

No. 99MAM027A3

USB-ITPAK V2.1

User's Manual

Read this document thoroughly before operating the product. After reading, retain it close at hand for future reference. This English language version of the document contains the original instructions.



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Conventions and Wording Used in This Document

Types of Notes

The following types of **notes** are used in this manual to help the operator obtain reliable measurement data through correct instrument operation.

IMPORTANT An *important note* provides information essential to use the product. You cannot disregard this note.

An *important note* is a type of precaution, which if neglected could result in degraded performance or accuracy, or instrument malfunction/failure.

NOTE A note provides information to be especially noted or supplemented to use the product.

A *note* also supplies information to be noted for specific operations (e.g., memory limitation, instrument configuration, or details that apply to specific versions of a program).

TIP A *tip* is a type of note that helps the user to apply the operation method and procedures to his or her specific conditions.

A tip also indicates the reference destination if there is information to be referred to.

The specifications and information in this manual are subject to change without notice.

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Electromagnetic Compatibility

This product complies with the EMC Directive and the UK Electromagnetic Compatibility Regulations; however, if this receives electromagnetic interference that exceeds these requirements, it will be out of warranty and require appropriate measures.

EMC Directive/Electromagnetic Compatibility Regulations: EN IEC 61326-1

Immunity test requirement : Clause 6.2 Table 2 Emission limit : Class B

RoHs Directive/The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations: EN IEC 63000

A display value on this product may flicker or disappear temporarily due to electromagnetic interference caused by electrostatic discharge. However, this product will return to normal after removing the interference.

External power supply models may not acquire correct measurement data due to electromagnetic interference acting on the AC or DC power line.

If this is the case, check the circumference of the power line and then perform measurement again.

External power supply models will be turned off automatically if a brownout occurs. However, this product will return to normal after the recovery from the low voltage.

Conventions for Describing Software Operation

This software runs on Windows operating systems.

This manual assumes that the reader is familiar with the operation of Windows-based software. If you are not familiar with the operation of Windows, refer to a Windows operation manual such as the "Microsoft Windows First Step Guide".

This manual features screen displays and operation explanations for when the software is used on Windows 7, but the functions and operation method of the software are the same regardless of the Windows platform.

Microsoft, Windows, Windows Vista and Excel are registered trademarks and/or trademarks of Microsoft Corporation in the United States and/or other countries.

Warranty

This product has been manufactured under strict quality management, but should it develop problems within one year of the date of purchase in normal use, repair shall be performed free of charge. Please contact the agent where you purchased the product or Mitutoyo sales representative ("SERVICE NETWORK"). This warranty, however, shall not aff ect any provisions of the Mitutoyo Software End User License Agreement.

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- (c) Failure or damage owing to transport, dropping, or relocation of the instrument after purchase.
- (d) Failure or damage owing to fire, salt, gas, abnormal voltage, lightning surge, or natural disaster.
- (e) Failure or damage owing to use in combination with hardware or software other than those designated or permitted by Mitutoyo.
- (f) Failure or damage owing to use in ultra-hazardous activities.

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About the Dongle

The connector (dongle) that contains information about the usage privileges for the program that you purchased should be connected to the PC where USB-ITPAK is installed. In the event this dongle is lost or stolen, the usage privileges for the program can no longer be verified, and you will need to purchase the program again. Therefore, we request that you manage the dongle with the utmost care.

If the dongle malfunctions or is damaged, it will be replaced in accordance with the terms specified above under "Warranty".

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Also, if an option is added or modified to add a function to this product, this product may

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In that case, if you intend re-export of the product from a country other than Japan, re-sale of the product in a country other than Japan, or re-provision of the technology (including program), you are obligated to observe the regulations of your country. Please contact Mitutoyo in advance.

Notes on Export to European Countries

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Disposal of Products outside the European Countries

Please follow the official instruction in each community and country.

Disposal of Old Electrical & Electronic Equipment (Applicable in the European Countries with Separate Collection Systems)



This symbol on the product or on its packaging is based on WEEE Directive (Directive on Waste Electrical and Electronic Equipment), and this symbol indicates that this product shall not be treated as household waste. To reduce the environmental impact and minimize the volume of landfills, please cooperate in reuse and recycle. For how to dispose of the product, please contact the agent where you purchased the product or Mitutoyo sales office.

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This product meets China RoHS requirements. See the table below.

产品中有害物质的名称及含量

| | | | 有害 | 物质 | | |
|--------|------|------|------|----------|-------|--------|
| 部件名称 | 铅 | 汞 | 镉 | 六价铬 | 多溴联苯 | 多溴二苯醚 |
| | (Pb) | (Hg) | (Cd) | (Cr(VI)) | (PBB) | (PBDE) |
| 本体 | 0 | 0 | 0 | 0 | 0 | 0 |
| 电气设备部分 | × | 0 | 0 | 0 | 0 | 0 |
| 配件 | 0 | 0 | 0 | 0 | 0 | 0 |

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SERVICE NETWORK

MEMO

BASIC KNOWLEDGE

1.1 Overview

USB-ITPAK is software for inputting measurement data of measuring tools connected to the USB Input Tool Direct (hereafter referred to as USB-ITN) (separately sold), U-WAVE (separately sold), USB Input Tool (hereafter referred to IT-016U / IT-020U) (separately sold) and Statistical Calculation Printer Digimatic Mini Processor DP-1VA LOGGER(hereafter referred to DP-1VA) (separately sold) to Microsoft Excel (hereafter referred to as Excel).

Users can create their own software that captures measurement data via virtual RS-232C interface using a dedicated VCP driver supplied with USB-ITPAK.

- TIP For the specifications of the virtual RS-232C interface of USB-ITN / IT-016U / IT-020U / DP-1VA, refer to "CHAPTER 7 COMMUNICATION COMMAND SPECIFICATIONS".
 - For details about the U-WAVE, refer to the instruction manuals supplied with U-WAVE.

USB-ITPAK supports the following functions to input data to Excel.

1) Inputting measurement data directly to inspection table sheets on Excel

Input cells can be specified for respective measuring tools when multiple measuring tools are connected using USB-ITN, U-WAVE, IT-016U / IT-020U, and/or DP-1VA, such as "1st measuring tool data input to cells of column A, 2nd measuring tool data input to cells of column B".

Further, when measuring three dimensions using one measuring tool, the location of the input cells for the dimension can be specified, such as "length data input to cell A, width data to cell B, height data to cell C".

By specifying the location of the input cells according to the measurement procedure of the user, inspection certificates can easily be created with Excel, and inspection data for manufacturing processes can easily be managed.

2) Inputting multi-point measurement data using measurement jigs at a time

USB-ITPAK allows the user to issue a request from a PC for the output of

measurement data from a measuring tool connected to USB-ITN, U-WAVE, IT-016U / IT-020U and/or DP-1VA.

Optional USB Foot Switch Adapter (hereafter referred to as USB-FSW) and foot switch allows acquiring measurement data of a measuring tool in batch by simply pressing a foot switch.

- **NOTE** When using U-WAVE, the event driven mode (special order) must be set. For details, refer to the U-WAVEPAK User's Manual (for the event driven).
 - 3) Randomly inputting measurement data from multiple measuring tools to worksheets

USB-ITPAK allows you to individually set the worksheets and cells to which measurement data is to be input for each measuring tool. This allows multiple operators to randomly perform measurements and input the measurement data from each measuring tool to the respectively specified cells.

4) Request for data output to measuring tool using foot switch

With the USB-FSW and a foot switch, USB-ITPAK allows you to instruct a measuring tool to output measurement data without having to operate the PC, by using the foot switch.

Measurement data output can also be requested from the PC if there is no foot switch.

Connecting a foot switch (option) to IT-016U / IT-020U / DP-1VA enables data request using the foot switch. However it will only be input to the connection source IT-016U / IT-020U / DP-1VA.

- **NOTE** When using U-WAVE, the event driven mode (special order) must be set. For details, refer to the U-WAVEPAK User's Manual (for the event driven).
 - 5) Data cancellation using foot switch

With the USB-FSW and a foot switch, USB-ITPAK allows you to cancel measurement data without having to operate the PC, by using the foot switch, in order to restore the state before measurement.

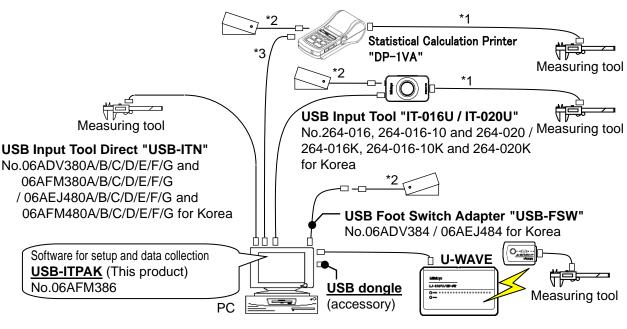
Measurement data can also be canceled via the PC if there is no foot switch.

6) Inputting character string such as "PASS" or "FAIL" using foot switch

When preparing inspection certificates, there are items such as visual inspection results that need character input. However, inputting character strings such as "PASS" and "FAIL" from the keyboard at each inspection takes time and effort. Also, it may not be possible to operate the keyboard in some work environments.

With USB-ITPAK, character strings such as "PASS" and "FAIL" can be registered in advance and input to the specified cells by simply pressing a foot switch, when the USB-FSW and a foot switch are used.

1.2 System Configuration



An example of the system configuration is shown in the figure below.

*1: Digimatic Connecting Cable

*2: Foot Switch No. 937179T / 12AAJ088

*3: Commercially-available USB cable (A - Micro B)

- Provide the measuring tool(s) and PC according to the system to be used.
- If any of multiple USB-ITN, USB-FSW, U-WAVE, IT-016U / IT-020U, or DP-1VA units (more than 1 model is allowed) are used, a corresponding number of USB ports are required. If the PC does not have the required number of USB ports, use a USB hub (commercially available).
- Select USB-ITN or U-WAVE that is suitable for the connector of the measuring tool to be used.

Supported connectors can be identified by suffixes A to G. Choose an appropriate device.

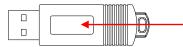
For details about the USB-ITN, refer to any of "1.4 Tools that work with USB-ITPAK", the user's manual of the USB-ITN, or each instruction manual supplied with U-WAVE.

- Provide USB-FSW and foot switch units only if required.
- IT-016U / IT-020U / DP-1VA requires a Digimatic connecting cable to be connected with the measuring tool.
- The data request sent from the foot switch connected to IT-016U / IT-020U / DP-1VA also functions in the HID mode, however it will only be input to the connection source IT-016U / IT-020U / DP-1VA.

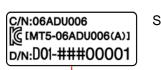
IMPORTANT • When processing data collection with USB-ITPAK, it requires the autosave function of Excel to be disabled.

(For operations regarding Excel, refer to instructions of Excel.)

 USB-ITPAK operates only when the supplied USB dongle is connected to the PC. Connect the USB dongle to the PC before using USB-ITPAK. In addition, USB-ITPAK operates only when the version of USB dongle is the same or higher than that of USB-ITPAK. When using a USB dongle not supplied, check the version.



USB dongle (Serial side)



Serial label

: Version display Example : 010 ~ 999

USB dongles that can be used with USB-ITPAK

| Version of USB-ITPAK | Version of USB dongle | | ngle |
|----------------------|-----------------------|------------|-------------|
| | V1.0 (010) | V2.0 (020) | V99.9 (999) |
| V1.0xx | 1 | 1 | ✓ |
| V2.0xx | — | ✓ | 1 |
| V99.9xx | — | — | 1 |

1.3 PC Specification Requirements

The following specifications are required of the PC on which USB-ITPAK is used.

<Hardware Specifications>

- Monitor (800 x 600 or higher resolution, 256 or more colors)
- 10 MB or more hard disk space
 (5 MB is the minimum required amount for installation.)
- CD-ROM drive
 (required to install USB-ITPAK)
- 2 or more USB ports (required to connect any of the USB dongle, or USB-ITN / USB-FSW / U-WAVE-R / IT-016U / IT-020U / DP-1VA)
- **NOTE** Other hardware specifications must meet those required by the OS on which USB-ITPAK runs.

<Software Specifications>

| • OS: | Microsoft Windows 2000 | Professional | SP4 |
|-------|-----------------------------|--------------|---------------|
| | Microsoft Windows XP | Professional | SP2 or higher |
| | Microsoft Windows XP | Home Edition | SP2 or higher |
| | Microsoft Windows Vista | Ultimate | |
| | Microsoft Windows Vista | Enterprise | |
| | Microsoft Windows Vista | Business | |
| | Microsoft Windows Vista | Home Premium | |
| | Microsoft Windows Vista | Home Basic | |
| | Microsoft Windows 7 | Ultimate | |
| | Microsoft Windows 7 | Enterprise | |
| | Microsoft Windows 7 | Professional | |
| | Microsoft Windows 7 | Home Premium | |
| | Microsoft Windows 7 | Home Basic | |
| | Microsoft Windows 7 | Starter | |
| | Microsoft Windows 8 / 8.1 | | |
| | Microsoft Windows 10 | Home | |
| | Microsoft Windows 8 / 8.1 / | 10 Pro | |
| | Microsoft Windows 8 / 8.1 / | 10 Enterpris | se |
| | (Update included in Window | vs 8.1 / 10) | |
| | | | |

- **IMPORTANT** Use the same OS language as the USB-ITPAK language. The operation on an OS with a different language is not guaranteed.
 - To input measurement data to Excel using USB-ITPAK, Excel 2002 or higher is required.

1.4 Tools that work with USB-ITPAK

USB-ITPAK supports the following.

1) USB Input Tool Direct

| Model | Code No. | Connector type on r | neasuring tool side |
|------------|--|--|---|
| USB-ITN-A | 06ADV380A and 06AFM380A /06AEJ480A and 06AFM480A for Korea | | Equipped with the DATA switch Waterproof type |
| USB-ITN-B | 06ADV380B and 06AFM380B / 06AEJ480B and 06AFM480B for Korea | | Equipped with the DATA switch Waterproof type |
| USB-ITN-C | 06ADV380C and 06AFM380C / 06AEJ480C and 06AFM480C for Korea | | Equipped with the DATA switch |
| USB-ITN-D | 06ADV380D and 06AFM380D / 06AEJ480D and 06AFM480D for Korea | Nulling of the second s | Flat (10-pin) |
| USB-ITN-E | 06ADV380E and 06AFM380E / 06AEJ480E and 06AFM480E for Korea | | Round (6-pin) |
| USB-ITN-F | 06ADV380F and 06AFM380F / 06AEJ480F and 06AFM480F for Korea | | Flat straight |
| USB-ITN-G | 06ADV380G and 06AFM380G / 06AEJ480G and 06AFM480G for Korea | | Flat straight Waterproof type |
| USB-ITN-SF | 06AGQ001F | | Straight Standard type |

IMPORTANT • Select the USB-ITN model according to the shape of the connector of the measuring tool to be connected.

 Mitutoyo products other than the above (such as IT-005D, IT-006N, IT-007R, IT-008Z, IT-012U, IT-013UD, IT-014UT, and MUX-10F) employ different communication methods and thus cannot be used for USB-ITPAK.

2) USB Foot Switch Adapter

| Model | Code No. | Compatible foot switch |
|---------|----------------------------------|------------------------|
| USB-FSW | 06ADV384 / 06AEJ484 for Korea | 937179T / 12AAJ088 |

3) U-WAVE

For details, refer to the instruction manuals supplied with U-WAVE.

4) USB Input Tool

| Model | Code No. |
|-------------------|---|
| IT-016U / IT-020U | 264-016, 264-016-10 and 264-020 264-016K, 264-016-10K and 264-020K for Korea |

A Digimatic connecting cable (option) is required to connect with the measuring tool.

Select the digimatic connecting cable suitable for the connected measuring tool.

| The connector sty | le of measuring tool | Part Nos. | Main Applicable measuring tool |
|-------------------|---|------------------------------|---|
| | Equipped with the output switch Waterproof type | 1m: 05CZA624 2m: 05CZA625 | ABS coolant proof caliper IP65/66/67 |
| | Equipped with the output switch Waterproof type | 1m: 05CZA662 2m: 05CZA663 | Coolant proof micrometer Quantumike IP65 |
| | Equipped with the output switch Straight | 1m: 959149 2m: 959150 | ABS digimatic caliper |
| | Flat (10-pin) | 1m: 936937 2m: 965014 | ABS digimatic indicator ID-H/F QM-Height |
| | Round (6-pin) | 1m: 937387 2m: 965013 | Quick micro Digimatic Holtest (Models before 2007) ABS Borematic (Models before 2011) |
| | Flat straight | 1m: 905338 2m: 905409 | ABS digimatic indicator ID-C/S/U |
| | Flat straight Waterproof type | 1m: 21EAA194 2m: 21EAA190 | ABS digimatic indicator ID-N/B |
| | Straight Standard type | 1m: 06AGL011 2m: 06AGL021 | ABS digimatic indicator ID-CNX/FNX |

<Digimatic connecting cables for each connected device>

5) DP-1VA

For details, refer to the instruction manuals supplied with DP-1VA.

1.5 Technical Terms

1.5.1 Device No.

The device No. displayed on each the USB connector ("A" plug) of the USB-ITN unit, USB-FSW unit, USB dongle, U-WAVE, IT-016U / IT-020U, and DP-1VA unit is individual identification information. These devices Nos. are fixed and cannot be changed.

USB-ITPAK displays the device No. of the USB-ITN, USB-FSW, U-WAVE, IT-016U / IT-020U, and DP-1VA units as the default.

The device Nos. displayed by USB-ITPAK can be changed.

- **NOTE** The "Device ID" of U-WAVE and "Serial No." of DP-1VA means the "Device No." of USB-ITPAK.
 - **TIP** For how to change device Nos., refer to "CHAPTER 4 MEASUREMENT DATA COLLECTION (BASICS)".

1.5.2 Dedicated VCP driver

USB-ITN / IT-016U / IT-020U / DP-1VA operates in either the Human Interface Device (HID) or Virtual COM Port (VCP) mode.

USB-ITPAK uses USB-ITN / IT-016U / IT-020U / DP-1VA in the VCP mode to achieve various functions.

The dedicated VCP driver is required to use USB-ITN / IT-016U / IT-020U / DP-1VA in the VCP mode, and is included on the CD supplied with USB-ITPAK.

TIP • For how to install the dedicated VCP driver, refer to "2.2 Installing and Uninstalling the VCP driver".

1.5.3 Procedure

The procedure consists of information that specifies the data collection method in USB-ITPAK. This information includes the Excel file that is the output destination, the USB-ITN / U-WAVE / IT-016U / IT-020U / DP-1VA unit to be used, the input method ("sequential", "batch", etc.), the cell movement direction following input ("down", "right", etc.).

The procedure is saved as a "setting file" by USB-ITPAK.

Inspections can be performed efficiently by preparing in-process inspection and acceptance inspection procedures in advance.

1.5.4 Setting files

These are the files for saving the "procedures" used in USB-ITPAK (file extension: itp ,it2).

1.5.5 Sequential measurement

Sequential measurement is a measurement method that can be selected in the "procedure" used by USB-ITPAK.

During sequential measurement, one or more measuring tools are used and the measurement data is input from the measuring tool(s) registered beforehand in the procedure to an Excel inspection table sheet.

Example: Measurements in a pre-set sequence using one measuring tool, such as measuring the length and then the width

Example: Measurements using multiple measuring tools, such as measuring the length with a caliper and then the diameter using a micrometer

1.5.6 Batch measurement

Batch measurement is a measurement method that can be selected in the "procedure" used by USB-ITPAK.

During batch measurement, measurement data is acquired in batch from multiple measuring tools.

Example: Batch collection of measurement data from all measuring tools registered in the procedure by attaching multiple measuring tools to measurement jigs, setting workpieces to these tools, and operating a foot switch

1.5.7 Individual measurement

Individual measurement is a measurement method that can be selected in the "procedure" used in USB-ITPAK.

For individual measurement, the worksheet and cells to which the measurement data is input are set for each measuring tool. This method allows multiple operators to randomly perform measurement, and the measurement data from each measuring tool is input to the respectively specified cells.

Example: Data collection from three measuring tools operated by respective operators

1.5.8 Data entry application

When selecting [Excel], data input is available only in Excel (2002 or higher). Data input is not available using spreadsheet software other than Excel (such as OpenOffice Calc). When selecting [Optional], data input is available in an active application (that means keyboard input is available) at the time of data collection.

Data input is also available using spreadsheet software equivalent to Excel (such as OpenOffice Calc).

INSTALLATION AND UNINSTALLATION

2.1 Installing and Uninstalling USB-ITPAK

2.1.1 Installing USB-ITPAK

NOTE • To install USB-ITPAK, log in to Windows with "Administrator" authority.

- Do not connect USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA to the PC before USB-ITPAK has been installed.
- To use USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA with USB-ITPAK, a dedicated VCP driver must be installed for each USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA unit.

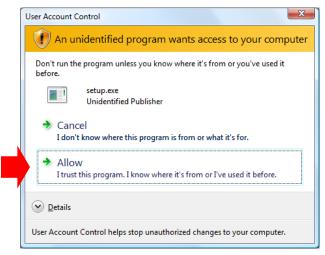
For how to install the dedicated VCP driver, refer to "2.2 Installing and Uninstalling the VCP driver".

- **IMPORTANT** When using USB-ITPAK on Windows 8/8.1/10, ".NET Framework 3.5" is required.
 - If ".NET Framework 3.5" has not been installed on Windows 8/8.1/10, connect the PC to the Internet before installing USB-ITPAK. While installing USB-ITPAK, ".NET Framework 3.5", which is required for operation, will be downloaded from the Internet.
 - After USB-ITPAK has been installed on Windows 8/8.1/10, connection of the PC to the Internet is not required. The Internet connection is neither required when ".NET Framework 3.5" has already been installed on Windows 8/8.1/10.
 - When using U-WAVE, U-WAVEPAK supplied with U-WAVE-R is required. For details about the U-WAVE, refer to the instruction manuals supplied with U-WAVE.
 - To use U-WAVE with USB-ITPAK, perform the following in advance.
 - 1) Install the exclusive VCP driver for each U-WAVE-R from the supplied CD with U-WAVEPAK.
 - 2) Register the U-WAVE transmitter to U-WAVE-R using U-WAVEPAK.
 - 1) Start the PC and insert the supplied CD in the CD drive.

2) From Windows Explorer, execute "Setup.exe" in the "Setup" folder of the supplied CD.

If the [User Account Control] warning is displayed in Windows Vista / Windows 7/ Windows 8/8.1/ Windows 10, perform as follows.

Windows Vista: Select [Allow].



Windows 7/ Windows 8/8.1/ Windows 10: Click the [Yes] button.

| | | to allow the following program from an blisher to make changes to this computer? |
|-----|---|---|
| | Program name: Publisher: File origin: | Setup.exe Unknown Removable media on this computer |
| 🖌 s | how <u>d</u> etails | Yes |

 When the [Welcome to the USB-ITPAK Setup Wizard] dialog box is displayed, click the [Next] button.



4) Read the [License Agreement] and if you accept this agreement, select [I accept the agreement] and then click the [Next] button.

| 📴 Setup - USB-ITPAK | - • • |
|---|----------|
| License Agreement Please read the following important information before continuing. | |
| Please read the following License Agreement. You must accept the terms or agreement before continuing with the installation. | of this |
| No. E4313-004_2015-04 | <u>^</u> |
| Mitutoyo Software End User License Agreem IMPORTANT - PLEASE READ THIS MITUTOYO SOFTWARE END USEF LICENSE AGREEMENT ("EULA") CAREFULLY BEFORE USING THE MITUTOYO SOFTWARE PRODUCTS. THIS EULA SHALL CONSTITUTE LEGAL AGREEMENT BETWEEN YOU/CUSTOMER AND MITUTOYO CORPORATION ("MITUTOYO") FOR THE MITUTOYO SOFTWARE PR © Laccept the agreement © I go not accept the agreement | A |
| < <u>B</u> ack Next > | Cancel |

5) When the [Select Destination Location] dialog box is displayed, click the [Next] button.

| 😼 Setup - USB-ITPAK | - • • |
|--|------------|
| Select Destination Location Where should USB-ITPAK be installed? | |
| Setup will install USB-ITPAK into the following folder. | |
| To continue, click Next. If you would like to select a different folder, cli | ck Browse. |
| C: \Mitutoyo \USB-ITPAK | Browse |
| As loost 4.0 MB of fee disk provide is not include | |
| At least 4.9 MB of free disk space is required. | |
| <back next=""></back> | Cancel |

6) When the [Select Additional Tasks] dialog box is displayed, click the [Next] button. To create an icon on the desktop, follow steps a) and b), in this sequence.

| 🔂 Setup - USB | -ITPAK | - • • |
|--------------------------|--|------------|
| | itional Tasks Iditional tasks should be performed? | |
| Select the then click | e additional tasks you would like Setup to perform while installing Next. | USB-ITPAK, |
| Additiona | al icons: | |
| 🔽 Crea | ate a <u>d</u> esktop icon | |
| | | |
| | < <u>B</u> ack Next > | Cancel |
| | b) Click the [Next |] button. |

- a) Select [Create a desktop icon].
- 7) When the [Ready to Install] dialog box is displayed, click the [Install] button.

| 😼 Setup - USB-ITPAK | • • |
|---|--------|
| Ready to Install Setup is now ready to begin installing USB-ITPAK on your computer. | |
| Click Install to continue with the installation, or click Back if you want to review or change any settings. | |
| Destination location: C: Witutoyo\USB-ITPAK Additional tasks: Additional icons: Create a desktop icon | * |
| | |
| < <u>B</u> ack Install (| Cancel |

NOTE • When USB-ITPAK has been installed, a "Sample Inspection Table File" is installed in the "Sample" folder in the install destination folder.

If a "Sample Inspection Table File" already exists in the "Sample" folder, back up this file to a different folder if it will be needed later before installing USB-ITPAK.

- 8) If Windows Installer 3.1 is not yet installed, the [Windows Installer 3.1 (KB893803)] dialog box is displayed. Click the [Next] button.
- **NOTE** If Windows Installer 3.1 is already installed, step 8) is skipped.
 - This section explains using the screenshots of Windows XP.



Read the [License Agreement] and if you accept this agreement, select [I Agree] and then click the [Next] button.

| Software Upda | te Installation Wizard | |
|---------------|---|--------|
| License Agre | sement | |
| 1 B | Please read the following license agreement. To continue with setup, you must accept the agreement. SUPPLEMENTAL END USER LICENSE AGREEMENT FOR MICROSOFT SOFTWARE ("Supplemental EULA") IMPORTANT: READ CAREFULLY - The Microsoft operating system components accompanying this Supplemental EULA, including any "online" or electronic documentation ("OS Components") are subject to the terms and conditions of the agreement under which you have licensed the applicable Microsoft operating system product described below (each an Components) Impo Not Agree Impo Mat Agree | |
| | < <u>B</u> ack <u>N</u> ext > | Cancel |

When the [Completing the Windows Installer 3.1 (KB893803) Installation Wizard] dialog box is displayed, select [Do not restart now] and click the [Finish] button.

| Software Update Installat | Software Update Installation Wizard | | |
|---------------------------|---|--|--|
| Ð | Completing the Windows Installer 3.1 (KB893803) Installation Wizard | | |
| | You have successfully completed the KB893803v2 Setup Wizard. | | |
| | To apply the changes, the wizard has to restart Windows. To restart Windows automatically, click Finish. If you want to restart later, select the Do not restart now check box, and then click Finish. | | |
| | < <u>B</u> ack Finish Cancel | | |

- 9) If Microsoft .NET Framework 2.0 is not yet installed, the [Welcome to Microsoft .NET Framework 2.0 Setup] dialog box is displayed. Click the [Next] button.
- **NOTE** If Microsoft .NET Framework 2.0 is already installed, step 9) is skipped.
 - This section explains using the screenshots of Windows XP.

| 🔀 Microsoft .NET Framework 2.0 Setup | | |
|--|--------|--------|
| Welcome to Microsoft .NET Framework 2.0 Setup | | |
| This wizard will guide you through the installation process. | | |
| | Next > | ⊆ancel |

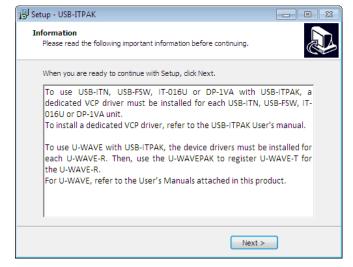
Read the [License Agreement] and if you accept this agreement, select [I accept the terms of the License Agreement] and click the [Install] button.

| End-User | icense Agreeme | nt | | | ~ |
|---|--|---|----------------|----------------------------------|-----------------------|
| MICROSOF | SOFTWARE SUPPL | EMENTAL LICE | NSE TERMS | | |
| supplement software (t not have a | orporation (or based to you. If you are re "software"), you icense for the soft red copy of the soft | licensed to use may use this si Jare. You may | Microsoft Wind | ows operating 1 may not use i | system t if you do |
| | | | | | <u>P</u> rint |
| By clicking " | accept the terms o | | | proceeding to to the terms of | |

When the [Setup Complete] dialog box is displayed, click the [Finish] button.

| 🕼 Microsoft .NET Framework 2.0 Setup | |
|---|--------|
| Setup Complete | |
| Microsoft .NET Framework 2.0 has been successfully installed. | |
| It is highly recommended that you download and install the latest service packs and security updates for this product. | |
| For more information, visit the following Web site: | |
| Product Support Center | |
| | |
| | |
| | |
| | |
| | |
| | Einish |

 Subsequently, the instruction for installing the dedicated VCP driver will be displayed. Click the [Next] button and continue installation of the dedicated VCP driver.



NOTE • To use USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA with USB-ITPAK, it is required to install the dedicated VCP driver to each unit. For how to install the dedicated VCP driver, refer to "2.2 Installing and Uninstalling the VCP driver".

• To use U-WAVE with USB-ITPAK, device installation is required by each unit of U-WAVE-R. After installing the driver, register the U-WAVE transmitter with U-WAVE-R using U-WAVEPAK. For details of U-WAVE, refer to each manual supplied with U-WAVE.

11) When the following dialog box is displayed, click the [Finish] button to complete the installation procedure.

| 15 Setup - USB-ITPAK | |
|----------------------|--|
| | Completing the USB-ITPAK Setup Wizard |
| | Setup has finished installing USB-ITPAK on your computer. The application may be launched by selecting the installed icons. |
| | Click Finish to exit Setup. |
| | |
| | |
| | |
| | |
| | Einish |

2.1.2 Uninstalling USB-ITPAK

NOTE • To uninstall USB-ITPAK, log in to Windows with "Administrator" authority.

• For details about the U-WAVE, refer to the instruction manuals supplied with U-WAVE.

- 1) Click the Start button of Windows and select [All Programs] [USB-ITPAK], and then [Uninstall USB-ITPAK].
- **NOTE** If the OS is Windows 8/8.1/10, press the [X] key while holding down the Windows logo key. Select [Programs and Features] from the displayed menu and open [Programs and Features]. Select USB-ITPAK from the list and click [Uninstall].

If the [User Account Control] warning is displayed in Windows Vista / Windows 7, perform as follows.

Windows Vista: Select [Allow].

| User Account Control |
|---|
| An unidentified program wants access to your computer |
| Don't run the program unless you know where it's from or you've used it before. |
| unins000.exe Unidentified Publisher |
| Cancel I don't know where this program is from or what it's for. |
| ✦ Allow I trust this program. I know where it's from or I've used it before. |
| © Details |
| User Account Control helps stop unauthorized changes to your computer. |

Windows 7: Click the [Yes] button.

| | Do you want to allow the following program from an unknown publisher to make changes to this computer? | |
|------|---|--|
| | Program name: Publisher: File origin: | unins000.exe Unknown Removable media on this computer |
| e) s | how <u>d</u> etails | Yes <u>N</u> o |

- 2) When [Are you sure you want to completely remove USB-ITPAK and all of its components?] is displayed, click the [Yes] button.
- 3) When [USB-ITPAK was successfully removed from your computer.] is displayed, uninstallation is successful. Click the [OK] button.

2.2 Installing and Uninstalling the VCP Driver

2.2.1 Installing the VCP driver (Windows XP)

- NOTE To install the VCP driver, log in to Windows with "Administrator" authority.
 - For details about the installation of the device driver for U-WAVE, refer to the U-WAVEPAK User's Manual.

To use USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA with USB-ITPAK, a dedicated VCP driver must be installed for each USB-ITN, USB-FSW or IT-016U / IT-020U unit.

1) Connect USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA to the PC.

When USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA is connected to a PC for the first time, the PC recognizes it as a USB human interface device and the HID driver is automatically installed.

2) Check whether USB-ITN, USB-FSW or IT-016U / IT-020U is correctly connected as the USB human interface device.

Click the Start button of Windows and open [Control Panel].

From [Performance and Maintenance], open [System].

Select the [Hardware] tab and open [Device Manager].

When the following is displayed, open [Human Interface Devices].

| 📇 Device Manager | |
|---|--|
| <u>File A</u> ction <u>V</u> iew <u>H</u> elp | |
| Display adapters DVD/CD-ROM drives Floppy disk controllers Floppy disk drives Human Interface Devices USB Human Interface Device | |

When USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA is connected to the USB connector, one [USB Human Interface Device] is added.

Connect or disconnect USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA and check whether the number of displayed [USB Human Interface Device] increases or decreases as a result.

NOTE • To identify the connected device, follow the steps below.

Right-click the desired [USB Human Interface Device] and click [Properties] in the menu.

Check if USB-ITN, USB-FSW or DP-1VA is displayed in the Location field of the [General] tab. (IT-016U / IT-020U will be displayed as "USB-ITN".)

| USB Hun | nan Interface De | evice Properties | ? × |
|---------|---|--|------------|
| General | Driver Details | | |
| ÷ | USB Human Interl | face Device | |
| | Device type: | Human Interface Devices | |
| | Manufacturer: | (Standard system devices) | |
| | Location: | Location 0 (USB-ITN) | |
| This | ce status device is working pr | | - |
| | u are having problem the troubleshooter. | ns with this device, click Troubleshoot to | |
| | | <u>I</u> roubleshoot | |
| Device | usage: | | ~ |
| | | ОКС | ancel |

3) Install the dedicated VCP driver.

Right-click the added [USB Human Interface Device] and click [Properties] in the menu.

Click the [Update Driver] button in the [Driver] tab, and install the dedicated VCP driver following the procedure below.

| USB Hum | an Inte | erface l | Device Properties 🛛 💽 🗙 |
|----------------|---------------------|-----------|--|
| General | Driver | Details | |
| ÷ | USB H | uman Int | eríace Device |
| | Driver | Provider: | Microsoft |
| | Driver | Date: | 7/1/2001 |
| | Driver ¹ | Version: | 5.1.2600.1106 |
| | Digital | Signer: | Microsoft Windows Component Publisher |
| Drive | er Details |] | To view details about the driver files. |
| Ugda | ate Drive | :f | To update the driver for this device. |
| <u>B</u> oll E | Back Dri | ver | If the device fails after updating the driver, roll back to the previously installed driver. |
| | <u>I</u> ninstall | | To uninstall the driver (Advanced). |
| | | | OK Cancel |



Select [No, not this time] and click the [Next] button.

Select [Install from a list or specific location] and click the [Next] button.



Select [Don't search. I will choose the driver to install.] and click the [Next] button.

| | are Update Wizard ase choose your search and installation options. |
|---|--|
| | |
| | ◯ <u>S</u> earch for the best driver in these locations. |
| | Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed. |
| | Search removable media (floppy, CD-ROM) |
| | Include this location in the search: |
| | D:\ENGLISH\WINXP\PRO\ |
| | Don't search. I will choose the driver to install. |
| | Choose this option to select the device driver from a list. Windows does not guarantee that |
| · | the driver you choose will be the best match for your hardware. |
| | |
| | |
| | < <u>Back</u> Next> Cancel |

NOTE • Make sure to select "Don't search. I will choose the driver to install.". The driver will not be installed when selecting a searching place if "Search for the best driver in these locations." is selected.

| Click the | [Have D | Disk] | button |
|-----------|---------|-------|--------|
|-----------|---------|-------|--------|

| n click Next. If you sk. |
|-----------------------------|
| |
| |
| |
| |
| |
| |
| |
| Have Disk |
| |
| |

Click the [Browse...] button.

| Install F | rom Disk | |
|-----------|--|--------------|
| J. | Insert the manufacturer's installation disk, and then make sure that the correct drive is selected below. | OK Cancel |
| | Copy manufacture's files from: | Browse |

Insert the supplied CD in the PC and select the folder according to the device in the "Drivers" folder.

To install USB-ITN, select the "USB-ITN" folder.

To install USB-FSW, select the "USB-FSW" folder.

When installing IT-016U / IT-020U, select the "USB-ITN" folder.

When installing DP-1VA, select the "DP-1VA" folder.

Select any one of the files in the folder and click the [Open] button.

NOTE • Regardless of the file selected by the user, the installer selects the appropriate file from the specified folder according to the connected device.

| Locate File | | | | | ? 🔀 |
|--------------------|---|---|---|----|--------|
| | USB-ITN y Recent Documents Desktop y Documents y Computer 34F Roppy (A:) LOSA Disk (C:) USB-ITPAK (D:) Drivers USB-ITN Shared Documents My Documents My Documents My Network Places | 0 | | 19 | • |
| File <u>n</u> ame: | USB-ITN.inf | | ~ | | Upen |
| Files of type: | Setup Information (".inf) | | ~ | | Cancel |

Click the [OK] button.

| Install F | rom Disk | |
|-----------|---|--------------|
| 3 | Insert the manufacturer's installation disk, and then make sure that the correct drive is selected below. | OK Cancel |
| | Copy manufacturer's files from: D:\Drivers\USB-ITN | Browse |

Check that USB-ITN, USB-FSW or DP-1VA is selected in the Model field, and then click the [Next] button.

| Hardware Update Wizard |
|--|
| Select the device driver you want to install for this hardware. |
| Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk. |
| Show compatible hardware |
| Model |
| USB-ITN |
| This driver is not digitally signed! <u>Iell me why driver signing is important</u> |
| < <u>B</u> ack <u>N</u> ext > Cancel |

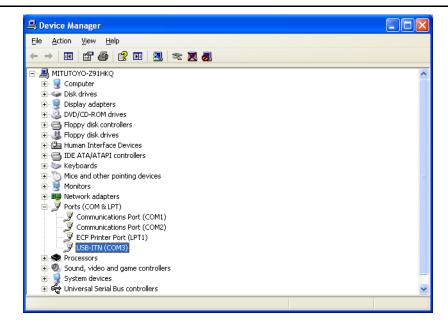
A warning about Windows XP logo authentication is displayed. Click the [Continue Anyway] button.

| Hardwa | re Installation |
|--------|--|
| Ţ | The software you are installing for this hardware: USB-ITN has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.) Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing. |
| | Continue Anyway |

When the [Completing the Hardware Update Wizard] dialog box is displayed, click the [Finish] button.



- 4) If the hardware has been correctly updated, the item of the device that has been installed moves from [Human Interface Device] to USB-ITN (COMx), USB-FSW (COMx) or DP-1VA (COMx) under [Ports (COM & LPT)] in the [Device Manager] dialog box.
- **NOTE** The "x" in COMx is the COM port number; the installer automatically assigns an available number. In the following example, this number is "3".
 - When the VCP driver is installed, USB-ITN, USB-FSW, IT-016U / IT-020U and DP-1VA are recognized as ports (COM & LPT), not human interface devices. At this time, IT-016U / IT-020U will be displayed as "USB-ITN".



- 5) If multiple USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA units are to be connected, repeat steps 1) to 4).
- **NOTE** When installing multiple USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA units, the above procedure is required for each unit.

2.2.2 Installing the VCP driver (Windows Vista / 7 / 8/8.1 / 10)

NOTE • To install the VCP driver, log in to Windows with "PC administrator" authority.

- If the OS is Windows Vista, [USB Human Interface Device] corresponds to [USB Input Device].
- For details about the installation of the device driver for U-WAVE, refer to the U-WAVEPAK User's Manual.

To use USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA with USB-ITPAK, a dedicated VCP driver must be installed for each USB-ITN, USB-FSW or IT-016U / IT-020U unit. If the same model among those is continuously connected to a PC with the OS of Windows 7 or later, the dedicated VCP driver is automatically installed.

1) Connect USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA to the PC.

When USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA is connected to a PC for the first time, the PC recognizes it as a USB human interface device and the HID driver is automatically installed.

 Check whether USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA is correctly connected as the USB human interface device.

If the OS is Windows 8/8.1/10, press the [X] key while holding down the Windows logo key. Select [Device Manager] from the displayed menu and open [Device Manager].

If the OS is Windows 7 / Windows Vista, click the Windows Start button and perform as follows in [Control Panel].

Windows 7: Open [System and Security], and open [Device Manager] in [System].

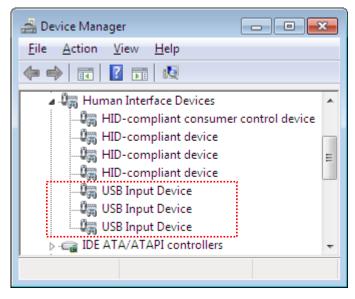
Windows Vista: From [System and Maintenance], open [Device Manager].

If the [User Account Control] warning is displayed, perform as follows.

Windows 7: click [Yes].

Windows Vista: click [Continue].

When the following is displayed, open [Human Interface Devices].



When USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA is connected to the USB connector, one [USB Input Device] is added.

Connect or disconnect USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA and check whether the number of displayed [USB Input Device] increases or decreases as a result.

NOTE • To identify the connected device, follow the steps below.

Right-click the desired [USB Input Device] and click [Properties] in the menu.

Select the [Details] tab and select [Device Instance Path] in Property.

| USB Input Device Properties | x |
|--------------------------------------|---|
| General Driver Details | |
| USB Input Device | |
| Property | |
| Device Instance Path | • |
| Value | |
| Value USB\VID_0FE78PID_4001\39999120 | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | _ |
| OK Cancel | |
| | |

Devices can be identified depending on the contents of [Value] as follows.

- USB-ITN : USB\VID_0FE7&PID_4001\ ********
- USB-FSW : USB\VID_0FE7&PID_4002\ ********
- IT-016U / IT-020U : USB\VID_0FE7&PID_4001\ 8*******
- DP-1VA : USB\VID_0FE7&PID_400A\ ********

******** indicates serial number.

3) Install the dedicated VCP driver.

Right-click the added [USB Input Device] and click [Properties] in the menu.

Click the [Update Driver] button in the [Driver] tab, and install the dedicated VCP driver following the procedure below.

| USB Input Device Propertie | :5 |
|----------------------------|---|
| General Driver Details | |
| USB Input Devic | be |
| Driver Provider: | Microsoft |
| Driver Date: | 6/21/2006 |
| Driver Version: | 6.1.7600.16385 |
| Digital Signer: | Microsoft Windows |
| Drįver Details | To view details about the driver files. |
| Update Driver | To update the driver software for this device. |
| Roll Back Driver | If the device fails after updating the driver, roll back to the previously installed driver. |
| <u>D</u> isable | Disables the selected device. |
| <u>U</u> ninstall | To uninstall the driver (Advanced). |
| | OK Cancel |

Select [Browse my computer for driver software].

 \mathbf{C}

| 9 | Update Driver Software - USB Input Device | × |
|---|--|--------|
| | How do you want to search for driver software? | |
| | Search automatically for updated driver software Windows will search your computer and the Internet for the latest driver software for your device, unless you've disabled this feature in your device installation settings. | |
| | Browse my computer for driver software Locate and install driver software manually. | |
| | L | |
| | | Cancel |
| | | Cancel |

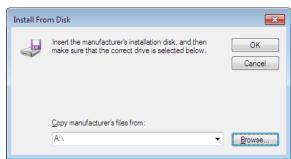
| Brows | e for driver software on your computer |
|---------------|--|
| Search f | or driver software in this location: |
| G:\Driv | ers |
| Inclu | de subfolders |
| → L T | et me pick from a list of device drivers on my computer his list will show installed driver software compatible with the device, and all driver ftware in the same category as the device. |

Select [Let me pick from a list of device drivers on my computer].

Click the [Have Disk...] button.

| | × |
|--|---------------------------|
| 🚱 🧕 Update Driver Software - USB Input Device | |
| Select the device driver you want to install for this hardware. Select the manufacturer and model of your hardware device and then disk that contains the driver you want to install, click Have Disk. | click Next. If you have a |
| Model | |
| This driver is digitally signed. <u>Tell me why driver signing is important</u> | Have Disk |
| | <u>N</u> ext Cancel |

Click the [Browse...] button.



Insert the supplied CD in the PC and select the folder according to the device in the "Drivers" folder.

To install USB-ITN, select the "USB-ITN" folder.

To install USB-FSW, select the "USB-FSW" folder.

To install IT-016U / IT-020U, select the "USB-ITN" folder.

To install DP-1VA, select the "DP-1VA" folder.

Select any one of the files in the folder and click the [Open] button.

NOTE • Regardless of the file selected by the user, the installer selects the appropriate file from the specified folder according to the connected device.

| Locate File | | | | | — × |
|---------------|--|--|---|------------------|----------------|
| Look in: | USB-ITN | | • | G 🤌 🖻 🛄 - | |
| S | E Recent Items | | | Date modified | Туре |
| Recent Places | ibraries Libraries Libraries Libraries Libraries | | | 1/7/2013 4:25 PM | Setup Infc |
| Desktop | ⁴ 7_32bit_E 7_32bit_J 7_32bit_D | (D:) | | | |
| Libraries | 7_32bit_R | | | | |
| | Drivers | | | | |
| Computer | | | | | |
| Network | < | | | | |
| | File name: Files of type: | USB-ITN.inf Setup Information (*.inf) | | • • | Open Cancel |

Click the [OK] button.

| Install Fro | m Disk | X |
|-------------|---|--------------|
| ~ | Insert the manufacturer's installation disk, and then make sure that the correct drive is selected below. | OK Cancel |
| | Copy manufacturer's files from: G:\Drivers\USB-ITN | Browse |

Check that USB-ITN, USB-FSW or DP-1VA is selected in the Model field, and then click the [Next] button.

| | | × |
|--------------------------|---|---------------------|
| 🕒 🧕 Update | Driver Software - USB Input Device | |
| Se Se | e device driver you want to install for this hardwar elect the manufacturer and model of your hardware device and th isk that contains the driver you want to install, click Have Disk. | |
| Show <u>cor</u> Model | mpatible hardware N | |
| | river has an Authenticode(tm) signature. e why driver signing is important | Have Disk |
| | | <u>N</u> ext Cancel |

Click the [Install] button.

| 💽 Windows Security | ĸ |
|--|---|
| Would you like to install this device software? | |
| Name: Mitutoyo Ports (COM & LPT) | |
| Always trust software from "MITUTOYO Install Don't Install Don't Install | כ |
| You should only install driver software from publishers you trust. How can I decide which device software is safe to install? | |

When the message [Windows has successfully updated your driver software] is displayed, the installation is completed. Click the [Close] button.

| Update Driver Software - USB-ITN (COM9) | . |
|--|----------|
| Windows has successfully updated your driver software | |
| Windows has finished installing the driver software for this device: | |
| USB-ITN | |
| | |
| | |
| | |
| | |
| | Close |

- 4) If the hardware has been correctly updated, the item of the device that has been installed moves from [Human Interface Device] to USB-ITN (COMx), USB-FSW (COMx) or DP-1VA (COMx) under [Ports (COM & LPT)] in the [Device Manager] dialog box.
- **NOTE** The "x" in COMx is the COM port number; the installer automatically assigns an available number. In the following example, this number is "4".
 - When the VCP driver is installed, USB-ITN, USB-FSW, IT-016U / IT-020U and DP-1VA are recognized as ports (COM & LPT), not human interface devices. At this time, IT-016U / IT-020U will be displayed as "USB-ITN".



- 5) For Windows Vista, if multiple USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA units are to be connected, repeat steps 1) to 4).
- For Windows Vista, When installing multiple USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA units, the above procedure is required for each unit.

2.2.3 Installing the VCP driver (Windows 2000)

NOTE • To install the VCP driver, log in to Windows with "Administrator" authority.

• For details about the installation of the device driver for U-WAVE, refer to the U-WAVEPAK User's Manual.

To use USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA with USB-ITPAK, a dedicated VCP driver must be installed for each USB-ITN, USB-FSW or IT-016U / IT-020U unit.

1) Connect USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA to the PC.

When USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA is connected to a PC for the first time, the PC recognizes it as a USB human interface device and the HID driver is automatically installed.

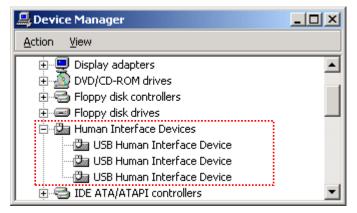
2) Check whether USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA is correctly connected as the USB human interface device.

Click the Start button of Windows and open [Control Panel] from the [Settings] menu.

Open [System].

Select the [Hardware] tab and open [Device Manager].

When the following is displayed, open [Human Interface Devices].



When USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA is connected to the USB connector, one [USB Human Interface Device] is added.

Connect or disconnect USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA and check whether the number of displayed [USB Human Interface Device] increases or decreases as a result.

NOTE • To identify the connected device, follow the steps below.

Right-click the desired [USB Human Interface Device] and click [Properties] in the menu.

Check if USB-ITN, USB-FSW or DP-1VA is displayed in the Location field of the [General] tab. (IT-016U / IT-020U will be displayed as "USB-ITN".)

| USB Huma | in Interface Devi | ce Properties | ? × |
|----------------|---------------------|---|--------|
| General | Driver | | |
| ÷ | USB Human Interl | ace Device | |
| | Device type: | Human Interface Devices | |
| | Manufacturer: | (Standard system devices) | |
| | Location: | USB-ITN | |
| This If you | the troubleshooter. | operly. is with this device, click Troubleshoote | r to |
| | | | 7 |
| | | <u>ОК</u> | Cancel |

3) Install the dedicated VCP driver.

Right-click the added [USB Human Interface Device] and click [Properties] in the menu.

Click the [Update Driver] button in the [Driver] tab, and install the dedicated VCP driver following the procedure below.

| USB Huma | in Interface Devi | ce Properties | ? × |
|----------|-----------------------|---|----------|
| General | Driver | | |
| ÷ | USB Human Inter | face Device | |
| | Driver Provider: | Microsoft | |
| | Driver Date: | 1999/11/14 | |
| | Driver Version: | 5.0.2183.1 | |
| | Digital Signer: | Microsoft Windows 2000 Publisher | |
| Details. | To uninstall the driv | river files loaded for this device, click Dr rer files for this device, click Uninstall. Tr e, click Update Driver. | o update |
| | <u>_</u> | | |
| | | OK | Cancel |

Click the [Next] button.



Select [Display a list of the known drivers for this device so that I can choose a specific driver] and click the [Next] button.

| Upgrade Device Driver Wizard |
|--|
| Install Hardware Device Drivers A device driver is a software program that enables a hardware device to work with an operating system. |
| This wizard upgrades drivers for the following hardware device: |
| USB Human Interface Device |
| Upgrading to a newer version of a device driver may add functionality to or improve the performance of this device. |
| What do you want the wizard to do? |
| Search for a suitable driver for my device (recommended) |
| Display a list of the known drivers for this device so that I can choose a specific driver |
| |
| < <u>B</u> ack <u>N</u> ext > Cancel |

Click the [Have Disk...] button.

| Upgrade Device Driver Wizard | | |
|---|-------------------------------|-------------------|
| Select a Device Driver Which driver do you want to install for this | device? | |
| Select the manufacturer and model of ye have a disk that contains the driver you | | |
| Models: USB Human Interface Device | | |
| Show <u>c</u> ompatible hardware Show <u>all hardware of this device class</u> | | <u>H</u> ave Disk |
| | < <u>B</u> ack <u>N</u> ext > | Cancel |

Click the [Browse...] button.

| Install Fro | om Disk | X |
|-------------|--|----------|
| - | Insert the manufacturer's installation disk into the drive selected, and then click OK. | OK |
| _ | | Cancel |
| | | |
| | | |
| | Copy manufacturer's files from: | |
| | | Browse |
| | | <u>_</u> |

Insert the supplied CD in the PC and select the folder according to the device in the "Drivers" folder.

To install USB-ITN, select the "USB-ITN" folder.

To install USB-FSW, select the "USB-FSW" folder.

To install IT-016U / IT-020U, select the "USB-ITN" folder.

To install DP-1VA, select the "DP-1VA" folder.

Select any one of the files in the folder and click the [Open] button.

NOTE • Regardless of the file selected by the user, the installer selects the appropriate file from the specified folder according to the connected device.

| Locate File | | | | ? × |
|------------------------------------|--|--|----------|--------------|
| Look jn: | 🔄 USB-ITN | • | - 🔁 🖆 📰 | |
| History Desktop My Documents | History Hostop My Docum My Comput S 5 Flopp Local Dis My Could B 1 Drivers Removal My Networ | ter 29 (A:) 34 (C:) 5 5 11 N ble Disk (E:) | | |
| My Computer | File <u>n</u> ame: | USB-ITN.inf | • | <u>O</u> pen |
| My Network P | Files of type: | Setup Information (*.inf) | v | Cancel |

Click the [OK] button.

| Install Fro | om Disk | × |
|-------------|---|--------------|
| _ | Insert the manufacturer's installation disk into the drive selected, and then click OK. | OK Cancel |
| | Copy manufacturer's files from: D:\Drivers\USB4TN | Browse |

NOTE • When the [OK] button on the above dialog box is clicked, the "The specified location does not contain information about your hardware." message may be displayed and the VCP driver may not be recognized. In this case, select again the folder according to the

model in the "Drivers" folder on the supplied CD. For details, refer to "8.3.1 Problems related to installing VCP driver".

Check that USB-ITN, USB-FSW or DP-1VA is selected in the Model field, and then click the [Next] button.

| Upgrade | Device Driver Wizard |
|----------------------------|---|
| | ct a Device Driver Which driver do you want to install for this device? |
| 9 | Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk. |
| Mo <u>d</u> els: USB-IT | |
| , | Have Disk |
| | < <u>B</u> ack <u>N</u> ext> Cancel |

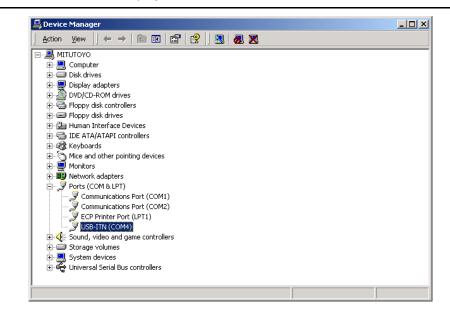
When the [Start Device Driver Installation] dialog box is displayed, click the [Next] button.

| Upgrade Device Driver Wizard | |
|--|--|
| Start Device Driver Installation The device driver will be installed with the default settings. | |
| The wizard is ready to install the driver for the following hardware device: USB-ITN Windows will use default settings to install the software for this hardware device. To install the software for your new hardware, click Next. | |
| <u> < B</u> ack <u>N</u> ext > Cancel | |

When the [Completing the Upgrade Device Driver Wizard] dialog box is displayed, click the [Finish] button.



- 4) If the hardware has been correctly updated, the item of the device that has been installed moves from [Human Interface Device] to USB-ITN (COMx), USB-FSW (COMx) or DP-1VA (COMx) under [Ports (COM & LPT)] in the [Device Manager] dialog box.
- **NOTE** The "x" in COMx is the COM port number; the installer automatically assigns an available number. In the following example, this number is "4".
 - When the VCP driver is installed, USB-ITN, USB-FSW, IT-016U / IT-020U and DP-1VA are recognized as ports (COM & LPT), not human interface devices. At this time, IT-016U / IT-020U will be displayed as "USB-ITN".



- 5) If multiple USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA units are to be connected, repeat steps 1) to 4).
- **NOTE** When installing multiple USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA units, the above procedure is required for each unit.

2.2.4 Uninstalling the VCP driver (Windows XP)

NOTE • To uninstall the VCP driver, log in to Windows with "Administrator" authority.

• For details about the uninstallation of the device driver for U-WAVE, refer to the U-WAVEPAK User's Manual.

Connect the USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA unit whose VCP driver is to be removed.

Click the Start button of Windows and open [Control Panel].

Open [System] from [Performance and Maintenance].

Select the [Hardware] tab and open [Device Manager].

When the [Device Manager] dialog box is displayed, right-click the USB-ITN (COMx), USB-FSW (COMx) or DP-1VA (COMx) in [Ports (COM & LPT)] whose VCP driver is to be deleted, and select [Uninstall].

NOTE • The "x" in COMx is the COM port number. This number is automatically assigned by the installer. In the following example, this number is "4".

| Device Manager | | |
|-----------------------------|---------------------------|--|
| File Action View Help | | |
| 🗄 🥝 DVD/CD-ROM drives | | |
| 🗄 🗃 Floppy disk controllers | ; | |
| 🔃 뷇 Floppy disk drives | | |
| 🗄 🖾 Human Interface Devi | ices | |
| 🗄 🚍 IDE ATA/ATAPI contro | ollers | |
| 🗄 🦢 Keyboards | | |
| 🗄 🐚 Mice and other pointin | ig devices | |
| 🕀 😼 Monitors | | |
| 🔃 🎬 Network adapters | | |
| 🖻 🖉 Ports (COM & LPT) | | |
| 🦳 🌌 Communications P | | |
| 🦳 🌌 Communications P | | |
| ECP Printer Port (| LPT1) | |
| USB-ITN (COM4) | Update Driver | |
| 🛨 \Re Processors | Disable | |
| 🕀 👰 Sound, video and ga | Uninstall | |
| 🕀 🚽 System devices | | |
| 🗄 🙀 Universal Serial Bus d | Scan for hardware changes | |
| 🗄 🔷 Unknown | Properties | |

When the [Confirm Device Removal] dialog box is displayed, click the [OK] button.

| Confirm | I Device Removal 🛛 ? 🗙 |
|---------|--|
| Į | USB-ITN (COM4) |
| Warning | : You are about to uninstall this device from your system. |
| | |
| | |
| | OK Cancel |

This completes uninstallation.

If the OS is restarted or USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA is disconnected and then reconnected, the PC recognizes USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA as a USB human interface device similarly to when it is connected to the PC for the first time and the HID driver is automatically installed.

2.2.5 Uninstalling the VCP driver (Windows Vista / 7 / 8/8.1 / 10)

NOTE • To uninstall the VCP driver, log in to Windows with "PC administrator" authority.

• For details about the uninstallation of the device driver for U-WAVE, refer to the U-WAVEPAK User's Manual.

Connect the USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA unit whose VCP driver is to be removed.

If the OS is Windows 8/8.1/10, press the [X] key while holding down the Windows logo key. Select [Device Manager] from the displayed menu and open [Device Manager].

If the OS is Windows 7 / Windows Vista, click the Windows Start button and perform as follows in [Control Panel].

Windows 7: Open [System and Security], and open [Device Manager] in [System].

Windows Vista: From [System and Maintenance], open [Device Manager].

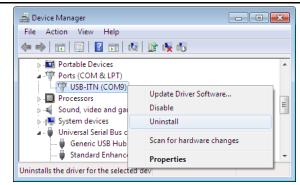
If the [User Account Control] warning is displayed, perform as follows.

Windows 7: click [Yes].

Windows Vista: click [Continue].

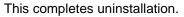
When the [Device Manager] dialog box is displayed, right-click the USB-ITN (COMx), USB-FSW (COMx) or DP-1VA (COMx) in [Ports (COM & LPT)] whose VCP driver is to be deleted, and select [Uninstall].

NOTE • The "x" in COMx is the COM port number. This number is automatically assigned by the installer. In the following example, this number is "4".



When the [Confirm Device Uninstall] dialog box is displayed, select the [Delete the driver software for this device.] and click the [OK] button.





If the OS is restarted or USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA is disconnected and then reconnected, the PC recognizes USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA as a USB human interface device similarly to when it is connected to the PC for the first time and the HID driver is automatically installed.

2.2.6 Uninstalling the VCP driver (Windows 2000)

NOTE • To uninstall the VCP driver, log in to Windows with "Administrator" authority.

• For details about the uninstallation of the device driver for U-WAVE, refer to the U-WAVEPAK User's Manual.

Connect the USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA unit whose VCP driver is to be deleted.

Click the Start button of Windows and open [Control Panel] from the [Settings] menu. Open [System].

Select the [Hardware] tab and open [Device Manager].

When the [Device Manager] dialog box is displayed, right-click the USB-ITN (COMx), USB-FSW (COMx) or DP-1VA (COMx) in [Ports (COM & LPT)] whose VCP driver is to be deleted, and select [Uninstall].

NOTE • The "x" in COMx is the COM port number. This number is automatically assigned by the installer. In the following example, this number is "4".



When the [Confirm Device Removal] dialog box is displayed, click the [OK] button.



This completes uninstallation.

To return USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA to the USB human interface device, the HID driver must be installed. In this case, follow the procedure below.

1) Remove the CD supplied with USB-ITPAK from the PC.

IMPORTANT • If the supplied CD is inserted in the PC, the VCP driver will automatically be installed and USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA cannot be returned to the USB human interface device. 2) Restart the OS or disconnect and connect back again the USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA unit whose HID driver is to be installed.

When the [New Hardware Detected] dialog box is displayed followed by the [Insert Disk] dialog box, click the [Cancel] button.

| Insert Dis | sk | X |
|------------|--|--------|
| | Please insert the Compact Disc labeled 'Device Installation Disk #1' into your CD-ROM drive (D:) and then click OK. You can also click OK if you want files to be copied from an alternate location, such as a floppy disk or a network server. | Cancel |

3) Click the Start button of Windows and open [Control Panel] from the [Settings] menu.

Open [System].

Select the [Hardware] tab and open [Device Manager].

The USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA is recognized as [Port (COM & LPT)]. Right-click the USB-ITN, USB-FSW or DP-1VA with the [!] mark, and select [Properties].

| Device Manager | <u>_ ×</u> |
|---|--------------|
| <u>A</u> ction <u>Vi</u> ew ← → m m 😫 🔜 | |
| | |
| | |
| E - Disk arives E - Display adapters | |
| | |
| E - E Floppy disk controllers | |
| E - E Floppy disk drives | |
| | |
| E → IDE ATA/ATAPI controllers | |
| E de Keyboards | |
| | |
| me Monitors | |
| E By Network adapters | |
| 🗄 – 🞐 Ports (COM & LPT) | |
| Communications Port (COM1) | |
| Communications Port (COM2) | |
| ECP Printer Port (LPT1) | |
| USB-ITN Disable | |
| EQE Sound, video | |
| Scorage Volu | |
| 🕀 💻 System devic 🛛 Scan for hardware changes | |
| 🔃 🕰 Universal Ser | |
| Properties | |
| | |
| , | |

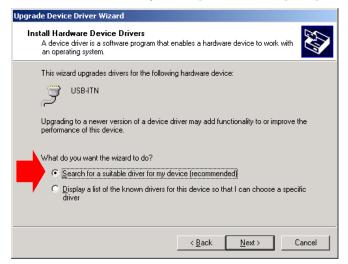
| Click the [Reinstall | Driver] | button. |
|----------------------|---------|---------|
|----------------------|---------|---------|

| USB-ITN P | roperties | | | ? × |
|----------------|-------------------------|----------------------|---------------------|----------|
| General | Driver | | | |
| Į | USB-ITN | | | |
| | Device type: | Ports (COM & | _PT) | |
| | Manufacturer: | Unknown | | |
| | Location: | USB-ITN | | |
| Devic | e status | | | |
| This | device is not config | gured correctly. (C | ode 1) | <u> </u> |
| Tore | einstall the drivers fo | or this device, clic | k Reinstall Driver. | |
| | | | | |
| | | | | _ |
| | | | Reinstall Di | iver |
| <u>D</u> evice | usage: | | | |
| Use th | is device (enable) | | | • |
| | | | | |
| | | | OK | Cancel |

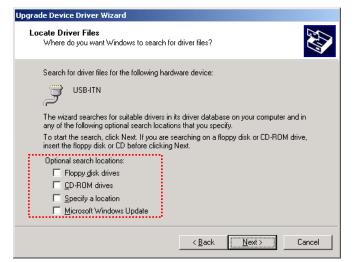
Click the [Next] button.

| Upgrade Device Driver Wizar | d | | |
|-----------------------------|---|--|--|
| | Welcome to the Upgrade Device Driver Wizard | | |
| | This wizard helps you upgrade a device driver for a hardware device. | | |
| | To continue, click Next. | | |
| | < <u>Back</u> Cancel | | |

Select [Search for a suitable driver for my device] and click the [Next] button.



Clear all the check box for [Option search locations] and then click the [Next] button.



Select [Install one of the other drivers] and click the [Next] button.



Select [USB Human Interface Device] and then click the [Next] button.

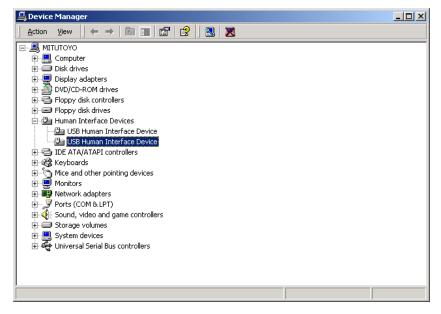
| Upgrad | le Device Driver Wizard | | | |
|--------|---|-----------|-------------------------------|------------------|
| Driv | ver Files Found Which driver do you want to ins | tall ? | | |
| | USB-ITN Windows found the following dri these drivers select it from the list | | | o install one of |
| | Description | Provider | Manufacturer | Location |
| | USB-ITN | Mitutoyo | Mitutoyo | c:\winnt\inf\ |
| | USB Human Interface Device | Microsoft | (Standard system devices) | c:\winnt\inf\ |
| | | | < <u>B</u> ack <u>N</u> ext > | Cancel |

If a warning about digital signature is displayed, click the [Yes] button.

When the [Completing the Upgrade Device Driver Wizard] dialog box is displayed, click the [Finish] button.



This completes the HID driver installation procedure. From Device Manager, check that USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA is connected as a USB human interface device.



MEMO

3

STARTUP AND TERMINATION OF USB-ITPAK

3.1 Starting up USB-ITPAK

3.1.1 Connecting the measuring tool and foot switch to the PC

- 1) Connect the measuring tool to USB-ITN and connect USB-ITN to a USB port of the PC.
- 2) Connect the foot switch to USB-FSW and connect USB-FSW to a USB port of the PC.
- Connect the measuring tools to the U-WAVE transmitter and connect U-WAVE-R to the USB port of the PC.
- 4) Connect the measuring tool to IT-016U / IT-020U using a Digimatic connecting cable, and connect IT-016U / IT-020U to a USB port of the PC.
- 5) Connect the measuring tool to DP-1VA using a Digimatic connecting cable, and connect DP-1VA to a USB port of the PC. When connecting or disconnecting the cable, turn off the power to DP-1VA.
- **IMPORTANT** Select the USB-ITN and the U-WAVE transmitter appropriate for the measuring tool to be used.

For details, refer to "1.4 Tools that work with USB-ITPAK".

For details about the U-WAVE, refer to the instruction manuals supplied with U-WAVE.

- If any of multiple USB-ITN, USB-FSW, U-WAVE-R, IT-016U / IT-020U or DP-1VA units (more than 1 model is possible) are used, a corresponding number of USB ports are required. If the PC does not have the required number of USB ports, use a USB hub (commercially available).
- To use USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA with USB-ITPAK, a dedicated VCP driver must be installed for each USB-ITN or USB-FSW unit. For how to install the dedicated VCP driver, refer to "2.2 Installing and Uninstalling the VCP driver".
- To use U-WAVE with USB-ITPAK, the installation of device driver for each U-WAVE-R is required.

• When using U-WAVE, U-WAVEPAK supplied with U-WAVE-R is required.

For details about the U-WAVE, refer to the instruction manuals supplied with U-WAVE.

- To use U-WAVE with USB-ITPAK, perform the following in advance.
 - 1) Install the exclusive VCP driver for each U-WAVE-R from the supplied CD with U-WAVEPAK.
 - 2) Register the U-WAVE transmitter to U-WAVE-R using U-WAVEPAK.
- Do not use USB-ITPAK and U-WAVEPAK at the same time.
 Be sure to exit U-WAVEPAK before starting up USB-ITPAK.
 Be sure to exit USB-ITPAK before starting up U-WAVEPAK.
 The VCP communication may fail when both of them are used at the same time.
- TIP USB-ITPAK and U-WAVEPAK are not required to be installed on the same PC. Even if the U-WAVE transmitter has been registered to U-WAVE-R using U-WAVEPAK on a different PC, the registered settings will be valid on the PC on which USB-ITPAK has been installed.

3.1.2 Connecting the USB dongle to the PC

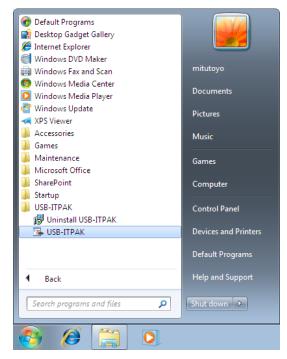
Connect the supplied USB dongle to a USB port on the PC to be used.

IMPORTANT • USB-ITPAK can be installed even if the USB dongle is not inserted, but the USB dongle is required to start up USB-ITPAK.

3.1.3 Starting up USB-ITPAK

- **IMPORTANT** To use USB-ITPAK, Microsoft Excel (Excel 2002 or higher) is required. Install Excel on the same PC as USB-ITPAK.
 - Before installing Excel, check that Windows on the PC to be used meets the minimum system requirements of USB-ITPAK. For information about Windows versions and system requirements compatible with the existing Excel version, contact Microsoft Corporation.

Click the Start button of Windows and select [All Programs] - [USB-ITPAK], and then [USB-ITPAK].



If a shortcut icon is created on the desktop, USB-ITPAK can be started up by double-clicking this icon.



- **IMPORTANT** If any of USB-ITN, USB-FSW, U-WAVE-R, IT-016U / IT-020U or DP-1VA (multiple choices allowed) is connected after USB-ITPAK is started up, the device is not recognized. In this case, exit USB-ITPAK and then restart it.
 - Windows 8/8.1 has no Windows Start button. Start up USB-ITPAK from the shortcut icon created on the desktop.

IMPORTANT • The [USB-ITPAK Properties] dialog box can be displayed by right-clicking the shortcut icon created on the desk top and selecting [Property]. During setting, make sure that the [Run this program in compatibility mode for:] check box is never checked. If the box is checked, USB-ITPAK will be unable to start up.

| Z | 🖡 USB-ITPAK Prope | erties | _ | |
|---|---|-------------------------------|---|--|
| | Security | Details | Previous Versions | |
| ļ | General | Shortcut | Compatibility | |
| | an earlier version of matches that earlier | Windows, select the oversion. | d it worked correctly on compatibility mode that | |
| | Help me choose t | | | |
| l | Compatibility mode | e | | |
| | Run this prog | gram in compatibility mo | ode for: | |
| | Windows XP (S | Service Pack 3) | ~ | |
| | | | | |
| | Settings | | | |
| | Run in 256 c | olors | | |
| | 🔲 Run in 640 x | 480 screen resolution | | |
| l | Disable visua | al themes | | |
| l | Disable desktop composition | | | |
| | Disable displ | ay scaling on high DPI | settings | |
| | | | | |
| l | Privilege Level | | | |
| | Run this prog | gram as an administrato | pr | |
| | | | | |
| | 🛛 🛞 Change setti | ngs for all users | | |
| | | | | |
| Ĩ | | ОК | Cancel Apply | |
| | | | Cancel <u>Apply</u> | |

When USB-ITPAK is started up, either of the following two dialog boxes is displayed, depending on the setting.

IMPORTANT • For details about setting whether to select Quick Menu as the initial dialog box after USB-ITPAK startup, refer to "6.5 Options".

1) Main dialog box

The main dialog box is displayed for operators who create the setting file.

All the functions of USB-ITPAK, from setting of the procedure to data collection, can be used from this dialog box.

| 🕞 USB-ITPAK | | | | - • • | |
|---|------------------|------------|-------------------|--------------|--|
| <u>File Setting Data Collection About</u> | | | | | |
| | | | | | |
| Setting File | | | | | |
| Description | | | | | |
| Data entry application | Procedure | Item | Content | | |
| Optional | | | | | |
| Repetition option | | | | | |
| Number of repeat : | | | | | |
| Move direction : Down v | | | | | |
| Displacement intervals : | | | | | |
| Error option | | | | | |
| ✓ Ignore the data collection error | | Device No. | Device name COM A | ssign Status | |
| Timer job option | Add Procedure | | | | |
| $\begin{array}{c} \mbox{Interval}(\mbox{hour:min:sec}): \\ \hline 0 \ \hline \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$ | Delete Procedure | | | | |
| Count : | Change Procedure | | | | |

2) Quick Menu

Quick Menu is displayed for operators who collect data.

Operators can start measurement by clicking the [Data collection] button to open an already set procedure (setting file). Quick Menu is very useful for performing actual measurement work.

| 🕞 USE | 3-ITPAK Quick Menu | × |
|-------|-------------------------------|---|
| | Data collection | |
| | Save (Excel file) | |
| | Save (Text file) | |
| | Switch to the main dialog box | |
| | Exit | |
| | | |

3.1.4 Exiting USB-ITPAK

```
IMPORTANT • Save data if it is not saved, before exiting USB-ITPAK.
```

Perform one of the two following ways to exit USB-ITPAK.

1: Click [Exit] button in Quick Menu.

2: Select [File] and then [Exit] on the main dialog box.

3.1.5 Disconnecting the USB dongle from the PC

Exit USB-ITPAK before disconnecting the USB dongle from the PC.

NOTE • To continuously use USB-ITPAK, keep the USB dongle connected.

3.1.6 Disconnecting the measuring tool and foot switch from the PC

Exit USB-ITPAK before disconnecting any of USB-ITN, USB-FSW, U-WAVE-R, IT-016U / IT-020U or DP-1VA from the USB ports of the PC.

NOTE • To continuously use USB-ITPAK, keep USB-ITN, USB-FSW, U-WAVE-R, IT-016U / IT-020U or DP-1VA connected. When starting up the PC to which DP-1VA is kept connected, turn off the power to DP-1VA.



MEASUREMENT DATA COLLECTION (BASICS)

This chapter explains the basic use of USB-ITPAK.

"CHAPTER 5 MEASUREMENT DATA COLLECTION (ADVANCED)" explains the advanced use of USB-ITPAK, such as collecting data by using the foot switch and combining multiple procedures.

"CHAPTER 6 DIALOG BOX CONFIGURATIONS OF USB-ITPAK" describes the menus and dialog box configuration for all the functions of USB-ITPAK.

4.1 General Cautions Regarding Use

Carefully read the following cautions before using USB-ITPAK.

1. Handling Excel files registered in USB-ITPAK procedures

USB-ITPAK manages Excel files by using the Excel workbook and worksheet names registered to procedures.

Therefore, do not make the following changes to Excel files registered to procedures in Excel:

- Deleting or changing workbook and worksheet names
- · Saving a workbook in a different folder
- 2. Handling Excel files currently used for data collection

Do not perform the following manipulations in Excel while collecting data by executing a procedure in USB-ITPAK:

- Exiting Excel
- Closing an Excel file registered to a procedure
- · Changing the contents of an Excel file registered to a procedure.
- 3. Executing procedure test (recommended)

Multiple procedures can be registered to the setting file of USB-ITPAK to provide a complex procedure that can be run as a whole. Before running procedures, it is recommended to check their operation by testing them beforehand.

4.2 Sequential Measurement (Basics)

4.2.1 Overview

Sequential measurement is one of the measurement methods that can be selected in the procedures used in USB-ITPAK.

During sequential measurement, one or more measuring tools are used and measurement data is input from the tools to cells specified in advance in an inspection table worksheet in Excel or other applications.

Example: Measurement in a pre-set sequence such as measuring the length, and then the width by using one measuring tool

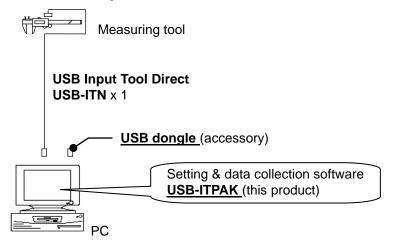
Example: Sequential measurement of measurement locations on a workpiece using multiple measuring tools, such as measuring the length by using a caliper and measuring the diameter by using a micrometer

[Data request] button of USB-ITPAK, function keys of a PC, the DATA switch of the measuring tools, and the foot switch can be used when collecting measurement data.

This section explains the basic use of sequential measurement.

1) Connection

In the example used in this section, one measuring tool is connected to USB-ITN. The connection diagram is shown below.

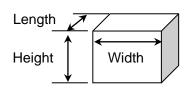


TIP • IT-016U / IT-020U / DP-1VA can be used in combination with USB-ITN.

2) Workpiece for measurement

The following workpiece is used in the explanation. The measurement locations are the length, width, and height of the rectangular parallelepiped.

4. MEASUREMENT DATA COLLECTION (BASICS)



3) Measurement

The image of the inspection table upon completion of data collection is shown below.

| No. | Inspection item | | ermissible value | | Measuring item | X1 | X2 | ХЗ | X4 | X5 |
|-----|--------------------|-------|---------------------|----|-------------------|-------|-------|-------|-------|-------|
| 1 | Length | 13.60 | 13.40 | mm | CD | 13.49 | 13.51 | 13.52 | 13.53 | 13.50 |
| 2 | Width | 12.20 | 12.00 | mm | CD | 12.12 | 12.15 | 12.13 | 12.15 | 12.14 |
| 3 | Height | 10.60 | 10.50 | mm | CD | 10.58 | 10.58 | 10.55 | 10.57 | 10.56 |

In this measurement procedure, the length, width, and height of the first workpiece are measured and the input data is output to the first row (Length), the second row (Width), and the third row (Height), respectively, of the X1 column on the Excel worksheet.

Next, the second workpiece is similarly measured, and so on, until all five workpieces have been measured.

| X1 | X2 | X3 | X4 | X5 |
|-----------------|----|----|----|------------|
| Length (1) | | | | |
| ↓ Width (1) | | | | |
| ↓ Height (1) | | | | Height (5) |
| · | | | | i |

The following describes how to set up the measurement procedure, perform measurement, and save the results.

4.2.2 Setting

1) Check the device information.

NOTE • USB-ITPAK loads the information of connected devices at startup. Therefore, connect all the devices to be used before starting up USB-ITPAK.

From the menu of the main dialog box, select [Settings] and then [Device information]. This opens the [Device information] dialog box, which allows you to check the devices that are connected to the PC.

| D | evice informatior | ı | | | | | × |
|---|-------------------|--------------|------|------|-------|--------|---|
| | Device lists : | | | | | | |
| | Device No. | Device name | COM | Туре | Seria | al No. | |
| | ITN-39999120 | ITN-39999120 | COM9 | ITN | 3999 | 9120 | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | Setting | | | | ок | Cancel | |
| | Setting | | | | | Cancer | |

- TIP When using IT-016U / IT-020U, also it will be recognized as ITN type. The Serial No. of IT-016U / IT-020U is represented starting with "8" as "ITN-8******".
 - The Serial No. of DP-1VA is represented as "DP1-*******".

If you do not want to change the device number or device name, click the [Cancel] button to return to the main dialog box.

If you want to change the device number or device name, click the [Setting] button.

| Device information setting | | | | | | | |
|----------------------------|----------|--|--|--|--|--|--|
| Device information | 1 | | | | | | |
| Serial No. : | 39999120 | | | | | | |
| Type : | ITN | | | | | | |
| COM : | COM9 | | | | | | |
| | | | | | | | |
| Device No. : | _ | | | | | | |
| ITN-39999120 | | | | | | | |
| Device name : | | | | | | | |
| ITN-39999120 | | | | | | | |
| | | | | | | | |
| ОК | Cancel | | | | | | |
| | | | | | | | |

Click the [OK] button if you change any settings.

NOTE • In the procedure created from step "2)", the device number is used to specify the device to be used. If you change the number, revise all the setting files that use it.

- **TIP** If multiple units are connected, specify settings for each.
- **TIP** If performing measurement using existing setting files, skip this section and refer to "4.2.3 Measurement".
 - 2) Enter information about the setting file in the [Description] field.

Enter a description of the setting file. This field may be left blank.

| | 🕞 USB-ITPAK | | |
|----|---|------------------|--|
| | <u>File Setting Data Collection About</u> | t | |
| | | | a |
| | Setting File | | |
| 2) | Description | | |
| | Data entry application © Excel © Optional | Procedure | Item Content |
| | Repetition option Repeat procedure Number of repeat : 1 Move direction : Down Displacement intervals : 1 Error option | | |
| | Ignore the data collection error | | Device No. Device name COM Assign Status |
| | | | |
| | Timer job option | Add Procedure | 3) |
| | Interval(hour:min:sec) : 0 ↓ : 0 ↓ : 5 ↓ . 0 ↓ | Delete Procedure | |
| | Count : 5 | Change Procedure | |

3) Add a procedure to the setting file.

Click the [Add Procedure] button on the main dialog box.

| | Add procedure | | | | × | |
|-----------|---|-----------------|-------------|-----|-------|----|
| 4) | Procedure type : Procedure name : Sequential | | | | | 5) |
| | Excel settings | ⊂ Data entry de | evices | | | |
| 6) | Workbook : | Device No. | Assign rule | COM | + | |
| 7) | Worksheet: | | | | | |
| 8) | Range of cells (specify the A1 reference style) : First : | | | | | |
| 9) 10) | Last: Select Move after return direction : Right Displacement intervals : 1 | | | | | |
| 11) | Cell address assign rules O Unspecified | Foot switch o | ption | | | |
| | Assign for the columns(A,B,) Assign for the rows(1,2,) FunctionKey Operation Data request : Data cancel : Data skip : • • • • | Device No. | Function | COM | + | |
| | | | ОК | С | ancel | |

4) Select a procedure type for the [Procedure type] field.

Check that [Sequential] is selected as the procedure type, and if not, select [Sequential] from the drop-down list.

5) Enter a name in the [Procedure name] field.

Entering the procedure name is required.

TIP • Since the procedure name will be displayed in the [Procedure] field at the center of the main dialog box, enter an easily identifiable name.

Here, enter [3 side measurement].

6) Specify an Excel file in the [Workbook] field under [Excel settings].

Enter the workbook name of the Excel file to which the measured data is to be input.

The file can be selected from the [Open] dialog box by clicking the [...] button.

Here, select the following file.

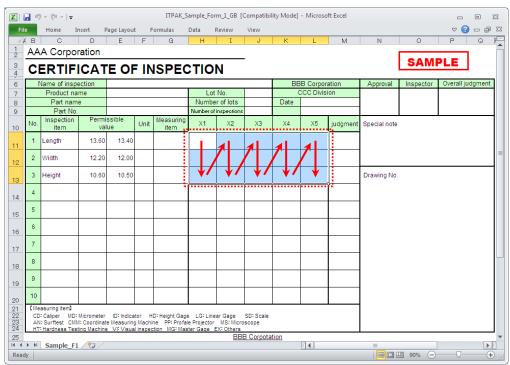
C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sample_Form_1_GB.xls

IMPORTANT • If you want to use a file other than the sample inspection table file, create an inspection file using Excel before starting up USB-ITPAK. Inspection table files can be saved to any folder. Save the inspection table file to a folder location that will be easy to manage. 7) Select a worksheet for the [Worksheet] field under [Excel settings].

Select the worksheet name to be included in the workbook of step "6)" from the drop-down list.

Here, select [Sample_F1].

8) Enter the input range in the [Range of cells] fields under [Excel settings].



To specify the area indicated by the dot-line in the above inspection table as the input cell range, enter:

First: H11

Last: L13

- **TIP** The inspection table above is shown with the [Inspection item] and [Permissible value] cells filled.
 - Select the desired direction for the [Move after return direction] field under [Excel settings].

During measurement using USB-ITPAK, once data is input from the measuring tools, the measurement data is input to the current cell and then the entry point (cell) automatically moves to the next cell.

In the inspection table example shown above, select [Down].

10) Specify the [Displacement intervals] under [Excel settings].

Specify the interval for the cell movement specified in step 9). Specifying "1" results in movement to the next cell. Specifying "2" results in movement to the cell after the next.

In the inspection table example above, specify "1".

11) Select an option under [Cell address assign rules].

In USB-ITPAK, the measuring items can be assigned to columns (vertical) or rows (horizontal) of the inspection table worksheet.

In the inspection table example above, the measuring items are assigned to respective rows, so select [Assign for the rows (1, 2...)].

TIP • Data can be collected even if the device is not assigned to columns (A, B, ...) or rows (1, 2, ...). In this case, select [Unspecified].

When data is input from the device registered in the procedure during data collection, the data is written to the cell that is currently active in the order of input, regardless of the cell position.

For details, refer to "6.6.3 Cell address assign rules".

12) Specify the [Data entry devices] settings.

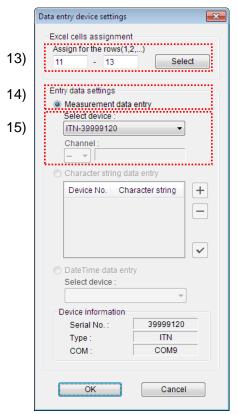
The functions of the buttons for the [Data entry devices] field are as follows:

- [+]: Adds device settings.
- [-]: Deletes the device setting selected from the list.
- [$\sqrt{}$]: Changes the device setting selected from the list.

Here, click the [+] button to switch to the [Data entry device settings] dialog box.

| Add procedure | | — |
|--|----------------------|-----------|
| Procedure type : | Procedure name : | |
| Sequential Excel settings Workbook : C:Mitutoyo\USB-ITPAK\Sample Worksheet : Sample_F1 Range of cells (specify the A1 n First : H11 Last : L13 Move after return direction : Down Displacement intervals : 1 | - | |
| Cell address assign rules Unspecified Assign for the columns(A,B, Assign for the rows(1,2,) FunctionKey Operation |) Foot switch option | |
| Data request : - Data cancel : - Data skip : - | | OK Cancel |

13) Specify the settings in the [Excel cells assignment] field on the [Data entry device settings] dialog box.



In the [Excel cells assignment] field, specify columns (vertical) or rows (horizontal) according to the specification in step 11). Specify the rows here.

There are three input areas in the previously described inspection table. Here, one device is assigned on all the rows, so enter start row number "11" in the input field on the left, and input "13" in the input field on the right.

14) In the [Entry data settings] field, select the entry data type.

The entry data types consist of measurement data input from the measuring tools (numeric data), and character string data input by pressing the foot switch.

TIP • For details about the method for inputting character string data using a foot switch, refer to "CHAPTER 5 MEASUREMENT DATA COLLECTION (ADVANCED)".

Here, select the [Measurement data entry] radio button.

15) In the [Select device] field, select the device to be assigned.

From the drop-down list, select the device to be assigned.

This completes the settings on the [Data entry device settings] dialog box, so click the [OK] button.

16) Close [Add procedure].

| Procedure type : | Procedure name : | | | | |
|---|--------------------|-------------------|-------------|------|---|
| Sequential 👻 | 3 side measurement | t | | | |
| Excel settings | | Data entry devi | ces | | |
| Workbook : | | Device No. | Assign rule | COM | + |
| C:\Mitutoyo\USB-ITPAK\Sampl | leviTPAK_Sam [] | ITN-39999120 |) 11:13 | COM9 | |
| Worksheet : | | | | | |
| Sample_F1 | • | | | | _ |
| Range of cells (specify the A1 | reference style): | | | | |
| Last: L13 | Select | | | | |
| Move after return direction : | | | | | |
| | | | | | |
| | | | | | |
| Down - | | | | | |
| Down | | | | | |
| Down Displacement intervals : | | | | | |
| Down Displacement intervals : 1 Cell address assign rules | | - Foot switch opt | ion | | |
| Down Displacement intervals : Cell address assign rules Unspecified | | Foot switch op | | СОМ | |
| Down Displacement intervals : 1 Cell address assign rules O Unspecified Assign for the columns(A,B |) | | | СОМ | |
| Down Displacement intervals : 1 Cell address assign rules Unspecified Assign for the columns(A,B @ Assign for the rows(1,2,) |) | | | СОМ | + |
| Down Displacement intervals : 1 Cell address assign rules Unspecified Assign for the columns(A,B @ Assign for the rows(1,2,) FunctionKey Operation |) | | | СОМ | + |
| Down Displacement intervals : 1 Cell address assign rules Unspecified Assign for the columns(A,B @ Assign for the rows(1,2,) |) • | | | СОМ | |
| Down Displacement intervals : 1 Cell address assign rules Unspecified Assign for the columns(A,B @ Assign for the rows(1,2,) FunctionKey Operation | ,) • | | | COM | |
| Down Displacement intervals : 1 Cell address assign rules Unspecified Assign for the columns(A,B assign for the rows(1,2,) FunctionKey Operation Data request : | ,) T | | | COM | + |

This completes the settings on the [Add procedure] dialog box, so click the [OK] button.

17) Save the created setting file.

| 🕞 USB-ITPAK | | | | |
|---|--|--------------------|---|---|
| <u>F</u> ile <u>S</u> etting | Data Collection Abou | t | | |
| 0 🖻 🖬 🕍 | r | | | a |
| Setting File | C:\Mitutoyo\USB-ITPAK\4 | -2.it2 | | |
| Description | Measure 3 sides(length | x width x height). | | |
| Data entry application | | Procedure | Item | Content |
| Excel | | 3 side measurement | Procedure type | Sequential |
| Optional | Optional | | Data entry application Excel settings: | Excel |
| Repeat proce Number of r Move directi Down Displaceme | Repetition option Repeat procedure Number of repeat : 1 Move direction : Down Displacement intervals : | | Workbook Workboek Range of cells Move after return direction Displacement intervals Cell address assign rules Foot switch option: FunctionKey Operation: | C:MitVTPAK_Sample_Form_1_GB.xls Sample_F1 H11:L13 Down 1 Assign for the rows(1,2,) |
| Ignore the da | ta collection error | | Device No. Device nan | ne COM Assigned cells Status |
| | | | ITN-39999120 ITN-399991 | 20 COM9 11:13 Connect |
| Timer job option | Timer job option | | | |
| Interval(hou | | Delete Procedure | | |
| Count : | A V | Change Procedure | | |

From the menu of the main dialog box, select [File], [Save As], and then save the file by giving it a name. When the file has been saved, the file name is displayed as a full path in the [Setting File] field.

4.2.3 Measurement

1) Open [Setting File].

TIP • If starting measurement immediately after specifying the settings in "4.2.2 Setting", the setting file is already opened. In this case, skip step "1)".

From the menu of the main dialog box, select [File] and then [Open], or open [Setting file] from [Recent files].

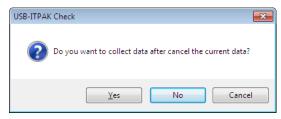
2) Open the data collection dialog box.

IMPORTANT • In USB-ITPAK, following data collection, the Excel file to which the data was input is saved through overwriting under the existing file name. To use the original Excel file later, back it up beforehand.

From the menu of the main dialog box, select [Data Collection] and then [Start], or click the icon shown below.



When data collection starts, the message [Do you want to collect data after cancel the current data?] is displayed. Click [Yes] to clear the existing data or [No] not to.



The data collection dialog box is displayed and data collection can now be performed.

| USB-ITPAK - C:\Mitutoyo\USB-ITPAK\4-2.it2 | | | | | | | | | |
|---|---|------------|--|--|--|--|--|--|--|
| Procedure : 3 side measurement (Sequential) | | | | | | | | | |
| Execute import man | ipulations of measure | ment data. | | | | | | | |
| Data request | Data request Data cancel Data skip Pause Stop | | | | | | | | |

TIP • If you click [No] for the message [Do you want to collect data after cancel the current data?], the data collection dialog box will be paused. In this case, resume the data collection. For details, refer to "6.14.1 [Pause/Resume] button" and "8.2.5 To resume the Excel data collection previously paused".

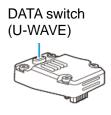
3) Perform data collection.

During data collection, the cell to which data will be input next is highlighted in green.

| | |) - (2 - - | | | | ITPAK_S | ample_Fo | rm_1_GB [| Compatib | ility Mode] | - Microso | oft Excel | | | | | 23 |
|----------------------------|----------|--|---------------|-------------|---------|-------------|-------------|--------------------------|----------------------------------|-------------|-----------|-----------|--------------|-----------|------------|---------|-------|
| Fi | e | Home I | nsert P | Page Layou | t F | ormulas | Data | Review | View | | | | | | ♡ (? | - 6 | 23 |
| A | в | С | D | E | F | G | Н | I | J | К | L | М | N | 0 | P | Q | F |
| 1 | AA | A Corpo | ration | | | | | | | | | | | | | | Ē |
| 3 | С | ERTIF | ICAT | E OF | = IN | ISPEC | стю | N | - | | | | | SAM | PLE | | |
| 6 | | Name of insp | | | | | | | | BE | B Corpo | ration | Approval | Inspector | Overall ju | idgment | |
| 7 | | Product na | me | | | | | t No. | | | CCC Divis | ion | | | | | |
| 8 | | Part nam | | | | | | er of lots | | Date | | | | | | | |
| 9 | | Part No. Inspection | Permi | cciblo | | Measuring | Numbero | f inspections | | | | | | | | | - |
| 10 | No. | item | val | | Unit | item | X1 | X2 | Х3 | X4 | X5 | judgment | Special note | | | | |
| 11 | 1 | Length | 13.60 | 13.40 | | | | | | | | | | | | | |
| 12 | 2 | Width | 12.20 | 12.00 | | | | | | | | | | | | | = |
| 13 | 3 | Height | 10.60 | 10.50 | | | | | | | | | Drawing No. | | | | |
| | 4 | | | | | | | | | | | | 1 | | | | |
| 14 | 5 | | | | | | | | | | | | | | | | |
| 15 | - | | | | | | | | | | | | - | | | | |
| 16 | 6 | | | | | | | | | | | | - | | | | |
| 17 | 7 | | | | | | | | | | | | | | | | |
| 18 | 8 | | | | | | | | | | | | | | | | |
| 19 | 9 | | | | | | | | | | | | | | | | |
| 20 | 10 | | | | | | | | | | | | | | | | |
| 21 22 23 24 25 | CD AN | easuring item)): Caliper MD: N: Surftest CMI 1: Hardness Tes | /I: Coordinat | e Measuring | g Machi | ne PP:Profa | le Projecto | r MS: Mich EX: Others | SD: Scale oscope B Corpota | tion | • | • | | | | | J |
| | ► ► | Sample_F1 | 2 | | | | | 00 | D Corpota | | 14 | | | | | Þ | Ī |
| Rea | iy | | | | | | | | | | | | | 90% — | | (| F) .: |

Input data from the measuring tools through one of the following operations:

- (1) Pressing the DATA switch on the measuring tool.
- (2) Pressing the DATA switch if USB-ITN / U-WAVE has one.



TIP • When using IT-016U / IT-020U / DP-1VA, data input can be performed using the DATA switch equipped with IT-016U / IT-020U / DP-1VA or the foot switch connected to IT-016U / IT-020U / DP-1VA.

(3) Clicking the [Data request] button on the data collection dialog box.

To cancel data that has been input, click the [Data cancel] button on the data collection dialog box. The data in the entry cell is canceled and the previous cell is highlighted.

To skip the current data entry cell without inputting data, click the [Data skip] button on the data collection dialog box. The next cell is highlighted.

4) End data collection and save the results.

Once all the data has been input, a completion message is displayed on the data collection dialog box.

| USB-ITPAK - C:\Mitutoyo\USB-ITPAK\4-2.it2 | | | | | | | | | |
|---|----------------------|--------------------|---------|--------------|--|--|--|--|--|
| Procedure : 3 side measurement (Sequential) | | | | | | | | | |
| The import of all pied | ces of measurement (| data has been comp | oleted. | 01A+00010.00 | | | | | |
| Data request | | | | | | | | | |

Click the [Stop] button on the data collection dialog box. The following message is displayed.

| USB-ITPA | K Check |
|----------|--|
| ? | Save the current contents? Click "Yes" to overwrite the current data. Click "No" to delete the current data. |
| | Yes <u>N</u> o Cancel |

[Yes]: The Excel file to which data was input is saved through overwriting under the existing file name.

[No]: The Excel file is not overwritten and the data that was input is deleted.

[Cancel]: The message dialog box is closed and the data collection dialog box is displayed.

Click the [Yes] button. The Excel file is saved through overwriting and the dialog box switches to the main dialog box.

This completes basic data collection for sequential measurement.

4.3 Batch Measurement (Basics)

4.3.1 Overview

Batch measurement is one of the measurement methods that can be selected in the procedures used in USB-ITPAK.

During batch measurement, multiple measuring tools are used to acquire measurement data in batch.

Example: Multiple measuring tools are attached to measuring jigs and workpieces are set to these jigs, and then measurement data is collected from all the connected measuring tools by using a foot switch, etc.

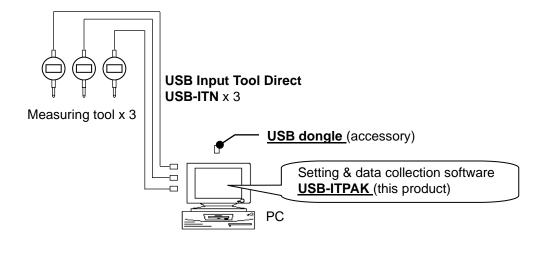
The [Data request] button of USB-ITPAK, function keys of a PC, and the foot switch can be used when collecting measurement data.

IMPORTANT • During batch measurement, a data output request is sent to all the measuring tools through a single operation, but some differences arise among the measurement times of the measuring tools. Therefore, it is not possible to perform measurement while moving measuring jigs or workpieces. Be sure to fix jigs and workpieces in place during measurement.

This section explains the basic use of batch measurement.

1) Connection

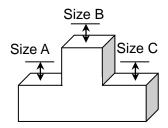
In the example used in this section, three indicators are connected to USB-ITN. The connection diagram is shown below.



TIP • IT-016U / IT-020U / DP-1VA can be used in combination with USB-ITN.

2) Workpiece for measurement

The following workpiece is used in the explanation. Three indicators are used and measurement is done with measuring jigs. "Size A", "Size B", and "Size C", which are shown in the figure below, are measured.



3) Measurement

The image of the inspection table upon completion of data collection is shown below.

| Inspe | ction item | Size A | Size B | Size C |
|------------|-------------|--------|--------|--------|
| Meas | uring item | | | |
| Tolerance | Upper limit | 5.150 | 10.100 | 5.150 |
| Tolerance | Lower limit | 4.850 | 9.900 | 4.850 |
| | Sample 1 | 5.054 | 10.023 | 5.070 |
| | Sample 2 | 5.086 | 10.016 | 5.064 |
| | Sample 3 | 5.093 | 10.000 | 5.056 |
| | Sample 4 | 5.077 | 10.039 | 5.063 |
| Result of | Sample 5 | 5.085 | 9.992 | 5.047 |
| inspection | Sample 6 | 5.084 | 10.024 | 5.065 |
| | Sample 7 | 5.062 | 9.990 | 5.050 |
| | Sample 8 | 5.073 | 9.985 | 5.054 |
| | Sample 9 | 5.071 | 10.011 | 5.045 |
| | Sample 10 | 5.062 | 10.000 | 5.060 |

The measurement procedure is as follows. The three locations of the first workpiece are measured, and the input data is output to the "Size A", "Size B", and "Size C" columns. Next, the three locations of the second workpiece are measured, and the input data is output to the "Size A", "Size B", and "Size C" columns in the "Sample 2" row of the Excel worksheet.

The remaining workpieces up to the tenth one are measured in the same manner.

| | Sample 1 | Batch (1) |
|------------|-----------|------------|
| | Sample 2 | Batch (2) |
| | Sample 3 | |
| | Sample 4 | |
| Result of | Sample 5 | |
| inspection | Sample 6 | |
| | Sample 7 | |
| | Sample 8 | |
| | Sample 9 | |
| | Sample 10 | Batch (10) |

The following describes how to set up the measurement procedure, perform measurement, and save the results.

4.3.2 Setting

1) Check the device information.

NOTE • USB-ITPAK loads the information of connected devices at startup. Therefore, connect all the devices to be used before starting up USB-ITPAK.

From the menu of the main dialog box, select [Settings] and then [Device information]. This opens the [Device information] dialog box, which allows you to check the devices that are connected to the PC.

- TIP When using IT-016U / IT-020U, also it will be recognized as ITN type. The Serial No. of IT-016U / IT-020U is represented starting with "8" as "ITN-8******".
 - The Serial No. of DP-1VA is represented as "DP1-********".

If you do not want to change the device number or device name, click the [Cancel] button to return to the main dialog box.

If you want to change a device number or device name, select the device, and then click the [Setting] button.

| ting | × |
|----------|--------------------------|
| 1 | |
| 69999065 | |
| ITN | |
| COM11 | |
| | |
| | |
| | |
| | |
| | |
| | |
| Cancel | |
| | 69999065 ITN COM11 |

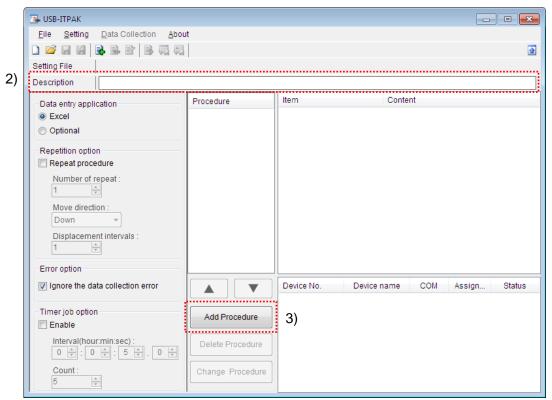
Click the [OK] button if you change any settings.

NOTE • In the procedure created from step "2)", the device number is used to specify the device

to be used. If you change the number, revise all the setting files that use it.

- TIP If multiple units are connected, specify settings for each.
- **TIP** If performing measurement using existing setting files, skip this section and refer to "4.3.3 Measurement".
 - 2) Enter information about the setting file in the [Description] field.

Enter a description of the setting file. This field may be left blank.



3) Add a procedure to the setting file.

Click the [Add Procedure] button on the main dialog box.

| | Add procedure | | |
|-----|--|----------------------------|----|
| 4) | Procedure type : Procedure name : Batch | | 5) |
| | Excel settings | Data entry devices | |
| 6) | Workbook : | Device No. Assign rule COM | |
| 7) | Worksheet : | | |
| 8) | Range of cells (specify the A1 reference style) : First : | | |
| 9) | Last : Select Move after return direction : Right | | |
| 10) | Displacement intervals : 1 | | |
| 11) | Cell address assign rules | Foot switch option | |
| | Assign for the columns(A,B,) | Device No. Function COM + | |
| | Assign for the rows(1,2,) | | |
| | FunctionKey Operation | | |
| | Data request : - | | |
| | Data cancel : | | |
| | Data skip : | | |
| | | OK Cancel | |

4) Select a procedure type for the [Procedure type] field.

Check that [Batch] is selected as the procedure type, and if not, select [Batch] from the drop-down list.

5) Enter a name in the [Procedure name] field.

Entering the procedure name is required.

TIP • Since the procedure name will be displayed in the [Procedure] field at the center of the main dialog box, enter an easily identifiable name.

Here, enter [3 position batch measurement].

6) Specify an Excel file in the [Workbook] field under [Excel settings].

Enter the workbook name of the Excel file to which the measured data is to be input.

The file can be selected from the [Open] dialog box by clicking the [...] button.

Here, select the following file.

C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sample_Form_3_GB.xls

IMPORTANT • If you want to use a file other than the sample inspection table file, create an inspection file using Excel before starting up USB-ITPAK. Inspection table files can be saved to any folder. Save the inspection table file to a folder location that will be easy to manage.

7) Select a worksheet for the [Worksheet] field under [Excel settings].

Select the worksheet name to be included in the workbook of step "6)" from the drop-down list.

Here, select [Sample_F3].

8) Enter the input range in the [Range of cells] fields under [Excel settings].

| | | | SPEC H | ON | SAN | IPLE |
|--|---|-------------------------|---------------|--------------------|---------------|-------------|
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| | of inspection .ot No. | | | Date of in Appr | | Inspect |
| | ber of lots | | | ~үрі | Uvai | mapect |
| Number | of inspections | | | | | |
| Dra | wing No. | | | | | |
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| | | | | | 0 | |
| | ection item | Size A | Size B | Size C | Size D | Size |
| Meas | suring item | | | | Size D | Size I |
| | | Size A 0.15 -0.15 | 0.10 | 0.15 | Size D | Size I |
| Meas | suring item Upper limit | 0.15 | 0.10 | | Size D | Size I |
| Meas | uring item Upper limit Lower limit Sample 1 Sample 2 | 0.15 | 0.10 | 0.15 | Size D | Size |
| Meas | suring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 | 0.15 | 0.10 | 0.15 | Size D | Size b |
| Meas Tolerance | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 | 0.15 | 0.10 | 0.15 | Size D | Size E |
| Meas Tolerance Result of | Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 | 0.15 | 0.10 | 0.15 | Size D | Size b |
| Meas Tolerance Result of | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 | 0.15 | 0.10 | 0.15 | Size D | Size t |
| Meas Tolerance | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 | 0.15 | 0.10 | 0.15 | Size D | Size I |
| Meas Tolerance Result of | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 | 0.15 | 0.10 | 0.15 | Size D | Size |
| Meas Tolerance Result of | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 6 Sample 8 | 0.15 | 0.10 | 0.15 | Size D | Size |
| Meas Tolerance Result of inspection Aver | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) | 0.15 | 0.10 | 0.15 | Size D | Size I |
| Meas Tolerance Result of inspection Aver | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 | 0.15 | 0.10 | 0.15 | Size D | Size |
| Meas Tolerance Result of inspection Aver | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) | 0.15 | 0.10 | 0.15 | Size D | Size I |
| Meas Tolerance Result of inspection Aver | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) | 0.15 | 0.10 | 0.15 | Size D | Size I |
| Meas Tolerance Result of inspection Aver | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) | 0.15 | 0.10 | 0.15 | Size D | Size I |
| Meas Tolerance Result of inspection Aver | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) | 0.15 | 0.10 | 0.15 | Size D | |
| Meas Tolerance Result of inspection Aver standard | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) | 0.15 | 0.10 | 0.15 | Size D | Size t |
| Meas Tolerance Result of inspection Aver standard Overa Measurina i | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) d deviation (σ) | 0.15 | 0.10 -0.10 | 0.15 | | Size I |

To specify the area indicated by the dot-line in the above inspection table as the input cell range, enter:

- First: D18 Last: F27
- TIP The inspection table above is shown with the [Upper limit] and [Lower limit] cells filled.

 Select the desired direction for the [Move after return direction] field under [Excel settings].

During measurement using USB-ITPAK, once data is input from the measuring tools, the measurement data is input to the current cell and then the entry point (cell) automatically moves to the next cell.

In the inspection table example shown above, select [Down].

10) Specify the [Displacement intervals] under [Excel settings].

Specify the interval for the cell movement specified in step 9). Specifying "1" results in movement to the next cell. Specifying "2" results in movement to the cell after the next.

In the inspection table example above, specify "1".

11) Select an option under [Cell address assign rules].

In USB-ITPAK, the measuring items can be assigned to columns (vertical) or rows (horizontal) of the inspection table worksheet.

In the inspection table example above, the measuring items are assigned to respective columns, so select [Assign for the columns (A, B...)].

12) Specify the [Data entry devices] settings for the first device.

The functions of the buttons for the [Data entry devices] field are as follows:

- [+]: Adds device settings.
- [-]: Deletes the device setting selected from the list.
- [v]: Changes the device setting selected from the list.

Here, click the [+] button to switch to the [Data entry device settings] dialog box.

| Add procedure | |
|---|---|
| Procedure type : Procedure name : Batch | asurement |
| Excel settings Workbook : C:\Mitutoyo\USB-ITPAK\Sample\TPAK_Sarr Worksheet : Sample_F3 Range of cells (specify the A1 reference style) : First : D18 Last : F27 Select Move after return direction : Down Displacement intervals : 1 | Data entry devices Device No. Assign rule COM + |
| Cell address assign rules | Foot switch option |
| Onspective Assign for the columns(A,B,) Assign for the rows(1,2,) | Device No. Function COM |
| FunctionKey Operation Data request : Data cancel : Data skip : | |
| | OK Cancel |

- Data entry device settings × Excel cells assignment Assign for the columns(A,B, 13) D Select - D Entry data settings 14) Measurement data entry Select device 15) ITN-69999065 ITN-69999067 ITN-69999013 + Device No. Character string -~ O DateTime data entry Select device ÷ Device information 69999065 Serial No 1 Туре ITN COM11 COM OK Cancel
- 13) Specify the settings in the [Excel cells assignment] field on the [Data entry device settings] dialog box.

In the [Excel cells assignment] field, specify columns (vertical) or rows (horizontal) according to the specification in step 11). Specify the columns here.

There are three input areas in the previously described inspection table. Here, the first device is assigned to the D column, which is the first column, so enter "D" in both fields.

14) In the [Entry data settings] field, select the entry data type.

The entry data types consist of measurement data input from the measuring tools (numeric data), and character string data input by pressing the foot switch.

TIP • For details about the method for inputting character string data using a foot switch, refer to "CHAPTER 5 MEASUREMENT DATA COLLECTION (ADVANCED)".

Here, select the [Measurement data entry] radio button.

15) In the [Select device] field, select the device to be assigned.

From the drop-down list, select the device to be assigned.

Here, select the first device.

This completes the settings on the [Data entry device settings] dialog box for the first device, so click the [OK] button.

16) Repeat steps "12) to 15)" to specify the [Data entry device] settings for the second device.

Here, assign the second device to the E column.

17) Repeat steps "12) to 15)" to specify the [Data entry device] settings for the third device.

Here, assign the third device to the F column.

| 16) |
|--|
| Data entry device settings |
| Excel cells assignment Assign for the columns(A,B,) E - E Select |
| Entry data settings |
| Measurement data entry Select device : ITN-69999067 |
| Channel : |
| Character string data entry |
| Device No. Character string + |
| |
| DateTime data entry Select device : |
| ITN-69999065[D:D] |
| Device information Serial No. : 69999067 |
| Type : ITN |
| COM : COM12 |
| OK Cancel |

| dld e | ntry device setting | js 🗾 💌 |
|-------|---|---------------------|
| | el cells assignm | |
| _ | sign for the colum | |
| F | - F | Select |
| Ent | try data settings | |
| ۲ | Measurement da | ata entry |
| | Select device : | |
| | ITN-69999013 | • |
| | Channel : | |
| | | |
| | Character string | data entry |
| | Device No. C | Character string |
| | | indication of aning |
| | | |
| | | |
| | | - |
| | | |
| | | - |
| C | DateTime data e | - |
| C | Select device : | entry |
| | Select device : ITN-69999065[I | entry |
| | Select device : ITN-69999065[I Device information | entry |
| | Select device : ITN-69999065[I Device information Serial No. : | entry |
| | Select device : ITN-69999065[I Device information Serial No. : Type : | entry |
| | Select device : ITN-69999065[I Device information Serial No. : | entry |

18) Close [Add procedure].

| | | | | | _ |
|--|-----------------------|------------------------------------|-------------|-------|----------|
| Procedure type : | Procedure name : | | | | |
| Batch 💌 | 3 position batch mea | asurement | | | |
| Excel settings | | Data entry devic | es | | |
| Workbook : | | Device No. | Assign rule | COM | + |
| C:\Mitutoyo\USB-ITPAK\Sam | nple\ITPAK_Sarr [] | ITN-69999065 | D:D | COM11 | |
| Worksheet : | | ITN-69999067 | E:E | COM12 | |
| Sample_F3 | • | ITN-69999013 | F:F | COM8 | _ |
| Range of cells (specify the A | A1 reference style) : | | | | ~ |
| First : D18 | Select | | | | |
| Last: F27 | | | | | |
| Move after return direction : | | | | | |
| Down - | | | | | |
| | | | | | |
| Displacement intervals : | | | | | |
| Displacement intervals : | | | | | |
| | | | | | |
| 1 | | Foot switch option | DN | | |
| 1 Cell address assign rules | ι,Β,) | Foot switch optin Device No. Fu | | СОМ | + |
| Cell address assign rules | | | | СОМ | + |
| 1 Image: Cell address assign rules O Unspecified Image: Image: Output of the columns (A columns) Assign for the rows (1,2,) | | | | СОМ | + |
| 1 Image: Cell address assign rules Curspecified Unspecified Image: Assign for the columns(A Assign for the rows(1,2,) FunctionKey Operation Image: Assign for the rows(1,2,) | | | | СОМ | |
| 1 • Cell address assign rules • • Unspecified • • Assign for the columns(A • • Assign for the rows(1,2, • FunctionKey Operation • Data request : • | | | | СОМ | |
| 1 Image: Cell address assign rules Cell address assign rules Unspecified Assign for the columns(A Assign for the rows(1,2,) FunctionKey Operation | | | | СОМ | + |
| 1 • Cell address assign rules • • Unspecified • • Assign for the columns(A • • Assign for the rows(1,2, • FunctionKey Operation • Data request : • | | | | СОМ | |
| 1 • Cell address assign rules • • Unspecified • • Assign for the columns(A • • Assign for the rows(1,2,) • FunctionKey Operation • Data request : • • • | | | | СОМ | |

This completes the settings on the [Add procedure] dialog box, so click the [OK] button.

19) Save the created setting file.

| | | | | • • ו |
|---------------------|--|--|--|--|
| | | | | |
| | | | | |
| 3.it2 | | | | |
| | | | | |
| Bracadura | Item | Content | | |
| | | | | |
| 5 position batch me | Data entry application | Excel | | |
| | Excel settings: | | | |
| | Workbook | | | _3_GB.xls |
| | | • = | 3 | |
| | - | | | |
| | Displacement intervals | 1 | | |
| | | es Assign for t | he columns(A,B,) |) |
| | | | | |
| | FunctionKey Operation: | | | |
| | | | | |
| | | | | |
| | | | - | Status |
| | | | | Connect Connect |
| Add Procedure | | | | Connect |
| | | | | |
| Delete Procedure | | | | |
| Change Procedure | | | | |
| Change i locedure | | | | |
| | 3.it2 atch. Procedure 3 position batch me | 3.it2 atch. Procedure 3 position batch me Procedure type Data entry application Excel settings: Workbook Worksheet Range of cells Move after return directi Displacement intervals Cell address assign rulk Foot switch option: FunctionKey Operation: IN-69999065 IN-69999065 IN-69999067 IN-69999013 IN-69999013 | 3.it2 atch. Procedure 3 position batch me. Item Content Procedure type Batch Data entry application Excel Excel settings: Workbook C:MitNTP/ Workbook C:MitNTP/ Worksheet Sample_F3 Range of cells D18:F27 Move after return direction Down Displacement intervals 1 Cell address assign rules Assign for the solution: FunctionKey Operation: FunctionKey Operation: Move after return direction Device No. Device No. Device name COM Thr-69999065 Thr-69999065 COM11 Thr-69999067 TN-69999067 COM12 Thr-69999013 TN-69999013 COM8 | 3.it2 atch. Procedure 3 position batch me Procedure type Batch Data entry application Excel Excel settings: Workbook Workbook C:Mit\ITPAK_Sample_Form_ Worksheet Sample_F3 Range of cells D18:F27 Move after return direction Down Displacement intervals 1 Cell address assign rules Assign for the columns(A,B,) Foot switch option: FunctionKey Operation: FunctionKey Operation: Device No. Add Procedure Device No. Delete Procedure ITN-69999067 Delete Procedure ITN-69999013 |

From the menu of the main dialog box, select [File], [Save As], and then save the file by giving it a name. When the file has been saved, the file name is displayed as a full path in the [Setting File] field.

4.3.3 Measurement

1) Open [Setting File].

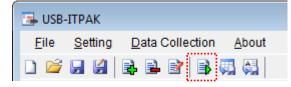
TIP • If starting measurement immediately after specifying the settings in "4.3.2 Setting", the setting file is already opened. In this case, skip step "1)".

From the menu of the main dialog box, select [File] and then [Open], or open [Setting file] from [Recent files].

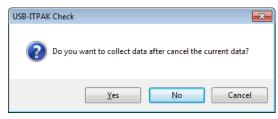
2) Open the data collection dialog box.

IMPORTANT • In USB-ITPAK, following data collection, the Excel file to which the data was input is saved through overwriting under the existing file name. To use the original Excel file later, back it up beforehand.

From the menu of the main dialog box, select [Data Collection] and then [Start], or click the icon shown below.



When data collection starts, the message [Do you want to collect data after cancel the current data?] is displayed. Click [Yes] to clear the existing data or [No] not to.



The data collection dialog box is displayed and data collection can now be performed.

| USB-ITPAK - C:\Mitutoyo\USB-ITPAK\4-3.it2 | | | | | | | | |
|---|---|--|--|--|--|--|--|--|
| Procedure : 3 position batch measurement (Batch) | | | | | | | | |
| Execute import man | Execute import manipulations of measurement data. | | | | | | | |
| Data request Data cancel Data skip Pause Stop | | | | | | | | |

TIP • If you click [No] for the message [Do you want to collect data after cancel the current data?], the data collection dialog box will be paused. In this case, resume the data collection. For details, refer to "6.14.1 [Pause/Resume] button" and "8.2.5 To resume the Excel data collection previously paused".

3) Perform data collection.

During data collection, the cell to which data will be input next is highlighted in green.

| | L) - (L - | | le_Form_3_GB [(| | | | 3 0 0 |
|--|---|---|-----------------|---|--------------|--------------|-----------|
| Fil | | - | - | nulas Data | Review | View | ♥ (?) - ₽ |
| - 4 F | _ | C | D | E | F | G | Н |
| 3 | AAA Corpo | pration | | | Date: | | |
| 0 | | | | | | | |
| 4 | CERTI | FICATE | OF INS | SPECTI | ON | SAN | NPLE |
| 4 | | | | | | | |
| 6 | | rt name | | | B | BB Corporati | |
| 7 | Pa | art No. | | | | CCC Division | |
| 8 | Name o | of inspection | | | Date of in | spection | |
| 9 | | ot No. | | | Арр | roval | Inspector |
| 10 | | ber of lots | | | | | |
| 11 | | of inspections | | | | | |
| 12 | Drav | wing No. | | | | | |
| | | | | | | | |
| | | | | | | | |
| 13 14 | | ction item | Size A | Size B | Size C | Size D | Size E |
| 14 15 | | uring item | | | | Size D | Size E |
| 14 15 16 | | uring item Upper limit | 0.15 | 0.10 | 0.15 | Size D | Size E |
| 14 15 16 17 | Meas | uring item Upper limit Lower limit | | | | Size D | Size E |
| 14 15 16 17 18 | Meas | uring item Upper limit Lower limit Sample 1 | 0.15 | 0.10 | 0.15 | Size D | Size E |
| 14 15 16 17 18 19 | Meas | uring item Upper limit Lower limit Sample 1 Sample 2 | 0.15 | 0.10 | 0.15 | Size D | Size E |
| 14 15 16 17 18 19 20 | Meas | uring item Upper limit Lower limit Sample 1 | 0.15 | 0.10 | 0.15 | Size D | Size E |
| 14 15 16 17 18 19 20 21 | Meas | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 | 0.15 | 0.10 | 0.15 | Size D | Size E |
| 14 15 16 17 18 19 20 21 22 23 | Meas Tolerance | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 | 0.15 | 0.10 | 0.15 | Size D | Size E |
| 14 15 16 17 18 19 20 21 22 23 24 | Meas Tolerance Result of | uring item Upper limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 | 0.15 | 0.10 | 0.15 | Size D | Size E |
| 14 15 16 17 18 19 20 21 22 23 24 25 | Meas Tolerance Result of | uring item Upper limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 Sample 8 | 0.15 | 0.10 | 0.15 | Size D | Size E |
| 14 15 16 17 18 20 21 22 23 22 23 24 25 26 | Meas Tolerance Result of | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 Sample 8 Sample 9 | 0.15 | 0.10 | 0.15 | Size D | Size E |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 | Meas Tolerance Result of inspection | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 4 Sample 5 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 | 0.15 | 0.10 | 0.15 | Size D | Size E |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 | Meas Tolerance Result of inspection Avera | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) | 0.15 | 0.10 | 0.15 | Size D | Size E |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 | Meas Tolerance Result of inspection Avera | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 4 Sample 5 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 | 0.15 | 0.10 | 0.15 | Size D | Size E |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 | Meas Tolerance Result of inspection Avera | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) | 0.15 | 0.10 | 0.15 | Size D | Size E |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 | Meas Tolerance Result of inspection Avera | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) | 0.15 | 0.10 | 0.15 | Size D | Size E |
| 14 15 16 17 18 20 21 22 23 24 25 26 27 28 20 30 31 32 | Meas Tolerance Result of inspection Avera | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) | 0.15 | 0.10 | 0.15 | Size D | Size E |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 33 | Meas Tolerance Result of inspection Avera standard | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) | 0.15 | 0.10 | 0.15 0.00 | Size D | Size E |
| 14 15 16 17 18 20 21 22 23 24 25 26 27 28 29 30 31 32 33 33 34 35 | Meas Tolerance Result of inspection Avera standard | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 7 Sample 7 Sample 7 Sample 7 Sample 10 Sample 10 Sam | 0.15 | 0.10 | 0.15 0.00 | Size D | Size E |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 33 | Meas Tolerance Result of inspection Avera standard Overal (Messuring in CD: Caliper AN: Surflest | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 7 Sample 7 Sample 7 Sample 7 Sample 10 Sample 10 Sam | 0.15 -0.15 | 0.10 -0.10 -0.10 -0.10 -0.10 | 0.15 | | |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 29 30 31 32 33 33 33 33 33 34 | Meas Tolerance Result of inspection Avera standard Overal (Messuring in CD: Caliper AN: Surflest | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) deviation (σ) I judgment em] MD: Nicrometer MD: Nicrometer | 0.15 -0.15 | 0.10 -0.10 -0.10 -0.10 -0.10 | 0.15 0.00 | | |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 38 39 40 | Meas Tolerance Result of inspection Avera standard Overal (Messuring in CD: Caliper AN: Surflest | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 5 Sample 7 Sample 7 Sample 7 Sample 7 Sample 9 Sample 9 Sample 9 Sample 10 Sample 7 Sample | 0.15 -0.15 | 0.10 -0.10 -0.10 [Special note] D: Height Gage ine PP: Profal res BB Corporation | 0.15 0.00 | | |

Click the [Data request] button on the data collection dialog box and perform data input from the measuring tools.

To cancel data that has been input, click the [Data cancel] button on the data collection dialog box. The data in the entry cell is canceled and the previous cell is highlighted.

To skip the current data entry cell without inputting data, click the [Data skip] button on the data collection dialog box. The next cell is highlighted.

- **IMPORTANT** During batch measurement, data is collected all at once, so data cannot be collected through the following operations:
 - (1) Pressing the DATA switch on the measuring tool
 - (2) Pressing the DATA switch if USB-ITN / U-WAVE has one

- (3) When using IT-016U / IT-020U / DP-1VA, press the DATA switch.
- (4) When using IT-016U / IT-020U / DP-1VA, operate the foot switch connected to IT-016U / IT-020U / DP-1VA.
- (5) When using DP-1VA, activate the interval timer on DP-1VA.

4) End data collection and save the results.

Once all the data has been input, a completion message is displayed on the data collection dialog box.

| USB-ITPAK - C:\Mitutoyo\USB-ITPAK\4-3.it2 | | | | | | | | |
|--|---|--|--|--|--|--|--|--|
| Procedure : 3 position batch measurement (Batch) | | | | | | | | |
| The import of all pied | The import of all pieces of measurement data has been completed. 01A+00000.10 | | | | | | | |
| Data request Data cancel Data skip Pause Stop | | | | | | | | |

Click the [Stop] button on the data collection dialog box. The following message is displayed.

| USB-ITPAK Check | × |
|--|--------|
| Save the current contents? Click "Yes" to overwrite the current d Click "No" to delete the current data. | ata. |
| Yes No | Cancel |

[Yes]: The Excel file to which data was input is saved through overwriting under the existing file name.

[No]: The Excel file is not overwritten and the data that was input is deleted.

[Cancel]: The message dialog box is closed and the data collection dialog box is displayed.

Click the [Yes] button. The Excel file is saved through overwriting and the dialog box switches to the main dialog box.

This completes basic data collection for batch measurement.

4.4 Individual Measurement (Basics)

4.4.1 Overview

Individual measurement is one of the measurement methods that can be selected in the procedures used in USB-ITPAK.

During individual measurement, measurement data from multiple operators can be input to the respectively assigned cells in the specified Excel worksheet.

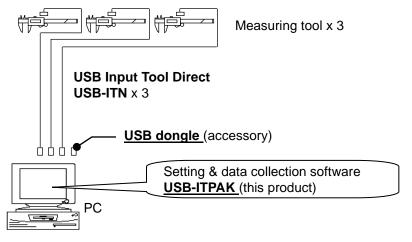
Example: Collection of data while three operators perform measurements with their respective measuring tools.

The DATA switch of the measuring tool and the foot switch can be used when collecting measurement data.

This section explains the basic use of individual measurement.

1) Connection

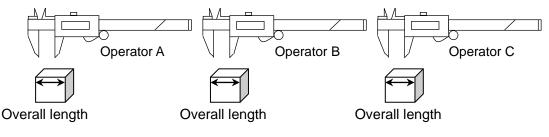
In the example used in this section, three measuring tools are connected to USB-ITN. The connection diagram is shown below.



TIP • IT-016U / IT-020U / DP-1VA can be used in combination with USB-ITN.

2) Workpieces for measurement

The following workpieces are used in the explanation. The measurement location is the overall length of the same workpiece for all three operators (designated as A, B, and C).

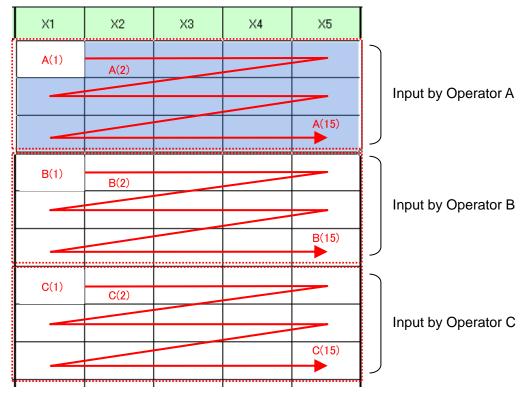


3) Measurement

The image of the inspection table upon completion of data collection is shown below.

| No. | Inspection item | Permi va | issible lue | Unit | Measuring item | X1 | X2 | X3 | ×4 | X5 |
|-----|--------------------|-------------|----------------|------|-------------------|-------|-------|-------|-------|-------|
| 1 | Overall Length | 10.05 | 9.95 | mm | CD | 10.02 | 10.01 | 10.01 | 10.03 | 10.03 |
| 2 | Operator A | | | | | 10.01 | 10.02 | 10.02 | 10.03 | 10.01 |
| 3 | | | | | | 10 | 10.03 | 10.03 | 10.02 | 10.01 |
| 4 | Overall Length | 10.05 | 9.95 | mm | СD | 10.02 | 10.02 | 10 | 10.01 | 10.01 |
| 5 | Operator B | | | | | 10.02 | 10.01 | 10.01 | 9.99 | 10.01 |
| 6 | | | | | | 10.01 | 10 | 9.99 | 10 | 10.01 |
| 7 | Overall Length | 10.05 | 9.95 | mm | СD | 10.01 | 10.03 | 10.02 | 10 | 10.02 |
| 8 | Operator C | | | | | 10.03 | 10.02 | 10.02 | 10.01 | 10.03 |
| 9 | | | | | | 10.03 | 10.02 | 10.02 | 10.01 | 10.01 |

The measurement procedure is as follows. Operator A, Operator B, and Operator C each measure the width of the first workpiece, and the input data is output to the first row (for Operator A), fourth row (for Operator B), and seventh row (for Operator C) of the X1 column on the Excel worksheet. Next, the second workpiece is measured in the same manner, with each operator measuring 15 workpieces in all.



The following describes how to set up the measurement procedure, perform measurement, and save the results.

4.4.2 Setting

1) Check the device information.

NOTE • USB-ITPAK loads the information of connected devices at startup. Therefore, connect all the devices to be used before starting up USB-ITPAK.

From the menu of the main dialog box, select [Settings] and then [Device information]. This opens the [Device information] dialog box, which allows you to check the devices that are connected to the PC.

| Device information | ation | | | | | | X |
|--------------------|------------|--------|-------|------|-------|--------|---|
| Device lists | | | | | | | |
| Device No. | Device | e name | COM | Туре | Seria | al No. | |
| ITN-39999 | 115 ITN-39 | 999115 | COM13 | ITN | 3999 | 9115 | |
| ITN-39999 | 119 ITN-39 | 999119 | COM14 | ITN | 3999 | 9119 | |
| ITN-39999 | 120 ITN-39 | 999120 | COM9 | ITN | 3999 | 9120 | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Setting | | | 6 | 0 | к | Cancel | |
| Coung | | | L L | | | Canoor | |

- TIP When using IT-016U / IT-020U, also it will be recognized as ITN type. The Serial No. of IT-016U / IT-020U is represented starting with "8" as "ITN-8******".
 - The Serial No. of DP-1VA is represented as "DP1-********".

If you do not want to change the device number or device name, click the [Cancel] button to return to the main dialog box.

If you want to change a device number or device name, select the device, and then click the [Setting] button.

| Device information setting | | | | | | |
|----------------------------|---|----------|---|--|--|--|
| | Device information | | | | | |
| | Serial No. : | 39999115 | | | | |
| | Type : | ITN | | | | |
| | COM : | COM13 | | | | |
| | Device No. : ITN-39999115 Device name : |] | | | | |
| I. | ITN-39999115 | | ! | | | |
| (| OK | Cancel | | | | |

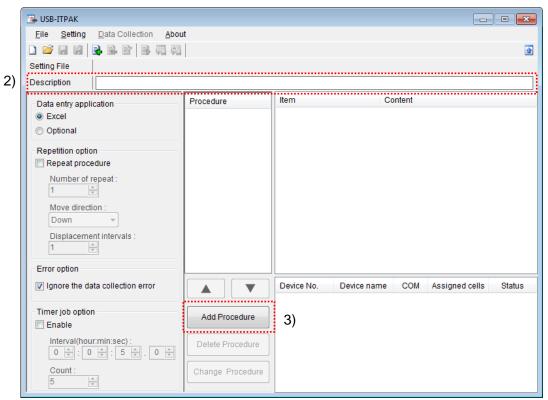
Click the [OK] button if you change any settings.

NOTE • In the procedure created from step "2)", the device number is used to specify the device

to be used. If you change the number, revise all the setting files that use it.

- **TIP** If multiple units are connected, specify settings for each.
- **TIP** If performing measurement using existing setting files, skip this section and refer to "4.4.3 Measurement".
 - 2) Enter information about the setting file in the [Description] field.

Enter a description of the setting file. This field may be left blank.



3) Add a procedure to the setting file.

Click the [Add Procedure] button on the main dialog box.

4) Select a procedure type for the [Procedure type] field.

If [Individual] is selected, the dialog box switches to the following dialog box.

| A | dd procedure | | | | | | — × |
|----|----------------|--------|-----------|----------------|-----------|------------------------|------------|
| 6 | Procedure type | e : | Proc | edure name : | ••••• | | |
| | Individual | | • | | | | |
| ι. | Data entry de | evices | | | | | |
| | | | Worksheet | Assigned cells | Direction | Displacement intervals | + - |
| | Foot switch o | | COM | | | | |
| | | | | | | ОК | Cancel |

If a different dialog box is displayed, select [Individual] from the drop-down list.

5) Enter a name in the [Procedure name] field.

Entering the procedure name is required.

TIP • Since the procedure name will be displayed in the [Procedure] field at the center of the main dialog box, enter an easily identifiable name.

Here, enter [3 posi. individual measurement].

6) Specify the [Data entry devices] settings for the first device.

The functions of the buttons for the [Data entry devices] field are as follows:

- [+]: Adds device settings.
- [-]: Deletes the device setting selected from the list.
- $[\sqrt{}]$: Changes the device setting selected from the list.

Here, click the [+] button to switch to the [Data entry device settings] dialog box.

| | Data entry device settings | × |) |
|----|---|--|-----|
| 7) | Entry data settings Measurement data entry | Excel settings Workbook : | |
| 8) | Select device : | | 9) |
| 0) | ITN-39999115 | Worksheet: | 10) |
| | Channel : | Range of cells (specify the A1 reference style): | ´ |
| | | First : Select | 11) |
| | Character string data entry Select foot switch : | Last: | l í |
| | | Move after return direction : | 12) |
| | Character string data : | Right - | l í |
| | | Displacement intervals : | 13) |
| | Device information | ······ | |
| | Serial No.: 39999115 | Foot switch option | |
| | Type: ITN | Device No. Function COM | |
| | COM : COM13 | | |
| | | | |
| | | OK Cancel | |
| | | Cancer | |

7) In the [Entry data settings] field, select the entry data type.

The entry data types consist of measurement data input from the measuring tools (numeric data), and character string data input by pressing the foot switch.

TIP • For details about the method for inputting character string data using a foot switch, refer to "CHAPTER 5 MEASUREMENT DATA COLLECTION (ADVANCED)".

Here, select the [Measurement data entry] radio button.

8) In the [Select device] field, select the device to be assigned.

From the drop-down list, select the device to be assigned.

Here, select the first device.

9) Specify an Excel file in the [Workbook] field under [Excel settings]

Enter the workbook name of the Excel file to which the measured data is to be input.

The file can be selected from the [Open] dialog box by clicking the [...] button.

Here, select the following file.

C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sample_Form_4_GB.xls

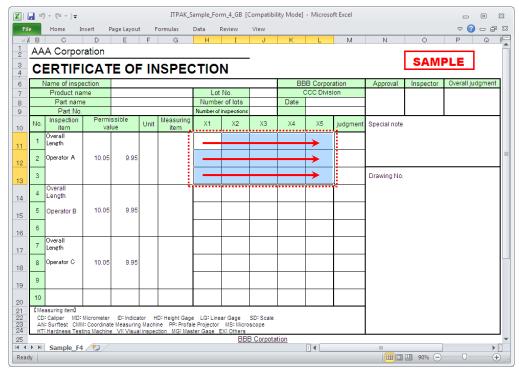
IMPORTANT • If you want to use a file other than the sample inspection table file, create an inspection file using Excel before starting up USB-ITPAK. Inspection table files can be saved to any folder. Save the inspection table file to a folder location that will be easy to manage.

10) Select a worksheet for the [Worksheet] field under [Excel settings].

Select the worksheet name to be included in the workbook of step "9)" from the drop-down list.

Here, select [Sample_F4].

11) Enter the input range in the [Range of cells] fields under [Excel settings].



To specify the area indicated by the dot-line in the above inspection table as the input cell range, enter:

First: H11 Last: L13

- **TIP** The inspection table above shows the [Inspection item] and [Permissible value] cells filled, and the three rows provided respectively for operators A, B, and C.
 - 12) Select the desired direction for the [Move after return direction] field under [Excel settings].

During measurement using USB-ITPAK, once data is input from the measuring tools, the measurement data is input to the current cell and then the entry point (cell) automatically moves to the next cell.

In the inspection table example shown above, select [Right].

13) Specify the [Displacement intervals] under [Excel settings].

Specify the interval for the cell movement specified in step 12). Specifying "1" results in movement to the next cell. Specifying "2" results in movement to the cell after the next.

In the inspection table example above, specify "1".

This completes the settings on the [Data entry device settings] dialog box for the first device, so click the [OK] button.

14) Repeat steps "6) to 13)" to specify the [Data entry device] settings for the second device.

| | Excel settings Workbook : |
|---|--|
| 1110-39999119 | C:Mitutoyo\USB-ITPAK\Sample\ITPAK_Sample Worksheet : Sample_F4 |
| Character string data entry Select foot switch : | Range of cells (specify the A1 reference style) : First : H14 Select Last : L16 Move after return direction : Right Displacement intervals : 1 |
| Device information Serial No. : 39999119 Type : ITN COM : COM14 | Foot switch option Device No. Function COM |

Here, assign the second device to the [H14:L16].

15) Repeat steps "6) to 13)" to specify the [Data entry device] settings for the third device.

Here, assign the third device to the [H17:L19].

| Data entry device settings | | | | | |
|--|---|--|--|--|--|
| Entry data settings Measurement data entry Select device : ITN-39999120 | Excel settings Workbook : -ITPAK\Sample\TPAK_Sample_Form_4_GB.xls Worksheet : Sample_F4 | | | | |
| Channel : Character string data entry Select foot switch : Character string data : | Range of cells (specify the A1 reference style) : First : H17 Select Last : L19 Move after return direction : Right Displacement intervals : 1 | | | | |
| Device information Serial No. : 39999120 Type : ITN COM : COM9 | Foot switch option Device No. Function COM | | | | |

| 16) Close | [Add | procedure]. |
|-----------|------|-------------|
|-----------|------|-------------|

| ocedure type : | Procedure name : | | | |
|-------------------|--|-----------|----------------|-----------|
| dividual | 3 posi. individual measure | ment | | |
| Data entry device | es | | | |
| Device No. | Workbook | Worksheet | Assigned cells | Direction |
| ITN-39999115 | C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_S | Sample_F4 | H11:L13 | Right |
| | C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_S | | | Right |
| ITN-39999120 | C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_S | Sample_F4 | H17:L19 | Right |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| < [| III | | | Þ |
| | | | | |
| Foot switch optio | n | | | • |
| | n | | | Þ |
| Foot switch optio | n | | | Þ |
| Foot switch optio | n | | | Þ |
| Foot switch optio | n | | | • |
| Foot switch optio | n | | | • |
| Foot switch optio | n | | | • |

This completes the settings on the [Add procedure] dialog box, so click the [OK] button.

17) Save the created setting file.

| USB-ITPAK Eile Setting Data Collection | About | | | | | | |
|--|---|---|--------------|---|---|--|--|
| Setting File C:Witutoyo/USB-I Description Individually meas | TPAK\4-4.it2 | | | | | | |
| Data entry application Excel Optional Repetition option Repeat procedure Number of repeat: Move direction: Down Displacement intervals: Cerror option | Procedure 3 posi. individual me | Item Procedure type Data entry application Excel settings: Workbook Worksheet Range of cells Move after return direct Displacement intervals Foot switch option: | | | | | |
| Ignore the data collection error Timer job option Enable Interval(hour:min:sec): | Add Procedure Add Procedure Delete Procedure Change Procedure | Device No. Device ITN-39999115 ITN-39 ITN-39999119 ITN-39 ITN-39999120 ITN-39 | 999119 COM14 | Assigned cells H11:L13 H14:L16 H17:L19 | Status Connect Connect Connect | | |

From the menu of the main dialog box, select [File], [Save As], and then save the file by giving it a name. When the file has been saved, the file name is displayed as a full path in the [Setting File] field.

4.4.3 Measurement

1) Open [Setting File].

TIP • If starting measurement immediately after specifying the settings in "4.4.2 Setting", the setting file is already opened. In this case, skip step "1)".

From the menu of the main dialog box, select [File] and then [Open], or open [Setting file] from [Recent files].

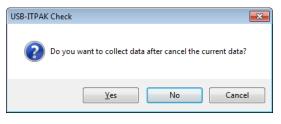
2) Open the data collection dialog box.

IMPORTANT • In USB-ITPAK, following data collection, the Excel file to which the data was input is saved through overwriting under the existing file name. To use the original Excel file later, back it up beforehand.

From the menu of the main dialog box, select [Data Collection] and then [Start], or click the icon shown below.

| 🕞 USB-ITPAK | | | | | | | | |
|--------------|-------------------------------|--|--|--|--|--|--|--|
| <u>F</u> ile | Setting Data Collection About | | | | | | | |
| 🗋 💕 | 🖌 🖌 🗟 🖻 🖹 🛼 🥋 🗍 | | | | | | | |

When data collection starts, the message [Do you want to collect data after cancel the current data?] is displayed. Click [Yes] to clear the existing data or [No] not to.



The data collection dialog box is displayed and data collection can now be performed.

| 🕞 USB-ITPAK - C:\Mitutoyo\\ | USB-ITPAK\4-4.it2 | | | | | | | |
|---|-------------------|-----------|-------|------|--|--|--|--|
| Procedure : 3 posi. individual measurement (Individual) | | | | | | | | |
| Execute data entry of | operation. | | | | | | | |
| Data request | Data cancel | Data skip | Pause | Stop | | | | |

TIP • If you click [No] for the message [Do you want to collect data after cancel the current data?], the data collection dialog box will be paused. In this case, resume the data collection. For details, refer to "6.14.1 [Pause/Resume] button" and "8.2.5 To resume the Excel data collection previously paused".

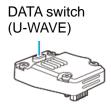
3) Perform data collection.

During data collection, the cell to which data will be input next is highlighted in green.

| File A | | Home In | nsert P D | age Layou E | F | ormulas G | Data H | Review | View | К | | M | N | 0 | P | |
|-----------|----------|-----------------------------|-----------------------------|--------------------------|-------------------|-----------------------------|--------------------------|---------------------|----------------------|------|-----------|----------|--------------|-----------|---------|---------|
| | | - | - | E | F | G | H | 1 | J | ĸ | _ L | IVI | N | 0 | P | U U |
| 4 | 4A | A Corpo | ration | | | | | | _ | | | | | SAM | | 1 |
| | CI | ERTIF | CAT | 'E OF | = IN | ISPEC | CITC | N | | | | | | SAIVI | FLE | |
| Г | 1 | lame of inspe | ection | | | | | | | BE | 3B Corpo | ration | Approval | Inspector | Overall | udgment |
| | | Product na | me | | | | Lo | it No. | | | CCC Divis | | | | | |
| | | Part nam | e | | | | | er of lots | | Date | | | | | | |
| ┢ | | Part No. | Permi | | | | Number o | of inspection | s | | | _ | | | | |
| | No. | Inspection item | val | | Unit | Measuring item | X1 | X2 | X3 | X4 | X5 | judgment | Special note | | | |
| Γ | 1 | Overall Length | | | | | | | | | | | | | | |
| ŀ | | - | | | | | | _ | | | | | - | | | |
| | 2 | Operator A | 10.05 | 9.95 | | | | | | | | | | | | |
| | 3 | | | | | | | | | | | | Drawing No. | | | |
| | <u> </u> | Overall | | | | | | | | | | | | | | |
| | 4 | Length | | | | | | | | | | | | | | |
| | 5 | Operator B | 10.05 | 9.95 | | | | | | | | | | | | |
| | - | Operator B | 10.00 | 0.00 | | | | _ | | | | | - | | | |
| | 6 | | | | | | | | | | | | | | | |
| ľ | 7 | Overall | | | | | | | | | | | | | | |
| | | Length | | | | | | | | | | | | | | |
| I | 8 | Operator C | 10.05 | 9.95 | | | | | | | | 1 | | | | |
| ľ | 9 | | | | | | | | | | | | 1 | | | |
| | <u> </u> | | | | | | | | | | | I | - | | | |
| | 10 | | | | | | | | | | | | | | | |
| | | asuring item | | | | | | | | | | | 1 | | | |
| | CD AN | Caliper MD: Surftest CMN | Micrometer 1: Coordinate | ID: Indica e Measurin | itor H q Machi | D:Height Gag ne PP:Profa | e LG: Lin le Projecto | earGage r MS:Mic | SD: Scale roscope | | | | | | | |
| L | | Hardness Test | | | | | | EX: Others | | | | | | | | |

Input data from the measuring tools through one of the following operations:

- (1) Pressing the DATA switch on the measuring tool.
- (2) Pressing the DATA switch if USB-ITN / U-WAVE has one.



TIP • When using IT-016U / IT-020U / DP-1VA, data input can be performed using the DATA switch equipped with IT-016U / IT-020U / DP-1VA or the foot switch connected to IT-016U / IT-020U / DP-1VA.

IMPORTANT • During individual measurement, data is collected separately for each measuring tool, so data cannot be collected by clicking the [Data request] button on the data collection dialog box.

4) End data collection and save the results.

Once all the data has been input, a completion message is displayed on the data collection dialog box.

| USB-ITPAK - C:\Mitutoyo\USB-ITPAK\4-4.it2 | | | | | | | | |
|---|----------------------|--------------------|--------|--------------|--|--|--|--|
| Procedure : 3 posi. individual measurement (Individual) | | | | | | | | |
| The import of all pie | ces of measurement o | data has been comp | leted. | 01A+00010.00 | | | | |
| Data request | Data cancel | Data skip | Pause | Stop | | | | |

Click the [Stop] button on the data collection dialog box. The following message is displayed.

| USB-ITPAK Check | | — × | | | | | |
|-----------------|--|------------|--|--|--|--|--|
| Click "Yes" | Save the current contents? Click "Yes" to overwrite the current data. Click "No" to delete the current data. | | | | | | |
| <u>Y</u> es | <u>N</u> o | Cancel | | | | | |

[Yes]: The Excel file to which data was input is saved through overwriting under the existing file name.

[No]: The Excel file is not overwritten and the data that was input is deleted.

[Cancel]: The message dialog box is closed and the data collection dialog box is displayed.

Click the [Yes] button. The Excel file is saved through overwriting and the dialog box switches to the main dialog box.

This completes basic data collection for individual measurement.

4.5 Sequential Measurement (Basics) using U-WAVE

4.5.1 Overview

Sequential measurement is one of the measurement methods that can be selected in the procedures used in USB-ITPAK.

During sequential measurement, one or more measuring tools are used and measurement data is input from the tools to cells specified in advance in an inspection table worksheet in Excel or other applications.

Example: Measurement in a pre-set sequence such as measuring the length, and then the width by using one measuring tool

Example: Sequential measurement of measurement locations on a workpiece using multiple measuring tools, such as measuring the length by using a caliper and measuring the diameter by using a micrometer

When using U-WAVE, the measurement data collection is available with the DATA switch operation on the U-WAVE transmitter and the DATA switch operation on the measuring tools. When using USB-ITN, the measurement data collection is available with the [Data request] button operation on USB-ITPAK, the function key operation on the PC, the DATA switch operation on the measuring tools and the foot switch operation.

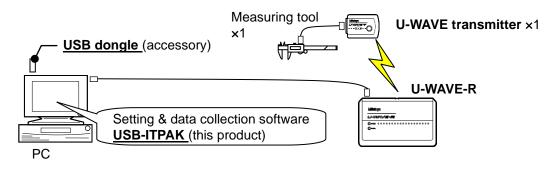
IMPORTANT • To use U-WAVE with USB-ITPAK, the installation of device driver for each U-WAVE-R is required.

- To use U-WAVE with USB-ITPAK, the setup of U-WAVE-R and the U-WAVE transmitter using U-WAVEPAK is required in advance. In addition, write down the selected channel of the U-WAVE transmitter together with the device ID. The information is required for the channel selection setting on USB-ITPAK.
- The U-WAVE transmitter will be used in the button driven mode. Check the mode on U-WAVEPAK in advance. For details, refer to the U-WAVEPAK User's Manual. In the button driven mode, the measurement data collection is not available with the [Data request] button operation on the data collection dialog box, the function key operation on the PC or the foot switch operation using USB-FSW.

This section explains the basic use of sequential measurement.

1) Connection

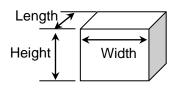
In the example used in this section, one measuring tool is connected to the U-WAVE transmitter. The connection diagram is shown below.



TIP • USB-ITN / IT-016U / IT-020U / DP-1VA can be used in combination with U-WAVE.

2) Workpiece for measurement

The following workpiece is used in the explanation. The measurement locations are the length, width, and height of the rectangular parallelepiped.



3) Measurement

The image of the inspection table upon completion of data collection is shown below.

| No. | Inspection item | Permi val | | Unit | Measuring item | X1 | X2 | X | X4 | X5 |
|-----|--------------------|--------------|-------|------|-------------------|-------|-------|-------|-------|-------|
| 1 | Length | 13.60 | 13.40 | mm | CD | 13.49 | 13.51 | 13.52 | 13.53 | 13.50 |
| 2 | Width | 12.20 | 12.00 | mm | CD | 12.12 | 12.15 | 12.13 | 12.15 | 12.14 |
| З | Height | 10.60 | 10.50 | mm | CD | 10.58 | 10.58 | 10.55 | 10.57 | 10.56 |

In this measurement procedure, the length, width, and height of the first workpiece are measured and the input data is output to the first row (Length), the second row (Width), and the third row (Height), respectively, of the X1 column on the Excel worksheet.

Next, the second workpiece is similarly measured, and so on, until all five workpieces have been measured.

| X1 | X2 | X3 | X4 | X5 |
|-----------------|----|----|----|------------|
| Length (1) | | | | |
| ↓ Width (1) | | | | |
| ↓ Height (1) | | | | Height (5) |
| | | | | |

The following describes how to set up the measurement procedure, perform measurement, and save the results.

4.5.2 Setting

1) Check the device information.

NOTE • USB-ITPAK loads the information of connected devices at startup. Therefore, connect all the devices to be used before starting up USB-ITPAK.

From the menu of the main dialog box, select [Settings] and then [Device information]. This opens the [Device information] dialog box, which allows you to check the devices that are connected to the PC.

| Device information | | | | — × |
|--------------------|----------------|-------|----------|------------|
| Device lists : | | | | |
| Device No. | Device name | COM | Туре | Serial No. |
| UWR-1999999965 | UWR-1999999965 | COM10 | UWR | 1999999965 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Setting | (| Ok | | Cancel |
| Setting | , i | Un | ` | Cancer |

TIP • U-WAVE-R will be displayed as "UWR".

If you do not want to change the device number or device name, click the [Cancel] button to return to the main dialog box.

If you want to change the device number or device name, click the [Setting] button.

| Device information setting | | | | |
|----------------------------|------------|---|--|--|
| Device information | 1 | | | |
| Serial No. : | 1999999965 | | | |
| Type : | UWR | | | |
| COM : | COM10 | | | |
| | | | | |
| Device No. : | _ | | | |
| UWR-1999999965 |] | | | |
| Device name : | | _ | | |
| UWR-1999999965 | | | | |
| | | | | |
| ОК | Cancel | | | |

Click the [OK] button if you change any settings.

- **NOTE** In the procedure created from step "2)", the device number is used to specify the device to be used. If you change the number, revise all the setting files that use it.
 - TIP If multiple units are connected, specify settings for each.

- **TIP** If performing measurement using existing setting files, skip this section and refer to "4.5.3 Measurement".
 - 2) Enter information about the setting file in the [Description] field.

Enter a description of the setting file. This field may be left blank.

| | 🕞 USB-ITPAK | | | | | | • 💌 |
|----|--|------------------|------------|-------------|-----|--------|--------|
| | File Setting Data Collection About | | | | | | |
| | | | | | | | 1 |
| 2 | Setting File | | | | | | |
| 2) | Description | | | | | | |
| | Data entry application | Procedure | Item | Content | | | |
| | Excel | | | | | | |
| | Optional | | | | | | |
| | Repetition option | | | | | | |
| | Number of repeat : | | | | | | |
| | | | | | | | |
| | Move direction : | | | | | | |
| | Down 👻 | | | | | | |
| | Displacement intervals : | | | | | | |
| | Error option | | | | | | |
| | Ignore the data collection error | | Device No. | Device name | COM | Assign | Status |
| | Timer job option | | | | | | |
| | Enable | Add Procedure | 3) | | | | |
| | Interval(hour:min:sec): $0 \xrightarrow{\wedge} : 0 \xrightarrow{\wedge} : 5 \xrightarrow{\wedge} . 0 \xrightarrow{\wedge}$ | Delete Procedure | | | | | |
| | Count : 5 | Change Procedure | | | | | |

3) Add a procedure to the setting file.

Click the [Add Procedure] button on the main dialog box.

| | Add procedure | | | | × |
|-----------------------------|--|------------------------------|----|-----|-----|
| 4) | Procedure type : Procedure name : Sequential | | | | |
| 6) 7) 8) 9) 10) | Excel settings Workbook : Worksheet : Range of cells (specify the A1 reference style) : First : Last : Move after return direction : Right Displacement intervals : 1 | Data entry der | | СОМ | + |
| 11) | Cell address assign rules Ounspecified Assign for the columns(A,B,) Assign for the rows(1,2,) FunctionKey Operation Data request : Data cancel : Data skip : - | Foot switch of Device No. | | СОМ | + |
| | | | ОК | Can | cel |

4) Select a procedure type for the [Procedure type] field.

Check that [Sequential] is selected as the procedure type, and if not, select [Sequential] from the drop-down list.

5) Enter a name in the [Procedure name] field.

Entering the procedure name is required.

TIP • Since the procedure name will be displayed in the [Procedure] field at the center of the main dialog box, enter an easily identifiable name.

Here, enter [3 side measurement].

6) Specify an Excel file in the [Workbook] field under [Excel settings].

Enter the workbook name of the Excel file to which the measured data is to be input.

The file can be selected from the [Open] dialog box by clicking the [...] button.

Here, select the following file.

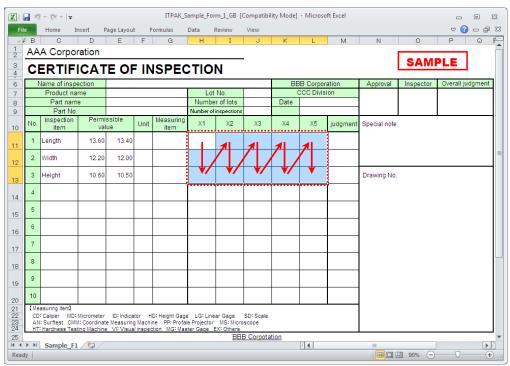
C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sample_Form_1_GB.xls

IMPORTANT • If you want to use a file other than the sample inspection table file, create an inspection file using Excel before starting up USB-ITPAK. Inspection table files can be saved to any folder. Save the inspection table file to a folder location that will be easy to manage. 7) Select a worksheet for the [Worksheet] field under [Excel settings].

Select the worksheet name to be included in the workbook of step "6)" from the drop-down list.

Here, select [Sample_F1].

8) Enter the input range in the [Range of cells] fields under [Excel settings].



To specify the area indicated by the dot-line in the above inspection table as the input cell range, enter:

First: H11

Last: L13

- **TIP** The inspection table above is shown with the [Inspection item] and [Permissible value] cells filled.
 - Select the desired direction for the [Move after return direction] field under [Excel settings].

During measurement using USB-ITPAK, once data is input from the measuring tools, the measurement data is input to the current cell and then the entry point (cell) automatically moves to the next cell.

In the inspection table example shown above, select [Down].

10) Specify the [Displacement intervals] under [Excel settings].

Specify the interval for the cell movement specified in step 9). Specifying "1" results in movement to the next cell. Specifying "2" results in movement to the cell after the next.

In the inspection table example above, specify "1".

11) Select an option under [Cell address assign rules].

In USB-ITPAK, the measuring items can be assigned to columns (vertical) or rows (horizontal) of the inspection table worksheet.

In the inspection table example above, the measuring items are assigned to respective rows, so select [Assign for the rows (1, 2...)].

TIP • Data can be collected even if the device is not assigned to columns (A, B, ...) or rows (1, 2, ...). In this case, select [Unspecified].

When data is input from the device registered in the procedure during data collection, the data is written to the cell that is currently active in the order of input, regardless of the cell position.

For details, refer to "6.6.3 Cell address assign rules".

12) Specify the [Data entry devices] settings.

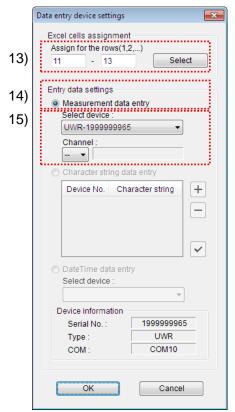
The functions of the buttons for the [Data entry devices] field are as follows:

- [+]: Adds device settings.
- [-]: Deletes the device setting selected from the list.
- [$\sqrt{}$]: Changes the device setting selected from the list.

Here, click the [+] button to switch to the [Data entry device settings] dialog box.

| Add procedure | | | | — |
|---|--|--|-----|----------|
| Procedure type : Sequential | Procedure name : 3 side measurement | | | |
| Excel settings Workbook : C:Mitutoyo\USB-ITPAK\Sampl Worksheet : Sample_F1 Range of cells (specify the A1 First : H11 Last : L13 Move after return direction : Down Displacement intervals : 1 | eVITPAK_San | Data entry devices | СОМ | + |
| Cell address assign rules Unspecified Assign for the columns(A,B, Assign for the rows(1,2,) FunctionKey Operation Data request : Data cancel : Data skip : - | ····) | Foot switch option Device No. Function | COM | + |
| | • | ОК | Ca | ancel |

13) Specify the settings in the [Excel cells assignment] field on the [Data entry device settings] dialog box.



In the [Excel cells assignment] field, specify columns (vertical) or rows (horizontal) according to the specification in step 11). Specify the rows here.

There are three input areas in the previously described inspection table. Here, one device is assigned on all the rows, so enter start row number "11" in the input field on the left, and input "13" in the input field on the right.

14) In the [Entry data settings] field, select the entry data type.

The entry data types consist of measurement data input from the measuring tools (numeric data), and character string data input by pressing the foot switch.

TIP • For details about the method for inputting character string data using a foot switch, refer to "CHAPTER 5 MEASUREMENT DATA COLLECTION (ADVANCED)".

Here, select the [Measurement data entry] radio button.

15) In the [Select device] field, select the device to be assigned.

From the drop-down list, select the device to be assigned. Select U-WAVE-R (UWR) and then select the channel of the U-WAVE transmitter to be used.

Measurement data entry

| Select device : | | | | | |
|-----------------|------------|--|--|--|--|
| UWR-199999965 | ~ | | | | |
| Channel : | | | | | |
| 02 🗸 | 0999999120 | | | | |
| Drop-down list | | | | | |

NOTE • Before starting up U-WAVEPAK for channel check, exit USB-ITPAK. In this case, return to "4.5.2 Setting" and retry the USB-ITPAK settings.

This completes the settings on the [Data entry device settings] dialog box, so click the [OK] button.

16) Close [Add procedure].

| Add procedure | |
|--|--------------------------------|
| Procedure type : Procedure name | 9: |
| Sequential Sequential Sequential Seq | nent |
| Excel settings | Data entry devices |
| Workbook : | Device No. Assign rule COM + |
| C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sam | UWR-1999999965(05) 11:13 COM10 |
| Sample_F1 | |
| Range of cells (specify the A1 reference style) : | |
| First: H11 | |
| Last: L13 Select | |
| Move after return direction : | |
| Down | |
| Displacement intervals : | |
| | 4 III > |
| Cell address assign rules | Foot switch option |
| Unspecified Assign for the columns(A,B,) | Device No. Function COM |
| Assign for the countris(A,B,) Assign for the rows(1,2,) | |
| | |
| FunctionKey Operation | |
| Data request : | ✓ |
| Data cancel : | |
| Data skip : 🛛 🗸 🗸 | |
| | OK Cancel |

This completes the settings on the [Add procedure] dialog box, so click the [OK] button.

17) Save the created setting file.

| 🕞 USB-ITPAK | | | |
|--------------------------------------|--------------------|---|-----------------------------------|
| File Setting Data Collection Abo | ıt | | |
| | | | • |
| | •••••••• | | <u> </u> |
| Setting File C:\Mitutoyo\USB-ITPAK\4 | <u></u> | | |
| Description Measure 3 sides(length | x width x height). | 0 | |
| Data entry application | Procedure | Item | Content |
| Excel | 3 side measurement | Procedure type | Sequential |
| Optional | | Data entry application | Excel |
| Repetition option | | Excel settings: Workbook | C:\Mit\ITPAK_Sample_Form_1_GB.xls |
| Repeat procedure | | Worksheet | Sample F1 |
| Number of repeat : | | Range of cells | H11:L13 |
| 1 | | Move after return direction | Down |
| Move direction : | | Displacement intervals | 1 |
| Down 👻 | | | Assign for the rows(1,2,) |
| Displacement intervals : | | Foot switch option: FunctionKey Operation: | |
| 1 | | | |
| Error option | | | |
| | | | |
| Ignore the data collection error | | | Device name COM Assigned cells |
| Timer job option | | UWR-199999965(05) UV | VR-1999999965 COM10 11:13 |
| | Add Procedure | | |
| Interval(hour:min:sec) : | | | |
| | Delete Procedure | | |
| Count : | Change Procedure | | |
| 5 | Change Procedure | 1 | |
| | 1 | | |

From the menu of the main dialog box, select [File], [Save As], and then save the file by giving it a name. When the file has been saved, the file name is displayed as a full path in the [Setting File] field.

4.5.3 Measurement

1) Open [Setting File].

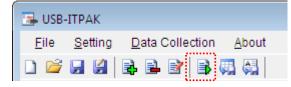
TIP • If starting measurement immediately after specifying the settings in "4.5.2 Setting", the setting file is already opened. In this case, skip step "1)".

From the menu of the main dialog box, select [File] and then [Open], or open [Setting file] from [Recent files].

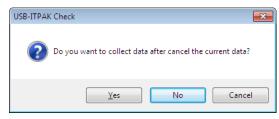
2) Open the data collection dialog box.

IMPORTANT • In USB-ITPAK, following data collection, the Excel file to which the data was input is saved through overwriting under the existing file name. To use the original Excel file later, back it up beforehand.

From the menu of the main dialog box, select [Data Collection] and then [Start], or click the icon shown below.



When data collection starts, the message [Do you want to collect data after cancel the current data?] is displayed. Click [Yes] to clear the existing data or [No] not to.



The data collection dialog box is displayed and data collection can now be performed.

| 🕞 USB-ITPAK - C:\Mitutoyo\l | JSB-ITPAK\4-5.it2 | | | | |
|-----------------------------|---|-----------|-------|------|--|
| Procedure : 3 side me | Procedure : 3 side measurement (Sequential) | | | | |
| Execute import man | Execute import manipulations of measurement data. | | | | |
| Data request | Data cancel | Data skip | Pause | Stop | |

TIP • If you click [No] for the message [Do you want to collect data after cancel the current data?], the data collection dialog box will be paused. In this case, resume the data collection. For details, refer to "6.14.1 [Pause/Resume] button" and "8.2.5 To resume the Excel data collection previously paused".

3) Perform data collection.

During data collection, the cell to which data will be input next is highlighted in green.

| | |) - (2 - - | | | | ITPAK_S | ample_Fo | rm_1_GB (| Compatib | ility Mode] | - Microso | oft Excel | | | - | | 23 |
|----------------------|--|---------------------|----------|------------|------|-----------|----------|----------------------------|-----------|-------------|-----------|-----------|--------------|-----------|-------------|--------|----|
| Fil | 2 | Home 1 | Insert F | age Layout | t F | ormulas | Data | Review | View | | | | | | ∞ 🕜 | - P | 23 |
| - 44 | в | С | D | E | F | G | Н | I | J | К | L | M | N | 0 | P | Q | F- |
| 1 2 | AA | A Corpo | ration | | | | | | | | | | | | | | Ē. |
| 3 | ~ | EDTIE | | | | | | NI | - | | | | | SAM | PLE | | |
| 4 | | ERTIF | | | - 11 | ISPEC | | IN | | | | | | | | | |
| 6 | | Vame of insp | | | | | | | | | BB Corpo | | Approval | Inspector | Overall jud | lgment | |
| 7 | | Product na | | | | | | t No. | | | CCC Divis | sion | | | | | |
| 8 | | Part nam Part No | | | | | | er of lots finspections | | Date | | | | | | | |
| 9 | | Inspection | | ssible | | Measuring | | T . | | | | | | | | | |
| 10 | No. | item | val | | Unit | item | X1 | X2 | Х3 | X4 | X5 | judgment | Special note | | | | |
| 11 | 1 | Length | 13.60 | 13.40 | | | | | | | | | | | | | |
| 12 | 2 | Width | 12.20 | 12.00 | | | | | | | | | | | | | = |
| 13 | 3 | Height | 10.60 | 10.50 | | | | | | | | | Drawing No. | | | | |
| 14 | 4 | | | | | | | | | | | | | | | | |
| 15 | 5 | | | | | | | | | | | | | | | | |
| | 6 | | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | | | |
| 17 | 7 | | | | | | | | | | | | | | | | |
| 18 | 8 | | | | | | | | | | | | | | | | |
| 19 | 9 | | | | | | | | | | | | | | | | |
| 20 | 10 | | | | | | | | | | | | | | | | |
| 21 22 23 24 | 22 CD: Caliper MD: Micrometer D: Indicator HD: Height Gage LG: Linear Gage SD: Scale 23 AN: Surflest CMM: Coordinate Measuring Machine PP: Profale Projector MS: Microscope 24 HT: Hardness Testing Machine VP: Visual inspection MG: Master Gage EX: Others | | | | | | | | | | | | | | | | |
| 25 | h hi | Sample F | 1 / 27 / | | | | | BB | B Corpot: | ation | [] ∢ | | | | | ▶ | - |
| Read | | | | | | | | | | | | | | 90% 🔿 | | | |

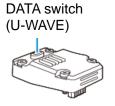
Input data from the measuring tools through one of the following operations:

(1) Pressing the DATA switch on the measuring tool.

(2) Pressing the DATA switch on the U-WAVE transmitter. (Within about 2 seconds)

(3) Clicking the [Data request] button on the data collection dialog box.

If you use U-WAVE in button-driven mode, pressing the DATA switch on the transmitter will input measurement data into an Excel sheet.



To cancel data that has been input, click the [Data cancel] button on the data collection dialog box. The data in the entry cell is canceled and the previous cell is highlighted.

To skip the current data entry cell without inputting data, click the [Data skip] button on the data collection dialog box. The next cell is highlighted.

TIP • For details about the "measurement mode (button driven, event driven)" and "data cancel" of U-WAVE, refer to the U-WAVEPAK User's Manual. For details about the precautions for "data cancel" of U-WAVE, refer to "8.2 Supplementary Explanation of Use".

4) End data collection and save the results.

Once all the data has been input, a completion message is displayed on the data collection dialog box.

| 🕞 USB-ITPAK - C:\Mitutoyo\l | | | | | |
|-----------------------------|---|--------------------|--------|----------------------|--|
| Procedure : 3 side mea | Procedure : 3 side measurement (Sequential) | | | | |
| The import of all pied | ces of measurement o | data has been comp | leted. | DT10105+00000010.00M | |
| Data request | Data cancel | Data skip | Pause | Stop | |

Click the [Stop] button on the data collection dialog box. The following message is displayed.

| USB-ITPA | (Check |
|----------|--|
| ? | Save the current contents? Click "Yes" to overwrite the current data. Click "No" to delete the current data. |
| | Yes <u>N</u> o Cancel |

[Yes]: The Excel file to which data was input is saved through overwriting under the existing file name.

[No]: The Excel file is not overwritten and the data that was input is deleted.

[Cancel]: The message dialog box is closed and the data collection dialog box is displayed.

Click the [Yes] button. The Excel file is saved through overwriting and the dialog box switches to the main dialog box.

This completes basic data collection for sequential measurement.

4.6 Batch Measurement (Basics) using U-WAVE

4.6.1 Overview

Batch measurement is one of the measurement methods that can be selected in the procedures used in USB-ITPAK.

During batch measurement, multiple measuring tools are used to acquire measurement data in batch.

Example: Multiple measuring tools are attached to measuring jigs and workpieces are set to these jigs, and then measurement data is collected from all the connected measuring tools by using a foot switch, etc.

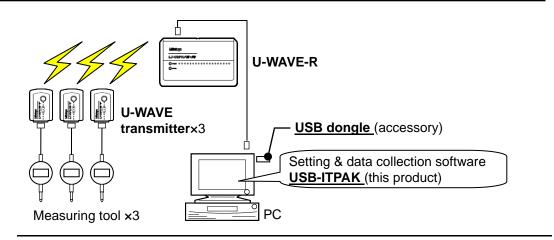
The [Data request] button of USB-ITPAK, function keys of a PC, and the foot switch can be used when collecting measurement data.

- **IMPORTANT** To use U-WAVE with USB-ITPAK, the installation of device driver for each U-WAVE-R is required.
 - To use U-WAVE with USB-ITPAK, the setup of U-WAVE-R and the U-WAVE transmitter using U-WAVEPAK is required in advance. In addition, write down the selected channel of the U-WAVE transmitter together with the device ID. The information is required for the channel selection setting on USB-ITPAK.
 - When using the U-WAVE transmitter, the event driven mode must be set on U-WAVEPAK (special order) in advance. For details, refer to the U-WAVEPAK User's Manual. For details about U-WAVEPAK (special order), contact your nearest service center. In the event driven mode, the measurement data collection is not available with the DATA switch operation on the U-WAVE transmitter and the DATA switch operation on the measuring tools.
 - During batch measurement, a data output request is sent to all the measuring tools through a single operation, but some differences arise among the measurement times of the measuring tools. Therefore, it is not possible to perform measurement while moving measuring jigs or workpieces. Be sure to fix jigs and workpieces in place during measurement.

This section explains the basic use of batch measurement.

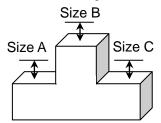
1) Connection

In the example used in this section, three indicators are connected to the U-WAVE transmitter. The connection diagram is shown below.



- TIP USB-ITN / IT-016U / IT-020U / DP-1VA can be used in combination with U-WAVE.
 - 2) Workpiece for measurement

The following workpiece is used in the explanation. Three indicators are used and measurement is done with measuring jigs. "Size A", "Size B", and "Size C", which are shown in the figure below, are measured.



3) Measurement

The image of the inspection table upon completion of data collection is shown below.

| Inspe | ction item | Size A | Size B | Size C |
|------------|-------------|--------|--------|--------|
| Meas | uring item | | | |
| Telerenee | Upper limit | 5.150 | 10.100 | 5.150 |
| Tolerance | Lower limit | 4.850 | 9.900 | 4.850 |
| | Sample 1 | 5.054 | 10.023 | 5.070 |
| | Sample 2 | 5.086 | 10.016 | 5.064 |
| | Sample 3 | 5.093 | 10.000 | 5.056 |
| | Sample 4 | 5.077 | 10.039 | 5.063 |
| Result of | Sample 5 | 5.085 | 9.992 | 5.047 |
| inspection | Sample 6 | 5.084 | 10.024 | 5.065 |
| | Sample 7 | 5.062 | 9.990 | 5.050 |
| | Sample 8 | 5.073 | 9.985 | 5.054 |
| | Sample 9 | 5.071 | 10.011 | 5.045 |
| | Sample 10 | 5.062 | 10.000 | 5.060 |

The measurement procedure is as follows. The three locations of the first workpiece are measured, and the input data is output to the "Size A", "Size B", and "Size C" columns. Next, the three locations of the second workpiece are measured, and the input data is output to the "Size A", "Size B", and "Size C" columns in the "Sample 2" row of the Excel worksheet.

The remaining workpieces up to the tenth one are measured in the same manner.

4. MEASUREMENT DATA COLLECTION (BASICS)

| | Sample 1 | Batch (1) |
|------------|-----------|------------|
| | Sample 2 | Batch (2) |
| | Sample 3 | |
| | Sample 4 | |
| Result of | Sample 5 | |
| inspection | Sample 6 | |
| | Sample 7 | |
| | Sample 8 | |
| | Sample 9 | |
| | Sample 10 | Batch (10) |

The following describes how to set up the measurement procedure, perform measurement, and save the results.

4.6.2 Setting

1) Check the device information.

NOTE • USB-ITPAK loads the information of connected devices at startup. Therefore, connect all the devices to be used before starting up USB-ITPAK.

From the menu of the main dialog box, select [Settings] and then [Device information]. This opens the [Device information] dialog box, which allows you to check the devices that are connected to the PC.

| Device information | | | | × |
|--------------------|----------------|-------|------|------------|
| Device lists : | | | | |
| Device No. | Device name | COM | Туре | Serial No. |
| UWR-1999999965 | UWR-1999999965 | COM10 | UWR | 1999999965 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Setting | (| Ok | (| Cancel |
| Coung | | 01 | | |

TIP • U-WAVE-R will be displayed as "UWR".

If you do not want to change the device number or device name, click the [Cancel] button to return to the main dialog box.

If you want to change a device number or device name, select the device, and then click the [Setting] button.

| De | evice information sett | ing | × |
|----|--------------------------------|------------|---|
| | Device information | | |
| | Serial No. : | 1999999965 | |
| | Type : | UWR | |
| | COM : | COM10 | |
| Ĩ | Device No. : UWR-1999999965 |] | |
| | Device name : | | _ |
| 1. | UWR-1999999965 | | |
| | | | |

Click the [OK] button if you change any settings.

- **NOTE** In the procedure created from step "2)", the device number is used to specify the device to be used. If you change the number, revise all the setting files that use it.
 - **TIP** If multiple units are connected, specify settings for each.

- **TIP** If performing measurement using existing setting files, skip this section and refer to "4.6.3 Measurement".
 - 2) Enter information about the setting file in the [Description] field.

Enter a description of the setting file. This field may be left blank.

| | 🕞 USB-ITPAK | | | | | | • 💌 |
|----|--|------------------|------------|-------------|-----|--------|--------|
| | <u>File Setting Data Collection Abou</u> | | | | | | |
| | | | | | | | |
| | Setting File | | | | | | |
| 2) | Description | | | | | | |
| | Data entry application © Excel © Optional | Procedure | Item | Conte | nt | | |
| | Repetition option Repeat procedure Number of repeat : 1 Move direction : Down Displacement intervals : 1 | | | | | | |
| | Error option | | | | | | |
| | Ignore the data collection error | | Device No. | Device name | COM | Assign | Status |
| | Timer job option | Add Procedure | 3) | | | | |
| | $\begin{array}{c} \text{Interval}(\text{hour:min:sec}):\\ \hline 0 \swarrow \\ \vdots \hline 0 \swarrow \\ \vdots \hline 5 \bigtriangledown \\ \hline \checkmark \\ \vdots 0 \swarrow \\ \end{array}$ | Delete Procedure | | | | | |
| | Count: 5 | Change Procedure | | | | | |

3) Add a procedure to the setting file.

Click the [Add Procedure] button on the main dialog box.

| | Add procedure | | | | × |
|-----|--|-----------------|-------------|-----|-------|
| 4) | Procedure type : Procedure name : Batch | | | | Ę |
| | Excel settings | ○ Data entry de | evices | | |
| 6) | Workbook : | Device No. | Assign rule | COM | + |
| 7) | Worksheet : | | | | |
| 8) | Range of cells (specify the A1 reference style) : First : | | | | ~ |
| 9) | Last: Select | | | | |
| 10) | Displacement intervals : | | | | |
| 11) | Cell address assign rules O Unspecified | - Foot switch o | option | | |
| | Assign for the columns(A,B,) | Device No. | Function | COM | + |
| | Assign for the rows(1,2,) | | | | |
| | FunctionKey Operation | | | | |
| | Data request : - | | | | |
| | Data cancel : | | | | |
| | Data skip : | | | | |
| | | | ОК | С | ancel |

4) Select a procedure type for the [Procedure type] field.

Check that [Batch] is selected as the procedure type, and if not, select [Batch] from the drop-down list.

5) Enter a name in the [Procedure name] field.

Entering the procedure name is required.

TIP • Since the procedure name will be displayed in the [Procedure] field at the center of the main dialog box, enter an easily identifiable name.

Here, enter [3 position batch measurement].

6) Specify an Excel file in the [Workbook] field under [Excel settings].

Enter the workbook name of the Excel file to which the measured data is to be input.

The file can be selected from the [Open] dialog box by clicking the [...] button.

Here, select the following file.

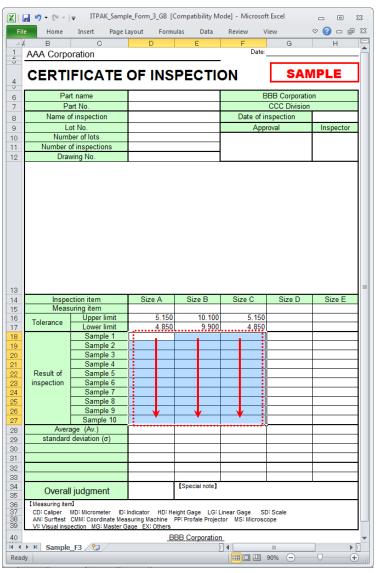
C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sample_Form_3_GB.xls

IMPORTANT • If you want to use a file other than the sample inspection table file, create an inspection file using Excel before starting up USB-ITPAK. Inspection table files can be saved to any folder. Save the inspection table file to a folder location that will be easy to manage. 7) Select a worksheet for the [Worksheet] field under [Excel settings].

Select the worksheet name to be included in the workbook of step "6)" from the drop-down list.

Here, select [Sample_F3].

8) Enter the input range in the [Range of cells] fields under [Excel settings].



To specify the area indicated by the dot-line in the above inspection table as the input cell range, enter:

| First: | D18 |
|--------|-----|
| Last: | F27 |

TIP • The inspection table above is shown with the [Upper limit] and [Lower limit] cells filled.

9) Select the desired direction for the [Move after return direction] field under [Excel settings].

During measurement using USB-ITPAK, once data is input from the measuring tools, the measurement data is input to the current cell and then the entry point (cell) automatically moves to the next cell.

In the inspection table example shown above, select [Down].

10) Specify the [Displacement intervals] under [Excel settings].

Specify the interval for the cell movement specified in step 9). Specifying "1" results in movement to the next cell. Specifying "2" results in movement to the cell after the next.

In the inspection table example above, specify "1".

11) Select an option under [Cell address assign rules].

In USB-ITPAK, the measuring items can be assigned to columns (vertical) or rows (horizontal) of the inspection table worksheet.

In the inspection table example above, the measuring items are assigned to respective columns, so select [Assign for the columns (A, B...)].

12) Specify the [Data entry devices] settings for the first device.

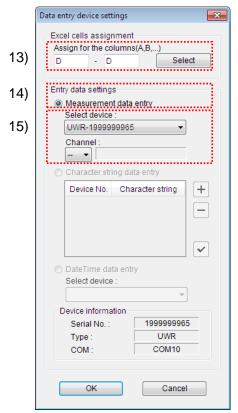
The functions of the buttons for the [Data entry devices] field are as follows:

- [+]: Adds device settings.
- [-]: Deletes the device setting selected from the list.
- $[\sqrt{}]$: Changes the device setting selected from the list.

Here, click the [+] button to switch to the [Data entry device settings] dialog box.

| Add procedure | — |
|---|---|
| Procedure type : Procedure name : Batch | seurement |
| Excel settings Workbook : C:Witutoyo\USB-ITPAK\Sample\TPAK_Sarr Worksheet : Sample_F3 Range of cells (specify the A1 reference style) : First : D18 Last : F27 Move after return direction : Down v Displacement intervals : 1 | Data entry devices Device No. Assign rule COM + |
| Cell address assign rules O Unspecified | Foot switch option |
| Assign for the columns(A,B,) Assign for the rows(1,2,) | Device No. Function COM |
| FunctionKey Operation Data request : - Data cancel : - Data skip : | |
| | OK Cancel |

13) Specify the settings in the [Excel cells assignment] field on the [Data entry device settings] dialog box.



In the [Excel cells assignment] field, specify columns (vertical) or rows (horizontal) according to the specification in step 11). Specify the columns here.

There are three input areas in the previously described inspection table. Here, the first device is assigned to the D column, which is the first column, so enter "D" in both fields.

14) In the [Entry data settings] field, select the entry data type.

The entry data types consist of measurement data input from the measuring tools (numeric data), and character string data input by pressing the foot switch.

TIP • For details about the method for inputting character string data using a foot switch, refer to "CHAPTER 5 MEASUREMENT DATA COLLECTION (ADVANCED)".

Here, select the [Measurement data entry] radio button.

15) In the [Select device] field, select the device to be assigned.

From the drop-down list, select the device to be assigned. Select U-WAVE-R (UWR) and then select the channel of the U-WAVE transmitter to be used.

Measurement data entry

| Select device : | | |
|-----------------|------------|---|
| UWR-1999999965 | | ~ |
| Channel : | | |
| 02 🗸 | 0999999120 | |
| Drop-down list | | |

• For batch measurement, use the transmitter in event-driven mode. NOTE

• Before starting up U-WAVEPAK for channel check, exit USB-ITPAK. In this case, return to "4.6.2 Setting" and retry the USB-ITPAK settings.

This completes the settings on the [Data entry device settings] dialog box for the first device, so click the [OK] button.

16) Repeat steps "12) to 15)" to specify the [Data entry device] settings for the second device.

Here, assign the second device to the E column.

17) Repeat steps "12) to 15)" to specify the [Data entry device] settings for the third device.

| ta entry device settings | Data entry device settings |
|---|--|
| Excel cells assignment Assign for the columns(A,B,) E - E Select | Excel cells assignment Assign for the columns(A,B,) F - F Se |
| Entry data settings Measurement data entry Select device : UWR-1999999965 Channel : 01 0999999118 | Entry data settings Measurement data entry Select device : UWR-1999999965 Channel : 02 099999120 |
| Character string data entry Device No. Character string + | Character string data entry Device No. Character string |
| Device No. Character string + | Character string data entry |

Here, assign the third device to the F column.

×

 $\left|+\right|$ -

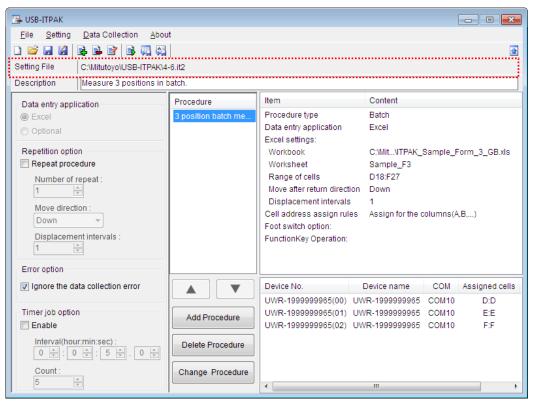
 \checkmark

| 18) | Close | [Add | proced | ure]. |
|-----|-------|------|--------|-------|
|-----|-------|------|--------|-------|

| Procedure type : | Procedure name : | | | | | |
|--|-----------------------|--|--------------------------|-----|--------------------------------|---|
| Batch | 3 position batch meas | surement | | | | |
| Excel settings Workbook : C:\Mitutoyo\USB-ITPAK\Sampl Worksheet : Sample_F3 Range of cells (specify the A1 First : D18 | | Data entry de Device No. UWR-19999 UWR-19999 UWR-19999 | 999965(00) 999965(01) | | COM COM10 COM10 COM10 | + |
| Last: F27 Move after return direction : Down Displacement intervals : 1 Cell address assign rules | Select | Foot switch c | m | | 4 | |
| Unspecified Assign for the columns(A,B Assign for the rows(1,2,) | ,) | Device No. | | COM | | + |
| FunctionKey Operation Data request : Data cancel : | • | | | | | • |

This completes the settings on the [Add procedure] dialog box, so click the [OK] button.

| 19 |) Save | the | created | setting | file. |
|----|--------|-----|---------|---------|-------|
|----|--------|-----|---------|---------|-------|



From the menu of the main dialog box, select [File], [Save As], and then save the file by giving it a name. When the file has been saved, the file name is displayed as a full path in the [Setting File] field.

4.6.3 Measurement

1) Open [Setting File].

TIP • If starting measurement immediately after specifying the settings in "4.6.2 Setting", the setting file is already opened. In this case, skip step "1)".

From the menu of the main dialog box, select [File] and then [Open], or open [Setting file] from [Recent files].

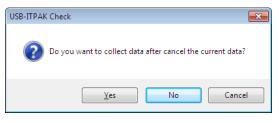
2) Open the data collection dialog box.

IMPORTANT • In USB-ITPAK, following data collection, the Excel file to which the data was input is saved through overwriting under the existing file name. To use the original Excel file later, back it up beforehand.

From the menu of the main dialog box, select [Data Collection] and then [Start], or click the icon shown below.

| 🕞 USB-ITPAK | | | | | | | | | |
|---|---|----|---|---|---|---|---|--|--|
| <u>File Setting Data Collection About</u> | | | | | | | | | |
| | 2 | F. | 9 | 3 | 2 | Ð | 8 | | |

When data collection starts, the message [Do you want to collect data after cancel the current data?] is displayed. Click [Yes] to clear the existing data or [No] not to.



The data collection dialog box is displayed and data collection can now be performed.

| USB-ITPAK - C:\Mitutoyo\USB-ITPAK\4-6.it2 | | | | | | | | |
|---|--|--|--|--|--|--|--|--|
| Procedure : 3 position batch measurement (Batch) | | | | | | | | |
| Execute import manipulations of measurement data. | | | | | | | | |
| Data request Data cancel Data skip Pause Stop | | | | | | | | |

TIP • If you click [No] for the message [Do you want to collect data after cancel the current data?], the data collection dialog box will be paused. In this case, resume the data collection. For details, refer to "6.14.1 [Pause/Resume] button" and "8.2.5 To resume the Excel data collection previously paused".

3) Perform data collection.

During data collection, the cell to which data will be input next is highlighted in green.

| - | Insert Page L | - | | | /iew | ∞ 🕜 🗆 |
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| | | | | | <u>a:</u> | |
| | ction item | Size A | Size B | Size C | Size D | Size |
| Meas | uring item | | | | | Size I |
| | uring item Upper limit | 5.150 | 10.100 | 5.150 | | Size |
| Meas | uring item | | | 5.150 | | Size |
| Meas | uring item Upper limit Lower limit Sample 1 Sample 2 | 5.150 | 10.100 | 5.150 | | Size |
| Meas | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 | 5.150 | 10.100 | 5.150 | | Size |
| Meas Tolerance | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 | 5.150 | 10.100 | 5.150 | | Size |
| Meas Tolerance Result of | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 | 5.150 | 10.100 | 5.150 | | Size |
| Meas Tolerance Result of | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 | 5.150 | 10.100 | 5.150 | | Size |
| Meas Tolerance Result of | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 | 5.150 | 10.100 | 5.150 | | Size |
| Meas Tolerance Result of | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 | 5.150 | 10.100 | 5.150 | | Size |
| Meas Tolerance Result of | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 | 5.150 | 10.100 | 5.150 | | Size |
| Meas Tolerance Result of inspection | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 | 5.150 | 10.100 | 5.150 | | Size |
| Meas Tolerance Result of inspection Avera | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 | 5.150 | 10.100 | 5.150 | | Size |
| Meas Tolerance Result of inspection Avera | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) | 5.150 | 10.100 | 5.150 | | Size |
| Meas Tolerance Result of inspection Avera | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) | 5.150 | 10.100 | 5.150 | | Size |
| Meas Tolerance Result of inspection Avera | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) | 5.150 | 10.100 | 5.150 | | Size I |
| Meas Tolerance Result of inspection Avera | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) | 5.150 | 10.100 9.900 | 5.150 | | Size b |
| Meas Tolerance Result of inspection Aver standard | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) deviation (σ) | 5.150 | 10.100 | 5.150 | | Size E |
| Meas Tolerance Result of inspection Aver standard | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) deviation (σ) | 5.150 | 10.100 9.900 | 5.150 | | Size B |
| Meas Tolerance Result of inspection Avera standard Overal Measuring ter C0: Coliper | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) deviation (σ) I judgment MD <micrometer< td=""></micrometer<> | 5.150 4.850 | 10.100 9.900 | 5.150 4.850 | D: Scale | Size E |
| Meas Tolerance Result of inspection Avera standard Overal Measuring ter C0:Caliper AN:Surflest | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 2 Sample 3 Sample 4 Sample 6 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) deviation (σ) I judgment nd | 6.150 4.850 | 10.100 9.900 | 5.150 4.850 | D: Scale | Size |

Click the [Data request] button on the data collection dialog box and perform data input from the measuring tools.

To cancel data that has been input, click the [Data cancel] button on the data collection dialog box. The data in the entry cell is canceled and the previous cell is highlighted.

To skip the current data entry cell without inputting data, click the [Data skip] button on the data collection dialog box. The next cell is highlighted.

- **IMPORTANT** During batch measurement, data is collected all at once, so data cannot be collected through the following operations:
 - (1) Pressing the DATA switch on the measuring tool
 - (2) Pressing the DATA switch on the U-WAVE transmitter.

- **IMPORTANT** When using the U-WAVE transmitter in the event driven mode, the next data will not be input until the data of connected measuring tool is changed. For details, refer to the U-WAVEPAK User's Manual.
 - 4) End data collection and save the results.

Once all the data has been input, a completion message is displayed on the data collection dialog box.

| USB-ITPAK - C:\Mitutoyo\USB-ITPAK\4-6.it2 | | | | | | | | | |
|--|---|--|--|--|--|--|--|--|--|
| Procedure : 3 position batch measurement (Batch) | | | | | | | | | |
| The import of all piec | The import of all pieces of measurement data has been completed. DT10102+00000010.00M | | | | | | | | |
| Data request Data cancel Data skip Pause Stop | | | | | | | | | |

Click the [Stop] button on the data collection dialog box. The following message is displayed.

| USB-ITPAK Check | × |
|--|----|
| Save the current contents? Click "Yes" to overwrite the current data. Click "No" to delete the current data. | |
| Yes <u>N</u> o Cance | :I |

[Yes]: The Excel file to which data was input is saved through overwriting under the existing file name.

[No]: The Excel file is not overwritten and the data that was input is deleted.

[Cancel]: The message dialog box is closed and the data collection dialog box is displayed.

Click the [Yes] button. The Excel file is saved through overwriting and the dialog box switches to the main dialog box.

This completes basic data collection for batch measurement.

4.7 Individual Measurement (Basics) using U-WAVE

4.7.1 Overview

Individual measurement is one of the measurement methods that can be selected in the procedures used in USB-ITPAK.

During individual measurement, measurement data from multiple operators can be input to the respectively assigned cells in the specified Excel worksheet.

Example: Collection of data while four operators perform measurements with their respective measuring tools.

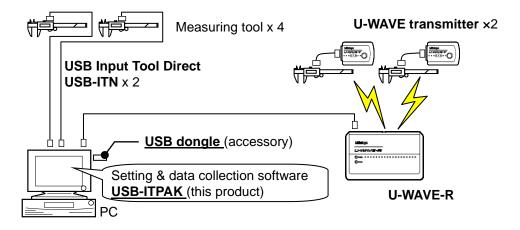
When using U-WAVE, the measurement data collection is available with the DATA switch operation on the U-WAVE transmitter and the DATA switch operation on the measuring tools. When using USB-ITN, the measurement data collection is available with the DATA switch operation on the measuring tools and the foot switch operation.

- **IMPORTANT** To use U-WAVE with USB-ITPAK, the installation of device driver for each U-WAVE-R is required.
 - To use U-WAVE with USB-ITPAK, the setup of U-WAVE-R and the U-WAVE transmitter using U-WAVEPAK is required in advance. In addition, write down the selected channel of the U-WAVE transmitter together with the device ID. The information is required for the channel selection setting on USB-ITPAK.
 - The U-WAVE transmitter will be used in the button driven mode. Check the mode on U-WAVEPAK in advance. For details, refer to the U-WAVEPAK User's Manual. In the button driven mode, the measurement data collection is not available with the [Data request] button operation on the data collection dialog box, the function key operation on the PC or the foot switch operation using USB-FSW.

This section explains the basic use of individual measurement.

1) Connection

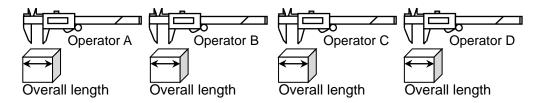
In the example used in this section, four measuring tools are connected to the U-WAVE transmitter and USB-ITN. The connection diagram is shown below.



2) Workpieces for measurement

The following workpieces are used in the explanation. The measurement location is the overall length of the same workpiece for all four operators

(designated as A, B, C, and D).

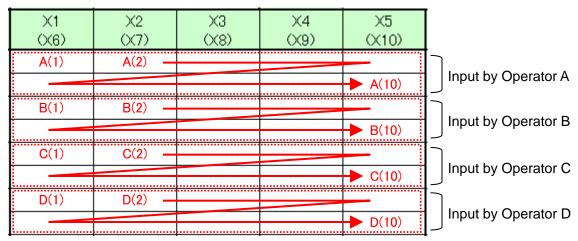


3) Measurement

The image of the inspection table upon completion of data collection is shown below.

| No. | Inspection item | Permissible value | Unit | Measuring item | X1 (X6) | X2 (X7) | X3 (X8) | X4 (X9) | X5 (X10) | |
|-----|--------------------|----------------------|-------|-------------------|------------|------------|------------|------------|-------------|------|
| 1 | Overall Length | 10.05 | | CD | 10.01 | 10.01 | 9.99 | 9.98 | 9.99 | |
| 1 | Operator A | A 9.95 | mm | CD | 10.02 | 10.01 | 10.00 | 10.00 | 10.01 | |
| 2 | Overall Length | Overall Length 10.05 | mm CD | 10.00 | 9.99 | 9.99 | 10.02 | 10.02 | | |
| 2 | Operator B | 9.95 | mm | | 10.01 | 10.01 | 10.00 | 9.99 | 9.99 | |
| 3 | Overall Length | 10.05 | | | CD | 10.01 | 10.01 | 9.99 | 9.98 | 9.99 |
| 5 | Operator C | 9.95 | mm | CD | 10.02 | 10.01 | 10.00 | 10.00 | 10.01 | |
| 4 | Overall Length | Overall Length 10.05 | | CD | 10.00 | 9.99 | 9.99 | 10.02 | 10.02 | |
| 4 | Operator D | 9.95 | mm | 00 | 10.01 | 10.01 | 10.00 | 9.99 | 9.99 | |

The measurement procedure is as follows. Operator A, Operator B, Operator C, and Operator D each measure the width of the first workpiece, and the input data is output to the first row (for Operator A), third row (for Operator B), fifth row (for Operator C), and seventh row (for Operator D) of the X1 column on the Excel worksheet. Next, the second workpiece is measured in the same manner, with each operator measuring 10 workpieces in all.



The following describes how to set up the measurement procedure, perform measurement, and save the results.

4.7.2 Setting

1) Check the device information.

NOTE • USB-ITPAK loads the information of connected devices at startup. Therefore, connect all the devices to be used before starting up USB-ITPAK.

From the menu of the main dialog box, select [Settings] and then [Device information]. This opens the [Device information] dialog box, which allows you to check the devices that are connected to the PC.

| evice information | | | | |
|------------------------------|----------------|-------|------|------------|
| Device lists : Device No. | Device name | COM | Туре | Serial No. |
| ITN-39999115 | ITN-39999115 | COM13 | ITN | 39999115 |
| ITN-39999120 | ITN-39999120 | COM9 | ITN | 39999120 |
| UWR-1999999965 | UWR-1999999965 | COM10 | UWR | 1999999965 |
| | | | | |
| Setting | | Ok | (| Cancel |

If you do not want to change the device number or device name, click the [Cancel] button to return to the main dialog box.

If you want to change a device number or device name, select the device, and then click the [Setting] button.

| Serial No. : 39999115 Type : ITN COM : COM13 Device No. : ITN-39999115 | Device information | 1 | |
|--|--------------------|----------|--|
| COM : COM13 Device No. : ITN-39999115 | Serial No. : | 39999115 | |
| Device No. : ITN-39999115 | Type : | ITN | |
| ITN-39999115 | COM : | COM13 | |
| | Device No. : | | |
| | ITN-39999115 | | |
| ITN-39999115 | Device name : | | |

Click the [OK] button if you change any settings.

- **NOTE** In the procedure created from step "2)", the device number is used to specify the device to be used. If you change the number, revise all the setting files that use it.
 - **TIP** If multiple units are connected, specify settings for each.

- **TIP** If performing measurement using existing setting files, skip this section and refer to "4.7.3 Measurement".
 - 2) Enter information about the setting file in the [Description] field.

Enter a description of the setting file. This field may be left blank.

| | 🕞 USB-ITPAK | | |
|----|---|---|--|
| | <u>File Setting Data Collection Abou</u> | t | |
| | | | |
| | Setting File | | |
| 2) | Description | | |
| | Data entry application Excel Optional Repetition option Repeat procedure Number of repeat : 1 \$\overline\$ Move direction : Down Displacement intervals : 1 \$\overline\$ Error option | Procedure | Item Content |
| | ✓ Ignore the data collection error | | Device No. Device name COM Assign Status |
| | Timer job option Enable Interval(hour:min:sec): 0 1 1 0 1 5 1 0 1 Count: 5 1 | Add Procedure Delete Procedure Change Procedure | 3) |

3) Add a procedure to the setting file.

Click the [Add Procedure] button on the main dialog box.

- 4) Select a procedure type for the [Procedure type] field.
 - If [Individual] is selected, the dialog box switches to the following dialog box.

| | Add procedure | | | | | | × |
|---|----------------|------------|-------------|----------------|-----------|------------------------|---|
| Device No. Workbook Worksheet Assigned cells Direction Displacement intervals + - | |): | Proce | dure name : | | | |
| Device No. Workbook Worksheet Assigned cells Direction Displacement intervals + - | ⊂Data entry de | vices | | | | | |
| | Device No. | Workbook W | Vorksheet / | Assigned cells | Direction | Displacement intervals | |
| | | | | | | | |

If a different dialog box is displayed, select [Individual] from the drop-down list.

5) Enter a name in the [Procedure name] field.

Entering the procedure name is required.

TIP • Since the procedure name will be displayed in the [Procedure] field at the center of the main dialog box, enter an easily identifiable name.

Here, enter [4 posi. individual measurement].

6) Specify the [Data entry devices] settings for the first device.

The functions of the buttons for the [Data entry devices] field are as follows:

- [+]: Adds device settings.
- [-]: Deletes the device setting selected from the list.
- $[\sqrt{}]$: Changes the device setting selected from the list.

Here, click the [+] button to switch to the [Data entry device settings] dialog box.

| 7) | Entry data settings | 1 |
|----|--|---------------------|
| 3) | Measurement data entry Select device : UWR-1999999965 Channel : Character string data entry Select foot switch : Character string data : Character string data : Character string data : Displacement intervals : | ي 10 11 12 |
| | Device information Serial No. : 1999999965 Type : UWR COM : COM10 OK Cancel | 1: |

7) In the [Entry data settings] field, select the entry data type.

The entry data types consist of measurement data input from the measuring tools (numeric data), and character string data input by pressing the foot switch.

TIP • For details about the method for inputting character string data using a foot switch, refer to "CHAPTER 5 MEASUREMENT DATA COLLECTION (ADVANCED)".

Here, select the [Measurement data entry] radio button.

8) In the [Select device] field, select the device to be assigned.

From the drop-down list, select the device to be assigned. Select U-WAVE-R (UWR) and then select the channel of the U-WAVE transmitter to be used.

Measurement data entry

| Select device : | |
|-----------------|------------|
| UWR-199999965 | ~ |
| Channel : | |
| 02 🗸 | 0999999120 |
| | |
| Drop-down list | |

- **NOTE** For individual measurement, use the transmitter in button-driven mode.
 - Before starting up U-WAVEPAK for channel check, exit USB-ITPAK. In this case, return to "4.7.2 Setting" and retry the USB-ITPAK settings.

9) Specify an Excel file in the [Workbook] field under [Excel settings]

Enter the workbook name of the Excel file to which the measured data is to be input.

The file can be selected from the [Open] dialog box by clicking the [...] button.

Here, select the following file.

C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sample_Form_2_GB.xls

- **IMPORTANT** If you want to use a file other than the sample inspection table file, create an inspection file using Excel before starting up USB-ITPAK. Inspection table files can be saved to any folder. Save the inspection table file to a folder location that will be easy to manage.
 - 10) Select a worksheet for the [Worksheet] field under [Excel settings].

Select the worksheet name to be included in the workbook of step "9)" from the drop-down list.

Here, select [Sample_F2].

11) Enter the input range in the [Range of cells] fields under [Excel settings].

| | ۳ | • (≌ - ∓ | | | | Ι | TPAK_Samp | le_Form_2_ | GB [Compa | tibility Mode | e] - Microso | ft Excel | | | | c | - 0 | 0 |
|----------|------------|------------------------------|----------------|----------|---------|--|---------------|-------------|------------|---------------|--------------|----------|-----------|-------------|-----------|-----------|--------------|------|
| File | | Home Ir | nsert | Page I | Layout | Formulas | Data | Review | View | | | | | | | \otimes | () – | þ |
| 4 A | | С | D | | Е | F | G | Н | I | J | К | L | M | N | 0 | P | (| 2 |
| - 1 | AA | A Corpo | ratior | ۱ | | | | | | | | | | | | | - | |
| (| CF | RTIF | | | 0 | F INS | PECI | ΓΙΟΝ | - | | | | | | SAM | PLE | | |
| Г | | Name of ins | | | _ | | | | | B | BB Corpora | tion | Approva | al | Inspector | Overa | ll judgn | nent |
| | | Product r | name | | | | Lot | No. | | | CCC Divisio | n | | | | | | |
| | | Part na | me | | | | Numbe | r of lots | | Date | | | | | | | | |
| | | Part N | | | | | | inspections | | | | | | | | | | |
| 1 | lo. | Inspection item | Permis valu | | Unit | Measuring item | X1 (X6) | X2 (X7) | X3 (X8) | X4 (X9) | X5 (X10) | judgment | Special n | ote | | | | |
| | | Overall Length Operator A | | 10.05 | | | | | | | = | | | | | | | |
| | | Overall Length Operator B | | 10.05 | | | | | <u> </u> | <u></u> | - | Î | | | | | | |
| | | Overall Length Operator C | | 10.05 | | | | | | | | | Drawing N | 1 0. | | | | |
| | | Overall Length Operator D | | 10.05 | | | | | | | | | | | | | | |
| | 5 | Uperator | | 9.95 | | | | | | | | | | | | | | |
| \vdash | _ | | | | | | | | | | | | | | | | | |
| | 6 | | | | | | | | | | | | | | | | | |
| | 7 | | | | | | | | | | | | | | | | | |
| | 8 | | | | | | | | | | | | | | | | | |
| | 9 | | | | | | | | | | | | | | | | | |
| | 10 | | | | | | | | | | | | | | | | | |
| | CD: AN: | Surftest CMM | 1: Coordir | nate Mea | asuring | or HD:Height Machine PP: inspection MG | Profale Proje | ctor MS: Mi | croscope | | | 1 | | | | | | |
| 4 1 | H | Sample_F2 | 2 | | | | | | BBB Corp | otation | | | | | | | | • |
| ady | | | | | | | | | | | | | | | 92% - |) (|] | -0 |

To specify the area indicated by the dot-line in the above inspection table as the input cell range, enter:

First: G11 Last: K12

TIP • The inspection table above shows the [Inspection item] and [Permissible value] cells filled, and the three rows provided respectively for operators A, B, and C.

12) Select the desired direction for the [Move after return direction] field under [Excel settings].

During measurement using USB-ITPAK, once data is input from the measuring tools, the measurement data is input to the current cell and then the entry point (cell) automatically moves to the next cell.

In the inspection table example shown above, select [Right].

13) Specify the [Displacement intervals] under [Excel settings].

Specify the interval for the cell movement specified in step 12). Specifying "1" results in movement to the next cell. Specifying "2" results in movement to the cell after the next.

In the inspection table example above, specify "1".

This completes the settings on the [Data entry device settings] dialog box for the first device, so click the [OK] button.

14) Repeat steps "6) to 13)" to specify the [Data entry device] settings for the second device.

Here, assign the second device to the [G13:K14].

| Data entry device settings | |
|---|---|
| Entry data settings Measurement data entry Select device : UWR-1999999965 Channel : 01 Og999999118 Character string data entry Select foot switch : | Excel settings Workbook : C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sample Worksheet : Sample_F2 Range of cells (specify the A1 reference style) : First : G13 Last : K14 Move after return direction : Right |
| Character string data : Device information Serial No. : 1999999965 Type : UWR COM : COM10 | Night Displacement intervals : 1 Image: Second s |
| | OK Cancel |

15) Repeat steps "6) to 13)" to specify the [Data entry device] settings for the third device.

| Here, assign the third device | (USB-ITN) | to the [G15:K16]. |
|-------------------------------|-----------|-------------------|
|-------------------------------|-----------|-------------------|

| Data entry device settings | |
|---|---|
| Entry data settings Measurement data entry Select device : ITN-39999115 Channel : | Excel settings Workbook : C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sample Worksheet : Sample_F2 |
| | OK Cancel |

16) Repeat steps "6) to 13)" to specify the [Data entry device] settings for the fourth device. Here, assign the fourth device (USB-ITN) to the [G17:K18].

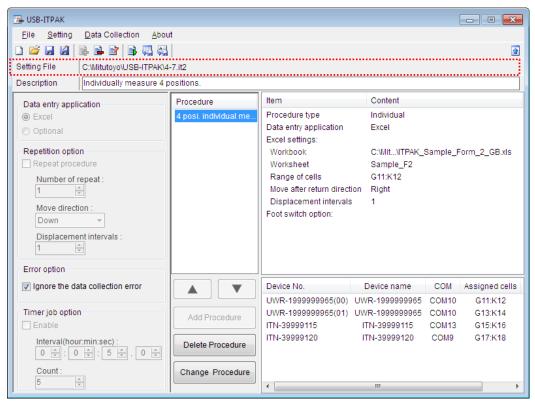
| Entry data settings | | Excel settings |
|----------------------|----------|---|
| Measurement data | entry | Workbook : |
| Select device : | | C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sample_ |
| ITN-39999120 | • | Worksheet : |
| Channel : | | Sample_F2 - |
| | | Range of cells (specify the A1 reference style) : |
| | | First : G17 Select |
| Character string da | ta entry | Last: K18 |
| Select foot switch : | | Move after return direction : |
| | - | |
| Character string da | ta : | |
| | | Displacement intervals : |
| | | |
| Device information | | Foot switch option |
| Serial No. : | 39999120 | |
| Type : | ITN | Device No. Function COM |
| COM : | COM9 | |
| | | |
| | | |

| 17) | Close | [Add | procedure]. | |
|-----|-------|------|-------------|--|
| | | | | |

| Procedure type : | Procedure name : | |
|--|--|----------------------------|
| Individual | 4 posi. individual measurement | |
| Data entry devices | | |
| Device No. | Workbook | Worksheet |
| | C:\Mitutoyo\USB-ITPAK\Sample\\TPAK_Sample_Form_2_GB.xl C:\Mitutoyo\USB-ITPAK\Sample\\TPAK_Sample_Form_2_GB.xl C:\Mitutoyo\USB-ITPAK\Sample\\TPAK_Sample_Form_2_GB.xl C:\Mitutoyo\USB-ITPAK\Sample\\TPAK_Sample_Form_2_GB.xl | s Sample_F2 s Sample_F2 |
| • | | 4 |
| Foot switch option Device No. Function | СОМ | |

This completes the settings on the [Add procedure] dialog box, so click the [OK] button.

18) Save the created setting file.



From the menu of the main dialog box, select [File], [Save As], and then save the file by giving it a name. When the file has been saved, the file name is displayed as a full path in the [Setting File] field.

4.7.3 Measurement

1) Open [Setting File].

TIP • If starting measurement immediately after specifying the settings in "4.7.2 Setting", the setting file is already opened. In this case, skip step "1)".

From the menu of the main dialog box, select [File] and then [Open], or open [Setting file] from [Recent files].

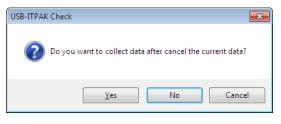
2) Open the data collection dialog box.

IMPORTANT • In USB-ITPAK, following data collection, the Excel file to which the data was input is saved through overwriting under the existing file name. To use the original Excel file later, back it up beforehand.

From the menu of the main dialog box, select [Data Collection] and then [Start], or click the icon shown below.

| 🕞 USB-IT | РАК |
|-----------------------|-------------------------------|
| <u>F</u> ile <u>S</u> | Setting Data Collection About |
| 🗋 😂 🖥 | 😫 🗟 🖻 🖹 🛼 🥋 👘 |

When data collection starts, the message [Do you want to collect data after cancel the current data?] is displayed. Click [Yes] to clear the existing data or [No] not to.



The data collection dialog box is displayed and data collection can now be performed.

| USB-ITPAK - C:\Mitutoyo\USB-ITPAK\4-7.it2 | | | | | | | |
|---|-------------|-----------|-------|------|--|--|--|
| Procedure : 4 posi. individual measurement (Individual) | | | | | | | |
| Execute data entry operation. | | | | | | | |
| Data request | Data cancel | Data skip | Pause | Stop | | | |

TIP • If you click [No] for the message [Do you want to collect data after cancel the current data?], the data collection dialog box will be paused. In this case, resume the data collection. For details, refer to "6.14.1 [Pause/Resume] button" and "8.2.5 To resume the Excel data collection previously paused".

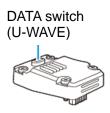
3) Perform data collection.

During data collection, the cell to which data will be input next is highlighted in green.

| e | Home In | isert Page | Layout | Formulas | Data | Review | View | | | | | | \otimes | 0 - 1 |
|----------|---|-------------------|---------|-------------|-----------------|-------------------|----------|---------|------------|----------|--------------|-------------|-----------|----------|
| B | C | D | Е | F | G | Н | I | J | K | L | M N | 0 | P | Q |
| AA | A Corpo | ration | | | | | | | | | | | | ٦ |
| С | ERTIF | ICATE | 0 | F INS | PEC. | TION | | | | | L | SAM | LE | |
| | Name of ins | pection | | | | | | BI | 3B Corpora | ation | Approval | Inspector | Overal | l judgme |
| | Product r | | | | | No. | | | CCC Divisi | on | | | | |
| | Part na | | | | | er of lots | | Date | | | | | | |
| | Part N Inspection | o. Permissible | | Measuring | Number of X1 | inspections X2 | X3 | X4 | X5 | | | | | |
| No | item | value | Unit | item | (X6) | (X7) | (X8) | (X9) | (X10) | judgment | Special note | | | |
| 1 | Overall Length | 10.05 | mm | CD | | | | | | | 1 | | | |
| <u> </u> | Operator A | 9.95 | | | | | | | | | - | | | |
| 2 | Overall Length Operator B | 10.05 9.95 | mm | CD | | | | | | - | | | | |
| 2 | Overall Length | 10.05 | mm | CD | | | | | | | Drawing No. | Drawing No. | | |
| 3 | Operator C | 9.95 | mm | 00 | | | | | | | | | | |
| 4 | Overall Length Operator D | 10.05 9.95 | mm | CD | | | | | | - | | | | |
| | operatorio | 9.90 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| <u> </u> | | | | | | | | | | | - | | | |
| 7 | | | | | | | | | | - | | | | |
| 8 | | | | | | | | | | | 1 | | | |
| | | | | | | | | | | | - | | | |
| 9 | | | | | | | | | | - | | | | |
| 10 | | | | | | | | | | | 1 | | | |
| | easuring item] | | | | | | | | | | 4 | | | |
| C A | Easuring itemu D:Caliper MD:I N:Surftest CMM T:Hardness Test | Coordinate Me | asuring | Machine PP: | Profale Proje | ctor MS: Mic | croscope | | | | | | | |
| | _ | | | | | | BBB Corp | otation | | | | | | |

Input data from the measuring tools through one of the following operations:

- (1) Pressing the DATA switch on the measuring tool.
- (2) Pressing the DATA switch if USB-ITN has one.
- (3) Pressing the DATA switch on U-WAVE. (Within about 2 seconds)



- **IMPORTANT** During individual measurement, data is collected separately for each measuring tool, so data cannot be collected by clicking the [Data request] button on the data collection dialog box.
 - For details about the "measurement mode (button driven, event driven)" and "data cancel" of U-WAVE, refer to the U-WAVEPAK User's Manual. For details about the precautions for "data cancel" of U-WAVE, refer to "8.2 Supplementary Explanation of Use".

4) End data collection and save the results.

Once all the data has been input, a completion message is displayed on the data collection dialog box.

| USB-ITPAK - C:\Mitutoyo\USB-ITPAK\4-7.it2 | | | | | | | |
|---|-------------|-----------|-------|------|--|--|--|
| Procedure : 4 posi. individual measurement (Individual) | | | | | | | |
| The import of all pieces of measurement data has been completed. 01A+00010.00 | | | | | | | |
| Data request | Data cancel | Data skip | Pause | Stop | | | |

Click the [Stop] button on the data collection dialog box. The following message is displayed.

| USB-ITPAK | (Check | × |
|-----------|--|---|
| ? | Save the current contents? Click "Yes" to overwrite the current data. Click "No" to delete the current data. | |
| | Yes No Cance | I |

[Yes]: The Excel file to which data was input is saved through overwriting under the existing file name.

[No]: The Excel file is not overwritten and the data that was input is deleted.

[Cancel]: The message dialog box is closed and the data collection dialog box is displayed.

Click the [Yes] button. The Excel file is saved through overwriting and the dialog box switches to the main dialog box.

This completes basic data collection for individual measurement.

MEMO

5

MEASUREMENT DATA COLLECTION (ADVANCED)

This chapter explains the advanced use of USB-ITPAK, such as the data collection using the foot switch and the combination of multiple procedures. This chapter covers the following contents.

- 5.1 Data Input Request Using Foot Switch
- 5.2 Setting File That Includes Two Procedures
- 5.3 Measurement by Repeating Procedure
- 5.4 Character Input Using Foot Switch
- 5.5 Data Input to an Optional Application
- 5.6 DateTime data entry
- 5.7 Timer Job
- 5.8 Inputting Log Data of DP-1VA

"CHAPTER 4 MEASUREMENT DATA COLLECTION (BASICS)" explains the basic use of USB-ITPAK.

"CHAPTER 6 DIALOG BOX CONFIGURATIONS OF USB-ITPAK" describes the menus and dialog box configuration for all the functions of USB-ITPAK.

5.1 Data Input Request Using Foot Switch

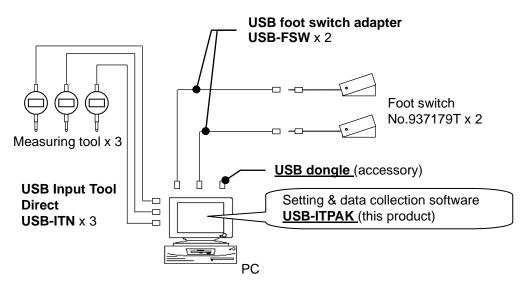
5.1.1 Overview

This section explains how to issue data input requests and how to cancel data by using the foot switch (via USB-FSW).

TIP • The procedure used in the explanation in this section is based on the batch measurement method described in "CHAPTER 4 MEASUREMENT DATA COLLECTION (BASICS)". The setting file created in "CHAPTER 4 MEASUREMENT DATA COLLECTION (BASICS)" is used with some modifications.

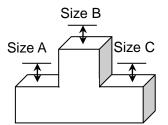
- NOTE The foot switch can be used to issue data input requests or cancel data for all measurement methods, i.e. sequential, batch, and individual measurement. When using U-WAVE, data input can be requested on the U-WAVE transmitter in the event driven mode with the foot switch operation.
 - 1) Connection

In the explanation in this section, three indicators are connected to USB-ITN, and two foot switches are connected to USB-FSW. The connection diagram is shown below.



2) Workpiece for measurement

The following workpiece is used in the explanation. Three indicators are used and measurement is done with measuring jigs. "Size A", "Size B", and "Size C", which are shown in the figure below, are measured.



3) Measurement

The image of the inspection table upon completion of data collection is shown below.

| Inspe | Inspection item | | Size B | Size C |
|------------|-----------------|-------|--------|--------|
| Meas | Measuring item | | | |
| Tolerance | Upper limit | 5.150 | 10.100 | 5.150 |
| Tolerance | Lower limit | 4.850 | 9.900 | 4.850 |
| | Sample 1 | 5.054 | 10.023 | 5.070 |
| | Sample 2 | 5.086 | 10.016 | 5.064 |
| | Sample 3 | 5.093 | 10.000 | 5.056 |
| | Sample 4 | 5.077 | 10.039 | 5.063 |
| Result of | Sample 5 | 5.085 | 9.992 | 5.047 |
| inspection | Sample 6 | 5.084 | 10.024 | 5.065 |
| | Sample 7 | 5.062 | 9.990 | 5.050 |
| | Sample 8 | 5.073 | 9.985 | 5.054 |
| | Sample 9 | 5.071 | 10.011 | 5.045 |
| | Sample 10 | 5.062 | 10.000 | 5.060 |

The measurement procedure is as follows. The three locations of the first workpiece are measured, and the input data is output to the "Size A", "Size B", and "Size C" columns. Next, the three locations of the second workpiece are measured, and the input data is output to the "Size A", "Size B", and "Size C" columns in the "Sample 2" row of the Excel worksheet.

The remaining workpieces up to the tenth one are measured in the same manner.

| | Sample 1 | Batch (1) | | | | | |
|------------|-----------|------------|--|--|--|--|--|
| | Sample 2 | Batch (2) | | | | | |
| | Sample 3 | | | | | | |
| | Sample 4 | | | | | | |
| Result of | Sample 5 | | | | | | |
| inspection | Sample 6 | | | | | | |
| | Sample 7 | | | | | | |
| | Sample 8 | | | | | | |
| | Sample 9 | | | | | | |
| | Sample 10 | Batch (10) | | | | | |

The following describes how to set up the measurement procedure, perform measurement, and save the results.

5.1.2 Setting

1) Check the device information.

NOTE • USB-ITPAK loads the information of connected devices at startup. Therefore, connect all the devices to be used before starting up USB-ITPAK.

From the menu of the main dialog box, select [Settings] and then [Device information]. This opens the [Device information] dialog box, which allows you to check the devices that are connected to the PC.

| evice information | | | | — |
|-------------------|--------------|-------|------|------------|
| Device lists : | | | | |
| Device No. | Device name | COM | Туре | Serial No. |
| ITN-69999013 | ITN-69999013 | COM8 | ITN | 69999013 |
| ITN-69999065 | ITN-69999065 | COM11 | ITN | 69999065 |
| ITN-69999067 | ITN-69999067 | COM12 | ITN | 69999067 |
| FSW-19999066 | FSW-19999066 | COM7 | FSW | 19999066 |
| FSW-19999073 | FSW-19999073 | COM4 | FSW | 19999073 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | 1 | _ | | |
| Setting | | | OK | Cancel |

If you do not want to change the device number or device name, click the [Cancel] button to return to the main dialog box.

If you want to change a device number or device name, select the device, and then click the [Setting] button.

| Device information | on | |
|--------------------|----------|--|
| Serial No. : | 69999013 | |
| Type : | ITN | |
| COM : | COM8 | |
| | | |
| Device No. : | _ | |
| ITN-69999013 | | |
| Device name : | | |
| ITN-69999013 | | |
| | ••••• | |

Click the [OK] button if you change any settings.

- **NOTE** In the procedure created from step "2)", the device number is used to specify the device to be used. If you change the number, revise all the setting files that use it.
 - **TIP** If multiple units are connected, specify settings for each.

- **TIP** If performing measurement using existing setting files, skip this section and refer to "5.1.3 Measurement".
 - 2) Open the setting file created in "4.3 Batch Measurement (Basics)".

From the menu of the main dialog box, select [File] and then [Open], or open [Setting file] from [Recent files].

3) Enter information about the setting file in the [Description] field.

Enter a description of the setting file. This field may be left blank.

| | 🕞 USB-ITPAK | | | | | | | | |
|----|------------------------------|-------------------------------|---------------------|----------------------------------|--------------|--------------|------------------|-----------|--|
| | <u>F</u> ile <u>S</u> etting | Data Collection Abou | t | | | | | | |
| | 🗅 💕 🖬 🕍 | 3 🖻 🖻 🗟 🖏 | | | | | | 1 | |
| | Setting File | C:\Mitutoyo\USB-ITPAK\4 | -3.it2 | | | | | | |
| 3) | Description | Measure 3 positions in t | atch. | | | | | | |
| | ⊂ Data entry appli | cation | Procedure | ltem | C | content | | | |
| | Excel | | 3 position batch me | Procedure type | E | latch | | | |
| | Optional | | | Data entry appl | ication E | xcel | | | |
| | Desetting and | - | | Excel settings: | | | | | |
| | Repetition optio | | | Workbook Worksheet | | ample F3 | K_Sample_Form | _3_GB.XIS | |
| | Number of repeat : | | | Range of cells D18:F27 | | | | | |
| | | | | Move after return direction Down | | | | | |
| | Move directi | | | Displacement | intervals 1 | | | | |
| | Down | <u>▼</u> | | | - | ssign for th | he columns(A,B,) | | |
| | Displaceme | nt intonyals : | | Foot switch opt | | | | | |
| | 1 | | | FunctionKey Op | peration: | | | | |
| | Error option | | | | | | | | |
| | 🛛 Ignore the da | ta collection error | | Device No. | Device name | COM | Assigned cells | Status | |
| | | | | ITN-69999065 | | | D:D | Connect | |
| | Timer job option | 1 | Add Procedure | ITN-69999067 | | | | Connect | |
| | Enable Enable | | | ITN-69999013 | ITN-69999013 | COM8 | F:F | Connect | |
| | Interval(hou | r:min:sec) : 읒 : 5 읒 . 0 읒 | Delete Procedure | | | | | | |
| | | ▼· 5 ▼· 0 ▼ | | 4) | | | | | |
| | Count : | | Change Procedure | 4) | | | | | |
| | | | | | | | | | |

4) Start the procedure change.

Click the [Change Procedure] button on the main dialog box.

5) Enter a name in the [Procedure name] field.

Entering the procedure name is required.

TIP • Since the procedure name will be displayed in the [Procedure] field at the center of the main dialog box, enter an easily identifiable name.

| Here, enter | [3 | position | batch | and | foot | switch]. |
|-------------|----|----------|-------|-----|------|----------|
|-------------|----|----------|-------|-----|------|----------|

| Batch 3 position batch and loor switch Excel settings Workbook: Workbook: Image: Sample_Form_3_GB.xls Worksheet: Image: Sample_F3 Range of cells (specify the A1 reference style): First: First: D18 Last: F27 Move after return direction : Select Down Image: Sample_S | Change Procedure | | | | -X | |
|--|--|--|---------------------------|----------------|-----------|----|
| Workbook: Workbook: Worksheet: Sample_F3 Range of cells (specify the A1 reference style): First: D18 Last: F27 Move after return direction : Down Displacement intervals : 1 • | | foot switch | | | | 5) |
| Ourspecified | Workbook : VKISample\TPAK_Sample_Form_3_GB.xls Worksheet : Sample_F3 Range of cells (specify the A1 reference style) : First : D18 Last : F27 Move after return direction : Down Displacement intervals : | Device No. ITN-69999065 ITN-69999067 | Assign rule D:D E:E | COM11 COM12 | | |
| OK Cancel | Unspecified Assign for the columns(A,B,) Assign for the rows(1,2,) FunctionKey Operation Data request : Data cancel : | | unction | | | 6 |

6) Specify the [Foot switch option] settings for the first device.

The functions of the buttons for the [Foot switch option] field are as follows:

- [+]: Adds device settings.
- [-]: Deletes the device setting selected from the list.
- [$\sqrt{}$]: Changes the device setting selected from the list.

Here, click the [+] button to switch to the [Data entry device settings] dialog box.

7) In the [Select foot switch] field on the [Foot switch option settings] dialog box, select the device to be assigned.

| | Foot switch option setti | ngs 💌 |
|----|----------------------------------|----------|
| 7) | Select foot switch : | |
| 7) | FSW-19999066 | • |
| | Device information | |
| | Serial No. : | 19999066 |
| | Type : | FSW |
| | COM : | COM7 |
| 8) | PUNction : Data request OK | Cancel |

From the drop-down list, select the device to be assigned.

Here, select the first device.

8) In the [Function] field, select the function to be assigned.

Here, select [Data request].

This completes the setting on the [Foot switch option settings] dialog box for the first device, so click the [OK] button.

9) Repeat steps "6) to 8)" to specify the [Foot switch option] settings for the second device.

| Foot switch option settings | | | | | |
|-----------------------------|----------|--|--|--|--|
| Select foot switch : | | | | | |
| FSW-19999073 | • | | | | |
| Device information | | | | | |
| Serial No. : | 19999073 | | | | |
| Type : | FSW | | | | |
| COM : | COM4 | | | | |
| Function : Data cancel | • | | | | |
| ОК | Cancel | | | | |

Here, assign the [Data cancel] function to the second device.

10) Close [Change Procedure].

| Procedure type : | Procedure name : | | | | |
|---|----------------------|----------------------------|--------------------------|-------|----------|
| Batch 👻 | 3 position batch and | foot switch | | | |
| Excel settings | | Data entry device | s | | |
| Workbook : | | Device No. | Assign rule | COM | + |
| \K\Sample\ITPAK_Sample_For | m_3_GB.xls | ITN-69999065 | D:D | COM11 | |
| Worksheet : | | ITN-69999067 | E:E | COM12 | |
| Sample_F3 | • | ITN-69999013 | F:F | COM8 | _ |
| Range of cells (specify the A1 re | eference style) : | | | | ~ |
| First: D18 | Select | | | | |
| Last: F27 | Scieda | | | | |
| Move after return direction : | | | | | |
| | | | | | |
| Down 🔻 | | | | | |
| Displacement intervals : | | | | | |
| | | | | | |
| Displacement intervals : | | | | | |
| Displacement intervals : | | Foot switch optic | n | | |
| Displacement intervals : 1 Cell address assign rules |) | Foot switch option | n Function | СОМ | |
| Displacement intervals : 1 Cell address assign rules Unspecified |) | Device No. | | | |
| Displacement intervals : 1 Cell address assign rules Unspecified Assign for the columns(A,B,) |) | Device No. | Function Data request | | + |
| Displacement intervals : 1 Cell address assign rules Unspecified Assign for the columns(A,B,) Assign for the rows(1,2,) FunctionKey Operation |) | Device No. FSW-19999066 | Function Data request | COM7 | |
| Displacement intervals : 1 Cell address assign rules Unspecified a Assign for the columns(A,B, Assign for the rows(1,2,) FunctionKey Operation Data request : |) | Device No. FSW-19999066 | Function Data request | COM7 | |
| Displacement intervals : 1 Cell address assign rules Unspecified Assign for the columns(A,B,) Assign for the rows(1,2,) FunctionKey Operation |) v | Device No. FSW-19999066 | Function Data request | COM7 | |
| Displacement intervals : 1 Cell address assign rules Unspecified a Assign for the columns(A,B, Assign for the rows(1,2,) FunctionKey Operation Data request : |) v | Device No. FSW-19999066 | Function Data request | COM7 | |
| Displacement intervals : 1 Cell address assign rules Ounspecified Assign for the columns(A,B,) Assign for the rows(1,2,) FunctionKey Operation Data request : Data cancel : |) V V | Device No. FSW-19999066 | Function Data request | COM7 | |

This completes the settings on the [Change Procedure] dialog box, so click the [OK] button.

11) Save the created setting file.

| 🕞 USB-ITPAK | | |
|--|-----------------------------------|--|
| File Setting Data Collection A | pout | |
| | | |
| Setting File C:\Mitutoyo\USB-ITPA | K\5-1.it2 | |
| Description Measure 3 positions | in batch and operate the foo | t switch. |
| Data entry application | Procedure | Item Content |
| Excel | 3 position batch and | Procedure type Batch |
| Optional | | Data entry application Excel |
| Repetition option Repeat procedure Number of repeat : 1 | | Excel settings: Workbook C:\Mit\ITPAK_Sample_Form_3_GB.xls Worksheet Sample_F3 Range of cells D18:F27 Move after return direction Down Displacement intervals 1 Cell address assign rules Assign for the columns(A,B,) Foot switch option: FSW-19999066 Data request - Connect FSW-19999073 Data cancel - Connect FSW-19999073 |
| Ignore the data collection error | | Device No. Device name COM Assigned cells Status |
| Times ich antion | | ITN-69999065 ITN-69999065 COM11 D:D Connect |
| Timer job option | Add Procedure | ITN-69999067 ITN-69999067 COM12 E:E Connect ITN-69999013 ITN-69999013 COM8 F:F Connect |
| Interval(hour:min:sec): 0 ↓: 0 ↓: Count: 5 ↓ | Delete Procedure Change Procedure | |

From the menu of the main dialog box, select [File], [Save As], and then save the file by giving it a name. When the file has been saved, the file name is displayed as a full path in the [Setting File] field.

5.1.3 Measurement

1) Open [Setting File].

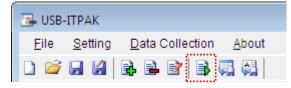
TIP • If starting measurement immediately after specifying the settings in "5.1.2 Setting", the setting file is already opened. In this case, skip step "1)".

From the menu of the main dialog box, select [File] and then [Open], or open [Setting file] from [Recent files].

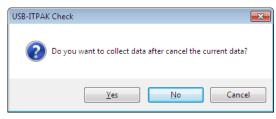
2) Open the data collection dialog box.

IMPORTANT • In USB-ITPAK, following data collection, the Excel file to which the data was input is saved through overwriting under the existing file name. To use the original Excel file later, back it up beforehand.

From the menu of the main dialog box, select [Data Collection] and then [Start], or click the icon shown below.



When data collection starts, the message [Do you want to collect data after cancel the current data?] is displayed. Click [Yes] to clear the existing data or [No] not to.



The data collection dialog box is displayed and data collection can now be performed.

| JUSB-ITPAK - C:\Mitutoyo\USB-ITPAK\5-1.it2 | | | | | | | | |
|--|--|------------|-------|------|--|--|--|--|
| Procedure : 3 position | Procedure : 3 position batch and foot switch (Batch) | | | | | | | |
| Execute import man | ipulations of measure | ment data. | | | | | | |
| Data request | Data cancel | Data skip | Pause | Stop | | | | |

TIP • If you click [No] for the message [Do you want to collect data after cancel the current data?], the data collection dialog box will be paused. In this case, resume the data collection. For details, refer to "6.14.1 [Pause/Resume] button" and "8.2.5 To resume the Excel data collection previously paused".

3) Perform data collection.

During data collection, the cell to which data will be input next is highlighted in green.

| | _ •) • (° • | | | Compatibility M | | | | 23 |
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| 6 | Par | t name | | | E | BB Corporatio | on | |
| 7 | Pa | art No. | | | | CCC Division | | |
| 8 | Name o | f inspection | | | Date of ir | nspection | | |
| 9 | | ot No. | | | | roval | Inspector | |
| 10 | | per of lots | | | | | | |
| 11 | Number o | of inspections | | | | | | |
| 12 | Drav | ving No. | | | | | | |
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| 14 | | ction item | Size A | Size B | Size C | Size D | Size E | = |
| 14 15 | | uring item | | | | Size D | Size E | = |
| 14 15 16 | | uring item Upper limit | 0.15 | 0.10 | 0.15 | Size D | Size E | |
| 14 15 16 17 | Meas | uring item Upper limit Lower limit | | 0.10 | | Size D | Size E | |
| 14 15 16 17 18 | Meas | uring item Upper limit Lower limit Sample 1 | 0.15 | 0.10 | 0.15 | Size D | Size E | |
| 14 15 16 17 18 19 | Meas | uring item Upper limit Lower limit Sample 1 Sample 2 | 0.15 | 0.10 | 0.15 | Size D | Size E | |
| 14 15 16 17 18 19 20 | Meas | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 | 0.15 | 0.10 | 0.15 | Size D | Size E | |
| 14 15 16 17 18 19 20 21 | Meas Tolerance | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 | 0.15 | 0.10 | 0.15 | Size D | Size E | |
| 14 15 16 17 18 19 20 21 22 | Meas Tolerance Result of | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 | 0.15 | 0.10 | 0.15 | Size D | Size E | |
| 14 15 16 17 18 19 20 21 22 23 | Meas Tolerance | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 | 0.15 | 0.10 | 0.15 | Size D | Size E | |
| 14 15 16 17 18 19 20 21 22 23 23 24 | Meas Tolerance Result of | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 | 0.15 | 0.10 | 0.15 | Size D | Size E | |
| 14 15 16 17 18 19 20 21 22 23 24 25 | Meas Tolerance Result of | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 Sample 8 | 0.15 | 0.10 | 0.15 | Size D | Size E | |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 | Meas Tolerance Result of | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 | 0.15 | 0.10 | 0.15 | Size D | Size E | |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 | Meas Tolerance Result of inspection | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 2 Sample 4 Sample 5 Sample 5 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 | 0.15 | 0.10 | 0.15 | Size D | Size E | |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 | Meas Tolerance Result of inspection Avera | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 | 0.15 | 0.10 | 0.15 | Size D | Size E | |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 | Meas Tolerance Result of inspection Avera | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 2 Sample 4 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) | 0.15 | 0.10 | 0.15 | Size D | Size E | |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 | Meas Tolerance Result of inspection Avera | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 2 Sample 4 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) | 0.15 | 0.10 | 0.15 | Size D | Size E | |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 | Meas Tolerance Result of inspection Avera | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 2 Sample 4 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) | 0.15 | 0.10 | 0.15 | Size D | Size E | |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 | Meas Tolerance Result of inspection Avera | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 2 Sample 4 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) | 0.15 | 0.10 | 0.15 | Size D | Size E | |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 | Mease Tolerance Result of inspection Avera standard | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 2 Sample 4 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 10 age (Av.) deviation (σ) | 0.15 | 0.10 | 0.15 | Size D | Size E | |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 | Mease Tolerance Result of inspection Avera standard | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 2 Sample 4 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) | 0.15 | 0.10 | 0.15 | Size D | Size E | |
| 14 15 16 17 18 20 21 22 23 24 25 26 27 27 28 29 30 31 32 33 34 35 36 | Measu Tolerance Result of inspection Avera standard Overal | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 3 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) deviation (σ) | 0.15 | 0.10 -0.10 | 0.15 | | Size E | |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 30 31 32 33 34 35 36 37 | Measu Tolerance Result of inspection Avera standard Overal | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 3 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) deviation (σ) | 0.15 | 0.10 -0.10 | 0.15 | | | |
| 14 15 16 17 18 20 21 22 23 24 25 26 27 27 28 29 30 31 32 33 34 35 36 | Measu Tolerance Result of inspection Avera standard Overal | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 3 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) deviation (σ) | 0.15 | 0.10 -0.10 | 0.15 | | | |
| 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30 31 32 33 34 35 36 37 38 39 | Measu Tolerance Result of inspection Avera standard Overal | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 2 Sample 2 Sample 4 Sample 5 Sample 6 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) deviation (σ) | 0.15 -0.15 | 0.10 -0.10 -0.10 -0.10 | 0.15 0.00 | | | |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 | Measi Tolerance Result of inspection Avera standard Uncertaine CD: Caliper AN: Surflest VI: Visual ins | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 3 Sample 4 Sample 6 Sample 6 Sample 7 Sample 7 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) deviation (σ) I judgment em] MD: Micrometer CMM: Coordinate 1 prection MG: Master | 0.15 -0.15 | 0.10 - | 0.15 0.00 | age SD: Scal | | |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 | Measu Tolerance Result of inspection Avera standard UMeasuring it CD: Caliper AN: Surflest VI: Visual ins | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 3 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) deviation (σ) | 0.15 -0.15 | 0.10 - | 0.15 0.00 | age SD: Scal | e | |

TIP • The inspection table above is shown with the [Upper limit] and [Lower limit] cells filled for explanatory purposes.

In the foot switch option settings, press the foot switch to which the [Data request] function has been assigned to input data.

To cancel the data that was input, in the foot switch option settings, press the foot switch to which the [Data cancel] function was assigned. This cancels the data of the input cell and the green highlight moves to the previous cell.

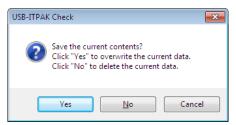
To skip the current data entry cell without inputting data, click the [Data skip] button on the data collection dialog box. The next cell is highlighted.

- **IMPORTANT** During batch measurement, data is collected all at once, so data cannot be collected through the following operations:
 - (1) Pressing the DATA switch on the measuring tool
 - (2) Pressing the DATA switch if USB-ITN has one
 - (3) When using IT-016U / IT-020U / DP-1VA, press the DATA switch.
 - (4) When using IT-016U / IT-020U / DP-1VA, operate the foot switch connected to IT-016U / IT-020U / DP-1VA.
 - (5) When using DP-1VA, use the DP-1VA interval timer.
 - 4) End data collection and save the results.

Once all the data has been input, a completion message is displayed on the data collection dialog box.

| 事 USB-ITPAK - C:\Mitutoyo\l | USB-ITPAK\5-1.it2 | | | | | |
|--|-----------------------|---------------------|-------|--------------|--|--|
| Procedure : 3 position batch and foot switch (Batch) | | | | | | |
| The import of all pie | ces of measurement da | ata has been comple | eted. | 01A+00010.00 | | |
| Data request | Data cancel | Data skip | Pause | Stop | | |

Click the [Stop] button on the data collection dialog box. The following message is displayed.



[Yes]: The Excel file to which data was input is saved through overwriting under the existing file name.

[No]: The Excel file is not overwritten and the data that was input is deleted.

[Cancel]: The message dialog box is closed and the data collection dialog box is displayed.

Click the [Yes] button. The Excel file is saved through overwriting and the dialog box switches to the main dialog box.

This completes data collection for batch measurement using a foot switch.

5.2 Setting File That Includes Two Procedures

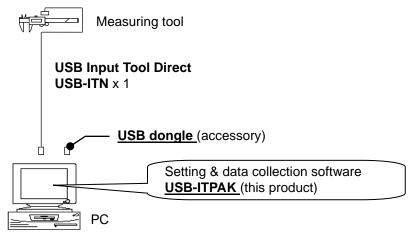
5.2.1 Overview

This section explains how to register two procedures to a single setting file.

- TIP The procedure used in the explanation in this section is based on the sequential measurement method described in "CHAPTER 4 MEASUREMENT DATA COLLECTION (BASICS)". Since the setting file requires many changes, a new setting file is created.
- **NOTE** Setting files that include two procedures can be used for sequential measurement and batch measurement. Procedures can be combined and registered regardless of whether they are of the same type. Only one procedure can be registered to one setting file for individual measurement.

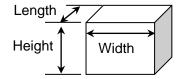
1) Connection

In the explanation in this section, one caliper is connected to USB-ITN for use. The connection diagram is shown below.



2) Workpiece for measurement

The following workpiece is used in the explanation. The measurement locations are the length, width, and height of the rectangular parallelepiped.



3) Measurement

| No. | Inspection item | Permissible value | Unit | Measuring item | X1 (X6) | X2 (X7) | X3 (X8) | X4 (X9) | X5 (X10) |
|----------|--------------------|----------------------|------|-------------------|------------|------------|------------|------------|-------------|
| 1 | Length | 13.60 | | CD | 13.49 | 13.51 | 13.52 | 13.53 | 13.50 |
| | Length | 13.40 | mm | CD | 13.53 | 13.49 | 13.53 | 13.52 | 13.53 |
| 2 | 2 Width | 12.20 | | CD | 12.12 | 12.15 | 12.13 | 12.15 | 12.14 |
| 2 | | 12.00 | mm | 00 | 12.15 | 12.12 | 12.14 | 12.15 | 12.13 |
| 2 | Hoight | 10.60 | | CD | 10.58 | 10.58 | 10.55 | 10.57 | 10.56 |
| 3 Height | Height | 10.50 | mm | | 10.57 | 10.56 | 10.56 | 10.57 | 10.55 |

The image of the inspection table upon completion of data collection is shown below.

This inspection table includes the measurement data of 10 workpieces, and the measurement data of each measurement item consists of 2 rows.

The measurement procedure consists in the following:

(1) In this measurement procedure, the length, width, and height of the first workpiece are measured and the input data is output to the first row (Length), third row (Width), and fifth row (Height) of the X1 column on the Excel worksheet.

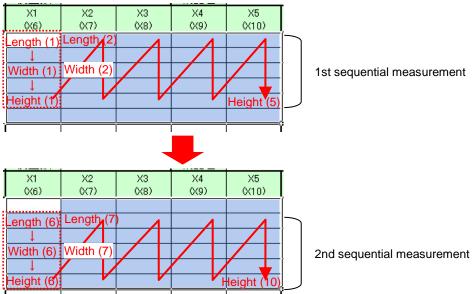
Next, the length, width, and height of the second workpiece are measured and the input data is output to the first row (Length), third row (Width), and fifth row (Height) of the X2 column.

The remaining workpieces are similarly measured, until 5 workpieces have been measured.

(2) Next, the length, width, and height of the sixth workpiece are measured and the input data is output to the second row (Length), fourth row (Width), and sixth row (Height) of the X1 (X6) column on the Excel worksheet.

Then, the length, width, and height of the seventh workpiece are measured and the input data is output to the second row (Length), fourth row (Width), and sixth row (Height) of the X2 (X7) column.

The remaining workpieces are similarly measured, until all 10 workpieces have been measured.



The above measurement procedure flow is performed by creating (1) and (2) above as separate procedures and executing the two procedures one after the next.

The following describes how to set up the measurement procedure, perform measurement, and save the results.

5.2.2 Setting

1) Check the device information.

NOTE • USB-ITPAK loads the information of connected devices at startup. Therefore, connect all the devices to be used before starting up USB-ITPAK.

From the menu of the main dialog box, select [Settings] and then [Device information]. This opens the [Device information] dialog box, which allows you to check the devices that are connected to the PC.

| D | evice information | 1 | | | | | × |
|---|-------------------|--------------|------|------|----|------------|---|
| | Device lists : | | | | | | |
| | Device No. | Device name | COM | Туре | : | Serial No. | |
| | ITN-39999120 | ITN-39999120 | COM9 | ITN | 3 | 39999120 | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | Setting | | | | ОК | Cance | |
| | Joung | | | | UN | Cance | • |

If you do not wish to change the device number or device name, click the [Cancel] button to return to the main dialog box.

If you want to change the device number or device name, click the [Setting] button.

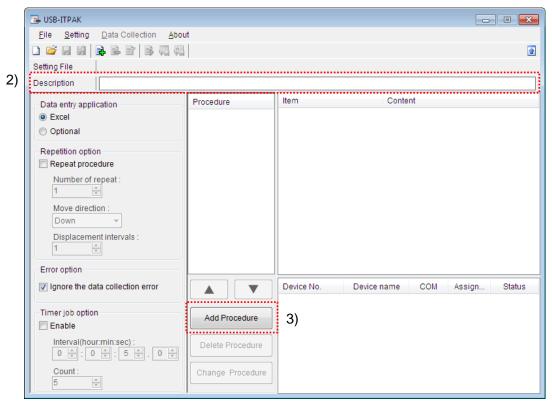
| Device information setting 📃 | | | | |
|------------------------------|------------|----------|---|--|
| Device | informatio | n | | |
| Seria | No.: | 39999120 | | |
| Туре | : | ITN | | |
| COM | : | COM9 | | |
| Device N ITN-399 | | | | |
| Device n ITN-399 | ame : | | _ | |
| O | | Cancel | | |

Click the [OK] button if you change any settings.

- **NOTE** In the procedure created from step "2)", the device number is used to specify the device to be used. If you change the number, revise all the setting files that use it.
 - TIP If multiple units are connected, specify settings for each.

- **TIP** If performing measurement using existing setting files, skip this section and refer to "5.2.3 Measurement".
 - 2) Enter information about the setting file in the [Description] field.

Enter a description of the setting file. This field may be left blank.



3) Add the first procedure to the setting file.

Click the [Add Procedure] button on the main dialog box.

| | Add procedure | | |
|-----------------------------|---|--|---|
| 4) | Batch Procedure type : Procedure name : | | 5 |
| 6) 7) 8) 9) 10) | Excel settings Workbook : Worksheet : Range of cells (specify the A1 reference style) : First : Last : Move after return direction : Right Displacement intervals : 1 | Data entry devices Device No. Assign rule COM - - | |
| 11) | Cell address assign rules Unspecified Assign for the columns(A,B,) Assign for the rows(1,2,) FunctionKey Operation Data request : Data cancel : Data skip : - | Foot switch option Device No. Function COM Image: Comparison of the system Image: Comparison of the system Image: Comparison of the system OK Cancel | |

4) Select a procedure type for the [Procedure type] field.

Check that [Sequential] is selected as the procedure type, and if not, select [Sequential] from the drop-down list.

5) Enter a name in the [Procedure name] field.

Entering the procedure name is required.

TIP • Since the procedure name will be displayed in the [Procedure] field at the center of the main dialog box, enter an easily identifiable name.

Here, enter [3 side measurement_1].

6) Specify an Excel file in the [Workbook] field under [Excel settings].

Enter the workbook name of the Excel file to which the measured data is to be input.

The file can be selected from the [Open] dialog box by clicking the [...] button.

Here, select the following file.

C:\Mitutoyo\USB-ITPAK\Sample\ ITPAK_Sample_Form_2_GB.xls

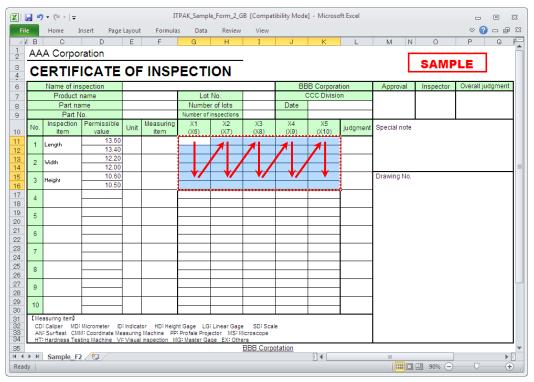
IMPORTANT • If you want to use a file other than the sample inspection table file, create an inspection file using Excel before starting up USB-ITPAK. Inspection table files can be saved to any folder. Save the inspection table file to a folder location that will be easy to manage.

7) Select a worksheet for the [Worksheet] field under [Excel settings].

Select the worksheet name to be included in the workbook of step "6)" from the drop-down list.

Here, select [Sample_F2].

8) Enter the input range in the [Range of cells] fields under [Excel settings].



To specify the area indicated by the bold lines in the above inspection table as the input cell range, enter:

First: G11 Last: K16

- **TIP** The inspection table above is shown with the [Inspection item] and [Permissible value] cells filled.
 - 9) Select the desired direction for the [Move after return direction] field under [Excel settings].

During measurement using USB-ITPAK, once data is input from the measuring tools, the measurement data is input to the current cell and then the entry point (cell) automatically moves to the next cell.

In the inspection table example shown above, select [Down].

10) Specify the [Displacement intervals] under [Excel settings].

Specify the interval for the cell movement specified in step "9)". Specifying "1" results in movement to the next cell. Specifying "2" results in movement to the cell after the next.

In the inspection table example above, specify "2".

11) Select an option under [Cell address assign rules].

In USB-ITPAK, the measuring items can be assigned to columns (vertical) or rows (horizontal) of the inspection table worksheet.

In the inspection table example above, the measuring items are assigned to respective rows, so select [Assign for the rows (1, 2...)].

12) Specify the [Data entry devices] settings.

The functions of the buttons for the [Data entry devices] field are as follows:

- [+]: Adds device settings.
- [-]: Deletes the device setting selected from the list.
- $[\sqrt{}]$: Changes the device setting selected from the list.

Here, click the [+] button to switch to the [Data entry device settings] dialog box.

| Add procedure | | |
|--|---|--|
| Procedure type : Procedure name : | | |
| Sequential Sequential Seque | it_1 | |
| Excel settings Workbook : C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sarr Worksheet : Sample_F2 Range of cells (specify the A1 reference style) : First : G11 Last : K16 Move after return direction : Down Displacement intervals : | Data entry devices Device No. Assign rule COM | |
| 2 Cell address assign rules Unspecified | Foot switch option | |
| Assign for the columns(A,B,) Assign for the rows(1,2,) | Device No. Function COM | |
| FunctionKey Operation Data request : Data cancel : Data skip : | | |
| | OK Cancel | |

13) Specify the settings in the [Excel cells assignment] field on the [Data entry device settings] dialog box.

| 1 | Data entry device settings |
|------------|---|
| 13) | Excel cells assignment Assign for the rows(1,2,) 11 - 16 Select |
| 14) 15) | Entry data settings Measurement data entry Select dévice: ITN-39999120 |
| | Character string data entry Device No. Character string + |
| | DateTime data entry Select device : Device information Serial No. : 39999120 Type : ITN COM : COM9 |
| | OK Cancel |

In the [Excel cells assignment] field, specify columns (vertical) or rows (horizontal) according to the specification in step 11). Specify the rows here.

There are three input areas in the previously described inspection table. Here, one device is assigned on all the rows, so enter start row number "11" in the input field on the left, and input "16" in the input field on the right.

14) In the [Entry data settings] field, select the entry data type.

The entry data types consist of measurement data input from the measuring tools (numeric data), and character string data input by pressing the foot switch.

TIP • For details about the method for inputting character string data using a foot switch, refer to "5.4 Character Input Using Foot Switch".

Here, select the [Measurement data entry] radio button.

15) In the [Select device] field, select the device to be assigned.

From the drop-down list, select the device to be assigned.

This completes the settings on the [Data entry device settings] dialog box, so click the [OK] button.

| Sequential 👻 | 3 side measuremer | 11_1 | | | |
|--|----------------------|-----------------|-------------|------|------|
| Excel settings | | Data entry devi | ces | | |
| Workbook : | | Device No. | Assign rule | COM | |
| C:\Mitutoyo\USB-ITPAK\Sam | ipievi PAK_Sam [] | ITN-39999120 |) 11:16 | COM9 | |
| Worksheet : | | | | | |
| Sample_F2 | • | | | | |
| Range of cells (specify the A | 1 reference style) : | | | | |
| First : G11 | Select | | | | |
| Last: K16 | | | | | |
| Move after return direction : | | | | | |
| Down 🔻 | | | | | |
| Displacement intervals : | | | | | |
| | | | | | - 11 |
| - | | | | | - 11 |
| Cell address assign rules | | | | | |
| | | Foot switch opt | ion | | |
| Cell address assign rules | ,B,) | Foot switch opt | | СОМ | |
| Cell address assign rules | | | | СОМ | |
| Cell address assign rules Unspecified Assign for the columns(A Assign for the rows(1,2, | | | | СОМ | |
| Cell address assign rules Unspecified Assign for the columns(A Assign for the rows(1,2, FunctionKey Operation | | | | СОМ | |
| Cell address assign rules Unspecified Assign for the columns(A a Assign for the rows(1,2, FunctionKey Operation Data request : | | | | СОМ | |
| Cell address assign rules Unspecified Assign for the columns(A Assign for the rows(1,2, FunctionKey Operation | | | | СОМ | |

16) Close [Add procedure].

This completes the settings on the [Add procedure] dialog box for the first procedure, so click the [OK] button.

17) Repeat steps "3) to 16)" to create the second procedure.

How to perform steps 18) and subsequent steps in the figure below is described below.

| | Add procedure | | |
|-----------------------|--|---|-----|
| 4) | Procedure type : Procedure name : Sequential Sequential Excel settings | t_2 ⊘Data entry devices | 18) |
| 6) 7) 19) 9) | Workbook: C:MitutoyoUUSB-ITPAK\Sample\ITPAK_Sam Worksheet: Sample_F2 Range of cells (specify the A1 reference style): First: G12 Last: K17 Move after return direction: Down | Device No. Assign rule COM ITN-39999120 12:17 COM9 | 20) |
| 10) 11) | 2 Cell address assign rules | Foot switch option | |
| , | Unspecified Assign for the columns(A,B,) Assign for the rows(1,2,) FunctionKey Operation | Device No. Function COM | |
| | Data request : | | |
| | | OK Cancel | |

18) Enter a name in the [Procedure name] field.

Here, enter [3 side measurement_2].

19) Enter the input range in the [Range of cells] fields under [Excel settings].

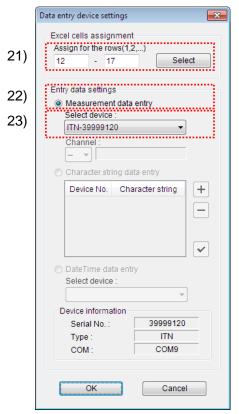
Here, enter:

| First: | G12 |
|--------|-----|
| Last: | K17 |

20) Specify the [Data entry devices] settings.

Here, click the [+] button to switch to the [Data entry device settings] dialog box.

21) Specify the settings in the [Excel cells assignment] field on the [Data entry device settings] dialog box.



In the [Excel cells assignment] field, specify columns (vertical) or rows (horizontal) according to the specification in step 11). Specify the rows here.

There are three input areas in the previously described inspection table. Here, one device is assigned on all the rows, so enter start row number "12" in the input field on the left, and input "17" in the input field on the right.

22) In the [Entry data settings] field, select the entry data type.

The entry data types consist of measurement data input from the measuring tools (numeric data), and character string data input by pressing the foot switch.

TIP • For details about the method for inputting character string data using a foot switch, refer to "5.4 Character Input Using Foot Switch".

Here, select the [Measurement data entry] radio button.

23) In the [Select device] field, select the device to be assigned.

From the drop-down list, select the device to be assigned.

This completes the settings on the [Data entry device settings] dialog box, so click the [OK] button.

24) Close [Add procedure].

| Procedure type : | Procedure name : | | | | |
|---|----------------------|--------------------------------|-------------|------|---|
| Sequential - | 3 side measuremen | it_2 | | | |
| Excel settings | | Data entry devi | ices | | |
| Workbook : | | Device No. | Assign rule | COM | + |
| C:\Mitutoyo\USB-ITPAK\Sam | ple\ITPAK_Sarr [] | ITN-3999912 | 0 12:17 | COM9 | |
| Worksheet : | | | | | |
| Sample_F2 | • | | | | |
| Range of cells (specify the A | 1 reference style) : | | | | ~ |
| First : G12 | Select | | | | |
| Last: K17 | Coloci | | | | |
| | | | | | |
| Move after return direction : | | | | | |
| Move after return direction : Down | | | | | |
| Down | | | | | |
| Down - | | | | | |
| Down | | | | | |
| Down Displacement intervals : 2 | | Foot switch op | tion | | |
| Down Displacement intervals : | B,) | Foot switch op Device No. 1 | | СОМ | + |
| Down Displacement intervals : 2 Cell address assign rules O Unspecified | | | | СОМ | + |
| Down Displacement intervals : 2 Cell address assign rules Unspecified Assign for the columns(A, @ Assign for the rows(1,2,) | | | | СОМ | + |
| Down Displacement intervals : 2 Cell address assign rules Unspecified Assign for the columns(A, @ Assign for the rows(1,2,) FunctionKey Operation | | | | СОМ | + |
| Down Displacement intervals : 2 Cell address assign rules Unspecified Assign for the columns(A, @ Assign for the rows(1,2,) | | | | СОМ | |
| Down Displacement intervals : 2 Cell address assign rules Unspecified Assign for the columns(A, @ Assign for the rows(1,2,) FunctionKey Operation | | | | СОМ | |
| Down Displacement intervals : 2 Cell address assign rules Outspecified Assign for the columns(A, a Assign for the rows(1,2,) FunctionKey Operation Data request : | | | | СОМ | |

This completes the settings on the [Add procedure] dialog box, so click the [OK] button.

25) Save the created setting file.

| 🕞 USB-ITPAK | | | |
|--|---|---|---|
| <u>File Setting Data Collection Abou</u> | t | | |
| | | | |
| Setting File C:\Mitutoyo\USB-ITPAK\5- | 2.it2 | | |
| Description Measure 3 sides for 10 s | amples. | | |
| Data entry application Excel Optional Repetition option Repeat procedure Number of repeat : 1 ✓ Move direction : Down ✓ Displacement intervals : 1 ✓ Error option | Procedure 3 side measuremen 3 side measuremen | Item Procedure type Data entry application Excel settings: Workbook Worksheet Range of cells Move after return direction Displacement intervals Cell address assign rules Foot switch option: FunctionKey Operation: | Content Sequential Excel C:MitVTPAK_Sample_Form_2_GB.xls Sample_F2 G11:K16 Down 2 Assign for the rows(1,2,) |
| Ignore the data collection error | | Device No. Device nan | |
| Timer job option | Add Procedure | | |
| Interval(hour:min:sec) : 0 + + + + + + + + + + + + + + + + + + + | Delete Procedure Change Procedure | | |

From the menu of the main dialog box, select [File], [Save As], and then save the file by giving it a name. When the file has been saved, the file name is displayed as a full path in the [Setting File] field.

5.2.3 Measurement

1) Open [Setting File].

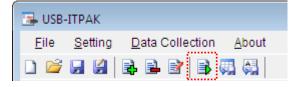
TIP • If starting measurement immediately after specifying the settings in "5.2.2 Setting", the setting file is already opened. In this case, skip step "1)".

From the menu of the main dialog box, select [File] and then [Open], or open [Setting file] from [Recent files].

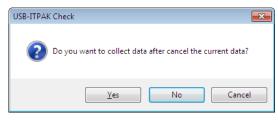
2) Open the data collection dialog box.

IMPORTANT • In USB-ITPAK, following data collection, the Excel file to which the data was input is saved through overwriting under the existing file name. To use the original Excel file later, back it up beforehand.

From the menu of the main dialog box, select [Data Collection] and then [Start], or click the icon shown below.



When data collection starts, the message [Do you want to collect data after cancel the current data?] is displayed. Click [Yes] to clear the existing data or [No] not to.



The data collection dialog box is displayed and data collection can now be performed.

| 🕞 USB-ITPAK - C:\Mitutoyo\I | JSB-ITPAK\5-2.it2 | | | |
|-----------------------------|-----------------------|------------|-------|------|
| Procedure : 3 side me | asurement_1 (Sequen | tial) | | |
| Execute import man | ipulations of measure | ment data. | | |
| Data request | Data cancel | Data skip | Pause | Stop |

TIP • If you click [No] for the message [Do you want to collect data after cancel the current data?], the data collection dialog box will be paused. In this case, resume the data collection. For details, refer to "6.14.1 [Pause/Resume] button" and "8.2.5 To resume the Excel data collection previously paused".

3) Perform data collection.

During data collection, the cell to which data will be input next is highlighted in green.

| 2 | | - | Layout | | | | | | | | | | ⊘ 🕜 | - 6 |
|----|-----------------------------------|-----------------------------------|---------|---------------------------|-------------|-------------------------------|-------------------------|------|------------|----------|--------------|-----------|-------------|------|
| B | | D | E | F | G | Н | I | J | K | L | M N | 0 | P | Q |
| A | AA Corpo | ration | | | | | _ | | | | Г | CAME | | |
| С | ERTIF | ICATE | OF | INSF | PECT | ION | | | | | | SAMF | LE | |
| | Name of ins | pection | | | | | | BE | B Corpora | ation | Approval | Inspector | Overall jud | dgme |
| | Product i | | | | | t No. | | (| CCC Divisi | on | | | | |
| | Part na | | | | | er of lots | | Date | | | | | | |
| | Part N | o. Permissible | | Measuring | | f inspections X2 | X3 | X4 | X5 | | | | | |
| No |). Inspection item | value | Unit | item | (X6) | (X7) | (X8) | (X9) | (X10) | judgment | Special note | | | |
| 1 | Length | 13.60 | | | | | | | | | 1 | | | |
| | | 13.40 12.20 | | | | | | | | | - | | | |
| 2 | Width | 12.20 | | | | | | | | - | | | | |
| 3 | Height | 10.60 | | | | | | | | | Drawing No. | | | |
| _ | - Norgen | 10.50 | | | | | | | | | - | | | |
| 4 | | | | | | | | | | - | | | | |
| 5 | | | | | | | | | | | 1 | | | |
| - | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | - | | | | |
| 7 | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | - | | | | |
| 9 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | - | | | | |
| | leasuring item] | 1 | L | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | |
| 2 | D: Caliper MD: N: Surftest CMI | Micrometer ID A: Coordinate Me | Indicat | tor HD:Heig Machine PP | ht Gage LO | S: Linear Gag iector MS: N | e SD: Sca Aicroscone | le | | | | | | |
| ΓĤ | T: Hardness Tes | ting Machine V | Visual | linspection M | G: Master G | age EX: Oth | ers BBB Corp | | | | | | | |

Input data from the measuring tools through one of the following operations:

- (1) Pressing the DATA switch on the measuring tool.
- (2) Pressing the DATA switch if USB-ITN has one.
- TIP When using IT-016U / IT-020U / DP-1VA, data input can be performed using the DATA switch equipped with IT-016U / IT-020U / DP-1VA or the foot switch connected to IT-016U / IT-020U / DP-1VA.
 - (3) Clicking the [Data request] button on the data collection dialog box.

To cancel data that has been input, click the [Data cancel] button on the data collection dialog box. The data in the entry cell is canceled and the previous cell is highlighted.

To skip the current data entry cell without inputting data, click the [Data skip] button on the data collection dialog box. The next cell is highlighted.

4) End data collection and save the results.

Once all the data has been input, a completion message is displayed on the data collection dialog box.

| 🕞 USB-ITPAK - C:\Mitutoyo\l | JSB-ITPAK\5-2.it2 | | | |
|-----------------------------|----------------------|--------------------|--------|--------------|
| Procedure : 3 side mea | asurement_2 (Sequer | ntial) | | |
| The import of all pied | ces of measurement o | data has been comp | leted. | 01A+00010.00 |
| Data request | Data cancel | Data skip | Pause | Stop |

Click the [Stop] button on the data collection dialog box. The following message is displayed.

| USB-ITPA | (Check |
|----------|--|
| ? | Save the current contents? Click "Yes" to overwrite the current data. Click "No" to delete the current data. |
| | Yes <u>N</u> o Cancel |

[Yes]: The Excel file to which data was input is saved through overwriting under the existing file name.

[No]: The Excel file is not overwritten and the data that was input is deleted.

[Cancel]: The message dialog box is closed and the data collection dialog box is displayed.

Click the [Yes] button. The Excel file is saved through overwriting and the dialog box switches to the main dialog box.

This completes data collection for measurement that includes two procedures.

5.3 Measurement by Repeating Procedure

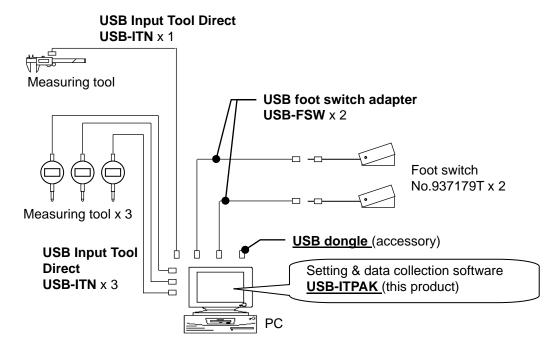
5.3.1 Overview

This section explains how to register two procedures to a single setting file and execute these two procedures repeatedly.

- TIP The procedure used in the explanation in this section is based on the batch measurement method described in "5.1 Data Input Request Using Foot Switch". The setting file created in "5.1 Data Input Request Using Foot Switch" is used with some modifications.
- **NOTE** Measurement by repeating the procedure can be used for both sequential measurement and batch measurement. This function cannot be used for individual measurement.

1) Connection

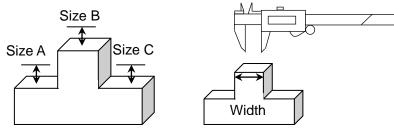
In the explanation in this section, measurement is done with three indicators connected, along with one caliper connected to USB-ITN, and two foot switches connected to USB-FSW. The connection diagram is shown below.



2) Workpiece for measurement

The following workpiece is used in the explanation. Three indicators are used and measurement is done with the measuring jigs. "Size A", "Size B", and "Size C", which are shown in the figure below, are measured.

A caliper is then used to measure the width at the top of the work.



3) Measurement

The image of the inspection table upon completion of data collection is shown below.

| Inspe | ction item | Size A | Size B | Size C | Size D | Size E |
|------------|-------------|--------|--------|--------|--------|--------|
| Meas | uring item | | | | | |
| Tolerance | Upper limit | 5.150 | 10.100 | 5.150 | | 13.550 |
| Tolerance | Lower limit | 4.850 | 9.900 | 4.850 | | 13.450 |
| | Sample 1 | 5.054 | 10.023 | 5.070 | | 13.502 |
| | Sample 2 | 5.086 | 10.016 | 5.064 | | 13.500 |
| | Sample 3 | 5.093 | 10.000 | 5.056 | | 13.511 |
| | Sample 4 | 5.077 | 10.039 | 5.063 | | 13.520 |
| Result of | Sample 5 | 5.085 | 9.992 | 5.047 | | 13.512 |
| inspection | Sample 6 | 5.084 | 10.024 | 5.065 | | 13.510 |
| | Sample 7 | 5.062 | 9.990 | 5.050 | | 13.501 |
| | Sample 8 | 5.073 | 9.985 | 5.054 | | 13.520 |
| | Sample 9 | 5.071 | 10.011 | 5.045 | | 13.500 |
| | Sample 10 | 5.062 | 10.000 | 5.060 | | 13.510 |

The measurement procedure consists of the measurement of ten workpieces using the following procedure.

- (1) "Size A", "Size B", and "Size C" of the first workpiece are measured in batch by using the measuring jigs, and the input data is output to the respective columns of the Sample 1 row on the Excel worksheet.
- (2) Next, "Size E" is measured using the caliper and the input data is output to the "Size E" column of the Sample 1 row on the Excel worksheet.

The above steps are performed for the second to tenth workpieces, and the input data is output to the Sample 2 row to the Sample 10 row on the Excel worksheet.

| | Sample 1 | Batch (1) Sequential (1) |
|------------|-----------|----------------------------|
| | Sample 2 | Batch (2) Sequential (2) |
| | Sample 3 | Batch (3) Sequential (3) |
| | Sample 4 | |
| Result of | Sample 5 | |
| inspection | Sample 6 | |
| | Sample 7 | |
| | Sample 8 | |
| | Sample 9 | |
| | Sample 10 | Batch (10) Sequential (10) |

To perform such procedures, create (1) and (2) above as separate procedures, and set up the procedures so they are repeated a total of 10 times. By executing these procedures, the measurements for one workpiece are performed by executing procedures (1) and (2) in series one time, and the measurements for all workpieces are done by doing this total of 10 times.

The following describes how to set up the measurement procedure, perform measurement, and save the results.

5.3.2 Setting

1) Check the device information.

NOTE • USB-ITPAK loads the information of connected devices at startup. Therefore, connect all the devices to be used before starting up USB-ITPAK.

From the menu of the main dialog box, select [Settings] and then [Device information]. This opens the [Device information] dialog box, which allows you to check the devices that are connected to the PC.

| Device information | | | | | × |
|--------------------|--------------|-------|------|------------|---|
| Device lists : | | | | | |
| Device No. | Device name | COM | Туре | Serial No. | |
| ITN-39999120 | ITN-39999120 | COM9 | ITN | 39999120 | |
| ITN-69999013 | ITN-69999013 | COM8 | ITN | 69999013 | |
| ITN-69999065 | ITN-69999065 | COM11 | ITN | 69999065 | |
| ITN-69999067 | ITN-69999067 | COM12 | ITN | 69999067 | |
| FSW-19999066 | FSW-19999066 | COM7 | FSW | 19999066 | |
| FSW-19999073 | FSW-19999073 | COM4 | FSW | 19999073 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| Setting | | | ОК | Cancel | |
| | 1 | | | | |

If you do not want to change the device number or device name, click the [Cancel] button to return to the main dialog box.

If you want to change a device number or device name, select the device, and then click the [Setting] button.

| Device | information se | etting | × |
|--------|--------------------------------------|----------|---|
| De | vice informatio | on | |
| 5 | Serial No. : | 39999120 | |
| 1 | ype : | ITN | |
| 0 | COM : | COM9 | |
| ITN | ice No. : -39999120 ice name : | | |
| | -39999120 | | |
| | ОК | Cancel | |

Click the [OK] button if you change any settings.

- **NOTE** In the procedure created from step "2)", the device number is used to specify the device to be used. If you change the number, revise all the setting files that use it.
 - **TIP** If multiple units are connected, specify settings for each.

- **TIP** If performing measurement using existing setting files, skip this section and refer to "5.3.3 Measurement".
 - 2) Open the setting file created in "5.1 Data Input Request Using Foot Switch".

From the menu of the main dialog box, select [File] and then [Open], or open [Setting file] from [Recent files].

3) Enter information about the setting file in the [Description] field.

Enter a description of the setting file. This field may be left blank.

| | _ | | |
|----|--|--------------------------|--|
| | 🕞 USB-ITPAK | | |
| | <u>File Setting Data Collection Abou</u> | | |
| | 🗋 🖆 🖬 🕼 🗟 🖻 😭 🖏 🦏 | | a |
| | Setting File C:\Mitutoyo\USB-ITPAK\5- | -1.it2 | |
| 3) | Description Measure 3 positions in b | atch and caliper measure | ement with the foot switch. Repeat 10 times. |
| , | · | Procedure | Item Content |
| | Data entry application | | |
| | Excel | 3 position batch and | Procedure type Batch Data entry application Excel |
| | Optional | | Excel settings: |
| | Repetition option | | Workbook C:\Mit\ITPAK_Sample_Form_3_GB.xls |
| | Repeat procedure | | Worksheet Sample F3 |
| | Number of repeat : | | Range of cells D18:F27 |
| | | | Move after return direction Down |
| | Move direction : | | Displacement intervals 1 |
| | Down - | | Cell address assign rules Assign for the columns(A,B,) |
| | | | Foot switch option: |
| | Displacement intervals : | | FSW-19999066 Data request - Connect |
| | | | FSW-19999073 Data cancel - Connect |
| | Error option | | FunctionKey Operation: |
| | ✓ Ignore the data collection error | | Device No. Device name COM Assigned cells Status |
| | | | ITN-69999065 ITN-69999065 COM11 D:D Connect |
| | Timer job option | Add Procedure | ITN-69999067 ITN-69999067 COM12 E:E Connect |
| | Enable | | ITN-69999013 ITN-69999013 COM8 F:F Connect |
| | Interval(hour:min:sec) : | Delete Procedure | |
| | 0 ♀ : 0 ♀ : 5 ♀ . 0 ♀ | | |
| | Count : | Change Procedure | 4) |
| | 5 | | · · |
| | | | |

4) Start the procedure change.

Click the [Change Procedure] button on the main dialog box.

5) Enter a name in the [Procedure name] field.

Entering the procedure name is required.

TIP • Since the procedure name will be displayed in the [Procedure] field at the center of the main dialog box, enter an easily identifiable name.

| Procedure type : Procedu | e name : |
|---|--|
| Batch - 3 posi. t | tch and foot switch 2 |
| Excel settings Workbook : VKSample\TPAK_Sample_Form_3_GE Worksheet : Sample_F3 Range of cells (specify the A1 reference First : D18 Last : F18 Move after return direction : Down Displacement intervals : 1 | ITN-69999065 D:D COM11 ITN-69999067 E:E COM12 ITN-69999013 F:F COM8 |
| Cell address assign rules | Foot switch option |
| Unspecified Assign for the columns(A,B,) Assign for the rows(1,2,) | Device No. Function COM + FSW-19999066 Data request COM7 - FSW-19999073 Data cancel COM4 - |
| FunctionKey Operation Data request : - | |

Here, enter [3 posi. batch and foot switch 2].

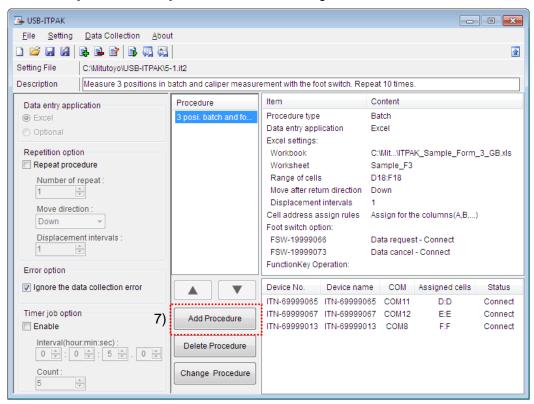
6) Change the input range in the [Range of cells] fields under [Excel settings].

Here, enter: First: D18 Last: F18

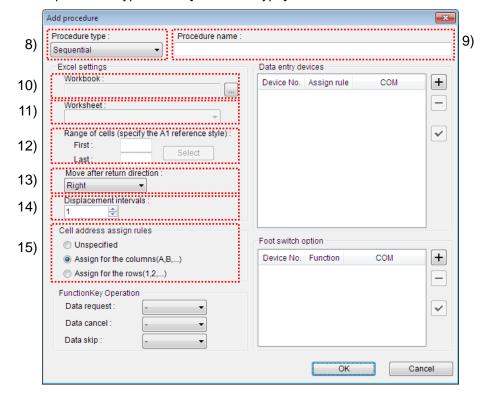
This completes the settings on the [Change Procedure] dialog box, so click the [OK] button.

7) Add the second procedure to the setting file.

Click the [Add Procedure] button on the main dialog box.



8) Select a procedure type for the [Procedure type] field.



Check that [Sequential] is selected as the procedure type, and if not, select [Sequential] from the drop-down list.

9) Enter a name in the [Procedure name] field.

Entering the procedure name is required.

TIP • Since the procedure name will be displayed in the [Procedure] field at the center of the main dialog box, enter an easily identifiable name.

Here, enter [Caliper measurement].

10) Specify an Excel file in the [Workbook] field under [Excel settings].

Enter the workbook name of the Excel file to which the measured data is to be input.

The file can be selected from the [Open] dialog box by clicking the [...] button.

Here, select the following file.

C:\Mitutoyo\USB-ITPAK\Sample\ ITPAK_Sample_Form_3_GB.xls

IMPORTANT • If you want to use a file other than the sample inspection table file, create an inspection file using Excel before starting up USB-ITPAK. Inspection table files can be saved to any folder. Save the inspection table file to a folder location that will be easy to manage.

11) Select a worksheet for the [Worksheet] field under [Excel settings].

Select the worksheet name to be included in the workbook of step "10)" from the drop-down list.

Here, select [Sample_F3].

12) Enter the input range in the [Range of cells] fields under [Excel settings].

| 4 A | Home | Insert | Page L | | mulas Data | | View | ~ ? - ₽ |
|---------------------------------|--|---|--|--------------|-------------------------|----------------|--------------|-----------|
| | В | С | | D | E | F | G | Н |
| AAA | A Corpo | oration | | | | - Date | | |
| 0 | | | TE | | DEOTI | - | C AI | MPLE |
| | :R 11 | FICA | | | SPECTI | | JA | |
| | Par | t name | | | | | BBB Corporat | ion |
| _ | | art No. | | | | | CCC Division | |
| _ | | f inspectior | n | | | Date of i | inspection | |
| | | ot No. | - | | | | proval | Inspector |
| | | per of lots | | | | | | |
| | | of inspection | ns | | | | | |
| | Drav | ving No. | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | 0. | 0. 0 | 0: 0 | 0. 0 | 0. 5 |
| | | ction item | | Size A | Size B | Size C | Size D | Size E |
| | Meas | uring item | imit | Size A | | | | |
| Tol | | uring item Upper I Lower I | imit | | 0 10.100 | 5.150 |) | 13.55 |
| Tol | Meas | uring item Upper I Lower I Sampl | imit e 1 | 5.15 | 0 10.100 | 5.150 |) | 13.55 |
| Tol | Meas | uring item Upper I Lower I Sampl Sampl | imit e 1 e 2 | 5.15 | 0 10.100 | 5.150 |) | 13.55 |
| Tol | Meas | uring item Upper I Lower I Sampl Sampl Sampl | imit e 1 e 2 e 3 | 5.15 | 0 10.100 | 5.150 |) | 13.55 |
| | Meas | uring item Upper I Lower I Sampl Sampl Sampl Sampl | imit e 1 e 2 e 3 e 4 | 5.15 | 0 10.100 | 5.150 |) | 13.55 |
| Tol | Meas erance sult of | uring item Upper I Lower I Sampl Sampl Sampl Sampl Sampl | imit e 1 e 2 e 3 e 4 e 5 | 5.15 | 0 10.100 | 5.150 |) | 13.55 |
| Re | Meas | uring item Upper I Lower I Sampl Sampl Sampl Sampl | imit e 1 e 2 e 3 e 4 e 5 e 6 | 5.15 | 0 10.100 | 5.150 |) | 13.55 |
| Re ins | Meas erance sult of | uring item Upper I Lower I Sampl Sampl Sampl Sampl Sampl Sampl Sampl | imit e 1 e 2 e 3 e 4 e 5 e 6 e 7 e 8 | 5.15 | 0 10.100 | 5.150 |) | 13.55 |
| Re ins | Meas erance sult of | uring item Upper I Lower I Sampl Sampl Sampl Sampl Sampl Sampl Sampl Sampl | imit e 1 e 2 e 3 e 4 e 5 e 6 e 6 e 7 e 8 e 9 | 5.15 | 0 10.100 | 5.150 |) | 13.55 |
| Re ins | Meas erance sult of pection | uring item Upper I Lower I Sampl Sampl Sampl Sampl Sampl Sampl Sampl | imit e 1 e 2 e 3 e 4 e 5 e 6 e 6 e 7 e 8 e 9 | 5.15 | 0 10.100 | 5.150 |) | 13.55 |
| Re insp | Meas erance sult of pection Avera | uring item Upper I Lower I Sampl Sampl Sampl Sampl Sampl Sampl Sampl Sample Sample | imit e 1 e 2 e 3 e 4 e 5 e 6 e 7 e 8 e 9 e 10 | 5.15 | 0 10.100 | 5.150 |) | 13.55 |
| Re insp | Meas erance sult of pection Avera | uring item Upper I Lower I Sampl Sampl Sampl Sampl Sampl Sampl Sampl | imit e 1 e 2 e 3 e 4 e 5 e 6 e 7 e 8 e 9 e 10 | 5.15 | 0 10.100 | 5.150 |) | 13.55 |
| Re insp | Meas erance sult of pection Avera | uring item Upper I Lower I Sampl Sampl Sampl Sampl Sampl Sampl Sampl Sample Sample | imit e 1 e 2 e 3 e 4 e 5 e 6 e 7 e 8 e 9 e 10 | 5.15 | 0 10.100 | 5.150 |) | 13.55 |
| Re insp | Meas erance sult of pection Avera | uring item Upper I Lower I Sampl Sampl Sampl Sampl Sampl Sampl Sampl Sample Sample Sample | imit e 1 e 2 e 3 e 4 e 5 e 6 e 7 e 8 e 9 e 10 | 5.15 | 0 10.100 | 5.150 |) | 13.55 |
| Re insp | Meas erance sult of pection Avera | uring item Upper I Lower I Sampl Sampl Sampl Sampl Sampl Sampl Sampl Sample Sample Sample | imit e 1 e 2 e 3 e 4 e 5 e 6 e 7 e 8 e 9 e 10 | 5.15 | 0 10.100 | 5.150 |) | 13.55 |
| Re insp | Meas erance sult of pection Avera standard | uring item Upper I Lower I Sampl Sampl Sampl Sampl Sampl Sampl Sampl Sampl Sampl Sampl Samplo | imit le 1 le 2 le 3 le 6 le 6 le 7 le 7 le 7 le 7 le 7 le 7 le 7 le 7 | 5.15 | 0 10.100 | 5.150 |) | 13.55 |
| Reins | Measurement of pection Avera standard | uring item Upper I Lower I Sampl Sampl Sampl Sampl Sampl Sampl Sampl Sampl Sampl Sampl Sampl Sampl Sampl Sampl Sampl Sampl | imit le 1 le 2 le 3 le 6 le 6 le 7 le 7 le 7 le 7 le 7 le 7 le 7 le 7 | 5.15 | 0 10.100 0 9.900 | 5.150 |) | 13.55 |
| Re insp CMee CD: AN | Mease erance sult of pection Avera standard Overall asuring iten Caliper | uring item Upper I Lower I Sampl Sambl Sam | imit e 1 e 2 e 3 e 4 e 5 e 6 e 7 e 6 e 7 e 8 e 9 o 10 σ) σ) | 5.15 4.85 | 0 10.100 0 9.900 | 5.150 4.850 | D: Scale | Size E |

To specify the area indicated by the bold lines in the above inspection table as the input cell range, enter:

| First: | H18 |
|--------|-----|
| Last: | H18 |

13) Select the desired direction for the [Move after return direction] field under [Excel settings].

During measurement using USB-ITPAK, once data is input from the measuring tools, the measurement data is input to the current cell and then the entry point (cell) automatically moves to the next cell.

In the inspection table example shown above, select [Down].

14) Specify the [Displacement intervals] under [Excel settings].

Specify the interval for the cell movement specified in step 13). Specifying "1" results in movement to the next cell. Specifying "2" results in movement to the cell after the next.

In the inspection table example above, specify "1".

15) Select an option under [Cell address assign rules].

In USB-ITPAK, the measuring items can be assigned to columns (vertical) or rows (horizontal) of the inspection table worksheet.

In the inspection table example above, the measurement items are assigned to respective columns, so select [Assign for the columns (A,B,...)].

16) Specify the [Data entry devices] settings.

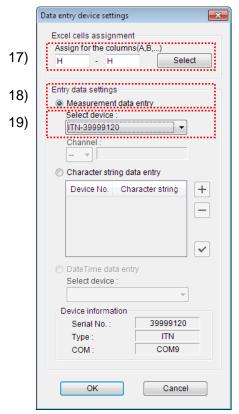
The functions of the buttons for the [Data entry devices] field are as follows:

- [+]: Adds device settings.
- [-]: Deletes the device setting selected from the list.
- [$\sqrt{}$]: Changes the device setting selected from the list.

Here, click the [+] button to switch to the [Data entry device settings] dialog box.

| Add procedure | | |
|---|---|---|
| Procedure type : Procedure name : Sequential Caliper measurement | nt | |
| Excel settings Workbook : C:Mitutoyo/USB-ITPAK\Sample\ITPAK_Sar Worksheet : Sample_F3 Range of cells (specify the A1 reference style) : First : H18 Select Last : H18 Select Move after return direction : Down Displacement intervals : 1 | Data entry devices Device No. Assign rule COM - - | 1 |
| Cell address assign rules | Foot switch option | |
| Unspecified Assign for the columns(A,B,) Assign for the rows(1,2,) | Device No. Function COM | |
| FunctionKey Operation Data request : Data cancel : Data skip : | | |
| | OK Cancel | |

17) Specify the settings in the [Excel cells assignment] field on the [Data entry device settings] dialog box.



In the [Excel cells assignment] field, specify columns (vertical) or rows (horizontal) according to the specification in step 11). Specify the columns here.

Here, the device is assigned to one column, the H column, so enter "H" in both input fields.

18) In the [Entry data settings] field, select the entry data type.

The entry data types consist of measurement data input from the measuring tools (numeric data), and character string data input by pressing the foot switch.

TIP • For details about the method for inputting character string data using a foot switch, refer to "5.4 Character Input Using Foot Switch".

Here, select the [Measurement data entry] radio button.

19) In the [Select device] field, select the device to be assigned.

From the drop-down list, select the device to be assigned.

This completes the settings on the [Data entry device settings] dialog box, so click the [OK] button.

20) Close [Add procedure].

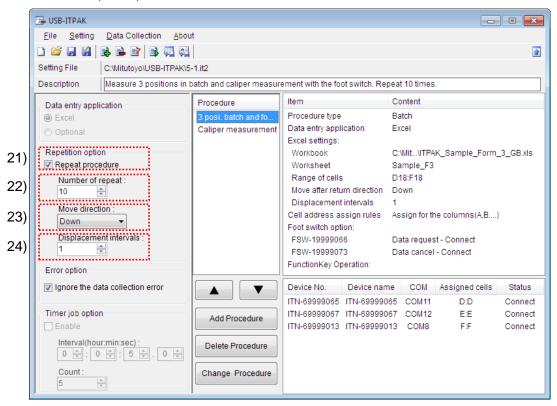
| Procedure type : | Procedure name : | | | | |
|--|----------------------|----------------------------|--------------------------|------|----------|
| Sequential 👻 | Caliper measureme | nt | | | |
| Excel settings | | Data entry device | es | | |
| Workbook : | | Device No. | Assign rule | COM | + |
| C:\Mitutoyo\USB-ITPAK\Samp | ple\ITPAK_Sam [] | ITN-39999120 | H:H | COM9 | |
| Worksheet : | | | | | |
| Sample_F3 | • | | | | _ |
| Range of cells (specify the A | 1 reference style) : | | | | ~ |
| First: H18 | Select | | | | |
| Last: H18 | | | | | |
| | | | | | |
| Move after return direction : | | | | | |
| Down - | | | | | |
| Down | | | | | |
| Down Displacement intervals : 1 | | | | | |
| Down Displacement intervals : 1 Cell address assign rules | | Foot switch optic | n | | |
| Down Displacement intervals : 1 Cell address assign rules Unspecified | | | | COM | |
| Down Displacement intervals : 1 Cell address assign rules Unspecified @ Assign for the columns(A,I | | Device No. | Function | COM | |
| Down Displacement intervals : 1 Cell address assign rules Unspecified | | Device No. FSW-19999066 | Function Data request | COM7 | |
| Down Displacement intervals : 1 Cell address assign rules Unspecified @ Assign for the columns(A,I | | Device No. FSW-19999066 | Function | | + |
| Down Displacement intervals : 1 Cell address assign rules Unspecified Assign for the columns(A,I Assign for the rows(1,2,) | | Device No. FSW-19999066 | Function Data request | COM7 | |
| Down Displacement intervals : 1 Cell address assign rules Unspecified Assign for the columns(A, Assign for the rows(1,2,) FunctionKey Operation | | Device No. FSW-19999066 | Function Data request | COM7 | |
| Down Displacement intervals : 1 Cell address assign rules Unspecified Assign for the columns(A, Assign for the rows(1,2,) FunctionKey Operation Data request : | | Device No. FSW-19999066 | Function Data request | COM7 | |

This completes the settings on the [Add procedure] dialog box, so click the [OK] button.

21) Specify the repetition settings.

Select [Repeat procedure] in the [Repetition option] field.

The "22) to 24)" fields shown below activate.



22) Specify [Number of repeat] in the [Repetition option] field.

Specify the number of times the created procedure is to be repeated.

Here, specify "10".

23) Specify [Move direction] in the [Repetition option] field.

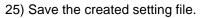
After the created procedure has been performed, the entry point (cell) automatically moves to the next position.

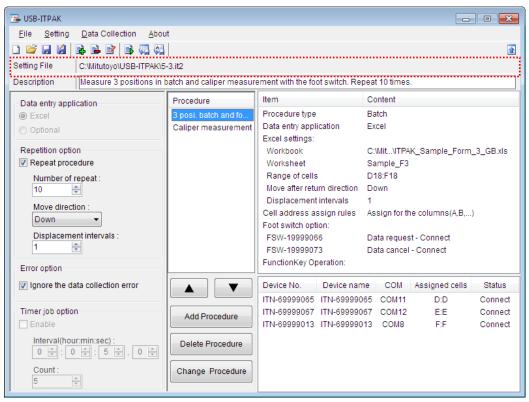
Here, select [Down].

24) Specify [Displacement intervals] in the [Repetition option] field.

Specify the interval for the cell movement specified in step "23)". Specifying "1" results in movement to the next cell. Specifying "2" results in movement to the cell after the next.

Here, specify "1".





From the menu of the main dialog box, select [File], [Save As], and then save the file by giving it a name. When the file has been saved, the file name is displayed as a full path in the [Setting File] field.

5.3.3 Measurement

1) Open [Setting File].

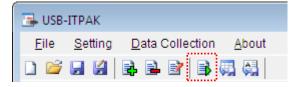
TIP • If starting measurement immediately after specifying the settings in "5.3.2 Setting", the setting file is already opened. In this case, skip step "1)".

From the menu of the main dialog box, select [File] and then [Open], or open [Setting file] from [Recent files].

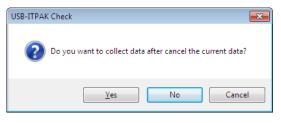
2) Open the data collection dialog box.

IMPORTANT • In USB-ITPAK, following data collection, the Excel file to which the data was input is saved through overwriting under the existing file name. To use the original Excel file later, back it up beforehand.

From the menu of the main dialog box, select [Data Collection] and then [Start], or click the icon shown below.



When data collection starts, the message [Do you want to collect data after cancel the current data?] is displayed. Click [Yes] to clear the existing data or [No] not to.



The data collection dialog box is displayed and data collection can now be performed.

| 🕞 USB-ITPAK - C:\Mitutoyo\I | USB-ITPAK\5-3.it2 | | | | | | | | |
|-----------------------------|---|------------|-------|------|--|--|--|--|--|
| Procedure : 3 posi. ba | Procedure : 3 posi. batch and foot switch 2 (Batch) | | | | | | | | |
| Execute import man | ipulations of measure | ment data. | | | | | | | |
| Data request | Data cancel | Data skip | Pause | Stop | | | | | |

TIP • If you click [No] for the message [Do you want to collect data after cancel the current data?], the data collection dialog box will be paused. In this case, resume the data collection. For details, refer to "6.14.1 [Pause/Resume] button" and "8.2.5 To resume the Excel data collection previously paused".

3) Perform data collection.

During data collection, the cell to which data will be input next is highlighted in green.

| | _ L) + (21 + | | le_Form_3_GB [(| Compatibility M | ode] - Microsoft | t Excel | _ Θ Σ | 23 |
|--|--|--|-----------------|--|------------------|---------------|-----------|-----|
| Fil | e Home | Insert Page L | ayout Formu | ulas Data | Review V | iew | ∞ 🕜 🗆 🗗 | 23 |
| # | В | С | D | E | F | G | Н | |
| 1 | AAA Corpo | pration | | | Date: | | | ·Ē |
| 0 | | | | | | CAN | | |
| 4 | CERTI | FICATE | OF INS | PECIIC | JN | JAN | IPLE | |
| 6 | Par | t name | | | В | BB Corporatio | In | |
| 7 | | art No. | | | | CCC Division | | |
| 8 | Name o | f inspection | | | Date of in | | | |
| 9 | | ot No. | | | Appr | oval | Inspector | |
| 10 | | per of lots | | | | | | |
| 11 | | of inspections | | | | | | |
| 12 | Drav | ving No. | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 13 | Incos | ntion itom | Size A | Sizo B | Size | Size D | Size E | = |
| 14 | | ction item uring item | Size A | Size B | Size C | Size D | Size E | |
| | Meas | uring item Upper limit | 5.150 | 10.100 | 5.150 | Size D | 13.550 | |
| 14 15 16 17 | | uring item Upper limit Lower limit | | | | Size D | | |
| 14 15 16 17 18 | Meas | uring item Upper limit Lower limit Sample 1 | 5.150 | 10.100 | 5.150 | Size D | 13.550 | |
| 14 15 16 17 18 19 | Meas | uring item Upper limit Lower limit Sample 1 Sample 2 | 5.150 | 10.100 | 5.150 | Size D | 13.550 | III |
| 14 15 16 17 18 19 20 | Meas | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 | 5.150 | 10.100 | 5.150 | Size D | 13.550 | = |
| 14 15 16 17 18 19 | Meas | uring item Upper limit Lower limit Sample 1 Sample 2 | 5.150 | 10.100 | 5.150 | Size D | 13.550 | |
| 14 15 16 17 18 19 20 21 | Meas Tolerance | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 | 5.150 | 10.100 | 5.150 | Size D | 13.550 | III |
| 14 15 16 17 19 20 21 22 23 24 | Meas Tolerance Result of | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 | 5.150 | 10.100 | 5.150 | Size D | 13.550 | |
| 14 15 16 17 19 20 21 22 23 24 25 | Meas Tolerance Result of | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 Sample 8 | 5.150 | 10.100 | 5.150 | Size D | 13.550 | |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 | Meas Tolerance Result of | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 Sample 8 Sample 9 | 5.150 | 10.100 | 5.150 | Size D | 13.550 | |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 | Meas Tolerance Result of inspection | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 5 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 | 5.150 | 10.100 | 5.150 | Size D | 13.550 | |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 | Meas Tolerance Result of inspection Avera | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 ge (Av.) | 5.150 | 10.100 | 5.150 | Size D | 13.550 | |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 | Meas Tolerance Result of inspection Avera | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 5 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 | 5.150 | 10.100 | 5.150 | Size D | 13.550 | |
| 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 | Meas Tolerance Result of inspection Avera | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 ge (Av.) | 5.150 | 10.100 | 5.150 | Size D | 13.550 | |
| 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31 | Meas Tolerance Result of inspection Avera | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 ge (Av.) | 5.150 | 10.100 | 5.150 | Size D | 13.550 | |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 | Meas Tolerance Result of inspection Avera | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 ge (Av.) | 5.150 | 10.100 | 5.150 | Size D | 13.550 | |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 | Meas Tolerance Result of inspection Avera standard | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 gge (Av.) deviation (σ) | 5.150 | 10.100 9.900 | 5.150 | Size D | 13.550 | |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 | Meas Tolerance Result of inspection Avera standard | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 4 Sample 6 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 ge (Av.) | 5.150 | 10.100 | 5.150 | Size D | 13.550 | |
| 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 | Meas Tolerance Result of inspection Avera standard | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 gge (Av.) deviation (σ) | 5.150 | 10.100 9.900 | 5.150 | Size D | 13.550 | |
| 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31 31 32 33 34 35 36 37 | Meas Tolerance Result of inspection Avera standard Overal (Measuring iten CD: Caliper | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 3 Sample 3 Sample 5 Sample 6 Sample 7 Sample 7 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) deviation (σ) I judgment No: Micrometer D: | 5.150 4.850 | 10.100 9.900 | 5.150 4.850 |): Scale | 13.550 | |
| 14 15 16 17 19 20 21 22 23 24 25 26 27 28 29 30 31 31 32 33 34 35 36 37 | Meas Tolerance Result of inspection Avera standard Overal (Measuring item CD: Caliper AN: Surflest | uring item Upper limit Lower limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 6 Sample 6 Sample 7 Sample 8 Sample 10 age (Av.) deviation (σ) I judgment MD: Micrometer D: CMM: Coordinate Mea | 5.150 4.850 | 10.100 9.900 | 5.150 4.850 |): Scale | 13.550 | |
| 14 15 16 17 18 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 | Meas Tolerance Result of inspection Avera standard Overal (Measuring item CD: Caliper AN: Surflest | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 3 Sample 3 Sample 5 Sample 6 Sample 7 Sample 7 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) deviation (σ) I judgment No: Micrometer D: | 5.150 4.850 | 10.100 9.900 [Special note] ight Gage LG: L PP: Profale Projec | 5.150 4.850 |): Scale | 13.550 | |
| 14 15 16 17 18 19 20 21 22 23 24 25 27 28 29 30 31 32 33 34 356 37 38 40 | Meas Tolerance Result of inspection Avera standard Overal (Measuring item CD: Caliper AN: Surflest | uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10 age (Av.) deviation (σ) | 5.150 4.850 | 10.100 9.900 [Special note] ight Gage LG: L PP: Profale Projec BB Corporation | 5.150 4.850 |): Scale | 13.550 | |

Input data from the measuring tools through one of the following operations:

- (1) Press the foot switch to which the [Data request] function was assigned in the foot switch option setting.
- (2) Click the [Data request] button on the data collection dialog box.

To cancel the data that was input, do either of the following. The data in the entry cell is canceled and the previous cell is highlighted.

- (1) Press the foot switch to which the [Data cancel] function was assigned in the foot switch option setting.
- (2) Click the [Data cancel] button on the data collection dialog box.

To skip the current data entry cell without inputting data, click the [Data skip] button on the data collection dialog box. The next cell is highlighted.

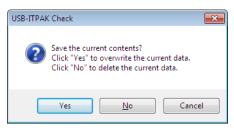
- **IMPORTANT** During batch measurement, data is collected all at once, so data cannot be collected through the following operations:
 - (1) Pressing the DATA switch on the measuring tool
 - (2) Pressing the DATA switch if USB-ITN has one
 - (3) When using IT-016U / IT-020U / DP-1VA, press the DATA switch.
 - (4) When using IT-016U / IT-020U / DP-1VA, operate the foot switch connected to IT-016U / IT-020U / DP-1VA.
 - (5) When using DP-1VA, use the DP-1VA interval timer.

4) End data collection and save the results.

Once all the data has been input, a completion message is displayed on the data collection dialog box.

| 🕞 USB-ITPAK - C:\Mitutoyo\l | USB-ITPAK - C:\Mitutoyo\USB-ITPAK\5-3.it2 | | | | | | | |
|-----------------------------|---|----------------------|-------|--------------|--|--|--|--|
| Procedure : Caliper me | | | | | | | | |
| The import of all pied | ces of measurement | data has been comple | eted. | 01A+00010.00 | | | | |
| Data request | Data cancel | Data skip | Pause | Stop | | | | |

Click the [Stop] button on the data collection dialog box. The following message is displayed.



[Yes]: The Excel file to which data was input is saved through overwriting under the existing file name.

[No]: The Excel file is not overwritten and the data that was input is deleted.

[Cancel]: The message dialog box is closed and the data collection dialog box is displayed.

Click the [Yes] button. The Excel file is saved through overwriting and the dialog box switches to the main dialog box.

This completes the data collection for measurement by repeating procedure.

5.4 Character Input Using Foot Switch

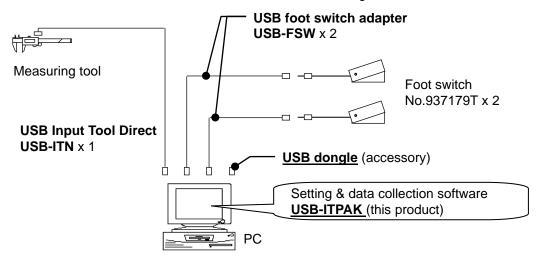
5.4.1 Overview

This section explains how to input pre-registered characters in the inspection table using the foot switch (via USB-FSW). This function is used for inputting sensory inspection results (PASS/FAIL), etc.

- TIP The procedure used in the explanation in this section is based on the sequential measurement method described in "CHAPTER 4 MEASUREMENT DATA COLLECTION (BASICS)". The setting file created in "CHAPTER 4 MEASUREMENT DATA COLLECTION (BASICS)" is used with some modifications.
- **NOTE** Character input using the foot switch can be used for both sequential measurement and individual measurement. This function cannot be used for batch measurement.

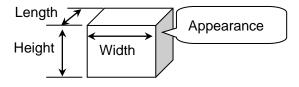
1) Connection

In the explanation in this section, one caliper is connected to USB-ITN and two foot switches are connected to USB-FSW. The connection diagram is shown below.



2) Workpieces for measurement

The following workpiece is used in the explanation. The measurement locations are the length, width, height, and appearance (visual) of the rectangular parallelepiped.



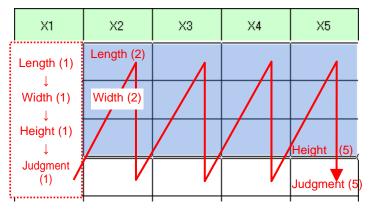
3) Measurement

The image of the inspection table upon completion of data collection is shown below.

| No. | Inspection item | Permi val | | Unit | Measuring item | X1 | X2 | X3 | X4 | X5 |
|-----|--------------------|--------------|-------|------|-------------------|-------|-------|-------|-------|-------|
| 1 | Length | 13.60 | 13.40 | mm | CD | 13.49 | 13.51 | 13.52 | 13.53 | 13.50 |
| 2 | Width | 12.20 | 12.00 | mm | CD | 12.12 | 12.15 | 12.13 | 12.15 | 12.14 |
| 3 | Height | 10.60 | 10.50 | mm | CD | 10.58 | 10.58 | 10.55 | 10.57 | 10.56 |
| 4 | Visual | - | - | - | - | ок | ок | ок | ок | ок |

In this measurement procedure, the length, width, and height of the first workpiece are measured and the input data is output to the first row (Length), the second row (Width), and the third row (Height), respectively, of the X1 column on the Excel worksheet. Next, the first workpiece is visually inspected and the result is output to the fourth row (Visual) of the X1 column.

Next, the second workpiece is similarly measured, and so on, until all five workpieces have been measured.



The following describes how to set up the measurement procedure, perform measurement, and save the results.

5.4.2 Setting

1) Check the device information.

NOTE • USB-ITPAK loads the information of connected devices at startup. Therefore, connect all the devices to be used before starting up USB-ITPAK.

From the menu of the main dialog box, select [Settings] and then [Device information]. This opens the [Device information] dialog box, which allows you to check the devices that are connected to the PC.

| evice information | | | | - |
|-------------------|--------------|------|------|------------|
| Device lists : | | | | |
| Device No. | Device name | COM | Туре | Serial No. |
| ITN-39999120 | ITN-39999120 | COM9 | ITN | 39999120 |
| FSW-19999066 | FSW-19999066 | COM7 | FSW | 19999066 |
| FSW-19999073 | FSW-19999073 | COM4 | FSW | 19999073 |
| | | | | |
| Setting | | | OK | Cancel |

If you do not want to change the device number or device name, click the [Cancel] button to return to the main dialog box.

If you want to change a device number or device name, select the device, and then click the [Setting] button.

| Device information setting | | | | | |
|----------------------------|----------|--|--|--|--|
| Device informatio | n | | | | |
| Serial No. : | 39999120 | | | | |
| Type : | ITN | | | | |
| COM : | COM9 | | | | |
| | | | | | |
| Device No. : | _ | | | | |
| ITN-39999120 | | | | | |
| Device name : | | | | | |
| ITN-39999120 | | | | | |
| ОК | Cancel | | | | |

Click the [OK] button if you change any settings.

- **NOTE** In the procedure created from step "2)", the device number is used to specify the device to be used. If you change the number, revise all the setting files that use it.
 - **TIP** If multiple units are connected, specify settings for each.

- **TIP** If performing measurement using existing setting files, skip this section and refer to "5.4.3 Measurement".
 - 2) Open the setting file created in "4.2 Sequential Measurement (Basics)".

From the menu of the main dialog box, select [File] and then [Open], or open [Setting file] from [Recent files].

3) Enter information about the setting file in the [Description] field.

Enter a description of the setting file. This field may be left blank.

| 3) | USB-ITPAK Eile Setting Data Collection Abou Setting File C:Witutoyo/USB-ITPAK/4 Description Measure 3 sides. visual Data entry application | -2.it2 | ltem | Content | | |
|----|--|-----------------------------------|---|-----------------------------------|-------------------------|-------------------|
| | Excel Optional Repetition option Repeat procedure Number of repeat : 1 1 Down Displacement intervals : 1 | 3 side measurement | Procedure type Data entry application Excel settings: Workbook Worksheet Range of cells Move after return direction Displacement intervals Cell address assign rules Foot switch option: FunctionKey Operation: | Sample_F1 H11:L13 Down 1 | AK_Sample_Form 1 | 1_1_GB.XIs |
| | Error option glignore the data collection error Timer job option | Add Procedure | Device No. Device na ITN-39999120 ITN-39999 | | Assigned cells 11:13 | Status Connect |
| | ☐ Enable Interval(hour:min:sec): 0 ⊕ : 0 ⊕ : 5 ⊕ . 0 ⊕ Count: 5 ⊕ | Delete Procedure Change Procedure | 4) | | | |

4) Start the procedure change.

Click the [Change Procedure] button on the main dialog box.

5) Enter a name in the [Procedure name] field.

Entering the procedure name is required.

TIP • Since the procedure name will be displayed in the [Procedure] field at the center of the main dialog box, enter an easily identifiable name.

| Procedure type : Procedure name : | | _ |
|--|---|------|
| Sequential - 3 side meas. visual i | inspection | - 5) |
| Excel settings Workbook : C:Witutoyo\USB-ITPAK\Sample\ITPAK_Sam Worksheet : Sample_F1 Range of cells (specify the A1 reference style) First : H11 Last : L14 Move after return direction : Down Displacement intervals : | Data entry devices Device No. Assign rule COM ITN-39999120 11:13 COM9 | |
| 1 Cell address assign rules Ounspecified Assign for the columns(A,B,) (a) Assign for the rows(1,2,) FunctionKey Operation Data request : Data cancel : | Foot switch option Device No. Function COM | |
| | | |

Here, enter [3 side meas. visual inspection].

6) Change the input range in the [Range of cells] fields under [Excel settings].

Here, enter: First: H11 Last: L14

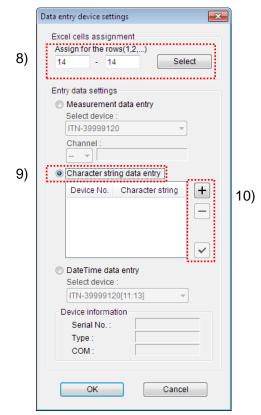
7) Specify the [Data entry devices] settings.

The functions of the buttons for the [Data entry devices] field are as follows:

- [+]: Adds device settings.
- [-]: Deletes the device setting selected from the list.
- [$\sqrt{}$]: Changes the device setting selected from the list.

Here, click the [+] button to switch to the [Data entry device settings] dialog box.

8) Specify the settings in the [Excel cells assignment] field on the [Data entry device settings] dialog box.



In the [Excel cells assignment] field, specify columns (vertical) or rows (horizontal) according to the specification in the [Cell address assign rules] field on the main dialog box. Specify the rows here.

Here, enter "14" in both input fields to assign the device to one row, [Row 14].

9) In the [Entry data settings] field, select the entry data type.

The entry data types consist of measurement data input from the measuring tools (numeric data), and character string data input by pressing the foot switch.

Here, select [Character string data entry].

10) Specify the settings of the first device for inputting character strings.

The functions of the buttons for the [Entry data settings] field are as follows:

- [+]: Adds device settings.
- [-]: Deletes the device setting selected from the list.
- $[\sqrt{}]$: Changes the device setting selected from the list.

Here, click the [+] button to switch to the [Character string data settings] dialog box.

11) Select the device to be assigned in the [Select foot switch] field of the [Character string data settings] dialog box.

| | Character string data se | Character string data settings | | | | | |
|-----|--------------------------|--------------------------------|------|--|--|--|--|
| 11) | Select foot switch : | | | | | | |
| 11) | FSW-19999066 | FSW-19999066 🔹 | | | | | |
| | - Device information | | | | | | |
| | Serial No. : | 19999066 | | | | | |
| | Type : | FSW | | | | | |
| | COM : | COM7 | | | | | |
| 12) | Character string data | a : | | | | | |
| | ОК | Cance | el 🚽 | | | | |

Select the device to be assigned from the drop-down list.

Here, select the first device.

12) In the [Character string data] field, enter the character string to be input in the Excel cell.

Here, enter [OK].

NOTE • If [Optional] was selected in the [Data entry application] field on the main dialog box, only ASCII code character strings (strings consisting of alphanumeric characters and some symbols that can be entered directly from the keyboard) can be input.

This completes the settings on the [Character string data settings] dialog box for the first device, so click the [OK] button.

13) Repeat steps "10) to 12)" to specify the settings of the second device for inputting character strings.

Here, specify settings so that [NG] is input from the second device.

| Character string data settings 🛛 🛛 🔁 | | | | | | | | |
|--------------------------------------|----------------------|--|--|--|--|--|--|--|
| Select foot switch : | | | | | | | | |
| FSW-19999073 | FSW-19999073 - | | | | | | | |
| Device information | | | | | | | | |
| Serial No. : | Serial No.: 19999073 | | | | | | | |
| Type : | FSW | | | | | | | |
| COM : | | | | | | | | |
| Character string data : | | | | | | | | |
| NG | | | | | | | | |
| ОК | Cance | | | | | | | |

14) Close [Data entry device settings].

| Data entry device settings | × |
|--|-------------------|
| Excel cells assignmer Assign for the rows(1 | |
| | |
| Entry data settings | |
| Measurement data Select device : | a entry |
| ITN-39999120 | - |
| Channel : | |
| | |
| Character string d | ata entry |
| Device No. | Character strin 🕂 |
| FSW-19999066 | ок |
| FSW-19999073 | NG |
| | |
| ■ | ▶ ▼ |
| DateTime data en | try |
| Select device : | |
| ITN-39999120[11 | :13] 👻 |
| - Device information | |
| Serial No. : | 19999066 |
| Type : | FSW |
| COM : | COM7 |
| | |
| ОК | Cancel |
| | |

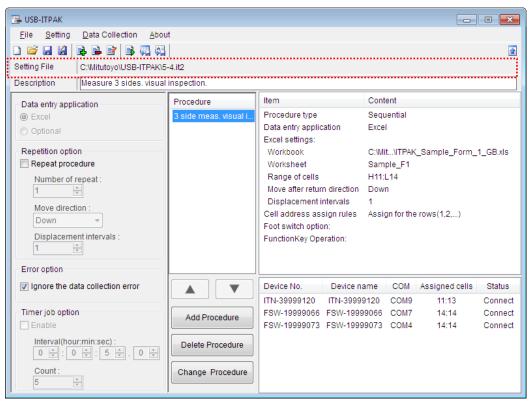
This completes the settings on the [Data entry device settings] dialog box, so click the [OK] button.

15) Close [Change Procedure].

| Change Procedure | × |
|---|-----------------------------------|
| Procedure type : Procedure name : | |
| Sequential - 3 side meas. visual | linspection |
| Excel settings | Data entry devices |
| Workbook : | Device No. Assign rule + |
| C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sam | ITN-39999120 11:13 |
| Worksheet: Sample F1 | FSW-19999066 / FSW-19999073 14:14 |
| Range of cells (specify the A1 reference style) : | |
| First: H11 | |
| Last: L14 Select | |
| Move after return direction : | |
| Down 🔻 | |
| Displacement intervals : | |
| 1 | 4 III > |
| Cell address assign rules | Foot switch option |
| Unspecified | |
| Assign for the columns(A,B,) | Device No. Function COM |
| Assign for the rows(1,2,) | |
| FunctionKey Operation | |
| Data request : | ✓ |
| Data cancel : | |
| Data skip : | |
| | OK Cancel |

This completes the settings on the [Change Procedure] dialog box, so click the [OK] button.

| 16 | Save | the | created | setting | file. |
|----|------|-----|---------|---------|-------|
|----|------|-----|---------|---------|-------|



From the menu of the main dialog box, select [File], [Save As], and then save the file by giving it a name. When the file has been saved, the file name is displayed as a full path in the [Setting File] field.

5.4.3 Measurement

1) Open [Setting File].

TIP • If starting measurement immediately after specifying the settings in "5.4.2 Setting", the setting file is already opened. In this case, skip step "1)".

From the menu of the main dialog box, select [File] and then [Open], or open [Setting file] from [Recent files].

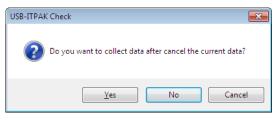
2) Open the data collection dialog box.

IMPORTANT • In USB-ITPAK, following data collection, the Excel file to which the data was input is saved through overwriting under the existing file name. To use the original Excel file later, back it up beforehand.

From the menu of the main dialog box, select [Data Collection] and then [Start], or click the icon shown below.

| 🕞 USB- | ITPAK | |
|--------------|-------------------|---------------|
| <u>F</u> ile | | <u>A</u> bout |
| 🗋 🖻 | u u B B B 🕅 🗟 🦏 | |

When data collection starts, the message [Do you want to collect data after cancel the current data?] is displayed. Click [Yes] to clear the existing data or [No] not to.



The data collection dialog box is displayed and data collection can now be performed.

| 🕞 USB-ITPAK - C:\Mitutoyo\l | JSB-ITPAK\5-4.it2 | | | | | | |
|---|-----------------------|------------|-------|------|--|--|--|
| Procedure : 3 side meas. visual inspection (Sequential) | | | | | | | |
| Execute import man | ipulations of measure | ment data. | | | | | |
| Data request | Data cancel | Data skip | Pause | Stop | | | |

TIP • If you click [No] for the message [Do you want to collect data after cancel the current data?], the data collection dialog box will be paused. In this case, resume the data collection. For details, refer to "6.14.1 [Pause/Resume] button" and "8.2.5 To resume the Excel data collection previously paused".

3) Perform data collection.

During data collection, the cell to which data will be input next is highlighted in green.

| B | С | D | E | F | G | Н | I | J | К | L | M | N | 0 | P | Q |
|----------|---|--------------|-------------|---------|-------------------|-------------|-------------|--------------------|------|-----------|----------|--------------|-----------|-------------|--------|
| AA | A Corpor | ation | | | | | | | | | | | | | |
| С | ERTIFI | CAT | 'E OF | = IN | ISPEC | TIO | N | - | | | | | SAM | PLE | |
| | Name of inspe | | | | | | | | BE | B Corpor | ation | Approval | Inspector | Overall jud | igment |
| | Product na | | | | | | t No. | | | CCC Divis | ion | | | | |
| | Part name | e | | | | | er of lots | | Date | | | | | | |
| | Part No. | Derest | the tax | | | Number of | inspections | | | | | | | | |
| No. | Inspection item | Permi val | | Unit | Measuring item | X1 | X2 | X3 | X4 | X5 | judgment | Special note | | | |
| 1 | Length | 13.60 | 13.40 | | | | | | | | | | | | |
| 2 | Width | 12.20 | 12.00 | | | | | | | | | | | | |
| 3 | Height | 10.60 | 10.50 | | | | | | | | | Drawing No. | | | |
| 4 | Visual | - | - | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | - | | | |
| 7 | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | - | | | |
| CI Al | easuring item) D: Caliper MD: N: Surftest CMN T: Hardness Test | Coordinat | e Measuring | g Machi | ne PP: Profal | e Projector | MS: Micro | SD: Scale scope | | 1 | <u> </u> | | | | |

TIP • The inspection table above is shown with the [Inspection item] and [Permissible value] cells filled.

The cells from [row 11] to [row 13] in the above inspection table are those input from the measurement data input device. Input data from the measuring tools through one of the following operations:

(1) Pressing the DATA switch on the measuring tool.

(2) Pressing the DATA switch if USB-ITN has one.

TIP • When using IT-016U / IT-020U / DP-1VA, data input can be performed using the DATA switch equipped with IT-016U / IT-020U / DP-1VA or the foot switch connected to IT-016U / IT-020U / DP-1VA.

(3) Clicking the [Data request] button on the data collection dialog box.

The cells of [row 14] in the above inspection table are those input from the character string data input device. Press the foot switch to which the characters to be input are assigned.

To cancel data that has been input, click the [Data cancel] button on the data collection dialog box. The data in the entry cell is canceled and the previous cell is highlighted.

To skip the current data entry cell without inputting data, click the [Data skip] button on the data collection dialog box. The next cell is highlighted.

4) End data collection and save the results.

Once all the data has been input, a completion message is displayed on the data collection dialog box.

| 🕞 USB-ITPAK - C:\Mitutoyo\U | JSB-ITPAK\5-4.it2 | | | |
|-----------------------------|-------------------------|--------------------|--------|--------------|
| Procedure : 3 side mea | as. visual inspection (| Sequential) | | |
| The import of all piec | ces of measurement (| data has been comp | leted. | 01A+00010.00 |
| Data request | Data cancel | Data skip | Pause | Stop |

Click the [Stop] button on the data collection dialog box. The following message is displayed.

| USB-ITPA | (Check |
|----------|--|
| ? | Save the current contents? Click "Yes" to overwrite the current data. Click "No" to delete the current data. |
| | Yes <u>N</u> o Cancel |

[Yes]: The Excel file to which data was input is saved through overwriting under the existing file name.

[No]: The Excel file is not overwritten and the data that was input is deleted.

[Cancel]: The message dialog box is closed and the data collection dialog box is displayed.

Click the [Yes] button. The Excel file is saved through overwriting and the dialog box switches to the main dialog box.

This completes data collection for sequential measurement using a foot switch for character input.

5.5 Data Input to an Optional Application

5.5.1 Overview

This section explains how to input measurement data to an optional application.

By using this function, it is possible to input measurement data to an optional application in the same way as through regular keyboard input.

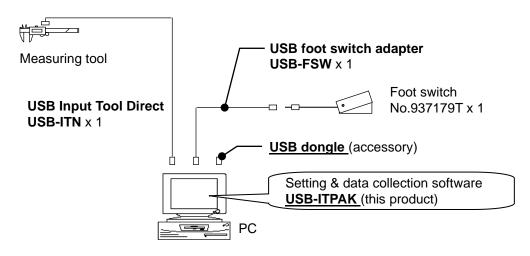
- **NOTE** Data input to an optional application is possible for all measurement methods, i.e., sequential, batch, and individual measurement.
- **NOTE** During data input to an optional application, the measurement data is input to the current position of the cursor in the currently active application. Unlike the case when Excel is selected as the data input application, the input position cannot be specified in the setting file.

The DATA switch of the measuring tools, the [Data request] button of USB-ITPAK, and the foot switch can be used when collecting measurement data.

NOTE • A foot switch can be used only to request data, not to cancel or skip data.

1) Connection

In the explanation in this section, one caliper is connected to USB-ITN and one foot switch is connected to USB-FSW. The connection diagram is shown below.



2) Workpiece for measurement

The following workpiece is used in the explanation. The measurement location is the width of a cube.



3) Measurement

In the explanation in this section, "Notepad", which is supplied as standard with Windows, is used as the optional application. The following shows the appearance during data collection.

| 🗍 Untitled - Notepad 📃 🗖 💌 |
|--|
| <u>F</u> ile <u>E</u> dit F <u>o</u> rmat <u>V</u> iew <u>H</u> elp |
| 10.00 12/28/2012 9:57:50 AM 10.00 12/28/2012 9:57:54 AM 10.00 12/28/2012 9:57:55 AM 10.00 12/28/2012 9:57:56 AM 10.00 12/28/2012 9:58:01 AM 10.00 12/28/2012 9:58:05 AM 10.00 12/28/2012 9:58:08 AM 10.00 12/28/2012 9:58:11 AM |
| * |
| ▲ |

The workpieces are sequentially measured in this procedure.

The following describes how to set up the measurement procedure, perform measurement, and save the results.

5.5.2 Setting

1) Check the device information.

NOTE • USB-ITPAK loads the information of connected devices at startup. Therefore, connect all the devices to be used before starting up USB-ITPAK.

From the menu of the main dialog box, select [Settings] and then [Device information]. This opens the [Device information] dialog box, which allows you to check the devices that are connected to the PC.

| D | evice information | | | | | × |
|---|-------------------|--------------|------|------|------------|---|
| | Device lists : | | | | | |
| | Device No. | Device name | COM | Туре | Serial No. | |
| | ITN-39999120 | ITN-39999120 | COM9 | ITN | 39999120 | |
| | FSW-19999066 | FSW-19999066 | COM7 | FSW | 19999066 | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | Setting |] | | OK | Cancel | |
| | | , | | | | |

If you do not want to change the device number or device name, click the [Cancel] button to return to the main dialog box.

If you want to change a device number or device name, select the device, and then click the [Setting] button.

| De | evice information sett | ing | × |
|----|------------------------|----------|---|
| | Device information | | |
| | Serial No. : | 39999120 | |
| | Type : | ITN | |
| | COM : | COM9 | |
| | | | |
| | Device No. : | | |
| | ITN-39999120 | | |
| | Device name : | | |
| ÷ | ITN-39999120 | | |
| (| ОК | Cancel | |

Click the [OK] button if you change any settings.

- **NOTE** In the procedure created from step "2)", the device number is used to specify the device to be used. If you change the number, revise all the setting files that use it.
 - **TIP** If multiple units are connected, specify settings for each.

- **TIP** If performing measurement using existing setting files, skip this section and refer to "5.5.3 Measurement".
 - 2) Enter information about the setting file in the [Description] field.

Enter a description of the setting file. This field may be left blank.

| | 🕞 USB-ITPAK | | | - • - |
|----|---|------------------|-------------------------------|-------------|
| | <u>File Setting Data Collection Abou</u> | t | | |
| | D 🗳 B B 🗟 🗟 B 🖓 🦓 | | | a |
| | Setting File | | | |
| 2) | Description Input data to any applica | tion. | | |
| | Data entry application | Procedure | Item Content | |
| | © Excel | | | |
| 3) | Optional | | | |
| | Repetition option | | | |
| | Repeat procedure | | | |
| | Number of repeat : | | | |
| | 1 | | | |
| | Move direction : | | | |
| | Displacement intervals : | | | |
| | 1 | | | |
| | Error option | | | |
| | Ignore the data collection error | | Device No. Device name COM As | sign Status |
| | | | Device No. Device name COM As | sign Status |
| | Timer job option | Add Procedure | 4) | |
| | Enable Enable | | · · · | |
| | Interval(hour:min:sec): $0 \stackrel{\wedge}{\nabla}: 0 \stackrel{\wedge}{\nabla}: 5 \stackrel{\wedge}{\nabla}. 0 \stackrel{\wedge}{\nabla}$ | Delete Procedure | | |
| | Count : | Change Procedure | | |

3) Select [Data entry application].

Select [Optional] in the [Data entry application] field on the main dialog box.

4) Add a procedure to the setting file.

Click the [Add Procedure] button on the main dialog box.

| Select a procedure type for the [Procedure type] field. | 5) | Select a | procedure type | for the [P | Procedure type] fie | eld. |
|---|----|----------|----------------|------------|---------------------|------|
|---|----|----------|----------------|------------|---------------------|------|

| | Add procedure | |
|----|--|----|
| 5) | Procedure type : Procedure name : Sequential | 6) |
| | Data settings Control Code : Device No. COM | |
| 7) | Enter - | 9) |
| 8) | Data format : Numeric form | |
| , | Add the date and time data | |
| | Separator : | |
| | Space v | |
| | Foot switch option | |
| | Device No. Function COM | |
| | | |
| | OK Cancel | |

Check that [Sequential] is selected for the procedure type, and if not, select [Sequential] from the drop-down list.

6) Enter a name in the [Procedure name] field.

Entering the procedure name is required.

TIP • Since the procedure name will be displayed in the [Procedure] field at the center of the main dialog box, enter an easily identifiable name.

Here, enter [Optional data input].

7) Select [Control Code] in the [Data settings] field.

Select the code to be added after data input from [Unspecified], [Enter], [Up], [Down], [Right], [Left], and [Tab].

Here, select [Enter].

8) Select [Data format] in the [Data settings] field.

Select the format of the data to be input to the application.

The data formats below can be selected. In the example used in this explanation, 32.14 mm was measured using a measuring tool on channel 1 and with COM number 13.

• [Numeric form]:

Only the measurement data is input.

Example: "32.14"

• [Command form]:

The channel No. and measurement data are input.

Example: "01A+00032.14"

• [COM No. + Command form]:

The COM number (3 digits), channel number and measurement data are input.

Example: "01301A+00032.14"

Here, select [Numeric form].

9) Specify the [Data entry devices] settings.

The functions of the buttons for the [Data entry devices] field are as follows:

- [+]: Adds device settings.
- [-]: Deletes the device setting selected from the list.
- [v]: Changes the device setting selected from the list.

Here, click the [+] button to switch to the [Data entry device settings] dialog box.

| | Data entry device settings | | | | | |
|-----|--|--|--|--|--|--|
| 10) | Entry data settings Measurement data entry Select device | | | | | |
| 11) | (ITN-39999120 | | | | | |
| | Character string data entry | | | | | |
| | Device No. Character string + | | | | | |
| | Device information | | | | | |
| | Serial No. : 39999120 Type : ITN | | | | | |
| | COM : COM9 | | | | | |
| | OK Cancel | | | | | |

10) In the [Entry data settings] field, select the entry data type.

The entry data types consist of measurement data input from the measuring tools (numeric data), and character string data input by pressing the foot switch.

TIP • For details about the method for inputting character string data using a foot switch, refer to "5.4 Character Input Using Foot Switch".

Here, select the [Measurement data entry] radio button.

11) In the [Select device] field, select the device to be assigned.

From the drop-down list, select the device to be assigned.

This completes the settings on the [Data entry device settings] dialog box, so click the [OK] button.

12) Set the date and time data input.

The measurement data collection with date and time is available when the date and time data is set to the measurement data.

Select [Add the date and time data] when adding the date and time data.

Items 13) and 14) will be activated for selection.

TIP • For the procedure type of date and time data input, [Sequential], [Batch] and [Individual] are available to a desired application.

| Procedure type : Sequential | Procedure name : Optional data input |
|---------------------------------------|---|
| ooquonaar | |
| Data settings | Data entry devices |
| Control Code : | Device No. COM + |
| | ITN-39999120 COM9 |
| | |
| Numeric form | ▼ |
| Date and Time Separator : Space | Foot switch option |
| | Device No. Function COM + |
| | |
| | |
| | OK Cancel |
| | Separator : |

13) Select [Date and Time].

Select the format of the date and time data added to the measurement data to be input to an application.

The following describes the available formats of the date and time data. In the example used in this explanation, 32.14 mm was measured using a measuring tool.

- [Date and Time] The date and time will be added. Example: 32.14 2013/01/23 12:34:56
- [Date]

Only the date will be added. Example: 32.14 2013/01/23

• [Time] Only the time will be added. Example: 32.14 12:34:56

Here, select [Date and Time].

14) Select [Separator].

Select [Space], [Tab], [Comma (,)] or [Semicolon (,)] for the separator between the measurement data and the date and time data.

Here, select [Space].

NOTE • If [Add the date and time data] is selected and the following are selected:

[Numeric form] for [Data format] [Space], [Comma (,)] or [Semicolon (,)] for [Separator]

When selecting [Excel] for an application to input data, and the measurement data to be input is a negative value (the minus-sign ("-") is added to the top), the following error message is displayed in Excel.

"The formula you typed contains an error."

When selecting [Excel] for an application to input data, perform the following remedies.

- · Select [Tab] for [Separator].
- In advance, select "Text" for "Format Cells" in Excel.

TIP • For details, refer to "6.12 Adding and Changing Procedures (Optional)".

15) Close [Add procedure].

| Procedure type : | Procedure name : | | | |
|----------------------------|---------------------|--------------------|----------|---|
| Sequential 👻 | Optional data input | | | |
| Data settings | | Data entry devices | | |
| Control Code : | | Device No. | COM | |
| Enter - | | ITN-39999120 | COM9 | - |
| Data format : | | | | |
| Numeric form | • | | | |
| Add the date and time data | a | | | |
| Date and Time | • | | | |
| Separator : | | | | |
| Space | • | | | |
| opace | | | | |
| | | | | |
| | | Foot switch option | | |
| | | Device No. Fund | tion COM | - |
| | | | | - |
| | | | | _ |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

This completes the settings on the [Add procedure] dialog box, so click the [OK] button.

16) Save the created setting file.

| □ USB-ITPAK | | | |
|--|---------------------|-----------------------------|-----------------------|
| File Setting Data Collection Abou | t | | |
| | | | |
| Setting File C:\Mitutoyo\USB-ITPAK\5- | -5.it2 | | |
| Description Input data to any application | | | ······ |
| Data entry application | Procedure | Item | Content |
| Excel | Optional data input | Procedure type | Sequential |
| Optional | | Data entry application | Optional |
| Repetition option | | Control Code Data format | Enter Numeric form |
| Repeat procedure | | Add the date and time data | |
| Number of repeat : | | Foot switch option: | |
| Move direction : Down | | | |
| Displacement intervals : | | | |
| Error option | | | |
| ✓ Ignore the data collection error | | Device No. Device nan | ne COM Status |
| | | ITN-39999120 ITN-399991 | 20 COM9 Connect |
| Timer job option | Add Procedure | | |
| $\begin{array}{c} \mbox{Interval}(\mbox{hour:min:sec}): \\ \hline 0 : 0 : 5 . 0 \end{array}$ | Delete Procedure | | |
| Count : 5 | Change Procedure | | |

From the menu of the main dialog box, select [File], [Save As], and then save the file by giving it a name. When the file has been saved, the file name is displayed as a full path in the [Setting File] field.

5.5.3 Measurement

1) Open [Setting File].

TIP • If starting measurement immediately after specifying the settings in "5.5.2 Setting", the setting file is already opened. In this case, skip step "1)".

From the menu of the main dialog box, select [File] and then [Open], or open [Setting file] from [Recent files].

2) Open the data collection dialog box.

From the menu of the main dialog box, select [Data Collection] and then [Start], or click the icon shown below.

| 🕞 USB- | ITPAK | | | |
|--------------|-----------------|--------------------|--------|---------------|
| <u>F</u> ile | <u>S</u> etting | <u>D</u> ata Colle | ection | <u>A</u> bout |
| 1 🖻 | ; | 🗟 🖻 | | |

When the [Do you want to start data collection processing?] message is displayed, click [Yes].

| USB-ITPAK | (Check 🛛 | 3 |
|-----------|--|---|
| ? | Do you want to start data collection processing? | |
| | <u>Y</u> es <u>N</u> o | |

The data collection dialog box is displayed and data collection can now be performed.

| USB-ITPAK - C:\Mitutoyo\USB-ITPAK\5-5.it2 | | | | | | | | | |
|---|-------------|-----------|-------|------|--|--|--|--|--|
| Procedure : Optional data input (Sequential) | | | | | | | | | |
| Execute import manipulations of measurement data. | | | | | | | | | |
| Data request | Data cancel | Data skip | Pause | Stop | | | | | |

3) Open the application to which the measurement data is to be input and start data collection.

Open "Notepad", which is supplied as standard with Windows, and make it the active (currently selected) application.

| 🔄 Untitled - Notepad 📃 🖃 💌 |
|--|
| <u>F</u> ile <u>E</u> dit F <u>o</u> rmat <u>V</u> iew <u>H</u> elp |
| 10.00 12/28/2012 9:57:50 AM 10.00 12/28/2012 9:57:54 AM 10.00 12/28/2012 9:57:55 AM 10.00 12/28/2012 9:57:56 AM 10.00 12/28/2012 9:58:01 AM 10.00 12/28/2012 9:58:05 AM 10.00 12/28/2012 9:58:08 AM 10.00 12/28/2012 9:58:11 AM |
| - |
| ★ # |

Input data from the measuring tool through one of the following operations:

- (1) Pressing the DATA switch on the measuring tool.
- (2) Pressing the DATA switch if USB-ITN has one.
- (3) Clicking the [Data request] button on the data collection dialog box.
- TIP When using IT-016U / IT-020U / DP-1VA, data input can be performed using the DATA switch equipped with IT-016U / IT-020U / DP-1VA or the foot switch connected to IT-016U / IT-020U / DP-1VA.

4) End data collection.

| G USB-ITPAK - C:\Mitutoyo\USB-ITPAK\5-5.it2 | | | | |
|---|-------------------------|------------|-------|--------------|
| Procedure : Optional d | lata input (Sequential |) | | |
| Execute import man | ipulations of measure | ment data. | | 01A+00010.00 |
| Data request | Data cancel | Data skip | Pause | Stop |

Click the [Stop] button on the data collection dialog box.



Click the [OK] button. The dialog box switches to the main dialog box.

NOTE •The function to input data to an optional application does not allow saving the result. Save the measurement data using the save function of the application.

This completes data collection to an optional application.

5.6 DateTime data entry (When using Excel)

5.6.1 Overview

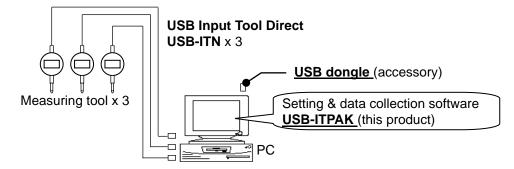
This section explains how to input the date and time data together with the measurement data.

NOTE • For details about the measurement procedures in which the date and time data can be input, refer to the following table.

| Procedure type | Cell address assign rules | Availability |
|----------------|--|-----------------------|
| | Unspecified | — |
| Sequential | Assign for the columns(A,B,) | ✓ |
| | Assign for the rows(1,2,) | ✓ |
| | Unspecified | — |
| Batch | Assign for the columns(A,B,) | ✓ |
| | Assign for the rows(1,2,) | ✓ |
| Individual | | _ |

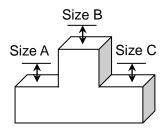
1) Connection

In the example used in this section, three indicators are connected to USB-ITN. The connection diagram is shown below.



2) Workpiece for measurement

The following workpiece is used in the explanation. Three indicators are used and measurement is done with measuring jigs. "Size A", "Size B", and "Size C", which are shown in the figure below, are measured.



3) Measurement

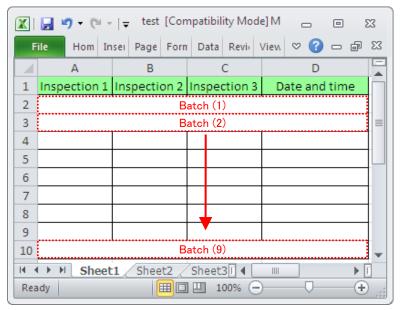
The image of the inspection table upon completion of data collection is shown below.

| | 🚽 🤊 • (° - | ↓ test [Cor | npatibility Mod | ε] Μ 👝 💿 Σ | 3 |
|------|--------------|------------------------|-----------------|-----------------|----|
| F | ile Hom In | sei Page Forn | Data Revi | /iew ♡ 🕜 🗆 🗗 | 23 |
| | А | В | С | D | E |
| 1 | Inspection 1 | Inspection 2 | Inspection 3 | Date and time | |
| 2 | 5.000 | 10.000 | 5.000 | 1/16/2013 12:24 | |
| 3 | 5.000 | 10.000 | 5.000 | 1/16/2013 12:24 | ≡ |
| 4 | 5.000 | 10.000 | 5.000 | 1/16/2013 12:24 | |
| 5 | 5.000 | 10.000 | 5.000 | 1/16/2013 12:24 | |
| 6 | 5.000 | 10.000 | 5.000 | 1/16/2013 12:24 | |
| 7 | 5.000 | 10.000 | 5.000 | 1/16/2013 12:24 | |
| 8 | 5.000 | 10.000 | 5.000 | 1/16/2013 12:24 | |
| 9 | 5.000 | 10.000 | 5.000 | 1/16/2013 12:24 | |
| 10 | 5.000 | 10.000 | 5.000 | 1/16/2013 12:24 | - |
| 14 4 | ► ► Sheet | 1 / Sheet2 / | Sheet3 🛛 🖣 📃 | | |
| Rea | idy | |] 🛄 100% 😑 | • | |

The measurement procedure is as follows: measure three positions on a workpiece at one time and then output the input data in the columns "Inspection 1", "Inspection 2" and "Inspection 3" of an Excel sheet.

Then, measure other three positions on the same workpiece at one time and then output the input data in the subsequent columns of "Inspection 1", "Inspection 2" and "Inspection 3" of the same Excel sheet.

Continue the measurement on the workpiece in the same procedure.



The following describes how to set up the measurement procedure, perform measurement, and save the results.

5.6.2 Setting

1) Check the device information.

NOTE • USB-ITPAK loads the information of connected devices at startup. Therefore, connect all the devices to be used before starting up USB-ITPAK.

From the menu of the main dialog box, select [Settings] and then [Device information]. This opens the [Device information] dialog box, which allows you to check the devices that are connected to the PC.

| evice information | I | | | |
|------------------------------|--------------|-------|------|------------|
| Device lists : Device No. | Device name | COM | Туре | Serial No. |
| ITN-69999013 | ITN-69999013 | COM8 | ITN | 69999013 |
| ITN-69999065 | ITN-69999065 | COM11 | ITN | 69999065 |
| ITN-69999067 | ITN-69999067 | COM12 | ITN | 69999067 |
| | | | | |
| Setting | | (| OK | Cancel |

If you do not want to change the device number or device name, click the [Cancel] button to return to the main dialog box.

If you want to change a device number or device name, select the device, and then click the [Setting] button.

| Device information setting | | |
|----------------------------|----------|--|
| Device information | n | |
| Serial No. : | 69999013 | |
| Type : | ITN | |
| COM : | COM8 | |
| | | |
| Device No. : | _ | |
| ITN-69999013 | | |
| Device name : | | |
| ITN-69999013 | | |
| ОК | Cancel | |

Click the [OK] button if you change any settings.

- **NOTE** In the procedure created from step "2)", the device number is used to specify the device to be used. If you change the number, revise all the setting files that use it.
 - **TIP** If multiple units are connected, specify settings for each.

- **TIP** If performing measurement using existing setting files, skip this section and refer to "5.6.3 Measurement".
 - 2) Enter information about the setting file in the [Description] field.

Enter a description of the setting file. This field may be left blank.

| | 🕞 USB-ITPAK | | | | - • - |
|----|--|-----------------------------------|--------------------|-------------------------------|-------------|
| | <u>File Setting Data Collection Abou</u> | | | | |
| | | | | | |
| | Setting File | | | | |
| 2) | Description | | | | |
| _, | Data entry application Excel Optional Repetition option Repeat procedure Number of repeat : 1 Move direction : Down Displacement intervals : 1 Error option V Ignore the data collection error Timer job option | Procedure | Item Device No. 3) | Content Device name COM As | sign Status |
| | Enable Interval(hour:min:sec): 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - | Delete Procedure Change Procedure | | | |

3) Add a procedure to the setting file.

Click the [Add Procedure] button on the main dialog box.

| | Add procedure | ••• |
|-----|--|----------------------------|
| 4) | Batch Procedure name : | 5 |
| | Excel settings | Data entry devices |
| 6) | Workbook : | Device No. Assign rule COM |
| 7) | Worksheet : | |
| 8) | Range of cells (specify the A1 reference style) : First : | |
| 9) | Last: Move after return direction : Right | |
| 10) | Displacement intervals : 1 | |
| 11) | Cell address assign rules O Unspecified | Foot switch option |
| | Assign for the columns(A,B,) | Device No. Function COM |
| | Assign for the rows(1,2,) | |
| | FunctionKey Operation | |
| | Data request : 🗾 🗸 | ✓ |
| | Data cancel : | |
| | Data skip : 🛛 🗸 🗸 | |
| | | OK Cancel |

4) Select a procedure type for the [Procedure type] field.

Check that [Batch] is selected as the procedure type, and if not, select [Batch] from the drop-down list.

5) Enter a name in the [Procedure name] field.

Entering the procedure name is required.

TIP • Since the procedure name will be displayed in the [Procedure] field at the center of the main dialog box, enter an easily identifiable name.

Here, enter [3 position batch measurement + date and time input].

6) Specify an Excel file in the [Workbook] field under [Excel settings].

Enter the workbook name of the Excel file to which the measured data is to be input.

The file can be selected from the [Open] dialog box by clicking the [...] button.

Here, select the following file.

C:\Mitutoyo\USB-ITPAK\Sample\test.xls

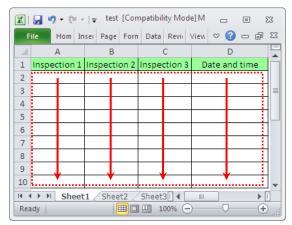
- **IMPORTANT** Refer to "5.6.1 Overview" and create the file mentioned above.
 - If you want to use a file other than the sample inspection table file, create an inspection file using Excel before starting up USB-ITPAK. Inspection table files can be saved to any folder. Save the inspection table file to a folder location that will be easy to manage.

7) Select a worksheet for the [Worksheet] field under [Excel settings].

Select the worksheet name to be included in the workbook of step "6)" from the drop-down list.

Here, select [Sample_F3].

8) Enter the input range in the [Range of cells] fields under [Excel settings].



To specify the area indicated by the dot-line in the above inspection table as the input cell range, enter:

- First: A2
- Last: D10
- Select the desired direction for the [Move after return direction] field under [Excel settings].

During measurement using USB-ITPAK, once data is input from the measuring tools, the measurement data is input to the current cell and then the entry point (cell) automatically moves to the next cell.

In the inspection table example shown above, select [Down].

10) Specify the [Displacement intervals] under [Excel settings].

Specify the interval for the cell movement specified in step 9). Specifying "1" results in movement to the next cell. Specifying "2" results in movement to the cell after the next.

In the inspection table example above, specify "1".

11) Select an option under [Cell address assign rules].

In USB-ITPAK, the measuring items can be assigned to columns (vertical) or rows (horizontal) of the inspection table worksheet.

In the inspection table example above, the measuring items are assigned to respective columns, so select [Assign for the columns (A, B...)].

12) Specify the [Data entry devices] settings for the first device.

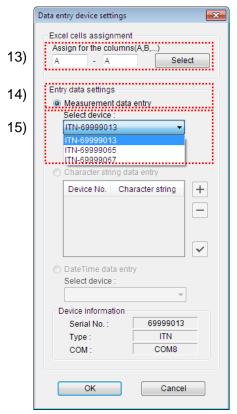
The functions of the buttons for the [Data entry devices] field are as follows:

- [+]: Adds device settings.
- [-]: Deletes the device setting selected from the list.
- [$\sqrt{}$]: Changes the device setting selected from the list.

Here, click the [+] button to switch to the [Data entry device settings] dialog box.

| Procedure type : Procedure name : Batch 3 post. batch meas. + DateTime Excel settings Spost. batch meas. + DateTime Workbook : Image: Data entry devices C:\MitutoyoUSB-ITPAK\Sample\test.xls Image: Data entry devices Worksheet : Sheet1 Sheet1 Image: Data entry devices Range of cells (specify the A1 reference style) : First : First : A2 Last : D10 Select Image: Data entry devices Down Image: Data entry devices Displacement intervals : Image: Data entry devices Image: Data entry devices Image: Data entry devices Ounspecified Assign for the columns(A,B,) Assign for the rows(1,2,) Foot switch option Data enquest : Image: Data cancel : Data acncel : Image: Data skin : | Add procedure | | × |
|--|--|--------------------|-------|
| Workbook: C:Mitutoyo/UUSB-ITPAK/Sample/test.xls Worksheet: Sheet1 Range of cells (specify the A1 reference style): First: A2 Last: D10 Move after return direction: Down Displacement intervals: 1 2 Cell address assign rules Unspecified Assign for the columns(A,B,) Assign for the rows(1,2,) FunctionKey Operation Data request: Data cancel: | | + DateTime | |
| Ourspecified Foot switch option Assign for the columns(A,B,) Device No. Function PunctionKey Operation - Data request : - Data cancel : - | Excel settings Workbook : C:\Mitutoyo\USB-ITPAK\Sample\test.xls Worksheet : Sheet1 Range of cells (specify the A1 reference style) : First : A2 Last : D10 Move after return direction : Down Displacement intervals : | Data entry devices | + > |
| | Unspecified Assign for the columns(A,B,) Assign for the rows(1,2,) FunctionKey Operation Data request : | | |

13) Specify the settings in the [Excel cells assignment] field on the [Data entry device settings] dialog box.



In the [Excel cells assignment] field, specify columns (vertical) or rows (horizontal) according to the specification in step 11). Specify the columns here.

There are four input areas in the previously described inspection table. Here, the first device is assigned to the A column, which is the first column, so enter "A" in both fields.

14) In the [Entry data settings] field, select the entry data type.

The entry data types consist of measurement data input from the measuring tools (numeric data), and character string data input by pressing the foot switch.

TIP • For details about the method for inputting character string data using a foot switch, refer to "CHAPTER 5 MEASUREMENT DATA COLLECTION (ADVANCED)".

Here, select the [Measurement data entry] radio button.

15) In the [Select device] field, select the device to be assigned.

From the drop-down list, select the device to be assigned.

Here, select the first device.

This completes the settings on the [Data entry device settings] dialog box for the first device, so click the [OK] button.

16) Repeat 12) and switch to the [Data entry device settings] dialog box to select the date and time input settings.

| | Data entry device settings |
|------------|--|
| 19) | Excel cells assignment Assign for the columns(A,B,) D Select |
| | Entry data settings |
| | Measurement data entry Select device : |
| | ITN-69999065 👻 |
| | Channel : |
| | Observations data entry |
| | Character string data entry |
| | Device No. Character string + |
| | |
| 17) 18) | DateTime data entry Select device : |
| 10) | ITN-69999013[A:A] 👻 |
| | Device information |
| | Serial No. : |
| | Туре : COM : |
| | OK Cancel |

- 17) In the [Entry data settings] field, select the [DateTime data entry].
- 18) In the [Select device:] field, select the device to add the date and time data.

From the drop-down list, select the device to be assigned.

Here, select the first device.

19) In the [Excel cells assignment] field, specify columns (vertical) or rows (horizontal) according to the specification in step 11). Specify the columns here.

Input "D" in the entry field to assign the date and time data to the [D] column.

The date and time data input setting is finished at this step. Click the [OK] button.

IMPORTANT • Before the date and time data setting, one or more data entry devices must be set for [Data entry devices].

20) Repeat steps "12) to 15)" to specify the [Data entry device] settings for the second device.

Here, assign the second device to the B column.

21) Repeat steps "12) to 15)" to specify the [Data entry device] settings for the third device.

Here, assign the third device to the C column.

| ata entry | device setting | js | × |
|-----------|-----------------|------------------|----------|
| -Excel c | ells assignm | ent | |
| | n for the colur | | |
| В | - B | Select | |
| Entry da | ata settings | | |
| Me | asurement d | ata entry | |
| Sel | lect device : | | |
| 111 | 1-69999065 | | |
| | 1-69999065 | | |
| TT | 1-69999067 | | |
| O Ch | aracter string | data entry | |
| D | evice No. 0 | Character string | + |
| | | | <u> </u> |
| | | | _ |
| | | | |
| | | | |
| | | | ~ |
| 🔿 Da | teTime data e | entry | |
| Se | lect device : | | |
| | | - | |
| Devi | ce informatio | n | |
| S | erial No. : | 69999065 | - |
| Т | ype : | ITN | - |
| | OM : | COM11 | - |
| | | | |
| | | | |

| 21) |
|--|
| Data entry device settings |
| Excel cells assignment Assign for the columns(A,B,) C - C Select |
| Entry data settings Measurement data entry |
| Select device : |
| ITN-69999067 - |
| ITN-69999067 |
| |
| Character string data entry |
| Device No. Character string + |
| |
| O DateTime data entry |
| Select device : |
| Device information |
| Serial No.: 69999067 |
| Type : ITN |
| COM: COM12 |
| OK Cancel |

22) Close [Add procedure].

| rocedure type : Procedure name : | |
|--|--------------------------------|
| Batch - 3 posi. batch meas. | + DateTime |
| Excel settings | Data entry devices |
| Workbook : | Device No. Assign rule COM + |
| C:\Mitutoyo\USB-ITPAK\Sample\test.xls | ITN-69999013 A:A COM8 |
| Worksheet : | ITN-69999013 D:D DateTime[A:A] |
| Sheet1 - | ITN-69999065 B:B COM11 |
| Range of cells (specify the A1 reference style): | ITN-69999067 C:C COM12 |
| First : A2 Select | |
| Last: D10 | |
| Move after return direction : | |
| Down | |
| Displacement intervals : | |
| | |
| Cell address assign rules | Foot switch option |
| Unspecified | |
| Assign for the columns(A,B,) | Device No. Function COM |
| Assign for the rows(1,2,) | |
| FunctionKey Operation | |
| Data request : | |
| | |
| Data cancel : | |
| Data cancel : | |

This completes the settings on the [Add procedure] dialog box, so click the [OK] button.

IMPORTANT • Check whether the Excel cells are correctly assigned without duplication.

NOTE • For batch measurement, the date and time data can be added to only one device.

• If the data entry device information including the date and time data input is deleted from the list [Data entry devices], the setting information on the date and time data input will also be deleted.

23) Save the created setting file.

| _ | | | | | |
|------------------------------|--------------------------|--------------------------|--|------------------------|------------------|
| 🕞 USB-ITPAK | | | | | |
| <u>F</u> ile <u>S</u> etting | Data Collection Abou | t | | | |
| | e e e e e e | | | | <u> </u> |
| Setting File | C:\Mitutoyo\USB-ITPAK\5- | 6.it2 | | | |
| Description | Measure 3 positions in b | atch + Date and Time inp | out | | |
| Data entry applie | cation | Procedure | Item | Content | |
| Excel | | 3 position batch me | Procedure type | Batch | |
| Optional | | | Data entry application | Excel | |
| Repetition option | 0 | | Excel settings: Workbook | C:\Mitutoyo\USB-ITPAK | Sample/test vis |
| Repeat proce | | | Worksheet | Sheet1 | isampleitest.xis |
| Number of re | | | Range of cells | A2:D10 | |
| | | | Move after return direction | Down | |
| Move direction | | | Displacement intervals | 1 | |
| Down | * | | Cell address assign rules | Assign for the columns | s(A,B,) |
| Displaceme | nt intervals : | | Foot switch option: | | |
| 1 | | | FunctionKey Operation: | | |
| | _ | | | | |
| Error option | | | | | |
| Ignore the dat | ta collection error | | Device No. Device nam | ne COM Assign | ed cells Status |
| | | | ITN-69999013 ITN-699990 | | Connect |
| Timer job option | | Add Procedure | ITN-69999013 ITN-699990 | | D D |
| Enable | | | ITN-69999065 ITN-699990 ITN-69999067 ITN-699990 | | Connect |
| Interval(hour | r:min:sec): ≑:5≑.0≑ | Delete Procedure | 1114-03333007 1114-033330 | OT CONTZ C | .o connect |
| | ▼.J▼.U▼ | | | | |
| Count : | | Change Procedure | | | |
| 5 | | | | | |

From the menu of the main dialog box, select [File], [Save As], and then save the file by giving it a name. When the file has been saved, the file name is displayed as a full path in the [Setting File] field.

5.6.3 Measurement

1) Open [Setting File].

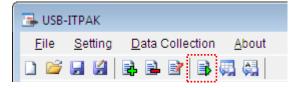
TIP • If starting measurement immediately after specifying the settings in "5.6.2 Setting", the setting file is already opened. In this case, skip step "1)".

From the menu of the main dialog box, select [File] and then [Open], or open [Setting file] from [Recent files].

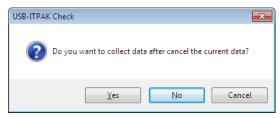
2) Open the data collection dialog box.

IMPORTANT • In USB-ITPAK, following data collection, the Excel file to which the data was input is saved through overwriting under the existing file name. To use the original Excel file later, back it up beforehand.

From the menu of the main dialog box, select [Data Collection] and then [Start], or click the icon shown below.



When data collection starts, the message [Do you want to collect data after cancel the current data?] is displayed. Click [Yes] to clear the existing data or [No] not to.



The data collection dialog box is displayed and data collection can now be performed.

| 🕞 USB-ITPAK - C:\Mitutoyo\ | USB-ITPAK\5-6.it2 | | | |
|----------------------------|-----------------------|-----------|-------|------|
| Procedure : 3 posi. ba | tch meas. + DateTime(| (Batch) | | |
| Execute import man | | | | |
| Data request | Data cancel | Data skip | Pause | Stop |

TIP • If you click [No] for the message [Do you want to collect data after cancel the current data?], the data collection dialog box will be paused. In this case, resume the data collection. For details, refer to "6.14.1 [Pause/Resume] button" and "8.2.5 To resume the Excel data collection previously paused".

3) Perform data collection.

During data collection, the cell to which data will be input next is highlighted in green.

| | 🔣 🛃 🔊 - 🍽 - - test [Compatibility Mode] M 👝 🗉 😥 | | | | | | |
|------|---|---------------|--------------|---------------|-------|--|--|
| F | ile Hom In | sei Page Forn | Data Revi | View 🛇 🕜 🗖 🗗 | 23 | | |
| | А | В | С | D | | | |
| 1 | Inspection 1 | Inspection 2 | Inspection 3 | Date and time | | | |
| 2 | | | | | | | |
| 3 | | | | | ≡ | | |
| 4 | | | | | | | |
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| 9 | | | | | | | |
| 10 | | | | | - | | |
| 14 4 | H 4 > > Sheet1 Sheet2 Sheet3 4 III > I | | | | | | |
| Rea | ady | |] 🛄 100% 😑 |) |) .;; | | |

Click the [Data request] button on the data collection dialog box and perform data input from the measuring tools.

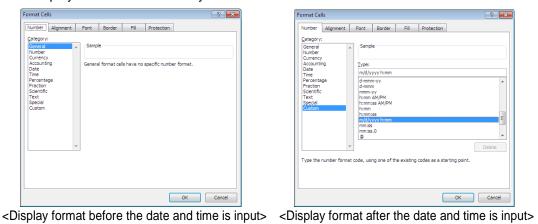
To cancel data that has been input, click the [Data cancel] button on the data collection dialog box. The data in the entry cell is canceled and the previous cell is highlighted.

To skip the current data entry cell without inputting data, click the [Data skip] button on the data collection dialog box. The next cell is highlighted.

- **IMPORTANT** During batch measurement, data is collected all at once, so data cannot be collected through the following operations:
 - (1) Pressing the DATA switch on the measuring tool
 - (2) Pressing the DATA switch if USB-ITN has one
 - (3) When using IT-016U / IT-020U / DP-1VA, press the DATA switch.
 - (4) When using IT-016U / IT-020U / DP-1VA, operate the foot switch connected to IT-016U / IT-020U / DP-1VA.
 - (5) When using DP-1VA, use the DP-1VA interval timer.

NOTE • When the date and time data is input to a cell for which [General] is selected for [Category] of the [Number] tab in the [Format Cells] dialog box in Excel, [Category] and [Type] for the cells including the date and time data input will be changed to "Custom" and "m/d/yyyy h:mm" respectively.

Therefore, if a value other than the date and time data (such as the measurement data obtained from a measuring tool) is input to a cell including the date and time data input, the display format of the cell may not be correct.





4) End data collection and save the results.

Once all the data has been input, a completion message is displayed on the data collection dialog box.

| 🕞 USB-ITPAK - C:\Mitutoyo\l | | | | | |
|--|--|-----------|-------|------|--|
| Procedure : 3 posi. batch meas. + DateTime (Batch) | | | | | |
| The import of all pied | The import of all pieces of measurement data has been completed. | | | | |
| Data request | Data cancel | Data skip | Pause | Stop | |

Click the [Stop] button on the data collection dialog box. The following message is displayed.

| USB-ITPAK | (Check | x |
|-----------|--|---|
| ? | Save the current contents? Click "Yes" to overwrite the current data. Click "No" to delete the current data. | |
| | Yes <u>N</u> o Cancel | |

[Yes]: The Excel file to which data was input is saved through overwriting under the existing file name.

[No]: The Excel file is not overwritten and the data that was input is deleted.

[Cancel]: The message dialog box is closed and the data collection dialog box is displayed.

Click the [Yes] button. The Excel file is saved through overwriting and the dialog box switches to the main dialog box.

This completes data collection.

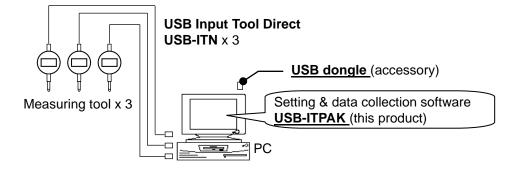
5.7 Timer Job

5.7.1 Overview

This section explains how to use the timer job option. By using the timer job option, the automatic input of the measurement data is available in the specified interval.

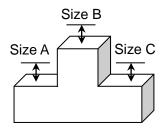
- TIP The procedure used in this explanation is based on the batch measurement described in "5.6 Date and time Data Input (When using Excel)". The setting file used here is the modification of the file created in "5.6 Date and time Data Input (When using Excel)".
- **NOTE** The automatic input of measurement data using the timer job option is available only with the batch measurement.
- As the operating condition, the autosave function of Excel needs to be disabled. If the autosave runs while the timer input option is used, an error may occur. (For operations regarding Excel, refer to instructions of Excel.)
 - 1) Connection

In the example used in this section, three indicators are connected to USB-ITN. The connection diagram is shown below.



2) Workpiece for measurement

The following workpiece is used in the explanation. Three indicators are used and measurement is done with measuring jigs. "Size A", "Size B", and "Size C", which are shown in the figure below, are measured.



3) Measurement

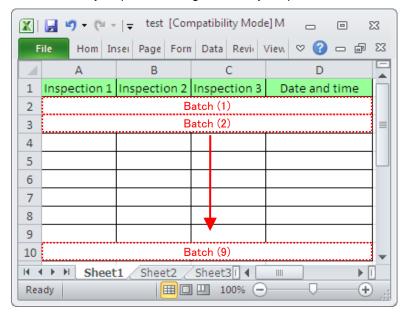
The image of the inspection table upon completion of data collection is shown below.

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|---|--------------|--------------|--------------|-----------------|---|--|
| File Hom Insei Page Form Data Reviv View 🛇 😗 📼 🗟 🔀 | | | | | | |
| | А | В | С | D | | |
| 1 | Inspection 1 | Inspection 2 | Inspection 3 | Date and time | Г | |
| 2 | 5.000 | 10.000 | 5.000 | 1/16/2013 12:24 | | |
| 3 | 5.000 | 10.000 | 5.000 | 1/16/2013 12:24 | ≡ | |
| 4 | 5.000 | 10.000 | 5.000 | 1/16/2013 12:24 | | |
| 5 | 5.000 | 10.000 | 5.000 | 1/16/2013 12:24 | L | |
| 6 | 5.000 | 10.000 | 5.000 | 1/16/2013 12:24 | | |
| 7 | 5.000 | 10.000 | 5.000 | 1/16/2013 12:24 | | |
| 8 | 5.000 | 10.000 | 5.000 | 1/16/2013 12:24 | | |
| 9 | 5.000 | 10.000 | 5.000 | 1/16/2013 12:24 | | |
| 10 | 5.000 | 10.000 | 5.000 | 1/16/2013 12:24 | - | |
| н (| ► ► Sheet | 1 / Sheet2 / | Sheet3 🛛 🖣 🗌 | | | |
| Rea | idy | |] 🖽 100% 😑 |) | | |

The measurement procedure is as follows: measure three positions on a workpiece at one time and then output the input data in the columns "Inspection 1", "Inspection 2" and "Inspection 3" of an Excel sheet.

Then, measure other three positions on the same workpiece at one time and then output the input data in the subsequent columns of "Inspection 1", "Inspection 2" and "Inspection 3" of the same Excel sheet.

Continue the measurement on the workpiece in the same procedure. Data will be automatically requested using the timer job option.



The following describes how to set up the measurement procedure, perform measurement, and save the results.

5.7.2 Setting

1) Check the device information.

NOTE • USB-ITPAK loads the information of connected devices at startup. Therefore, connect all the devices to be used before starting up USB-ITPAK.

From the menu of the main dialog box, select [Settings] and then [Device information]. This opens the [Device information] dialog box, which allows you to check the devices that are connected to the PC.

| Device information | I | | | | × |
|--------------------|--------------|-------|------|------------|---|
| Device lists : | | | | | |
| Device No. | Device name | COM | Туре | Serial No. | |
| ITN-69999013 | ITN-69999013 | COM8 | ITN | 69999013 | |
| ITN-69999065 | ITN-69999065 | COM11 | ITN | 69999065 | |
| ITN-69999067 | ITN-69999067 | COM12 | ITN | 69999067 | |
| | | | | | |
| Setting | | C | 0 | K Cancel | |

If you do not want to change the device number or device name, click the [Cancel] button to return to the main dialog box.

If you want to change a device number or device name, select the device, and then click the [Setting] button.

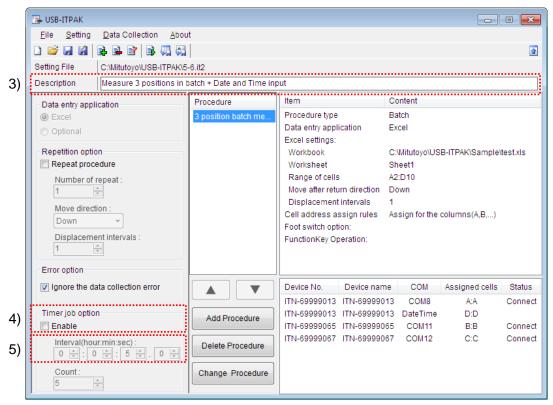
| De | Device information setting | | | | |
|----|----------------------------|----------|--|--|--|
| | Device information | | | | |
| | Serial No. : | 69999013 | | | |
| | Type : | ITN | | | |
| | COM : | COM8 | | | |
| | | | | | |
| | Device No. : | _ | | | |
| ÷ | ITN-69999013 | | | | |
| ÷ | Device name : | | | | |
| ÷ | ITN-69999013 | | | | |
| (| ОК | Cancel | | | |

Click the [OK] button if you change any settings.

- **NOTE** In the procedure created from step "2)", the device number is used to specify the device to be used. If you change the number, revise all the setting files that use it.
 - **TIP** If multiple units are connected, specify settings for each.

- **TIP** If performing measurement using existing setting files, skip this section and refer to "5.7.3 Measurement".
 - 2) Open the setting file created in "5.6 Date and time Data Input (When using Excel)".
 - 3) Enter information about the setting file in the [Description] field.

Enter a description of the setting file. This field may be left blank.



4) Specify the Timer job settings.

Select [Enable] in the [Timer job option] field.

The "5)" fields shown below activate.

5) Select [hour], [min] and [sec] in the [Interval] field.

Specify the interval for data request.

Here, select "5" (sec).

NOTE • A value between 0.0 seconds and 24 hours (0:0:0.0 - 24:0:0.0) can be specified for [Interval].

For details, refer to "6.15 Timer job option setting".

NOTE • When selecting [Excel] for an application to input data, [Count] cannot be selected in the [Timer job option] field.

6) Save the created setting file.

| i | | Date and Time inp | put | | | | |
|---|-------|-------------------------------|-----|--|---------------------------|--|---|
| Data entry application © Excel Optional Repetition option Repeat procedure Number of repeat : 1 © Move direction : Down v Displacement interval 1 © | 3 pos | 3 posi. batch meas | | Item Content Procedure type Batch Data entry application Excel Excel settings: | | | testxIs |
| Error option Ignore the data collection Timer job option Enable Interval(hour:min:sec) 0 1 2 5 Count : 5 1 | | Id Procedure ete Procedure | | ITN-69999013 | COM8 DateTime COM11 | Assigned cells A:A D:D B:B C:C | Status Connect Connect Connect |

From the menu of the main dialog box, select [File], [Save As], and then save the file by giving it a name. When the file has been saved, the file name is displayed as a full path in the [Setting File] field.

5.7.3 Measurement

1) Open [Setting File].

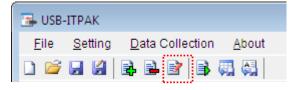
TIP • If starting measurement immediately after specifying the settings in "5.7.2 Setting", the setting file is already opened. In this case, skip step "1)".

From the menu of the main dialog box, select [File] and then [Open], or open [Setting file] from [Recent files].

2) Open the data collection dialog box.

IMPORTANT • In USB-ITPAK, following data collection, the Excel file to which the data was input is saved through overwriting under the existing file name. To use the original Excel file later, back it up beforehand.

From the menu of the main dialog box, select [Data Collection] and then [Start], or click the icon shown below.



Click [Yes] for the message [Do you want to collect data after cancel the current data?] displayed before the data collection starts.

| USB-ITPA | Check | |
|----------|--|---|
| ? | Do you want to collect data after cancel the current data? | |
| | Yes No Cancel | ļ |

TIP • If you click [No] for the message [Do you want to collect data after cancel the current data?], the data collection dialog box will be paused. In this case, resume the data collection. For details, refer to "6.14.1 [Pause/Resume] button" and "8.2.5 To resume the Excel data collection previously paused".

3) The data collection dialog box will be displayed to request the data automatically in the specified interval.

The screenshot shown below is an example of the data collection dialog box during timer job.

As the information on the timer job, "4s" that means the remaining time before the next data request and "3" that means the number of times for the data collection.

| 🕞 USB-ITPAK - C:\Mitutoyo\U | JSB-ITPAK\5-7.it2 | | | |
|-----------------------------|-----------------------|-----------|-------|--------------|
| Procedure : 3 posi. bat | ch meas. + DateTime (| Batch) | | |
| Timer job is in progr | ess Time Left : 4s(| 3) | | 01A+00005.00 |
| Data request | Data cancel | Data skip | Pause | Stop |

During data collection, the cell to which data will be input next is highlighted in green.

| 🕱 🛃 🔊 - (ध - - test [Compatibility Mode] M 👝 🗉 😒 | | | | | | | |
|--|--------------|---------------|--------------|---------------|----|--|--|
| F | ile Hom In | sei Page Forn | Data Reviv | View 🛇 🕜 🗖 🗗 | 23 | | |
| | А | В | С | D | | | |
| 1 | Inspection 1 | Inspection 2 | Inspection 3 | Date and time | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | | | | | | | |
| 9 | | | | | | | |
| 10 | | | | | - | | |
| H 	 H Sheet1 Sheet2 Sheet3 	 I | | | | | | | |
| Ready 100% - + | | | | | | | |

IMPORTANT • For the batch measurement using the timer job option, the measurement data collection is not available with the following operations.

- (1) Pressing the DATA switch on the measuring tool
- (2) Pressing the DATA switch if USB-ITN has one
- (3) Clicking the [Data request] button on the data collection dialog box.
- (4) When using IT-016U / IT-020U / DP-1VA, press the DATA switch.
- (5) When using IT-016U / IT-020U / DP-1VA, operate the foot switch connected to IT-016U / IT-020U / DP-1VA.
- (6) When using DP-1VA, use the DP-1VA interval timer.

4) End data collection and save the results.

Once all the data has been input, a completion message is displayed on the data collection dialog box.

| SB-ITPAK - C:\Mitutoyo\USB-ITPAK\5-7.it2 | | | | | | | | |
|---|--|-----------|-------|------|--|--|--|--|
| | Procedure : 3 posi. batch meas. + DateTime (Batch) | | | | | | | |
| The import of all pieces of measurement data has been completed. 01A+00005.00 | | | | | | | | |
| Data request | Data cancel | Data skip | Pause | Stop | | | | |

Click the [Stop] button on the data collection dialog box. The following message is displayed.

| USB-ITPAK | Check | × |
|-----------|--|---|
| ? | Save the current contents? Click "Yes" to overwrite the current data. Click "No" to delete the current data. | |
| | Yes <u>N</u> o Cance | |

[Yes]: The Excel file to which data was input is saved through overwriting under the existing file name.

[No]: The Excel file is not overwritten and the data that was input is deleted.

[Cancel]: The message dialog box is closed and the data collection dialog box is displayed.

Click the [Yes] button. The Excel file is saved through overwriting and the dialog box switches to the main dialog box.

This completes data collection.

5.8 Inputting Log Data of DP-1VA

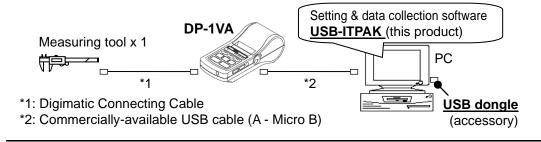
5.8.1 Overview

This section explains how to input measurement data (log data) acquired mainly with DP-1VA into a PC.

TIP • DP-1VA logs measurement data (stores log data in internal memory), and then allows data input into the PC. For details about DP-1VA logging, log data output operation and parameter setting, refer to DP-1VA User's Manual.

1) Connection

In the explanation in this section, one measuring tool and DP-1VA are used. The connection diagram is shown below.



TIP • The connection shown with *1 is required for data logging. The connection shown with *2 is required for log data input to a PC. Either of the operations is allowed with both cables kept connected.

2) Data logging

Measurement data is stored in internal memory of DP-1VA as log data.

Press the [REC/STOP] button on DP-1VA rather long (for more than 1 second and release the button). Then "*LOG START*" is printed and the logging function is activated, entering a wait state of measurement data input. When "*LOG START*" has been printed, press the [REC/STOP] button again.

Press the [DATA] button on DP-1VA to print the measurement data and simultaneously store the data in its internal memory as log data.

3) Log data input to the PC

Input the measurement data stored in DP-1VA to the PC.

Press the [OUT LOG] button on DP-1VA rather long (for more than 1 second and release the button). Then the log data is inputted to the PC in the form of DP-1VA parameter setting.

TIP • The following explains Excel images in a case where DP-1VA parameter setting OUT LOG is 1 (Time/Measurement data output).

| 🔣 🚽 🔊 - 🔍 - - testitpak - Microsoft Excel 👝 🗉 🔯 | | | | | | | | |
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| B10 ▼ | | | | | | | | |
| | А | В | С | D | E | | | |
| 1 | Time | Measurement value | | | | | | |
| 2 | 81947 | 12.54 | | | | | | |
| 3 | 82019 | 13.89 | | | | | | |
| 4 | 82020 | 16.55 | | | | | | |
| 5 | 82023 | 18.97 | | | | | | |
| 6 | 82024 | 20.76 | | | | - | | |
| H + > H Sheet1 Sheet2 Sheet3 [] + [] | | | | | | | | |
| Ready 🔲 🛄 100% 🔿 🛶 🕂 | | | | | | | | |

When data input to the PC is complete, Excel shows the following image.

Time (when measurement data is inputted in DP-1VA) is entered in column A and measurement data is entered in column B. According to the procedure of setting in USB-ITPAK, each time and data will be entered in the following order.

| 🔀 🛃 🔊 - 🖓 - - testitpak - Microsoft Excel 👝 🗈 🔯 | | | | | | | | |
|---|------------|-----------------------|----------------|-------|--------|----------------|------|--|
| F | ile Hom | ε Insert Page Formi I | Data | Revie | View 👳 | () – e | P 23 | |
| | B10 | - (0 | f _x | 32.39 | | | ~ | |
| | А | В | | С | D | E | | |
| 1 | Time | Measurement value | | | | | | |
| 2 | 81947 | 12.54 | | | | | | |
| 3 | 82019 | 13.89 | | | | | | |
| 4 | 82020 | 16.55 | | | | | | |
| 5 | 82023 | 18.97 | | | | | | |
| 6 | 82024 | 20.76 | | | | | - | |
| H 	 H Sheet1 Sheet2 Sheet3 4 H | | | | | | | | |
| Rea | Ready 100% | | | | | | | |

- **TIP** Each date is also included in DP-1VA log data and can be outputted by parameter setting in DP-1VA. For details about parameter setting, refer to DP-1VA User's Manual.
 - When inputting time from DP-1VA, only a numeric value such as "81947" is entered in column A cell. In the case of parameter setting, Excel shows the time as "8:19:47". Since this time display is available by the Excel TIME function, etc., convert the numeric display as required. As an example, individual time displays after conversion are shown in column D.

| 🔣 🛃 🦃 👻 🎼 = 🛛 🗮 testitpak - Microsoft Excel 👝 🗉 😒 | | | | | | | | |
|--|--|-------------------|---|---------|---|---|--|--|
| File Home Insert Page Form Data Revie View ♡ ? 🗆 🗗 🔀 | | | | | | | | |
| | G12 • <i>f</i> _x | | | | | | | |
| | А | В | С | D | E | | | |
| 1 | Time | Measurement value | | | | | | |
| 2 | 81947 | 12.54 | | 8:19:47 | | | | |
| 3 | 82019 | 13.89 | | 8:20:19 | | | | |
| 4 | 82020 | 16.55 | | 8:20:20 | | | | |
| 5 | 82023 | 18.97 | | 8:20:23 | | | | |
| 6 | 82024 | 20.76 | | 8:20:24 | | - | | |
| H 4 + H Sheet1 Sheet2 / Sheet3 / 4 III + I | | | | | | | | |
| Ready 🔲 🛄 100% 🔿 🗸 🕂 🦼 | | | | | | | | |

• For information on Excel functions, etc., contact Microsoft Corporation.

5.8.2 Setting

1) Check the device information.

NOTE • USB-ITPAK loads the information of connected devices at startup. Therefore, connect all the devices to be used before starting up USB-ITPAK.

From the menu of the main dialog box, select [Settings] and then [Device information]. This opens the [Device information] dialog box, which allows you to check the devices that are connected to the PC.

| D | evice information | | | | | × |
|---|-------------------|--------------|------|------|------------|---|
| | Device lists : | | | | | |
| | Device No. | Device name | COM | Туре | Serial No. | |
| | DP1-10000041 | DP1-10000041 | COM3 | DP1 | 10000041 | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | Setting | ו | | OK | Cancel | |
| | Setting | J | | Ur | Cancer | |

If you do not want to change the device number or device name, click the [Cancel] button to return to the main dialog box.

If you want to change a device number or device name, select the device, and then click the [Setting] button.

| Device information set | ting | × |
|------------------------|----------|---|
| Device information | n | |
| Serial No. : | 10000041 | |
| Type : | DP1 | |
| COM : | COM3 | |
| | | |
| Device No. : | _ | |
| DP1-10000041 | | |
| Device name : | | |
| DP1-10000041 | | |
| ОК | Cancel | |

Click the [OK] button if you change any settings.

- **NOTE** In the procedure created from step "2)", the device number is used to specify the device to be used. If you change the number, revise all the setting files that use it.
 - **TIP** If multiple units are connected, specify settings for each.

- **TIP** If Input the Log data using existing setting files, skip this section and refer to "5.8.3 Entering log data ".
 - 2) Enter information about the setting file in the [Description] field.

Enter a description of the setting file. This field may be left blank.

| | 🕞 USB-ITPAK | | |
|----|--|---|--|
| | <u>File Setting Data Collection Abou</u> | | |
| | | | |
| | Setting File | | |
| 2) | Description | | |
| | Data entry application © Excel © Optional Repetition option Repeat procedure Number of repeat : 1 Wove direction : Down Displacement intervals : 1 Error option | Procedure | Item Content |
| | Ignore the data collection error | | Device No. Device name COM Assign Status |
| | Timer job option □ Enable Interval(hour:min:sec): □ ★ : □ ★ : 5 ★ . □ ★ Count: 5 ★ | Add Procedure Delete Procedure Change Procedure | 3) |

3) Add a procedure to the setting file.

Click the [Add Procedure] button on the main dialog box.

| | Add procedure | |
|-----|---|---|
| 4) | Procedure type : Procedure name : Sequential | |
| 6) | Excel settings Workbook : | Data entry devices Device No. Assign rule COM + |
| 7) | Worksheet : | |
| 8) | Range of cells (specify the A1 reference style) : First : Last : Select | |
| 9) | Move after return direction : Right | |
| 10) | Displacement intervals : 1 Cell address assign rules | |
| 11) | O Unspecified | Foot switch option |
| ••• | Assign for the columns(A,B,) Assign for the rows(1,2,) | Device No. Function COM |
| | FunctionKey Operation Data request : Data cancel : Data skip : | |
| | | OK Cancel |

4) Select a procedure type for the [Procedure type] field.

Check that [Sequential] is selected as the procedure type, and if not, select [Sequential] from the drop-down list.

- **IMPORTANT** Log data in DP-1VA cannot be entered using the procedure of [Batch]. Select [Sequential] or [Individual] from the [Procedure type] drop-down menu.
 - 5) Enter a name in the [Procedure name] field.

Entering the procedure name is required.

TIP • Since the procedure name will be displayed in the [Procedure] field at the center of the main dialog box, enter an easily identifiable name.

Here, enter [Time and measured value log].

6) Specify an Excel file in the [Workbook] field under [Excel settings].

Enter the workbook name of the Excel file to which the measured data is to be input.

The file can be selected from the [Open] dialog box by clicking the [...] button.

Here, select the following file.

C:\Mitutoyo\testitpak.xlsx (Create the file in advance.)

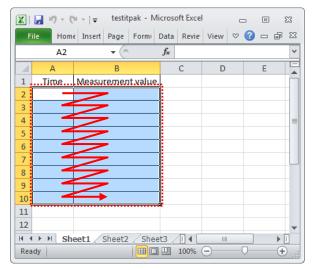
IMPORTANT • If you want to use a file other than the sample inspection table file, create an inspection file using Excel before starting up USB-ITPAK. Inspection table files can be saved to any folder. Save the inspection table file to a folder location that will be easy to manage.

7) Select a worksheet for the [Worksheet] field under [Excel settings].

Select the worksheet name to be included in the workbook of step "6)" from the drop-down list.

Here, select [Sheet1].

8) Enter the input range in the [Range of cells] fields under [Excel settings].



To specify the area indicated by the dot-line in the above inspection table as the input cell range, enter:

| First: | A2 |
|--------|-----|
| Last: | B10 |

9) Select the desired direction for the [Move after return direction] field under [Excel settings].

During input the log data using USB-ITPAK, once data is input from the DP-1VA, the log data is input to the current cell and then the entry point (cell) automatically moves to the next cell.

In the inspection table example shown above, select [Right].

10) Specify the [Displacement intervals] under [Excel settings].

Specify the interval for the cell movement specified in step 9). Specifying "1" results in movement to the next cell. Specifying "2" results in movement to the cell after the next.

In the inspection table example above, specify "1".

11) Select an option under [Cell address assign rules].

In USB-ITPAK, the log data items can be assigned to columns (vertical) or rows (horizontal) of the inspection table worksheet.

In the table example above, the log data items are assigned to respective columns, so select [Assign for the columns (A, B,...)].

12) Specify the [Data entry devices] settings.

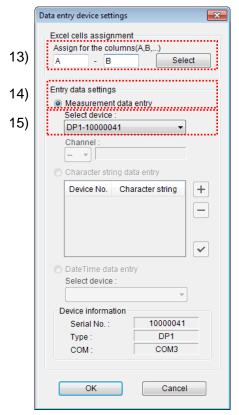
The functions of the buttons for the [Data entry devices] field are as follows:

- [+]: Adds device settings.
- [-]: Deletes the device setting selected from the list.
- [$\sqrt{}$]: Changes the device setting selected from the list.

Here, click the [+] button to switch to the [Data entry device settings] dialog box.

| | —X — |
|---|---|
| | |
| value log | |
| Data entry devices Device No. Assign rule COM | + |
| Foot switch option | |
| Device No. Function COM | + |
| | |
| | Data entry devices Device No. Assign rule COM |

13) Specify the settings in the [Excel cells assignment] field on the [Data entry device settings] dialog box.



In the [Excel cells assignment] field, specify columns (vertical) or rows (horizontal) according to the specification in step 11). Specify the columns here.

There are two input areas in the previously described table. Here, one device is assigned on all the columns, So enter "A" to "B" in fields.

14) In the [Entry data settings] field, select the entry data type.

The entry data types consist of measurement data input from the measuring tools (numeric data), and character string data input by pressing the foot switch.

Here, select the [Measurement data entry] radio button.

15) In the [Select device] field, select the device to be assigned.

From the drop-down list, select the device to be assigned.

Here, select the DP-1VA.

This completes the settings on the [Data entry device settings] dialog box, so click the [OK] button.

16) Close [Add procedure].

| Procedure type : Procedure name : | | | | |
|--|-------------------|-------------|------|------|
| Sequential Time and measure | d value log | | | |
| Excel settings | Data entry device | s | | |
| Workbook : | Device No. | Assign rule | СОМ |] [+ |
| C:\Mitutoyo\testitpak.xlsx | DP1-10000041 | - | COM3 | |
| Worksheet : | DF 1-10000041 | A.D | COMS | |
| Sheet1 - | | | | |
| Range of cells (specify the A1 reference style) : | | | | |
| First : A2 Select | | | | |
| Last: B10 | | | | |
| Move after return direction : | | | | |
| Right - | | | | |
| Displacement intervals : | | | | |
| 1 🚔 | | | | |
| | | | | |
| Cell address assign rules | | | | |
| | Foot switch optic | n | | |
| Cell address assign rules | Foot switch optic | | СОМ |] [+ |
| Cell address assign rules | | | СОМ | |
| Cell address assign rules Ourspecified Sassign for the columns(A,B,) Assign for the rows(1,2,) | | | СОМ | + |
| Cell address assign rules Ourspecified Assign for the columns(A,B,) Assign for the rows(1,2,) FunctionKey Operation | | | СОМ | |
| Cell address assign rules Ourspecified Sassign for the columns(A,B,) Assign for the rows(1,2,) | | | СОМ | |
| Cell address assign rules Ourspecified Assign for the columns(A,B,) Assign for the rows(1,2,) FunctionKey Operation | | | СОМ | + |
| Cell address assign rules Ourspecified Sector Assign for the columns(A,B,) Assign for the rows(1,2,) FunctionKey Operation Data request: | | | COM | |
| Cell address assign rules Ourspecified Assign for the columns(A,B,) Assign for the rows(1,2,) FunctionKey Operation Data request : Data cancel : | | | COM | |

This completes the settings on the [Add procedure] dialog box, so click the [OK] button.

17) Save the created setting file.

| 🕞 USB-ITPAK | | | |
|---|-------------------|---|--|
| File Setting Data Collection Abou | t | | |
| | | | ٦ |
| Setting File C:\Mitutoyo\USB-ITPAK\D | | ••••• | <u>.</u> |
| _ | | | |
| Description DP-1VA OUT LOG Param | neter settings 1 | | |
| Data entry application | Procedure | Item | Content |
| Excel | Time and measured | Procedure type | Sequential |
| Optional | | Data entry application | Excel |
| Repetition option Repeat procedure Number of repeat : 1 | | Excel settings: Workbook Worksheet Range of cells Move after return direction Displacement intervals Cell address assign rules Foot switch option: FunctionKey Operation: | C:\Mitutoyo\testitpak.xlsx Sheet1 A2:B10 Right 1 Assign for the columns(A,B,) |
| Error option | | | |
| ☑ Ignore the data collection error | | Device No. Device na | me COM Assigned cells Status |
| Timer job option | Add Procedure | DP1-10000041 DP1-10000 | 0041 COM3 A:B Connect |
| $\begin{array}{c} \mbox{Interval}(\mbox{hour:min:sec}):\\ \hline 0 \ \textcircled{\sim}\\ \hline \end{array}: \ \hline 0 \ \textcircled{\sim}\\ \hline \end{array}: \ \hline 5 \ \textcircled{\sim}\\ \hline \end{array}. \ \hline 0 \ \textcircled{\sim}\\ \hline \end{array}$ | Delete Procedure | | |
| Count : 5 | Change Procedure | | |

From the menu of the main dialog box, select [File], [Save As], and then save the file by giving it a name. When the file has been saved, the file name is displayed as a full path in the [Setting File] field.

5.8.3 Entering log data

1) Open [Setting File].

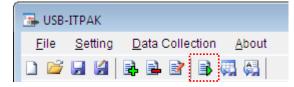
TIP • If starting measurement immediately after specifying the settings in "5.8.2 Setting", the setting file is already opened. In this case, skip step "1)".

From the menu of the main dialog box, select [File] and then [Open], or open [Setting file] from [Recent files].

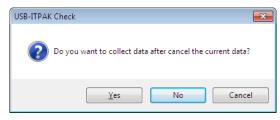
2) Open the data collection dialog box.

IMPORTANT • In USB-ITPAK, following data collection, the Excel file to which the data was input is saved through overwriting under the existing file name. To use the original Excel file later, back it up beforehand.

From the menu of the main dialog box, select [Data Collection] and then [Start], or click the icon shown below.



When data collection starts, the message [Do you want to collect data after cancel the current data?] is displayed. Click [Yes].



The data collection dialog box is displayed and data collection can now be performed.

| 🕞 USB-ITPAK - C:\Mitutoyo\l | JSB-ITPAK\DP-1VA_outLog_P1 | .it2 | | |
|-----------------------------|----------------------------|-------------|-------|------|
| Procedure : Time and | measured value log (S | Sequential) | | |
| Execute import man | ipulations of measure | ment data. | | |
| Data request | Data cancel | Data skip | Pause | Stop |

TIP • If you click [No] for the message [Do you want to collect data after cancel the current data?], the data collection dialog box will be paused. In this case, resume the data collection. For details, refer to "6.14.1 [Pause/Resume] button" and "8.2.5 To resume the Excel data collection previously paused".

3) Perform log data collection.

During log data collection, the cell to which data will be input next is highlighted in green.

| Fi | le Hom | e Insert Page Formi | Data Revie | View 👳 | 🕜 🗆 🗗 | 2 |
|------|--------|----------------------|------------------|--------|-------|---|
| | A2 | - (e | f_{x} | | | |
| | А | В | С | D | E | 1 |
| 1 | Time | Measurement value | | | | |
| 2 | | | | | | l |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 14 4 | ► E Sh | eet1 / Sheet2 / Shee | t3 ∕∏ ∢ [| | | n |

Press the [OUT LOG] button on DP-1VA rather long to input log data.

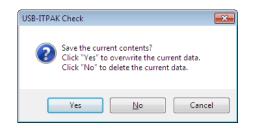
- **TIP** For details about DP-1VA operations, refer to DP-1VA User's Manual.
- IMPORTANT During the input of log data in DP-1VA, do not attempt any operations such as pressing the [Data request] button of USB-ITPAK. This fails normal completion due to the occurrence of a log data input stop, etc. If you have operated USB-ITPAK in any way during input of DP-1VA log data, redo operation from "5.8.3 2) Open the data collection dialog box".
 - 4) End data collection and save the results.

Once all the data has been input, a completion message is displayed on the data collection dialog box.

| 🕞 USB-ITPAK - C:\Mitutoyo\U | JSB-ITPAK\DP-1VA_outLog_P1 | .it2 | | |
|-----------------------------|----------------------------|---------------------|-------|---------------|
| Procedure : Time and | | | | |
| The import of all piec | ces of measurement d | lata has been compl | eted. | 01A+000002.61 |
| Data request | Data cancel | Data skip | Pause | Stop |

- **NOTE** If the number of pieces of DP-1VA log data does not reach the input cell range that has been set in USB-ITPAK, the completion message will not appear. Check the message DP-1VA will print out.
 - If the number of pieces of DP-1VA log data runs over the input cell range that has been set in USB-ITPAK, the completion message will appear as soon as the input cells are filled with data. To enter all pieces of log data, revise the input cell range.

Click the [Stop] button on the data collection dialog box. The following message is displayed.



[Yes]: The Excel file to which data was input is saved through overwriting under the existing file name.

- [No]: The Excel file is not overwritten and the data that was input is deleted.
- [Cancel]: The message dialog box is closed and the data collection dialog box is displayed.

Click the [Yes] button. The Excel file is saved through overwriting and the dialog box switches to the main dialog box.

This completes log data collection.

6

DIALOG BOX CONFIGURATIONS OF USB-ITPAK

"CHAPTER 4 MEASUREMENT DATA COLNDLECTION (BASICS)" explains the basic use of USB-ITPAK.

"CHAPTER 5 MEASUREMENT DATA COLLECTION (ADVANCED)" explains the applied use of USB-ITPAK, such as data collection using the foot switch and the combination of multiple procedures.

"CHAPTER 6 DIALOG BOX CONFIGURATIONS OF USB-ITPAK" explains the configuration and contents of all the dialog boxes of USB-ITPAK. This chapter also explains functions not described in "CHAPTER 4 MEASUREMENT DATA COLLECTION (BASICS)" and "CHAPTER 5 MEASUREMENT DATA COLLECTION (ADVANCED)".

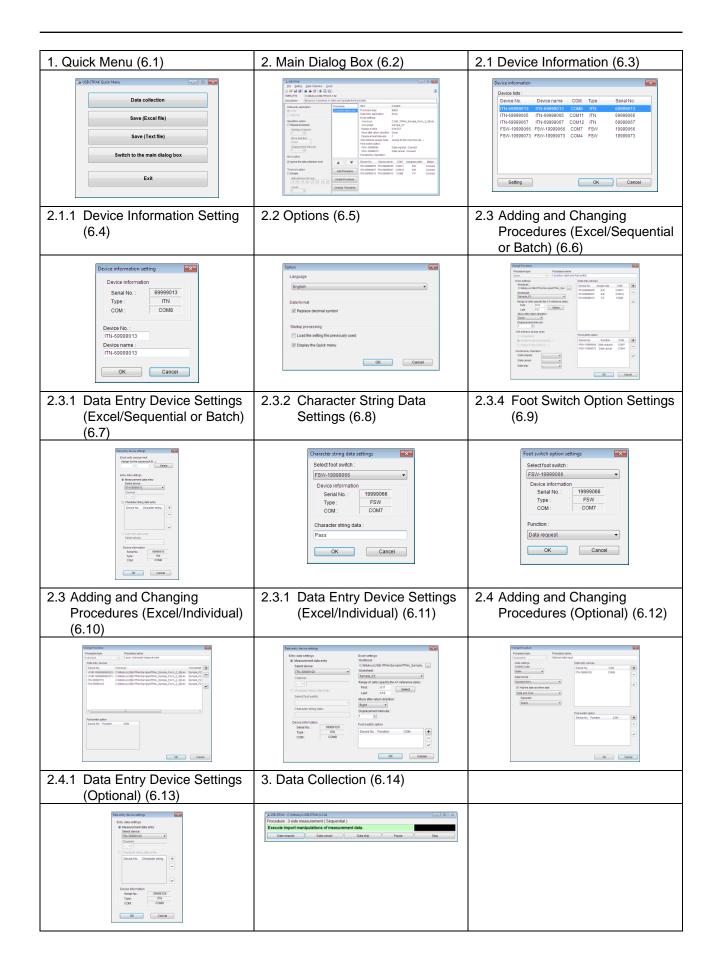
The hierarchy of the dialog boxes of USB-ITPAK is shown below. The numbers in parentheses are the numbers of the sections explaining the corresponding dialog boxes.

- 1. Quick Menu (6.1)
- 2. Main Dialog Box (6.2)
 - 2.1 Device Information (6.3)

2.1.1 Device Information Setting (6.4)

- 2.2 Options (6.5)
- 2.3 Adding and Changing Procedures (Excel/Sequential or Batch) (6.6)
 - 2.3.1 Data Entry Device Settings (Excel/Sequential or Batch) (6.7)
 - 2.3.2 Character String Data Settings (6.8)
 - 2.3.4 Foot Switch Option Settings (6.9)
- 2.3 Adding and Changing Procedures (Excel/Individual) (6.10)
 - 2.3.1 Data Entry Device Settings (Excel/Individual) (6.11)
- 2.4 Adding and Changing Procedures (Optional) (6.12)
 - 2.4.1 Data Entry Device Settings (Optional) (6.13)
 - 2.4.2 Character String Data Settings (6.8)
 - 2.4.3 Foot Switch Option Settings (6.9)

3. Data Collection (6.14)

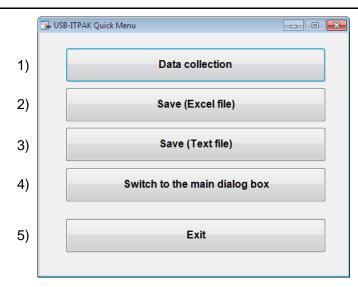


6.1 Quick Menu

If the [Display the Quick menu] option is enabled, Quick Menu is displayed when USB-ITPAK starts up.

Quick Menu is a dialog box for operators who collect data. By clicking the [Data collection] button to open the setting file, measurement can be started quickly, making Quick Menu a useful feature for the execution of actual measurement work.

TIP • For the [Display the Quick menu] options, refer to "6.5 Options".



1) [Data collection] button

Opens an already created setting file and executes data collection according to that procedure.

For the operation method, refer to "6.1.1 [Data collection] button".

2) [Save (Excel file)] button

Saves the Excel file to which measurement data is input, after data collection. For the operation method, refer to "6.1.2 [Save (Excel file)] button".

3) [Save (Text file)] button

Saves the measurement data as a text file, after data collection. For the operation method, refer to "6.1.3 [Save (Text file)] button".

4) [Switch to the main dialog box] button

Switches the dialog box to the main dialog box.

5) [Exit] button

Exits USB-ITPAK.

6.1.1 [Data collection] button

An already created setting file is opened and data is collected according to the procedure in the file.

1) Select the setting file to be executed on the [Open] dialog box.

Select the setting file (extension: itp, it2) from the list of files, and then click the [Open] button.

- NOTE If [Load the setting file previously used] was selected in the [Startup processing] field in "6.5 Options", the setting file that was used last is loaded when USB-ITPAK starts up, so step "1)" is skipped in this case.
 - 2) Collect data.

When the [Do you want to collect data after cancel the current data?] message is displayed, click either the [Yes] or [No] button.

The data collection dialog box is displayed and the Excel inspection table file specified in the setting file is opened, so data collection starts.

TIP • For details about the data collection dialog box, refer to "6.14 Data Collection".

6.1.2 [Save (Excel file)] button

After data has been collected, the Excel file to which measurement data is input is saved.

NOTE • The [Save (Excel file)] button can be used only after data has been collected.

| | Select the save workbook | C. |
|---|--------------------------|----------------------------------|
| | C:\Mitutoyo\USB-ITPAK\S | ample\ITPAK_Sample_Form_1_GB.xls |
| Ë | Save : | |
| | Overwrite | |
| | Save Copy As | |

1) In the [Select the save workbook] field, select the file that is to be saved.

Select the file to be saved from the drop-down list.

2) Select the method for saving the file.

In the [Save] field, select either [Overwrite] or [Save Copy As].

3) Click the [OK] button to save the file.

When [Save Copy As] is selected in the [Save] field, the [Save As] dialog box is displayed, so enter the file name and save the Excel file.

If multiple Excel workbooks are used in the setting file, perform steps 1) to 3) above for each file to be saved.

6.1.3 [Save (Text file)] button

The measurement data is saved to a text file after data has been collected.

NOTE • The [Save (Text file)] button can be used only after data has been collected.

| 1) | | Save method Follow the procedure setting range Selected range | Separator TAB Comma(,) Semicolon(;) | 2) | | | | | | |
|----|---------------------------------------|--|--|----|--|--|--|--|--|--|
| 3) | · · · · · · · · · · · · · · · · · · · | Select an Excel subject for save Select procedure : 3 side measurement | | | | | | | | |
| | | C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sam | C:Mitutoyo\USB-ITPAK\Sample\ITPAK_Sample_Form_1_GB.xis | | | | | | | |
| | | Worksheet : Sample_F1 | | | | | | | | |
| | | Range of cells : H11:L13 | | | | | | | | |
| | | | OK Cancel | | | | | | | |

1) Select the desired method in the [Save method] field.

Select the method for specifying the range of data to be saved from the measurement data on the Excel worksheet.

• [Follow the procedure setting range]

The range specified for [Range of cells (specify the A1 reference style)] on the [Add procedure] dialog box for the setting file is selected.

• [Selected range]

Directly select the cell range on the displayed Excel worksheet.

2) Select the separator in the [Separator] field.

Select the character for separating Excel columns when saving Excel worksheet data to a text file. Select either [TAB], [Comma], or [Semicolon].

- 3) Specify the settings in the [Select an Excel subject for save] field.
 - Select the procedure to save in the [Select procedure] field.
 - Select the Excel workbook registered to the procedure to be saved, in the [Workbook] field.
- 4) Click the [OK] button to save the file.

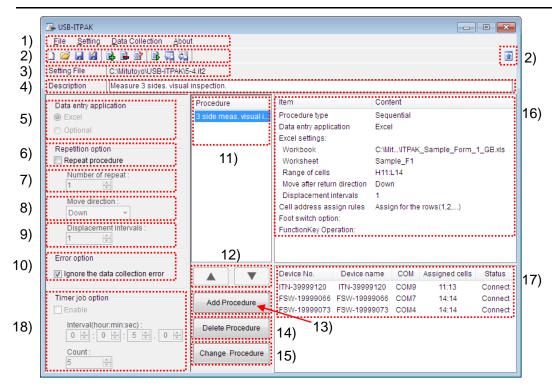
The [Save As] dialog box is displayed, so enter the file name and click the [Save] button.

6.2 Main Dialog Box

If the [Display the Quick menu] option is disabled, the main dialog box is displayed when USB-ITPAK starts up.

The main dialog box is a window for operators creating setting files. All the functions of USB-ITPAK, from procedure setting to data collection, can be used from this dialog box.

TIP • For details on the [Display the Quick menu] option, refer to "6.5 Options".



1) Menu bar

The functions of USB-ITPAK can be accessed using the menu bar. For details about how to use the menu bar, refer to "6.2.1 [File] menu" and subsequent sections.

2) Tool bar

The functions of USB-ITPAK can also be accessed using the tool bar. For details about how to use the tool bar, refer to "6.2.1 [File] menu" and subsequent sections.

3) [Setting file] field

Displays the path name of the setting file that is currently opened.

4) [Description] field

Enter a description of the setting file in this field. This field can be left blank.

NOTE • Up to one hundred 1-byte or 2-byte characters can be entered in the [Description] field.

5) [Data entry application] field

Select the application to which data is input in this field.

[Excel]

Data is input to Excel.

• [Optional]

Data is input to an optional application (such as the Notepad or Word) that is active during data collection.

6) [Repetition option] field

If [Repeat procedure] is selected in this field, the procedure registered in step "11)" is performed multiple times during data collection.

7) [Number of repeat] field

This field can be specified only if [Repeat procedure] is selected. Enter how many times to repeat the procedure.

8) [Move direction] field

This field can be specified only if [Repeat procedure] is selected. When the procedure is repeated during data collection, the data entry cell is shifted at each execution. The cell movement direction at such time is selected in this field. Either [Right] or [Down] can be selected.

9) [Displacement intervals] field

This field can be specified only if [Repeat procedure] is selected. When the procedure is repeated during data collection, the data entry cell is shifted at each execution. The cell displacement interval is selected in this field.

10) [Error option] field

If the following errors occur during data collection, select whether to ignore them.

| | Error Message |
|---|--|
| 1 | The used device is wrong. |
| 2 | An error occurred during data reception. Device No. = [Device] Click Ignore to proceed anyway or Retry to try again. |

- For details about the error messages, refer to "8.4.7 Error messages of data collection dialog box" in "8.4 USB-ITPAK Error Messages".
 - 11) [Procedure] field

This field lists the names of the procedures that have been created.

Multiple procedures can be registered in the setting file.

12) [**▲**][**▼**] field

The sequence of procedures can be changed by clicking these buttons after selecting procedures in the [Procedure] field.

3) [Add Procedure] button

This button is used to add a new procedure. For the operation method, refer to "6.2.2 [Setting] menu".

14) [Delete Procedure] button

This button is used to delete the procedure selected in the [Procedure] field. For the operation method, refer to "6.2.2 [Setting] menu".

15) [Change Procedure] button

This button is used to change the procedure selected in the [Procedure] field. For the operation method, refer to "6.2.2 [Setting] menu".

16) Procedure details display field

This field displays the information of the procedure selected in the [Procedure] field.

17) Field for displaying detailed information of device used for data collection

This field displays the information of the device (USB-ITN, USB-FSW, U-WAVE, IT-016U / IT-020U, DP-1VA) used for data collection in the procedure selected in the [Procedure] field.

- **NOTE** If USB-FSW is used for character string data input, this is displayed in "17)".
 - If USB-FSW is used for data requests or data cancellation, this is displayed in the [Foot switch option] of the "16)" field.
 - When using IT-016U / IT-020U, also it will be recognized as ITN type. The Serial No. of IT-016U / IT-020U is represented starting with "8" as "ITN-8******".
 - The Serial No. of DP-1VA is represented as "DP1-*******".

18) [Timer job option] field

If selecting this field, the automatic input of the measurement data is available in the specified interval. For details, refer to "6.15 Timer option setting".

6.2.1 [File] menu

| (| 🕞 US | B-ITPAK | | 🕞 U: | SB-ITPAK | | | | - • 💌 |
|-----|--------------|---------------------|-----------------------|-----------------------|-----------------|--------------------|--------------------|-----|------------|
| | <u>F</u> ile | <u>S</u> etting | Data Collection | <u>A</u> <u>E</u> ile | <u>S</u> etting | g <u>D</u> ata Col | lection <u>A</u> b | out | |
| 1) | | New | Ctrl+N | | 7 🔒 😫 | B 🖻 🖻 | 1 🗟 🍓 🖗 | | |
| 2) | 2 | <u>O</u> pen | Ctrl+O | 4 | | | | | |
| 3) | | <u>S</u> ave | Ctrl+S | i | | | | | |
| 4)́ | [😫 | Save <u>A</u> s | | | | -24 | | | |
| 5) | | <u>R</u> ecent File | s 🕨 | | | | | | 1 |
| 6) | | Switch to th | ie <u>q</u> uick menu | i | 4) | 2) | 2) | 4) | \sim |
| 7) | | E <u>x</u> it | | | 1) | 2) | 3) | 4) | 6) |

The [File] menu is used to load and save setting files.

1) [New]

Creates a new setting file.

This operation can also be performed by clicking icon 1) on the tool bar.

2) [Open]

Loads a setting file that was saved. This operation can also be performed by clicking 2) on the tool bar.

3) [Save]

Overwrite and saves the setting file. This operation can also be performed by clicking icon 3) on the tool bar.

4) [Save As...]

Saves the setting file with a different name. This operation can also be performed by clicking icon 4) on the tool bar.

5) [Recent Files]

When the setting file displayed in the sub-menu of this menu is selected, that setting file is loaded. The five files that have been loaded or saved the most recently are registered to the sub-menu.

6) [Switch to the quick menu]

Switches the dialog box to the Quick Menu. This operation can also be performed by clicking icon 6) on the tool bar.

7) [Exit]

Exits USB-ITPAK.

6.2.2 [Setting] menu

The [Setting] menu is used to display device information, add, delete, and change procedures, and also specify option settings related to the operation of USB-ITPAK.

| 🕞 USB- | -ITPAK | | 🕞 USB- | ТРАК | | | | | |
|--------------|-------------------------|------------|--------------|-----------------|----------------|-----------|---------------|------------------|----|
| <u>F</u> ile | Setting Data Collection | <u>A</u> b | <u>F</u> ile | <u>S</u> etting | <u>D</u> ata C | ollection | <u>A</u> bout | | |
| D 💕 | Device Information | 1) | 🗋 💕 | | 2 2 | ₽ ₿ | 📮 🚑 | | |
| Setting | Add Procedure | . 2) | | | | | | | 1 |
| Descrip | Delete Procedure | 3) | | | | , | | Add Procedure | 2) |
| Data | Onting | 4) 5) | | | | | | Delete Procedure | 3) |
| @ Ex | | | | 1 | | 1 | | Change Procedure | 4) |
| | | : | 2) | 3) | | 4) | | | |

1) [Device Information]

Displays the [Device information] dialog box.

- **TIP** For details about the [Device information] dialog box, refer to "6.3 Device information".
 - 2) [Add Procedure]

Adds a new procedure to the setting file that is opened.

This operation can also be performed by clicking icon 2) on the tool bar or button 2) on the main dialog box.

3) [Delete Procedure]

Deletes the procedure selected in the [Procedure] field on the main dialog box. This operation can also be performed by clicking icon 3) on the tool bar or button 3) on the main dialog box.

4) [Change Procedure]

Changes the procedure that is selected in the [Procedure] field on the main dialog box.

This operation can also be performed by clicking icon 4) on the tool bar or button 4) on the main dialog box.

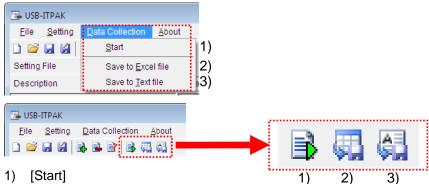
5) [Option]

Displays the [Option] dialog box.

TIP • For the option functions, refer to "6.5 Options".

6.2.3 **Data Collection menu**

The Data Collection menu on the menu bar is used to start data collection and save data after data collection.



1) [Start]

Collects data according to the setting file.

This operation can also be performed by clicking icon 1) on the tool bar.

2) [Save to Excel file]

Saves the Excel file to which the collected data was input.

This operation can also be performed by clicking icon 2) on the tool bar.

- TIP • For how to save an Excel file, refer to "6.1.2 [Save (Excel file)] button]".
 - 3) [Save to Text file]

Saves the collected data as a text file.

This operation can also be performed by clicking icon 3) on the tool bar.

TIP • For how to save a text file, refer to "6.1.3 [Save (Text file)] button]".

6.2.4 [About] menu

Displays the version information of USB-ITPAK.

6.3 Device Information

The [Device information] dialog box is displayed by selecting [Setting] and then [Device information] from the menu described in "6.2 Main Dialog Box".

This dialog box displays any of the USB-ITN, USB-FSW, U-WAVE-R, IT-016U / IT-020U, or DP-1VA connected to the PC.

| | D | evice information | | | | × | |
|----|---|-------------------|----------------|------|------|------------|---|
| | | Device lists : | | | | | |
| 1) | | Device No. | Device name | COM | Туре | Senarivo | |
| | | UWR-1999999965 | UWR-1999999965 | COM4 | UWR | 1999999965 | 1 |
| | | FSW-19999066 | FSW-19999066 | COM5 | FSW | | |
| | | ITN-39999116 | ITN-39999116 | COM6 | ITN | 29999110 | |
| | | DP1-10000041 | DP1-10000041 | COM3 | DP1 | 10000041 | |
| | | ITN-89999004 | ITN-89999004 | COM7 | ITN | 00000004 | |
| | • | | | | | | • |
| | | | | | | | |
| | | | | | | | |
| 2) | | Setting | | 0 | ĸ | Cancel | |

1) [Device lists] field

Displays all the USB-ITN, USB-FSW, U-WAVE-R, IT-016U / IT-020U and DP-1VA units connected to the PC and to which the dedicated VCP driver has been installed.

2) [Setting] button

When a device is selected in the [Device lists] field and then the [Setting] button is clicked, the [Device information setting] dialog box is displayed.

- **TIP** For details about the [Device information setting] dialog box, refer to "6.4 Device Information Setting".
 - 3) [OK] button

Applies the changes on the [Device information setting] dialog box and returns to the main dialog box.

4) [Cancel] button

Clears the changes on the [Device information setting] dialog box and returns to the main dialog box.

6.4 Device Information Setting

Clicking the [Setting] button on the dialog box described in "6.3 Device Information" displays the [Device information setting] dialog box for the device that was selected in the [Device lists] field on the [Device information] dialog box.

The device information settings are specified on this dialog box.

| | Device information setting | X |
|----|----------------------------|----------|
| 1) | Device information | |
| 1) | Serial No.: 699990 | 13 |
| | Type : ITN | |
| | COM: COM8 | |
| | L | |
| 2) | Device No. : | |
| 2) | ITN-69999013 | |
| 3) | Device name : | |
| 3) | ITN-69999013 | |
| | OK Can | |
| | | |

1) [Device information] field

Displays the information of the device that was selected. The setting cannot be changed.

• [Serial No.]

Displays the lower 8 or 10 digits of the device number of the selected device.

Displays the device number of USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA in 8 digits and that of U-WAVE-R in 10 digits.

[Type]

Displays the upper 3 alphabetic characters of the device No. of the selected device. [ITN] stands for USB-ITN / IT-016U / IT-020U, [FSW] stands for USB-FSW, [UWR] stands for U-WAVE-R, and [DP1] stands for DP-1VA.

• [COM]

Displays the COM port number assigned to the device.

• The COM port number in the [COM] field is automatically assigned when the dedicated VCP driver is installed. The COM port number cannot be changed.

2) [Device No.] field

The device No. is information that identifies the USB-ITN, USB-FSW, U-WAVE-R, IT-016U / IT-020U or DP-1VA unit. This information is registered to the procedure.

In the initial state, the device number recorded on the USB-ITN, USB-FSW, U-WAVE-R, IT-016U / IT-020U or DP-1VA unit is displayed.

- **NOTE** Up to twenty 1-byte characters can be input.
- **NOTE** The device No. can be changed only when no procedures are registered in the [Procedure] field on the main dialog box.

• When the device No. used in an existing setting file is changed, that setting file may become unusable, so be careful when changing the device No.

3) [Device name] field

Inputting the name of the measuring tool that is connected to USB-ITN, U-WAVE, IT-016U / IT-020U or DP-1VA as the device name makes it easy to check the procedure settings.

NOTE • Up to thirty-two 1-byte and 2-byte characters can be input.

6.5 **Options**

The [Option] dialog box is displayed by selecting [Setting] and then [Options] on the dialog box described in "6.2 Main Dialog Box".

Various settings related to USB-ITPAK operations are specified on this dialog box.

| | Option |
|----|---|
| | Language |
| 1) | English |
| 2) | Data format Image: Constraint of the symbol |
| 3) | Startup processing Load the setting file previously used Display the Quick menu |
| | OK Cancel |

1) [Language] field

This field is used to select the language to be used in USB-ITPAK.

2) [Data format] field

If [Replace decimal symbol] is selected, USB-ITPAK uses the decimal symbol specified in Windows as the decimal symbol for measurement data.

If [Replace decimal symbol] is not selected, USB-ITPAK uses "." (period) as the decimal symbol for measurement data.

TIP • To check the decimal point symbol that is specified in Windows, select [Control Panel], [Clock, Language, and Region], [Region and Language], and then [Additional settings...], and look at the [Decimal symbol] field.

| Eormat: | | Example | |
|---------------------------|--|---|---------------------------|
| English (United Stat | es) 👻 | Positive: 123,456,789.00 | Negative: -123,456,789.00 |
| Date and time form | nats | | |
| Short date: | M/d/yyyy | Decimal symbol: | - |
| Long date: | dddd, MMMM dd, уууу | No. of digits after decimal: | 2 . |
| Short time: | h:mm tt | Digit grouping symbol: | , • |
| Long time: | h:mm:ss tt 🔹 | Digit grouping: | 123,456,789 🔹 |
| First day of week: | Sunday | N <u>e</u> gative sign symbol: | - • |
| What does the note | ation mean? | Nega <u>t</u> ive number format: | -1.1 • |
| Examples | | Disglay leading zeros: | 0.7 • |
| Short date: Long date: | 1/17/2013 Thursday, January 17, 2013 | List separator: | , • |
| Short time: | 10:27 AM | Measurement system: | U.S. 👻 |
| Long time: | 10:27:52 AM | Standard digits: | 0123456789 - |
| | Additional settings | <u>U</u> se native digits: | Never |
| Go online to learn ab | pout changing languages and regional formats | Click Reset to restore the system numbers, currency, time, and dat | |

3) [Startup processing] field

This field is used to specify the settings for how USB-ITPAK behaves after it starts up.

• [Load the setting file previously used]

When [Load the setting file previously used] is selected, the setting file that was used last is automatically loaded when USB-ITPAK starts up.

- If the Quick Menu is set to be displayed, the setting file that was used last is used for data collection.
- If the main dialog box is set to be displayed, the main dialog box is displayed with the setting file that was used last open when USB-ITPAK starts up.
- [Display the Quick menu]

If [Display the Quick menu] is selected, the Quick Menu is displayed when USB-ITPAK starts up.

If it is not selected, the main dialog box is displayed when USB-ITPAK starts up.

6.6 Adding and Changing Procedures (Excel/Sequential or Batch)

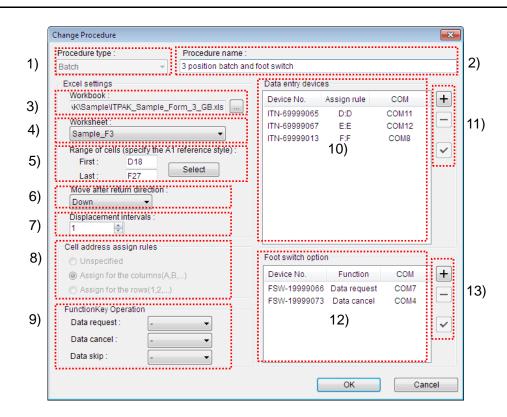
Clicking the [Add procedure] button on the main dialog box described in "6.2 Main Dialog Box" displays the [Add procedure] dialog box. Selecting a procedure in the [Procedure] filed and then clicking the [Change procedure] button displays the [Change procedure] dialog box.

On the [Add procedure] dialog box, new procedures can be created and added to the setting file. On the [Change procedure] dialog box, existing procedures can be changed.

The operation of the [Change procedure] dialog box is similar to the operation of the [Add procedure] dialog box.

This section explains the case when [Excel] is selected in the [Data entry application] field on the main dialog box described in "6.2 Main Dialog Box" and that [Sequential] or [Batch] is selected in the [Procedure type] field on that dialog box.

- TIP If [Excel] is selected in the [Data entry application] field on the main dialog box described in "6.2 Main Dialog Box" and [Individual] is selected in the [Procedure type] field on that dialog box, refer to "6.10 Adding and Changing Procedures (Excel/Individual)".
 - If [Optional] is selected in the [Data entry application] field on the main dialog box described in "6.2 Main Dialog Box", refer to "6.12 Adding and Changing Procedures (Optional)".



1) [Procedure type] field

Select either [Sequential], [Batch], or [Individual] as the type of data collection procedure.

- **NOTE** If [Individual] is selected, the [Add procedure] dialog box switches to a dialog box dedicated to individual measurement.
 - TIP For details about the procedure types, refer to "CHAPTER 1 BASIC KNOWLEDGE".
 - 2) [Procedure name] field

Enter the name of the procedure to be created. Entering the procedure name is required.

NOTE • Up to thirty-two 1-byte and 2-byte characters can be input.

3) [Workbook] field

Enter the workbook name of the Excel file to which the measured data is to be input. The file can be selected from the [Open] dialog box by clicking the [...] button.

4) [Worksheet] field

Select the name of the sheet to which data is to be input from the drop-down list.

5) [Range of cells (specify the A1 reference style)] field

Specify the range of cells in Excel to which the collected data is to be input, in the A1 format.

Besides directly entering the cell numbers, the cell range can also be selected by using the [Select] button and inputting data on the Excel dialog box. This operation is explained in "6.6.1 Selection of data entry cell range in Excel".

- **IMPORTANT** When using the repeat function on the main dialog box, specify the cell range to be input at the first execution.
 - 6) [Move after return direction] field

Specify the movement direction of the Excel cell after data input ([Right] or [Down]). This operation is explained in "6.6.2 Cell movement direction & displacement interval".

7) [Displacement intervals] field

Specify the interval of Excel cell movement after data input. This operation is explained in "6.6.2 Cell movement direction & displacement interval".

NOTE • A value between 1 and 100 can be specified for [Displacement intervals].

8) [Cell address assign rules] field

Assign the cells to which data is to be input from the device to columns (vertical) or rows (horizontal) on the Excel worksheet. Select according to the position of the measurement item. This operation is explained in "6.6.3 Cell address assign rules".

9) [FunctionKey Operation] field

The [Data request], [Data cancel], and [Data skip] functions can be assigned to the function keys (F1 to F8) of the PC.

Select the function key to which a function is to be assigned from the drop-down list.

- **IMPORTANT** The function key operation cannot be set if [Unspecified] is selected for the [Cell address assign rules] field.
 - The [Data request], [Data cancel], and [Data skip] functions cannot be set in combination to the same function key.
 - 10) [Data entry devices] field

Displays the information of the data entry device assigned in Excel.

- 11) Buttons in [Data entry device] field
 - [+] button: Adds a data entry device in the [Data entry devices] field.
 - [-] button: Deletes the data entry device selected in the [Data entry devices] field.
 - [✓] button: Changes the settings of the data entry device selected in the [Data entry devices] field.
- **TIP** For details about the data entry device settings, refer to "6.7 Data Entry Device Settings (Excel/Sequential or Batch)".
 - 12) [Foot switch option] field

Displays the information of the USB-FSW unit registered in the foot switch option.

- If the USB-FSW unit is to be used for inputting character string data, it is handled as a data entry device. For details, refer to "6.8 Character String Data Settings".
 - 13) Buttons in [Foot switch option] field
 - [+] button: Adds a USB-FSW unit in the [Foot switch option] field.
 - [-] button: Deletes the USB-FSW unit selected in the [Foot switch option] field.
 - [✓] button: Changes the settings of the USB-FSW unit selected in the [Foot switch option] field.
 - **TIP** For details about the foot switch option settings, refer to "6.9 Foot switch option settings".

6.6.1 Selection of data entry cell range in Excel

Regarding the input method for the [Range of cells (specify the A1 reference style)] field, besides direct input, the range of data entry cells using the [Select] button and the Excel dialog box can be selected.

1) On the Excel dialog box, specify the range of cells to which data is to be input.

| Image: Image | | | | | | | | _ | | | |
|--|-----|--------------|----------|--------|---------|-----------|-----------------------|------|--------------|-----------|------------|
| File | | Home Inse | ert Page | Layout | Formula | as Data | Review | View | | \otimes | 🕜 🗆 🗗 🔀 |
| # | В | С | D | E | F | G | Н | I | J | К | L |
| 1 2 | AA | A Corpor | ation | | | | | | | | |
| з | | ERTIF | | | | SDEC | | J. | - | | |
| 4 | | | | | | SPEC | | N | | | |
| 6 | - N | lame of insp | ection | | | | | | | | B Corporat |
| 7 | | Product na | ime | | | | Lot No. | | CCC Divisior | | |
| 8 | | Part nam | ne | | | | Number of lots | | Date | | |
| 9 | | Part No. | | | | | Number of inspections | | | | |
| | No. | Inspection | | ssible | Unit | Measuring | X1 | X2 | Х3 | X4 | X5 |
| 10 | | item | va | lue | | item | | | | | |
| 11 | 1 | | | | | | H11 | | | | |
| | _ | | | | | | | | | | |
| 12 | 2 | | | | | | | | | | |
| | 3 | | | | | | | | | | L13 |
| 13 | 5 | | | | | | | | | | LIJ |
| II I I | ⊢ ► | Sample_F1 🖉 | 2 | 1 | | | | | | 1 | ▶ [] |
| Ready | | ^ | | | | | | | <u> </u> | Э——(| · |

2) Click the [Select] button on the [Add procedure] dialog box.

| Excel settings Workbook : C:Witutoyo\USB-ITPAK\Sample\ITPAK_Sam Worksheet : |
|--|
| Sample_F1 - |
| Range of cells (specify the A1 reference style) : First : Last : |
| Move after return direction : Right |
| Displacement intervals : |

To specify the area indicated by the bold lines in the above inspection table as the input cell range, enter:

First: H11 Last: L13

6.6.2 Cell movement direction & cell displacement interval

This section explains how to specify the cell movement direction and cell displacement interval, and the operation during data collection.

1) Cell movement direction

Select the direction in which the Excel data entry cell moves after data input in the [Move after return direction] field.

• If [Right] is selected:

| X1 | X2 | <i>у</i> _{X3} | ×4 | X5 |
|------|------|------------------------|----|----|
| 0.03 | 0.04 | V | | |
| | | | | |
| | | | | |

• If [Down] is selected:

| X1 | X2 | ХЗ | ×4 | X5 |
|-------------------|----|----|----|----|
| 0.04 | | | | |
| 0.05 | | | | |
| $\langle \rangle$ | | | | |

- 2) Cell displacement interval
 - Select the displacement interval of the Excel data entry cell after data input in the [Cell displacement interval] field.
 - Example: If [Down] is selected in the [Move after return direction] field and "2" is specified in the [Displacement intervals] field, the cell for the next data entry moves two cells down.

| X1 | X2 | ХЗ | ×4 | X5 |
|------|----|----|----|----|
| 0.06 | | | | |
| | | | | |
| | | | | |

- During sequential measurement, if the cells in the current row or column are filled in the specified range, data input to the current row or column ends and the data entry cell moves to the next row or column.
 - Example: If a cell range of 4 rows x 5 columns is selected in the [Range of cells (specify the A1 reference style)] field, [Down] is selected in the [Move after return direction] field, and "2" is specified in the [Displacement intervals] field, data entry in the first column ends when the third row has been input, and the cell for the next data entry moves to the second column.

| X1 | X2 | X3 | ×4 | X5 |
|--------------|----|----|----|----|
| 0.061 | | | | |
| | h | | | |
| 0.062 | | | | |
| | | | | |
| \mathbf{X} | | | | |

6.6.3 Cell address assign rules

The cells to which data is to be input from a device are assigned to columns (vertical) or rows (horizontal) on the Excel worksheet. Select according to the position of the measurement item.

1) [Unspecified]

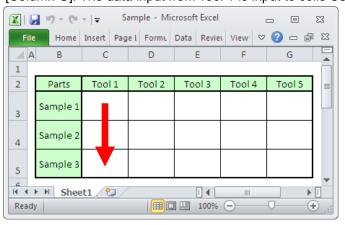
No device is assigned to Excel cells.

When data is input from the device registered in the procedure during data collection, the data is written to the cell that is currently active in the order of input, regardless of the cell position.

- **NOTE** If [Batch] is selected in the [Procedure type] field, [Unspecified] cannot be selected.
 - If [Unspecified] is selected, the sequence of data input from the data input device cannot be specified, so function key operation and foot switch option cannot be used.
 - 2) [Assign for the columns (A,B,...)]

Assigns one device per column of a worksheet.

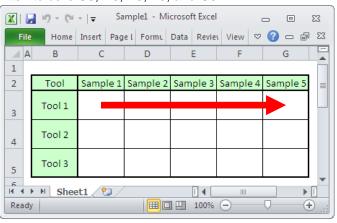
Example: The following figure shows the case when Tool 1 is assigned to [Column C], Tool 2 to [Column D], Tool 3 to [Column E], Tool 4 to [Column F], and Tool 5 to [Column G]. The data input from Tool 1 is input to cells C3, C4, and C5.



3) [Assign for the rows (1, 2...)]

Assigns one device per row of a worksheet.

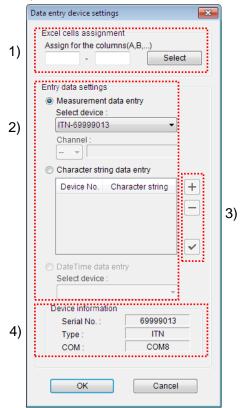
Example: The following figure shows the case when Tool 1 is assigned to [Row 3], Tool 2 to [Row 4], and Tool 3 to [Row 5]. The data input from Tool 1 is written to cells C3, D3, E3, F3, and G3.



6.7 Data Entry Device Settings (Excel/Sequential or Batch)

Clicking the [+] button in the [Data entry devices] field on the dialog box described in "6.6 Adding and Changing Procedures (Excel/Sequential or Batch)" displays the [Data entry device settings (Excel/Sequential or Batch)] dialog box.

On this dialog box, the Excel range to be assigned as the data entry destination and the device whose data is to be input can be selected.



1) [Excel cells assignment] field

Input the row numbers or column numbers of the Excel cells to which the data entry device is to be assigned.

This operation is explained in "6.7.1 [Excel cells assignment] field input".

2) [Entry data settings] field

Select the device whose data is to be input in the range specified in the [Excel cells assignment] field.

Select either [Measurement data entry] or [Character string data entry].

• [Measurement data entry]

Input the measurement data from USB-ITN, U-WAVE, IT-016U / IT-020U or DP-1VA. Select the device from the drop-down list in the [Select device] field.

When selecting U-WAVE (UWR), select the channel of the U-WAVE transmitter to be used from the [Channel:] field.

NOTE • Before starting up U-WAVEPAK for channel check, exit USB-ITPAK.

[Character string data entry]

Input the character string data from USB-FSW. Click the [+] button in the [Character string data entry] field and specify the character string data.

[DateTime data entry]
 This field is available when one or more data entry devices have been set for [Data entry devices] in advance.
 In the [Select device:] field, select the data entry device to add the date and time.

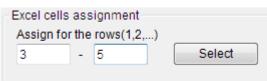
For details, refer to "6.7.2 Data entry device setting for date and time".

- 3) Buttons in [Character string data entry] field
 - [+] button: Adds a USB-FSW unit in the [Character string data entry] field.
 - [-] button: Deletes the USB-FSW unit selected in the [Character string data entry] field.
 - [✓] button: Changes the settings of the USB-FSW unit selected in the [Character string data entry] field.
- TIP For the character string data settings, refer to "6.8 Character String Data Settings".
 - 4) [Device information] field

The [Device information] field displays the information of the device selected in the [Entry data settings] field.

6.7.1 [Excel cells assignment] field input

1) If the [Excel cells assignment] field displays [Assign for the rows (1, 2,...)], input the row numbers (1, 2,...) in Excel in the A1 format.

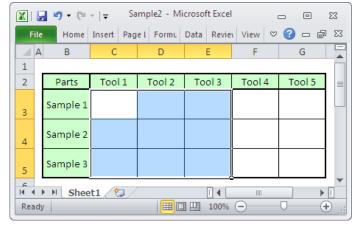


2) If the [Excel cells assignment] field displays [Assign for the columns (A,B,...)], input the column numbers (A, B,...) in Excel in the A1 format.

| -Excel ce | ells assi | gnment- | | |
|-----------|-----------|---------|------|--------|
| Assign | for the o | olumns(| A,B, | .) |
| С | - [| E | | Select |
| | | | | |

You can also perform input by specifying the range in Excel and clicking the [Select] button in the [Excel cells assignment] field. This operation is explained below.

If you want to specify Tool 1 from [Column C] (or [Row 3]) to [Column E] (or [Row 5]), specify the range as shown in the figure below and then click the [Select] button on the [Data entry device settings] dialog box. As a result, "C" (or "3") is input in the left side of the [Excel cells assignment] field and "E" (or "5") is input in the right side of this field.



• When the [Data entry device settings] dialog box is displayed, the Excel range specification used in the procedure is changed once to the range that was input in [Range of cells (specify the A1 reference style)] in the [Excel settings] field of the [Add/change procedure] dialog box. For Excel cell assignment, be sure to specify the range in Excel after the [Data entry device settings] dialog box is displayed.

6.7.2 Data entry device setting for date and time

When the setting for the date and time data input is performed for the measuring tool registered for the measuring data input, the date and time data can be input at the time when the data of the measuring tool is input.

NOTE • For details about the measurement procedures in which the date and time data can be input, refer to the following table.

| Procedure type | Cell address assign rules | Availability |
|----------------|--|--------------|
| | Unspecified | _ |
| Sequential | Assign for the columns(A,B,) | ✓ |
| | Assign for the rows(1,2,) | ✓ |
| | Unspecified | — |
| Batch | Assign for the columns(A,B,) | ✓ |
| | Assign for the rows(1,2,) | ✓ |
| Individual | | _ |

- When selecting [Sequential] for [Procedure type] in the [Change Procedure] dialog box, a date and time data can be input for each data entry device.
- When selecting [Sequential] for [Procedure type] and [Unspecified] for [Cell address assign rules] in the [Change Procedure] dialog box, the setting for the date and time data input is not available.
- When selecting [Batch] for [Procedure type] in the [Change Procedure] dialog box, a date and time data can be input for one of the data entry devices registered for the procedure.
- When selecting [Individual] for [Procedure type] in the [Change Procedure] dialog box, the setting for the date and time data input is not available.

The following describes the procedure of the date and time data input.

1) Switch to the [Data entry device settings] dialog box to select the date and time input settings.

Set one or more data entry devices for [Data entry devices] in advance. Click the [+] button.

| Add procedure | | | | | | | × |
|----------------------|---------|-------------------|--------|------------------|-------------|------|---|
| Procedure type : | | Procedure name : | | | | | |
| Batch | - | 3posi. batch meas | . + Da | iteTime | | | |
| Excel settings | | | - |)ata entry devic | es | | |
| Workbook : | | | | Device No. | Assign rule | СОМ | + |
| C:\Mitutoyo\USB-ITPA | K\Sampl | e\test.xls | | ITN-69999013 | A:A | COM8 | |
| Worksheet : | | | - ÷+• | | | | |

2) Select [DateTime data entry] in the [Entry data settings] field.

The information on the device registered for the measuring data input and the information on the Excel cell assignment will be displayed in the [Select device:] field.

Example:

ITN-89999013[A:A] (1) (2)

- (1) : Device information
- (2) : Information on the Excel cell assignment
- **IMPORTANT** When no data entry device can be assigned for the date and time data input, the [DateTime data entry] field is not available.
 - 3) Input the range to assign the date and time in the [Excel cells assignment] field.
 - In the screenshot shown below, "D" has been input in the entry field to assign the date and time to the [D] column.

| | Excel cells assignment Assign for the columns(A,B,) D Select | 3) |
|-----|--|----|
| ſ | Entry data settings © Measurement data entry | |
| | Select device : ITN-39999115 | |
| | Chainer: | |
| | Device No. Character string | |
| ſ | DateTime data entry Select device : [ITN-69999013[A:A] | 2) |
| ••• | Device information Serial No. : Type : COM : | |

Click the [OK] button if you change any settings.

IMPORTANT • When selecting [DateTime data entry], only the starting cell position can be input in the [Excel cells assignment] field.

For the cell range for the date and time data input, the total number of the rows or columns specified for the selected data entry device will be applied based on the starting cell position.

Example:

When specifying the date and time data input to the cell starting at the column "C" for the data entry device assigned to the Excel cells at the columns "A:B", "C:D" will be automatically input for [Excel cells assignment] for the date and time data input.

4) The date and time has been added in the [Data entry devices] field.

| Procedure type : | | Procedure name : | | | | |
|-----------------------|--------|----------------------|-------------------|-------------|---------------|---|
| Batch | - | 3posi, batch meas, + | - DateTime | | | |
| Excel settings | | | Data entry device | es | | |
| Workbook : | | | Device No. | Assign rule | COM | + |
| C:\Mitutoyo\USB-ITPAk | Cample | eltest.xls | ITN-69999013 | A:A | COM8 | |
| Worksheet : | | | ITN-69999013 | D:D | DateTime[A:A] | |

For the device information in the [Data entry devices] field in the [Change Procedure] dialog box, the information on the Excel cell range to which the date and time data is input and the data entry device information assigned for the date and time data input will be displayed.

Example:

ITN-69999013 D:D date and time [A:A] (1) (2) (3) (4)

- (1): Data entry device information assigned for the date and time data input
- (2): Information on the Excel cell assignment for the date and time data input
- (3): Character string indicating the date and time data input

(4): Information on the Excel cell assignment for (1)

6.8 Character String Data Settings

Selecting [Character string data entry] in the [Entry data settings] field on the dialog box shown in "6.7 Data Entry Device Settings (Excel/Sequential or Batch)" and clicking the [+] button displays the [Character string data settings] dialog box.

On this dialog box, the USB-FSW unit used for inputting character string data can be selected and the character string to be input can be input.

| | Character string data s | ettings 🛛 💌 | |
|----|-------------------------|-------------|--|
| | Select foot switch : | | |
| 1) | FSW-19999066 | • | |
| | -Device information | | |
| | Serial No. : | 19999066 | |
| | Type : | FSW | |
| | COM : | COM7 | |
| | Character string dat | a : | |
| 2) | Pass | | |
| | ОК | Cancel | |

1) [Select foot switch] field

Select the USB-FSW unit used for inputting character string data from the drop-down list. The information of the selected device is displayed in the [Device information] field.

2) [Character string data] field

Input the character string to be input to Excel when the foot switch is pressed.

NOTE • Up to thirty-two 1-byte and 2-byte characters can be input.

IMPORTANT • Only 1-byte characters can be input to an optional application (other than Excel).

6.9 Foot Switch Option Settings

Clicking the [+] button in the [Foot switch option] field on the dialog box described in "6.6 Adding and Changing Procedures (Excel/Sequential or Batch)" displays the [Foot switch options settings] dialog box.

On this dialog box, the USB-FSW unit for which the foot switch option is to be set and the function to be set can be selected.

| | Foot switch option set | tings | × | | | | | |
|----|------------------------|----------|---|--|--|--|--|--|
| | Select foot switch : | | | | | | | |
| 1) | FSW-19999066 | | • | | | | | |
| | Device information | | | | | | | |
| | Serial No. : | 19999066 | | | | | | |
| | Type : | FSW | | | | | | |
| | COM : | COM7 | | | | | | |
| | Function : | | | | | | | |
| 2) | | | | | | | | |
| 2) | Data request | | | | | | | |
| | ОК | Cancel | | | | | | |
| | | | | | | | | |

1) [Select foot switch] field

Select the USB-FSW unit to which a function is to be assigned from the drop-down list. The information of the selected device is displayed in the [Device information] field.

2) [Function] field

Select the function to be executed when the foot switch is pressed from the drop-down list.

The [Data request], [Data cancel], or [Data skip] function can be assigned.

• If data is input to an optional application (other than Excel), only the [Data request] function can be assigned to the USB-FSW unit, not the [Data cancel] and [Data skip] functions.

6.10 Adding and Changing Procedures (Excel/Individual)

Clicking the [Add procedure] button on the main dialog box described in "6.2 Main Dialog Box" displays the [Add procedure] dialog box. Selecting a procedure in the [Procedure] filed and then clicking the [Change procedure] button displays the [Change procedure] dialog box.

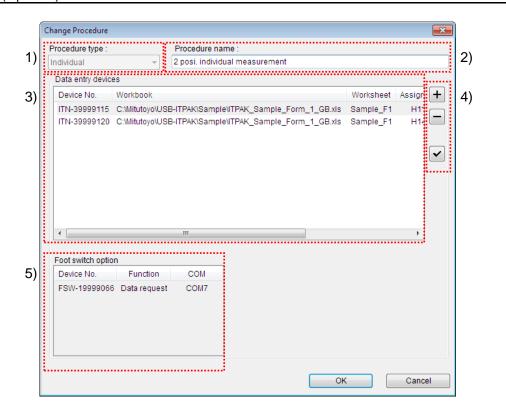
On the [Add procedure] dialog box, new procedures can be created and added to the setting file. On the [Change procedure] dialog box, existing procedures can be changed.

The operation of the [Change procedure] dialog box is similar to the operation of the [Add procedure] dialog box.

This section explains the case when [Excel] is selected in the [Data entry application] field on the main dialog box in "6.2 Main Dialog Box" and [Individual] is selected in the [Procedure type] field on that dialog box.

IMPORTANT • In the case of individual measurement, multiple procedures cannot be added.

- If [Excel] is selected in the [Data entry application] field on the main dialog box described in "6.2 Main Dialog Box" and [Sequential] or [Batch] is selected in the [Procedure type] field on that dialog box, refer to "6.6 Adding and Changing Procedures (Excel/Sequential or Batch)".
 - If [Optional] is selected in the [Data entry application] field on the main dialog box described in "6.2 Main Dialog Box", refer to "6.12 Adding and Changing Procedures (Optional)".



1) [Procedure type] field

Select either [Sequential], [Batch], or [Individual] as the type of data collection procedure.

- **NOTE** If [Sequential] or [Batch] is selected, the [Add procedure] dialog box switches to the dedicated dialog box for the sequential or batch type.
 - TIP For the [Add/change procedure] dialog box for sequential measurement or batch measurement, refer to "6.6 Adding and Changing Procedures (Excel/Sequential or Batch)".
 - For details about the procedure types, refer to "CHAPTER 1 BASIC KNOWLEDGE".
 - 2) [Procedure name] field

Enter the name of the procedure to be created. Entering the procedure name is required.

NOTE • Up to 32 1-byte and 2-byte characters can be input.

3) [Data entry devices] field

This field displays the information of the registered data entry device.

- 4) Buttons in [Data entry devices] field
 - [+] button: Adds a data entry device in the [Data entry devices] field.
 - [-] button: Deletes the data entry device selected in the [Data entry devices] field.
 - [✓] button: Changes the settings of the data entry device selected in the [Data entry devices] field.
- For details about the data entry device settings, refer to "6.11 Data Entry Device Settings (Excel/Individual)".
 - 5) [Foot switch option] field

This field displays the information of the USB-FSW unit assigned to the USB-ITN, U-WAVE, IT-016U / IT-020U or DP-1VA unit selected in the [Data entry devices] field in step "3)".

6.11 Data Entry Device Settings (Excel/Individual)

Clicking the [+] button in the [Data entry devices] field on the dialog box described in "6.10 Adding and Changing Procedures (Excel/Individual)" displays the [Data entry device settings (Excel/Individual)] dialog box.

On this dialog box, the device used for inputting data can be selected, and the settings for the Excel file that will serve as the data input destination can be specified.

| | Data entry device settings | |
|----|---|----------------------|
| 2) | Entry data settings Measurement data entry Select device : TN-39999115 Channel : Character string data entry Select foot switch : Character string data : Displacement intervals : | 3) 4) 5) 6) |
| _, | Device information Serial No. : 39999115 Type : ITN COM : COM13 Foot switch option Device No. Function COM : COM13 OK | 9) |

1) [Entry data settings] field

Select the device used for inputting data.

Select either [Measurement data entry] or [Character string data entry].

• If [Measurement data entry] is selected:

Measurement data will be input from USB-ITN, U-WAVE, IT-016U / IT-020U or DP-1VA. Select the device from the drop-down list in the [Select device] field.

When selecting U-WAVE (UWR), select the channel of the U-WAVE transmitter to be used from the [Channel:] field.

- NOTE Before starting up U-WAVEPAK for channel check, exit USB-ITPAK.
 - If [Character string data entry] is selected:

Character string data will be input from the USB-FSW unit. Select the device from the drop-down list in the [Select foot switch] field. Also input in the [Character string data] field the character string to be input to Excel when the foot switch is pressed.

NOTE • Up to thirty-two 1-byte and 2-byte characters can be input.

2) [Device information] field

This field displays the information of the device selected in the [Entry data settings] field.

3) [Workbook] field

Enter the workbook of the Excel file to which the measured data is to be input. Clicking the [...] button allows you to select a file from the [Open] dialog box.

4) [Worksheet] field

Select the name of the worksheet to which data is to be input from the drop-down list.

5) [Range of cells (specify the A1 reference style)] field

Input the range of cells in Excel to which the collected data is to be input, in the A1 format.

Besides directly inputting the cell numbers, the cell range can also be selected by using the [Select] button and specifying the range on the Excel dialog box.

- TIP For the operation to select the cell range to which data is to be input by using the [Select] button and using the Excel dialog box, refer to "6.6.1 Selection of data entry cell range on Excel".
 - [Move after return direction] field
 Specify the movement direction of the Excel cell after data input ([right] or [down]).
 - 7) [Displacement intervals] field

Specify the interval of Excel cell movement after data input.

- **NOTE** A value between 1 and 100 can be specified for [Displacement intervals].
 - TIP For details about the relationship between the settings for the cell movement direction and displacement interval and the operation during data collection, refer to "6.6.2 Cell movement direction & cell displacement interval".
 - 8) [Foot switch option] field

This field displays the information of the USB-FSW unit registered to foot switch option.

- **NOTE** If the USB-FSW unit is used for inputting character string data, it is handled as a data entry device.
 - 9) Buttons in [Foot switch option] field
 - [+] button: Adds a USB-FSW unit in the [Foot switch option] field.
 - [-] button: Deletes the USB-FSW unit selected in the [Foot switch option] field.
 - [✓] button: Changes the settings of the USB-FSW unit selected in the [Foot switch option] field.
 - **TIP** For details about the foot switch option settings, refer to "6.9 Foot Switch Option Settings".

6.12 Adding and Changing Procedures (Optional)

Clicking the [Add procedure] button on the main dialog box described in "6.2 Main Dialog Box" displays the [Add procedure] dialog box. Selecting a procedure in the [Procedure] field and then clicking the [Change Procedure] button displays the [Change procedure] dialog box.

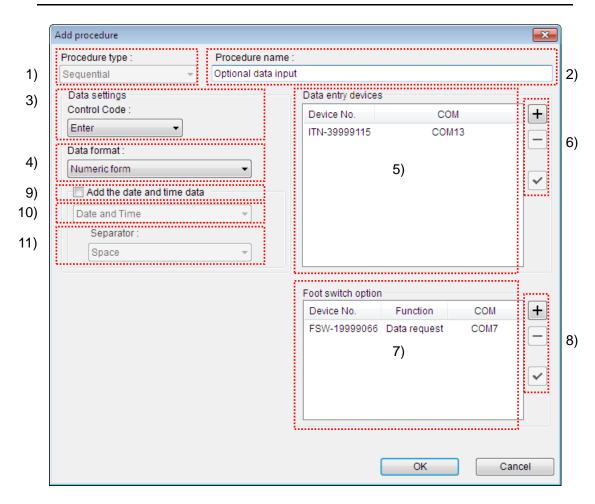
On the [Add procedure] dialog box, new procedures can be created and added to the setting file. On the [Change procedure] dialog box, existing procedures can be changed.

The operation of the [Change procedure] dialog box is similar to the operation of the [Add procedure] dialog box.

This section explains the case when [Optional] is selected in the [Data entry application] field on the main dialog box described in "6.2 Main Dialog Box".

IMPORTANT • In the case of input to an optional application, multiple procedures cannot be added.

TIP • If [Excel] is selected in the [Data entry application] field on the main dialog box in "6.2 Main Dialog Box", refer to "6.6 Adding and Changing Procedures (Excel/Sequential or Batch)" and "6.10 Adding and Changing Procedures (Excel/Individual)".



1) [Procedure type] field

Select either [Sequential], [Batch], or [Individual] as the type of data collection procedure.

- **IMPORTANT** If [Individual] is selected, the foot switch option cannot be used.
 - TIP For details about the procedure types, refer to "CHAPTER 1 BASIC KNOWLEDGE".
 - 2) [Procedure name] field

Enter the name of the procedure to be created. Entering the procedure name is required.

- **NOTE** Up to thirty-two 1-byte and 2-byte characters can be input.
 - 3) [Control Code] in [Data settings] field

Select the control code to be added after numeric data input.

Select the control code from [Unspecified], [Enter], [Up], [Down], [Right], [Left], or [Tab].

• If using "Notepad" as the optional application, line return can be effected after numeric data input by selecting [Enter] as the control code.

• The function of the control code differs according to the application to be used. Select the control code after checking the functions of the various control codes in the application to be used.

4) [Data format] in [Data settings] field

Select the format of the data to be input to the application.

Select the data format from among [Numeric form], [Command form], and [COM +Command form].

Example: If the COM number is 13 and the measurement data is 32.14 mm, the value input to the optional application is as follows.

• [Numeric form]

Only the measurement data is input. Example: "32.14"

• [Command form]

The channel number and measurement data are input. Example: "01A+00032.14" or "01A+000032.14"

Example: "DT10001+00000032.14M"

• [COM+Command form]

The COM number (3 digits), channel number (fixed to 1), and measurement data

are input.

Example: "01301A+00032.14" or "01301A+000032.14"

- Example: "013DT10001+00000032.14M"
- 5) [Data entry devices] field

This field displays the information of the registered data entry device.

- 6) Buttons in [Data entry devices] field
 - [+] button: Adds a data entry device in the [Data entry devices] field.
 - [-] button: Deletes the data entry device selected in the [Data entry devices] field.
 - [✓] button: Changes the settings of the data entry device selected in the [Data entry devices] field.
- TIP For details about the data entry device settings, refer to "6.13 Data Entry Device Settings (Optional)".
 - 7) [Foot switch option] field

This field displays the information of the USB-FSW unit registered to foot switch option.

- 8) Buttons in [Foot switch option] field
 - [+] button: Adds a USB-FSW unit in the [Foot switch option] field.
 - [-] button: Deletes the USB-FSW unit selected in the [Foot switch option] field.
 - [✓] button: Changes the settings of the USB-FSW unit selected in the [Foot switch option] field.
- **TIP** For details about the foot switch option settings, refer to "6.9 Foot Switch Option Settings".
 - 9) [Add the date and time data] field

The measurement data collection with date and time is available when the date and time data is set to the measurement data.

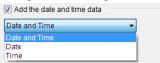
Select [Add the date and time data] when adding the date and time data. Items 10) and 11) will be activated for selection.

- **TIP** For the procedure type of date and time data input, [Sequential], [Batch] and [Individual] are available to a desired application.
 - 10) Select [Date and Time].

Select the format of the date and time data added to the measurement data to be input to an application.

The following describes the available formats of the date and time data. In the example used in this explanation, 32.14 mm was measured using a measuring tool.

· [Date and Time]



The date and time will be added. Example: 32.14 2013/01/23 12:34:56 • [Date] Only the date will be added. Example: 32.14 2013/01/23 • [Time] Only the time will be added. Example: 32.14 12:34:56

11) Select [Separator].

Select [Space], [Tab], [Comma (,)] or [Semicolon (,)] for the separator between the measurement data and the date and time data.

NOTE • If [Add the date and time data] is selected and the following are selected:

[Numeric form] for [Data format] [Space], [Comma (,)] or [Semicolon (,)] for [Separator]

| Data format : | Add the date and time data |
|---|-----------------------------------|
| Numeric form | Date and Time |
| Numeric form | Separator : |
| Command form COM+Command form | Space |
| 000000000000000000000000000000000000000 | Space |
| | Tab |
| | Comma(,) |
| | Semicolon(;) |

When selecting [Excel] for an application to input data, and the measurement data to be input is a negative value (the minus-sign ("-") is added to the top), the following error message is displayed in Excel: "The formula you typed contains an error."

When selecting [Excel] for an application to input data, perform the following remedies.

- · Select [Tab] for [Separator].
- In advance, select "Text" for "Format Cells" in Excel.

| Date and Time Separator : Space Tab Comma(,) Semiclea(.) | | Add the date and time data | |
|---|----|----------------------------|--|
| Space Space Comma(,) | Da | ate and Time 🔹 | |
| Space Tab Comma(,) | | Separator : | |
| Tab Comma(,) | | Space 👻 | |
| | | | |
| Serficolofi(,) | | Comma(,) Semicolon(;) | |

6.13 Data Entry Device Settings (Optional)

Clicking the [+] button in the [Data entry devices] field of the dialog box described in "6.12 Adding and Changing Procedures (Optional)" displays the [Data entry device settings] dialog box.

On this dialog box, the device used for inputting data can be selected.

| | Data entry device settings | |
|----|--|----|
| 1) | Entry data settings Measurement data entry Select device : ITN-39999115 Channel : | |
| | Character string data entry Device No. Character string + - Device information - | 2) |
| 3) | Serial No. : 39999115 Type : ITN COM : COM13 | |

1) [Entry data settings] field

Select the device used for inputting data to the optional application.

Select either [Measurement data entry] or [Character string data entry].

• [Measurement data entry]

The measurement data is input from USB-ITN, U-WAVE, IT-016U / IT-020U or DP-VA. Select the device from the drop-down list in the [Select device] field.

- NOTE The Serial No. of IT-016U / IT-020U is represented starting with "8" as "ITN-8******".
 - The Serial No. of DP-1VA is represented as "DP1-********".

When selecting U-WAVE (UWR), select the channel of the U-WAVE transmitter to be used from the [Channel:] field.

- **NOTE** Before starting up U-WAVEPAK for channel check, exit USB-ITPAK.
 - [Character string data entry]

The character string data is input from USB-FSW. Click the [+] button in the [Character string data entry] field and specify the character string data.

- 2) Buttons in [Character string data entry] field
 - [+] button: Adds a USB-FSW unit in the [Character string data entry] field.
 - [-] button: Deletes the USB-FSW unit selected in the [Character string data entry] field.
 - [✓] button: Changes the settings of the USB-FSW unit selected in the [Character string data entry] field.
- TIP For the character string data settings, refer to "6.8 Character String Data Settings".
 - 3) [Device information] field

The [Device information] field displays the information of the device selected in the [Entry data settings] field.

6.14 Data Collection

Clicking the [Data collection] button on the Quick Menu described in "6.1 Quick Menu" displays the data collection dialog box. Alternatively, selecting the Data Collection menu and then [Start] from the dialog box described in "6.2 Main Dialog Box", or clicking the [Data collection] button on the tool bar also displays the data collection dialog box.

This dialog box is used to input data from a measuring tool to an application.

| | USB-ITPAK - C:\Mitutoyo\USB-ITPAK\4-2.it2 | | | | | | |
|----------|---|-----------------------|------------|-------|--------------|----|--|
| 1) | Procedure : 3 side me | asurement (Sequentia | (I) | | | | |
| 2) | Execute import man | ipulations of measure | ment data. | | 01A+00010.00 | 3) | |
| 4) to 9) | Data request | Data cancel | Data skip | Pause | Stop | | |

1) [Procedure] field

This field displays the procedure currently used to collect data.

2) [Guidance message] field

Displays the following guidance messages for the operator.

• [Execute import manipulations of measurement data]

Input measurement data in one of the following ways.

- (1) Press the DATA switch on the measuring tool.
- (2) In the case of a USB-ITN, U-WAVE, IT-016U / IT-020U or DP-1VA unit that has a DATA switch, press the DATA switch.
- (3) Click the [Data request] button on the data collection dialog box.
- (4) If the [Data request] function is assigned to the foot switch, press the foot switch.
- (5) If the [Data request] function is assigned to a function key, press that function key.
- [Please execute the foot switch operation.]

Input the character string data by pressing the foot switch connected to the USB-FSW unit to which character string data input has been assigned.

• [Execute data entry operation.]

Input measurement data or character string data by using the USB-ITN, USB-FSW, U-WAVE, IT-016U / IT-020U or DP-1VA unit.

• [The import of all pieces of measurement data has been completed.]

Data collection has been completed. Click the [Exit] button and save the measurement data.

3) [Data display] field

This field displays the data input from the device in the transmission command format.

4) [Data request] button

Collects data.

- **NOTE** The [Data request] button does not support data input for individual measurement.
 - 5) [Data cancel] button

Cancels the data that was input.

- **NOTE** The [Data cancel] button does not support data input for individual measurement.
 - 6) [Data skip] button

Skips to the next data without inputting the current data.

- **NOTE** The [Data skip] button does not support data input for individual measurement.
 - 7) [Pause] button

Pauses data collection.

For the operation of this button, refer to "6.14.1 [Pause/Resume] button".

8) [Resume] button

Resumes data collection that had been paused.

For the operation of this button, refer to "6.14.1 [Pause/Resume] button".

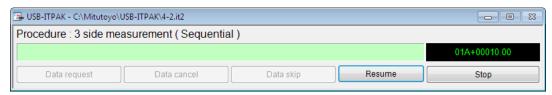
9) [Exit] button

Exits data collection.

6.14.1 [Pause/Resume] button

1) Clicking the [Pause] button pauses data collection.

When the [Pause] button is displayed as the [Resume] button, as shown below, data collection is paused.



In the paused state, the following operations are possible.

- Specify the start cell from which to resume data collection.
- Perform worksheet editing, such as character string input.
- 2) To resume data collection, click the [Resume] button.
- Before returning to data collection with USB-ITPAK by clicking the [Resume] button, be sure to thoroughly complete operations in Excel. If data collection with USB-ITPAK is resumed while operations in Excel remain uncompleted, such as input to a cell being in progress or a message being displayed, USB-ITPAK may not operate normally.

Click the [Resume] button to display the [Cell address for the resumption] dialog box as shown below. Next, select either one from the [Select the resumption cell] field, and click the [OK] button.

| Cell address for the resumption |
|---------------------------------|
| Select the resumption cell |
| Active cell |
| ◎ First cell |
| Paused cell |
| Selection of restart procedure |
| Shift to other procedure |
| Select procedure |
| 3 side measurement 👻 |
| OK Cancel |

If the paused setting file consists of multiple procedures, the [Selection of restart procedure] field on the [Cell address for the resumption] dialog box is active, so it is possible to resume from another procedure.

To resume from another procedure, select [Shift to other procedure] and from the drop-down list in the [Select procedure] field, select the procedure for data collection resumption.

The resumption cell position is the first cell if collection is resumed from another procedure.

NOTE • If the auto data collection using the timer job option is paused, it will be required to resume the timer job after the operation shown above. For details, refer to "6.14.2 Resuming operation (For the timer job option)".

6.14.2 Resuming operation (For the timer job option)

If the auto data collection using the timer job option is paused, it will be required to resume the timer job.

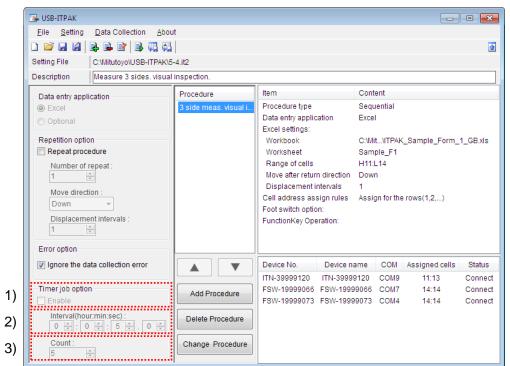
1) After the operation "6.14.1 [Pause/Resume] button", the dialog box shown below will be displayed.

When pressing the keys [Ctrl], [Shift] and [Space] at the same time, the timer job will resume.

| SUSB-ITPAK - C:\Mitutoyo\USB-ITPAK\5-7.it2 | |
|---|--------------|
| Procedure : 3 position batch measurement (Batch) | |
| Press [Ctrl + Shift + Space] key to start Timer job | 01A+00005.00 |
| Data request Data cancel Data skip Pause | Stop |

6.15 Timer Job Option Setting

The automatic input of the measurement data is available in the specified interval.



1) [Timer job option] - [Enable] field

If selecting [Enable], items 2) and 3) will be activated for selection. This field is available only with the batch measurement.

- **NOTE** When the sequential measurement procedure is added, timer job option setting will not be available.
 - 2) [Interval (hour: min: sec):]

Specify the interval for data request.

A value between 0.0 seconds and 24 hours (0:0:0.0 - 24:0:0.0) can be specified for [Interval].

NOTE • For the data collection, the time [T1] to load the measurement data will surely occur. Therefore, if the value specified for the interval [T2] is smaller than [T1], the actual data collection interval [T3] may exceed the specified value. [T1] varies according to the type and total number of data entry devices or measuring tools. [T1] per unit is 0.3 seconds when using USB-ITN / IT-016U / IT-020U, 0.1 seconds when using a U-WAVE transmitter and 1 seconds when using DP-1VA(Including prints). However, 0.5 seconds is included in [T1] with the U-WAVE transmitter, regardless of the number of devices.

| Data entry device | Total number | [T1] | [T2] | [T3] | |
|-----------------------|-----------------|----------|-----------|----------|--------------------------------------|
| USB-ITN | 1 | 0.3 sec. | <0.5 sec. | 0.5 sec. | The interval is the specified value. |
| / IT-016U / | 2 | 0.6 sec. | >0.5 sec. | 0.6 sec. | The interval exceeds the specified |
| IT-020U | 3 | 0.9 sec. | >0.5 sec. | 0.9 sec. | value. |
| | 1 | 0.6 sec. | =0.6 sec. | 0.6 sec. | The interval is the specified value. |
| U-WAVE transmitter | 2 | 0.7 sec. | >0.6 sec. | 0.7 sec. | The interval exceeds the specified |
| transmitter | 3 | 0.8 sec. | >0.6 sec. | 0.8 sec. | value. |

• If [Interval] is less than "0.6 sec" when using a U-WAVE transmitter, the measurement data may be collected without data input even when the values for measuring tools have changed.

| 🕞 USB-ITPAK - C:\Mitutoyo\U | SB-ITPAK\6-15.it2 | | | |
|-----------------------------|----------------------|-----------|-------|---------------------|
| Procedure : U-WAVE T | ïmer job (Batch) | | | |
| Timer job is in progre | ess Time Left : 0s(3 | 35) | | ST10102099999912050 |
| Data request | Data cancel | Data skip | Pause | Stop |

3) [Count:] field

Specify the number of time for data request. The upper limit of specified value is 60000.

NOTE • When selecting [Excel] for an application to input data, [Count] cannot be selected.

MEMO

COMMUNICATION COMMAND SPECIFICATIONS

7.1 Overview

This chapter explains the VCP communication command interface between USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA and the application software for the input and output of measurement data.

NOTE • For details about the communication command specification for U-WAVE, refer to the U-WAVEPAK User's Manual.

7.1.1 API of VCP communication

When using USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA with application software other than USB-ITPAK, communication can be done with the same operation (API function calls) as the serial communication ports (COM) operating with the Windows standard driver.

Generally, to communicate by using a serial communication port (COM), the RS-232C communication parameters (communication speed, flow control, etc.) must be set, but, for the virtual serial port (VCP) communication used by USB-ITN, USB-FSW, IT-016U / IT-020U and DP-1VA, the communication protocol does not use RS-232C communication parameters, and therefore communication is possible without any RS-232C communication parameter settings (or with arbitrary values).

7.1.2 Common specifications of communication commands

All commands use the ASCII code.

7.1.3 Types of communication commands

The types of communication commands are listed in the table below.

(Term)

Device: USB-ITN, USB-FSW, IT-016U / IT-020U or DP-1VA

(Legend)

FSW:

Direction: Down: Command transmitted from the software to the device

- Up: Command transmitted from the device to the software
- ITN: Y: Command used by USB-ITN / IT-016U / IT-020U / DP-1VA
 - N: Command not used by USB-ITN / IT-016U / IT-020U / DP-1VA
 - Y: Command used by USB-FSW
 - N: Command not used by USB-FSW

| No. | Direction | Code | Command Name | ITN | FSW |
|-----|-----------|------|----------------------------|-----|-----|
| 1 | Down | V | Device information request | Y | Y |
| | | | command | | |
| 2 | Up | 1 | Device information command | Y | Y |
| 3 | Down | 1 | Measurement data request | Y | Ν |
| | | | command | | |
| 4 | Up | 0 | Measurement data command | Y | Ν |
| 5 | Up | 8 | Foot switch signal command | Ν | Y |
| 6 | Up | 9 | Status command | Y | Ν |

7.2 Format of Communication Commands

The following tables list the types of communication commands.

7.2.1 Device information request command (V) (down)

This command is valid for both USB-ITN, USB-FSW, IT-016U / IT-020U and DP-1VA. This request command is for the software to read the information of the device. When the software sends this command to the device, the device returns the "device information command" (1).

| Item | Value ASCII [Hex] | Bytes | Description |
|--------------|-------------------|-------|----------------------------|
| Command code | V | 1 | Device information request |
| | | | command |
| Terminator | CR [0x0D] | 1 | CR (carriage return) |
| Total | | 2 | |

7.2.2 Device information command (1) (up)

This command is valid for both USB-ITN, USB-FSW, IT-016U / IT-020U and DP-1VA. This response command is for the software to read the information of the device. When the software sends the "device information request command (V)" to the device, the device returns this command.

| Item | Value ASCII [Hex] | Bytes | Description |
|--------------|-------------------------|-------|--|
| Command code | 1 | 1 | Device information command |
| Туре | ITN FSW | 3 | Device types ITN = USB-ITN / IT-016U / IT-020U / DP-1VA FSW = USB-FSW |
| Serial No. | 00000000 to 99999999 | 8 | Serial No. of device |
| Terminator | CR [0x0D] | 1 | CR (carriage return) |
| Total | | 13 | |

7.2.3 Measurement data request command (1) (down)

This command is valid for USB-ITN / IT-016U / IT-020U / DP-1VA.

This request command is for the software to read the measurement data from USB-ITN / IT-016U / IT-020U / DP-1VA. When the software sends this command to USB-ITN / IT-016U / IT-020U / DP-1VA, USB-ITN / IT-016U / IT-020U / DP-1VA inputs the measurement data from a measuring tool with Digimatic output and returns "measurement data command" (0).

| Item | Value ASCII [Hex] | Bytes | Description |
|--------------|-------------------|-------|--------------------------|
| Command code | 1 | 1 | Measurement data request |
| | | | command |

| Terminator | CR [0x0D] | 1 | CR (carriage return) |
|------------|-----------|---|----------------------|
| Total | | 2 | |

7.2.4 Measurement data command (0) (up)

This command is valid for USB-ITN / IT-016U / IT-020U / DP-1VA.

This command is used by USB-ITN / IT-016U / IT-020U / DP-1VA to notify the software of measurement data.

When the software sends "measurement data request command (1)" to USB-ITN / IT-016U / IT-020U / DP-1VA, USB-ITN / IT-016U / IT-020U / DP-1VA inputs the measurement data from a measuring tool with Digimatic output and returns this command.

Also, when the measuring tool makes a request, such as when the DATA button of the measuring tool is pressed, measurement data is input from the measuring tool and this command is sent to the software.

NOTE • If an error occurs when the measurement data is being input from a measuring tool that has Digimatic output, the USB-ITN / IT-016U / IT-020U / DP-1VA unit sends the "status command" (9) instead of the "measurement data command" (0).

| Item | Value ASCII [Hex] | Bytes | Description |
|------------------|-------------------|----------|----------------------------------|
| | | Bytes | |
| Command code | 0 | 1 | Measurement data command |
| Channel | 1 | 1 | Channel (fixed to 1) |
| Measurement data | А | 1 | Normal data (fixed to A) |
| type | | | |
| Sign | +/- | 1 | "+" if the measurement data is 0 |
| Measurement data | .0000000 to | 8 or 9 | A period (.) is used as the |
| | 99999999 | | decimal point character. |
| | or | | Values are zero-supplied |
| | - 00000000 - | | (displayed right-aligned, and |
| | 999999999 | | padded with 0s if there are |
| | | | unused leading digits). |
| | | | If there are no digits past the |
| | | | decimal point, no decimal point |
| | | | character is used in the |
| | | | right-most digit. |
| Terminator | CR [0x0D] | 1 | CR (carriage return) |
| Total | | 13 or 14 | |

NOTE •Input DP-1VA log data with "Measurement data command" (0). Input each log data Date/Time/Measured value as in the following example.

| Date | 2017/12/8 | : 01A+20171208 |
|----------------|-----------|-----------------|
| Time | 8:1:59 | : 01A+0080159. |
| Measured value | 123.45mm | : 01A+000123.45 |

- To input log data, press the [OUT LOG] switch on DP-1VA rather long. Do not send "Measurement data request command (1)" in the software. For details about DP-1VA operations, refer to DP-1VA User's Manual.
- •How to input log data Date/Time/Measured value depends on the setting of DP-1VA OUT LOG parameter. In the case of "OUT LOG setting: 1", data of time/measured value is continuously inputted as in the following example.

(Example 1) Input result for one piece of log data stored in DP-1VA

| 01A+0080159. 01A+000123.45 | : The first piece of time data of log data : The first piece of measurement data of log data |
|-------------------------------|---|
| (Example 2) Input result for | or two pieces of log data stored in DP-1VA |
| 01A+0080159. | : The first piece of time data of log data |
| 01A+000123.45 | : The first piece of measurement data of log data |
| 01A+0082005. | : The second piece of time data of log data |
| 01A+000012.00 | : The second piece of measurement data of log data |

7.2.5 Foot switch signal command (8) (up)

This command is valid for USB-FSW.

This command is for the USB-FSW unit to notify the software of the foot switch signal.

Upon detecting that the foot switch signal is ON, the USB-FSW unit sends this command to the software.

| Item | Value ASCII [Hex] | Bytes | Description |
|--------------|-------------------|-------|----------------------------|
| Command code | 8 | 1 | Foot switch signal command |
| Trigger type | 0 | 1 | 0 = Unspecified |
| Terminator | CR [0x0D] | 1 | CR (carriage return) |
| Total | | 3 | |

7.2.6 Status command (9) (up)

This command is valid for USB-ITN / IT-016U / IT-020U / DP-1VA.

This command is for the USB-ITN / IT-016U / IT-020U / DP-1VA unit to notify the software of its state.

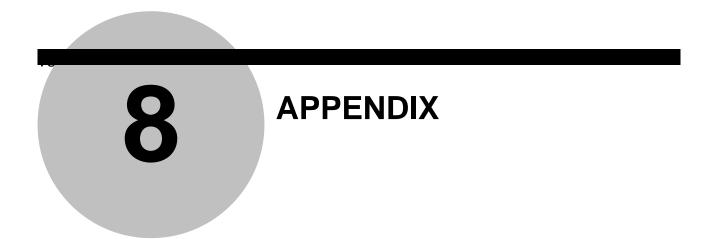
Upon detecting the occurrence of a status to be reported, the USB-ITN / IT-016U / IT-020U / DP-1VA unit sends this command to the software.

| Item | Value ASCII [Hex] | Bytes | Description |
|--------------|-------------------------|-------|-------------------------|
| Command code | 9 | 1 | Status command |
| Channel | 1 | 1 | Channel (fixed to 1) |
| Status | (Refer to table below.) | 1 | (Refer to table below.) |
| Terminator | CR [0x0D] | 1 | CR (carriage return) |
| Total | | 4 | |

The following table lists the status values.

| Value ASCII | Explanation |
|-------------|---|
| 1 | The measurement data could not be received within the stipulated |
| | time (2 s) from the measuring tool with Digimatic output. |
| | Examples of possible causes: |
| | The measuring tool is turned off. |
| | The cable of the USB-ITN / IT-016U / IT-020U / DP-1VA unit is not |
| | connected to the measuring tool. |
| 2 | The Digimatic communication data loaded from the measuring tool |
| | with Digimatic output was data not matching the Digimatic |
| | communication specifications. |
| | Examples of possible causes: |
| | Influence of noise |
| | • Fault in the communication circuits of the measuring tool or the |
| | USB-ITN / IT-016U / IT-020U / DP-1VA unit |
| 3 | The Digimatic communication clock (CK) signal loaded from the |
| | measuring tool with Digimatic output was data not matching the |
| | Digimatic communication specifications. |
| | Examples of possible causes: |
| | Disconnected CK signal of Digimatic communication cable |
| | • Fault in the communication circuits of the measuring tool or the |
| | USB-ITN / IT-016U / IT-020U / DP-1VA unit |
| 4 | The Digimatic communication data (DATA) signal loaded from the |
| | measuring tool with Digimatic output was data not matching the |
| | Digimatic communication specifications. |
| | Examples of possible causes: |
| | Disconnected DATA signal of Digimatic communication cable |
| | • Fault in the communication circuits of the measuring tool or the |
| 0 | USB-ITN / IT-016U / IT-020U / DP-1VA unit |
| 8 | During reception of a measurement data request command from |
| | the software, the USB-ITN / IT-016U / IT-020U / DP-1VA unit that |
| | received the request was in a busy state. Examples of possible causes: |
| | A measurement data request command was received during |
| | Digimatic communication processing. |
| 9 | The device detected an error other than those defined above. |
| 9 | חוב עבאונב עבובטופע מוז פווטו טווופו ווומוז וווטצב עפוווופע מסטעפ. |

NOTE • If a command received from the software is illegal, the USB-ITN / IT-016U / IT-020U / DP-1VA unit ignores that command and does not send a response command.



8.1 **Product Specifications**

8.1.1 Configuration of USB-ITPAK

| | Name | Q'ty | Remarks |
|---|----------------------------------|-------|--|
| 1 | USB-ITPAK Program Disk | 1 set | Provided on CD Includes dedicated VCP driver Includes USB-ITPAK User's Manual |
| 2 | USB Dongle | 1 | For program protection Connect to USB port of PC when using software Supported USB versions are USB 2.0 full speed and USB 1.1 |
| 3 | USB-ITPAK Installation Manual | 1 set | Provided in paper form |

8.1.2 Main specifications of USB-ITPAK

| Item | Specifications |
|--|---|
| Maximum number of USB-ITN, USB-FSW, U-WAVE, IT-016U, IT-020U, DP-1VA units that can be connected *1 | Windows 2000 / Windows XP: Within 100.Windows Vista / Windows 7 / Windows 8/8.1: Within 20.Windows 10: Within 20. |
| Number of data input devices that can be registered to USB-ITPAK (USB-ITN, USB-FSW, U-WAVE, IT-016U, IT-020U, DP-1VA) | Within 400. |
| Data request (sequential) | Data request to 1 USB-ITN, U-WAVE, IT-016U, IT-020U, DP-1VA unit |
| Data request (batch) | Batch data request to multiple USB-ITN, U-WAVE, IT-016U, IT-020U, DP-1VA units |
| Data cancel (sequential, batch) | Cancellation of measurement data that was input |
| Data skip (sequential, batch) | Skipping of data input that was to be executed next and movement to the next data |
| Character string input through USB-FSW | Input of arbitrary character string set beforehand, through USB-FSW operation |

*1: The maximum number of units that can be connected may be lower depending on the PC or USB hub that is used. When using a USB hub, using a hub that has USB authentication is recommended. The loading time per unit is 0.2 to 0.3 seconds. However, this varies according to the measuring tool that is connected and the measuring environment.

8.2 Supplementary Explanation of Use

8.2.1 Using setting files on another PC

1) Moving a device and setting file

When copying a setting file of USB-ITPAK (extension: itp, it2) to another PC for use on that PC, also copy the Excel file to which that setting file is registered to the PC at the same time.

Since the setting file is registered including the folder name of the Excel file, copy the Excel file using the same path name (drive name + folder name) that was saved on the copy source PC.

2) Moving the setting file only for use with another device

When using another device (USB-ITN, USB-FSW, U-WAVE, IT-016U, IT-020U and/or DP-1VA) on the copy destination PC, the setting file cannot be used as is by performing only operation 1) above.

This is because the device No. registered to the procedure in the setting file differs between the copy source PC and the copy destination PC.

In this case, the solution is to make the device No. of the copy destination PC the same as the device No. of the copy source PC. When this is done, the setting file that was copied can be used as is.

TIP • For how to change the device No., refer to "6.3 Device Information" and section "6.4 Device Information Setting".

8.2.2 Operation when data request to measuring tool times out

If the measuring tool to which USB-ITPAK has sent a data request does not respond within about 2 seconds, USB-ITPAK stops data input from the measuring tool.

The following operations are performed according to the setting of [Ignore the data collection error] in the [Error option] field on the main dialog box.

| Error option |
|------------------------------------|
| ☑ Ignore the data collection error |

1) If selected:

No error message is displayed when a data collection error occurs. If the data input application is Excel, the active cell changes to the next cell.

2) If not selected:

The following error message is displayed when a data collection error occurs.

| Error opt | ion | × |
|-----------|---|---|
| ▲ | An error occurred during data reception. Device No. = UWR-1999999965 ST10102099999912050 (Status code=50) Click Ignore to proceed anyway or Retry to try again. Error option | |
| | Ignore the data collection error | |

Check the measuring tool connected to the USB-ITN, U-WAVE, IT-016U, IT-020U, DP-1VA unit with the [Device No.] shown in the error message.

When ignoring the future error, mark the check box.

Click the [Ignore] button:

If the data input application is Excel, the active cell changes to the next cell.

Click the [Retry] button:

No processing is done for the application and a data request is sent to the measuring tool again.

8.2.3 Sound output during data input

A sound can be output during data input by creating an Excel macro.

TIP • For details about macros, refer to the Excel user's manual.

8.2.4 Precautions for the measurement when using U-WAVE

When using U-WAVE, the availability for "Data request" or "Data cancel" varies according to "measurement mode (button driven, event driven)". The following table describes the association of the measurement modes and their availability.

TIP • For details about the "measurement mode (button driven, event driven)" and "data cancel", refer to the U-WAVEPAK User's Manual.

| Procedure | Operation | | U-W | AVE |
|------------|--|--------------|-------------------|-----------------------|
| type | | | Button driven | Event driven |
| | DATA switch (U-WAVE transmitter) | Data request | ✓ (*1) | — |
| | | Data cancel | ✓ (*2) | — |
| Sequential | Foot switch | Data request | | ✓ |
| Sequential | (via USB-FSW) | Data cancel | 1 | 1 |
| | Data collection dialog | Data request | | 1 |
| | box or a function key | Data cancel | 1 | 1 |
| | DATA switch (U-WAVE transmitter) | Data request | — | — |
| | | Data cancel | _ | — |
| Batch | Foot switch (via USB-FSW) | Data request | | ✓ |
| Datch | | Data cancel | 1 | 1 |
| | Data collection dialog box or a function key | Data request | | 1 |
| | | Data cancel | 1 | 1 |
| | DATA switch (U-WAVE transmitter) | Data request | 1 | — |
| | | Data cancel | ✓ ^(*3) | — |
| Individual | Foot switch | Data request | | ✓ |
| | (via USB-FSW) | Data cancel | 1 | 1 |
| | Data collection dialog | Data request | | — |
| | box or a function key | Data cancel | | — |

1) Data entry application: Table when using Excel

- (*1) Except when [Unspecified] is selected for [Cell address assign rules].
- (*2) Data cancel with the DATA switch operation on the U-WAVE transmitter registered for the procedure during measurement job is available.

When more than one procedure is combined for measurement, the data cancel operation on the U-WAVE transmitter skipping other procedures is not available. For example, when a measurement job is composed of the procedures "A" and "B", the data cancel for the procedure "A" is not available using the U-WAVE transmitter registered only for the procedure "B".

(*3) Data cancel is available per data input timing of the measuring tools connected to the U-WAVE transmitter.

| Procedure | Operation | | U-W | AVE |
|-------------------|-------------------------------------|--------------|---------------|--------------|
| type | | | Button driven | Event driven |
| | DATA switch (U-WAVE transmitter) | Data request | 1 | — |
| | | Data cancel | — | — |
| Sequential | Foot switch | Data request | _ | 1 |
| Sequential | (via USB-FSW) | Data cancel | _ | _ |
| | Data collection dialog | Data request | _ | 1 |
| | box | Data cancel | _ | _ |
| | DATA switch (U-WAVE transmitter) | Data request | — | — |
| | | Data cancel | — | — |
| Batch | Foot switch (via USB-FSW) | Data request | — | 1 |
| Datch | | Data cancel | _ | _ |
| | Data collection dialog box | Data request | _ | 1 |
| | | Data cancel | _ | — |
| | DATA switch (U-WAVE transmitter) | Data request | 1 | — |
| | | Data cancel | — | — |
| las alta dada a l | Foot switch | Data request | _ | — |
| Individual | (via USB-FSW) | Data cancel | _ | _ |
| | Data collection dialog | Data request | _ | _ |
| | box | Data cancel | _ | — |

2) Data entry application: Table for Optional

8.2.5 To resume the Excel data collection previously paused

For an Excel test chart, the data collection can be resumed on the cell position where the collection has been previously paused in the procedures described below.

1) Open [Setting File].

From the menu of the main dialog box, select [File] and then [Open], or open [Setting file] from [Recent files].

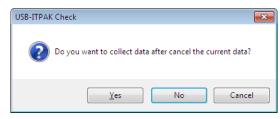
2) Open the data collection dialog box.

IMPORTANT • In USB-ITPAK, following data collection, the Excel file to which the data was input is saved through overwriting under the existing file name. To use the original Excel file later, back it up beforehand.

From the menu of the main dialog box, select [Data Collection] and then [Start], or click the icon shown below.

| 🕞 USB | -ITPAK | |
|--------------|-----------------|-----------------------|
| <u>F</u> ile | <u>S</u> etting | Data Collection About |
| D 🖻 | ; | 2 2 2 3 3 |

Click [No] for the message [Do you want to collect data after cancel the current data?] displayed before the data collection starts.



The paused data collection dialog box will be displayed. Click [Resume].

| 🕞 USB-ITPAK - C:\Mitutoyo\l | JSB-ITPAK\4-2.it2 | | | | | |
|-----------------------------|---|-----------|--------|------|--|--|
| Procedure : 3 side mea | Procedure : 3 side measurement (Sequential) | | | | | |
| | | | | | | |
| Data request | Data cancel | Data skip | Resume | Stop | | |

Click the [Resume] button to display the [Cell address for the resumption] dialog box as shown below. After selecting the cell position to resume the data collection of the Excel file, select [Active cell] in the [Select the resumption cell] field and then click [OK].

| Cell address for the resumption | × |
|---------------------------------|---|
| Select the resumption cell | |
| Active cell | |
| First cell | |
| Paused cell | |
| Selection of restart procedure | |
| Shift to other procedure | |
| Select procedure | |
| 3 side measurement 👻 | |
| OK Cancel | |

The data collection dialog box will be displayed and data collection will be available starting from the specified cell position.

| 🕞 USB-ITPAK - C:\Mitutoyo\USB-ITPAK\4-2.it2 | | | | X |
|---|-------------|-----------|-------|------|
| Procedure : 3 side measurement (Sequential) | | | | |
| Execute import manipulations of measurement data. | | | | |
| Data request | Data cancel | Data skip | Pause | Stop |

TIP • When the timer job option is enabled, start the timer job by pressing the keys [Ctrl], [Shift] and [Space] at the same time after the resuming operation.

8.3 Troubleshooting

Countermeasures for any of USB-ITN, USB-FSW, U-WAVE, IT-016U, IT-020U, DP-1VA, or USB-ITPAK is explained below. If the implementation of these countermeasures does not result in normal operation, report the following information to the distributor or the sales office where the unit was purchased.

- 1) Serial number of USB-ITN, USB-FSW, U-WAVE, IT-016U, IT-020U, DP-1VA and USB dongle
- 2) Version of USB-ITPAK
- 3) Name and model number of PC
- 4) Version of used OS and Excel
- 5) If using USB hub, name and model number of USB hub
- 6) Device information and connection configuration of other USB devices connected to PC

8.3.1 Problems related to installing VCP driver

The [The specified location does not contain information about your hardware.] message is displayed.

Two drivers can be used with USB-ITN, USB-FSW, IT-016U, IT-020U and DP-1VA: the HID driver and VCP driver.

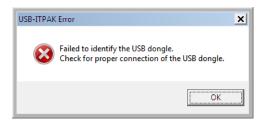
If the HID driver is selected due to a problem with the plug & play facility of the OS, the VCP driver is not recognized. In this case, select again the folder according to the device in the "Drivers" folder on the supplied CD. The VCP driver can be selected and installed.

8.3.2 Problems related to starting up USB-ITPAK

1. A security warning message is displayed at USB-ITPAK startup.

To avoid this warning message, enable the operation of "itpak.exe" of USB-ITPAK in the security software.

2. At USB-ITPAK startup, the [Failed to identify the USB dongle.] message is displayed.



The supplied USB dongle must be connected to the PC in order to start up USB-ITPAK.

Connect the USB dongle, and then restart USB-ITPAK.

- **NOTE** USB-ITPAK operates only when the version of USB dongle is the same or higher than that of USB-ITPAK. For detailed information, refer to "1.2. System Configuration".
 - 3. At USB-ITPAK startup, the message [Could not confirm the enabled devices.] is displayed.



If USB-ITPAK does not recognize any connected USB-ITN, USB-FSW, U-WAVE, IT-016U, IT-020U, or DP-1VA it displays this error message.

USB-ITPAK also does not recognize USB-ITN, USB-FSW, IT-016U, IT-020U, or DP-1VA units connected to the PC if no VCP driver has been installed.

- **TIP** For details about installing the VCP driver, refer to "2.2 Installing and Uninstalling the VCP Driver".
 - If this error message is displayed even though the VCP driver has been installed, refer to "8.3.3 Problems related to connecting USB-ITN, USB-FSW, U-WAVE, IT-016U, IT-020U, and/or DP-1VA ".
 - For details about the U-WAVE, refer to the instruction manuals supplied with U-WAVE.

8.3.3 Problems related to connecting USB-ITN,USB-FSW,U-WAVE, IT-016U, IT-020U, and/or DP-1VA

- 1. The connected USB-ITN, USB-FSW, U-WAVE, IT-016U, IT-020U, and/or DP-1VA cannot be correctly recognized.
 - 1) Check the device connections in USB-ITPAK.

The connection status of the devices recognized by USB-ITPAK can be checked on the [Device information] dialog box displayed by selecting [Setting] and then [Device Information] from the menu on the main dialog box.

| Device information | | | | | | |
|--------------------|--------------|-------|------|------------|--|--|
| Device lists : | | | | | | |
| Device No. | Device name | COM | Туре | Serial No. | | |
| ITN-69999013 | ITN-69999013 | COM8 | ITN | 69999013 | | |
| ITN-69999065 | ITN-69999065 | COM11 | ITN | 69999065 | | |
| ITN-69999067 | ITN-69999067 | COM12 | ITN | 69999067 | | |
| | | | | | | |
| Setting | | (| C | OK Cancel | | |

If the device is correctly recognized, review the procedure settings.

2) Check the USB devices in Windows Device Manager.

If the connected device is not displayed on the [Device information] dialog box shown in "1)" above, start up the Windows Device Manager to display the connection status of the USB devices.



• If USB-ITN, USB-FSW, U-WAVE, IT-016U, IT-020U, and/or DP-1VA are/is not recognized, disconnect the device from the PC and then reconnect it, and check

whether the device connection is recognized.

Once the device connection is recovered, start up USB-ITPAK and proceed with the operation.

 If the USB hub to which the device is connected is not recognized, disconnect the USB hub from the PC and then reconnect it, and check whether the USB hub connection is recognized.

Once the USB hub connection is recovered, check the connection of the USB-ITN, USB-FSW, U-WAVE, IT-016U, IT-020U, and/or DP-1VA unit.

- **NOTE** If multiple USB hubs are connected, Windows might not recognize the USB hub. Using a USB hub that has USB authentication is recommended.
 - 2. When Windows returns from standby or hibernation, USB-ITN, USB-FSW, U-WAVE, IT-016U, IT-020U, and/or DP-1VA are/is not recognized.

USB-ITN, USB-FSW, U-WAVE, IT-016U, IT-020U, DP-1VA and USB dongle support the suspend (sleep mode, standby mode) function. However, the operation is not guaranteed for all PCs and USB hubs.

If the operation of the suspend function encounters a problem in the environment that is used, set the power management of the PC so that the PC does not enter the suspended mode during operation.

TIP • For the power management settings, refer to the user's manual of Windows.

8.3.4 Problems related to data collection

1. Data cannot be input from the measuring tool.

1) Check if the power of the measuring tool is not off.

If the power of the measuring tool is off, resume work after switching it on.

2) Check the connection status of the measuring tool used for data collection.

Check the connection status of the device in accordance with "8.3.3 Problems related to connecting USB-ITN, USB-FSW, U-WAVE, IT-016U, IT-020U, and/or DP-1VA".

3) Check the data collection dialog box to confirm that collection is not paused.

| □ USB-ITPAK - C:\Mitutoyo\USB-ITPAK\4-2.it2 | | | | | |
|---|-----------|--------|------|--|--|
| Procedure : 3 side measurement (Sequential) | | | | | |
| | | | | | |
| Data request Data cancel | Data skip | Resume | Stop | | |
| | | | | | |

If this button displays [Resume], collection is paused. In this case, click the [Resume] button to resume collection.

4) If the [Data entry application] setting is [Optional], check whether the application to which the measurement data is to be input on the PC screen is active.

If the data entry application is not active, select that application and make it active.

5) If the [Data entry application] setting is [Optional], check the Japanese kana-kanji conversion mode.

If the Japanese kana-kanji conversion mode is not [Direct Input], select [Direct Input].

2. Data is not input to the specified cell.

Return to the main dialog box and check the data entry cell settings.

3. The processing speed declines as the number of connected units increases.

Processing takes longer as the number of connected units increases.

Examples:

- PC and Windows startup time
- USB-ITPAK startup time
- USB-ITPAK's batch measurement data collection time
- USB-ITPAK's switching time from the main dialog box to the data collection dialog box

Use of 20 units or less is recommended.

8.3.5 Problems related to the U-WAVE connection

1. Warning message displayed when selecting a channel

If a channel number not registered to U-WAVE-R is selected when creating a procedure, the dialog box shown below will be displayed. Select the channel number of the U-WAVE transmitter registered to U-WAVE-R.

| USB-ITPAK | Error | × | | | |
|--------------|------------------------------------|---|--|--|--|
| \bigotimes | ST10110FFFFFFFF50 (Status code=50) | | | | |
| | OK Retry | | | | |

NOTE • Before starting up U-WAVEPAK for channel check, exit USB-ITPAK.

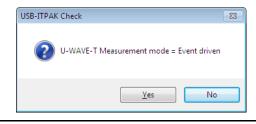
In addition, when selecting the channel of the U-WAVE transmitter in the button driven mode while creating a procedure for the batch measurement, the dialog box shown below will be displayed.

If the procedure does not include the data input with the DATA switch operation on the U-WAVE transmitter or the measuring tools, select the channel of the U-WAVE transmitter in the event driven mode or change the measurement mode of the U-WAVE transmitter registered to the selected channel to the event driven mode using U-WAVEPAK after the procedure creation.

| USB-ITPAK | Check 🛛 |
|-----------|---|
| ? | U-WAVE-T Measurement mode = Button driven |
| | Yes No |

In addition, when selecting the channel of the U-WAVE transmitter in the event driven mode while creating a procedure for the individual measurement, the dialog box shown below will be displayed.

If the procedure does not include the data request operation, select the channel of the U-WAVE transmitter in the event driven mode or change the measurement mode of the U-WAVE transmitter registered to the selected channel to the button driven mode using U-WAVEPAK after the procedure creation.



NOTE • Before starting up U-WAVEPAK to change the measurement mode (button driven, event driven) of the U-WAVE transmitter, exit USB-ITPAK.

8.4 USB-ITPAK Error Messages

The contents of the main error messages of USB-ITPAK and their solutions are described below.

| 8.4.1 Error messages common to all dia |
|--|
|--|

| | Error Message | Error Timing | Error Contents | Solution |
|---|---|--------------------------------------|--|--|
| 1 | Failed to identify the USB dongle. Check for proper connection of the USB dongle. | At USB-ITPAK startup | The USB dongle is not connected to the USB port of the PC. | After connecting the USB dongle, restart USB-ITPAK. |
| 2 | | Throughout USB-ITPAK execution | The USB dongle might be disconnected. | Check if the USB dongle is correctly connected, and resume operation. |
| 3 | Could not confirm the enabled devices. Please check device connection. | At USB-ITPAK startup | No USB-ITN, USB-FSW, U-WAVE-R, IT-016U, or IT-020U unit is connected. | After connecting the USB device to be used, restart USB-ITPAK. |
| 4 | U-WAVE-R of factory-default state was found. | At USB-ITPAK startup | The connected U-WAVE-R is in the default status. | Set up U-WAVE-R using U-WAVEPAK. |
| 5 | ST************************************ | Throughout USB-ITPAK execution | The status packet of U-WAVE has been received. | Check the status code. |
| 6 | TI***************** (U-WAVE transmitter disconnected) | Throughout USB-ITPAK execution | U-WAVE transmitter is not connected to the specified channel. | Check the connections of U-WAVE transmitter. |

NOTE • For details about the status codes of U-WAVE, refer to the U-WAVEPAK User's Manual.

| | | | Error Contonto | Colution |
|---|--|---|--|---|
| | Error Message | Error Timing | Error Contents | Solution |
| 1 | File [file] does not exist. Verify that the correct file name was given. | When a setting file is opened by selecting [File] and then [Open] | The selected setting file cannot be found. | Check whether the setting file to be used does exist. |
| 2 | Failed to find the setting file. | When a setting file is opened by selecting [File] and then [Recent Files] | | |
| 3 | Could not control Excel. Please check Excel condition. | When a setting file is opened by selecting [File] and then [Open] or [File] and then [Recent Files] | This error occurs when Excel cannot be controlled from USB-ITPAK. | Check the status of Excel displayed on the error dialog box. Example: If the cursor on the Excel worksheet to be used is in the edit state, release it. If the Excel setting dialog box is open, close it. |
| 4 | Failed to find the specified Excel file. Workbook = [Workbook] | When a setting file is opened by selecting [File] and then [Open] or [File] and then [Recent Files] | The Excel file registered to the setting file is not found. | Check whether the Excel file does exist. |
| 5 | Failed to find the specified Worksheet. Workbook = [Workbook] Worksheet = [Worksheet] | When a setting file is opened by selecting [File] and then [Open] or [File] and then [Recent Files] | The worksheet registered to the setting file is not found. | Check whether the worksheet does exist. |

8.4.2 Error message of main dialog box

| | Error Message | Error Timing | Error Contents | Solution |
|---|--|---|--|--|
| 6 | Device used in the procedure is not connected. Connect the device to restart the USB-ITPAK or change the device to use. | When a setting file is opened by selecting [File] and then [Open] or [File] and then [Recent Files] | The device to be used in the procedure is not connected. Among the procedures displayed at the center of the main dialog box, the device of the procedure displayed in red characters is not connected. | Apply one of the following actions. After connecting the unconnected device, restart USB-ITPAK. Select the |
| 7 | Device used in the procedure is not connected. Connect the device to restart the USB-ITPAK. | When data collection is started by selecting [Data collection] and then [Start] | | procedure displayed in red characters on the main dialog box, click the [Change procedure] button, and change the assignment of the device. |
| 8 | An invalid procedure has been set. | When a setting file is opened by selecting [File] and then [Open] or [File] and then [Recent Files] | The information registered to the setting file might have been damaged. | Newly create a procedure. |

8.4.3 Error messages of [Device information setting] dialog box

| | Error Message | Error Timing | Error Contents | Solution |
|---|--|------------------------------------|--|--|
| 1 | The specified device No. has already been used. | When the [OK] button is clicked | The specified device No. has already been used for another device. | Enter a device No. that has not been used. |

| | Error Message | Error Timing | Error Contents | Solution |
|---|--|---|--|--|
| 1 | Could not control Excel. Please check Excel condition. Workbook = [Workbook] Worksheet = [Worksheet] | When [Workbook] is selected by clicking the [] button in the [Excel settings] field When the [Select] button in the [Excel settings] field is | This error occurs when Excel cannot be controlled from USB-ITPAK. | Check the Excel status displayed on the error dialog box. Example: • If the cursor on the Excel sheet to be used is in the edit state, release it. |
| | | clicked When the [+] button in the [Data entry device settings] field is clicked | | If the Excel setting dialog box is open, close it. |
| 2 | The specified Key has already been used. | When a function key in the [Function key operation] field is selected | The selected function key has already been assigned to another function. | Change the function key selection for function assignment. |
| 3 | Device can not be registered anymore. | When the [+] button in the [Data entry devices] field is clicked | The maximum number of devices that can be registered has been exceeded. | Make the number of registered devices 400 or less. |
| 4 | No configurable device is connected. When the device is added, connect the device to restart the USB-ITPAK. | When the [+] button in the [Data entry devices] field is clicked | A configurable USB-ITN, U-WAVE, IT-016U, IT-020U, and/or DP-1VA are/is not connected, or all USB-ITN, U-WAVE, IT-016U and IT-020U units are already registered. | When adding a USB-ITN, USB-FSW, U-WAVE, IT-016U, IT-020U, and/or DP-1VA unit, after saving the created setting file, connect the device and restart USB-ITPAK. |
| 5 | Selected device is not connected. Connect the device to restart the USB-ITPAK or change the device to use. | When the [√] button in the [Data entry devices] field is clicked | The selected device is not connected. | Execute one of the following. Connect the selected device and restart USB-ITPAK. Delete the unconnected device by clicking the [-] button, and assign another device by clicking the [+] button. |

8.4.4 Error messages of [Add/change procedure] dialog box

| | | _ | | |
|----|--|--|---|--|
| | Error Message | Error Timing | Error Contents | Solution |
| 6 | No configurable foot-switch device is connected. When the footswitch device is added, connect the device to restart the USB-ITPAK. | When the [+] button in the [Foot switch option] field is clicked | A configurable USB-FSW is not connected, or all USB-FSW units are already registered. | To add a USB-FSW unit, after saving the created setting file, connect the device and restart USB-ITPAK. |
| 7 | Specify the Excel file. | When the [OK] button is clicked | No Excel file has been specified in [Workbook] in the [Excel settings] field. | Click the [] button and select the Excel file. |
| 8 | Specify the data entry cell range. | When the [OK] button is clicked | The [Range of cells] has not been specified. | In the [Start] and [Last] fields in [Range of cells], enter the cell range in the A1 format. |
| 9 | Set USB-IT devices. | When the [OK] button is clicked | The [Data entry device] field has not been set. | Click the [+] button in the [Data entry devices] field and set the data entry device. |
| 10 | Set the procedure name. | When the [OK] button is clicked | The [Procedure name] field has not been set. | Enter the procedure name in the [Procedure name] field. |
| 11 | The entered procedure name has already been registered. | When the [OK] button is clicked | The entered procedure name is used by another procedure. | Enter another procedure name. |
| 12 | First cell address is illegal. Check the entered cell address. | When the [OK] button is clicked | The address entered in [Start] in the [Range of cells] field is incorrect. | Enter the correct cell address in the A1 format. |
| 13 | Last cell address is illegal. Check the entered cell address. | When the [OK] button is clicked | The address entered in [Last] in the [Range of cells] field is incorrect. | Enter the correct cell address in the A1 format. |
| 14 | Cell range provided is illegal. Check the entered cell address. | When the [OK] button is clicked | The data entry device assignment is not included in [Range of cells] in the [Excel settings] field. | Execute one of the following. Change the assignment of data entry device. Change [Displacement intervals] in the [Excel settings] field. |

| | Error Message | Error Timing | Error Contents | Solution |
|---|--|---|---|--|
| 1 | No configurable foot-switch device is connected. When the footswitch device is added, connect the device to restart the USB-ITPAK. | When the [+] button of [Character string data entry] in the [Entry device settings] field is clicked | A configurable USB-FSW is not connected, or all USB-FSW units are already registered. | To add a USB-FSW unit, after saving the created setting file, connect the device and restart USB-ITPAK. |
| 2 | Specify the data entry cell range. | When the [OK] button is clicked | The [Excel cells assignment] field has not been entered. | Enter the [Excel cells assignment] field in the A1 format. |
| 3 | Beyond the data entry cell range is assigned. Perform setting again. | When the [OK] button is clicked | A value that is outside the data entry range was entered in the [Excel cells assignment] field. | Enter the row numbers or column numbers that are within the cell range specified for [Range of cells] in the [Excel settings] field on the [Add procedure] dialog box into the [Excel cells assignment] field. |
| 4 | Specify the character string data entry device. | When the [OK] button is clicked | While [Character string data entry] in the [Entry data settings] field is in a selected state, the character string data entry device has not been set. | Click the [+] button in the [Entry data settings] field and set the character string data entry device. |
| 5 | Specify the channel. | When the [OK] button is clicked | [Measurement data entry] is selected and [UWR] is selected for [Select device:] in the [Entry data settings] field, but the channel of the U-WAVE transmitter is not selected for the [Channel:] field. | Specify the value in the [Channel:] field. |

8.4.5 Error messages of [Data entry device settings] dialog box

8.4.6 Error messages of [Character string data settings] dialog box

| | Error Message | Error Timing | Error Contents | Solution |
|---|------------------------------------|------------------------------------|---|---|
| 1 | Specify the character string data. | When the [OK] button is clicked | Data is not entered in the [Character string data] field. | Enter the desired character string in the [Character string data] field. |

| | Error Message | Error Timing | Error Contents | Solution |
|---|---|---|--|--|
| 1 | The used device is wrong. | When data is input from a device | Data was input from a device that differs from the device set in the procedure of the setting file. | Input data from the correct device. |
| 2 | An error occurred during data reception. Device No. = [Device] Click Ignore to proceed anyway or Retry to try again. | Refer to "8.2.2 Operation when data request to measuring tool times out". | | |
| 3 | Could not confirm the enabled devices. [COM No.] Please check device connection. | When a data request is issued from the PC | Communication with USB-ITN, USB-FSW, U-WAVE-R, IT-016U, IT-020U, and/or DP-1VA are/is not possible. | Check the connection status of the USB-ITN, USB-FSW, U-WAVE-R, IT-016U, IT-020U, and/or DP-1VA unit corresponding to [COM No.]. |
| 4 | The selected cell is not a target cell to enter data. Select the cell again. | When the [Resume] button is clicked when data collection is paused, and [Active cell] in the [Select the resumption cell] field on the next dialog box is selected | The selected cell is not within the range of data entry cells. | Select cells in the cell range for data input. |
| 5 | Failed to character string data entry. Check the character string data. | When character string data is input | If the selection in the [Data entry application] is [Optional], character string data cannot be input. | Check the character string data that has been set. |
| 6 | Failed to character string data entry. Check the excel condition and character string data. | When character string data is input | Character string data input to Excel is not possible. | Check the Excel status and the character string data that has been set. |

8.4.7 Error messages of data collection dialog box

| | Error Message | Error Timing | Error Contents | Solution |
|---|-------------------------------|----------------------------|--|---|
| 7 | Could not control Excel. | Throughout data collection | This error occurs when Excel cannot be controlled from USB-ITPAK. | Check the Excel |
| | Please check Excel condition. | | | status displayed on the error dialog box. Example: |
| | Workbook = [Workbook] | | | • If the cursor on the Excel sheet to be used is in the edit state, release it. |
| | Worksheet = [Worksheet] | | | |
| | | | If the Excel setting dialog box is open, close it. | |
| | | | | Disable the autosave function of Excel. |

MEMO

SERVICE NETWORK

Refer to the following URL. https://www.mitutoyo.co.jp/eng/corporate/network/overseas/index.html

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