

## High-performance ABS Digimatic Indicators ID-C/ID-F

Small Tool Instruments  
and Data Management

DIGIMATIC S1

NEW  
Products



ID-C Series



GOOD DESIGN  
AWARD 2020

ID-F Series

High-performance  
ABS Digimatic  
Indicator

# ID-C/ID-F



New-generation ID series making measurement operations smoother and enhancing production quality

Bidirectional serial communication that helps increase work efficiency

Meeting the need for more precise measurements

A wide range of support functions for smoother measurement work



ID-C Series



ID-F Series

\*The ID-C series does not have illuminated backlighting.



When tolerance judgment result indicates failure

Enabling more precise measurement  
**0.5 μm/0.00002 in resolution**

The ID-C and ID-F ranges now include models with 0.0005 mm/0.00002 in resolution. The units are also capable of resolution switching.\*  
\*Except for the ID-C 0.01 mm/0.0005 in resolution model



Avoid missing a pending calibration  
**Calibration schedule warning**

The operator can set a calibration validity and reminder date. This function can support better management of the gages.



Notification icon

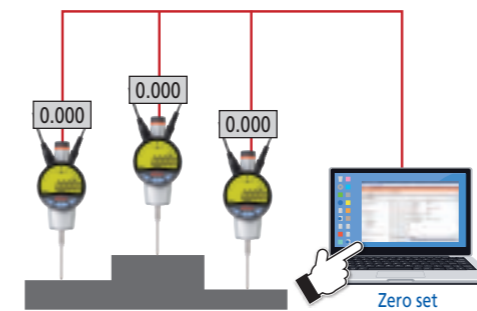
The icon starts blinking at a set time before calibration is due (e.g. 1 week before the calibration date). If the due date is exceeded, the entire screen starts blinking to notify the user.

## The first Mitutoyo measuring tools to support bidirectional serial communication. Dramatically improve work efficiency by connecting and linking with a PC.

The ID-C/ID-F units are Mitutoyo's first measuring tools to support bidirectional serial communication.\* They can be easily connected and linked with a PC via a USB input tool, etc., and in addition to conventional measurement data collection, they also enable control and setting of the ID-C/ID-F units, collection of gauge information, and other operations to be performed in batch from the PC. This contributes to drastic improvement in work efficiency.

\*Achieved through I/F compatible with an original bidirectional serial communication specification (Digimatic S1). ▶ See P.6 for details.

● An optional cable and measurement data input unit are required for bidirectional serial communication. ● USB-ITPAK V3.0 must be installed on the PC used for communication.



### Function example (1) Control of ID-C/ID-F from PC

New model  
(ID-C/ID-F + USB-ITPAK V3.0)

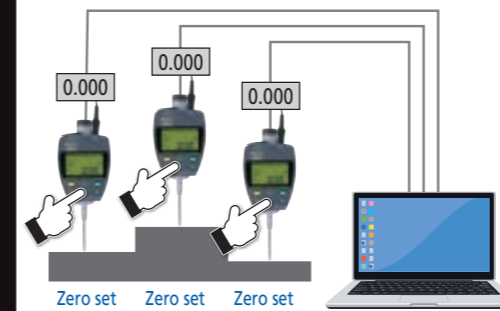
- Batch zero setting and power ON/OFF operation, etc. of multiple ID-C/ID-F units is made possible by use of the dedicated software "USB-ITPAK."

### Function example (2) Measuring instrument setting

New model  
(ID-C/ID-F + USB-ITPAK V3.0)

- Various functions of ID-C/ID-F units can be set from USB-ITPAK.
- The contents of various function settings can be saved on a PC, and you can copy them to other ID-C/ID-F units.

→ Reduced work time for setting



### Old model (Old ID-C/ID-F + USB-ITPAK V2.1)

- For older ID-C/ID-F units that do not support bidirectional serial communication, individual button operation is necessary for zero setting.

### Old model (Old ID-C/ID-F + USB-ITPAK V2.1)

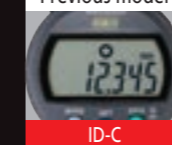
- Since bidirectional serial communication is not supported, function setting from a PC is not possible.

## Improved work efficiency thanks to excellent readability Large screen and analog bar

The units have large screens that can display various information in an easy-to-read manner. They also have an analog bar, convenient for observing subtle movements such as the approach to tolerance.



Previous model



ID-C

Addition of analog bar



ID-C

Improved analog bar



ID-F

Character size enlarged about 1.5 times



ID-F

## Setting of frequently used functions for easy operation Three large buttons

Ease of use is greatly improved by three large buttons. You can freely set any frequently used functions to these buttons.



- 1 Parameter setting mode**
  - Counting direction switching
  - Tolerance judgment function setting
  - Calculation function setting
  - Resolution switching
  - Function lock setting
- 2 Switching between ABS (presetting) and INC (zero setting)**
- 3 Power ON/OFF**
  - Data output (when connected to an external device)
  - Data hold (when not connected to an external device)

## Improved measurement work efficiency Simple calculation function

The result of the spindle movement value multiplied by the calculation coefficient can be displayed in real time. This reduces the work of measuring with a jig or similar tool.

$$f(x) = Ax$$

f(x): Displayed value  
x: Spindle movement value  
A: Selected value



# ID-C Series



543-700  
ID-C0512NX



543-702B  
ID-C0512ENXB



543-710B  
ID-C1012NXB



543-717  
ID-C1012CENX



543-720B  
ID-C0525NXB



543-722B  
ID-C0525ENXB



543-730B  
ID-C0550NXB



543-737B  
ID-C1050ENXB

## SPECIFICATIONS

### Metric ISO/JIS Type

Code No.		Range (mm)	Resolution (mm)	Maximum permissible error (MPE) <sup>*1</sup> (mm)				Maximum permissible limit (MPL)	Net mass (g)	
w/ lug	Flat back			Partial measuring range MPE <sub>P</sub>	Total measuring range MPE <sub>T</sub>	Hysteresis MPE <sub>H</sub>	Repeatability MPE <sub>R</sub>		Measuring force (N)	w/ lug
543-700	543-700B	12.7	0.0005/ 0.001/0.01 (selectable)	0.003	0.003	0.002	0.002	1.5 or less	175	165
543-705 <sup>*2</sup>	543-705B <sup>*2</sup>							0.4 to 0.7	170	160
—	543-720B							1.8 or less	—	195
—	543-730B	50.8	—	—	—	—	—	2.3 or less	—	260
543-710	543-710B	12.7	0.01	0.02	0.02	0.02	0.01	0.9 or less	170	160
543-715 <sup>*2</sup>	543-715B <sup>*2</sup>							0.2 to 0.5	165	155
—	543-725B							1.8 or less	—	190
—	543-735B	50.8	—	0.04	0.04	—	—	2.3 or less	—	245

\*1 These values apply to normal measurements at 20 °C (Resolution: 0.0005 mm, Allowable value: A=1) \*2 Low measuring force

### Inch/ Metric ISO/JIS Type

Code No.		Range	Resolution	Maximum permissible error (MPE) <sup>*1</sup> (mm)				Maximum permissible limit (MPL)	Net mass (g)	
w/ lug	Flat back			Partial measuring range MPE <sub>P</sub>	Total measuring range MPE <sub>T</sub>	Hysteresis MPE <sub>H</sub>	Repeatability MPE <sub>R</sub>		Measuring force (N)	w/ lug
543-701	543-701B	0.5 in/ 12.7 mm	0.00002/0.00005/ 0.0001/0.0005 in, 0.0005/0.001/ 0.01 mm (selectable)	0.003	0.003	0.002	0.002	1.5 or less	175	165
543-706 <sup>*2</sup>	543-706B <sup>*2</sup>							0.4 to 0.7	170	160
—	543-721B							1 in/ 25.4 mm	—	195
—	543-731B	2 in/ 50.8 mm	—	—	—	—	—	2.3 or less	—	260
543-711	543-711B	0.5 in/ 12.7 mm	0.0005 in/ 0.01 mm	0.02	0.02	0.02	0.01	0.9 or less	170	160
543-716 <sup>*2</sup>	543-716B <sup>*2</sup>							0.2 to 0.5	165	155
—	543-726B							1 in/ 25.4 mm	—	190
—	543-736B	2 in/50.8 mm	—	0.04	0.04	—	—	2.3 or less	—	245

\*1 These values apply to normal measurements at 20 °C (Resolution: 0.0005 mm, Allowable value: A=1) \*2 Low measuring force

### Inch/ Metric ASME/ANSI/AGD Type

Code No.		Range	Resolution	Maximum permissible error (MPE) <sup>*1</sup> (in)			Maximum permissible limit (MPL)	Net mass (g)		
w/ lug	Flat back			Overall <sup>*3</sup>	Hysteresis	Repeatability		Measuring force (N)	w/ lug	Flat back
543-702	543-702B	0.5 in/ 12.7 mm	0.00002/0.00005/ 0.0001/0.0005 in, 0.0005/0.001/ 0.01 mm (selectable)	±0.00012	0.00008	0.00008	1.5 or less	195	165	
543-707 <sup>*2</sup>	543-707B <sup>*2</sup>						0.4 to 0.7	190	160	
—	543-722B						1 in/ 25.4 mm	—	195	
—	543-732B	2 in/ 50.8 mm	—	—	—	—	—	2.3 or less	—	260
543-712	543-712B	0.5 in/ 12.7 mm	0.0005 in/ 0.01 mm	±0.0010	0.0010	0.0005	0.9 or less	190	160	
543-717 <sup>*2</sup>	543-717B <sup>*2</sup>						0.2 to 0.5	185	155	
—	543-727B						1 in/ 25.4 mm	—	190	
—	543-737B	2 in/50.8 mm	—	±0.0015	—	—	—	2.3 or less	—	245

\*1 These values apply to normal measurements at 20 °C (Resolution: 0.0005 mm, Allowable value: A=1) \*2 Low measuring force \*3 Overall magnification and linearity

See page 7 for external dimensions

## Common Specifications

	12.7 mm/0.5 in models	Low measuring force models <sup>*1</sup>	25.4 mm/1 in, 50.8 mm/2 in models
Display	7 segments height: 11.0 mm, Analog bar (±20 scale)		
Display rotation	330 °		
Protection level <sup>*2</sup>	Equivalent to IP-42		
Possible plunger direction	All directions	0.0005 mm models: Plunger downward only 0.01 mm models: Up to direction in which plunger is horizontal	Up to direction in which plunger is horizontal
Power source	Lithium metal battery CR2032 (1pc.)		
Battery life <sup>*3</sup>	Approx. 2.5 years (normal use), Approx. 2,700 hours(continuous use)		
Detection method	Electrostatic capacitance type absolute linear encoder		
Response speed	No limit		
Errors, Alarms	Various setting errors, Sensor error, Display overflow, etc.		
Operating temperature	0 to 40 °C		
Storage temperature	-10 to 60 °C		

\*1: The item whose Code No. with an asterisk \*2 is Low measuring force model like 543-706<sup>\*2</sup>. See the specification table above.

\*2: Protection level (IP=International Protection) is based on IEC 60529 (JIS C 0920). The levels shown are valid for factory conditions only.

\*3: When the data processor is not connected. Battery life depends on use of the indicator. Use the above value as a reference.

Note: Allows high accuracy measurements of MAX/MIN and TIR (MAX-MIN). The peak detection speed is 50 times/s.

Various contact points are available as optional accessories.

# ID-F Series



## SPECIFICATIONS

### Metric ISO/JIS Type

Code No. w/ lug	Range (mm)	Resolution (mm)	Maximum permissible error (MPE)*1 (mm)				Maximum permissible limit (MPL) Measuring force (N)	Response speed	Power source	Net mass (g)
			Partial measuring range MPE <sub>P</sub>	Total measuring range MPE <sub>T</sub>	Hysteresis MPE <sub>H</sub>	Repeatability MPE <sub>R</sub>				
543-855	12.7	0.0005/ 0.001/ 0.01	0.0025	0.0025	0.002	0.002	1.5 or less	Unlimited	ACadapter (5.9 V)	180
543-855B (flat back)										170
543-851										240
543-853										330
543-857	50.8		0.004	0.004			2.3 or less			
543-857	50.8		0.003	0.003						

\*1 These values apply to normal measurements at 20 °C (Resolution: 0.0005 mm, Allowable value: A=1)

### Inch/Metric ASME/ANSI/AGD Type

Code No.	Range	Resolution	Maximum permissible error (MPE)*1 (in)			Maximum permissible limit (MPL) Measuring force (N)	Response speed	Power source	Net mass (g)
			Overall*2	Hysteresis	Repeatability				
543-856	0.5 in/	0.00002/	±0.00010	0.00008	0.00008	0.9 or less	Unlimited	ACadapter (5.9 V)	200
543-856B (flat back)	12.7 mm	0.00005/ 0.0001 in,							170
543-852	1 in/ 25.4 mm	0.0001/ 0.0005/ 0.001 in,				1.8 or less			240
543-854	2 in/ 50.8 mm	0.005/ 0.001/ 0.01 mm	±0.00016			2.3 or less			330
543-858	50.8 mm		±0.00012						

\*1 These values apply to normal measurements at 20 °C (Resolution: 0.0005 mm, Allowable value: A=1) \*2 Overall magnification and linearity  
Note: To denote your AC power cable add the following suffixes to the order No.: -A for UL/CSA, -D for CEE, -DC for CCC, -E for BS, -K for KC, No suffix is required for JIS/100 V.

See page 8 for external dimensions

## Common Specifications

Display	7 segments height: 11.0 mm, Analog bar (±20 scale)	Response speed	No limit
Display rotation	330 °	Errors, Alarms	Various setting errors, Sensor error, Display overflow, etc.
Protection level**	Equivalent to IP-40 (No protection against ingress of water)	Output	d1, d2
Possible plunger direction	Up to direction in which plunger is horizontal	I/O	S1
Power source	AC adapter (DC 5.9 V)	Operating temperature	0 to 40 °C
Detection method	Electrostatic capacitance type absolute linear encoder	Storage temperature	-10 to 60 °C

\*1: Protection level (IP=International Protection) is based on IEC 60529 (JIS C0920). The levels shown are valid for factory conditions only.  
Note: Allows high accuracy measurements of MAX/MIN and TIR (MAX-MIN). The peak detection speed is 50 times/s for resolution of 0.0005 mm and 500 times/s otherwise.  
Various contact points are available as optional accessories.

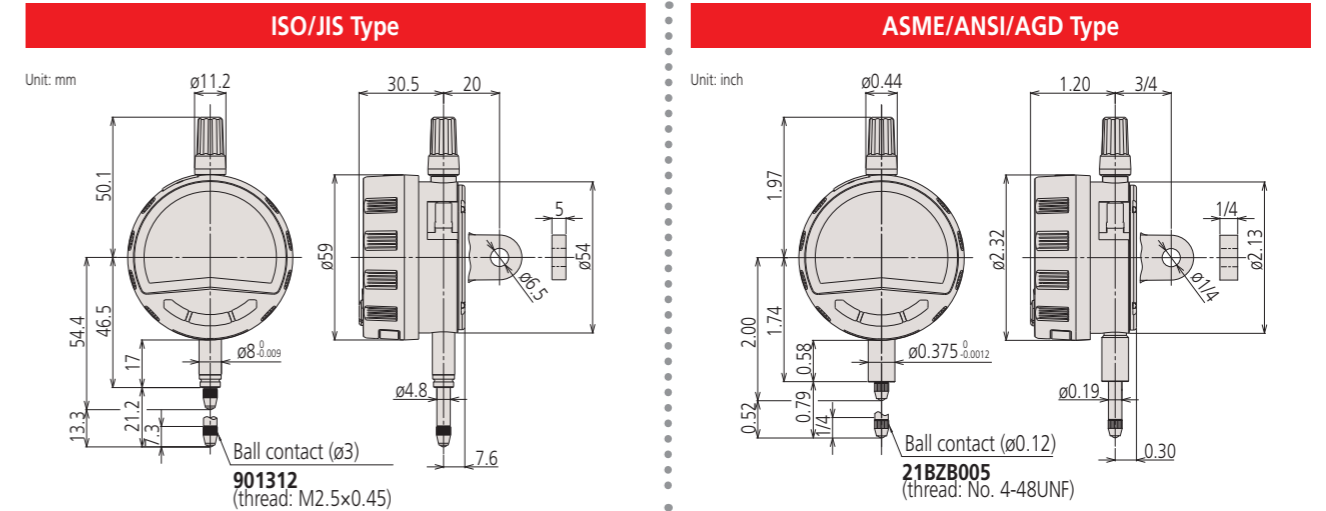
## Comparison of functions

	ID-C Series	ID-F Series		ID-C Series	ID-F Series
Preset	✓	✓	Analog bar display ON/OFF	✓	✓
Zero set	✓	✓	Analog bar scale selecting	✓	✓
Peak detection (Max, Min, TIR)	✓	✓	Key customize	✓	✓
Unit system switching*1	✓	✓	Function lock	✓	✓
Counting direction switching	✓	✓	Calibration schedule warning function	✓	✓
Resolution selecting	✓*2	✓	Auto OFF	✓	—
Tolerance judgment	✓	✓	Reset all settings	✓	✓
Simple calculation	✓	✓			

\*1: in/mm models only \*2: Except 0.01 mm/0.0005 in models

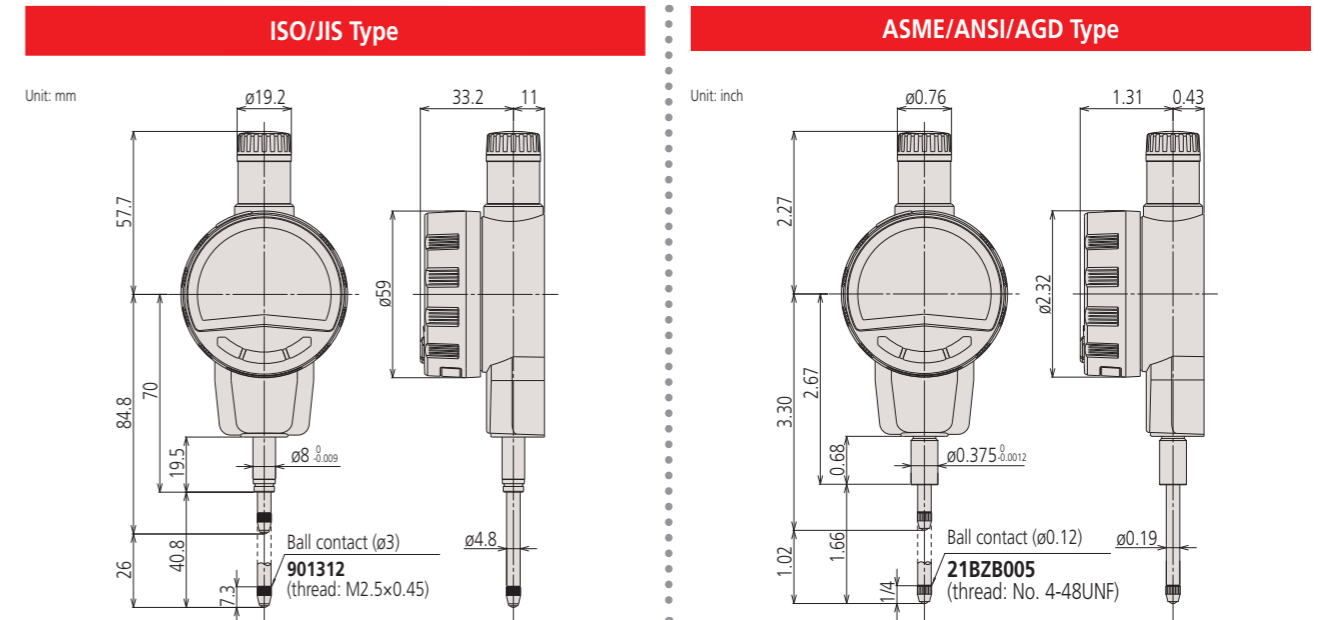
## Dimensions (ID-C Series)

### 12.7 mm range models



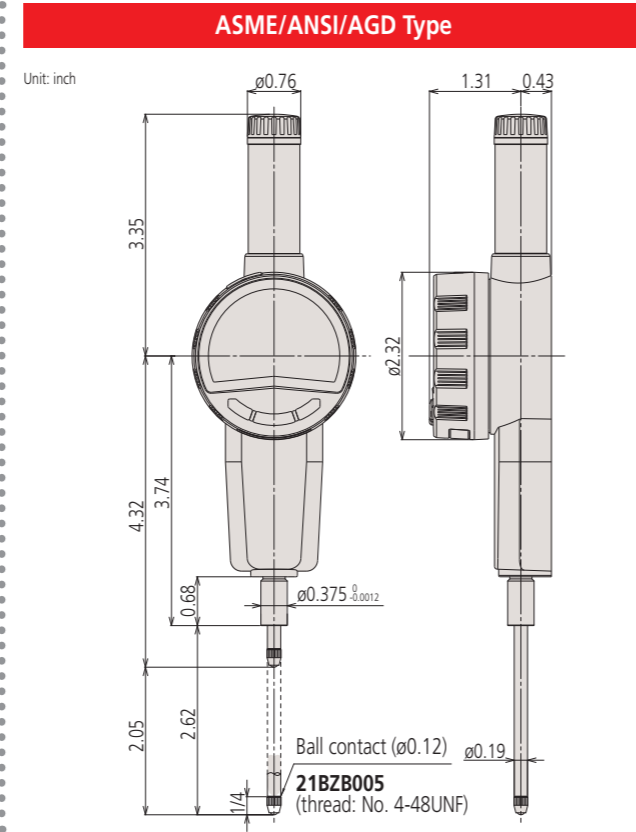
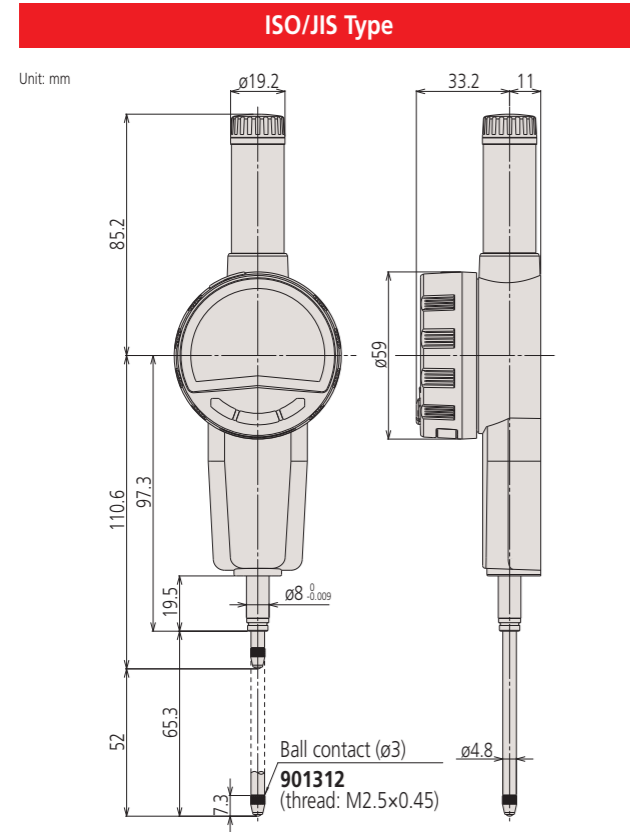
Note: Products with a code No. suffixed "B" have a flat back, and other models have a center-lug back.

### 25.4 mm range models



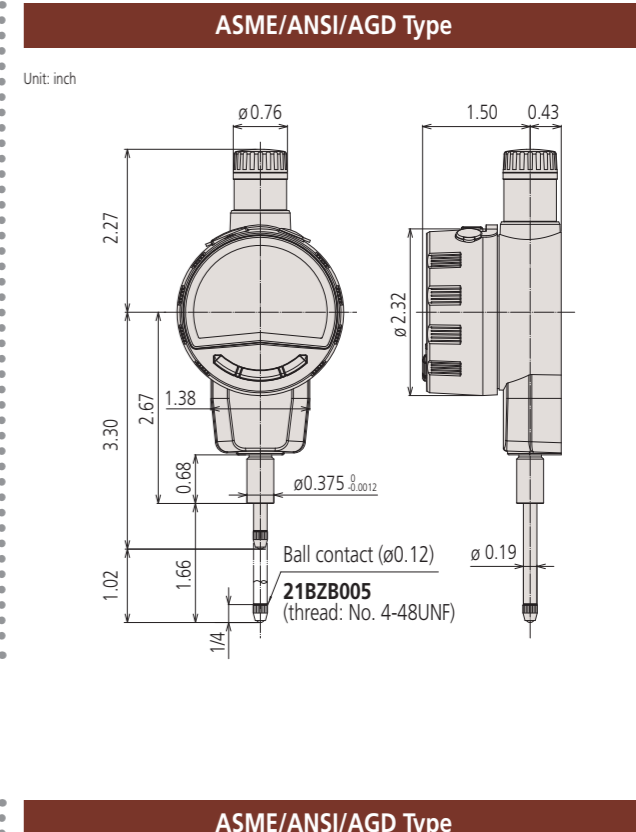
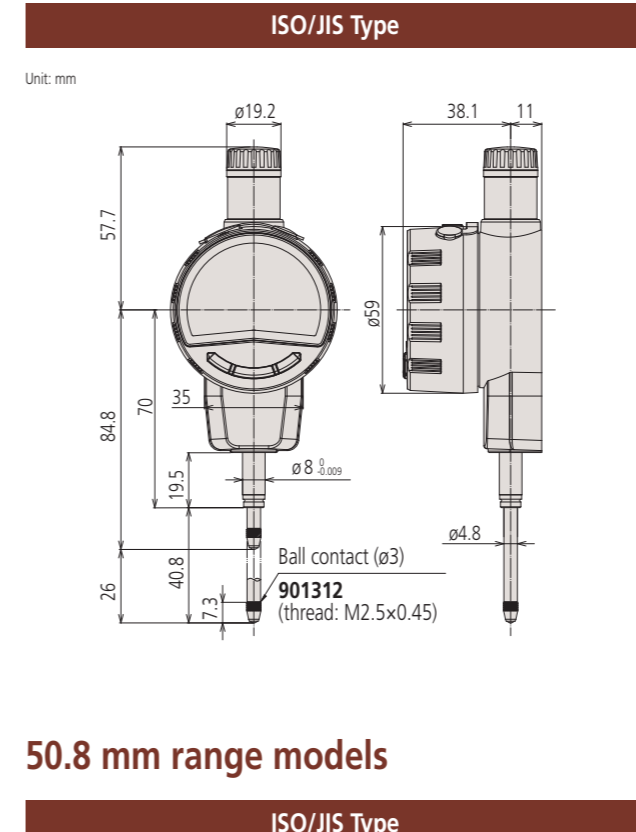
Note: All products have a flat back.

50.8 mm range models

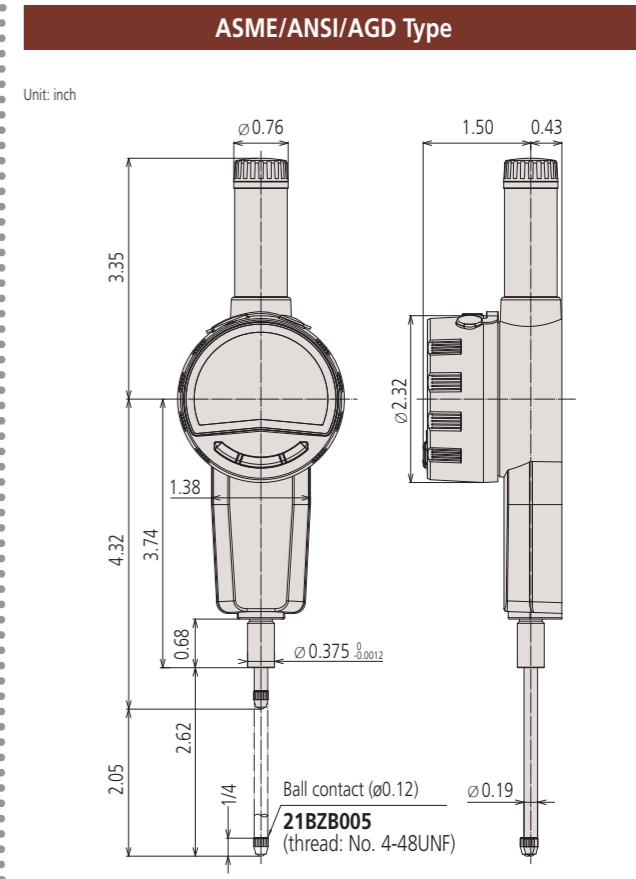
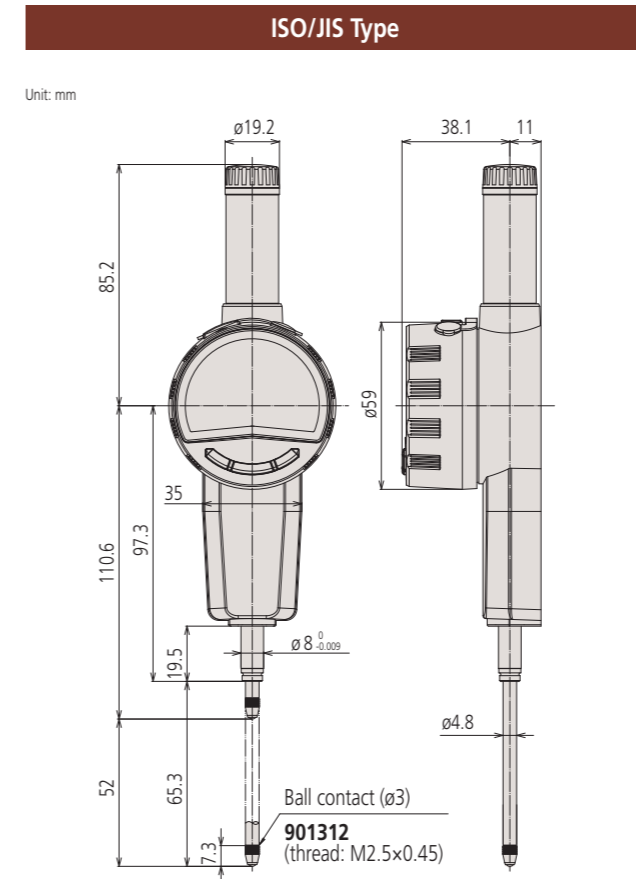


Note: All products have a flat back.

25.4 mm range models

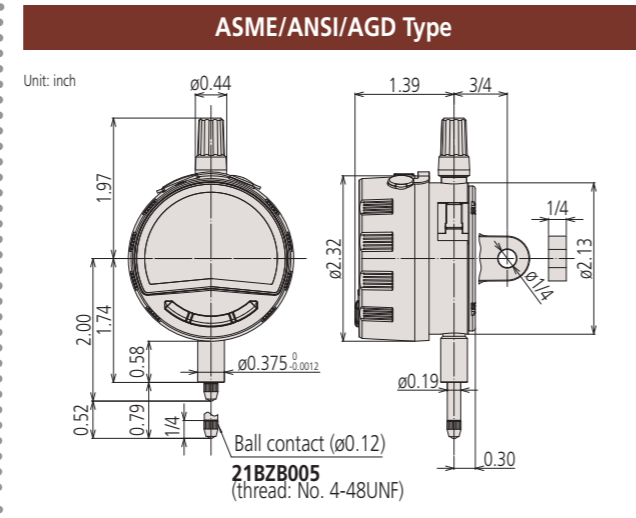
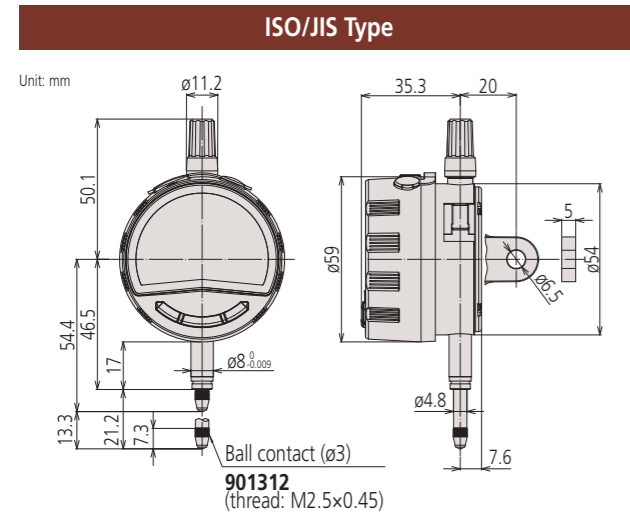


50.8 mm range models



Dimensions (ID-F Series)

12.7 mm range models



Note: Products with an Order No. suffixed "B" have a flat back, and other models have a center-lug back.

# Optional accessories

## Options

### Measurement data input unit

Can be used for both ID-C/ID-F with SPC cable.



IT-020U No.264-020

Measurement data input unit



USB-ITN-SF No.06AGQ001F

Measurement data input unit  
USB Input Tool Direct (2 m)

### Cable

SPC Cable for connecting ID-C/ID-F and IT-020U. Can be used for both ID-C/ID-F.



No.06AGL011

SPC Connection cable (1 m)



No.06AGL021

SPC Connection cable (2 m)

### U-WAVE

If using U-WAVE, please note that it does not support bidirectional serial communication.



No.02AZF700

Attachment example

Optional items such as a lifting lever can be attached while the U-WAVE-TM/TMB is in place.  
\*Cannot be attached to the models with center-lug back.

Connection unit  
(For 12.7 mm type only)



No.02AZG011

Standard U-WAVE-T dedicated connection cable

Please note that a conventional ID-C/ID-F cable cannot be used because the shape of the connector is different.

No.02AZG021

U-WAVE-T dedicated connection cable for foot switch



Buzzer type No.264-623  
Waterproof/dustproof type No.264-622

Transmission unit (U-WAVE-TM)



Buzzer type No.264-627  
Waterproof/dustproof type No.264-626

U-WAVE-TMB

### U-WAVE-TM/TMB mounting bracket



No.02AZF670

U-WAVE mounting plate



### Software



#### USB-ITPAK V3.0 full version dongle



USB dongle  
Measurement data collection software USB-ITPAK V3.0 can be downloaded from our website. The above dongle is required to use the full functions.

No.06AGR543

Measurement data collection software  
USB-ITPAK V3.0

Many other options are also available. For details, please visit our website. <https://www.mitutoyo.co.jp>

## Software Reduces the time and effort needed for inspection work

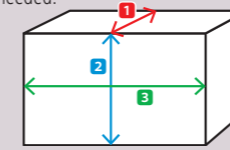
### Measurement data collection software

#### USB-ITPAK V3.0

USB-ITPAK is useful software to create procedures when inputting measurement data into Excel sheets. The latest version allows the user to perform batch power-on for ID-C/ID-F units, batch power-off at the end of measurement, batch zero setting and presetting, data acquisition instruction from a PC, etc.

#### Equipped with an automatic sorting function for sorting input measurement data [Easy input mode]

This function can be implemented even if the measuring instrument does not support bidirectional serial communication. After setting, measurement values are automatically sorted into an Excel sheet as needed.



Just preset the number of measurement items. (Example: number of measurement items = 3)  
1 D: 10 mm  
2 H: 20 mm  
3 W: 30 mm

With normal input  
(Entered into column A only.)

1	1	10.11
2	2	20.05
3	3	29.99
1	4	10.54
2	5	20.45

With automatic sorting function  
(Once entered into column A, similar data is automatically classified.)

1	1	10.11	10.11	20.05	29.99
2	2	20.05	10.54	20.45	29.5
3	3	29.99	9.99	20.07	30.4
1	4	10.54	9.99	20.07	30.22
2	5	20.45			

#### Simplifies measuring instrument setting

Batch setting of ID-C/ID-F units can be performed from your PC. Moreover, the settings can be saved on your PC and copy to other ID-C/ID-F units. Without even touching the ID-C/ID-F units.



#### USB-ITPAK V2.1/V3.0 Function comparison table

Symbols: ✓<sup>1</sup>: Can be used only when connected with USB-ITPAK V3.0 and ID-C/ID-F;  
✓: Can be used; —: Cannot be used

Operating environment and functions	Details	ITPAK		
		V2.1	V3.0 Trial version (free)	V3.0 Full version
Supported communication standard	Digimatic d1/d2		✓	
	Digimatic S1			✓
Supported operating systems	Windows 2000 SP4, Windows XP SP2 or later, Windows Vista, Windows 7, Windows 8 / 8.1	✓		
	Windows 10		✓	
Functions	Sequential measurement	✓		✓
	Batch measurement	✓		✓
	Individual measurement	✓		✓
	Simple measurement function			✓
	Measuring instrument setting			✓ <sup>1</sup>
	Measurement history			✓ <sup>1</sup>
	Device information			✓ <sup>1</sup>
	Data input into Microsoft Excel		✓	✓
	Text data input with virtual keyboard		✓	✓

Coordinate Measuring  
Machines

Vision Measuring Systems

Form Measurement

Optical Measuring



Sensor Systems

Test Equipment

Digital Scale and DRO  
Systems

Small Tool Instruments  
and Data Management



**Whatever your challenges are, Mitutoyo supports you from start to finish.**

Mitutoyo is not only a manufacturer of top quality measuring products but one that also offers qualified support for the lifetime of the equipment, backed up by comprehensive services that ensure your staff can make the very best use of the investment.

Apart from the basics of calibration and repair, Mitutoyo offers product and metrology training, as well as IT support for the sophisticated software used in modern measuring technology. We can also design, build, test and deliver measuring solutions and even, if deemed cost-effective, take your critical measurement challenges in-house on a sub-contract basis.



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