Measurement Data Input Unit
USB Input Tool Series
Still entering measurement results manually into a check sheet?

- Read scale
- Enter values into check sheet
- Use the keyboard to create inspection certificate

Misreadings may occur
Wrong values may be entered
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.

Measuring Tool with Digimatic Output

Connecting cable (optional)
Refer to page 4, 9, and 10 for details.
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. The USB Input Tool will be recognized as a USB numeric keypad.

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

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

USB Input Tool IT-016U

See page 4, 5

USB Input Tool Direct USB-ITN

See page 4, 5

Use your existing measuring tool equipped with a data output

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.
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 ø4mm to ø18mm), 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.)

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

**Digimatic gages**

- Connecting cable (optional)

**USB Input Tool IT-016U**

- Foot Switch (optional)

**USB Input Tool Direct USB-ITN**

**PC**

- USB-ITPAK V2.0 (optional)

---

**System Environment**
- Supporting model: PC with USB socket (Type A)
- Software (when single HD is connected): Programs supporting keyboard input (Excel, Word, memo pad, etc.)

**Common specifications**
- Output compatibility: USB2.0 or USB1.0
- Supporting driver software:
  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
- USBS2.0 certificate
- Conforms to EU EMC Directives.

**Measurement Data Collection Software**
- USB-ITPAK V2.0 (optional)

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

**Foot switch (optional)**
- Resin type: No.937179T
- Cable length: 2m
- Mass: 50g

**Gage selector 3 (optional)**
- 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).

**Refer to pages 7 to 9 for details.**
Input Tool Connection Configuration/Specifications

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

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

- **Input tool for RS-232C communication best suited for communication**
- **Control is available by transmitting data request commands via RS-232C communication.**
- **Input tool for RS-232C communication best suited for communication**

**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**
- **Parity, None**
- **Stop bit 1**
- **Flow control:** None
- **Home position:** DCE (modem definition)
- **Data format**
  - (1) When data output
  - (2) Error code output
- **Foot switch (optional) resin type**
  - No.937179
- **Gage selector 3 (optional)**
  - No.939039

**Foot switch (optional) resin type**

- **Foot switch (optional) resin type**
  - No.937179

**Gage selector 3 (optional)**

- **Gage selector 3 (optional)**
  - No.939039

**Connector specification and power supply from the PC**

- This product operates while accumulating the power supplied from the PC.
- A second or more input interval is required.
- **Data request signal**
  - Data can be output by transmitting a character from the PC.

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Symbol</th>
<th>In/out</th>
<th>Description of functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>N.C.</td>
<td>–</td>
<td>No connecting</td>
</tr>
<tr>
<td>2</td>
<td>RXD</td>
<td>OUT</td>
<td>Data output from the product</td>
</tr>
<tr>
<td>3</td>
<td>TXD</td>
<td>IN</td>
<td>Data input from the PC to this product</td>
</tr>
<tr>
<td>4</td>
<td>DTR</td>
<td>IN</td>
<td>+12V power supply from the PC*</td>
</tr>
<tr>
<td>5</td>
<td>GND</td>
<td>–</td>
<td>Ground</td>
</tr>
<tr>
<td>6</td>
<td>DSR</td>
<td>OUT</td>
<td>Not used</td>
</tr>
<tr>
<td>7</td>
<td>RTS</td>
<td>IN</td>
<td>+12V power supply from the PC*</td>
</tr>
<tr>
<td>8</td>
<td>CTS</td>
<td>OUT</td>
<td>Not used</td>
</tr>
<tr>
<td>9</td>
<td>N.C.</td>
<td>–</td>
<td>Not used</td>
</tr>
</tbody>
</table>

* “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).
**USB-ITPAK V2.0**

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.

**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)

**USB-ITPAK V2.0 USB dongle**
A USB dongle must be connected to the PC running the software.

**Operating environment**
- Hard disk: Free space of more than 20MB
- CD-ROM drive: For program installation
- USB port: 2 points or more for USB dongle and USB-ITN
- Monitor resolution: 800x600, 256 colors or more

**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.

**Order No. Price**
- Model No.: USB-FSW
- Order No.: 06ADV384
- Foot Switch Adapter USB-FSW
  - Overall length: 160mm

**USB Foot Switch Adapter**
This USB adapter for connecting a PC is required when using the Foot Switch (No. 937179T) in USB-ITN.

**Main specification**
- USB-FSW 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.

**Order No. Price**
- Model No.: USB-FSW
- Order No.: 06ADV384

**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).

**USB-FSW**
-MONO(ø3.5)2-CON.MINIATURE PLUG US Type
- Output data by causing a contact signal from the Foot Switch.

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

**New functions of USB-ITPAK V2.0**
- Supports the U-WAVE wireless communication system
- Timer input function
- Measurement date/time display
- Others: Compatible with Windows 8, 64-bit OS, and Russian included in the operating language selection

**Upgrade pricing from V1.0 is not supported.**

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

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

**Foot Switch Adapter USB-FSW**
- Overall length: 160mm

**External view**
- Foot switch (No. 937179T)

**USB-ITPAK V2.0 connector**
- USB-FSW (USB dongle)

**USB-ITPAK V2.0 connector**
- USB-FSW (USB dongle)

**USB-ITPAK V2.0 connector**
- USB-FSW (USB dongle)
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 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).

**<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/](http://www.mitutoyo.co.jp/eng/)

**Sequential measurement**

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).

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Setting</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Dimension X</td>
<td>10.025</td>
<td>10.033</td>
<td>9.964</td>
<td>10.031</td>
<td>10.046</td>
</tr>
<tr>
<td>3</td>
<td>Dimension Y</td>
<td>9.982</td>
<td>10.017</td>
<td>10.008</td>
<td>9.996</td>
<td>10.027</td>
</tr>
<tr>
<td>4</td>
<td>Dimension H</td>
<td>29.97</td>
<td>30.02</td>
<td>30.07</td>
<td>29.96</td>
<td>30.04</td>
</tr>
<tr>
<td>5</td>
<td>External Appearance</td>
<td>OK</td>
<td>OK</td>
<td>NG</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.
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.

**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

<table>
<thead>
<tr>
<th>Connector type</th>
<th>USB Input Tool Direct USB-ITN</th>
<th>(A) Water-proof type with output button</th>
<th>(B) Water-proof type with output button</th>
<th>(C) Straight type with output button</th>
<th>(CR) L type with output switch (cable outlet is right)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model No. Order No.</td>
<td>USB-ITN-A 06ADV380A</td>
<td>USB-ITN-B 06ADV380B</td>
<td>USB-ITN-C 06ADV380C</td>
<td>No applicable models USB-ITN-C is available Refer to the following figure.</td>
<td></td>
</tr>
</tbody>
</table>

Select a USB-ITN whose gage connector fits the Digimatic port on your gage

<table>
<thead>
<tr>
<th>Connector type</th>
<th>IT-016U/IT-007R/DP-1VR/MUX-10F/EC Counter</th>
<th>(A) Water-proof type with output button</th>
<th>(B) Water-proof type with output button</th>
<th>(C) Straight type with output button</th>
<th>(CR) L type with output switch (cable outlet is right)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model No. Order No.</td>
<td>1m 05CZA624</td>
<td>05CZA662</td>
<td>959149</td>
<td>04AZB512</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2m 05CZA625</td>
<td>05CZA663</td>
<td>959150</td>
<td>04AZB513</td>
<td></td>
</tr>
</tbody>
</table>

Select a cable whose gage connector fits the Digimatic port on your gage

<table>
<thead>
<tr>
<th>Connector type</th>
<th>Gage connectors on data cable</th>
<th>(A) Water-proof type with output button</th>
<th>(B) Water-proof type with output button</th>
<th>(C) Straight type with output button</th>
<th>(CR) L type with output switch (cable outlet is right)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Data switch</td>
<td>Available</td>
<td>Available</td>
<td>Available</td>
<td>Available</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Connector type</th>
<th>Digimatic ports on gage</th>
<th>(A) Water-proof type with output button</th>
<th>(B) Water-proof type with output button</th>
<th>(C) Straight type with output button</th>
<th>(CR) L type with output switch (cable outlet is right)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Applicable models</td>
<td>• Digimatic caliper 500-776/500-777, etc.</td>
<td>• Digimatic micrometer 293-100/293-130</td>
<td>• Digimatic caliper 293-100/293-130</td>
<td>• Digimatic micrometer 293-582/293-583, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 500-712/500-713, etc.</td>
<td>• 293-140/293-141, etc.</td>
<td>• 500-500-10/500-501-10, etc.</td>
<td>• 389-514/389-714</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 500-710/500-711, etc.</td>
<td>• 293-230-30/293-240-30, etc.</td>
<td>• 500-443/500-453, etc.</td>
<td>• Digimatic special application caliper 573-116-10/573-117-10, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 500-712/500-713, etc.</td>
<td>• 340-251-10/340-252-10</td>
<td>• 500-500-10/500-501-10, etc.</td>
<td>• 573-181-30/573-182-30, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 500-710/500-711, etc.</td>
<td>• 340-251-10/340-252-10</td>
<td>• 500-443/500-453, etc.</td>
<td>• Digimatic depth gage 164-163/164-164, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Laser Scan Micrometers</td>
<td>• Dedicated micrometers for Digimatic 422-220-30/422-221-30, etc.</td>
<td>• Digimatic special application caliper 573-116-10/573-117-10, etc.</td>
<td>• Digimatic depth gage 164-163/164-164, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Litematic</td>
<td>• 422-220-30/422-221-30, etc.</td>
<td>• 573-181-30/573-182-30, etc.</td>
<td>• Digimatic special application caliper 573-116-10/573-117-10, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Linear gage counter (EH)</td>
<td>• 404-250-30/404-251-30, etc.</td>
<td>• 573-181-30/573-182-30, etc.</td>
<td>• Digimatic depth gage 164-163/164-164, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• High-Accuracy Digimatic Micrometer (293-100/293-130)</td>
<td>• 404-250-30/404-251-30, etc.</td>
<td>• 573-181-30/573-182-30, etc.</td>
<td>• Digimatic special application caliper 573-116-10/573-117-10, etc.</td>
</tr>
</tbody>
</table>

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)

L-shape

Type C straight connectors are available, but may interfere with thimble operation.
<table>
<thead>
<tr>
<th>(D) Flat 10-pin type</th>
<th>(E) Round 6-pin type</th>
<th>(F) Flat straight type</th>
<th>(FB) Flat L-shape (cable outlet is back)</th>
<th>(FR) Flat L-shape (cable outlet is right)</th>
<th>(FL) Flat L-shape (cable outlet is left)</th>
<th>(G) Flat straight waterproof type</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB-ITN-D 06ADV380D</td>
<td>USB-ITN-E 06ADV380E</td>
<td>USB-ITN-F 06ADV380F</td>
<td>No applicable models</td>
<td>USB-ITN-G 06ADV380G</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flat 10-pin type</td>
<td>Flat 10-pin type</td>
<td>Flat 10-pin type</td>
<td>Flat 10-pin type</td>
<td>Flat 10-pin type</td>
<td>Flat 10-pin type</td>
<td>Flat 10-pin type</td>
</tr>
<tr>
<td>936937</td>
<td>937387</td>
<td>905338</td>
<td>905689</td>
<td>905691</td>
<td>905693</td>
<td>21EA194</td>
</tr>
<tr>
<td>965014</td>
<td>965013</td>
<td>905409</td>
<td>905690</td>
<td>905692</td>
<td>905694</td>
<td>21EA190</td>
</tr>
</tbody>
</table>

(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/505-B, and SJ-500/SV-2100.

- Digimatic indicator ID-H
- Digimatic indicator ID-F (Note 1)
- 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/505-B (Note 2)
- Contour measuring system SJ-210/310/410/10 SJ-500/SV-2100 (Note 2)
- Hardness testing machines HM-210/220
- Digimatic micrometer 283-666/283-667, 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
- Digimatic indicator ID-CX, ID-C (Peak-Value Hold Type) (Note 1), ID-C (Calculation type), ID-C (Bore Gage Type), ID-U (Note 2), ID-SS (Note 1), ID-SX (Note 1)
- Digimatic height gage 192-663-10/192-613-10/570-322/570-227/574-112-1, etc.
- Digimatic bore gage 586-361/586-362, etc.
- Hardness testing machines HH-300
- Scale unit
- Digimatic depth gage
- Digitmatic indicator ID-N
- ID-B
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 bespoke measuring solutions and even, if deemed cost-effective, take your critical measurement challenges in-house on a sub-contract basis.

Find additional product literature and our product catalogue

http://www.mitutoyo.co.jp/global.html

Note: Product illustrations are without obligation. Product descriptions, in particular any and all technical specifications, are only binding when explicitly agreed upon.

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