measurement)</p>	<p>The preset value set for calculation measurement exceeds the number of digits that can be displayed.</p> <ul style="list-style-type: none"> Press and hold the [SET] key to return to preset value settings, and then reset to an appropriate value. Press the [SET] key to return to measurement mode, and then switch to an appropriate resolution in parameter setting mode. (0.001 mm or 0.00005 in models only)
<p>Tolerance Limit Value Setting Error</p>	<p>The upper limit is set below the lower limit.</p> <ul style="list-style-type: none"> Press the [SET] key to return to the tolerance limit value settings, and then reset so that the upper limit is above the lower limit.
<p>Upper Limit Setting Error</p>	<p>The upper limit exceeds the number of digits that can be displayed.</p> <ul style="list-style-type: none"> Press and hold the [SET] key to return to upper limit settings, and then reset to an appropriate value. Press the [SET] key twice to enter resolution settings, and then switch to an appropriate resolution. (0.001 mm or 0.00005 in models only)
<p>Lower Limit Setting Error</p>	<p>The lower limit exceeds the number of digits that can be displayed.</p> <ul style="list-style-type: none"> Press and hold the [SET] key to return to lower limit settings, and then reset to an appropriate value. Press the [SET] key to enter resolution settings, and then switch to an appropriate resolution. (0.001 mm or 0.00005 in models only)
<p>Calculation Coefficient Setting Error</p>	<p>The calculation coefficient is set to 0.0000.</p> <ul style="list-style-type: none"> Press and hold the [SET] key to return to calculation coefficient settings, and then reset the calculation coefficient to a value other than 0.0000.

13. Output Function

1) Externally outputting the displayed value

The product can be connected to an optional external display, external printer, PC, etc. The displayed value can be output to a device supporting Digimatic output format by connecting the product and the external device with a connection cable (optional).

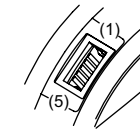
- 1 Press the [ON/OFF] key to turn off the product.
- 2 Connecting the product and the external device
 1. Remove the cap of the output connector of the product.
 2. Connect the product and the external device with a connection cable.



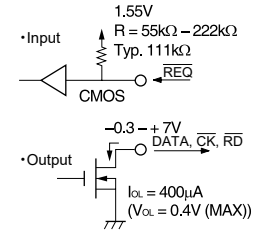
Tips

- Two types of connection cables (optional), part No. 905338 (1 m) and part No. 905409 (2 m), are available for this product.
- When connecting a connection cable, pay attention to the connector direction as you insert it.
- Store the removed cap to prevent loss.
- Always install the cap if a connection cable is not used.

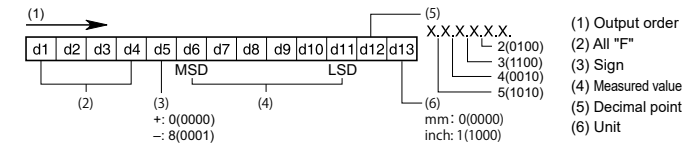
2) Output connector



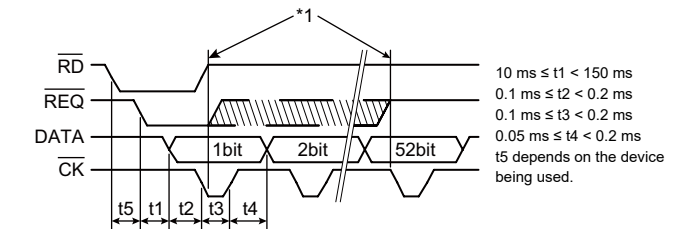
Pin No.	Signal	I/O
(1)	GND	-
(2)	DATA	O
(3)	CK	O
(4)	RD	O
(5)	REQ	I



3) Output data format



4) Timing chart



*1 Keep REQ at Low until CK is output. Return it to High before the final CK output is completed (52nd bit).

14. Specifications

Individual specifications

Model Name	ID-C125XB	ID-C125MXB	ID-C125EXB
Code No.	543-470B	543-471B	543-472B
Measuring range	25.4 mm	25.4 mm/1 in	
Resolution	0.001/0.01 mm	0.001/0.01 mm 0.00005/0.0001/0.0005 in	
Error of indication for the total measuring range MPE _E *1	0.003 mm	0.003 mm/0.0001 in	
Hysteresis MPE _H *1	0.002 mm	0.002 mm/0.0001 in	
Repeatability MPE _R *1	0.002 mm	0.002 mm/0.0001 in	
Stem	ø8 mm		3/8 in DIA (ø9.52 mm)
Contact point	Carbide (M2.5 x 0.45)		Carbide (No.4-48UNF)
Measuring force MPL	≤1.8N		
Mass	185 g	185 g	190 g

Model Name	ID-C1025XB	ID-C1025MXB	ID-C1025EXB
Code No.	543-474B	543-475B	543-476B
Measuring range	25.4 mm	25.4 mm/1 in	
Resolution	0.01 mm	0.01 mm 0.0005 in	
Error of indication for the total measuring range MPE _E *1	0.02 mm	0.02 mm/0.001 in	
Hysteresis MPE _H *1	0.02 mm	0.02 mm/0.001 in	
Repeatability MPE _R *1	0.01 mm	0.01 mm/0.0005 in	
Stem	ø8 mm		3/8 in DIA (ø9.52 mm)
Contact point	Carbide (M2.5 x 0.45)		Carbide (No.4-48UNF)
Measuring force MPL	≤1.8N		
Mass	185 g	185 g	190 g

Model Name	ID-C150XB	ID-C150MXB	ID-C150EXB
Code No.	543-490B	543-491B	543-492B
Measuring range	50.8 mm	50.8 mm/2 in	
Resolution	0.001/0.01 mm	0.001/0.01 mm 0.00005/0.0001/0.0005 in	
Error of indication for the total measuring range MPE _E *1	0.005 mm	0.005 mm/0.0002 in	
Hysteresis MPE _H *1	0.002 mm	0.002 mm/0.0001 in	
Repeatability MPE _R *1	0.002 mm	0.002 mm/0.0001 in	
Stem	ø8 mm		3/8 in DIA (ø9.52 mm)
Contact point	Carbide (M2.5 x 0.45)		Carbide (No.4-48UNF)
Measuring force MPL	≤2.3N		
Mass	260 g	260 g	265 g

Model Name	ID-C1050XB	ID-C1050MXB	ID-C1050EXB
Code No.	543-494B	543-495B	543-496B
Measuring range	50.8 mm	50.8 mm/2 in	
Resolution	0.01 mm	0.01 mm 0.0005 in	
Error of indication for the total measuring range MPE _E *1	0.04 mm	0.04 mm/0.0015 in	
Hysteresis MPE _H *1	0.02 mm	0.02 mm/0.001 in	
Repeatability MPE _R *1	0.01 mm	0.01 mm/0.0005 in	
Stem	ø8 mm		3/8 in DIA (ø9.52 mm)
Contact point	Carbide (M2.5 x 0.45)		Carbide (No.4-48UNF)
Measuring force MPL	≤2.3N		
Mass	260 g	260 g	265 g

Common specifications

Plunger direction	Up to direction in which spindle is horizontal
Protection level *2	IP42 *3
CE marking	EMC Directive: EN 61326-1 Immunity test requirement: Clause 6.2 Table 2 Emission limit: Class B RoHS Directive: EN IEC 63000
Power supply	SR44 silver oxide battery (1 pc., No. 938882, battery life: about 7000 hours in continuous service)
Scale	Electrostatic capacitance type absolute linear encoder
Temperature range	Operation: 0 °C to 40 °C, storage: -10 °C to 60 °C
Standard accessories	User's Manual with warranty, Quick Reference Manual, inspection certificate, SR44 battery (1 pc.), lifting lever (137693)

*1: During normal measurement at 20 °C.

*2: The protection level (IP: International Protection) is based on IEC 60529/JIS C 0920.

*3: Values are for factory default conditions.

*4: The battery life varies depending on usage times and conditions. The above values are guidelines.

15. Accessories (Optional)

- Lifting knob: Part No. 21EZA197 (25.4 mm stroke model)
- Lifting knob: Part No. 21EZA200 (50.8 mm stroke model)
- Release: Part No. 540774
- Reverse orientation coil spring: Part No. 02ACA571 (25.4 mm stroke model)
- Reverse orientation coil spring: Part No. 02ACA773 (50.8 mm stroke model)
- Connection cable: Part No. 905338 (1 m, flat straight)
- Connection cable: Part No. 905409 (2 m, flat straight)

*For accessories (optional) other than the above, refer to the Measuring Instruments Catalog.

16. Off-Site Repairs (Subject to Charge)

Off-site repair (subject to charge) is required in the case of the following malfunctions. Contact your nearest dealer or our sales office.

- Poor spindle operation
- Poor accuracy
- [E] is displayed as the last digit when the spindle is stationary
- Abnormal measured value or LCD trouble
- No recovery from [Err 40]
- Power will not turn on

*If the fundamental structural components or multiple components need to be replaced, we reserve the right to decline the repair.