

## Overview

This high-performance I/O rack features 16 analog inputs and 8 analog outputs, and is compatible with Yamaha CL and QL series consoles as well as the RIVAGE PM series. The Rio1608-D2 connects directly to Dante digital audio networks, allowing flexible system configuration. Dual power supply units are built in for high reliability, and a character/graphic display offers easy visual confirmation.



FRONT



REAR

## Features

- 16 analog inputs and 8 outputs.
- Redundant connections are supported with primary and secondary connectors. Daisy chain connections are also supported.
- Comprehensive display and local control of gain and other parameters.
- Dual power supply units are built in for high reliability.
- Power consumption: 72 W
- Dimensions (WxHxD): 480 x 132 x 368 mm (18.9" x 5.2" x 14.5")
- Net Weight: 9.6 kg (21.2 lbs)

## Specifications

### General Specifications

Sampling Frequency	External	44.1 kHz +4.1667%, +0.1%, -0.1%, -4.0%	±200 ppm
		48 kHz +4.1667%, +0.1%, -0.1%, -4.0%	±200 ppm
		88.2 kHz +4.1667%, +0.1%, -0.1%, -4.0%	±200 ppm
		96 kHz +4.1667%, +0.1%, -0.1%, -4.0%	±200 ppm
Signal Delay	Less than 1.9 ms Rio-D2 INPUT to Rio-D2 OUTPUT connect with PM10 using Dante, Fs= 96 kHz. Dante Receive Latency set to 0.25 msec		
Frequency Response	+0.5, -1.5 dB 20 Hz-20 kHz, refer to +4 dBu output @1 kHz, INPUT to OUTPUT, Fs= 48 kHz +0.5, -1.5 dB 20 Hz-20 kHz, refer to +4 dBu output @1 kHz, INPUT to OUTPUT, Fs= 96 kHz		
Total Harmonic Distortion*1	Less than 0.05% 20 Hz-20 kHz@+4 dBu into 600 Ω, Fs= 48 kHz Less than 0.05% 20 Hz-20 kHz@+4 dBu into 600 Ω, Fs= 96 kHz INPUT to OUTPUT, Input Gain= Min.		
Hum & Noise*2	-128 dBu typ., Equivalent Input Noise, Input Gain= Max. -88 dBu Residual output noise, ST master off.		
Dynamic Range	112 dB typ., DA Converter, 108 dB typ., INPUT to OUTPUT, Input Gain= Min.		
Crosstalk@1kHz	-100 dB <sup>3</sup> , adjacent INPUT/OUTPUT channels, Input Gain= Min.		
Dimensions (WxHxD) and Net Weight	480 mm x 132 mm x 367.5 mm (18.9" x 5.2" x 14.5") 9.6 kg (21.2 lbs)		
Power Requirements (Wattage)	72 W		
Power Requirements (Voltage and Hertz)	100-240 V 50/60 Hz		
Temperature Range	Operating temperature range: 0 - 40°C Storage temperature range: -20 - 60°C		
NC Value	FAN MODE LOW: NC=15 / HIGH: NC=25 Measurement position: 1 m from the front of the unit		
Included Accessories	Owner's Manual, AC power cord		

\*1 Total Harmonic Distortion is measured with 18 dB/octave filter @80 kHz

\*2 Hum & Noise are measured with A-Weight filter.

\*3 Crosstalk is measured with a 30 dB/octave filter @22 kHz

### Analog Input Characteristics

Input Terminals	GAIN	Actual Load Impedance	For Use with Nominal	Input Level		Connector
				Nominal	Max. before Clip	
INPUT 1-16	+66 dB	7.5 kΩ	50-600 Ω Mics & 600 Ω Lines	-62 dBu (0.616 mV)	-42 dBu (6.16 mV)	XLR-3-31 type (Balanced) <sup>1</sup>
	-6 dB			+10 dBu (2.45 V)	+30 dBu (24.5 V)	

\*1 XLR-3-31 type connectors are balanced. (1=GND, 2=HOT, 3=COLD)

\* In these specifications, 0 dBu = 0.775 Vrms.

\* +48V DC (phantom power) is supplied to INPUT XLR type connectors via each individual software controlled switch.

### Analog Output Characteristics

Output Terminals	Actual Source Impedance	For Use with Nominal	Max. Output Level Select SW <sup>1</sup>	Output Level		Connector
				Nominal	Max. before Clip	
OUTPUT 1-8	75 Ω	600 Ω Lines	+24 dB (default)	+4 dBu (1.23 V)	+24 dBu (12.3 V)	XLR-3-32 type (Balanced) <sup>2</sup>
			+18 dB	-2 dBu (616 mV)	+18 dBu (6.16 V)	

\*1 There are switches inside the body to preset the maximum output level.

\*2 XLR-3-32 type connectors are balanced. (1=GND, 2=HOT, 3=COLD)

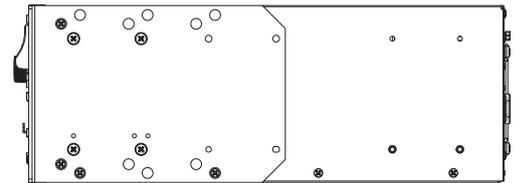
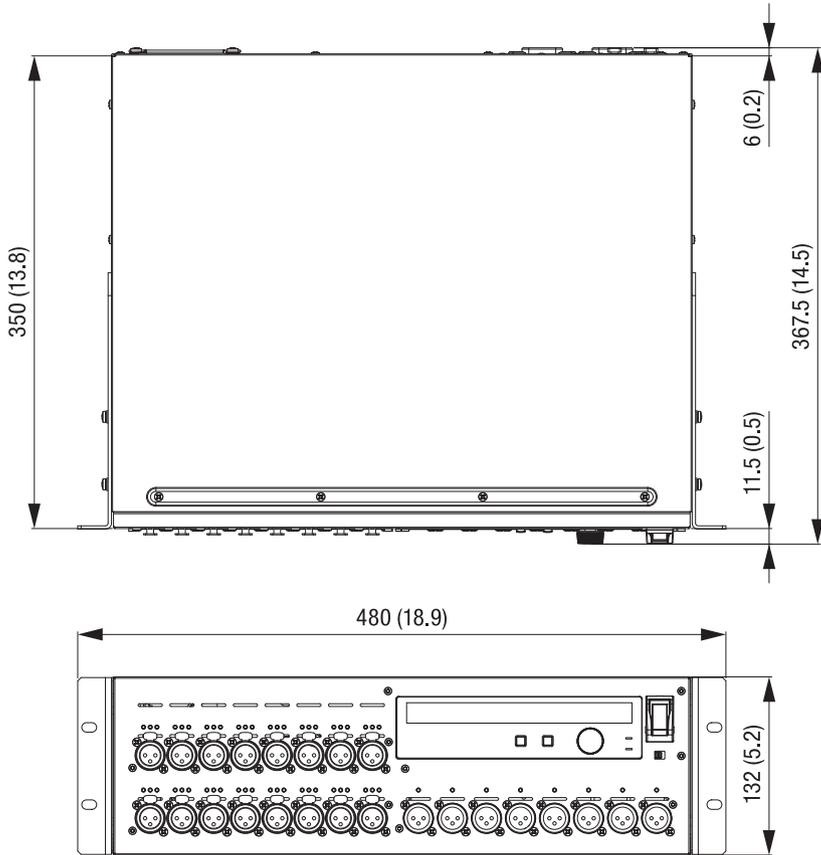
\* In these specifications, 0 dBu = 0.775 Vrms.

### Digital I/O Characteristics

Terminals	Format	Data Length	Level	Audio	Connector
Primary/Secondary	Dante	24-bit or 32-bit	1000Base-T	16ch (Rio1608-D2 to other devices) 8ch (Other devices to Rio1608-D2)	etherCON Cat5e

## Dimensions

Unit: mm (inch)



## Software

- R Remote

## Architectural and Engineering Specifications

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The Yamaha Rio1608-D2 shall be a 3U-size I/O rack with 16 balanced analog mic/line inputs and 8 balanced analog line outputs. It shall have built-in Dante digital audio networking capability with primary and secondary network connections for reliable, flexible system setup and configuration. The head amplifiers in multiple Rio1608-D2 I/O rack units shall be remotely controllable from compatible Yamaha digital mixing consoles. A character and icon based display shall be provided for direct editing and confirmation of Dante, gain, high-pass filter, phantom power, and other settings from the I/O rack interface. The display shall also provide metering functionality. The Rio1608-D2 shall include a Gain Compensation function that digitally compensates for analog gain changes so that audio is sent to the network at a constant level when the Rio1608-D2 is being controlled from multiple consoles. An "R Remote" software application that allows remote control of R series I/O rack head amplifiers from a computer shall be provided. Dual redundant power supplies shall be built in to maximize reliability and minimize the chance of downtime due to power loss. Dimensions shall be 480 (W) x 132 (H) x 368 (D) mm. Weight shall be 9.6 kg.

\*All information subject to change without notice.

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