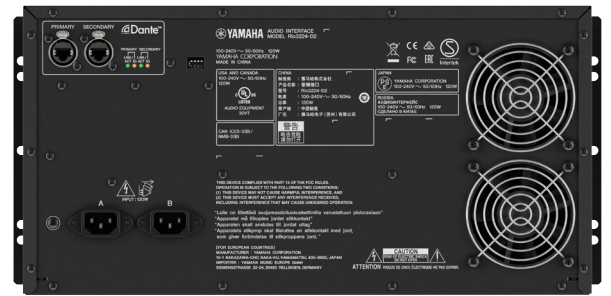


Overview

This high-capacity, high-performance I/O rack is compatible with Yamaha CL and QL series consoles as well as the RIVAGE PM series. It features 32 analog inputs, 16 analog outputs, and 8 digital AES/EBU outputs. The Rio3224-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

- 32 analog inputs and 16 outputs, and 8 AES/EBU 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: 120 W
- Dimensions (WxHxD): 480 x 220 x 368 mm (18.9" x 8.7" x 14.5")
- Net Weight: 13.5 kg (29.8 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 ³ , adjacent INPUT/OUTPUT channels, Input Gain= Min.		
Dimensions (WxHxD) and Net Weight	480 mm x 220 mm x 367.5 mm (18.9" x 8.7" x 14.5") 13.5 kg (29.8 lbs)		
Power Requirements (Wattage)	120 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=20 / HIGH: NC=30 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)*1
	-6 dB			+10 dBu (2.45 V)	+30 dBu (24.5 V)	
INPUT 17-32	+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)*1
	-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*1	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)*2
			+18 dB	-2 dBu (616 mV)	+18 dBu (6.16 V)	
OUTPUT 9-16	75 Ω	600 Ω Lines	+24 dB (default)	+4 dBu (1.23 V)	+24 dBu (12.3 V)	XLR-3-32 type (Balanced)*2
			+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	32ch (Rio3224-D2 to other devices) 24ch (Other devices to Rio3224-D2)	etherCON Cat5e

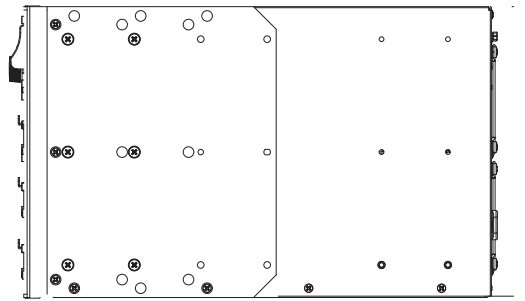
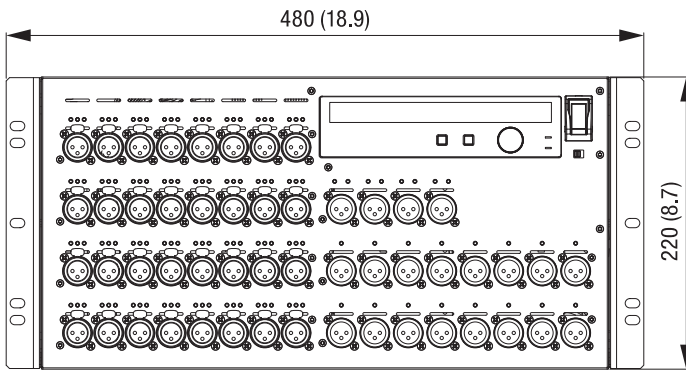
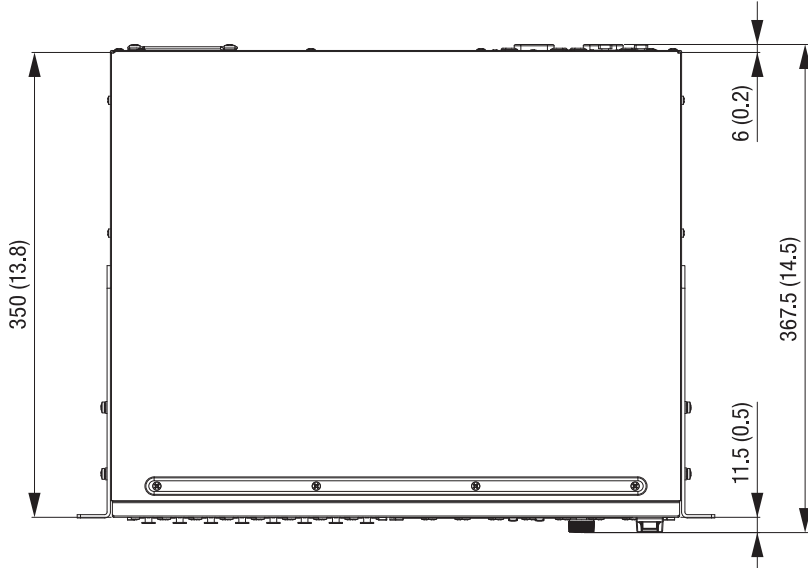
Digital Output Characteristics

Terminal	Format	Data Length	Level	Connector	
AES/EBU OUT 1-8	AES/EBU	AES/EBU Professional Use	24-bit	RS422	XLR-3-32 type (Balanced)*1

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

Dimensions

Unit: mm (inch)



Software

- R Remote

Architectural and Engineering Specifications

The Yamaha Rio3224-D2 shall be a 5U-size I/O rack with 32 balanced analog mic/line inputs, 16 balanced analog line outputs, and 8 AES/EBU digital 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 Rio3224-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 Rio3224-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 Rio3224-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 220 (H) x 368 (D) mm. Weight shall be 13.5 kg.

*All information subject to change without notice.

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