

Wireless Communication System for Measurement Data U-WAVE

Thank you for purchasing this U-WAVE-R device. This document explains the preparations before use of U-WAVE products and the basics of importing measurement data. Read the User's Manual for each device for usage procedures, specifications, and troubleshooting information. Set up U-WAVE products by following the instructions in this document. 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>).

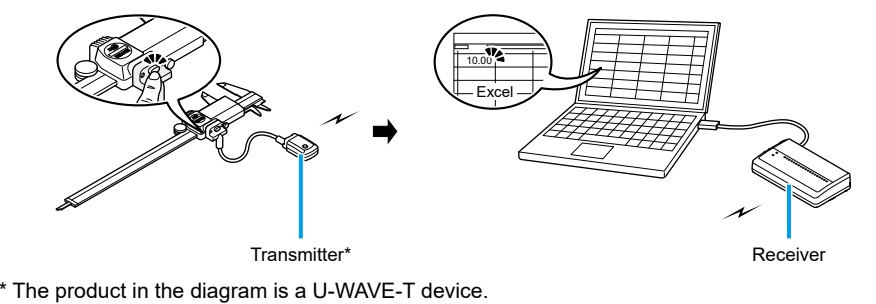
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Safety Precautions

- WARNING** Shows risks that could result in death or serious injury.
 - Always keep batteries out of reach of children, and if swallowed, consult a physician immediately.
 - Batteries should never be short-circuited, disassembled, deformed or come in contact with extreme heat or flames.
 - If battery alkaline liquid comes in contact with the eyes, flush eyes immediately with clean water and consult a physician. If battery alkaline liquid comes in contact with the skin, flush the exposed area thoroughly with clean water.
- CAUTION** Shows risks that could result in minor or moderate injury.
 - Never attempt to charge the primary battery or reverse the positive-negative terminals when mounting. Improper battery handling or mounting may cause the battery to explode, cause battery leakage and/or serious bodily injury or malfunctioning.

1. Overview

U-WAVE products are devices to wirelessly import measurement data from a measuring tool to a PC. U-WAVE products consist of the U-WAVE-T/TC/TM device (transmitter) and the U-WAVE-R device (receiver). Measurement data can be imported into software such as Excel by simply pressing the [DATA] switch on the transmitter or measuring tool.



2. Necessary Procedures Before Use

This document provides instructions organized for the first-time users of the U-WAVE products. If you are adding devices individually, perform only the relevant procedures.

Order	Procedure	Reference	First-time use	Adding a U-WAVE-R device	Adding a U-WAVE-T/TC/TM device
1	Installing Software	3.1, 3.2	•	•	•
2	Setting up a U-WAVE-T/TC/TM Device	4.1	•	•	•
3	Setting up a U-WAVE-R Device	4.2	•	•	•
4	U-WAVE-R Settings	4.3.1	•	•	•
5	U-WAVE-T/TC/TM Settings	4.3.2	•	•	•
6	Importing Measurement Data	5.	•	•	•

3. Installing Software

The U-WAVEPAK and the two types of drivers (USB driver and virtual COM port driver) are stored on the CD-ROM supplied with the U-WAVE-R device. Install U-WAVEPAK and drivers on your PC in this order.
The following PC operating systems are supported:
- Windows 7 / 8 / 8.1 / 10, Windows Vista
- Windows XP
- Windows 2000

Tips Install U-WAVEPAK on the PC without connecting the U-WAVE-R device to the PC.

3.1. U-WAVEPAK

Install U-WAVEPAK on the PC in the state where the U-WAVE-R device is not connected to the PC.

! Make sure to tighten the connecting cable (02AZD790A, B and G) with the torque of approximately 8 to 12 cN·m.

Tips After connecting the measuring tool and the connecting cable, secure the connecting cable on the measuring tool with the cable clamp supplied with the connecting cable or Velcro tape, etc. In this case, make sure to secure it so that measurement can be performed without any difficulties and that the operator can easily see the LED display on the U-WAVE-T.

NOTICE Shows risks that could result in property damage.

- Mounting the connection unit (02AZF310)/connecting cable (02AZD790A, B and G) with the packing removed or caught on something, may result in damage because the water proofing of this product cannot be ensured.
- Be very careful routing the connecting cable. The cable may be disconnected from the U-WAVE-T device or the connection area may be damaged, if it is subjected to an undue force being entangled with workpieces, etc.

! To remove the connection unit (02AZF310) or the connecting cable (02AZD790A, B, G)

Remove the screws using the supplied size 0 screwdriver, and then remove the connection unit/connecting cable.

! To remove the connection unit (02AZF300)

Pinch both sides of the connection unit with your fingers, and then pull it straight up to remove.

CAUTION Shows risks that could result in minor or moderate injury.

When connecting (removing) the connection unit to (from) a caliper, be careful not to injure yourself on the ends of the caliper jaws.

4.2. Setting Up a U-WAVE-R Device

! Set up the U-WAVE-R device in a place with a good line of sight with the U-WAVE-T/TC/TM devices and free from obstructions. The performance of this product may degrade if it is used in areas such as those below due to factors such as obstructions.

- Concrete walls, Metallic partitions, Machine tools
- Wireless LAN, Zigbee, Bluetooth, and other communication devices as well as microwave ovens

! Mounting the device on a wall, etc.

Use the mounting plate and two tapping screws (nominal size: 2.6 x 6) supplied with the U-WAVE-R device to mount this product.

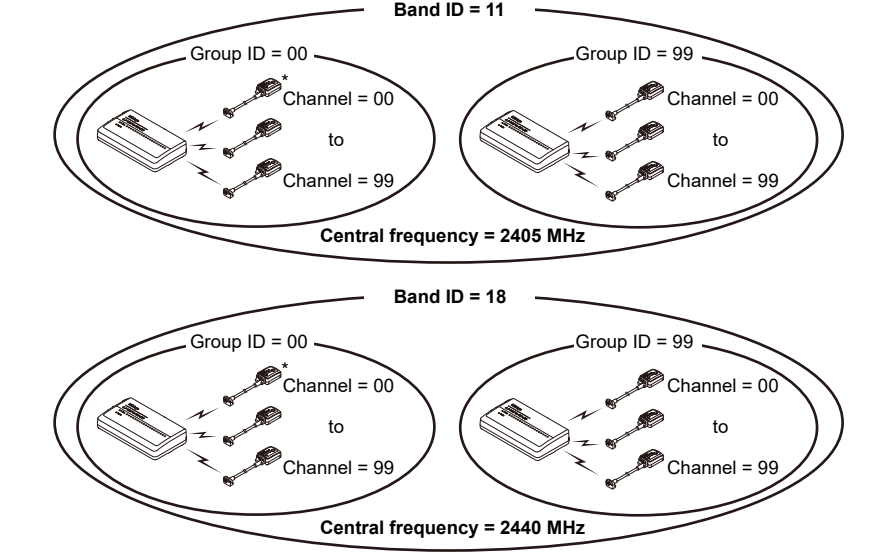
! Attach the mounting plate on the U-WAVE-R device with the tapping screws. Align the screw holes on the mounting plate with the mounting holes on the back of the U-WAVE-R to do so.

There are three pairs of screw holes on the back of the U-WAVE-R device. Attach the mounting plate in the direction that is most convenient for mounting the U-WAVE-R device.

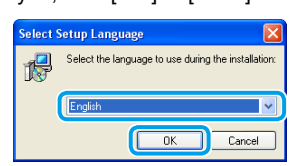
! Mount the mounting plate on the wall using two fasteners or the like. Secure the U-WAVE-R device firmly to ensure it does not fall.

4.3. Registering the Settings

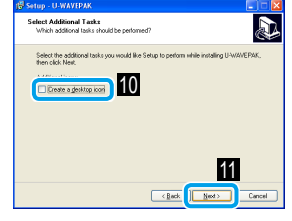
Use the U-WAVEPAK software installed on the PC to register the information necessary for communication such as the band ID, group ID, channel and the device ID. The setup image is as follows:



- Log into the PC with administrator privileges.
 - Insert the CD-ROM supplied with the U-WAVE-R device into the PC.
 - Double-click [Setup.exe] in the [Setup] folder of the CD-ROM.
- Tips** If the [User Account Control] screen is displayed, click [Yes] or [Allow].
- Select the language to use, and then click [OK].
->> The [Welcome to the U-WAVEPAK Setup Wizard] screen is displayed.



- Click [Next].
- Read the "License Agreement", and then select [I accept the agreement] to agree to the terms and conditions.
- Click [Next].
->> The [Select Destination Location] screen is displayed.
- Click [Next].
->> The [Welcome to the U-WAVEPAK Setup Wizard] screen is displayed.
- Click [Next].
->> The [Select Additional Tasks] screen is displayed.
- Click [Next].
->> The [Ready to Install] screen is displayed.



This completes the U-WAVEPAK installation. Proceed to "3.2. USB Driver/Virtual COM Port Driver" to install the two types of drivers.

3.2. USB Driver/Virtual COM Port Driver

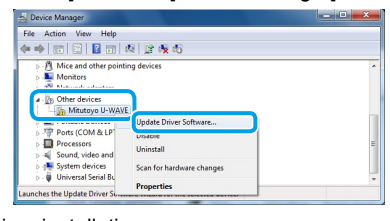
! The installation procedure differs according to the operating system of your PC. Install the two types of drivers by following the procedure for the relevant operating system.

Tips Use a self-powered USB hub when connecting the U-WAVE-R device to a commercial USB hub.
- U-WAVE-R devices do not support standby or sleep modes of PCs. Disable each setting to use a U-WAVE-R device.

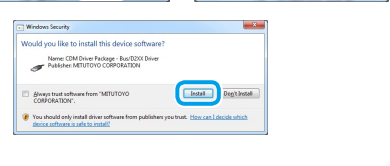
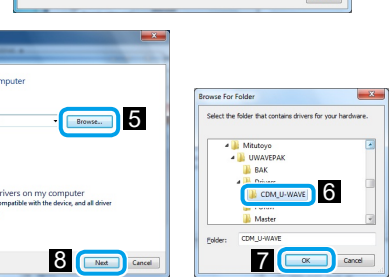
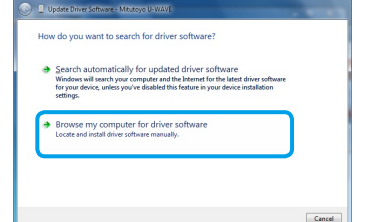
3.2.1. For Windows 7 / 8 / 8.1 / 10 and Windows Vista

! Connect the U-WAVE-R device to the PC using the supplied USB cable.

- Tips** In Windows Vista, click [Cancel] when the [Found New Hardware] screen is displayed.
- In the Windows Control Panel, click [Hardware and Sound] and then [Device Manager].
 - Under [Other devices], right-click [Mitutoyo U-WAVE], and then select [Update Driver Software].
- Tips** If [Mitutoyo U-WAVE] or [USB Serial Port] is not displayed under [Other devices], the drivers have already been installed. Close [Device Manager] to complete the driver installation.



- Select [Browse my computer for driver software].
- Click [Browse].
- Select [C:\Mitutoyo\UWAVEPAK\Drivers\CDM_U-WAVE].
- Click [Next].
- Click [Install].
- Click [Close] after the installation is complete.



- Under [Other devices] on the [Device Manager] screen, right-click [USB Serial Port], and then select [Update Driver Software].
- Repeat the procedure from Step 1 to Step 10.

This completes the software installation. After the installation is complete, the POWER (green LED) and ERROR (red LED) indicators blink alternately or the POWER (green LED) indicator lights on the U-WAVE-R device.

3.2.2. For Windows XP

- Connect the U-WAVE-R device to the PC using the supplied USB cable.
->> The [Welcome to the Found New Hardware Wizard] screen is displayed.
- Select [No, not this time], and then click [Next].
- Select [Install from a list or specific location], and then click [Next].
- Select [Search for the best driver in these locations] as well as [Include this location in the search], and then click [Browse].
- Select [C:\Program Files\Mitutoyo\UWAVEPAK\Drivers\CDM_U-WAVE], and then click [OK].
- Click [Next].
->> A Windows XP logo authentication warning is displayed.
- Click [Continue Anyway].
- Click [Finish].
->> The [Welcome to the Found New Hardware Wizard] screen is displayed.
- Repeat the procedure from Step 2 to Step 8.

This completes the software installation. After the installation is complete, the POWER (green LED) and ERROR (red LED) indicators blink alternately or the POWER (green LED) indicator lights on the U-WAVE-R device.

3.2.3. For Windows 2000

- Connect the U-WAVE-R device to the PC using the supplied USB cable.
->> The [Welcome to the Found New Hardware Wizard] screen is displayed.
- Click [Next].
- Select [Search for a suitable driver for my device], and then click [Next].
- Select [Specify a location], and then click [Next].
->> The [Found New Hardware Wizard] is displayed.
- Click [Browse].
- Select [C:\Program Files\Mitutoyo\UWAVEPAK\Drivers\CDM_U-WAVE], and then click [Open].
- Click [OK].
->> The [Driver File Search Results] screen is displayed.
- Click [Next].
->> The [Completing the Found New Hardware Wizard] screen is displayed.
- Click [Finish].
->> The [Welcome to the Found New Hardware Wizard] screen is displayed again.
- Repeat the procedure from Step 1 to Step 9.

This completes the software installation. After the installation is complete, the POWER (green LED) and ERROR (red LED) indicators blink alternately or the POWER (green LED) indicator lights on the U-WAVE-R device.

4. Device Setup and Settings

4.1. Setting Up a U-WAVE-T/TC/TM Device

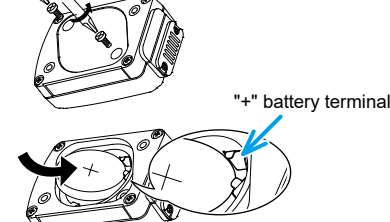
4.1.1. Inserting the Battery

Tips The battery supplied with U-WAVE-T/TC/TM devices is for verifying the functions and performance of the device. The battery may not last as long as the designated lifespan.

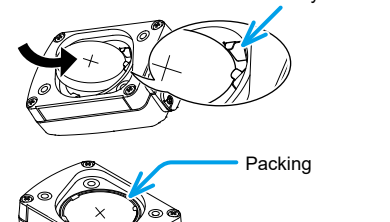
U-WAVE-T

Always use the supplied size 0 screwdriver to loosen and tighten the screws, and tighten them with approximately 5 to 8 cN·m of torque.

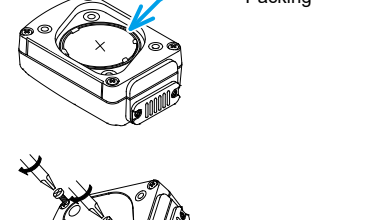
! Remove the mounting screws on the back of the U-WAVE-T device using the supplied size 0 screwdriver, and then remove the battery cover.



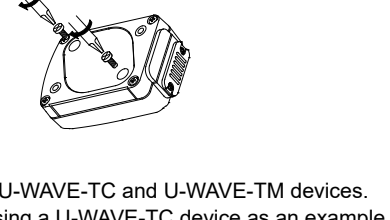
! Insert the new battery into the "+" battery terminal, and then press the opposite side of the battery into the battery clasp.



! Make sure that the packing (circular) is attached.



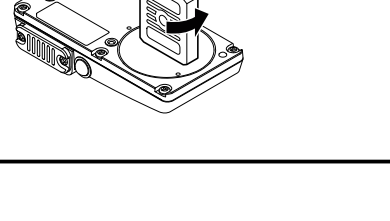
! Mount the battery cover, and then tighten the screws using the supplied size 0 screwdriver.



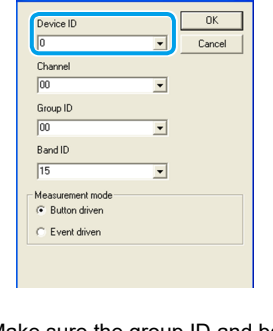
U-WAVE-TC/TM

The same procedure is used to replace the battery in U-WAVE-TC and U-WAVE-TM devices. The instructions in this section explain how to do it using a U-WAVE-TC device as an example.

! Remove the battery cover on the back of the U-WAVE-TC/TM device using the supplied battery cover key.



! Enter the device ID indicated on the label on the side of the U-WAVE-T/TC/TM device.

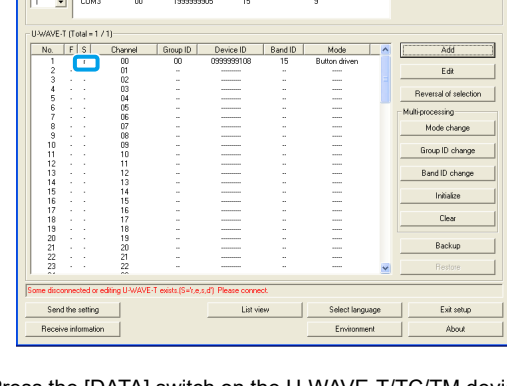


! Make sure the group ID and band ID are the same IDs as those set for the U-WAVE-R device, and then click [OK].

A U-WAVE-R device and U-WAVE-T/TC/TM devices that have the same band ID and group ID can communicate.

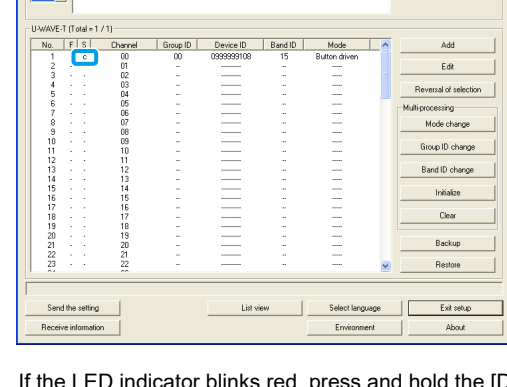
! Click [Yes].

->> [r] (U-WAVE-T/TC/TM device registered) is displayed in the [S] (status) column of the screen.



! Press the [DATA] switch on the U-WAVE-T/TC/TM device that ID was input in STEP 2.

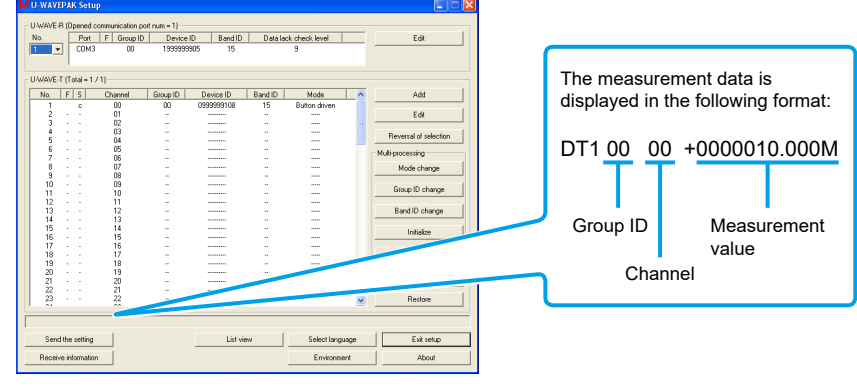
->> The LED indicator on the U-WAVE-T/TC/TM device blinks from orange to green and [c] (U-WAVE-T/TC/TM device connected) is displayed in the [S] (status) column of the screen.



If the LED indicator blinks red, press and hold the [DATA] switch on the U-WAVE-T/TC/TM device (for 5 seconds or more; the LED indicator blinks orange in 0.3-second intervals), and then connect.

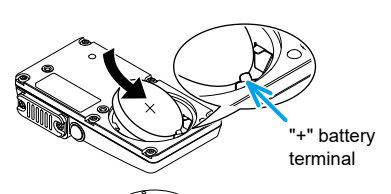
! Set the measuring tool to count mode, and then press the [DATA] switch on the U-WAVE-T/TC/TM device for verification.

->> The LED indicator of the U-WAVE-T/TC/TM device blinks green or the buzzer (buzzer type only) buzzes once, and the measurement data is displayed in area at the bottom of the screen.

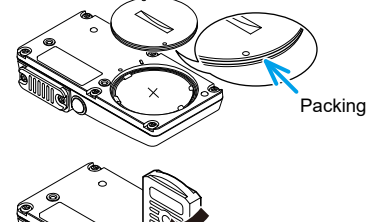


Tips For more information about sending measurement data and confirming communication results, refer to "[8] Functions" in the separate volume "U-WAVE-T User's Manual" or "[3.1. Operation When Sending Measurement Data]" in the separate volume "U-WAVE-TC/TM User's Manual".

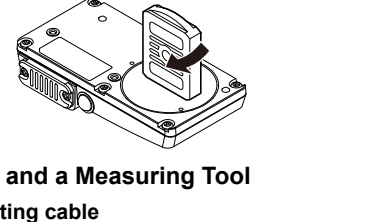
! Insert the new battery into the "+" battery terminal, and then press the opposite side of the battery into the battery clasp.



! Make sure that the packing (circular) is attached to the battery cover.



! Mount the battery cover and tighten it using the supplied battery cover key.



4.1.2. Connecting a U-WAVE-T/TC/TM Device and a Measuring Tool

Connecting a U-WAVE-T device and the connecting cable

! Remove the mounting screws on the connector cover using the supplied size 0 screwdriver, and then remove the connector cover.

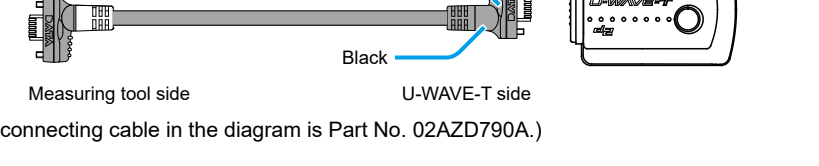


Tips Store the connector cover and screws that were removed in a place for safekeeping.

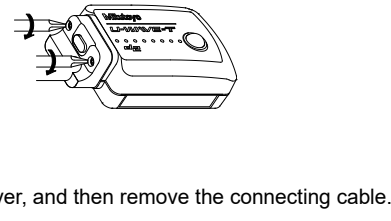
! Make sure the packing is attached in the packing area of the connector.

! Connect the connecting cable to the U-WAVE-T device.

Always connect the black connector side of the connecting cable to the U-WAVE-T device.



! Securely tighten the screws with approximately 5 to 8 cN·m of torque while holding the end of the connecting cable with your fingers to ensure there is no gap between the main body and the connecting cable.



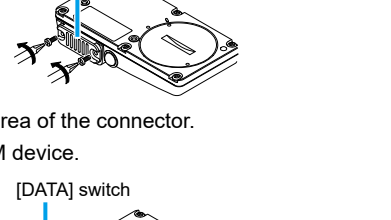
To remove the connecting cable

Remove the screws using the supplied size 0 screwdriver, and then remove the connecting cable.

Connecting a U-WAVE-TC/TM device and the connection unit

The same procedure is used to connect the connection unit to U-WAVE-TC and U-WAVE-TM devices. The instructions in this section explain how to do it using a U-WAVE-TC device as an example.

! Remove the mounting screws on the connector cover using the supplied size 0 screwdriver, and then remove the connector cover.

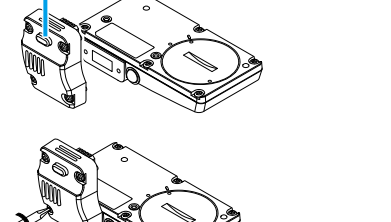


Tips Store the connector cover and screws that were removed in a place for safekeeping.

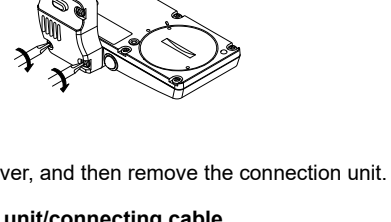
! Make sure the packing is attached in the packing area of the connector.

! Connect the connection unit to the U-WAVE-TC/TM device.

Make sure to connect the connection unit so that the [DATA] switch always comes to the measuring tool side.



! Securely tighten the screws with approximately 8 to 12 cN·m of torque while holding the end of the connection unit with your fingers to ensure there is no gap between the main body and the connection unit.



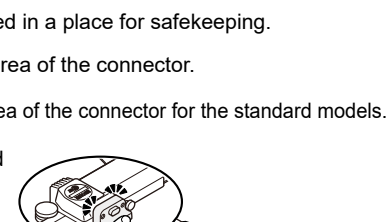
To remove the connection unit

Remove the screws using the supplied size 0 screwdriver, and then remove the connection unit.

Connecting the measuring tool and connection unit/connecting cable

The same procedure is used to connect the connection unit (U-WAVE-TC/TM) and the connecting cable (U-WAVE-T) to a measuring tool. The instructions in this section explain how to connect using a connecting cable (U-WAVE-T) and a water-proof type measuring tool as an example.

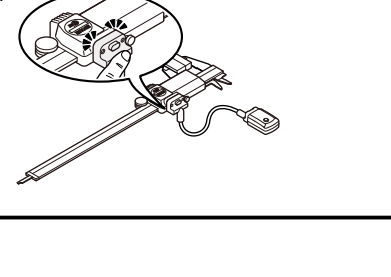
! Remove the mounting screws on the connector cover of the measuring tool using the supplied size 0 screwdriver, and then remove the connector cover.



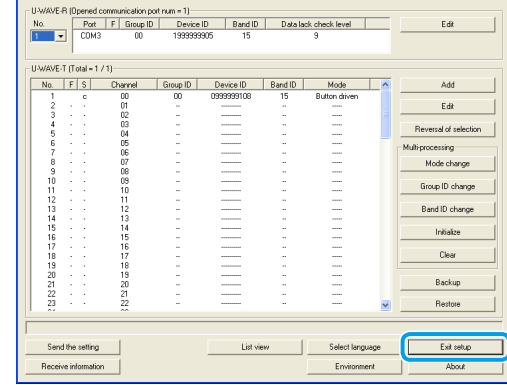
Tips Store the connector cover that was removed in a place for safekeeping.

! Make sure the packing is attached in the packing area of the connector.

! Connect the connecting cable while holding the end of the connecting cable with your fingers to ensure there is no gap between the main body and the connecting cable.



! Click [Exit setup].



This completes the registration of settings for the U-WAVE-T/TC/TM device. Proceed to "[5. Importing Measurement Data]" to check that measurement data from the measuring tool is imported to the PC.

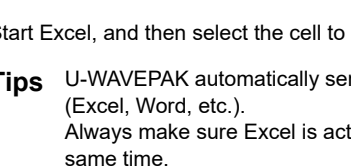
5. Importing Measurement Data

Import measurement data from a measuring tool into the PC. This example uses Excel to import measurement data.

! Click [Data I/F start] on the U-WAVEPAK menu screen.



->> [U-WAVEPAK Data I/F] starts, and [U-WAVEPAK Data I/F] is displayed in the Windows taskbar.

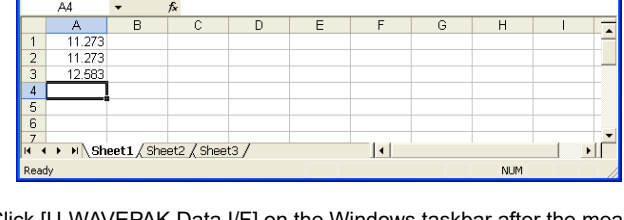


! Start Excel, and then select the cell to import measurement data into.

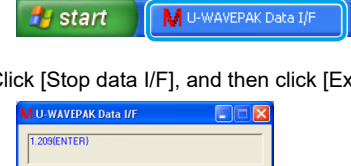
Tips U-WAVEPAK automatically sends measurement data to the active application (Excel, Word, etc.). Always make sure Excel is active when multiple applications are running at the same time.

! Press the [DATA] switch on the U-WAVE-T/TC/TM device.

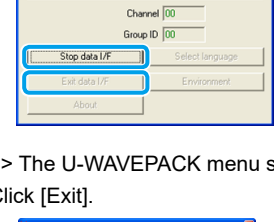
->> The measurement data is imported into the selected cell.



! Click [U-WAVEPAK Data I/F] on the Windows taskbar after the measurement data has been imported.

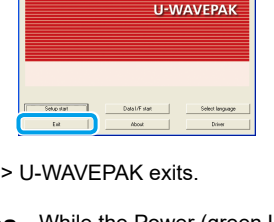


! Click [Stop data I/F], and then click [Exit data I/F].



->> The U-WAVEPAK menu screen is displayed.

! Click [Exit].



->> U-WAVEPAK exits.

Tips While the Power (green LED) indicator of the U-WAVE-R device is lit, once the U-WAVE-T/TC/TM device successfully communicates with the U-WAVE-R device, the LED indicator on the U-WAVE-T/TC/TM device blinks in green or buzzer (only for the models with buzzer) goes off twice.