



Wireless Communication System for Measurement Data

U-WAVE-R



Prior to using this product, first read the U-WAVE Setup Manual included with the U-WAVE-R device to install the software and specify the communication settings.

This product receives measurement data wirelessly from a U-WAVE-T/TC/TM device (option) that is connected to a measuring tool with Digimatic output (including Digimatic 2 compliant models) and then transfers the data to a PC via USB. To obtain the highest performance and the longest service life from this product, carefully read this manual thoroughly prior to use. After reading this manual, keep it close at hand for future reference.

Tips To refer to the instructions for use in Chinese, please see our website (<https://manual.mitutoyo.co.jp/manuals/search/>).

Safety Precautions

To ensure operator safety, use this instrument in accordance with the directions and specifications given in this User's Manual. Not following the instructions may compromise safety.

NOTICE

- Do not use this product near medical equipment that may malfunction due to radio waves.
- This product uses radio waves. Even within the communication range of the radio waves, communication may be interrupted due to factors such as external noise. In this case, take sufficient preventative measures (security measures).
- Take sufficient preventative measures (security measures) to guard against the possibility of this product malfunctioning.

Precautions regarding Export Regulations

This product is categorized as a good or program that falls into the Catch-All-Controlled Goods regulations under Category 16 of Appended Table 1 of the Export Trade Control Order or under Category 16 of the Appended Table of Foreign Exchange Control Order, based on the Foreign Exchange and Foreign Trade Act of Japan. In addition, this User's Manual, U-WAVE Setup Manual (No. 99MAL118B) and CD-ROM also fall into technology categorized under the Catch-All-Controlled Goods regulations. Consult with Mitutoyo prior to exporting this product, transferring this product overseas, providing this technology to a non-resident, etc. An export license or written application and certificate for permission for service transactions may be required from the Ministry of Economy, Trade and Industry.

Precautions regarding Radio Law

This product can be used only in the countries where the wireless certification is acquired and in a purchased country. When using this product outside the purchased country, please contact the nearest Mitutoyo's sales office.

NOTICE

- This product uses radio waves. Use this product in accordance with the relevant regulations stipulated in the country of use.
- Do not disassemble or modify this product. These actions are prohibited by law.
- Do not peel off the certification label affixed to this product. Use of this product without a certification label is prohibited.
- Do not use this product inside of aircrafts. The use of wireless devices inside of aircrafts is prohibited by law.

Precautions regarding Wireless Communication Environments

Be aware that obstructions, etc., in the environment may degrade the performance of this product. Refer to the tables below for a list of potential obstructions.

1) Possibility that this product will not be able to communicate

Item	Description
Concrete walls	Communication is not possible in a completely shielded state.
Metallic partitions, etc.	The communication speed may deteriorate or communication may be blocked.
Wireless LAN, Bluetooth, Zigbee, and other communication devices, as well as microwave ovens	The communication speed may deteriorate or communication may be blocked. Use this product by either installing it as far away from these devices as possible or changing the communication channel (band ID).
Machine tools, etc.	The communication speed may deteriorate or communication may be blocked in a workplace where machine tools, such as electrical discharge machines, carrying cranes, and arc welding equipment, are operated.

2) Possibility that this product will affect nearby equipment

Item	Description
Medical devices	Do not use this product near laser scalpels, health meters, or other medical devices.

Precautions for Use

Be aware that the actions or circumstances below can cause failure or malfunction.

NOTICE

- This product uses the power supplied from a PC to operate. Always check the operation of the whole system before use because the PC may generate a large amount of noise, depending on the manufacturer and model of the PC.

- Do not subject this product to sudden impacts, such as dropping it, nor apply excessive force.
- If this product will not be used for three or more months, disconnect it from the PC and store it.
- Avoid using or storing this product in places with direct sunlight or in excessively hot or cold places.
- Avoid using or storing this product in places where it may come into contact with solutions or organic solvents such as acid and alkali.
- Electronic parts may be damaged if a high-voltage device such as an engraving pen is used.
- Be careful not to apply undue force to or excessively bend the USB cable.

Tips Use a self-powered USB hub when connecting this product to a commercial USB hub.

Electromagnetic Compatibility (EMC)

This product complies with the EU EMC Directive. Use of this product in environments with electromagnetic interference exceeding the EMC requirements defined in this directive is outside the scope of the warranty and requires appropriate countermeasures.

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



This symbol included on the product or the packaging indicates that this product should not be disposed of with general household waste for disposal in EU countries. Please reuse and recycle products to decrease the volume of Waste Electrical and Electronic Equipment (WEEE) in landfills and reduce the environmental impact. For more information about disposal procedures, please contact your dealer or nearest Mitutoyo sales office.

Trademarks

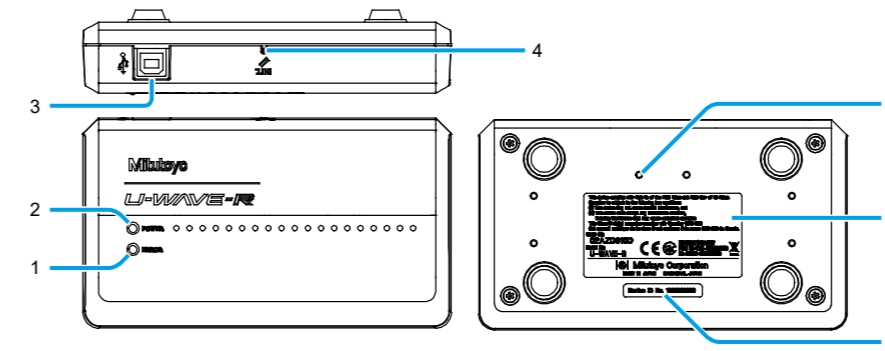
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1. Included Accessories

<p>USB cable (1 m)</p> <p>No. C177-008</p>	<p>Mounting plate</p> <p>No. 02AZD815</p>	<p>Cross-recessed head tapping screws (Nominal size: 2.6 × 6, 2 screws)</p> <p>No. A131-2621CP</p>
<p>CD-ROM</p> <p>No. 02ARB110</p>	<p>The following data is stored on the CD-ROM:</p> <ul style="list-style-type: none"> - U-WAVEPAK Program - USB Driver/Virtual COM Port Driver - Data Collection Macro for U-WAVE - U-WAVEPAK User's Manual*1 (No. 99MAL216) 	
<p>Manuals and accessory documentation</p> <ul style="list-style-type: none"> - U-WAVE-R User's Manual (this document) (No. 99MAL117B) - U-WAVE Setup Manual (No. 99MAL118B) - Warranty card - Declaration of conformity document (copy) (No. A50E12-002C) 		

*1 A file in PDF format is stored in the [PDF_Manual] folder. Acrobat Reader from Adobe Systems Inc. is required to view this file.

2. Name and Function of Each Part



No.	Name	Function
1	ERROR (red LED)	Blinks or turns off according to the status of this product.
2	POWER (green LED)	Lights, blinks, or turns off according to the status of this product.
3	USB connector	Used to connect this product to a PC via the USB cable.
4	INIT. switch	Used to initialize the settings of this product.
5	Holes for mounting plate	Used when attaching the mounting plate. Refer to "4.2. Setting Up a U-WAVE-R Device" in the "U-WAVE Setup Manual"
6	Certification label	Includes the code number and wireless certification number for this product.
7	Device ID label	Includes the identification number for this product. The identification number is used when registering the settings of this product to U-WAVEPAK.

3. Using This Product

3.1. Operation When Receiving Measurement Data

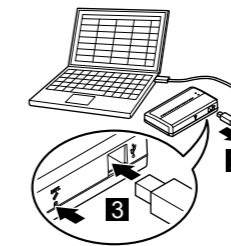
Measurement data from the measuring tool is received wirelessly from a U-WAVE-T/TC/TM device and then sent to the PC via the USB cable. The measurement data that was sent is automatically input into a cell designated in advance or at the cursor position in the application software (Excel, Word, etc.).

Tips This product wirelessly sends a receipt confirmation to the U-WAVE-T/TC/TM device at the same time the received measurement data is sent to the PC. When the U-WAVE-T/TC/TM device receives the receipt confirmation, it indicates the communication result with the LED indicators or buzzer (buzzer type only).

3.2. Initializing the Settings

You can reset the settings of this product to the factory default values. If this product stops communicating and communication is not re-established even after performing the countermeasures in "4. Troubleshooting", initialize the settings with the procedure below.

- Check that the product is in the following state:
 - U-WAVEPAK is not running.
 - This product is connected to the PC with the USB cable.
- Unplug the USB cable from this product.
- While pressing the [INIT.] switch with an object with a pointed end, re-insert the USB cable into the product, wait about 3 seconds, and then release the [INIT.] switch.
 - >> The POWER (green LED) starts blinking, and then the POWER (green LED) and ERROR (red LED) will blink alternately after a moment.
 - >> The settings for this product are initialized.



4. Troubleshooting

Try the countermeasures included in this section when trouble occurs during use of this product. Contact a Mitutoyo service center listed in the "U-WAVEPAK User's Manual" if the trouble cannot be resolved.

Issue	
POWER (green LED) does not light (blink).	
Check point	Countermeasure
Is the PC's power turned on?	This product will not turn on if it is not connected to a PC that is turned on because this product receives its power from the PC. Confirm the connection status.
Is this product connected to a PC with the USB cable?	

Issue	
The ERROR (red LED) blinks while the POWER (green LED) is lit.	
Check point	Countermeasure
Is undue force being applied to the USB cable?	Check the status of the USB cable. Also, the USB cable may be broken. Replace the cable with a new USB cable.

Issue	
POWER (green LED) and ERROR (red LED) blink alternately.	
Check point	Countermeasure
Have the settings for this product been registered?	Use U-WAVEPAK to register the settings of this product. Refer to "4.3. Registering the Settings" in the "U-WAVE Setup Manual"
Is there a U-WAVE-R device with the same settings for the group ID and band ID near this product?	Specify a different group ID and band ID. Refer to "4.3. Registering the Settings" in the "U-WAVE Setup Manual"

Issue	
U-WAVEPAK was installed, but this product is not recognized by the PC. (POWER (green LED) and ERROR (red LED) are not lit.)	
Check point	Countermeasure
Are the drivers (USB driver/virtual COM port driver) installed?	
Countermeasure	
Install both types of drivers (USB driver/virtual COM port driver).	
For Windows 7 / 8 / 8.1 / 10 and Windows Vista	
Update the drivers once from the control panel. (Both types of drivers are installed with a single operation.)	
Refer to "3.2. USB Driver/Virtual COM Port Driver" in the "U-WAVE Setup Manual"	

For Windows XP and Windows 2000

Install the two types of drivers separately.

- Connect this product to the PC with the USB cable that is supplied.
 - >> The [Welcome to the Found New Hardware Wizard] screen is displayed.
- Install the first driver.
 - >> The [Welcome to the Found New Hardware Wizard] screen is displayed after the installation is complete.
- Install the second driver.
 - Refer to "3.2. USB Driver/Virtual COM Port Driver" in the "U-WAVE Setup Manual"

Issue	
Data transmission is not stable and errors occur frequently.	
Check point	Countermeasure
Is this product being used in an environment where communication is obstructed?	Check whether there is a problem with the usage environment. Refer to "Precautions regarding Wireless Communication Environments".

5. Specifications

Item	U-WAVE-R
Code No.	02AZD810D
Certification number	005WWCA0167 (Japan) VXU-02AZD810D (U.S.A.) 4396B-02AZD810D (Canada) CCAM17LP1900T2 (Taiwan)
Transmission output	1 mW (0 dBm) or less
Communication range	Approx. 20 m (line of sight distance in an office environment)
Standards conformance	<p>Japan ARIB STD-T66</p> <p>Europe Radio:EN 300 328 V2.1.1 Safety:EN 62368-1:2014+A11 EN IEC 63000</p> <p>U.S.A. 47 CFR Part 15.247: (Subpart: C) 47 CFR Part 15, (Subpart: B)</p> <p>Canada RSS-210 (Issue 7) and RSS-Gen (Issue 2) ICES 003 (Issue 4)</p> <p>Taiwan NCC LP0002</p>
Wireless specifications	Proprietary (IEEE802.15.4 base)
Communication frequency	2.405 GHz-2.475 GHz
Transmission band	15 ch (5 MHz interval)
Modulation method	Direct-Sequence Spread Spectrum (DSSS)
Wireless communication speed	250 kbps
LED indicators	Green/red two-color display
Output to PC	USB2.0 12 Mbps (equivalent to USB1.1)
Power supply system	USB bus power system
Operating temperature (humidity)	0 °C-40 °C (20 % RH-80 % RH with no condensation)
Storage temperature (humidity)	-10 °C-60 °C (20 % RH-80 % RH with no condensation)
External dimensions	140 × 80 × 31.6 (mm)
Main body weight	Approx. 130 g
Dimensions of mounting plate (unit: mm)	