

Rio Series

I/O Rack



Rear Panel

Rio3224-D 32 in/16 out,
4 AES/EBU out
5U



Rear Panel

Rio1608-D 16 in/8 out
3U



Rear Panel

Ri8-D 8 in
1U



Rear Panel

Ro8-D 8 out
1U

High-performance remote I/O for CL series and other digital mixing consoles.

- Sonic performance that brings out the best in any system
- Dante network protocol contributes to greater system scalability and flexibility
- Support for CL series consoles as well as other Dante based systems
- Automatic digital-stage compensation for analog gain changes (CL series only)
- Four models flexibly accommodate any system requirements

GENERAL SPECIFICATIONS

Sampling frequency rate	External: 44.1kHz (+4.1667%, +0.1%, -0.1%, -4.0%) ±200ppm 48kHz (+4.1667%, +0.1%, -0.1%, -4.0%) ±200ppm 88.2kHz (+4.1667%, +0.1%, -0.1%, -4.0%) ±200ppm 96kHz (+4.1667%, +0.1%, -0.1%, -4.0%) ±200ppm
Signal Delay	Less than 3ms INPUT to OUTPUT, connect with CL5 using Dante, Dante Receive Latency set to 0.25ms (one way), Fs=48kHz
Total harmonic distortion*1	Less than 0.05% 20Hz-20kHz@+4dBu into 600Ω, Fs=44.1kHz, 48kHz Less than 0.05% 20Hz-40kHz@+4dBu into 600Ω, Fs=88.2kHz, 96kHz INPUT to OUTPUT Input Gain=Min.
Frequency response	+0.5, -1.5dB 20Hz-20kHz, refer to +4dBu output @1kHz, INPUT to OUTPUT, Fs=44.1kHz, 48kHz +0.5, -1.5dB 20Hz-40kHz, refer to +4dBu output @1kHz, INPUT to OUTPUT, Fs=88.2kHz, 96kHz
Dynamic range	108dB typ., INPUT to OUTPUT, Input Gain = Min.
Hum & noise level*2	-128dBu Equivalent input noise, Input Gain=Max., Rs=150Ω -88dBu Residual output noise, ST master off
Crosstalk (@1kHz)	-100dB*3, Adjacent INPUT/OUTPUT channels Input Gain=Min.
Phantom Power	+48V
Power requirements	AC110V-240V, 50/60Hz
Power consumption	Rio3224-D: 120W Rio1608-D: 70W Ri8-D: 35W Ro8-D: 35W
Temperature Range	Operating temperature range: 0 - 40° Storage temperature range: -20 - 60°
Dimensions (W x H x D)	Rio3224-D: 480mm x 232mm** x 362mm(18 7/8in x 9 1/4in x 14 1/4in) Rio1608-D: 480mm x 144mm** x 362mm(18 7/8in x 5 3/4in x 14 1/4in) Ri8-D: 480mm x 44mm x 362mm(18 7/8in x 1 3/4in x 14 1/4in) Ro8-D: 480mm x 44mm x 359mm(18 7/8in x 1 3/4in x 14 1/4in)
Weight	Rio3224-D: 12.4kg (27.3lb) Rio1608-D: 8.8kg (19.4lb) Ri8-D: 4.5kg (9.9lb) Ro8-D: 4.4kg (9.7lb)

*1 Total harmonic distortion is measured with a 18dB/Oct filter @80kHz.

*2 Hum & noise level are measured with A-Weight filter.

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

** Including rubber feet.

ANALOG INPUT SPECIFICATIONS

Input terminal	GAIN	Actual load impedance	For use with nominal	Input level		Connector
				Nominal	Max. before clip	
INPUT						
1-32 (Rio3224-D)	+66dB	7.5kΩ	50-600Ω Mics & 600Ω Lines	-62dBu	-42dBu	XLR3-31 type
1-16 (Rio1608-D)	-6dB			+10dBu	+30dBu	
1-8 (Ri8-D)						

ANALOG OUTPUT SPECIFICATIONS

Output terminal	Actual source impedance	For use with nominal	Max. Output Level Select SW*1	Output terminals		Connector
				Nominal	Max. before clip	
OUTPUT						
1-16 (Rio3224-D)	75Ω	600Ω Lines	+24dB (default)	+4dBu	+24dBu	XLR3-32 type
1-8 (Rio1608-D, Ro8-D)			+18dB	-2dBu	+18dBu	

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

DIGITAL I/O SPECIFICATIONS

Terminal	Format	Data length	Level	Audio	Connector
Primary / Secondary	Dante	24bit or 32bit	1000Base-T	24ch Input/32ch Output (Rio3224-D) 8ch Input/16ch Output (Rio1608-D) 8ch Output (Ri8-D) 8ch Input (Ro8-D)	etherCON Cat5e (Rio3224-D, Rio1608-D) RJ-45 (Ri8-D, Ro8-D)

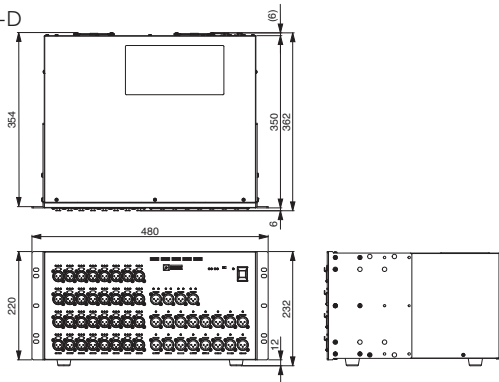
DIGITAL OUTPUT SPECIFICATIONS

Terminal	Format	Data length	Level	Connector
AES/EBU OUT 1-4*1	AES/EBU	AES/EBU Professional Use	24bit	RS422
				XLR3-32 type

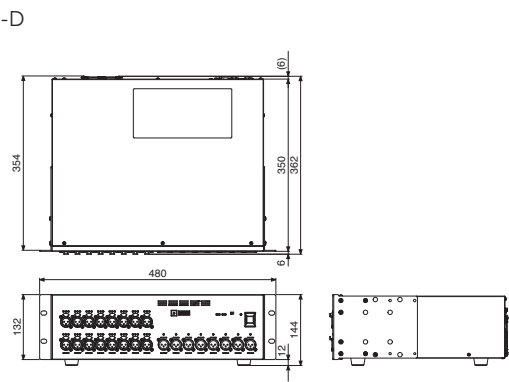
*1 Rio3224-D only

DIMENSIONS

Rio3224-D

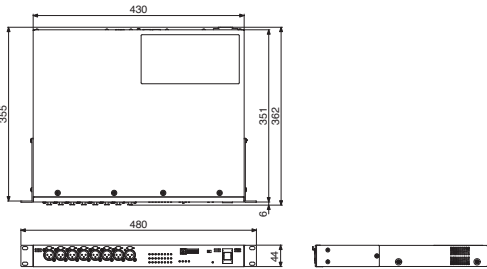


Rio1608-D

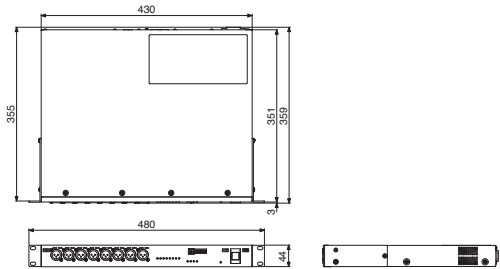


unit : mm

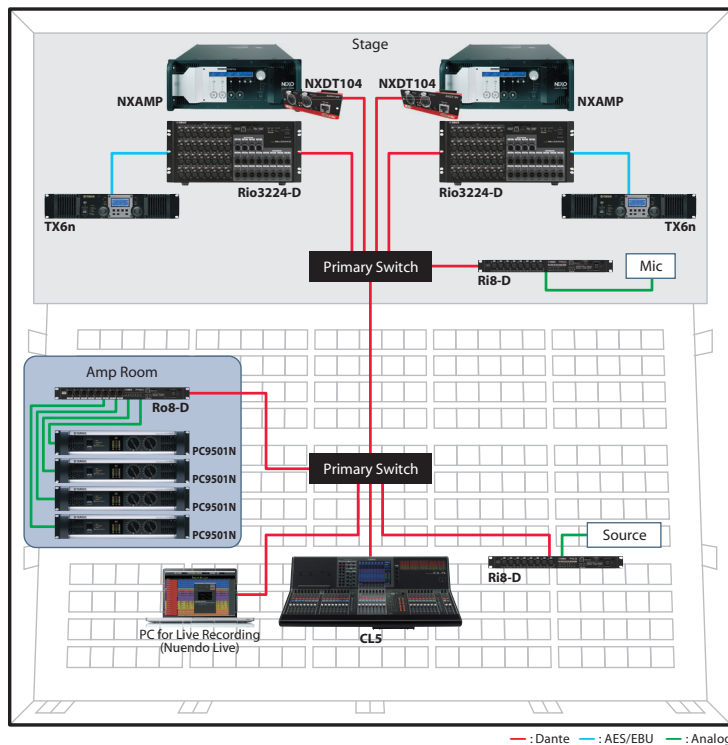
Ri8-D



Ro8-D



SYSTEM EXAMPLE



A simple, flexible system for live sound

Rio Series I/O units work just as well with Dante-capable devices such as a NEXO NXAMP equipped with the NXDT104 card as they do with CL Series consoles. Discovery and patching for the Rio I/O and NXAMP can be managed directly from the CL console without the need for a computer and Dante Controller software.

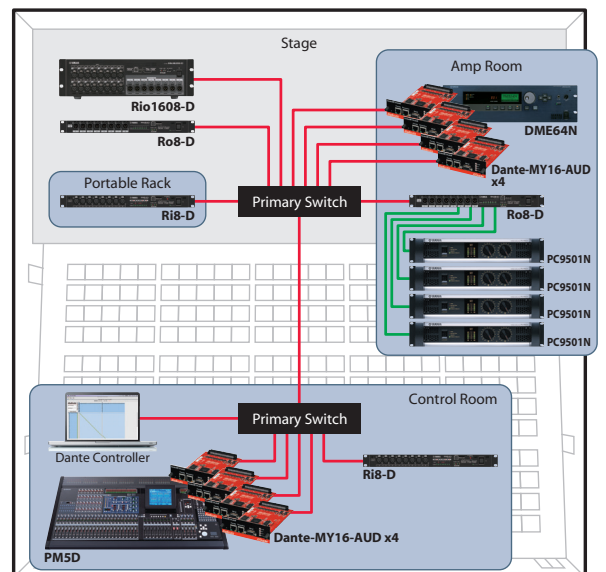
The Rio3224-D handles stage-side I/O, while Ri8-D units serve as a portable input racks on stage and at the console position. An Ro8-D is located in the hall's or theater's amp room, delivering audio to the system's power amplifiers.

Teamed up with a PM5D console for 96 kHz operation

Rio Series I/O units can be used with a PM5D console and DME64N digital mixing engine to create a 96 kHz system. Rio input signals are mixed at the PM5D, and then returned to the Rio units after processing via the DME64N. Even relatively complex routing like this can be easily managed via simple physical cabling and virtual patching via the Dante Controller software.

* The PM5D and DME64N must be equipped with the Audinate Dante-MY16-AUD interface card.

* The Dante Controller software is required to set up to allow Rio Series head amplifier control from the PM5D console.



*All specifications are subject to change without notice.

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