

## Overview

The CS-R3 control surface is the core component of RIVAGE PM3 system, with 96 kHz processing. The console is the most compact mixer in RIVAGE PM series regarding its size and weight, though the software and operations are almost the same as other RIVAGE PM series.



Rear Panel

## Features

- Fader configuration: 38 (12+12+12+2) faders.
- Touch Screen: 15" x 1
- Local I/O: 8 in, 8 out.
- Yamaha's industry-standard Selected Channel concept, providing direct access to parameters of any channel selected via its SEL key.
- 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.
- Seamlessly integrated remote control and offline editing via computer software.
- Wireless remote control of a RIVAGE PM system is possible via an iPad app.
- Individual wireless MIX/MATRIX mixing can be simultaneously performed by up to 10 different iPad, iPhone, iPod touch, or Android devices.
- Data exchangeable using Console File Converter.
- Direct 2-track recording to standard USB flash drives, or serious multitrack recording to a DAW via Dante.
- Multitrack recordings can be used for "virtual sound check" when the performers aren't available.
- Expansion Slots: MY Slots: 2
- GPI Interface: 8-in/8-out
- Other features: comprehensive Fader Bank section with recallable custom banks, editable channel names and colors, user defined keys and user defined knobs, 1000 scene memories, input and output delays, ample EQ and dynamics processing, 24 DCA groups, 12 mute groups, multiple user defined key and knob, and more.
- Dimensions (W x H x D): 1145 x 385 x 650 mm
- Net weight: 38 kg

# Specifications

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## Functional Specifications

<b>Local Connectors</b>	Analog	In	8
		Out	8
	Digital	AES IN	-
		AES OUT	-
	Expansion Slot	MY	2
	GPI	IN	8
		ONT	8
	Word Clock		No
	MIDI		IN/OUT
	USB	File	4
		Rec/Play	1
	Redundant PSU		Built-in dual power supply
	Meter Bridge		On screen
	Lamp		2
	Talkback In		No
Video Out		No	
Phones		1 connector	
AC Inlet		2 (V-Lock Type)	
<b>Scene Memory</b>	Tactile Control Keys		Yes
<b>User Interface</b>	Display		15 inch Touch Panel x 1
	Centralogic Section		Yes
	Faders		12 + 12 + 12 + 2
	Selected Channel Encoders		Dynamics, GAIN, HPF, EQ, PAN, Function Knob
	Channel Encoder		Yes
	Channel Name / Color Display		Yes
	Custom Fader Banks		Yes (6 x 5 on each bay)
	User Defined Keys		12 (x 4 banks) + 2
	User Defined Knobs		1 (4 x 4 banks can be assigned)
	Touch and Turn Knob		Yes (1)
	Monitor Level Knob		Yes (2: A and B)
Wooden Arm Rest		Yes	
<b>Software</b>	Editor		RIVAGE PM Editor
	StageMix		RIVAGE PM StageMix
	Console File Converter		Yes

## General Specifications

<b>User Interface</b>	100mm touch-sensitive motorized fader (resolution=1024 steps) x 38 15" multi-touch screen (high brightness, wide view angle) Touch sensitive knobs in the Selected Channel section	
<b>Power Requirements</b>	100-240V, 50/60Hz	
<b>Power Consumption</b>	200W	
<b>Dimensions</b>	W x H x D	1145mm x 385mm x 650mm (45.1" x 15.2" x 25.6") (including the rubber feet)
<b>Weight</b>	38kg (83.8lbs)	
<b>NC Value</b> *1	FAN speed LOW: NC=20 / HIGH: NC=25	
<b>Temperature Range</b>	Operating Temperature Range	Min: 0°C, Max: 40°C
	Storage Temperature Range	Min: -20°C, Max: 60°C
<b>Accessories</b>	Owner's Manual, AC power cord x 2, Dust cover, Nuendo Live (DAW software)	
<b>Optional Items</b>	Mini-YGDAI card, Gooseneck Lamp LA1L	

\*1 Measured 30cm horizontally away and vertically up from the unit (front pad).

## Audio Specifications

At the time of measurement, all levels are set to nominal. Output impedance of the signal generator is 150Ω.

## Frequency Response

@20Hz–20kHz, reference to the nominal output level @1kHz

Input	Output	RL	Conditions	Min.	Typ.	Max.	Unit
OMNI IN 1–8	OMNI OUT 1–8	600Ω	GAIN: +66dB	-1.5	0.0	0.5	dB

## Total Harmonic Distortion

Input	Output	RL	Conditions	Min.	Typ.	Max.	Unit
OMNI IN 1–8	OMNI OUT 1–8	600Ω	+4dBu@20Hz–20kHz, GAIN: -6dB			0.05	%
Internal OSC	OMNI OUT 1–8	600Ω	Full scale output @1kHz			0.02	%
Internal OSC	PHONES	8Ω	Full scale output @1kHz, PHONES LEVEL: max.			0.2	%

\* Total Harmonic Distortion is measured with an 18dB/oct filter @80kHz.

## Hum & Noise \*2

Input	Output	RL	Conditions	Min.	Typ.	Max.	Unit
OMNI IN 1–8	OMNI OUT 1–8	600Ω	Rs=150Ω, GAIN: +66dB		-128 EIN *1		dBu
OMNI IN 1–8	OMNI OUT 1–8	600Ω	Rs=150Ω, GAIN: -6dB		-62	-86	dBu
-	OMNI OUT 1–8	600Ω	Residual output noise, output channel is off.		-96		dBu
-	PHONES	8Ω	Residual output noise, PHONES LEVEL: min.			-88	dBu

\*1 EIN=Equivalent Input Noise

\*2 Hum & noise is measured with an IHF-A filter.

## Dynamic Range

Input	Output	RL	Conditions	Min.	Typ.	Max.	Unit
OMNI IN 1–8	OMNI OUT 1–8	600Ω	AD + DA, GAIN: -6dB		115		dB
-	OMNI OUT 1–8	600Ω	DA Converter		120		dB

\* Dynamic range is measured with an IHF-A filter.

## Crosstalk (@1kHz)

From/To	To/From	Conditions	Min.	Typ.	Max.	Unit
OMNI IN n	OMNI IN (n-1) or (n+1)	OMNI IN 1–8, adjacent inputs, GAIN: -6dB			-100	dB
OMNI OUT n	OMNI OUT (n-1) or (n+1)	OMNI OUT 1–8, input to output			-100	dB

\* Crosstalk is measured with a 30dB/oct filter @22kHz.

## Specifications

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### Input/Output Characteristics

#### Analog Input Characteristics \*3 \*4

Input Jack	Gain	Input Impedance	Source Impedance	Input Level			Connector
				Sensitivity *1	Rated Level	Max. Level Before Clipping	
OMNI IN 1-8	+66dB	7.5kΩ	50-600Ω Mics & 600Ω Lines	-82dBu (61.6μV)	-62dBu (0.616mV)	-42dBu (6.16mV)	XLR-3-31 type (Balanced) *2
	-6dB			-10dBu (245mV)	+10dBu (2.45V)	+30dBu (24.5V)	

\*1 Sensitivity is defined as the input level required to produce an output of +4dBu (1.23V) or the nominal output level when all faders and level controls are set to maximum.

\*2 1=GND, 2=HOT, 3=COLD

\*3 0dBu=0.775Vrms

\*4 OMNI IN 1-8 feature +48V DC phantom power, which is switchable for each jack individually.

#### Analog Output Characteristics \*5

Output Jack	Output Impedance	Load Impedance	Max Output Level Select Switch *1	Output Level		Connector
				Rated Level	Max. Level Before Clipping	
OMNI OUT 1-8	75Ω	600Ω Lines	+24dBu (default)	+4dBu (1.23V)	+24dBu (12.3V)	XLR-3-32 type (Balanced) *2
			+18dBu	-2dBu (0.616V)	+18dBu (6.16V)	
PHONES	15Ω	8Ω Phones	-	75mW *3	150mW	Stereo Phone Jack (TRS) (Unbalanced) *4
		40Ω Phones	-	65mW *3	150mW	

\*1 The unit features an internal switch to change the maximum output level.

\*2 1=GND, 2=HOT, 3=COLD

\*3 These measurements were obtained when the PHONES LEVEL knobs were set 10dB lower than the maximum.

\*4 Tip=LEFT, Ring=RIGHT, Sleeve=GND

\*5 0dBu=0.775Vrms

### I/O Slot Characteristics

MY card slot x 2

### Control I/O Characteristics

Terminal	Format	Level	Connector
MIDI IN	MIDI	-	DIN 5P
MIDI OUT	MIDI	-	DIN 5P
USB 1-4	USB 2.0 Host	USB	USB A (Female)
RECORDING *1	USB 2.0 Host	USB	USB A (Female)
NETWORK [PC]	IEEE802.3	10BASE-T/100BASE-TX	etherCON CAT5 *2 *4
CONSOLE NETWORK IN/OUT	-	1000BASE-T	etherCON CAT5e *3 *4
GPI *5	-	-	D-sub 25pin (Female)
LAMP 1-2	-	0-12 V	XLR-4-31 type *6

\*1 Supported file formats are WAV and MP3.

\*2 CAT5 or higher cables are used for connections.

\*3 CAT5e or higher cables are used for connections.

\*4 STP cables are recommended for connections.

\*5 Input pin

CH 1-7 TTL (input voltage 0-5V)

CH 8 Photo coupler (input voltage 0-24V, low level: 1V or lower, high level: 5V or higher)

Output pin

CH 1-7 Open-drain (max. supply voltage 12V, max. sink current/pin 75mA)

CH 8 Relay contact (max. 1A/30VDC)

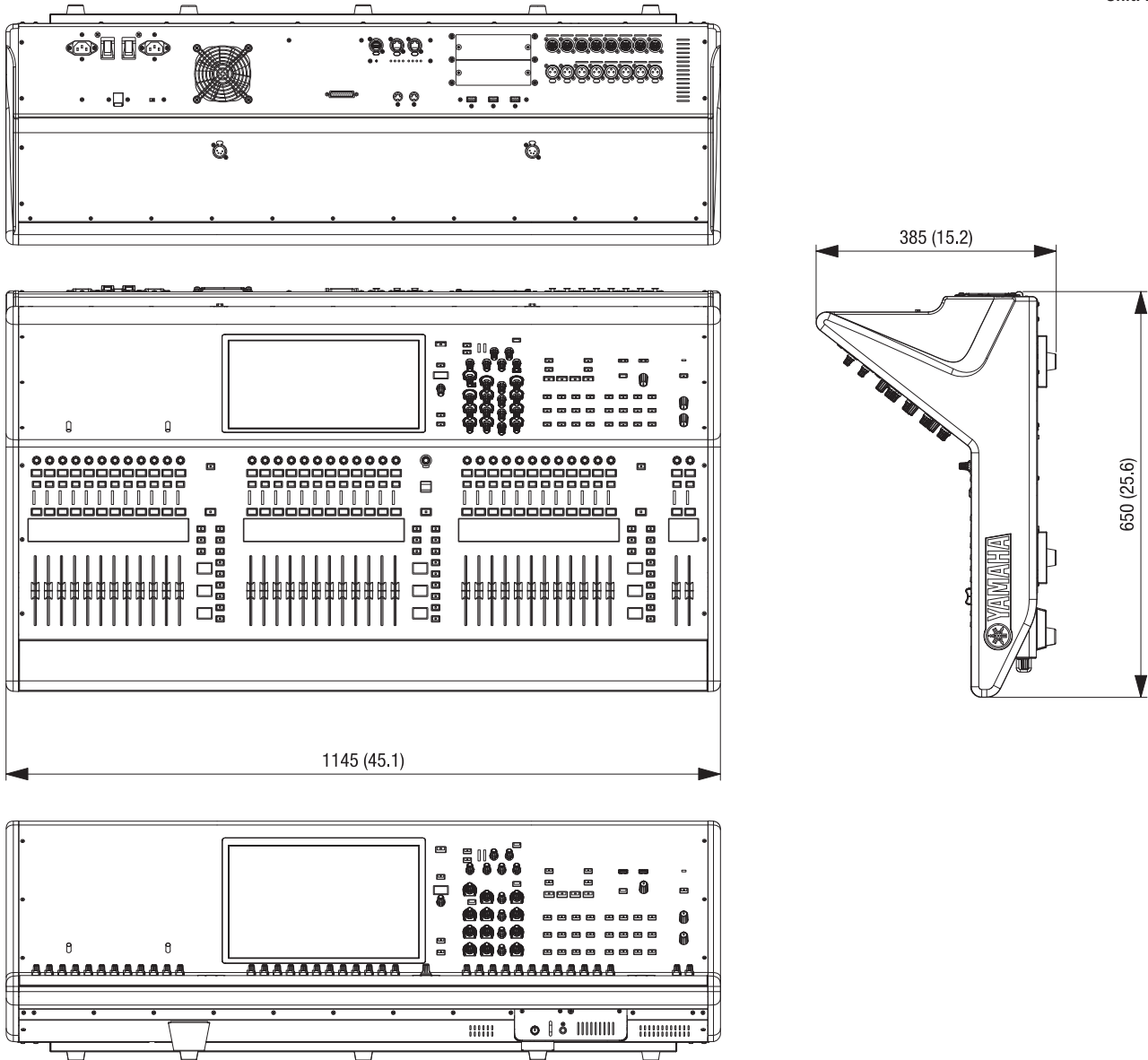
Power supply pin

Output voltage 5V±5%, max. output current 600 mA

\*6 3=GND, 4=+12V; Up to 5W is supported for lamp rating.

## 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 RPi0622 / RPi0222 / 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
- RIVAGE PM StageMix
- Yamaha Console File Converter
- Steinberg Nuendo Live

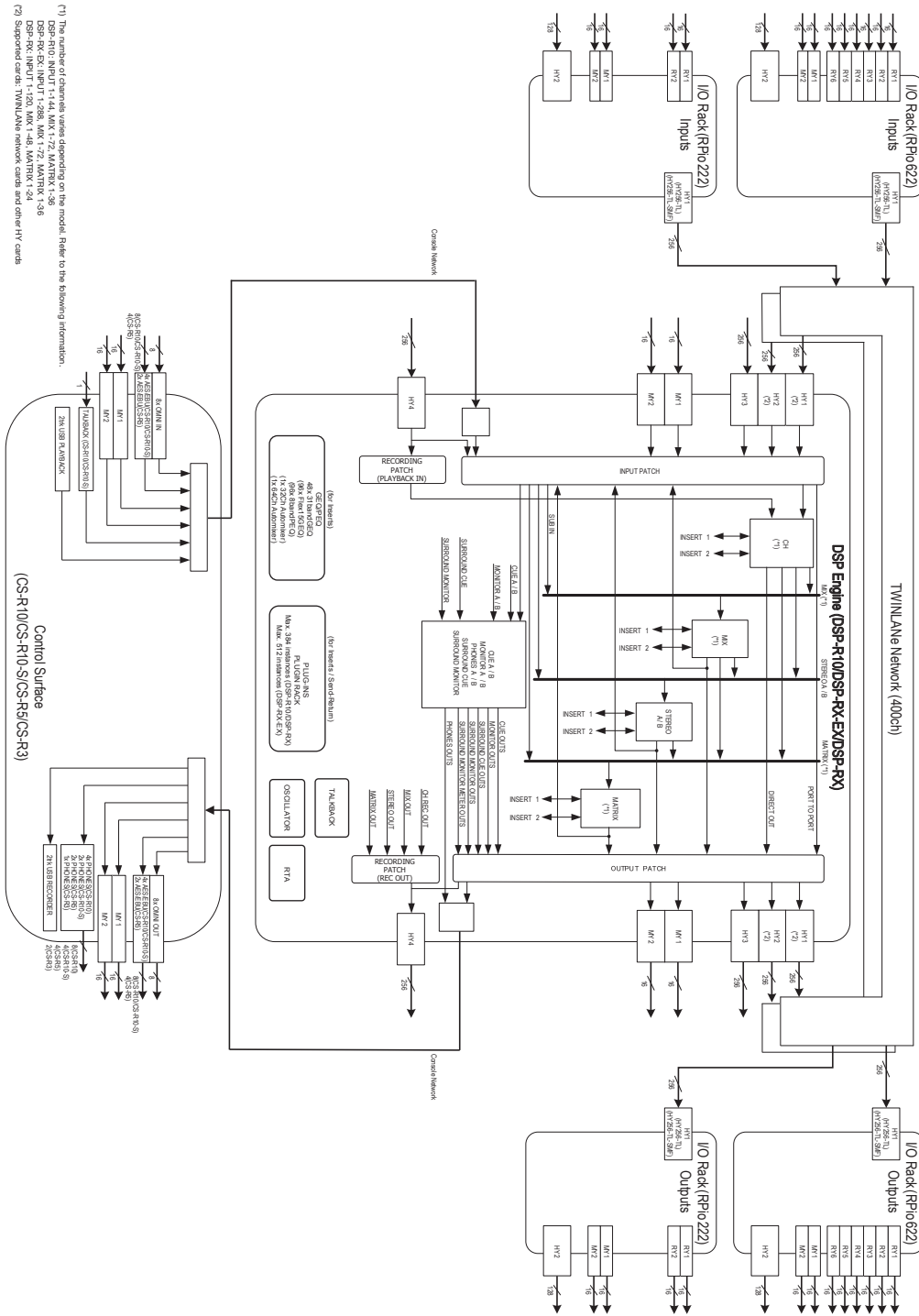
## A&E Specifications

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The Yamaha CS-R3 shall be a control surface for use with the Yamaha RIVAGE PM3 Digital Mixing System. Selected Channel section shall provide direct access to parameters. It shall include 12 faders in the left section, 12 faders in the center section, and 12 faders in the right section plus 2 master faders. All the fader is 100mm motorized fader. The CS-R3 shall provide functions for fast, efficient mixing via an intuitive interface. It shall include a 15" touch-screen display. Physical controllers other than faders shall include the Selected Channel controllers, 6 x 5 custom fader banks on each bay, 12 x 4 banks +2 User Defined Keys, 1 Send/User Defined Knobs, and 1 Touch and Turn knob provides directly and intuitively controllability. Local I/O shall include 8 analog microphone/line inputs and 8 outputs, 2 Mini YGDAI slots, GPI ports (8 in/8 out), MIDI I/O, network port, and 5 USB (1 for 2-track recording). Power supply shall be Dual redundant power supply and power consumption shall be 300W. Dimensions shall be 1145 (W) x 385 (H) x 650 (D) mm. Weight shall be 38 kg.

# Block Diagrams

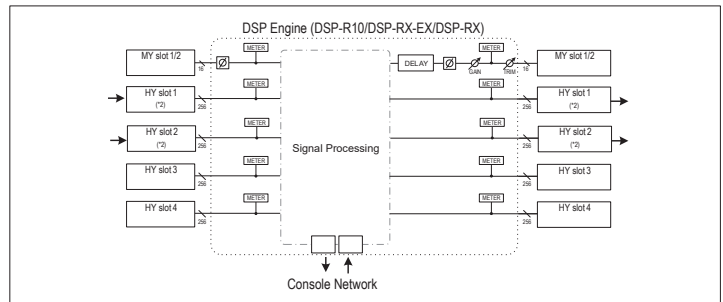
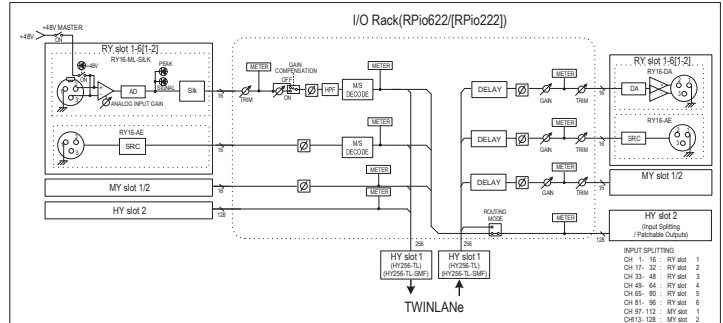
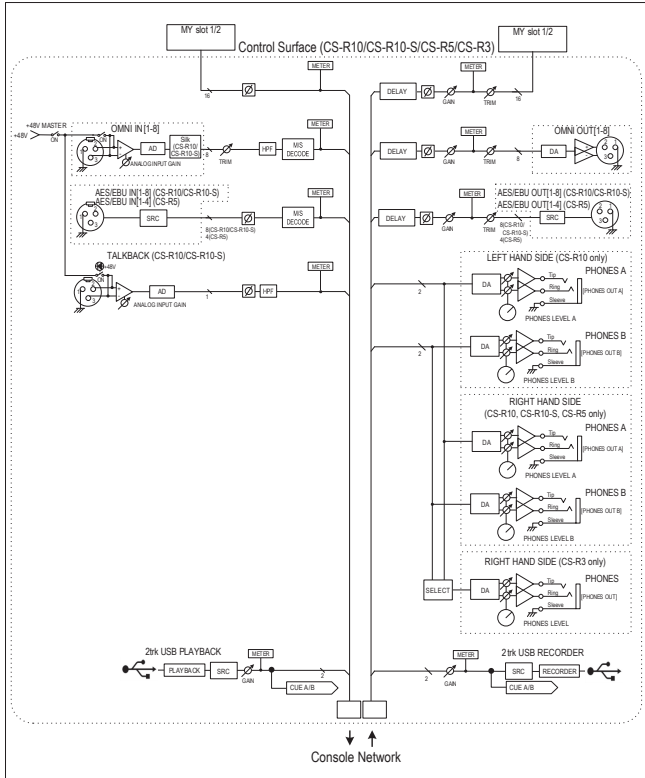
## System Overview



(\*) The number of channels varies depending on the model. Refer to the following information.  
 DSP-R10: INPUT 1-44, MK 1-72, MATRIX 1-36  
 DSP-R1U: INPUT 1-44, MK 1-72, MATRIX 1-36  
 DSP-RX: INPUT 1-120, MK 1-48, MATRIX 1-24  
 (2) Supported cards: TWINLANE network cards and other I/O cards

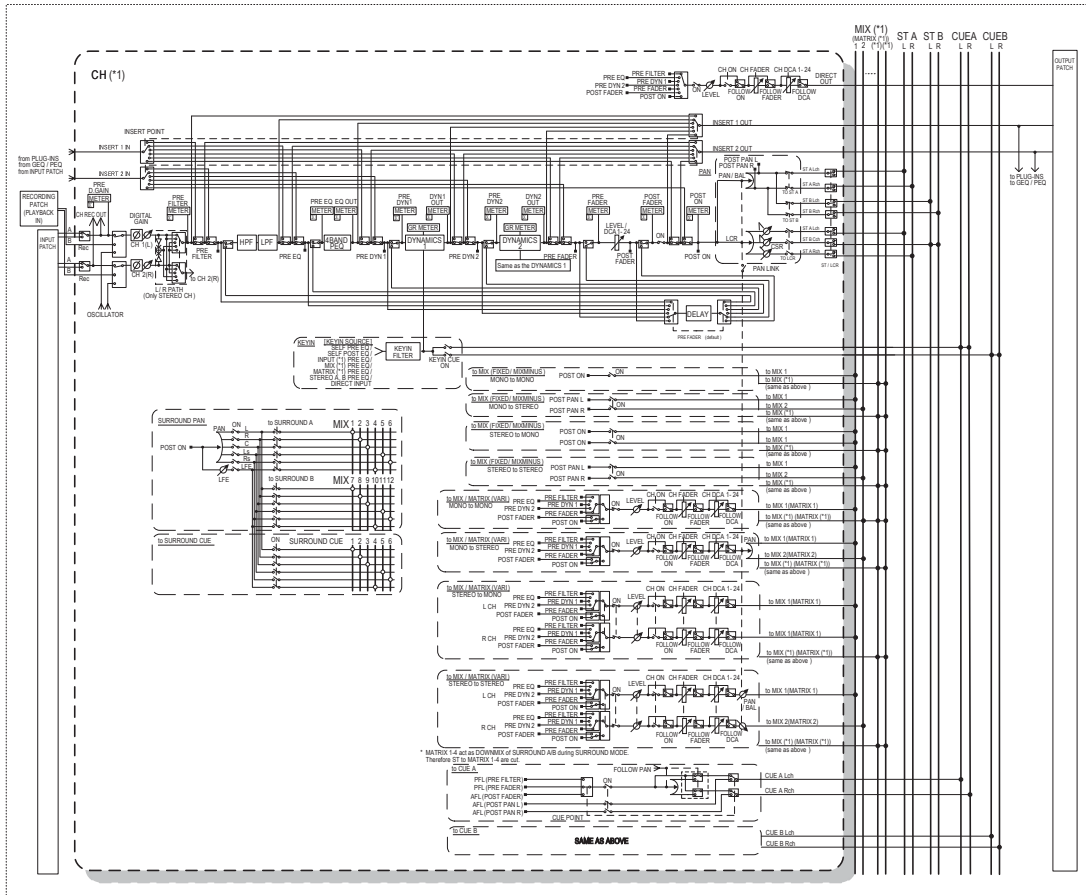
# Block Diagrams

## Control Surface, I/O Rack, DSP Engine



(\*) Supported cards: TWINLANE network cards and other HY cards

## Block Diagrams

**CH (\*1)**


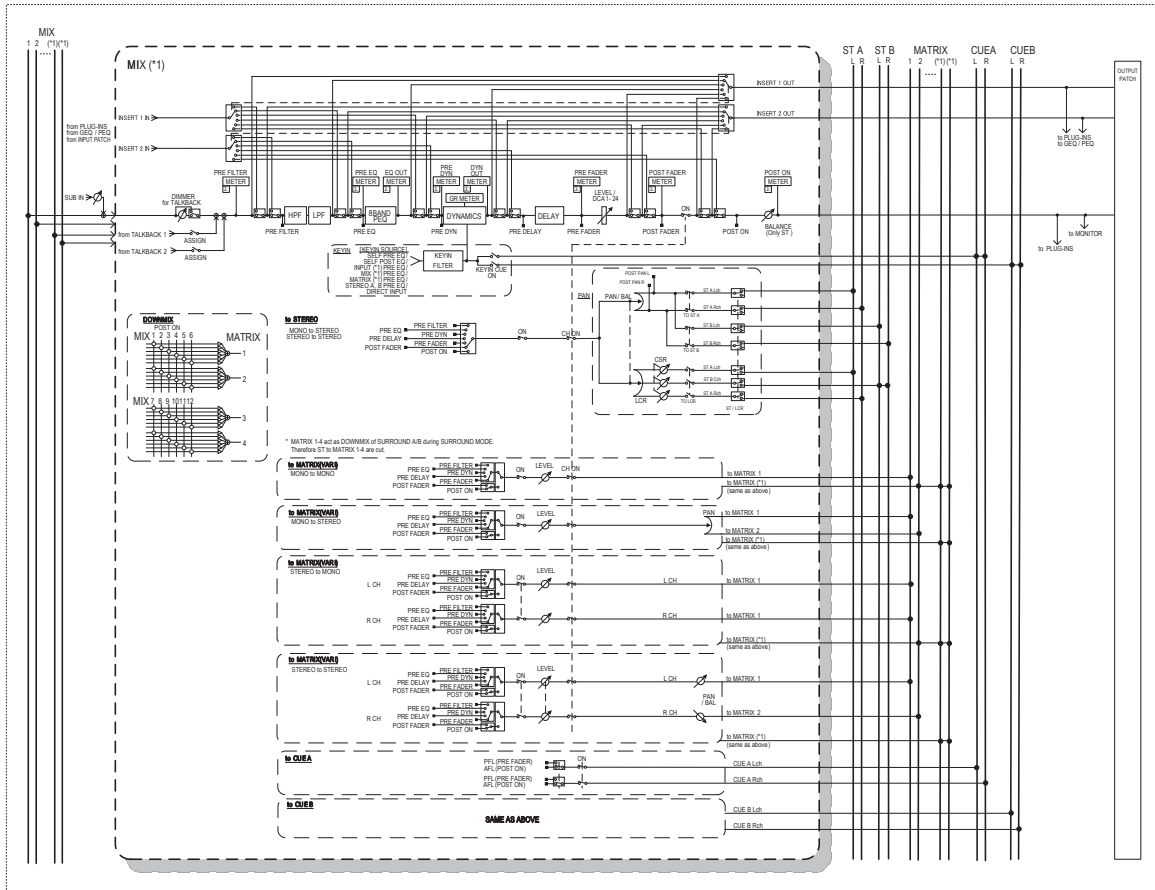
(\*1) The number of channels varies depending on the model. Refer to the following information.

- CSD-R7: INPUT 1-144, MIX 1-60, MATRIX 1-36
- DSP-R10: INPUT 1-144, MIX 1-72, MATRIX 1-36
- DSP-RX-EX: INPUT 1-288, MIX 1-72, MATRIX 1-36
- DSP-RX: INPUT 1-120, MIX 1-48, MATRIX 1-24



# Block Diagrams

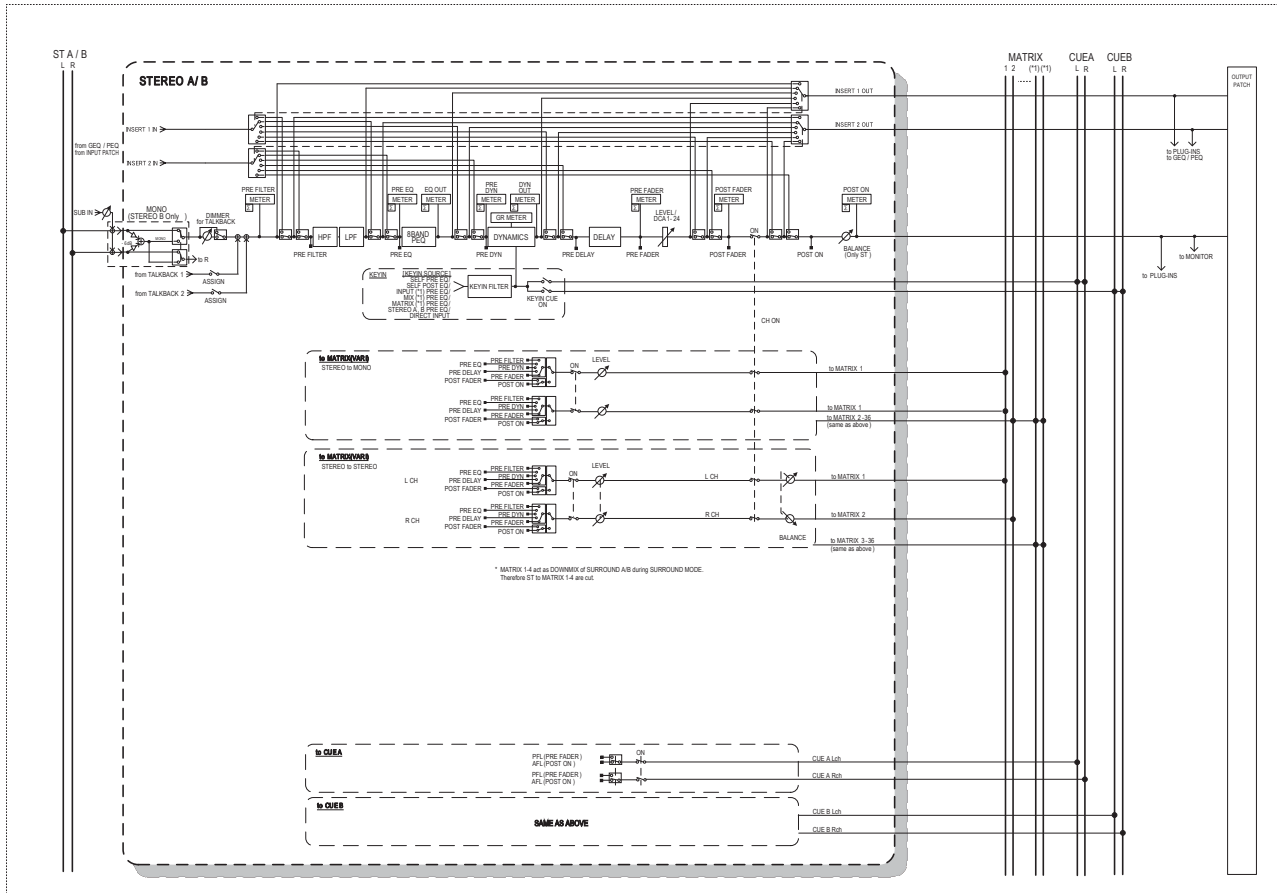
## MIX (\*1)



(\*1) The number of channels varies depending on the model. Refer to the following information.  
 CSD-R7: INPUT 1-144, MIX 1-60, MATRIX 1-36  
 DSP-R10: INPUT 1-144, MIX 1-72, MATRIX 1-36  
 DSP-RX-EX: INPUT 1-288, MIX 1-72, MATRIX 1-36  
 DSP-RX: INPUT 1-120, MIX 1-48, MATRIX 1-24

# Block Diagrams

## STEREO A/B

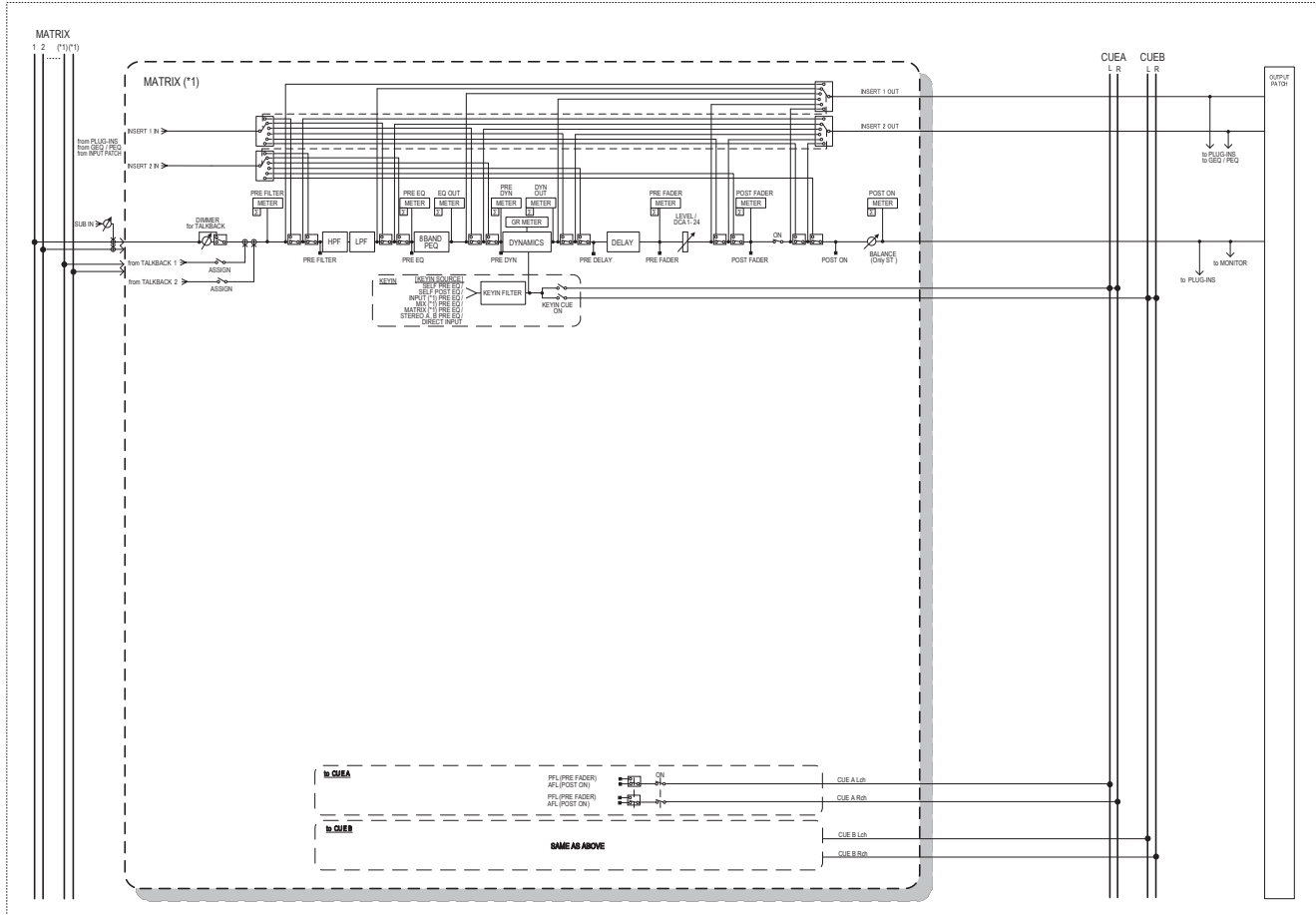


(\*) The number of channels varies depending on the model. Refer to the following information.

- CSD-R7: INPUT 1-144, MIX 1-60, MATRIX 1-36
- DSP-R10: INPUT 1-144, MIX 1-72, MATRIX 1-36
- DSP-RX-EX: INPUT 1-288, MIX 1-72, MATRIX 1-36
- DSP-RX: INPUT 1-120, MIX 1-48, MATRIX 1-24

# Block Diagrams

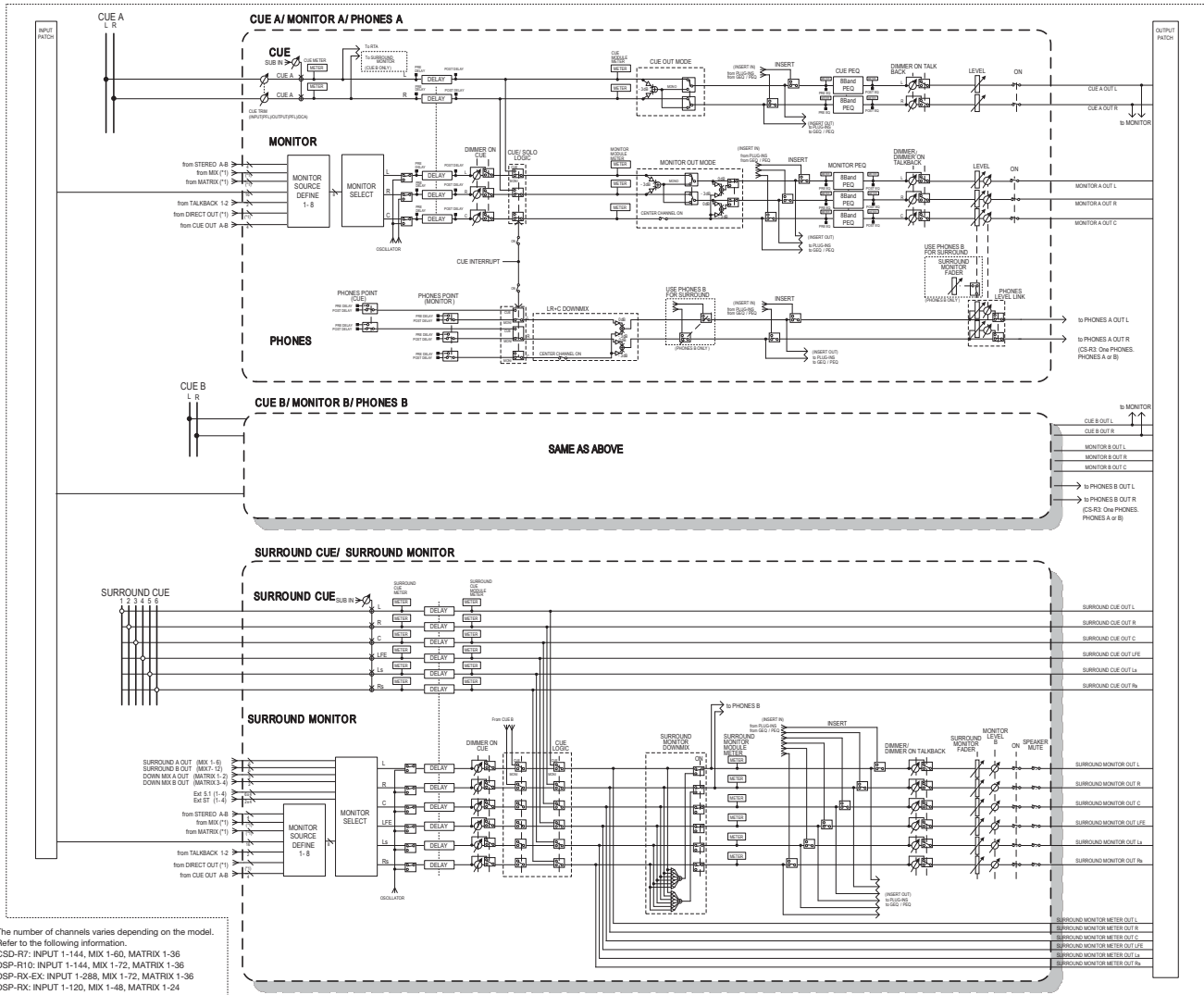
## MATRIX (\*1)



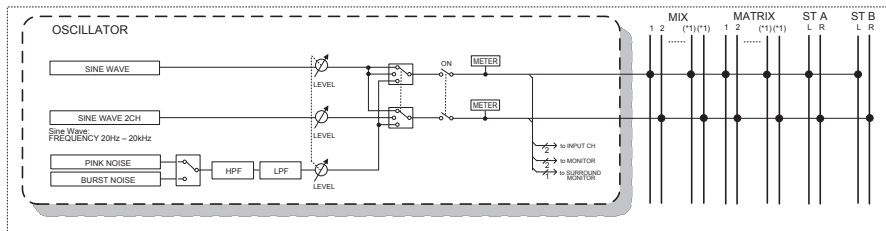
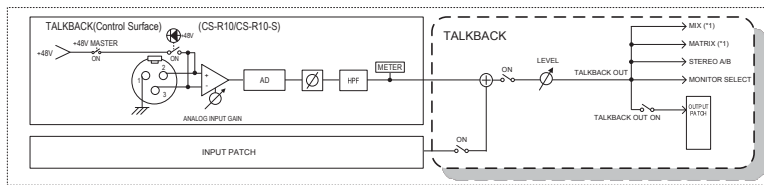
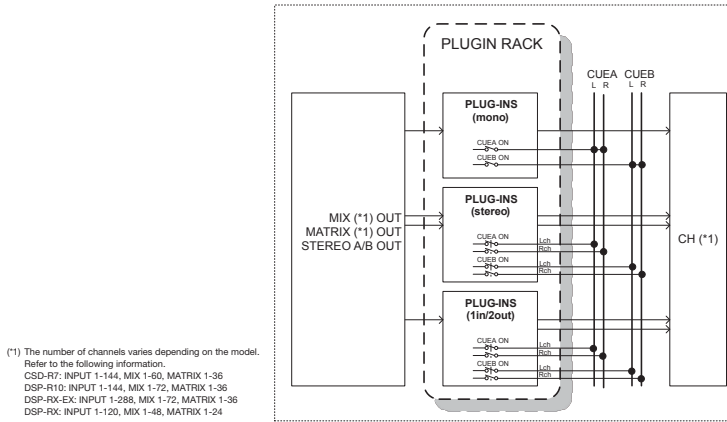
(\*1) The number of channels varies depending on the model. Refer to the following information.  
 CSD-R7: INPUT 1-144, MIX 1-60, MATRIX 1-36  
 DSP-R7D: INPUT 1-144, MIX 1-72, MATRIX 1-36  
 DSP-RX-EX: INPUT 1-288, MIX 1-72, MATRIX 1-36  
 DSP-RX: INPUT 1-120, MIX 1-48, MATRIX 1-24

### Block Diagrams

### CUE/MONITOR/MISC.

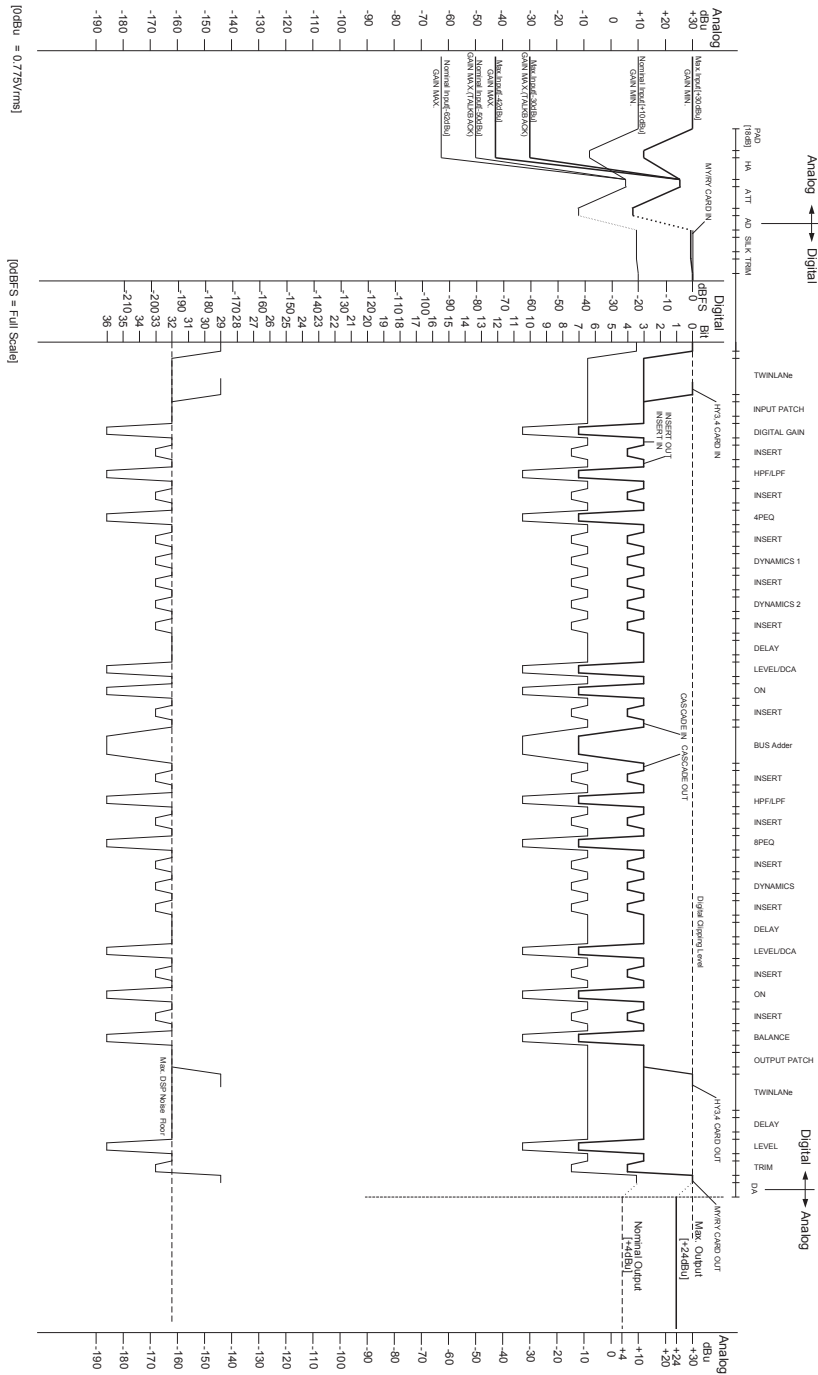


## Block Diagrams



# Block Diagrams

## Level Diagram



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