

## High-performance ABS Digimatic Indicator ID-F

Small Tool Instruments  
and Data Management



GOOD DESIGN  
AWARD 2020



# High-performance ABS Digimatic Indicator

# ID-F



## New-generation ID-F that makes measurement operations smoother and enhances the quality

Large characters and an analog display bar make it easier to read the measurement results. A color switching LCD backlight allows the user to instantly understand tolerance judgment results. Three large buttons make light work of menu navigation and setting. This tool also supports bidirectional communication and features high functionality and extendability to increase work efficiency. With a maximum resolution of 0.5  $\mu\text{m}$  for higher precision and a calibration schedule warning function it will show its true value with manufacturers seeking high efficiency and quality.



Measuring range 25.4 mm

ID-F0525ENX

Order No. 543-852

Measuring range 50.8 mm

ID-F0550ENX

Order No. 543-854



### Enhances the production quality

ID-F is a precision measuring instrument that performs comparative measurement, such as thickness and surface unevenness measurement of the target object. By precisely measuring flatness, parallelism, concentricity and other values, this tool makes it possible to check any deformation caused by distortion if placed, for example, in several places on the sunroof during the automotive assembly process.

## Main functions and features

### Supports bidirectional communication to help increase work efficiency

Enables bidirectional communication between the ID-F and the computer to easily perform operations such as ID-F batch setting and measurement data collection. This reduces the time and effort required for measurement preparation and data processing.

### Answers to more precise measurement needs

The maximum resolution is  $0.5\ \mu\text{m}$  ( $0.0005\ \text{mm}$ ). With a indication error corresponding to  $0.0025\ \text{mm}$ , this indicator can be used in high-precision applications.

### Equipped with an external power supply for continuous use

Thanks to the external power supply, there is no battery to replace. With an external power supply (AC adapter) this indicator series also lends itself to long term tests or monitoring.

### A wide range of support functions make measurement operations smoother

ID-F models feature a wide range of functions, including simple calculation, peak detection, data hold, data output, and counting direction switching functions.

The main functions are described from the next page.



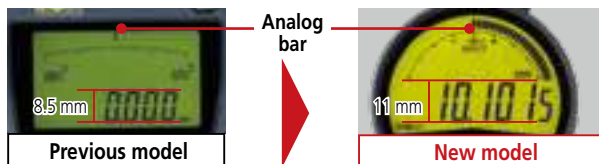
# Main functions

Enhanced work efficiency thanks to superior readability

## Large characters and analog bar

The readability has been increased with large characters of 11 mm in height\* and an analog bar.

\*Display unit in mm: Excludes last digit  
Display unit in inch: Applies to all digits



The height of the characters has been increased from 8.5 mm with the previous model to 11 mm (about 1.5 times as much). The analog bar has also been made larger to increase the readability.

Never miss a calibration

## Calibration schedule warning function

An icon is displayed on the LCD to notify the user of the set calibration schedule. This function facilitates the proper precision management of the measuring instrument.



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

Frequently used functions can be set to the buttons for easy operation

## Three large buttons

The ease of use has been greatly enhanced thanks to these three large buttons. The user can freely set any frequently used function to the buttons.

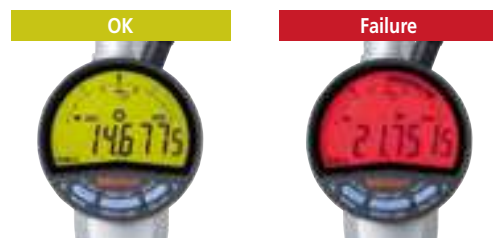


- 1 Parameter setting mode
  - Counting direction switching
  - Tolerance judgment function setting
  - Resolution switching
  - Calculation function setting
  - Function lock setting
- 2 Switching between ABS measurement system (preset) and INC measurement system (zero set)
- 3 Power ON/OFF
  - Data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

Understand tolerance judgment results at a glance

## Color backlight display

Built-in tolerance judgment function that shows the judgment result with the lighting color. Staff with no special training can now easily carry out judgment work.



Easy to read values in every situation

## 330° rotary mechanism

The face can be rotated on a wide range to maintain the ease of use and readability of the characters and the bar even when the ID-F is used horizontally or at an angle.



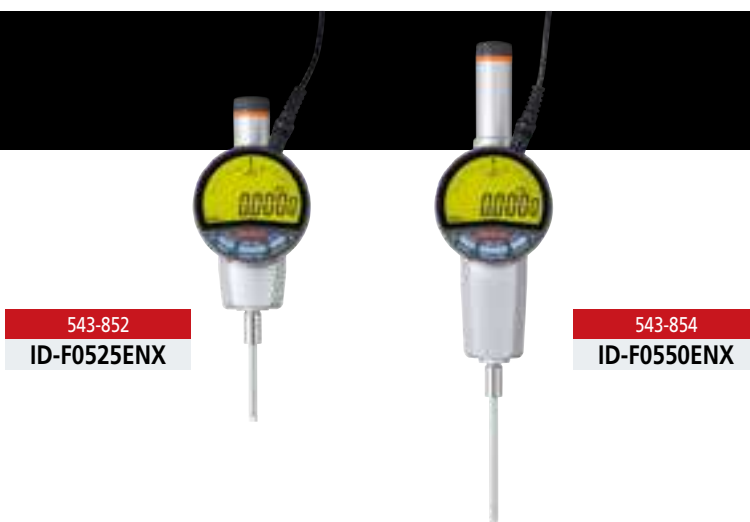
Enhanced measurement work efficiency

## Simple calculation function

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

$$f(x) = Ax$$

f(x): Displayed value  
x: Spindle movement value  
A: Any coefficient



| Order No.                       |                                   | 543-851              | 543-853    | 543-857     | 543-852                                                       | 543-854             | 543-858              |
|---------------------------------|-----------------------------------|----------------------|------------|-------------|---------------------------------------------------------------|---------------------|----------------------|
| Model                           |                                   | ID-F0525NX           | ID-F0550NX | ID-F0550HNX | ID-F0525ENX                                                   | ID-F0550ENX         | ID-F0550HENX         |
| Unit (Display unit)             |                                   | mm                   |            |             | mm/inch                                                       |                     |                      |
| Range                           |                                   | 25.4 mm              | 50.8 mm    |             | 25.4 mm/1 in                                                  | 50.8 mm/2 in        |                      |
| Resolution                      |                                   | 0.0005 mm            |            |             | 0.0005 mm/0.00002 in                                          |                     |                      |
| Resolution switching            |                                   | 0.0005/0.001/0.01 mm |            |             | 0.005/0.001/0.01 mm<br>0.00002/0.00005/0.0001/0.0005/0.001 in |                     |                      |
| Maximum permissible error (MPE) | MPE <sub>E</sub> *1               | 0.0025 mm            | 0.004 mm   | 0.003 mm    | 0.0025 mm/±0.0001 in                                          | 0.004 mm/±0.0002 in | 0.003 mm/±0.00012 in |
|                                 | Hysteresis (MPE <sub>H</sub> )    | 0.002 mm             |            |             | 0.002 mm/0.0001 in                                            |                     |                      |
|                                 | Repeatability (MPE <sub>R</sub> ) | 0.002 mm             |            |             | 0.002 mm/0.0001 in                                            |                     |                      |
| Response speed                  |                                   | Unlimited            |            |             |                                                               |                     |                      |
| Measuring force (MPL)           |                                   | ≤1.8 N               | ≤2.3 N     |             | ≤1.8 N                                                        | ≤2.3 N              |                      |
| Interface                       |                                   | DIGIMATIC d1/d2/S1   |            |             |                                                               |                     |                      |
| Power supply                    |                                   | AC adapter (5.9V)    |            |             |                                                               |                     |                      |
| Net mass                        |                                   | 240 g                | 330 g      |             | 240 g                                                         | 330 g               |                      |

\*1 Error of indication for the total measuring range (MPE<sub>E</sub>)

● Measures precisely Max., Min., and TIR (amplitude (Max - Min) values. (Peak detection speed: 500 times/s)

● This product is compatible with all Mitutoyo dial indicator contact points having the appropriate thread.

| Order No.  | 543-851 · 543-852                                                                                                    | 543-853 · 543-854 · 543-857 · 543-858                                                                                                  |
|------------|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Dimensions | <p>Display part can be rotated. 330°</p> <p>Joint screw M2.5x0.45 No. 4-48UNF</p> <p>(A) 543-852<br/>(B) 543-851</p> | <p>Display part can be rotated. 330°</p> <p>Joint screw M2.5x0.45 No. 4-48UNF</p> <p>(C) 543-854, 543-858<br/>(D) 543-853, 543-857</p> |

# Data communication functions and related options

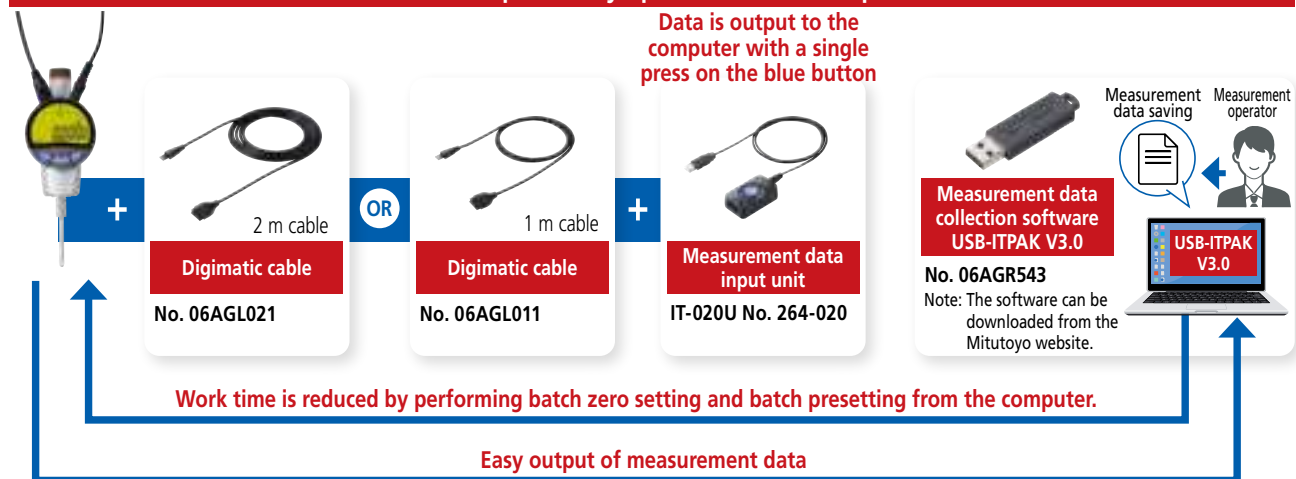
Easy connection to a computer providing increased efficiency

## Bidirectional communication support

The ID-F features an interface supporting the proprietary bidirectional serial communication standard (DIGIMATIC S1). The indicator can be connected to a computer using the optional USB Input Tool or another means to enable bidirectional communication and greatly increase work efficiency.

\*USB-ITPAK V3.0 or later must be installed on the computer used for communication.

### Connection example 1: Easy operation from the operator side



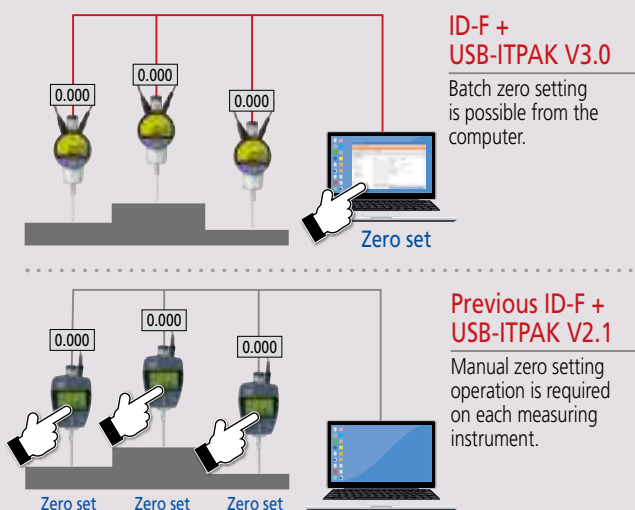
## SOFTWARE Reduces the time and effort needed for inspection work

Measurement data collection software

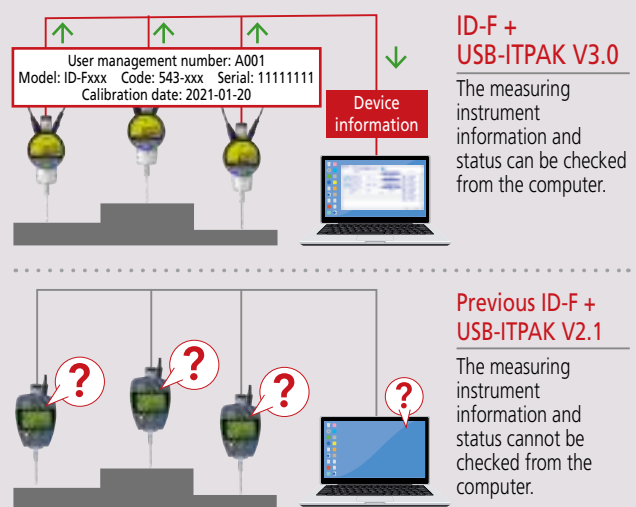
### USB-ITPAK V3.0

USB-ITPAK is useful software to create procedures when inputting measurement data into Excel sheets. The latest version allows the user to perform batch zero setting and presetting, batch setting of multiple ID-F devices, data acquisition instruction from a computer, etc.

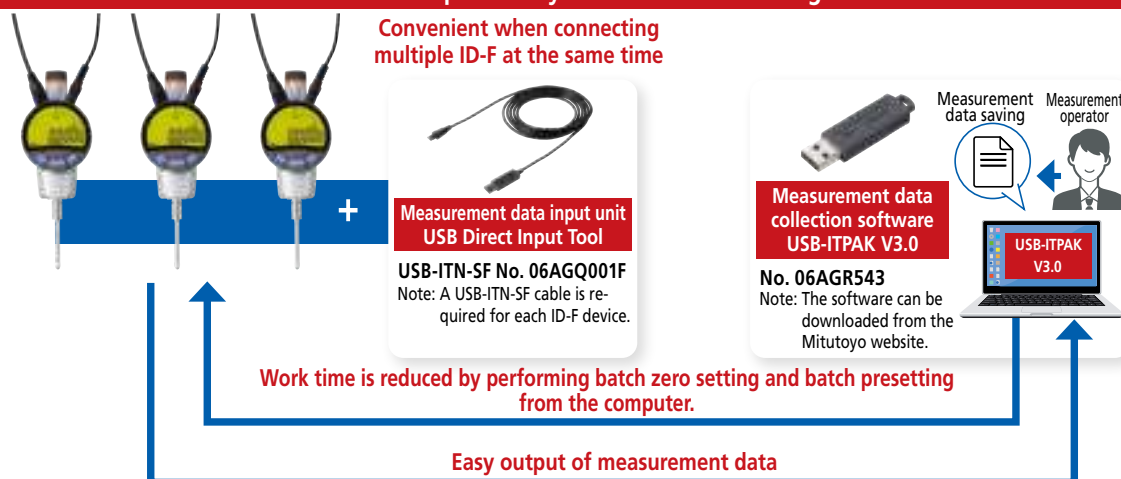
#### Function example ①: Zero setting from a computer



#### Function example ②: Indicator information collection



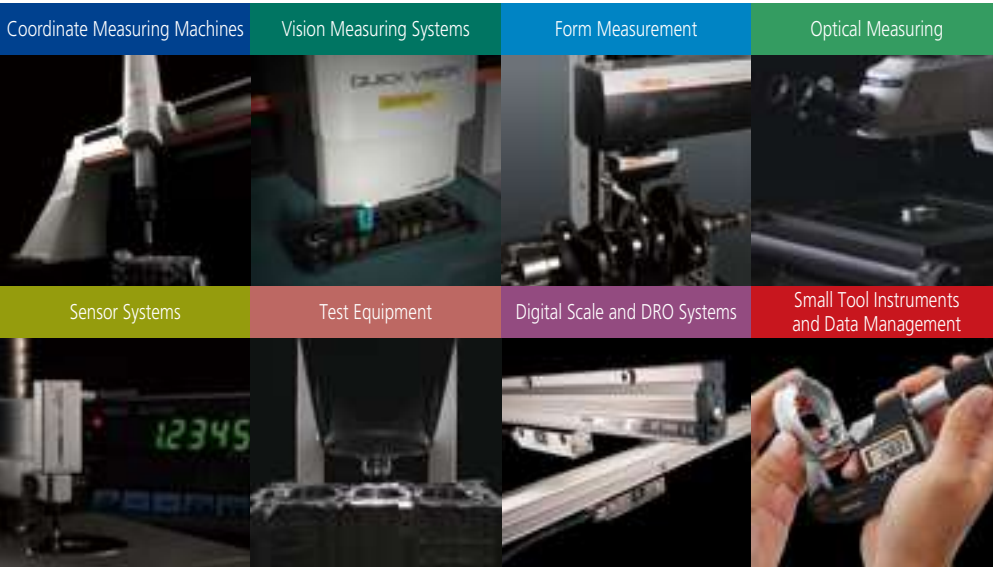
## Connection example 2: Easy connection with a single cable



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

Symbols: ●: Can be used only when connected to a model supporting USB-ITPAK V3.0 and Digimatic S1,  
○: Can be used, ×: Cannot be used

| Operating environment and functions |                                          | Details                                                                                                                                                                                                                                                            | ITPAK |      |
|-------------------------------------|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------|
|                                     |                                          |                                                                                                                                                                                                                                                                    | V2.1  | V3.0 |
| Supported communication standard    | Digimatic d1/d2                          | d1: 1st generation, unidirectional communication, 6-digit / d2: 2nd generation, unidirectional communication, 8-digit                                                                                                                                              | ○     |      |
|                                     | Digimatic S1                             | 3rd generation, bidirectional communication, 8-digit                                                                                                                                                                                                               | ×     | ○    |
| Supported OS                        |                                          | Windows 2000 SP4, Windows XP SP2 or later, Windows Vista, Windows7, Windows8 / 8.1                                                                                                                                                                                 | ○     | ×    |
|                                     |                                          | Windows10                                                                                                                                                                                                                                                          | ○     |      |
| Functions                           | Sequential measurement                   | When using one or several measuring instruments, the measurement data is input into an Excel sheet from the measuring instruments registered in advance.                                                                                                           | ○     |      |
|                                     | Batch measurement                        | The measurement data is acquired in batch from several measuring instruments and then input into an Excel sheet.                                                                                                                                                   | ○     |      |
|                                     | Individual measurement                   | Measurement data is acquired for each measuring instrument and then input into Excel sheets and cells set individually. With this method, measurements performed randomly by multiple operators can be input from each instrument into specified sheets and cells. | ○     |      |
|                                     | Simple measurement                       | Makes it possible to start measuring without prior detailed settings and to sort data in Excel columns by measurement location.                                                                                                                                    | ×     | ○    |
|                                     | Measuring instrument setting             | Used to change the settings (zero set, registration of preset values, unit, counting direction, tolerance setting) of the connected measuring instruments using the USB-ITPAK software.                                                                            | ×     | ●    |
|                                     | Measurement history                      | Used to save information on the measurement operator and measurement tool in the measurement data (information on who made the measurement using which tool).                                                                                                      | ×     | ●    |
|                                     | Device information                       | Used to display information (model, serial No., calibration date) about the connected measuring instrument on the computer.                                                                                                                                        | ×     | ●    |
|                                     | Data input into Microsoft Excel          | Used to input values to specified cells in Excel.                                                                                                                                                                                                                  | ○     |      |
| Security                            | Text data input using a virtual keyboard | Used to input text (characters and values) in specified cells in Excel.                                                                                                                                                                                            | ○     |      |
|                                     | USB dongle for V2.1                      | *For USB-ITPAK V2.1 (cannot be used with V3.0)                                                                                                                                                                                                                     | ○     | ×    |
|                                     | USB dongle for V3.0                      | *Can also be used with USB-ITPAK V2.1.                                                                                                                                                                                                                             | ○     | ○    |



**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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