



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

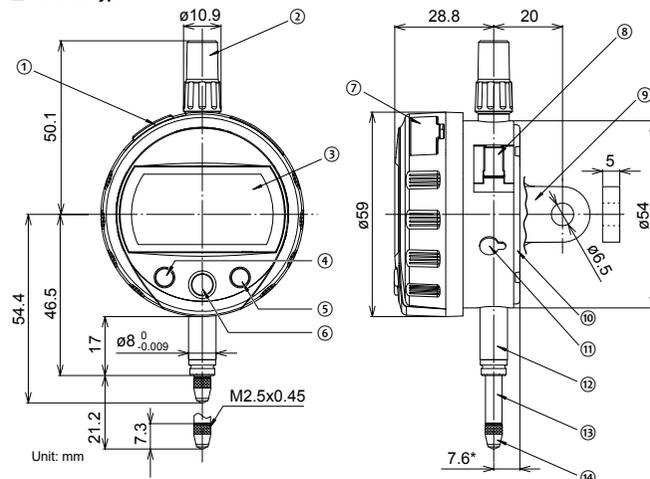
- Do not disassemble or modify. This may cause damage.
- Do not use or store the product in a place with sudden temperature changes. Adapt the product to ambient temperature before use.
- Do not store the product in a place with high humidity or a lot of dust. Also, avoid usage in places exposed to splashes 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.
- In environments with large temperature fluctuations, the measurement errors will increase due to thermal expansion of parts and fixtures. Therefore use the product where the temperature fluctuation is as little as possible. When it is moved to a different temperature environment, allow sufficient time for the product to thermally stabilize before use.

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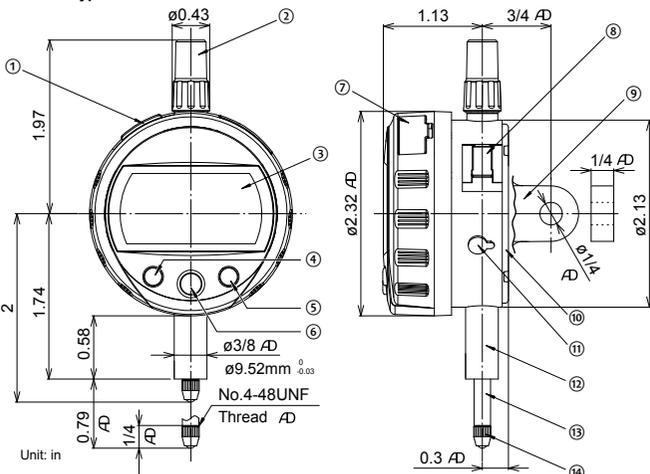
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1. Names and Dimensions of Components

ISO/JIS type



AGD type

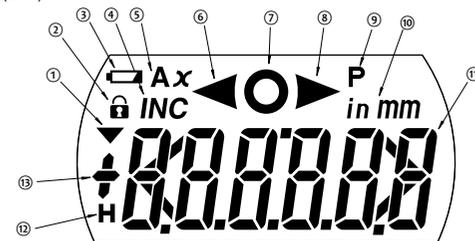


ΔD This is the symbol of American Gage Design (AGD). It means that this type conforms to appropriate dimensions of Dial Indicators in ASME/AGD 2 and has interchangeability. Only applicable to models with suffix E or T.

- | | |
|----------------------------------|---|
| ① Output connector (with cap) | ⑦ Battery holder |
| ② Cap | ⑧ Lifting lever mount (left and right) |
| ③ Display (LCD) | ⑨ Back with lug |
| ④ [MODE] key / [MODE in/mm] key* | ⑩ Flat back |
| * For in/mm models | ⑪ Release mounting hole (with rubber cap) |
| ⑤ [DATA ON/OFF] key | ⑫ Stem |
| ⑥ [SET] key | ⑬ Spindle |
| | ⑭ Contact point |

: flat back type No asterisk (): common for back with lug type and flat back type.
 Back with lug type: ID-C112X, MX, CX, CMX, EX, CEX, ID-C1012X, MX, CX, CMX, EX, CEX
 Flat back type: ID-C112XB, MXB, CXB, CMXB, EXB, CEXB, ID-C1012XB, MXB, CXB, CMXB, EXB, CEXB

Display (LCD)



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

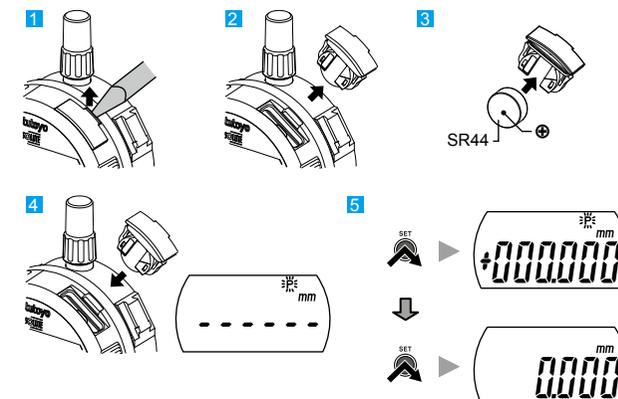
Key icon operation



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

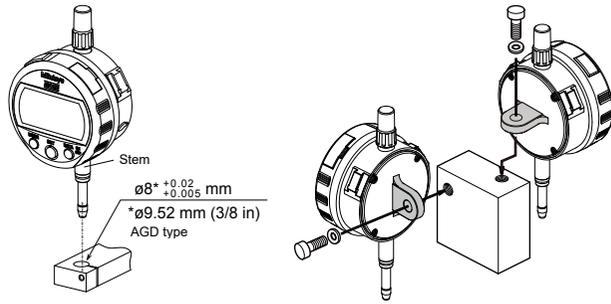
- If absolute measurement does not begin even after pressing the [SET] key twice, reinstall the battery.
- All settings are cleared when the battery is removed. All settings must be reconfigured.

3. Setup

1) 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 $\varnothing 8$ G7 (+0.005 to +0.02) mm holder. * AGD type: $\varnothing 9.52$ mm (3/8 in)

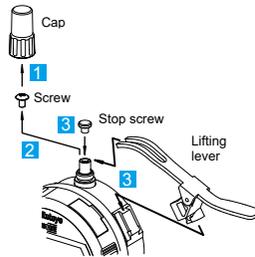
2) Mounting the lifting lever or lifting knob

NOTICE

- Using the product while the stop screw or lifting knob is not secured firmly may damage internal components or the workpiece.
- If not mounting a stop screw or lifting knob, always mount the original screw on the spindle top end. Otherwise internal components or the workpiece may be damaged.
- 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.

■ Mounting the lifting lever (optional)* *Part No.: Refer to "16. Accessories (Optional)"

- 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 remove the screw (M2.5/ No.4-48UNF) at the top end of the spindle.
- 3 Mount the stop screw supplied with the lifting lever and, with the lever tip caught by the stop screw, mount the lifting lever on the lifting lever mount (dovetail).

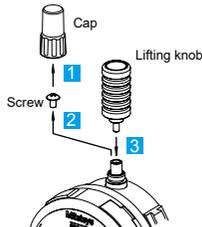


Tips

Store the removed screw and cap to prevent loss.

■ Mounting the lifting knob (optional)* *Part No.: Refer to "16. Accessories (Optional)"

- 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 remove the screw (M2.5/ No.4-48UNF) at the top end of the spindle.
- 3 Mount the lifting knob on the top end of the spindle.



Tips

Store the removed screw and cap to prevent loss.

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

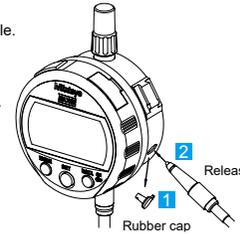
NOTICE

- 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 screw and rubber cap to prevent loss.



4) 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. Refer to "12. Low Measuring Force Types" for information on replacing a low measuring force type contact point.

Tips

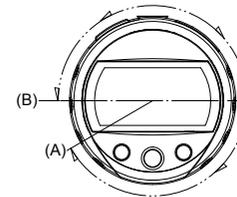
- Changing the contact point may cause changes in external dimensions and measuring force, or restrictions on the possible measurement directions.
- Contact point accuracy (perpendicularity of flat contact point, center runout of roller contact point, etc.) is added to the measurement accuracy.
- Various 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.

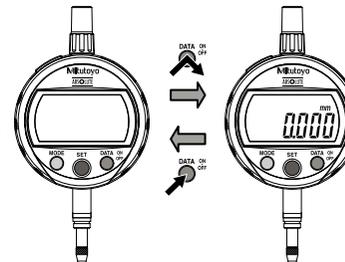
The display can rotate up to 240° (A) clockwise or 90° (B) counterclockwise from the initial position. Adjust it to an angle from which it can be easily read.



5. Power ON/OFF

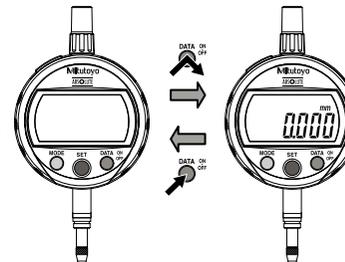
1) Turning the power on

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



2) Turning the power off

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



Key icon operation



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

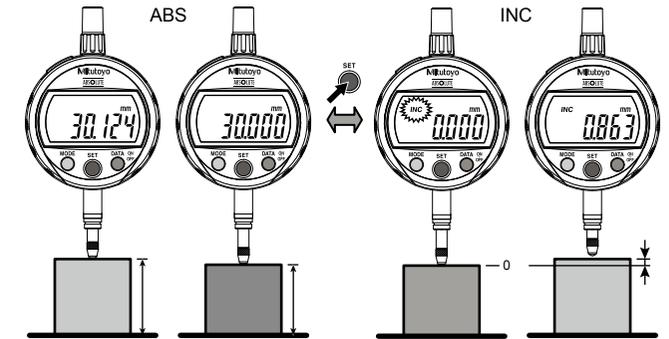
This product is equipped with the following two operation modes.

- **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.



- 1 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.

8. Switching Unit Systems

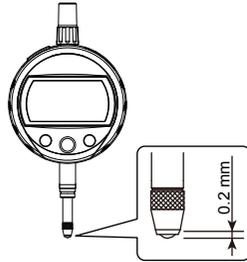
Press the [MODE in/mm] key to switch the unit between in (inches) and mm (millimeters).



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.
- A rubber damper is attached to this product to soften the spindle impact. The indicated value may not be stable at the bottom dead center due to the elasticity of the damper.
- Although the spindle may feel heavy at the bottom dead center when using for the first time, this can be resolved by pushing the spindle up once.



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.

1 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.)

2 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 if not changing the preset value

3 Setting the preset value

1 Press and hold the [SET] key.

- ⇒ The sign will blink and the preset value can be changed.

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 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 3.

4) Setting the origin (origin point)

1 Set the master to use for reference.

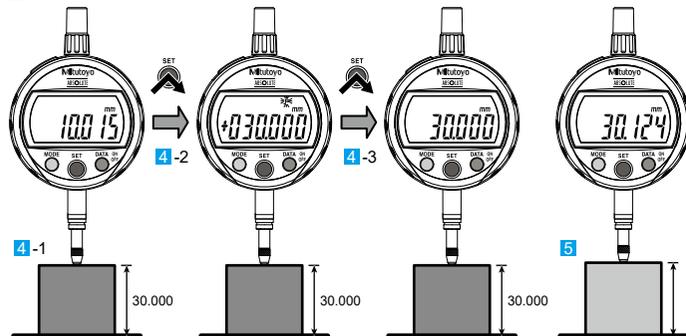
2 Press the [SET] key.

- ⇒ Registered preset value is displayed (example: 30.000 mm).

3 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.

5) Replace the master with the workpiece and perform absolute measurement.



Key icon operation



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.

1 Confirm that the product is in incremental measurement.

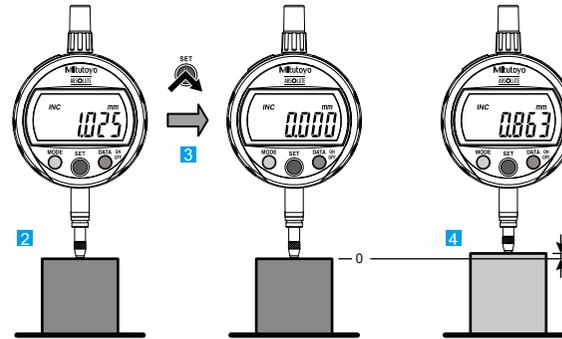
- ⇒ If in absolute measurement, switch the measurement system to incremental measurement. (Refer to "7. Switching Measurement Systems" for details.)

2 Set the master to use for reference.

3 Press the [SET] key.

- ⇒ Displayed value is reset to zero.

4 Replace the master with the workpiece and perform incremental measurement.



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

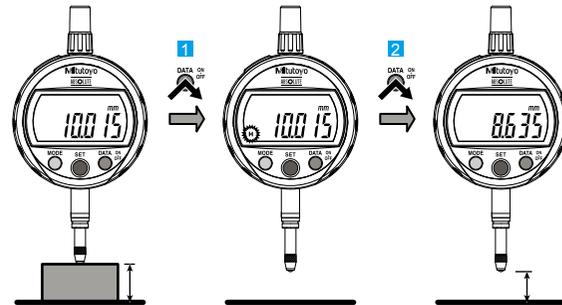
The displayed value can be held (fixed).

1 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).

2 Press the [DATA] key while the displayed value is held.

- ⇒ [H] will go out and the held displayed value will be released.



Tips

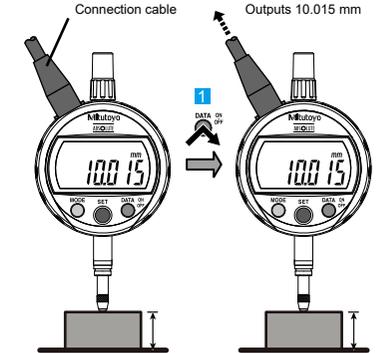
- During tolerance judgment enlarged display, the Hold function will not work even if the [DATA] key is pressed.
- Refer to "10.2) Setting Tolerance Judgment function" for details on the tolerance judgment enlarged display.

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

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

1 Press the [DATA] key during measurement mode.

- ⇒ The displayed value is output to the connected external device

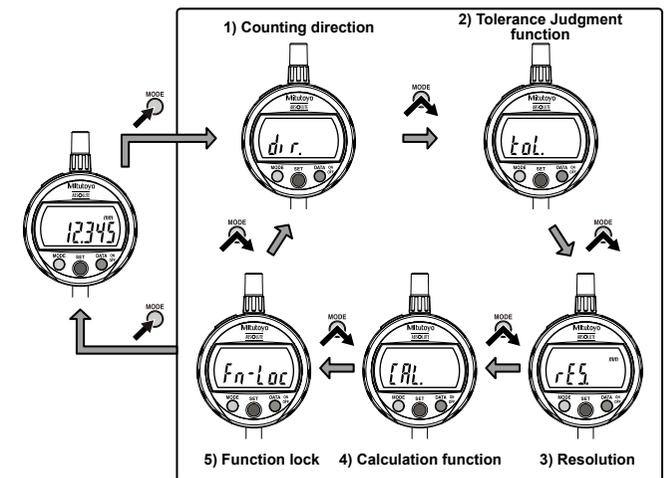


Tips

- Refer to "14. 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

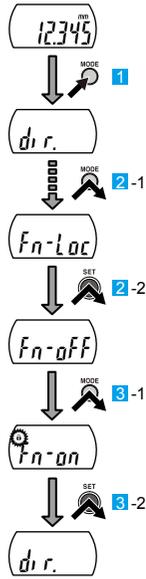
- Press and hold the [MODE] key to cancel the parameter setting. Note that unconfirmed settings will not be reflected.
- All parameter settings are retained even when the power is turned off. However, they are cleared when replacing the battery and must be reset.

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

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

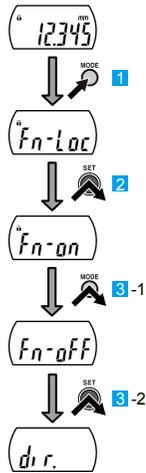


Tips

- 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

- Press and hold the [MODE] key to enter parameter setting mode.
 - ⇒ Shifts to parameter setting mode (Fn-Loc).
- Press the [SET] key to confirm the parameter item to set.
 - ⇒ Function Lock function can be set.
- Setting the Function Lock function
 - Press the [MODE] key and select cancel (off).
 - 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. Low Measuring Force Types

NOTICE

Low measuring force types (ID-C1012CX, ID-C1012CXB, ID-C1012CMX, ID-C1012CMXB, ID-C1012CEX, ID-C1012CEXB, ID-C112CX, ID-C112CXB, ID-C112CMX, ID-C112CMXB, ID-C112CEX, ID-C112CEXB) use an aluminum spindle to reduce the weight of the movable parts. Although the surface of the spindle has been treated for abrasion resistance, any dirt or damage on the surface of the spindle will make accurate measurements impossible.

1) Changing the measuring force

The measuring force can be changed as shown in the table at right, by adding or removing the coil spring or weight. However, if an optional contact point or extension rod for the dial gage is mounted, measuring force changes and operation posture will be restricted in some cases.

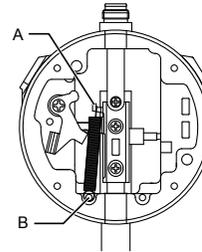
Tips

Store the removed coil spring and weight to prevent loss.

■ Adding/removing the coil spring

As shown in the figure at right, the coil spring is mounted on the spring attachment hook (A) and projection on the frame (B). Use the following procedure to add or remove it.

- Remove the back of the product.
- Use a tool such as tweezers to pinch the coil spring hook part, and then remove (attach) the coil spring from (to) the spring attachment hook (A) and projection (B).
- Mount the back on the product.



■ Adding/removing weights

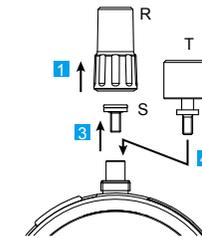
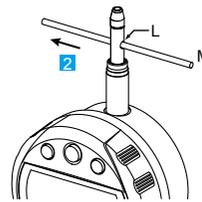
NOTICE

- When adding or removing a weight, make sure to insert a roughly 2 mm diameter hex key (or equivalent) into the key hole (L) on the spindle in order to protect the internal mechanism.
- The screw (S) on top of the spindle is used to protect the internal mechanism. Make sure to attach this when not using a weight.

- Remove the cap (R).
 - Insert a hex key (diameter about 2 mm) into the key hole (L) in the spindle.
 - Use the hex key to hold the spindle in place and prevent it from twisting as you turn the screw (S) on the top of the spindle to remove it.
 - Keep holding the spindle in place as you attach a weight (T) in place of the screw (S).
 - Remove the hex key from the key hole (L).
- To replace a weight (T) with a screw (S), follow the above procedure in reverse.

Tips

- The cap (R) cannot be mounted when using a weight (T).
- The optional lifting lever (No. 21EZA198) can be used together with a weight (T).

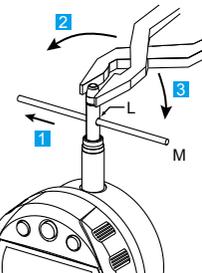


2) Contact point replacement

NOTICE

When replacing the contact point, make sure to insert a roughly 2 mm diameter hex key (or equivalent) into the key hole (L) on the spindle in order to protect the internal mechanism.

- Insert a hex key (diameter about 2 mm) into the key hole (L) in the spindle.
- Use the hex key to hold the spindle in place and prevent it from twisting as you turn the contact point with a tool such as pliers to remove it.
- Keep holding the spindle in place as you mount the replacement contact point, and then use a tool such as pliers to secure it.
- Remove the hex key from the key hole (L).

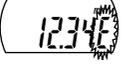
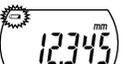
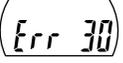
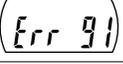
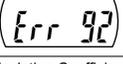


■ Measuring force of low measuring force types

	No weight	Weight attached
ID-C1012CX ID-C1012CXB ID-C1012CMX ID-C1012CMXB ID-C1012CEX ID-C1012CEXB		
Coil spring attached	 	
No coil spring	 	
ID-C112CX ID-C112CXB ID-C112CMX ID-C112CMXB ID-C112CEX ID-C112CEXB		
Coil spring attached	 	
No coil spring	 	

: Factory default conditions : Not a guaranteed operation posture

13. Error Displays and Countermeasures

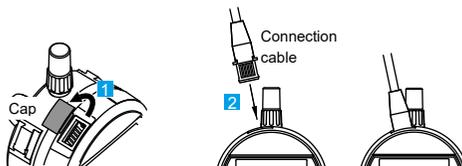
Error Display	Causes and Countermeasures
ABS Synthesis Error 	Although this may be momentarily displayed while the spindle is moving, it is a normal artifact of internal processing. If it occurs while the spindle is not moving, the internal sensor has failed. In this case, repair is required: contact your dealer or agent or our sales office.
Low Battery Voltage 	Battery is depleted. Replace with a new battery.
Display Overflow 	The measured value exceeds the number of digits that can be displayed. <ul style="list-style-type: none"> In ABS, press the [SET] key to enter the origin setting and reset (re-pret) 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)
Sensor Contamination Detection Error 	A sudden change in temperature may create condensation on the detector, or it may be contaminated by other sources. <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.
Preset Value Setting Error (Normal Measurement) 	The preset value set for normal measurement exceeds the number of digits that can be displayed. <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)
Preset Value Setting Error (Calculation Measurement) 	The preset value set for calculation measurement exceeds the number of digits that can be displayed. <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)
Tolerance Limit Value Setting Error 	The upper limit is set below the lower limit. <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.
Upper Limit Setting Error 	The upper limit exceeds the number of digits that can be displayed. <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)
Lower Limit Setting Error 	The lower limit exceeds the number of digits that can be displayed. <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)
Calculation Coefficient Setting Error 	The calculation coefficient is set to 0.0000. <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.

14. 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).

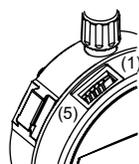
- Press the [ON/OFF] key to turn off the product.
- Connecting the product and the external device
 - Remove the cap of the output connector of the product.
 - Connect the product and the external device with a connection cable.



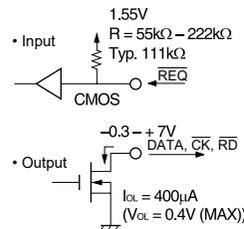
Tips

- 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.

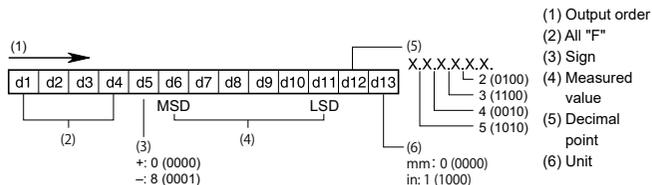
2) Output connector



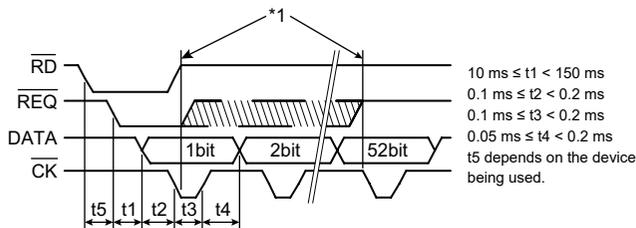
Pin No.	Signal	I/O
(1)	GND	-
(2)	DATA	O
(3)	CK	O
(4)	RD	O
(5)	REQ	I



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).

15. Specifications

Individual specifications

Model Name (bottom: low measuring force type)	ID-C1012X	ID-C1012XB	ID-C112X	ID-C112XB
Code No. (bottom: low measuring force type)	543-400	543-400B	543-390	543-390B
Measuring range	12.7 mm			
Resolution	0.01 mm		0.001 mm	
Error of indication for the total measuring range MPE_E^*1	0.02 mm		0.003 mm	
Hysteresis MPE_H^*1	0.02 mm		0.002 mm	
Repeatability MPE_R^*1	0.01 mm		0.002 mm	
Stem diameter	8 mm			
Contact point	Carbide (joint screw M2.5 × 0.45), part No. 901312 (provided as standard)			
Measuring force MPL (bottom: low measuring force type)	0.9 N or less		1.5 N or less	
Measurement direction	All directions			
Back	With lug	Flat	With lug	Flat
Mass (bottom: low measuring force type)	175 g	165 g	175 g	165 g

Model Name (bottom: low measuring force type)	ID-C1012MX	ID-C1012MXB	ID-C112MX	ID-C112MXB
Code No. (bottom: low measuring force type)	543-401	543-401B	543-391	543-391B
Measuring range	12.7 mm (0.5 in)			
Resolution	0.0005 in, 0.01 mm		0.00005 in, 0.0001 in, 0.0005 in, 0.001 mm, 0.01 mm	
Error of indication for the total measuring range MPE_E^*1	0.02 mm		0.003 mm	
Hysteresis MPE_H^*1	0.02 mm		0.002 mm	
Repeatability MPE_R^*1	0.01 mm		0.002 mm	
Stem diameter	8 mm			
Contact point	Carbide (joint screw M2.5 × 0.45), part No. 901312 (provided as standard)			
Measuring force MPL (bottom: low measuring force type)	0.9 N or less		1.5 N or less	
Measurement direction	All directions			
Back	With lug	Flat	With lug	Flat
Mass (bottom: low measuring force type)	175 g	165 g	175 g	165 g

Model Name (bottom: low measuring force type)	ID-C1012EX	ID-C1012EXB	ID-C112EX	ID-C112EXB
Code No. (bottom: low measuring force type)	543-402	543-402B	543-392	543-392B
Measuring range	12.7 mm (0.5 in)			
Resolution	0.0005 in, 0.01 mm		0.00005 in, 0.0001 in, 0.0005 in, 0.001 mm, 0.01 mm	
Error of indication for the total measuring range MPE_E^*1	0.02 mm		0.003 mm	
Hysteresis MPE_H^*1	0.02 mm		0.002 mm	
Repeatability MPE_R^*1	0.01 mm		0.002 mm	
Stem diameter	9.52 mm (=3/8 in)			
Contact point	Carbide (joint screw No. 4-48UNF), part No. 921BZB005 (provided as standard)			
Measuring force MPL (bottom: low measuring force type)	0.9 N or less		1.5 N or less	
Measurement direction	All directions			
Back	With lug	Flat	With lug	Flat
Mass (bottom: low measuring force type)	200 g	170 g	200 g	170 g

*1: During normal measurement at 20 °C.

■ Common specifications

Protection level *2	IP42 equivalent *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 x 1 (part No. 938882)
Battery life *4	About 7000 hours in continuous service
Scale	Electrostatic capacitance type absolute linear encoder
Response speed	Unlimited (unavailable for scanning measurement)
Data output	Digimatic code out
Temperature range	Operation: 0 °C to 40 °C, storage: -10 °C to 60 °C
Standard accessories	SR44 (for function verification, 1 pc.), User's Manual with warranty, inspection certificate Weight (low measuring force types only)

*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.

16. Accessories (Optional)

- Lifting lever (for JIS/ISO models): Part No. 21EZA198
- Lifting lever (for AGD models): Part No. 21EZA199
- Lifting knob (for ISO/JIS models): Part No. 21EZA105
- Lifting knob (for AGD models): Part No. 21EZA150
- Release: Part No. 540774
- Connection cable: Part No. 905338 (1 m, flat straight)
- Connection cable: Part No. 905409 (2 m, flat straight)

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

17. 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.