

# Calculation-Type Digital Indicator

Absolute digital indicator with  
automatic calculation



# Absolute Digimatic Indicator

## Quick Measurement - No Need to Convert!



A conventional Digimatic indicator simply displays a spindle displacement, but the Calculation-Type Digimatic indicator incorporates an internal calculation function in place of spindle displacement. With fixtures, measurements such as feeler, inside diameter and radius of curvature measurement can easily be obtained without the hassle of conversion tables or equivalents. The result: a dramatic improvement in measuring accuracy.

### Application Measurement Example



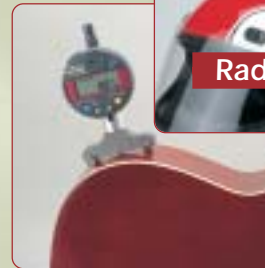
Outside diameter



Radius of curvature



Groove width



Inside diameter



Chamfer hole diameter



Hole diameter



Fixture examples

# with Calculation Function

## Calculation function

The Absolute Digimatic indicator performs internal calculations using the formula  $Ax+B+Cx^{-1}$  (assuming spindle displacement as  $x$ ) while the specified coefficients  $A$ ,  $B$  and  $C$  can be set with respect to the purpose of measurement or dimensions of the fixtures. This unique features allows you to read your measurements directly, without fumbling for conversions.

## Data output

The Absolute Digimatic indicator can even output data to a data processor. This allows the recording of measuring results and the configuration of a system that includes process control via the data processor. Additionally, arithmetic coefficients can be set from the connected personal computer rather than the indicator itself.

## Tolerance judgment

Setting the upper/lower limits produces a display of tolerance judgments, thus making it easy to fractionate for the utmost in accuracy.

## Large display LCD

A large LCD makes it easy to read the settings of arithmetic coefficients, as well as tolerance judgments and other aspects of the measuring process.

## Display hold

The Display Hold function is useful when LCD viewing is difficult during measurement. Maximum value and minimum value can be held, as well.

## Calculation examples of arithmetic coefficients

(Calculate arithmetic coefficients  $A$ ,  $B$ , and  $C$  with a scientific calculator and then set the value you've determined. For details, refer to the table below.)

Fixture						
Contact point	Cone	Ball	Cone	—	—	—
Dimension X: Spindle displacement						
Measurement item	D= Diameter/Feeler/ Groove width H= Countersink depth	D= Diameter/Feeler/ Groove width H= Countersink depth	D= Hole diameter/ Feeler/ Groove width	2R=Outside diameter	2R=Outside diameter	2R=Inside diameter
Calculation formula	$D=Ax$	$D=Ax+B$ $H=Ax+B$	$D=Ax$	$R=Ax$	$R=Ax+B+Cx^{-1}$	$R=Ax+B+Cx^{-1}$
Arithmetic Coefficient	A	$-2\tan\frac{\theta}{2}$	$-2\tan\frac{\theta}{2}$ $-1$	$-2\tan\frac{\theta}{2}$	$-\frac{\sin\frac{\theta}{2}}{1-\sin\frac{\theta}{2}}$	$\frac{1}{2}$ $-\frac{1}{2}$
	B	0	$2r\left(\frac{1}{\cos\frac{\theta}{2}}-\tan\frac{\theta}{2}\right)$ $r\left(\frac{1}{\sin\frac{\theta}{2}}-1\right)-\frac{d}{2\tan\frac{\theta}{2}}$	0	0	$-r$ $r$
	C	0	0	0	0	$\frac{L^2}{2}$ $-\frac{L^2}{2}$
Origin setting position (the position when $x=0$ )						
Indicated value when origin setting (indicated value when $x=0$ )	0	Value for coefficient B	0	0	(Overflow)	(Overflow)

- Various fixtures suited for individual workpieces can be prepared.
- Measuring accuracy is subject to fixture accuracy.

## SPECIFICATIONS

Order No.	543-285B	543-286B	543-287B
Resolution	0.0002mm to 1mm (Twelve selectable stepped resolutions.)	.00001"/0.0002mm to .05"/1mm (Twelve selectable stepped resolutions.)	
Measuring range	12mm	5"/12mm	
Accuracy	0.003mm (0.00012") or less (Quantization error is not included. Further, it varies by arithmetic coefficient setting.)		
Stem diameter	ø8mm	3/8"DIA (ø9.52mm)	
Measuring force	1.5N or less		
Power supply	Silver-oxide cell (SR-44) x 1 pc.		
Battery life	12 months under normal use		
Maximum response speed	Infinite (If spindle speed exceeds 10µm/sec, correct peak value may not be displayed.)		
Positional sensor	Electrostatic capacitance ABS (absolute)		
Mass of main unit	160g	.35 lbs.	

- All instruments in this series are of the flat-back type.

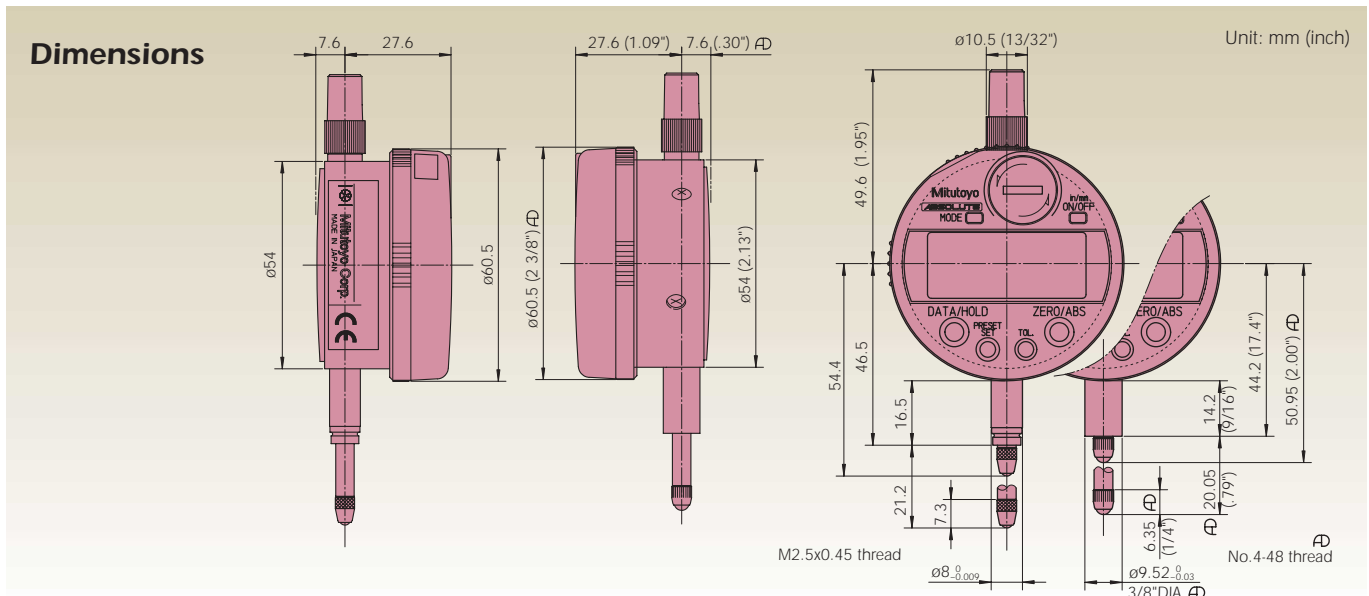
## Optional Accessories

Order No.	Name
540774	Release cable
902011	Lift-lever assembly (ISO type)
905338	Connecting cable: 1m
905409	Connecting cable: 2m



## Functions

- Calculation
- Zero set
- Presetting
- Tolerance judgment
- Hold facility
- Output
- Switching ABS/INC conversion



Specifications are subject to change without notice.

# Mitutoyo

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