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# Input Tools

## SERIES 264 — Digimatic Gage/PC Data Input Device



264-005



264-012-10



264-007

### Optional Accessories

**937179T**: Foot switch
**939039**: Gage selector



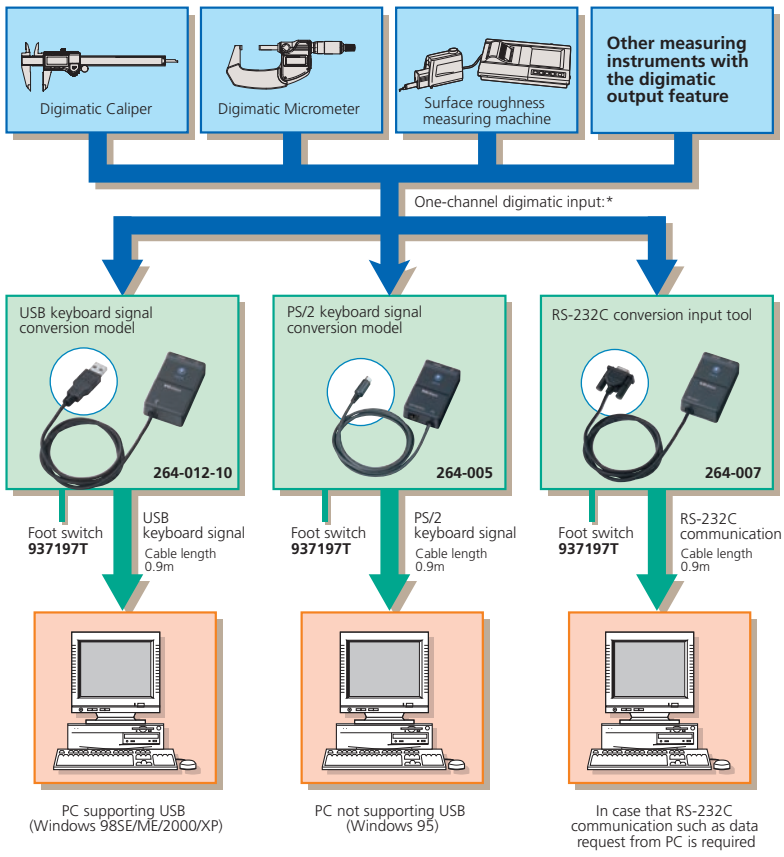

## FEATURES

- The input tool is an interface enabling you to easily input measurement data from a Mitutoyo measuring instrument with the digimatic output feature to your PC.
- An USB keyboard signal conversion input tool, IT-012U converts measurement data to keyboard signals and directly inputs them to cells in off-the-shelf spreadsheet software such as Excel. An RS-232C communication input tool, IT-007R is also available to input data through RS-232C communication.
- More accurate measurement is possible using an optional foot switch.

## SPECIFICATIONS

| Product<br>**Code No.** | Input Tool for Keyboard<br>**264-005** | Input Tool for RS-232C<br>**264-007** | Input Tool for USB<br>**264-012-10** |
|---|---|---|---|
| Measuring Tools Required*1 | Mitutoyo Digimatic measuring tools with SPC output | | |
| PC Requirement | PC compatible, with PS/2 style keyboard interface*2 (Can be also connected to a laptop computer.) Connects to keyboard port on CPU | PC Compatible, (including laptops) with RS-232C Interface Connects to RS-232C port on CPU (D-sub 9-pin connector) | PC Compatible, (including laptops) with USB 2.0 or 1.1 port |
| Outside Dimensions HxWxD | 2.8" x 1.7" x .9" (72 x 44 x 23.5 mm) | | |
| Mass | 2.5oz. (70g)(including cable and connector) | 3.2oz. (91g)(including cable and connector) | 2.6oz. (74g) |

*1: Connecting cable (optional accessory) is required for a connection to a Digimatic measuring tool.
*2: Cannot be used for computers that use USB keyboard. When using a IBM Think Pad Series, a commercial keyboard adapter is required. When using AT style keyboard, adapter for conversion is required.

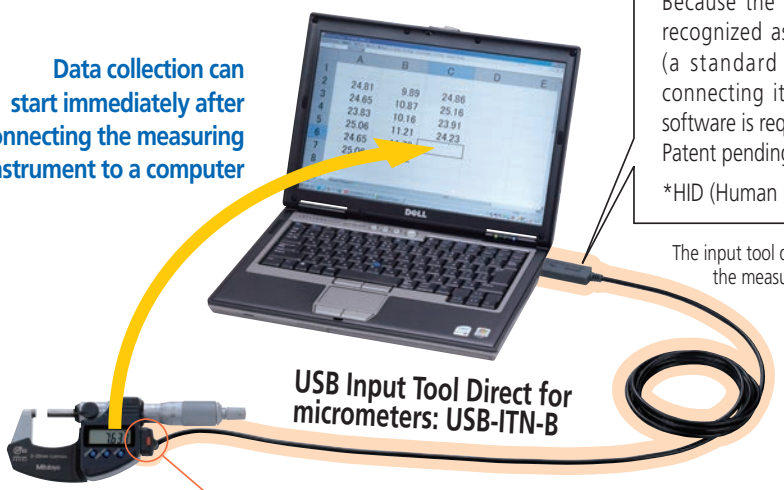


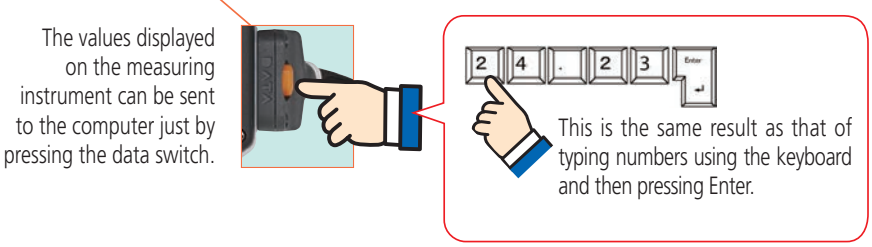

* When you use an optional gage selector 3, you can connect up to three measuring gages and select an input by switching them. When using **264-012**, you can connect multiple input tools at the same time with an off-the-shelf USB hub. Simultaneous input, however, is not supported.
For cables used to connect each measuring gage and input tool, refer to page A-14.


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# USB Input Tool Direct: USB-ITN

**Our USB Input Tool Direct has been streamlined into a range of dedicated models for each type of measuring instrument.**




### Note on using a foot switch with USB-ITN

The USB-ITPAK and USB-FSW options are required (see below).
If not using optional software the IT-012U input tool can be used with a foot switch.

Although measurement data can be simply loaded directly into an Excel spreadsheet by connecting the instrument and input tool to a computer, using the optional USB-ITPAK software enables time-saving operations and procedures that significantly improve reliability and efficiency.

## Measurement data collection software: USB-ITPAK® Order No. 06ADV386

This setup and data collection software is used to input data from one or more measuring instruments (connected by way of **USB-ITN**) to any Excel sheet. (This software package cannot be used with **IT-012U**.)

**USB-ITPAK**



**USB dongle**



Software use requires USB dongle.

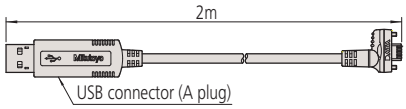
### Major features

- Excel input settings: The input destination (a workbook, sheet, or cell), cell-fill direction (right or down), cell-fill interval, and other settings can be specified.
- Measurement method selection: Any of the following three methods can be selected: Sequential measurement, batch measurement, or individual measurement.
- Data input control: Data can be requested, canceled, or skipped by using mouse buttons, function keys, or foot switch.
- Character string input by the USB foot switch adapter, USB-FSW: Any previously specified character string can be input using the foot switch. Examples: *pass* or *fail*
- Number of units that can be connected (total number for both USB-ITN and USB-FSW): Up to 20 units can be connected for Windows Vista or Windows 7, and up to 100 units can be connected for Windows 2000 or Windows XP. However, the above numbers might be less depending on the system configuration.
- Data importation time: About 0.2 to 0.3 seconds per unit. However, this value differs depending on the connected measuring instruments and measurement environment.
- Driver software: The VCP (virtual COM port) drivers for USB-ITN and USB-FSW are individually recognized using a built-in COM number. • Patent pending (Japan)


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## Major specifications of USB Input Tool Direct

- Output specifications: USB 2.0 or 1.1
- Communication speed: 12 Mbps (full speed)
- Power supply: USB bus power
- Mass: 59 g
- USB 2.0 certification obtained
- Complies with the EU EMC Directive
- Illustration (Example: **USB-ITN-A**)




Note: It is recommended to use a commercially available USB hub that has USB certification.

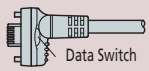
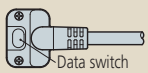
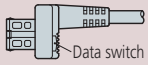
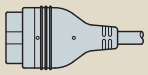
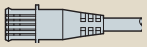
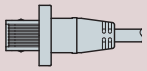
## USB-ITPAK usage environment

| | |
|---|---|
| Supported operating systems* | Windows 2000 SP4, Windows XP SP2 or later, Windows Vista, and Windows 7 |
| Supported Excel versions | Excel 2000, 2002, 2003, and 2007 |
| Hard disk | At least 20 MB of free space (required for installation) |
| CD-ROM drive | Required for installation |
| USB ports | At least two ports (for the USB dongle and USB-ITN) |
| Resolution | At least 800 x 600 pixels, and at least 256 displayable colors |

*• 64-bit operating systems are not supported.
• The natural language selected in USB-ITPAK must be the same as that used in the operating system.

## Codes for the main measuring instruments classified according to the USB Input Tool Direct code, part number, and plug type

Determine the plug type suitable for your measuring instrument (one of the seven types from **A** to **G**) in the following table, and then select the corresponding USB Input Tool Direct.

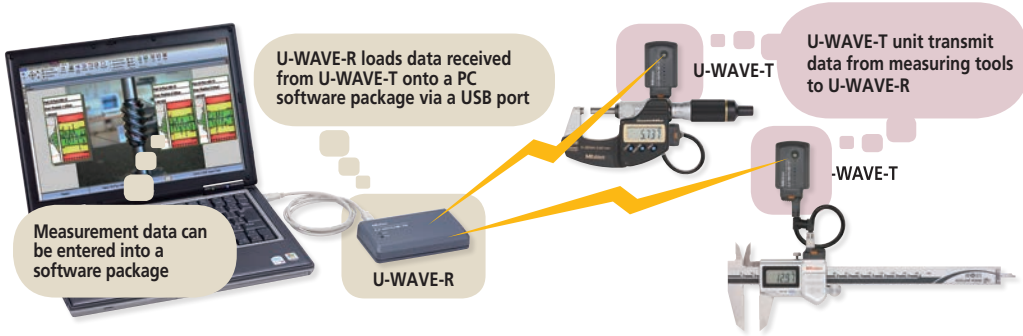
| Model | USB-ITN-A | USB-ITN-B | USB-ITN-C | USB-ITN-D | USB-ITN-E | USB-ITN-F | USB-ITN-G |
|---|---|---|---|---|---|---|---|
| Order No. | 06ADV380A | 06ADV380B | 06ADV380C | 06ADV380D | 06ADV380E | 06ADV380F | 06ADV380G |
| Whether the existence of a data switch affects usability | Incorporates a data switch, so the tool is usable regardless of whether or not the measuring instrument has a switch. | | | Does not incorporate a data switch, so an instrument fitted with a switch is required in order to use the instrument alone. (However, the tool can be used with USB-ITPAK.) | | | |
| Cable type | **A** Water-proof with switch | **B** Water-proof with switch | **C** With switch | **D** 10-pin plain | **E** 6-pin round | **F** Straight type | **G** Water-proof straight type |
| Illustration of the plug that connects to the measuring instrument |   |   |   |  |  |  |  |
| Socket type on the measuring instrument |  |  |  |  |  |  |  |
| Codes of major compatible measuring instruments | [Digimatic Caliper /Super Caliper] **-500 series CD67-S_PM CD-PMX/PM/GM -550/551 series CDC-P_PMX CDN-P_PMX** [Digimatic Carbon Fiber Caliper] **-552 series CFC-G/GL/GC/GU** [Digimatic Depth Gage] **-571 series VDS-PMX** [Digimatic Scale Unit] **-572 series SD-G** [Digimatic Exclusive Caliper] **-573 series NTD-PMX/PM**  | [Digimatic Micrometer, QuantuMike] **-293series MDC-MJ/MJB/MJT MDE-MJ** [Tubular Inside Micrometer] **-337 series IMZ-MJ -339 series IMJ-MJ** [Digimatic Micrometer Head] **-350 series MHN-MB/MJB/MJNB** [Digimatic Exclusive Micrometer] (The end of the mark is– **MJ/MJB/M/MB/PM/PMB** [Digimatic Holtest] **-468 series HTD-R**  | [Digimatic Micrometer Head] **-164 series MHD-MB** [Digimatic Caliper] **-500 series CD-CX/C/S_C - 550/ 551 CDC-C/CX, CDN-C/CX** [Digimatic Depth Gage] **-571 series VDS-DCX/DC** [Digimatic Scale Unit] **-572 series SD-D/SDV-D** [Digimatic Exclusive Caliper] **-573 series** The end of the mark is **-CX/C**  | Measuring instrument models that incorporate a data switch<br>[Surface Roughness Tester] **-178 series SJ-201/210/301/ 400/500** [Coating Thickness Gage] **-179 series DGE-745/755** [Linear Height] **-518 series QMH-S** [Reference Gage] **-515 series HMD-C** [Digimatic Indicator] **-543 series ID-H** [Laser Scan Micrometer] **-544 series LSM-9506/6100/ 6200/6900** [μ-checker] **Digital μ-checker** (Using the foot switch) | [Digimatic Micrometer] **-121 series BD -164 series MHD-M -227 series CLM -293 series MDQ-M MDC-M** [Tubular Inside Micrometer] **-337 series IMZ-M** [Tubular Inside Micrometer] **-339 series IMJ-M** [Digimatic Holtest] **-468 series HTD** [Reference Gage] **-515 series HME-DM** [Borematic] **-568 series SBM-C** [Hardness Testing Machines] **-810 series HM-100/200 HV-100/HH-411 HR-500** | [Digimatic Height Gage] **-192/570/574 series HDM-A/AX, HD-A/AX HDS-H_C/C HDF-N** [Digimatic Caliper] **-500/550/551 series CD/CDC/CDN** [Digimatic Bore Gage] **-511 series CG-D** [Digimatic Indicator] **-543 seires ID-C_X/_RB/_GB** [Digimatic Depth Gage/ Digimatic Thickness Gage] **-547 series** Digimatic model (**ID-CX**) [Digimatic Carbon Fiber Caliper] **-552 series CFC-P/-L/-C/-U** [Digimatic Scale Unit] **-572 series SD-E, SDV-E SD-F, SDV-F** [Portable Hardness Testing Instruments] **-811 series HH-300** | [Digimatic Indicator] **-543 series ID-N ID-B**  |
| | Measuring instrument models that do not have a data switch<br>[Digimatic Indicator] **-543 series ID-F** [Linear Gage/Counter] **-542 series EF-PRH/ZR, EH-P/Z/S/D EB-P/Z/D EC-D** [Litematic] **-318 series VL-A/AS/AH** | No corresponding models | [Digimatic Indicator] **-543 series ID-C/S/C_A** [Digimatic Depth Gage/ Digimatic Thickness Gage] **-547 series** Digimatic model (**ID-C**) **-575 series ID-U** | No corresponding models | | | |


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# U-WAVE

## Measurement Data Wireless Communication System

MeasurLink ENABLED
Data Management Software by Mitutoyo




The **U-WAVE** system enables easy wireless data communication from a measuring tool to a PC using the Digimatic protocol. Measurement efficiency is improved by eliminating the long and cumbersome data cables. The user friendly interface allows data to be loaded into any software product that accepts keyboard input, such as Excel* or Notepad.

### 1 U-WAVE-R · Registered Design (Japan)

**Major Specifications of U-WAVE-R**

| Model | **U-WAVE-R** |
|---|---|
| Order No. | **02AZD810D*** |
| Power supply | USB bus power system |
| Number of **U-WAVE-R** units that can be connected to one PC | Up to 16 |
| Number of **U-WAVE-T** units that can be connected | Up to 100 |
| External dimensions | 5.51″ x 3.15″ x 1.24″ (140 x 80 x 31.6mm) |
| Mass | .29 lbs (130g) |




*Detailed information on conformity standards of wireless communication specification is given below.

### 2 U-WAVE-T · Registered Design (Japan)

**U-WAVE-T** sends measurement data to **U-WAVE-R**.

**Actual size**




Standard accessory: driver

**Major specifications of U-WAVE-T**

| Model | **U-WAVE-T** (IP67 model) | **U-WAVE-T** (Buzzer) |
|---|---|---|
| Order No. | **02AZD730D*** | **02AZD880D*** |
| Protection Rating | IP67 | – |
| Data reception indication | LEDs | LEDs and Buzzer |
| Power supply | Lithium battery CR2032 ✳1 | |
| Battery life | Approx. 400,000 transmissions | |
| External dimensions | 1.73″ x 1.17″ x .73″ (44 x 29.6 x 18.5 mm) | |
| Mass | .05 lbs (23g) | |

*Detailed information on conformity standards of wireless communication specification is given below.

### Installation Bracket Kit

**Order No. 02AZE200**



(optional)



**500 Series Caliper**



**293 Series Micrometer**



**543 Series Indicator**

### Specifications of wireless communication

| | | | |
|---|---|---|---|
| Conformity standards | ·European conformity standards*<br>EN 50371:2002<br>EN 300 440-1 V1.3.1<br>EN 300 440-2 V1.1.2<br>EN 301 489-01 V1.6.1<br>EN 301 489-03 V1.4.1<br>·U.S.A. conformity standards<br>47 CFR Part 15.247:(Subpart :C)<br>47 CFR Part 15,(Subpart :B)<br>·Canada conformity standards<br>RSS-210 (Issue 7)<br>RSS-Gen (Issue 2)<br>ICES 003 (Issue 4) | Wireless standards | Conform to IEEE802.15.4 |
| | | Wireless communication distance | Approx. 60ft (within visible range) |
| | | Wireless communication speed | 250 kbps |
| | | Transmission output | 1 mW (0 dBm) or less |
| | | Modulation method | DS-SS (direct sequence spread spectrum)<br>Resistant to interfering signal or noise. |
| | | Communication frequency | 2.4 GHz band<br>(ISM band: universal frequency) |
| | | Used band | 15 channels<br>(2.405 to 2.475GHz at intervals of 5MHz)<br>The noise search function can avoid interference with other communication devices. |

Note: In accordance with wireless regulations the use of this product is permitted in Japan, Europe (a total of 32 countries including 27 EU members, 4 EFTA members and Turkey), U.S.A. and Canada. This product must not be used in other countries or areas.
· This product is not compatible with the conventional Mu-WAVE, for which communication specifications are different.
* Japan conformity standards: ARIB STD-T66


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# U-WAVE

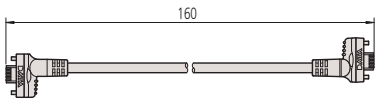
## Measurement Data Wireless Communication System

### List of U-WAVE-T Connecting Cables

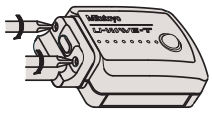
Select one from cables **A** to **G**, referring to the part number of connecting cable for wired connection in your measuring tool catalog or manual. If you are unsure which cable is appropriate, check the cable connectors, the shapes of terminal on the measuring tool side, or the codes of compatible measuring tool for cables **A** to **G** below.
It is not possible to connect to EF and EH counters.

From seven types of cables (**A** to **G**), select one compatible with your measuring tool.

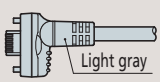
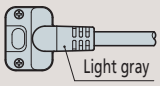
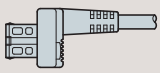
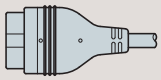
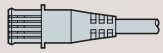
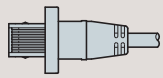
**Measuring tool**




**U-WAVE-T**



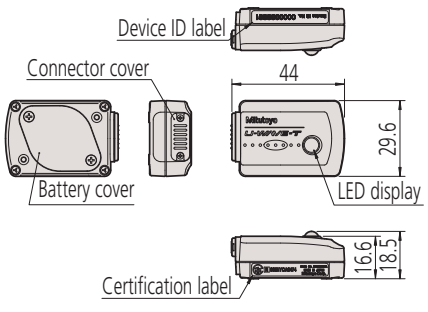
Fasten the connector to **U-WAVE-T** with two screws.

| Cable type | **A** water-proof model with output button | **B** water-proof model with output button | **C** With data-out button type | **D** 10-pin plain type | **E** 6-pin round | **F** Plain type straight | **G** Plain type straight water-proof model |
|---|---|---|---|---|---|---|---|
| Order No. | **02AZD790A** | **02AZD790B** | **02AZD790C** | **02AZD790D** | **02AZD790E** | **02AZD790F** | **02AZD790G** |
| Connector shape on the measuring tool side |  Light gray |  Light gray |  |  |  |  |  |
| Socket shape on the measuring tool |  |  |  |  |  |  |  |
| Codes of major compatible measuring tools and instruments | [Digimatic Caliper]<br>**CD67-S_PM**<br>**CD-PMX**<br>**CD-PM/GM**<br>**CDC-P_PMX**<br>**CDN-P_PMX**<br>**CFC-G/GL/GC/GU**<br>[Digimatic Caliper]<br>**NTD-PMX**<br>[Digimatic Depth Gage]<br>**VDS-PMX**<br>[Digital Scale and DRO Systems]<br>**SD-G** | [Digimatic Micrometer]<br>**MDE-MJ**<br>**MDC-MJ/MJT**<br>[Digimatic Micrometer]<br>The code suffix is -MJ.<br>**BLM-M**<br>**OMV-M**<br>**OMP-M**<br>**PDM-M**<br>**IMP-M**<br>**VM-M**<br>[Digimatic Micrometer Heads]<br>**MHN-M/MJ/MJN**<br>[Digimatic Holtest]<br>**HTD-R**<br>[Digimatic Depth Gage]<br>**DMC-M** | [Digimatic Caliper]<br>**CD-CX/-C**<br>**CD-S_C**<br>**CDC-CX/C**<br>**CDN-CX/C**<br>[Digimatic Caliper]<br>**NTD-CX/C**<br>[Digimatic Depth Gage]<br>**VDS-DCX**<br>[Digital Scale and DRO Systems]<br>**SD-D, SDV-D** | [Digimatic Indicator]<br>**ID-H/F**<br>[Linear Height]<br>**QMH-S**<br>[Linear Gage/Counter]<br>**EB,EC-D**<br>[μ-checker]<br>**Digital μ-checker**<br>[Laser Scan Micrometer]<br>**LSM-9506**<br>[Reference Gage]<br>**HDM-C**<br>[Coating Thickness Gage]<br>**DGE-745/755**<br>[Form Measurement]<br>**SJ-201/301/401** | [Digimatic Micrometer]<br>**MDQ-M**<br>**MDC-M**<br>**CLM1-QM/DK**<br>**PDM-QM**<br>**PMU-DM**<br>**BD-M**<br>[Digimatic Holtest]<br>**HTD**<br>[Reference Gage]<br>**HDM-DM**<br>[Hardness Testing Machines]<br>**HM-100/200**<br>**HV-100**<br>**HR-500**<br>**HH-411** | [Digimatic Caliper]<br>**CD, CFC-P/-L/-C/-U**<br>[Digimatic Height Gages]<br>**HD-AX, HDM-AX**<br>**HDS-H_C/-C**<br>**HDM-A**<br>**HDF-N**<br>[Digimatic Indicator]<br>**ID-C/_RB/_A/_GB**<br>**ID-S/U**<br>[Digimatic Depth Gage]<br>**Digimatic model (ID-C)**<br>[Digital Scale and DRO Systems]<br>**SD-E, SDV-E**<br>**SD-F, SDV-F**<br>[Portable Hardness Testing Instruments]<br>**HH-300** | [Digimatic Indicator]<br>**ID-N**<br>**ID-B** |
| Reference Order No. of connecting cable 1m | **05CZA624** | **05CZA662** | **959149** | **936937** | **937387** | **905338** | **21EAA194** |
| Reference Order No. of connecting cable 2m | **05CZA625** | **05CZA663** | **959150** | **965014** | **965013** | **905409** | **21EAA190** |

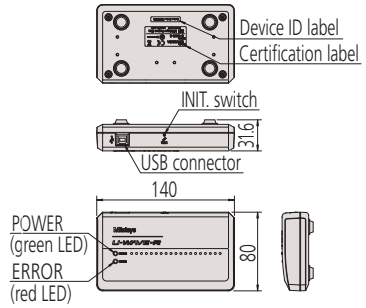
### Name and Dimensions of Each Part

Unit: mm

**U-WAVE-T**




**U-WAVE-R**




### Note on Wireless Communication Environment

Although the communication range for **U-WAVE** is approximately 60ft line-of-sight, performance may be affected by obstacles or environmental factors.

**Items that may cause communication errors**

| Item | Contents |
|---|---|
| Concrete wall | Communication is not possible into a room completely enclosed. |
| Metal partition | Communication speed may drop or communication may be interrupted. |
| Wireless LAN, communication device such as ZigBee Bluetooth, and microwave oven | Communication speed may drop or communication may be interrupted. Maintain the set frequency and installation distance if at all possible. |
| Medical instrument | Do not use this product near a medical instrument such as a laser knife or electronic scale. |

**Cautions · Safety Caution:** Do not use this device near medical equipment that might malfunction due to radio interference.
**· Caution on radio law:** This device is certified as a 2.4 GHz band wide-band low-power data communication system based on the Radio Regulations in Japan, Europe, U.S.A. and Canada.
It is prohibited by law to disassemble or modify this device or peel off the certification label from it.



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