Overview

The DSP-RX is a powerful DSP engine that serves as the core for signal processing and system control required for the RIVAGE PM system. DSP-RX can be upgraded to DSP-RX-EX later by adding the DEK-DSP-RX kit.

Rear Panel

Features

- Superior capability of processing digital audio signals of up to 120 input, 48 MIX, 24 MATRIX, and two STEREO channels.
- Four HY card slots that are capable of transmitting/receiving up to 256 ins/outs of digital audio signals/control signals.
- A TWINLANe network card will work exclusively in HY card slot 1 or 2. The virtual sound check (VSC) function will work exclusively in HY card slot 4.
- Up to 8 RPio units can be connected to each TWINLANe ring. (Maximum 16 units in one RIVAGE PM system)
- Up to 48 Rio units can be mounted in one RIVAGE PM system.
- Up to 2 DSP engine units can be connected within one RIVAGE PM system.
- Up to 2 control surfaces can be connected within one RIVAGE PM system.
- Two MY slots to support various audio formats.
- Dual redundant power supply built-in
- Expansion Slots: HY Slots: 4, MY Slots: 2
- GPI Interface: 8-in/8-out
- Power consumption: 190 W
- Dimensions (W x H x D): 480 x 220 x 491 mm (5U rack size)
- Net weight: 19 kg

Specifications 1/2

Functional Specifications

Mixing Capacity	Input Mixing channels		120 mono
	Mix Buses		48
	Matrices		24 (Input to Matrix supported)
	Stereo Buses		2
	Mono Buses		1
	Cue Buses		2
Local Connectors	Expansion Slot	HY	4
		MY	2
	GPI	IN	8
		ONT	8
	Word clock		In / Out
	MIDI		In / Out
	External Redundant PSU		Built-in dual power supply
	TC In		Yes
	Fault Output		Yes
	AC Inlet		2 (V-Lock Type)
Scene Memory	Number of Scenes		1000
	Recall Safe		Yes
	Focus Recall		Yes
	Fade Time		Yes (0s ~ 60s)
	Preview		Yes
	Selective Load/Save		Yes
	Global Paste		Yes
	Event List		Yes
	Overlay		Yes
	Isolate		Yes
Input Channel Functions	Gain Compensation		Yes
	Silk		Yes (with RPio)
	Digital Gain		Yes (-96dB ~ +24dB)
	ATT		Yes
	HPF		20Hz~2000Hz, -6/-12/-18/-24dB/oct Selectable
	PEQ		4 Band Full PEQ (4 algorithms, RTA overlay support)
	Dynamics 1		Legacy Comp / Comp260 / Gate / De-Esser / Expander / Ducking
	Dynamics 2		Legacy Comp / Comp260 / Gate / De-Esser / Expander / Ducking
	Input Delay		Yes (0ms ~ 1000ms)
	Pan		Center Nominal
	DCA Group		24 (Output DCA support)
	DCA Rollout		Yes
	MUTE Group		12
	Number of Inserts		4 slots on each 2 insert point
	Direct Out		Yes

Output Channel Functions	PEQ	8 Band Full PEQ
	GEQ	Plug-in
	Dynamics 1	Legacy Comp / Comp260 / Gate / De-Esser / Expander / Ducking
	Output Channel Delay	Yes (0ms ~ 1000ms)
	MUTE Group	12
	Number of Inserts	4 slots on each 2 insert point
Plug-in	Number of Slots	384
	Number of Effect Programs	More than 50
GEQ Rack	Number of GEQ Racks	48
	Mountable Device	31BandGEQ / Flex15GEQ / 8Band PEQ (RTA overlay support) / Automixer
TWINLANe	Number of I/O Channels (per card)	256 in / 256 out (with HY256-TL)
Dante	Number of I/O Channels (per card)	144 in / 144 out (with HY144-D)
Recording	USB Memory Recording	Yes
	DVS Recording	Yes (with HY144-D)
Broadcast Functions	5.1 Surround Panning	Yes
	Surround Monitor	Yes
	Mix Minus	Yes
	L-Mono / R-Mono / LR-Mono	No
Monitor	Solo Mode	Yes
	Oscillator	Sine Wave 1ch / Sine Wave 2ch / Pink Noise / Burst Noise
Other Functions	Port to Port	Yes
	Dual Console	Yes
	DSP Mirroring	Yes
	Timecode Reader/Display	Yes
	Timecode Chase (Event List)	Yes
	GPI/MIDI	Yes
	RTA	Yes
	Output Port Delay	Yes (0ms ~ 1000ms)
	Mix/Matrix to Input	Yes
	Sub In	Yes
	Theatre Mode	Yes
Software	Editor	RIVAGE PM Editor
	MonitorMix	Yes (V4.0 or later)
	Console File Converter	Yes

Specifications 2/2

General Specifications

Sampling Frequency

		Conditions	Min.	Typ.	Max.	Unit
External Clock	Frequency Range	Fs=44.1kHz, 48kHz, 88.2kHz, 96kHz	-1000	-	+1000	ppm
	Jitter of PLL *1	WORD CLOCK IN Fs= 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz	-	-	10	ns
Internal Clock	Frequency	Word clock: int 44.1 kHz Word clock: int 48 kHz Word clock: int 88.2 kHz Word clock: int 96 kHz	-	44.1 48 88.2 96	-	kHz
	Accuracy	Fs=44.1kHz, 48kHz, 88.2kHz, 96kHz	-50	-	+50	ppm
	Jitter *2	Word clock: int 44.1 kHz Word clock: int 48 kHz Word clock: int 88.2 kHz Word clock: int 96 kHz	-	-	4.5 4.1 2.3 2.1	ns

*1 Input clock jitter must be 1 ns or less.
*2 Measured at the WORD CLOCK OUT connecter.

Power Requirements

	Conditions	Min.	Typ.	Max.	Unit
Power Consumption	100-240V 50/60 Hz	-	-	190	W
Heating Value	100-240V 50/60 Hz	-	-	164	kcal/h

Power Cable Length and Temperature Range

	Conditions	Min.	Typ.	Max.	Unit
Powe Cord Length		-	250	-	cm
Temperature Range	Operating Temperature Range	0	-	40	°C
	Storage Temperature Range	-20	-	60	°C

Control I/O Characteristics

Terminal		Format	Level	Connector	Balanced / Unbalanced
MIDI	IN	MIDI	-	DIN 5P	-
	OUT	MIDI	-	DIN 5P	-
TC IN	SMPTE	SMPTE	0.3 Vpp(Min.) / 10.0 Vpp(Max.). 10kΩ	XLR-3-31 type *1	Balanced
WORD CLOCK	IN	-	TTL/75Ω terminated	BNC	-
	OUT	-	TTL/75Ω	BNC	-
GPI		-	-	D-sub 25pin (Female) *2	-
REMOTE		-	RS422 / 232C *3	D-sub 9pin (Male)	-
FAULT OUTPUT	NO	-	< DC30V, < 1A	Euroblock Connector 3P	-
	C *4	-	-		-
	NC	-	< DC30V, < 1A		-
CONSOLE NETWORK IN/OUT		-	1000BASE-T	etherCON CAT5e *5 *7	-
NETWORK		IEEE802.3	10BASE-T/100BASE-TX	etherCON CAT5 *6 *7	-
NETWORK [PC]		IEEE802.3	10BASE-T/100BASE-TX	etherCON CAT5 *6 *7	-

*1 1= GND, 2= HOT, 3= COLD
*2 Inputs
CH 1-7 TTL logic (input voltage 0-5V)
CH 8 Optocoupler (input voltage 0-24V, low level: 1V or lower, high level: 5V or higher)
Outputs
CH 1-7 Open-drain (max. external supply voltage 12V, max. sink current/pin 75mA)
CH 8 Relay contact (max. 1A/30VDC)
Power Supply Pins
Output voltage 5V±5%, max. total output current 600mA
*3 Toggled by the switch.
*4 The C terminal normally short-circuits with the NC terminal, but it short-circuits with the NO terminal in the event that a fault is detected.
*5 CAT5e or higher cables are recommended for connection.
*6 CAT5 or higher cables are recommended for connection.
*7 STP cables are recommended for connection.

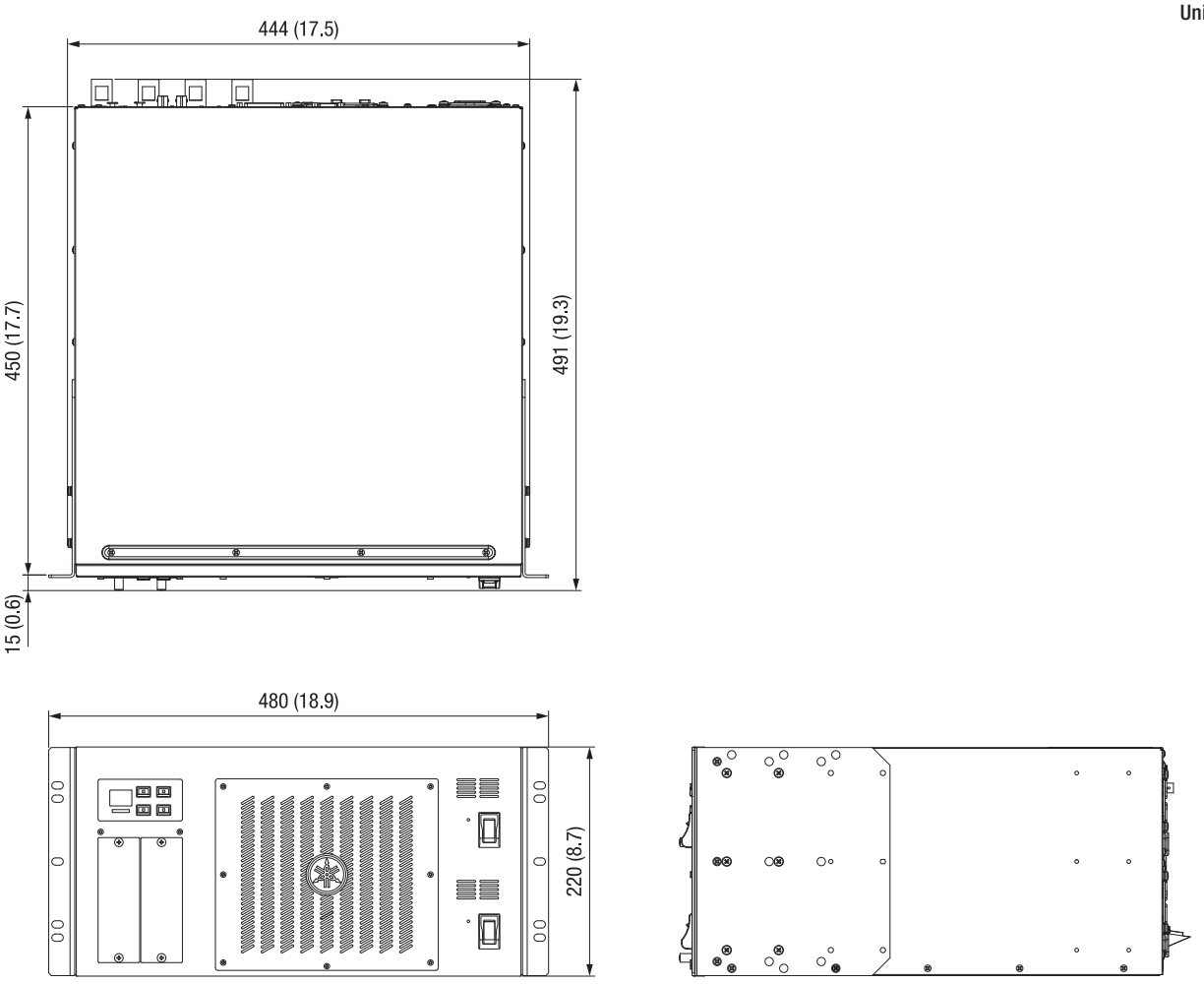
Others

Dimensions (W x H x D), Weight	480mm x 220mm x 491mm (18.9" x 8.7" x 19.3"), 19kg (41.9lbs)
Accessories	Owner's Manual, AC power cords x 2, Euroblock plug (three-pin)
Optional Items	Mini-YGDAI card, HY card, DEK-DSP-RX (DSP Expansion Kit)
EIA Rack Mount Size	5U
NC Value	15 (Fan Spd: LOW) / 20 (Fan Spd: HIGH) *1

*1 Measuring position: 100cm away from the unit's from panel.

Dimensions

Unit: mm (inch)



RIVAGE PM Components

- Control Surface CS-R10 / CS-R10-S / CSD-R7 / CS-R5 / CS-R3
- Signal Processor DSP-RX / DSP-RX-EX / DSP-R10
- I/O Rack RPio622 / RPio222 / Rio3224-D2 / Rio1608-D2 / RSio64-D / RMio64-D / Ri8-D / Ro8-D
- Audio Interface Card RY16-ML-SILK / RY16-DA / RY16-AE / HY256-TL / HY256-TL-SMF / HY144-D / HY144-D-SRC / HY128-MD

Software

- RIVAGE PM Editor
- MonitorMix
- Yamaha Console File Converter

A&E Specifications

The Yamaha DSP-RX shall be a signal processer for use with the Yamaha RIVAGE PM series Digital Mixing System. DSP-RX provides superior capability of processing digital audio signals of up to 120 input, 48 MIX, 24 MATRIX, and two STEREO channels. Local I/O shall include 4 HY Slots that are capable of transmitting/receiving up to 256 ins/outs of digital audio signals and 2 Mini-YGDAI slots to support various audio formats. Power supply shall be Dual redundant power supply and power consumption shall be 190W. Dimensions shall be 480 (W) x 220 (H) x 491 (D) mm. Weight shall be 19 kg.

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