

Mitutoyo



Mitutoyo Corporation
80th Anniversary
Since 1934

Measurement Data Input Unit USB Input Tool Series

Small Tool Instruments and Data
Management



Catalog No.E12007(2)

Still entering measurement results manually into a check sheet?

Read scale



Misreadings may occur

Enter values into check sheet



Wrong values may be entered

Use the keyboard to create inspection certificate



Typing mistakes may occur

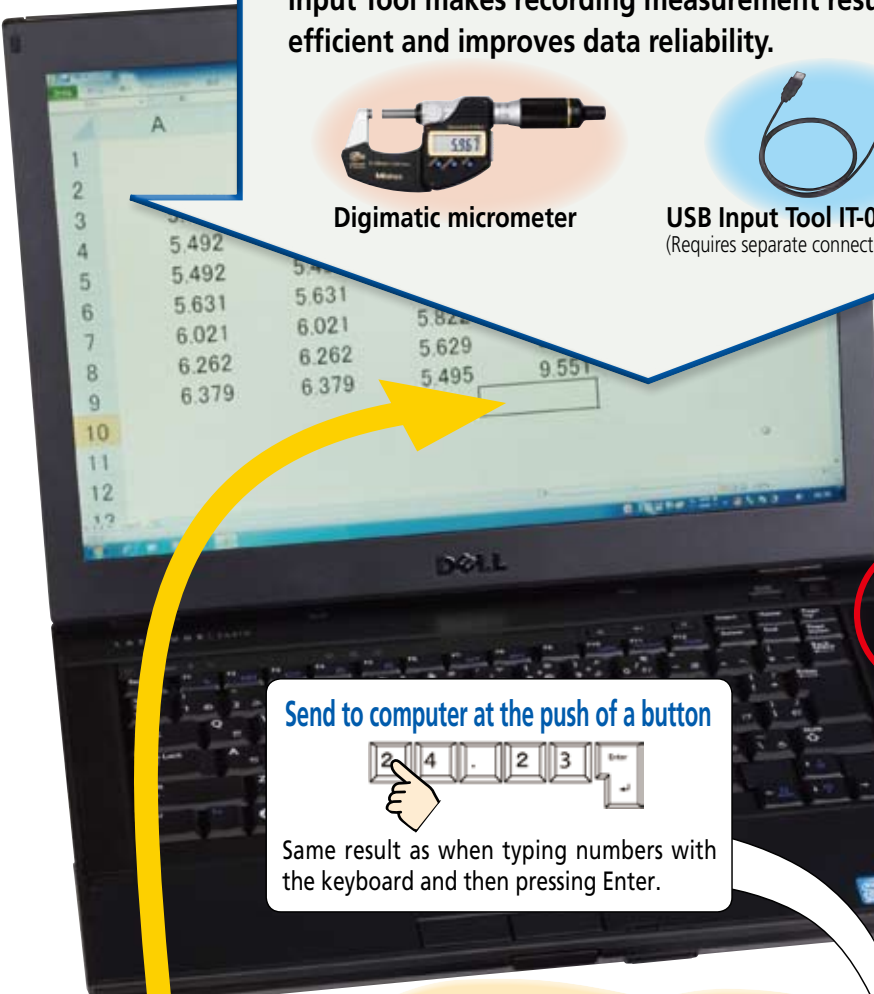
Using digital measuring tools together with the USB Input Tool makes recording measurement results more efficient and improves data reliability.



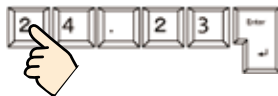
Digimatic micrometer



USB Input Tool IT-016U
(Requires separate connecting cable)



Send to computer at the push of a button



Same result as when typing numbers with the keyboard and then pressing Enter.

Connecting cable (optional)
Refer to page 4, 9, and 10 for details.

Measuring Tool with Digimatic Output

The USB Input Tool lets you send measurement data to a computer at the simple push of a button!

No need for initial setup, and cost is eminently affordable!

Simply connect to the USB port of a computer

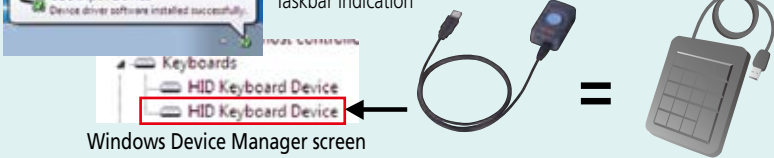


Without needing special software or initial setup, the data can be used in any general-purpose software application that accepts numeric input from a keyboard, such as Excel, Word, Notepad, etc.



Taskbar indication

The USB Input Tool will be recognized as a USB numeric keypad



Windows Device Manager screen

When connected, the USB Input Tool is recognized automatically as an HID (Human Interface Device) keyboard (using the standard Windows driver).

Input Tool Series IT-016U Page 4 and 5
 Connecting Configuration / Specifications USB-ITN Page 4 and 5
 IT-007R Page 6

Optional Software USB-ITPAK V2.0 Pages 7-9

Measuring Tool Compatibility List Pages 10-11

The USB Input Tool requires no setup and is very reasonably priced. It is ideal for moving away from manual recording and for maintaining quality records in electronic form, which are vital first steps towards higher inspection efficiency and reliability. An existing measuring tool with digimatic output can be used. Simply purchase the USB Input Tool and use it to send measurement data to a personal computer (a connecting cable is required depending on the models). Two different series are available in various configurations to fit different application scenarios.

New model



Requires separate connecting cable

See page 4,5



See page 4,5

USB Input Tool IT-016U

USB Input Tool Direct USB-ITN

Use your existing measuring tool equipped with a data output



Remove the cover to access the output connector

You may already own a measuring tool that can be used. See the photographs below to check whether it has a Digimatic output connector.

The connector type may be different, depending on the measuring tool model. See the list showing measuring tool compatibility on pages 10-11.



Digimatic Indicator



Old-model Digimatic Micrometer



Waterproof Digimatic Micrometer



Digimatic Height Gage



Hardness Testing Machine (rear view)



Production Line Surface Roughness Measuring Instrument

USB Input Tool Connecting Configurations/Sp

Merely connecting this tool to a PC allows measurement data to be input to Excel, Memo Pad, etc.
Two types of USB input tools are available depending on your purpose.

(1) USB Input Tool **IT-016U** Released in Jan. 2015

Box type equipped with a built-in data switch and an add-on foot switch terminal

This interface box is provided with a larger data input switch compared with the old type (from $\phi 4\text{mm}$ to $\phi 18\text{mm}$), improving operability.
The switch has also widely increased in durability.
(From million times to ten million times)



Easy data input is enabled by connecting the foot switch (optional). (The foot switch terminal comes standard.)

Foot switch



NOTE:

If your tool is renewed from **IT-012U**, note that some instrument models may not be connected. Please refer to Note 2 in the List of Compatible Instruments on page 11.

(2) USB Input Tool Direct **USB-ITN** (7 Models) Released in Jun. 2010

Slimline, cable-integrated type

This tool is a cable-integrated type slimmed down by eliminating the interface box. It provides simple connecting to a PC and smooth cable routing, thus improving workability.

<Caution in combining with an instrument>

USB-ITN-D/E/F/G type which has no data switch on the connector part of the input tool cannot be used depending on the instrument to be combined.* In this case, use box type IT-016U with a data switch.

* Please refer to Note 1 in the List of Compatible Instruments on page 11.



Combination of IT-016U and Dedicated Option of USB-ITN For details, refer to pages 6 to 8.

The efficiency of recording inspection results in Excel has improved.

For the clients who feel that it is not enough to merely load numeric data into Excel, Mitutoyo has increased the efficiency of inspection task including repeated operations through the combination of optional software **USB-ITPAK V2.0** that enables creation of inputting procedure to any Excel sheet.

Usage example in combination with USB-ITPAK V2.0: Efficiency improvement in inspection tasks to be daily performed in the same repeated procedure such as sampling or 100% inspection of mass-produced products

Specifications

IT-016U/USB-ITN Connection Configuration and main specifications

Digimatic gages

Connecting cable (optional)

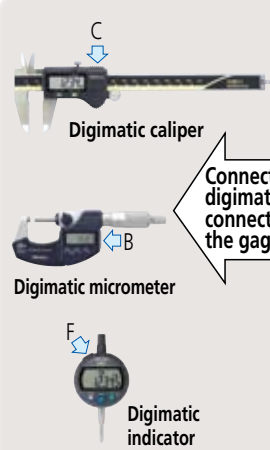
USB Input Tool
IT-016U

PC

Foot Switch (optional)

USB Input
Tool Direct USB-ITN

USB-ITPAK V2.0 (optional)



Digimatic caliper

Digimatic micrometer

Digimatic indicator

Refer to pages 10 and 11 for details of Digimatic ports and connectors.

Connecting cable (optional)

Refer to pages 10 and 11 for details.

Connector shape: A, B, C, D, E, F, G

Connector 7 types (A to G) + 4L types

Cable length: 1m or 2m

USB keyboard signal conversion model

Model: IT-016U
Order No.264-016

Connect the unit to a USB port of the PC

System Environment

- **Supporting model:** PC with USB socket (Type A)
- **Supporting OS:** Windows2000 SP4, WindowsXP SP2 or later, WindowsVista, Windows7, Windows 8/8.1
- **Software (when single HD is connected):** Programs supporting keyboard input (Excel, Word, memo pad, etc.)

External view of IT-016U

Terminal for Foot switch: ø3.5 dipole jack US type (input)

USB connector

Micro B receptacle (output)

Micro B plug (input)

Standard A plug (connect to PC)

Cable length = 1m
Mass: 56g

USB Input Tool Direct USB-ITN

Connect the unit to a serial port of the PC


Cable length: 2m, mass: 50g

Type	Order No.	Data switch
A	06ADV380A	✓
B	06ADV380B	✓
C	06ADV380C	✓
D	06ADV380D	-
E	06ADV380E	-
F	06ADV380F	-
G	06ADV380G	-

Measurement Data Collection Software

USB-ITPAK V2.0 (optional)

No.06AEN846



Foot switch (optional) resin type

No.937179T

Cable length: 2m

Foot switch (optional) mold type

No.12AAJ088

Available for both USB-FSW and IT-007R. DP-1VR is not connectable.

Gage selector 3 (optional)

No.939039

This selector can connect up to 3 measuring gages and switching is available with the slide switches without changing connecting cables. Connecting cable (length 1m) between two input tools is a standard accessory (No.936937).

Common specifications

- Output compatibility: USB2.0 or USB1.0
- Supporting driver software: Switchable between 2 models
- (1) When using standalone: HID keyboard device
- (2) When using with USB-ITPAK V2.0
- Communication speed: 12Mbps (Full Speed)
- Power supply: USB bus power
- USB2.0 certificate
- Conforms to EU EMC Directives.

Refer to pages 7 to 9 for details.

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Input Tool Connection Configuration/Specifications

Input tool series RS-232C communication conversion type **IT-007R**

Input tool for RS-232C communication best suited for communication control of the software!

Control is available by transmitting data request commands via RS-232C communication.

For example, production engineers can create communication programs to load the measurement data by transmitting a command from the PC.

This product is a compact and low-cost RS-232C communication interface, which is convenient when it is installed in a machine tool or dedicated device to feed back measurement data (for connection other than to a PC, a separate power supply is required).



IT-007R Connection Configuration and main specification

Digimatic gages

Connecting cable (optional)

Gage selector 3 (optional)

Input tool IT-007R

PC

Digimatic caliper

Digimatic micrometer

Digimatic indicator

Refer to pages 10 and 11 for details of Digimatic ports and connectors.

Connecting cable (optional)

Refer to pages 10 and 11 for details.

Connector 7 types (A to G) + 4 L types

Cable length: 1m or 2m

RS-232C communication conversion type

Model: IT-007R
Order No. 264-007

Connect the unit to a serial port of the PC

Data output is available by transmitting data request commands from the PC.

System Environment

- Supporting model:** PC or sequencer with a serial port (D-sub 9 pin)
Note) When connecting to a sequencer, a power supply is required. Due to the restriction of power supply (storage), A second or more input interval is required.
- Software:** A program compatible with the RS-232C communication (such as a hyper terminal) is required.
Note) Connecting with USB-ITPAK V2.0 is not available.

Specifications of IT-007R RS-232C Communication

- Output specification: RS-232C compliant**
- Communication method: Full duplex
- Communication speed: 2400bps (fixed)
- Bit configuration: Start bit 1
Data length 8 (Most significant bit, 0 (fixed))
Parity, None
Stop bit 1
- Flow control: None
- Home position: DCE (modern definition)
- Data format**

(1) When data output

D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13
Output order →												
0.123 → 01A+0000.123CR												
*0.1 A (fixed) CR												
Signs, "+" or "-" (Floating decimal point)												

(2) Error code output

D1	D2	D3	D4
Error code No.			
*1: No data input			
*2: Loaded data with format other than specified			

Foot switch (optional) resin type
No.937179T

Gage selector 3 (optional)
No.939039

Connector specification and power supply from the PC

Pin No.	Symbol	in/out	Description of functions
1	(N.C.)	-	No connecting
2	RXD	OUT	Data output from this product to the PC
3	TXD	IN	Data input from the PC to this product
4	DTR	IN	+12 V power supply from the PC*
5	GND	-	Ground
6	DSR	OUT	Not used
7	RTS	IN	+12V power supply from the PC*
8	CTS	OUT	Not used
9	(N.C.)	-	Not used

* "4" and "6", "7" and "8" are short-circuited with each other inside this product.
* When connecting to a sequencer, a power supply is required.
Input voltage: Supplied in the range 6 V - 16 V
Power supply terminal: Supplied to pins 4 and 7
If the power supply is difficult, please consider to purchase MUX-10F (power supply by AC adapter and connectable with 4 units of Digimatic gages).

External view of IT-007R

Terminal for foot switch
Digimatic input terminal (Flat 10 pin)

Cable length: 0.9m

D-SUB 9pin female

Mass: 91g (including a cable)

[Data import method]

- Data switch of Input Tool
- Data switch of connecting cable
- Data switch of Digimatic gages
- Command transmission from PC

Operate one of above four methods.

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Optional

Note: These options are common for **IT-016U**, **USB-ITN**, and **U-WAVE**. They cannot be used with the **IT-007R**. **U-WAVE** is measurement data wireless communication system. For the system summary, refer to the U-Wave leaflet (Catalog No. E12000).

Measurement data collection software **USB-ITPAK V2.0** (IT-007R are not supported)

Upgraded USB-ITPAK V2.0 now supports U-WAVE, a wireless communication system. Both wired connecting (USB-ITN) and wireless system (U-WAVE) are supported.

<p>New functions of USB-ITPAK V2.0</p> <ul style="list-style-type: none"> • Supports the U-WAVE wireless communication system • Timer input function 	<ul style="list-style-type: none"> • Measurement date/time display • Others: Compatible with Windows 8, 64-bit OS, and Russian included in the operating language selection
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USB-ITPAK V2.0 creates a procedure to input data from gages equipped with Digimatic output to Excel sheets via IT-016U or USB-ITN or U-WAVE. **Using together with USB-ITPAK V2.0 will further improve the operational efficiency of repetition inspection work. Best suited for keeping track of inspection data of mass-produced products.**

- Automatically calls Excel sheet.
- Cursor moves can be specified.
- Input range can be specified per Digimatic gage, which reduces improper input.
- The last data input can be canceled by a single operation (foot switch, function key etc.)
- Data input or cancellation can be performed at once in multiple-point simultaneous measurement.

Main features of USB-ITPAK V2.0

- **Setting of Microsoft Excel input:**
Designation of where to input (workbook, worksheet, cell range), cursor move (right, down), and others.
- **Selection of measuring method (3 modes available)**
(1) Sequential measurement (2) Simultaneous measurement (3) Individual measurement (refer to page 11 for details).
- **Data handling**
Commands available: "Data Output Request", "Data Cancel", "Data Skip", "Arbitrary Character Input" (available only after prior registration and with a foot switch)
Command input methods: Pressing a mouse, function key, foot switch, etc. (available only with a foot switch in the discrete measurement mode)
- **Number of connectable devices and others**
Connectable devices: (1) IT-016U, (2) USB-ITN, (3) USB-FSW, (4) U-WAVE-R (Each U-WAVE-R can accept measurement data from up to 100 registered instruments)

- Number of connectable devices (total number of (1) (2) (3) (4)):
- 100 devices or less for Windows 2000/XP
- 20 devices or less for Windows Vista/7/8/8.1
- Number of registerable instruments (total number of (1) (2) (3) (4)): 400 instruments or less
Method to control/identify connected devices: VCP (Virtual COM Port) - for device types (1) and (2), the driver software is switched from HID to VCP to apply this method.
- **Data loading time:** when using **USB-ITN**, 0.2s to 0.3s per gage unit **U-WAVE** event drive mode: 0.5s data refresh interval
- **Timer input function** (only in simultaneous measurement)
Input interval (time): 0.1s (Note 4) to 24 hours maximum
(Note 4: If a shorter time is set, a priority is given to the longer time compared with the actual communication time.)
- **Measurement date/time display function** (available in sequential and simultaneous measurements)
The display format is subject to the setting of the Excel sheet.

Order No.

Model No.	USB-ITPAK V2.0
Order No.	06AEN846

Upgrade pricing from V1.0 is not available. Please purchase V2.0.

USB-ITPAK V2.0 USB dongle



A USB dongle must be connected to the PC running the software.

<TIP> Refer to the USB-ITPAK V2.0 user's manual on the Mitutoyo website.
<http://www.mitutoyo.co.jp/eng/>

Operating environment

Compatible OS *1	Windows 2000 SP4, Windows XP SP2 or later, Windows Vista, Windows7, Windows8, Windows8.1
Supported Excel versions *2	Excel 2000, Excel 2002, Excel 2003, Excel 2007, Excel 2010, Excel 2013
Hard disk	Free space of more than 20MB
CD-ROM drive	For program installation
USB port *3	2 ports or more (for USB dongle and USB-ITN)
Monitor resolution	800x600, 256 colors or more

*1: 32-bit, 64-bit OS supported
*2: Operation with Excel for MAC OS is not guaranteed.
*3: A commercially available hub can be used. (USB certified product is recommended)

Language support

- Operation language (15 languages)
Japanese, English, German, French, Spanish, Italian, Czech, Swedish, Turkish, Polish, Hungarian, Russian, Korean, Chinese (traditional/simplified), and Simplified Chinese
- Operation manual (PDF file)
Japanese, English, German
- USB ITPAK V2.0 and the PC Operating System must use the same natural language.

USB Foot Switch Adapter **USB-FSW**

This USB adapter for connecting a PC is required when using the Foot Switch (No. 937179T) in **USB-ITN**. A dedicated VCP driver* for this adapter is included in **USB-ITPAK V2.0**.

Order No. Price

Model No.	USB-FSW
Order No.	06ADV384

Main specification

- **USB-ITPAK V2.0** supports use of the foot switch for data handling.
 - Data control: "Data request", "Data cancel", "Data skip"
 - Character string input (e.g. GO/NG, etc.)
- *USB-FSW is used for installation of the VCP driver.

External view

Unit:mm



Foot Switch Adapter USB-FSW

Overall length: 160mm



Optional

Note: These options are common for **IT-016U**, **SB-ITN** and **U-WAVE**.
They cannot be used with the **IT-007R**.

USB-ITPAK V2.0 measurement examples: 3 measurement methods by USB-ITPAK V2.0 are explained with example below.

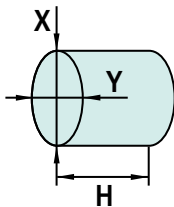
<TIP> User's manual for USB-ITPAK V2.0 is posted on our website with details of setting procedures, etc.
<http://www.mitutoyo.co.jp/eng/>

Sequential measurement

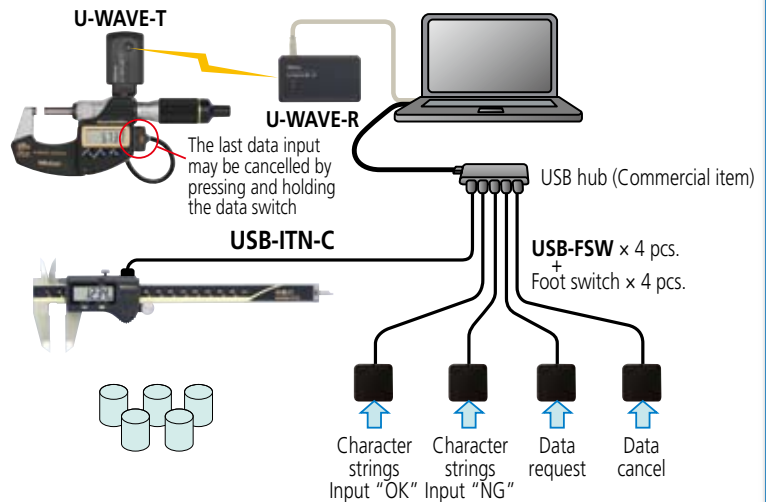
Measurement values are input one by one according to a procedure previously defined by using one or more Digimatic gages (via **IT-016U** or **USB-ITN** or **U-WAVE**).

<Measurement examples>

Outside diameter in X and Y directions and length H for the workpiece below are measured in order for 5 pieces and finally perform OK/NG judgement for external view by visual check (scratches, color unevenness, etc.).



- (1) Measure outside diameter at X and Y of 5 workpieces with a micrometer.
- (2) Measure length H of 5 workpieces.
- (3) Inspect external view to check if there are any scratches or color shading and input "OK" or "NG".



When a measuring procedure is executed, a window (as below) is displayed. "Data request*", "Data cancel*", "Data skip*", "Aborting", "Complete" can be specified.
* These operations can be allocated to the function key or foot switch (via **USB-FSW**).

	A	B	C	D	E	F
1	Setting	1	2	3	4	5
2	Dimension X	10.025	10.033	9.964	10.031	10.046
3	Dimension Y	9.982	10.017	10.008	9.996	10.027
4	Dimension H	29.97	30.02	30.07	29.96	30.04
5	External Appearance	OK	OK	NG		

- Cell movement direction after inputting data (down and right)
- Carriage return (Low, column)
- Microsoft Excel sheet previously specified
- Input range of micrometer (B2 to F3)
- Input range of caliper (B4 to F4)
- Input range of visual judgment (B5 to F5)

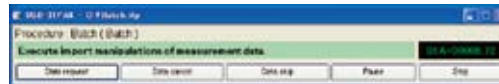
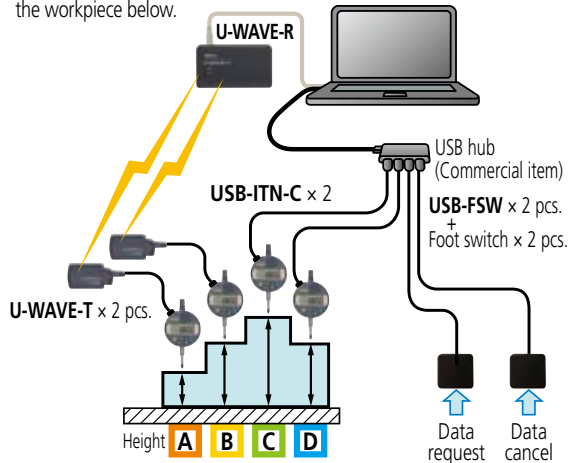
Cell that will receive next input is highlighted in green

Simultaneous measurement

Measurement values are input simultaneously from several Digimatic gages (via **IT-016U** or **USB-ITN** or **U-WAVE**)

<Measurement examples>

Simultaneous measurement of the heights A to D on the workpiece below.



	A	B	C	D	E
1		Height A	Height B	Height C	Height D
2	1	5.02	8.03	9.96	6.03
3	2	4.98	8.02	10.01	5.99
4	3	4.97	8.04	10.07	5.96
5	4				
6	5				

← First measurement (finished)
 ← Second measurement (finished)
 ← Third measurement (finished)
 ← Fourth measurement (Wait for next input)

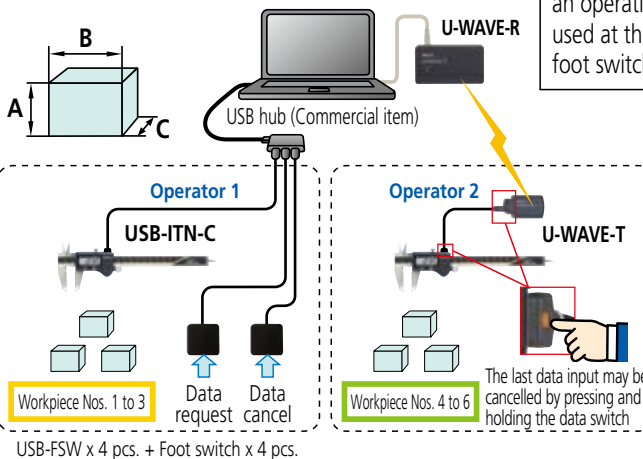
Note) To perform simultaneous measurement using **U-WAVE**, a special order **U-WAVEPAK** (Event drive) is required. Refer to the **U-WAVE** leaflet (E12000) for more details.

Individual measurement

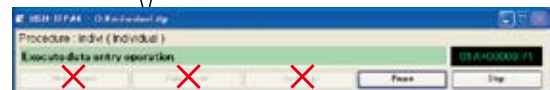
Several operators input measurement data asynchronously according to individually defined procedures (where to input, move direction, etc.) from each Digimatic gage via **IT-016U** or **USB-ITN** or **U-WAVE**.

<Measurement examples>

Two operators measure 6 workpieces (three each, both working at the same time)



Since several individual operators perform measurement simultaneously, an operation key and a function key in the window below cannot be used at the same time. The only effective input device in this case is the foot switch (via **USB-FSW**).



	A	B	C	D	E	F	G
1	Settin	1	2	3	4	5	6
2	Dimension A	10.02	10.03	9.96	10.15	10.23	10.04
3	Dimension B	9.98	10.01	10.07	9.99	9.78	
4	Dimension C	10.15	10.14		9.96	10.27	


Operator 1 Operator 2
 Cell that will receive next input Cell that will receive next input

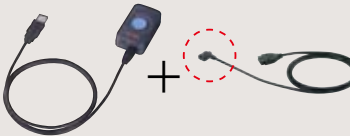
Notes on using USB-ITPAK V2.0:





Do not merge the cells in the specified range as a measurement data input. During measurement, the Microsoft Excel worksheet cannot be modified in any way apart from entering data. If you need to modify the sheet, it is necessary to abort or finish the measurement.




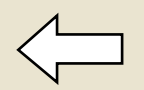
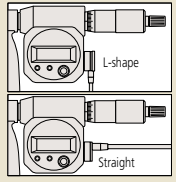
Measuring Tool Compatibility List

Compatibility of USB-ITN and connecting cables with measuring tools


USB Input Tool Direct USB-ITN Select a USB-ITN whose gage connector fits the Digimatic port on your gage 	Connector type	(A) Water-proof type with output button	(B) Water-proof type with output button	(C) Straight type with output button	(CR) L type with output switch (cable outlet is right)
	Model No. Order No.		USB-ITN-A 06ADV380A	USB-ITN-B 06ADV380B	USB-ITN-C 06ADV380C








IT-016U/IT-007R/DP-1VR/MUX-10F/EC Counter Select a cable whose gage connector fits the Digimatic port on your gage 	Connector type		(A) Water-proof type with output button	(B) Water-proof type with output button	(C) Straight type with output button	(CR) L type with output switch (cable outlet is right)	
	Order No.	1m		05CZA624	05CZA662	959149	04AZB512
		2m		05CZA625	05CZA663	959150	04AZB513




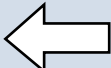
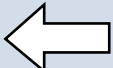
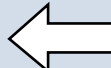

Gage connectors on data cable	Connector type	(A) Water-proof type with output button	(B) Water-proof type with output button	(C) Straight type with output button	(CR) L type with output switch (cable outlet is right)
	Picture of gage connector				
	Data switch	Available	Available	Available	Available

Digimatic ports on gage Please note that some high-precision Digimatic gages are capable of displaying the measurement result to more than 6 digits. However, according to the Digimatic output specification, the result may be output in 6 digits only. Digimatic gages whose display may exceed 6 digits • Laser Scan Micrometers • Litematic • Linear gage counter (EH) • High-Accuracy Digimatic Micrometer (293-100/293-130)	Picture of Digimatic port				
	Applicable models	<ul style="list-style-type: none"> • Digimatic caliper 500-776/500-777, etc. 500-712-10/500-713-10, etc. 500-712/500-612, etc. 550-301-10/550-331-10, etc. 551-301-10/551-331-10, etc. 552-302-10/552-303-10, etc. 552-150-10/552-151-10, etc. 552-155-10/552-156-10, etc. 552-181-10/552-182-10, etc. • Digimatic special application caliper 573-601/573-602, etc. • Digimatic depth gage 571-251-10/571-252-10, etc. • Digimatic scale unit 572-600, 572-601, etc. 	<ul style="list-style-type: none"> • Digimatic micrometer 293-100/293-130 293-140/293-141, etc. 293-230-30/293-240-30, etc. 340-251-10/340-252-10 • Dedicated micrometers for Digimatic 422-230-30/422-231-30, etc. 406-250-30/406-251-30, etc. 343-250-30/343-251-30, etc. 369-250-30/369-251-30, etc. 345-250-30/345-251-30, etc. 314-251-30/314-252-30, etc. • Digimatic micrometer head 350-251-30/350-261-30, etc. • Digimatic holtest 468-161/468-162, etc. • Digimatic depth gage 329-250-30/329-251-30, etc. 	<ul style="list-style-type: none"> • Digimatic caliper 500-150-30/500-151-30, etc. 500-500-10/500-501-10, etc. 500-443/500-453, etc. • Digimatic special application caliper 573-118-10/573-119-10, etc. 573-116-10/573-117-10, etc. 573-191-30/573-291-30 573-181-30/573-182-30, etc. • Digimatic depth gage 571-201-30/571-202-30, etc. • Digimatic micrometer head 164-163/164-164 • Digimatic scale unit 572-203-10/572-213-10 572-300-10/572-301-10, etc. 	<ul style="list-style-type: none"> • Digimatic micrometer 293-582/293-583, etc. 389-514/389-714  <p>Type C straight connectors are available, but may interfere with thimble operation.</p>

(D) Flat 10-pin type	(E) Flat 10-pin type	(F) Flat 10-pin type	(FB) Flat L-shape (cable outlet is back)	(FR) Flat L-shape (cable outlet is right)	(FL) Flat L-shape (cable outlet is left)	(G) Flat straight waterproof type
USB-ITN-D 06ADV380D	USB-ITN-E 06ADV380E	USB-ITN-F 06ADV380F	No applicable models USB-ITN-F is available			USB-ITN-G 06ADV380G
(D) Flat 10-pin type	(E) Round 6-pin type	(F) Flat straight type	(FB) Flat L-shape (cable outlet is back)	(FR) Flat L-shape (cable outlet is right)	(FL) Flat L-shape (cable outlet is left)	(G) Flat straight waterproof type
936937	937387	905338	905689	905691	905693	21EAA194
965014	965013	905409	905690	905692	905694	21EAA190

 (Note 1) When using **ID-F, EB, EC-101D, ID-C112A, ID-U, ID-SS, ID-SX** with **USB-ITN**, it is required to use together with **USB-ITPAK**.
 (Note 2) **USB-ITN** and **IT-016U** cannot be used with **EF/EH, VL-50-B/50S-B, and SJ-500/SV-2100**.

(D) Flat 10-pin type	(E) Round 6-pin type	(F) Flat straight type	(FB) Flat L-shape (cable outlet is back)	(FR) Flat L-shape (cable outlet is right)	(FL) Flat L-shape (cable outlet is left)	(G) Flat straight waterproof type
						
N/A	N/A	N/A	N/A	N/A	N/A	N/A

						
<ul style="list-style-type: none"> • Digimatic indicator ID-H • ID-F (Note1) • High-precision height gage QM-Height • Mu-checker Digital Mu-checker (using a foot switch) • Laser scan micrometer LSM-9506 • Digital height master 515-341/515-342 • Linear gage counter EF/EH (Note 2) • EB (Note 1), EC-101D (Note 1) • Litematic VL-50-B/50S-B (Note 2) • Contour measuring system SJ-210/310/410 • SJ-500/SV-2100 (Note 2) • Hardness testing machines HM-210/220 	<ul style="list-style-type: none"> • Digimatic micrometer 293-666/293-667, etc. • 227-201/227-221, etc. • 369-411/369-412, etc. • Digital height master 515-374/515-376, etc. • Hardness testing machines HM-100 • HM-200 • HV-100 • HR-300/400/500 • HH-411 	<ul style="list-style-type: none"> • Digimatic indicator ID-CX, ID-C (Peak-Value Hold Type) (Note1), ID-C (Calculation type), ID-C (Bore Gage Type), ID-U (Note2), ID-SS (Note1), ID-SX (Note1) • Digimatic height gage 192-663-10/192-613-10/570-322/570-227/574-112-1, etc. (Flat L-shape, cable outlet is right) • ABS borematic 568-361/568-362, etc. • Scale unit 572-460/572-560/572-480-10/572-580-10, etc. • Digimatic bore gage 511-501/511-502, etc. • Hardness testing machines HH-300 				<ul style="list-style-type: none"> • Digimatic indicator ID-N • ID-B

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