YAMAHA

AUDIO INTERFACE

Rio3224-D3
Rio1608-D3

Reference Manual

I/O RACK

EN

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Introduction

About Symbols and Markings

Symbols and Markings	Meaning
⚠ **WARNING**	This indicates a risk of serious injury or death.
⚠ **CAUTION**	This indicates a risk of injury.
NOTICE	This indicates a risk of product failure, damage or malfunction as well as data loss.
NOTE	This indicates content regarding operation and use. Read this for your information.

About the Contents of This Document

- The illustrations and screens in this manual are for instructional purposes only.
- We bear no responsibility whatsoever for the effects or impacts of using the software or this manual.

NOTE

- Where specifications for the Rio3224-D3 differ from the Rio1608-D3, this manual places specifications that apply only to the Rio1608-D3 in curly brackets { } (e.g., [INPUT] 1-32 {1-16}).
- Unless otherwise noted, the illustrations used in this manual are for the Rio3224-D3.
- If certain specifications are common to both the Rio3224-D3 and Rio1608-D3, both units are referred to collectively as “Rio-D3.”
- In this manual, the term “supported devices” refers to devices that enable you to control the Rio-D3 parameters remotely. The term “supported digital mixers” refers to Dante-compatible “supported devices.”

Intended User

This product is intended for people who can set up audio mixing systems, such as mixing engineers and operators.

Intended Usage

This product is used in audio mixing systems for halls, events, and broadcast production.

Available Documentation

Owner’s Manual (included in the product package)

This book primarily explains panel controls and functions. This manual (PDF file) can be downloaded from the Yamaha Pro Audio website.

https://www.yamahaproaudio.com/

Reference Manual for Rio3224-D3 and Rio1608-D3 (this document)

This manual provides detailed explanations of the functions and step-by-step procedures required to operate the product. The Reference Manual can be downloaded from the Yamaha Pro Audio website.

https://www.yamahaproaudio.com/

Status/Message List

This list explains the meaning of lit or flashing [SYSTEM] and [SYNC] indicators, and the messages displayed on screen.

https://manual.yamaha.com/pa/dante/status/

Firmware Updates

You can update the unit firmware to improve the operation, add functions, and correct possible malfunctions.

Information on updating the firmware can be found on the following website:

https://www.yamahaproaudio.com/

For information on updating and setting up the unit, please refer to the firmware update guide available on the website.

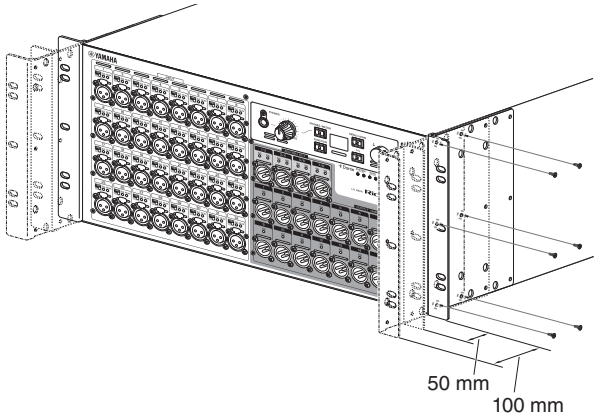
Precautions for Rack Mounting

Operation of this device is guaranteed within a temperature range of 0 to 40°C. If you mount this unit along with other Rio-D3 unit(s) or other device(s) in an EIA standard rack, the heat from each device will raise the temperature inside the rack, which may prevent the unit from achieving full performance. When rack mounting the unit, always observe the following requirements to avoid heat buildup:

- If three or more Rio-D3 units are mounted without space in the same rack, set the fan speeds to HIGH.
- If multiple units are mounted in the same rack with their fan speeds set to LOW, leave 1U space between every two units. In addition, ensure sufficient ventilation by installing a ventilation panel in these spaces, or simply leave the open spaces uncovered.
- When mounting the unit in a rack with devices such as power amplifiers that tend to generate a significant amount of heat, leave 1U or more space between this unit and other equipment. In addition, ensure sufficient ventilation by installing a ventilation panel in these spaces, or simply leave the open spaces uncovered.
- To ensure sufficient airflow, leave the rear of the rack open and position it at least 10 cm from walls, ceilings or other surfaces. If the rear of the rack cannot be left open, install a commercially-available fan kit or similar forced ventilation system to secure sufficient airflow. If you have installed a fan kit, there may be cases in which closing the rear of the rack will produce a greater cooling effect. For more information, refer to the instruction manuals for the rack and fan kit.

Recessed Installation

If you want to recess the front panel surface of the device from the front edge of the rack, you can adjust the position of the rack mount brackets to recess the device by 50 mm or 100 mm, as shown in the illustration below.



In the same way, rack mount hardware can also be attached to the rear panel surface.

NOTE

When you install the brackets, use the same screws that you just removed from the unit.

Source Code Distribution

For three years after the final factory shipment, you may request from Yamaha the source code for any portions of the product which are licensed under the GNU General Public License / GNU Lesser General Public License / RealNetworks Public Source License by writing to the following address:

10-1 Nakazawa-cho, Chuo-ku, Hamamatsu, 430-8650, JAPAN
Marketing & Sales Group, PA Business Strategy Department, Professional Solutions Division, Audio Products Business Unit, Yamaha Corporation

The source code will be provided at no charge; however, we may require you to reimburse Yamaha for the cost of delivering the source code to you. The source code can be downloaded by visiting the following URL:

https://www.yamahaproaudio.com/

- Note that we shall bear no responsibility whatsoever for any damage arising from changes (additions/deletions) made to the software for this product by a third party other than Yamaha (or party authorized by Yamaha).
- Note that re-use of source code released to the public domain by Yamaha is not guaranteed. Yamaha shall not bear any responsibility whatsoever for the source code.

About Dante

This product features Dante technology as a protocol to transmit audio signals. Dante is a network protocol developed by Audinate. It is designed to transmit multi-channel audio signals at various sampling and bit rates, as well as device control signals over a single Giga-bit Ethernet (GbE) network.

It also offers the following advantages:

- Under optimal conditions in a Giga-bit Ethernet environment, you could theoretically transmit 48 kHz/24-bit audio via up to 512 ins and 512 outs, for a total of 1,024 channels.
- Devices in the network can be detected and set automatically, and device names can be assigned as desired.
- Dante uses high accuracy network synchronization standards to achieve sample-accurate playback with extremely low latency and jitter.
- Dante supports redundant connections via primary and secondary circuits to defend against unforeseen difficulties.
- Connecting a computer to Dante network over Ethernet enables you to directly input or output audio signals without using any audio interface devices. (Please note that you need to use Dante Virtual Soundcard or Dante Via.)
- Audio can be transmitted between devices up to 100 m apart using a CAT5e network cable. However, the maximum practical distance may vary depending on the cable used.

Visit the Audinate website for more details on Dante:
https://www.audinate.com/
More information on Dante is also posted on the Yamaha Pro Audio website:
https://www.yamahaproaudio.com/

This product uses a Dante module provided by Audinate Pty. Ltd.
You can use Dante Controller to display information about the Dante module used in this product.
Visit the Audinate website for more information on the open-source software license applicable to each Dante module:
https://www.audinate.com/software-licensing

NOTE

If you are using a Dante network, do not use the network switch EEE function*:
The EEE function may deteriorate the clock synchronization performance and interrupt audio.
Therefore, please note the following:

- If you are using managed switches, turn off the EEE function on all ports used for Dante. Do not use any switch that does not allow the EEE function to be turned off.
- If 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) is a technology that reduces switch power consumption during periods of low network traffic. It is also known as Green Ethernet or IEEE802.3az.

Dante Network Settings and Audio Routing

This product does not enable you to change Dante network settings, such as Sample Rate, Latency, or Encoding. The Dante network settings will be controlled from Dante Controller or the supported digital mixers. For details on Dante network settings, refer to the corresponding owner's manual for the supported digital mixer.

The audio inputs to and outputs from multiple Dante devices can be freely routed within a Dante network. This means that you will need to make settings that specify the destination to which each channel's signal will be sent. Use Dante Controller to specify the Dante network and audio routing settings.

NOTE

For more information on how to operate Dante Controller and configure detailed settings, refer to the Dante Controller Owner's Manual.

About Connections

There are two ways to connect this product to a Dante network: daisy-chain connection and star connection.

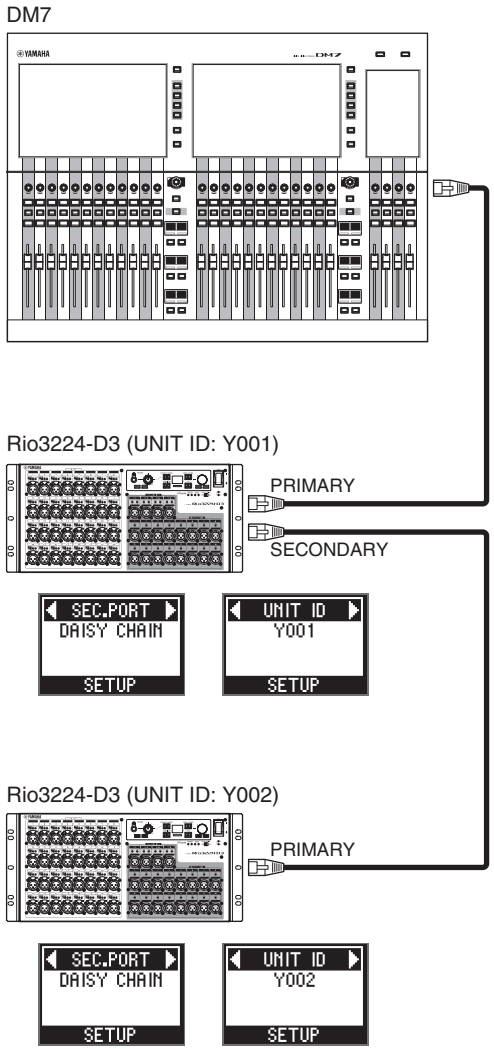
NOTE

A daisy chain connection is suitable for a simple system with a small number of devices. Use a star network if a large number of devices are connected.

Daisy Chain Network

A daisy chain is a wiring scheme in which multiple devices are connected together in sequence. In this way, networking is simple and requires no network switches.

If you connect a large number of devices, you must set a higher latency value to avoid skipping audio that could be caused by an increased delay in signal transfer among the devices. Also, if a connection is broken in a daisy chain network, the signal flow is interrupted at that point and no signal will be transferred beyond that point.



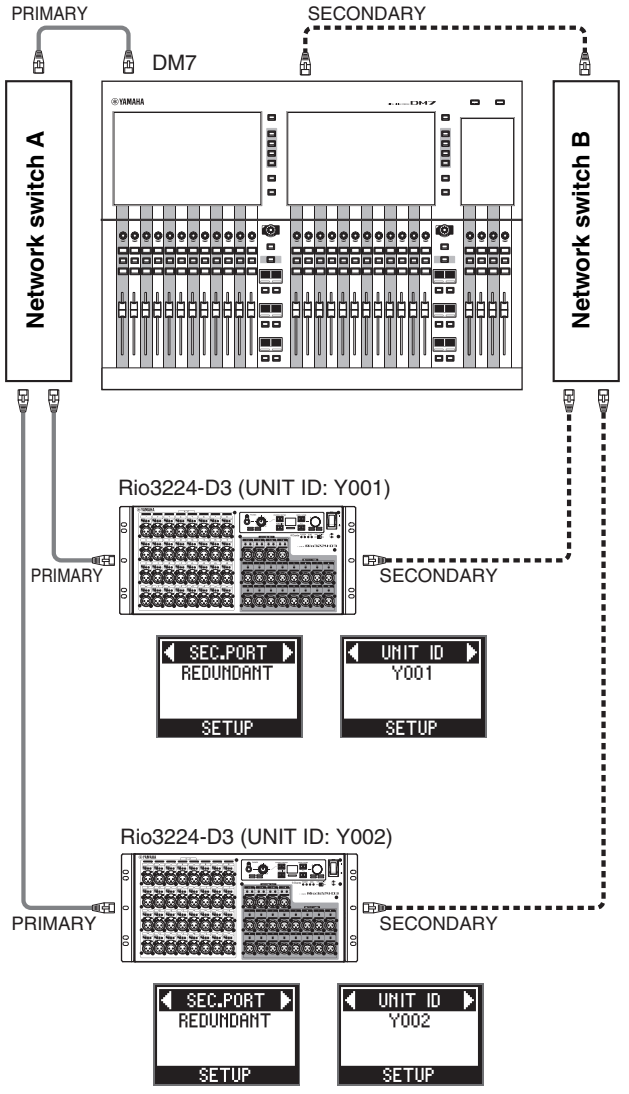
Star Network

In a star network, each device is connected to a central network switch. Using a GbE-compatible network switch enables you to configure a wide-band, large-scale network. We recommend a network switch that features various functions to control and monitor the network (such as Qos, the ability to assign priority to data flows - e.g., clock synchronization or audio transmission on certain data circuits.)

With this topology, it is common to configure a redundant network so that an unexpected network problem will not affect any audio or otherwise stable communications.

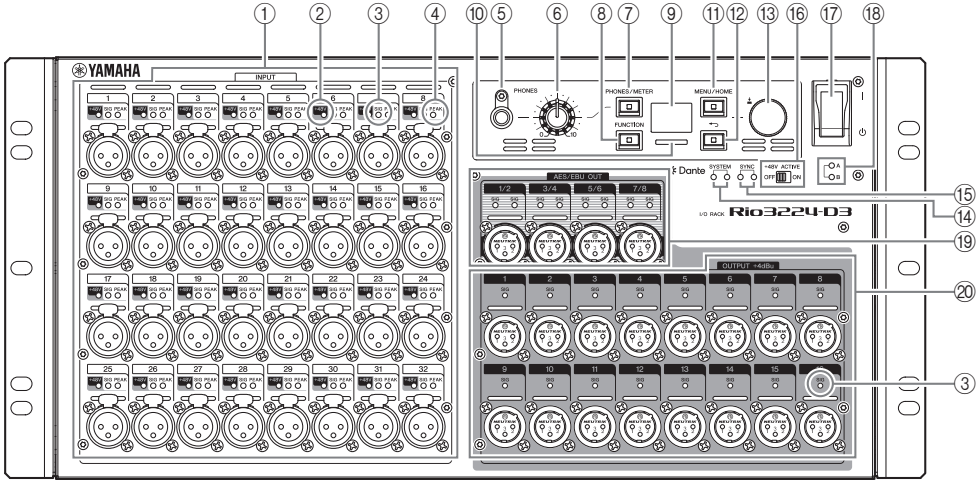
About redundant networks

A redundant network consists of two circuits, a primary circuit and a secondary circuit. Normally, the network operates on the primary circuit. However, if the primary connection is broken, the secondary circuit will automatically take over communications. Therefore, using a redundant network with a star topology would increase communication stability relative to a daisy chain network.



Controls and Functions

Front Panel



① **[INPUT] 1–32 {1–16}**
These are balanced XLR 3-hole chassis input connectors that enable you to input analog signals to each channel. The rated input level range is from –62 dBu to +10 dBu. Phantom power of +48 V can be supplied to devices that require it via the input connectors.

② **[+48V]**
These indicators light when +48 V phantom power is turned ON for the corresponding input channels. On/off switching is controlled from this unit's front panel display, or from a supported device. No phantom power will be supplied, however, if the [+48V ACTIVE] switch is OFF, even if phantom power to individual channels is turned ON (the [+48V] indicators will flash).

WARNING

To prevent possible damage to speakers, make sure that power amplifiers and/or powered speakers are turned OFF when switching phantom power ON or OFF. In addition, make sure that all output controls on the digital mixing console are set to minimum when turning phantom power ON or OFF. Sudden high level peaks caused by the switching operation can damage equipment as well as the hearing of those present.

NOTICE

- If phantom power is not required, you must turn OFF the [+48V ACTIVE] switch or the phantom power setting.
- When turning phantom power ON, make sure that no equipment other than phantom-powered devices such as condenser microphones are connected to the corresponding [INPUT] connectors. Applying phantom power to a device that does not require phantom power can damage the connected device.
- Do not connect or disconnect a device to an [INPUT] connector while phantom power is applied. Doing so can damage the connected device and/or the unit itself.

③ **[SIG] (Signal)**
These indicators light green when the input or output signal applied to the corresponding channel reaches or exceeds –40 dBFS.

④ **[PEAK]**
These indicators light red when the signal level of the corresponding input channel reaches or exceeds –3 dBFS.

⑤ **[PHONES] socket**
This is a headphone socket that outputs assigned audio signals (INPUT/OUTPUT). You can view the signal assignments and parameter values on the PHONES screen.

⑥ **[PHONES] level knob**
This knob adjusts the level of the signal output from the [PHONES] socket.

⑦ **[PHONES/METER]**
Press this key repeatedly to display the PHONES screen or one of the METER screens. The screen changes each time you press the key.
Press and hold to clear PEAK HOLD. (See "Clearing the PEAK HOLD" on page 24.)

⑧ **[FUNCTION]**
Press this key to recall the registered function screen.

Related link(s)
"FUNCTION LIST Screen"

⑨ **Display**
This shows information such as the parameter values of each channel's head amp, or error and status indications.

⑩ Color bar indicator

Indicates the status of the unit.

You can change the light settings that indicate a normal or abnormal status.

■ Normal status

You can change the color and light on/off settings.

Light	Lights up blue.
	Lights up green.
Off	Not lit.

■ Abnormal status

You can select the settings below to adjust system response when a fatal error occurs (Error) or when an abnormality exists but you can continue using the unit (Caution).

Light	Error	Lights up red. (You cannot change the color.)
	Caution	Lights up orange. (You cannot change the color.)
Flash	Error	Red + Normal status setting (blue)
		Red + Normal status setting (green)
		Red + Normal status setting (not lit)
	Caution	Orange + Normal status setting (blue)
		Orange + Normal status setting (green)
		Orange + Normal status setting (not lit)
Color for abnormal status (red or orange) is turned off. (Only the indicator of the color selected for normal status will light up.)	Error/Caution	Lights up in the color selected for normal status (blue)
		Lights up in the color selected for normal status (green)
		Not lit.

Related link(s)

"Modifying the Behavior of the Color Bar Indicator for Normal Status"
"Modifying the Behavior of the Color Bar Indicator for Error Status"

⑪ [MENU/HOME]

While the home screen is displayed, press this key to display the MENU TOP screen that enables you to select a menu. While a screen other than the home screen is displayed, press this key to display the home screen.

NOTE

- Press and hold this key and the [⮌] (Back) key simultaneously for more than three seconds to display a popup screen that enables you to set or cancel panel lock. (See "Locking the Panel" and "Unlocking the Panel" on page 24.)
- Press and hold this key to display a popup screen that enables you to set the display contrast and brightness. It also enables you to set the color bar indicator brightness. In addition, the CONTRAST and BRIGHTNESS settings return to their initial values. (See "Adjusting the Contrast and Brightness" on page 23.)

⑫ [⮌] (Back)

Press this key to display the previous screen.

NOTE

Press and hold this key and the [MENU/ HOME] key simultaneously for more than three seconds to display a popup screen that enables you to set or cancel panel lock. (See "Locking the Panel" and "Unlocking the Panel" on page 24.)

⑬ Encoder with switch

By turning the encoder, you can select a menu or parameter, or edit a parameter value shown on the display. By pressing the encoder, you can confirm a selection or switch the display.

⑭ [SYSTEM]

These indicators show the operating status of the unit. If the green indicator lights steadily and the red indicator turns off, the unit is operating normally.

If the power to the unit is turned on but the green indicator remains off, or if the red indicator lights or flashes, the unit is not functioning properly.

For more information, refer to page 36 or the following Status/Message list*.

*** Status/Message list**

This list explains the meaning of lit or flashing [SYSTEM] and [SYNC] indicators, and the messages displayed on screen.

https://manual.yamaha.com/pa/dante/status/

⑮ [SYNC]

These indicators show the operating status of the Dante module built into the unit.

A solid green indicator indicates that the device is a clock follower and that the clocks are synchronized.

A flashing green indicator indicates that the device is the clock leader.

If the power to the unit is turned on but the green indicator remains off, the unit is not functioning properly.

For more information on the orange indicator and other details, refer to page 36 or the Status/Message list* above.

⑯ [+48V ACTIVE]

Turns +48 V phantom power on or off. If the [+48V ACTIVE] switch is off, no phantom power will be supplied to the unit's input connectors even if the individual input phantom power settings are ON. In this case, the [+48V] indicators will flash on channels for which phantom power is turned ON. The switch is set to off when the unit is shipped from the factory.

⑰ **Power switch [I]/[⏻]**
Toggles between power on (I) and off (⏻).

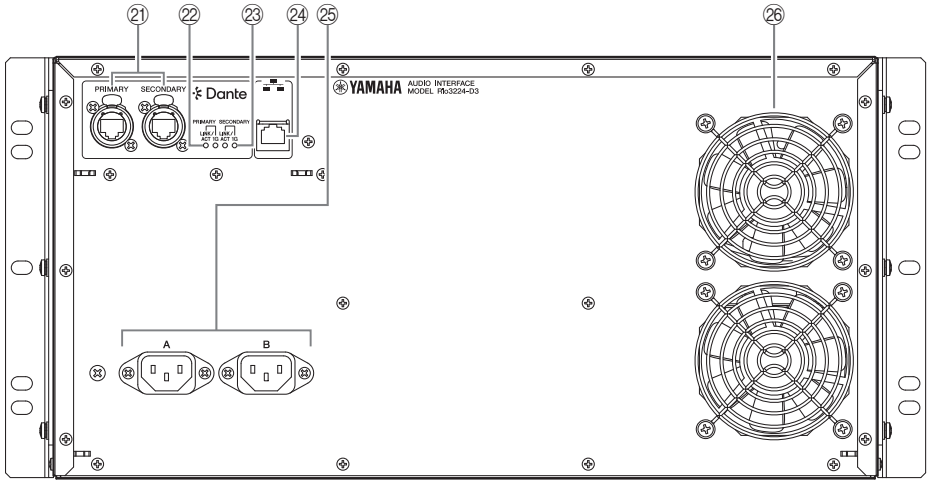
NOTICE
Turning the unit on and off in rapid succession can cause it to malfunction. After turning the unit off, wait at least six seconds before turning it on again.

⑱ **Power indicator [A]/[B]**
Lights when the power to the unit is ON.

⑲ **[AES/EBU OUT] 1/2–7/8 (Rio3224-D3 only)**
These balanced XLR 3-pin chassis output connectors deliver AES/EBU format digital audio signals from the unit's corresponding output channels. Each connector outputs 2-channel digital audio.

⑳ **[OUTPUT +4dBu] 1–16 {1–8}**
These are balanced XLR 3-pin chassis output connectors that enable you to output analog signals from each channel. The rated output level is +4 dBu.

Rear Panel



㉑ **Dante [PRIMARY]/[SECONDARY]**
These etherCON (RJ-45) connectors can be connected to other Dante devices such as a RIVAGE PM, DM7, CL, or QL series unit using Ethernet cables (CAT5e or better recommended).

If SECONDARY port* is set to DAISY CHAIN, the signal that is input from one connector is transmitted to the other connector.

If SECONDARY port* is set to REDUNDANT, the Dante [PRIMARY] connector is used for the primary connection and the Dante [SECONDARY] connector is used for the secondary (backup) connection. If the unit is unable to transmit signals through the Dante [PRIMARY] connector for some reason (e.g., due to damage or accidental removal of the cable, or a failed network switch), the Dante [SECONDARY] connector will automatically take over the connection.

(* To display the SECONDARY port setting screen, first, select SETUP on the MENU TOP screen, and then confirm your selection. Next, select SEC.PORT (SECONDARY PORT) from the SETUP menu, and then confirm your selection.)

Related link(s)
"About Connections"
"SETUP menu"

NOTICE
Use an STP (Shielded Twisted Pair) cable to prevent electromagnetic interference. Make sure that the metal parts of the plugs are electrically connected to the STP cable shield by conductive tape or comparable means.

NOTE

- We recommend using RJ-45 plugs that are compatible with Neutrik etherCON CAT5e connectors. Standard RJ-45 plugs can also be used.
- Connect only Dante-compatible devices or Giga-bit Ethernet (GbE)-compatible devices (including a computer).
- If using a Dante network, do not use the EEE function of the network switch. The EEE function may deteriorate the clock synchronization performance and interrupt audio.
  For details, see the NOTE in the "About Dante" section on page 6.

㉒ **[LINK/ACT]**

These indicators show the communication status of the Dante [PRIMARY] and Dante [SECONDARY] connectors respectively.

They flash fast if the Ethernet cables are connected properly.

㉓ **[1G]**

These indicators light when the Dante network is functioning as Giga-bit Ethernet.

㉔ **Network connector**

This RJ-45 connector allows the unit to be connected to a computer via an Ethernet cable (CAT5 or higher recommended).

NOTICE

Use an STP (Shielded Twisted Pair) cable to prevent electromagnetic interference.

㉕ **AC IN connectors [A]/[B]**

Use these sockets to connect the supplied power cords. First connect each AC power cord to this unit, and then insert the power cord plug into an AC outlet.

CAUTION

Be sure to turn off the power to the unit before connecting or disconnecting each power cord.

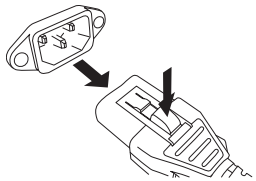
NOTE

You can ensure power redundancy by connecting power cords to both the AC IN connectors [A] and [B].

Insert each cord plug all the way until it locks in place securely.

The supplied AC power cords feature a V-lock mechanism via a latch, which prevents the power cords from disconnecting accidentally.

To disconnect each power cord, remove it while pressing the latch on the plug.



㉖ **Cooling vent**

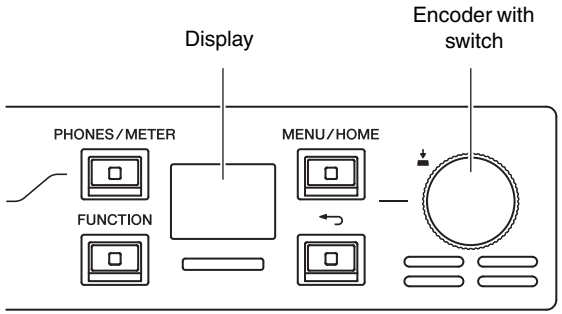
This product is equipped with a cooling fan. This vent lets warm air escape from the unit. Do not block the vent with any object.

CAUTION

Do not block the ventilation ports on this product. This product has ventilation ports at the front and rear to prevent the internal temperature from becoming too high. If the ventilation ports are blocked, heat will get trapped inside the product, which may cause malfunction or fire.

Basic Operations

Panel Operations



You can use the front panel display, [PHONES/METER] key, [FUNCTION] key, [MENU/HOME] key, [⮌] (Back) key, and the encoder with switch to set the various parameters.

Refer to the table below for information on basic operation.

Selecting an item		Turn the encoder with switch. (The selected parameter is highlighted.)
Confirming the setting		Press the encoder with switch.
Displaying the previous screen		Press the [⮌] (Back) key.

Error Display

Error popup screens

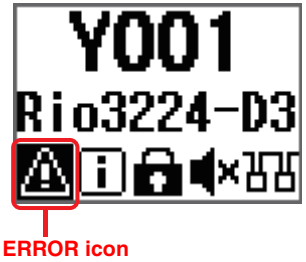
An error popup screen is displayed when an error occurs.

Example:



In addition, it is displayed when you select and confirm the ERROR icon (⚠) on the home screen.

Home screen



When an error pop-up screen is displayed, press the encoder with switch or the [⮌] (Back) key to return to the previous screen.

For a list of error messages, refer to “Status/Message List” on page 36. You can also check the error messages in the Status/Message List*.

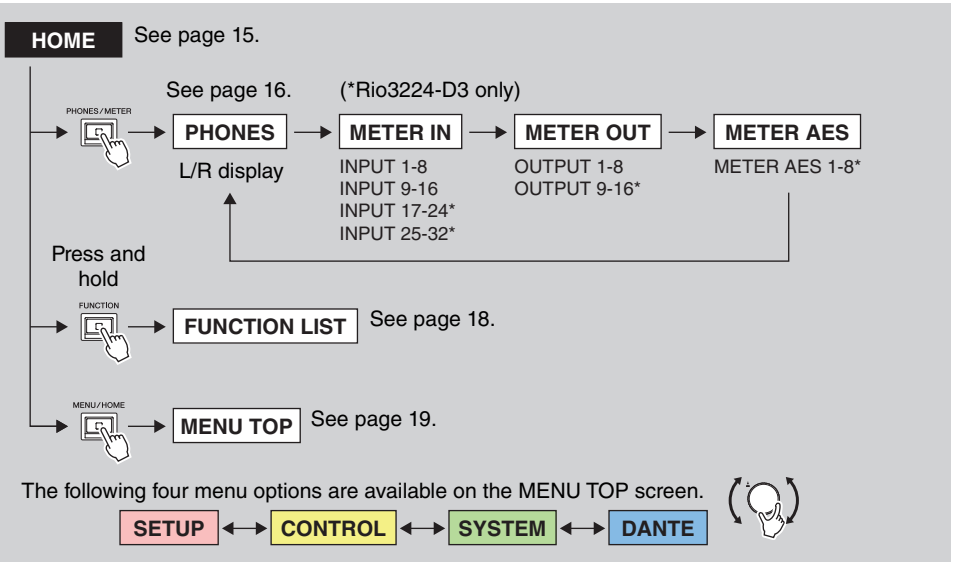
*** Status/Message list**

This list explains the meaning of lit or flashing [SYSTEM] and [SYNC] indicators, and the messages displayed on screen.

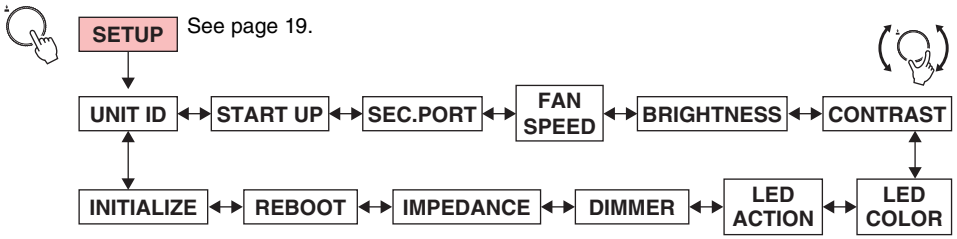
https://manual.yamaha.com/pa/dante/status/

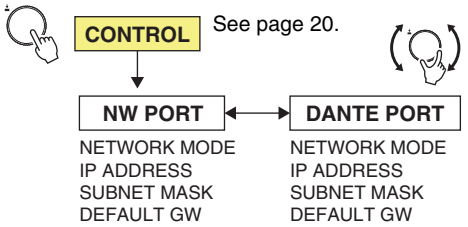
Screens

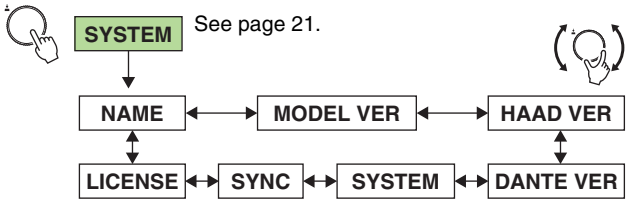
Screen Flow

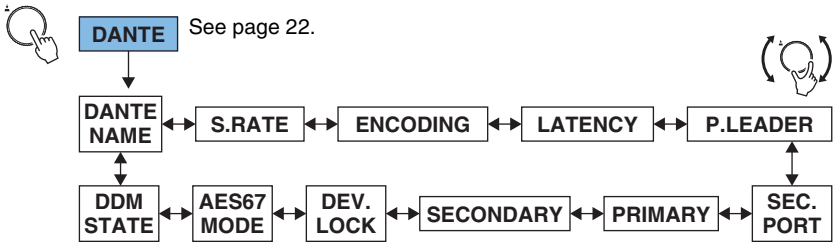


Menu options on the MENU TOP screen









DDM: Dante Domain Manager

Home Screen

UNIT ID, product device label, and status bar are displayed here.



This screen is displayed when you turn on the power switch.

In addition, it is displayed when you press the [MENU/HOME] key while any other screen is displayed.

① **UNIT ID**

The upper row on the home screen displays the UNIT ID. The initial value is Y001. You can change this to a value between Y000 and Y07F. To set the UNIT ID, use the UNIT ID parameter in the SETUP menu. (See "SETUP menu" on page 19.) Changes to the Unit ID are also reflected immediately in the device label (the last two digit of the first four characters).

② **Device label**

The middle row on the home screen displays part of the device label. The first five characters Y0##- (## represents the UNIT ID) and "Yamaha-" are not displayed. The initial value is the model name (Rio3224-D3 or Rio1608-D3). The device label can be specified from Dante Controller. Assign the device label as follows.

- Do not change the first five characters Y0##- (that include the UNIT ID). Even if you try to change these characters, they will automatically be corrected to Y0##-.
- You can use up to 31 characters total.

③ **Status bar**

The bottom row on the home screen displays the status bar, which uses icons to indicate the status of the product. Six types of icons are displayed. Turn the encoder with switch to select an icon, and then press the switch to confirm the selection to view the meaning of the icon.

NOTE

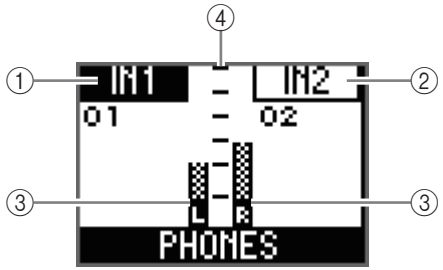
Either the PANEL LOCK icon or REMOTE ONLY icon appears in the same location. If both are enabled, the PANEL LOCK icon will be displayed.

Icons appear on the status bar under the following status:

Icon	Status	Remarks
 ERROR	An error has occurred.	You can view the status via the [SYSTEM] or [SYNC] indicator. For more information, refer to page 36 or the following Status/Message list. https://manual.yamaha.com/pa/dante/status/
 INFORMATION	There is a notification.	
 PANEL LOCK	Panel lock is enabled.	• If panel lock is enabled and REMOTE ONLY is specified, the PANEL LOCK icon will take priority to appear. • To defeat the panel lock state, press and hold the [MENU/ HOME] and [⮌] (Back) keys simultaneously for three seconds.
 REMOTE ONLY	The parameters for the INPUT/OUTPUT channels are read-only.	• This setting is typically used to control parameters only from supported devices, such as a mixing console. • Enable or disable this setting from a supported device. • Even if REMOTE ONLY is enabled, you can modify the settings in the SETUP menu.
 MUTE	Muted (all ports together).	You can change the mute setting at start up in START UP mode. See "SETUP menu" on page 19, or "Changing the Mute Setting at Start Up" on page 29.
 DAISY CHAIN	The SECONDARY port has been set to DAISY CHAIN.	You can change this setting to REDUNDANT using the SEC.PORT (SECONDARY PORT) parameter. See "SETUP menu" on page 19.

PHONES Screen

This screen enables you to switch the audio assigned to the PHONES OUT port.
You can select the L/R stereo source to be heard through the PHONES connector.
To achieve a monaural setting, assign the same source to the L ch and R ch, or set the R ch to MONO. You can also select the last two channels of Dante INPUT as the source.

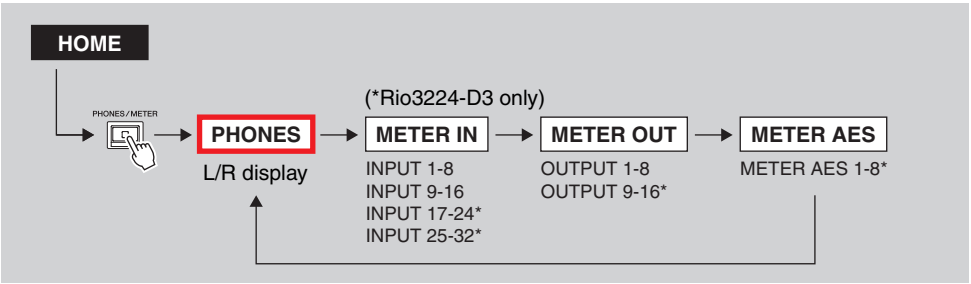


① **Channel number (L ch)**
Displays the selected L ch number.

② **Channel number (R ch)**
Displays the selected R ch number.

③ **Level meter**
Displays the selected L and R level meters.

④ **Scale**
From top to bottom: 0, –6, –12, –18, –24, –40 dB



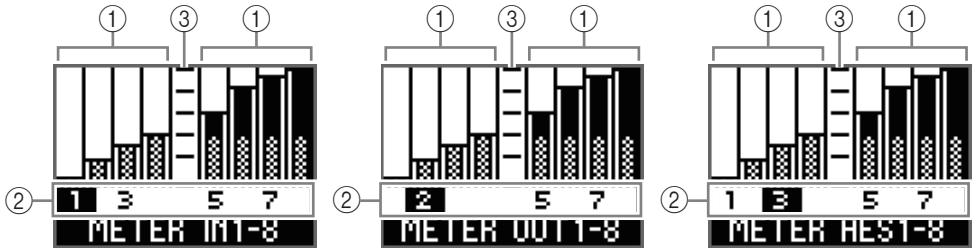
While the home screen is displayed, press the [PHONES/METER] key to display the PHONES screen.

Related link(s)

"Selecting the Channel(s) to be Assigned to the PHONES OUT Port"
"Setting the Parameters for the Selected PHONES Source"

METER Screens

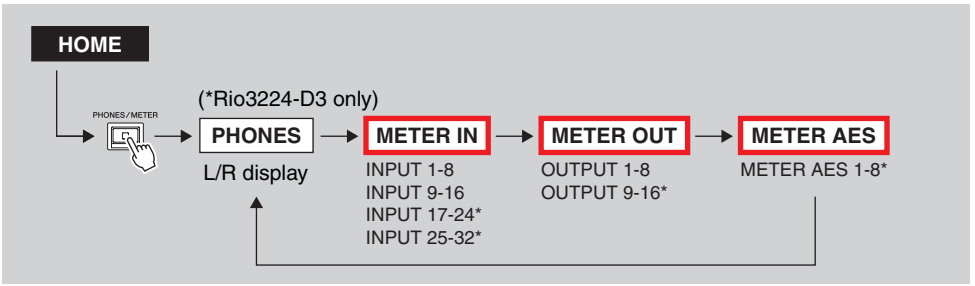
The METER screens include METER IN, METER OUT, and METER AES (Rio3224-D3 only) screens. Each screen displays a level meter.



① **Level meter**
Displays the level meter for each channel.

② **Channel number**
You can select the channel number by turning the encoder with switch. The selected channel number is highlighted.

③ **Scale**
From top to bottom: 0, –6, –12, –18, –24, –40 dB



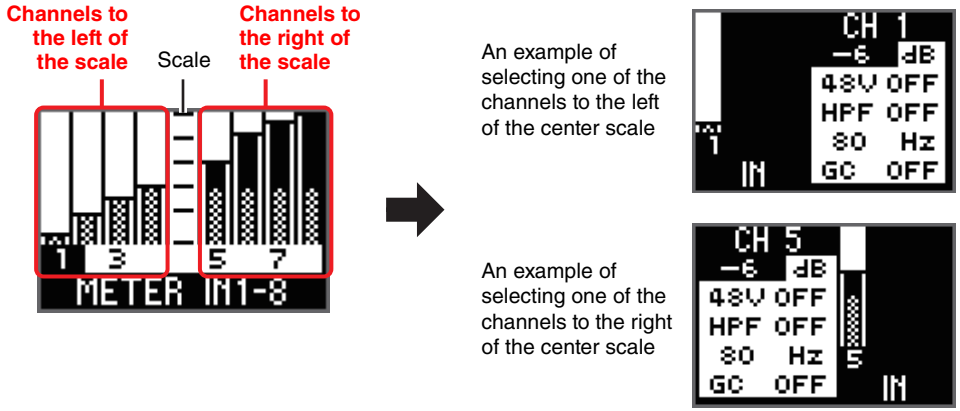
While the home screen is displayed, press the [PHONES/METER] key to display the PHONES screen. Press the [PHONES/METER] key repeatedly to switch screens.

NOTE

- On the Rio3224-D3, pressing the [PHONES/METER] key repeatedly switches among the PHONES screen, INPUT 1-8 screen, INPUT 9-16 screen, INPUT 17-24 screen, INPUT 25-32 screen, OUTPUT 1-8 screen, OUTPUT 9-16 screen, and OUTPUT AES 1-8 screen in this sequence.
- On the Rio1608-D3, pressing the [PHONES/METER] key repeatedly switches among the PHONES screen, INPUT 1-8 screen, INPUT 9-16 screen, and OUTPUT 1-8 screen in this sequence.
- If you continue rotating the encoder with switch while selecting a channel number, the display switches to the next screen. To navigate away from the PHONES screen, press the [PHONES/METER] key.

METER IN

If you select a channel number and then confirm the selection on the METER IN screen, the parameter edit screen will be displayed. You can set the HA gain, +48V ON/OFF, HPF ON/OFF, HPF cutoff frequency, and GC (Gain Compensation) ON/OFF.

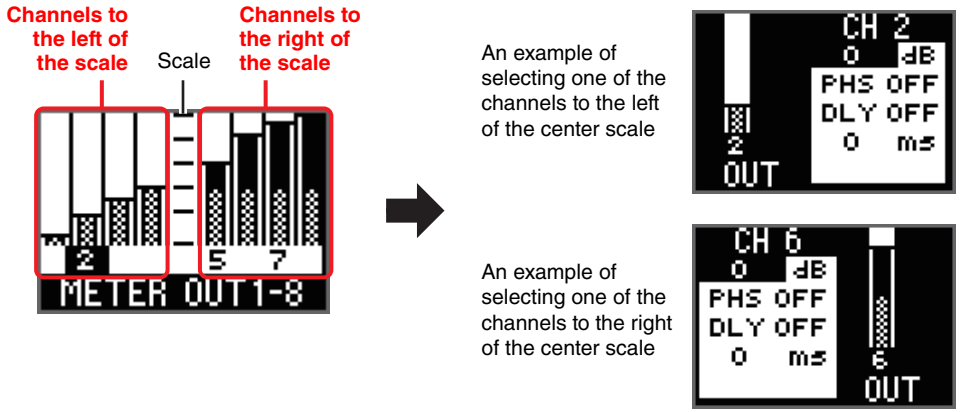


Related link(s)

"Setting the INPUT Channel Parameters"

METER OUT

If you select a channel number and then confirm the selection on the METER OUT screen, the parameter edit screen will be displayed. You can set the OUTPUT gain value, PHS (Phase) ON/OFF, DLY (Delay) ON/OFF, and delay value.

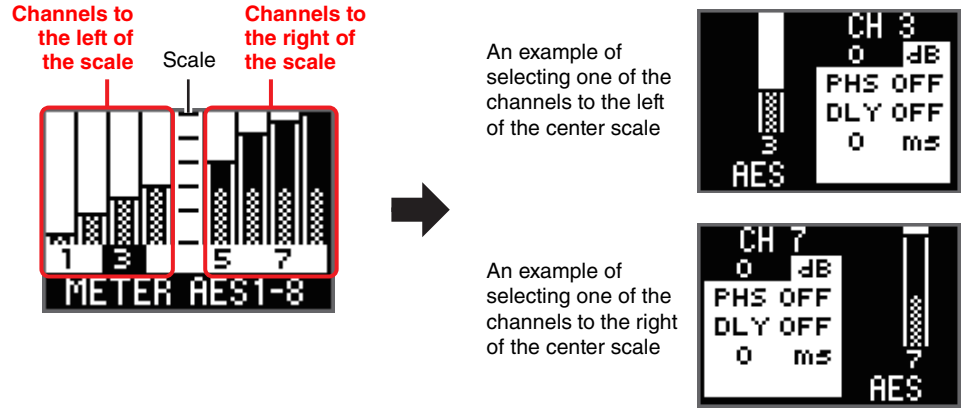


Related link(s)

"Setting the OUTPUT Channel Parameters"

METER AES

If you select a channel number and then confirm the selection on the METER AES screen, the parameter edit screen will be displayed. You can set the OUTPUT gain value, PHS (Phase) ON/OFF, DLY (Delay) ON/OFF, and delay value.

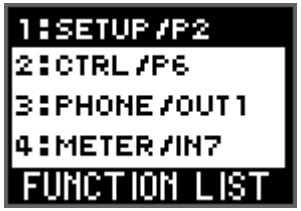


Related link(s)

"Setting the OUTPUT Channel Parameters"

FUNCTION LIST Screen

You can display a list of assigned function screen names. You can also cancel and remove an assignment from the list.





While the home screen is displayed, press and hold the [FUNCTION] key to display the FUNCTION LIST screen.

Assigning a function screen

1. Access a screen that you want to assign, and then press and hold the [FUNCTION] key.

The FUNCTION ASSIGN popup screen is displayed.

(The figure below shows an example of what happens when you press and hold the [FUNCTION] key while the START UP screen, the second page of the SETUP menu, is displayed.)



NOTE

- If the number of screens assigned in the FUNCTION LIST has reached its limit, the message "FUNCTION LIST FULL! PLS REMOVE" appears. Select and confirm OK, reduce the number of screens assigned in the FUNCTION LIST, and then repeat step 1.
- The home screen and FUNCTION LIST screen cannot be assigned as function screens. If you press and hold the [FUNCTION] key while a screen that cannot be assigned is displayed, the message "CANNOT ADD THIS SCREEN TO LIST!" will appear. Select and confirm OK, display a screen that can be assigned, and then repeat step 1.

2. Turn the encoder with switch to select OK, and then press it to confirm.

Screen function assignment is complete, and the FUNCTION LIST screen is displayed. The assigned function name now appears on the FUNCTION LIST screen.

NOTE

- If you turn the encoder with switch to select CANCEL and then press it to confirm, the function screen will not be assigned and the FUNCTION LIST screen will be displayed.
- While the FUNCTION ASSIGN popup screen is displayed, you cannot use the [↩] (Back) key to return to the previous screen.

Recalling the assigned function screen

Press the [FUNCTION] key to recall the assigned function screen.

Pressing the [FUNCTION] key repeatedly will display the assigned screens in sequence, starting with number 1 in the list.

Canceling the assignment of the function screen

1. While the home screen is displayed, press and hold the [FUNCTION] key to display the FUNCTION LIST screen.

The selected function name is highlighted.



2. Turn the encoder with switch to select the function name for which you want to cancel the assignment, and then press it to confirm.

The FUNCTION ASSIGN popup screen is displayed.

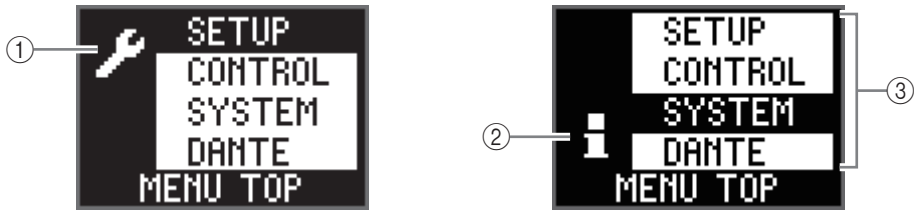
3. Turn the encoder with switch to select REMOVE, and then press it to confirm.

Screen function assignment is canceled, and the FUNCTION LIST screen is displayed. The function name for the canceled assignment is deleted from the FUNCTION LIST, and the list numbers for the remaining function names displayed below the deleted name will be updated.



MENU TOP Screen

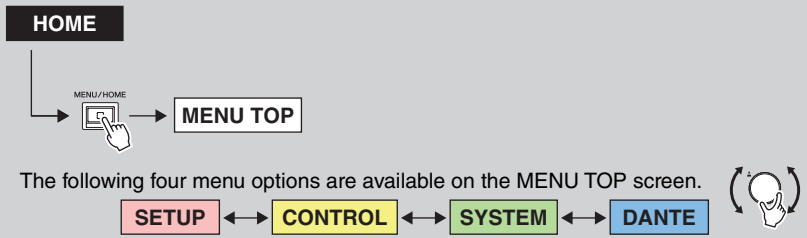
This screen enables you to select a menu.



① **Set-up icon**
Appears when the SETUP menu or CONTROL menu is selected. Both menus enable you to make settings.

② **Information icon**
Appears when the SYSTEM menu or DANTE menu is selected. Both menus enable you to view information.

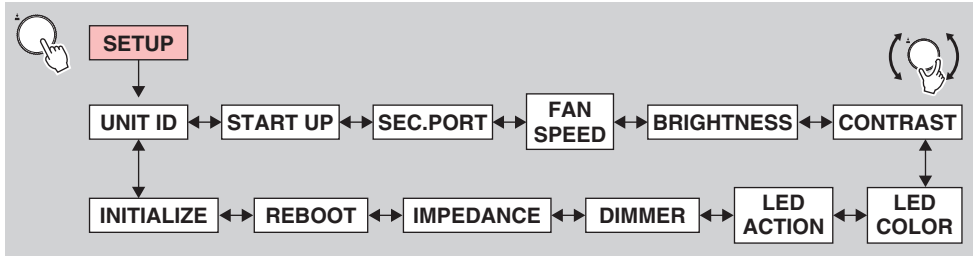
③ **Menu**
Displays menu options. You can choose SETUP, CONTROL, SYSTEM, or DANTE.



While the home screen is displayed, press the [MENU/HOME] key to display the MENU TOP screen. Turn the encoder with switch to select a menu option, and then press it to confirm.

SETUP menu

This shows the current values for various setup parameters on this unit.



While the SETUP screen is displayed, turn the encoder with switch to select a parameter, and then press it to confirm.

The following table provides a description of the items and parameters that can be selected, and the values that can be set.

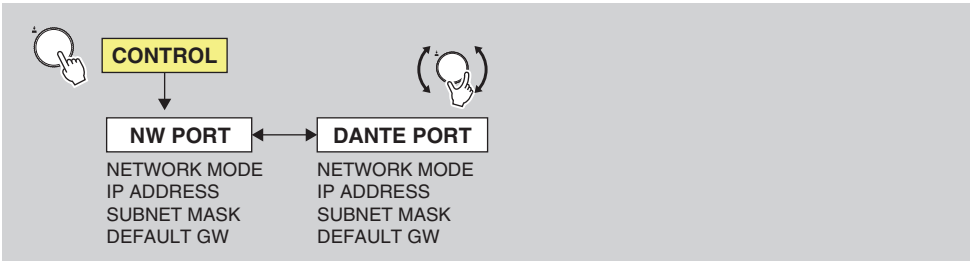
Item	Description	Setting value ("*" represents the default value.)
UNIT ID	Specifies the unit ID.	Y000(0)–Y07F(127) Y001*
START UP	Specifies how the HA parameters will be applied at start up (START UP mode). This setting will be applied the next time the unit starts up. To control the HA parameters from a supported device, select REFRESH with MUTE. In this way, you can prevent inadvertently outputting unmuted audio, since the audio inputs and outputs will be muted until the supported device sends out the parameter settings. REFRESH with MUTE: The unit starts up with the initialized HA parameters. The inputs and outputs will be muted until you finish setting the HA parameters from the supported device. RESUME w/o MUTE: The unit starts up in the state it was in prior to the most recent power-off. The inputs and outputs will not be muted. REFRESH w/o MUTE: The unit starts up with the initialized HA parameters. The initial values are the same as for REFRESH with MUTE. However, the inputs and outputs will not be muted.	REFRESH with MUTE*, RESUME w/o MUTE, REFRESH w/o MUTE

Item	Description	Setting value ("*" represents the default value.)
SEC.PORT (SECONDARY PORT)	Specifies the operating mode of the SECONDARY port.	DAISY CHAIN*, REDUNDANT
FAN SPEED	Specifies the rotation speed of the fan.	LOW*, HIGH
BRIGHTNESS	Specifies the brightness of the display and color bar indicator. You can also adjust this parameter by pressing and holding the [MENU/HOME] key to display the Contrast/Brightness adjustment popup screen, and turning the encoder with switch.	0–20 20*
CONTRAST	Specifies the display contrast. You can also adjust this parameter by pressing and holding the [MENU/HOME] key to display the Contrast/Brightness adjustment popup screen, and turning the encoder with switch.	0–20 10*
LED COLOR	Specifies the color of the color bar indicator.	OFF, GREEN*, BLUE
LED ACTION	Specifies the type of error indicator on the color bar indicator.	OFF, BLINK, ON*
DIMMER	Specifies the time duration until the backlight turns off. (If DIMMER is set, the display brightness is capped at 10 if the setting value exceeds 10. Otherwise, the specified value is used as is.)	10 sec, 30 sec*, 1 min, 3 min, 30 min, NEVER
IMPEDANCE	Specifies the output load impedance.	10K*, 600 (Unit: Ω)
REBOOT	Displays a confirmation message for restarting. Press [OK] to restart the unit.	RESTART THE SYSTEM
INITIALIZE	Specifies the type of memory that you want to initialize. Select the memory, and then press the encoder with switch. A confirmation message appears. Press [OK] to execute initialization. FACTORY PRESET: Reverts this product to factory settings. CURRENT PARAMETERS: Initializes the HA and OUTPUT parameters. DANTE SETTINGS: Initializes the Dante settings. **NOTE** See "Performing Initialization" on page 30 for instructions.	FACTORY PRESET*, CURRENT PARAMETERS, DANTE SETTINGS

CONTROL menu

You can view and edit the settings for the two Ethernet ports on the unit.

You can control the Rio-D3 from R Remote or ProVisionaire by using the NW PORT (network port) and/or DANTE PORT (Dante port) for communications. You can use the NW PORT (network port) and DANTE PORT (Dante port) simultaneously when you want to handle the Dante circuit and control circuit separately.



While the CONTROL screen is displayed, turn the encoder with switch to select a parameter, and then press it to confirm.

NOTE

- Make sure that the network addresses of the NW PORT and DANTE PORT are unique. If you set them to the same address, an error message will appear.
- Make sure that the network addresses of the NW PORT and Dante PRIMARY/SECONDARY are unique. If you set them to the same address, an error message will appear.
- Do not set two or more values to DEFAULT GATEWAY. If you set two or more values, only one will be accepted as valid.

◆ NW PORT (Network port)

Network port is used for the control circuit. For more information on communications, refer to section (3) of “Communication methods” on page 35.

The following table provides a description of the items and parameters that can be selected, and the values that can be set.

Item	Description	Setting value (“*” represents the default value.)
NETWORK MODE	Selects the IP address setting mode for the network port. This IP address is used when remotely controlling the unit from a computer, or when updating the firmware.	DHCP, STATIC IP*
IP ADDRESS	Specifies the IP address for the network port (when STATIC IP is specified).	192.168.0.2* In the case of DHCP, the current value is shown.
SUBNET MASK	Specifies the SUBNET MASK for the network port (when STATIC IP is specified).	255.255.255.0* In the case of DHCP, the current value is shown.
DEFAULT GW	Specifies the DEFAULT GATEWAY for the network port (when STATIC IP is specified).	192.168.0.1* In the case of DHCP, the current value is shown.

◆ DANTE PORT

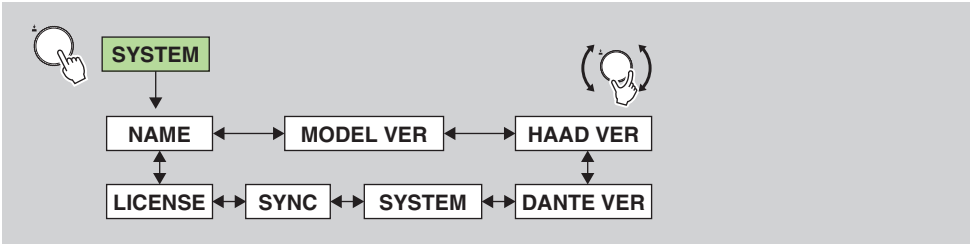
Dante port is used for the control circuit. For more information on communications, refer to section (2) of “Communication methods” on page 35.

The following table provides a description of the items and parameters that can be selected, and the values that can be set.

Item	Description	Setting value (“*” represents the default value.)
NETWORK MODE	Selects the IP address setting mode for the Dante port. This IP address is used when remotely controlling the unit from a computer, or when updating the firmware.	DHCP *, STATIC IP
IP ADDRESS	Specifies the IP address for the Dante ports (when STATIC IP is specified).	(determined by DHCP or Link Local)*
SUBNET MASK	Specifies the SUBNET MASK for the Dante ports (when STATIC IP is specified).	(determined by DHCP or Link Local)*
DEFAULT GW	Specifies the DEFAULT GATEWAY for the Dante port (when STATIC IP is specified).	(determined by DHCP or Link Local)*

SYSTEM menu

This menu displays the unit version number, the SYSTEM/SYNC status, and other information.



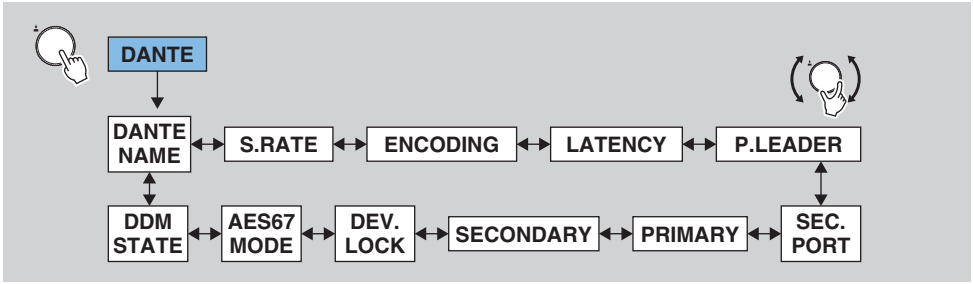
While the SYSTEM screen is displayed, turn the encoder with switch to select a parameter.

The screen displays the following items. You cannot modify these settings on the Rio-D3.

Item	Description
NAME	Indicates the Dante device label.
MODEL VER	Indicates the firmware version of the Rio-D3 unit.
HAAD VER	Indicates the HAAD FPGA version of the Rio-D3 unit.
DANTE VER	Indicates the Dante versions. (Dante firmware version, FPGA version, Yamaha software version)
SYSTEM	Indicates the system status of the Rio-D3. For details on the messages, refer to “SYSTEM messages” on page 36.
SYNC	Indicates the synchronization status of the Rio-D3. For details on the messages, refer to “SYNC messages” on page 37.
LICENSE	Displays the open-source license. Press the encoder with switch to select and highlight the license text. While the license text is highlighted, rotate the encoder with switch to scroll through the text.

DANTE menu

This menu displays information for Dante-related settings.



While the DANTE screen is displayed, turn the encoder with switch to select a parameter.

The screen displays the following items. You cannot modify these settings on the Rio-D3.

Item	Description
DANTE NAME	Indicates the Dante device label. The device label can be specified from Dante Controller. Follow the instructions below: • Do not modify the first five characters, which are Y0##- (“##” represents the UNIT ID). Even if you try to change these characters, they will automatically be corrected to Y0##-. • You can use up to 31 characters total.
S.RATE (SAMPLE RATE)	Indicates the sampling frequency (Fs) and Pull-Up/Down status.
ENCODING	Indicates the bit depth. Supports 24-bit and 32-bit. The default value is 24-bit. You can modify the setting from Dante Controller.
LATENCY	Indicates the latency value. Supports 0.25 ms, 0.5 ms, 1.0 ms, 2.0 ms, and 5.0 ms. (If the unit belongs to a DDM domain, you can additionally select from 10 ms, 20 ms, and 40 ms.) The default value is 1.0 ms. You can modify the setting from Dante Controller.
P.LEADER (PREFERRED LEADER)	Indicates the PREFERRED LEADER status (ON/OFF). (If the unit belongs to a DDM domain, a “-” (hyphen) appears.)
SEC.PORT (SECONDARY PORT)	Indicates the operating mode setting for the SECONDARY port.
PRIMARY	Indicates the link status and speed, and IP address for the PRIMARY port.
SECONDARY	Indicates the link status and speed, and IP address for the SECONDARY port.
DEV.LOCK	Indicates the DANTE DEVICE LOCK status (ON/OFF).
AES67 MODE	Indicates the AES67 MODE status (ENABLE/DISABLE).
DDM STATE	Indicates whether the unit belongs to a DDM domain, and the status of Controller Permissions. • - (no DDM connection) • READ/WRITE • READ ONLY • DISCONNECT (when the unit belongs to a DDM domain, but is not connected to DDM)

Operations

Adjusting the Contrast and Brightness

You can adjust the display contrast and the brightness of the display and color bar indicator by following one of two methods as described below.

Pressing and holding the [MENU/HOME] key

1. **Press and hold the [MENU/HOME] key. (You can do so on any screen.)**
The Contrast/Brightness adjustment popup screen is displayed, and an editable parameter is highlighted. In addition, the CONTRAST and BRIGHTNESS settings return to their initial values (CONTRAST: 10; BRIGHTNESS: 20).

2. **While continuing to press and hold the [MENU/HOME] key, press the encoder with switch to select the CONTRAST or BRIGHTNESS parameter.**
Pressing the encoder with switch repeatedly will change the parameter selection.



3. **While continuing to press and hold the [MENU/HOME] key, turn the encoder with switch to modify the parameter value.**
The parameter value is immediately modified.

Using BRIGHTNESS and CONTRAST in the SETUP menu

1. **While the MENU TOP screen is displayed, turn the encoder with switch to select SETUP, and then press it to confirm.**

2. **In the SETUP menu, turn the encoder with switch to select BRIGHTNESS or CONTRAST, and then press it to confirm.**





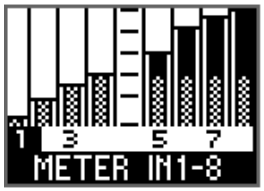
3. **Turn the encoder with switch to select a value, and then press it to confirm.**

Related link(s)
"SETUP menu"

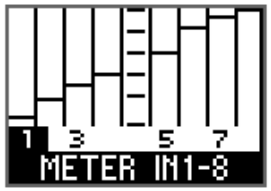
Clearing the PEAK HOLD

The PEAK HOLD setting is always on.

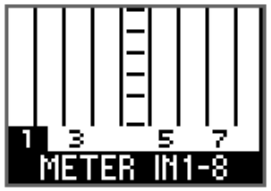
While a level meter screen is displayed, press and hold the [PHONES/METER] key to clear the peak indication being held for all ports.



When the meters are moving



When the meters are not moving, but only the PEAK HOLD bar is displayed



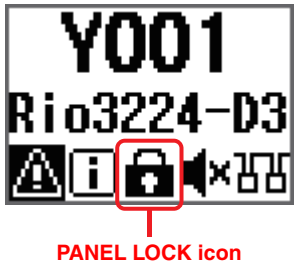
When PEAK HOLD is cleared

Locking the Panel

You can lock the panel to prevent parameter changes due to accidental operation. Even when panel lock is enabled, you can still control parameters from supported devices.

While the unit is operating, press and hold the [MENU/HOME] key and [⮌] (Back) key simultaneously for more than 3 seconds.

The message “FRONT PANEL LOCKED” appears. In addition, the PANEL LOCK icon appears on the status bar of the home screen.



NOTE

- This state will be maintained even if the power is turned off and then turned back on.
- If you turn the power off while the panel is locked to perform a forced initialization*, the panel lock will be disabled.

  * This is one of the methods by which to initialize the unit. To initialize the unit, while pressing and holding the [FUNCTION], [MENU/HOME], and [⮌] (Back) keys simultaneously, turn the power on. See “Performing a forced initialization” on page 30.

Unlocking the Panel

While the panel is locked, press and hold the [MENU/HOME] and [⮌] (Back) keys simultaneously for more than 3 seconds.

The message “FRONT PANEL UNLOCKED” appears, and the panel is unlocked. In addition, the PANEL LOCK icon disappears from the home screen.

Related link(s)

“Home Screen”

Modifying the Behavior of the Color Bar Indicator for Normal Status

You can modify the light on/off and color settings for the color bar indicator that indicates a normal status.

1. **While the MENU TOP screen is displayed, turn the encoder with switch to select SETUP, and then press it to confirm.**
2. **In the SETUP menu, turn the encoder with switch to select LED COLOR, and then press it to confirm.**



3. **Turn the encoder with switch to select OFF (not lit), GREEN (lit), or BLUE (lit), and then press it to confirm.**

Related link(s)

"Color bar indicator" in the "Front Panel" section.
"SETUP menu"

Modifying the Behavior of the Color Bar Indicator for Error Status

You can modify the light on/flash/off settings for the color bar indicator that indicates an error or warning.

1. **While the MENU TOP screen is displayed, turn the encoder with switch to select SETUP, and then press it to confirm.**
2. **In the SETUP menu, turn the encoder with switch to select LED ACTION, and then press it to confirm.**



3. **Turn the encoder with switch to select OFF (not lit), BLINK, or ON (lit), and then press it to confirm.**

Related link(s)

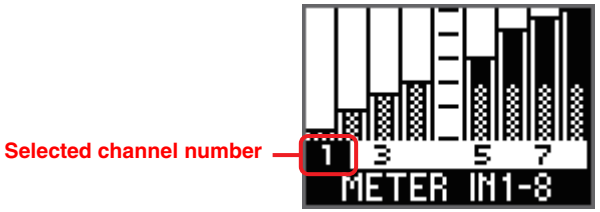
"Color bar indicator" in the "Front Panel" section.
"SETUP menu"

Setting the INPUT Channel Parameters

You can set the HA gain value (–6 dB to +66 dB), +48V (phantom power) ON/OFF, HPF ON/OFF, HPF cutoff frequency (20.0 Hz to 600 Hz), and GC (Gain Compensation) ON/OFF.

1. While the METER IN screen is displayed, turn the encoder with switch to select a channel number.

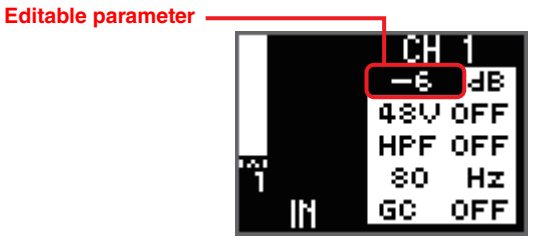
The [+48V], [SIG], and [PEAK] indicators for the selected channel light up once (Port Identify function).



(Example) METER IN 1-8 screen

2. Press the encoder with switch to display the parameter edit screen.

An editable parameter is highlighted.



Parameter edit screen

NOTE

Press the [⮌] (Back) key on the parameter edit screen to return to the METER IN screen.

3. Press the encoder with switch repeatedly to highlight the parameter you want to edit, and then turn the encoder to modify the parameter value.

The parameter value is immediately modified. Press the encoder with switch to move to the next parameter.

NOTE

If you confirm the change to the GC setting from OFF to ON, the HA gain value for the corresponding channel will be used as the compensation gain value. On the other hand, if you confirm the change to the GC setting from ON to OFF, the compensation gain value will be used as the HA gain value.

4. When you finish setting the parameters, press the [⮌] (Back) key to return to the METER IN screen.

Related link(s)

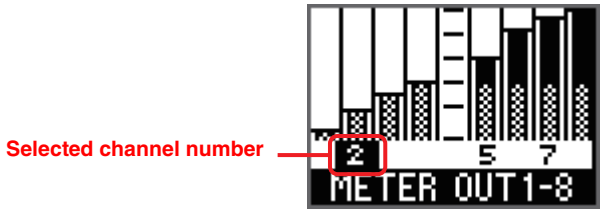
"METER IN"

Setting the OUTPUT Channel Parameters

You can set the OUTPUT gain value (–96 dB to 24 dB), PHS (Phase) ON/OFF, DLY (Delay) ON/OFF, and delay value. You can also apply the same procedure to the METER AES screen, which is featured only on the Rio3224-D3.

1. While the METER OUT screen is displayed, turn the encoder with switch to select a channel number.

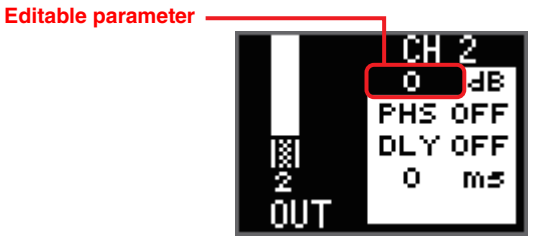
The [SIG] indicator for the selected channel lights up once (Port Identify function).



(Example) METER OUT 1-8 screen

2. Press the encoder with switch to display the parameter edit screen.

An editable parameter is highlighted.



Parameter edit screen

3. Press the encoder with switch repeatedly to highlight the parameter you want to edit, and then turn the encoder to modify the parameter value.

The parameter value is immediately modified. Press the encoder with switch to move to the next parameter.

NOTE

The delay value set from the Rio-D3 is specified in milliseconds (ms). If you want to specify this value in microseconds (µs), do so from a supported device.

4. When you finish setting the parameters, press the [⮌] (Back) key to return to the METER OUT screen.

Related link(s)

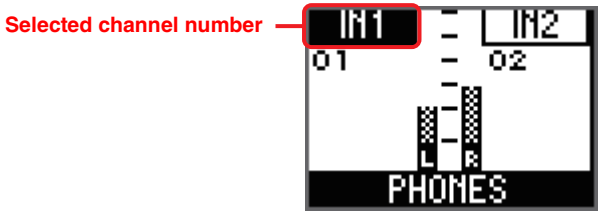
"METER OUT"
"METER AES"

Selecting the Channel(s) to be Assigned to the PHONES OUT Port

This setting supports both monaural and stereo signals.

1. While the PHONES screen is displayed, turn the encoder with switch to select a channel number.

The selected channel is immediately confirmed. When the channel is selected, the corresponding indicators ([+48V], [SIG], and [PEAK] indicators for the INPUT port; [SIG] indicator for the OUTPUT port) light up once (Port Identify function).



PHONES screen

NOTE

- If you assign a monaural channel, set the R ch to MONO, or assign the same channel number to the L ch and R ch.
- You can also select the last two Dante receive channels, which enables you to send any audio signal from a supported mixer to PHONES (for example, for the purpose of communication between engineers, or FOH audio transmission).

2. To switch between L ch and R ch selection, press and hold the encoder with switch.

Related link(s)

"PHONES Screen"
"Setting the Parameters for the Selected PHONES Source"

Setting the Parameters for the Selected PHONES Source

You can set the following parameters for the INPUT channel assigned to PHONES.

- HA Gain
- +48V ON/OFF
- HPF ON/OFF
- HPF Cutoff Frequency

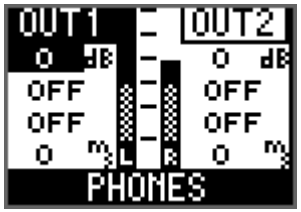


NOTE

Use the METER screen to set GC (Gain Compensation).

You can set the following parameters for the OUTPUT channel (including AES on the Rio3224-D3) assigned to PHONES.

- OUTPUT Gain
- Phase ON/OFF
- Delay ON/OFF
- OUTPUT Delay

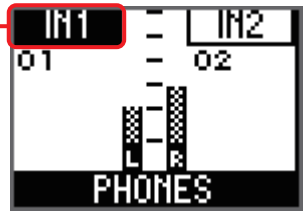


NOTE

You cannot set the parameters for the selected Dante channels.

1. Make sure that the number of the channel for which you want to edit is selected on the PHONES screen.

Selected channel number



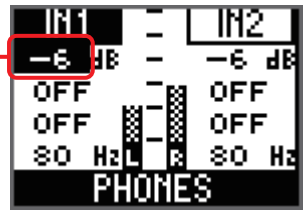
NOTE

For more information on selecting the channel, refer to “Selecting the Channel(s) to be Assigned to the PHONES OUT Port” on page 27.

2. Press the encoder with switch to display the parameter edit screen.

An editable parameter is highlighted.

Editable parameter



3. Press the encoder with switch repeatedly to highlight the parameter you want to edit, and then turn the encoder to modify the parameter value.

INPUT:

Turning the encoder with switch immediately changes and confirms the HA gain and HPF cutoff frequency values. On the other hand, you must press the encoder with switch to confirm a change to the ON/OFF setting for +48V or HPF.

OUTPUT:

Turning the encoder with switch immediately changes and confirms the gain and delay values. On the other hand, you must press the encoder with switch to confirm a change to the ON/OFF setting for PHS (Phase) or DLY (Delay).

4. When you finish setting the parameters, press the [↩] (Back) key to return to the PHONES screen.

Related link(s)

“PHONES Screen”
“Selecting the Channel(s) to be Assigned to the PHONES OUT Port”

Changing the Mute Setting at Start Up

When you first start up and use this product after purchasing it, the inputs and outputs will be muted until the unit receives HA parameter settings.

NOTE

The message “SYNCHRONIZING WITH CONSOLE OR CONTROLLER” appears, and the [SYNC] indicator lights up orange (see page 37). In addition, the MUTE icon ( ) appears on the home screen.

This is because START UP mode is set to REFRESH with MUTE by default.



You can change the mute setting at start up in START UP mode.

1. **While the MENU TOP screen is displayed, turn the encoder with switch to select SETUP, and then press it to confirm.**
2. **In the SETUP menu, turn the encoder with switch to select START UP (START UP mode), and then press it to confirm.**
3. **Turn the encoder with switch to select REFRESH with MUTE, RESUME w/o MUTE, or REFRESH w/o MUTE.**

REFRESH with MUTE (Default setting)

The unit starts up with the initialized HA parameters. The inputs and outputs will be muted until the unit receives HA parameter settings from the supported device.

NOTE

To control the HA parameters from the supported device, select this option to prevent inadvertently outputting unmuted audio until the settings are received.

RESUME w/o MUTE

The unit starts up in the state it was in prior to the most recent power-off. The inputs and outputs will not be muted.

REFRESH w/o MUTE

The unit starts up with the initialized HA parameters. The initial values are the same as for REFRESH with MUTE. However, the inputs and outputs will not be muted.

Related link(s)

“SETUP menu”

Performing Initialization

Initializing the unit (Restoring the factory settings)

There are two methods by which to restore the factory settings.

NOTICE

When you initialize the internal memory, all content that had been saved in memory will be lost and cannot be restored. Use caution when performing this operation.

■Performing a forced initialization

If an error occurs in the unit's internal memory and you become unable to operate the unit, follow the steps below.

1. Turn off the power to the unit.

2. Turn the power ON while pressing and holding the [FUNCTION], [MENU/HOME], and [↩] (Back) keys simultaneously, and then wait until the home screen is displayed (in about 20 seconds) while you continue to hold down the three keys.

The message "FACTORY INITIALIZE ACCEPTED!" appears, and the initialization process begins.



NOTE

If you perform a forced initialization while the panel is locked, the panel will be unlocked.

3. When you see the message "INITIALIZE DONE. REBOOT?," turn the encoder with switch to select OK, and then press it to confirm. The unit reboots.

NOTE

After the initialization is complete, be sure to select OK to reboot the unit before starting to use it.

■Selecting FACTORY PRESET on screen

1. While the MENU TOP screen is displayed, turn the encoder with switch to select SETUP, and then press it to confirm.

2. In the SETUP menu, turn the encoder with switch to select INITIALIZE, and then press it to confirm.

3. Turn the encoder with switch to select FACTORY PRESET.



4. When you see the message "FACTORY PRESET INITIALIZE?," turn the encoder with switch to select OK, and then press it to confirm.

The initialization process begins.

NOTE

If you turn the encoder with switch to select CANCEL, and then press it to confirm, the initialization process will not begin, and the previous screen will be displayed.

5. When you see the message "INITIALIZE DONE. REBOOT?," turn the encoder with switch to select OK, and then press it to confirm. The unit reboots.

NOTE

After the initialization is complete, be sure to select OK to reboot the unit before starting to use it.

Related link(s)

"SETUP menu"

Initializing the current parameters

Follow the steps below to reset the HA and OUTPUT parameter values to the factory settings.

1. **While the MENU TOP screen is displayed, turn the encoder with switch to select SETUP, and then press it to confirm.**
2. **In the SETUP menu, turn the encoder with switch to select INITIALIZE, and then press it to confirm.**
3. **Turn the encoder with switch to select CURRENT PARAMETERS.**



4. **When you see the message "CURRENT PARAMETERS INITIALIZE?," turn the encoder with switch to select OK, and then press it to confirm.**
   Initialization of the HA and OUTPUT parameters begins.

NOTE

If you turn the encoder with switch to select CANCEL, and then press it to confirm, the initialization process will not begin, and the previous screen will be displayed.

Related link(s)

"SETUP menu"

Initializing the Dante settings

Follow the steps below to reset the Dante parameter values to the factory settings.

1. **While the MENU TOP screen is displayed, turn the encoder with switch to select SETUP, and then press it to confirm.**
2. **In the SETUP menu, turn the encoder with switch to select INITIALIZE, and then press it to confirm.**
3. **Turn the encoder with switch to select DANTE SETTINGS.**



4. **When you see the message "DANTE SETTINGS INITIALIZE?," turn the encoder with switch to select OK, and then press it to confirm.**
   Initialization of the Dante settings begins.

NOTE

If you turn the encoder with switch to select CANCEL, and then press it to confirm, the initialization process will not begin, and the previous screen will be displayed.

Related link(s)

"SETUP menu"

Factory-set initial values

The following table provides the factory-set initial values.

Parameter			Initial value
SETUP		UNIT ID	Y001
		START UP (START UP Mode)	REFRESH with MUTE
		SEC.PORT (SECONDARY PORT)	DAISY CHAIN
		FAN SPEED	LOW
		BRIGHTNESS	20
		CONTRAST	10
		LED COLOR	GREEN
		LED ACTION	ON
		DIMMER	30 sec
		IMPEDANCE	10 kΩ
CONTROL	**NW PORT**	NETWORK MODE	STATIC IP
		IP ADDRESS	192.168.0.2
		SUBNET MASK	255.255.255.0
		DEFAULT GW	192.168.0.1
CONTROL	**DANTE PORT**	NETWORK MODE	DHCP
		IP ADDRESS	(determined by DHCP or Link Local)
		SUBNET MASK	(determined by DHCP or Link Local)
		DEFAULT GW	(determined by DHCP or Link Local)
HA parameter		HA Gain	–6 dB
		+48V	OFF
		HPF	OFF, 80 Hz
		GC (GAIN COMPENSATION)	OFF, –6 dB
OUTPUT parameter		PHONES Patch	L: - (No assignment), R: MONO
		OUTPUT Gain	0 dB
		PHS (PHASE)	OFF
		DLY (DELAY)	OFF, 0.00 ms

Parameter		Initial value
Dante settings	Sample Rate	96 kHz (follower), Pull-up/down = None*1
	Latency	1.0 msec
	Encoding	PCM 24-bit
	Dante Redundancy	Switched
	IP Address	Auto
	Device Label	Y001-Yamaha-Rio3224-D3-nnnnnn*2 Y001-Yamaha-Rio1608-D3-nnnnnn*2
	Channel Label	<Channel number>
	AES67 Mode	Disabled
	Device Lock	Unlock

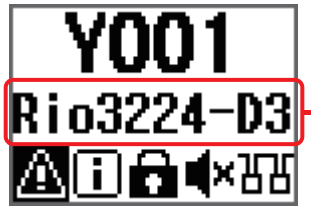
*1 The default setting of the Sample Rate is 96 kHz. Please be careful when using Rio-D3 in combination with devices that do not support 96 kHz (such as CL or QL series).

*2 "nnnnnn" represents the lowest six digits of the Dante Primary MAC Address.

Operations From the External Device

Specifying the Device Label

The device label can be specified from Dante Controller.



Device label
The middle row on the home screen displays part of the device label. The first five characters Y0##- (## represents the UNIT ID) and "Yamaha-" are not displayed.

Assign the device label as follows.

- Do not modify the first five characters, which are Y0##- ("Y0##" represents the UNIT ID). Even if you try to change these characters, they will automatically be corrected to Y0##-.
- You can use up to 31 characters total.

Identifying the Rio-D3 among the Devices in the Network

To identify the target Rio-D3 among multiple devices in the network, issue a Device Identify command from a supported device or Dante Controller.

Issuing the command from a supported device

If the Device Identify command is issued from a supported device, all indicators on the front panel of the unit ([+48V], [SIG], [PEAK], [SYSTEM], and [SYNC]) other than the power indicators [A]/[B] will flash only while you are touching the mixer or pressing the mouse in R Remote. In this case, the display and color bar indicators do not flash.

Issuing the command from Dante Controller

If the Device Identify command is issued from Dante Controller, all indicators on the front panel of the unit ([+48V], [SIG], [PEAK], [SYSTEM], and [SYNC]) other than the power indicators [A]/[B] will flash for ten seconds. In this case, the display and color bar indicators do not flash.

Identifying the I/O Port among the Devices in the Network

To identify the target I/O port among multiple devices in the network, issue a Port Identify command from a supported device.

If the Port Identify command is issued from a supported device, the following indicators will light up only while you are touching the mixer* or pressing the mouse in R Remote.

* With CL and QL series units, this works only while IDENTIFY I/O DEVICE PORT BY [SEL] is set to ON and you are pressing the [SEL] key of the I/O port assigned to the channel.

Identifying the INPUT port

The [+48V], [SIG], and [PEAK] indicators on the front panel for the corresponding port light up.

Identifying the OUTPUT port

The [SIG] indicator for the corresponding port lights up.

NOTE

If you change the port selection on the Rio-D3, the Port Identify command will be executed for one second.

Turning Remote Only On/Off

The Remote Only function disables parameter editing from the front panel of the Rio-D3 to prevent unintentional changes to parameter values.

This function is always off when the Rio-D3 starts up.

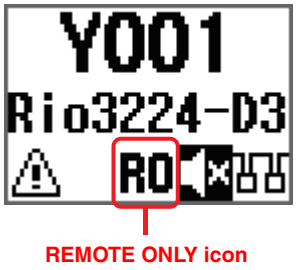
NOTE

- You can still edit the SETUP menu items (SETUP and CONTROL) even when Remote Only is On.
- You can still adjust parameters from a supported device even when Remote Only is On.

To turn it On

Set it to On from the supported device when the device and the Rio-D3 are synchronized. Even if the connection to the supported device is lost while the Remote Only function is On, the function will remain turned On.

When Remote Only is On, the REMOTE ONLY icon appears on the home screen of the Rio-D3 display.



To turn it Off

Disable the function from the supported device, or turn the power to the Rio-D3 off and then on again.

When Remote Only is turned Off, the REMOTE ONLY icon disappears.

Control from an External Device

Connecting the Rio-D3 to a supported device enables you to control the Rio-D3 remotely. The display of the supported device that is connected to the Rio-D3 indicates the model name and UNIT ID of the Rio-D3.

For information on connecting a supported device to the Rio-D3, and monitoring and controlling the unit from the device, please refer to the owner's manual for the corresponding supported device.

Parameters that you can monitor and control

"*" (asterisk) indicates a parameter that applies to With Recall. The With Recall function applies the HA parameters stored in the mixing console to the Rio-D3 when a scene is recalled on the console.

Parameter	Description
HA Gain*	You can adjust the gain in the range of –6 dB to +66 dB in 1 dB units.
+48V ON/OFF*	Turns +48V phantom power ON or OFF for each channel.
HPF ON/OFF*	Turns the high pass filter ON or OFF.
HPF Cutoff Frequency*	Adjusts the cutoff frequency of the high pass filter (12 dB/Oct.) in the range of 20 Hz to 600 Hz in 60 steps.
GC ON/OFF*	Turns the Gain Compensation ON or OFF.
OUTPUT Gain	Specifies the OUTPUT gain.
OUTPUT PHS (Phase) ON/OFF	Turns OUTPUT Phase on/off.
OUTPUT DLY (Delay) ON/OFF	Turns OUTPUT Delay on/off.
OUTPUT Delay	Specifies the OUTPUT Delay value.
OUTPUT Load Impedance	Specifies the output load impedance.
REMOTE ONLY ON/OFF	Turns Remote Only on/off.
+48V ACTIVE	Indicates the on/off status of +48V phantom power supply.
Analog input level meter	Indicates a level meter for each analog input channel.
Analog output level meter	Indicates a level meter for each analog output channel.
Digital output level meter	Indicates a level meter for each digital output channel.
Firmware version	Indicates the firmware version.
Device Identify command	Identifies the target Rio-D3 unit among multiple devices in a Network.
Port Identify command	Identifies the target I/O port among multiple devices in a Network.
[SYSTEM]/[SYNC] status indication and messages	Notifications of status information via [SYSTEM]/[SYNC] indicators and messages.

Communication methods

Three communication methods are available to control Rio-D3 parameters.

Communication method	Connector used to control the parameters	Details
(1) Superimposing a control signal onto a Dante audio signal <Dante>	Dante [PRIMARY] connector, Dante [SECONDARY] connector	• A single Rio-D3 unit can be controlled from up to four controllers. • Redundancy supported.
(2) Using the Dante [PRIMARY] connector via network communications <Monitor, Remote>	Dante [PRIMARY] connector	• A single Rio-D3 unit can be controlled from up to six controllers. • Redundancy not supported. **NOTE** If the Dante PRIMARY address is not used, make sure that the NETWORK MODE, and the IP ADDRESS subnet for the DANTE PORT, match the address settings for external device control on the controllers.
(3) Using the network connector via network communications <Monitor, Remote>	Network connector	• A single Rio-D3 unit can be controlled from up to six controllers. • Redundancy not supported.

Appendix

Status/Message List

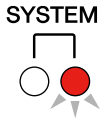
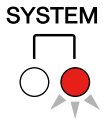
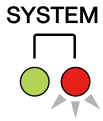
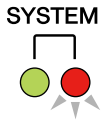
The front panel displays various messages such as SYSTEM, SYNC, errors, warnings, information, and confirmations. Some SYSTEM or SYNC messages also use the [SYSTEM] or [SYNC] indicators to indicate the status.

SYSTEM messages

SYSTEM messages, and the [SYSTEM] indicator state (light, flash, off) inform you of the operating status of the Rio-D3 unit.

NOTE

- The left [SYSTEM] indicator is green and the right one is red.
- The term “Flash x2” means that the indicator flashes twice cyclically, while the term “Flash x3” means that the indicator flashes 3 times cyclically.
- If the ID is blank in the table below, only the message will appear on the display.

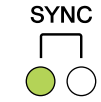
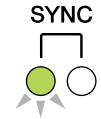
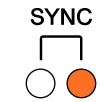
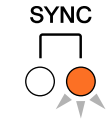
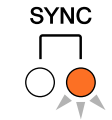
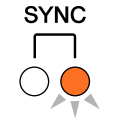
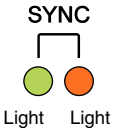
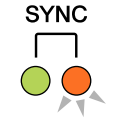
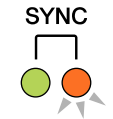
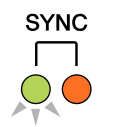
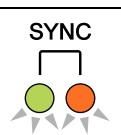
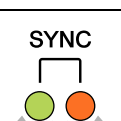
ID	Indication on the Rio-D3	Indication in R Remote	Description	Possible solution	Status indicators
	NORMAL	---	Operating normally.	---	---
E00-003	DANTE MODULE ERROR!	DANTE module error!	An error has occurred in the Dante module.	Restart this unit.	
E00-004	ILLEGAL MAC ADDRESS! (CONTACT US)	Illegal MAC Address!	Because the MAC Address setting has been damaged, communication is not possible.	Contact your Yamaha dealer.	
E00-005	UNIT FAN HAS MALFUNCTIONED! (CONTACT US)	Unit Fan has Malfunctioned!	The cooling fan has stopped.	Check to see if there is anything stuck in the fan. If this does not solve the problem, contact your Yamaha dealer.	
E00-006	MEMORY ERROR!	Memory Error.	Failed to read from non-volatile memory.	Information that was saved during the previous operation was lost. You must configure the settings again.	
E00-009	VERSION MISMATCH WITH DANTE MODULE!	Version mismatch.	The unit's firmware and the Dante firmware are not compatible. This unit's firmware and the supported digital mixer’s firmware are not compatible.	Acquire compatible versions.	---
E00-010	DANTE AUDIO RESOURCE OVERFLOW!	DANTE audio resource overflow.	The number of Dante flows has exceeded the limit.	Re-configure the Dante audio routing, for example by eliminating unneeded routings, or by using multicast rather than unicast to improve the efficiency.	
E00-012	POWER SUPPLY FAILED!	Power Supply Failed!	The supply of power to either power supply A or B has been interrupted.	Make sure that the power supply cables are connected properly. If the problem persists, contact your Yamaha dealer.	(Check the power indicator.)

SYNC messages

SYNC messages, and the [SYNC] indicator state (light, flash, off) inform you of the status of the Dante network.

NOTE

- The left [SYNC] indicator is green and the right one is orange.
- The term “Flash x2” means that the indicator flashes twice cyclically, while the term “Flash x3” means that the indicator flashes 3 times cyclically.
- If the green [SYNC] indicator remains off, the device clock has not yet been determined. If the green [SYNC] indicator is flashing, the device is the clock leader. If it is lit, the device is a clock follower and the clocks are synchronized.
- If the ID is blank in the table below, only the message will appear on the display.

ID	Message	Description	Explanation or possible solution	Status indicators
	NORMAL	Functioning correctly as a word clock follower.	This indicates that the device is a word clock follower.	
	DANTE WORDCLOCK LEADER	Functioning correctly as the word clock leader.	This indicates that the device is the word clock leader.	
	SYNCHRONIZING WITH CONSOLE OR CONTROLLER	Currently processing synchronization within the Dante network.	Wait until startup or synchronization is completed. It may take up to 45 seconds for this to be completed.	
E01-003	WRONG WORDCLOCK!	The word clock setting is incorrect.	On the supported digital mixer or in Dante Controller, set the clock leader and the sampling frequency correctly.	
E01-004	DANTE PORT DOES NOT HAVE CONNECTION!	The Dante network is not connected.	Check whether an Ethernet cable might be disconnected or broken.	
E01-005	DANTE CONNECTION ERROR!	Other Dante devices cannot be found because the Dante network connections are incorrect.	Check whether the Ethernet cable connections are correct.	
E01-006	DANTE IS NOT WORKING BY GIGA BIT!	A device that does not support Giga-bit Ethernet is connected.	If you are transferring audio via Dante, use devices that support Giga-bit Ethernet.	
E01-007	DANTE IS WORKING AT SECONDARY!	In the case of a redundant network, communication is occurring via the Dante [SECONDARY] connector.	Check the circuit that is connected to the Dante [PRIMARY] connector.	
E01-008	ERROR OCCURRED AT SECONDARY PORT!	In the case of a redundant network, a problem has occurred in the circuit that is connected to the Dante [SECONDARY] connector.	Check the circuit that is connected to the Dante [SECONDARY] connector.	
E01-010	DANTE IS NOT WORKING BY GIGA BIT!	Functioning as the word clock leader. A device that does not support Giga-bit Ethernet is connected.	This indicates that the device is the word clock leader. If you are transferring audio via Dante, use devices that support Giga-bit Ethernet.	
E01-011	DANTE IS WORKING AT SECONDARY!	Functioning as the word clock leader. In the case of a redundant network, communication is occurring via the Dante [SECONDARY] connector.	This indicates that the device is the word clock leader. Check the circuit that is connected to the Dante [PRIMARY] connector.	
E01-012	ERROR OCCURRED AT SECONDARY PORT!	Functioning as the word clock leader. In the case of a redundant network, a problem has occurred in the circuit that is connected to the Dante [SECONDARY] connector.	This indicates that the device is the word clock leader. Check the circuit that is connected to the Dante [SECONDARY] connector.	

Error messages

Message	Description	Possible solution
HAAD HARD ERROR!	A problem with HAAD was detected.	If the problem persists, contact your Yamaha dealer.

Warning messages

Message	Description	Possible solution
DANTE DEVICE LOCK IS ENABLED!	You may have attempted to change this unit's UNIT ID or a Dante setting such as SECONDARY PORT while Dante Device Lock was enabled.	Use Dante Controller to defeat Dante Device Lock.
DANTE DDM LOCAL POLICY IS READ ONLY!	You may have attempted to change this unit's UNIT ID or a Dante setting such as SECONDARY PORT while Local Policy in DDM was set to Read Only.	Use the DDM setting application to defeat Read Only for Local Policy.
IP ADDRESS DUPLICATED	The same IP addresses exist on the network. (This message is not supported in V1.0.)	Resolve the IP address conflict.
SAME NET ADDR! (NW PORT & DNT PORT ***)	There is a network address conflict between the network port and the Dante port.	Resolve the network address conflict.
SAME NET ADDR! (NW PORT & DNT PRI ***)	There is a network address conflict between the network port and the PRIMARY port.	Resolve the network address conflict.
SAME NET ADDR! (NW PORT & DNT SEC ***)	There is a network address conflict between the network port and the SECONDARY port.	Resolve the network address conflict.
SAME NET ADDR! (DNT PORT & NW PORT ***)	There is a network address conflict between the Dante port and the network port.	Resolve the network address conflict.
SAME NET ADDR! (DNT PORT & DNT PRI ***)	There is a network address conflict between the Dante port and the PRIMARY port.	Resolve the network address conflict.
SAME NET ADDR! (DNT PORT & DNT SEC ***)	There is a network address conflict between the Dante port and the SECONDARY port.	Resolve the network address conflict.

"***" represents the conflicting network address.

Information messages

Message	Description
FRONT PANEL LOCKED	Panel Lock is now enabled.
FRONT PANEL LOCKED	Panel Lock has been enabled.
FRONT PANEL UNLOCKED	Panel Lock is now disabled.
REMOTE ONLY LOCAL CONTROL IS DISABLED	The parameters for the INPUT/OUTPUT channels are read-only.
AUDIO MUTED NO SYNC WITH MIXER OR APP	Muted.
DAISY CHAIN SECONDARY PORT	The SECONDARY port has been set to DAISY CHAIN.
FACTORY INITIALIZE ACCEPTED!	Initialization of the unit (restoring the factory settings) has begun.

Confirmation messages

Message	Description
FACTORY PRESET INITIALIZE?	Initialize the unit (restore the factory settings)?
INITIALIZE DONE. REBOOT?	Finished initializing the unit (restoring the factory settings). Restart the unit?
CURRENT PARAMETERS INITIALIZE?	Start initializing the HA and OUPUT parameters?
DANTE SETTINGS INITIALIZE?	Start initializing the Dante settings?
RESTART THE SYSTEM?	Restart the unit?

General Specifications

The contents of this manual apply to the latest specifications as of the publishing date. To obtain the latest manual, access the Yamaha website then download the manual file.

		Rio3224-D3	Rio1608-D3
Number of Analog Inputs		32	16
Number of Analog Outputs		16	8
AES/EBU		8-out	0
PHONES		1	
Sampling Frequency	External	44.1 kHz / 48 kHz / 88.2 kHz / 96 kHz ±200 ppm +4.1667%, +0.1%, –0.1%, –4.0% ±200 ppm	
Signal Delay		Less than 1.7 ms Rio-D3 INPUT to Rio-D3 OUTPUT connect with DM7 using Dante, Fs=96 kHz. Dante Receive Latency set to 0.25 msec	
Power Requirements		100–240 V, 50/60 Hz	
Power Consumption		100 W	60 W
Heat Dissipation		86 kcal/h	52 kcal/h
Dimensions	W x H x D	480 x 220 x 370 mm	480 x 132 x 370 mm
Weight		13.2 kg	9.4 kg
NC value[*1]	Fan Speed LOW	20	15
	Fan Speed HIGH	30	25
Operating Temperature Range		Min: 0 °C, Max: 40 °C	
Storage Temperature Range		Min: –20 °C, Max: 60 °C	
Accessories		Owner's Manual, Power cord × 2[*2]	

*1. Measurement position: 1 m from the front of the unit
*2. Multiple AC power cords which have different kinds of plug shapes may be included depending on the region.

Audio Characteristics

During the measurement, the output impedance of the signal generator is 150 Ω. The output load impedance is 600 Ω. If certain specifications differ between the Rio3224-D3 and the Rio1608-D3, specifications that apply only to the Rio1608-D3 will be enclosed in parentheses { }.

Frequency response

Fs=96 kHz or Fs=48 kHz @20 Hz-20 kHz, reference to the nominal output level @1 kHz

Input	Output	RL	Conditions	Min.	Typ.	Max.	Unit
INPUT 1-32 {1-16}	OUTPUT 1-16 {1-8}	600 Ω	GAIN: +66 dB	–1.5	0.0	0.5	dB
INPUT 1-32 {1-16}	PHONES	40 Ω	GAIN: –6 dB	–1.5	0.0	0.5	dB

Total harmonic distortion

Fs=96 kHz or Fs=48 kHz

Input	Output	RL	Conditions	Min.	Typ.	Max.	Unit
INPUT 1-32 {1-16}	OUTPUT 1-16 {1-8}	600 Ω	+4 dBu@20 Hz-20 kHz, GAIN: +66 dB			0.15	%
INPUT 1-32 {1-16}	OUTPUT 1-16 {1-8}	600 Ω	+4 dBu@20 Hz-20 kHz, GAIN: –6 dB			0.05	%
INPUT 1-32 {1-16}	PHONES	40 Ω	50 mW@1 kHz, PHONES level control: max			0.15	%

Total harmonic distortion was measured using an 80 kHz, 48 dB/octave low pass filter.

Hum & Noise

Fs=96 kHz or Fs=48 kHz, EIN=Equivalent Input Noise

Input	Output	RL	Conditions	Min.	Typ.	Max.	Unit
INPUT 1-32 {1-16}	OUTPUT 1-16 {1-8}	600 Ω	Rs=150 Ω, GAIN: +66 dB		–128 EIN		dBu
					–62		dBu
INPUT 1-32 {1-16}	OUTPUT 1-16 {1-8}	600 Ω	Rs=150 Ω, GAIN: –6 dB		–91	–88	dBu
All Inputs	OUTPUT 1-16 {1-8}	600 Ω	Rs=150 Ω, GAIN: –6 dB Main fader at nominal level and all INPUT 1-32 {1-16} in faders at nominal level. Measured with DM7 (or DM7 Compact) through Dante.			–70 {–73}	dBu
-	OUTPUT 1-16 {1-8}	600 Ω	Residual output noise, Main stereo channel off. Measured with DM7 (or DM7 Compact) through Dante.			–93	dBu
-	PHONES	40 Ω	Residual output noise, PHONES level control min.			–94	dBu

Hum & noise levels were measured using an A-weight filter.

Dynamic range

Fs=96kHz or 48kHz

Input	Output	RL	Conditions	Min.	Typ.	Max.	Unit
INPUT 1-32 {1-16}	OUTPUT 1-16 {1-8}	600 Ω	GAIN: –6 dB		115		dB
-	OUTPUT 1-16 {1-8}	600 Ω	DA Converter		120		dB

Dynamic range was measured using an A-weight filter.

Crosstalk (@1kHz)

From/To	To/From	Conditions	Min.	Typ.	Max.	Unit
INPUT N	INPUT (N-1) or (N+1)	INPUT 1-32 {1-16}, adjacent inputs, GAIN: –6 dB			–100	dB
OUTPUT N	OUTPUT (N-1) or (N+1)	OUTPUT 1-16 {1-8}, input to output			–100	dB

Crosstalk was measured using a 22 kHz, 30 dB/octave filter.

Analog Input Standards

Input Terminals	Gain	Actual Load Impedance	For Use with Nominal	Input Level			Connector
				Sensitivity*1	Nominal	Max. before clip	
INPUT 1-32 {1-16}	+66 dB	7.5 kΩ	50-600 Ω Mics & 600 Ω Lines	–82 dBu (0.062 mV)	–62 dBu (0.616 mV)	–42 dBu (6.16 mV)	XLR 3-hole chassis (Balanced)*2
	–6 dB			–10 dBu (245 mV)	+10 dBu (2.45 V)	+30 dBu (24.5 V)	

0 dBu = 0.775 Vrms.
+48 V DC (phantom power) is supplied to the [INPUT] 1-32 {1-16} connectors via each individual software-controlled switch.

*1. Sensitivity is the minimum level needed to output +4 dBu (1.23 V) or the specified level when the gain is set to maximum. (All faders and level controls are set to maximum.)
*2. 1=GND, 2=HOT, 3=COLD

Analog Output Standards

Output Terminals	Actual Source Impedance	For Use with Nominal	Output Level*1		Connector
			Nominal	Max. before clip	
OUTPUT 1-16 {1-8}	75 Ω	600 Ω Lines	+4 dBu (1.23 V)	+24 dBu (12.3 V)	XLR 3-pin chassis (Balanced)*2
PHONES	10 Ω	8 Ω Lines	60 mW*3	60 mW	TRS PHONE (6.3 mm) (STEREO PHONE) (Unbalanced)
		40 Ω Lines	60 mW*4	100 mW	

0 dBu = 0.775 Vrms.
*1. You can change the output level for the [OUTPUT +4dBu] 1-16 {1-8} connectors. Contact your Yamaha dealer.
*2. 1=GND, 2=HOT, 3=COLD
*3. The [PHONES] level knob is set to 12 dB below maximum.
*4. The [PHONES] level knob is set to 10 dB below maximum.

Digital Input Standards

Terminals	Format	Data Length	Level	Audio	Connector
Dante PRIMARY/ SECONDARY	Dante	24-bit / 32-bit	1000BASE-T	32ch (Rio3224-D3 to other devices) 26ch (Other devices to Rio3224-D3)	etherCON CAT5e
				16ch (Rio1608-D3 to other devices) 10ch (Other devices to Rio1608-D3)	
AES/EBU 1/2, 3/4, 5/6, 7/8*1	AES/EBU Professional use	24-bit	RS-422	2ch output	XLR 3-pin chassis (Balanced)*2

*1. Implemented only on the Rio3224-D3.
*2. 1=GND, 2=HOT, 3=COLD

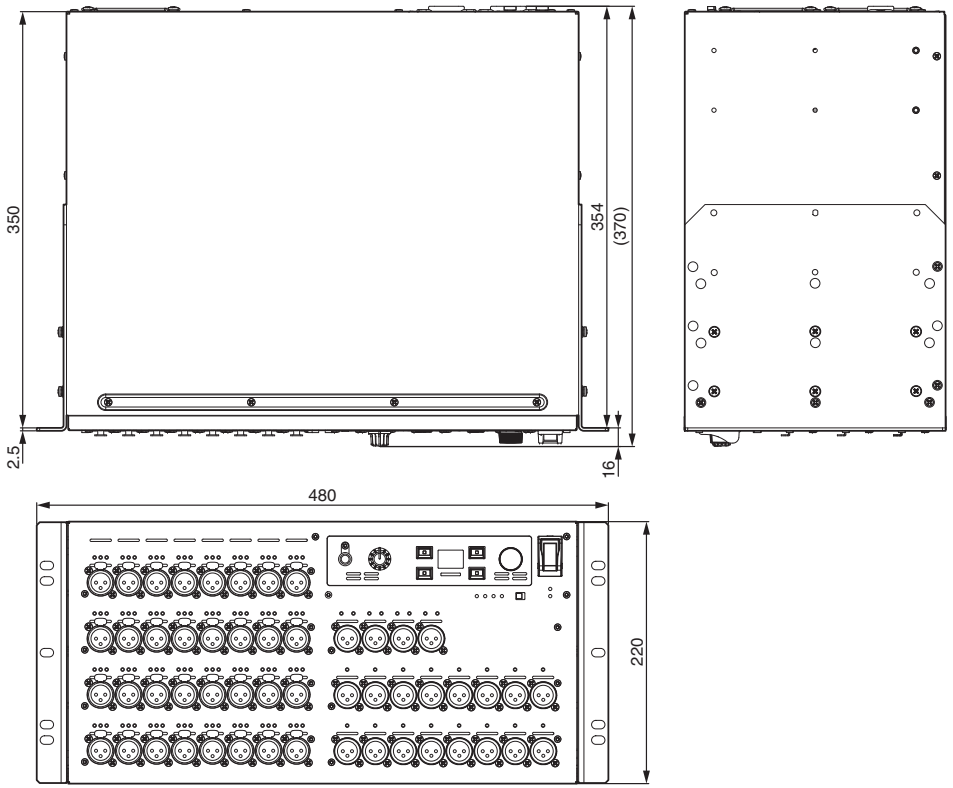
Control I/O Standards

Terminals	Format	Level	Connector
NETWORK	IEEE802.3	1000BASE-T/100BASE-TX	RJ-45

Use STP cables for connections.

Dimensions

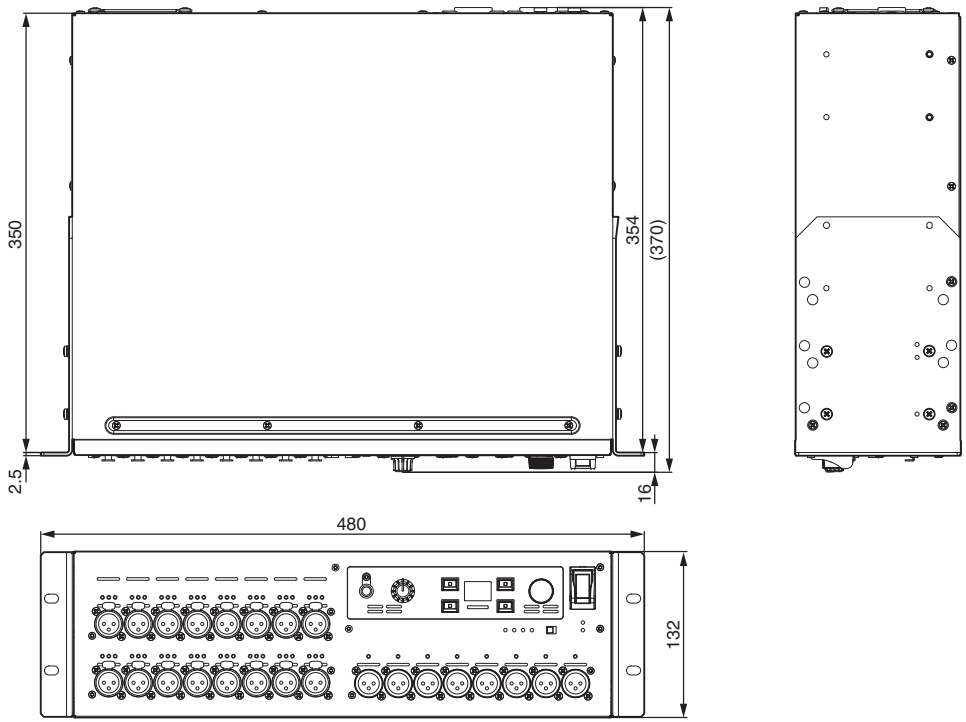
Rio3224-D3



Approximate Munsell value of exterior color: N5

Unit: mm

Rio1608-D3



Approximate Munsell value of exterior color: N5

Unit: mm

Troubleshooting

The Yamaha Pro Audio website provides a FAQ (frequently asked questions and answers).
https://www.yamahaproaudio.com/

Symptom	Cause	Possible Solution
The power won't turn on. The power indicator does not light.	The power cable is connected improperly.	Connect the power cable properly (see page 12).
	The power switch is not turned ON.	Turn the power switch ON. If the power still does not turn on, contact your Yamaha dealer.
The unit is not receiving an input signal.	The cables are not connected properly.	Connect the cables properly.
	The source device is not delivering an appropriate signal.	Output a signal from the source device and make sure that the [SIG] indicators on the appropriate channels will light.
	The internal head amplifier gain is not set to an appropriate level.	Set the internal head amplifier gain to an appropriate level.
	START UP mode is set to REFRESH with MUTE, but the supported device has not started up.	Start the supported device to send the settings to the Rio-D3.
The input level is too low.	A condenser microphone is connected.	Turn the [+48V ACTIVE] switch ON.
		Turn phantom power for the corresponding channel(s) ON.
	The internal head amplifier gain is not set to an appropriate level.	Set the internal head amplifier gain to an appropriate level.
No sound is heard.	The cables are not connected properly.	Connect the cables properly.
	START UP mode is set to REFRESH with MUTE, but the supported device has not started up.	Start the supported device to send the settings to the Rio-D3.
	The Dante settings for the Rio-D3 are not synchronized with those for the supported device.	If you are using a supported digital mixer, set CONSOLE ID to #1 to synchronize the settings. If you are using other supported devices, use Dante Controller to synchronize the settings.
The head amp cannot be controlled.	The Rio-D3 has not been mounted on the RACK of the supported device.	Mount the Rio-D3 on the RACK of the supported device.
Adjusting the internal head amp gain does not change the audio level.	GC (Gain Compensation) is turned on.	If you are not using GC (Gain Compensation), turn it off.
Dante Controller does not recognize the Rio-D3 unit.	An incorrect value has been assigned to the IP address for Dante.	Initialize the Rio-D3.
R Remote does not recognize the Rio-D3 unit.	The UNIT ID setting conflicts with another R series unit.	Specify a unique UNIT ID for each device.
	The IP address setting is incorrect. Alternatively, the network is connected incorrectly.	Review the network settings. Make sure that they are set to the same subnet. If SECONDARY PORT is set to REDUNDANT, check whether the unit is connected via the Dante [PRIMARY] connector.
The power LED is lit, but nothing appears in the display.	A malfunction may have occurred.	Contact your Yamaha dealer.
Keys, switches, or encoder operations do not work.	Panel Lock is enabled.	Defeat Panel Lock.

Yamaha Pro Audio global website
https://www.yamahaproaudio.com/
Yamaha Downloads
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