

## Measurement Data Collection Software

### **USB-ITPAK V3.0**



# User's Manual - Instructions for use -

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.

> No. 99MAM030A Date of publication: April 1, 2022 (1)





### Product names and model numbers covered in this document

Product name	Model number
Measurement data collection software	USB-ITPAK V3.0

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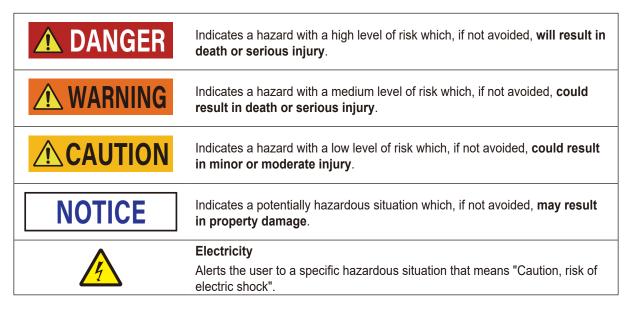
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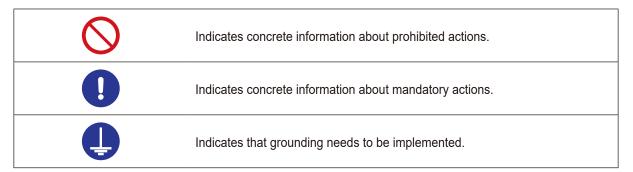
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### Conventions and wording indicating referential information or reference location



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Indicates reference location if there is information that should be referred to in this document or an extraneous User's Manual.

Example: For details about xxx, see 🗐 "1 Product Overview" on page 1.

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本体	×	0	0	0	0	0
配件	0	0	0	0	0	0

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### **About This Document**

### Positioning of this document in document map

This describes the positioning of this document and its relationship with other installments.

Measurement data collection software USB-ITPAK V3.0 User's Manual (This document)	Includes how to prepare, start, and exit USB-ITPAK and how to collect measurement data.
Measurement data collection software USB-ITPAK V3.0 Installation Manual	Includes how to install USB-ITPAK.
USB Input Tool Direct User's Manual	Includes how to use USB Input Tool Direct.
USB Input Tool User's Manual	Includes how to install USB Input Tool.

### ■ Intended readers and purpose of this document

#### Intended readers

This document is intended for first-time users of this product. The readers are assumed to have been familiar with basic operations on a PC and Windows.

#### Purpose

The purpose of this document is to familiarize readers with the overview and usage procedures of this product.

### How to read this document

1 On the quick menu screen, click the [Data collection] button.	to be performed or its outline.
" The setting me selection dialog box uppears.	Indicates the result of an opera
2 Select the setting file.	

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(): Round brackets	Represent a paraphrase of an immediately preceding phrase or a sup- plementary explanation.
" ": Double quotation marks	Represent a highlighted phrase. They also indicate an index where information to be referenced is described.
[]: Square brackets	Represent a menu name on the screen, screen name, dialog name, button, display item, tab name, or key on the keyboard. They also indi- cate an item to be purposely entered or selected by the customer.
<mark>1, 2, 3</mark> 1, 2, 3,	Indicates the order and the contents of tasks. (1: indicates main tasks, 1: indicates detailed tasks)

### PC screens

This product runs on Windows operating systems. In this document, the example screen shots of operation are taken on Windows 10.

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# **1** Product Overview

### 1.1 Overview

USB-ITPAK is software for inputting measurement data from a measuring tool with Digimatic output into Microsoft<sup>®</sup> Office Excel<sup>®</sup> (hereinafter "Excel"). Because measurement data is read in automatically following a pre-defined procedure, work such as filling in an inspection table can be accomplished more accurately and efficiently.

If you use the foot switch optional accessory (No. 937179T/12AAJ088), you can direct the measuring tool to output the measurement data or input arbitrary character string data such as "OK" or "Fail" with your foot.

Using a measuring tool that supports interactive communication (hereinafter "Digimatic S1 communication") makes the following operations possible:

- Setting all measuring tools to zero at once
- Collecting the information, such as the serial numbers of measuring tools.
- Linking measurement data to a measurer
- Configuring measuring tool settings, such as zero set, preset, and tolerance

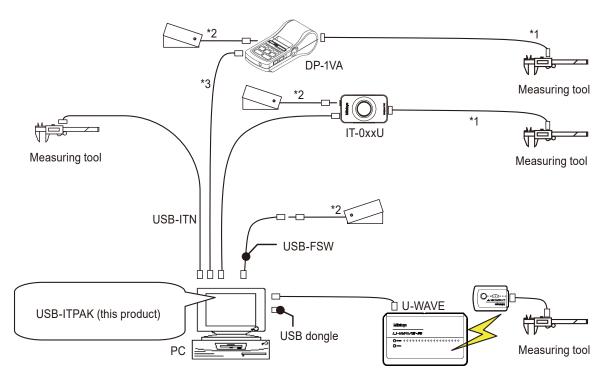
In addition to these functions, the USB-ITPAK quick entry mode allows you to enter measurement data into Excel without creating a measurement procedure beforehand.

The measurement data from the measuring tool or the character string data can be collected through the following devices:

- USB Input Tool Direct (hereinafter "USB-ITN")
- USB Input Tool IT-016U/IT-020U (hereinafter "IT-0xxU")
- U-WAVE
- Statistical Calculation Printer Digimatic Mini Processor DP-1VA LOGGER (hereinafter "DP-1VA")
- USB Foot Switch Adapter (hereinafter "USB-FSW")

### **1.2** System Configuration

An example system configuration is shown below. You can connect one or multiple devices, depending on your needs.



\*1: Digimatic connecting cable

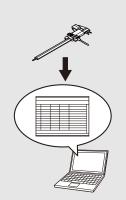
- \*2: Foot switch No. 937179T/12AAJ088
- \*3: Commercially-available USB cable (A to Micro B)

### Tips

- Use a commercially-available USB hub if your PC does not have enough USB ports for all the devices you want to connect.
- For details about connecting and using a particular device, see the user's manual for that device.

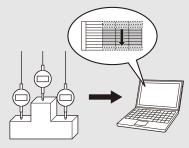
### **1.3** Contents by Purpose

### Enter in the quick entry mode



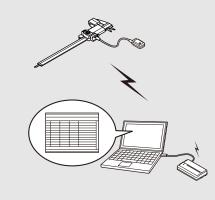
5 Measurement Data Collection Using the Quick Entry Mode" (page 23)

### Enter measurement data all at once (batch measurement)



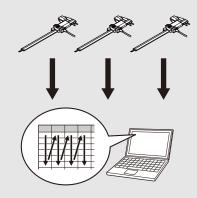
(Batch Measurement)" (page 41)

### Enter measurement data wirelessly



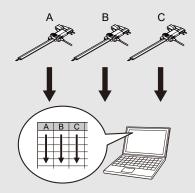
III "6 Measurement Data Collection Using the Procedure Measurement Menu (Basic Operation)" (page 27)

### Enter measurement data in a specified sequence (sequential measurement)



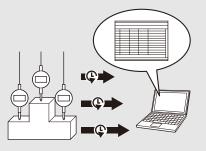
"6.2 Collecting Measurement Data in a Specified Sequence (Sequential Measurement)" (page 28)

### Enter measurement data individually (individual measurement)

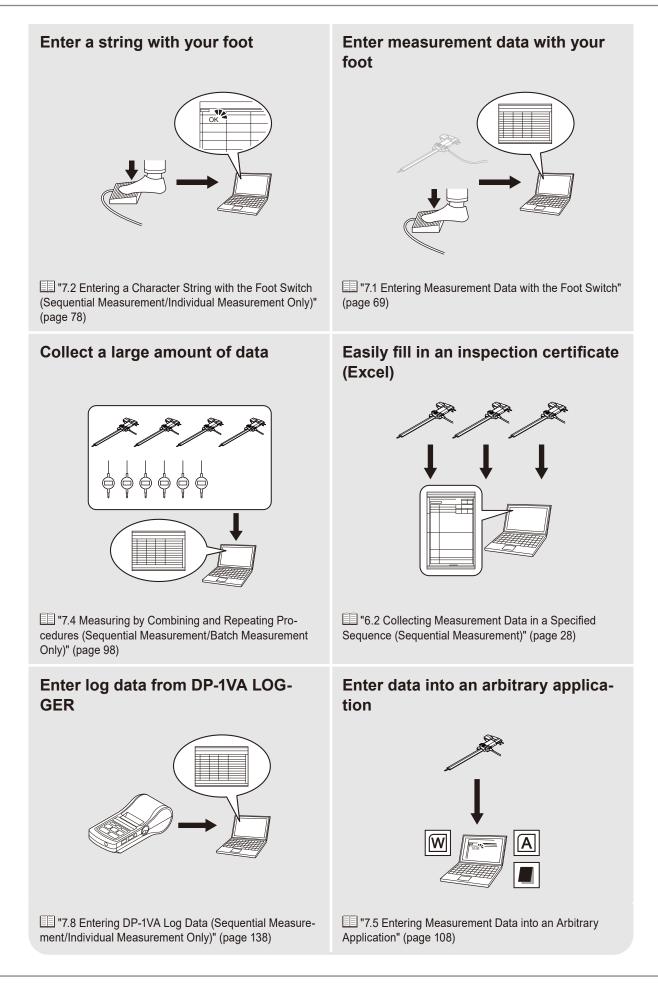


6.4 Collecting Measurement Data at Random (Individual Measurement)" (page 55)

### Automatically enter measurement data periodically



Intervals (Batch Measurement Only)" (page 130)



# **2** Preparations before Use

### **2.1** PC System Requirements

The required specifications for the PC running USB-ITPAK are as follows.

### Hardware specifications

- Monitor (1024 × 768 or higher resolution, 256 colors or higher)
- 15 MB or more of free hard disk space\*1
- USB ports\*2 (a total of two or more for the supplied USB dongle and connection devices such as USB-ITN)
- \*1 Required when installing USB-ITPAK
- \*2 Commercial USB hubs can be used (hubs that are USB certified are recommended)

#### Tips

For hardware specifications other than the ones listed above, follow the required specifications of the OS running USB-ITPAK.

### Software specifications

- OS
  - Microsoft Windows 10 Pro/Enterprise (64-bit only) (including Windows 10 updates)
- Software operating environment
  - .NET Framework 4.6 or later
- Applications
  - Microsoft Excel (Excel 2010 or later)



Use the same language for the OS and USB-ITPAK. Operation on an OS with a different language is not guaranteed. For details about setting the USB-ITPAK language, see 🗐 "8.5 [Option] Screen" (page 174).

### 2.2 Installing USB-ITPAK

#### Tips

To use USB-ITPAK, Microsoft Excel 2010 or later is required. Install Excel on the same PC as USB-ITPAK. For information about compatible Windows versions and system requirements for a particular version of Excel, contact Microsoft.

Download USB-ITPAK V3.0 from Mitutoyo home page to obtain.

To use all the USB-ITPAK V3.0 functions, it is necessary to connect the dongle to the PC.

Purchase USB-ITPAK V3.0 (No. 06AGR543) to obtain the dongle.

Even if the dongle is not connected, [Easy Measurement Menu], [Settings Menu] and [Login Menu] functions are available.

Log in to the PC as an Administrator.

#### 2 Download USB-ITPAK from the Mitutoyo website.

https://www.mitutoyo.co.jp/products/data-management/systems-and-softwares/create-inspection-softwares/

#### 3 In Windows Explorer, run "Setup.exe" in the "Setup" folder of the downloaded file.

If the [User Account Control] warning message appears, click the [Yes] button.

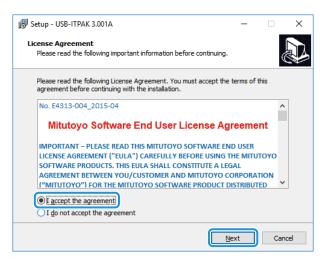
User Account Control × Do you want to allow this app from an unknown publisher to make changes to your device?					
setup.exe Publisher: Unknown File origin: Hard drive on this computer Show more details					
Yes No					

### 4 Click the [Next] button.



#### 2 Preparations before Use

5 Read the [License Agreement]. If you accept the agreement, select [I accept the agreement], and then click the [Next] button.

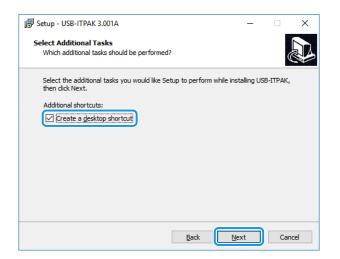


### 6 Click the [Next] button.

得 Setup - USB-ITPAK	-		×
Select Destination Location Where should USB-ITPAK be installed?		G	
Setup will install USB-ITPAK into the following folder.			
To continue, click Next. If you would like to select a different folder,	click Bro	wse.	
C: Witutoyo USB-ITPAK	B <u>p</u>	owse	]
At least 10.8 MB of free disk space is required.			
<u>B</u> ack	dt 🛛	Can	cel

### 7 Click the [Next] button.

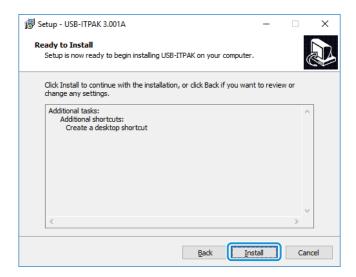
To create a USB-ITPAK shortcut on the desktop, select [Create a desktop shortcut].



### 8 Click the [Install] button.

#### Tips

After USB-ITPAK is installed, a sample inspection table file is installed in the target installation folder under "Sample" folder. If a sample file with the same file name already exists, it will be overwritten. Make a backup of the file in another folder if necessary.

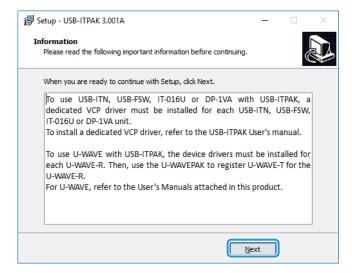


9 Read the cautions regarding the installation of various drivers, and then click the [Next] but-

#### ton.

#### Tips

After USB-ITPAK is installed, a sample inspection table file is installed in the target installation folder under "Sample" folder. If a sample file with the same file name already exists, it will be overwritten. Make a backup of the file in another folder if necessary.



### 10 Click the [Finish] button.

This completes the installation of USB-ITPAK.

Proceed to 📃 "2.3 Installing the VCP Driver" (page 9), and install the VCP driver.



### **2.3** Installing the VCP Driver

The VCP driver is software that allows communication between the PC and the connected devices. Even for devices of the same type, the VCP driver must be installed for each device that is connected.

#### Tips

The VCP driver will be automatically installed if you connect the same type of device as one already connected.

#### For U-WAVE users

If you will use U-WAVE-R by connecting it to the PC, you must install the driver included with U-WAVE-PAK. Do not install the VCP driver as explained here. Perform the following steps instead.

- 1 Install the driver included with U-WAVEPAK for each U-WAVE-R device.
- 2 Register the transmitter to be used with U-WAVE-R.

For details, see 🛄 "U-WAVEPAK User's Manual".

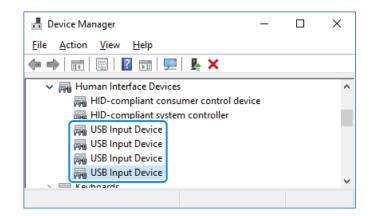
#### Log in to the PC as an Administrator.

#### Connect the devices you will use to the PC.

For details about connecting a particular device, see the user's manual for that device. As an example, here we connect a USB-ITN device to the PC.

#### 3 Check that the connected device is successfully recognized by the PC.

- 1 While holding the Windows logo key, press [X].
- 2 From the menu that is displayed, select and open [Device Manager].



3 Disconnect and reconnect the device, and check that the number of [USB Input Device] decreases and increases by one.

#### Tips

If it is difficult to identify which device was disconnected, follow the steps below.

- 1 Right-click the connected [USB Input Device] to display a menu, and then click [Properties].
- 2 In the [Details] tab, select [Device Instance Path] under [Property].

USB Input Device Properties X
General Driver Details Events Power Management
USB Input Device
Property
Device instance path $\checkmark$
Value
USB\VID_0FE7&PID_4001\69999115
OK Cancel

### 4 Install the VCP driver.

- 1 Right-click the connected [USB Input Device] to display a menu, and then click [Properties].
- 2 In the [Driver] tab, click the [Update Driver] button.

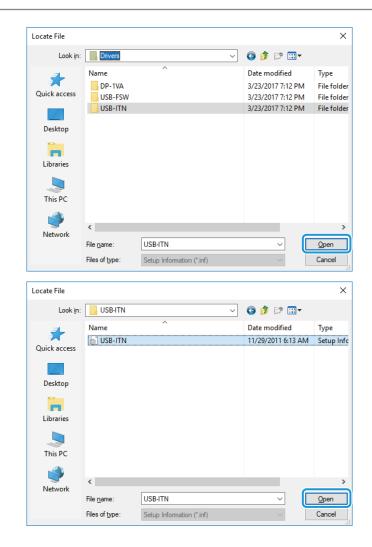
USB Input Device Prope	erties		×
General Driver Detai	ls Events	Power Management	
USB Input Device			
Driver Provider: Microsoft			
Driver Date:	6/21	6/21/2006	
Driver Versior	n: 10.0.	10.0.15063.0	
Digital Signer	: Micro	Microsoft Windows	
Driver Details View details about the installed driver files.			files.
U <u>p</u> date Driver	Update	Update the driver for this device.	
<u>R</u> oll Back Driver		vice fails after updating the dr the previously installed driver.	
<u>D</u> isable Device	Disable	the device.	
Uninstall Device Uninstall the device from the system (Advanced).			Advanced).
		ОК	Cancel

#### 2 Preparations before Use

3	Select [Browse my computer for driver software].	<ul> <li>Update Drivers - USB Input Device</li> <li>How do you want to search for drivers?</li> <li>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.</li> <li>Browse my computer for driver software Locate and install driver software manually.</li> </ul>
4	Select [Let me pick from a list of avail- able drivers on my computer].	Cancel <ul> <li>Image: Cancel</li> <li>Image: Cancel</li></ul>
5	Click the [Have Disk] button.	Let me pick from a list of available drivers on my computer This list will show available drivers compatible with the device, and all drivers in the same category as the device.   Next Cancel   Cancel   V   Cancel   V   Cancel   V   Select the device driver you want to install for this hardware.   Select the device driver you want to install for this hardware. Select the annufacturer 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.
6	Click the [Browse] button.	Show gompatible hardware         Model         USB Input Device         This driver is digitally signed.         Tell me why driver signing is important         Install From Disk         Install From Disk         Instel wave the manufacturer's installation disk, and then make sure that the correct drive is selected below.         OK         Cancel

Select a folder containing the connected device in the "Drivers" folder of the downloaded file.
 As an example, here we select the [USB-ITN] folder. To install the VCP driver for use on IT-0xxU, select the [USB-ITN] folder.

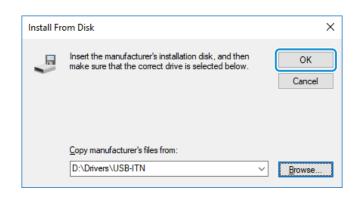
8 Select one of the files in the folder, and then click the [Open] button.



#### Tips

Regardless of which file is selected, the installer selects the appropriate file from the specified folder according to which device is connected.

9 Click the [OK] button.



#### 2 Preparations before Use

	Check that [USB-ITN] is selected in the [Model] field, and then click the [Next] button.	<ul> <li>✓ Update Drivers - USB Input Device</li> <li>Select the device driver you want to install for this hardware.</li> <li>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.</li> <li>✓ Show compatible hardware</li> <li>Model</li> <li>USB-ITN</li> <li>✓ This driver has an Authenticode(tm) signature.</li> <li>Tell me why driver signing is important</li> </ul>	
		Next Cancel	
11	Click the [Install] button.	Windows Security Would you like to install this device software? Name: Mitutoyo Ports (COM & LPT) Publisher: MITUTOYO CORPORATION Always trust software from "MITUTOYO [Install] CORPORATION". Stou should only install driver software from publishers you trust. How can I decide which device software is safe to install?	
12	Click the [Close] button.	<ul> <li>Update Drivers - USB-ITN (COM5)</li> <li>Windows has successfully updated your drivers</li> <li>Windows has finished installing the drivers for this device:</li> <li>USB-ITN</li> </ul>	

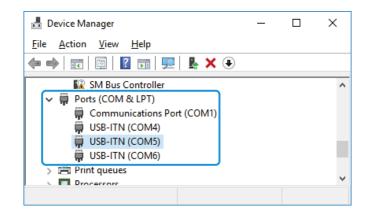
### 5 Check that the name of the connected device is displayed under [Ports (COM & LPT)] in the

#### [Device Manager] screen.

If the installation was successful, the device name is displayed under [Ports (COM & LPT)]. As an example, here we can see that [USB-ITN (COMx)] is displayed. ([USB-ITN (COMx)] is also displayed if IT-0xxU is connected.)

### Tips

The [x] in [COMx] is the COM port number. Unused numbers are automatically allocated.



### **2.4** Connecting the USB Dongle

Insert the USB dongle into a USB port on the PC when you are using USB-ITPAK.

#### Tips

Even if the USB dongle is not connected to the PC, the measurement data collection in [Easy Input Mode] and [Settings Menu] are available.

### USB dongle version and operating specifications

Some of the USB-ITPAK functions are available when the target version or later of USB dongle is connected to the PC. For example, some of the functions in USB-ITPAK version 3.0 are available when USB dongle version 3.0 or later is connected to the PC. If you are using a USB dongle other than the dongle supplied with USB-ITPAK, check the USB-ITPAK and USB dongle versions.

• Location of the USB dongle version label



#### Tips

You can check the USB-ITPAK version on the [Version information] screen.

### MEMO

# **3** Starting and Exiting USB-ITPAK

### 3.1 Starting USB-ITPAK

Before starting USB-ITPAK, check that the following conditions are met.

- The devices that will be used are connected.
   If the devices are connected after starting USB-ITPAK, they will not be recognized. Connect the devices that will be used in advance.
   For information on how to connect devices, see the manual supplied with each device.
- The VCP driver is installed.
   For details, see I "2.3 Installing the VCP Driver" (page 9).
- U-WAVEPAK is not running. USB-ITPAK and U-WAVEPAK cannot be used simultaneously. When U-WAVEPAK is being used, exit it.



To collect data after creating a measurement procedure, connect an appropriate USB dongle to the PC. For details, see 🗐 "2.4 Connecting the USB Dongle" (page 15).

### From the Start menu, select [USB-ITPAK].

	Recently added
	Uninstall USB-ITPAK
	USB-ITPAK
	Uninstall U-WAVEPAK
	Expand Y
	A
	Access 2016 New
	Alarms & Clock
	c
	Calculator
	Calendar
	Camera
	Connect
	Cortana
8	E
Power	r X II Excel 2016
Φ	F

3

If a desktop shortcut has been created, USB-ITPAK can be started by double-clicking this icon.

» When USB-ITPAK is started, either the [Login] screen or the [Quick Menu] screen will be displayed.

#### Tips

The [Login] screen appears only when [Enable the login function] is enabled on the [Option] screen.

### ■ [Login] screen

This screen is used to identify a measurement user. Enter the user ID and password and click the [Log-in] button.

Login	
User ID	
·	
Pass Word	
Login	
Continue without Login	
User Registration or Update	
	🗙 Exit

#### Tips

For using without login, click the [Start without login] button.



## ■ [Quick Menu] screen

This menu screen is used to call such screens as the data collection screen, create procedure screen, [Model information] screen, and [Select model] screen. The screen call buttons are available or unavailable depending on whether you are logged in or not and the USB dongle is connected or not.

## Tips

In the function limited mode with no USB dongle connected, [Procedure Measurement Menu] is not available. [Easy Measurement Menu], [Settings Menu] and [Login Menu] are available.

USB-ITPAK Quick Menu	– 🗆 X
Mitutoyo	
	1
Procedure Measurement Menu	Settings Menu
Data collection	K Device information
Save (Excel file)	रिंग्ने Option
Save (Text file)	i Version Information
Create Procedure	
Easy Measurement Menu	Login Menu
Easy Input Mode	User Registration or Update
	🗲 Login
	<ul> <li>Exit</li> </ul>

## 3.2 Exiting USB-ITPAK

You can exit USB-ITPAK using one of the following operations:

- On the [Login] screen, click the [Exit] button.
- On the [Quick Menu] screen, click the [Exit] button.
- From the [File] menu on the create procedure screen, select [Exit].

## Tips

Make sure that all data has been saved before exiting USB-ITPAK.

# 4

# **Checking the Device Information**

Check the information about data entry devices and measuring tools.

## 1 Connect the devices you will use to the PC, and then start USB-ITPAK.

For details, see 🗐 "3.1 Starting USB-ITPAK" (page 17).

## 2 On the [Quick Menu] screen, click the [Measuring Tool Information Window] button.

Procedure Measurement Menu	Settings Menu
Data collection	\land Device information
Save (Excel file)	ද්ටූ Option
Save (Text file)	(j) Version Information
Create Procedure	
Easy Measurement Menu	Login Menu
Easy Input Mode	Survey See See See See See See See See See S
	🗲 Login

» The [Measuring Tool Information Window] screen will be displayed.

## 3 Check that the devices you will use are displayed.

No.1 U					
		ALL ON	ALL OFF	Data entry devices	
No Image G	Jser Control Number Aodel Code No. Gerial No. Calibration Date	:		Device No. Device name Serial No. Type COM Status	: ITN-89999105 : ITN-89999105 : 89999105 : ITN : COM3 : Connect
	Jser Control Number Model Code No. Jerial No. Calibration Date	: 10000 : ID-F0525NX : 543-851 : 9000015 : 2022/Jan/03	ţĊ}	Device No. Device name Serial No. Type COM Status	: ITN-69999114 : ITN-69999114 : 69999114 : ITN : COM4 : Connect

## Tips

When you click the refresh (<sup>C</sup>) button, the connection status of the measuring tools is checked again, and the [Measuring Tool Information Window] screen is refreshed.

## 4 Set the device No. and device name of each data entry device in [Device No.] and [Device name] as necessary.

## Tips

- Up to 20 single-byte alphanumeric characters and symbols can be entered in [Device No.].
- Up to 32 characters can be entered in [Device name].
- For a measuring tool that supports Digimatic S1 communication, you can click the setting mode ( ) button to call the [Measuring tool setup mode] screen and configure the measuring tool information settings.

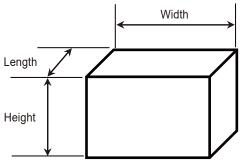
## 5 Click the [OK] button.

» The settings are saved, and the [Quick Menu] screen will be displayed.

5

## Measurement Data Collection Using the Quick Entry Mode

Select a measuring tool to be used and collect data. In this example, you will measure the three sides of the following cuboid.



### Tips

The quick entry mode does not require you to prepare a setting file that contains a measurement procedure or an Excel file that contains measurement data. Only specifying the number of measurement points collects measurement data and enters it into the Excel file worksheet. Measurement data entered into the Excel worksheet is automatically sorted for each measurement point after measurement. However, this automatic sorting of measurement data in the Excel sheet is not a guaranteed function because it cannot be performed correctly under certain conditions. For example, problems might occur when sorting similar data groups only.

Connect the devices you will use to the PC, and then start USB-ITPAK.

For details, see 💷 "3.1 Starting USB-ITPAK" (page 17).

#### 2 Check the information of the devices that are connected to the PC.

For details, see 🛄 "4 Checking the Device Information" (page 21).

USB-ITPAK Quick Menu	- 0
Mitutoyo	
Procedure Measurement Menu	Settings Menu
Data collection	Contraction Device information
Save (Excel file)	Coption
Save (Text file)	(j) Version Information
Create Procedure	
Fasy Measurement Menu	Login Menu
Easy Input Mode	Suser Registration or Update
	E Login
	🛛 Exit

## 3 On the [Quick Menu] screen, click the [Easy Input Mode] button.

<sup>»</sup> The [Tool Selection Window] screen will be displayed.

### 4 Set the number of measurement items and the device you will use.

1 Set the number of measurement items.

As an example, enter "3" to measure the three sides of the cuboid.

2 Select a measuring tool you will use.

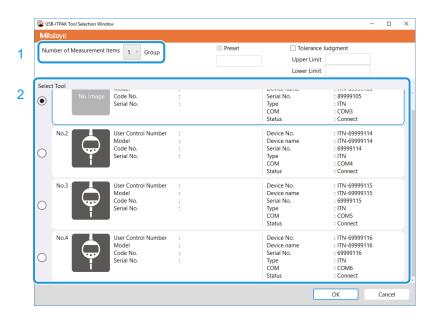
## Tips

Only one measuring tool can be selected.

The measuring tool cannot be changed during the measurement.

To change the measuring tool, finish the measurement, and then reselect the measuring tool to use in the [Tool Selection Window].

When the connection of measuring tool has been changed, reenter into the quick entry mode, and select the measuring tool to use.



5 Set [Preset] or [Tolerance Judgment] as necessary.

## Tips

- [Preset] is configurable when [Measurement Items] is set to "1" and a measuring tool that supports Digimatic S1 communication is selected.
- [Tolerance Judgment] is configurable when [Measurement Items] is set to "1".

## 6 Click the [OK] button.

» The data collection screen will be displayed.

SB-ITPAK		- 🗆 ×
Mitutoyo		
		÷
Execute import manipulations of measurement data.		Zero Set
01A+00000.00		Preset
014+00000.00		Peak Reset
Data request     Data cancel	<b>  </b> Pause	Stop

## 7 Click the [ZERO], [PRESET], or [PEAK RESET] button to set zero point, preset, or peak reset as necessary.

### Tips

- [ZERO], [PRESET], and [PEAK RESET] are configurable when a measuring tool that supports Digimatic S1 communication is selected on the [Tool Selection Window] screen.
- [ZERO], [PRESET], and [PEAK RESET] can be set even during measurement.
- Preset cannot be set when the measuring tool is in the Peak detection (TIR: runout width display) mode.
- Peak reset can be set when the measuring too in the Peak detection mode.

#### 8 Apply the measuring tool to a measurement point and click the [Data request] button.

» The measurement data is entered into the Excel worksheet.

#### Tips

- Measurement data is entered into Column A in the Excel worksheet.
- To undo the entry, click the [Data cancel] button on the data collection screen.

## 9 Repeat step 8.

## Tips

- To pause measurement data collection, click the [Pause] button. When collection is paused, the measurement data that has been entered so far is sorted in Column C and subsequent columns according to the number of measurement items.
- To resume measurement data collection, click the [Resume] button.

## 10 When all the measurement is complete, click the [Exit] button.

» Entered data in the Excel worksheet is sorted in Column C and subsequent columns according to the number of measurement items.

E	∃ <del>5</del> •	¢∓	Book2	- Excel	<b>F</b> –		×
F	ile Hom I	Inserl   Page   F	Form Data Re	vie View   🛛	Tell me Sig	nnin P₄s	hare
E5		] : 🗙	√ f <sub>x</sub>				*
	А	В	С	D	E	F	
1	10.1		10.1	20.1	30.1		
2	20.1		9.98	19.98	29.98		
3	30.1		10.05	20.5	30.5		
4	9.98		9.99	19.99	29.99		
5	19.98						
6	29.98						
7	10.01						
8	20.5						
9	30.05						
10	9.99						
11	19.99						
12	29.99						
13							-
	<	Sheet1	+	: .	•		Þ
Rea	dy					+ 1	00%

» The data collection screen is closed, and the [Quick Menu] screen will be displayed.

## MEMO

# 6 Measurement Data Collection Using the Procedure Measurement Menu (Basic Operation)

This chapter explains the basic measurement data collection method using the procedure measurement menu.

The procedure measurement menu registers settings necessary for data collection, such as the Excel file where measurement data will be entered and devices that are used, as "procedures". Registered procedures are saved as a "setting file" (extension: itp, it2), and you specify which setting file to use when collecting data.

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

## 6.1 General Precautions during Use

This section explains the precautions on how to use before explaining the basic measurement data collection method using the procedure measurement menu.

## Handling Excel files registered to procedures

Measurement data collection using the procedure measurement menu enters data into Excel by using the workbook and worksheet names that are registered to procedures. Therefore, do not make the following changes to Excel files that are registered to procedures:

- Change the workbook or worksheet names
- Delete the workbook or worksheet
- Change the folder where the workbook is saved

## Handling Excel files during data collection

Do not do the following while data is being collected:

- Exit Excel
- Close the Excel file that is registered to the procedure
- Change data on the Excel file that is registered to the procedure

## Checking the operation of registered procedures

When using a setting file to which a procedure is registered (especially a file that has multiple procedures registered), we recommend checking the operation of the procedure in advance. 6

## 6.2 Collecting Measurement Data in a Specified Sequence (Sequential Measurement)

Sequential measurement is a method of taking in measurement data one piece at a time from one or multiple measuring tools following a preset procedure.

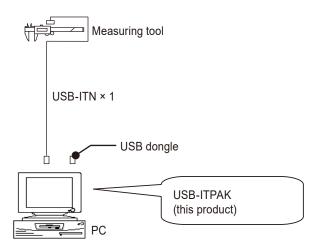
The following are examples of sequential measurement being used.

- Using one measuring tool, measure first the length and then the width in a preset sequence.
- Using multiple measuring tools, measure each point of measurement in sequence, such as first measuring the length with a caliper and then measuring the diameter with a micrometer.

This section explains how to create a setting file and the methods for collecting measurement data that are used for sequential measurement. To create the setting file, the methods for configuring the procedures are explained using the examples in "
Connection example", "
Measurement example", and "
Measurement data entry example" below.

## Connection example

One measuring tool is connected to USB-ITN.

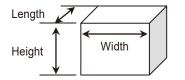


## Tips

In addition to USB-ITN, the devices IT-0xxU, DP-1VA, and U-WAVE-R can also be used together.

## Measurement example

Three sides of a rectangular object are measured in the order length  $\rightarrow$  width  $\rightarrow$  height.



## Measurement data entry example

An example of an inspection table after data collection is complete is shown below.

No.	Inspection item	Permi val		Unit	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

Measurement procedure: Sequentially measure the length, width, and height of the first workpiece, and then enter the measurement data into the first row (Length), second row (Width), and third row (Height) of column X1 of the Excel worksheet. Next, measure the remaining workpieces in the same way, up to a total of five workpieces.

	X1	X2	X3	×4	X5
ĺ	Length (1) ↓				
	Width (1) ↓				
ľ	Height (1)				Height (5)

## 6.2.1 Creating the Setting File

This section explains how to create a setting file that is used for sequential measurement. As an example, here we use the sample inspection table file (ITPAK\_Sample\_Form\_1\_GB.xls\*) as the input destination for the measurement data. To use a file other than the sample file, create the file in advance, and then save it in any folder.

\* One of the sample files that is saved in the "Sample" folder when USB-ITPAK is installed

### For U-WAVE users

To use a U-WAVE-R device that is connected to the PC, you must enter the U-WAVE transmitter channel and device ID when configuring a procedure. Prepare this information in advance, such as by taking a note.

Depending on the measurement mode that is used (button driven or event driven), the operational conditions for collecting or canceling measurement data may differ. When using the special order U-WAVEPAK (event driven use), check that the measurement mode is set according to your application. For details about operational conditions, see 🗐 "11.1.3 Data Request and Data Cancel Operations when Using U-WAVE" (page 238).

## **1** Connect the devices you will use to the PC, and then start USB-ITPAK.

For details, see 🛄 "3.1 Starting USB-ITPAK" (page 17).

#### **2** Check the information of the devices that are connected to the PC.

For details, see 📃 "4 Checking the Device Information" (page 21).

**3** On the [Quick Menu] screen, click the [Create Procedure] button.

SB-ITPAK Quick Menu	- 🗆 X
Mitutoyo	
	د
Procedure Measurement Menu	Settings Menu
Data collection	C Device information
Save (Excel file)	දිලි Option
Save (Text file)	(i) Version Information
Create Procedure	)
Easy Measurement Menu	Login Menu
Easy Input Mode	Survey Servey Se
	🗲 Login
	S Exit

» The create procedure screen will be displayed.

## Tips

The [Create Procedure] button is available when an appropriate USB dongle is connected to the PC.

4 Enter a description of the setting file you are creating in the [Description] field, and then click

## the [Add Procedure] button.

The [Description] field can be left blank.

SB-ITPAK Create Procedure				-	-	×
<u>File Setting Data Collection</u>						
Mitutoyo						
						仚
Setting File						
Description						
Data entry application	Procedure	Item	Content			
Excel     Optional						
Repetition option						
Repeat procedure						
Number of repeat :						
Move direction : Down ~						
Displacement intervals :						
1						
Error option						
Ignore the data collection error				_	_	_
Timer job option		Data entry devices Device No.	Device name	сом	Assigned o	ells
	Add Procedure					
$\begin{array}{c c} \mbox{Interval(hour:min:sec):} \\ \hline 0 & \hline \bullet \\ \hline \end{array} : & \hline 0 & \hline \bullet \\ \hline \end{array} : & \hline 5 & \hline \bullet \\ \hline \bullet \\ \hline \end{array} . & \hline 0 & \hline \bullet \\ \hline \end{array}$	Delete Procedure					
Count :	Change Procedure	<	_			>

» The [Add procedure] screen will be displayed.

## 5 Select [Sequential] in [Procedure type], and then enter a name in [Procedure name].

The procedure name is displayed in the [Procedure] field in the center of the create procedure screen. Enter a name that will be easy to recognize when checking. As an example, here we enter [3 side measurement].

Add procedure				×
Procedure type : Procedure name : Sequential ~				
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		Measuring Tool	×
Cell address assign rules	Foot switch option			
<ul> <li>Unspecified</li> <li>Assign for the columns(A,B,)</li> <li>Assign for the rows(1,2,)</li> </ul>	Device No.	Function CO	+ H	
FunctionKey Operation       Data request :     -       Data cancel :     -       Data skip :     -			0	
			ОК	Cancel

## 6 Configure each item in the [Excel settings] field.

 In the [Workbook] field, select the file that measurement data will be entered into.

You can click the [...] button to select the file to use from the [Open] screen.

As an example, here we select the following sample file.

C:\Mitutoyo\USB-ITPAK\Sample\ITPAK\_ Sample\_Form\_1\_GB.xls

2 In the [Worksheet] field, select the worksheet that measurement data will be entered into.

If you click the drop-down list, the names of the worksheets contained in the file that was selected in step 1 will be displayed.

As an example, here we select [Sample\_F1].

3 In the [Range of cells (specify the A1 reference style)] fields, specify the range of cells in which to enter measurement data.

To specify the range indicated by the lines in the sample inspection table file (figure on the right) as the input cell range, enter the following:

[First]: H11 [Last]: L13

	Add procedure				×
	Procedure type : Procedure name : Sequential ~				
1 2 3 4 5	Excel settings Worksheet :  Range of cells (specify the A1 reference style) :  First : Last :  Right Voreather return direction :  Right Displacement intervals :  1 0	Data entry device:	S Assign rule	Measuring Tool CC User Control Num Model	co +
	Cell address assign rules Outpapelied Setsign for the columns(A.B) Assign for the rows(1,2) FunctionKey Operation Data request: Usta cancel: Usta cancel: Usta skip: Usta	Foot switch option Device No.	Function	<pre>com + // //</pre>	
				ОК	Cancel

B     O     D     E     F     G     H     H     N     O     P       AAC Corporation     CERTIFICATE OF INSPECTION     SAMPLE	Q Q udgment
B O D E F G H N O P AAA Corporation CERTIFICATE OF INSPECTION  There of market of table Per H for the inspector of table Data of the origination	]
B O D E F G H N O P AAA Corporation CERTIFICATE OF INSPECTION  There of market of table Per H for the inspector of table Data of the origination	]
Number         Number         SameLie           Exercision         Interest impectiva	]
SAMPLE       ETRIFICATE OF INSPECTION       Inter inspection     Regression       Padat name     Number of tits     Date       Part name     Number of tits     Date       Image name     Date       1     0     0     0     0     0     0     0     0       2     0     0     0     0     0     0     0     0     0       3     0     0     0     0     0     0     0     0     0       4     0     0     0     0     0     0     0     0       4     0     0     0     0     0     0     0     0	udgment
Name         Lot No.         DBB Corporation         Ageronal         Impactor         Ownall           Padat channe         Number of Idis         Date         Date         Impactor         Impactor         Ownall           Path to more         Number of Idis         Date         Impactor         Date         Impactor         Impactor         Ownall           Path to more         Number of Idis         Date         Impactor         Impactor </td <td>udgment</td>	udgment
Product name         Lot No.         CCC Division           Plant name         Number of Bio         Date           Plant name         Number of Bio         Date           No.         Plant name         Number of Bio         Date           No.         Plant name         Number of Bio         Date           No.         Plant name         Number of Bio         Date           1         Plant name         Plant name         Plant name         Plant name           2         Plant name         Plant name         Plant name         Plant name           3         Plant name         Plant name         Plant name         Plant name           4         Plant name         Plant name         Plant name         Plant name           5         Plant name         Plant name         Plant name         Plant name	judgment
Part law         Date         Date           Part law         Part law         New of vacants	
Image: Point Permatike Use         Use Massing is:         vis         vis <thvis< th="">         vis         vis</thvis<>	
Image: Second condition         Image: Second	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
3 Consign le.	
3 Consign le.	
5	
5	
6	
7	
8	
9	
10	
10 [Measuring item]	
CD: Calicer MD: Micrometer ID: Indicator HD: Height Gage 1 G: Linear Gage SD: Scale	
AN: Surflest CMMI: Coordinate Measuring Machine PP: Profale Projector MS: Microscope HT: Hardness Testing Machine VI: Visual inspection MG: Master Gage EX: Others	
BBB Corpotation	
→ Sample_F1 ④	

4 In the [Move after return direction] field, select the direction in which to enter the measurement data. During measurement data collection, after measurement data is entered in the selected cell, the input cell moves in the direction that you specify here.

As an example, here we select [Down].

5 In the [Displacement intervals] field, specify the number of cells to move.

Specify the number of cells to move for step 4. Specifying [1] moves to the next cell. Specifying [2] moves to two cells away. As an example, here we specify [1].

## 7 Specify the [Cell address assign rules] field.

Select whether to assign the columns (vertical) or the rows (horizontal) of the Excel worksheet to the data entry devices.

When the direction in which to enter the measurement data is vertical, select [Assign for the columns(A,B,...)]. When the direction in which to enter the measurement data is horizontal, select [Assign for the rows(1,2,...)].

As an example, here we select [Assign for the rows(1,2,...)].

Add procedure				>
Procedure type : Procedure name : Sequential				
Excel settings Workbook : Workcheet : Range of cells (specify the A1 reference style) : First : Last : Move after return direction : Right Displacement intervals : 1 Displacement intervals :	Data entry dev	Assign rule	Measuring Tool CC User Control Num Mode	1 Co +
Cell address assign rules O Unspecified Assign for the columns(A.B,) Assign for the rows(1,2,)	Foot switch opt	Function	сом +	
FunctionKey Operation Data request: Data cancel: Data skip :			Ø	
			ОК	Cancel

## Tips

When [Unspecified] is selected, the columns (vertical) or the rows (horizontal) are not assigned to the devices, and data is entered into the cells in the order in which it is measured.

For details, see 📃 "■ About the [Cell address assign rules] setting" (page 185).

8 In the [Data entry devices] field, configure the information for the data entry devices.

- In the [Data entry devices] field, click the [+] button.
  - » The [Data entry device settings] screen will be displayed.

Add procedure					
Procedure type : Procedure n					
Sequential ~ 3 side measu	urement				
Excel settings	Data entry de	vices	Measuring	Tool	
Workbook :	Device No.	Assign rule	CC User Contro	l Num Model	Co
C:\Mitutoyo\Sample\ITPAK_Sample_Form_1_GB.xls Worksheet :					+
Sample_F1 ~					
Range of cells (specify the A1 reference style) :					_
First : H11 Select					0
Last: L13					
Move after return direction :					
Down ~					
Displacement intervals :					
1					
Cell address assign rules	Foot switch of	otion			
○ Unspecified	Device No.	Function	COM	_	
Assign for the columns(A,B,)				+	
Assign for the rows(1,2,)				-	
FunctionKey Operation					
Data request :				0	
Data cancel :				0	
Data skip :					
				OK	Cancel

## 6 Measurement Data Collection Using the Procedure Measurement Menu (Basic Operation)

Data entry device settings

2 In the [Excel cells assignment] field, specify the row numbers or the column numbers to assign the data entry device to.

To assign the data entry device to rows 11 through 13 in the sample inspection table file, enter [11] in the left field (start number) and [13] in the right field (end number).

3 In the [Entry data settings] field, select the type of data to enter.

There are two types of data that can be entered: measurement data (numeric data) entered by a measuring tool and character string data entered by pressing a foot switch.

As an example, here we select [Measurement data entry].

For details about how to enter character string data by pressing the foot switch, see "7.2 Entering a Character String with the Foot Switch (Sequential Measurement/Individual Measurement Only)" (page 78).

4 In the [Select device] field, select which device to use for data entry.

If you click the drop-down list, the connected data entry devices will be displayed.

As an example, here we select the USB-ITN device.

Excel cells assignment       Assign for the rows(1,2,)       11     -       13     Select	
Entry data settings Measurement data er 4 Select device : ITN-69999114 Channel : Character string data entry Device No. Character string	× + -
DateTime data entry Select device :	×
Data entry devices	Measuring Tool
Type :	Model :
ITN	D
COM : COM4	Code No. :
Serial No. :	Serial No. :
69999114	



If you select a U-WAVE-R device, you must also select which channel the device uses for transmission from the [Channel] drop-down list.

If you start U-WAVEPAK to confirm the channel, first exit USB-ITPAK. In this case, you must perform the operations again from the first step.

## Tips

- To perform preset for a measuring tool that supports Digimatic S1 communication during measurement data collection, set the target value in [Preset].
- To perform tolerance judgment during measurement data collection, set the upper and lower limits in [Upper tolerance] and [Lower tolerance].
- 5 Click the [OK] button.
  - » The registered device information will be displayed in the [Data entry devices] field on the [Add procedure] screen.

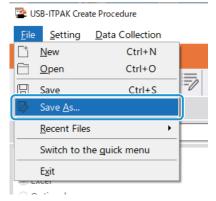
## Tips

You can change or delete the registered device information. For details, see 🗐 "8.8 [Add procedure] Screen/[Change Procedure] Screen" (page 179).

## 9 Click the [OK] button.

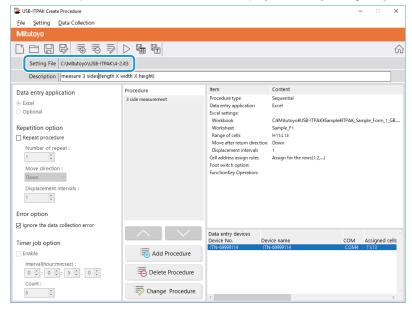
Procedure type :	Procedure name :						
Sequential 🗸 🗸	3 side measuremer	ıt					
Excel settings		Data entry devic	es	N	leasuring Tool		
Workbook : C:\Mitutoyo\USB-ITPAK\Sample\ITPAK	_Sample_Form_1_C	Device No. ITN-69999114	Assign rule 11:13	CC (	User Control Num	Model D	Co
Worksheet :		1114-05555114	11.15				
Sample_F1	~						
Range of cells (specify the A1 referen	ce style) :						
First : H11	Select						
Last : L13							
Move after return direction :							
Down ~							
Displacement intervals :		<		> <	(		>
1							
Cell address assign rules		Foot switch optic	'n				
<ul> <li>Unspecified</li> </ul>		Device No.	Function	COM			
<ul> <li>Assign for the columns(A,B,)</li> <li>Assign for the rows(1,2,)</li> </ul>					+		
		-					
FunctionKey Operation Data request : -							
Data request	~				N		
Data skip : -	* *						
		· · · · · · · · · · · · · · · · · · ·					
					ок		Cancel
							Cancer

## 10 From the [File] menu on the create procedure screen, select [Save As].



**11** Enter a file name and save the file.

» The full path for the file name will be displayed in the [Setting File] field on the create procedure screen.



## 6.2.2 Collecting Measurement Data



When you are performing data collection, disable the [AutoSave] feature in Excel. For details about using Excel, see the documentation for Excel.

## Tips

After data is collected, the Excel file where measurement data was entered is saved. If you need to keep a copy of the Excel file before it was saved, make a back-up beforehand.

**1** On the [Quick Menu] screen, click the [Data collection] button.

USB-ITPAK Quick Menu	- 0
Mitutoyo	
Procedure Measurement Menu	Settings Menu
Data collection	Concernation
Save (Excel file)	्रि Option
Save (Text file)	(j) Version Information
Create Procedure	
Easy Measurement Menu	Login Menu
Easy Input Mode	Subser Registration or Update
	Login
	🛛 Exit

» The setting file selection dialog box will be displayed.

## 2 Select the setting file.

🚰 Open		Х
$\leftarrow \rightarrow \cdot \uparrow$	« Mitutoyo > USB-ITPAK >	✓ ♂ Search USB-ITPAK
Organize 🔻 Ne	w folder	III • 🔟 💡
scs	Name	Date modified Type
🔥 tuika	5-3.it3	12/10/2020 6:01 PM IT3 File
Con a Dairea	5-3-2.it3	12/11/2020 3:08 PM IT3 File
\land OneDrive	5-4.it3	12/10/2020 5:10 PM IT3 File
💻 This PC	5-5.it3	12/10/2020 6:29 PM IT3 File
E Desktop	5-6.it3	12/10/2020 6:53 PM IT3 File
Documents	5-7.it3	12/10/2020 7:12 PM IT3 File
Downloads	V K	>
	File <u>n</u> ame: 5-5.it3	✓ ITPAK setting file(*.itp;*.it2;*.it3] ✓
		<u>O</u> pen ▼ Cancel

### Tips

By selecting [Open] or [Recent Files] from the [File] menu on the create procedure screen, you can also select the setting file. If you selected the setting file on the create procedure screen, click the data collection start icon from the tool bar on the create procedure screen.

» The dialog box appears to prompt you to select the existing data handling method.

#### **3** Select the existing data handling method.

USB-ITPAK Check	Х
Po you want to collect data after cancel the current data?	
Yes <u>N</u> o Cancel	

[Yes]: The existing data in the Excel file where data will be entered is deleted, and cells where data will be entered are cleared.

[No]: The existing data in the Excel file where data will be entered remains.

[Cancel]: The dialog box closes, and you return to the [Quick Menu] screen or the create procedure screen.

» If you click the [Yes] or [No] button, the data collection screen will be displayed.

#### Tips

If you click [No], the data collection screen will be paused. In this case, backup the Excel file before resuming data collection. For details, see 🗐 "■ Pausing/resuming operation when collecting data in Excel" (page 206).

Start the measurement data collection operation with one of the following operations:

🖀 USB-ITPAK - C	:\Mitutoyo\USB	-ITPAK\4-2.it3			- 🗆 ×
Mitutoyo					
Procedure : 3 s	ide measurer	ment ( Sequential )			
Execute impor	t manipulati	ons of measurement data	a.		Zero Set
					Preset
					Peak Reset
⇒ Data re	equest	X Data cancel	🎾 Data skip	<b>  </b> Pause	Stop

- On the data collection screen, click the [Data request] button.
- Press the DATA switch on the measuring tool or the connection device (USB-ITN/IT-0xxU/DP-1VA/U-WAVE transmitter).
- » Data will be entered according to the procedure that is saved in the setting file.
- » During data collection, the next cell into which data is entered will be displayed in green.

#### 6 Measurement Data Collection Using the Procedure Measurement Menu (Basic Operation)

						ITPAK_Sam	ple_Form_1	_GB [Com	patibility M	ode] - Excel			•			2
	Home In	sert Pa	ge Layout	For	mulas Dat	a Revie	w Viev							Sign in	Яs	hai
	¥ :	хv	fx													
в	c	D	E	F	G	н	I	J	К	L I	м	N	0	Р	Q	
	A Corpor		C	F	9		1	J	N.	L	IM	IN	0	P	Q.	T
	ERTIFI				SPEC		4	•					SAM	PLE		
	Name of inspe								BE	B Corpor	ation	Approval	Inspector	Overall ju	idgment	t
	Product na	me				Lot	No.			CCC Divisi	on					
	Part nam	e					r of lots		Date	L						
	Part No. Inspection	Permi	ecibla		Measuring		inspections									-
No.	item	val		Unit	item	X1	X2	Х3	X4	X5	judgment	Special note				
1	Length	13.60	13.40													
2	Width	12.20	12.00									1				
3	Height	10.60	10.50									Drawing No.				
4																
5																
6																
7																
8																
9												-				
10																
[Me	easuring item]															
AN	D: Caliper MD: N: Surftest CMM T: Hardness Tes	: Coordinate	e Measurin	a Machi	ne PP: Profa	le Projector	r MS: Micro	SD:Scal oscope	e							
					and and and	Lin Lugo		Corpota	tion							
	Sampl	le_F1								: •						
v												III II	四	1.1	+ 1	

To undo the entry, click the [Data cancel] button on the data collection screen. The data in the input cell is deleted, and the green cell moves to the previous input cell.

To move to the next input cell without entering data, click the [Data skip] button on the data collection screen. The green cell moves to the next input cell.

### Tips

- Measurement data collection can also be started by operating the foot switch. For details, see 🗐 "7.1 Entering Measurement Data with the Foot Switch" (page 69).
- You can also perform the data cancel operation by using the DATA switch on the U-WAVE transmitter. For details, see 🔝 "U-WAVEPAK User's Manual" or 🔝 "Special Order U-WAVEPAK (Event Driven Use) User's Manual".
- For U-WAVE, depending on the measurement mode that is used (button driven or event driven), the operational conditions for collecting measurement data or canceling may differ.
   For details, see III "11.1.3 Data Request and Data Cancel Operations when Using U-WAVE" (page 238).

» When all the data has been entered, a completion message will be displayed on the data collection screen.

SB-ITPAK - C:\Mitutoyo	USB-ITPAK\4-2.it3			- 🗆 🛛
Mitutoyo				
Procedure : 3 side measu	irement ( Sequential )			
The import of all piece	s of measurement data has	been completed.		Zero Set
	10.0	000mm		Preset
	10.0			Peak Reset
Data request	Data cancel	≫ Data skip	Pause	Stop

#### 6 Measurement Data Collection Using the Procedure Measurement Menu (Basic Operation)



» A confirmation message will be displayed.

#### 6 Click one of the following buttons:

[Yes]: The Excel file where measurement data was entered is saved, and the display switches to the [Quick Menu] screen or the create procedure screen.

[No]: The display switches to the [Quick Menu] screen or the create procedure screen without saving the Excel file where measurement data was entered.

[Cancel]: The confirmation message closes, and you return to the data collection screen.

USB-ITPA	K Check	×
?	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	

# 6.3 Collecting Measurement Data All at Once (Batch Measurement)

Batch measurement is a method of taking in measurement data all at once from one or multiple measuring tools.

The following is an example of batch measurement being used.

Connect multiple measuring tools to a measuring jig, and set the workpiece in the measuring jig.
 Operate the PC or the foot switch, and collect all the measurement data at once from all the measuring tools that are connected.

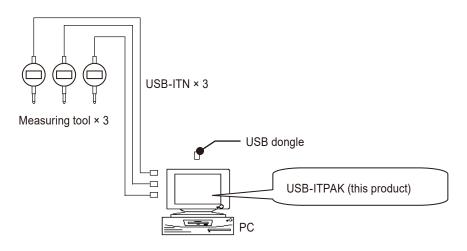
This section explains how to create a setting file and the methods for collecting measurement data that are used for batch measurement. To create the setting file, the methods for configuring the procedures are explained using the examples in "
Connection example", "
Measurement example", and "
Measurement data entry example" below.



Batch measurement sends a request for data output to all the measuring tools at once, but there will be some deviation in the measurement time of each measuring tool. Because of this, measurements cannot be taken while the measuring jig or the workpiece is being moved. Always perform measurements with everything fixed in place.

## Connection example

Three indicators are connected to USB-ITN.

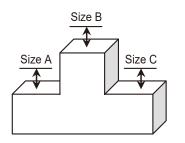


## Tips

In addition to USB-ITN, the devices IT-0xxU, DP-1VA, and U-WAVE-R can also be used together.

## Measurement example

The three indicators are used to measure three locations (Size A, Size B, Size C) all at once.



## Measurement data entry example

An example of an inspection table after data collection is complete is shown below.

Inspe	ction item	Size A	Size B	Size C
Meas	uring item			
Teleranaa	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

Measurement procedure: Measure three locations on the first workpiece all together, and then enter the measurement data into columns "Size A", "Size B", and "Size C" in row Sample 1 of the Excel worksheet.

Next, measure three locations on the second workpiece all together, and enter the measurement data into columns "Size A", "Size B", and "Size C" in row Sample 2 of the Excel worksheet.

Repeat the measurement up to the 10th workpiece.

	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)

## 6.3.1 Creating the Setting File

This section explains how to create a setting file that is used for batch measurement. As an example, here we use the sample inspection table file (ITPAK\_Sample\_Form\_3\_GB.xls\*) as the input destination for the measurement data. To use a file other than the sample file, create the file in advance, and then save it in any folder.

\* One of the sample files that is saved in the "Sample" folder when USB-ITPAK is installed

## • For U-WAVE users

To use a U-WAVE-R device that is connected to the PC, you must enter the U-WAVE transmitter channel and device ID when configuring a procedure. Prepare this information in advance, such as by taking a note.

To collect measurement data with a U-WAVE device, set the measurement mode to event driven mode of the special order U-WAVEPAK (event driven use). Event driven mode can only be used with the special order U-WAVEPAK (event driven use).

#### **1** Connect the devices you will use to the PC, and then start USB-ITPAK.

For details, see 🛄 "3.1 Starting USB-ITPAK" (page 17).

#### 2 Check the information of the devices that are connected to the PC.

For details, see 📃 "4 Checking the Device Information" (page 21).

## **3** On the [Quick Menu] screen, click the [Create Procedure] button.

USB-ITPAK Quick Menu	- 0
litutoyo	
Procedure Measurement Menu	Settings Menu
Data collection	K Device information
Save (Excel file)	र्ट्रे Option
Save (Text file)	(j) Version Information
Create Procedure	
Easy Measurement Menu	Login Menu
Easy Input Mode	Suser Registration or Update
	🗧 Login
	<ul> <li>Exit</li> </ul>

» The create procedure screen will be displayed.

#### Tips

The [Create Procedure] button is available when an appropriate USB dongle is connected to the PC.

43

4 Enter a description of the setting file you are creating in the [Description] field, and then click

## the [Add Procedure] button.

The [Description] field can be left blank.

SB-ITPAK Create Procedure				-	-	×
Eile Setting Data Collection						
Mitutoyo						
						$\widehat{\mathbf{G}}$
Setting File						
Description						
Data entry application	Procedure	Item	Content			
Excel     Optional						
Repetition option						
Repeat procedure						
Number of repeat :						
Down						
Displacement intervals :						
1						
Error option						
Ignore the data collection error					_	
Timer job option		Data entry devices Device No. D	evice name	сом	Assigned c	ells
	Add Procedure					
Interval(hour:min:sec) : $0 \ \div$ : $0 \ \div$ : $5 \ \div$ . $0 \ \div$	Delete Procedure					
Count :	Change Procedure	<	_			>

» The [Add procedure] screen will be displayed.

## 5 Select [Batch] in [Procedure type], and then enter a name in [Procedure name].

The procedure name is displayed in the [Procedure] field in the center of the create procedure screen. Enter a name that will be easy to recognize when checking. As an example, here we enter [3 position batch measurement].

Add procedure					×
Procedure type : Procedure name : Batch					
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	S Assign rule	Measuring CC User Cont	g Tool rol Num Model	×
Cell address assign rules Outspecified Outspecified Assign for the columns(AB,) Assign for the rows(1,2,) FunctionKey Operation Data request : Data cancel : 	Foot switch option Device No.	Function	СОМ	+	
Data skip : 🗸 🧹				ОК	Cancel

## 6 Configure each item in the [Excel settings] field.

 In the [Workbook] field, select the file that measurement data will be entered into.

You can click the [...] button to select the file to use from the [Open] screen.

As an example, here we select the following sample file.

C:\Mitutoyo\USB-ITPAK\Sample\ITPAK\_ Sample\_Form\_3\_GB.xls

2 In the [Worksheet] field, select the worksheet that measurement data will be entered into.

If you click the drop-down list, the names of the worksheets contained in the file that was selected in step 1 will be displayed.

As an example, here we select [Sample\_F3].

In the [Range of cells (specify the A1 reference style)] fields, specify the range of cells in which to enter measurement data.

To specify the range indicated by the lines in the sample inspection table file (figure on the right) as the input cell range, enter the following:

[First]: D18 [Last]: F27

4 In the [Move after return direction] field, select the direction in which to enter the measurement data.

During measurement data collection, after measurement data is entered in the selected cell, the input cell moves in the direction that you specify here.

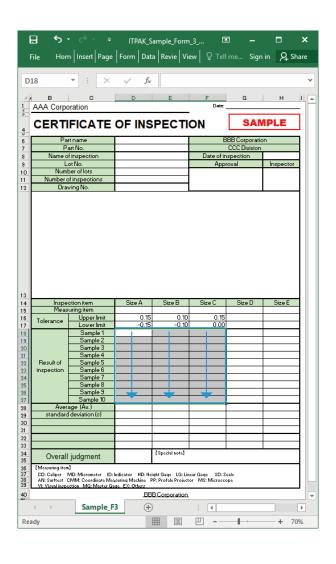
As an example, here we select [Down].

5 In the [Displacement intervals] field, specify the number of cells to move.

Specify the number of cells to move for step  $\ 4$  .

Specifying [1] moves to the next cell. Specifying [2] moves to two cells away. As an example, here we specify [1].

	Add procedure				×
	Procedure type : Procedure name : Batch	easurement			
1 2 3 4 5	Excel settinos Workbook : C:\MMLaoyo\USB-ITPAK\Sample\\TPAK_Sample\\TPAK_Sample.Form.3.cl Worksheet : Sampe.f.3 Vorksheet : First : D18 Last : Er27 Down v Diplacement intervis : 1	Data entry devices Device No.	Assign rule	Messuring Tool CC User Control Num Model	co + ■
	Cell address assign rules Urspecified Ø Assign for the solumis(A.B) Assign for the rows(1,2) FunctionKey Operation Data request: Data skip : v v	Foot switch option Device No.	Function	сом + С	Cancel



## 7 Specify the [Cell address assign rules] field.

Select whether to assign the columns (vertical) or the rows (horizontal) of the Excel worksheet to the data entry devices.

When the direction in which to enter the measurement data is vertical, select [Assign for the columns(A,B,...)]. When the direction in which to enter the measurement data is horizontal, select [Assign for the rows(1,2,...)].

Add procedure					×
Procedure type : Procedure name : Batch	easurement				
Excel settings Workbook : C:\Mitutoyo\USB-TTPAK\Sample\TTPAK_Sample_Form_3_C Worksheet : Sample_F3 Range of cells (specify the A1 reference style) : First : D18 Last : E27 Move after return direction : Down Displacement intervals : 1 ©	Data entry device Device No.	Assign rule	Measurin CC User Con	ig Tool	co +
Cell address assign rules	Foot switch optic	on			
Unspecified (a) Assign for the columns(AB,) Assign for the rows(1,2,)	Device No.	Function	COM	+	
FunctionKey Operation Data request : Data cancel : Data skip :				0	
				ОК	Cancel

As an example, here we select [Assign for the columns(A,B,...)].

## Tips

When [Unspecified] is selected, the columns (vertical) or the rows (horizontal) are not assigned to the devices, and data is entered into the cells in the order in which it is measured.

For details, see 📃 "■ About the [Cell address assign rules] setting" (page 185).

## 8 Configure the information for the first data entry device in the [Data entry devices] field.

- 1 In the [Data entry devices] field, click the [+] button.
  - » The [Data entry device settings] screen will be displayed.

rocedure type : Procedure name : Batch	neasurement				
Excel settings	Data entry devic	es	Measurin	g Tool	
Workbook:	Device No.	Assign rule	CC User Cont	rol Num Model	
Cell address assign rules Ourspecified @ Assign for the columns(A.B) O Assign for the rows(1.2)	Foot switch optic Device No.	Function	COM	+	
FunctionKey Operation Data request: Data cancel: Data skip: - v				-	

## 6 Measurement Data Collection Using the Procedure Measurement Menu (Basic Operation)

2 In the [Excel cells assignment] field, specify the row numbers or the column numbers to assign the data entry device to.

> To assign the first data entry device to the first column, D, in the sample inspection table file, enter [D] in the left field (start number) and [D] in the right field (end number).

3 In the [Entry data settings] field, select the type of data to enter.

There are two types of data that can be entered: measurement data (numeric data) entered by a measuring tool and character string data entered by pressing a foot switch.

As an example, here we select [Measurement data entry].

For details about how to enter character string data by pressing a foot switch, see

T.2 Entering a Character String with the Foot Switch (Sequential Measurement/Individual Measurement Only)" (page 78).

4 In the [Select device] field, select which device to use for data entry.

If you click the drop-down list, the connected data entry devices will be displayed.

As an example, here we select the USB-ITN device.

Assign for the columns(A,B,)	
F - F Sel	lect
Entry data settings	
Measurement data entry	
Select device :	
ITN-69999116	~
Channel :	
O Character string data entry	
Device No. Character string	
O DateTime data entry	
O DateTime data entry Select device :	
Select device : ITN-69999114[D:D]	Measuring Tool
Select device :	Measuring Tool
Select device : ITN-69999114[D:D]	Measuring Tool Model :
Select device : ITN-69999114[D:D] Data entry devices	_
Select device : ITN-69999114[D:D] Data entry devices Type :	Model :
Select device : ITN-69999114[D:D] Data entry devices Type : ITN	- Model :
Select device : ITN-69999114[D:D] Data entry devices Type : ITN COM :	Model : D Code No. :



If you select a U-WAVE-R device, you must also select which channel the device uses for transmission from the [Channel] drop-down list.

If you start U-WAVEPAK to confirm the channel, first exit USB-ITPAK. In this case, you must perform the operations again from the first step.

## Tips

- To perform zero set, preset, or peak reset for a measuring tool that supports Digimatic S1 communication before measurement, select [Set device before measurement] and select the target operation option button.
- To perform preset for a measuring tool that supports Digimatic S1 communication during measurement data collection, set the target value in [Preset].
- To perform tolerance judgment during measurement data collection, set the upper and lower limits in [Upper tolerance] and [Lower tolerance].

5 Click the [OK] button.

» The registered device information will be displayed in the [Data entry devices] field on the [Add procedure] screen.

#### Tips

You can change or delete the registered device information.

For details, see 📃 "8.8 [Add procedure] Screen/[Change Procedure] Screen" (page 179).

## 9 Repeat step 8 to configure the information for the second data entry device.

To assign the second data entry device to the second column, E, enter [E] in the [Excel cells assignment] fields.

Data entry device settings	
Excel cells assignment Assign for the columns(A,B,) D - D Select	
Entry data settings	
Measurement data entry	
Select device :	
ITN-69999114 ~	
ITN-89999105 ITN-69999114	
ITN-69999115 ITN-69999116 Character string data entry	
Device No. Character string	+ -
<ul> <li>DateTime data entry</li> </ul>	
Select device :	
~	
Data entry devices	Measuring Tool
Type :	Model :
ITN	
COM :	Code No. :
COM3	
Serial No. :	Serial No. :
89999105	

## **10** Repeat step **8** to configure the information for the third data entry device.

To assign the third data entry device to the third column, F, enter [F] in the [Excel cells assignment] fields.

xcel cells assignment		
Assign for the columns(A,B,)		
E - E Select		
ntry data settings		
Measurement data entry		
Select device :		
ITN-69999115	~	
ITN-89999105 ITN-69999115		
ITN-69999116		
O Character string data entry		
Device No. Character string		+
O DateTime data entry		+
O DateTime data entry Select device :		+
O DateTime data entry	-	+
O DateTime data entry Select device :	Measuring Tool	+ _
O DateTime data entry Select device : ITN-6999114[D:D]	~	+
O DateTime data entry Select device : TR4-6999114[0:0] Data entry devices	Measuring Tool	+
DateTime data entry     Select device :     TN-49999114[D.D] Data entry devices Type :	Measuring Tool	+
DateTime data entry Select device : THE-0999714[D.D] Data entry devices Type : TN	Measuring Tool Model :	
C DateTime data entry Select device : Mt-empositA(DD) Data entry devices Type : COM :	Measuring Tool Model :	+
O DateTime data entry Select device : Th- 49999114[D.D] Data entry devices Type : TN COM : COM3	Measuring Tool Model : Code No. :	

#### 6 Measurement Data Collection Using the Procedure Measurement Menu (Basic Operation)

Add procedure						
Procedure type :	Procedure name :					
Batch ~	3 position batch m	neasurement				
Excel settings		Data entry devic	es	Measurir	g Tool	
Workbook :		Device No.	Assign rule	CC User Cor	trol Num Model	Co
C:\Mitutoyo\USB-ITPAK\Sample\ITF	AK_Sample_Form_3_C	ITN-69999114	D:D		٥	
Worksheet :		ITN-69999115 ITN-69999116	E:E F:F		0	
Sample_F3	~	1114-03333110			L	
Range of cells (specify the A1 refer	ence style) :					
First : D18	Select					
Last : F27						
Move after return direction :						
Down ~						
Displacement intervals :		<		> <		>
1						
Cell address assign rules		Foot switch optic	'n			
<ul> <li>Unspecified</li> </ul>		Device No.	Function	COM		
Assign for the columns(A,B,)		Dence Hor	1 difectori	00111	+	
<ul> <li>Assign for the rows(1,2,)</li> </ul>						
FunctionKey Operation		-11			_	
Data request : -	~					
Data cancel :	~				0	
Data skip :	~					

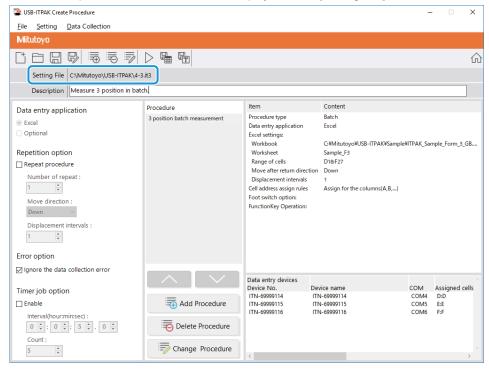
12 From the [File] menu on the create procedure screen, select [Save As].

👺 USB-ITPAK Create Procedure



**13** Enter a file name and save the file.

» The full path for the file name will be displayed in the [Setting File] field on the create procedure screen.



## 6.3.2 Collecting Measurement Data



When you are performing data collection, disable the [AutoSave] feature in Excel. For details about using Excel, see the documentation for Excel.

## Tips

After data is collected, the Excel file where measurement data was entered is saved. If you need to keep a copy of the Excel file before it was saved, make a back-up beforehand.

**1** On the [Quick Menu] screen, click the [Data collection] button.

USB-ITPAK Quick Menu	- 0
∕litutoyo	
Procedure Measurement Menu	Settings Menu
Data collection	Cevice information
Save (Excel file)	र्ट्रे Option
Save (Text file)	(j) Version Information
Create Procedure	
Easy Measurement Menu	Login Menu
Easy Input Mode	Super Registration or Update
	Login
	© Exit
	<b>U</b> EXIL

» The setting file selection dialog box appears.

## 2 Select the setting file.

2 Open			×
$\leftarrow \rightarrow \cdot \cdot \uparrow$	« Mitutoyo » USB-ITPAK »	✓ O Search USB-ITPAK	Q
Organize 🔻 Ne	w folder		?
scs	Name	Date modified Type	^
tuika	5-3.it3	12/10/2020 6:01 PM IT3 File	
a OneDrive	5-3-2.it3	12/11/2020 3:08 PM IT3 File	
Chebrive	5-4.it3	12/10/2020 5:10 PM IT3 File	
💻 This PC	5-5.it3	12/10/2020 6:29 PM IT3 File	
Desktop	5-6.it3	12/10/2020 6:53 PM IT3 File	
Documents	5-7.it3	12/10/2020 7:12 PM IT3 File	~
Downloads	v <		>
	File <u>n</u> ame: 5-5.it3	<ul> <li>ITPAK setting file(*.itp;*.it2;*.it</li> </ul>	3] ~
		<u>O</u> pen <del>▼</del> Cance	

### Tips

By selecting [Open] or [Recent Files] from the [File] menu on the create procedure screen, you can also select the setting file. If you selected the setting file on the create procedure screen, click the data collection start icon from the tool bar on the create procedure screen.

» The dialog box appears to prompt you to select the existing data handling method.

#### **3** Select the existing data handling method.

USB-ITPAK Check	×
<b>?</b> Do you want to collect data after cancel the current data?	
Yes <u>N</u> o Cancel	

[Yes]: The existing data in the Excel file where data will be entered is deleted, and cells where data will be entered are cleared.

[No]: The existing data in the Excel file where data will be entered remains.

[Cancel]: The dialog box closes, and you return to the [Quick Menu] screen or the create procedure screen.

» If you click the [Yes] or [No] button, the data collection screen will be displayed.

#### Tips

If you click [No], the data collection screen will be paused. In this case, backup the Excel file before resuming data collection. For details, see 🗐 "■ Pausing/resuming operation when collecting data in Excel" (page 206).

#### Start the collection operation for measurement data.

SB-ITPAK - 0	C:\Mitutoyo\USB-	ITPAK\4-3.it3			- 🗆 ×
Mitutoyo					
Procedure : 3	position batch	measurement ( Batch )			
Execute impo	rt manipulati	ons of measurement dat	a.		Zero Set
					Preset
					Peak Reset
🔷 Data r	equest	X Data cancel	Data skip	Pause	Stop

Start the collection operation by clicking the [Data request] button on the data collection screen.

- » Data will be entered according to the procedure that is saved in the setting file.
- » During data collection, the next cell into which data is entered will be displayed in green.

#### 6 Measurement Data Collection Using the Procedure Measurement Menu (Basic Operation)

			ample_Form				×
File Hor	n   Insert   Page	Form Dat	a Revie Vie	ew 🛛 🖓 Tell	me Sigr	nin Aps	hare
F18	- : X	√ f×					
		<i>Jx</i>					
AAA Corp	C	D	E	F Date:	G	н	1
							5
CERT	IFICATE	OF INS	PECTI	ON	SAI	MPLE	
	rtname			E	BB Corporati		
	art No.			<b>D</b>	CCC Division	1	
	of inspection .ot No.			Date of in Appr	oval	Inspector	
	ber of lots			- ippi		in ope or or	
	of inspections wing No.						
i Inspe	otion item	Size A	Size B	Size C	Size D	Size E	
i Inspe Meas	suring item				Size D	Size E	
i Inspe Meas Tolerance	suring item Upper limit	Size A 0.15 -0.15	Size B 0.10 -0.10	Size C 0.15 0.00	Size D	Size E	
i Inspe Meas Tolerance	suring item Upper limit Lower limit Sample 1	0.15	0.10	0.15	Size D	Size E	
4 Inspe 5 Meas 7 Tolerance	suring item Upper limit Lower limit Sample 1 Sample 2	0.15	0.10	0.15	Size D	Size E	
i Inspe Meas Tolerance	suring item Upper limit Lower limit Sample 1	0.15	0.10	0.15	Size D	Size E	
H Inspe Meas Tolerance	suring 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	
H Inspe Meas Tolerance Result of inspection	suring 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	
H Inspe Meas Tolerance	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	
Result of inspection	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	
Result of inspection	uring item Upper limit Lover limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 Sample 8 Sample 9 Sample 10	0.15	0.10	0.15	Size D	Size E	
Inspection Result of Result of Aver 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	0.15	0.10	0.15	Size D	Size E	
A Inspe 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 8 Sample 8 Sample 10 Sae (Av.)	0.15	0.10	0.15	Size D	Size E	
Inspection Result of Result of Aver Standard	uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 6 Sample 8 Sample 8 Sample 10 Sae (Av.)	0.15	0.10	0.15	Size D	Size E	
Inspe     Meas     Tolerance     Tolerance     Inspection     inspection     Standard	uring item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 6 Sample 8 Sample 8 Sample 10 Sae (Av.)	0.15	0.10	0.15	Size D	Size E	
A Inspe Meas Tolerance Pesult of Inspection Aver standard	uring item Upper limit Low er limit Sample 1 Sample 2 Sample 2 Sample 4 Sample 5 Sample 6 Sample 6 Sample 8 Sample 9 Sample 9 Sample 9 Jeviation (c)	0.15	0.10	0.15	Size D	Size E	
Inspe Meas Tolerance     Tolerance     Result of     inspection     Aver     standarc     Standarc     Overal     Mescuing ter     Overal     Mescuing ter     Overal	suing item Upper limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 Sample 8 Sample 8 Sample 8 Sample 10 age (Av.) 1 deviation (c)	0.15	0.10 -0.10 (Special note)	0.15 0.00	cole	Size E	
Inspe Meas Tolerance     Tolerance     Result of     inspection     Aver     standarc     Standarc     Overal     Mescuing ter     Overal     Mescuing ter     Overal	urung item Upper limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 4 Sample 6 Sample 7 Sample 8 Sample 8 Sample 9 Sample 9 Sample 9 Sample 1 deviation (c)	0.15 -0.15 -0.15 -0.15 	0.10 -0.10 (Special note)	0.15 0.00	cole	Size E	
Inspe Meas Tolerance Result of inspection Aver standard Overal Imsection	suing item Upper limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 7 Sample 8 Sample 8 Sample 8 Sample 10 age (Av.) deviation (c)	Indicator HD: Ho BB	0.10 -0.10 -0.10 -0.10 	0.15 0.00	cole	Size E	

To undo the entry, click the [Data cancel] button on the data collection screen. The data in the input cell is deleted, and the green cell moves to the previous input cell.

To move to the next input cell without entering data, click the [Data skip] button on the data collection screen. The green cell moves to the next input cell.

## Tips

For a U-WAVE transmitter in event driven mode, if the value that is being displayed on the connected measuring tool does not change, measurement data will not be entered.

For details, see 📃 "Special Order U-WAVEPAK (Event Driven Use) User's Manual".

» When all the data has been entered, a completion message will be displayed on the data collection screen.

🔄 USB-ITPAK - C:\Mitutoyo\USB-ITPAK\4-3.it3	- 🗆 ×
Mitutoyo	
Procedure : 3 position batch measurement ( Batch )	
The import of all pieces of measurement data has been completed.	Zero Set
10.0000mm	Preset
10.00001111	Peak Reset
	Stop

#### 6 Measurement Data Collection Using the Procedure Measurement Menu (Basic Operation)



» A confirmation message will be displayed.

#### 6 Click one of the following buttons:

[Yes]: The Excel file where measurement data was entered is saved, and the display switches to the [Quick Menu] screen or the create procedure screen.

[No]: The display switches to the [Quick Menu] screen or the create procedure screen without saving the Excel file where measurement data was entered.

[Cancel]: The confirmation message closes, and you return to the data collection screen.

USB-ITPAK Check			
?	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		

# 6.4 Collecting Measurement Data at Random (Individual Measurement)

Individual measurement is a method for taking in measurement data from each measuring tool at random, following a procedure that was individually set for each device.

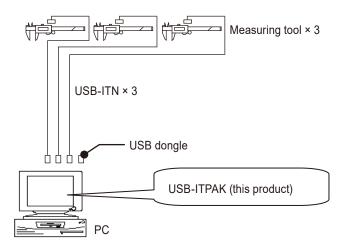
The following is an example of individual measurement being used.

• Collecting measurement data from three users who are each using their own measuring tool.

This section explains how to create a setting file and the methods for collecting measurement data that are used for individual measurement. To create the setting file, the methods for configuring the procedures are explained using the examples in "
Connection example", "
Measurement example", and
"
Measurement data entry example" below.

#### Connection example

Three measuring tools are connected to USB-ITN.

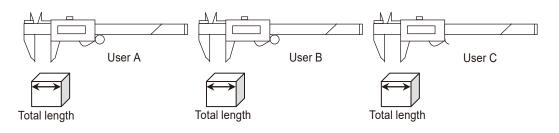


#### Tips

In addition to USB-ITN, the devices IT-0xxU, DP-1VA, and U-WAVE-R can also be used together.

#### Measurement example

Three users measure the width of the same workpiece.



### Measurement data entry example

An example of an inspection table after data collection is complete is shown below.

No.	Inspection item		issible lue	Unit	Measuring item	X1	X2	X3	×4	X5
1	Overall Length	10.05	9.95	mm	СD	10.02	10.01	10.01	10.03	10.03
2	Operator A					10.01	10.02	10.02	10.03	10.01
з						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
10										

Measurement procedure: Users A, B, and C each measure the width of the first workpiece, and then enter each measurement data into the first row (User A), fourth row (User B), and seventh row (User C) of column X1 of the Excel worksheet. Next, the remaining workpieces are measured in the same way, with each user measuring a total of 15 workpieces.

X1	X2	ХЗ	X4	X5	
A (1)	A (2)				]
					Entered by User A
					ļJ
B (1)	B (2)				ן ר
					Entered by User B
				→ B (15)	
C (1)	C (2)				]
				_	Entered by User C
_					J

## 6.4.1 Creating the Setting File

This section explains how to create a setting file that is used for individual measurement. As an example, here we use the sample inspection table file (ITPAK\_Sample\_Form\_4\_GB.xls\*) as the input destination for the measurement data. To use a file other than the sample file, create the file in advance, and then save it in any folder.

\* One of the sample files that is saved in the "Sample" folder when USB-ITPAK is installed

#### For U-WAVE users

To use a U-WAVE-R device that is connected to the PC, you must enter the U-WAVE transmitter channel and device ID when configuring a procedure. Prepare this information in advance, such as by taking a note.

Depending on the measurement mode that is used (button driven or event driven), the operational conditions for collecting or canceling measurement data may differ. When using the special order U-WAVEPAK (event driven use), check that the measurement mode is set according to your application. For details about operational conditions, see 🗐 "11.1.3 Data Request and Data Cancel Operations when Using U-WAVE" (page 238).

#### **1** Connect the devices you will use to the PC, and then start USB-ITPAK.

For details, see 🛄 "3.1 Starting USB-ITPAK" (page 17).

#### **2** Check the information of the devices that are connected to the PC.

For details, see 📃 "4 Checking the Device Information" (page 21).

**3** On the [Quick Menu] screen, click the [Create Procedure] button.

SB-ITPAK Quick Menu	- 🗆 X
Mitutoyo	
	2
Procedure Measurement Menu	Settings Menu
Data collection	K Device information
Save (Excel file)	Costion
Save (Text file)	(i) Version Information
Create Procedure	)
Easy Measurement Menu	Login Menu
Easy Input Mode	Survey Segistration or Update
	🗲 Login
	🛛 Exit

» The create procedure screen will be displayed.

#### Tips

The [Create Procedure] button is available when an appropriate USB dongle is connected to the PC.

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**4** Enter a description of the setting file you are creating in the [Description] field, and then click

#### the [Add Procedure] button.

The [Description] field can be left blank.

USB-ITPAK Create Procedure				-	-	×
Eile Setting Data Collection						
Mitutoyo						
						俞
Setting File						
Description						
Data entry application	Procedure	Item	Content			
Excel						
O Optional						
Repetition option						
Repeat procedure						
Number of repeat :						
1						
Move direction :						
Down 🗸						
Displacement intervals :						
1						
Error option						
Ignore the data collection error						
		Data entry devices Device No. D	evice name	сом	Assigned cel	) le
Timer job option		benee no.			Assigned ter	
Enable	Add Procedure					
Interval(hour:min:sec) : $0 \stackrel{\bullet}{\checkmark} : 0 \stackrel{\bullet}{\frown} : 5 \stackrel{\bullet}{\frown} . 0 \stackrel{\bullet}{\frown}$	Delete Procedure					
Count :	Change Procedure	<			;	~

» The [Add procedure] screen will be displayed.

#### 5 Select [Individual] in [Procedure type], and then enter a name in [Procedure name].

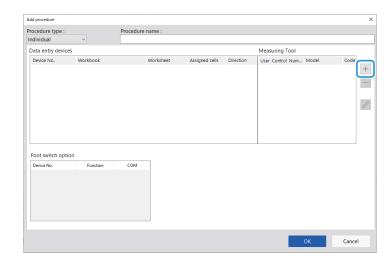
The procedure name is displayed in the [Procedure] field in the center of the create procedure screen. Enter a name that will be easy to recognize when checking. As an example, here we enter [3 posi. individual measurement].

Add procedure							
Procedure type : Individual	~	Procedure	name :				
Data entry devices	;					Measuring Tool	
Device No.	Workbook		Worksheet	Assigned cells	Direction	User Control Num Model	Code
Foot switch optio	n Function	СОМ					
						ОК	Cancel

#### 6 Measurement Data Collection Using the Procedure Measurement Menu (Basic Operation)

#### 6 Configure the information for the first data entry device in the [Data entry devices] field.

- In the [Data entry devices] field, click the [+] button.
  - » The [Data entry device settings] screen will be displayed.



2 In the [Entry data settings] field, select the type of data to enter.

There are two types of data that can be entered: measurement data (numeric data) entered by a measuring tool and character string data entered by pressing a foot switch.

As an example, here we select [Measurement data entry].

Entry data settings	1
Select device : ITN-69999114 Channel : Channel : Select foot with :	~
Character string data :	×
Data entry devices	Measur
Type :	Model
COM :	Code N
COM4	Serial N

For details about how to enter character string data by pressing a foot switch, see 🗐 "7.2 Entering a Character String with the Foot Switch (Sequential Measurement/Individual Measurement Only)" (page 78).

3 In the [Select device] field, select which device to use for data entry.

If you click the drop-down list, the connected data entry devices will be displayed. As an example, here we select the USB-ITN device.



If you select a U-WAVE-R device, you must also select which channel the device uses for transmission from the [Channel] drop-down list.

If you start U-WAVEPAK to confirm the channel, first exit USB-ITPAK. In this case, you must perform the operations again from the first step.

#### Tips

- To perform preset for a measuring tool that supports Digimatic S1 communication during measurement data collection, set the target value in [Preset].
- To perform tolerance judgment during measurement data collection, set the upper and lower limits in [Upper tolerance] and [Lower tolerance].

#### 7 Configure each item in the [Excel settings] field.

 In the [Workbook] field, select the file that measurement data will be entered into.
 You can click the [...] button to select the file to use from the [Open] screen.

As an example, here we select the following sample file.

C:\Mitutoyo\USB-ITPAK\Sample\ITPAK\_ Sample\_Form\_4\_GB.xls

2 In the [Worksheet] field, select the worksheet that measurement data will be entered into.

If you click the drop-down list, the names of the worksheets contained in the file that was selected in step 1 will be displayed.

As an example, here we select [Sample\_F4].

3 In the [Range of cells (specify the A1 reference style)] fields, specify the range of cells in which to enter measurement data.

To specify the range indicated by the lines in the sample inspection table file (figure on the right) as the input cell range, enter the following:

> [First]: H11 [Last]: L13

4 In the [Move after return direction] field, select the direction in which to enter the measurement data.

> During measurement data collection, after measurement data is entered in the selected cell, the input cell moves in the direction that you specify here.

As an example, here we select [Right].

 In the [Displacement intervals] field, specify the number of cells to move.
 Specify the number of cells to move for step 4.

> Specifying [1] moves to the next cell. Specifying [2] moves to two cells away. As an example, here we specify [1].

6 Click the [OK] button.

	×
ixcel settings	
Workbook :	
Worksheet :	
Range of cells (specify the A1 reference style) :	~
Circle .	_
Last :	ect
Move after return direction :	
Right ~	
Displacement intervals :	
1	
oot switch option	_
Device No. Function COM	
	+
	0
6 ОК Са	ncel

	- + I D	< <	$f_X$												
в	с	D	Е	F	G	Н	I	J	К	L	м	N	0	Р	Q
	A Corpora			: IN	SPEC		N	-					SAM	PLE	]
-	Name of inspe								BF	B Corpor	ation	Approval	Inspector	Overall	udamer
	Product nan					Lo	t No.			CCC Divisi				- 1	-
	Part name						er of lots		Date						
_	Part No.	Permis	a linta		Measuring	Number o	f inspections								
No.	item	valu		Unit	item	X1	X2	X3	X4	X5	judgment	Special note			
1	Overall							1				1			
_	Lensth										ł — —				
2	Operator A	10.05	9.95						1	$\rightarrow$					
3	1										t —	Drawing No.			-
	Overall							ļ			<u> </u>	Drawing No.			
4	Length										Í				
5	Operator B	10.05	9.95												
-	Operator D	10.05	0.00												
6															
7	Overall											1			
<u> </u>	Length														
8	Operator O	10.05	9.95												
9	1											1			
-															
10															
	easuring item)			-					1	-		1			
A	D:Caliper MD:N N:Suffest CMM:	Coordinate	Measurin	o Machi	ine PP: Profa	le Projecto	ir MS: Micr	SD:Sca oscope	le						
H	T: Hardness Test	ng Machine	VI:Visua	linspe	ction MG: Ma	ster Gage	EX:Others	Corpota							

8 Repeat steps 6 through 7 to configure the information for the second data entry device.

In the [Range of cells (specify the A1 reference style)] fields, enter [H14] for [First] and [L16] for [Last].

ntry data settings		Preset/Tolerance Judgment		Excel settings	
Measurement data entry				Workbook :	
Select device :		Preset	-	C:\Mitutoyo\USB-ITPAK\Sample\ITPAK	K_Sample_Fori
ITN-69999115	~		mm	Worksheet :	
Channel :		Tolerance JudgmentUpper Limit	_	Sample_F4	~
channel .			mm	Range of cells (specify the A1 referen	nce style) :
~		Tolerance JudgmentLower Limit	_	First : H14	Select
<ul> <li>Character string data entry</li> </ul>			mm	Last : L16	Select
Select foot switch :				Move after return direction :	
	$\sim$			Right ~	
Character string data :				Displacement intervals :	
				1	
Data entry devices	Measu	uring Tool		Foot switch option	
				Device No. Function	СОМ
Type :	Mode	1:			-
ITN		D			
COM :	Code	No. :			
COM5		۵			
Serial No. :	Serial	No. :			6
69999115		۵			

#### 9 Repeat steps 6 through 7 to configure the information for the third data entry device.

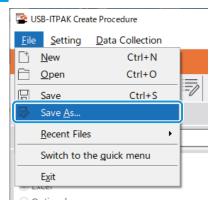
In the [Range of cells (specify the A1 reference style)] fields, enter [H17] for [First] and [L19] for [Last].

Data entry device settings		×
Entry data settings (e) Measurement data entry Select device : ITN-69999116 ~ Channel : 	Preset/Tolerance Judgment Preset Tolerance JudgmentUpper Limit Tolerance JudgmentLower Limit mm Tolerance JudgmentLower Limit mm	Excel settings Workbook : C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sample_Fon Worksheet : Sample_F4
Data entry devices Type : COM : COM6 Serial No. : 69999116	Measuring Tool Model : Code No. : Serial No. :	Foot switch option           Device No.         Function         COM           +         -         -
		OK Cancel

## 10 Click the [OK] button.

		Procedure						
ocedure type : dividual			name : vidual measuren	nont				
	~	5 posi. mui	vicual measuren	neng				
Data entry device	s					Measuring Tool		
Device No.	Workbook		Worksheet	Assigned cells	Direction	User Control Num	Model	Code
ITN-69999114 ITN-69999115 ITN-69999116	C:\Mitutoyo\USB-ITI C:\Mitutoyo\USB-ITI C:\Mitutoyo\USB-ITI	PAK\Sample\I	Sample_F4 Sample_F4 Sample_F4	H11:L13 H14:L16 H17:L19	Right Right Right			
<					2	<		>
oot switch optic	n Function	СОМ	1			¢	-	>
< Foot switch optic Device No.		СОМ			د	¢		>

**11** From the [File] menu on the create procedure screen, select [Save As].



**12** Enter a file name and save the file.

» The full path for the file name will be displayed in the [Setting File] field on the create procedure screen.

SB-ITPAK Create Procedure				-	- 🗆 X
<u>File</u> <u>Setting</u> <u>Data</u> Collection					
Mitutoyo					
Setting File C:\Mitutoyo\USB-ITPAK\4-4	) 🕞 🖬 🖫				ŵ
Description Individualy measure 3 pos	itions				
Data entry application © Excel Optional Repetition option Repeat procedure Number of repeat : 1 Down Displacement intervals : 1 \$	Procedure 3 posi, individual measurement	Item Procedure type Data entry application Excel settings Workbook Worksheet Range of cells Move after return directi Displacement intervals Foot switch option:	Content Individual Excel C=¥Mitutoyo¥USB-ITPAK¥Sample Sample_F4 H11:L13 n Right 1	¥ITPAK_Sar	nple_Form_4_GB
Error option Ignore the data collection error					
Timer job option			Device name ITN-69999114	COM COM4	Assigned cells H11:L13
Enable	Add Procedure	ITN-69999115	ITN-69999114 ITN-69999115 ITN-69999116	COM4 COM5 COM6	H11:L13 H14:L16 H17:L19
Interval(hour:min:sec): $0 \div : 0 \div : 5 \div . 0 \div$	Delete Procedure				
Count :	Change Procedure	<	_		>

## 6.4.2 Collecting Measurement Data



When you are performing data collection, disable the [AutoSave] feature in Excel. For details about using Excel, see the documentation for Excel.

#### Tips

After data is collected, the Excel file where measurement data was entered is saved. If you need to keep a copy of the Excel file before it was saved, make a back-up beforehand.

1 On the [Quick Menu] screen, click the [Data collection] button.

USB-ITPAK Quick Menu	- 0
Mitutoyo	
Procedure Measurement Menu	Settings Menu
Data collection	Cevice information
Save (Excel file)	र्ट्रे Option
Save (Text file)	(j) Version Information
Create Procedure	
Easy Measurement Menu	Login Menu
Easy Input Mode	Survey Service
	🗲 Login
	🛛 Exit

» The setting file selection dialog box appears.

#### 2 Select the setting file.

👺 Open			×
$\leftarrow \rightarrow \land \uparrow$	« Mitutoyo » USB-ITPAK »	✓ Ö Search USB-ITE	РАК 🔎
Organize 🔻 New	v folder		······································
scs	^ Name	Date modified	Туре
🔥 tuika	🗋 5-3.it3	12/10/2020 6:01 PM	IT3 File
a OneDrive	5-3-2.it3	12/11/2020 3:08 PM	IT3 File
Chebrive	5-4.it3	12/10/2020 5:10 PM	IT3 File
This PC	5-5.it3	12/10/2020 6:29 PM	IT3 File
Desktop	5-6.it3	12/10/2020 6:53 PM	IT3 File
Documents	5-7.it3	12/10/2020 7:12 PM	IT3 File 🗸
📕 Downloads	v <		>
	File <u>n</u> ame: 5-5.it3	<ul> <li>ITPAK setting</li> </ul>	file(*.itp;*.it2;*.it3)
		<u>O</u> pen	Cancel

#### Tips

By selecting [Open] or [Recent Files] from the [File] menu on the create procedure screen, you can also select the setting file. If you selected the setting file on the create procedure screen, click the data collection start icon from the tool bar on the create procedure screen.

» The dialog box appears to prompt you to select the existing data handling method.

#### **3** Select the existing data handling method.

USB-ITPAK Check	×
Po you want to collect data after cancel the current data?	
Yes <u>N</u> o Cancel	

[Yes]: The existing data in the Excel file where data will be entered is deleted, and cells where data will be entered are cleared.

[No]: The existing data in the Excel file where data will be entered remains.

[Cancel]: The dialog box closes, and you return to the [Quick Menu] screen or the create procedure screen.

» If you click the [Yes] or [No] button, the data collection screen will be displayed.

#### Tips

If you click [No], the data collection screen will be paused. In this case, backup the Excel file before resuming data collection. For details, see 🗐 "■ Pausing/resuming operation when collecting data in Excel" (page 206).

#### 4 Start measurement data collection.

SB-ITPAK - C:\Mitute	oyo\USB-ITPAK\4-4.it3			- 🗆 ×
Mitutoyo				
Procedure : 3 posi. in	dividual measurement ( Individ	ual )		
Execute data entry o	peration.			Zero Set
				Preset
				Peak Reset
Data request	X Data cancel	Data skip	Pause	🗴 Stop

Start the collection operation by pressing the DATA switch on the measuring tool or the connection device (USB-ITN/IT-0xxU/DP-1VA/U-WAVE transmitter).

- » Data will be entered according to the procedure that is saved in the setting file.
- » During data collection, the next cell into which data is entered will be displayed in green.

#### 6 Measurement Data Collection Using the Procedure Measurement Menu (Basic Operation)

3						ITPAK_Sam	ple_Form_4	_GB [Com	patibility Mo	ode] - Excel			M			×
	Home	Insert Pa	ige Layout	Forr	nulas Dat	a Revie	ew View							Sign ir	n ∕₽ si	hare
7		X V	$f_X$													
в	с	D	E	F	G	н	I	J	К	L I	М	N	o	Р	Q	F
	A Corpo												-		1	_
-	ERTIF		E OF	IN	SPEC	TIO	N	•					SAM	PLE		
_	Name of ins				00		•		BB	B Corpor	ration	Approval	Inspector	Overall j	udgment	t
	Product r					Lot	No.			CCC Divis						٦
	Part na						er of lots		Date							
	Part N					Number of	inspections									_
No	Inspection item		lue	Unit	Measuring item	X1	X2	X3	X4	X5	judgment	Special note				
1	Overall Length											]				
	-															
2	Operator A	10.05	9.95													
3												Drawing No.				
	Overall	_														
4	Length															
5	Operator B	10.05	9.95									1				
_	-															
6																
7	Overall											1				
	Length															
8	Operator C	10.05	9.95													
9												1				
												-				
10																
	easuring item)				ID-11-L-M-C			00.0	-	-		1				
A	D:Caliper M N:Surftest CN	IM: Coordinat	e Measurin	o Machi	ne PP: Profa	le Proiecto	r MS: Micro	SD: Scal oscope	le							
ЦН	T:Hardness T	esting Machin	ne VI:Visua	al inspe	ction MG:Ma	ster Gage		Corpota	tion							
4	Com	ple F4	(+)				000	Sorpola	<u>uv(1</u>	: •				_		Þ
	Sam	pie_r4														12

To undo the entry, click the [Data cancel] button on the data collection screen. The data in the input cell is deleted, and the green cell moves to the previous input cell.

To move to the next input cell without entering data, click the [Data skip] button on the data collection screen. The green cell moves to the next input cell.

#### Tips

- Measurement data collection can also be started by operating the foot switch. For details, see 🗐 "7.1 Entering Measurement Data with the Foot Switch" (page 69).
- You can also perform the data cancel operation by using the DATA switch on the U-WAVE transmitter. For details, see 🗐 "U-WAVEPAK User's Manual" or 🗐 "Special Order U-WAVEPAK (Event Driven Use) User's Manual".
- For U-WAVE, depending on the measurement mode that is used (button driven or event driven), the operational conditions for collecting measurement data or canceling may differ.
   For details, see III "11.1.3 Data Request and Data Cancel Operations when Using U-WAVE" (page 238).
- » When all the data has been entered, a completion message will be displayed on the data collection screen.

SB-ITPAK - C:\Mitutoyo\U	SB-ITPAK\4-4.it3			– 🗆 🛛
Mitutoyo				
Procedure : 3 posi. individ	ual measurement ( Individu	ial )		
The import of all pieces	of measurement data has	been completed.		Zero Set
	10.0	000mm		Preset
	10.0			Peak Reset
Data request	X Data cancel	➢ Data skip	Pause	Stop

#### 6 Measurement Data Collection Using the Procedure Measurement Menu (Basic Operation)



» A confirmation message will be displayed.

#### 6 Click one of the following buttons:

[Yes]: The Excel file where measurement data was entered is saved, and the display switches to the [Quick Menu] screen or the create procedure screen.

[No]: The display switches to the [Quick Menu] screen or the create procedure screen without saving the Excel file where measurement data was entered.

[Cancel]: The confirmation message closes, and you return to the data collection screen.

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

MEMO

# 7 Measurement Data Collection Using the Procedure Measurement Menu (Advanced Operation)

This chapter explains advanced operations of USB-ITPAK, such as how to collect data by using the foot switch and how to combine multiple procedures to collect data.

# 7.1 Entering Measurement Data with the Foot Switch

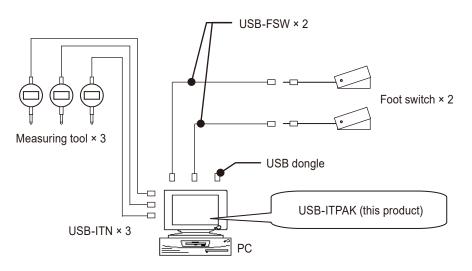
When the foot switch optional accessory (No. 937179T/12AAJ088) is connected, you can perform the following operations with your foot:

- Instruct a device to output measurement data (data request)
- Delete entered data (data cancel)
- Skip entering data and move to the next input cell (data skip)
- To use the foot switch, you must first specify which function to assign to the foot switch.

To create the setting file in this section, the methods for configuring the procedures are explained using the examples in "
Connection example", "
Measurement example", and "
Measurement data entry example" below.

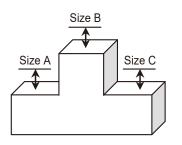
#### Connection example

Three indicators are connected to USB-ITN, and two foot switches are connected to USB-FSW. The data request and data cancel functions are assigned to the two foot switches.



#### Measurement example

The three indicators are used to measure three locations (Size A, Size B, Size C) all at once.



## Measurement data entry example

An example of an inspection table after data collection is complete is shown below.

	ction item	Size A	Size B	Size C
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

Measurement procedure: Measure three locations on the first workpiece all together, and then enter the measurement data into columns "Size A", "Size B", and "Size C" in row Sample 1 of the Excel worksheet.

Next, measure three locations on the second workpiece all together, and enter the measurement data into columns "Size A", "Size B", and "Size C" in row Sample 2 of the Excel worksheet.

Repeat the measurement up to the 10th workpiece.

	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)

## 7.1.1 Creating the Setting File

#### 1 Connect the devices you will use to the PC, and configure the items in USB-ITPAK.

For details, see the following:

- Sequential measurement: 🗐 "6.2.1 Creating the Setting File" (page 30)
- Batch measurement: 📃 "6.3.1 Creating the Setting File" (page 43)
- Individual measurement: 🛄 "6.4.1 Creating the Setting File" (page 57)

As an example, here we edit parts of the setting file created in 📃 "6.3.1 Creating the Setting File" (page 43). After you open the setting file, click the [Change Procedure] button on the following screen.

USB-ITPAK Create Procedure				-		×
File Setting Data Collection						
Mitutoyo						
						$\widehat{\mathbf{G}}$
Setting File C:\Mitutoyo\USB-ITPAK\4-3	l.it3					
Description Measure 3 position in bate	ch.					]
Data entry application © Excel Optional Repetition option □ Repeat procedure Number of repeat : 1 ↓ Move direction : Down Displacement intervals : 1 ↓ Error option	Procedure 3 position batch measurement	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 Batch Excel C:¥Mitutoyo¥USB-ITPAK¥Samplet Sample_F3 D18:F27 Down 1 Assign for the columns(A,B,)	fITPAK_San	ıple_Form_3_	GB
Ignore the data collection error			vice name	сом	Assigned c	ells
Enable	Add Procedure	ITN-69999115 IT	N-69999114 N-69999115 N-69999116	COM4 COM5 COM6	D:D E:E F:F	
Interval(hour:min:sec): $0 \stackrel{\bullet}{\downarrow}: 0 \stackrel{\bullet}{\downarrow}: 5 \stackrel{\bullet}{\downarrow}. 0 \stackrel{\bullet}{\downarrow}$	Delete Procedure	111-111-111	11.5550-110	CONIO		
Count :	Change Procedure	<				> ~

» The [Change Procedure] screen will be displayed.

#### Tips

To create a new setting file, enter a description of the setting file you are creating in the [Description] field, and then click the [Add Procedure] button.

#### 2 Change [Procedure name].

As an example, here we enter [3 position batch and foot switch].

Change Procedure					×
Procedure type : Procedure name : Batch 3 position batch and	d foot switch				
Excel settings Workbook : C:\Mitudyo\USB-ITPAK\Sample\ITPAK_Sample_Form_3_c - Worksheet : Sample_F3 Range of cells (specify the A1 reference style) : First : D18 Last : F27 Move after return direction : Down Displacement intervals : 1 $\bigcirc$	Data entry device Device No. ITN-69999114 ITN-69999115 ITN-69999116	Assign rule D:D E:E F:F	Measuri CC User Co	ng Tool ntrol Num Model	
Cell address assign rules Unspecified Assign for the columns(A,B,) Assign for the rows(1,2,) FunctionKey Operation Data request : Data careel : Data skip : - ~	Foot switch option	Function	сом	+	
				ОК	Cancel

#### Tips

If you clicked the [Add Procedure] button in step 1, configure the items on the [Add procedure] screen. For details, see the following:

- Sequential measurement: 🕮 "6.2.1 Creating the Setting File" (page 30)
- Batch measurement: 🛄 "6.3.1 Creating the Setting File" (page 43)
- Individual measurement: 🗐 "6.4.1 Creating the Setting File" (page 57)

#### 7 Measurement Data Collection Using the Procedure Measurement Menu (Advanced Operation)

3 Configure the information for the first foot switch under the [Foot switch option] field.

Under the [Foot switch option] field, click the [+] button.

1

» The [Foot switch option settings] screen will be displayed.

- 2 From the [Select foot switch] drop-down list, select which foot switch to use.
- 3 From the [Function] drop-down list, select which function to assign to the foot switch.

As an example, here we select [Data request].

- 4 Click the [OK] button.
  - » The registered device information will be displayed under the [Foot switch option] field on the [Change Procedure] or [Add procedure] screen.

Batch		Procedure name :				
	~	3 position batch and				
Excel set Workb			Data entry devices		Measuring Tool	
	utoyo\USB-ITPAK\Sample\ITPA	K_Sample_Form_3_C	Device No. As ITN-69999114	ssign rule D:D	CC User Control Num Mor	del Co
Works			ITN-69999115	E:E		
Sampl		~	ITN-69999116	F:F		0 -
	of cells (specify the A1 referen	nce style) :				_
	ast: F27	Select				6
	after return direction :					
Down	~					
	ement intervals :		٢		> <	>
1	×					
	ress assign rules		Foot switch option			
<ul> <li>Unsp</li> <li>Assic</li> </ul>	pecified gn for the columns(A,B,)		Device No. Fu	nction (	юм —	
	gn for the rows(1,2,)				<u> </u>	
	nKey Operation					
Data re		~			n	
Data ca Data sk		~			U	
Data JA		*				
					ОК	Cancel
2	Select foo	ot switch :				
2	Select foo FSW-199990				~	
2	FSW-199990	33			~	
2		33			~	
2	FSW-199990 Device inf	33 formation			~	
2	FSW-199990	33 formation			~	
2	FSW-199990 Device inf	33 formation	9033		~	
2	FSW-199990 Device inf Serial N	33 formation Io. :	9033		~	
2	FSW-199990 Device inf	33 formation Io. :	9033		~	
2	FSW-199990 Device inf Serial N	133 formation lo. : 1999			~	
2	FSW-199990 Device inf Serial N Type :	33 formation Io. :				
2	FSW-199990 Device inf Serial N	133 formation lo. : 1999			~	
2	FSW-199990 Device inf Serial N Type :	133 formation lo. : 1999	W		~	
	FSW-199990 Device inf Serial N Type :	i33 formation lo. : 1999 FS	W		~	
	FSW-199990 Device inf Serial N Type : COM : Function :	I33 formation Io. : 1999 FS CON	W		~	
3	FSW-1999990 Device inf Serial N Type : COM :	I33 formation Io. : 1999 FS CON	W		~	

#### 4 Repeat step **3** to configure the information for the second foot switch.

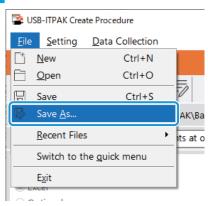
As an example, here we select [Data cancel] from the [Function] drop-down list.

Foot switch option settings	×
Select foot switch :	
FSW-19999034	$\sim$
Device information	
Serial No. :	
19999034	
Type :	
FSW	
COM :	
COM11	
Function :	
Data cancel	~~
ОК Сапсе	el

## 5 Click the [OK] button.

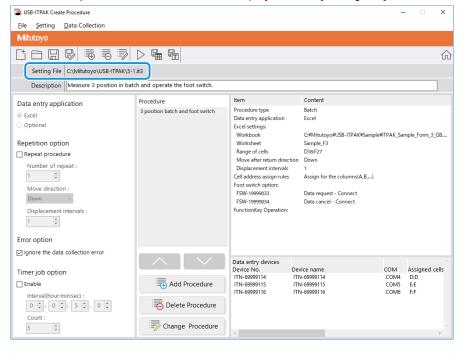
Change Procedure				;	×
Procedure type : Procedure name :					
Batch ~ 3 position batch and	foot switch				
Excel settings Workbook :	Data entry devices		Measuring Tool		
Workbook :       C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sample_form_3_c          C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sample_form_3_c           Worksheet :           Sample_F3           Range of cells (specify the A1 reference style) :           First :       D18        Select         Last :       f27        Select         Down v        Displacement intervals :	Device No. ITN-69999115 ITN-6999915	Assign rule D:D E:E F:F	CC User Control Num.	. Model Co	
1 Cell address assign rules	Foot switch option				_
O Unspecified	Device No.	Function	COM		
<ul> <li>Assign for the columns(A, B,)</li> <li>Assign for the rows(1,2,)</li> </ul>	FSW-19999033 FSW-19999034	Data request Data cancel	COM12 COM11		
FunctionKey Operation       Data request :     -       Data cancel :     -       Data skip :     -			D		
			0	K Cancel	

6 From the [File] menu on the create procedure screen, select [Save As].



#### Enter a file name and save the file.

» The full path for the file name will be displayed in the [Setting File] field on the create procedure screen.



## 7.1.2 Collecting Measurement Data



When you are performing data collection, disable the [AutoSave] feature in Excel. For details about using Excel, see the documentation for Excel.

#### Tips

After data is collected, the Excel file where measurement data was entered is saved. If you need to keep a copy of the Excel file before it was saved, make a back-up beforehand.

#### **1** Open the setting file to use, and then open the data collection screen.

For details, see the following:

- Sequential measurement: 🗐 "6.2.2 Collecting Measurement Data" (page 37)
- Batch measurement: 🗐 "6.3.2 Collecting Measurement Data" (page 51)
- Individual measurement: 🛄 "6.4.2 Collecting Measurement Data" (page 64)

#### **2** Start the collection operation for measurement data.

Start the collection operation by pressing the foot switch to which the [Data request] function is assigned.

- » Data will be entered according to the procedure that is saved in the setting file.
- » During data collection, the next cell into which data is entered will be displayed in green.

6		- C3 - <del>-</del>		ample_Form				×
F	File Hor	m   Insert   Page	Form Dat	a Revie Vi	ew 🛛 🖓 Tell	me Sigr	in Aps	hare
F1	18	• : ×	√ f <sub>x</sub>					¥
	в	с	D	E	F	G	н	
1	AAA Corp				Date:			ק  □
4		IFICATE	OF INS	PECTI	ON	SAN	IPLE	
6		art name			E	BB Corporatio	n	
7		Part No. of inspection			Date of in	CCC Division		-11
9	L	.ot No.				roval	Inspector	
10		iber of lots						
11		of inspections wing No.						
13								
14 15		ection item suring item	Size A	Size B	Size C	Size D	Size E	11.
16	Tolerance	Upper limit	0.15	0.10	0.15			
17		Lowerlimit Sample 1	-0.15	-0.10	0.00			-11-
19		Sample 2						
20		Sample 3 Sample 4						-11-
21 22	Result of	Sample 5						11.
23	inspection	Sample 6						
24 25		Sample 7 Sample 8						-11-
26		Sample 9						
27	<u> </u>	Sample 10						-11-
28 29		rage (Av.) d deviation (o)						-11-
30								
31								
32								-11
34 35	Overal	l judgment		[Special note]				
36 37 38 39	AN: Surftest	m] MD: Micrometer ID: CMM: Coordinate Met ection MG: Master G:	asuring Machine F age EX: Others	PP: Profale Project	or MS: Microsco			
40			BB	B Corporation				-
	$\leftarrow$	Sample_F	-3 (+)		-			Þ
Rea	ady			E	─	- I	+	70%

To undo the entry, press the foot switch to which the [Data cancel] function is assigned. The data in the input cell is deleted, and the green cell moves to the previous input cell.

To move to the next input cell without entering data, click the [Data skip] button on the data collection screen. The green cell moves to the next input cell.

» When all the data has been entered, a completion message will be displayed on the data collection screen.

USB-ITPAK - C:\Mitutoyo\USB-ITPAK\5-1.it3	- 🗆 ×
Milutoyo	
Procedure : 3 position batch and foot switch ( Batch )	
The import of all pieces of measurement data has been completed.	Zero Set
10.0000mm	Preset
10.000011111	Peak Reset
	Stop

#### **3** Click the [Stop] button.

🖀 USB-ITPAK - C	\Mitutoyo\USB-ITPAK\5-1.it3	-		$\times$
Mitutoyo				
Procedure : 3 p	osition batch and foot switch ( Batch )			
The import of	all pieces of measurement data has been completed.	Zer	o Set	
	10.000mm	Pre	eset	
		Peak	Reset	
🕀 Data re	quest 🔀 Data cancel 🔉 Data skip 🛛 🛛 Pause	8	Stop	

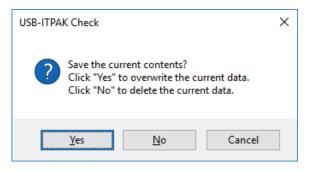
» A confirmation message will be displayed.

#### 4 Click one of the following buttons:

[Yes]: The Excel file where measurement data was entered is saved, and the display switches to the [Quick Menu] screen or the create procedure screen.

[No]: The display switches to the [Quick Menu] screen or the create procedure screen without saving the Excel file where measurement data was entered.

[Cancel]: The confirmation message closes, and you return to the data collection screen.



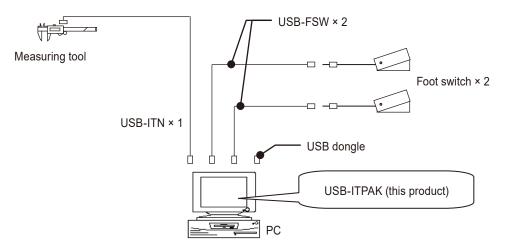
## 7.2 Entering a Character String with the Foot Switch (Sequential Measurement/Individual Measurement Only)

When the foot switch optional accessory (No. 937179T/12AAJ088) is connected, you can enter arbitrary character string data, such as "OK" or "Fail" with your foot. To use the foot switch, you must first specify what character string to assign to the foot switch. A character string can be entered with the foot switch in batch measurement or individual measurement.

To create the setting file in this section, the methods for configuring the procedures are explained using the examples in "■ Connection example", "■ Measurement example", and "■ Measurement data entry example" below.

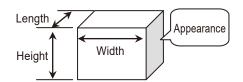
#### Connection example

One caliper is connected to USB-ITN, and two foot switches are connected to USB-FSW. The strings "OK" and "Fail" are assigned to the two foot switches.



#### Measurement example

Three sides of a rectangular object are measured in the order length  $\rightarrow$  width  $\rightarrow$  height, and the appearance is inspected visually.



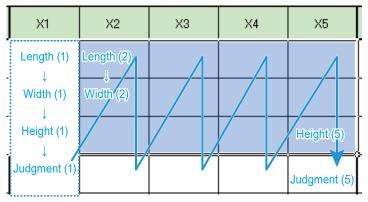
## Measurement data entry example

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
З	Height	10.60	10.50	mm	CD	10.58	10.58	10.55	10.57	10.56
4	Visual	-	-	-	-	ок	ок	ок	ок	ок

An example of an inspection table after data collection is complete is shown below.

Measurement procedure: Sequentially measure the length, width, and height of the first workpiece, and then enter the measurement data into the first row (Length), second row (Width), and third row (Height) of column X1 of the Excel worksheet. Then perform a visual inspection of the first workpiece, and enter the character string "OK" or "Fail" into the fourth row of column X1 (Visual) using the foot switch.

Next, measure the remaining workpieces in the same way, up to a total of five workpieces.



## 7.2.1 Creating the Setting File

#### 1 Connect the devices you will use to the PC, and configure the items in USB-ITPAK.

For details, see the following:

- Sequential measurement: 🗐 "6.2.1 Creating the Setting File" (page 30)
- Individual measurement: 🗐 "6.4.1 Creating the Setting File" (page 57)

As an example, here we edit parts of the setting file created in 📃 "6.2.1 Creating the Setting File" (page 30). After you open the setting file, click the [Change Procedure] button on the following screen.

SUSB-ITPAK Create Procedure				-		х
<u>File</u> <u>Setting</u> <u>Data</u> Collection						
Mitutoyo						
						仚
Setting File C:\Mitutoyo\USB-ITPAK\4-	2.it3					
Description Measure 3 sides. visual in	spection.					
Data entry application © Excel Optional Repetition option Repeat procedure Number of repeat : 1  Nove direction : Dosplacement intervals : 1	Procedure 3 side measurement	Item Procedure type Data entry application Excel settings: Workbook Worksheet Range of cells Move after return directik Displacement intervals Cell address assign rules Foot switch option: FunctionKey Operation:	Content Sequential Excel CiWifutoyo¥USB-ITPAK¥Sample Sample_F1 H11:L13 Down 1 Assign for the rows(1,2,)	¥ITPAK_San	nple_Form_1_	_GB
Error option						
Timer job option	Add Procedure		Device name ITN-69999114	COM COM4	Assigned o 11:13	cells
Interval(hour:min:sec) : $0 \div : 0 \div : 5 \div , 0 \div$ Count :	Change Procedure					
5	-/ Change Procedure	<				>

» The [Change Procedure] screen will be displayed.

#### Tips

To create a new setting file, enter a description of the setting file you are creating in the [Description] field, and then click the [Add Procedure] button.

# 2 Change [Procedure name] and the input range in the [Range of cells (specify the A1 reference style)] fields.

As an example, here we change these items to the contents below.

Change Procedure				×
Procedure type : Sequential  Procedure name : 3 side meas. visual in	nspection			
Excel settings Workbook : C:\/Mitutoyo\USB-ITPAK\Sample\\TPAK_Sample_Form_1_C Worksheet : Sample_F1 Range of cells (specify the A1 reference style) : First : H11 Last : L14 Move after return direction :	Data entry device Device No. ITN-69999114	S Assign rule 11:13	Measuring Tool CC User Control Num Model D	co + /
Down V Displacement intervals : 1	٢	_	> <	>
Cell address assign rules	Foot switch option			
Unspecified Assign for the columns(A,B,) Assign for the rows(1,2,)	Device No.	Function	сом +	
FunctionKey Operation       Data request :     -       Data cancel :     -       Data skip :     -			Ø	
			ок с	ancel

#### Tips

If you clicked the [Add Procedure] button in step 1, configure the items on the [Add procedure] screen. For details, see the following:

- Sequential measurement: 🗐 "6.2.1 Creating the Setting File" (page 30)
- Individual measurement: 🗐 "6.4.1 Creating the Setting File" (page 57)

#### 7 Measurement Data Collection Using the Procedure Measurement Menu (Advanced Operation)

3 Configure the information for the foot switch under the [Data entry devices] field.

- In the [Data entry devices] field, click the [+] button.
  - » The [Data entry device settings] screen will be displayed.

2 Under the [Excel cells assignment] field, specify the row numbers or the column numbers to assign the foot switch to.

> In the sample inspection table file, the foot switch is assigned to row 14. Therefore, enter [14] in the left field (start number) and [14] in the right field (end number).

- **3** Under the [Entry data settings] field, select [Character string data entry].
- 4 Under the [Entry data settings] field, click the [+] button.
  - » The [Character string data settings] screen will be displayed.
- 5 From the [Select foot switch] drop-down list, select the first foot switch to use.
- 6 In the [Character string data] field, enter the character string data to assign to the foot switch.

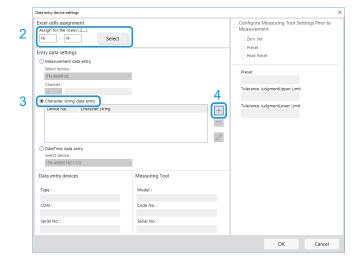
As an example, here we enter [OK].

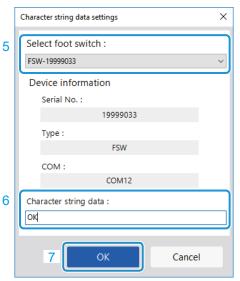
#### Tips

If [Optional] is selected under [Data entry application] on the create procedure screen, only ASCII characters (characters that can be entered directly from the keyboard, such as letters, numbers, and certain symbols) can be entered in the [Character string data] field.

7 Click the [OK] button.

Procedure type :	Procedure name :						
Sequential 🗸 🗸	3 side meas. visual	inspection					
Excel settings Workbook :		Data entry devic	es		Measuring Tool		
C:\Mitutoyo\USB-ITPAK\Sample\I	TPAK_Sample_Form_1_C	Device No. (TN-69999114	Assign rule 11:13	cc	User Control Num	Model	Co
Worksheet :						5	Ľ
Sample_F1	~						
Range of cells (specify the A1 ref	erence style) :						
First : H11	Select						
Last : L14	Select						
Move after return direction :	-						
Down ~							
Displacement intervals :		<		>	<		>
1							
Cell address assign rules		Foot switch optic	'n				
<ul> <li>Unspecified</li> </ul>		Device No.	Function	CON			
Assign for the columns(A,B,)					+		
Assign for the rows(1,2,)		-			_		
FunctionKey Operation							
Data request : -	~				0		
Data cancel : -	~				0		
Data skip : -	~						
					OK		Cancel





#### 7 Measurement Data Collection Using the Procedure Measurement Menu (Advanced Operation)

8 Repeat steps 4 through 7 to configure the information for the second foot switch.

As an example, here we enter [NG] in the [Character string data] field.

Characte	×	
Selec	t foot switch :	
FSW-1	19999034	~
Devi	ice information	
S	erial No. :	
	19999034	
T	ype :	
	FSW	
o	OM :	
	COM11	
Chara	cter string data :	
NG		
	OK Cancel	

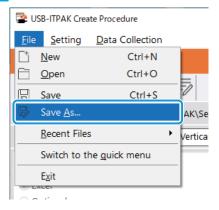
## 4 Click the [OK] button.

					×
Excel cells assign Assign for the row 14 - 14				Configure Measuring Tool Settings Prior to Measurement	
Entry data setting	gs			<ul> <li>Preset</li> <li>Peak Reset</li> </ul>	
O Measurement of	data entry				
Select device :				Preset	
ITN-89999105					
Channel :				Tolerance JudgmentUpper Limit	
~				rolennee sudgmentopper Enne	
Character string				Tolerance JudgmentLower Limit	
Device No.	Character string		+	rolerance studymenteower einite	
FSW-19999033 FSW-19999034		OK NG			
1344-13333034		NO			
			0		
O DateTime data	entry				
Select device :					
ITN-69999114[1					
1110-09999114[1	1:13]	1			
		Measuring Tool			
Data entry devic					
	ces	Measuring Tool			
Data entry devic		Model :			
Data entry devic Type : COM :	FSW				
Data entry devic Type : COM :	ces	Model : Code No. :			
Data entry devic Type : COM : Serial No. :	FSW COM12	Model :			
Data entry devic Type : COM : Serial No. :	FSW	Model : Code No. :			

## 5 Click the [OK] button.

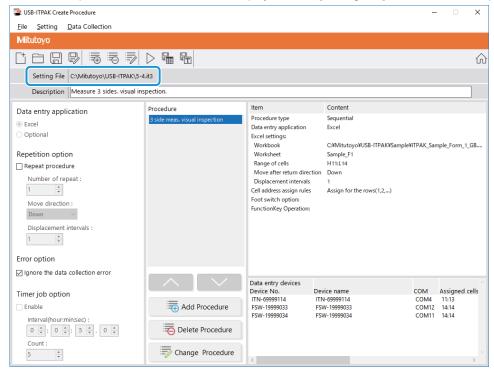
inspection		
Data entry devices	Measuring Tool	
Device No.         Assign rule           ITN-69999114         11:13           FSW-19999033 / FSW         14:14	CC User Control Num Model	C0 +
Foot switch option		
Device No. Function	сом +	
	Ø	
	Data entry devices Device No. Assign rule ITN-6999914 11:13 FSW-19995033 / FSW 14:14 Foot switch option	Data entry devices     Measuring Tool       Device No.     Assign rule     CC       User Control Num     Model       ITN-6999114     11:13       FSW-19999033 / FSW     14:14       CC

6 From the [File] menu on the create procedure screen, select [Save As].



7 Enter a file name and save the file.

» The full path for the file name will be displayed in the [Setting File] field on the create procedure screen.



## 7.2.2 Collecting Measurement Data



When you are performing data collection, disable the [AutoSave] feature in Excel. For details about using Excel, see the documentation for Excel.

#### Tips

After data is collected, the Excel file where measurement data was entered is saved. If you need to keep a copy of the Excel file before it was saved, make a back-up beforehand.

#### **1** Open the setting file to use, and then open the data collection screen.

For details, see the following:

- Sequential measurement: 🗐 "6.2.2 Collecting Measurement Data" (page 37)
- Individual measurement: 🛄 "6.4.2 Collecting Measurement Data" (page 64)

#### 2 Start measurement data collection with one of the following operations:

- On the data collection screen, click the [Data request] button.
- Press the DATA switch on the measuring tool or the connection device (USB-ITN/IT-0xxU/DP-1VA/U-WAVE transmitter).
- » Data will be entered according to the procedure that is saved in the setting file.
- » During data collection, the next cell into which data is entered will be displayed in green.

E	🚽 🕤 - 🗟 - 🗧 🛛 🛪 ITPAK_Sample_Form_1_GB (Compatibility Mode) - Excel 🖪 🗕 🗖 🗙																
Fil		Home In	nsert Pa	ge Layout	For	nulas Dat	a Revi	ew View							Sign in	₽ Sha	e
HI	411 • i × √ fr •																
		С	D	E	F	G	н	I	J	к	L	М	N	0	Р	Q	F A
1 2	AAA Corporation																
3 4																	
6 7	<u> </u>	lame of insp Product na					Lo	t No.			B Corpor CCC Divisi		Approval	Inspector	Overall ju	dgment	
8		Part nam						er of lots		Date	1						
9		Part No.					Number of	inspections					1				
10	No.	Inspection item	Permi val		Unit	Measuring item	X1	X2	Х3	X4	X5	judgment	Special note				
	1	Length	13.60	13.40									1				
11		-															
12	2	Width	12.20	12.00													
13	3	Height	10.60	10.50									Drawing No.				
13	4	Visual															
14	<u> </u>	riodal			<u> </u>								-				
15	5																
16	6																
10	7												1				
17	<u> </u>																
18	8																
	9												1				
19	40												1				
20	10																
21 22	CD	asuring item] Caliper MD:	: Micromete	r ID: India	ator I	HD: Height Ga	ge LG:Li	near Gage	SD: Scal	e							
21 22 23 24	AN:	Surftest CMM Hardness Tes	I: Coordinat	e Measurin	a Machi	ne PP:Profa	le Proiecto	r MS: Micro EX: Others	iscope								
25	25 BBB Corpotation																
4		Samp	le_F1													•	
Read	1													─		+ 1009	16

#### Tips

Measurement data collection can also be started by operating the foot switch. For details, see 📃 "7.1 Entering Measurement Data with the Foot Switch" (page 69)

In the sample inspection table file, the cells where the character string data will be entered are in row 14. To enter a character string, press the foot switch to which the character string that you want to enter is assigned.

To undo the entry, click the [Data cancel] button on the data collection screen. The data in the input cell is deleted, and the green cell moves to the previous input cell.

To move to the next input cell without entering data, click the [Data skip] button on the data collection screen. The green cell moves to the next input cell.

» When all the data has been entered, a completion message will be displayed on the data collection screen.

USB-ITPAK - C:\Mitutoyo\USB-ITPAK\5-4.it3	- 🗆 ×		
Mitutoyo			
Procedure : 3 side meas. visual inspection ( Sequential )			
The import of all pieces of measurement data has been completed.	Zero Set		
10.0000mm	Preset		
10.000011111	Peak Reset		
	Stop		

#### 3 Click the [Stop] button.

🖀 USB-ITPAK - (	\Mitutoyo\USB-ITPAK\5-4.it3	- 🗆 🛛								
Mitutoyo										
Procedure : 3 s	Procedure : 3 side meas. visual inspection ( Sequential )									
The import of	Zero Set									
	Preset									
		Peak Reset								
🕹 Data n	quest 🔀 Data cancel Data skip 🛛 Pause	Stop								

» A confirmation message will be displayed.

#### 4 Click one of the following buttons:

[Yes]: The Excel file where measurement data was entered is saved, and the display switches to the [Quick Menu] screen or the create procedure screen.

[No]: The display switches to the [Quick Menu] screen or the create procedure screen without saving the Excel file where measurement data was entered.

[Cancel]: The confirmation message closes, and you return to the data collection screen.

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	Cancel						

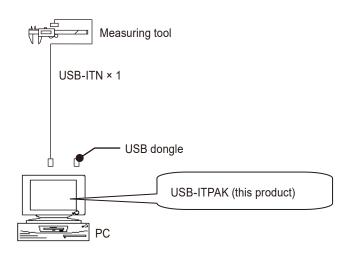
## 7.3 Measuring by Combining Two Procedures (Sequential Measurement/Batch Measurement Only)

In sequential measurement or batch measurement, you can specify data entry operation, which contains multiple procedures, in one setting file.

To create the setting file in this section, the methods for configuring the procedures are explained using the examples in "
Connection example", "
Measurement example", and "
Measurement data entry example" below.

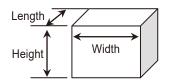
#### Connection example

One caliper is connected to USB-ITN.



#### Measurement example

Three sides of a rectangular object are measured in the order length  $\rightarrow$  width  $\rightarrow$  height.



## Measurement data entry example

An example of an inspection table after data collection is complete is shown below.

No.	Inspection item	Permissible value	Unit	Measuring item	X1 (X6)	X2 (X7)	X3 (X8)	X4 (X9)	X5 (X10)
1	Longth	13.60	mm	CD	13.49	13.51	13.52	13.53	13.50
	Length	13.40			13.53	13.49	13.53	13.52	13.53
2	Width	12.20	mm	CD	12.12	12.15	12.13	12.15	12.14
		12.00		CD	12.15	12.12	12.14	12.15	12.13
3	Hoight	10.60		CD	10.58	10.58	10.55	10.57	10.56
	Height	10.50	mm		10.57	10.56	10.56	10.57	10.55

In this inspection table, there is measurement data for 10 workpieces, and the measurement data for each measurement item consists of two rows.

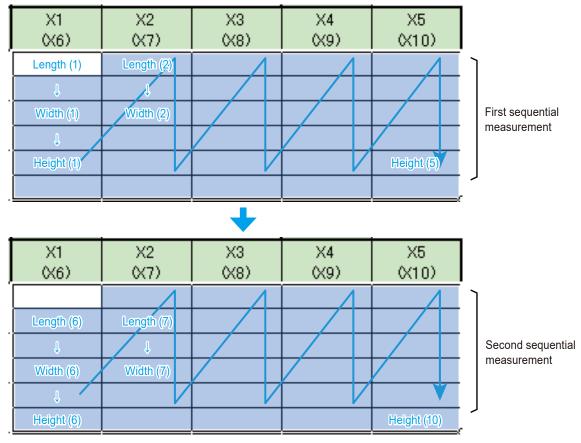
The measurement procedure consists of the following two procedures.

First measurement procedure: Sequentially measure the length, width, and height of the first workpiece, and then enter the measurement data into the first row (Length), third row (Width), and fifth row (Height) of column X1 (X6) of the Excel worksheet.

Next, sequentially measure the length, width, and height of the second workpiece, and then enter the measurement data into the first row (Length), third row (Width), and fifth row (Height) of column X2 (X7). Repeat the measurement up to the fifth workpiece.

Second measurement procedure: Sequentially measure the length, width, and height of the sixth workpiece, and then enter the measurement data into the second row (Length), fourth row (Width), and sixth row (Height) of column X1 (X6) of the Excel worksheet.

Next, sequentially measure the length, width, and height of the seventh workpiece, and then enter the data into the second row (Length), fourth row (Width), and sixth row (Height) of column X2 (X7).



Repeat the measurement up to the 10th workpiece.

The first procedure and second procedure are created as separate procedure. By running these two procedures sequentially, the complete measurement procedure can be accomplished.

## 7.3.1 Creating the Setting File

# **1** Connect the devices you will use to the PC, and configure the items on the [Add procedure] screen in USB-ITPAK.

For details, see the following:

- Sequential measurement: 📃 "6.2.1 Creating the Setting File" (page 30)
- Batch measurement: 🗐 "6.3.1 Creating the Setting File" (page 43)

Create the first procedure.

As an example, here we use the sample inspection table file (ITPAK\_Sample\_Form\_2\_GB.xls) as the input destination for the measurement data, and we configure the items with the following contents.

Add procedure				×
Procedure type : Procedure name :				
Sequential ~ 3 side measurement	Ľ1			
Excel settings	Data entry devices	i	Measuring Tool	
Workbook : C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sample_Form_2_C	Device No.	Assign rule CC	User Control Num Model	Co
Worksheet :				+
Sample_F2 ~				—
Range of cells (specify the A1 reference style) :				
First : G11 Select				0
Last : K16				
Move after return direction :				
Down ~				
Displacement intervals :				
Cell address assign rules	Foot switch option			
<ul> <li>Unspecified</li> <li>Assign for the columns(A,B,)</li> </ul>	Device No.	Function CO	M +	
Assign for the rows(1,2,)				
FunctionKey Operation				
Data request :				
Data cancel :			O	
Data skip :				
			OK	Cancel

#### Tips

To use an existing setting file to perform measurement, proceed to the procedure in 📃 "7.3.2 Collecting Measurement Data" (page 96).

#### 7 Measurement Data Collection Using the Procedure Measurement Menu (Advanced Operation)

2 In the [Data entry devices] field, configure the information for the data entry devices.

In the [Data entry devices] field, click the [+] button.

1

» The [Data entry device settings] screen will be displayed.

2 On the [Data entry device settings] screen, configure the items and then click the [OK] button.

For details, see the following:

- Sequential measurement: 🗐 "6.2.1 Creating the Setting File" (page 30)
- Batch measurement: 🗐 "6.3.1 Creating the Setting File" (page 43)

As an example, here we configure the items with the contents on the right.

Procedure type : Procedure name :						
Sequential  Sequential Sequential Second Sec	t_1 Data entry devic Device No.	es Assign rule		Veasuring Tool User Control Num	Model	Co +
Cell address assign rules Outspecified Ø Assign for the columns(A,B,) @ Assign for the cow(1,2) FunctionKey Operation Data request: Data cancel: Data skip: Units kip: Units kip: Unit	Foot switch optic Device No.	Function	СОМ	+		
				OK		Cancel

Data entry device settings							
Excel cells assignment							
Assign for the rows(1,2,)							
11 - 16 Select							
intry data settings							
Measurement data entry							
Select device :	ו						
ITN-69999114 ~							
Channel :							
~							
O Character string data entry							
Device No. Character string +							
	0						
O DateTime data entry							
Select device :							
~							
Data entry devices	Measuring Tool						
Type :	Model :						
ITN COM :	D Code No. :						
COM : COM4	Code No. :						
Serial No. :	Serial No. :						
69999114							
	-						

3 Click the [OK] but	tton.
----------------------	-------

rocedure type : Procedure name : Sequential 3 side measuremen	it 1			
Excel settings	Data entry devices		Measuring Tool	
Workbook : C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sample_Form_2_c Worksheet : Sample_F2 Range of cells (specify the A1 reference style) : First : G11 Last : K16 Select Down Displacement intervals : 2	Device No. ITN-69999114	Assign rule 11:16	CC User Control Num Mo	del CC
Cell address assign rules Unspecified Assign for the columns(A,B,) Assign for the rows(1,2,)	Foot switch option Device No.	Function	сом +	
FunctionKey Operation Data request: Data cancel: Data skip: -				

» This completes the creation of the first procedure.

# 4 On the create procedure screen, click the [Add Procedure] button, and then configure the items on the [Add procedure] screen.

Create the second procedure.

As an example, here we configure the items with the following contents.

Add procedure				×
Procedure type : Procedure name : Sequential ~ 3 side measuremen	t_2			
Excel settings Workbook : [C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sample_Form_2_c] Worksheet : Sample_F2 Range of cells (specify the A1 reference style) : First : G12 Last : K17 Move after return direction : Down Displacement intervals : 2 2	Data entry devi	Ces Assign rule	Measuring Tool CC User Control Num Model	Co +
Cell address assign rules	Foot switch opti	on		
<ul> <li>Unspecified</li> <li>Assign for the columns(A,B,)</li> <li>Assign for the rows(1,2,)</li> </ul>	Device No.	Function	сом +	
FunctionKey Operation       Data request :     -       Data cancel :     -       Data skip :     -				
			ОК	Cancel

#### 7 Measurement Data Collection Using the Procedure Measurement Menu (Advanced Operation)

5 In the [Data entry devices] field, configure the information for the data entry devices.

In the [Data entry devices] field, click the [+] button.

1

» The [Data entry device settings] screen will be displayed.

2 On the [Data entry device settings] screen, configure the items and then click the [OK] button.

For details, see the following:

- Sequential measurement: 🗐 "6.2.1 Creating the Setting File" (page 30)
- Batch measurement: 🗐 "6.3.1 Creating the Setting File" (page 43)

As an example, here we configure the items with the contents on the right.

xcel settings	Data entry device	tes	Measuring Tool	
Workbook : C:/Mutu/gov/UB-ITPAK_Sample_Torm_2_C	Device No.	Assign rule	CC User Control Num N	Vodel Co
2 Ell address assign rules 0 Unspecified 0 Assign for the columns(A.B)	Foot switch optic Device No.	500 Function	сом +	
Assign for the rows(1,2,)  unctionKey Operation  Data request: Data cancel: Data skip: Data				

Data entry device settings	Data	entry	device	settings	
----------------------------	------	-------	--------	----------	--

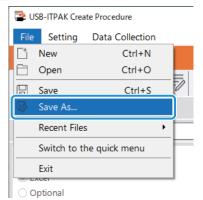
Excel cells assignment	
Assign for the rows(1,2,)	
12 - 17 Select	
Entry data settings	
Measurement data entry	
Select device :	
ITN-69999114 ~	
Channel :	
~	
○ Character string data entry	
Device No. Character string	+
	—
<ul> <li>DateTime data entry</li> </ul>	
Select device :	
~	
	NA
Data entry devices	Measuring Tool
Type :	Model :
ITN	Π
COM :	Code No. :
COM4	
Serial No. :	Serial No. :
69999114	
	2

#### 6 Click the [OK] button.

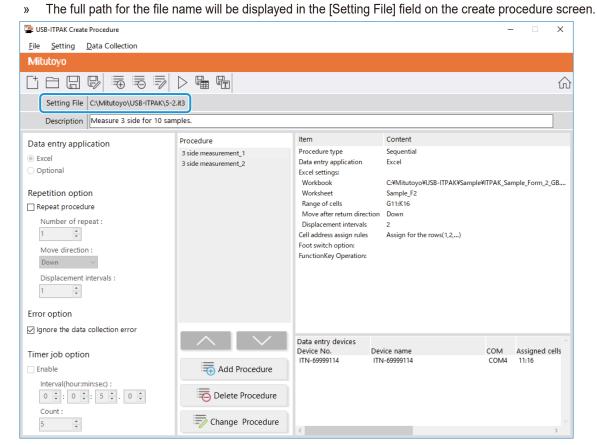
Add procedure						:
Procedure type : Procedure nam						
Sequential	ment_2					
Excel settings	Data entry device	s	N	leasuring Tool		
Workbook :	Device No.	Assign rule	CC	User Control Num	Model	Co
C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sample_Form_2_C	ITN-69999114	12:17			٥	+
Worksheet :						
Sample_F2 ~						
Range of cells (specify the A1 reference style) :						
First : G12 Select						0
Last : K17						
Move after return direction :						
Down ~						
Displacement intervals :	<		> <	<		>
2						
Cell address assign rules	Foot switch option	1				
○ Unspecified	Device No.	Function	COM			
<ul> <li>Assign for the columns(A,B,)</li> </ul>				+		
Assign for the rows(1,2,)						
FunctionKey Operation						
Data request :						
Data cancel :				0		
Data skip :						
				OK		Cancel

» This completes the creation of the second procedure.

#### 7 From the [File] menu on the create procedure screen, select [Save As].



8 Enter a file name and save the file.



#### 7.3.2 Collecting Measurement Data



When you are performing data collection, disable the [AutoSave] feature in Excel. For details about using Excel, see the documentation for Excel.

#### Tips

After data is collected, the Excel file where measurement data was entered is saved. If you need to keep a copy of the Excel file before it was saved, make a back-up beforehand.

#### **1** Open the setting file to use, and then open the data collection screen.

For details, see the following:

- Sequential measurement: 🗐 "6.2.2 Collecting Measurement Data" (page 37)
- Batch measurement: 🗐 "6.3.2 Collecting Measurement Data" (page 51)

#### **2** Start measurement data collection with one of the following operations:

- On the data collection screen, click the [Data request] button.
- Press the DATA switch on the measuring tool or the connection device (USB-ITN/IT-0xxU/DP-1VA/U-WAVE transmitter) (sequential measurement only).
- » Data will be entered according to the procedure that is saved in the setting file.
- » During data collection, the next cell into which data is entered will be displayed in green.

B						ITPAK_Sample_Form_2_GB [Compatibility Mode] - Excel					5		□ >	×		
File		Home In	isert Page L	ayout	Formulas	Data	Review	View 🛛						Sign in	₽ Shar	e
G11		<b>•</b> :	× √ fs													
A		C	D	E	F	G	н	I	J	K	L	M N	0	P	Q	ı
<u> </u>		A Corpor						-				Г	SAME			
34	CERTIFICATE OF INSPECTION															
6		Name of ins	spection							B Corpora		Approval	Inspector	Overall ju	dgment	1
7		Product r	name				No.			CCC Division	n					
8		Part na					r of lots		Date							
9		Part N					inspections									
10	No.	Inspection item	Permissible value	Unit	Measuring item	X1 (X6)	X2 (X7)	X3 (X8)	X4 (X9)	X5 (X10)	judgment	Special note				
11	1	Length	13.60													
12			13.40													
13 14	2	Width	12.20	1												
15			12.00									Drawing No.				1
16	3	Height	10.50	1								-				
17	4											1				
18																
19	5			-												
20 21																
22	6															
23	7											1				
24	<u> </u>															
25	8															
26 27																
27	9															
29	10											1				
30				1												
31 32		asuring item]	Micrometer II				0.1.1									
33	AN	Suffest CMM	I: Coordinate Me	asuring	Machine PP	Profale Pro	jector MS:1	Microscope	are							
34	HT	Hardness Tes	sting Machine N	l:Visua	linspection N	IG: Master G	age EX: Oth	iers								4
35							<u>t</u>	3BB Corpo	nation							
	ŀ	Samp	le_F2 (+							•		_			Þ	_
Ready	/												─ - ─	-	+ 1009	%

To undo the entry, click the [Data cancel] button on the data collection screen. The data in the input cell is deleted, and the green cell moves to the previous input cell.

To move to the next input cell without entering data, click the [Data skip] button on the data collection screen. The green cell moves to the next input cell.

» When all the data has been entered, a completion message will be displayed on the data collection screen.

USB-ITPAK - C:\Mitutoyo\USB-ITPAK\5-2.it3	- 🗆 ×
Milutoyo	
Procedure : 3 side measurement_2 ( Sequential )	
The import of all pieces of measurement data has been completed.	Zero Set
10.0000mm	Preset
10.000011111	Peak Reset
	Stop

#### 3 Click the [Stop] button.

🖀 USB-ITPAK - C	- 🗆 🛛						
Mitutoyo							
Procedure : 3 side measurement_2 ( Sequential )							
The import of	Zero Set						
	Preset						
		Peak Reset					
🕀 Data re	quest 🔀 Data cancel 🔉 Data skip 📕 Pause	😸 Stop					

» A confirmation message will be displayed.

#### 4 Click one of the following buttons:

[Yes]: The Excel file where measurement data was entered is saved, and the display switches to the [Quick Menu] screen or the create procedure screen.

[No]: The display switches to the [Quick Menu] screen or the create procedure screen without saving the Excel file where measurement data was entered.

[Cancel]: The confirmation message closes, and you return to the data collection screen.

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 Cancel	

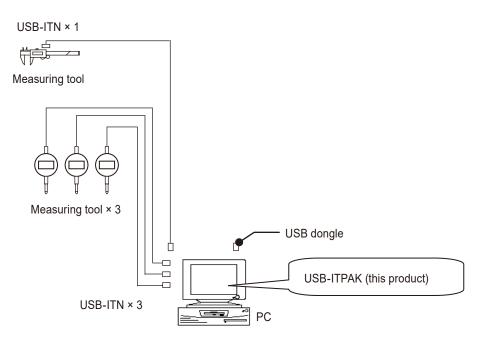
## 7.4 Measuring by Combining and Repeating Procedures (Sequential Measurement/Batch Measurement Only)

In sequential measurement or batch measurement, you can specify to repeat a measurement procedure in the setting file when a similar measurement is repeatedly used in multiple devices.

To create the setting file in this section, the methods for configuring the procedures are explained using the examples in "
Connection example", "
Measurement example", and "
Measurement data entry example" below.

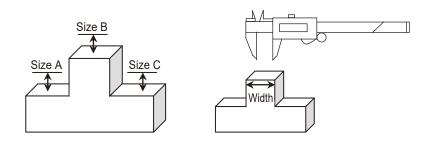
#### Connection example

A measuring jig that uses three indicators and one caliper is connected to USB-ITN.



#### Measurement example

The three indicators are used to measure three locations (Size A, Size B, Size C) all at once. Then, using the caliper, the width of the upper part of the workpiece is measured.



#### Measurement data entry example

An example of an inspection table after data collection is complete is shown below.

Inspection item		Size A	Size B	Size C	Size D	Size E
Measuring 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 measuring 10 workpieces with the following two procedures. First procedure: Measure the locations "Size A", "Size B", and "Size C" on the first workpiece with the measuring jig, and then enter the measurement data into the columns of row Sample 1 of the Excel worksheet.

Second procedure: Measure the location "Size E" with the caliper, and then enter the measurement data into column "Size E" of row Sample 1 of the Excel worksheet.

These procedures are repeated through the 10th workpiece, and the data is entered into the columns of rows Sample 2 through Sample 10 of 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 build a procedure like this one, create the first and second procedures as separate procedures, and then set these procedures to be run repeatedly 10 times. By running this procedure, the first and second procedures are run in succession to measure one workpiece. By repeating this 10 times, all workpieces will be measured.

## 7.4.1 Creating the Setting File

# 1 Connect the devices you will use to the PC, and configure the items on the [Add procedure] screen in USB-ITPAK.

For details, see the following:

- Sequential measurement: 📃 "6.2.1 Creating the Setting File" (page 30)
- Batch measurement: 🗐 "6.3.1 Creating the Setting File" (page 43)

#### Create the first procedure.

As an example, here we use the sample inspection table file (ITPAK\_Sample\_Form\_3\_GB.xls) as the input destination for the measurement data, and we configure the items with the following contents.

Add procedure				×
Procedure type : Procedure name : Batch  v				
Excel settings Workbook : C\/Mitutoyo\USB-ITPAK\Sample\TPAK_Sample_Form_3_C Worksheet : Sample_F3 Range of cells (specify the A1 reference style) : First : D18 Last : F18 Move after return direction : Down v Displacement intervals : 1	Data entry devices Device No.	Assign rule CC	Measuring Tool User Control Num Model	C0 +
Cell address assign rules	Foot switch option			
<ul> <li>Unspecified</li> <li>Assign for the columns(A,8,)</li> <li>Assign for the rows(1,2,)</li> </ul>	Device No.	Function COI	M +	
FunctionKey Operation       Data request :     -       Data cancel :     -       Data skip :     -			D	
			ОК	Cancel

#### Tips

To use an existing setting file to perform measurement, proceed to the procedure in 🗐 "7.4.2 Collecting Measurement Data" (page 106).

#### 7 Measurement Data Collection Using the Procedure Measurement Menu (Advanced Operation)

2 Configure the information for the first data entry device in the [Data entry devices] field.

In the [Data entry devices] field, click the [+] button.

1

» The [Data entry device settings] screen will be displayed.

2 On the [Data entry device settings] screen, configure the items and then click the [OK] button.

For details, see the following:

- Sequential measurement: 🗐 "6.2.1 Creating the Setting File" (page 30)
- Batch measurement: 🗐 "6.3.1 Creating the Setting File" (page 43)

As an example, here we configure the items with the contents on the right.

Batch v 3 posi. ba	itch			
Excel settings	Data entry devices		Measuring Tool	
Workbook :	Device No.	Assign rule	CC User Control Num Model	Ce
C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sample_Form_	3_C			
Worksheet :				
Sample_F3 Range of cells (specify the A1 reference style) :	~			
First : D18				
Last: F18 Select				
Move after return direction :				
Down ~				
Displacement intervals :				
1				
Cell address assign rules	Foot switch option			
<ul> <li>Unspecified</li> </ul>	· · · · ·			
Assign for the columns(A,B,)	Device No.	Function	сом +	
Assign for the rows(1,2,)				
FunctionKey Operation			-	
Data request :				
Data cancel :			O	
Data skip :				
xcel cells assignment Assign for the columns(A,B,)			□ Configure Measuring Tool Setti Measurement ○ Zero Set	ngs Prior t
xcel cells assignment Assign for the columns(A,B,) D - D Select				ngs Prior t
xcel cells assignment Assign for the columns(A,B,) D - D Select intry data settings			Measurement O Zero Set	ngs Prior ti
ixcel cells assignment       Assign for the columns(A,B,)       D     -       D     -       Select   Intry data settings			Measurement Zero Set Preset	ngs Prior te
ixxel cells assignment       Assign for the columns(A,B,)       p     •       p     •       p     •       p     •       Select device :			Measurement Zero Set Preset	ngs Prior te
Excel cells assignment       Assign for the columns(A.B,)       D     • D       Select   Intry data settings			Zero Set     Preset     Peak Reset	ngs Prior te
Skel cells assignment Assign for the column(A,B,)			Zero Set     Preset     Peak Reset	ngs Prior to
Asign for the columns(A.B) D D D			Veasurement Zero Set Preset Peak Reset	ngs Prior to
ciccel cells assignment Assign for the columni(A,B,)  p			Veasurement Zero Set Preset Peak Reset	ngs Prior to
Excel cells assignment Assign for the column(A,B,)			Measurement Zero Set Preset Peak Reset Preset Tolerance JudgmentUpper Limit	ngs Prior to
Excel cells assignment Assign for the columni(A,B,)		+	Measurement Zero Set Preset Peak Reset Preset Tolerance JudgmentUpper Limit	ngs Prior te
Excel cells assignment Assign for the columni(A,B,)		+	Measurement Zero Set Preset Peak Reset Preset Tolerance JudgmentUpper Limit	ngs Prior te
Excel cells asignment Assign for the column(A,B,)		+ 1	Measurement Zero Set Preset Peak Reset Preset Tolerance JudgmentUpper Limit	ngs Prior to
Scele Cells assignment         Assign for the columns(A.B)         Image: Cell Cells assignment         Image: Cells assignment         Select         Image: Cells assignment         Select device :         Image: Cells assignment         Device No.         Character string         Date/Imme data entry		+	Measurement Zero Set Preset Peak Reset Preset Tolerance JudgmentUpper Limit	ngs Prior to
Assign for the columni(A.B) () () () () () () () () () () () () () (		+	Measurement Zero Set Preset Peak Reset Preset Tolerance JudgmentUpper Limit	ngs Prior to
xcel cells assignment Assign for the columns(A.B)		+	Measurement Zero Set Preset Peak Reset Preset Tolerance JudgmentUpper Limit	ngs Prior te
cicclels assignment Assign for the columni(A,B,=)	Aeasuring Tool	+ 1	Measurement Zero Set Preset Peak Reset Preset Tolerance JudgmentUpper Limit	ngs Prior te
ciccl cells assignment Assign for the columni(A,B,=)	-	*	Measurement Zero Set Preset Peak Reset Preset Tolerance JudgmentUpper Limit	ngs Prior to
Excel cells assignment       Assign for the column(A,B,-)       Dim       Dim       Massurement data entry       Select device :       ITM-6999115       ITM-6999115       ITM-6999115       Date Finne data entry       Select device :       Date finne data entry       Select device :       Date finne data entry       Select device :       Date antry devices	Aeasuring Tool Model :	+	Measurement Zero Set Preset Peak Reset Preset Tolerance JudgmentUpper Limit	ngs Prior tu
Select     Select     Select     Select     Select device :     Select device :	-	+ 1	Measurement Zero Set Preset Peak Reset Preset Tolerance JudgmentUpper Limit	ngs Prior te
Excel cells assignment Assign for the column(A,B,)  Thy data settings  Measurement data entry Select device :  Device No. Character string  Date Intro devices  Type :  Thy	Model :	+	Measurement Zero Set Preset Peak Reset Preset Tolerance JudgmentUpper Limit	ngs Prior te
Excel cells asignment Asign for the column(A,B,-)	Model :		Measurement Zero Set Preset Peak Reset Preset Tolerance JudgmentUpper Limit	ngs Prior te

#### **3** Repeat step **2** to configure the information for the second data entry device.

To assign the second data entry device to the second column, E, enter [E] in the [Excel cells assignment] fields.

Excel cells assignment Assign for the columns(A,8,) E - E Select	Configure Measuring Tool Settings Prior to Measurement Zero Set
Entry data settings	O Preset
Measurement data entry	🔾 Peak Reset
Select device :	0
ITN-69999115 ~	Preset
Channel :	Tolerance JudgmentUpper Limit
Character string data entry Device No. Character string	Tolerance JudgmentLower Limit
	+
O DataTime data entry	
DateTime data entry     Select device :	
Select device :	Measuring Tool
Select device : ITN-69999114[D:D]	Measuring Tool Model :
Select device : [TN-6999114[D:D] Data entry devices	-
Select device : TN-69999114(D:D) Data entry devices Type : ITN COM :	Model : D Code No. :
Select device : TN-6999114(D.D) Data entry devices Type : TN COM : COM : COM5	Model : Code No. : D
Select device : TN+65999114[D:D] Data entry devices Type : Type : COM : COM : COM 5 Serial No. :	Model : Code No. : Serial No. :
Select device : TN-6999114(D.D) Data entry devices Type :  TN COM : COM : COM 5	Model : Code No. : D

Cancel

#### 4 Repeat step 2 to configure the information for the third data entry device.

To assign the third data entry device to the third column, F, enter [F] in the [Excel cells assignment] fields.

Data entry device settings		×
Excel cells assignment Assign for the columns(AB) F · F Select Entry data settings @ Measurement data entry Select device : [TN-6999116 ~ Channel : Character string data entry		Configure Measuring Tool Settings Prior to Measurement 2ero Set Preset Preset Preset Tolerance Judgment Upper Limit Value
Device No. Character string DateTime data entry Select device :	+ -	Tolerance Judgment Lower Limit Value
ITN-69999114[D:D]		
Data Input Tool	Measuring Tool	
Type : ITN	Model :	
COM : COM6	Code No. :	
Serial No. : 69999116	Serial No. :	
		OK Cancel

#### 5 Click the [OK] button.

Add procedure					×
Procedure type : Procedure name : Batch 3 posi. batch					
Excel settings Workbook : Ci_MitutoyoUUSB/TPAK_Sample\TPAK_Sample_Form_3_{ Ci_MitutoyoUUSB/TPAK_Sample_Form_3_{ Sample_F3 Range of cells (specify the A1 reference style) : First : First : First : To B Select Move after return direction : Down Displacement intervals :	Data entry devic Device No. ITN-69999114 ITN-69999115 ITN-69999116	es Assign rule D:D EE EE F:F	Measuring Too		co +
Cell address assign rules Cell address assign rules Orspecified Seasing for the columns(A,B) Assign for the rows(1,2,)	Foot switch optic	n Function	COM		>
FunctionKey Operation Data request: • • Data cancel: • • Data skip : • •				OK	Cancel

» This completes the creation of the first procedure.

#### 6 On the create procedure screen, click the [Add Procedure] button, and then configure the

#### items on the [Add procedure] screen.

Create the second procedure.

As an example, here we configure the items with the following contents.

Add procedure					×
Procedure type : Procedure name : Sequential ~ Caliper measureme	nt				
Excel settings Workbook : C:MMitutoyoUSB-TIPAK\Sample\TPAK\Sample\Form_3.c Worksheet : Sample_F3 Range of cells (specify the A1 reference style) : First :	Data entry devic Device No.	Assign rule	Measuring CC User Contro	Tool I Num Model	C0 +
Cell address assign rules O Unspecified (a) Assign for the columns(A,B,) O Assign for the rows(1,2,)	Foot switch option	Function	СОМ	+	
FunctionKey Operation Data request: Data cancel : Data skip :				/	
				ОК	Cancel

7 In the [Data entry devices] field, configure the information for the data entry devices.

Add procedure

Sequential

In the [Data entry devices] field, click the [+] button.

1

» The [Data entry device settings] screen will be displayed.

C(:\MittudyoUSB-TFlax(Sample(TFlax(Sample(TFlax(Sample(TFlax(Sample(TFlax(Sample(TFlax(Sample(TFlax(Sample(TFlax(Sample(TFlax(Sample(TFlax(Sample(TFlax(Sample(Fflax(Sam	Excel settings	Data entry devi	ces		Measuring Tool		
O Ungeolind Ø Assign for the columnIA.B) O Saign for the row(12) Unction Rey Operation Data request: ■ Data arred: ■	Worksheet: Sample/E3 v Range of cells (specify the A1 reference style): First: H18 Select Move after return direction: Down v Displacement intervals :	Device No.	Assign rule	cc	User Control Num	Model	cr (+
Data skip :	O Unspecified (e) Assign for the columns(A,B,) O Assign for the rows(1,2,) Function(Key Operation Data request :	· · ·		col	+		

Procedure name : Caliper measurement

2 On the [Data entry device settings] screen, configure the items and then click the [OK] button.

For details, see the following:

- Sequential measurement: 🗐 "6.2.1 Creating the Setting File" (page 30)
- Batch measurement: 🗐 "6.3.1 Creating the Setting File" (page 43)

As an example, here we configure the items with the contents on the right.

ata entry device settings		
xcel cells assignment Assign for the columns(A.B) H · H · Select Intry data settings Measurement data entry Select decise : ITN-89999105 Channel :	<u> </u>	Configure Measuring Tool Settings Prior to Measurement Zero Set Preset Preset Preset Tolerance JudgmentUpper Limit
Oharacter string data entry     Device No. Character string     DateTime data entry     select device :		Tolerance JudgmentUpper Limit
Character string data entry     Device No. Character string     DateTime data entry	Measuring Tool	+ Tolerance JudgmentLower Limit
O Character string data entry           Device No.         Character string           Date Time data entry           Select device :	Measuring Tool Model :	+ Tolerance JudgmentLower Limit
Character string data entry Device No. Character string DataTime data entry Select device : Data entry devices Type : ITN	Model :	+ Tolerance JudgmentLower Limit
Character string data entry Device No. Character string Date:Time data entry select device : Data entry devices Type : Type : TM COM :	-	+ Tolerance JudgmentLower Limit
Character string data entry Device No. Character string DataTime data entry Select device : Data entry devices Type : ITN	Model :	+ Tolerance JudgmentLower Limit

#### 8 Click the [OK] button.

Change Procedure								×
	edure name :							
Sequential V	per measuremen	nt						
Excel settings		Data entry device	s		Measuring Tool			
Workbook :		Device No.	Assign rule	CC	User Control Num	Model	Co	
C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sample_	Form_3_6	ITN-89999105	H:H					+
Worksheet :								baaaaaaa
Sample_F3	~							—
Range of cells (specify the A1 reference style) :								
First : H18 Sele	-+							1
Last: H18								5
Move after return direction :								
Down ~								
Displacement intervals :		<		>	<		>	
1								
Cell address assign rules		Foot switch option	ı					
<ul> <li>Unspecified</li> </ul>		Device No.	Function	CON				
Assign for the columns(A, B,)					+			
<ul> <li>Assign for the rows(1,2,)</li> </ul>								
FunctionKey Operation								
Data request :								
Data cancel :					0			
Data skip :								
					OK		Cancel	

» This completes the creation of the second procedure.

#### 9 Specify the [Repetition option] field.

- 1 Select [Repeat procedure].
- 2 In the [Number of repeat] field, specify the number of times to repeat the procedures that you created.

As an example, here we specify [10].

3 In the [Move direction] field, select the direction in which to enter the measurement data.

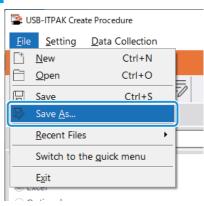
After the procedure that you created has finished, the input cell moves in the direction that you specify here. As an example, here we select [Down].

In the [Displacement intervals] field, specify the number of cells to move.
 Specify the number of cells to move for step 3.

Specifying [1] moves to the next cell. Specifying [2] moves to two cells away. As an example, here we specify [1].

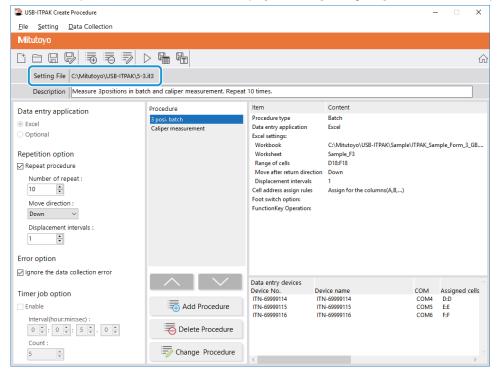
	USB-ITPAK Create Procedure				-	-	×			
	Elle Setting Data Collection									
	Mitutoyo									
	Setting File C:\Mitutoyo\USB-ITPAK\5-1	.it3								
	Description Measure 3positions in bat	ch and caliper measurement. Repeat	10 times.							
	Data entry application	Procedure	Item	Content						
	Excel	3 posi. batch	Procedure type	Batch						
	Optional	Caliper measurement	Data entry application Excel settings:	Excel						
			Workbook	C:\Mitutoyo\USB-ITPAK\Sample\	ITPAK_San	nple_Form_3	_GB			
1	Repetition option		Worksheet	Sample_F3			_			
÷.,	Repeat procedure		Range of cells Move after return directi	D18:F18						
~	Number of repeat :		Displacement intervals	1						
2	10		Cell address assign rules Foot switch option:	Assign for the columns(A,B,)						
3	Move direction : Down ~		FunctionKey Operation:							
4	Displacement intervals :									
	Error option									
	Ignore the data collection error									
		$\land$ $\lor$	Data entry devices							
	Timer job option			Device name ITN-69999114	COM COM4	Assigned o	cells			
	Enable	Add Procedure	ITN-69999115	ITN-69999115	COM5	E:E				
	Interval(hour:min:sec) :		ITN-69999116	ITN-69999116	COM6	F:F				
		Delete Procedure								
	Count : 5	Change Procedure	<				>			

10 From the [File] menu on the create procedure screen, select [Save As].



#### **11** Enter a file name and save the file.

» The full path for the file name will be displayed in the [Setting File] field on the create procedure screen.



#### 7.4.2 Collecting Measurement Data



When you are performing data collection, disable the [AutoSave] feature in Excel. For details about using Excel, see the documentation for Excel.

#### Tips

After data is collected, the Excel file where measurement data was entered is saved. If you need to keep a copy of the Excel file before it was saved, make a back-up beforehand.

#### **1** Open the setting file to use, and then open the data collection screen.

For details, see the following:

- Sequential measurement: 🗐 "6.2.2 Collecting Measurement Data" (page 37)
- Batch measurement: 🗐 "6.3.2 Collecting Measurement Data" (page 51)

#### **2** Start measurement data collection with one of the following operations:

- On the data collection screen, click the [Data request] button.
- Press the DATA switch on the measuring tool or the connection device (USB-ITN/IT-0xxU/DP-1VA/U-WAVE transmitter) (sequential measurement only).
- » Data will be entered according to the procedure that is saved in the setting file.
- » During data collection, the next cell into which data is entered will be displayed in green.

6			1110123	ample_Form				×
F	File Hon	n Insert Page	Form Dat	a Revie Vie	ew 🛛 🖓 Tell	me Sign	n in R <sub>4</sub> SH	are
				1				
F1	18	• I X	√ f <sub>x</sub>					×
	в	C	D	E	F	G	н	
1	AAA Corpo	oration			Dete:			
4	CERTI	FICATE	OF INS	PECTI	ON	SAN	IPLE	
5 6	Pa	rt name			В	BB Corporatio	on	111
7		art No.	_		<b>D</b> ()	CCC Division	-	
8 9		f inspection ot No.			Date of in Appr		Inspector	
10		ber of lots			пррі	ovar	mapeotor	111
11		finspections						
12	Dra	ving No.						4
13	Inspe	ction item	Size A	Size B	Size C	Size D	Size E	
14 15		ction item uring item				Size D		
14 15 16		uring item Upper limit	5.150	10.100	5.150	Size D	13.55	
14 15	Meas	uring item Upper limit Lower limit Sample 1				Size D		
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	13.55	
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	13.55	
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	13.55	
14 15 16 17 18 19 20 21 22 23	Meas Tolerance	uring item Upper limit Lower limit Sample 1 Sample 3 Sample 4 Sample 5 Sample 6	5.150	10.100	5.150	Size D	13.55	
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	5.150	10.100	5.150	Size D	13.55	
14 15 16 17 18 19 20 21 22 23	Meas Tolerance Result of	uring item Upper limit Lower limit Sample 1 Sample 3 Sample 4 Sample 5 Sample 6	5.150	10.100	5.150	Size D	13.55	
14 15 16 17 18 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 6 Sample 7 Sample 8 Sample 9 Sample 10	5.150	10.100	5.150	Size D	13.55	
14 15 16 17 18 20 21 22 23 24 25 26 27 28	Meas Tolerance Result of inspection Aver	uring item Upper limit Lower limit Sample 1 Sample 3 Sample 3 Sample 4 Sample 5 Sample 7 Sample 7 Sample 7 Sample 7 Sample 10 age (Av.)	5.150	10.100	5.150	Size D	13.55	
14 15 16 17 18 20 21 22 23 24 25 26 27	Meas Tolerance Result of inspection Aver	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	5.150	10.100	5.150	Size D	13.55	
14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	Meas Tolerance Result of inspection Aver	uring item Upper limit Lower limit Sample 1 Sample 3 Sample 3 Sample 4 Sample 5 Sample 7 Sample 7 Sample 7 Sample 7 Sample 10 age (Av.)	5.150	10.100	5.150	Size D	13.55	
14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	Meas Tolerance Result of inspection Aver	uring item Upper limit Lower limit Sample 1 Sample 3 Sample 3 Sample 4 Sample 5 Sample 7 Sample 7 Sample 7 Sample 7 Sample 10 age (Av.)	5.150	10.100	5.150	Size D	13.55	
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 Aver. standarc	uting item Upper limit Lower limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 6 Sample 8 Sample 8 Sample 9 ge (Av.) (deviation (c)	5.150	10.100	5.150	Size D	13.55	
14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35	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 8 Sample 9 Sample 9 Sample 9 Sample 1 deviation (c)	5.150	10.100	5.150	Size D	13.55	
14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35	Meas Tolerance Result of inspection Aver standarc Overall IMeasuring item	uring item Upper limit Sample 1 Sample 2 Sample 3 Sample 4 Sample 5 Sample 6 Sample 6 Sample 7 Sample 70 Sample 70 age (Av.) I deviation (c)	5,150	10.100 3.900	5 150		13.55	
14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35	Meas Tolerance Result of inspection Aver. standarc Overall [Mesering kernel]	uting tem Upper limit Sample 1 Sample 2 Sample 3 Sample 3 Sample 5 Sample 6 Sample 6 Sample 7 Sample 7	5,150 4,850	10.100 3.900	5 150 4.850	cole	13.55	
14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 20 27 28 30 31 32 33 34 35 36 37 38 39	Meas Tolerance Result of inspection Aver. standarc Overall [Mesering kernel]	uring item Upper limit Lower limit Sample 1 Sample 3 Sample 4 Sample 5 Sample 5 Sample 7 Sample 7 Sample 9 Sample 9 Sample 10 age (Av.) I deviation (c)	5 150 4 850	10.100 9.900	5 150 4.850	cole	13.55	
14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35	Meas Tolerance Result of inspection Aver standarc Uncerning her AV Surfrast AV Surfrast	uring item Upper limit Sample 1 Sample 2 Sample 2 Sample 3 Sample 4 Sample 5 Sample 5 Sample 5 Sample 5 Sample 6 Sample 7 Sample	5.150 4.8500 4.8500 4.8500 4.8500 4.8500 4.8500 4.8500 4.850	10, 100 3, 900 (Special sete) (Special sete) (Speci	5.150 4.850 	cole	13.55	
14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 20 27 28 30 31 32 33 34 35 36 37 38 39	Meas Tolerance Result of inspection Aver. standarc Overall [Mesering kernel]	uting tem Upper limit Sample 1 Sample 2 Sample 3 Sample 3 Sample 5 Sample 6 Sample 6 Sample 7 Sample 7	5.150 4.8500 4.8500 4.8500 4.8500 4.8500 4.8500 4.8500 4.850	10, 100 3, 900 (Special sete) (Special sete) (Speci	5 150 4.850	cole	13.55	

To undo the entry, click the [Data cancel] button on the data collection screen.

The data in the input cell is deleted, and the green cell moves to the previous input cell.

To move to the next input cell without entering data, click the [Data skip] button on the data collection screen. The green cell moves to the next input cell.

» When all the data has been entered, a completion message will be displayed on the data collection screen.

USB-ITPAK - C:\Mitutoyo\USB-ITPAK\5-3.it3	- 🗆 ×
Mitutoyo	
Procedure : Caliper measurement ( Sequential )	
The import of all pieces of measurement data has been completed.	Zero Set
01A+00010.00	Preset
	Peak Reset
	Stop

#### 3 Click the [Stop] button.

👺 USB-ITPAK - (	:\Mitutoyo\USB-ITPAK\5-3.it3	- 🗆 ×						
Mitutoyo								
Procedure : Ca	Procedure : Caliper measurement ( Sequential )							
The import of	Zero Set							
	Preset							
		Peak Reset						
⇒ Data n	Stop							

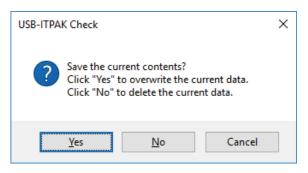
» A confirmation message will be displayed.

#### 4 Click one of the following buttons:

[Yes]: The Excel file where measurement data was entered is saved, and the display switches to the [Quick Menu] screen or the create procedure screen.

[No]: The display switches to the [Quick Menu] screen or the create procedure screen without saving the Excel file where measurement data was entered.

[Cancel]: The confirmation message closes, and you return to the data collection screen.



# 7.5 Entering Measurement Data into an Arbitrary Application

You can enter measurement data into an arbitrary application as if you were entering it with a keyboard. The measurement data will be entered into the active application at the cursor location.

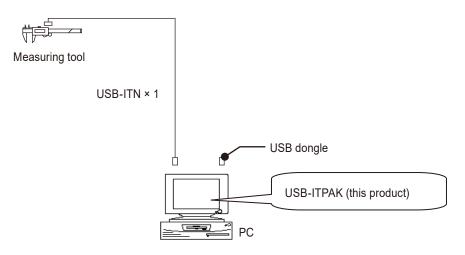
To create the setting file in this section, the methods for configuring the procedures are explained using the examples in "
Connection example", "
Measurement example", and "
Measurement data entry example" below.

#### Tips

To use the foot switch optional accessory (No. 937179T/12AAJ088), you can assign only the [Data request] function to the foot switch. The [Data cancel] and [Data skip] functions cannot be used.

#### Connection example

One caliper is connected to USB-ITN.



#### Measurement example

The width of a rectangular object is measured.



#### Measurement data entry example

The measurement data will be entered into Notepad, which is a standard application included with Windows. An example of the collected data is shown below.

/ Un	titled - Not	_		×	
<u>F</u> ile <u>E</u>	dit F <u>o</u> rmat	<u>V</u> iew	<u>H</u> elp		
10.00	12/10/20	20 6:	30:49	PM	^
10.00	12/10/20	20 6:	30:51	PM	
10.00	12/10/20	20 6:	30:52	PM	
10.00	12/10/20	20 6:	30:53	PM	
10.00	12/10/20	20 6:	30:56	PM	
10.00	12/10/20	20 6:	30:57	PM	
10.00	12/10/20	20 6:	30:58	PM	
10.00	12/10/20	20 6:	31:04	PM	
					~
<				>	

A sequential measurement procedure is used to measure the width of the workpiece.

## 7.5.1 Creating the Setting File

**1** Connect the devices you will use to the PC, and then start USB-ITPAK. For details, see III "3.1 Starting USB-ITPAK" (page 17).

2	Check the information of the devices that are connected to the PC.
	For details, see 🗐 "4 Checking the Device Information" (page 21).

#### **3** On the [Quick Menu] screen, click the [Create Procedure] button.

SB-ITPAK Quick Menu	- 🗆 X
Mitutoyo	
	±
Procedure Measurement Menu	Settings Menu
Data collection	R Device information
Save (Excel file)	င်္ဂြိန် Option
Save (Text file)	(i) Version Information
Create Procedure	
Easy Measurement Menu	Login Menu
Easy Input Mode	Subser Registration or Update
	🗲 Login
	S Exit

» The create procedure screen will be displayed.

#### Tips

The [Create Procedure] button is available when an appropriate USB dongle is connected to the PC.

4 Enter a description of the setting file you are creating in the [Description] field.

The [Description] field can be left blank.

SUSB-ITPAK Create Procedure				-		×
Eile Setting Data Collection						
Mitutoyo						
						ŵ
Setting File	I					
Description						
Data entry application	Procedure	Item	Content			
Excel						
○ Optional						
Repetition option						
Repeat procedure						
Number of repeat :						
1						
Move direction :						
Down 🗸						
Displacement intervals :						
1						
Error option						
☑ Ignore the data collection error						
		Data entry devices Device No.	Device name	СОМ	Assigned ce	^   e
Timer job option	=	Device NO.	Device fidine	COM	Assigned ce	115
Enable	Add Procedure					
Interval(hour:min:sec) : $0 \stackrel{\bullet}{\clubsuit} : 0 \stackrel{\bullet}{\clubsuit} : 5 \stackrel{\bullet}{\clubsuit} . 0 \stackrel{\bullet}{\clubsuit}$	Delete Procedure					
Count :	Change Procedure	<	_			~

5 Select [Optional] under the [Data entry application] field, and then click the [Add Procedure] button.

SUSB-ITPAK Create Procedure				-		×
File Setting Data Collection						
Mitutoyo						
						仚
Setting File						
Description Input data to any applicati	on.					
Data entry application	Procedure	Item	Content			
⊖ Excel						
Repetition option						
Repeat procedure						
Number of repeat :						
Move direction : Down						
Displacement intervals :						
Error option						
☑ Ignore the data collection error		Data entry devices				^
Timer job option		Device No.	Device name	COM	Assigned o	ells
Enable	Add Procedure					
Interval(hour:min:sec): $0 \stackrel{\bullet}{\downarrow}: 0 \stackrel{\bullet}{\downarrow}: 5 \stackrel{\bullet}{\downarrow}, 0 \stackrel{\bullet}{\downarrow}$	Delete Procedure					
Count :	Change Procedure	<	_			~ >

» The [Add procedure] screen will be displayed.

#### 6 Select [Sequential] in [Procedure type], and then enter a name in [Procedure name].

The procedure name is displayed in the [Procedure] field in the center of the create procedure screen. Enter a name that will be easy to recognize when checking. As an example, here we enter [Optional data input].

rocedure type : Proce lequential ~				
Data settings	Data entry dev	rices	Measuring Tool	
Control Code : Enter Data format : Numeric form	V Device No.	СОМ	User Control Num Model	Code
Add the date and time data Date and Time Separator : Space	×			
	Foot switch opt	tion Function	сом +	

#### 7 Specify the [Control Code] field.

Select [Unspecified], [Enter], [Up], [Down], [Right], [Left], or [Tab] as the code to add after data entry. As an example, here we select [Enter].

Add procedure					×
Procedure type : Sequential ~	Procedure name : Optional data inpu	ιť			
Data settings		Data entry devices		Measuring Tool	
Data settings Control Code : Enter		Device No.	СОМ	User Control Num 1	Vodel Code +
		Device No.	Function (	сом + //	
				Ok	Cancel

#### 8 Specify the [Data format] field.

Select the format in which data will be entered into the application.

You can select from the following data formats. For the purposes of explanation, the following is an example where the measuring tool on channel 1 of COM 13 has measured 32.14 mm.

• [Numeric form]:

Only measurement data is entered. Example: [32.14]

• [Command form]:

The channel number and measurement data are entered. Example: [01A+00032.14]

• [COM No. + Command form]:

The COM number (three digits), channel number, and measurement data are entered. Example: [01301A+00032.14]

As an example, here we select [Numeric form].

Add procedure						×
Procedure type : Sequential ~	Procedure name : Optional data inpu	ıt				
Data settings		Data entry devices	5	Measuring	Tool	
Control Code : Enter	~	Device No.	СОМ	User Contro	ol Num Model	Code +
Data format : Numeric form	~					—
☐ Add the date and time data Date and Time	~					O
Separator :						
Space	~	Foot switch option				
		Device No.	Function	СОМ	+	
					ОК	Cancel

#### 7 Measurement Data Collection Using the Procedure Measurement Menu (Advanced Operation)

9 In the [Data entry devices] field, configure the information for the data entry devices.

- In the [Data entry devices] field, click the [+] button.
  - » The [Data entry device settings] screen will be displayed.

2 In the [Entry data settings] field, select the type of data to enter.

There are two types of data that can be entered: measurement data (numeric data) entered by a measuring tool and character string data entered by pressing a foot switch.

As an example, here we select [Measurement data entry].

For details about how to enter character string data by pressing a foot switch, see "7.2 Entering a Character String with the Foot Switch (Sequential Measurement/Individual Measurement Only)" (page 78).

3 In the [Select device] field, select which device to use for data entry.

If you click the drop-down list, the connected data entry devices will be displayed.

As an example, here we select the USB-ITN device.



If you select a U-WAVE-R device, you must also select which channel the device uses for transmission from the [Channel] drop-down list.

If you start U-WAVEPAK to confirm the channel, first exit USB-ITPAK. In this case, you must perform the operations again from the first step.

#### 4 Click the [OK] button.

» The registered device information will be displayed in the [Data entry devices] field on the [Add procedure] screen.

#### Tips

You can change or delete the registered device information. For details, see 🗐 "8.8 [Add procedure] Screen/[Change Procedure] Screen" (page 179).

ocedure type : ouential ~	Procedure na Any_Data Ing				
quential ~	Any_Data inp				
ontrol Code :		Data entry device		Measuring Tool	
inter	~	Device No.	COM	User Control Num Model	Cod
ata format :					Ľ
Jumeric form	~				
Add the date and time data					6
Date and Time	$\sim$				
Separator :					
Space	~				
		Foot switch option	0		
		Device No.	Function	COM	
				+	
				0	
				U	
				ОК	Cancel
Data entry device settings					
Entry data settings				Configure Measuring Tool Se	
Entry data settings Measurement data entry				Configure Measuring Tool Se Measurement	
Entry data settings Measurement data entry Select device :		] 3		Configure Measuring Tool Se Measurement O Zero Set	
Entry data settings Measurement data entry	v	) 3		Configure Measuring Tool Se Measurement Zero Set Preset	
Entry data settings Measurement data entry Select device : ITN-89999105	v	) 3		Configure Measuring Tool Se Measurement O Zero Set	
Entry data settings Measurement data entry Select device : ITN-89999105	v	) 3		Configure Measuring Tool Se Measurement 2 Zero Set Preset Paak Reset	
Entry data settings Measurement data entry Select device : ITN-89999105 Linamer - ITN-89999105	v er string	) 3		Configure Measuring Tool Se Measurement Zero Set Preset	
Entry data settings Measurement data entry Select device : ITN-8999905 Character string data entry	v r string	) 3		Configure Measuring Tool Se Measurement 2 Zero Set Preset Preset Preset	ettings Prior to
Entry data settings Measurement data entry Select device : ITN-8999905 Character string data entry	v er string	) 3	+	Configure Measuring Tool Se Measurement 2 Zero Set Preset Paak Reset	ettings Prior to
Entry data settings Measurement data entry Select device : ITN-8999905 Character string data entry	~ er string	) 3	+	Configure Measuring Tool Se Measurement 2 zero Set Preset Preset Preset	ettings Prior to
Entry data settings Measurement data entry Select device : ITN-8999905 Character string data entry	↓ er string	) 3	+ -	Configure Measuring Tool Se Measurement Preset Peak Reset Preset Tolerance JudgmentUpper Limit	ettings Prior to
Entry data settings Measurement data entry Select device : ITN-8999905 Character string data entry	v rr string	) 3 Messuring Tool	+	Configure Measuring Tool Se Measurement Preset Peak Reset Preset Tolerance JudgmentUpper Limit	ettings Prior to
Chrty data settings Masurement data entry Select device : ITTN-9999105 Character string data entry Device No. Characte Data entry devices	v Hr string	Measuring Tool	H	Configure Measuring Tool Se Measurement Preset Peak Reset Preset Tolerance JudgmentUpper Limit	ettings Prior to
Chrty data settings Measurement data entry Select device : ITH-0000010 Character string data entry Device No. Characte Data entry devices Type :	v r sting	, -		Configure Measuring Tool Se Measurement Preset Peak Reset Preset Tolerance JudgmentUpper Limit	ettings Prior to
Chrty data settings Measurement data entry Select device : INN-00090105 Character string data entry Device No. Characte Data entry devices Type : IN	v r string	Measuring Tool Model :		Configure Measuring Tool Se Measurement Preset Peak Reset Preset Tolerance JudgmentUpper Limit	ettings Prior to
Chrty data settings Measurement data entry Seted device : ITH-9999105 Character string data entry Device No. Characte Data entry devices Type : COM :	↓ rr string	Measuring Tool		Configure Measuring Tool Se Measurement Preset Peak Reset Preset Tolerance JudgmentUpper Limit	ettings Prior to
Chrty data settings Measurement data entry Select device : INN-00090105 Character string data entry Device No. Characte Data entry devices Type : IN	v sting	Measuring Tool Model :		Configure Measuring Tool Se Measurement Preset Peak Reset Preset Tolerance JudgmentUpper Limit	ettings Prior to
Entry data settings Messurement data entry Select device : INN-00090105 Character string data entry Device No. Character Data entry devices Type : COM : COM : COM :	v r string	Measuring Tool Model : Code No. :		Configure Measuring Tool Se Measurement Preset Peak Reset Preset Tolerance JudgmentUpper Limit	ettings Prior to

#### **10** Configure the settings for entering date/time data.

When measurement data is read in, the date and time that the data was collected can be automatically entered. If you do not want to enter the date and time of collection, proceed to step 11. As an example, here we set the date and time of collection to be entered.

1 Select [Add the date and time data].

Add procedure							>
Procedure type :	Procedure name						
Sequential ~	Optional data in						
Data settings		Data entry device	es		Measuring Tool		
Control Code :		Device No.	COM		User Control Num	Model	Code
Enter	~	ITN-89999105		COM3			+
Data format :							—
Numeric form	~						
Add the date and time	data						$\square$
Date and Time	~						0
Separator : Space	~						
		<			<	_	>
				,			7
		Foot switch optio	n				
		Device No.	Function	CO	M		
					+		
					_		
					0		
					(	ОК	Cancel

2 From the drop-down list, select the format for the date and time.

You can select from the following date and time formats.

For the purposes of explanation, the following is an example where the measuring tool has measured 32.14 mm.

• [Date and Time] The date and time are added. Example: 32.14 01/23/2013 12:34:56

```
• [Date]
Only the date is added.
Example: 32.14 01/23/2013
```

• [Time] Only the time is added. Example: 32.14 12:34:56

As an example, here we select [Date and Time].

3 From the drop-down list, select the separation character format.

For the character that separates the measurement data and the date and time data, you can select from [Space], [Tab], [Comma (,)], or [Semicolon (;)]. As an example, here we select [Space].

#### Tips

If you select [Numeric form] in the [Data format] field and one of the following in the [Separator] field, an error may be displayed in Excel when measurement data is entered.

- [Space]
- [Comma (,)]
- [Semicolon (;)]

Also, if negative values (values that begin with a minus sign) are entered into Excel, Excel may display the error [The formula you typed contains an error.].

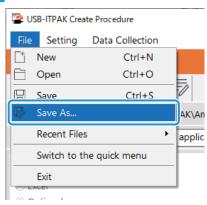
If this error is displayed, take the following actions.

- Select [Tab] for [Separator].
- · Set the cell format in Excel to [Text] ahead of time.

#### 11 Click the [OK] button.

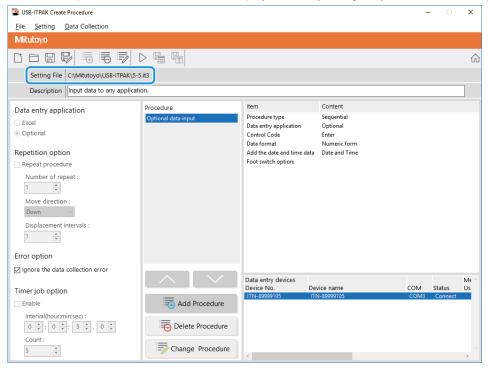
Add procedure						×
Procedure type : Sequential	Procedure name : Optional data inpu	ıt				
Data settings		Data entry device	S		Measuring Tool	
Control Code :	~	Device No.	COM		User Control Num Model	Code
Enter	~	ITN-89999105		COM3		+
Data format : Numeric form	~					-
Add the date and time data						0
Date and Time Separator :	~					
Space	~	٢		>	<	>
		Foot switch option	ı			
		Device No.	Function	со	H	
					I	
					ОК	Cancel

12 From the [File] menu on the create procedure screen, select [Save As].



#### **13** Enter a file name and save the file.

» The full path for the file name will be displayed in the [Setting File] field on the create procedure screen.



7.5.2 Collecting Measurement Data

**1** On the [Quick Menu] screen, click the [Data collection] button.

Procedure Measurement Menu	Settings Menu
Data collection	Cevice information
Save (Excel file)	දිරිූා Option
Save (Text file)	(j) Version Information
Create Procedure	
Easy Measurement Menu	Login Menu
Easy Input Mode	Subset Registration or Update
	🗲 Login

» The setting file selection dialog box appears.

#### 2 Select the setting file.

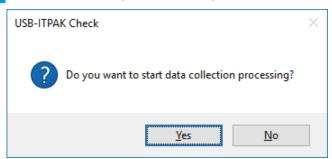
🔁 Open			×
$\leftarrow \rightarrow \land \uparrow$	« Mitutoyo » USB-ITPAK	<ul> <li>Search USB-ITPAK</li> </ul>	Q
Organize 🔻 Ne	ew folder		?
scs	^ Name	Date modified Type	^
tuika	5-4.it3	12/10/2020 5:10 PM IT3 File	
a OneDrive	5-5.it3	12/10/2020 6:29 PM IT3 File	
	5-6.it3	12/10/2020 6:53 PM IT3 File	
This PC	5-7.it3	12/10/2020 7:12 PM IT3 File	
Desktop	DP-1VA_outLog_P1.it3	12/11/2020 8:22 AM IT3 File	
Documents	U-WAVE-TIMER-JOB.it3	12/11/2020 10:50 IT3 File	~
📕 Downloads	< <		>
	File <u>n</u> ame: 5-6.it3	<ul> <li>ITPAK setting file(*.itp;*.it2;*.it2</li> </ul>	$  \sim$
		<u></u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> Cancel	

#### Tips

By selecting [Open] or [Recent Files] from the [File] menu on the create procedure screen, you can also select the setting file. If you selected the setting file on the create procedure screen, click the data collection start icon from the tool bar on the create procedure screen.

» The dialog box appears to prompt you to start handling data.

#### Select the existing data handling method. 3



[Yes]: Start the data handling process.

[No]: The dialog box closes, and you return to the [Quick Menu] screen or the create procedure screen.

If you click the [Yes] button, the data collection screen will be displayed. »

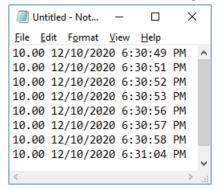
4 Open the application where measurement data will be entered.

As an example, here we open Notepad, which is a standard application included with Windows, and place the cursor where we want to enter data.

#### 5 Start measurement data collection with one of the following operations:

👺 USB-ITPAK - C:\Mitutoyo\USB-ITPAK\5-5.it3	– 🗆 ×
Mitutoyo	
Procedure : Optional data input ( Sequential )	
Execute import manipulations of measurement data.	Zero Set
	Preset
	Peak Reset
⇒ Data request	Stop

- On the data collection screen, click the [Data request] button.
- Press the DATA switch on the measuring tool or the connection device (USB-ITN/IT-0xxU/DP-1VA/U-WAVE transmitter).
- Data will be entered according to the procedure that is saved in the setting file. »



#### Tips

Measurement data collection can also be started by operating the foot switch.

For details, see 📃 "7.1 Entering Measurement Data with the Foot Switch" (page 69).

#### 7 Measurement Data Collection Using the Procedure Measurement Menu (Advanced Operation)

6	Click the [Stop] button.	
	SB-ITPAK - C:\Mitutoyo\USB-ITPAK\5-5.it3	– 🗆 ×
	Mitutoyo	
	Procedure : Optional data input ( Sequential )	
	Execute import manipulations of measurement data.	Zero Set
	01A+00010.00	Preset
		Peak Reset
	→ Data request 🗶 Data cancel ▷ Data skip 📕 Pause	Stop

» A confirmation message will be displayed.

USB-ITPAK Check	×
Is it OK to exit?	
OK Cancel	

» The display switches to the [Quick Menu] screen or the create procedure screen.

#### Tips

After data collection is complete, save the file as necessary.

## 7.6 Entering the Collection Date and Time for Measurement Data (Sequential Measurement/Batch Measurement Only)

In sequential measurement or batch measurement, the data collection date and time can be automatically entered when measurement data is taken in. In this case, however, you must specify the date and time data entry settings on the target connection devices.

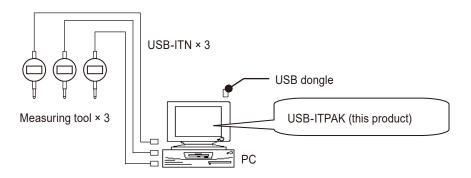
To create the setting file in this section, the methods for configuring the procedures are explained using the examples in "
Connection example", "
Measurement example", and "
Measurement data entry example" below.

#### Tips

- With batch measurement, the date and time data can be assigned to only one device.
- For details about entering the date and time data into an arbitrary application, see 🗐 "7.5 Entering Measurement Data into an Arbitrary Application" (page 108).

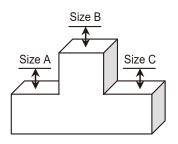
#### Connection example

Three indicators are connected to USB-ITN.



#### Measurement example

The three indicators are used to measure three locations (Size A, Size B, Size C) all at once.



#### Measurement data entry example

An example of an inspection table after data collection is complete is shown below.

			test क	–	×
					y y
F1	2 *	: X V	f_x		_
	А	В	С	D	
1	Inception 1	Inception 2	Inception 3	Date and time	
2	10	9.999	10	12/10/2020 18:55	
3	10	9.999	10	12/10/2020 18:55	
4	10	9.999	10	12/10/2020 18:55	
5	10	9.999	5	12/10/2020 18:55	
6	10	9.999	5	12/10/2020 18:55	
7	10	9.999	5	12/10/2020 18:55	
8	10	9.999	5	12/10/2020 18:55	
9	10	9.999	5	12/10/2020 18:55	
10	10	9.999	5	12/10/2020 18:55	-
	<ul> <li>Image: A = 0</li> </ul>	Sheet1	+ : ·		
Rea	ady		──	+ 1009	%

Measurement procedure: Measure three locations on the workpiece all together, and then enter the measurement data into columns "Inspection 1", "Inspection 2", and "Inspection 3" and the date and time data in column "Date and time" of the Excel worksheet.

Next, measure three locations on the same workpiece all together, and then enter the measurement data into columns "Inspection 1", "Inspection 2", and "Inspection 3" and the date and time data into column "Date and time" in the next row of the Excel worksheet.

Repeat the measurement on the same workpiece.

H	<del>ب</del> ک	<del>،</del> ج	t	est	A	-		×
File	Horr	nser Page	Form	Data	Revie V	íew 🛛 🖓	Tell me.	Sigr <mark>+</mark>
D6	Ŧ	: ×	~	$f_x$				~
	Α	В		С			D	
1 Ince	eption 1	Inceptio	n 2	Incepti	on 3	Date an	nd time	
2			Ba	tch (1)				
3			Ba	tch (2)				
4								
5								
6								_
7								
8								
9		<u> </u>	[			J		
10 Batch (9)								
	ŀ	Sheet1		+		1		Þ
Click and	d drag t		Ξ	四 -			+	100%

#### 7.6.1 Creating the Setting File

# 1 Connect the devices you will use to the PC, and configure the items on the [Add procedure] screen in USB-ITPAK.

For details, see the following:

- Sequential measurement: 📃 "6.2.1 Creating the Setting File" (page 30)
- Batch measurement: 🗐 "6.3.1 Creating the Setting File" (page 43)

As an example, here we use the sample inspection table file (test.xls) as the input destination for the measurement data, and we configure the items with the following contents.

Under the [Cell address assign rules] field, select [Assign for the columns(A,B,...)] or [Assign for the rows(1,2,...)]. If you select [Unspecified], the date and time data entry settings cannot be configured.

Add procedure					×
Procedure type :	Procedure name :				
Batch ~	3 posi. batch meas.	+ DateTime			
Excel settings Workbook :		Data entry devices		Measuring Tool	
C:\Mitutoyo\USB-ITPAK\Sample\test.xlsx		Device No.	Assign rule C	C User Control Num	. Model Co
Worksheet :					
Sheet1	~				—
Range of cells (specify the A1 reference st	tyle) :				
First : A2 Last : D10	Select				O
Move after return direction :					
Down ~					
Displacement intervals :					
1					
Cell address assign rules		Foot switch option			
<ul> <li>Unspecified</li> </ul>		Device No.	Function O	OM	
Assign for the columns(A,B,)				+	
<ul> <li>Assign for the rows(1,2,)</li> </ul>		J			
FunctionKey Operation					
Data request :					
Data cancel :				0	
Data skip :					
				OF	K Cancel

#### Tips

To use an existing setting file to perform measurement, proceed to the procedure in 🗐 "7.6.2 Collecting Measurement Data" (page 128).

#### 7 Measurement Data Collection Using the Procedure Measurement Menu (Advanced Operation)

2 Configure the information for the first data entry device in the [Data entry devices] field.

In the [Data entry devices] field, click the [+] button.

1

» The [Data entry device settings] screen will be displayed.

2 On the [Data entry device settings] screen, configure the items and then click the [OK] button.

For details, see the following:

- Sequential measurement: 🗐 "6.2.1 Creating the Setting File" (page 30)
- Batch measurement: 🗐 "6.3.1 Creating the Setting File" (page 43)

As an example, here we configure the items with the contents on the right.

	batch meas. + DateTime					
Excel settings	Data entry dev	ices	Measuring Tool			
Workbook : C:\Mitutoyo\USB-ITPAK\Sample\test.xlsx	Device No.	Assign rule	CC User Control Num Model	Co		
Worksheet :						
Sheet1	~					
Range of cells (specify the A1 reference style) :						
First : A2						
Last: D10 Select						
Move after return direction :						
Down ~						
Displacement intervals :						
1 🔹						
Cell address assign rules	Foot switch opt	Foot switch option				
O Unspecified	Device No.	Function	COM			
Assign for the columns(A,B,)	Device No.	Turcoon	+			
<ul> <li>Assign for the rows(1,2,)</li> </ul>						
FunctionKey Operation						
Data request :						
Data cancel :			0			
Data skip :						
				Cancel		
			ОК			

Data entry device settings		
Evcel cells assignment           Assign for the columns(A,B,)           A           •           A   Select		Configure Measuring Tool Settings Prior to Measurement Zero Set
Entry data settings		<ul> <li>Preset</li> </ul>
		<ul> <li>Peak Reset</li> </ul>
Measurement data entry     Select device :		
		Preset
ITN-69999114 ~		
ITN-69999114		Tolerance JudgmentUpper Limit
ITN-69999115 ITN-69999116		Forefaille subgriteritopper enne
1114-03333110	)	Tolerance JudgmentLower Limit
Device No. Character string O DateTime data entry Select device :	+	
Data entry devices	Measuring Tool	
Type :	Model :	
ITN		
COM :	Code No. :	
COM3		
Serial No. :	Serial No. :	
89999105	Jenarray,	
03333102		
		OK Cancel

#### **3** Configure the settings for entering date and time data.

- Under the [Data entry devices] field on the [Add procedure] screen, click the [+] button.
  - » The [Data entry device settings] screen will be displayed.
- 2 In the [Entry data settings] field, select [DateTime data entry].
- 3 In the [Select device] field, select which device to assign the date and time data to.

If you click the drop-down list, the connected data entry devices will be displayed.

As an example, here we select the USB-ITN device.

4 Under the [Excel cells assignment] field, specify the row numbers or the column numbers to assign the date and time data to.

> In the sample inspection table file, the date and time data is assigned to column D. Therefore, enter [D].

	Data entry device settings			×
4	Excel cells assignment Assign for the columns(A,B,) DSelect	]	Configure Measuring Tool Settings Prior to Measurement	
	Entry data settings		<ul> <li>Preset</li> <li>Peak Reset</li> </ul>	
	O Measurement data entry		O Peak Nesel	
	Select device : ITN-89999105 ···		Preset	
	Channel :		Tolerance JudgmentUpper Limit	
0	Character string data entry Device No. Character string	+	Tolerance JudgmentLower Limit	
2 3	Select device : ITN-69999114[A:A]	j		
	Data entry devices	Measuring Tool		
	Type :	Model :		
	COM :	Code No. :		
	Serial No. :	Serial No. :		
			5 ОК Cancel	

5 Click the [OK] button.

#### 4 Repeat step 2 to configure the information for the second data entry device.

As an example, here we assign the second device to column [B].

Data entry device settings	
Excel cells assignment Assign for the columns(A,B,)	
B - B	Select
Entry data settings	
Measurement data entry	
Select device :	
ITN-69999115	~
ITN-89999105	
ITN-69999115 ITN-69999116	
O Character string data entry	
Device No. Character st	tring +

5 Repeat step 2 to configure the information for the third data entry device.

As an example, here we assign the third device to column [C].

Data entry device settin	ıgs
Excel cells assign Assign for the colu C - C	
Entry data setting Measurement d Select device :	
ITN-69999116	~
Channel :	
~	
<ul> <li>Character string</li> </ul>	data entry
Device No.	Character string

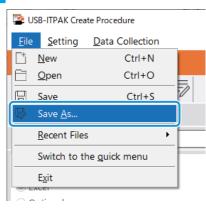
#### 6 Click the [OK] button.

Add procedure					×
Procedure type : Procedure name :					
Batch	+ DateTime				
Excel settings Workbook :	Data entry devices Measuring Tool				
C:\Mitutoyo\USB-ITPAK\Sample\test.xlsx	Device No. ITN-69999114	Assign rule A:A	CC	User Control Num Model	co +
Worksheet : Sheet1	ITN-69999114 ITN-69999115	D:D B:B	Di	D	-
Range of cells (specify the A1 reference style) : First : A2 Last : D10 Move after return direction : Down v Displacement intervals : 1	(TN-69999116	C:C	> <	<	>
Cell address assign rules	Foot switch option				
<ul> <li>Unspecified</li> <li>Assign for the columns(A,B,)</li> <li>Assign for the rows(1,2,)</li> </ul>	Device No.	Function	COM	+	
FunctionKey Operation       Data request :       -       Data cancel :       -       Data skip :					
				ОК	Cancel

#### Tips

- · Check that you have not mistakenly assigned the same Excel cells to multiple devices.
- If you delete a measurement data entry device from the [Data entry devices] field to which date and time data entry has been assigned, those date and time data entry settings will also be deleted.

# 7 From the [File] menu on the create procedure screen, select [Save As].



# 8 Enter a file name and save the file.

» The full path for the file name will be displayed in the [Setting File] field on the create procedure screen.

USB-ITPAK Create Procedure				-		$\times$
Eile Setting Data Collection						
Mitutoyo						
						ŵ
Setting File C:\Mitutoyo\USB-ITPAK\5-6	5.it3					
Description Measure 3 positions in ba	tch + Date and Time input					]
Data entry application	Procedure	Item	Content			
Excel	3 posi. batch meas. + DateTime	Procedure type Data entry application	Batch Excel			
<ul> <li>Optional</li> </ul>		Excel settings:	Licei			
Repetition option		Workbook Worksheet	C:\Mitutoyo\USB-ITPAK\Sample\ Sheet1	test.xlsx		
Repeat procedure		Range of cells	A2:D10			
Number of repeat :		Move after return direction Displacement intervals	on Down 1			
1		Cell address assign rules	، Assign for the columns(A,B,)			
Move direction :		Foot switch option: FunctionKey Operation:				
Down ~		Functionkey Operation:				
Displacement intervals :						
1						
Error option						
Ignore the data collection error						
		Data entry devices Device No.	Device name	сом	Assigned c	olle
Timer job option	=	ITN-69999114	ITN-69999114	COM4	A:A	city
Enable	Add Procedure		ITN-69999114 ITN-69999115	DateTim COM5	D:D B:B	
Interval(hour:min:sec): $0 \div : 0 \div : 5 \div . 0 \div$	Delete Procedure	ITN-69999116	ITN-69999116	COM6	C:C	
Count :	Change Procedure					
5	-// change Procedure	<				>

# 7.6.2 Collecting Measurement Data



When you are performing data collection, disable the [AutoSave] feature in Excel. For details about using Excel, see the documentation for Excel.

# Tips

After data is collected, the Excel file where measurement data was entered is saved. If you need to keep a copy of the Excel file before it was saved, make a back-up beforehand.

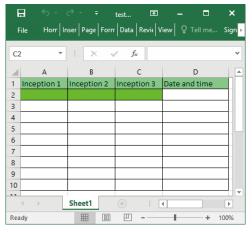
## **1** Open the setting file to use, and then open the data collection screen.

For details, see the following:

- Sequential measurement: 🗐 "6.2.2 Collecting Measurement Data" (page 37)
- Batch measurement: 🗐 "6.3.2 Collecting Measurement Data" (page 51)

#### 2 Start measurement data collection with one of the following operations:

- On the data collection screen, click the [Data request] button.
- Press the DATA switch on the measuring tool or the connection device (USB-ITN/IT-0xxU/DP-1VA/U-WAVE transmitter) (sequential measurement only).
- » Data and the date and time that the data was collected will be entered according to the procedure that is saved in the setting file.
- » During data collection, the next cell into which data is entered will be displayed in green.



» When all the data has been entered, a completion message will be displayed on the data collection screen.

SB-ITPAK - C:\Mitutoyo\USB-ITPAK\5-6.it3		-		$\times$
Mitutoyo				
Procedure : 3 posi. batch meas. + DateTime ( Batch )				
The import of all pieces of measurement data has been completed.		Zer	o Set	
5.0000mm	Pr	eset		
5.000011111	Peak	Reset		
	Pause	8	Stop	

# Tips

When date and time data is entered for cells where the cell format is set to [General] under [Category] of [Number], [Category] of the [Number] setting of the cell format of the cell where the date and time data was entered is changed to [Custom], with [m/d/yyyy h:mm] selected in [Type]. Therefore, if a value that is not date and time data, such as measurement data from a measuring tool, is entered into a cell where a date and time has been entered, the value displayed in the cell will not be formatted correctly.

Category: General	A	Sample						
Number		Sample						
Accounti Date		Type:						
Time		m/d/yyyy	h:mm					
Percenta Fraction Scientific Text Special Custom		d-mmm-y d-mmm mmm-yy h:mm AM h:mm:ss h:mm h:mm:ss m/d/yyy mm:ss mm:ss.0 @	/PM AM/PM					
	~						Dele	
Type the r	number format	code, using	g one of t	the existin	g codes as a	starting poir	nt.	

<Number format after date and time entry>

# 3 Click the [Stop] button.

USB-ITPAK - C:	Mitutoyo\USB-ITPAK\5-6.it3	-		$\times$
Mitutoyo				
Procedure : 3 pc	si. batch meas. + DateTime ( Batch )			
The import of a	all pieces of measurement data has been completed.	Zei	ro Set	
	5.0000mm	Pr	reset	
	5.00001111	Peal	< Reset	
⇒ Data rec	quest 🛛 🔀 Data cancel 🔅 Data skip 📕 Pause	8	Stop	

» A confirmation message will be displayed.

# 4 Click one of the following buttons:

[Yes]: The Excel file where measurement data was entered is saved, and the display switches to the [Quick Menu] screen or the create procedure screen.

[No]: The display switches to the [Quick Menu] screen or the create procedure screen without saving the Excel file where measurement data was entered.

[Cancel]: The confirmation message closes, and you return to the data collection screen.

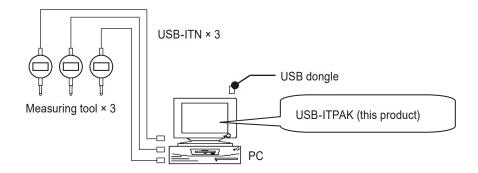
USB-ITPAK Check	×
Save the current contents? Click "Yes" to overwrite the current data. Click "No" to delete the current data.	
Yes <u>N</u> o Cancel	

# 7.7 Entering Measurement Data at Specified Time Intervals (Batch Measurement Only)

In batch measurement, measurement data can be automatically entered at the specified time interval. To create the setting file in this section, the methods for configuring the procedures are explained using the examples in "
© Connection example", "
© Measurement example", and "
© Measurement data entry example" below.

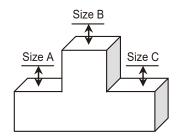
# Connection example

Three indicators are connected to USB-ITN.



# Measurement example

The three indicators are used to measure three locations (Size A, Size B, Size C) all at once.



# Measurement data entry example

An example of an inspection table after data collection is complete is shown below.

			test 🖻	ー 🗖 iew 🛛 ♀ Tell me	×
				ew grenme	_
G	12 *		fx		×
	Α	В	С	D	
1	Inception 1	Inception 2	Inception 3	Date and time	
2	10.000	9.999	5.000	12/10/2020 19:	15
3	10.000	9.999	5.000	12/10/2020 19:	15
4	10.000	9.999	5.000	12/10/2020 19:	15
5	10.000	9.999	5.000	12/10/2020 19:	15 🗆
6	10.000	9.999	5.000	12/10/2020 19:	15
7	10.000	9.999	5.000	12/10/2020 19:	15
8	10.000	9.999	5.000	12/10/2020 19:	15
9	10.000	9.999	5.000	12/10/2020 19:	15
10	10.000	9.999	5.000	12/10/2020 19:	15 👻
	< ->	Sheet1	÷ : [	4	Image: A start of the start
Rea	idy		──	+ +	100%

Measurement procedure: Measure three locations on the workpiece all together, and then enter the measurement data into columns "Inspection 1", "Inspection 2", and "Inspection 3" of the Excel work-sheet.

Next, measure three locations on the same workpiece all together, and then enter the measurement data into columns "Inspection 1", "Inspection 2", and "Inspection 3" in the next row of the Excel worksheet.

Repeat the measurement on the same workpiece. The data request will occur at a specified time interval.

H		ð- =		test	Ā	-		×
File	Horr	iser Page	Form	Data	Revi( V	ïew 🛛 🖓	Tell me	Sign 🕨
014	Ŧ	: ×		fx	•			~
	А	В		(	с		D	
1 Ince	ption 1	Inceptio	in 2	Incept	ion 3	Date an	id time	
2			Ba	atch(1)				
3			Ba	atch(2)		,		
4								
5								
6								
7								_
8								_
9		l				l		ļ
10			Ba	atch(9)				
4	•	Sheet1		+	: [	4		Þ
Ready					-	-	+	100%

# 7.7.1 Creating the Setting File

## 1 Connect the devices you will use to the PC, and configure the items in USB-ITPAK.

For details, see 📃 "6.3.1 Creating the Setting File" (page 43).

As an example, here we edit parts of the setting file created in []] "7.6 Entering the Collection Date and Time for Measurement Data (Sequential Measurement/Batch Measurement Only)" (page 121). Open the created setting file.

# Tips

To use an existing setting file to perform measurement, proceed to the procedure in 🗐 "7.7.2 Collecting Measurement Data" (page 134).

# 2 Configure the time interval settings.

- 1 Under the [Timer job option] field, select [Enable].
- 2 Under the [Interval] field, set the time interval for making the data request.

The allowable interval is from 0.0 seconds to 24 hours (0:0:0.0 to 24:0:0.0). As an example, here we specify [5]

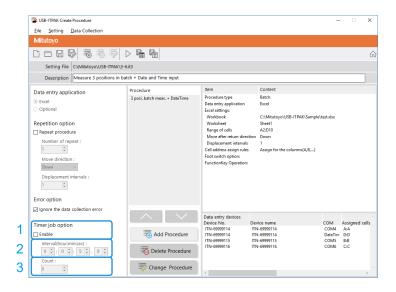
seconds.

3 Under the [Count] field, set the number of times to make the data request.

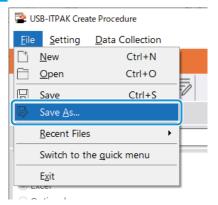
The maximum number of times that can be set is 60,000.

# Tips

If [Excel] is set for [Data entry application], you cannot specify this setting. Data will be entered until the entry range specified in the procedure is filled.

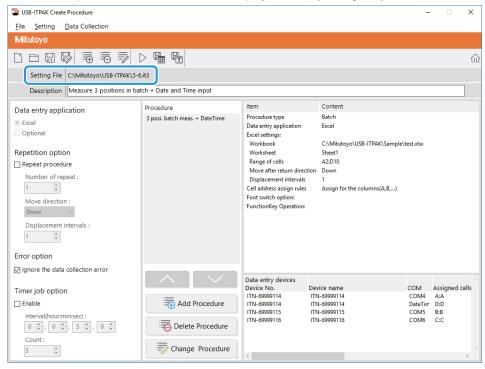


# **3** From the [File] menu on the create procedure screen, select [Save As].



4 Enter a file name and save the file.

» The full path for the file name will be displayed in the [Setting File] field on the create procedure screen.



# 7.7.2 Collecting Measurement Data



When you are performing data collection, disable the [AutoSave] feature in Excel. For details about using Excel, see the documentation for Excel.

# Tips

After data is collected, the Excel file where measurement data was entered is saved. If you need to keep a copy of the Excel file before it was saved, make a back-up beforehand.

**1** On the [Quick Menu] screen, click the [Data collection] button.

Procedure Measurement Menu	Settings Menu
Data collection	🖏 Device information
Save (Excel file)	ô Option
Save (Text file)	(j) Version Information
Create Procedure	
Easy Measurement Menu	Login Menu
Easy Input Mode	User Registration or Update
	E Login

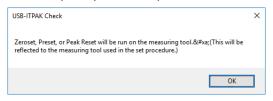
» The setting file selection dialog box appears.

# 2 Select the setting file.

🚰 Open		×
$\leftrightarrow$ $\rightarrow$ $\checkmark$ $\uparrow$	« Mitutoyo » USB-ITPAK	✓ Ö Search USB-ITPAK $ ho$
Organize 🔻 Nev	v folder	≣≕ ▼ 🛄 ?
scs	^ Name	Date modified Type
tuika	5-4.it3	12/10/2020 5:10 PM IT3 File
a OneDrive	5-5.it3	12/10/2020 6:29 PM IT3 File
	5-6.it3	12/10/2020 6:53 PM IT3 File
This PC	5-7.it3	12/10/2020 7:12 PM IT3 File
E Desktop	DP-1VA_outLog_P1.it3	12/11/2020 8:22 AM IT3 File
Documents	U-WAVE-TIMER-JOB.it3	12/11/2020 10:50 IT3 File 🗸
🖶 Downloads	✓ <	>
	File <u>n</u> ame: 5-6.it3	✓ ITPAK setting file(*.itp;*.it2;*.it3] ✓
		<u>O</u> pen ▼ Cancel

#### Tips

- By selecting [Open] or [Recent Files] from the [File] menu on the create procedure screen, you can also select the setting file. If you selected the setting file on the create procedure screen, click the data collection start icon from the tool bar on the create procedure screen.
- If a measuring tool that supports Digimatic S1 communication is specified, the following dialog box appears. To set zero point, preset, and peak reset on the measuring tool at once, click the [Yes] button.



» The dialog box appears to prompt you to select the existing data handling method.

## **3** Select the existing data handling method.

USB-ITPAK Check			×
? Do you	u want to collect	data after cancel the	current data?
	<u>Y</u> es	<u>N</u> o	Cancel

[Yes]: The existing data in the Excel file where data will be entered is deleted, and cells where data will be entered are cleared.

[No]: The existing data in the Excel file where data will be entered remains.

[Cancel]: The dialog box closes, and you return to the [Quick Menu] screen or the create procedure screen.

» If you click the [Yes] or [No] button, the data collection screen will be displayed.

## Tips

If you click [No], the data collection screen will be paused. In this case, backup the Excel file before resuming data collection. For details, see 🗐 "
Pausing/resuming operation when collecting data in Excel" (page 206).

» The time remaining (in seconds) until the next data request is made and the number of times data collection has been executed are displayed on the data collection screen.

For example, in the following screen shot [4s] indicates there are 4 seconds remaining, and [(3)] indicates execution has occurred three times.

SB-ITPAK - C:\Mitutoyo\U	USB-ITPAK - C:\Mitutoyo\USB-ITPAK\5-7.it3						
Mitutoyo							
Procedure : 3 posi. batch i	Procedure : 3 posi. batch meas. + DateTime ( Batch )						
Timer job is in progress	Timer job is in progress Time Left : 2s(2)						
	5.0	000mm		Preset			
	5.000011111						
→ Data request	X Data cancel	➢ Data skip	<b>  </b> Pause	Stop			

During data collection, the next cells into which data will be entered are displayed in green.

ŀ	-		test 🗖	_ <b>~ ×</b> _
F	ile Horr In	iser Page Form	Data Revit V	ïew ♀ Tell me Sigr►
C4	L –	: × •	f_x	*
	А	В	С	D 🔺
1	Inception 1	Inception 2	Inception 3	Date and time
2	10	9.999	5	12/10/2020 19:15
3	10	9.999	5	12/10/2020 19:15
4				
5				
6				
7				
8				
9				
10				
	<	Sheet1	÷ : •	
		Average: 11050	0.20031 Count	: 8 Sum: 88401.60246

# Tips

Because data is being collected automatically at the specified time interval, the collection operation cannot be started with the [Data request] button on the data collection screen or the DATA switch on a measuring tool.

» When all the data has been entered, a completion message will be displayed on the data collection screen.



# 4 Click the [Stop] button.



» A confirmation message will be displayed.

# 5 Click one of the following buttons:

[Yes]: The Excel file where measurement data was entered is saved, and the display switches to the [Quick Menu] screen or the create procedure screen.

[No]: The display switches to the [Quick Menu] screen or the create procedure screen without saving the Excel file where measurement data was entered.

[Cancel]: The confirmation message closes, and you return to the data collection screen.

USB-ITPA	K Check	×
?	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 Canc	el

# 7.8 Entering DP-1VA Log Data (Sequential Measurement/Individual Measurement Only)

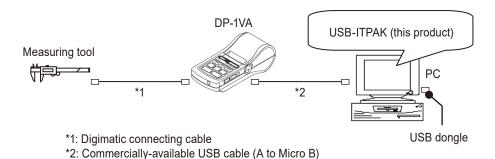
DP-1VA can save measurement data as log data in its internal memory.

This section explains how to enter the log data into the PC. To create the setting file, the methods for configuring the procedure are explained using the examples in "
Connection example" and "
Log data entry example" below.

For details about operating DP-1VA, see 📃 "DP-1VA LOGGER User's Manual".

# Connection example

One measuring tool is connected to DP-1VA.



■ Log data entry example

Log data that corresponds to the output format specified by the DP-1VA parameter setting: [OUT LOG] can be entered by long pressing (pressing and holding for 1 second or more, then releasing) the DP-1VA [OUT LOG] button.

An example of an Excel file after the log data has been entered is shown below. (In this example, the parameter setting: [OUT LOG] (log output setting) is set to [1] (time/measurement value output).)

F		v C → ∓ testitpak · ·   Inser   Page   Form   Data   A			🗖 Sign in	× १
B1		• : $\times \checkmark f_x$	Measur	rement val	ue	۷
	А	В	С	D	E	
1	Time	Measurement value	]			
2	112458	4.99				
3	112500	5.01				
4	112502	5.55				
5	112747	5.65	j			
6	112749	5.65				-
	• •	Sheet1 +	: 4			Þ
Rea	dy		─ -	-	+ 10	0%

The time (time when measurement data was entered into DP-1VA) is entered in column A, and the measurement data is entered in column B.

Data is entered in the following order, according to the settings of the sequential procedure of USB-IT-PAK.

E	<b>.</b> 5	· <> - =					×
F	ile Hom	Inser   Page	Form Data R	evi( View	♀ Tell me	Sign in	י⊀
B1		• : ×	$\checkmark f_x$	Measur	ement val	ue	~
	А		В	С	D	E	
1	Time	Measuren	nent value				
2	112458		4.99				
3	112500		5.01				
4	112502		5.55				
5	112747		5.65				
6	112749		→ 5.65				-
	<	Sheet1	+	: •			•
Rea	dy			─ -	_	- + 10	0%

# Tips

- Entry that does not include the time or that includes the date is also possible. For details, see 🗐 "DP-1VA LOGGER User's Manual".
- The time is entered as an unformatted number as in "81947" (cell A2). In this case the number represents "8 o'clock 19 minutes 47 seconds". You can display a time value with the Excel TIME function. Use the function as necessary.

Column D shows an example of using the TIME function.

E			testitpak -				×
F	ile Horr	Inser Page Fo	orn Data R	levi( View	♀ Tell me	Sign in	۶
G	)	• : ×	$\sqrt{-f_x}$				~
	А	В		С	D	Е	
1	Time	Measureme	nt value				
2	112458		4.99		11:24:58		
3	112500		5.01		11:25:00		
4	112502		5.55		11:25:02		
5	112747		5.65		11:27:47		
6	112749		5.65		11:27:49		-
	<	Sheet1	+	: 4			Þ
Rea	dy	E		─ - ─	-	-+ 10	0%

# 7.8.1 Creating the Setting File

# 1 Connect the devices you will use to the PC, and configure the items on the [Add procedure] screen in USB-ITPAK.

For details, see the following:

- Sequential measurement: 📃 "6.2.1 Creating the Setting File" (page 30)
- Individual measurement: 🗐 "6.4.1 Creating the Setting File" (page 57)

As an example, here we configure the items with the following contents.

Add procedure					×
Procedure type :	Procedure name :				
Sequential ~	Time and measured	d value log			
Excel settings		Data entry devi	ces	Measuring Tool	
Workbook : C:\Mitutoyo\testitpak.xlsx		Device No.	Assign rule	CC User Control Num Model	
Worksheet :					+
Sheet1	~				
Range of cells (specify the A1 reference	ce style) :				
First : A2	Select				0
Last: B10	beneer				
Move after return direction :					
Right ~					
Displacement intervals :					
Cell address assign rules		Foot switch opti	on		
○ Unspecified		Device No.	Function	COM	
Assign for the columns(A,B,)				+	
<ul> <li>Assign for the rows(1,2,)</li> </ul>		J		-	
FunctionKey Operation	_				
Data request : - Data cancel : -	~			$\square$	
Data cancel : -	~				
	•				
				ОК	Cancel

# Tips

To use an existing setting file to perform measurement, proceed to the procedure in 🗐 "7.8.2 Collecting Log Data" (page 144).

### 7 Measurement Data Collection Using the Procedure Measurement Menu (Advanced Operation)

2 In the [Data entry devices] field, configure the information for the data entry devices.

In the [Data entry devices] field, click the [+] button.

1

» The [Data entry device settings] screen will be displayed.

2 On the [Data entry device settings] screen, configure the items and then click the [OK] button.

For details, see the following:

- Sequential measurement: 🗐 "6.2.1 Creating the Setting File" (page 30)
- Individual measurement: 🗐 "6.4.1 Creating the Setting File" (page 57)

As an example, here we configure the items with the contents on the right.

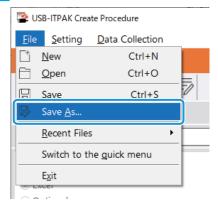
Sequential  v Time and measure	ed value log			
Excel settings	Data entry devi	ces	Measuring Tool	
Workbook :	Device No.	Assign rule	CC User Control Num Model	Co
C:\Mitutoyo\testitpak.xlsx		-		-
Worksheet :				
Sheet1 ~				-
Range of cells (specify the A1 reference style) :				
First : A2 Select				6
Last: B10				1P
Move after return direction :				
Right V				
Displacement intervals :				
1				
Cell address assign rules	Foot switch opti	on		
O Unspecified	Device No.	Function	6014	
Assign for the columns(A,B,)	Device No.	Function	сом +	
Assign for the rows(1,2,)				
	-		—	
Data request :				
Data request:			1	
Data cancel :			2	

xcel cells assignment		Configure Measuring Tool Settings Prior to
Assign for the columns(A,B,)		Measurement
	lect	Czero Set
A Se	nect .	
ntry data settings		Preset
Measurement data entry		O Peak Reset
Select device :		
DP1-10000017	~	Preset
Channer.		mm
** V		Tolerance JudgmentUpper Limit
O Character string data entry		0.0000 mm
Device No. Character string		Tolerance JudgmentLower Limit
character song		+ 0.0000 mm
		—
		0
DateTime data entry		
Select device :	~	
	~	
	Measuring Tool	
Select device : Data entry devices	-	
Select device : Data entry devices Type :	Measuring Tool Model :	
Select device : Data entry devices Type : DP1	Model :	
Select device : Data entry devices Type : DP1 COM :	-	
Select device : Data entry devices Type : DP1 COM : COM13	Model : Code No. :	
Select device : Data entry devices Type : DP1 COM : COM : COM13 Serial No. :	Model :	
Select device : Data entry devices Type : DP1 COM : COM13	Model : Code No. :	
Select device : Data entry devices Type : DP1 COM : COM : COM13 Serial No. :	Model : Code No. :	OK Cancel

# **3** Click the [OK] button.

rocedure type : Procedure n Requential V Time and m	 value log					
Excel settings	Data entry device	es	N	Aeasuring Tool		
Workbook : C:\Mitutoyo\testitpak.xlsx Worksheet :	 Device No. DP1-10000017	Assign rule A:B	СС	User Control Num	Model	Co
Sheet1						
Range of cells (specify the A1 reference style) :						
First : A2 Last : B10						c
Move after return direction :						
Right ~						
Displacement intervals :	<		>	<		>
1						
Cell address assign rules	Foot switch option	n				
Ounspecified	Device No.	Function	COM			
<ul> <li>Assign for the columns(A,B,)</li> <li>Assign for the rows(1,2,)</li> </ul>				+		
Data request :						
Data request:				1		
Data skip :				2		

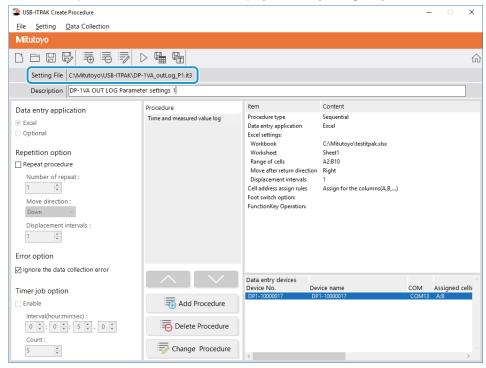
4 From the [File] menu on the create procedure screen, select [Save As].



No. 99MAM030A

5 Enter a file name and save the file.

» The full path for the file name will be displayed in the [Setting File] field on the create procedure screen.



# 7.8.2 Collecting Log Data



When you are performing data collection, disable the [AutoSave] feature in Excel. For details about using Excel, see the documentation for Excel.

# Tips

After data is collected, the Excel file where measurement data was entered is saved. If you need to keep a copy of the Excel file before it was saved, make a back-up beforehand.

## **1** Open the setting file to use, and then open the data collection screen.

For details, see the following:

- Sequential measurement: 🗐 "6.2.2 Collecting Measurement Data" (page 37)
- Individual measurement: 📃 "6.4.2 Collecting Measurement Data" (page 64)

#### **2** Start the collection operation for log data.

Long press the DP-1VA [OUT LOG] button to start the collection operation.

- » Data will be entered according to the procedure that is saved in the setting file.
- » During data collection, the next cell into which data is entered will be displayed in green.

E	<b>.</b> 5	🔿 🚽 🗧 testi	<b>F</b> -	- 🗆	×
F	ïle Hon	r   Inser   Page   Form   Data	Revif View	♀ Tell me	. Sigr <mark>)</mark>
A2	2	▼ : × √ f <sub>x</sub>			¥
	А	В	с	D	
1	Time	Measurement value			
2					
3					
4					
5					
6					
7					
8					
9					
10					-
	<	Sheet1 +	: •		•
Rea	dy			+	100%

Do not perform operations such as pressing the [Data request] button in USB-ITPAK while the log data is being collected. The log data collection operation will be stopped and may not finish correctly. If the collection operation is stopped, you must perform the following operations and then perform this procedure again from the beginning.

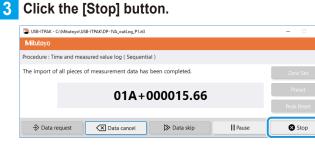
- Turn the power of DP-1VA off and then on again.
- Reopen the data collection screen.

» When all the data has been entered, a completion message will be displayed on the data collection screen.

USB-ITPAK - C:\Mitutoyo\USB-ITPAK\DP-1VA_outLog_P1.it3	- 🗆 🛛				
Mitutoyo					
Procedure : Time and measured value log ( Sequential )					
The import of all pieces of measurement data has been completed. Zero Set					
01A+000015.66	Preset				
014+000015.00	Peak Reset				
Data request     Data cancel     Data skip     II Pause     III     Pause     IIIIIIII     Pause     IIII     P	Stop				

#### Tips

- If the DP-1VA log data does not completely fill the input cell range that is specified in USB-ITPAK, the completion message will not be displayed. Check the message that is printed by DP-1VA.
- If there is too much DP-1VA log data for the input cell range that is specified in USB-ITPAK, the completion message will be displayed when all the input cells are filled. To enter all the log data, update the input cell range.



» A confirmation message will be displayed.

## 4 Click one of the following buttons:

[Yes]: The Excel file where measurement data was entered is saved, and the display switches to the [Quick Menu] screen or the create procedure screen.

[No]: The display switches to the [Quick Menu] screen or the create procedure screen without saving the Excel file where measurement data was entered.

[Cancel]: The confirmation message closes, and you return to the data collection screen.

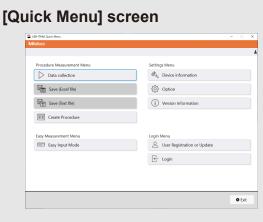
USB-ITPAK Check	×
Save the current contents? Click "Yes" to overwrite the current data. Click "No" to delete the current data.	
Yes <u>N</u> o Cancel	

MEMO

# **USB-ITPAK Screen Structure**

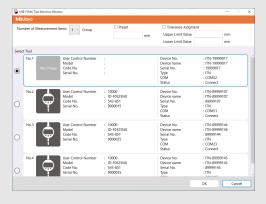
This chapter explains the layout and contents of each screen in USB-ITPAK.

The USB-ITPAK screens are shown below.



(E "8.1 [Quick Menu] screen" (page 150))

[Tool Selection Window] screen



(E "8.3 [Tool Selection Window] Screen" (page 163))

# [Measuring Tool Setup Mode] screen

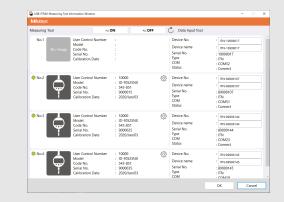
				11		ک 🗠
Batch Setup/ Acquisition			Set Up in Batch	Acquire in Batch	Save File	Read File
Individual Setup/	Error Display					
Acquisition Measuring Tool Control	Data Output	0.000 mm				
	User Control Number	10000				
	Unit Display	Display in mm ~				
	Measurement System	ABS Measuring Syst	tem ~			
	Counting Direction	Negative Counting	*			
	Resolution	0.001 m	im			
	Operation Mode	Serial Communication	on Mode Bidin	ectional Communicati	on Mode 🗠	
		Operation Mode	formal Measure	ment Mode 🗠		
	Preset	Preset 1 Value	0.000 m	m		
	Tolerance Judgment	ON (Normal Displa ON (Enlarged Displ OFF		oper Limit Value -0.001 mm	Lower Limit V	alue 105 mm
The operation has been cor	npleted successfully. [Acquire	e in Batch)				

# Create procedure screen

Mitutovo					
	≥				
Description Measure 3 sides, visi	al inspection.				
Data entry application © Excel Optional Repetition option Number of repeat 1 1 0 Mave direction : Besidence Intervals : 1 0	Procedure 3 sole mass visual impection	Bern Procedure type Data antry upplication Eace attrings Workhook Workhook Workhook Workhook Workhook Workhoek Range of calls More after return direction Digidecorrect intervals Cell address assign rules Foot nuch: option FunctionKgr Opennicer	Content Sequential Date! (UMRusoyoUUSP:(TPAR)See Serropt,F1 H115114 H115114 H115114 Assign for the rows(12)	mple'/TPAK_Sar	nple,Forr
	Add Procedure     Delete Procedure     Control Control	ITN-69999114 IT FSW-19999033 FS	INISE NATINE IN-69999114 IN-1999003 IN-1999004	COM COM4 COM12 COM11	

(E) "8.2 Create Procedure Screen" (page 155))

# [Measuring Tool Information Window] screen



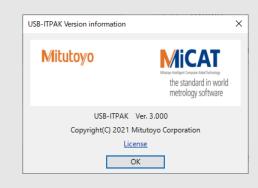
(E "8.4 [Device information] Screen" (page 165))

# [Option] screen

Language			
English			~
Data format			
Replace decimal s	ymbol		
Startup processing			
Load the setting file	e previously use	d	
Login Settings			
Enable Login			
Newline Code for In	put Tool Reco	gnized as HID	
Tab(0x2B)			~
		ОК	Cancel

( "8.5 [Option] Screen" (page 174))

# [Version information] screen



(E) "8.6 [Version information] Screen" (page 176))

[Add procedure] screen/[Change Procedure] screen (Excel (sequential measurement/batch measurement))

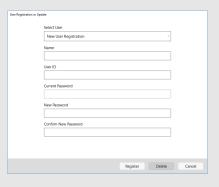
Excel settings	Data entry devi	ces	Measuring T	pol	
Workbook : Worksheet : Range of cells specify the A1 reference type: First : Last : Last : Select :	Device No.	Assign rule	CC User Control	Num., Model	C0 +
1 address assign rules	Foot switch opti	on			
○ Unspecified Assign for the columns(A.8,) Assign for the rows(1,2,)	Device No.	Function		+	
TunctionKey Operation Data request: Data cancel: Data skip::				0	

(E) "8.8.1 Entering Data into Excel with Sequential Measurement or Batch Measurement" (page 179))

# [Character string data settings] screen

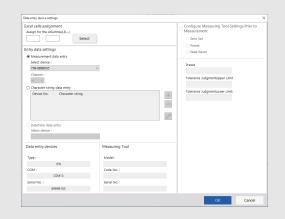
	Character string data settings	×
	Select foot switch :	
	FSW-19999033	~
	Device information	
	Serial No. :	-
	19999033	
	Type :	
	FSW	
	COM :	
	COM8	
	Character string data :	
		_
	OK Cano	el
/EE "8 10 [C	haracter string data setting	al Scroop" (pa
• -	naracter string data setting	sjoueen (pa
202))		

# [User Registration or Update] screen



(E) "8.7 [User Registration or Update] Screen" (page 177)"

# [Data entry device settings] screen (Excel (sequential measurement/ batch measurement))



(E) "8.9.1 Entering Data into Excel with Sequential Measurement or Batch Measurement" (page 190))

# [Foot switch option settings] screen

Foot switch option settings	×					
Select foot switch :						
FSW-19999033	~					
Device information						
Serial No. :						
19999033						
Type :						
FSW						
COM :						
COM8						
Function :						
Data request	~					
ОК	Cancel					

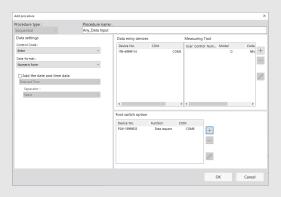
(E) "8.11 [Foot switch option settings] Screen" (page 203))

# [Add procedure] screen/[Change Procedure] screen (Excel (individual measurement))

rocedure type :		Procedure	name :						
ndividual		individual	measurement at	2 poin					
Data entry device	es					Measuring Tool			
Device No.	Workbook		Worksheet	Assigned cells	Direction	User Control Num.	Model	Code	
ITN-69999114 ITN-69999115	C:\Mftutoyo\US8-IT C:\Mftutoyo\US8-IT		Sample,F1 Sample,F1	L13L13 H14L14	Right Right	EVA-No.08	0	NEV	+
<								>	
Foot switch opti Device No.	Function	сом	]			• <	-	>	
Foot switch opti		COM				< <		>	

(E "8.8.2 Entering Data into Excel with Individual Measurement" (page 186))

# [Add procedure] screen/[Change Procedure] screen (arbitrary application)

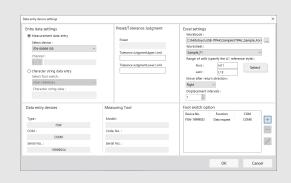


(E "8.8.3 Entering Data into an Arbitrary Application" (page 187))

# Data collection screen

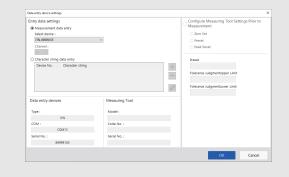
# (III That-Cuttoryout)B: (FRATGroupended, Market Measurement, Bask.18)

# [Data entry device settings] screen (Excel (individual measurement))



(E "8.9.2 Entering Data into Excel with Individual Measurement" (page 197))

# [Data entry device settings] screen (arbitrary application)



(E) "8.9.3 Entering Data into an Arbitrary Application" (page 200))

# [Login] screen



# 8.1 [Quick Menu] screen

This menu screen is for calling such screens as the data collection screen, create procedure screen, [Model information] screen, and [Select model] screen. The screen call buttons are available or unavailable depending on whether you are logged in or not or the USB dongle is connected or not.

SB-ITPAK Quick Menu	- 🗆 X
Mitutoyo	
	- 6
Procedure Measurement Menu	Settings Menu
① Data collection	Device information
2 Save (Excel file)	Coption
3 Save (Text file)	(j) Version Information (9)
(4) EII Create Procedure	
Easy Measurement Menu	Login Menu
5 Easy Input Mode	User Registration or Update
	E Login
	Exit (2)

No.	Name	Description of operation
1	[Data collection] button	After opening a setting file created beforehand, exe- cutes data collection according to the instructions dis- played on the screen. For details, see 🗐 "8.1.1 Operation of the [Data collec- tion] Button" (page 152).
2	[Save (Excel file)] button	After data collection is complete by the operation of the [Data collection] button of [Quick Menu], saves the measurement data as an Excel file. For details, see 🗐 "8.1.2 Operation of the [Save (Excel file)] Button" (page 153).
3	[Save (Text file)] button	After data collection is complete by the operation of the [Data collection] button of [Quick Menu], saves the measurement data as a text file. For details, see 18.1.3 Operation of the [Save (Text file)] Button" (page 154).
(4)	[Create Procedure] button	Displays the create procedure screen.
5	[Easy Input Mode] button	Selects the measuring tool to use, and collects data in the Excel. For details, see 🗐 "5. Measurement Data Collection Using the Quick Entry Mode".
6	User ID	Displays the ID of the login user when the Login function is enabled in [Login settings] on the [Option] screen. For details, see 🗐 "8.5 [Option] Screen" (page 174).
7	[Device information] button	Displays the [Measuring Tool Information Window] screen.

No.	Name	Description of operation
8	[Option] button	Displays the [Option] screen.
9	[About] button	Displays the [Version information] screen.
10	[User Registration or Update] button	Displays the [User Registration or Update] screen.
1	[Logout]/[Login] button	<ul> <li>Displays the [Login] screen.</li> <li>The [Logout]/[Login] button is displayed when the Login function is enabled in [Login settings] on the [Option] screen.</li> <li>For details, see 18.5 [Option] Screen" (page 174).</li> <li><b>Tips</b> <ul> <li>The [Logout] button is displayed when you are logged in.</li> <li>Clicking the [Logout] button displays the logout completion dialog box.</li> </ul> </li> </ul>
(12)	[Exit] button	Exits USB-ITPAK.

# Tips

The [Data collection], [Save (Excel file)], [Save (Text file)], and [Create Procedure] buttons are available when an appropriate USB dongle is connected to the PC. For details about a USB dongle, see 🛄 "2.4 Connecting the USB Dongle" (page 15).

#### 8.1.1 Operation of the [Data collection] Button

Opens a setting file created beforehand and then executes data collection according to the procedure in the setting file.



# 1 Click the [Data collection] button.

» The [Open] screen will be displayed.

# **2** Open the setting file to use.

Select a setting file (extension: itp, it2) from the list, and then click the [Open] button.

The message [Do you want to collect data after cancel the current data?] will be displayed. »

# Tips

If [Load the setting file previously used] is selected under the [Startup processing] field in 💷 "8.5 [Option] Screen" (page 174), the setting file that was last used is automatically loaded when USB-ITPAK starts. If this option is enabled, proceed to step 3.

# 3 Click one of the following buttons:

[Yes]: The input cells are cleared by deleting the measurement data that has been entered in the Excel file that is set as the output destination.

[No]: The measurement data that has been entered in the Excel file that is set as the output destination is left alone.

[Cancel]: The confirmation message closes, and you return to the [Quick Menu] screen.

If you click the [Yes] or [No] button, the data collection screen will be displayed. »

For details about the [Data collection] screen, see 🗐 "8.12 Data Collection Screen" (page 204).

# 8.1.2 Operation of the [Save (Excel file)] Button

After data collection is complete by the operation of the [Data collection] button of [Quick Menu], save the measurement data as an Excel file.

## Tips

For returning to the [Quick Menu] after performing data collection from the [Create Procedure] screen, the [Save (Excel file)] button cannot be operated.

Click the [Save (Excel file)] button.

# 2 Select a file name from the [Select the save workbook] field.

From the drop-down list, select a file name for the Excel file to save.

Save to Excel file		×
Select the save workbook :		
C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sam	ple_Form_1_GB.xls	~
Save :		
○ Overwrite		
Save Copy As		
	ОК	Cancel

# **3** Under the [Save] field, select [Overwrite] or [Save Copy As].

## 4 Click the [OK] button to save the file.

If you select [Save Copy As] under the [Save] field, the [Save As] screen will be displayed. Enter a file name, and then click the [Save] button.

If you are using multiple Excel workbooks with one setting file, repeat steps 1 through 3 for each file to save them.

# 8.1.3 Operation of the [Save (Text file)] Button

After data collection is complete by the operation of the [Data collection] button of [Quick Menu], save the measurement data as a text file.

# Tips

For returning to the [Quick Menu] after performing data collection from the [Create Procedure] screen, the [Save (Text file)] button cannot be operated.

# Click the [Save (Text file)] button.

## 2 Select an option under the [Save method] field.

Select the method for specifying the range of data to save from the measurement data on the Excel worksheet.

- [Follow the procedure setting range] The range set in the [Range of cells (specify the A1 reference style)] fields on the [Add procedure] screen of the setting file is selected.
- [Selected range] Directly select a range of cells on the displayed Excel file to set it.

## **3** Select an option under the [Separator] field.

Select a character to delimit Excel columns in the text file that is saved from the Excel worksheet data. Select from [TAB], [Comma], or [Semicolon].

## 4 Select options under the [Select an Excel subject for save] field.

1 In the [Select procedure] field, select the procedure to save.

From the drop-down list, select the target procedure to save.

2 In the [Workbook] field, select the name of the Excel workbook.

From the drop-down list, select the Excel workbook name that is registered to the procedure to save.

Save to Text file	>
Save method O Follow the procedure setting range Selected range	Separator O TAB © Comma(,) O Semicolon(;)
Select an Excel subject for save Select procedure : 3 side measurement Workbook : C:\Mitutoyo\USB-ITPAK\Sample\ITPAK_Sample_F	v om 1.68.vir
Worksheet : Sample_F1 Range of cells : H11:L13	Unit_tobas
[	OK Cancel

## 5 Click the [OK] button.

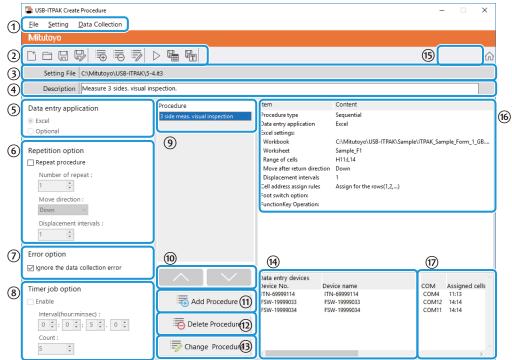
» The [Save As] screen will be displayed.

6 Enter a file name, and then click the [Save] button.

» The file will be saved.

# 8.2 Create Procedure Screen

This screen is for creating a setting file that contains a measurement procedure and collecting measurement data.



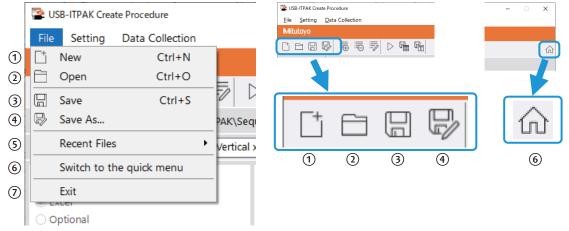
No.	Name	Function			
1	Menu bar	Displays the create procedure screen functions in a menu bar. For details, see 🗐 "8.2.1 [File] Menu" (page 158) to 🗐 "8.2.3 [Data Collection] Menu" (page 160).			
2	Tool bar	Displays the create procedure screen functions in a tool bar. For details, see 🗐 "8.2.1 [File] Menu" (page 158) to 🗐 "8.2.3 [Data Collection] Menu" (page 160).			
3	[Setting File] field	Displays the path of the opened setting file.			
4	[Description] field	Enters a description of the setting file. This field can be left blank. <b>Tips</b>			
5	[Data entry application] field	Up to 100 characters can be entered. Select which application to enter data into. • [Excel] Enters data into Excel. • [Optional] Enters data into the application (such as Notepad or Word) that is active when data is collected.			

No.	Name	Function			
6	[Repetition option] field	<ul> <li>Selects [Repeat procedure] and sets [Number of repeat], [Move direction], and [Displacement intervals] when running the procedure registered in the [Procedure] field multiple times during data collection.</li> <li>[Number of repeat] Specifies the number of times to repeat the procedure that has been created.</li> <li>[Move direction] Specifies in which direction to move the cell after data is entered</li> </ul>			
		<ul> <li>([Right] or [Down]).</li> <li>[Displacement intervals] Specifies the number of cells to move after data is entered ([1] to [100]).</li> </ul>			
7	[Error option] field	Select [Ignore data collection errors] to ignore the following errors, which can occur during data collection. • The used device is wrong.			
		<ul> <li>An error occurred during data reception. Device No. = [Device] Click [Ignore] to ignore the error and continue, or click [Retry] to try again.</li> <li>For details about error messages, see III "10.2.8 Data Collection Screen" (page 235).</li> </ul>			
8	[Timer job option] field	Select [Enable] to automatically enter measurement data at the specified time interval. For details, see 🗐 "8.2.4 [Timer job option] Field" (page 161).			
9	[Procedure] field	Displays a list of procedure names of the procedures that have been created.			
10	[ <b>▲</b> ][▼] buttons	Moves the procedure selected in the [Procedure] field up or down one line.			
(1)	[Add Procedure] button	Creates a new procedure. For details, see 🗐 "8.2.2 [Setting] Menu" (page 159).			
12	[Delete Procedure] button	Deletes a procedure that has been created. For details, see 🗐 "8.2.2 [Setting] Menu" (page 159).			
13	[Change Procedure] button	Modifies a procedure. For details, see 🗐 "8.2.2 [Setting] Menu" (page 159).			

No.	Name	Function
•	[Data entry devices] field	<ul> <li>Displays information about the devices to be used for data collection (USB-ITN, USB-FSW, U-WAVE-R, IT-0xxU, DP-1VA). The first three characters under [Device No.] and [Device name] will be displayed as identification information, according to the connected model as follows:</li> <li>ITN: USB-ITN, IT-0xxU</li> <li>DP1: DP-1VA</li> <li>FSW: USB-FSW</li> <li>UWR: U-WAVE-R</li> <li>Tips</li> <li>If USB-FSW will be used for entering character string data, it will be displayed in the field for displaying detailed information about the devices to be used for data collection.</li> <li>If USB-FSW will be used for requesting data or canceling data entry, it will be displayed under the [Foot switch option] field in the procedure details field.</li> <li>[ITN] is displayed for IT-0xxU because it is treated as a model of USB-ITN device. For IT-0xxU, [8] is displayed as the first numeral of the numeric part, as in [ITN-8*******], so you can identify each model by</li> </ul>
		the serial number following the identification information.
(5)	User ID	Displays the ID of the login user when the Login function is enabled in [Login settings] on the [Option] screen. For details, see 🗐 "8.5 [Option] Screen" (page 174).
16	Procedure details field	Displays the settings of the procedure that is selected in the [Proce- dure] field.
17	[Measuring tool infor- mation] field	Displays [User Control Number], [Model], [Code No.], and [Serial No.] of the measuring tool.

# 8.2.1 [File] Menu

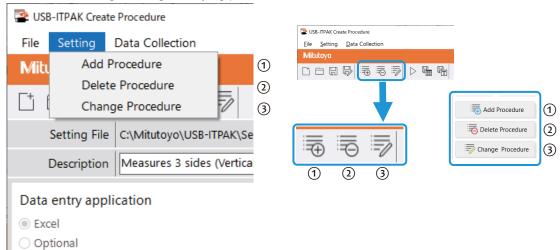
This menu is for opening and saving setting files.



No.	Name	Function
1	[New]	Creates a new setting file. This operation can also be performed by clicking icon ① on the tool bar.
2	[Open]	Opens a saved setting file. This operation can also be performed by clicking icon ② on the tool bar.
3	[Save]	Saves the setting file by overwriting the existing file. This operation can also be performed by clicking icon ③ on the tool bar.
4	[Save As]	Saves the setting file under a new name. This operation can also be performed by clicking icon ④ on the tool bar.
5	[Recent Files]	Opens a setting file by selecting it from the sub menu that is displayed. The sub menu displays the five most recently opened or saved setting files.
6	[Switch to the quick menu]	Switches the display from the create procedure screen to the [Quick Menu] screen. This operation can also be performed by clicking icon ⑥ on the tool bar.
0	[Exit]	Exits USB-ITPAK.

# 8.2.2 [Setting] Menu

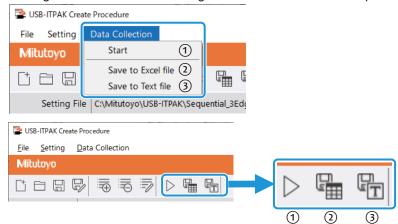
This menu is for adding/deleting/modifying procedures.



No.	Name	Function			
1	[Add Procedure]	Creates a new procedure in the open setting file.			
		This operation can also be performed by clicking icon $①$ on the tool bar or button $①$ on the create procedure screen.			
2	[Delete Procedure]	Deletes the procedure that is selected in the [Procedure] field on th create procedure screen.			
		This operation can also be performed by clicking icon ② on the tool bar or button ③ on the create procedure screen.			
3	[Change Procedure]	Modifies the procedure that is selected in the [Procedure] field on the create procedure screen.			
		This operation can also be performed by clicking icon $③$ on the tool bar or button $③$ on the create procedure screen.			

# 8.2.3 [Data Collection] Menu

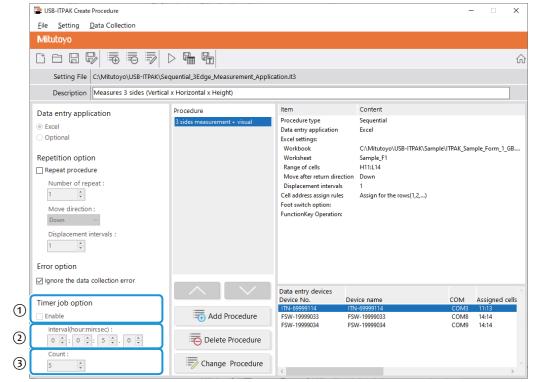
This menu is for starting data collection and saving after data collection is complete.



No.	Name	Function				
1	[Start]	Starts the data collection operation. This operation can also be performed by clicking icon ① on the tool bar.				
2	[Save to Excel file]	Saves the collected data as an Excel file. This operation can also be performed by clicking icon ② on the tool bar. For details, see 🗐 "8.1.2 Operation of the [Save (Excel file)] But- ton" (page 153).				
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. For details, see 🗐 "8.1.3 Operation of the [Save (Text file)] Button" (page 154).				

# 8.2.4 [Timer job option] Field

These settings are for automatically entering measurement data at a specified time interval. You can use this function with batch measurement.



No.	Name	Function
1	[Enable] field	Specifies whether to enable this setting. If you select [Enable], the items ② through ③ can be set. This field can be selected only with batch measurement.
		Tips
		If you add a sequential measurement procedure, this setting will not be available.
2	[Interval(hour:min:sec)] field	Sets the time interval for making data requests. The allowable interval is from 0.0 seconds to 24 hours (0:0:0.0 to 24:0:0.0).
3	[Count] field	Sets the number of times to make data requests. The maximum number of times that can be set is 60,000.
		Tips
		If [Excel] is set for [Data entry application], you cannot specify this setting. Data will be entered until the entry range specified in the procedure is filled.

# Tips

• During data collection, a certain amount of transmission time (T1) is required to read in the measurement data from the measuring tool. Therefore, if the time interval specified in the [Interval(hour:min:sec)] field (T2) is less than the transmission time (T1), the actual data collection time interval (T3) will differ from the specified interval. Note that the transmission time (T1) differs depending on the device that is used for data entry and the number of devices. For one device, the transmission time (T1) is about 0.3 seconds for USB-ITN or IT-0xxU, about 1 second for DP-1VA (when printing), and about 0.1 seconds for a U-WAVE transmitter. However, with a U-WAVE transmitter, 0.5 seconds is included in the transmission time (T1), regardless of the number of devices.

Data entry device	No. of devices	T1	T2		тз
USB-ITN / IT-0xxU	1	0.3 s	< 0.5 s	0.5 s	Same as the specified interval
	2	0.6 s	> 0.5 s	0.6 s	Exceeds the specified interval
	3	0.9 s	> 0.5 s	0.9 s	
DP-1VA	1	1 s	> 0.5 s	1 s	Exceeds the specified interval
U-WAVE transmitter	1	0.6 s	= 0.6 s	0.6 s	Same as the specified interval
	2	0.7 s	> 0.6 s	0.7 s	Exceeds the specified interval
	3	0.8 s	> 0.6 s	0.8 s	

• With a U-WAVE transmitter, if the data collection time interval (T2) is less than 0.6 seconds, blank data might be entered even if the value in the measuring tool has changed.

SB-ITPAK - C:\Mitutoyo\U	- 🗆 ×					
Mitutoyo						
Procedure : 3 posi. batch i						
Timer job is in progress	Timer job is in progress Time Left : 2s(2)					
	Preset					
	Peak Reset					
⇒ Data request	X Data cancel	Data skip	II Pause	Stop		

# 8.3 [Tool Selection Window] Screen

Select the number of measurement items and a device you will use for measurement. On the [Quick Menu] screen, click the [Easy Input Mode] button to display this screen.

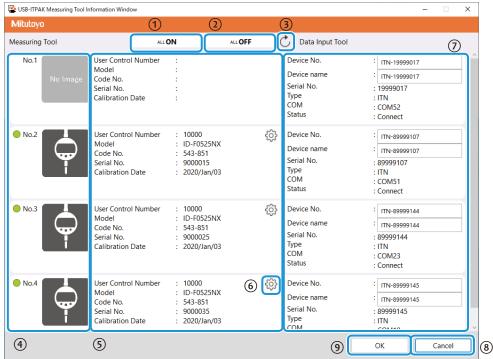
	😰 USI	B-ITPAK Tool Selection Windo	w			– 🗆 X
	Mit	utoyo				
1	Nur	nber of Measurement Ito	ems 1 - Group	5 Preset mm	Tolerance Judgment Upper Limit Value Lower Limit Value	mm 6
	Selec	t Tool				7
2	۲	No.1 No Image	User Control Number Model Code No. Serial No.	: : :	Device No. Device name Serial No. Type COM Status	: ITN-19999017 : ITN-19999017 : 19999017 : ITN : ITN : COM52 : Connect
	0	No.2	User Control Number Model Code No. Serial No.	: 10000 : ID-F0525NX : 543-851 : 9000015	Device No. Device name Serial No. Type COM Status	: ITN-89999107 : ITN-89999107 : 89999107 : ITN : COM51 : Connect
	0	No.3	User Control Number Model Code No. Serial No.	: 10000 : ID-F0525NX : 543-851 : 9000025	Device No. Device name Serial No. Type COM Status	: ITN-89999144 : ITN-89999144 : 89999144 : ITN : COM23 : Connect
	0	No.4	User Control Number Model Code No. Serial No.	: 10000 : ID-F0525NX : 543-851 : 9000035	Device No. Device name Serial No. Type	: ITN-89999145 : ITN-89999145 : 89999145 : ITN : ITN
		3	4		9	OK Cancel

No.	Name	Function
1	[Number of Measurement Items] field	Sets the number of measurement points.
2	[Select Tool] field	Selects a measuring tool to use.
3	Measuring tool type	<ul> <li>Displays the measuring tool type with one of the following icons:</li> <li>Caliper <ul> <li>Caliper</li> <li>Height gauge</li> <li>Micrometer</li> <li>Dial gauge</li> <li>No icon</li> </ul> </li> <li>Tips <ul> <li>For a measuring tool that does not support Digimatic S1 communication, "No Image" will be displayed as the measuring tool type.</li> </ul> </li> </ul>
(4)	Measuring tool information	Displays [User Control Number], [Model], [Code No.], and [Serial No.] of the measuring tool. <b>Tips</b> For a measuring tool that does not support Digimatic S1 communica- tion, the measuring tool information will be blank.
5	[Preset] field	Select this checkbox to apply preset and set the preset value. <b>Tips</b> [Preset] is configurable when [Number of Measurement Items] is set to "1" and a measuring tool that supports Digimatic S1 communication is selected.

No.	Name	Function
6	[Tolerance Judgment] field	Select this checkbox to apply tolerance judgment and set the upper and lower limits.
		Tips
		[Tolerance Judgment] is configurable when [Number of Measurement Items] is set to "1".
7	Data entry device informa- tion	Displays [Device No.], [Device name], [Serial No.], [Type], and [COM] of the data entry device.
8	[Cancel] button	Returns to the [Quick Menu] screen.
9	[OK] button	Displays the data collection screen.

# 8.4 [Device information] Screen

This screen is for setting device information. On the [Quick Menu] screen, click the [Device information] button to display this screen.



No.	Name	Function
1	[ALL ON] button	Turns on the measuring tool.
2	[ALL ON] button	Turns off the measuring tool.
3	Refresh button	Checks the connection status of the measuring tools again and refreshes the screen.
(4)	Measuring tool type	Displays the measuring tool type with one of the following icons: Caliper Legistic gauge Caliper Legistic gauge Legistic gauge Legisti
5	Measuring tool information	tion, "No Image" will be displayed as the measuring tool type. Displays [User Control Number], [Model], [Code No.], [Serial No.], and [Calibration Date] of the measuring tool.
		<b>Tips</b> For a measuring tool that does not support Digimatic S1 communica- tion, the measuring tool information will be blank.
6	Setting mode button	Displays the [Measuring Tool Setup Mode] screen. <b>Tips</b> The setting mode button appears for a measuring tool that supports Digimatic S1 communication.

#### 8 USB-ITPAK Screen Structure

No.	Name	Function
7	Data entry device informa- tion	<ul> <li>Displays [Device No.], [Device name], [Serial No.], [Type], and [COM] of the data entry device.</li> </ul>
		<ul> <li>Up to 20 single-byte alphanumeric characters and symbols can be entered in [Device No.].</li> </ul>
		<ul> <li>Up to 32 characters can be entered in [Device name].</li> </ul>
8	[Cancel] button	Discards the setting changes and returns to the [Quick Menu] screen.
9	[OK] button	Saves the setting changes and returns to the [Quick Menu] screen.

# 8.4.1 [Measuring Tool Setup Mode] Screen

This screen is for setting measuring tool information. Click the setting mode button on the [Measuring Tool Information Window] screen to display this screen.

	😰 USB-TTPAK Measuring Tool Setup Mode – 🗆 X		
	Mitutoyo		
1	Serial No.: 9000015 Code	No.: 543-851 Model: ID-F05	525NX 6 🕙 🞧
2	Batch Setup/ Acquisition		Set Up in Batch Acquire in Batch Save File Read File
3)	Individual Setup/ Acquisition	Error Display Data Output	0.000 mm
Ð	Measuring Tool Control	User Control Number	10000
		Unit Display	Display in mm 👻
		Measurement System	ABS Measuring System 👻
		Counting Direction	Negative Counting ~
		Resolution	0.001 mm
		Operation Mode	Serial Communication Mode Bidirectional Communication Mode 👻
			Operation Mode Normal Measurement Mode ~
		Preset	Preset 1 Value 0.000 mm
		Tolerance Judgment	○ ON (Normal Display)     Upper Limit Value     Lower Limit Value       ○ ON (Enlarged Display)     P1
5)	The operation has been con	pleted successfully. [Acquire	

No.	Name	Function
1	Measuring tool informa- tion	Displays [Serial No.], [Code No.], and [Model] of the measuring tool. <b>Tips</b> If the following information is received from the measuring tool, the
		corresponding icon will be displayed:
		A : Receiving error information
		<ul> <li>Receiving a voltage drop</li> <li>Receiving a calibration timing alarm</li> </ul>
2	[Batch Setup/Acquisition] tab	Sets or retrieves all measuring tool items at once. It is also used to save measuring tool setting information in a file or load it from a file.
		Tips
		For details about each item of the measuring tool, see the user's man- ual attached to the tool.
3	[Individual Setup/Acquisi- tion] tab	Sets or retrieves measuring tool items individually. It is also used to send a command and receive the response result.
4	[Measuring Tool Control] tab	Sets the power control to the measuring tool.
5	Process status	Displays the process status.
6	Device selection button	Returns to the [Measuring Tool Information Window] screen.
7	Quick menu button	Displays the [Quick Menu] screen.

#### Tips

- On the [Measuring Tool Setup Mode] screen, "NACK" will be displayed in the field of the items that are not supported by the measuring tool.
- On the [Measuring Tool Setup Mode] screen, "Error" or "Input error" will be displayed in the field that has imperfect setup contents such as a format error.

## ■ [Batch Setup/Acquisition] tab

The [Batch Setup/Acquisition] tab is for setting or retrieving all measuring tool items at once. It is also used to save measuring tool setting information in a file or load it from a file.

State USB-ITPAK Measuring Tool Setup	Mode				-	□ ×
Mitutoyo						
Serial No.: 9000015 Code N	No.: 543-851 Model: ID-F05	25NX				\land 🏠
Batch Setup/ Acquisition			Set Up in Batch	Acquire in Batch	Save File	Read File
	Error Display		1	2	3	4
Individual Setup/ Acquisition	Data Output	0.000 mm				
Measuring Tool Control	User Control Number	10000				
	Unit Display	Display in mm	•			
	Measurement System	ABS Measuring S	ystem ~			
	Counting Direction	Negative Countin	ng ~			
	Resolution	0.001	mm			
	Operation Mode	Serial Communica	tion Mode Bidirec	tional Communicatio	n Mode 🗠	
		Operation Mode	Normal Measureme	ent Mode 🗠		
	Preset	Preset 1 Value	0.000 mm			
	Tolerance Judgment	<ul> <li>ON (Normal Disp</li> <li>ON (Enlarged Disp</li> <li>OFF</li> </ul>		er Limit Value -0.001 mm	Lower Limit Valu	_
The operation has been com	inleted successfully. [Acquire	in Batchl				

No.	Name	Function
1	[Set Up in Batch] button	Sets all the displayed information to the measuring tool.
2	[Acquire in Batch] button	Retrieves and displays all the information set to the measuring tool.
3	[Save File] button	Saves the displayed information to a specific location.
4	[Read File] button	Loads and displays the information from a file.

### • Setting items

No.	Name	Description
1	Error Display	Displays the display error.
2	Data Output	Displays the display value data output.
3	User Control Number	Displays the user management number. Up to 10 single-byte alpha- numeric characters and symbols can be specified.
4	Unit Display	Displays the display unit. It can also be selected.
5	Measurement System	Displays the display coordinate system. It can also be selected.
6	Counting Direction	Displays the counting direction. It can also be selected.

No.	Name	Description
7	Resolution	Displays the minimum display value. It can also be specified as up to an 8-digit number. <b>Tips</b> The resolution cannot be set unless it is the value supported by the measuring tool. Check with the measuring tool's User's Manual for the resolution.
8	Operation Mode	Displays the operating mode. It can also be selected. <b>Tips</b> When you click the [Select all] button, all the checkboxes are selected. Clicking the [Clear all] button clear all the checkboxes.
9	Preset 1 value	Displays the preset value. It can also be specified as up to an 8-digit number.
10	Tolerance Judgment	Displays the tolerance judgment setting. It can also be set. <b>Tips</b> [Arithmetic coefficient A] $\rightarrow$ [Calculation coefficient A] [Arithmetic coefficient C] $\rightarrow$ [Calculation coefficient C]
11	Upper Limit Value/Lower Limit Value	Displays the upper and lower limits for Preset 1. They can also be specified as up to an 8-digit number.
12	Upper Limit Value/Lower Limit Value	Displays the upper and lower limits for INC. They can also be spec- ified as up to an 8-digit number.
13	Calculation	Displays the arithmetic function. It can also be set. <b>Tips</b> [Arithmetic coefficient A] $\rightarrow$ [Calculation coefficient A] [Arithmetic coefficient C] $\rightarrow$ [Calculation coefficient C]
14	Calculation coefficient A	Displays the arithmetic coefficient. It can also be specified as up to an 8-digit number.
15	Current Date	Displays the current date. It can also be set.
16	Calibration Warning Function	Displays the Calibration Timing Warning function ON/OFF. It can also be set.
17	Calibration Warning Displayed	Displays the calibration timing alarm.
18	Last Calibration Date	Displays the previous calibration date. It can also be set.
19	Prior Warning Date	Displays the advance warning date. It can also be set.
20	Next Calibration Date	Displays the next warning date. It can also be set.
21	Analog Bar Display	Displays the analog bar display ON/OFF. It can also be set. <b>Tips</b> When you select the [ON] option button, the analog bar display value can be set.
22	Analog Bar Graduation Value	Displays the analog bar display value. It can also be specified as up to an 8-digit number.
23	Auto-off Time	Displays the auto-off time ON/OFF. It can also be set.
		<b>Tips</b> When you select the [ON] option button, the auto-off time can be speci- fied as a number between 0 and 127.

No.	Name	Description
24	Digimatic 1/2 Switching	Retrieves Digimatic setting status set to the measuring tool. Digimatic settings can also be set to the measuring tool.
25	Switch Function Select	Retrieves Switch Function Select information set to the measuring tool. Arbitrary Switch Function Select information can also be set to the measuring tool.
26	Display Hold	Displays the display hold ON/OFF. It can also be set.
27	Function Lock	Displays the Function Lock ON/OFF. It can also be set.
		<b>Tips</b> When you select the [ON] option button, the Function Lock item can be set.
28	Function Lock Item	Displays the Function Lock item. It can also be set.
		<b>Tips</b> When you click the [Select all] button, all the checkboxes are selected. Clicking the [Unselect all] button unselects all the checkboxes.
29	Parameter Lock	Displays the parameter lock ON/OFF. It can also be set.
		<b>Tips</b> When you select the [ON] option button, the parameter lock item can be set.
30	Parameter Lock Item	Displays the parameter lock item. It can also be set.
		<b>Tips</b> When you click the [Select all] button, all the checkboxes are selected. Clicking the [Unselect all] button unselects all the checkboxes.
31	Current Position Data Output	Displays the current position data output.
32	FW Version	Displays the firmware version.
33	Corporation Name	Displays the manufacturing company name.

## [Individual Setup/Acquisition] tab

The [Individual Setup/Acquisition] tab is for setting or retrieving measuring tool items individually. It is also used to send a command and receive the response result.



If the [Individual Setup/Acquisition] tab was used to set measuring tool items individually, click the [Aquire] button or the [Batch load] button in the [Batch Setup/Acquisition] tab to retrieve the measuring tool setting information again.

USB-ITPAK Measuring Tool Setup	n Mode					- 🗆 X	٦
Mitutoyo	, mode						
Serial No.: 9000015 Code	No.: 543-851 Model: ID-F0525NX	:				《 ①	1
Batch Setup/ Acquisition				1	Set Up	Acquire	0
Individual Setup/	Selecting Display or Setup Iten	n Tolerance Judgment	v				
(4		ON (Normal Display)		Upper Limit Valu	e Lower L	imit Value	
Measuring Tool Control	0	ON (Enlarged Display) OFF	P1	-0.001	mm	-0.005 mm	
	Ŭ		INC	0.000	mm	0.000 mm	
		0		8	9	10	
				Y	9		5
	Transmission Data	Duplicate Acquisition Command	s	Duplicate etup Command	Clear	Send	ļ
5							
	Received Data					Clear	11
6							
The operation has been con	npleted successfully. [Acquire]						

No.	Name	Function
1	[Set Up] button	Sets the displayed information to the measuring tool.
2	[Acquire] button	Retrieves and displays all the information set to the measuring tool.
3	[Selecting Display or Setup Item] field	Selects the setting items.
4	Setting items	Displays the setting items that are selected in the [Select Dis- play or Setup Item] field.
		<b>Tips</b> The displayed items are the same as in the [Batch Setup/Acquisi- tion] tab. For details, see III "• Setting items" (page 168).
5	[Transmission Data] field	Enters a command to be sent to the measuring tool.
		Tips
		Enter a send command in one line at a time.
		<ul> <li>To enter multiple send commands, separate them with line feeds.</li> </ul>
6	[Received Data] field	Displays the response data from the measuring tool.
7	[Duplicate Acquisition Com- mand] button	Displays the commands to retrieve the setting items that are selected in the [Select Display or Setup Item] field in the [Send data] field.

#### 8 USB-ITPAK Screen Structure

No.	Name	Function
8	[Duplicate Setup Command] button	Displays the commands to set the information in the setting items to the measuring tool in the [Transmission Data] field.
9	[Clear] button	Deletes the information in the [Transmission Data] field.
10	[Send] button	Sends the information in the [Transmission Data] field to the measuring tool.
(11)	[Clear] button	Deletes the information in the [Received Data] field.

## [Measuring Tool Control] tab

The [Measuring Tool Control] tab is for setting the power control to the measuring tool.

0

If the [Measuring Tool Control] tab was used to set a measuring tool, click the [Batch load] button in the [Batch Setup/Acquisition] tab or the [Acquire] button in the [Individual Setup/Acquisition] tab to retrieve the measuring tool setting information again.

👺 USB-ITPAK Measuring Tool Setup	Mode		- 🗆 X
Mitutoyo			
Serial No.: 90000060 Code	No.: 543-854 Model: ID-F0550ENX		《 俞
Batch Setup/ Acquisition	Power ON/OFF	Power ON v Set Up	1
Individual Setup/ Acquisition	Serial Communication Mode	Data Output Mode 👻 Set Up	2
Measuring Tool Control	Origin Set/Preset & Recall	Set Up	3
	Zero Set	Set Up	(4
	Peak Reset	Set Up	5
	Analog Bar Centering	Set Up	6
	Forced 'Calibration Warning' Display	Display Reset Y Set Up	0
	Forced 'Error' Display	Set Up	8
	Error Reset	Set Up	9
	Settings Initialization	Set Up	10

The operation has been completed successfully. [Acquire in Batch]

No.	Name	Function
1	[Power ON/OFF] field	Sends the power ON/OFF to the measuring tool.
2	[Serial Communication Mode] field	Sends the communication mode to the measuring tool.
3	[Origin Set/Preset & Recall] field	Sends the origin set/preset recall to the measuring tool.
4	[Zero Set] field	Sends the zero set to the measuring tool.
5	[Peak Reset] field	Sends the peak reset to the measuring tool.
6	[Analog Bar Centering] field	Sends the analog bar reset to the measuring tool.
7	[Forced 'Calibration Warning' Display] field	Sends the display reset/forcible display to the measuring tool.
8	[Forced 'Error' Display] field	Sends the forcible error display to the measuring tool.
9	[Error Reset] field	Sends the error reset to the measuring tool.
10	[Settings Initialization] field	Sends the setting initialization to the measuring tool.

# 8.5 [Option] Screen

This screen is for setting the operation of USB-ITPAK.

	Option	×
1	Language English ~	
	rngusn V	
2	Data format	
	☑ Replace decimal symbol	
3	Startup processing	
0	Load the setting file previously used	
0		-
4	Login Settings	
	□ Enable Login	
(5)	Newline Code for Input Tool Recognized as HID	
	Tab(0x2B) V	
	6 OK Cancel	

No.	Name	Function		
1	[Language] field	Select the language to use for USB-ITPAK.		
2	[Data format] field	Select [Replace decimal symbol] to use the decimal separator spec- ified in Windows. By default, USB-ITPAK uses a period [.] as the decimal separator for measurement data.		
		Tips         The symbol that is set as the decimal separator in Windows can be confirmed in [Decimal symbol] on the [Customize Format] screen in [Control Panel] + [Clock, Language, and Region] + [Region and Language] + [Aditional settings].         Tips         Tips <t< th=""></t<>		

No.	Name	Function
3	[Startup processing]	Sets the startup operation of USB-ITPAK.
	field	<ul> <li>[Load the setting file previously used]</li> <li>When you click the [Data collection] button on the [Quick Menu] screen, the setting file that was last used is loaded, and the data collection screen will be displayed.</li> <li>If you click the [Create Procedure] button on the [Quick Menu] screen, the create procedure screen will be displayed with the setting file that was last used opened.</li> </ul>
4	[Login Settings] field	Select [Enable Login] to enable the Login function.
5	[Newline Code for Input Tool Recognized as HID] field	Select the key scan code used by USB-ITN in the HID mode.
6	[OK] button	Saves the setting changes.
7	[Cancel] button	Discards the setting changes.

# 8.6 [Version information] Screen

This screen is for displaying version information about USB-ITPAK.



## ■ To display the [License] screen

Click [License] on the [Version information] screen.

👺 License	-		×
The software may contain portions of the following libraries, subject to the below licenses.			Â
*** CommonServiceLocator ***			
SPDX identifier MIT			
License text MIT License			
Copyright (c)			
Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (th The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software. THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO			
*** Newtonsoft.Json ***			
Microsoft Public License (MS-PL) This license governs use of the accompanying software. If you use the software, you accept this license. If you do not accept the licen	nse, do	not us	e th
<ol> <li>Definitions         The terms "reproduce," "reproduction," "derivative works," and "distribution" have the         same meaning here as under U.S. copyright law.         A "contribution" is the original software, or any additions or changes to the software.         A "contributor" is any person that distributes its contribution under this license.             "Licensed patents" are a contributor's patent claims that read directly on its contribution.     </li> </ol>			
<ul> <li>2. Grant of Rights</li> <li>(A) Copyright Grant- Subject to the terms of this license, including the license conditions and limitations in section 3, each contribute</li> <li>(B) Patent Grant- Subject to the terms of this license, including the license conditions and limitations in section 3, each contributor g</li> </ul>			
3. Conditions and Limitations (A) No Trademark License. This license does not grant you rights to use any contributors' name logo, or trademarks			~ >

# 8.7 [User Registration or Update] Screen

This screen is for registering users used in the Login function.

User Registration or Up	date	
1	Select User	
_	New User Registration ~	
2	Name	
3	User ID	
	Current Password	
4		
(5)	New Password	
6	Confirm New Password	
-		
	Register Delete	Cancel
	7 8	9

No.	Name	Function
1	[Select User] field	Select a user to update. To register a new user, select [New User Registration].
2	[Name] field	Sets a user name consisting of up to 32 characters.
3	[User ID] field	Sets a user ID consisting of 8 to 32 single-byte alphanumeric characters and symbols.
		Tips
		An existing user ID cannot be specified.
		• To use an existing user ID, delete it first.
4	[Current Password] field	To change the password, enter the current password.
5	[New Password] field	Sets a new password string consisting of 8 to 32 single-byte alphanumeric characters and symbols.
		Tips
		The following character strings cannot be used for the password:
		<ul> <li>Character string already used as the password for the same user ID</li> </ul>
		Same character string as the current password
6	[Confirm New Password] field	Enters the same character string as in the [New Password] field.
7	[Register] button.	Registers the settings.
8	[Delete] button	Deletes the information of the user ID that is selected in the [Se- lect User] field.
9	[Cancel] button	Discards the setting changes.

### Tips

Clicking the [Register] or [Delete] button displays the [User Registration and Update Completion] dialog box.

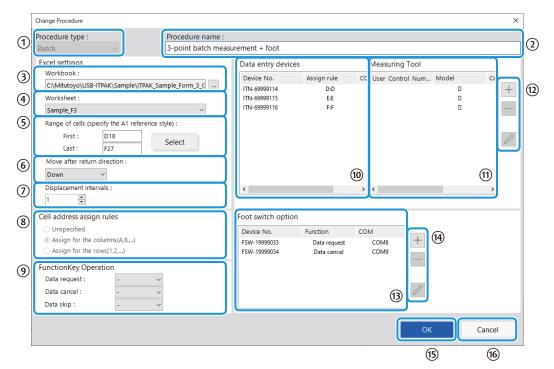
User Registration and Update Completion	
	仚
User information has been successfully updated.	
Continue with Another Registration End	

# 8.8 [Add procedure] Screen/[Change Procedure] Screen

The [Add procedure] screen is for creating a new procedure. The [Change Procedure] screen is for modifying a procedure that has been created.

On the create procedure screen, click the [Add Procedure] button to display the [Add procedure] screen. Or, select a procedure in the [Procedure] field and then click the [Change Procedure] button to display the [Change Procedure] screen.

# 8.8.1 Entering Data into Excel with Sequential Measurement or Batch Measurement



No.	Name	Function
1	[Procedure type] field	Select [Sequential], [Batch], or [Individual] as the proce- dure type for data collection. For details, see 🗐 "6 Measurement Data Collection Us- ing the Procedure Measurement Menu (Basic Operation)" (page 27).
2	[Procedure name] field	Enter the name for the procedure you are creating. The procedure name is displayed in the [Procedure] field in the center of the create procedure screen. Enter a name that will be easy to recognize when checking. Tips Up to 32 characters can be entered.
3	[Workbook] field	Select the destination file in which to enter measurement data. You can click the [] button to select the file to use from the [Open] screen.

No.	Name	Function
4	[Worksheet] field	From the drop-down list, select the destination worksheet in which to enter measurement data.
5	[Range of cells (specify the A1 reference style)] field	Specifies the range of cells in which to enter measure- ment data in A1-style notation. You can directly enter the cell addresses, or you can select the range of cells in Excel.
		<ul> <li>Tips</li> <li>A1-style notation is a format for specifying a cell address by specifying the column with a letter and the row with a number.</li> <li>If [Repeat procedure] is being used on the create procedure screen, specify the range of cells for data entry for the first procedure.</li> </ul>
		For details about selecting the range of cells for data entry in Excel, see 🗐 "■ Selecting a range of input cells in Excel" (page 182).
6	[Move after return direction] field	Specifies in which direction to move the cell after data is entered ([Right] or [Down]). For details, see III "■ About the [Move after return direc- tion] and [Displacement intervals] settings" (page 183).
7	[Displacement intervals] field	Specifies the number of cells to move after data is en- tered ([1] to [100]). For details, see
8	[Cell address assign rules] field	Select whether to assign the columns (vertical) or the rows (horizontal) of the Excel worksheet to the data entry devices. For details, see III " About the [Cell address assign rules] setting" (page 185).
9	[FunctionKey Operation] field	<ul> <li>You can assign the [Data request] function, [Data cancel] function, and [Data skip] function to the function keys (F1 to F8) of the PC.</li> <li>From the drop-down lists, select the function key to assign to each function.</li> <li><b>Tips</b> <ul> <li>If [Unspecified] is selected under the [Cell address assign rules] field, this setting is not available.</li> <li>You cannot assign the [Data request] function, [Data cancel] function, and [Data skip] function to the same function key.</li> </ul> </li> </ul>
10	[Data entry devices] field	Displays information about the devices that will be used for entering measurement data and character string data.
(1)	[Measuring Too] field	Displays [User management No.], [Model], [Code No.], and [Serial No.] of the measuring tool.
12	Buttons for the [Data entry devic- es] field	<ul> <li>[+]: Adds a data entry device to the [Data entry devices] field.</li> <li>[-]: Deletes the data entry device that is selected in the [Data entry devices] field.</li> <li>[√]: Changes the settings for the data entry device that is selected in the [Data entry devices] field.</li> <li>For details, see</li></ul>

No.	Name	Function
13	[Foot switch option] field	Displays information about the devices that will be used for foot switch operation. USB-FSW devices to which a data control function ([Data request], [Data cancel], [Data skip], [Zero set], [Preset], or [Peak reset]) is assigned are displayed.
		Tips
		If USB-FSW will be used for entering character string data, it will be displayed in $\textcircled{0}$ .
		For details, see 🗐 "8.10 [Character string data settings] Screen" (page 202).
14)	Buttons for the [Foot switch option] field	[+]: Adds a USB-FSW device to the [Foot switch option] field.
		[-]: Deletes the USB-FSW device that is selected in the [Foot switch option] field.
		$[\checkmark]$ : Changes the settings of the USB-FSW device that is selected in the [Foot switch option] field.
		For details, see 🗐 "8.11 [Foot switch option settings] Screen" (page 203).
15	[OK] button	Saves the setting changes.
(16)	[Cancel] button	Discards the setting changes.

### Selecting a range of input cells in Excel

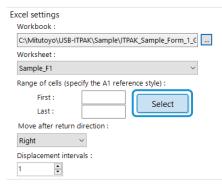
To enter measurement data into Excel, you must specify the range of cells for data entry. There are two methods for specifying the cell range: Directly enter the cell addresses, or select the range of cells in Excel.

As an example, here we explain the procedure for selecting the input range in Excel.

**1** In Excel, select the range of cells to enter measurement data into.

E	<b>]</b> •	ਰਾ∂ਾ	÷	ITPAK_Sam	ple_Form_1_	GB [Comp	atibility Mo	de] - Excel	ħ	- 6	×
Fi	le	Home li	nsert Pag	ge Layout	Formulas	Data	Review	View	♀ Tell me	Sign in	₽ Share
H1	1	<b>•</b> :	× ✓	fx ⊦	111						~
	F	G	Н	I	J	К	L	М	N	(	
1											
3	IN	SPEC	OIT							5/	AMF
6						BBI	B Corpora	ation	Approval	Insp	ector
7			Lot	No.		0	CCC Divisi	on			
8				r of lots		Date					
9				inspections		H	4				
10	Unit	Measuring item	X1	X2	Х3	X4	X5	judgment	Special note	e	
11			H11								
											L13
12											
13							L13		Drawing No.		-
	. ►	Sam	ple_F1	÷	· · · · · ·		: [	•	•		•
Read	iy					Count: 2					+ 100%

2 In the [Range of cells (specify the A1 reference style)] field on the [Add procedure] screen or the [Change Procedure] screen, click the [Select] button.



The cell range that was selected in step 1 will be entered as follows:

[First]: H11 [Last]: L13

## About the [Move after return direction] and [Displacement intervals] settings

This section explains the [Move after return direction] and [Displacement intervals] settings and their behavior during data collection.

• [Move after return direction]

Specify in which direction to move the cell after data is entered.

• If [Right] is selected

X1	X2	ХЗ	×4	X5
0.03	0.04	*		

• If [Down] is selected

X1	X2	ХЗ	X4	X5
0.04				
0.05				

- [Displacement intervals]
  - Specify the number of cells to move after data is entered.

Example: If the settings are configured as below, the cell for the next entry will be two cells down.

- [Down] is set for [Move after return direction].
- [2] is set for [Displacement intervals].

X1	X2	ХЗ	×4	X5
0.06				

• For sequential measurement, when the input cell exceeds the input cell range during data collection, data entry finishes for the current row or column, and the input cell moves to the next row or column.

Example: If the settings are configured as below, entry finishes for the first column at the third data entry, and entry moves to the second column.

- The cell range in the [Range of cells (specify the A1 reference style)] fields is set to 4 rows × 5 columns.
- [Down] is set for the [Move after return direction] field.
- [2] is set for the [Displacement intervals] field.

X1	X2	X3	X4	Х5
0.061				
0.062				
$\overline{\mathbf{X}}$				

### About the [Cell address assign rules] setting

Select whether to assign the columns (vertical) or the rows (horizontal) of the Excel worksheet to the data entry devices.

• [Unspecified]

Do not assign a device to the Excel cells.

If data is entered from a device registered to the procedure during data collection, the data is written to the current input cell at that moment in the order it is entered, regardless of the cell position.

#### Tips

- If [Batch] is selected in the [Procedure type] filed, you cannot select [Unspecified].
- If you select [Unspecified], operations with the function keys or foot switches are not allowed because the order of data entry from data entry devices cannot be set.

#### [Assign for the columns(A,B,...)]

Assign a device to each column in the Excel worksheet.

Example: The figure below shows an example where Tool 1 is assigned to column [C], Tool 2 is assigned to column [D], ..., and Tool 5 is assigned to column [G].

Data entered from Tool 1 is written to cells C3, C4, and C5.

File			Sample		⊡ — v  ΩTelln		× n Þ
17		• : ×	- 🗸 j	£x			~
A	В	С	D	E	F	G	
1	Parts	Tool1	Tool2	Tool3	Tool4	Tool5	
3	Sample1						
4	Sample2						
5	Sample3						
<u>د</u>	Þ	Sheet1	+	: [	4		• •
Read	Ready						

### • [Assign for the rows(1,2,...)]

Assign a device to each row in the Excel worksheet.

Example: The figure below shows an example where Tool 1 is assigned to row [3], Tool 2 is assigned to row [4], and Tool 3 is assigned to row [5].

Data entered from Tool 1 is written to cells C3, D3, E3, F3, and G3.

File			Sampl			🗖 ne Sign ir	× , ,
18		· : 🗙	√ j	f <sub>x</sub>			*
A	В	С	D	E	F	G	
1							
2	Parts	Sample1	Sample2	Sample3	Sample4	Sample5	
з	Tool1					$\rightarrow$	
4	Tool2						
5	Tool3						
-	•	Sheet1	+	: [	4		• •
Read	у	Ę		─ -	- I	+ 100	)%

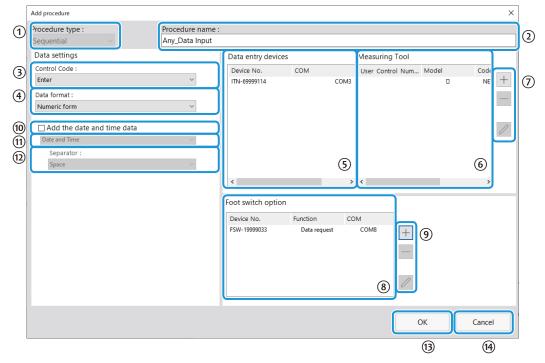
# 8.8.2 Entering Data into Excel with Individual Measurement

Procedure type :	Procedu						
Individual	<ul> <li>individua</li> </ul>	I measurement at	t 2 poin				
Data entry device	25				Measuring Tool		
Device No.	Workbook	Worksheet	Assigned cells	Direction	User Control Num	Model	Code
ITN-69999114 ITN-69999115	C:\Mitutoyo\USB-ITPAK\Sample\I C:\Mitutoyo\USB-ITPAK\Sample\I		L13L13 H14:L14	Right Right	EVA-No.08		(4)
Foot switch opti	on				^		
Device No.	Function COM						
FSW-19999033	Data request COM8						
		_				ок	Cancel

No.	Name	Function
1	[Procedure type] field	Select [Sequential], [Batch], or [Individual] as the procedure type for data collection.
		For details, see 🗐 "6 Measurement Data Collection Us- ing the Procedure Measurement Menu (Basic Operation)" (page 27).
2	[Procedure name] field	Enter the name for the procedure you are creating. The procedure name is displayed in the [Procedure] field in the center of the create procedure screen. Enter a name that will be easy to recognize when checking.
		Tips
		Up to 32 characters can be entered.
3	[Data entry devices] field	Displays information about the devices that will be used for entering measurement data and character string data.
4	[Measuring Tool] field	Displays [User management No.], [Model], [Code No.], and [Serial No.] of the measuring tool.
5	Buttons for the [Data entry devic- es] field	[+]: Adds a data entry device to the [Data entry devices] field.
		[-]: Deletes the data entry device that is selected in the [Data entry devices] field.
		$[\checkmark]$ : Changes the settings for the data entry device that is selected in the [Data entry devices] field.
		For details, see 🗐 "8.9 [Data entry device settings] Screen" (page 190).

No.	Name	Function
6	[Foot switch option] field	Displays information about the devices that will be used for foot switch operation. USB-FSW devices to which a data control function ([Data request], [Data cancel], [Data skip], [Zero set], [Preset], or [Peak reset]) is assigned are displayed.
		<b>Tips</b> If USB-FSW will be used for entering character string data, it is treated as a data entry device.
		For details, see 🔲 "8.10 [Character string data settings] Screen" (page 202).
7	[OK] button	Saves the setting changes.
8	[Cancel] button	Discards the setting changes.

# 8.8.3 Entering Data into an Arbitrary Application



No.	Name	Function
1	[Procedure type] field	Select [Sequential], [Batch], or [Individual] as the procedure type for data collection. For details, see 🗐 "6 Measurement Data Collection Us- ing the Procedure Measurement Menu (Basic Operation)" (page 27).
2	[Procedure name] field	Enter the name for the procedure you are creating. The procedure name is displayed in the [Procedure] field in the center of the create procedure screen. Enter a name that will be easy to recognize when checking.
		<b>Tips</b> Up to 32 characters can be entered.

No.	Name	Function
3	[Control Code] in the [Data set- tings] field	Select a control code to add after data is entered. As the control code, you can select from [Unspecified], [Enter], [Up], [Down], [Right], [Left], and [Tab].
		<ul> <li>Tips</li> <li>If Notepad is used as the application in which to enter data and you select [Enter] as the control code, a new line will be entered after the numeric data.</li> </ul>
		<ul> <li>The behavior of the control code differs depending on the ap- plication used. Check the behavior of the control code in the application beforehand, and then select a control code.</li> </ul>
4	[Data format] in the [Data set- tings] field	Select the format in which data will be entered into the application. For the purposes of explanation, the following is an exam- ple where the measuring tool on channel 1 of COM 13 has measured 32.14 mm. [Numeric form]: Only measurement data is entered. Example: [32.14] [Command form]: The channel number and measurement data are entered. Example: [01A+00032.14] [COM+Command form]: The COM number (three digits), channel number, and mea- surement data are entered.
5	[Data entry devices] field	Example: [01301A+00032.14] Displays information about the devices that will be used for entering measurement data and character string data.
6	[Measuring Tool] field	Displays [User management No.], [Model], [Code No.], and [Serial No.] of the measuring tool.
	Buttons for the [Data entry devic- es] field	<ul> <li>[+]: Adds a data entry device to the [Data entry devices] field.</li> <li>[-]: Deletes the data entry device that is selected in the [Data entry devices] field.</li> <li>[√]: Changes the settings for the data entry device that is selected in the [Data entry devices] field.</li> <li>For details, see I "8.9 [Data entry device settings] Screen" (page 190).</li> </ul>
8	[Foot switch option] field	Displays information about the devices that will be used for foot switch operation. USB-FSW devices to which a data control function ([Data request], [Data cancel], [Data skip], [Zero set], [Preset], or [Peak reset]) is assigned are dis- played. <b>Tips</b>
		If USB-FSW will be used for entering character string data, it is treated as a data entry device. For details, see 🗐 "8.10 [Character string data settings] Screen" (page 202).

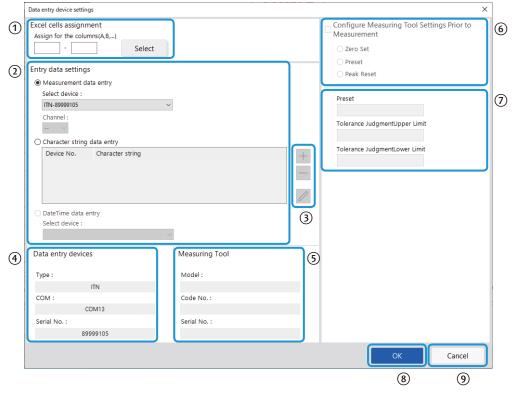
No.	Name	Function
9	Buttons for the [Foot switch option] field	<ul> <li>[+]: Adds a USB-FSW device to the [Foot switch option] field.</li> <li>[-]: Deletes the USB-FSW device that is selected in the [Foot switch option] field.</li> <li>[√]: Changes the settings of the USB-FSW device that is selected in the [Foot switch option] field.</li> <li>For details, see</li></ul>
10	[Add the date and time data] field	Specifies whether to add date and time data during data collection. If you select [Add the date and time data], the items <sup>(1)</sup> through <sup>(1)</sup> can be set.
(1)	Date and time data format	Select one of the following for the format of the date and time data. For the purposes of explanation, the following is an exam- ple where the measuring tool has measured 32.14 mm. [Date and Time]: The date and time are added. Example: 32.14 01/23/2013 12:34:56 [Date]: Only the date is added. Example: 32.14 01/23/2013 [Time] Only the time is added. Example: 32.14 12:34:56
	[Separator]	<ul> <li>For the character that separates the measurement data and the date and time data, you can select from [Space], [Tab], [Comma (,)], or [Semicolon (;)].</li> <li><b>Tips</b> If you select [Numeric form] in the [Data format] field and one of the following in the [Separator] field, an error may be displayed in Excel when measurement data is entered. <ul> <li>[Space]</li> <li>[Comma (,)]</li> <li>[Semicolon (;)]</li> </ul> Also, if negative values (values that begin with a minus sign) are entered into Excel, Excel may display the error [The formula you typed contains an error.]. If this error is displayed, take the following actions. <ul> <li>Select [Tab] for [Separator].</li> <li>Set the cell format in Excel to [Text] ahead of time.</li> </ul> </li> </ul>
	[OK] button	Saves the setting changes.
(14)	[Cancel] button	Discards the setting changes.

# 8.9 [Data entry device settings] Screen

This screen is for configuring settings for devices, etc. that enter measurement data or character string data.

Click the [+] button under the [Data entry devices] field on the [Add procedure] or [Change Procedure] screen to display this screen.

# 8.9.1 Entering Data into Excel with Sequential Measurement or Batch Measurement



No.	Name	Function
1	[Excel cells assignment] field	Enter the Excel row numbers or column numbers to assign the data entry device to. For details, see  "■ About filling in the [Excel cells assign-
		ment] field" (page 193).

No.	Name	Function
2	[Entry data settings] field	Select [Measurement data entry] or [Character string data entry] according to the type of data to enter. [Measurement data entry]: Select this option to enter measurement data (numerical data) from a measuring tool. Select the data entry device (USB-ITN/IT-0xxU/DP-1VA/U-WAVE-R) to use from the [Se- lect device] drop-down list. If you select a U-WAVE-R device, select which channel the device uses for transmission from the [Channel] drop-down list.
		<b>Tips</b> If you start U-WAVEPAK to confirm the channel, first exit USB-IT- PAK.
		[Character string data entry]: Select this option to enter character string data by pressing a foot switch. If you click the [+] button in the [Character string data entry] field, the [Character string data settings] screen is displayed. For details, see III "8.10 [Character string data settings]
		Screen" (page 202). [DateTime data entry]: Select this option to add date and time that the measurement data was collected. Select the data entry device (USB-ITN/ IT-0xxU/DP-1VA/U-WAVE-R) to which to assign the date and time data from the [Select device] drop-down list. For details, see III ■ About the settings for the date and time data entry device" (page 194).
3	Buttons for the [Character string data entry] field	<ul> <li>[+]: Adds a USB-FSW device to the [Character string data entry] field.</li> <li>[-]: Deletes the USB-FSW device that is selected in the [Character string data entry] field.</li> <li>[√]: Changes the settings for the USB-FSW device that is selected in the [Character string data entry] field.</li> <li>For details, see III "8.10 [Character string data settings] Screen" (page 202).</li> </ul>
4	[Data entry devices] field	Displays information about the device that is selected in the [Entry data settings] field.
5	[Measuring Tool] field	Displays [Model], [Code No.], and [Serial No.] of the measur- ing tool.
6	[Configure Measuring Tool Settings Prior to Measurement] field	Select this checkbox to perform zero set, preset, or peak reset for the measuring tool before measurement, and then select the target operation option button.
		<b>Tips</b> The [Configure Measuring Tool Settings Prior to Measurement] field is available when [Procedure type] is set to [Batch] and the [Measurement data entry] radio button in [Entry data settings] is selected a measuring tool that supports Digimatic S1 communi- cation.

No.	Name	Function
7	[Preset/Tolerance Judgment] field	Specifies the preset value and tolerance (upper limit/lower limit) of the measuring tool as up to an 8-digit number.
		Tips
		<ul> <li>This field is available when the [Measurement data entry] op- tion button in [Entry data settings] is selected for a measuring tool that supports Digimatic S1 communication.</li> </ul>
		<ul> <li>[Tolerance Judgment Upper Limit] and [Tolerance Judgment Lower Limit] are available when the [Measurement data entry] option button in [Entry data settings] is selected.</li> </ul>
8	[OK] button	Saves the setting changes.
9	[Cancel] button	Discards the setting changes.

- About filling in the [Excel cells assignment] field
- If [Assign for the rows(1,2,...)] is displayed under the [Excel cells assignment] field Enter the Excel row numbers (1, 2, ...) in A1-style notation.



• If [Assign for the columns(A,B,...)] is displayed under the [Excel cells assignment] field

Enter the Excel column numbers (A, B, ...) in A1-style notation.

Excel cells	assignme	nt
Assign for	the column	is(A,B,)
С	- E	Select

You can also enter this information by selecting a range in Excel and then clicking the [Select] button under the [Excel cells assignment] field.

For example, to set column [C] (or row [3]) to column [E] (or row [5]) to device 1, select the range as shown below and then click the [Select] button under the [Excel cells assignment] field. [C] (or [3]) will be entered in the left field and [E] (or [5]) will be entered in the right field under the [Excel cells assignment] field.

E	<del>ا</del> ا	e	: Sampl	le2 团	<b>-</b>		×
Fi	ile Horr	Inser Page	Form Data	Revie Viev	v 🛛 🖓 Tell n	ne Sign i	n 🔸
C3	-	· : 🗙	√ j	f <sub>sc</sub>			*
	A B	С	D	E	F	G	
1							
2	Parts	Tool1	Tool2	Tool3	Tool4	Tool5	
3	Sample1						
4	Sample2						
5	Sample3						
<u> </u>	•	Sheet1	÷	: [	•		•
Rea	Ready 🔠 🗉 – – + 100%						

#### Tips

Select the cell range after the [Data entry device settings] screen has been displayed. If you specify the cell range before the screen is displayed, the specified range will not be reflected in the [Excel cells assignment] field.

### About the settings for the date and time data entry device

If you configure the date and time entry settings for a measurement data entry device, the date and time that the data was collected can be automatically entered when measurement data is read in. The types of procedures and settings for which the date and time data can be entered are as follows.

[Procedure type]	[Cell address assign rules]	Supported
Sequential	Unspecified	_
	Assign for the columns(A,B,)	✓ *1
	Assign for the rows(1,2,)	✓ *1
Batch	Unspecified	_
	Assign for the columns(A,B,)	✓ *2
	Assign for the rows(1,2,)	√ *2
Individual		_

Note: ✓ means supported; — means not supported

\*1 The settings for date and time data entry can be specified for each data entry device.

\*2 The settings for date and time data entry can be specified just one of the data entry devices.

The procedure for configuring the settings for date and time data entry is explained below. Configure the data entry device to which the date and time data will be assigned beforehand.

# 1 Click the [+] button under the [Data entry devices] field on the [Add procedure] or [Change Procedure] screen.

Add procedure					
Procedure type : Batch ~	Procedure name : Batch 3point Date an	d time input			
Excel settings Workbook : C\/Mitutoyo\USB-ITPAK\Sample\test.xlsx Worksheet : Short		Data entry devices Device No. ITN-89999105	Assign rule CC A:D	Measuring Tool User Control Num	Model Co

» The [Data entry device settings] screen will be displayed.

### **2** Configure the settings for entering date and time data.

2

- 1 In the [Entry data settings] field, select [DateTime data entry].
- 2 In the [Select device] field, select which device to assign the date and time data to. From the drop-down list, select the device to assign.

In the device information that is displayed in the [Select device] field, the information for devices that are registered as measurement data entry devices and the cell assignment information for those devices are displayed.

#### Example: ITN-89999013 [A:A]

1

Device information
 Excel cells assignment

Data entry device settings					
Excel cells assignment Assign for the columns(A,B,) D Select					
Entry data settings					
O Measurement data entry					
Select device :					
ITN-69999114 ~					
Channel :					
Character string data entry					
Device No. Character string	+				
	0				
DateTime data entry					
Select device :					
ITN-89999105[A:D]					
Data entry devices	Measuring Tool				
Type :	Model :				
COM :	Code No. :				
Serial No. :	Serial No. :				

#### Tips

If the data entry device to assign the date and time data to is not configured, you cannot select [DateTime data entry].

3 Under the [Excel cells assignment] field, specify the row numbers or the column numbers to assign the data entry device to. As an example, here we enter [D] to assign the date and time data to column D.

### Tips

If [DateTime data entry] is selected, only the start cell position can be entered in the [Excel cells assignment] field.

For the target cell range for date and time data entry, the range of the number of rows or columns in the cell range of the selected measurement data entry device is applied, based on the position of the start cell.

For example, for a measurement data entry device whose [Excel cells assignment] field is [A:B], if start cell [C] is specified for date and time data entry, the [Excel cells assignment] field for date and time data entry becomes [C:D].

4 Click the [OK] button.

» The information of the device to which date and time data is assigned will be displayed in the [Data entry devices] field on the [Add procedure] or [Change Procedure] screen.

#### Tips

The example below shows how to look at the device information that is displayed in the [Data entry devices] field.

Add procedure							×
	Procedure name : Batch 3point Date ar	nd time input					
Excel settings Workbook : C:\Mitutoyo\USB-ITPAK\Sample\test.xlsx Worksheet :		Data entry devices Device No. ITN-89999105 ITN-89999105	Assign rule A:D D:G	_	Measuring Tool User Control Num	Model	Co +
Choot1	~	<u></u>					

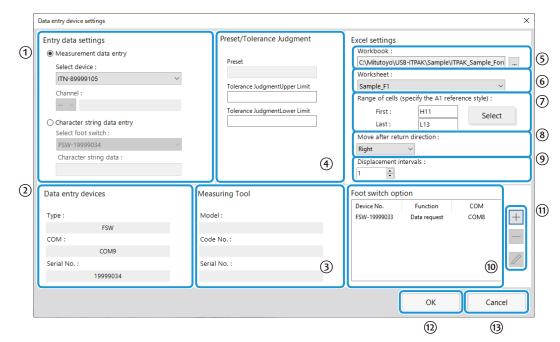
[A:A] ④

Example:

ITN-69999013	D:D	DateTime
1	2	3

- ① : Measurement data entry device to which date and time data entry has been assigned
- (2) : The row or column number of the cell into which date and time data will be entered
- ③ : A character string that indicates that date and time data entry is set
- (4) : The row or column number of the cell into which the measurement data from the device in (1) will be entered

# 8.9.2 Entering Data into Excel with Individual Measurement



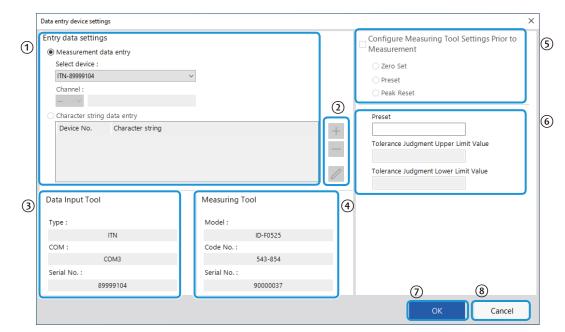
No.	Name	Function
1	[Entry data settings] field	Select [Measurement data entry] or [Character string data entry] according to the type of data to enter. [Measurement data entry]: Select this option to enter measurement data (numerical data) from a measuring tool. Select the data entry device (USB-ITN/IT-0xxU/DP-1VA/U-WAVE-R) to use from the [Select device] drop-down list. If you select a U-WAVE-R device, select which channel the device uses for transmission from the [Channel] drop- down list.
		<b>Tips</b> If you start U-WAVEPAK to confirm the channel, first exit USB-ITPAK. [Character string data entry]: Select this option to enter character string data by press- ing a foot switch. Select the data entry device (USB- FSW) to use from the [Select foot switch] drop-down list. Also, enter the character string to enter when the foot switch is pressed in the [Character string data] field.
		<b>Tips</b> Up to 32 characters can be entered.
2	[Data entry devices] field	Displays information about the device that is selected in the [Entry data settings] field.
3	[Measuring Tool] field	Displays [Model], [Code No.], and [Serial No.] of the mea- suring tool.

No.	Name	Function
4	[Preset/Tolerance Judgment] field	Specify the preset value and tolerance (upper limit/lower limit) of the measuring tool as up to an 8-digit number.
		Tips
		<ul> <li>This field is available when the [Measurement data entry] option button in [Entry data settings] is selected for a mea- suring tool that supports Digimatic S1 communication.</li> </ul>
		<ul> <li>[Tolerance Judgment Upper Limit] and [Tolerance Judg- ment Lower Limit] are available when the [Measurement data entry] option button in [Entry data settings] is selected.</li> </ul>
5	[Workbook] field	Select the destination file in which to enter measurement data. You can click the [] button to select the file to use from the [Open] screen.
6	[Worksheet] field	From the drop-down list, select the destination worksheet in which to enter measurement data.
7	[Range of cells (specify the A1 reference style)] field	Specifies the range of cells in which to enter measure- ment data in A1-style notation. You can directly enter the cell addresses, or you can select the range of cells in Excel.
		Tips
		A1-style notation is a format for specifying a cell address by specifying the column with a letter and the row with a number.
		For details about selecting the range of cells for data entry in Excel, see 🕮 "■ Selecting a range of input cells in Excel" (page 182).
8	[Move after return direction] field	Specifies in which direction to move the cell after data is entered ([Right] or [Down]). For details, see  "■ About the [Move after return direc-
	[Displacement intervala] field	tion] and [Displacement intervals] settings" (page 183).
9	[Displacement intervals] field	Specifies the number of cells to move after data is en- tered ([1] to [100]). For details, see
10	[Foot switch option] field	Displays information about the devices that will be used for foot switch operation. USB-FSW devices to which a data control function ([Data request], [Data cancel], [Data skip], [Zero set], [Preset], or [Peak reset]) is assigned are displayed.
		Tips
		If USB-FSW will be used for entering character string data, it is treated as a data entry device.
		For details, see 📰 "8.10 [Character string data settings] Screen" (page 202).
(1)	Buttons for the [Foot switch option] field	<ul> <li>[+]: Adds a USB-FSW device to the [Foot switch option] field.</li> <li>[-]: Deletes the USB-FSW device that is selected in the [Foot switch option] field.</li> <li>[√]: Changes the settings of the USB-FSW device that is selected in the [Foot switch option] field.</li> <li>For details, see</li></ul>

#### 8 USB-ITPAK Screen Structure

No.	Name	Function
(12)	(D) [OK] button Saves the setting changes.	
13	③ [Cancel] button     Discards the setting changes.	

8.9.3 Entering Data into an Arbitrary Application



No.	Name	Function
1	[Entry data settings] field	Select [Measurement data entry] or [Character string data entry] according to the type of data to enter. [Measurement data entry]: Select this option to enter measurement data (numerical data) from a measuring tool. Select the data entry device (USB-ITN/IT-0xxU/DP-1VA/U-WAVE-R) to use from the [Se- lect device] drop-down list. If you select a U-WAVE-R device, select which channel the de- vice uses for transmission from the [Channel] drop-down list.
		<b>Tips</b> If you start U-WAVEPAK to confirm the channel, first exit USB-IT- PAK.
		[Character string data entry]: Select this option to enter character string data by pressing a foot switch. If you click the [+] button in the [Character string data entry] field, the [Character string data settings] screen is displayed. For details, see 🔲 "8.10 [Character string data settings] Screen" (page 202).
2	Buttons for the [Character string data entry] field	<ul> <li>[+]: Adds a USB-FSW device to the [Character string data entry] field.</li> <li>[-]: Deletes the USB-FSW device that is selected in the [Character string data entry] field.</li> <li>[√]: Changes the settings for the USB-FSW device that is selected in the [Character string data entry] field.</li> <li>For details, see □ "8.10 [Character string data settings] Screen" (page 202).</li> </ul>
3	[Data entry devices] field	Displays information about the device that is selected in the [Entry data settings] field.
4	[Measuring Tool] field	Displays [Model], [Code No.], and [Serial No.] of the measur- ing tool.

No.	Name	Function	
5	[Configure Measuring Tool Settings Prior to Measurement] field	Select this checkbox to perform zero set, preset, or peak reset for the measuring tool before measurement, and then select the target operation option button.	
		<b>Tips</b> The [Configure Measuring Tool Settings Prior to Measurement] field is available when [Procedure type] is set to [Batch] and the [Measurement data entry] option button in [Entry data settings] is selected for a measuring tool that supports Digimatic S1 commu- nication.	
6	[Preset/Tolerance Judgment] field	Specify the preset value and tolerance (upper limit/lower limit) of the measuring tool as up to an 8-digit number.	
		Tips	
		<ul> <li>This field is available when the [Measurement data entry] op- tion button in [Entry data settings] is selected for a measuring tool that supports Digimatic S1 communication.</li> </ul>	
		<ul> <li>[Tolerance Judgment Upper Limit] and [Tolerance Judgment Lower Limit] are available when the [Measurement data entry] option button in [Entry data settings] is selected.</li> </ul>	
7	[OK] button	Saves the setting changes.	
8	[Cancel] button	Discards the setting changes.	

# 8.10 [Character string data settings] Screen

This screen is for selecting which USB-FSW device to use to enter character string data and for setting the character string to enter.

Click the [+] button under the [Character string data entry] field on the [Data entry device settings] screen to display this screen.

	Character string data settings X				
1	Select foot switch :				
	FSW-19999033	~			
	Device information				
	Serial No. :				
	1999903	3			
	Type :				
	FSW				
	COM :				
	COM8				
2	Character string data :				
	ОК	Cancel			

No.	Name	Function	
1	[Select foot switch] field	From the drop-down list, select the USB-FSW device to use. Information about the selected device is displayed in the [Device information] field.	
2	[Character string data] field	Enter the character string to enter when the foot switch is pressed.	
		<ul><li>Tips</li><li>Up to 32 characters can be entered.</li></ul>	
		<ul> <li>If you are entering data into an arbitrary application, only single-byte characters can be used.</li> </ul>	

# 8.11 [Foot switch option settings] Screen

This screen is for selecting which device to use for foot switch operations and for selecting which function to apply when the foot switch is pressed.

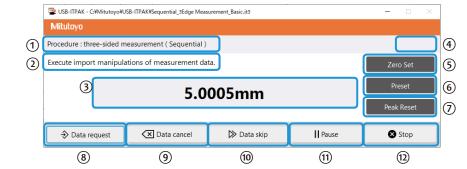
Click the [+] button under the [Foot switch option] field on the [Add procedure] or [Change Procedure] screen to display this screen.

	Foot switch option settings			
1	Select foot switch :			
		FSW-19999033	$\sim$	
	Ŀ	Device information		
	L	Serial No. :		
	L	19999033		
	L	Type :		
	L	FSW		
	L	COM :		
	L	COM8		
2	2) Function :			
		Data request	~	
		OK Cancel		

No.	Name	Function
1	[Select foot switch] field	From the drop-down list, select the USB-FSW device to use. Information about the selected device is displayed in the [Device information] field.
	[Function] field	<ul> <li>Select which function to apply when the foot switch is pressed from the following options:</li> <li>Data request</li> <li>Data cancel</li> <li>Data skip</li> <li>Zero set</li> <li>Preset</li> <li>Peak reset</li> <li>Tips</li> <li>[Zero set], [Preset], and [Peak Reset] are selectable when [Procedure type] is set to [Sequential] or [Individual] for a measuring tool that supports Digimatic S1 communication.</li> <li>The [Function] field is not specifiable when [Procedure type] is set to [Batch] for a measuring tool that supports Digimatic S1 communication.</li> <li>If you are entering data into an arbitrary application, only the [Data request] function can be assigned to the USB-FSW device.</li> </ul>

# 8.12 Data Collection Screen

This screen is for performing operations related to data collection, such as reading in or deleting measurement data.



No.	Name	Function
1	[Procedure] field	Displays the procedure currently being used to collect data.
		<b>Tips</b> This field is not displayed in the quick entry mode.

No.	Name	Function
2	Information message field	Displays the following messages according to the state of operation.
		[Execute import manipulations of measurement data.] : This message is displayed when collecting data with sequential measurement or batch measurement. Start the data collection operation with one of the following meth- ods:
		<ul> <li>Press the DATA switch on the measuring tool or the connection device (USB-ITN/IT-0xxU/DP-1VA/U- WAVE transmitter).</li> </ul>
		• On the [Data collection] screen, click the [Data request] button.
		<ul> <li>Press the foot switch to which the [Data request] func- tion is assigned.</li> </ul>
		• Press the function key to which the [Data request] func- tion is assigned.
		[Please execute the foot switch operation.] : To enter a character string, press the foot switch to which the character string that you want to enter is assigned.
		<ul> <li>[Execute data entry operation.] : This message is displayed when collecting data with individual measurement. Start the data collection operation with one of the following methods:</li> <li>Press the DATA switch on the measuring tool or the connection device (USB-ITN/IT-0xxU/DP-1VA/U-WAVE transmitter).</li> <li>Press the foot switch to which the [Data request] function is assigned.</li> <li>Press the function key to which the [Data request] function is assigned.</li> </ul>
		[The import of all pieces of measurement data has been completed.] : Data collection has completed. Click the [Stop] button and save the measurement data.
3	Measurement data display	Displays the data received from the measuring tool.
		<ul> <li>Tips</li> <li>Data from a measuring tool that does not support Digimatic S1 communication is displayed in the communication command format.</li> </ul>
		<ul> <li>If the upper and lower limits for tolerance judgment are set when a "batch" or "individual" procedure is created, the tolerance judgment result will be displayed in one of the following colors:</li> <li>Green: Tolerance judgment OK</li> <li>Red: Tolerance judgment NG</li> <li>Black: No tolerance judgment</li> </ul>
4	User ID	Displays the ID of the login user when the Login function is enabled in [Login settings] on the [Option] screen. For details, see 🗐 "8.5 [Option] Screen" (page 174).
5	[Zero Set] button	Resets the zero point of the measuring tool.

No.	Name	Function	
6	[Preset] button	Resets the preset value of the measuring tool.	
		Tips	
		Preset cannot be set when the measuring tool is in the Peak detection (TIR: runout width display) mode.	
7	[Peak Reset] button	Resets the peak value of the measuring tool.	
		<b>Tips</b> Peak reset can be set when the measuring too in the Peak	
		detection mode.	
8	[Data request] button	Runs data collection.	
		Tips	
		This function cannot be used with individual measurement.	
9	[Data cancel] button	Deletes the entered data.	
		Tips	
		This function cannot be used with individual measurement.	
10	[Data skip] button	Skips the entry of the next piece of data.	
		Tips	
		This function cannot be used with individual measurement.	
		This function cannot be used in the quick entry mode.	
(1)	[Pause] button/[Resume] button	Pauses or resumes data collection. During data collection, the [Pause] button is displayed. While collection is paused, the [Resume] button is displayed. For details, see	
(12)	[Stop] button	Stops data collection.	

#### Tips

- The [Zero Set], [Preset], and [Peak Reset] buttons are valid only for a measuring tool that supports Digimatic S1 communication.
- If [Procedure type] is set to [Individual] for a measuring tool that supports Digimatic S1 communication, the [Zero Set], [Preset], and [Peak Reset] buttons can work only with the foot switch.

#### ■ Pausing/resuming operation when collecting data in Excel

The procedure for pausing and resuming data collection is shown below.

#### Tips

To use a finished Excel file after pausing data collection, perform the following operations and then proceed to step 2.

- 1 Open the setting file to use.
- 2 Open the data collection screen.
- 3 The message [Do you want to collect data after cancel the current data?] will be displayed. Click [No].

For details, see the following:

- Sequential measurement: 🗐 "6.2.2 Collecting Measurement Data" (page 37)
- Batch measurement: 🗐 "6.3.2 Collecting Measurement Data" (page 51)
- Individual measurement: 🛄 "6.4.2 Collecting Measurement Data" (page 64)

#### 1 Click the [Pause] button.

» Data collection will be paused.

USB-ITPAK - C:¥Mitutoyo¥USB-ITPAK¥Sequential_3Edge Measurement_Basic.it3				– 🗆 X
Mitutoyo				
Procedure : three-side	d measurement ( Sequential )			
				Zero Set
	5.0	005mm		Preset
				Peak Reset
Data request	Data cancel	≫ Data skip	► Resume	🛿 Stop

While collection is paused, you can perform the following operations:

- Specify the start cell to use when data collection is resumed.
- Edit the worksheet, such as by entering text.

#### **2** To resume data collection, click the [Resume] button.

» The [Cell address for the resumption] screen will be displayed.

#### Tips

If you were making edits in Excel, such as by entering text, finish the edit operations and then resume data collection. If you resume data collection without finishing the operations, USB-ITPAK may not operate correctly.

#### **3** Select one of the options under the [Select the resumption cell] field, and then click the [OK]

#### button.

Cell address for the resumption				
Select the resumption cell				
Active cell				
○ First cell				
O Paused cell				
Selection of restart procedure				
Shift to other procedure				
Select procedure				
three-sided measurement	$\sim$			
ОК	Cancel			

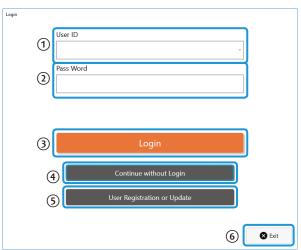
If the paused setting file contains multiple procedures, the settings under the [Selection of restart procedure] field will be available. To resume from another procedure, select [Shift to other procedure], and then select the procedure to resume from the [Select procedure] drop-down list. In this case, the start cell position when the procedure resumes will be the first cell.

#### Tips

If you pause a data collection operation that uses time intervals, the following screen is displayed. Press the [Ctrl], [Shift], and [Space] keys at the same time and resume data collection.

👺 USB-ITPAK - C	👺 USB-ITPAK - C¥Mitutoyo¥USB-ITPAK¥Batch_3points_measurement_Date_and_time_input_timer input.it3 – 🛛 🛛				
Mitutoyo	Mitutoyo				
Procedure : 3-	point batch measurement + date (	Batch )			
Press [Ctrl + S	Press [Ctrl + Shift + Space] key to start Timer job Zero Set			Zero Set	
	0	0000mm		Preset	
Peak Reset		Peak Reset			
🕀 Data re	equest 🔀 Data cancel	▷ Data skip	<b>  </b> Pause	🗴 Stop	

# 8.13 [Login] Screen



No.	Name	Function
1	User ID	Select the user ID. It can also be manually entered.
2	Pass Word	Enter the password.
3	[Login] button	Starts USB-ITPAK with the specified user ID.
4	[Continue without Login] button	Starts USB-ITPAK without a login using the user ID.
5	[User Registration or Update] button	Displays the [User Registration or Update] screen.

#### Tips

If you click the [Login] or [Continue without Login] button, the [Quick Menu] screen will be displayed.

#### MEMO

# **9** Specifications

# 9.1 Basic Specifications

Item	Remarks
The number of USB-ITN, USB-FSW, U-WAVE, IT-016U, IT-020U, and DP-1VA devices that can be connected*1	Up to 20 devices
The number of data entry de- vices (USB-ITN, USB-FSW, U-WAVE, IT-016U, IT-020U, DP-1VA) that can be regis- tered to USB-ITPAK	Up to 400 devices
Data request (sequential)	Data request for one device (USB-ITN, U-WAVE, IT-016U, IT-020U, DP-1VA)
Data request (batch)	Batch data request for multiple devices (USB-ITN, U-WAVE, IT-016U, IT-020U, DP-1VA)
Data cancel (sequential, batch)	Deletion of measurement data that was entered
Data skip (sequential, batch)	Skip execution of the next data entry and move to the following piece of data
Character string entry by USB-FSW	Operate a USB-FSW device to enter a preset, arbitrary character string
CE marking/UKCA marking	EMC Directive/Electromagnetic Compatibility Regulations: EN61326-1
	Immunity test requirement: Clause 6.2 Table 2 Emission limit: Class A
	RoHS Directive/The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations: EN IEC 63000

\*1: Depending on the PC or the USB hub that is used, the maximum number of connections may actually be lower.

If you are using a USB hub, we recommend that you use a USB-certified hub.

# **9.2** Communication Command Specifications

This section explains the specifications of the VCP communication commands that are used for the input and output of measurement data between a USB-ITN, USB-FSW, IT-0xxU, or DP-1VA device and the application software.

For details about communication command specifications for U-WAVE, see 🗐 "U-WAVEPAK User's Manual".

### 9.2.1 VCP Communication API

When using a USB-ITN, USB-FSW, IT-0xxU, or DP-1VA device with application software other than USB-ITPAK, communication is possible with the same operation (API function calls) as the serial communication port (COM) operating with the standard Windows driver.

In general, to communicate through a serial communication port (COM), you must configure the RS-232C communication parameters, such as the communication speed and flow control. However, the communication protocol for virtual serial port (VCP) communication that is used by USB-ITN, USB-FSW, IT-0xxU, and DP-1VA devices does not use RS-232C communication parameters. Therefore, communication is possible without configuring any RS-232C communication parameters or by setting arbitrary values.

### 9.2.2 Common Specifications for Communication Commands

- All of the commands use the ASCII character encoding.
- In VCP communication, the DATA switch or foot switch on a measuring tool is used or commands are entered from the PC to output measurement data, error codes, and foot switch signal.
- VCP communication retrieves only measurement data from a measuring tool through Mitutoyo's unique communication specifications.
- This communication allows you to retrieve the information, such as measurement data and serial number, from a measuring tool that supports Digimatic S1 communication and set the tool.

### 9.2.3 Types and Formats of Communication Commands

The types of communication commands are listed below. The following terms are used in this section.

		Term		
Device	USB-ITN, USB-FSW, IT-016U, IT-020U, or DP-1VA			
Software	PC appl	PC application such as USB-ITPAK		
		Legend		
Direction	Down	Command sent from software to device		
	Up	Command sent from device to software		
ITN	Y	Command used by USB-ITN, IT-0xxU, and DP-1VA		
	Ν	Command not used by USB-ITN, IT-0xxU, or DP-1VA		
FSW	Y	Command used by USB-FSW		
	Ν	Command not used by USB-FSW		

No.	Direction	Code	Command Name	ITN	FSW
1	Down	V	Device information request command	Y	Y
2	Up	1	Device information command	Y	Y
3	Down	1	Measurement data request command	Y	N
4	Up	0	Measurement data command	Y	N
5	Up	8	Foot switch signal command	Ν	Y
6	Up	9	Status command	Y	N
7	Down	Q	Information command	Y	N
8	Up	Q	Information command	Y	N
9	Down	Р	Setting command	Y	N
10	Down	R	Information request command	Y	N
11	Up	R	Information command	Y	N
12	Down	S	Setting command	Y	N
13	Up	S	Information command	Y	N

The communication command formats are listed in the table below.

#### Device information request command (V) (down)

This command is valid for USB-ITN, USB-FSW, IT-0xxU, and DP-1VA.

This request command is for the software to read the device information.

When the software sends this command to the device, the device responds with "device information command" (1).

Item	ASCII value (base 16)	Bytes	Description
Command code	V	1	Device information request command
Terminator	CR [0x0D]	1	CR (carriage return)
Total		2	

#### Device information command (1) (up)

This command is valid for USB-ITN, USB-FSW, IT-0xxU, and DP-1VA.

This response command is for the software to read the device information.

When the software sends "device information request command (V)" to the device, the device responds with this command.

Item	ASCII value (base 16)	Bytes	Description
Command code	1	1	Device information command
Туре	ITN FSW	3	Device type ITN = USB-ITN, IT-0xxU, DP-1VA FSW = USB-FSW
Serial No.	00000000 - 99999999	8	Device serial No.
Terminator	CR [0x0D]	1	CR (carriage return)
Total		13	

#### Measurement data request command (1) (down)

This command is valid for USB-ITN, IT-0xxU, and DP-1VA. This request command is for the software to read the measurement data from the device. When the software sends this command to the device, the device inputs the measurement data from a measuring tool with Digimatic output, and responds with "measurement data command" (0).

Item	ASCII value (base 16)	Bytes	Description
Command code	1	1	Measurement data request command
Terminator	CR [0x0D]	1	CR (carriage return)
Total		2	

#### Measurement data command (0) (up)

This command is valid for USB-ITN, IT-0xxU, and DP-1VA.

This command is for the device to notify the software of measurement data.

When the software sends "measurement data request command (1)" to the device, the device inputs the measurement data from a measuring tool with Digimatic output, and responds with this command.

Also, when there is a request from the measuring tool, such as when the DATA switch of the measuring tool is pressed, measurement data is input from the measuring tool, and this command is sent to the software.

#### Tips

If an error occurs during the processing of measurement data that was input from a measuring tool with Digimatic output, the device will send "status command" (9) instead of "measurement data command" (0).

Item	ASCII value (base 16)	Bytes	Description
Command code	0	1	Measurement data command
Channel	1	1	Channel (1 fixed)
Measurement data type	A	1	Normal data (A fixed)
Sign	+/-	1	'+' if the measurement data is 0
Measurement data	.0000000 - 999999999 or .00000000 - 999999999	8 or 9	A period [.] is used as the decimal point character. Values are zero-padded (numbers are displayed as right-justified and zeros are filled in for unused leading digit spaces). If there are no digits past the decimal point, the decimal point is not used at the rightmost digit space.
Terminator	CR [0x0D]	1	CR (carriage return)
Total		13 or 14	

#### Tips

• DP-1VA log data is input with "measurement data command" (0). Input the date, time, and measurement value of log data, as in the following example:

Date	December 8, 2017:	01A+20171208
Time	8 hrs, 1 min, 59 secs:	01A+0080159.
Measurement value	123.45 mm:	01A+000123.45

 Log data that corresponds to the output format specified by the DP-1VA parameter setting: [OUT LOG] can be entered by long pressing (pressing and holding for 1 second or more, then releasing) the DP-1VA [OUT LOG] button.

Do not send the software's "measurement data request command" (1). For details about operating DP-1VA, see 🗐 "DP-1VA LOGGER User's Manual".

• The output format of the log data, date, time, and measurement value, can be specified by the DP-1VA parameter setting: [OUT LOG]. When [OUT LOG] is [1] (time/measurement value output), the time and measurement value data are input in the following format:

(Example 1) The input result of DP-1VA log data for one measurement:

01A+0080159.:	Time data of the first measurement from the log data
01A+000123.45:	Measurement value data of the first measurement from the log data

(Example 2) The input results of DP-1VA log data for two measurements:

01A+0080159.:	Time data of the first measurement from the log data
01A+000123.45:	Measurement value data of the first measurement from the log data
01A+0082005.:	Time data of the second measurement from the log data
01A+000012.00:	Measurement value data of the second measurement from the log data

#### ■ Foot switch signal command (8) (up)

This command is valid for USB-FSW.

This command is for a USB-FSW device to notify the software of foot switch signals. When a USB-FSW device detects that the foot switch signal is ON, this command is sent to the software.

Item	ASCII value (base 16)	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	

#### ■ Status command (9) (up)

This command is valid for USB-ITN, IT-0xxU, and DP-1VA.

This command is for the device to notify the software of its own status.

When the device detects a status occurrence that should be reported, this command is sent to the software.

Item	ASCII value (base 16)	Bytes	Description
Command code	9	1	Status command
Channel	1	1	Channel (1 fixed)
Status	(See below)	1	(See below)
Terminator	CR [0x0D]	1	CR (carriage return)
Total	·	4	

The status values are listed in the table below.

ASCII value	Description
1	Measurement data could not be received within the specified time (2 seconds) from a measuring tool with Digimatic output.
	Examples of possible causes:
	The measuring tool is turned off.
	• The USB-ITN, IT-0xxU, or DP-1VA cable is not connected to the measuring tool.
2	The Digimatic communication data that was read in from a measuring tool with Digimat- ic output does not conform to the Digimatic communication specifications.
	Examples of possible causes:
	Noise influences
	• Defect in the communication circuit of the measuring tool or the USB-ITN, IT-0xxU, or DP-1VA device
3	The Digimatic communication clock (CK) signal that was read in from the measuring tool with Digimatic output does not conform to the Digimatic communication specifica-tions.
	Examples of possible causes:
	<ul> <li>Interruption of the CK signal of the Digimatic communication cable</li> </ul>
	• Defect in the communication circuit of the measuring tool or the USB-ITN, IT-0xxU, or DP-1VA device
4	The Digimatic communication data (DATA) signal that was read in from the measuring tool with Digimatic output does not conform to the Digimatic communication specifications.
	Examples of possible causes:
	Interruption of the DATA signal of the Digimatic communication cable
	• Defect in the communication circuit of the measuring tool or the USB-ITN, IT-0xxU, or DP-1VA device
8	When the measurement data request command was received from the software, the USB-ITN, IT-0xxU, or DP-1VA device that received the request was busy.
	Examples of possible causes:
	• A measurement data request command was received while the Digimatic communi- cation was being processed.
9	The device detected an error other than those defined above.

#### Tips

If a command received from the software is invalid, the USB-ITN, IT-0xxU, or DP-1VA device will ignore that command and will not send a response command.

#### ■ Information command (Q) (down)

This command is valid for USB-ITN, IT-0xxU, and DP-1VA that support Digimatic S1 communication. This request command is for the software to read the measuring tool information.

When the software sends this command to the device, the device reads the information from the measuring tool and responds to the software with the information command (Q).

Item	ASCII value (base 16)	Bytes	Description
Command code	Q	1	Information command
Information command	01 to 7F	2	See " Information command".
Terminator	CR [0x0D]	1	CR (carriage return)
Total		4	

#### • Information command

ASCII value	Description		Response from the measuring tool
(base 16)	(base 16) Description		Description
00	Company name	8	ASCII data (MITUTOYO)
01	Product serial number	n	ASCII data
02	Product code number	n	ASCII data
03	User manage- ment No.	n	ASCII data (up to 10 characters)
05	Previous calibra- tion date	11	ASCII data (yyyy/mmm/dd)
06	Next calibration date	11	ASCII data (yyyy/mmm/dd)
07	Advance warn- ing date	11	ASCII data (yyyy/mmm/dd)
08	Current date	11	ASCII data (yyyy/mmm/dd)
09	Calibration tim- ing alarm	1	HEX data (0h: No alarm, 1h: Advance warning date, 2h: Calibration date)

Uses         Description           0A         Display value         6           8ytes 1 to 4. Display data (3.digit BCD) Byte 5: Negative sign, unit, decimal point           XX XX XXXb         Decimal point data: 0 to 7           Unit data: 00b (millimeters), 01b (inches), 10b (no unit)           Negative sign data: 00b (+), 01b (-)           Byte 6: Status flag XXXX X X X Xb           1: Battery voltage drop           1: Calibration timing alarm           1: Tolerance judgment NG           0C           0F         Operating mode           1         Flag mode XxxX 001: Normal measurement mode XxxX 001: Normal measurement mode XxxX 000: Parameter setting mode           10         Display unit         1           11         Switch function select         3           11         Switch function select         3 <t< th=""><th>ASCII value</th><th>Description</th><th></th><th>Response from the measuring tool</th></t<>	ASCII value	Description		Response from the measuring tool	
data output       Byte 5: Negative sign, unit, decimal point         XX XX XXXD       Decimal point data: 0 to 7         Unit data: 00b (millimeters), 01b (inches), 10b (no unit)         Negative sign data: 00b (+), 01b (-)         Byte 6: Status flag         XXXX X X XXD         L: Calibration timing alarm         1: Battery voltage drop         1: Tolerance judgment NG         0F       Operating mode         1       Flag mode xxx0 10xx: Digimatic S1 communication mode xxxx 001: Normal measurement mode xxxx 001: Normal measurement mode xxxx 001: Normal measurement mode xxxx 100: Peak mode (URA) xxxx 010: Peak mode (CIR) xxxx 110: Peak mode (Max) xxxx 100: Parameter setting mode         10       Display unit       1         11       Switch function select       3         13       Sinary data Byte 1: F1 key 0: No function 1: Zero set (INC switching) 2: Preset recail Byte 2: F2 key 0: No function 1: Zero set (INC switching) 2: Preset recail Byte 3: F3 key 0: No function 1: Zero set (INC switching) 2: Preset recail Byte 3: F3 key 0: No function 1: Displayed value hold 2: Count direction switching 3: Analog bar	(base 16)	Description	Bytes		
1       Switch function         10       Display unit       1         11       Switch function         10       Display unit         11       Flag mode         12       Flag mode         13       Binary data         14       Communication	0A		6		
Unit data: 00b (millimeters), 01b (inches), 10b (no unit)         Negative sign data: 00b (+), 01b (-)         Byte 6: Status flag         XXXX X X X b         I : Battery voltage drop         I : Calibration timing alarm         1 : Calibration timing alarm         2 : Count aligned         1 : Flag mode         2 : Xxx 000: Normal measurement mode         2 : Xxx 000: Normal measurement mode         2 : Xxx 010: Peak mode (Current value display)         2 : Xxx 010: Peak mode (Max)         2 : Xxx 010: Peak mode (Min)         2 : Xxx 10: No unit display         2 : 10       Switch function         1 : 1 : Flag mode         2 : 2 : 2 : 2 : 2 : 2 : 2 : 2 : 2 : 2 :				<u>XX XX XXXX</u> b	
01b (inches), 10b (no unit)         Negative sign data: 00b (+), 01b (-)         Byte 6: Status flag         XXXX X X X X         1: Battery voltage drop         1: Calibration timing alarm         1: Calibration timing alarm         0F       Operating mode         1       Flag mode         xxx 0 00: Normal measurement mode         xxxx 001: Normal measurement mode         xxxx 101: Peak mode (Current value display)         xxxx 101: Peak mode (Max)         xxxx 100: Parameter setting mode         10       Display unit         1       Flag mode         xxx x 100: Nullimeter display         xxxx x10: No unit display         11       Switch function         3       Binary data         Byte 1: F1 key         0: No function         1: Switching between inches and millime				Decimal point data: 0 to 7	
0C       Preset value       6       Same as "Display value data output"         0F       Operating mode       1       Flag mode         10F       Operating mode       1       Flag mode         11       Same as "Display value data output"         0F       Operating mode       1         11       Same as "Display value data output"         0F       Operating mode       1         12       Same as "Display value data output"         0F       Operating mode       1         13       Flag mode       xxx1 xxxx: Data output mode         xxx010       Normal measurement mode         xxxx 0010: Switch custom mode       xxxx 0100: Switch custom mode         xxxx 0101: Peak mode (ITIR)       xxxx 1010: Peak mode (Max)         xxxx 1010: Peak mode (Min)       xxxx xx00: Millimeter display         xxxx 1010: Path mode       Xxxx         10       Display unit       1         11       Switch function select       3         12       Switch function select       3         13       Binary data         14       Communication         15       Communication         16       Communication         17       Pase recall					
1       XXXX X X Xb         0C       Preset value       6         0F       Operating mode       1         Flag mode       1         xxx 001: Normal measurement mode         xxx 001: Normal measurement mode         xxxx 0100: Peak mode (ITR)         xxxx 0101: Peak mode (Max)         xxxx 0101: Peak mode (Min)         xxxx 1010: Peak mode (Min)         xxxx 101: Inch display         11       Switch function select         3       Binary data         Byte 1: F1 key       0         0 No function       1: Switching between inches and millimeters         12. Count direction switching       3. Analog bar centering         Byte 2: F2 key       0: No function         1: Zero set (INC switching)       2: Preset recall         Byte 3: F3 key       0: No function         1: Displayed value hold       2. Count direction switching         3. Analog bar scale switching       4. Analog bar scale switching         4. Analog bar scale switching       4.				Negative sign data: 00b (+), 01b (-)	
1       Same as "Display value data output"         0C       Preset value       6         0F       Operating mode       1         1       Flag mode         xx01 Xxxx: Data output mode         xx01 Xxxx: Digimatic S1 communication mode         xxxx 0001: Normal measurement mode         xxxx 0101: Peak mode (CITR)         xxxx 0101: Peak mode (Max)         xxxx 0101: Peak mode (Max)         xxxx 0111: Peak mode (Max)         xxxx 0111: Peak mode (Max)         xxxx 0111: Peak mode (Max)         xxxx 1111: Peak mode (Max)         xxxx 1111: Peak mode (Max)         xxxx x010: Peak mode (Max)         xxxx 111: Peak mode (Max)         xxxx x011: Peak mode (Max)         xxxx x011: Peak mode (Max)         xxxx x101: No unit display         11       Switch function select         3       Binary data         Byte 1: F1 key       0: No function         1: Switch function       3         Binary data         Byte 2: F2 key       0: No function         1: Zero set (INC switching)       2: Preset recall         Byte 3: F3 key       0: No function         1: Zero set (INC in switching)       3: Analog bar centering         Byte 3: F3				Byte 6: Status flag	
1       Error display         0C       Preset value       6         0F       Operating mode       1         Flag mode       1         xx10 xxxx: Data output mode       xx10 xxxx: Digimatic S1 communication mode         xxxx 0001: Normal measurement mode         xxxx 0010: Switch custom mode         xxxx 0101: Peak mode (TIR)         xxxx 0101: Peak mode (Max)         xxxx 0101: Peak mode (Min)         xxxx 1010: Peak mode (Min)         xxxx 1010: Peak mode (Min)         xxxx xx00: Millimeter display         xxx xx10: Inch display         11       Switch function select         3       Binary data         Byte 1: F1 key         0: No function         1: Switch function select         3       Binary data         Byte 1: F1 key         0: No function         1: Zero set (INC switching)         2: F2 key         0: No function         1: Zero set (INC switching)         2: Preset recall         Byte 3: F3 key         0: No function         1: Display value hold         2: Count direction switching         3: Analog bar scale switching         4: Analog bar centering				XXXX X X X X X b	
1: Calibration timing alarm         1: Tolerance judgment NG         0C       Preset value       6       Same as "Display value data output"         0F       Operating mode       1       Flag mode xx01 xxxx: Dtata output mode xx10 xxxx: Digimatic S1 communication mode xxxx 0001: Normal measurement mode xxxx 0100: Peak mode (current value display) xxxx 0101: Peak mode (Max) xxxx 0101: Peak mode (Max) xxxx 1010: Peak mode (Min) xxxx 1010: Pearameter setting mode         10       Display unit       1       Flag mode xxxx x01: Inch display xxxx x01: Inch display xxxx x10: No unit display         11       Switch function select       3       Binary data Binary data Byte 1: F1 key 0: No function 1: Switching between inches and millimeters 2. Count direction switching 3. Analog bar scale switching 4. Analog bar centering Byte 2: F2 key 0: No function 1: Zero set (INC switching) 2: Preset recall Byte 3: F3 key 0: No function 1: Displayed value hold 2. Count direction switching 3. Analog bar scale switching 4. Analog bar scale switching 4. Analog bar scale switching 3. Analog bar scale switching 4. Analog bar scale switching 3. Analog bar scale switching 4. Analog bar scale switching 4. Analog bar scale switching 5. Analog bar				1: Battery voltage drop	
0C       Preset value       6       Same as "Display value data output"         0F       Operating mode       1       Flag mode         xx10 xxxx: Data output mode       xx01 xxxx: Data output mode         xxx001: Normal measurement mode       xxxx 0001: Normal measurement mode         xxxx 0010: Peak mode (current value display)       xxxx 0010: Peak mode (Min)         xxxx 011: Peak mode (Min)       xxxx 1000: Parameter setting mode         10       Display unit       1         11       Flag mode       xxx xx00: Millimeter display         xxx xx000: Switch custom mode       xxxx xx100: No unit display         11       Switch function       3         select       3       Binary data         Byte 1: F1 key       0: No function         1: Switching between inches and millimeters       2. Count direction switching         3       Analog bar centering         Byte 2: F2 key       0: No function         1: Zero set (INC switching)       2: Preset recall         Byte 3: F3 key       0: No function         1: Displayed value hold       2. Count direction switching         3       Analog bar scale switching         4       Analog bar scale switching         4       Analog bar scale switching				1: Error display	
OC         Preset value         6         Same as "Display value data output"           0F         Operating mode         1         Flag mode xx01 xxxx: Data output mode xx10 xxxx: Digimatic S1 communication mode xxxx 0010: Switch custom mode xxxx 0010: Switch custom mode xxxx 0100: Peak mode (CIIR) xxxx 0100: Peak mode (Max) xxxx 0110: Peak mode (Min) xxxx 0110: Peak mode (Min) xxxx 1000: Parameter setting mode           10         Display unit         1         Flag mode xxxx xx01: Inch display xxxx xx01: Inch display xxxx xx01: No unit display xxxx xx01: No unit display           11         Switch function select         3         Binary data Byte 1: F1 key 0: No function 1: Switching between inches and millimeters 2. Count direction switching 3. Analog bar scale switching 4. Analog bar centering Byte 2: F2 key 0: No function 1: Zero set (INC switching) 2: Preset recall Byte 3: F3 key 0: No function 1: Displayed value hold 2. Count direction switching 3. Analog bar scale switching 4. Analog bar scale switching 4. Analog bar scale switching 3. Analog bar scale switching 4. Analog bar scale switching 3. Analog bar scale switching 3. Analog bar scale switching 4. Analog bar scale switching 3. Analog bar scale switching 3. Analog bar scale switching 3. Analog bar scale switching 3. Analog bar scale switching 4. Analog bar centering				1: Calibration timing alarm	
0F         Operating mode         1         Flag mode xx01 xxxx: Data output mode xx10 xxxx: Diginatic S1 communication mode xxxx 0001: Normal measurement mode xxxx 0010: Switch custom mode xxxx 0100: Peak mode (current value display) xxxx 0101: Peak mode (TIR) xxxx 0101: Peak mode (Max) xxxx 0101: Peak mode (Max) xxxx 1000: Parameter setting mode           10         Display unit         1         Flag mode xxxx x000: Millimeter display xxxx x100: Parameter setting mode           11         Switch function select         3         Binary data Byte 1: F1 key 0: No function 1: Switching between inches and millimeters 2. Count direction switching 3. Analog bar scale switching 4. Analog bar scale switching 2: Preset recall Byte 3: F3 key 0: No function 1: Displayed value hold 2. Count direction switching 3. Analog bar scale switching 4. Analog bar scale switching 4. Analog bar scale switching 3. Analog bar scale switching 4. Analog bar scale switching 4. Analog bar scale switching 3. Analog bar scale switching 4. Analog bar scale switching 3. Analog bar scale switching 4. Analog bar scale switching 4. Analog bar scale switching 3. Analog bar scale switching 4. Analog bar centering				1: Tolerance judgment NG	
1       xx01 xxxx: Data output mode xx10 xxxx: Digimatic S1 communication mode xxxx 0001: Normal measurement mode xxxx 0010: Normal measurement mode xxxx 0100: Peak mode (current value display) xxxx 0110: Peak mode (Min) xxxx 0110: Peak mode (Min) xxxx 1000: Parameter setting mode         10       Display unit       1       Flag mode xxxx x000: Millimeter display xxxx 1000: Parameter setting mode         11       Switch function select       3       Binary data Byte 1: F1 key 0: No function select         11       Switch function select       3       Binary data Byte 1: F1 key 0: No function 1: Switching 3. Analog bar scale switching 3. Analog bar scale switching 3. Analog bar scale switching 4. Analog bar centering Byte 2: F2 key 0: No function 1: Zero set (INC switching) 2: Preset recall Byte 3: F3 key 0: No function 1: Displayed value hold 2. Count direction switching 3. Analog bar scale switching 4. Analog bar scale switching 4. Analog bar scale switching 3. Analog bar scale switching 4. Analog bar centering		Preset value	6	Same as "Display value data output"	
10Display unit1Flag mode xxxx xx00: Millimeter display xxxx xx01: Inch display xxxx xx10: No unit display11Switch function select3Binary data Byte 1: F1 key 0: No function 1: Switching between inches and millimeters 2. Count direction switching 3. Analog bar scale switching 4. Analog bar centering Byte 2: F2 key 0: No function 1: Zero set (INC switching) 2: Preset recall Byte 3: F3 key 0: No function 1: Displayed value hold 2. Count direction switching 3. Analog bar scale switching 4. Analog bar scale switching 1414Communication error0	0F	Operating mode	1	xx01 xxxx: Data output mode xx10 xxxx: Digimatic S1 communication mode xxxx 0001: Normal measurement mode xxxx 0010: Switch custom mode xxxx 0100: Peak mode (current value display) xxxx 0101: Peak mode (TIR) xxxx 0110: Peak mode (Max) xxxx 0111: Peak mode (Min)	
11       Switch function select       3       Binary data Byte 1: F1 key         0: No function       1: Switching between inches and millimeters         2. Count direction switching       3. Analog bar scale switching         3. Analog bar scale switching       4. Analog bar centering         Byte 2: F2 key       0: No function         1: Zero set (INC switching)       2: Preset recall         Byte 3: F3 key       0: No function         1: Displayed value hold       2. Count direction switching         3. Analog bar scale switching       3. Analog bar scale switching         11       Communication       0         12       Communication       0	10	Display unit	1	Flag mode xxxx xx00: Millimeter display xxxx xx01: Inch display	
14 Communication 0 - error	11		3	Binary data Byte 1: F1 key 0: No function 1: Switching between inches and millimeters 2. Count direction switching 3. Analog bar scale switching 4. Analog bar centering Byte 2: F2 key 0: No function 1: Zero set (INC switching) 2: Preset recall Byte 3: F3 key 0: No function 1: Displayed value hold 2. Count direction switching 3. Analog bar scale switching	
	14		0		
15  FW version   n  ASCII data	15	error FW version		ASCII data	

ASCII value	Description		Response from the measuring tool	
(base 16)	Description	Bytes	Description	
3D	Product code	n	ASCII data	

#### ■ Information command (Q) (up)

This command is valid for USB-ITN, IT-0xxU, and DP-1VA that support Digimatic S1 communication.

This response command is for the software to read the measuring tool information.

When the software sends "information command (Q) (down)" to the device, the device responds with the information command (Q). If the device receives measuring tool error information, it sends the information command (Q) to the software.

Item	ASCII value (base 16)	Bytes	Description
Command code	Q	1	Information command
Information command	Depends on the com- mand	#	See "● Information command" in "■ Information command (Q) (down)".
Terminator	CR [0x0D]	1	CR (carriage return)
Total		2+#	

#### Setting command (P) (down)

This command is valid for USB-ITN, IT-0xxU, and DP-1VA that support Digimatic S1 communication. This command is for the software to set the measuring tool.

When the software sends this command to the device, the device sends the setting command to the measuring tool.

Item	ASCII value (base 16)	Bytes	Description
Command code	Р	1	Setting command
Setting command	Depends on the com- mand	#	See "  Setting command".
Terminator	CR [0x0D]	1	CR (carriage return)
Total		2+#	

#### Setting command

ASCII value			Response from the measuring tool		
(base 16)	(base 16) Description		Description		
83	User manage- ment No.	n	ASCII data (up to 10 characters)		
85	Latest calibration date	11	ASCII data (yyyy/mmm/dd)		
86	Next calibration date	11	ASCII data (yyyy/mmm/dd)		
87	Advance warn- ing date	11	ASCII data (yyyy/mmm/dd)		
88	Current date	11	ASCII data (yyyy/mmm/dd)		
8B	Origin set/Preset recall	0	* The display coordinate system is set to "ABS" at the same time.		

ASCII value	Description		Response from the measuring tool		
(base 16)	Description	Bytes	Description		
8C	Preset 1 value	6	Bytes 1 to 4: Display data (8-digit BCD) Byte 5: Negative sign, unit, decimal point		
			<u>XX XX XXX</u> b		
			Decimal point data: 0 to 7		
			Unit data: 00b (millimeters), 01b (inches), 10b (no unit)		
			Negative sign data: 00b (+), 01b (-)		
			Byte 6: Status flag		
			XXXX X X X Xb		
			1: Battery voltage drop		
			1: Error display		
			1: Calibration timing alarm		
			1: Tolerance judgment NG		
8D	Zero set	0	* The display coordinate system is set to "INC" at the same time.		
8E	Peak reset	0	-		
8F	Operating mode	1	Flag mode xx01 xxxx: Data output mode xx10 xxxx: Digimatic S1 communication mode xxxx 0001: Normal measurement mode xxxx 0010: Switch custom mode xxxx 0100: Peak mode (Current value display) xxxx 0101: Peak mode (TIR) xxxx 0110: Peak mode (Min) xxxx 0111: Peak mode (Max) xxxx 1000: Parameter setting mode		
90	Display unit	1	Flag mode xxxx xx00: Millimeter display xxxx xx01: Inch display xxxx xx10: No unit display		
91	Switch function select	3	Binary data         Byte 1: F1 key         0: No function         1: Switching between inches and millimeters         2. Count direction switching         3. Analog bar scale switching         4. Analog bar centering         Byte 2: F2 key         0: No function         1: Zero set (INC switching)         2: Preset recall         Byte 3: F3 key         0: No function         1: Displayed value hold         2. Count direction switching         3. Analog bar scale switching         4. Analog bar centering		

ASCII value	I value		Response from the measuring tool		
(base 16)	Description	Bytes	Description		
92	Power ON/OFF	1	Flag mode xxxx xx01: Switching from ON to OFF xxxx xx10: Switching from OFF to ON		
93	Communication mode setting	1	Flag mode xxxx xx01: Data output mode xxxx xx10: Digimatic S1 communication mode		
BC	Analog bar cen- tering	0	-		

#### ■ Information request command (R) (down)

This command is valid for USB-ITN, IT-0xxU, and DP-1VA that support Digimatic S1 communication. This request command is for the software to read the device information.

Item	ASCII value (base 16)	Bytes	Description
Command code	R	1	Information request command
Terminator	CR [0x0D]	1	CR (carriage return)
Total		2	

#### ■ Information command (R) (up)

This command is valid for USB-ITN, IT-0xxU, and DP-1VA that support Digimatic S1 communication. This response command is for the software to read the device information.

When the software sends "information request command (R) (down)" to the device, the device responds with the information command (R).

Item	ASCII value (base 16)	Bytes	Description
Command code	R	1	Information command
Information type	1	1	Setting of the key scan code used by the device in the HID mode 0: Enter (0x28) 1: Tab (0x2B)
Terminator	CR [0x0D]	1	CR (carriage return)
Total		3	

#### Setting command (S) (down)

This command is valid for USB-ITN, IT-0xxU, and DP-1VA that support Digimatic S1 communication. This request command is for the software to set the device.

Item	ASCII value (base 16)	Bytes	Description
Command code	S	1	Setting command
Information type	0 or 1	1	Setting of the key scan code used by the device in the HID mode 0: Enter (0x28) 1: Tab (0x2B)
Terminator	CR [0x0D]	1	CR (carriage return)
Total		3	

#### ■ Information command (S) (up)

This command is valid for USB-ITN, IT-0xxU, and DP-1VA that support Digimatic S1 communication. This response command is for the software to set the device.

When the software sends "setting command (S) (down)" to the device, the device responds with the information command (S).

Item	ASCII value (base 16)	Bytes	Description
Command code	S	1	Information command
Information type	0 or 1	1	Setting of the key scan code used by the device in the HID mode 0: Enter (0x28) 1: Tab (0x2B)
Terminator	CR [0x0D]	1	CR (carriage return)
Total		3	

# 9.3 Log File

A measurement log file is created when measurement data is retrieved on the data collection screen, and it is saved when measurement data is saved. This section describes the measurement log file format.

#### Tips

- A measurement log file is saved in the same folder as a setting file used for measurement.
- If a measurement log file already exists, log data is recorded following the previous log data.
- The extension of a measurement log file is csv.

No.	Name	Description
1	Measurement time	The year, month, and day and the date and time of measure- ment are saved in the "YYYY/MM/DD HH:MM:SS.FFF" format.
2	MEASURED VALUE	The measured value is saved as an 8-digit single-byte number if the measuring device supports Digimatic S1 communication. Otherwise, it is saved in the communication command format.
3	Operation	The following operations performed during data collection are saved:
		• Measurement data collection: Click the [Data collection] but- ton or press the measuring tool button.
		Data cancel: Click the [Data cancel] button.
		Data skip: Click the [Data skip] button.
		Pause: Click the [Pause] button.
		Resume: Click the [Resume] button.
		Exit: Click the [Exit] button.
4	Measurer ID	The ID of the login user is saved. If no one is logged in, it will be blank.
5	Measuring tool serial No.	The serial number of the measuring tool is saved.
6	Measuring tool code No.	The code number of the measuring tool is saved.
7	Measuring tool model	The model of the measuring tool is saved.

# 9.4 Standard Accessories

The accessories of the purchased USB-ITPAK V3.0 (No.06AGR543) are as follows.

Name	Quan- tity	Remarks
USB dongle	1	For removing restrictions of program
		<ul> <li>Connect to the PC USB port when using the software</li> </ul>
		<ul> <li>USB versions are USB 2.0 full-speed or USB 1.1</li> </ul>
USB-ITPAK Installation Manual	1 set	Provided in print

# **10** Troubleshooting

This chapter explains what to do if a problem occurs while using USB-ITPAK. If a problem persists after you take the actions described here, contact the agent where you purchased the product or a Mitutoyo sales office with the following information.

- The serial number of your USB-ITN, USB-FSW, U-WAVE, IT-016U, IT-020U, or DP-1VA device, or USB dongle
- USB-ITPAK version
- The make and model number of your PC
- The OS and Excel versions
- The make and model number of your USB hub (if you are using one)
- The device information and connection setup of any other USB devices connected to your PC

## **10.1** When a Problem Occurs

Problem	Cause	Action
USB-ITPAK does not start.	<ul> <li>U-WAVEPAK is running.</li> </ul>	• USB-ITPAK and U-WAVEPAK cannot be used simultaneously. Exit U-WAVEPAK, and then start USB-ITPAK.
	• [Run this program in compati- bility mode for] is selected on the [USB-ITPAK Properties] screen.	• Right-click the USB-ITPAK shortcut icon on the desktop, and then select [Property] from the menu that is displayed to display the [USB-ITPAK Prop- erties] screen. In the [Compat- ibility] tab, clear the [Run this program in compatibility mode for] check box.
There is a part that cannot select a menu.	• The USB dongle is not connect- ed to the PC.	<ul> <li>Connect the USB dongle, and then restart USB-ITPAK.</li> <li>Purchase USB-ITPAK V3.0 (No. 06AGR543) to obtain the USB dongle.</li> </ul>

Problem	Cause	Action
Measurement data cannot be entered.	<ul> <li>The measuring tool is turned off.</li> </ul>	• Turn on the power, and then continue work.
	• The connection device is not correctly recognized by the PC.	Check the connection of the device.
	<ul> <li>The data collection operation has been paused.</li> </ul>	• On the data collection screen, click the [Resume] button, and then continue work.
	<ul> <li>The application where mea- surement data will be entered is not active.</li> </ul>	<ul> <li>If [Optional] is selected in [Data entry application], the appli- cation for data entry must be active. If the application is not active, select the application to make it active.</li> </ul>
	<ul> <li>The Japanese kanji conversion mode is not set to [Direct Input].</li> </ul>	<ul> <li>If [Optional] is selected in [Data entry application], the Japanese kanji conversion mode must be set to [Direct Input]. If it is not set to [Direct Input], change the setting to [Direct Input].</li> </ul>
Measurement data is not entered in the specified cell.	The wrong cell range is specified.	Check the cell range setting.
Processing speed is slow.	The number of connected devices has increased.	If the number of connected devic- es increases, the following pro- cesses begin to require more time. • The startup time of the PC or Windows
		• The startup time of USB-ITPAK
		The time for data collection     using batch measurement
		• The time it takes to switch from the create procedure screen to the data collection screen
		It is recommended that you use the software with 20 connected devices or fewer.

Problem	Cause	Action
When the PC wakes up from standby or hibernation mode, the connection de- vice is not correctly recog- nized.	The device is being used with a USB hub or an expansion USB board.	If you are using the device with a USB hub or an expansion USB board, the device may not be correctly recognized depending on the PC model or BIOS settings.
		Disconnect the connection device, and then reconnect it. If the device is still not recognized after you reconnect it, restart the PC.
		Tips
		The connection device supports standby/hibernation mode, but its operation is not guaranteed for all PCs and USB hubs. If problems occur with standby/hi- bernation mode in your operating environment, disable standby/ hibernation mode in your PC's power settings. For details about the power settings, see the in- structions that are included with your PC.
A security warning is dis- played when USB-ITPAK starts up.	Security software is blocking USB-ITPAK communication.	Add the USB-ITPAK executable file "itpak.exe" to your security software's exception list.

Problem	Cause	Action
A connected device is not correctly recognized.	The device is not connected correctly.	• You can check the connection status on the [Device informa- tion] screen in USB-ITPAK. If the device is not displayed, dis- connect it and then reconnect it, and check the connection status again. When checking the status, you must restart USB-ITPAK.
	<ul> <li>The USB hub to which the de- vice is connected is not recog- nized.</li> </ul>	• You can check the connection status in the [Device Manager] screen in Windows. If the USB hub is not recognized, discon- nect it and then reconnect it, and check the connection sta- tus again.
	<ul> <li>The device or connecting cable may be damaged.</li> </ul>	<ul> <li>Check the state of the device and connecting cable. If there is a malfunction, [UnKnown device] may be displayed in the Windows [Device Manager] screen.</li> </ul>
		Tips
		If devices are connected through multiple USB hubs, Windows may not recognize the USB hubs. We recommend using USB hubs that are USB certified.

# **10.2** When an Error Message is Displayed

This section explains the contents and actions to take for the most common USB-ITPAK error messages.

### 10.2.1 General Error Messages

Error message	Cause	Action
Failed to identify the USB dongle. Check for proper connection of the USB dongle.	The USB dongle is not connected to the PC.	Connect the USB dongle, and then restart USB-ITPAK. <b>Tips</b> USB-ITPAK will run if the USB don- gle version is the same or later than the USB-ITPAK version. For details, see I "• USB dongle version and operating specifications" (page 15).
	The USB dongle may not be con- nected.	Check that the USB dongle is properly connected, and continue with operation.
Could not confirm the en- abled devices. Please check device connection.	No USB-ITN, USB-FSW, U-WAVE-R, IT-016U, IT-020U, or DP-1VA device is connected.	Connect a device to use, and then restart USB-ITPAK.
	The VCP driver has not been installed for USB-ITN, USB-FSW, IT-016U, IT-020U, or DP-1VA.	Install the VCP driver, and then restart USB-ITPAK.
U-WAVE-R of factory-de- fault state was found.	A U-WAVE-R device in its facto- ry-default state is connected.	Use U-WAVEPAK to set up the U-WAVE-R device.
ST************************************	A U-WAVE status packet was received.	The contents of the error and the action to take differ depending on the displayed status code. Take the appropriate action for the status code. For example, the status code [50] indicates that a channel number that is not registered to the U-WAVE-R device was specified, and therefore a registered channel number must be specified. For details about status codes, see III "U-WAVEPAK User's Manual".
TI************************************	The U-WAVE transmitter on the	Check the connection status of the
(U-WAVE-T disconnected) The specified location does not contain information about your hardware.	specified channel is disconnected. The VCP driver to install was not found.	U-WAVE transmitter. Select the folder for the connected device from the [Drivers] folder on the supplied CD. Select the VCP driver and you will be able to install it.

### 10.2.2 Create Procedure Screen

Error message	Cause	Action
Failed to find the setting file.	The selected setting file does not exist.	Check whether the setting file exists.
Could not control Excel. Please check Excel condi- tion.	This error occurs when USB-IT- PAK cannot control Excel.	Check the condition of the Excel application into which measure- ment data should be entered. Example:
		<ul> <li>If a cell on the Excel worksheet being operated on is in edit mode, exit edit mode.</li> </ul>
		<ul> <li>If a settings dialog is open in Excel, close the dialog.</li> </ul>
Failed to find the specified Excel file. Workbook = [Workbook]	The Excel file that is registered in the setting file does not exist.	Check whether the Excel file exists.
Failed to find the specified Worksheet. Workbook = [Workbook] Worksheet = [Worksheet]	The worksheet that is registered in the setting file does not exist.	Check whether the worksheet exists.
Device used in the proce- dure is not connected. Connect the device to re- start the USB-ITPAK or change the device to use.	A device used in the procedure is not connected.	If a device that is used in a proce- dure is not connected, the name of the procedure that is shown in the center of the create procedure screen is displayed in red. Do one of the following:
Device used in the proce- dure is not connected.		<ul> <li>Connect the disconnected de- vice, and then restart USB-IT- PAK.</li> </ul>
Connect the device to restart the USB-ITPAK.		• Select the procedure that is dis- played in red, click the [Change Procedure] button, and then change the device to use.
An invalid procedure has been set.	The information that is registered in the setting file may have been corrupted.	Create the procedure again.

### 10.2.3 [Device Information] Screen

Error message	Cause	Action
The specified device No. has already been used.	The specified device No. is in use by another device.	Specify a device No. that is not in use.

## 10.2.4 [Measuring Tool Setup Mode] Screen

Error message	Cause	Action
Failed to transmit data to the measuring tool	This error occurs when USB-IT- PAK fails to send to the measuring tool.	<ul> <li>Check the connection of the measuring tool and input tool.</li> <li>Check the state of the measuring tool (power, error occurrence, etc.).</li> </ul>
Failed to receive data from the measuring tool	This error occurs when USB-IT- PAK fails to receive from the measuring tool.	
An error has occurred. Check the contents of the error. [Process name]	This error occurs when USB-IT- PAK fails to send to or receive from the measuring tool.	<ul> <li>Check the connection of the measuring tool and input tool.</li> <li>If this error is displayed, check the settings of the measuring tool.</li> <li>For details on each item of the measuring tool, refer to the manual supplied with each device.</li> </ul>
Incorrect data received from the measuring tool	This error occurs when USB-IT- PAK receives unauthorized data from the measuring tool.	<ul> <li>Check the connection of the measuring tool and input tool.</li> <li>Check the state of the measuring tool (power, error occurrence, etc.).</li> </ul>
Failed to save file.	This error occurs when USB-IT- PAK encounters an error while saving a file.	Check if the target file is being used by another application.
Failed to read file.	This error occurs when USB-IT- PAK encounters an error while loading a file.	Make sure that the target file ex- ists and is not corrupted.
An input error has occurred.	This error occurs when USB-IT- PAK encounters a format error in an item set on the screen.	<ul> <li>Check the setting of the item where the error occurred.</li> <li>For details on each item of the measuring tool, refer to the manual supplied with each device.</li> </ul>
A format error occurred when reading the file. [Name of the item where the error occurred]	This error occurs when USB-IT- PAK encounters an item setting error while loading a file.	
Error occurred in measuring instrument [code = Error number]	This error occurs when USB-IT- PAK encounters an error while communicating with the measur- ing tool. The error number (911 to 919) is displayed.	For details on the description of a displayed error number and its solution, see

### 10.2.5 [Add procedure] Screen/[Change Procedure] Screen

Error message	Cause	Action
Could not control Excel. Please check Excel condi- tion. Workbook = [Workbook] Worksheet = [Worksheet]	This error occurs when USB-IT- PAK cannot control Excel.	<ul> <li>Check the condition of the Excel application indicated in the error message.</li> <li>Example:</li> <li>If a cell on the Excel worksheet being operated on is in edit mode, exit edit mode.</li> <li>If a settings dialog is open in Excel, close the dialog.</li> </ul>
The specified Key has al- ready been used.	The selected function key has already been assigned to another function.	Select a different function key to assign.
Device can not be regis- tered anymore.	The maximum number of devices that can be registered (400) has been exceeded.	Do not register more than 400 devices.
No configurable device is connected. When the device is added, connect the device to restart the USB-ITPAK.	No configurable USB-ITN, USB- FSW, U-WAVE, IT-016U, IT-020U, or DP-1VA device is connected, or all devices are registered.	To add a USB-ITN, USB-FSW, U-WAVE, IT-016U, IT-020U, or DP-1VA device, save the created setting file, connect the device, and then restart USB-ITPAK.
Selected device is not con- nected. Connect the device to re- start the USB-ITPAK or change the device to use.	The selected device is not con- nected.	<ul> <li>Do one of the following:</li> <li>Connect the selected device, and then restart USB-ITPAK.</li> <li>Delete the unconnected device with the [-] button, and then assign another device with the [+] button.</li> </ul>
No configurable foot-switch device is connected. When the foot switch device is added, connect the device to restart the USB-ITPAK.	No configurable USB-FSW device is connected, or all devices are registered.	To add a USB-FSW device, save the created setting file, connect the device, and then restart USB-ITPAK.
Specify the Excel file.	No Excel file is specified in [Work- book] under the [Excel settings] field.	Specify the Excel file to use.
Specify the data entry cell range.	Nothing is specified in [Range of cells].	In the [First] and [Last] fields under [Range of cells], enter a cell range in A1-style notation.
Set device(s).	Nothing is set in the [Data entry devices] field.	Under the [Data entry devices] field, click the [+] button, and then set a data entry device.
Set the procedure name.	Nothing is set in the [Procedure name] field.	In the [Procedure name] field, enter a procedure name.
The entered procedure name has already been registered.	The procedure name that was en- tered is already in use by another procedure.	Enter a different procedure name.

n incorrect address was entered	Enter a correct cell address in A1-
[First] under the [Range of cells] Id.	style notation.
n incorrect address was entered [Last] under the [Range of cells] eld.	Enter a correct cell address in A1- style notation.
ne cell range assigned to the ata entry device is not included in ange of cells] under the [Excel attings] field.	<ul> <li>Do one of the following:</li> <li>Change the range of cells that is assigned to the data entry device.</li> <li>Change [Displacement inter- vals] under the [Excel settings]</li> </ul>
n [ ne	incorrect address was entered [Last] under the [Range of cells] d. e cell range assigned to the a entry device is not included in ange of cells] under the [Excel

### 10.2.6 [Data entry device settings] Screen

Error message	Cause	Action
No configurable foot-switch device is connected. When the foot switch device is added, connect the device to restart the USB-ITPAK.	No configurable USB-FSW device is connected, or all devices are registered.	To add a USB-FSW device, save the created setting file, connect the device, and then restart USB-ITPAK.
Specify the data entry cell range.	Nothing is entered in the [Excel cells assignment] field.	Enter a value in the [Excel cells assignment] field in A1-style nota-tion.
Beyond the data entry cell range is assigned. Perform setting again.	A value outside the data input range was entered in the [Excel cells assignment] field.	Enter a row number or column number in the [Excel cells assign- ment] field that is within the cell range entered in [Range of cells] under the [Excel settings] field on the [Add procedure] screen.
Specify the character string data entry device.	No device for character string data entry has been set.	Click the [+] button under the [En- try data settings] field, and then set a character string data entry device.
Specify the channel.	Nothing is selected in the [Chan- nel] field.	If you have selected a U-WAVE-R device in the [Select device] field, you must also select which channel the device uses for trans- mission from the [Channel] drop- down list. Make a selection in the [Channel] field.
U-WAVE-T Measurement mode = Button driven	When a batch measurement pro- cedure was being created, the channel of a U-WAVE transmitter in button-driven mode was select- ed.	<ul> <li>Do one of the following:</li> <li>Select the channel of a U-WAVE transmitter in event-driven mode.</li> <li>After creating the procedure, change the measurement mode of the U-WAVE transmitter that is registered to the selected channel to event-driven mode.</li> </ul>
U-WAVE-T Measurement mode = Event driven	When an individual measurement procedure was being created, the channel of a U-WAVE transmitter in event-driven mode was select- ed.	<ul> <li>Do one of the following:</li> <li>Select the channel of a U-WAVE transmitter in but- ton-driven mode.</li> <li>After creating the procedure, change the measurement mode of the U-WAVE transmitter that is registered to the selected channel to button-driven mode.</li> </ul>

### 10.2.7 [Character string data settings] Screen

Error message	Cause	Action
	Nothing is entered in the [Charac- ter string data] field.	Enter something in the [Character string data] field.

### 10.2.8 Data Collection Screen

Error message	Cause	Action
The used device is wrong.	Data was entered from a device other than the device that is set in the procedure of the setting file.	Enter data from the correct device.
An error occurred during data reception. Device No. = [Device] Click Ignore to proceed anyway or Retry to try again.	A timeout error occurred during a data request operation.	If there is no response from the measuring tool about 2 seconds after a data request, USB-ITPAK cancels the data entry from the measuring tool. Check that the power of the measuring tool is on, and then click the [Retry] button to try the data request operation again. If you click the [Ignore] but- ton and the data entry application is Excel, the data entry position moves to the next cell.
Could not confirm the en- abled devices. [COM No.] Please check device con- nection.	Communication could not be made with a USB-ITN, USB-FSW, U-WAVE-R, IT-016U, IT-020U, or DP-1VA device.	Check the connection status of the USB-ITN, USB-FSW, U-WAVE-R, IT-016U, IT-020U, or DP-1VA device that is indicated by [COM No.].
The selected cell is not a target cell to enter data. Select the cell again.	The selected cell is not within the target cell range for data entry.	Select a cell that is within the tar- get cell range for data entry.
Failed to character string data entry. Check the character string data.	This error occurs when an ap- plication other than Excel is the destination for character string data entry, and USB-ITPAK was unable to communicate with the application for some reason.	Check that the application for char- acter string data entry is running, restart USB-ITPAK, and then run the data collection operation again.
Failed to character string data entry. Check the Excel condition and character string data.	This error occurs if Excel is the destination application for character string data entry, and USB-IT-PAK was unable to communicate with Excel for some reason.	Check that Excel is running, re- start USB-ITPAK, and then run the data collection operation again.

Error message	Cause	Action
Could not control Excel. Please check Excel condi- tion. Workbook = [Workbook] Worksheet = [Worksheet]	This error occurs when USB-IT- PAK cannot control Excel.	<ul> <li>Check the condition of the Excel application indicated in the error message.</li> <li>Example:</li> <li>If a cell on the Excel worksheet being operated on is in edit mode, exit edit mode.</li> <li>If a settings dialog is open in Excel, close the dialog.</li> <li>Disable the automatic save feature in Excel.</li> </ul>

# **11** Appendix

#### 11.1 **Usage Hints**

#### 11.1.1 Using a Setting File on Another PC

#### Using the same devices

Copy the following files to the other PC:

- Setting file
- · The Excel file that is registered in the setting file

Note that the full path (drive name and folder name) of the Excel file is registered in the setting file. Therefore, you should copy the Excel file to the same location on the other PC.

### Using different devices

The operation is basically the same as that described in "
Using the same devices" (page 237). However, because you will be using different devices, the devices Nos. that are registered in the setting file will need to be changed. Change the device Nos. on the copy destination PC to match those on the original PC beforehand. The copied setting file can then be used without modifications.

For details about changing device No., see 🗐 "8.4 [Device information] Screen" (page 165).

#### 11.1.2 Playing a Sound when Data is Entered

You can create an Excel macro that plays a sound when data is entered. For details about macros, see the Excel documentation.

# 11.1.3 Data Request and Data Cancel Operations when Using U-WAVE

For U-WAVE, the conditions for the data request and data cancel operations differ depending on the measurement mode (button driven or event driven). The operation conditions for each mode are shown below.

For details about the measurement modes (button driven and event driven) and how to operate with each mode, see 🗐 "U-WAVEPAK User's Manual".

Procedure	Oneration		Measurem	ent mode
type	Operat	Operation		Event driven
	DATA switch	Data request	√*1	
	(U-WAVE transmitter)	Data cancel	√*2	_
	Foot switch	Data request	_	$\checkmark$
Sequential	(via USB-FSW)	Data cancel	✓	✓
	Data collection screen or	Data request	_	$\checkmark$
	function key	Data cancel	✓	$\checkmark$
	DATA switch	Data request	_	
	(U-WAVE transmitter)	Data cancel	—	_
	Foot switch	Data request	_	$\checkmark$
Batch	(via USB-FSW)	Data cancel	✓	$\checkmark$
	Data collection screen or function key	Data request	_	$\checkmark$
		Data cancel	✓	✓
	DATA switch	Data request	✓	
	(U-WAVE transmitter)	Data cancel	√*3	_
La Part La L	Foot switch (via USB-FSW)	Data request	_	$\checkmark$
Individual		Data cancel	✓	√
	Data collection screen or	Data request	_	
	function key	Data cancel	—	

#### When the data entry application is Excel

Note:  $\checkmark$  means compatible; — means not compatible

\*1 Except when [Cell address assign rules] is [Unspecified].

\*2 The data cancel operation during measurement processing is possible by using the DATA switch on the U-WAVE transmitter that is registered to the procedure.

For measurement where multiple procedures are combined, the data cancel operation of the U-WAVE transmitter cannot be done across multiple procedures.

For example, if measurement processing consists of procedure A and procedure B, a U-WAVE transmitter that is registered only to procedure B cannot be used to perform a data cancel operation in procedure A.

\*3 Data cancel is possible for each data entry range of the measuring tool to which the U-WAVE transmitter is connected.

When the	ne data entry	application	is not Excel
----------	---------------	-------------	--------------

Procedure	Operation		Measurem	ent mode
type	Opera	tion	Button driven	Event driven
	DATA switch	Data request	$\checkmark$	
	(U-WAVE transmitter)	Data cancel	_	_
	Foot switch	Data request	_	$\checkmark$
Sequential	(via USB-FSW)	Data cancel	—	—
	Data collection screen	Data request	_	$\checkmark$
		Data cancel	_	_
	DATA switch	Data request	_	—
	(U-WAVE transmitter)	Data cancel	—	—
	Foot switch	Data request	_	$\checkmark$
Batch	Batch (via USB-FSW)	Data cancel	—	_
	Data collection screen	Data request	_	$\checkmark$
		Data cancel	—	—
	DATA switch	Data request	✓	
	(U-WAVE transmitter)	Data cancel	—	_
la dividua d	vidual Foot switch (via USB-FSW)	Data request	_	
Individual		Data cancel		<u> </u>
	Data collection screen	Data request	_	
		Data cancel	—	—

Note: ✓ means compatible; — means not compatible

# **11.2** Uninstalling USB-ITPAK



**2** Click the Windows Start button, and then select [All programs]  $\rightarrow$  [USB-ITPAK]  $\rightarrow$  [Uninstall USB-ITPAK].

#### Tips

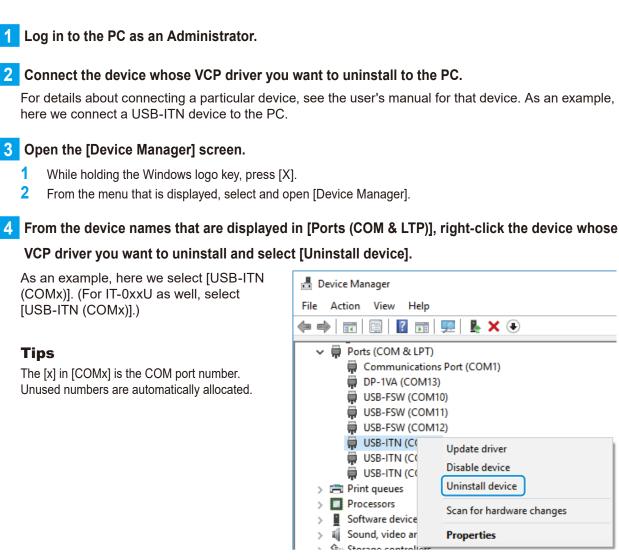
Press the X key while holding the Windows logo key to open the menu, and then select [Programs and Features] to open [Programs and Features]. From the list, select USB-ITPAK and click [Uninstall].

- **3** When [Are you sure you want to completely remove USB-ITPAK and all of its components?] is displayed, click the [Yes] button.
  - » [USB-ITPAK was successfully removed from your computer.] will be displayed.

#### 4 Click the [OK] button.

This completes the uninstallation of USB-ITPAK.

# **11.3** Uninstalling the VCP Driver



Select [Delete the driver software for this device.] and then click the [Uninstall] button.

Uninstall Device	×
USB-ITN (COM4)	
Warning: You are about to uninstall this device from your sy	/stem.
Delete the driver software for this device	
Uninstall	cel

This completes the uninstallation of the VCP driver.

After uninstallation is complete, restart the OS or disconnect and reconnect the connection device. The connection device will be recognized as a USB human interface device, and the HID driver will be automatically installed.

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### W

### SERVICE NETWORK

#### Europe

#### Mitutoyo Europe GmbH

Borsigstrasse 8-10, 41469 Neuss, GERMANY TEL: 49 (0)2137 102-0 FAX: 49 (0)2137 102-351

#### Mitutoyo CTL Germany GmbH

Von-Gunzert-Strasse 17, 78727 Oberndorf, GERMANY TEL: 49 (0)7423 8776-0 FAX: 49 (0)7423 8776-99

#### KOMEG Industrielle Messtechnik GmbH

Zum Wasserwerk 3, 66333 Völklingen, GERMANY TEL: 49 (0)6898 91110 FAX: 49 (0)6898 911100

#### Germany

#### Mitutoyo Deutschland GmbH

Borsigstrasse 8-10, 41469 Neuss, GERMANY TEL: 49 (0)2137 102-0 FAX: 49 (0)2137 86 85

#### M<sup>3</sup> Solution Center Hamburg

Tempowerkring 9·im HIT-Technologiepark 21079 Hamburg, GERMANY TEL: 49 (0)40 791894-0 FAX: 49 (0)40 791894-50

#### M<sup>3</sup> Solution Center Berlin

Ernst-Lau-Straße 6, 12489 Berlin, GERMANY TEL:49(0)30 2611 267 FAX: 49 30 67988729

#### M<sup>3</sup> Solution Center Eisenach

Neue Wiese 4, 99817 Eisenach,GERMANY TEL: 49 (0)3691 88909-0 FAX: 49 (0)3691 88909-9

#### M<sup>3</sup> Solution Center Ingolstadt

Marie-Curie-Strasse 1A, 85055 Ingolstadt, GERMANY TEL: 49 (0)841 954920 FAX: 49 (0)841 9549250

#### M<sup>3</sup> Solution Center Leonberg

Am Längenbühl 3, 71229 Leonberg, GERMANY TEL: 49 (0)7152 6080-0 FAX: 49 (0)7152 608060

#### Mitutoyo-Messgeräte Leonberg GmbH

Heidenheimer Strasse 14, 71229 Leonberg, GERMANY TEL: 49 (0)7152 9237-0 FAX: 49 (0)7152 9237-29

#### U.K.

#### Mitutoyo (UK) Ltd. HQ

Joule Road, West Point Business Park, Andover, Hampshire SP10 3UX, UNITED KINGDOM TEL: 44 (0)1264 353123 FAX: 44 (0)1264 354883

#### **Coventry M<sup>3</sup> Solution Centre**

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Parc Mail 523, cours du 3ème millénaire, 69791 Saint-Priest, FRANCE TEL: 33 (0)149 38 35 70

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Corso Europa, 7 - 20045 Lainate (MI), ITALY TEL: 39 02 935781 FAX: 39 02 93578255

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Schaarbeekstraat 20, B-9120 Melsele, BELGIUM TEL: 32 (0)3-2540444

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Kalkstensvägen 7, 331 44 Värnamo, SWEDEN TEL: 46 (0)8 594 109 50 FAX: 46 (0)370 463 34

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Ul.Graniczna 8A, 54-610 Wroclaw, POLAND TEL: 48 (0)71354 83 50 FAX: 48 (0)71354 83 55

#### Czech Republic

#### Mitutoyo Česko s.r.o.

Dubská 1626, 415 01 Teplice, CZECH REPUBLIC TEL: 420 417-514-011 Email: info@mitutoyo.cz

**Mitutoyo Česko s.r.o. M<sup>3</sup> Solution Center Ivančice** Ke Karlovu 62/10, 664 91 Ivančice, CZECH REPUBLIC TEL: 420 417-514-011 Email: info@mitutoyo.cz

#### Mitutoyo Česko s.r.o. M<sup>3</sup> Solution Center Ostrava Mošnov

Mošnov 314, 742 51 Mošnov, CZECH REPUBLIC TEL: 420 417-514-050 Email: info@mitutoyo.cz

#### Mitutoyo Česko s.r.o. Slovakia Branch

Hviezdoslavova 124, 017 01 Povážská Bystrica, SLOVAKIA TEL: 421 948-595-590 Email: info@mitutoyo.sk

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Galamb József utca 9, 2000 Szentendre, HUNGARY TEL: 36 (30) 6410210

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# Mitutoyo Austria GmbH Goetzis Regional showroom

Lastenstrasse 48a, 6840 Götzis, AUSTRIA

#### Singapore

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Head office / M<sup>3</sup> Solution Center 24 Kallang Avenue, Mitutoyo Building, SINGAPORE 339415 TEL:(65)62942211 FAX:(65)62996666

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Mah Sing Integrated Industrial Park, 4, Jalan Utarid U5/14, Section U5, 40150 Shah Alam, Selangor, MALAYSIA TEL:(60)3-78459318 FAX:(60)3-78459346

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30, Persiaran Mahsuri 1/2, Sunway Tunas, 11900 Bayan Lepas, Penang, MALAYSIA TEL:(60)4-6411998 FAX:(60)4-6412998

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76/3-5, Chaengwattana Road, Kwaeng Anusaowaree, Khet Bangkaen, Bangkok 10220, THAILAND TEL:(66)2080 3500 FAX:(66)2521 6136

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#### ACC Branch / M<sup>3</sup> Solution Center

122/8, 122/9, Moo 6, Tambon Donhuaroh, Amphur Muangchonburi, Chonburi 20000, THAILAND TEL:(66)2080 3565

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#### Head Office / M<sup>3</sup> Solution Center

Jalan Sriwijaya No.26 Desa cibatu Kec. Cikarang Selatan Kab. Bekasi 17530, INDONESIA TEL: (62)21-2962 8600 FAX: (62)21-2962 8604

#### Vietnam

#### Mitutoyo Vietnam Co., Ltd Hanoi Head Office / M<sup>3</sup> Solution Center

1st & 2nd floor, MHDI Building, No. 60 Hoang Quoc Viet Road, Nghia Do Ward, Cau Giay District, Hanoi, VIETNAM

TEL:(84)24-3768-8963 FAX:(84)24-3768-8960

#### Ho Chi Minh City Branch Office / M<sup>3</sup> Solution Center

123 Dien Bien Phu Street,Ward 15,Binh Thanh District, Ho Chi Minh City, VIETNAM TEL:(84)28-3840-3489 FAX:(84)28-3840-3498

#### Hai Phong City Branch Office

Room 511, 5th Floor, Thanh Dat 3 Building, No. 4 Le Thanh Tong Street, May To Ward, Ngo Quyen District, Hai Phong City, VIETNAM TEL:(84)22-5398-9909

#### Philippines

### Mitutoyo Philippines, Inc. Head Office / M<sup>3</sup> Solution Center

Unit 1B & 2B LTI, Administration Building 1, Annex 1, North Main Avenue, Laguna Technopark, Binan Laguna 4024, PHILIPPINES TEL/FAX:(63) 49 544 0272

#### India

#### Mitutoyo South Asia Pvt. Ltd. Head Office

C-122, Okhla Industrial Area, Phase-I, New Delhi-110 020, INDIA TEL: (91) 11-40578485/86

#### **MSA Technical Center**

Plot no. 65, Ground Floor, Udyog Vihar, Phase-4 Gurgaon, Haryana - 122016, INDIA TEL : (91) 124–2340286/287

#### Mumbai Region Head office

303, Sentinel Hiranandani Business Park Powai, Mumbai-400 076, INDIA TEL: (91) 22-25700684/685/837/839

#### Pune Office / M<sup>3</sup> Solution Center

G4/G5, Pride Kumar Senate, Off. Senapati Bapat Road, Pune-411 016, INDIA TEL:(91) 20-25660043/44/45

#### Ahmedabad Office / M<sup>3</sup> Solution Center

A-104 & A-105, First Floor, Solitaire Corporate Park, Near Divya Bhaskar Press, S.G. Road, Ahmedabad - 380 015, INDIA TEL: (91) 079 - 29704902/903

#### Bengaluru Region Head office / M<sup>3</sup> Solution Center

116/117-2, Ground Floor, Sy. No. 93 & 94, 3rd Phase, Peenya Industrial Area, Bengaluru-560 058, INDIA

TEL: (91) 80-25630946/47/48/49

#### **Coimbatore Office**

Regus, Srivari Srimath, 3rd Floor, Door No:1045, Avinashi Road, Coimbatore - 641 018,INDIA TEL: (91) 9345005663

#### Chennai Office / M<sup>3</sup> Solution Center

No. 624, Anna Salai Teynampet, Chennai-600 018, INDIA TEL: (91) 44-24328823/24/25

#### Kolkata Office

Unit No. 1208,Om Tower, 32,J.L..Nehru Road, Kolkata-700 071, INDIA TEL: (91) 33-22267088/40060635/22266817

#### Taiwan

#### Mitutoyo Taiwan Co., Ltd. / M<sup>3</sup> Solution Center Taipei

4F., No.71, Zhouzi St., Neihu Dist.,Taipei City 114, TAIWAN (R.O.C.)

TEL:886(2)5573-5900 FAX:886(2)8752-3267

#### Taichung Branch / M<sup>3</sup> Solution Center Taichung

1F., No. 299, Gaotie 1st Rd., Wuri Dist., Taichung City 414, TAIWAN (R.O.C.)

TEL:886(4)2338-6822 FAX:886(4)2338-6722

#### Kaohsiung Branch / M<sup>3</sup> Solution Center Kaohsiung

1F., No.31-1, Haibian Rd., Lingya Dist., Kaohsiung City 802, TAIWAN (R.O.C.) TEL:886(7)334-6168 FAX:886(7)334-6160

#### South Korea

#### Mitutoyo Korea Corporation Head Office / M<sup>3</sup> Solution Center

(Sanbon-Dong, Geumjeong High View Build.), 6F, 153-8, Ls-Ro, Gunpo-Si, Gyeonggi-Do, 15808 KOREA TEL:82(31)361-4200 FAX:82(31)361-4201

#### **Busan Office / M<sup>3</sup> Solution Center**

(3150-3, Daejeo 2-dong) 8,Yutongdanji 1-ro 49beon-gil, Gangseo-gu, Busan, 46721 KOREA TEL:82(51)324-0103 FAX:82(51)324-0104

#### Daegu Office / M<sup>3</sup> Solution Center

(Galsan-dong, Daegu Business Center), 301-Ho, 217, Seongseogongdan-ro, Dalseo-gu, Daegu 42704 KOREA TEL:82(53)593-5602 FAX:82(53)593-5603

#### China

Mitutoyo Measuring Instruments (Shanghai) Co., Ltd. 8th Floor, Tower 1 Lujiazui Jinkong Square No.1788/1800 Century Ave., Pudong New District, Shanghai 200122, CHINA TEL:86(21)5836-0718 FAX:86(21)5836-0717

#### Suzhou Office / M<sup>3</sup> Solution Center (Suzhou)

No. 46 Baiyu Road, Suzhou 215021, CHINA TEL:86(512)6522-1790 FAX:86(512)6251-3420

#### Wuhan Office / M<sup>3</sup> Solution Corner

Room 1701, Wuhan Wanda Center, No. 96, Linjiang Road, Wuchang District, Wuhan Hubei 430060, CHINA

TEL:86(27)8544-8631 FAX:86(27)8544-6227

#### **Chengdu Office**

1-701, New Angle Plaza, 668# Jindong Road, Jinjiang District, Chengdu, Sichuan 610066,CHINA TEL:86(28)8671-8936 FAX:86(28)8671-9086

#### Hangzhou Office

Room 804, Eastern International Business Center Building 1, No.600 Jinsha Road of

Hangzhou Economic and Technological Development Zone, 310018, CHINA TEL: 86(571)8288-0319 FAX: 86(571)8288-0320

# Tianjin Office / M<sup>3</sup> Solution Center China (Tianjin)

Room D 12/F, TEDA Building, No.256 Jie-fang Nan Road Hexi District, Tianjin 300042, CHINA TEL:86(22)5888-1700 FAX:86(22)5888-1701

#### **Changchun Office**

Room 815, 8F, Building A1, Upper East International No.3000 Dongsheng Street, Erdao District, Changchun, Jilin, 130031, CHINA TEL:86(431)8192-6998 FAX:86(431)8192-6998

#### **Chongqing Office**

Room 1312, Building 3, Zhongyu Plaza, No.86, Hongjin Avenue, Longxi Street, Yubei District, Chongqing, 400000, CHINA

TEL:86(23)6595-9950 FAX:86(23)6595-9950

#### **Qingdao Office**

Room 638, 6F, No.192 Zhengyang Road, Chengyang District, Qingdao, Shandong, 266109, CHINA TEL:86(532)8096-1936 FAX:86(532)8096-1937

TEL:86(532)8096-1936 FAX:86(532)8096

#### Xi'an Office

Room 805, Xi'an International Trade Center, No. 196 Xiaozhai East Road, Xi'an, 710061, CHINA TEL:86(29)8538-1380 FAX:86(29)8538-1381

## Dalian Office / M<sup>3</sup> Solution Center China (Dalian)

Room A-106 Shuijing SOHO, No.16 Harbin Road,Economic Development Zone,Dalian, 116600 CHINA TEL:86(411)8718 1212 FAX:86(411)8754-7587

#### **Zhengzhou Office**

Room1801,18/F,Unit1,Building No.23, Shangwu Inner Ring Road, Zhengdong New District,Zhengzhou City, Henan 450018, CHINA

TEL:86(371)6097-6436 FAX:86(371)6097-6981

# Dongguan Office / M<sup>3</sup> Solution Center China (Dongguan)

Room 801, No 65, Chang'an Section Guanchang Road, Chang'an Town, Dongguan City, Guangdong 523841, CHINA

TEL:86(769)8541 7715 FAX:86(769)-8541 7745

#### **Fuzhou Office**

Room 2104, City Commercial Centre, No.129 Wu Yi Road N., Fuzhou City, Fujian 350005, CHINA

TEL: 86 (591) 8761 8095 FAX: 86 (591) 8761 8096

#### Changsha Office

Room 2207, Building 1, Shiner International Plaza, No. 88, Kaiyuan Middle Road, Changsha City, Hunan 410100, CHINA

TEL: 86 (731) 8401 9276 FAX: 86 (731) 8401 9376

#### Changzhou Office

Room 1502, Joint Financial Tower, No.255, Tongjiang North Road, Tianning District, Changzhou City, Jiangsu 2130002, CHINA

TEL:86(519)8815 8319 FAX:86(519)8815 8319

#### Wenzhou Office

Room 512, Building 4, Xinjingdujiayuan, Sanyang Street, Ouhai District, Wenzhou City, Zhejiang 325014, CHINA

Mitutoyo Measuring Instruments (Suzhou) Co., Ltd. No. 46 Baiyu Road, Suzhou 215021, CHINA TEL:86(512)6252-2660 FAX:86(512)6252-2580

#### U.S.A.

#### **Mitutoyo America Corporation**

965 Corporate Blvd., Aurora, IL 60502, U.S.A. TEL:1-(630)820-9666 Toll Free No. 1-888-648-8869 FAX:1-(630)978-3501

Headquarters (Aurora) / M<sup>3</sup> Solution Center 965 Corporate Blvd., Aurora, IL 60502, U.S.A.

Seattle (Renton) Office / M<sup>3</sup> Solution Center 1000 SW 34th St. Suite G, Renton, WA 98057 U.S.A.

TEL:1-(888)-648-8869

#### Houston Office / M<sup>3</sup> Solution Center

4560 Kendrick Plaza Drive Suite 120 Houston, TX 77032, U.S.A.

TEL:1-(888)-648-8869 FAX:1-(281)227-0937

Cincinnati (Mason) Office / M<sup>3</sup> Solution Center

6220 Hi-Tek Ct., Mason, OH 45040, U.S.A. TEL:1-(888)-648-8869 FAX:1-(513)754-0718

Detroit (Novi) Office / M<sup>3</sup> Solution Center

46850 Magellan Drive, Suite 100 Novi, MI 48377, U.S.A. TEL:1-(888)-648-8869 FAX: 1-(248)-926-0928

#### Los Angeles (City of Industry) Office / M<sup>3</sup> Solution Center

16925 E. Gale Ave., City of Industry, CA 91745, U.S.A. TEL:1-(888)-648-8869 FAX:1-(626)369-3352

# Charlotte (Huntersville) Office / M<sup>3</sup> Solution Center

11515 Vanstory Dr., Suite 140, Huntersville, NC 28078, U.S.A.

TEL:1-(888)-648-8869 FAX:1-(704)875-9273

# Boston (Marlborough) Office / M<sup>3</sup> Solution Center

753 Forest Street, Suite 110, Marlborough, MA 01752, U.S.A. TEL:1-(888)648-8869 FAX:1-(508)485-0782

Mitutoyo America Corporation Calibration Lab 965 Corporate Blvd., Aurora, IL 60502, U.S.A. TEL:1-(888)-648-8869 FAX:1-(630)978-6477

#### Mituotyo America Corporation CT-Lab Chicago

965 Corporate Blvd., Aurora, IL 60502, U.S.A. TEL: 1-(888)-648-8869 FAX: 1-(630)-820-3418

# Mitutoyo Research & Development America, Inc.

11533 NE 118th St., Kirkland, WA 98034-7111, U.S.A. TEL:1-(425)821-3906 FAX:1-(425)821-3228

#### Mitutoyo Research & Development America, Inc. - California Office

16925 Gale Ave. City of Industry, CA 91745-1806 U.S.A. TEL: 1-(425)821-3906 FAX: 1-(425)821-3228

#### Canada

#### Mitutoyo Canada Inc.

2121 Meadowvale Blvd., Mississauga, Ont. L5N 5N1., CANADA TEL:1-(905)821-1261 FAX:1-(905)821-4968

#### **Montreal Office**

7075 Place Robert-Joncas Suite 129, Montreal, Quebec H4M 2Z2, CANADA TEL:1-(514)337-5994 FAX:1-(514)337-4498

#### Brazil

### Mitutoyo Sul Americana Ltda.

#### Head office / M<sup>3</sup> Solution Center

Rodovia Índio Tibiriçá 1555, CEP 08655-000 -Vila Sol Nascente - Suzano - SP - BRASIL TEL: 55 (11) 5643-0004/0041

#### Filial Campinas / M<sup>3</sup> Solution Center

Avenida Francisco Alfredo Junior, nº 307, Sala 01 e 02, Bairro Swiss Park – Campinas – São Paulo – BRASIL CEP 13049255

TEL: 55 (19) 3397-3412

#### Filial Curitiba / M<sup>3</sup> Solution Center

Rua Sergipe, nº 101, Sala A, Bairro Boneca do Iguaçu, São José dos Pinhais – Paraná – BRA-SIL CEP 83040120

TEL: 55 (41) 3534-1728

#### Argentina

#### Mitutoyo Sul Americana Ltda.

#### Argentina Branch / M<sup>3</sup> Solution Center

Av. B. Mitre 891/899 – C.P. (B1603CQI) Vicente López –Pcia. Buenos Aires – ARGENTINA TEL:54 (11) 4730-1433 FAX:54 (11) 4730-1411

#### Sucursal Cordoba / M<sup>3</sup> Solution Center

Av. Ricchieri 2872 L.4 – B<sup>o</sup> Jardin – CP X5014O-PJ Cordoba, ARGENTINA TEL:54 (351) 464-4125

#### Mexico

#### Mitutoyo Mexicana, S.A. de C.V.

Industria Elēctrica No.15, Parque Industrial, Naucalpan de Juārez, Estado de Mēxico C.P.53370, MÉXICO TEL: 52 (01-55) 5312-5612 FAX: 52 (01-55) 5312-3380

#### Monterrey Office / M<sup>3</sup> Solution Center

Blv. Interamericana No. 103, Parque Industrial FINSA, C.P. 66636 Apodaca, N.L., MÉXICO TEL: 52(01-81) 8398-8227/8228/8242/8244 FAX: 52(01-81) 8398-8226

#### Tijuana Office / M<sup>3</sup> Solution Center

Calle José María Velazco 10501-C, Col. Cd. Industrial Nueva Tijuana, C.P. 22500 Tijuana, B.C., MÉXICO TEL: 52 (01-664) 647-5024

#### Querétaro Office / M<sup>3</sup> Solution Center

Av. Cerro Blanco No.500-1, Colonia Centro Sur, Querétaro, Querétaro, C.P. 76090, MÉXICO TEL: 52 (01-442) 340-8018, 340-8019 and 340-8020 FAX: 52 (01-442) 340-8017

## Mitutoyo Mexicana, S.A. de C.V. Querétaro Calibration Laboratory

Av. Cerro Blanco 500 30 Centro Sur, Querétaro, Querétaro, C.P. 76090, MÉXICO TEL: 52 (01-442) 340-8018, 340-8019 and 340-8020 FAX: 52 (01-442) 340-8017

#### Aguascalientes Office / M<sup>3</sup> Solution Center

Av. Aguascalientes No. 622, Local 15 Centro Comercial El Cilindro Fracc. Pulgas Pandas Norte, C.P. 20138, Aguascalientes, Ags. MÉXICO

TEL: 52 (01-449) 174-4140 and 174-4143

#### Irapuato Office / M<sup>3</sup> Solution Center

Boulevard a Villas de Irapuato No. 1460 L.1 Col. Ejido Irapuato C.P. 36643 Irapuato, Gto., MÉXICO TEL: 52 (01-462) 144-1200 and 144-1400

### **Revision Record**

	Date of publication	Revision status	Details of revision
April	1, 2022	First edition	Publication

# Mitutoyo Corporation

20-1, Sakado 1-Chome, Takatsu-ku, Kawasaki-shi, Kanagawa 213-8533, Japan Tel: +81 (0)44 813-8230 Fax: +81 (0)44 813-8231 Home page: https://www.mitutoyo.co.jp/global.html

For the EU Directive, Authorized representative and importer in the EU: Mitutoyo Europe GmbH Borsigstrasse 8-10, 41469 Neuss, Germany

For the UK Regulation, Authorized representative and importer in the UK: Mitutoyo (UK) Ltd. Joule Road, West Point Business Park, Andover, Hampshire SP10 3UX, UNITED KINGDOM