RION CO., LTD.

RIONOTE Wireless Dock

SA-A1WD

Instruction Manual

Overview of This Manual

This manual mainly describes the functions and operations of SA-A1WD. When the measuring system is used with another device, be sure to read the manual of the device for the operation.

This manual consists of the following sections.

SA-A1WD Overview

Part Names and Functions
Describes the names and functions of ports and other parts of SA-A1WD.

SD Card
Describes how to attach or remove an SD card.

Amplifier Unit
Describes how to attach or remove the amplifier unit.

Power Supply

Connecting the AC Adapter
Describes how to connect the AC adapter to the device.

Attaching Batteries
Describes how to attach batteries.

Powering On/Off
Describes how to power on/off SA-A1WD.

Communicating with RIONOTE

Registering the Amplifier Unit
Describes how to register the amplifier unit connected to SA-A1WD in RIONOTE.

Using Wireless Network
Describes how to use wireless LAN on SA-A1WD.

Checking Communication Status with RIONOTE
Describes how to check the SA-A1WD status.

Checking Measurement Status
Describes how to check the measurement status.

Loading the Data from SA-A1WD
Describes how to download the measurement data recorded in the SA-A1WD amplifier unit.

Excluding/Reconnecting the Amplifier Unit
Describes how to react to wireless LAN cut-off.

Connecting to Computer

Describes how to transfer the SA-A1WD measurement data to a computer.

Installing SA-A1WD

Installing SA-A1WD
Describes the installation method for the case of using wireless LAN.

Using Vertical Stand (Option)
Describes the installation method using an optional vertical stand.

Specifications

Provides the SA-A1WD specifications.

Safety Precautions

Disclaimers

- RION Co., Ltd. will not be liable for any damages arising from natural disasters such as earthquakes, lightning, storms and floods, as well as fires through no fault of RION Co., Ltd., acts by third-parties, other accidents, improper use by the user, whether intentionally or negligently, or use under other abnormal conditions.
- RION Co., Ltd. will not be liable for any incidental damages arising from the use or inability to use this device (such as corruption or loss of recorded data, lost business revenue, or suspension of business operations).
- RION Co., Ltd. will not be liable for any damages arising from use not in accordance with the instructions in this manual.
- RION Co., Ltd. will not be liable for any damages arising from malfunctions caused by use in combination with any connected equipment and/or software not authorized by RION Co., Ltd.
- RION Co., Ltd. will not be liable for any damages or lost revenue resulting from recovery of recorded data that is corrupted or lost due to failure, repair, or other operations of this device.

For Safe Operation

Explanation of Displays and Symbols

The following messages are displayed in this manual to warn and protect users from potential danger:
These are necessary to secure the lives and health of the user and prevent this device and peripheral equipment from being damaged.

⚠ Warning	- Disregarding such information may cause a dangerous situation where personal safety cannot be ensured.
⚠ Note	- Disregarding such information may cause injury to people or damage to equipment around them.
Important	- Disregarding such information may cause malfunction of this device.
MEMO	- It does not directly affect the safety but includes information that assists in ensuring correct and efficient use of this device .

Precautions

SA-A1WD Precautions

Precautions	
⚠ Note	- Do not apply the voltage exceeding the maximum input voltage range to the input /output terminals. Otherwise the unit may be damaged by excessive voltage and there is a risk of electric shock or burn. - The LAN port and USB miniB port of the device must be used in compliance with the respective standards. Otherwise the device may be damaged by an excessive voltage, posing a risk of electric shock or burn. - Be careful not to get injured (lacerated, etc.) by the connector part of the device. - Be careful not to get injured (bruised, etc.) by fall of the device. - If you notice any sign of a problem in the device, such as overheating and smoke, disconnect the AC adapter power cord and remove the battery. - Handle the battery appropriately. Inverting the battery polarity or misuse may cause leakage or overheating.
Important	- Be sure to read and follow all the instructions given in this manual before using the device. - Do not insert a wire, metal piece, conductive plastic piece, etc. into a hole or clearance of the device. It may cause a failure. - Be sure to power off the device after use. Remove the battery when the device is stored without being used for a long time. Storing the device with the battery attached may cause leakage. Remove the AC adapter as well. - Do not disassemble or modify the device. If the device fails, contact the dealer or our service center (see the back cover) and give a description of the failure state without taking any remedial actions. - To remove dirt on the device, use a dry, soft cloth or a cloth wrung out of warm water. Do not use organic solvents such as benzine and alcohol. - When the device is sent to us for inspection, repair, etc., use the dedicated package resistant to vibrations and shocks. - Please note that we repair or replace a defective product that caused a damage to you as compensation. - Dispose of the device or battery in accordance with the national and local laws and regulations.

Connection related precautions	
⚠ Warning	- Be careful not to let the cable connected to the device get caught in a rotating machine or the like.
⚠ Note	- Use the docking port of the device only for the purpose of connecting to SA-A1B2/B4. Misuse may cause a failure of the device, electric shock or burn.
Important	- Check that the cords and cables are connected properly and safely before use. Do not bend or apply excessive force to the cords and cables. Hold the end of the plug or connector to disconnect the cords and cables. - Do not apply strong impact to the cords or cables connected to the device to avoid disconnection. - Do not touch the docking port of the device directly by hand. It may cause a failure.

AC Adapter Precautions

Precautions	
⚠ Note	- Be sure to use the dedicated AC adapter (NE-20P) sold separately. Using other AC adapters may cause an unexpected accident as well as malfunction or failure. Do not confuse the dedicated AC adapter with others.

Precautions for Wireless Product and Radio Wave

Wireless Product

- The standards applicable to the wireless function of this product are as follows.
  • IEEE802.11a/b/g/n (2.4-GHz band)
  • IEEE802.11a (5-GHz band W52)
  • IEEE802.15.4
- This product uses a wireless module that obtains a technical standards conformity certification.
- The wireless LAN standard value that appears in this manual is the theoretical maximum value which does not indicate the actual data transmission rate.

Radio Wave

- Since the wireless LAN frequency band of this product is shared by the private radio station or specific small power radio station for mobile object identification devices used for the industrial equipment/scientific instruments such as medical equipment and microwave oven, or in factory production lines, a wireless communication failure may occur due to radio wave interference.
- When this product is used near the equipment using IEEE802.11n (2.4-GHz band), IEEE802.11g, IEEE802.11b or IEEE802.15.4 wireless LAN or other wireless equipment, radio wave emitting equipment such as microwave oven, in a place with many obstacles or poor radio wave condition, the following problems may occur: frequent loss of connection, significant decrease in communication speed or communication error.

Precautions

- Do not use this product in the following situations.
  • In a place where the use of wireless equipment is prohibited
  • Near a device that emits radio wave such as microwave oven
- Before using this product, make sure that the private radio station or specific small power radio station for mobile object identification devices is not operated within the interference range.
- If radio wave interference with the private radio station or specific small power radio station for mobile object identification devices occurs during use of this product, change the frequency immediately or stop using the product.
- This product is also compatible with IEEE802.11a type W52. Since the outdoor use of W52 is prohibited by the radio law, disable the W52 function to use the product outdoors. To disable the W52 function, stop using the 5-GHz band wireless connection and use the 2.4-GHz band wireless connection instead, or turn off the wireless function.

- Since your Bluetooth and the wireless LAN of this product use the same radio frequency of 2.4-GHz band, using them at the same time may cause radio wave interference, resulting in decreased communication speed or network disconnection. If a connection trouble occurs, stop using either your Bluetooth or the wireless LAN of this product.
- Use the wireless function of RIONOTE and SA-A1WD only in Japan for both 2.4-GHz and 5-GHz bands.
  This product cannot be used overseas because it is usable under the Japanese radio law. Before using this product, check if the use of it is prohibited or restricted by local laws or government ordinances.

Wireless LAN Precautions

The wireless LAN uses a radio wave instead of LAN cable to transmit information. Therefore, LAN connection can be established freely within the area where a radio wave reaches. On the other hand, the following problems may occur because a radio wave can reach any places through obstacles (wall, etc.) within a specific range.

- Furtive glance at communication details
  A malicious third person may intercept a radio wave deliberately to peep at communication details.
- Hacking
  A malicious third person may attempt an unapproved access to the network to steal personal or confidential information (secret leak), impersonate a specific person to communicate and spread invalid information (masquerading), change the intercepted communication details and transmit them (manipulation) or unleash a computer virus, etc. to damage data or systems (destruction).

This product employs the WPA2-PSK (AES) encryption method for security to reduce these risks.

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SA-A1WD Overview

SA-A1WD is a wireless dock used to connect to the multi function measuring system "RIONOTE" via wireless or wired LAN.

Various measurements available

Since a distant place can be measured using LAN, the utilization range is widened. For example, it can be installed in a factory line using LAN. Also, using wireless LAN transmits measurement data by radio wave and eliminates the need of cables, resulting in simpler measurement. For example, when you measure noise or vibration of a distant place, install "SA-A1WD" in the measured place and install "RIONOTE" in an arbitrary place. Then you need to just make a wireless connection between this device and RIONOTE to perform measurement at the same time without arranging a cable.

Multi-channel data transmission enabled

Since measurement can be performed by up to four amplifier units, multi-channel data transmission becomes available.

Safely used for outdoor/long time measurement

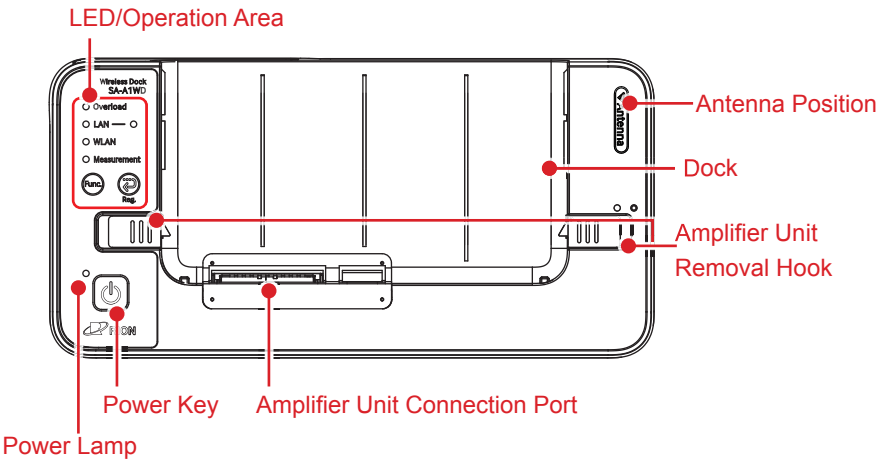
This device conforms to the waterproof grade IP54 to offer safe use in outdoor measurements and reduce unexpected troubles caused by a sudden rain.

Also, this device employs AA batteries as power supply and power-saving design to enable a long time operation. To be environmentally-friendly, a nickel hydride rechargeable battery can be used to reduce battery disposal. An external power supply can also be connected to extend measurement time.

Part Names and Functions

There are the following part names and functions in this device:

Front View



Antenna Position

Shows the position of internal communication antenna. Consider the antenna position when installing the SA-A1WD. (P.60)

Dock

Connects an amplifier unit. Align the connection port with that of an amplifier unit to connect it.

Amplifier Unit Removal Hook

Fixes an amplifier unit. Lock both hooks while an amplifier unit is attached. Slide the right hook to release the lock of amplifier unit. Slide the left hook to remove an amplifier unit.

Amplifier Unit Connection Port

Connects an amplifier unit.

Power Key

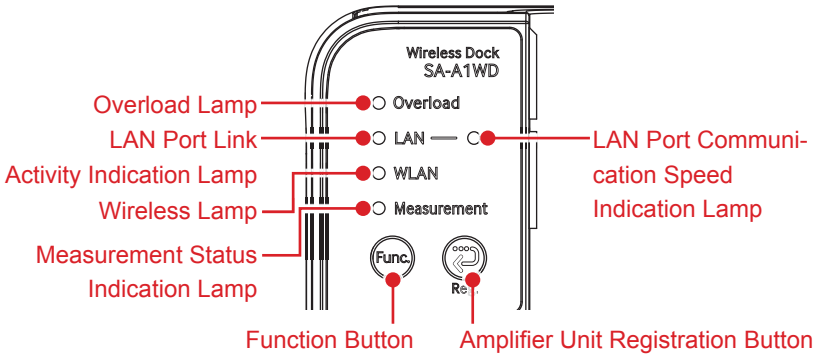
Pressing and holding for more than two seconds powers on/off.

Power Lamp

Lights up when the power is on. Lighting varies according to the power status as shown below.

Steady On/Blink	Description
Steady green	Connected by AC adapter or sufficient battery level
Blinking green	Executing startup process
Steady orange	Low battery level
Steady red	No battery level
Off	Power off

[LED/Operation Area]



Overload Lamp

Indicates the overload state. When overload occurs during measurement or monitoring, the lamp lights up in red.

LAN Port Link/Activity Indication Lamp

Indicates the LAN status while a LAN cable is connected. The lamp lights up or blinks as follows.

Steady On/Blink	Description
Steady yellow	Connected to LAN properly
Blinking yellow	Communicating
Off	LAN not connected

LAN Port Communication Speed Indication Lamp

Indicates the communication speed while connection is established via LAN cable. The lamp lights up as follows.

Steady On/Blink	Description
Steady green	Connected by 100BASE-TX
Off	Connected by 10BASE-T or LAN not connected

Wireless Lamp

Indicates the status while connection is established via wireless LAN. The lamp lights up or blinks as follows.

Steady On/Blink	Description
Steady green	Connected to wireless LAN in a strong radio wave environment
Steady orange	Connected to wireless LAN in a slightly weak radio wave condition
Steady red	Connected to wireless LAN in a weak radio wave condition
Off	Wireless LAN not used
Blinking red	Disconnected

Measurement Status Indication Lamp

Indicates the measurement status. The lamp lights up or blinks as follows.

Steady On/Blink	Description
Steady green	Calculating
Blinking green repeated at regular intervals	Measuring (pause included)
Blinking green twice repeated at regular intervals	Trigger standby
Blinking green	End of measurement
Off	Other statuses

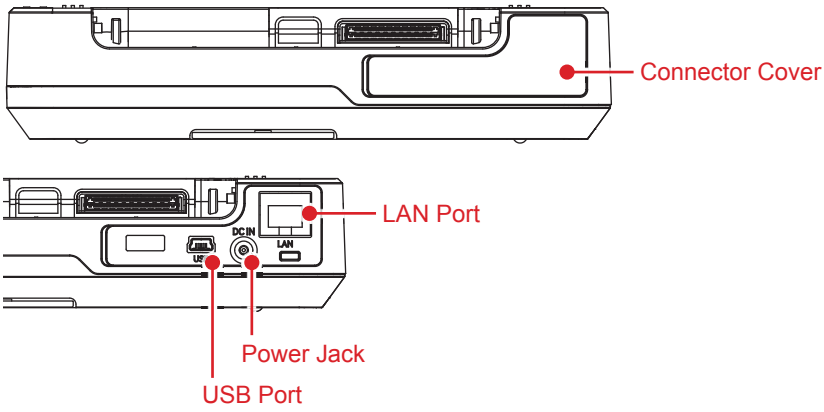
Function Button

This is not used in the current version. (Prepared for future function expansion)

Amplifier Unit Registration Button

When this device is used, press and hold this button in registering an amplifier unit in RIONOTE.

Top View



Connector Cover

Protects ports. Attach the cover when a cable is not connected.

Important	- If the connector cover is not closed firmly, the waterproof grade IP54 performance cannot be obtained. Be sure to attach the cover properly.

LAN Port

Connects a LAN cable.

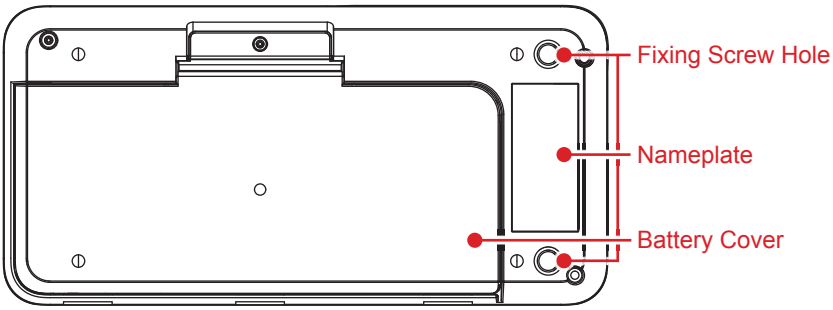
Power Jack

Connects the power cable.

USB Port

Connects a USB cable (A-MiniB).

Back View



Battery Cover

Protects batteries. Remove the cover to replace batteries.

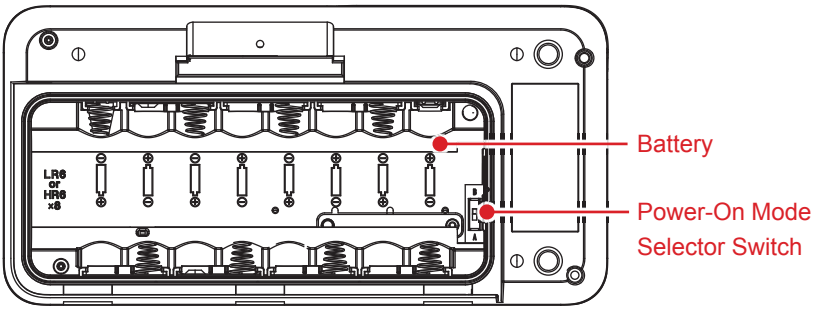
Nameplate

Nameplate of this device.

Fixing Screw Hole

Used to attach an optional vertical stand.

Back View (Battery Cover Removed)



Battery

Eight AA batteries are used. Usable battery types are AA alkaline battery and AA nickel hydride battery. The used battery type can be configured on the Amplifier unit management screen of RIONOTE. (See Instruction Manual Application for RIONOTE.)

⚠ Note - Handle the battery appropriately. Misuse such as inverting the battery polarity may cause leakage or overheating.

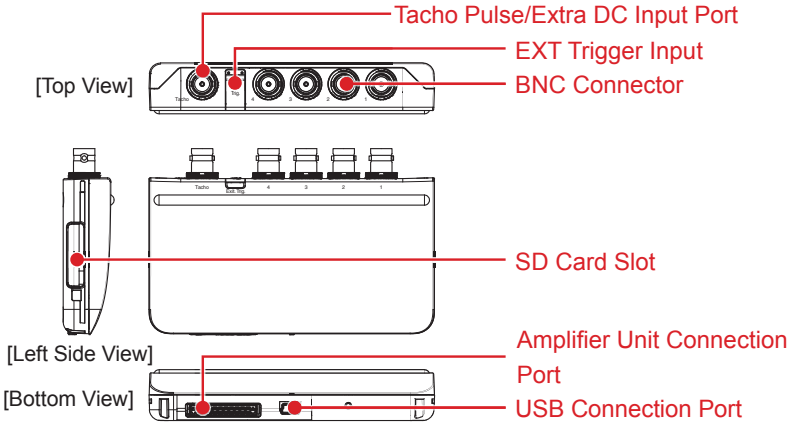
Power-On Mode Selector Switch

The power-on mode selector switch is found when the battery cover is removed. The switch is turned to the "A" side for normal use. When it is turned to the "B" side, power-on/off of this device can be controlled by supplying power to the external power jack. At this time, the power key on the operation panel is disabled.

Important - Do not attach batteries when the device is used with the switch at the "B" side.

Amplifier Unit (SA-A1B2/B4)

The figure shows the view of SA-A1B4.



Tacho Pulse/Extra DC Input Port

Inputs tacho pulse or DC signals.

EXT Trigger Input

A 2.5 mm mono jack for external trigger signal input.

BNC Connector

Connects a sensor such as a microphone or vibration pickup.

SD Card Slot

Used to insert an SD card. When wireless LAN is used, measurement data of some applications will be saved on this SD card.

Amplifier Unit Connection Port

Connects an amplifier unit to the SA-A1WD dock.

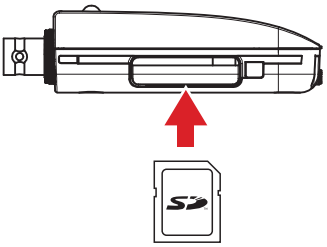
USB Connection Port

Not used. Do not connect a cable to this port to avoid malfunctions.

SD Card

Attaching the SD Card to the Amplifier Unit

1. **Open the side cover of the amplifier unit.**
2. **Slowly insert the SD card with the label side facing up to the SD card slot until it clicks.**



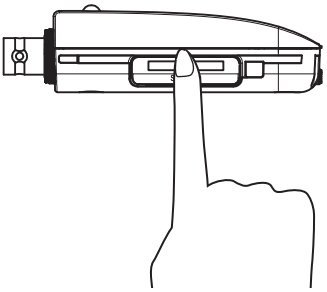
3. **Close the side cover.**

Important	- An SD card has the top/bottom sides and front/back sides. Inserting it forcibly may cause a damage. - Do not touch the port on the SD card.

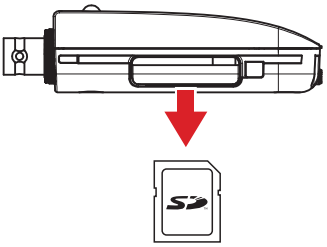
Removing the SD Card from the Amplifier Unit

1. **Open the side cover of the amplifier unit.**

2. **Slowly push the SD card as far as it goes.**



3. **When it clicks, slowly pull the card straight.**



4. **Close the side cover.**

Important	- Do not pull the SD card forcibly. It may cause a damage or data loss.

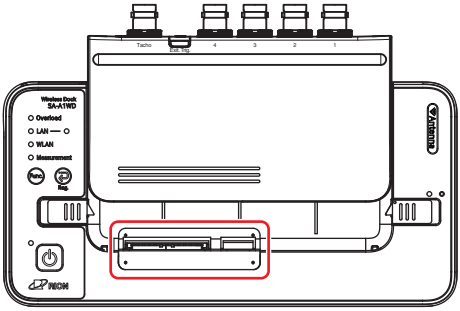
MEMO	- A removed SD card may be hot after a long period of use, but it is not a failure.

Amplifier Unit

The amplifier unit (SA-A1B2/B4) can be attached to this device to connect the sensor. The amplifier unit is connected through this device dock.

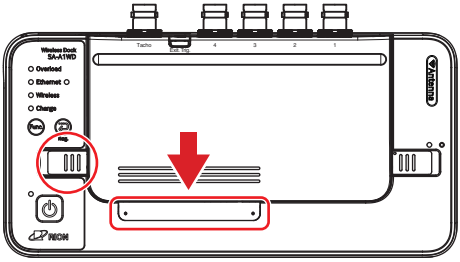
Attaching the Amplifier Unit to the Dock

1. **Power off this device.**
2. **Align the connection port on the dock with that on the amplifier unit.**



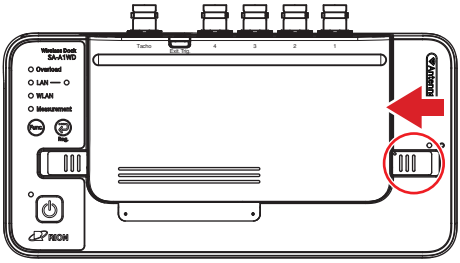
Important - Do not touch the connection port on the dock. It may cause a failure.

3. **Slide the amplifier unit in the direction of the arrow and insert until it clicks.**



When the amplifier unit is inserted properly, it is locked by the amplifier unit removal hook on the left.

4. **Slide the right amplifier unit removal hook to lock the unit.**

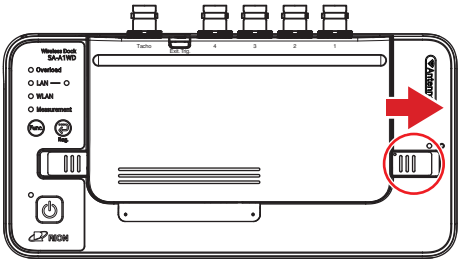


Important

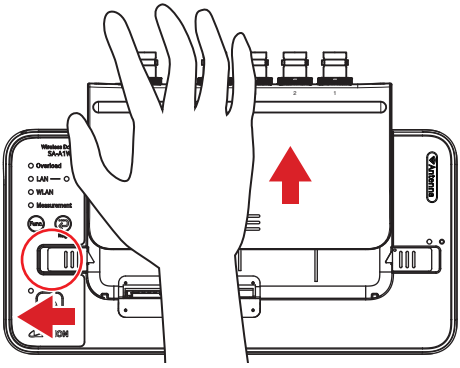
- If the connection port is not inserted firmly, the waterproof grade IP54 performance cannot be obtained. Be sure to insert it properly.

Removing the Amplifier Unit from the Dock

1. **Power off this device.**
2. **Slide the right amplifier unit removal hook to release the lock.**



3. **While sliding the left amplifier unit removal hook, slide the amplifier unit in the direction of the arrow.**



Important - Be careful not to injure your fingers when pulling out the amplifier unit.

Power Supply

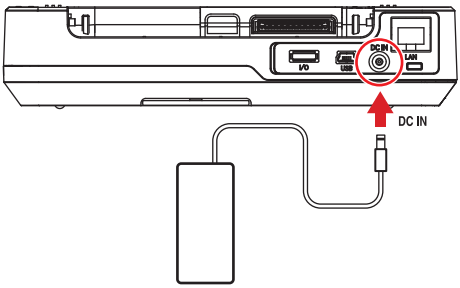
This device can be driven by battery or AC adapter. This section describes how to connect the power supply and turn on/off the power.

Connecting the AC Adapter

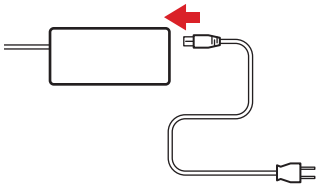
Use the following procedure to connect the optional AC adapter (NE-20P).

⚠ Note	- Be sure to use the optional AC adapter (NE-20P). Using other AC adapters may cause an unexpected accident as well as malfunction or failure. Do not confuse the dedicated AC adapter with others.

1. **Insert the AC adapter plug to the power jack on this device.**



2. **Connect the power cable to the AC adapter.**



3. **Insert the power plug of the power cable to an outlet of 100 to 240 V AC.**

Important	- The waterproof grade IP54 performance cannot be obtained when the AC adapter is used.

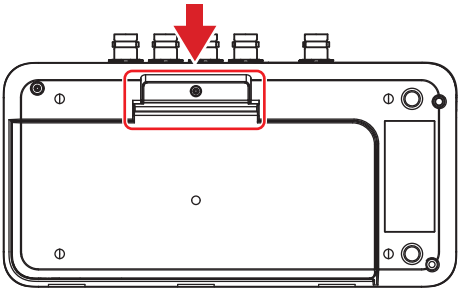
Attaching Batteries

This device can be driven by eight AA alkaline batteries or AA nickel hydride batteries.
Attach batteries according to the following procedure.

⚠ Note	- Handle the battery appropriately. Misuse such as inverting the battery polarity may cause leakage or overheating.

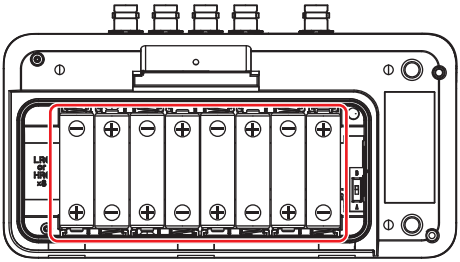
1. **Power off this device.**

2. **Remove the battery cover.**



3. **Attach batteries as shown in the figure.**

   Observe the correct battery polarity in attaching batteries.



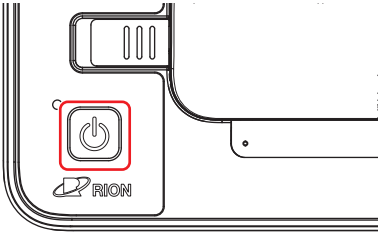
4. Close the battery cover.

MEMO	- The continuous measurement time is about nine hours with new alkaline batteries. - The continuous measurement time is about 11 hours with fully charged new nickel hydride batteries. - The above measurement times are examples when the following application and amplifier are used at 23C°. • Application: SA-A1WR • CCLD: OFF • Amplifier: SA-A1B4 • Number of channels: 4 - The measurement time may be shortened in some radio wave conditions.

Powering On/Off

Powering On

1. **Press and hold the power key for more than two seconds.**



When the power is turned on, the startup process starts and the power lamp blinks in green.
When the device is put into the operable state, the power lamp lights up steadily in green.

Powering Off

1. **Press and hold the power key for more than two seconds.**

The power will be turned off a while after releasing the power key. When the power is turned off, the power lamp goes out.

Important	- Remove the battery and AC adapter when you store the device with the power off for a long time.

MEMO	- Wait for more than ten seconds before powering on this device again after powering off.

Forcibly Powering Off

If the device does not function normally under the power-on state or the device cannot be powered off, power off the device forcibly.

1. **Press and hold the power key for more than ten seconds.**

Important	- When you power off the device forcibly, be sure that the data is not being written/read.

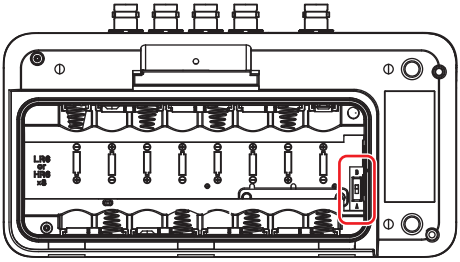
Turning the Power-On Mode Selector Switch

The power-on mode selector switch is used to supply power via the external power jack. The switch is turned to the "A" side for normal use. When it is turned to the "B" side, power-on/off of this device can be controlled by supplying power to the external power jack. At this time, the power key on the operation panel is disabled.

1. **Power off this device.**

2. **Remove the battery cover.**

3. Turn the power-on mode selector switch.



Important

- Do not attach the battery when the device is used with the switch at the "B" side.

4. Attach the battery cover.

Communicating with RIONOTE

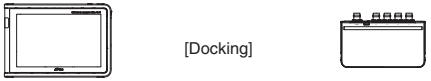
This device is connected to RIONOTE via wireless or wired LAN to use. When measurement is performed by a wireless/multi-point remote measuring system, the measurement data needs to be loaded to RIONOTE. This section describes the measurement using this device and communication related matters, such as registering the amplifier unit connected to SA-A1WD, configuring wireless LAN, loading measurement data and checking the communication status.

Amplifier Unit System Configuration

RIONOTE measurement requires any of the following system configurations. To perform measurement by a remote measuring system or wireless/multi-point remote measuring system, SA-A1WD is required.

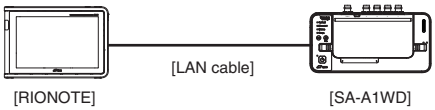
Docking system

Connects an amplifier unit to RIONOTE (one-to-one) to perform measurement. SA-A1WD is not required in this configuration.



Remote measuring system (LAN)

Connects an amplifier unit to RIONOTE on a one-to-one basis using a LAN cable. Measurement is performed by the amplifier unit connected to SA-A1WD.



MEMO	- Use a Class 7 LAN cable.

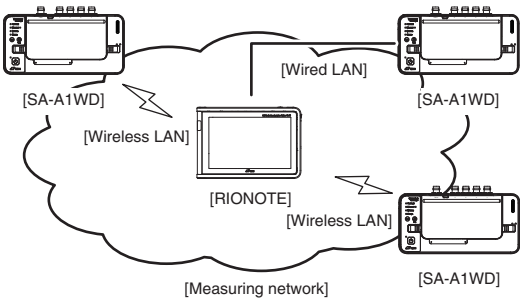
Wireless/multi-point remote measuring system

The wireless measuring system connects an amplifier unit to RIONOTE on a one-to-one basis via wireless LAN. Measurement is performed by the amplifier unit connected to SA-A1WD.



MEMO	- To use wireless LAN, set [Wireless LAN] to [ON] in the [Network] tab of [SA-A1 Settings]. The default setting of RIONOTE is [OFF].

The multi-point remote measuring system connects multiple amplifier units to RIONOTE on a one-to-two (up to four) basis. Up to four units can be connected at the same time. It enables measurement in the environment using both wireless LAN and wired LAN.



Measurement Data Save Location

The measurement data save location varies depending on the measuring system configuration as described below.

Docking system/remote measuring system (LAN)

The measurement data is saved on the SD card connected to RIONOTE. There is no need to connect an SD card to the amplifier unit of SA-A1WD.

Wireless/multi-point remote measuring system

The measurement data save location varies depending on the used application as shown below.

Application	Save Location
Waveform Recording Program SX-A1WR	SD card connected to the amplifier unit of SA-A1WD
1/3 Octave Band Analysis Program SX-A1RT	Auto mode: SD card connected to the amplifier unit of SA-A1WD Manual mode: SD card connected to RIONOTE
FFT Analysis Program SX-A1FT	SD card connected to the RIONOTE

Important

- For the measurement that saves the data on the SD card connected to the SA-A1WD amplifier unit, an SD card needs to be inserted to the RIONOTE as well to start measurement. Note that if you delete the [info] data saved on the SD card connected to the RIONOTE in recording, the measurement data cannot be loaded (downloaded).

MEMO

- The measurement data recorded in the SA-A1WD amplifier unit is loaded to RIONOTE after measurement. For details on the loading procedure, see "Loading the Data from SA-A1WD" on page 49.

Update of RIONOTE etc.

The RIONOTE and SA-A1B2/B4, and measurement applications need to be updated to Ver. 2.0 or later versions to use the SA-A1WD.
Update them according to the following procedure.
Before starting update, download the latest updater from the Rion website (http://rion-sv.com/) and save it on the SD memory card of the RIONOTE.

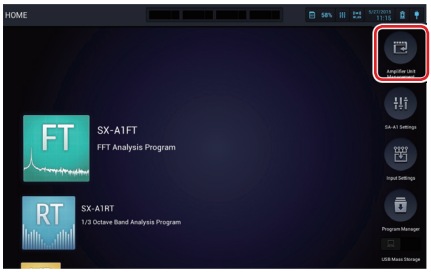
1. **Update the RIONOTE utility to the latest version which should be Ver. 2.0 or later (see RIONOTE instruction manual).**
2. **Update the RIONOTE system to the latest version which should be Ver. 2.0 or later (see RIONOTE instruction manual).**
3. **Update the SA-A1B2/B4 system to the latest version which should be Ver. 2.0 or later.**

   Register the SA-A1B2/B4 on the Amplifier unit management screen of RIONOTE to perform update (see RIONOTE instruction manual).
4. **Update each measurement application to the latest version which should be Ver. 2.0 or later (see RIONOTE instruction manual).**

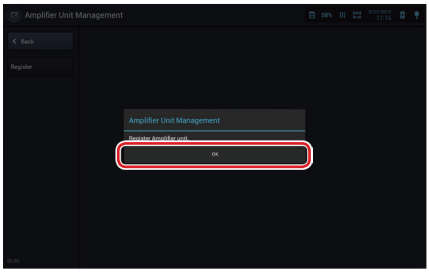
Registering the Amplifier Unit

To perform measurement by the amplifier unit connected to SA-A1WD, connect SA-A1WD first and then register the amplifier unit. Register the amplifier unit according to the following procedure.

1. **Tap [Amplifier Unit Management] on the HOME screen of RIONOTE.**



2. **Tap [OK].**

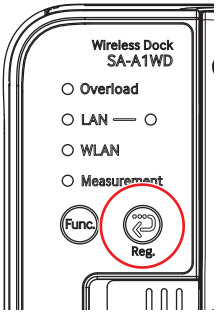


3. **Operate SA-A1WD.**

The operation procedure for wireless LAN is different from that for wired LAN.

■ Connecting via Wireless LAN

Power on SA-A1WD and press and hold the amplifier unit registration button of SA-A1WD. The wireless lamp blinks in green and the device enters the connection standby state.



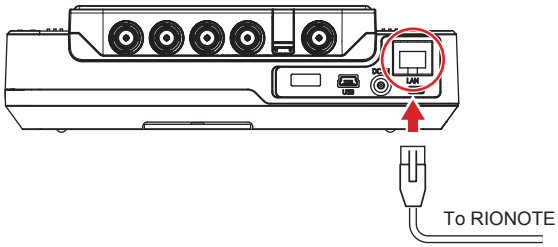
MEMO	- The connection standby state for wireless LAN is kept for 30 seconds. When this period has passed, the standby state will be canceled. Be sure to establish connection within the period of standby state.

■ **Connecting via Wired LAN**

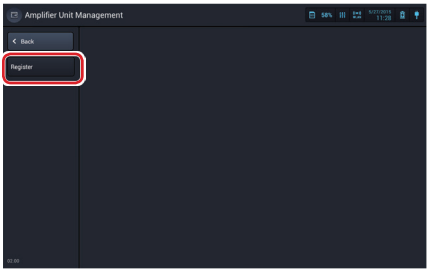
Connect one end of a LAN cable to the LAN port of SA-A1WD. Connect the other end to the LAN port of RIONOTE. When the connection is completed, power on SA-A1WD.

When the LAN cable is connected properly, the LAN port link/activity indication lamp lights up in yellow.

Press and hold the amplifier unit registration button of SA-A1WD.

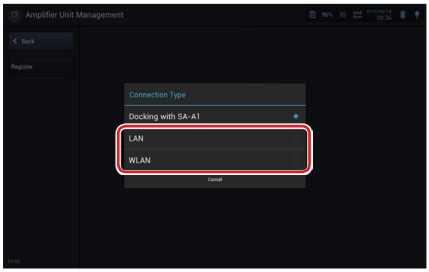


4. Tap [Register] of RIONOTE.

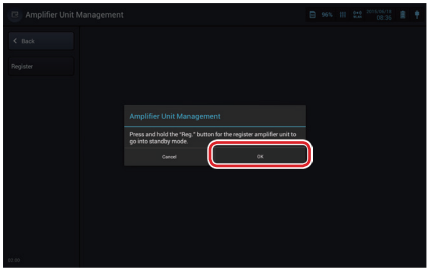


5. Select the connection type.

Tap [LAN] to connect SA-A1WD and RIONOTE via a LAN cable or [WLAN] to connect them via wireless LAN.



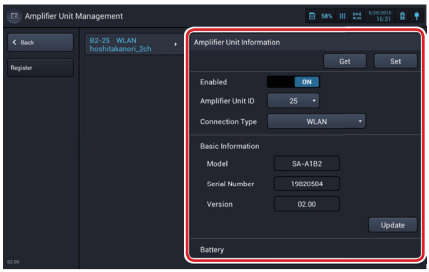
6. **Confirm that SA-A1WD is the connection standby state and tap [OK].**



RIONOTE starts registration of the amplifier unit connected to SA-A1WD. This process may take several minutes to finish.

7. **Tap [OK] when the message of completing registration is displayed.**

8. **Check the amplifier information.**



Change the amplifier setting as needed. Tap [Set] after changing the setting.

MEMO	- To use wireless LAN, set [Wireless LAN] to [ON] in the [Network] tab of [SA-A1 Settings].

Using Wireless Network

To connect RIONOTE and SA-A1WD via wireless LAN, the wireless network must be available on RIONOTE.
Use the following procedure to use wireless LAN on RIONOTE.

1. **Check the wireless LAN status.**

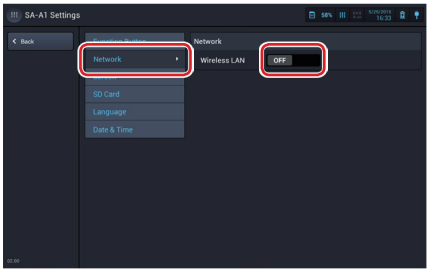
   When the icon indicating the wireless LAN status on the RIONOTE status bar is off, it means that wireless LAN is unavailable.



2. **Tap [SA-A1 Settings] on the HOME screen.**



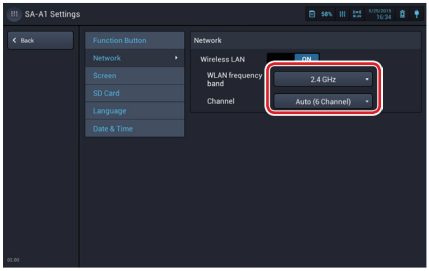
3. Tap [Network] and then tap [Wireless LAN] to select [ON].



Wireless LAN is turned on. It may take long to turn on wireless LAN.

4. Select the frequency band and channel to use.

Select [2.4 GHz] or [5 GHz] for [WLAN frequency band]. [Channel] can be changed arbitrarily.



Checking Communication Status with RIONOTE

While wireless LAN is used for connection, communication may be hindered when the radio wave is weak. Therefore, communication needs to be performed in the best possible condition.
Check the status of the amplifier unit connected to SA-A1WD according to the following procedure.

1. Tap the amplifier unit name on the status bar.



2. Check the wireless status.

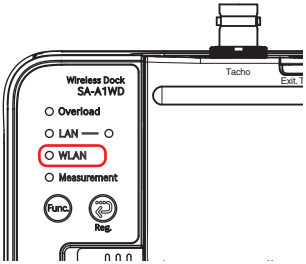
The radio wave strength is indicated with an icon. With a weak radio wave, wireless communication may become unstable. Install SA-A1WD so that it can receive the strongest possible radio wave.



The connection status is indicated as follows.

Icon	Connection status
	Connected (strong radio wave)
	Connected (weaker radio wave)
	Connected (weak radio wave)
	Disconnected

3. Check the wireless status with the SA-A1WD wireless lamp.



The lamp lights up or blinks while connecting via wireless LAN as follows.

Steady On/Blink	Description
Steady green	Connected to wireless LAN in a strong radio wave environment
Steady orange	Connected to wireless LAN in a slightly weak radio wave condition
Steady red	Connected to wireless LAN in a weak radio wave condition
Off	Wireless LAN not used
Blinking red	Disconnected

Loading the Data from SA-A1WD

When measurement is performed using wireless LAN and multi-point remote measuring system under the following conditions, the measurement data is recorded in the SD card connected to the SA-A1WD amplifier unit.

- Waveform Recording Program (SX-A1WR)
- 1/3 Octave Band Analysis Program (SX-A1RT) Auto mode

After measurement, the measurement data recorded in the amplifier unit is loaded to RIONOTE. You can load the measurement data collectively or by selecting individual data.

MEMO	- When a measurement data load from the SA-A1WD amplifier unit is completed normally, the data will be deleted from the SA-A1WD amplifier unit. - Loading the measurement data from the SA-A1WD amplifier unit may fail in some radio wave conditions. If it fails, neither loading to RIONOTE nor changing/deleting in the SA-A1WD amplifier unit measurement occurs, and the data remains as it is.

The data measured under the following conditions cannot be loaded via wireless connection because the single file size is too large.

Program used	SX-A1WR
Measurement time	1 hour or more
Sampling frequency	20 KHz x 2.56
Number of channels used	4 channels
Bit rate	24 bit
File division cycle	1 hour

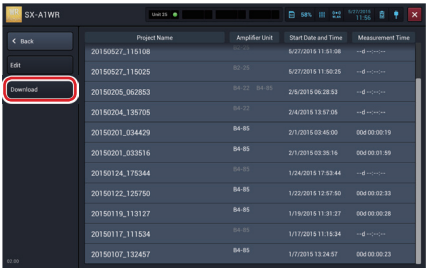
In this case, change the file division cycle to ten minutes to avoid a decrease in the measurement quality.

Or connect to a computer using a USB cable and move the data, or remove the SD card and load the data with RIONOTE.

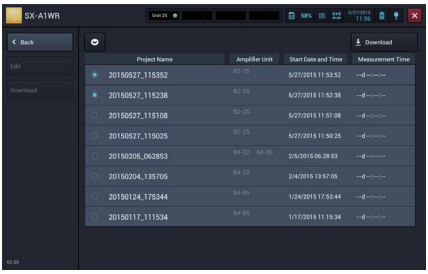
Loading the Data Collectively

1. **Display the Select project screen.**

2. **Tap [Download].**



3. **Tap a project to select the loading target.**



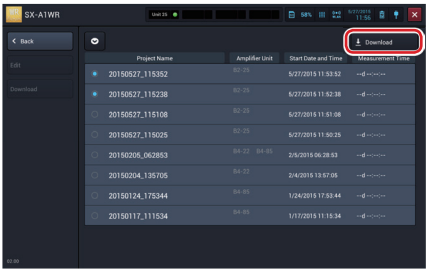
The color used for [Amplifier Unit] characters indicates the measurement data loading status. Following colors are used.

Character Color	Description
Gray	Measurement data has not been loaded from the amplifier unit
Yellow	Measurement data load has been stopped
White	Measurement data has been loaded from the amplifier unit

A blue [●] is attached to a selected item. Tapping again while selecting an item cancels the selection.

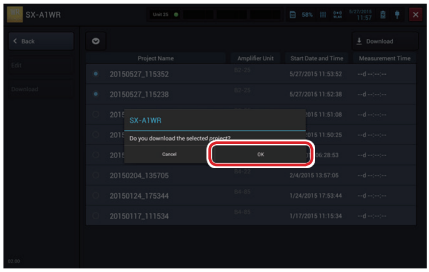
MEMO	- All projects can be selected or canceled by tapping [v] located in the upper left section of the screen.

4. Tap [Download].



A confirmation message for loading is displayed.

5. **Tap [OK].**

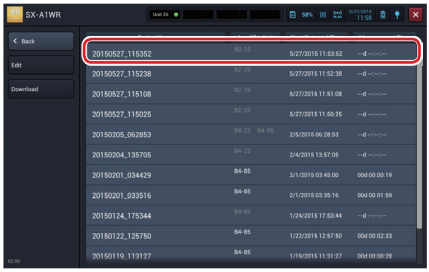


Loading the measurement data starts. Tap [Cancel] during the loading process to stop loading.

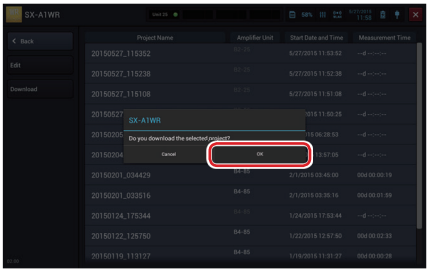
Loading the Data Individually

1. **Display the Select project screen.**

2. **Tap a project to load.**



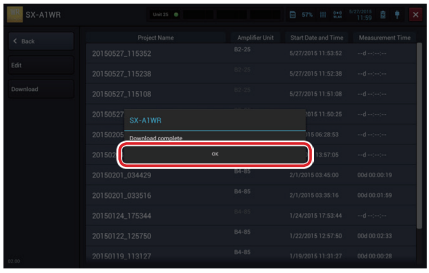
3. Tap [OK].



Loading the measurement data starts. Tap [Cancel] during the loading process to stop loading.

MEMO	- When you tap the data shown in yellow (measurement data load has been stopped), the Recall screen will be displayed showing a graph of the loaded measurement data. - When you tap the data shown in white (measurement data has been loaded), the data will be loaded again. After reloading the data, the Recall screen displays a graph.

4. Tap [OK].



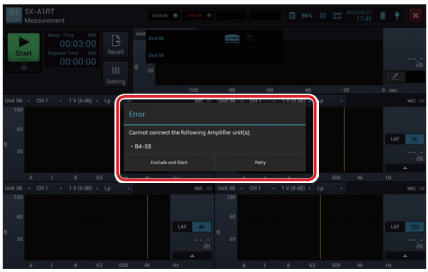
Excluding/Reconnecting the Amplifier Unit

While using multiple amplifier units, if a wireless connection cut-off occurs on the amplifier unit in use, you can change the amplifier unit used on the Measurement, Setting or Recall screen.

MEMO	- You cannot exclude the amplifier unit when using only one amplifier unit. - When the residual capacity of the SD card connected to the amplifier unit becomes small, an error message will be displayed.

Reaction to Wireless Connection Cut-Off

If a wireless connection cut-off occurs during measurement or a registered amplifier unit cannot be connected at start-up, a message indicating disconnection of the amplifier unit will be displayed. In this case, relocate SA-A1WD or RIONOTE to a place with a satisfactory communication environment and then tap [Retry].
To exclude the amplifier unit to continue measurement, tap [Exclude and Start].



Reconnecting the Amplifier Unit

To reconnect to the amplifier unit that enters the measurement available state after communication recovery, tap the status bar and then tap [Reconnect].



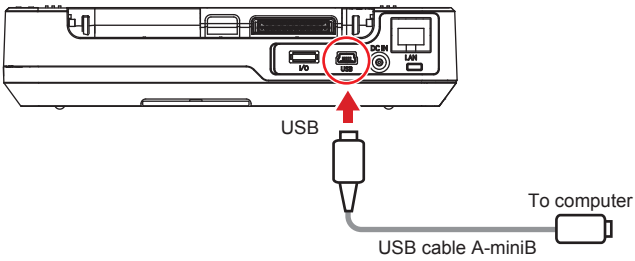
Connecting to Computer

When the device is connected to a computer via a USB cable, it will be recognized as a removable disk. This allows you to transfer measurement data to the computer without removing an SD card.

MEMO	- The device will not be recognized if it is connected to a computer during measurement. Try it after exiting the measurement application.

1. **Power on this device.**

2. **Connect the USB cable plug (A-MiniB) to the USB port on the device.**



3. **Connect the plug at the other end to the USB port on a computer.**

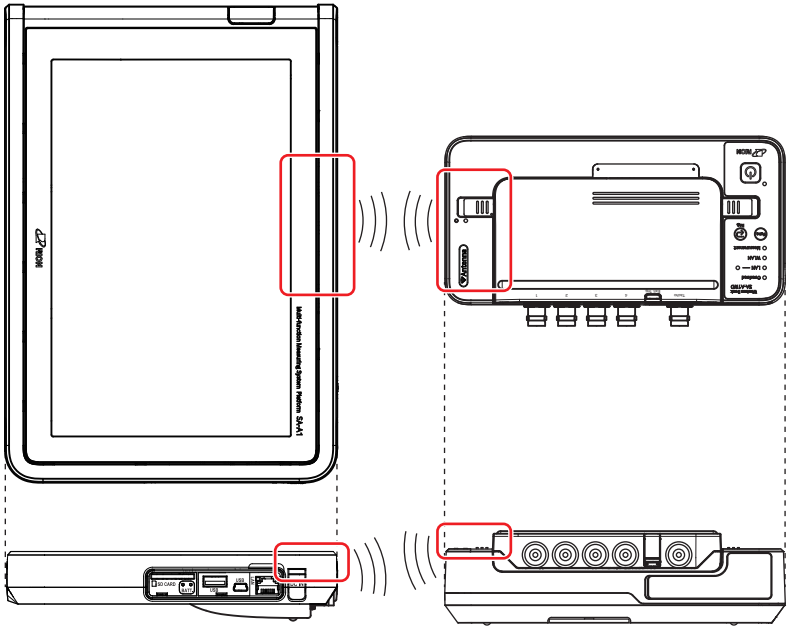
Important	- Insert the USB cable plug with the projection portion faced up straight to this device. If you insert the USB plug in a wrong direction, the USB port on this device may be damaged.

Installing SA-A1WD

To operate this device using wireless LAN, the device needs to be installed in a stable communication environment. This section describes how to install SA-A1WD for the case of using wireless LAN and how to install it using an optional vertical stand.

Installing SA-A1WD

The radio wave of wireless LAN used by this device has directivity. Therefore, install the device as described below to use wireless LAN in the optimum state.



Install the device so that its right side faces the top side of RIONOTE.

This device transmits a radio wave from its right side and RIONOTE receives the radio wave by its top side.

Therefore, when the device is installed according to the radio wave transmitting direction, the optimum communication state can be maintained.

Do not put obstacles between the devices.

An obstacle such as wall and tall furniture causes the radio wave of wireless LAN to weaken and the radio wave receiving state to be affected adversely. It may result in a communication trouble or disconnection. Install the devices in an environment where no obstacle exists between them.

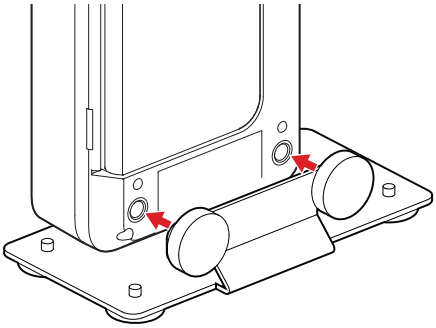
Do not install the device in a place subjected to radio wave interference

The frequency band used by wireless LAN is likely to interfere with the radio wave of a microwave oven. Do not install the device near the equipment like this.

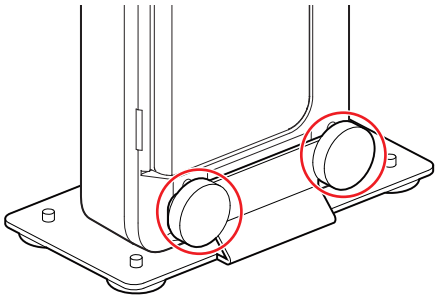
Using Vertical Stand (Option)

This device can be installed vertically using an optional vertical stand. Use the following procedure to attach the device to the vertical stand.

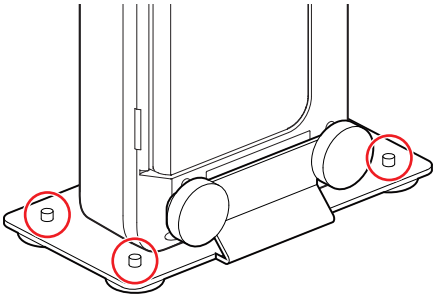
1. **Align the fixing screw holes on the back side of this device with the screw holes on the vertical stand.**



2. **Tighten the screws securely.**



3. **Fix the base by tightening the screws in the installation location of the device.**



MEMO	- The screws to fix the base are sold separately. Use M3 screws.

Specifications

Applied Laws, Regulations and Standards

CE Marking

WEEE Directive

Chinese RoHS (only the products exported to China)

Usable life 10 years (maintain every 2 years)

Recommendation exchange cycle of the consumables

2 years (case for waterproofing)

The consumables for waterproofing are as follows

Part name	Use
Packing B	Waterproofing for the amplifier unit joint
Silicone tube	Waterproofing for the upper cover, lower cover and battery cover
Connector cover	Waterproofing for the power connector
Vent filter	Waterproofing for the ventilation slot of a battery cover

Power Supply

Power supply

Dedicated AC adapter (NE-20P)

Rated input voltage 12 V

Plug EIAJ4 5.5 mm × 3.3 mm dia.

Eight AA batteries (alkaline batteries LR6 or Ni-MH secondary batteries)

When connecting with a lithium ion battery for RIONOTE, the battery exchange is possible.

On the RIONOTE side, it is possible to change the kind of used battery and confirm the battery remaining amount.

Current consumption

External DC power supply Approx. 220 mA (12 V DC)

Continuous measurement time with alkaline batteries (at 23C°)

Used Application	CCLD	Amplifier	Continuous Measurement Time (Standard)
SX-A1WR	OFF	SA-A1B4	8 hours or more
SX-A1WR	ON	SA-A1B2	8 hours or more
SX-A1WR	ON	SA-A1B4	6.5 hours or more
SX-A1RT	ON	SA-A1B4	6 hours or more

Note that the above data is obtained with new alkaline batteries LR6T (JE) in a good wireless connection state.

Continuous measurement time with nickel hydride rechargeable batteries (at 23C°)

Used Application	CCLD	Amplifier	Continuous Measurement Time (Standard)
SX-A1WR	OFF	SA-A1B4	11 hours or more
SX-A1WR	ON	SA-A1B2	10 hours or more
SX-A1WR	ON	SA-A1B4	9 hours or more
SX-A1RT	ON	SA-A1B4	8 hours or more

Note that the above data is obtained with fully charged, new eneloop XX in a good wireless connection state.

Input/Output

Dock connector dedicated for SA-A1B2/B4 connection x 1

USB miniB connector x 1

Mass storage class

Connected to a computer as a storage device and the SD card inserted to SA-A1B2/B4 is recognized as a removable disk.

Supplying power by USB bus power is not supported.

LAN connector x 1

100BASE-TX

WLAN

IEEE802.11a (W52)/b/g/n

Communication distance with RIONOTE Approx. 50 m
(When a screen is not between RIONOTE and SA-A1WD)

Operation Area

Equipped with membrane switches.

Power key x 1

While power is off, press and hold the key to power on.

While power is on, press and hold the key to power off (with A/B switch is set to A side).

Press and hold the key for more than ten seconds to force power-off.

A/B switch x 1 (in the battery box)

A side

Usual the power on/off by a power key is possible.

B side

The power is turned on automatically by connecting AC adapter.

Amplifier unit registration button (Reg. button) x 1

Press and hold the button to establish a wireless connection with the RIONOTE.

Function button (Func. button) x 1

Not used in the current version (for function expansion)

Display

LED (power status indication)

Not started (off)

Power supplied through DC jack (lights up in green)

Power supplied from battery (changes by the battery level: steady green -> steady orange -> steady red -> off)

LED (Measurement: measurement status indication)

No sampling/measuring state (off)

Sampling state (lights up in green)

Measuring state (blinks in green once)

Trigger standby state (blinks in green twice)

LED (WLAN: WLAN status indication)

Wireless connection not established (off)

Wireless communication state (changes by strength: steady green -> steady orange -> steady red)

Wireless connection established (blinks in red)

Wireless setting configured (blinks in green)

LED (LAN: LAN status indication)

Link/activity status indication

(non link: none, linked: yellow, communicating: blinks in yellow)

Communication speed indication (10BASE-T or non link: none, 100BASE-TX: green)

LED (OverLoad)

Overload signal detected state (lights up in red)

Waterproof Performance

IP Code

IP54

The following conditions are required to maintain the waterproof performance.

SA-A1WD is equipped with any one of the followings.

SA-A1B2

SA-A1B4

Followings must be observed in attaching SA-A1B2 or SA-A1B4.

The BNC jack is not exposed to water.

A rubber cover is attached to the Ext. Trig. port.

The connector cover of SA-A1WD is attached.

The battery cover of SA-A1WD is attached.

The waterproof tube of the SA-A1WD battery box is connected properly.

Rubber seals are not worn out.

Ambient conditions for use

−10C° to +50C°

90%RH or less (No condensation)

Ambient conditions for storage

Same as the ambient conditions for use

Dimensions

Approx. 43.2 mm (H) x 193 mm (W) x 95.7 mm (D)
(without amplifier unit)

Approx. 53.7 mm (H) x 193 mm (W) x 107.7 mm (D)
(with amplifier unit)

Weight

Approx. 315 g (without amplifier unit and alkaline batteries)

Approx. 395 g (with amplifier unit)

Approx. 489 g (with amplifier unit and alkaline batteries)

Others

Fixing screw hole for unified screw threads x 2

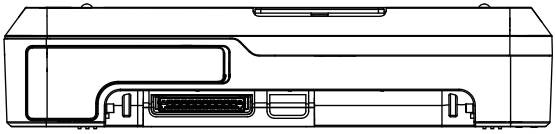
Accessories

LR6T (JE) CPT AA alkaline AM3	8
Please Read This First	1
Inspection certificate	1

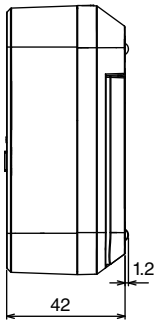
Items Sold Separately

AC adapter NE-20P

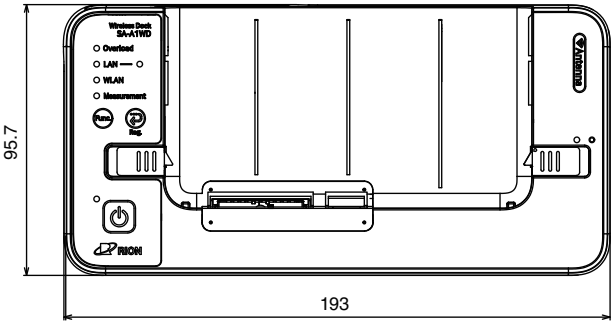
Vertical stand for SA-A1WD



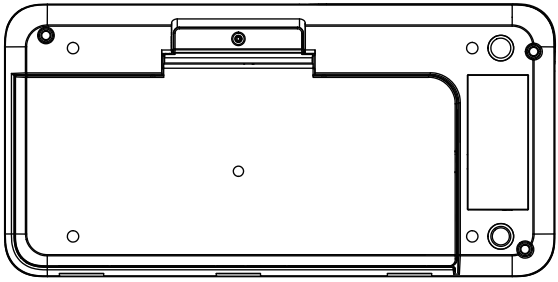
Top View



Left Side View



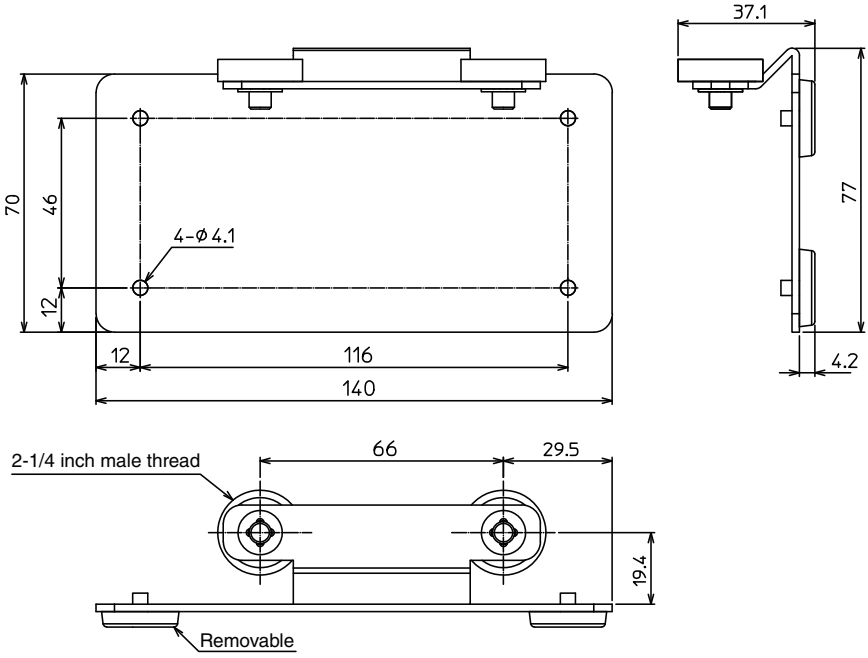
Front View



Back View

Unit: mm

SA-A1WD External Dimensions



Unit: mm

SA-A1WD Vertical Stand External Dimensions



http://www.rion.co.jp/

No. 60680