YAMAHA CTL-BN1 Programmable Button Controller User Guide

Contents

YAMAHA CTL-BN1 Programmable Button Controller

Specifications

- **Model:** CTL-BN1
- **Manufacturer:** Yamaha Corporation of America
- **Compliance:** FCC Part 15, CAN ICES-3 (A)/NMB-3(A)

Product Information

The CTL-BN1 controller by Yamaha is designed to meet FCC requirements and ensure reliable operation when used according to the provided instructions. It features high-quality shielded cables for optimal performance and safety.

Product Usage Instructions

Precautions

Before using the CTL-BN1 controller, please read the safety guide carefully. Keep the manual in a safe place for future reference. Follow all instructions to avoid damage or data loss.

Warnings and Cautions

- **WARNING:** Be aware of potential risks of death or serious injury. Do not open the product or expose it to water or fire.
- **CAUTION:** Be cautious to prevent physical injury. Pay attention to the location and proper connection of the controller.

Handling and Maintenance

- Handle the CTL-BN1 controller with care and follow proper maintenance procedures as outlined in the safety guide.

Product Features

- The CTL-BN1 controller offers reliable performance and complies with FCC regulations. It is equipped with the necessary features for efficient operation.

Nameplate Information

- Locate the model number, serial number, and power requirements on the nameplate at the bottom of the unit. Record this information for future reference in case of theft.

FAQ

Q: What should I do if I notice any abnormalities with the CTL-BN1 controller?

A: If you notice any abnormalities such as visible damage or cracks, stop using the product immediately and contact Yamaha for assistance.

Introduction

About this product

- This programmable button controller is primarily intended for ADECIA devices.
- It can be used as a mute button during meetings when placed on the desk or to switch between presets to suit the purpose of the room.

Supports an Ethernet connection and PoE (Power over Ethernet)

- This unit can be incorporated into digital audio network systems such as ADECIA.

Can accommodate devices other than ADECIA

- In addition to controlling ADECIA devices (RM-CR, RM-CG, RM-TT, RM-WAP, VXL1-16P, and VXC2P), this unit can send control commands directly to other devices.

Supports multiple installation options

- Instead of being installed on a desk, this unit can also be mounted on the wall of the room.

Available utility software

- The following utility software can be used to set up and operate this unit according to its use and environment. For information on what can be done with each software, refer to “Controlling with software.

- **RM-CR Device Manager Controls** RM-CR as well as devices connected to RM-CR. It is used to register CTL-BN1 with RM-CR or select commands to be sent from CTL-BN1 to RM-CR.
- This software runs on a computer browser.
- **RM Device Finder** This is application software for controlling ADECIA devices on the same network.
- It detects the ADECIA devices on the network, displays the Device Manager for each device, and updates the firmware.
- In addition, it is used to select commands to be sent from CTL-BN1 to RM-CG, RM-TT, RM-WAP, VXL1-16P, or VXC2P, or to program CTL-BN1 with control commands to be sent to other devices.

Available manuals

- The manuals for this product can be downloaded in PDF format from the Yamaha website.
- Yamaha website (Downloads) **https://download.yamaha.com/**

Product manuals

- **Owner's Manual (included)** This provides details on using this unit.
- **Safety Guide (included)** This contains the precautions for using this unit safely.
- **Reference Manual** (this document) This provides details on connecting and using this unit.

Other related manuals

- **Web GUI Device Manager Operation Guide** This provides details on the Web GUI Device Manager for each RM-series device.
- **RM Device Finder User Guide** This provides details on using RM Device Finder. It is included in the download file for the RM Device Finder application software.
- **RM Series Remote Control Protocol Specifications** This provides details on command information for acquiring and controlling information about this unit from external devices.

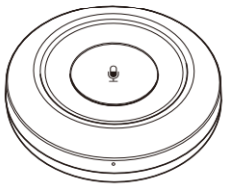
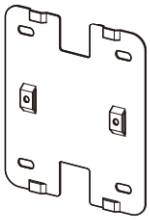
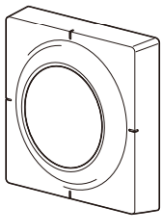
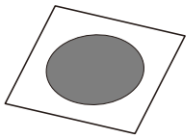
About this document

This manual uses the following signal words for important information.

WARNING	This content indicates a "risk of serious injury or death."
CAUTION	This content indicates a "risk of injury."
NOTICE	Indicates content that you must observe to prevent the product from malfunctioning, bei ng damaged, or operating incorrectly, and to avoid data loss.
NOTE	Indicates information that is related to operation and use. Read this for your reference.

- The illustrations in this manual are for instructional purposes only.
- The company names and product names in this manual are trademarks or registered trademarks of their respective companies.
- Yamaha continuously makes improvements and updates to the software included in this product. You can download the latest software from the Yamaha website.
- The contents of this manual apply to the latest specifications as of the publishing date. To obtain the latest manual, access the Yamaha website and then download the manual file.

Included items

A Controller	B Wall mounting plate	C Wall mounting cover	D Mounting screw	E Button label
 × 1	 × 1	 × 1	M3 × 8 mm  × 2	 × 1

- Owner’s Manual
- Safety Guide
- An Ethernet cable and wall mounting screws are not included.

Items to prepare

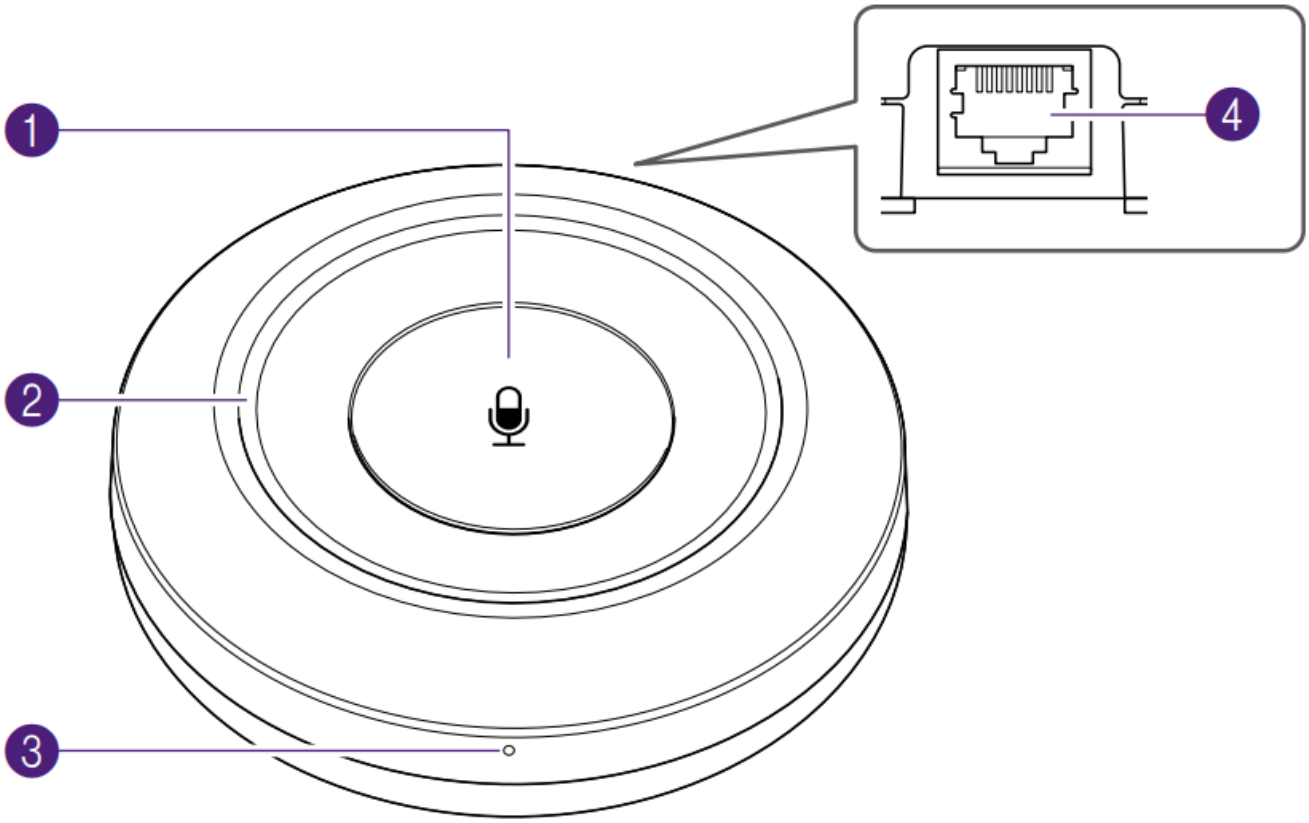
- PSE (power sourcing equipment) compliant with IEEE802.3at (PoE+) or IEEE802.3af (PoE)
- Used between this unit and a Dante device, such as RM-CR, to supply power to this unit. In an ADECIA solution, network switch SWR2311P-10G can be used as a PSE.
- PSE (power sourcing equipment): Generic term for PoE injector and PoE network switch

Ethernet cable

- Used between the following devices.
- Dante device and PSE
- PSE and this unit
- Prepare a CAT5e or higher Ethernet cable that complies with the IEEE802.3at standard.
- Cables up to a maximum length of 100 m can be used.
- **NOTE** In order to prevent electromagnetic interference, use STP (shielded twisted pair) cables.

Part names and functions

Part names



1. **Function button**
    - **Performs an assigned function**
    - Overview of functions that can be assigned to the button.
    - Assigned functions and related details.
2. **Status indicator**
    - Indicates the status of this unit and the mode or status of the function assigned to the function button.
    - The items are displayed in increasing priority starting from the top of the table.

Category	Indicator	Color/lighting status		Description
Reset/ firmware update		Blue	Flashing quickly	Resetting • Network reset • Reset of all settings
		White	Flashing quickly	Updating firmware Configuring device
Notifications/ alerts		White	Flashing	“Identify” function active
		Green	Flashing quickly	Firmware updated successfully
		Red	Flashing quickly	Severe error occurring
		Red	Flashing	Error occurring
Function	Depends on the selected function			F Overview of functions that can be assigned to the button F Assigned functions and related details
Other		White	Flashing	No function assigned Link to RM-CR assigned, but RM-CR not yet connected
		Green	Flashing	Starting up
		Unlit		The unit is not turned on An assigned function turning off the indicator was selected.

3. **Reset button**
    - Use to initialize the settings of this unit.
    - Initializing the unit
4. **Network port**
    - RJ-45 jack for connecting this unit to a network.

Overview of functions that can be assigned to the button

The functions that can be assigned to this unit’s function button are separated into three link/operation types.

1. **Linked to RM-CR**

- RM-CR (ADECIA system) functions can be used by sending commands from CTL-BN1 to RM-CR.
- Incoming remote conference calls can be answered and muted, and RM-CR presets and Control Sets can be recalled.
- Use RM-CR Device Manager to register CTL-BN1 as a subordinate of RM-CR and to assign a function to it.

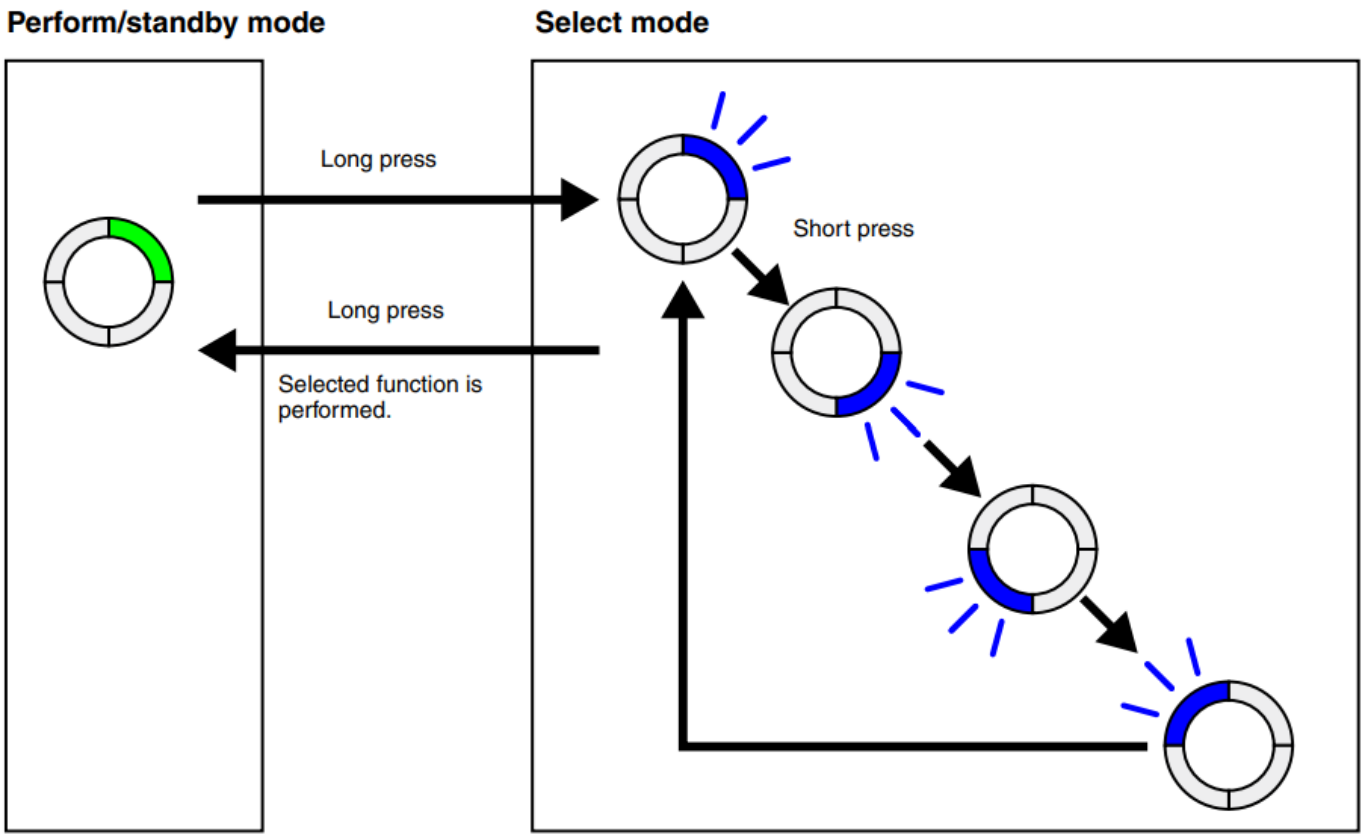
2. **Linked to an ADECIA peripheral (such as RM-CG, RM-TT, RM-WAP, VXL1-16P or VXC2P)**
    - CTL-BN1 can control an ADECIA peripheral such as RM-CG, RM-TT, RM-WAP, VXL1-16P or VXC2P.
    - Use RM Device Finder to assign a function to CTL-BN1.
3. **Independent CTL-BN1 operations**
    - This unit is used mainly to send commands (Control Sets) to devices other than ADECIA. However, it can also send commands (according to the Remote Control Protocol Specifications) to ADECIA devices.
    - Use RM Device Finder to program CTL-BN1 with function (event) commands.
    - Up to 4 events can be assigned.
    - Each event can comprise up to 5 commands.
    - Each command can comprise up to 256 bytes (hex input).
    - **NOTE** For details about the functions, refer to the end of this manual.
    - Assigned functions and related details

About operations/statuses of Preset Recall and Control Sets functions

- With the Preset Recall or Control Sets functions, up to 4 events can be assigned.
- This provides details on selecting and performing multiple functions assigned to CTL-BN1.

Setting	**Indicator**	**Long press (at least 2 seconds)**	**Short press (less than 2 seconds)**
Perform/standby mode	Lit (color depends on function)	Switches to select mode	No operation
Select mode	Flashing (blue)	Switches to perform/standby mod e Selected function is performed.	Selects (Each press of the button selects the next option in a clock wise direction.)

The selected function is performed when the unit switches from select mode to perform/standby mode.

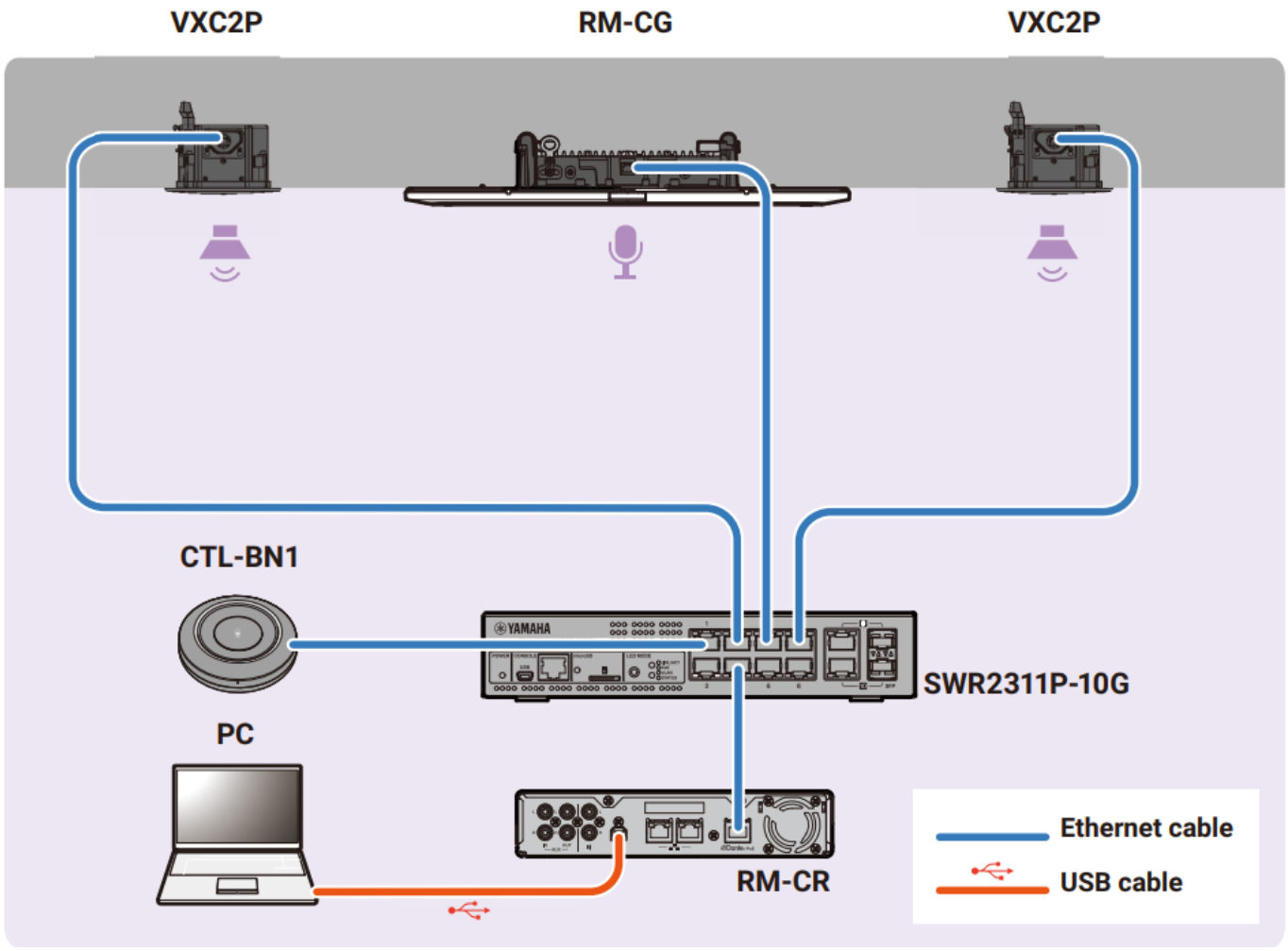


NOTE If no operation is performed for at least 5 seconds while in select mode, the unit will return to perform/standby mode and the state that it was in before select mode was entered. In this case, the selected function will not be performed.

Connection diagram

The following is a connection diagram for combining ADECIA ceiling solution devices. Refer to the diagram below to connect this unit to peripheral devices by using Ethernet cables.

Sample setup for an ADECIA ceiling solution



Connecting to peripheral devices

CAUTION

- When disconnecting the Ethernet cable from the network port, wait at least 5 seconds before reconnecting the cable. Otherwise, damage or malfunctions may result.
- With a Dante network, do not use the EEE function* of the network switch.
- The EEE function may degrade clock synchronization performance and interrupt the audio. Therefore, please note the following.
- When using managed switches, turn off the EEE function on all ports used for Dante. Do not use a switch that does not allow the EEE function to be turned off.
- When using unmanaged switches, do not use switches that support the EEE function. In such switches, the EEE function cannot be turned off.

EEE (Energy-Efficient Ethernet) function:

- Technology that reduces the power consumption of Ethernet devices during periods of low network traffic; also known as Green Ethernet or IEEE802.3az

Installing on a wall

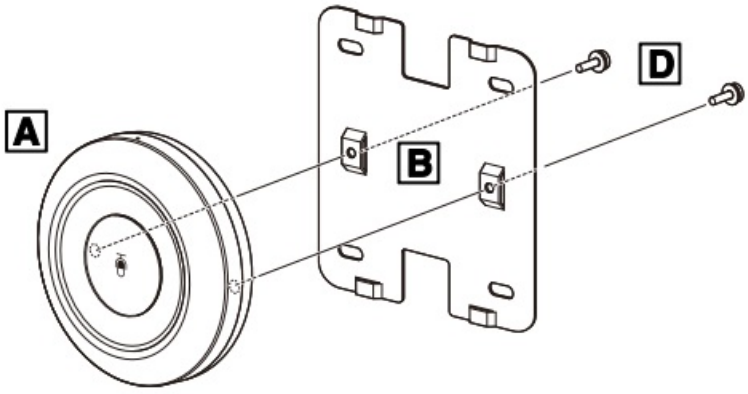
This unit can be mounted on a wall by using the wall mounting plate.

Items to prepare

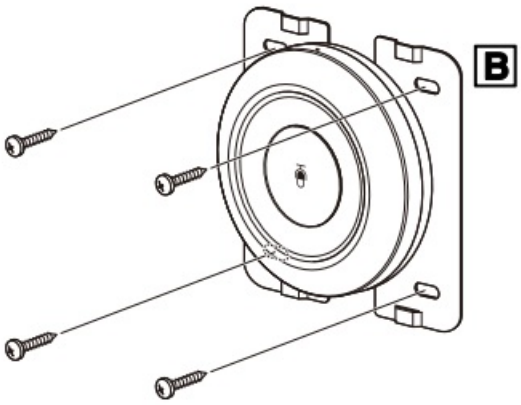
- **A** Controller
- **B** Wall mounting plate (included)
- **C** Wall mounting cover (included)
- **D** Mounting screw (M3 × 8 mm) × 2 (included)
- **E** Button label (included)
- Wall mounting screw × 4 (user provided)
- Wall mounting screws are not included. Prepare screws that are strong enough.
- For details on wall mounting screws and the installation, be sure to contact the dealer where you purchased the product or a professional contractor.
- Before installing, confirm that the mounting location is strong enough.
- **CAUTION** Wall mounting screws are not included. Prepare screws that are strong enough.
- For details on wall mounting screws and the installation, be sure to contact the dealer where you purchased the product or a professional contractor.
- Before installing, confirm that the mounting location is strong enough.
- When installing the product on a wall, position it no more than 2 meters from the ground. Otherwise, the product may be damaged or cause injuries if it falls.
- The wall mounting cover (C) can be painted. For painting it, we recommend an acrylic lacquer paint.

Installation procedure

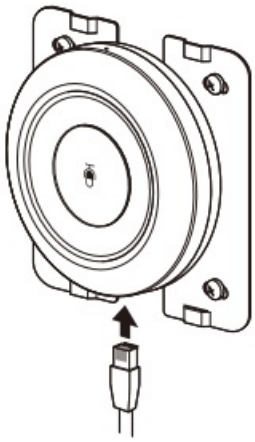
1. **Attach this unit to the wall mounting plate (B)**
    - Using the included mounting screw (D), attach the controller (A) to the wall mounting plate (B).



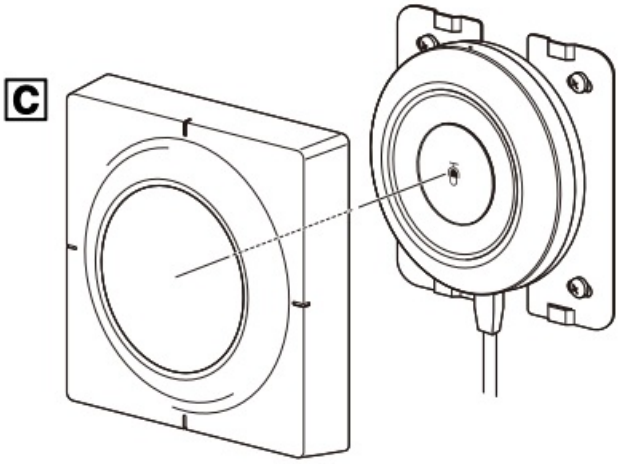
    - The illustration at the right is an installation example with the network port at the bottom.
    - **NOTE** The top and bottom of the wall mounting plate have the same shape.
    - Recommended screw tightening torque: 0.5N·m
2. **Mount on a wall**
    - Use commercially available wall mounting screws in the four holes of the wall mounting plate (B) to secure it to the wall.



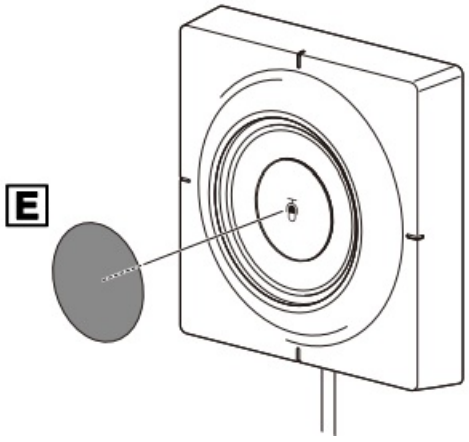
3. Connect the Ethernet cable to the network port.



4. Attach the wall mounting cover (C).



5. **Affix the button label (E).**
    - If desired, for example, to hide the function button icon, affix the button label (E) to the function button



    - **CAUTION** After installation, make sure that this unit is firmly secured. Also, regularly check that there is

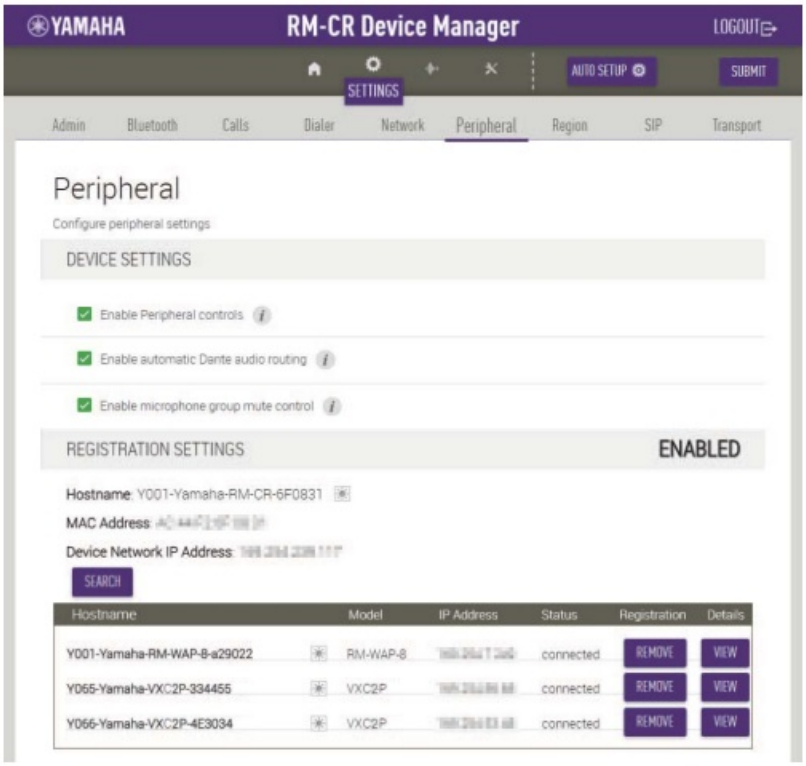
no possibility of the unit falling. We cannot be held responsible for accidents caused by incorrect installation.

- After installation, do not lean against this unit or apply a strong force to it from above. If the unit falls, injuries or damage may result.

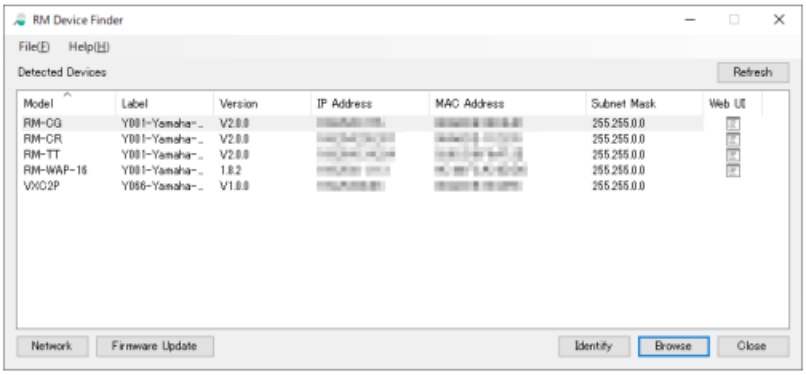
Controlling with software

- This unit can be configured and operated by using the following software.
- The software can be downloaded from the Yamaha website.
- Yamaha website (Downloads) **https://download.yamaha.com/**

1. **RM-CR Device Manager**
    - Controls RM-CR as well as devices connected to RM-CR.
    - This software runs on a computer browser. The CTL-BN1-related features are listed below.
    - Registering CTL-BN1 with RM-CR (automatic setup (AUTO SETUP) and manual registration of ADECIA devices)
    - Viewing device information
    - Updating firmware
    - Selecting commands to be sent from CTL-BN1 to RM-CR
    - For details, refer to the RM-CR/RM-CG/RM-TT Web GUI Device Manager Operation Guide.



2. **RM Device Finder**
    - Detects and manages ADECIA devices on the network.
    - The CTL-BN1-related features are listed below.
    - Viewing device information
    - Updating firmware
    - Selecting commands to be sent from CTL-BN1 to RM-CG, RM-TT, RM-WAP, VXL1-16P or VXC2P
    - Programming CTL-BN1 with commands for controlling devices other than those listed above
    - For details, refer to the RM Device Finder User Guide.



Appendix

Updating the firmware

- Firmware can be updated in any of the following ways.
    1. Using RM-CR Device Manager
    2. Using RM Device Finder
- The firmware files can be downloaded from the Yamaha website.
- Yamaha website (Downloads) **https://download.yamaha.com/**

Firmware files

- **ADECIA Firmware:** This contains all firmware files for ADECIA-compatible devices.
- **CTL-BN1 Firmware:** This is the firmware file for CTL-BN1.

Using RM-CR Device Manager

1. Download the firmware file.
   Update using RM-CR Device Manager.
    - Update via [TOOLS] menu > [FIRMWARE UPDATE] on the [Update] screen.
    - For operating procedures, refer to the RM-CR/RM-CG/RM-TT Web GUI Device Manager Operation Guide.
2. **Using RM Device Finder**
    1. Download the firmware file.
    2. Update using RM Device Finder.
        - Update via [RM Device Finder] main screen > [Firmware Update] screen.
        - For operating procedures, refer to the RM Device Finder Operation Guide.

Initializing the unit

The unit’s settings can be returned to their factory defaults (initialized) in any of the following ways.

1. Using the unit’s reset button
2. Using RM-CR Device Manager
    1. Using the unit’s reset button

- The settings can be reset by long-pressing with an ejector pin or other fine-tipped object and then releasing it. Long-press the reset button when power is being supplied via the Ethernet cable.

Long press	Status indicator	Reset target
4 seconds to less than 8 seconds	(During long-pressing/resetting) Flashes blue twice per second	Resets network-related settings
8 seconds to less than 12 seconds	(During long-pressing/resetting) Flashes blue 3 times per second	Resets all settings (Automatically restarts after reset)

2. **Using RM-CR Device Manager**
   - Initialize via [SETTINGS] [Peripheral] [REGISTRATION SETTINGS] [VIEW] beside the corresponding CTL-BN1 [RESET DEFAULTS].
   - For operating procedures, refer to the RM-CR/RM-CG/RM-TT Web GUI Device Manager Operation Guide.

General specifications

Product specifications		
Dimensions		∅100 × D29 mm
Weight		200 g
Power supply		PoE (IEEE 802.3af), DC 48 V
Maximum power consumption		2.6 W
Operating environment	**Temperature**	0 °C–40 °C
	Humidity	30%–90% (non-condensing)
Storage environment	**Temperature**	–20 °C–60 °C
	Humidity	30%–90% (non-condensing)
Indicator		Status indicator
Installation method		Tabletop, wall-mounted
Maximum number of connections to RM-CR		8
Maximum number of other manufacturers' devices that can be connected and controlled		5 (number of devices that commands can be simultaneously output to)
Included items		Owner's Manual, Safety Guide, Wall mounting cover × 1, Wall mounting plate × 1, Mounting screw × 2, Button label × 1

Network specifications	
Ethernet	Remote control, PoE
Cable requirement	CAT5e or higher (STP)

Assigned functions and related details

The functions that can be assigned to the function button as well as related details are listed below.

Function name	Explanation of function	Compatible devices							Tool for assigning the function		Indicator status	
		Linked to RM-CR	Linked to an ADECIA peripheral					Independent operations				
		RM-CR	RM-CR	RN-CG	RM-TT	RM-WAP	VXL1-16P/ VXC2P	Other	RM-CR Device Manager	RM Device Finder	Function not performed	Function performed
USB line call control	Unmuting RM-CR's USB route; answering/ disconnecting incoming calls to Teams/ Zoom	✓							✓		(Lit in white) /Lit in a color	Receiving a call: (Flashing in orange)/Lit in a color During a call/call on hold: (Lit in orange)/Lit in a color

ADECIA-Mute	Muting RM-CR's Dante input/USB output route; muting all microphone outputs Mute status notification to Teams/Zoom	ü							✓		Unlit/(Lit in white)/Lit in green/ Lit in a color	During a call/call on hold: (Lit in orange)/Flashing in a color During ADECIA-Mute: Unlit/(Flashing in red)/Flashing in a color
Mic Mute	Muting RM-CR/RM-CG/RM-TT/RM-WAP microphone (Mic Mute All)		✓	✓	✓	✓				ü	(Lit in green)/Lit in a color/Flashing in a color	(Flashing in red)/Flashing in a color
	Muting grouped RM-CR/RM-WAP microphones (Mic Mute Group)		✓			✓			✓	✓	(Lit in green)/Lit in a color/Flashing in a color	(Flashing in red)/Flashing in a color
	Muting individual RM-CR/RM-WAP microphone (Mic Mute Individual)		✓	✓	✓	✓				✓	(Lit in green)/Lit in a color/Flashing in a color	(Flashing in red)/Flashing in a color
	Muting microphones not in RM-CR/RM-WAP group (Mic Mute Force All Individual)		✓			✓			✓	✓	Lit in blue	Lit in blue
Speaker Mute	Muting RM-CR speaker	✓							✓		(Lit in green)/Lit in a color/Flashing in a color	(Flashing in red)/Flashing in a color
	Muting VXL1-16P/VXC2P speaker						✓			✓	(Lit in green)/Lit in a color/Flashing in a color	(Flashing in red)/Flashing in a color

Preset Recall	Recalling RM-CR preset	✓							✓	✓	(Lit in blue)/Lit in a color	When function performed: Returns to “Function not performed” indicator status When function selected: Flashing in blue
Control Sets	Recalling RM-CR Control Sets	✓							✓		(Lit in green/red)/Lit in a color Green: Function activated Red: Function deactivated	When function performed: Returns to “Function not performed” indicator status When function selected: Flashing in blue
	Recalling CTL-BN1 Control Sets	*1	*1	*1	*1	*1	1	✓		✓	(Lit in blue/green/red)/Lit in a color Blue: Single-command function Green: Function activated Red: Function deactivated	When function performed: Returns to “Function not performed” indicator status When function selected: Flashing in blue

Divide/ Combine Room	Recalling preset to multiple RM-CRs							✓		✓	(Lit in blue)/ Lit in a color	When function performed: Returns to “ Function not performed” indicator status When function selected: Flashing in blue
Unused	Deactivating button operation							✓	✓		(Lit in white) /Lit in a color/Flashing in a color	(Lit in white) /Lit in a color/Flashing in a color

- indicates the default setting.

  Although this unit is intended for sending commands to devices other than ADECIA, it can also send commands (according to the Remote Control Protocol Specifications) to ADECIA devices.
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- **Published 08/2024**
- **IP-A0**

Documents / Resources

	YAMAHA CTL-BN1 Programmable Button Controller [pdf] User Guide CTL-BN1 Programmable Button Controller, CTL-BN1, Programmable Button Controller, Button Controller, Controller

References

- Yamaha Downloads
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- [illegible]
- Yamaha Worldwide Representative Offices
- stiftung-ear.de/de/startseite
- User Manual