

High-Performance ABS Digimatic Indicators ID-C/ID-F

Small Tool Instruments
and Data Management

DIGIMATIC S1

NEW
Products



High-Performance
ABS Digimatic
Indicator

ID-C/ID-F



New-generation ID series makes measurement operations smoother and enhances 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

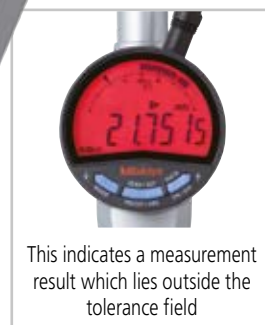


ID-C Series

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



ID-F Series



This indicates a measurement result which lies outside the tolerance field

Enabling more precise measurement
0.5 $\mu\text{m}/0,00002$ in Digital Step

The ID-C and ID-F ranges now include models with digital steps of 0,0005 mm/0,00002. The units are also capable of digital step switching*.

*Except for the ID-C 0,01 mm/0,0005 in digital step 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 gauges.



Notification icon

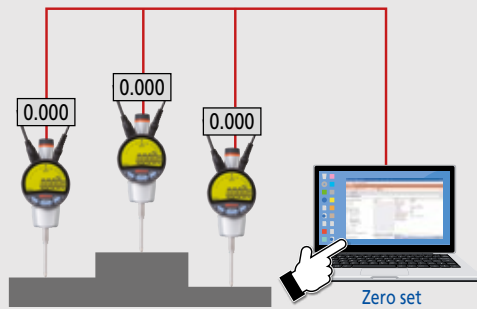
The icon starts blinking at a set time before calibration is due (e.g. 1 week before the calibration date). If the due date is exceeded, the entire screen starts blinking to notify the user.

Dramatically improve your 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.

*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".

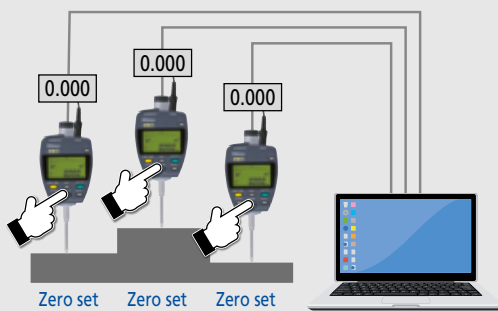
→ Much easier to use

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)

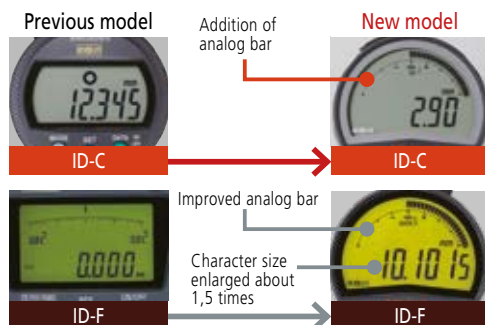
● For older ID-C/ID-F units that do not support bidirectional serial communication, individual button operation is necessary for zero setting.

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.



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
- Resolution switching
- Calculation function setting
- 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

Find out more in this video



Product information

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

■ Example of **ID-CNX** installed on optional bore gauge



Direction setting, etc. is necessary when **ID-CNX** is used with a bore gauge. Please refer to the operation manual for details.

SPECIFICATIONS

Metric ISO/JIS Type

Code No.		Range (mm)	Digital Step (mm)	Maximum permissible error (MPE)** ¹ (mm)				Maximum permissible limit (MPL)	Net mass (g)	
w/ lug	Flat back			Partial measuring range P_{MPE}	Total measuring range E_{MPE}	Hysteresis H_{MPE}	Repeatability R_{MPE}		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* ²	543-705B* ²							0,4 to 0,7	170	160
—	543-720B	25,4	0,01	0,005	0,005	0,02	0,01	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* ²	543-715B* ²							0,2 to 0,5	165	155
—	543-725B	25,4	0,04	0,04	0,02	0,01	0,01	1,8 or less	—	190
—	543-735B	50,8						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	Digital Step	Maximum permissible error (MPE)** ¹ (mm)				Maximum permissible limit (MPL)	Net mass (g)	
w/ lug	Flat back			Partial measuring range P_{MPE}	Total measuring range E_{MPE}	Hysteresis H_{MPE}	Repeatability R_{MPE}		Measuring force (N)	w/ lug
543-701	543-701B	0,5 in/ 12,7 mm	0,00002/0,00005/ 0,0001/0,0005 in,	0,003	0,003	0,002	0,002	1,5 or less	175	165
543-706* ²	543-706B* ²							0,4 to 0,7	170	160
—	543-721B	1 in/ 25,4 mm	0,0005/0,001/ 0,01 mm (selectable)	0,005	0,005	0,02	0,01	1,8 or less	—	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* ²	543-716B* ²							0,2 to 0,5	165	155
—	543-726B	1 in/ 25,4 mm	0,04	0,04	0,02	0,01	0,01	1,8 or less	—	190
—	543-736B	2 in/ 50,8 mm						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	Digital Step	Maximum permissible error (MPE)** ¹ (in)			Maximum permissible limit (MPL)	Net mass (g)	
w/ lug	Flat back			Overall* ³	Hysteresis	Repeatability		Measuring force (N)	w/ lug
543-702	543-702B	0,5 in/ 12,7 mm	0,00002/0,00005/ 0,0001/0,0005 in,	±0,00012	0,00008	0,00008	1,5 or less	195	165
543-707* ²	543-707B* ²						0,4 to 0,7	190	160
—	543-722B	1 in/ 25,4 mm	0,0005/0,001/ 0,01 mm (selectable)	±0,00020	0,0010	0,0005	1,8 or less	—	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* ²	543-717B* ²						0,2 to 0,5	185	155
—	543-727B	1 in/ 25,4 mm	±0,0015	0,0015	0,0010	0,0005	1,8 or less	—	190
—	543-737B	2 in/ 50,8 mm					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* ¹	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* ²	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* ³	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 items with an asterisk *2 are low measuring force models like 543-706*². 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



543-855
ID-F0512NX



543-855B
ID-F0512NXB



543-851
ID-F0525NX



543-854
ID-F0550ENX

SPECIFICATIONS

Metric ISO/JIS Type

Code No. w/ lug	Range (mm)	Digital Step (mm)	Maximum permissible error (MPE) ^{*1} (mm)				Maximum permissible limit (MPL) Measuring force (N)	Response speed	Power source	Net mass (g)	
			Partial measuring range P_{MPE}	Total measuring range E_{MPE}	Hysteresis H_{MPE}	Repeatability R_{MPE}					
543-855	12,7	0,0005/ 0,001/ 0,01	0,0025	0,0025	0,002	0,002	1,5 or less	Unlimited	AC adapter (5.9 V)	180	
543-855B (flat back)										170	
543-851	25,4	0,0005/ 0,001/ 0,01	0,004	0,004	0,002	0,002	1,8 or less	Unlimited	AC adapter (5.9 V)	240	
543-853	50,8									2,3 or less	330
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	Digital Step	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/ 12,7 mm	0,00002/ 0,00005/ 0,0001/ 0,0005/ 0,001 in, 0,0005/ 0,001/ 0,01 mm	±0,00010	0,00008	0,00008	1,5 or less	Unlimited	AC adapter (5.9 V)	200	
543-856B (flat back)									170	
543-852	1 in/ 25,4 mm	0,0005/ 0,001/ 0,01 mm	±0,00016	0,00008	0,00008	1,8 or less	Unlimited	AC adapter (5.9 V)	240	
543-854	2 in/ 50,8 mm								2,3 or less	330
543-858	50,8 mm								±0,00012	0,00008

*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 identify 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 ^{*1}	Equivalent to IP-40 (no protection against water ingress)	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

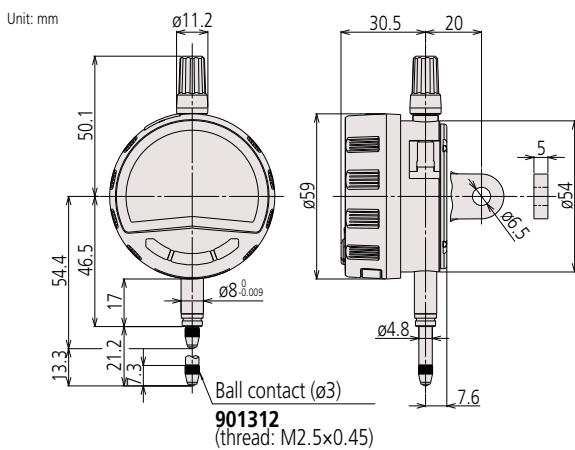
	ID-C Series	ID-F Series		ID-C Series	ID-F Series
Preset	✓	✓	Analog bar display ON/OFF	✓	✓
Zero set	✓	✓	Analog bar scale selecting	✓	✓
Peak detection (Max, Min, TIR)	✓	✓	Key customize	✓	✓
Unit system switching*1	✓	✓	Function lock	✓	✓
Counting direction switching	✓	✓	Calibration schedule warning function	✓	✓
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

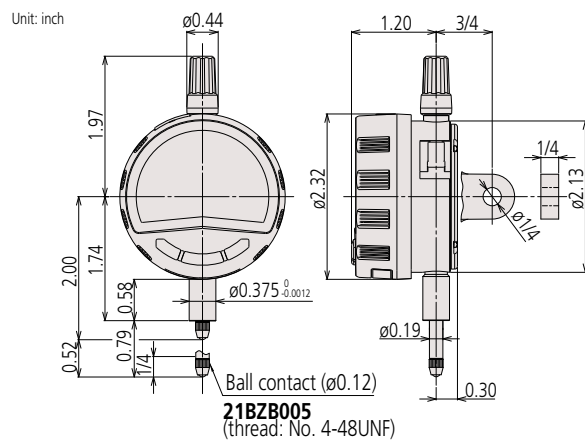
Dimensions (ID-C Series)

12,7 mm Range Models

ISO/JIS Type



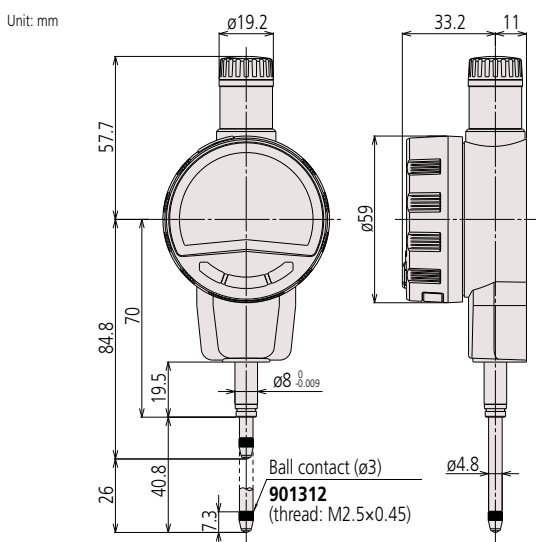
ASME/ANSI/AGD Type



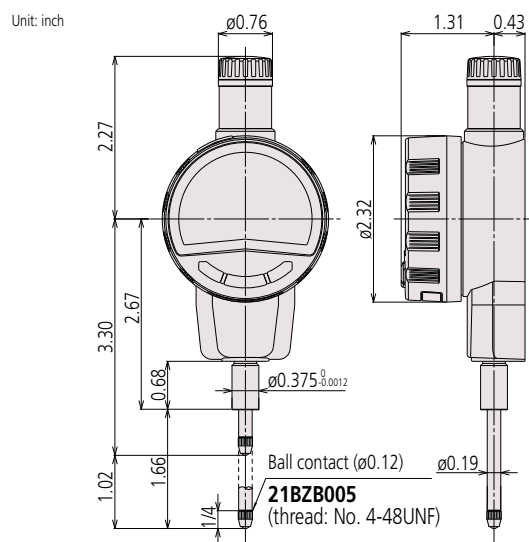
Note: Products with a code No. ending with "B" have a flat back, and other models have a center-lug back.

25,4 mm Range Models

ISO/JIS Type



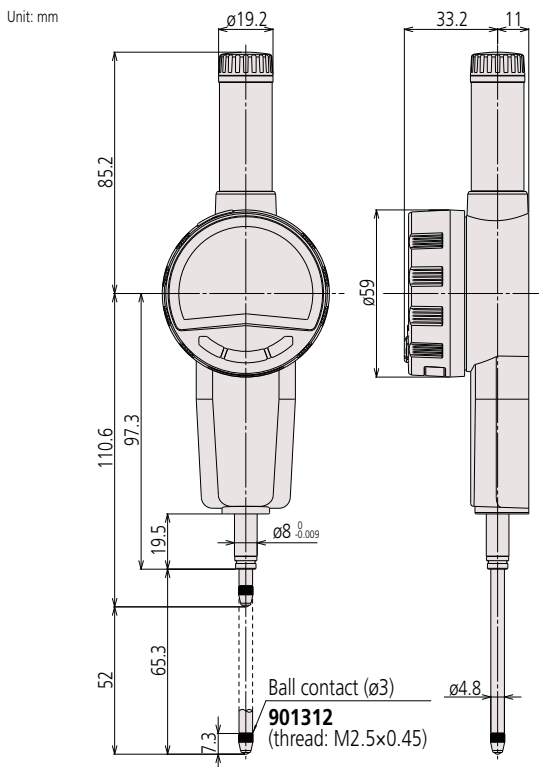
ASME/ANSI/AGD Type



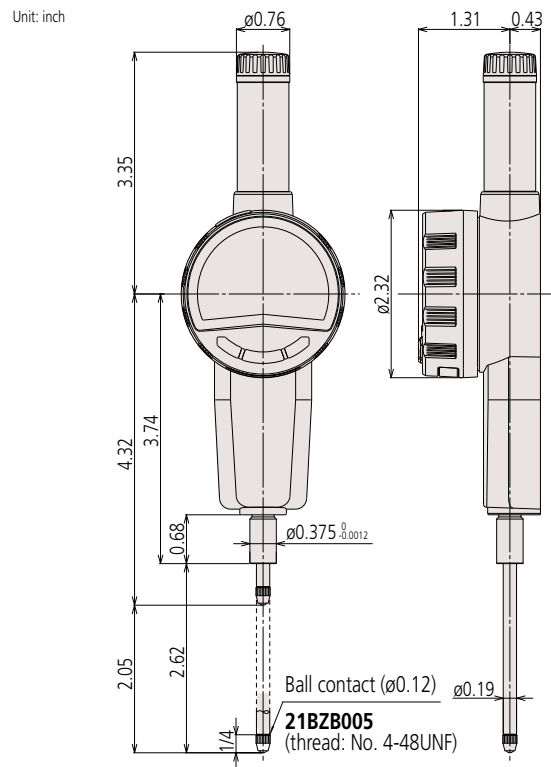
Note: All products have a flat back.

50,8 mm Range Models

ISO/JIS Type



ASME/ANSI/AGD Type

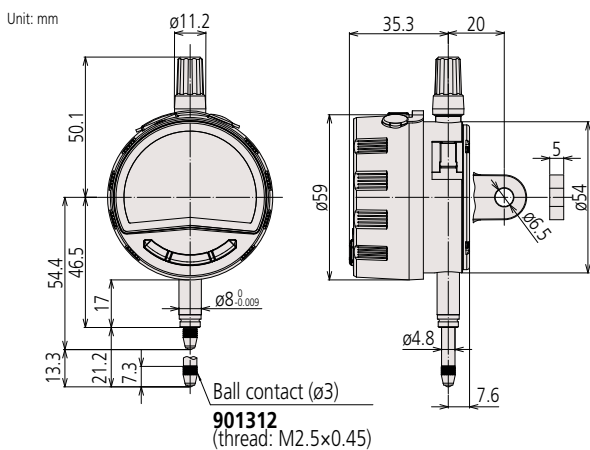


Note: All products have a flat back.

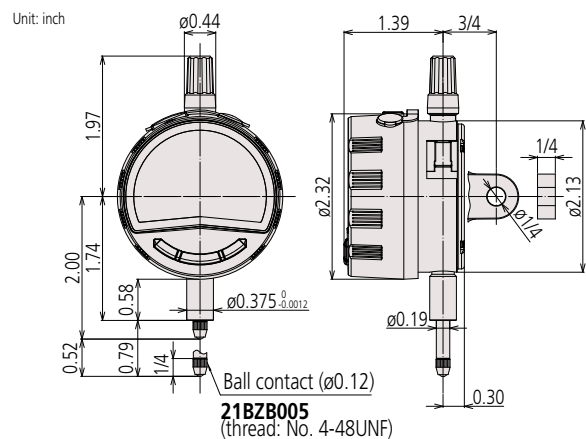
Dimensions (ID-F Series)

12,7 mm Range Models

ISO/JIS Type



ASME/ANSI/AGD Type

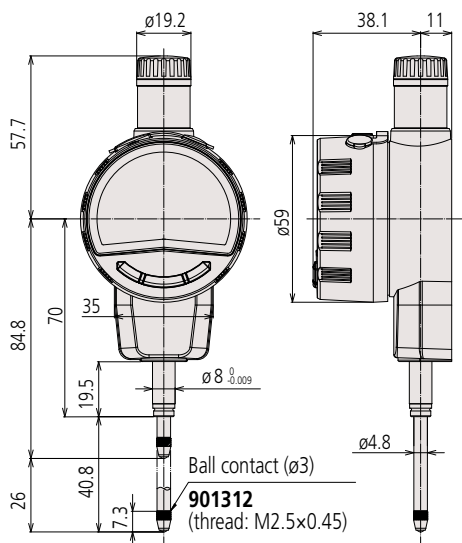


Note: Products with an order No. ending with "B" have a flat back, and other models have a center-lug back.

25,4 mm Range Models

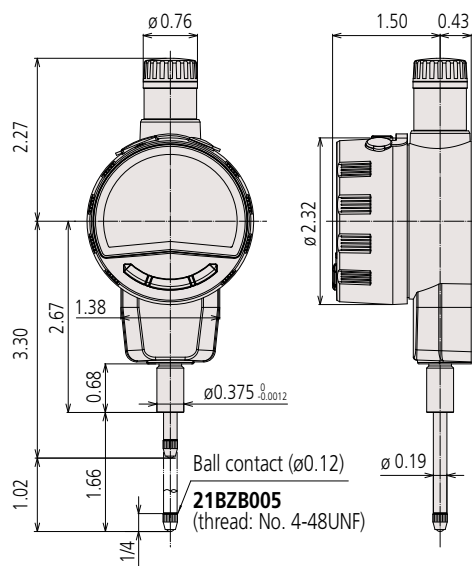
ISO/JIS Type

Unit: mm



ASME/ANSI/AGD Type

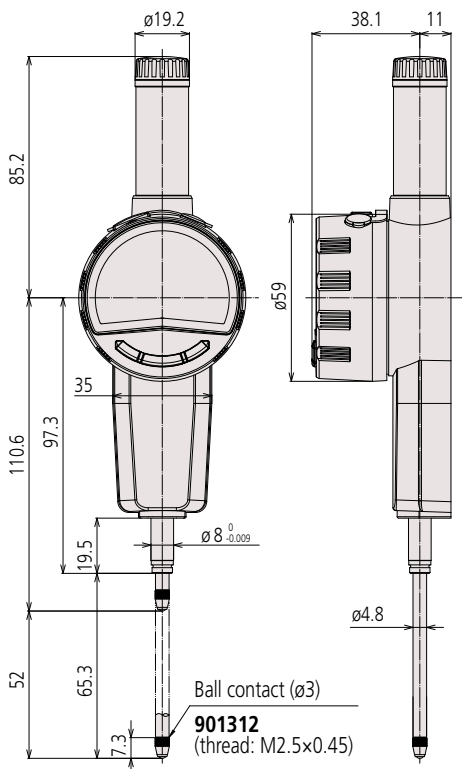
Unit: inch



50,8 mm Range Models

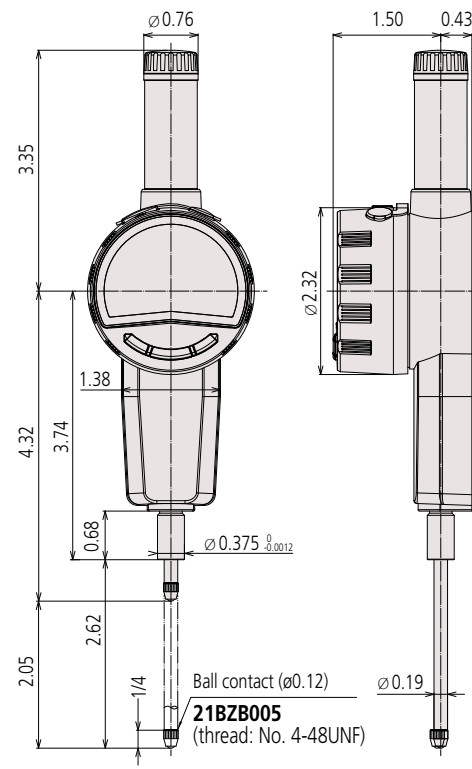
ISO/JIS Type

Unit: mm



ASME/ANSI/AGD Type

Unit: inch



Optional Accessories

Options

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

**Measurement Data Input Unit
USB Input Tool Direct (2 m)
USB-ITN-SF**



No.06AGQ001F

**Measurement Data Input Unit
USB Input Tool
IT-020U**



No.264-020

SPC Connection Cable

SPC Cable for connecting ID-C/ID-F to an external device such as IT-020U. Can be used for both ID-C/ID-F.

SPC Connection Cable (1 m)



No.06AGL011

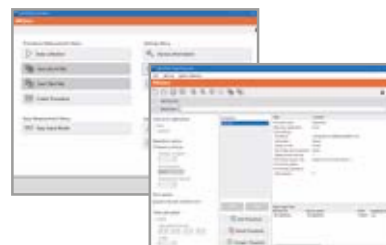
SPC Connection Cable (2 m)



No.06AGL021

Software

**Measurement Data Collection Software
USB-ITPAK V3.0**



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

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

Transmission Unit (U-WAVE-TM)



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

Transmission Unit (U-WAVE-TMB)



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

**Measurement Data Wireless Reception Unit
(U-WAVE-R)**



No.02AZD810D

Connection Unit (for 12.7 mm range models only)



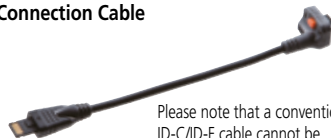
Attachment example



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.

No.02AZF700

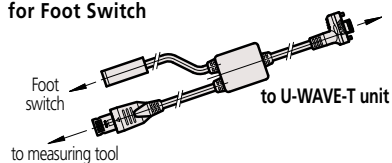
**Standard U-WAVE-T Dedicated
Connection Cable**



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

No.02AZG011

**U-WAVE-T Dedicated Connection Cable
for Foot Switch**



to measuring tool
No.02AZG021

U-WAVE Mounting Plate



No.02AZF670

Foot Switch



No.937179T

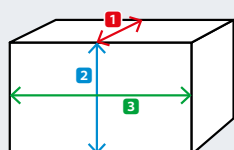
Software Reduces the time and effort needed for inspection work

Measurement Data Collection Software USB-ITPAK V3.0

USB-ITPAK is useful software for creating 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)

	A	B
1	10.11	
2	20.05	
3	29.99	
1	10.54	
2	20.45	

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

	A	B	C	D	E
1	10.11		10.11	20.05	29.99
2	20.05		10.54	20.45	29.5
3	29.99		9.78	20.3	30.4
1	10.54		9.99	20.07	30.22
2	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.



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

USB-ITPAK V2.1/V3.0 function comparison table

Operating environment and functions		Details	ITPAK		
			V2.1	V3.0	
			Trial version (free)	Full version	
Supported communication standard	Digimatic d1/d2	d1: 1st generation, unidirectional communication, 6-digit communication / d2: 2nd generation, unidirectional communication, 8-digit communication		✓	
	Digimatic S1	3rd generation, bidirectional serial communication, 8-digit communication	—	✓	
Supported operating systems	Windows 2000 SP4, Windows XP SP2 or later, Windows Vista, Windows 7, Windows 8 / 8.1		✓	—	
	Windows 10			✓	
	Windows 11		—	✓	
Functions	Sequential measurement	With this method, when using one or several measuring instruments, the measurement data are input into an Excel sheet from the measuring instrument(s) registered in advance.	✓	—	✓
	Batch measurement	With this method, measurement data are acquired in batch from several measuring instruments and input into an Excel sheet.	✓	—	✓
	Individual measurement	The Excel sheets and cells for inputting measurement data are set individually for each measuring instrument. With this method, measurements performed randomly by multiple operators can be input from each instrument into their specified sheets and cells.	✓	—	✓
	Simple measurement function	This function makes it possible to start measuring without prior detailed settings and to sort data into Excel columns according to measurement location.	—	✓	
	Measuring instrument setting	Function to change the various settings (zero setting, registration of preset values, setting of unit, counting direction, and tolerance) of connected measuring instruments.	—	✓ ¹	
	Measurement history	This function saves information on the measurement operator and the measurement equipment used within the measurement data (it records in the data who used what to measure the data).	—	✓ ¹	
	Device information	This function reads various information about connected measuring instruments (model, serial No., calibration date) and displays it on the PC.	—	✓ ¹	
	Data input into Microsoft Excel	This function is used to input values into user-specified cells in Excel.	✓	—	✓
	Text data input with virtual keyboard	This function is used to input text (characters and values) into specified cells in Excel.	✓	—	✓



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

Mitutoyo is not only a manufacturer of top quality measuring products, but also one that 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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Mitutoyo

Mitutoyo Europe GmbH

Borsigstraße 8-10
41469 Neuss
Germany

Tel. +49 (0) 2137-102-0
info@mitutoyo.eu
www.mitutoyo.eu