

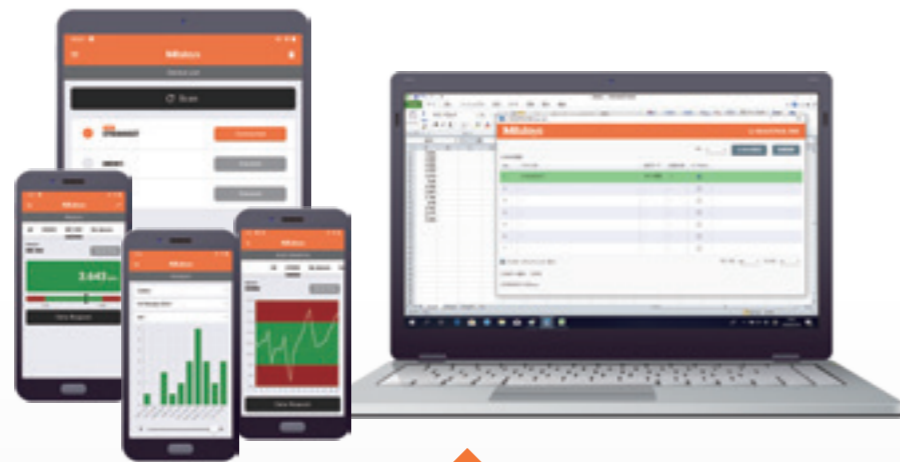
U-WAVE / USB Input Tool / DP-1VA LOGGER Measurement Data Management System

Small Tool Instruments
and Data Management



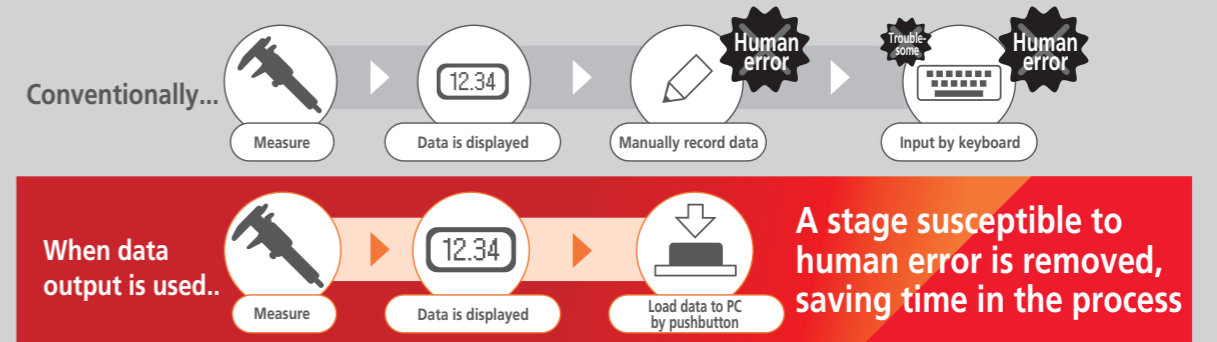
“Visualization of Quality” Increases the Competitiveness of Manufacturing.

Breaking away from handwritten records and embracing centralized management of measurement data can lead to an increase in quality and efficiency in the future.



Greater possibilities using data output

Higher Efficiency



Centralized Data Management

Achieves centralized management of measurement data
Contributes to the prevention of defects through visualization of quality.

Operation in an Excel sheet

The data can be directly written into an Excel sheet.

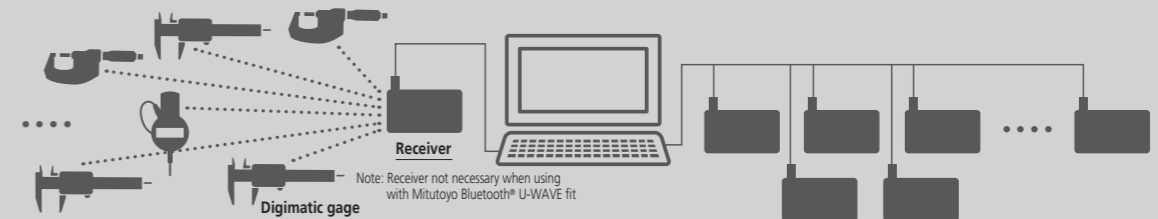


Digitalization enables easy data collection and analysis

The measurement data from each process can be stored and managed centrally.



Multiple gages can be connected at the same time

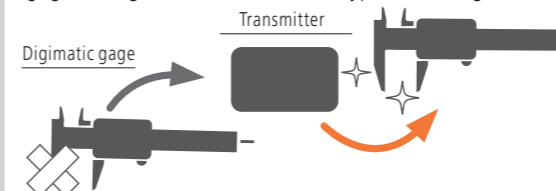


Cost Reduction Effect

Easy to install on existing Digimatic gage (*)
Allows you to build a system with lower initial costs and running costs.
* Some U-WAVE-TM/TC models are not compatible.

If a Digimatic gage is damaged, operation can be continued using another gage of the same type

The transmitter can be reconnected to another Digimatic gage having the same connection type as the original.



Connectable to any of your existing Digimatic gages

No need to buy a replacement if your tool is equipped with the Digimatic function.

Approximately 400,000 continuous data transmissions are possible

Just one CR2032 lithium battery provides power for about 400,000 data transmissions.
* When the battery is used with U-WAVE-TM/TC/T. The battery life is approx. one year under normal use when used with U-WAVE-TMB/TMC.

*We cannot guarantee that this application/software and U-WAVE TMB/TCB will connect with all Bluetooth® equipped devices.

Steps to Achieving "Visualization of Quality"

Select your desired data communication method.

When you need easy data import to your PC via connection cable

■ USB input tool series Pages 6 - 9, 18 - 19, 26 - 29



When you need on-the-spot printout

■ DP-1VA LOGGER Pages 10 - 11, 18 - 19



When you need to import data via wireless connection

■ U-WAVE Pages 12 - 35



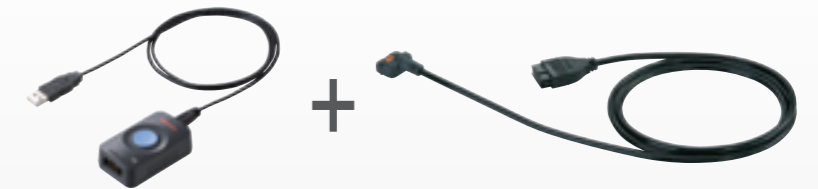
Measurement Data Input Unit USB Input Tool

Simple and robust option to collect data from a digimatic gage.



Simply connect it to the USB port of your PC for automatic recognition, add your digimatic data cable and gage for immediate use

If you have a Digimatic gage with an output terminal and a PC, you can import the data into whatever record format you normally use (Excel, Word, Notepad, etc.). The ergonomic data button is isolated from the gage where it might otherwise introduce unwanted movement. A 3.5mm jack socket allows attachment of an optional foot switch. Most suitable tool for taking the first step in breaking away from handwritten records and digitizing quality records.



Pair with the appropriate digimatic data cable to suit your gage. (Refer to page 18)

Can be used with your own Digimatic gage with an output terminal

You may already own a measuring tool that can be used. See the photographs below to check whether it has a Digimatic output connector. The connector type may be different, depending on the measuring tool model. See the list showing measuring tool compatibility on pages 8 to 9 and 18 to 19.



Remove the cover to access the output connector.



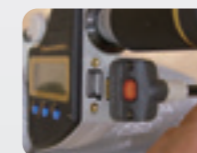
Measurement data can be sent to a PC with a single switch.



Digimatic Indicator



Digimatic Micrometers



Coolant-proof Digimatic Micrometer



Digimatic Height Gage



Hardness Testing Machine (rear view)



Production Line Surface Roughness Measuring Instrument

Input Tool System Configuration/Specifications

USB Input Tool Direct (USB-ITN)



- Converts measurement data to keyboard signals and directly inputs them to spreadsheet software such as Excel and Notepad.
- When using with optional software (see page 26), you can easily create Microsoft Excel worksheets, enabling further improvement of work efficiency.



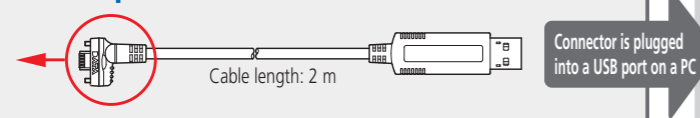
USB-ITN System Configuration



- Data loading methods**
- Data switch on the input tool (Type A /B/ C only)
 - Data switch on the measuring gage
 - Command transmission from a PC*
 - * Only available when using **USB-ITPAK V3.0/V2.1**

- Data loading methods**
- 1) Icon operation
 - 2) Function key operation
 - 3) Foot switch operation
- One of the above operations

USB Input Tool Direct USB-ITN



Type	Model No.	Code No.	Data switch
A	USB-ITN-A	06AFM380A	✓
B	USB-ITN-B	06AFM380B	✓
C	USB-ITN-C	06AFM380C	✓
D	USB-ITN-D	06AFM380D	
E	USB-ITN-E	06AFM380E	
F	USB-ITN-F	06AFM380F	
G	USB-ITN-G	06AFM380G	
SA	USB-ITN-SA	06AGQ001A	✓
SF	USB-ITN-SF	06AGQ001F	

- System Environment**
- Hardware: PC with USB port (Type A)
 - Supporting OS (**USB-ITPAK V3.0**): Windows 10 64 bit, Windows 11
 - Supporting OS (**USB-ITPAK V2.1**): Windows2000 SP4, Windows XP SP2 or later, Windows Vista, Windows7, Windows8/8.1, Windows10
 - Software: Programs supporting keyboard input (Excel, Word, memo pad, etc.)

Options
Measurement Data Collection Software
USB-ITPAK V3.0/V2.1

(Refer to pages 26 to 28 for details)

Foot switch (optional)
937179T

Cable length: 2 m

Option for USB-ITN
USB Foot Switch Adapter USB-FSW
06ADV384

Note 1: When using a foot switch in combination with **USB-ITN**, the optional **USB-FSW** and **USB-ITPAK V3.0/V2.1** are required.
 Note 2: When the measuring gage and **USB-ITN** have no data pushbuttons, the optional **USB-ITPAK V3.0/V2.1** is required.

Main Specifications of USB-ITN

- Output specification: USB2.0 or USB1.0
 - Supported driver software: Changeable between two types 1) Stand-alone: HID keyboard device* 2) Using **USB-ITPAK V3.0/V2.1**: Virtual COM port (VCP)
 - Communication speed: 12 Mbps (Full Speed)
 - Power source: USB bus power
 - Mass: 59 g
 - USB2.0 certificate
 - Conforms to EU EMC Directive
- * Since this device is compatible with Windows standard driver software, dedicated driver software is not required.
 Note: Information regarding **USB-ITPAK V3.0** can be downloaded from our website.

Refer to pages 32 to 35 for details of the options.

Input tool series (IT-020U/IT-007R)



- IT-020U is an easy-to-use, expandable input tool with a large data switch and a foot switch connector.
- It can be connected to various types of measuring instruments using optional connection cables.
- When using with optional software (see pages 28 to 29), you can easily create Microsoft Excel worksheets, enabling further improvement of work efficiency.
- IT-007R is an RS-232C communication type input tool that can be controlled by data request commands from a PC.

IT-020U/IT-007R System Configuration

connecting cable (optional)
 Refer to pages 18 and 19 for details.
 Connector A - G, SF (8 types) + L-shape (4 types)
 Cable length: 1 m or 2 m

USB keyboard signal converter type
 Model: IT-020U
 Code No.264-020

RS-232C communication conversion type
 Model: IT-007R
 Code No.264-007

System Environment

- Hardware: PC with USB port (Type A)
- Supporting OS (**USB-ITPAK V3.0**): Windows 10 64 bit, Windows 11
- Supporting OS (**USB-ITPAK V2.1**): Windows2000 SP4, Windows XP SP2 or later, Windows Vista, Windows7, Windows8/8.1, Windows10
- Software: Programs supporting keyboard input (Excel, Word, memo pad, etc.)

System Environment

- Hardware: PC or sequencer with a serial port (D-sub 9 pin)
- Software: A program compatible with the RS-232C communication (such as a hyper terminal) is required.

Main Specifications of IT-020U

- Output specification: USB2.0 or USB1.0
 - Supported driver software: Changeable between two types 1) Stand-alone: HID keyboard device* 2) Using **USB-ITPAK V3.0/V2.1**: Virtual COM port (VCP)
 - Communication speed: 12 Mbps (Full Speed)
 - Power source: USB bus power
 - USB2.0 certificate
 - Conforms to EMC Directive
- * This product is compatible with the standard driver software for Windows. No dedicated driver software is required.

Specifications of IT-007R RS-232C Communication

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

Data request signal
 Data can be output by transmitting a character from the PC.

Data format

1) When data output

2) Error code output

Example of format

Output data: 0.123 → 01A → 000.123CR → -0.1234 → 01A → 000.1234CR

Connector specification and power source from the PC
 This product operates while accumulating the power supplied from the PC. A second or more input interval is required.

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

* When connecting to a sequencer, a power source is required.
 ● Input voltage: Supplied in the range 6 V to 16 V
 ● Power source terminal: Supplied to pins 4 and 7
 Note: "4" and "6", "7" and "8" are connected with each other inside this product.

Mini-Printer Equipped with Data Logging Function DP-1VA LOGGER

When you need on-the-spot printout



Measurement data can be printed on the spot and also be sent to a PC.



See video from here



"d2" is the generic name for Mitutoyo Digimatic output compatible with up to 8 digits of I/O data.

Portable for on-the-spot output

This small, portable printer can be used to print measurement data from Digimatic gages and perform statistical calculations. It has a 2-way power supply system, providing excellent mobility and flexibility. Being portable, it allows you to output measurement results from a Digimatic gage on the spot. It is a powerful tool for streamlining quality control and improving quality.

Highly effective for quality checking

The DP-1VA LOGGER has high functionality. Not only is it capable of printing measurement data from Digimatic gages, performing various statistical calculations, and producing histograms and D charts, but it is also capable of performing complex calculations for X-R control charts.

Up to 1,000 data items can be saved in the device using the data logger function. By connecting it to a PC with a USB cable (optional), you can transfer all saved data to your own Excel forms with a single touch.

Example of printout

MODE1

MODE2

MODE3

MODE1
Various statistical calculations are executed using all input data. If the tolerance limits have been set, GO/±NG judgment and histogram creation are also enabled.

MODE2
In addition to the MODE1 function, measurements within the tolerance limits are printed out as a D chart*. This chart allows you to identify the trend of variations in measurement data.
* D chart stands for Displacement chart.

MODE3
Only input of data automatically enables calculation processing of complex control limit values as well as calculation for creating an X-bar-R control chart.

Example of batch printing log data

In OUT LOG Setting 1

In OUT LOG Setting 2

In OUT LOG Setting 3

In OUT LOG Setting 1
This setting allows printout of measurement time, measurement value, and GO/±NG judgment result.

In OUT LOG Setting 2
This setting allows printout of measurement time, measurement value, and GO/±NG judgment result.

In OUT LOG Setting 3
This setting allows printout of data number, measurement date and time, measurement value, and GO/±NG judgment result.

Options

For details, see pages 18 to 19.

● **USB cable (A-microB)** (optional)



Code No. 006AFZ050

● **Foot switch** (optional)



Code No. 937179T

Code No.	264-505 ^{*1}
Model No.	DP-1VA LOGGER
Data output	Digimatic input, Digimatic 2 input (specific to Mitutoyo KA counter)
Printing method	Thermal line printer
Character specification	Total number of dots: 384 dots/line Dot size: 8 dots/mm
Printing speed	0.8s per line (6.5mm/s)
Printing paper ^{*2}	High durability thermo-sensitive paper, Width 58mm x length 48m
Power supply	2-way power supply system 1. 100-240V 50/60Hz AC adapter (6V, 2A) 2. AA alkaline battery (LR6) or nickel-metal-hydrate battery (NiMH Size AA) 4 pieces (Manganese dioxide batteries are not usable.)
Battery life ^{*3}	About 10,000 lines (if data is printed once every 5 seconds using 1,600mA NiMH batteries at 20°C)
Data processing capacity	MODE0: 100,000 pieces of data MODE1, MODE2: 9,999 pieces of data MODE3: Sample size 10 x 9999 subgroups = 99,990 pieces of data GO/±NG judgment (five sets can be defined)
Tolerance judgment	Five sets can be set.
Measurement data logging (storage)	Up to 1,000 measurements
Input timer	0.25s, 1s, 5s, 30s, 1 min, 30min, 60min
Data output	USB output RS-232C data output at TTL levels GO/±NG judgment result output (-NG, GO, +NG)
Clock accuracy	Maximum time difference per month: ±2 minutes
Operating temperature	0 to 45°C (using AC adapter) 10 to 45°C (using battery)
Storage temperature	-10 to 50°C
Mass	390g (main unit)
External dimensions	94 (W) x 201 (D) x 75.2 (H) mm

Standard accessories	AC adapter : 06AEG180, printing paper (one roll), strap, user's manual
Optional accessories	1. USB cable (A-microB): 06AFZ050 (1m) 2. RS-232C output cable: 09EAA084 (1m, D-SUB 9 pin) 3. GO ±NG judgment cable: 965516 (2m, 10 pin terminal/separate) 4. Foot switch: 937179T (2m)
Consumable items	Printing paper (10 rolls)

*1: To denote your AC line voltage add the following suffixes. A for North America, D for Europe, E for UK, K for Korea, DC for China, B for Oceania without AC adapter and no suffix is required for Japan.
*2: The printer paper has excellent environmental and chemical resistance, but it has limitations in durability due to thermosensitivity. If recorded paper is stored for more than 5 years, or used as a public document, it is recommended to make a more durable copy.
*3: The battery life quoted is not a guaranteed value, but only a typical value.

Measurement Data Wireless Communication System U-WAVE

When you need to import data via wireless connection



Measurement data can be sent wirelessly to a PC, smartphone or tablet.



See video from here



You can choose from a variety of products and applications.

Record measurement data wirelessly Achieve smart measurement

Measurement results can be sent wirelessly and saved on a PC, smartphone or tablet. We have created a smart system that does not require handwriting or manual input from a keyboard.

What is the *U-WAVE* Series ?

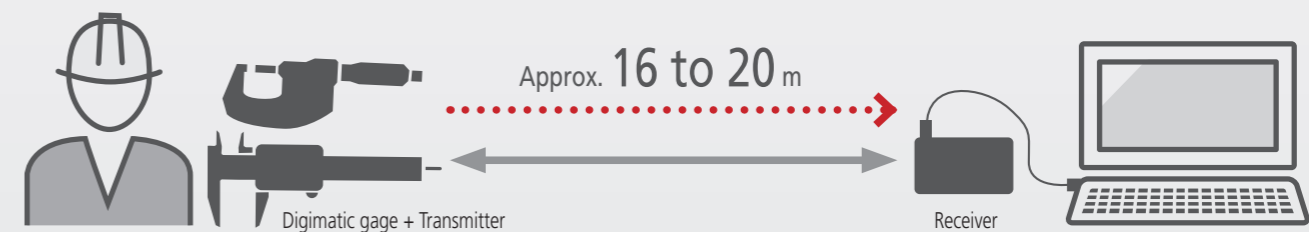
"U-WAVE", the measurement data wireless communication system, collects data in the inspection process swiftly and accurately, and increases a company's competitiveness based on detailed data analysis.



Wireless transfer expands measurement possibilities

Stable communication is possible up to a maximum communication distance of 16-20m*. Efficiency is greatly improved by being able to work without worrying about cable length or snags, etc.

- Freedom of movement
- Flexible layout of measurement site
- Human error during manual input is eliminated
- Stable wireless communication



*May be affected by the electromagnetic environment.

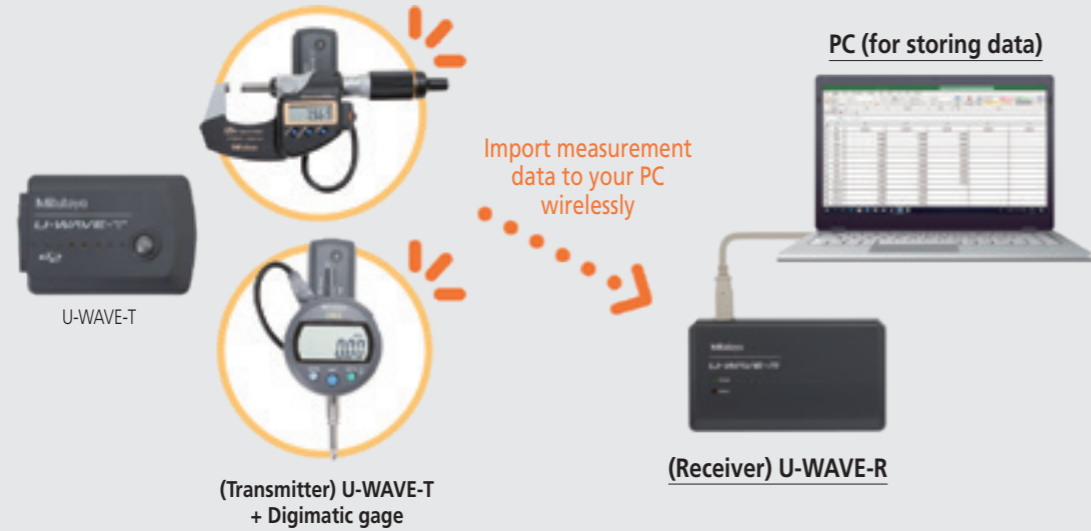
Note: Receiver not necessary when using with Mitutoyo Bluetooth® U-WAVE fit

Introduction to the U-WAVE Product Lineup

U-WAVE-T

U-WAVE Send measurement data to your PC

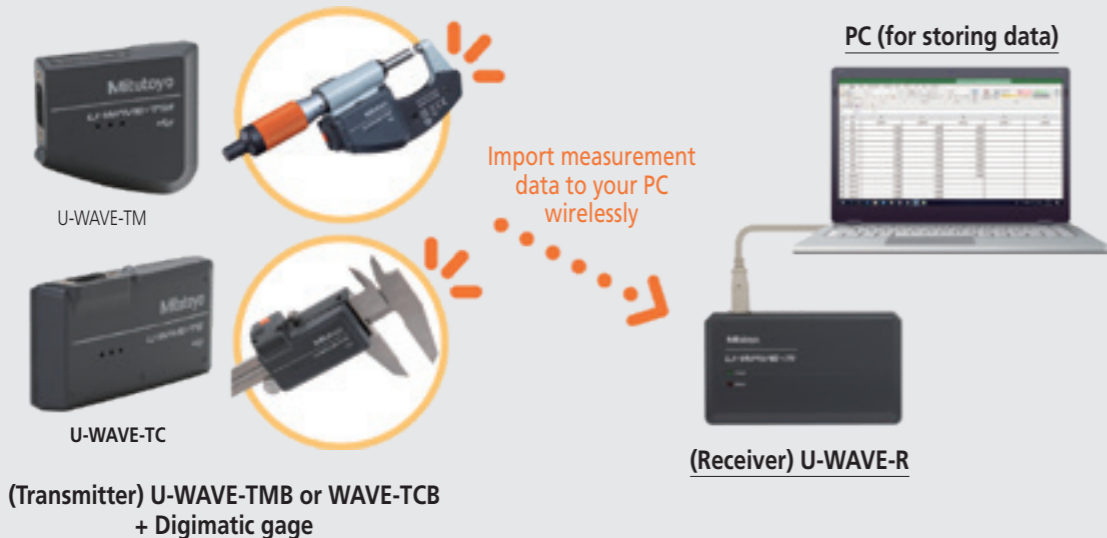
The system consists of a "U-WAVE-T" transmitter that attaches to a measuring instrument with digimatic output function and a "U-WAVE-R" receiver that connects to a PC. It is compatible with many types of measuring instruments with digimatic output function.



U-WAVE-TM/TC (U-WAVE fit)

U-WAVE fit Fits onto Digimatic gages for improved operability

While inheriting the functions and performance of U-WAVE, these models have been made smaller and thinner, and have improved operability, being designed specifically for use with small digimatic calipers and small digimatic micrometers.



U-WAVE-TMB/TCB (U-WAVE fit Bluetooth®)

Bluetooth® U-WAVE fit

No receiver necessary

Easy connection with Bluetooth®

No receiver is required, and up to 7 devices can be connected to one PC. It is also possible to connect not only to PCs but also to Bluetooth® compatible devices such as smartphones and tablets. You can send measurement data through wireless transmission more easily. These models inherit the same functions and performance of the U-WAVE-TM/TC, which are smaller, thinner, and have improved integration with Digimatic gages and improved operability. Furthermore, we also have a lineup of dustproof and water-proof IP67 models to withstand on-site environments.



* Connectivity of the dedicated Mitutoyo Bluetooth® U-WAVE application and U-WAVE-TMB/TCB to every single Bluetooth® device is not guaranteed.
 * If using U-WAVE/U-WAVE-fit, please note that it does not support bidirectional serial communication.
 * Only some models are IP67 compatible. For details, see pages 19 to 22.

Function comparison table

	U-WAVE	U-WAVE fit*1	U-WAVE fit Bluetooth®*1
Transmission method	Original <based on IEEE802.15.4 (2.4 GHz)>		Bluetooth® 4.2
Communication distance	Approx. 20m (line of sight)		Approx. 16m (line of sight)
Connectible model	Digimatic gages	Digimatic calipers, micrometers, indicators and linear Height	
Dedicated application/software	U-WAVEPAK USB-ITPAK*2		U-WAVEPAK-BW U-WAVEPAK-BM U-WAVE Navi USB-ITPAK*2

*1 Please check the list of compatible models since the unit may not be attachable to some models.
 *2 Please note that USB-ITPAK may not be recognized if your computer's OS build is old.

Compatibility Table for Digimatic Gages and U-WAVE

U-WAVE^{fit} U-WAVE

Appearance when fitted together

Digimatic micrometers	Standard type		
	QuantuMike		
Digimatic caliper	Standard type		
	Coolant-proof type		
Digimatic indicator, Other	ID-CNX/ID-FNX series (12.7mm type only)		
	Other		

Bluetooth U-WAVE^{fit}

Appearance when fitted together

Digimatic micrometers	Standard type		
	QuantuMike		
Digimatic caliper	Standard type		
	Coolant-proof type		
Digimatic indicator	ID-CNX/ID-FNX series (12.7mm type only)		
	Other		

Note1: U-WAVE fit can only be connected to digimatic calipers, digimatic micrometers, and some digimatic indicators with a measurement range of 0 to 300 mm. Refer to the lists of compatible models on pages 32 to 35 for details.
 Note2: Bluetooth® U-WAVE fit can also be connected to a measuring instrument using a connecting cable. Refer to the lists of compatible models on pages 31 to 34 for details on connecting cables compatible with each measuring instrument.
 Note3: U-WAVE should only be used in countries where they have obtained wireless certification.

Product combinations



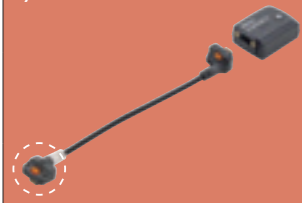
Digimatic gage	Connecting unit/connecting cable	Transmitter	Receiver
Digimatic micrometers	Standard type 02AZF310	Buzzer type U-WAVE-TM 264-623	 U-WAVE-R 02AZD810D Design registered in Japan
	QuantuMike 02AZF960	IP67 type U-WAVE-TM 264-622	
Digimatic caliper	Standard type 02AZF300	Buzzer type U-WAVE-TC 264-621	
	Coolant-proof type 02AZF310	IP67 type U-WAVE-TC 264-620	
Digimatic indicator, Other	ID-CNX/ID-FNX series (12.7mm type only) 02AZF700	Buzzer type U-WAVE-TM 264-623	
	Other Connecting cable Bracket 	IP67 type U-WAVE-TM 264-622	
		Buzzer type U-WAVE-T 02AZD880G	
		Dust/water-proof type U-WAVE-T 02AZD730G	

Product combinations No receiver necessary







Digimatic gage	Connecting unit/connecting cable	Transmitter
Digimatic micrometers	Standard type 02AZF310	Buzzer type U-WAVE-TMB 264-627
	QuantuMike 02AZF960	IP67 type U-WAVE-TMB 264-626
Digimatic caliper	Standard type 02AZF300	Buzzer type U-WAVE-TCB 264-625
	Coolant-proof type 02AZF310	IP67 type U-WAVE-TCB 264-624
Digimatic indicator	ID-CNX/ID-FNX series (12.7mm type only) 02AZF700	Buzzer type U-WAVE-TMB 264-627
		IP67 type U-WAVE-TMB 264-626







[U-WAVE] [USB input tool] [DP-1VA LOGGER]

Compatibility Lists of Digimatic Gages and Connecting Cables

1) USB Input Tool Direct USB-ITN 	Connector type	A) Water-proof type with output button	B) Water-proof type with output button	C) Straight type with output button	CR) L-shape type with output button, cable outlet on right	D) Flat 10-pin type	
	Model Code No.	USB-ITN-A 06AFM380A	USB-ITN-B 06AFM380B	USB-ITN-C 06AFM380C	No applicable models USB-ITN-C can be used. See figure below	USB-ITN-D 06AFM380D	
2) IT-020U/IT-007R/DP-1VA LOGGER/MUX-10F/EC Counter  <p>Connector (13 types, A to G, SA and SF) Type D on the other end for all models</p>	Connector type	A) Water-proof type with output button	B) Water-proof type with output button	C) Straight type with output button	CR) L-shape type with output button, cable outlet on right	D) Flat 10-pin type	
	Code No.	1 m	05CZA624	05CZA662	959149	04AZB512	936937
		2 m	05CZA625	05CZA663	959150	04AZB513	965014
3) U-WAVE 	Connector type	A) Water-proof type with output button	B) Water-proof type with output button	C) Straight type with output button	CR) L-shape type with output button, cable outlet on right	D) Flat 10-pin type	
	Standard	02AZD790A	02AZD790B	02AZD790C	No applicable models Type C can be used, but be careful of the cable when operating the thimble. (See figure below)	02AZD790D	
	For foot switch	02AZE140A	02AZE140B	02AZE140C		02AZE140D	









For connector types (circled in broken lines), select the model (A to G, SA,SF) that matches the connector shape of the Digimatic gage you are using.









Gage connectors on data cable  <p>The connector dimensions are given on page 09-22.</p>	Connector type	A) Water-proof type with output button	B) Water-proof type with output button	C) Straight type with output button	CR) L-shape type with output button, cable outlet on right	D) Flat 10-pin type
	Cable Connector shape on Digimatic gage side					
Data switch	Available	Available	Available	Available	Available	N/A

Digimatic ports on gage  <p>Please note that some high-precision Digimatic gages are capable of displaying the measurement result to more than 6 digits. However, according to the Digimatic output specification, the result may be output in 6 digits only.</p> <p>Digimatic gages whose display may exceed 6 digits</p> <ul style="list-style-type: none"> Laser Scan Micrometers Litematic Linear gage counter (EH) 	Picture of Digimatic port					
	Applicable models	<ul style="list-style-type: none"> Digimatic caliper 500-776/500-777, etc. 500-712-20/500-713-20, etc. 500-712 etc. 550-301-10/550-331-10, etc. 551-301-10/551-331-10, etc. 552-302-10/552-303-10, etc. 552-150-10/552-151-10, etc. 552-155-10/552-156-10, etc. 552-181-10/552-182-10, etc. 573-601/573-602, etc. Digimatic depth gage 571-251-10/571-252-10, etc. Digimatic scale unit 572-600, 572-601, etc. 	<ul style="list-style-type: none"> Digimatic micrometer 293-140-30/293-141-30, etc. 293-230-30 etc. 340-251-30/340-252-30 293-666-20/293-667-20, etc. 227-201-20/227-203-20, etc. 227-205-20/227-206-20, etc. 227-221-20 etc. 227-223-20 etc. 422-230-30/422-231-30, etc. 406-250-30/406-251-30, etc. 343-250-30/343-251-30, etc. 369-250-30/369-251-30, etc. 345-250-30/345-251-30, etc. 314-251-30/314-252-30, etc. Digimatic micrometer head 350-251-30/350-261-30, etc. Digimatic holtest 468-161/468-162, etc. Digimatic depth gage 329-250-30/329-251-30, etc. 	<ul style="list-style-type: none"> Digimatic caliper 500-150-30/500-151-30, etc. 500-500-10/500-501-10, etc. 500-443 etc. 573-118-10/573-119-10, etc. 573-116-10/573-117-10, etc. 573-191-30/573-291-30 573-181-30/573-182-30, etc. Digimatic depth gage 571-201-30/571-202-30, etc. Digimatic micrometer head 164-163/164-164 Digimatic scale unit 572-203-10/572-213-10 572-300-10/572-301-10, etc. 	<ul style="list-style-type: none"> Digimatic micrometer 293-582/293-583, etc. 389-514/389-714 573-118-10/573-119-10, etc. 573-116-10/573-117-10, etc. 573-191-30/573-291-30 573-181-30/573-182-30, etc. Digimatic depth gage 571-201-30/571-202-30, etc. Digimatic micrometer head 164-163/164-164 Digimatic scale unit 572-203-10/572-213-10 572-300-10/572-301-10, etc. 	<ul style="list-style-type: none"> Digimatic indicator ID-H ID-F (Note 1) High-precision height gage QMH-AX/BX Mu-checker Digital Mu Checker (Note 1) Laser scan micrometer LSM-9506 Linear gage counter EF/EH (Note 2) EB (Note 1) and (Note 4), EC-101D (Note 1) Litematic VL-B/S-B (Note 2) Surface roughness measuring machine SJ-210 (Note 4)/310/410 SJ-500/SV-2100 (Note 3) Hardness testing machines HM-210/220 HV-110/120 HR-530 HR-600

E) Round 6-pin type	F) Flat straight type	FB) Flat L-shape (cable outlet is back)	FR) Flat L-shape (cable outlet is right)	FL) Flat L-shape (cable outlet is left)	G) Flat straight water-proof type	SA) Water-proof straight model with output button	SF) Straight standard type
USB-ITN-E 06AFM380E	USB-ITN-F 06AFM380F	No applicable models USB-ITN-F is available.			USB-ITN-G 06AFM380G	USB-ITN-SA 06AGQ001A	USB-ITN-SF 06AGQ001F
E) Round 6-pin type	F) Flat straight type	FB) Flat L-shape (cable outlet is back)	FR) Flat L-shape (cable outlet is right)	FL) Flat L-shape (cable outlet is left)	G) Flat straight water-proof type	SA) Water-proof straight model with output button	SF) Straight standard type
937387	905338	905689	905691	905693	21EAA194	06AGL111	06AGL011
965013	905409	905690	905692	905694	21EAA190	06AGL121	06AGL021
E) Round 6-pin type	F) Flat straight type	FB) Flat L-shape (cable outlet is back)	FR) Flat L-shape (cable outlet is right)	FL) Flat L-shape (cable outlet is left)	G) Flat straight water-proof type	SA) Water-proof straight model with output button	SF) Straight standard type
02AZD790E	02AZD790F	No applicable models Use 02AZD790F or 02AZE140F .			02AZD790G	No applicable models Use 02AZG011 or 02AZG021 .	02AZG011
02AZE140E	02AZE140F				02AZE140G		02AZG021

Note 1: **USB-ITN** is required to use in the combination with **USB-ITPAK**, when connected to D) **ID-F**, D) digital Mu-checker, **EB**, **EC-101D**, and F) **ID-U**, **ID-SS**, **ID-SX**.
 Note 2: **USB-ITN**, **IT-020U**, and **U-WAVE-T** cannot be used with D) **EF/EH** and D) **VL-B/S-B**.
 Note 3: **USB-ITN** and **U-WAVE-T** cannot be used with D) **SJ-500/SV-2100**.
 Note 4: **IT-020U** and **USB-ITN-SF** cannot be used with D) **SJ-210** and D) **EB**.

E) Round 6-pin type	F) Flat straight type	FB) Flat L-shape (cable outlet is back)	FR) Flat L-shape (cable outlet is right)	FL) Flat L-shape (cable outlet is left)	G) Flat straight water-proof type	SA) Water-proof straight model with output button	SF) Straight standard type
							
N/A	N/A	N/A	N/A	N/A	N/A	Available	N/A

 <p>[Hardness testing machines]</p> <p>HM-102 HM-103 HR-320 HR-430 HH-411</p>	 <p>Digimatic indicator ID-CX, ID-C112AX, ID-C112RXB, ID-C112GXB, ID-U (Note 1), ID-SS (Note 1), ID-SX (Note 1)</p> <p>HDM-AX, HD-AX, HDS-HC, HDS-C</p> <p>ABS borematic 568-361/568-362, etc.</p> <p>Scale unit SD-E, SDV-E, SD-F, SDV-F</p>	 <p>Digimatic bore gage 511-501/511-502, etc.</p> <p>Hardness testing machines HH-300</p>	 <p>Digimatic depth gage Digimatic type (ID-CX)</p>		 <p>Digimatic indicator ID-N ID-B</p>	 <p>Digimatic micrometer QuantuMike (293-14X-40/293-18X-40)</p>	 <p>Digimatic indicator ID-CNX ID-FNX</p> <p>Digimatic depth gage Digimatic type (ID-CNX)</p> <p>Digimatic thickness gage Digimatic type (ID-CNX)</p>
<p>[How to check the code No. of the connecting cable used for the measuring instrument]</p> <ul style="list-style-type: none"> For models currently being sold <p>Please check the optional accessories for the applicable Digimatic gage in the general catalog. The general catalog can also be viewed on the Mitutoyo website. Web address: https://www.mitutoyo.co.jp/</p> <ul style="list-style-type: none"> Regarding discontinued models not listed in the general catalog <p>(1) How to look for items from the general catalog For a digimatic indicator, you can check the "New and Old Product Compatibility Table" for compatible connecting cables.</p> <p>(2) How to look for items from the Mitutoyo website You can search the "Parts List". Enter the code number of the Digimatic gage you want to search for. Example: 293-421, 500-151, etc.</p>							

[U-WAVE] Specifications


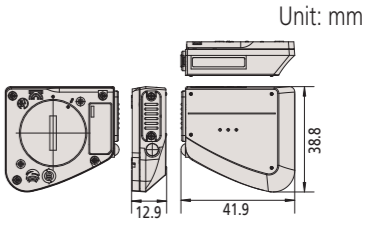


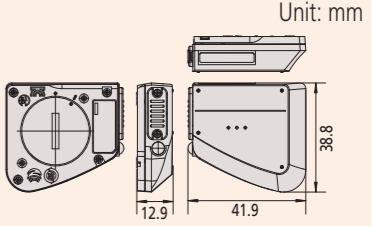


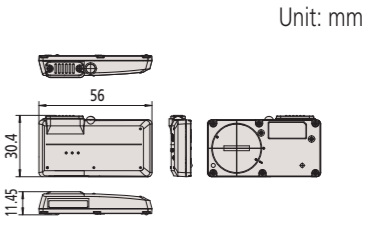


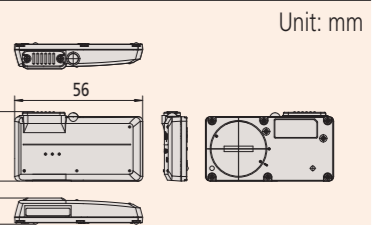


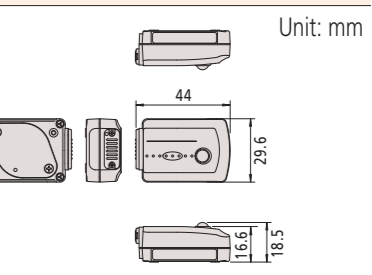

● Wireless Communication Specifications

Product name	Compatible standards	Wireless communication	Wireless communication distance	Transmission output	Modulation method	Communication frequency	Used band
U-WAVE-T/TM/TC	ARIB STD-T66 (Japan)	Original (based on IEEE802.15.4)	Approx. 20 m (line of sight)	U-WAVE-T: 1 mW (0 dBm) or less U-WAVE-TC/TM: 2.5mW (4dBm) or less	DS-SS (Direct Sequence - Spread Spectrum) Resistant to interfering signals and noise	2.4 GHz band	15 channels (2.405 to 2.475 GHz at intervals of 5 MHz)
U-WAVE-TMB/TCB	ARIB STD-T66 (Japan)	Bluetooth® 4.2 Low Energy	Approx. 16 m (line of sight) Approx. 16 m (on shop floor)	3.2 mW (5 dBm) or less (Class2)	FH-SS (Frequency-Hopping Spread Spectrum)	2.4 GHz band	In accordance with FH-SS (2.400 to 2.483 GHz)

* Not compatible with the previous product Mu-Wave because the communication specifications are different.


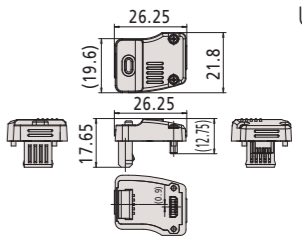

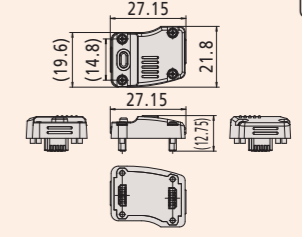

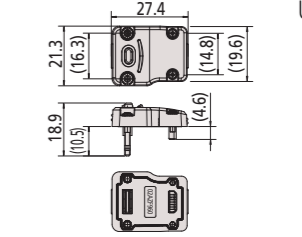

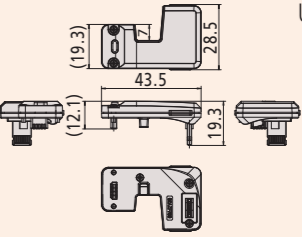
* U-WAVE-T/TC/TM/TCB/TMB should only be used in countries where they have obtained wireless certification. Please purchase in the country where it will be used.
* "U-WAVE-R/T/U-WAVE fit" and the Bluetooth® type "U-WAVE-TCB/TMB" are not compatible because they have different communication specifications.

● Transmitter (For combinations, refer to pages 16 to 17.)


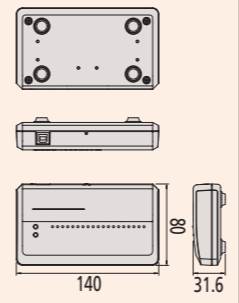
Product name	Model	Code No.	Protection level	Data reception indication	Power supply	Battery life	Mass	Appearance	External dimensions
U-WAVE-TM	Buzzer type	264-623	-	LED/Buzzer	Lithium battery CR2032 x1	Approximately 400,000 transmissions in continuous use	18 g		 Unit: mm 38.8, 41.9, 12.9
	Dust/water-proof type	264-622	IP67	LED			18 g		
U-WAVE-TMB	Buzzer type	264-627	-	LED/Buzzer		Approximately 1 year under normal conditions of use, but varies according to usage.	18 g		 Unit: mm 38.8, 41.9, 12.9
	Dust/water-proof type	264-626	IP67	LED			18 g		
U-WAVE-TC	Buzzer type	264-621	-	LED/Buzzer		Approximately 400,000 transmissions in continuous use	18 g		 Unit: mm 56, 30.4, 11.45
	Dust/water-proof type	264-620	IP67	LED			18 g		
U-WAVE-TCB	Buzzer type	264-625	-	LED/Buzzer		Approximately 1 year under normal conditions of use, but varies according to usage.	18 g		 Unit: mm 56, 30.4, 11.45
	Dust/water-proof type	264-624	IP67	LED			18 g		
U-WAVE-T	Buzzer type	02AZD880G	-	LED/Buzzer		Approximately 400,000 transmissions in continuous use	23 g		 Unit: mm 44, 29.6, 16.6, 18.5
	Dust/water-proof type	02AZD730G	IP67	LED			23 g		

[U-WAVE] Specifications/Options

● Connecting unit (Refer to pages 32 to 35.)

Product name	Model	Code No.	Protection level	Mass	Appearance	Dimensions
Connecting unit	For standard type	02AZF300	NA	6 g		 <p>Unit: mm</p>
	For dust/water-proof type	02AZF310	IP67	6 g		 <p>Unit: mm</p>
	For NEW QuantuMike MD-E only	02AZF960	IP67	6 g		 <p>Unit: mm</p>
	ID-CNX series ID-FNX series 12.7 mm type exclusive	02AZF700	NA	10 g		 <p>Unit: mm</p>

● Receiver (Refer to pages 16 to 17.)

Product name	Model No.	Code No.	Power supply	U-WAVE-R Number of connected devices (per PC)	U-WAVE-T Number of connected devices	Mass	Appearance	Dimensions	Standard accessory: U-WAVEPAK software		
									System Environment: Compatible OS	Main specifications	Data format
U-WAVE-R	U-WAVE-R	02AZD810D	USB bus power system	Up to 15	Up to 100	130 g		 <p>Unit: mm</p>	Windows 2000 Professional (SP4 or higher)* Windows XP Home Edition (SP2 or higher)* Windows XP Professional (SP2 or higher)* Windows Vista* Windows 7* Windows 8 / 8.1* Windows 10* Windows 11 Ver.1022B or later * 32-bit, 64-bit OS supported <Version confirmed to work with Windows 10> · U-WAVEPAK Ver.1.020 or later <Connectability confirmed for tablet PC> · Microsoft Surface Pro 6 (the version whose operation on Windows10 Professional is confirmed) · Required environment: DVD drive (for installation), USB ports x 2 or more	<ul style="list-style-type: none"> Setup of dedicated driver software (USB and virtual COM port) Initial setting of ID number and frequency selection (required only once for the first time) Load data to Microsoft Excel or Notepad through the data interface function 	<p>Example of format when the Digimatic gage displays 12.34</p> <p>DT1 01 02 +0000012.34 M</p> <p>Header — DT1: Measurement data — Digimatic gage display value¹ — Unit M: mm ST1: Status code[☆] — U-WAVE-TC/TM/T ID: 00 to 99 U-WAVE-R ID: 00 to 99</p> <p>[☆]Example of status code format</p> <p>ST1 01 02 0999999073 99</p> <p>Header — ST1: Status code — Device ID^{☆2} — Status code U-WAVE-R ID — U-WAVE-TC/TM/T ID</p> <p>99: Data cancellation 01: No response from Digimatic gage 03: Measurement data missing, etc.</p> <p>^{☆2}: Unique number assigned to U-WAVE shipment</p>

Note: U-WAVEPAK software is packed together with the U-Wave receiver. If your computer has no DVD drive then please download and install U-WAVEPAK from our website.

[U-WAVE] Options

● Installation bracket Kit for U-WAVE-T (Brackets/Attachment Fixture)

Product name	Application example	Type	Code No.	Attachable unit	Accessory
Bracket for U-WAVE-T		Standard	02AZE200	U-WAVE-T	<ul style="list-style-type: none"> • Detachable fastener: 1 set • Mounting screw: 2 pcs.
U-WAVE-TM/TMB Bracket		Dedicated for digimatic indicators	02AZF670	U-WAVE-TM/TMB	<ul style="list-style-type: none"> • Mounting screw: 4 pcs.
		Dedicated for ABS coolant-proof digimatic indicator ID-N	02AZF675		
Bracket for QM-Height		Dedicated for QM-Height	02AZE990	U-WAVE-T	<ul style="list-style-type: none"> • Detachable fastener: 2 pcs. • Mounting screw: 2 pcs.
Attachment fixture for LH		Linear Height LH-600F/FG	12AAY486	U-WAVE-T	<ul style="list-style-type: none"> • Mounting screw: 4 pcs.

● Application examples of the mounting plate (02AZE200)

Digimatic indicator (ID-C0512NXB)



● Image of fastener attachment to main gage

In the case of an indicator



ID-C112XB

A back plate without a center lug is recommended. If a center lug is present, attach fastener after cutting away material to clear the lug.

● ID-C



● QM-Height



● LH-600F/FG

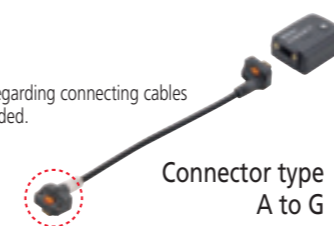


▼ Options

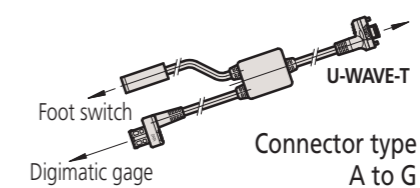
For details, see pages 18 to 19.

● Standard

Details regarding connecting cables are provided.



● For foot switch



● Foot switch (optional)



Excel-specific Measurement Data Collection Software and Measurement Examples

USB-ITPAK V3.0 measurement examples

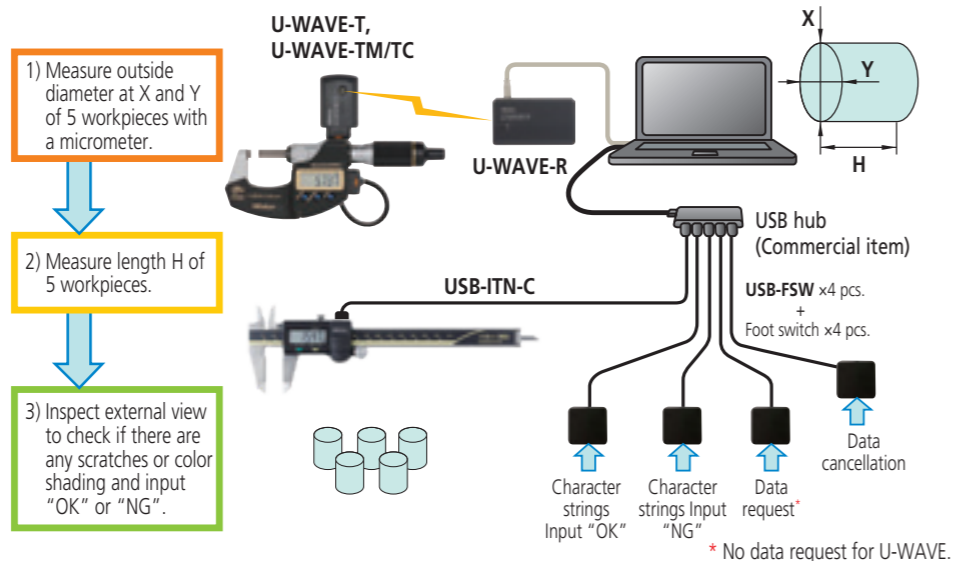
The following are three measurement methods that can be set with USB-ITPAK V3.0, illustrated with specific examples.

<Reference> The user's manual for USB-ITPAK V3.0 is posted on our website. You can find detailed information such as setting procedures.
<http://www.mitutoyo.co.jp>

Sequential measurement

Example of measurement using input according to pre-registered procedures

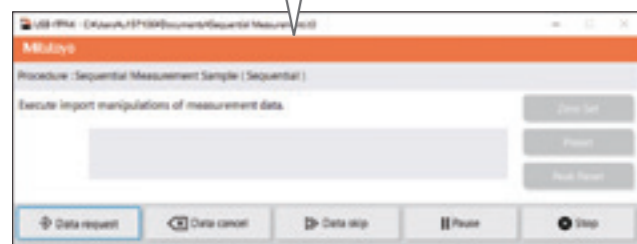
(Measurement example)
 The outside diameters at X and Y and length (H) of 5 workpieces are measured in order, as shown on the right. Finally, a visual inspection is performed (for scratches, uneven coloring, etc.) to determine Go/±NG judgment.



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

When a measuring procedure is executed, a window is displayed. "Data request*", "Data cancel*", "Data skip*", "Aborting", "Complete" can be specified.

* These operations can be allocated to the function key or foot switch (via USB-FSW).



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

↓ Cell movement direction after inputting data (down and right)

⏴ Carriage return (Low, column)

Microsoft Excel sheet previously specified

Input range of micrometer (B2 to F3)

Input range of caliper (B4 to F4)

Input range of visual judgment (B5 to F5)

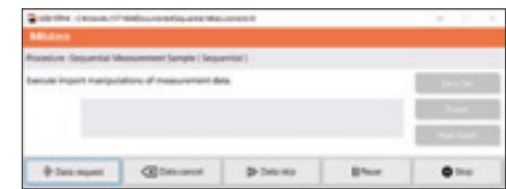
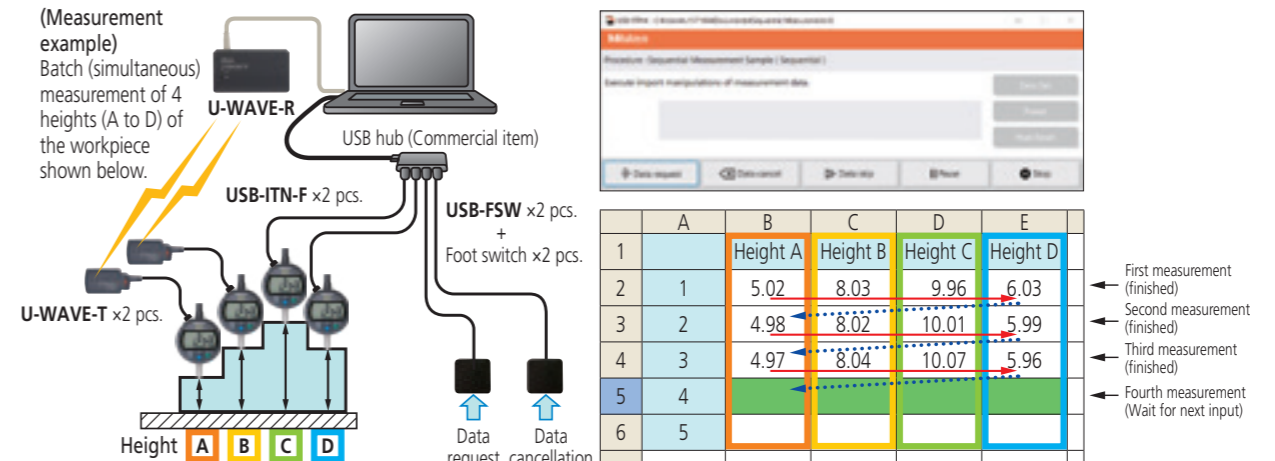
Cell that will receive next input is highlighted in green.

*These are common options for IT-020U, USB-ITN, and U-WAVE. They cannot be used with IT-007R.

Simultaneous measurement

Example of measurement involving importing data from multiple Digimatic gages at once

(Measurement example)
 Batch (simultaneous) measurement of 4 heights (A to D) of the workpiece shown below.



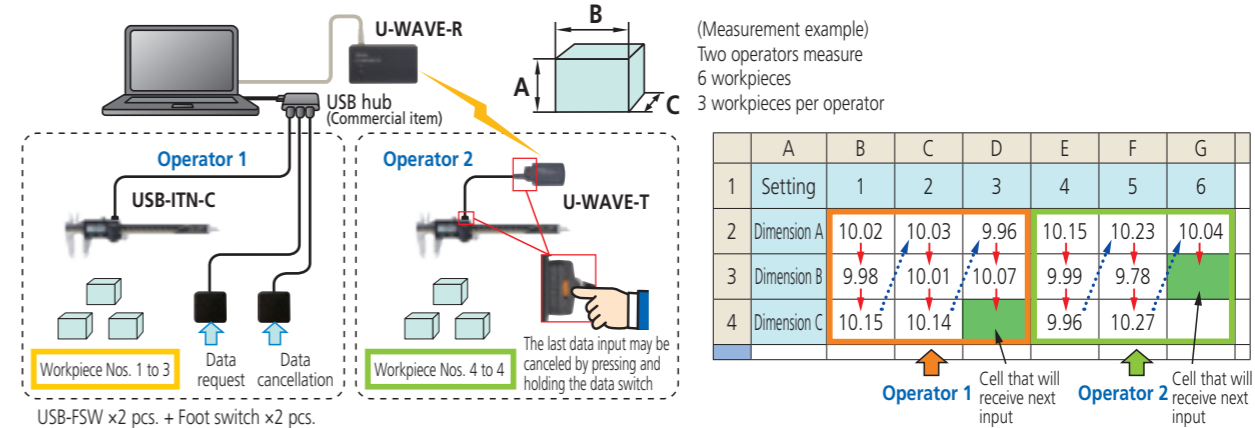
	A	B	C	D	E
1		Height A	Height B	Height C	Height D
2	1	5.02	8.03	9.96	6.03
3	2	4.98	8.02	10.01	5.99
4	3	4.97	8.04	10.07	5.96
5	4				
6	5				

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

Note) When using U-WAVE for batch measurement, it will operate in "Event Drive mode."

Individual measurement

Example of simultaneous work by multiple operators



(Measurement example)
 Two operators measure 6 workpieces
 3 workpieces per operator

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

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

Notes on using USB-ITPAK V3.0/V2.1:

- Do not merge the cells in the specified range as a measurement data input.
- During measurement, the Microsoft Excel worksheet cannot be modified in any way apart from entering data. If you need to modify the sheet, it is necessary to abort or finish the measurement.
- If the OS build version is old, it may not be possible to use U-WAVE fit Bluetooth® and U-WAVE fit or U-WAVE-T together.

Option for USB-ITPAK

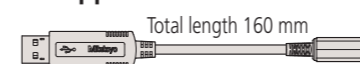
USB Foot Switch Adapter USB-FSW

This is the necessary USB adapter for connecting to a PC when performing data control (data request, data cancellation, etc.) using a foot switch (No.937179T) with USB-ITPAK. It must be used in combination with USB-ITPAK in order to function.

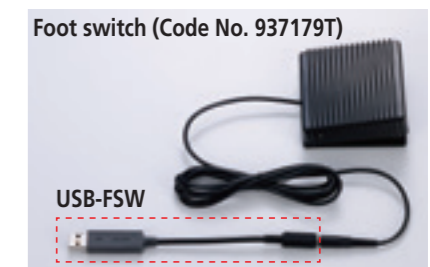
Main Specifications of USB-FSW

- You can use USB-ITPAK to set different purposes for the foot switch according to intended use.
 - Data control "data request," "data cancel," "data skip"
 - Enter any particular character string, e.g., "Pass", "Fail", etc.
- Note: As with USB-ITN, USB-FSW also uses a built-in VCP driver.

USB-FSW appearance



Code No. 06ADV384



Software

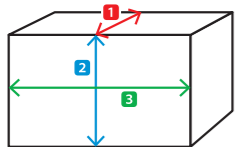
Useful functions of USB-ITPAK

This is optional software that allows you to create procedures for inputting measurement data sent from U-WAVE, input tools, etc. into Excel. With this, you can reduce the time and effort required to create inspection sheets and further streamline inspection work.

Equipped with an automatic sorting function for sorting input measurement data [Easy input mode]

This function can be implemented even if the measuring instrument does not support bidirectional serial communication. After setting, measurement values are automatically sorted into an Excel sheet as needed.

Only the number of measurement items is preset.
(Example: number of measurement items = 3)



- 1 D: 10 mm
- 2 H: 20 mm
- 3 W: 30 mm

With normal input
(Entered into column A only.)

	A	B
1	10.11	
2	20.06	
3	29.99	
1	10.54	
2	20.45	

With automatic sorting function
(Once entered into column A, similar data is automatically classified.)

	A	B	C	D	E
1	10.11	10.11	20.06	29.99	
2	20.06	10.54	20.45	29.5	
3	29.99	9.18	30.3	30.4	
1	10.54	9.99	20.07	30.22	
2	20.45				

Simplifies measuring instrument setting

Batch setting of ID-C/ID-F units can be performed from your PC. Moreover, the settings can be saved on your PC and set to other ID-C/ID-F units. You can perform settings without even touching the ID-C/ID-F units.



Symbols: ✓: Can be used only when connected to a device supporting USB-ITPAK V3.0 Digimatic S1, ✓: Can be used, —: Cannot be used

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

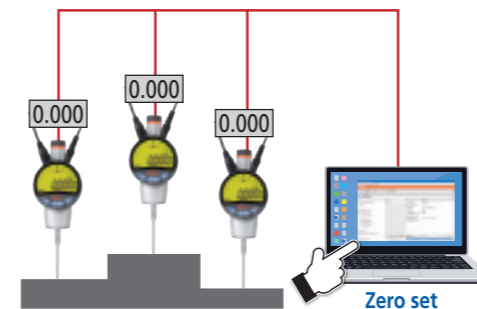
Operating environment and functions, etc.	Details	ITPAK		
		V2.1	V3.0	
Supported communication standard	Digimatic d1/d2		✓	
	Digimatic S1	—	✓	
Compatible OS	Windows 2000 SP4, Windows XP SP2 or later, Windows Vista, Windows 7, Windows 8 / 8.1	✓	—	
	Windows10		✓	
	Windows11	—	✓	
Functions	Sequential measurement	✓	—	✓
	Batch measurement	✓	—	✓
	Individual measurement	✓	—	✓
	Simple measurement function	—	✓	
	Measuring instrument setting	—	✓ ¹	
	Measurement history	—	✓ ¹	
	Device information	—	✓ ¹	
	Data input into Microsoft Excel	✓	—	✓
Text data input with virtual keyboard	✓	—	✓	

Can be combined with a bidirectional-communication-supporting Digimatic gage for even greater work efficiency

Control and setting of the main unit, collection of gage information, etc. can be performed as a batch operation from a PC. This contributes to drastic improvement in work efficiency.

- An optional cable and measurement data input unit are required for bidirectional serial communication.
- USB-ITPAK V3.0 must be installed on the PC used for communication.

Example of ID-C/F bidirectional communication support



Function example (1) Control of ID-C/ID-F from PC

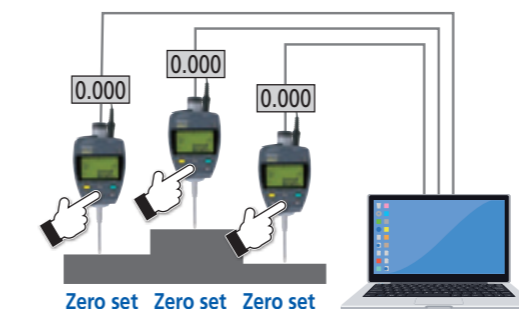
New model (ID-C/ID-F + USB-ITPAK V3.0)

- Batch zero setting and power ON/OFF operation, etc. of multiple ID-C/ID-F units is made possible by use of the dedicated software "USB-ITPAK."

Function example (2) Measuring instrument setting

New model (ID-C/ID-F + USB-ITPAK V3.0)

- Various functions of ID-C/ID-F units can be set from USB-ITPAK.
- The contents of various function settings can be saved on a PC, and the same settings can be copied to other ID-C/ID-F units.
- **Reduced work time for setting**



Old model (Old ID-C/ID-F + USB-ITPAK V2.1)

- For older ID-C/ID-F units that do not support bidirectional serial communication, zero setting must be performed individually on each Digimatic gage.

Old model (Old ID-C/ID-F + USB-ITPAK V2.1)

- Since bidirectional serial communication is not supported, function setting from a PC is not possible.

• USB-ITPAK V3.0



Use this QR code to download the software.
USB dongle
Can only be used with a PC connected to a USB dongle



Code No. 06AGR543

• USB-ITPAK V2.1



USB dongle
Can only be used with a PC connected to a USB dongle



Code No. 06AFM386

Measurement Navigation Applications

	Mitutoyo U-WAVE Navi	U-WAVEPAK-BM	U-WAVEPAK-BW
Purpose	Using the application, create a measurement procedure, display and navigate the measurement, and manage the measurement results 	Measure a workpiece to perform a simple trend management 	Up to seven units of U-WAVE-TCB/TMB can be set up. Measuring results can be transferred to Excel spread sheet.*
Possible actions (Functions)	<ul style="list-style-type: none"> Create / perform a measurement procedure (including GO/NG judgement) Navigate a measurement procedure Manage/ transfer a measurement procedure Display a list of measurement results Transfer a measurement result 	<ul style="list-style-type: none"> Judgment Data logging Graphical display of measurement result Display the histogram of measurement results Transfer a measurement result (log data) 	Identification of data origin Upper application (connection with USB-ITPAK, MeasurLink)
Display language	Japanese / English (Depends on the OS settings)	Japanese/ English/ German/ French/ Italian/ Polish/ Portuguese/ Hungarian Korean/ Simplified Chinese/ Traditional Chinese/ Vietnamese/ Thai/ Malay/ Indonesian/ Spanish	Japanese/ English/ Italian/ Dutch language/ Swedish/ Czech/ German/ Turkish/ Hungarian/ French/ Polish/Spanish/ Korean/ Chinese (simplified/traditional)/ Indonesian/ Thai/Vietnamese language/ Portuguese/Malay
Compatible OS	Android 7.0 or later (iOS not supported) Available from Google Play for free download. U-WAVE Navi	Android 7.0 or later / iOS 10.0 or later U-WAVEPAK-BM (English version only) can be downloaded for free from each app store. U-WAVEPAK-BM	Windows10 Pro 64bit Windows11 Pro 64bit ■ DL from the following URL https://www2.mitutoyo.co.jp/eng/contact/products/u-wave/index2.html

Note1: We cannot guarantee the operation of this application and U-WAVE TMB/TCB with all Bluetooth® equipped devices.

Note2: Google Play and the Google Play logo are trademarks of Google LLC. Apple and the Apple logo are trademarks of Apple Inc.

* By enabling the direct input feature within U-WAVEPAK-BW the results can be written directly to Excel. The results do not include the transmitter device ID. Use of our optional USB-ITPAK or MeasurLink software allows for data sorting by individual transmitter IDs.

Introduction to the MeasurLink Software

What is MeasurLink® ?

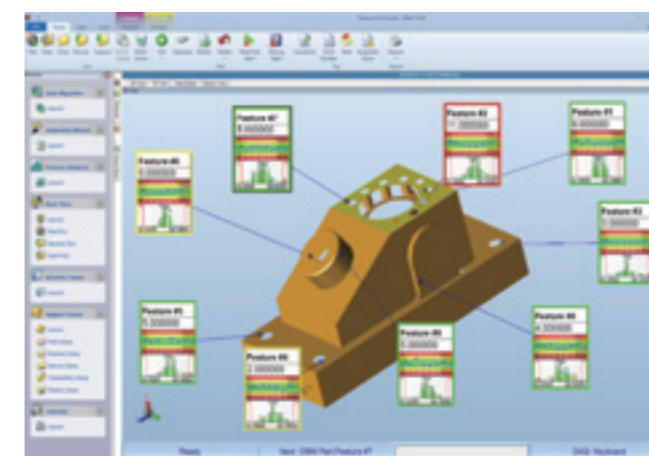


See video from here.

Achieve "Visualization of Quality"



MeasurLink is an IoT platform for quality management that realizes "Visualization of Quality" by enabling real-time data collection from the networked Digimatic gages and global control and analysis. U-WAVE supports MeasurLink as an infrastructure that collects and controls data.



Preventing defectives

Collects data from the Digimatic gages on the network and performs statistical process control (SPC) to warn of possible generation of defectives.

Diagnosis by data analysis

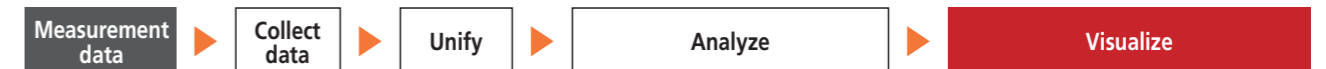
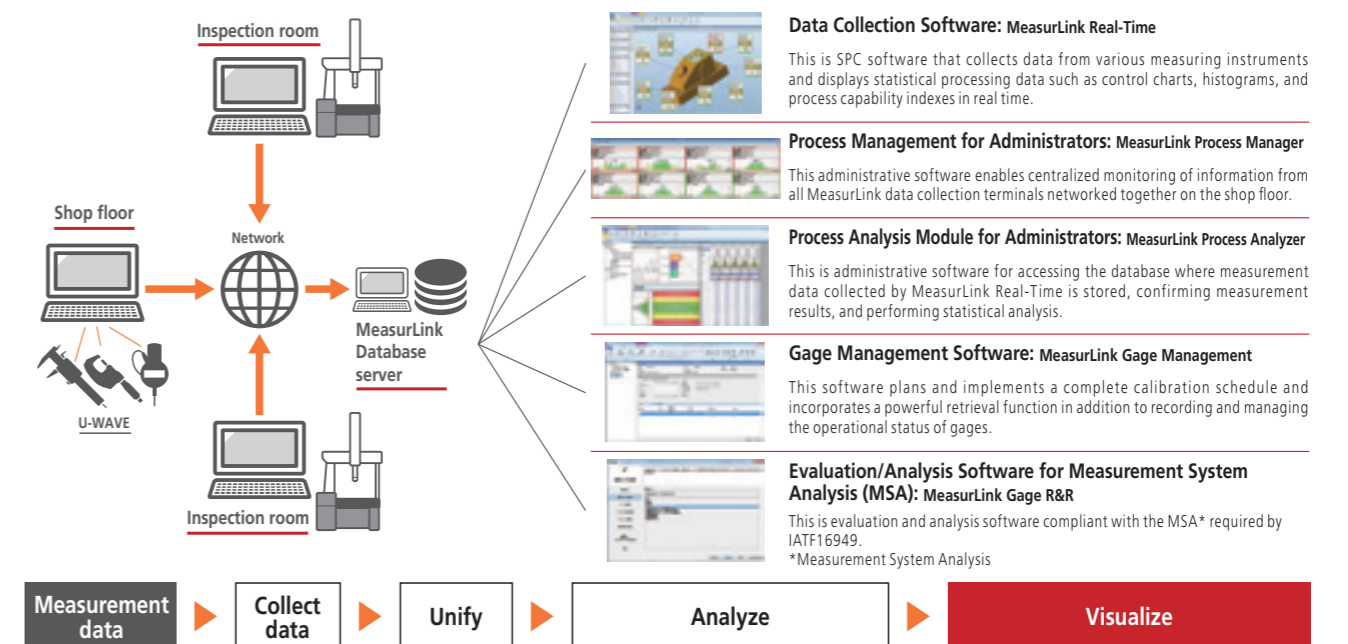
Checking measurement results by accessing the data base and performing various analyses helps investigate and resolve process performance concerns.

Simply start achieving IoT

In addition to conventional data storage, the network can be configured in steps to simply start IoT of Quality Control.

Integration of U-WAVE/USB input tool and MeasurLink

Building a MeasurLink measurement data network system based on U-WAVE and USB input tools



Connection Unit
No.02AZF310



✓ Current product

■ U-WAVE-TM/TMB compatible gages

No.02AZF310

Product name	Code No.	Unit	Current product	
QuantuMike	293-140	mm	✓	
	293-140-30		✓	
	293-141		✓	
	293-141-30		✓	
	293-142		✓	
	293-142-30		✓	
	293-143		✓	
	293-143-30		✓	
	For NEW QuantuMike, refer to page 34.			
	293-180		inch/mm	✓
	293-180-30			✓
	293-181			✓
	293-181-30			✓
	293-182			✓
	293-182-30			✓
	293-183			✓
	293-183-30			✓
	293-230			mm
293-230-30	✓			
293-231	✓			
293-231-30	✓			
293-232	✓			
293-232-30	✓			
293-233	✓			
293-233-30	✓			
293-234	✓			
293-234-30	✓			
293-235	✓			
293-235-30	✓			
293-236	✓			
293-236-30	✓			
293-237	✓			
293-237-30	✓			
293-238	✓			
293-250	mm	✓		
293-250-10		✓		
293-250-30		✓		
293-251		✓		
293-251-10		✓		
293-251-30		✓		
293-252		✓		
293-252-10		✓		
293-252-30		✓		
293-253		✓		
293-253-10		✓		
293-253-30		✓		
293-254		✓		
293-254-10		✓		
293-254-30		✓		
293-255		✓		
293-255-10		✓		
293-255-30		✓		
293-256	✓			
293-256-10	✓			
293-256-30	✓			
293-257	✓			
293-257-10	✓			
293-257-30	✓			
293-330	inch/mm	✓		
293-330-30		✓		
293-331		✓		
293-331-30		✓		
293-332		✓		
293-332-30		✓		
293-333		✓		
293-333-30		✓		
293-334		✓		
293-334-30		✓		
293-335		✓		
293-335-30		✓		
293-336		✓		
293-336-30		✓		
293-350		✓		
293-350-10		✓		
293-350-30		✓		

Product name	Code No.	Unit	Current product	
Coolant-proof micrometer	293-351	mm	✓	
	293-351-10		✓	
	293-351-30		✓	
	293-352		✓	
	293-352-10		✓	
	293-352-30		✓	
	293-353		✓	
	293-353-10		✓	
	293-353-30		✓	
	293-354		✓	
	293-354-10		✓	
	293-354-30		✓	
	293-355		✓	
	293-355-10		✓	
	293-355-30		✓	
	293-356		✓	
	293-356-10		✓	
	293-356-30		✓	
293-357	mm	✓		
293-357-10		✓		
293-357-30		✓		
293-960		inch/mm	✓	
293-960-30			✓	
293-961			✓	
293-961-30			✓	
293-962			✓	
293-962-30			✓	
293-963			✓	
293-963-30			✓	
293-964			✓	
293-965			✓	
293-966			✓	
293-966-30			✓	
314-251			mm	✓
314-251-10				✓
314-251-30				✓
314-252	✓			
314-252-10	✓			
314-252-30	✓			
314-253	✓			
314-253-10	✓			
314-253-30	✓			
314-261	✓			
314-261-10	✓			
314-261-30	✓			
314-262	✓			
314-262-10	✓			
314-262-30	✓			
314-351	inch/mm	✓		
314-351-10		✓		
314-351-30		✓		
314-352		✓		
314-352-10		✓		
314-352-30		✓		
314-353		✓		
314-353-10		✓		
314-353-30		✓		
314-361		✓		
314-361-10		✓		
314-361-30		✓		
314-362		✓		
314-362-10		✓		
314-362-30		✓		
317-251		mm	✓	
317-251-30			✓	
317-252			✓	
317-252-30	✓			
317-351	✓			
317-351-30	✓			
317-352	inch/mm	✓		
317-352-30		✓		
317-352-30		✓		
317-352-30		✓		
317-352-30		✓		
317-352-30		✓		
323-250	mm	✓		
323-250-30		✓		
323-251		✓		
323-251		✓		

Product name	Code No.	Unit	Current product		
Uni-micrometer	323-251-30	mm	✓		
	323-252		✓		
	323-252-30		✓		
	323-253		✓		
	323-253-30		✓		
	323-350		✓		
	323-350-30		✓		
	323-351		inch/mm	✓	
	323-351-30			✓	
	323-352			✓	
	323-352-30			✓	
	323-353			✓	
	323-353-30			✓	
	Gear tooth micrometer		324-251	mm	✓
			324-251-10		✓
			324-251-30		✓
			324-252		✓
			324-252-10		✓
324-252-30		✓			
324-253		✓			
324-253-10		✓			
324-253-30		✓			
324-254		✓			
324-254-10		✓			
324-254-30		✓			
324-351		inch/mm	✓		
324-351-10			✓		
324-351-30			✓		
324-352			✓		
324-352-10			✓		
324-352-30			✓		
324-353	mm	✓			
324-353-10		✓			
324-353-30		✓			
324-354		✓			
324-354-10		✓			
324-354-30		✓			
Screw thread micrometer	326-251	mm	✓		
	326-251-10		✓		
	326-251-30		✓		
	326-252		✓		
	326-252-10		✓		
	326-252-30		✓		
	326-253		✓		
	326-253-10		✓		
	326-253-30		✓		
	326-254		✓		
	326-254-10		✓		
	326-254-30		✓		
	326-351		inch/mm	✓	
	326-351-10			✓	
	326-351-30			✓	
	326-352			✓	
	326-352-10			✓	
	326-352-30			✓	
326-353	mm	✓			
326-353-10		✓			
326-353-30		✓			
326-354		✓			
326-354-10		✓			
326-354-30		✓			
Depth micrometer	329-250	mm	✓		
	329-250-10		✓		
	329-250-30		✓		
	329-251		✓		
	329-251-10		✓		
	329-251-30		✓		
Uni-micrometer	329-350	inch/mm	✓		
	329-350-10		✓		
	329-350-30		✓		
	329-351		✓		
	329-351-10		✓		
	329-351-30		✓		
	323-250	mm	✓		
	323-250-30		✓		
	323-251		✓		
	323-251		✓		
	323-251		✓		
	323-251		✓		

Product name	Code No.	Unit	Current product		
Spline micrometer	331-251	mm	✓		
	331-251-30		✓		
	331-252		✓		
	331-252-30		✓		
	331-253		✓		
	331-253-30		✓		
	331-254		✓		
	331-254-30		✓		
	331-261		✓		
	331-261-30		✓		
	331-262		✓		
	331-262-30		✓		
	331-263		✓		
	331-263-30		✓		
	331-264		✓		
	331-264-30		✓		
	331-351		inch/mm	✓	
	331-351-30			✓	
331-352	✓				
331-352-30	✓				
331-353	✓				
331-353-30	✓				
331-354	✓				
331-354-30	✓				
331-361	✓				
331-361-30	✓				
331-362	✓				
331-362-30	✓				
331-363	✓				
331-363-30	✓				
331-364	✓				
331-364-30	✓				
Outside micrometer	340-251	mm		✓	
	340-251-10			✓	
	340-251-30		✓		
	340-252		✓		
	340-252-10		✓		
	340-252-30		✓		
	340-351		inch/mm	✓	
	340-351-10			✓	
	340-351-30			✓	
	340-352			✓	
	340-352-10			✓	
	340-352-30			✓	
	Point micrometer		342-251	mm	✓
			342-251-30		✓
			342-252		✓
			342-252-30		✓
			342-253		✓
			342-253-30		✓
342-254		✓			
342-254-30		✓			
342-261		✓			
342-261-30		✓			
342-262		✓			
342-262-30		✓			
342-263		✓			
342-263-30		✓			
342-264		✓			
342-264-30		✓			
342-271		mm	✓		
342-271-30			✓		
342-351	✓				
342-351-30	✓				
342-352	✓				
342-352-30	✓				
Point micrometer	342-353	inch/mm	✓		
	342-353-30		✓		
	342-354		✓		
	342-354-30		✓		
	342-361		✓		
	342-361-30		✓		
	342-362		✓		
	342-362-30		✓		
	Crimp height micrometer		342-271	mm	✓
			342-271-30		✓
			342-351		✓
			342-351-30		✓
			342-352		✓
			342-352-30		✓

Product name	Code No.	Unit	Current product	
Point micrometer	342-363	inch/mm	✓	
	342-363-30		✓	
	342-364		✓	
	342-364-30		✓	
	342-371		inch/mm	✓
	342-371-30			✓
343-250	mm	✓		
343-250-30		✓		
343-251		✓		
343-251-30		✓		
343-252		✓		
343-252-30		✓		
343-253		✓		
343-253-30		✓		
343-350		inch/mm	✓	
343-350-30			✓	
343-351			✓	
343-351-30			✓	
343-352			✓	
343-352-30			✓	
Caliper type outside micrometer		343-253	mm	✓
		343-253-30		✓
		343-350		✓
		343-350-30		✓
	343-351	✓		
	343-351-30	✓		
	343-352	✓		
	343-352-30	✓		
	343-353	✓		
	343-353-30	✓		
	345-250	mm		✓
	345-250-10			✓
345-250-30	✓			
345-251	✓			
345-251-10	✓			
345-251-30	✓			
Caliper type inside micrometer	345-350	inch/mm	✓	
	345-350-10		✓	
	345-350-30		✓	
	345-351		✓	
	345-351-10		✓	
	345-351-30		✓	
Digimatic micrometer head	350-251	mm	✓	
	350-251-10		✓	
	350-251-30		✓	
	350-252		✓	
	350-252-10		✓	
	350-252-30		✓	
	350-253		✓	
	350-253-10		✓	
	350-253-30		✓	
	350-254		✓	
	350-254-10		✓	
	350-254-30		✓	
	350-261		✓	
	350-261-10		✓	
	350-261-30		✓	
	350-271		✓	
	350-271-10		✓	
	350-271-30		✓	
350-272	✓			
350-272-10	✓			
350-272-20	✓			
350-272-30	✓			
350-273	✓			
350-273-10	✓			
350-273-30	✓			
350-274	✓			
350-274-10	✓			
350-274-20	✓			
350-274-30	✓			
350-281	✓			
350-281-10	✓			
350-281-30	✓			
350-282	✓			
350-282-10	✓			
350-282-30	✓			
350-283	✓			
350-283-10	✓			
350-283-30	✓			
350-284	✓			
350-284-10	✓			

Product name	Code No.	Unit	Current product
Digimatic micrometer head	350-284-30	mm	✓
	350-351		✓
	350-351-10		✓
	350-351-30		✓
	350-352		✓
	350-352-10		✓
	350-352-30		✓
	350-353		✓
	350-353-10		✓
	350-353-30		✓
	350-354		✓
	350-354-10		✓
350-354-30	✓		
350-357-10	✓		
350-357-30	✓		
350-361	✓		
350-361-10	✓		
350-361-30	✓		
350-381	✓		
350-381-10	✓		
350-381-30	✓		
350-382	✓		
350-382-10	✓		
350-382-30	✓		
350-383	✓		
350-383-10	✓		
350-383-30	✓		
350-384	✓		
350-384-10	✓		
350-384-30	✓		
Disk micrometer	369-250	mm	✓
	369-250-30		✓
	369-251		✓
	369-251-30		✓
	369-252		✓
	369-252-30		✓
	369-253		✓
	369-253-30		✓
	369-350		✓
	369-350-30		✓
	369-351		✓
	369-351-30		✓
Sheet metal micrometer	369-352	inch/mm	



■ U-WAVE-TM/TMB compatible gages

■ U-WAVE-TC/TCB compatible gages

✓ Current product

No.02AZF310

Product name	Code No.	Unit	Current product
Tube micrometer	395-251	mm	
	395-251-30		✓
	395-252		
	395-252-30		✓
	395-253		
	395-253-30		✓
	395-254		
	395-254-30		✓
	395-261		
	395-261-30		✓
	395-262		
	395-262-30		✓
	395-263		
	395-263-30		✓
	395-264		
	395-264-30		✓
	395-271		
	395-271-30		✓
	395-272		
	395-272-30		✓
	395-273		
	395-273-30		✓
	395-274		
	395-274-30		✓
	395-351		
	395-351-30		✓
	395-352		
	395-352-30		✓
	395-353		
	395-353-30		✓
	395-354		
	395-354-30		✓
	395-362		
	395-362-30		✓
	395-363		
395-363-30	✓		
395-364			
395-364-30	✓		
395-371			
395-371-30	✓		
395-372			
395-372-30	✓		
395-373			
395-373-30	✓		
395-374			
395-374-30	✓		
Outside micrometer, non-rotating spindle	406-250	mm	
	406-250-30		✓
	406-251		
	406-251-30		✓
	406-252		
	406-252-30		✓
	406-253		
	406-253-30		✓
	406-350		
	406-350-30		✓
Blade micrometer, non-rotating spindle	422-230	mm	
	422-230-30		✓
	422-231		
	422-231-30		✓
	422-232		
	422-232-30		✓
	422-233		
	422-233-30		✓
	422-260		
	422-260-30		✓
	422-261		
	422-261-30		✓
	422-270		
	422-270-30		✓
	422-271		
422-271-30	✓		

Product name	Code No.	Unit	Current product
Blade micrometer, non-rotating spindle	422-330	inch/mm	
	422-330-30		✓
	422-331		
	422-331-30		✓
	422-332		
	422-332-30		✓
	422-333		
	422-333-30		✓
	422-360		
	422-360-30		✓
	422-361		
	422-361-30		✓
	422-370		
	422-370-30		✓
	422-371		
422-371-30	✓		

No.02AZF960

Product name	Code No.	Unit	Current product
NEW QuantuMike	293-140-40	mm	✓
	293-141-40		✓
	293-142-40		✓
	293-143-40		✓
	293-180-40		✓
ID-CNX	293-181-40	inch/mm	✓
	293-182-40		✓
	293-183-40		✓
	293-183-40		✓
	293-183-40		✓

No.02AZF700

Product name	Code No.	Unit	Current product	
ID-CNX	543-700B	mm	✓	
	543-705B		✓	
	543-710B		✓	
	543-715B		✓	
	543-701B		✓	
	543-702B		✓	
	543-706B		✓	
	543-707B		✓	
	543-711B		✓	
	543-712B		✓	
ID-FNX	543-716B	inch/mm	✓	
	543-717B		✓	
	543-855B		mm	✓
	543-856B		inch/mm	✓
	543-856B		inch/mm	✓

■ U-WAVE-TC/TCB compatible gages

No.02AZF310

Product name	Code No.	Unit	Current product
ABS coolant-proof caliper	500-712-10	mm	
	500-712-20		✓
	500-713-10		
	500-713-20		✓
	500-714-10		
	500-714-20		✓
	500-716-11		
	500-716-20		✓
	500-717-11		
	500-717-20		✓
	500-718-11		
	500-718-20		✓
	500-719-10		
	500-719-20		✓
	500-720-11		inch/mm
500-720-20	inch/mm	✓	
Dedicated caliper	500-721-10	mm	
	500-721-20		✓
	500-722-10		
	500-722-20		✓
	500-723-10		
	500-723-20		✓
	500-724-10		
	500-724-20		✓
	500-725-10		
	500-725-20		✓

No.02AZF310

Product name	Code No.	Unit	Current product	
ABS coolant-proof caliper	500-724-10	mm		
	500-724-20		✓	
	500-727-11			
	500-727-20		✓	
	500-728-11			
	500-728-20	✓		
	500-735-10			
	500-735-20	✓		
	500-736-10			
	500-736-20	✓		
	500-737-10			
	500-737-20	✓		
	500-738-10			
	500-738-20	✓		
	500-762-10	inch/mm	✓	
	500-762-20	inch/mm	✓	
	500-763-10			
	500-763-20	✓		
	500-764-10			
	500-764-20	✓		
	500-769-10			
	500-769-20	✓		
	ABS Digimatic caliper, nib style jaws	550-301-10	mm	
		550-301-20		✓
		550-311-10		inch/mm
550-311-20		inch/mm		✓
550-331-10		mm		✓
ABS Digimatic caliper, nib style and standard jaws	550-331-20	inch/mm	✓	
	550-341-10		inch/mm	✓
	550-341-20		inch/mm	✓
	551-301-10		mm	✓
	551-301-20		mm	✓
Tire tread depth gage	551-311-10	mm	✓	
	551-331-10		✓	
	551-331-20		✓	
	551-341-10		inch/mm	✓
	551-341-20		inch/mm	✓
	571-100-20		mm	✓
	571-200-20		mm	✓
	571-251-10			
	571-251-20		✓	
	571-252-10			
571-252-20	✓			
Depth gage	571-253-10	mm		
	571-253-20		✓	
	571-254-10			
	571-254-20		✓	
	571-255-10			
	571-255-20		✓	
	571-261-10			
	571-261-20		✓	
	571-262-10		inch/mm	✓
	571-262-20		inch/mm	✓
	571-263-10			
	571-263-20		✓	
	571-264-10			
	571-264-20		✓	
	571-265-10		inch/mm	✓
Dedicated caliper	571-265-20	mm	✓	
	571-301-10			
	571-301-20		✓	
	571-302-10			
	571-302-20		✓	
	571-311-10			
	571-311-20		inch/mm	✓
	571-312-10			
	571-312-20		✓	
	573-601			
	573-601-20		✓	
	573-602			
	573-602-20		✓	
	573-604			
	573-604-20		✓	
573-605				
573-605-20	✓			
573-606				
573-606-20	✓			

No.02AZF310

Product name	Code No.	Unit	Current product
Dedicated caliper	573-608	mm	
	573-608-20		✓
	573-611		
	573-611-20		✓
	573-612		
	573-612-20		✓
	573-614		
	573-614-20		✓
	573-615		
	573-615-20		✓
	573-616		
	573-616-20		✓
	573-618		
	573-618-20		✓
	573-621		
	573-621-20		✓
	573-622		
	573-622-20		✓
	573-625		
	573-625-20		✓
	573-626		
	573-626-20		✓
	573-634		
	573-634-20		✓
	573-635		
	573-635-20		✓
	573-645		
	573-645-20		✓
	573-646		
	573-646-20		✓
	573-647		
	573-647-20		✓
	573-648		
	573-648-20		✓
	573-651		
	573-651-20		✓
	573-652		
	573-652-20		✓
	573-653		
	573-653-20		✓
	573-654		
	573-654-20		✓
	573-661		
	573-661-20		✓
	573-662		
	573-662-20		✓
	573-676		
	573-676-20		✓
	573-677		
	573-677-20		✓
	573-679		
	573-679-20		✓
	573-701		
	573-701-20		✓
	573-702		
573-702-20	✓		
573-704			
573-704-20	✓		
573-705			
573-705-20	✓		
573-706			
573-706-20	✓		
573-708			
573-708-20	✓		
573-721			
573-721-20	✓		
573-725			
573-725-20	✓		
573-734			
573-734-20	✓		
573-745			
573-745-20	✓		
573-746			
573-746-20	✓		
573-751			
573-751-20	✓		
573-752			
573-752-20	✓		

Product name	Code No.	Unit	Current product
Dedicated caliper	573-761	inch/mm	
	573-761-20		✓

No.02AZF300

Product name	Code No.	Unit	Current product	
ABS Digimatic caliper	500-150-20	mm		
	500-150-30		✓	
	500-151-20			
	500-151-30		✓	
	500-152-20			
	500-152-30		✓	
	500-153			
	500-153-30		✓	
	500-154-20			
	500-154-30		✓	
	500-155-20			
	500-155-30		✓	
	500-156-20			
	500-156-30		✓	
	500-157-20			
	500-157-30		✓	
	500-158-20			
	500-158-30		✓	
	500-161-21			
	500-161-30		✓	
	500-162-21			
	500-162-30		✓	
	500-167			
	500-167-30		✓	
	500-168			
	500-168-30		✓	
	500-170-20			
	500-170-30		✓	
	500-171-20			
	500-171-30		✓	
	500-172-20			
	500-172-30		✓	
	500-173			
	500-173-30		✓	
	500-174-20			
	500-174-30		✓	
	500-175-20			
	500-175-30		✓	
	500-176-20			
	500-176-30		✓	
	500-177-20			
	500-177-30		✓	
	500-178-20			
	500-178-30		✓	
	500-201-21			
	500-201-30		mm	✓
	500-202-21			
	500-202-30		inch/mm	✓
	500-203-21			
	500-203-30		mm	✓
	500-204-21			
	500-204-30		inch/mm	✓
	500-205			
	500-205-30		mm	✓
	500-233-21			
500-233-30				
500-234-21				
500-234-30				
500-235-21				
500-235-30	mm	✓		
500-236-21				
500-236-30				
500-443				
500-444				
500-445				
500-463				
500-464	inch/mm	✓		
500-465				
571-201-20				
571-201-30	mm	✓		
571-202-20				

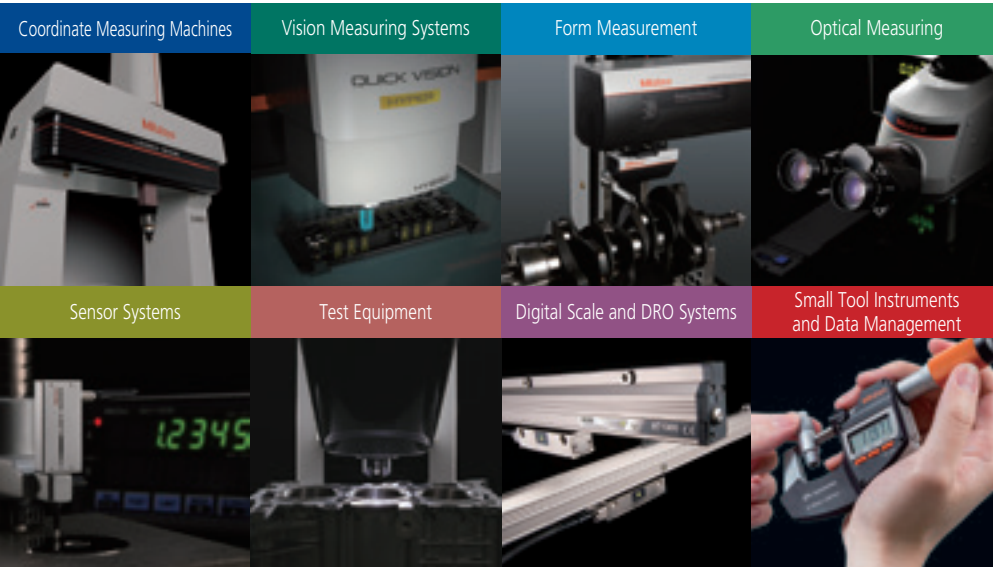
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Product name	Code No.	Unit	Current product	
Depth gage	571-202-30	mm	✓	
	571-203-30		✓	
	571-211-20			
	571-211-30		✓	
	571-212-20		inch/mm	✓
ABS low force caliper	571-213-10	mm	✓	
	573-191-20		✓	
	573-191-30		✓	
	573-291-20		inch/mm	✓
	573-291-30		inch/mm	✓



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