



## **A Flagship Model from the Moment It Was Launched**

Simply by being launched in 2000, the Yamaha Digital Audio Mixing System PM1D completely and comprehensively changed the world's idea of what an "ideal" large-size console should be. In addition to its groundbreaking inclusion of all-digital-processing, intuitive operation, and total recall functions, it also offered overwhelming programmability, unprecedented sound quality, excellent portability and installation, redundancy for reliability, and extreme cost-effectiveness.

The PM1D has quickly become the "first choice" model for professionals, be it for concerts in large arenas or stadiums, for performances in renowned concert halls and theaters, or for use by global broadcasters, each continues to perform beyond expectations, thus earning the strong trust of professionals.

# **System Components**

## **CS1D Control Surface**

The CS1D Control Surface includes all mix controls for two layers of 56 channels (48 input channels + 4 stereo channels), for a total of 112 channels.

## **DSP1D (DSP1D-EX) DSP Unit**

The PM1D "mix engine" handles all actual digital signal processing. The DSP1D can process up to 48 input channels + 4 stereo inputs, while the DSP1D-EX can handle up to 96 input channels + 8 stereo inputs. Both units can process a full compliment of output channels, GEQs and Effects. Two DSP1D(EX) units can be connected to a single CS1D ControlSurface for 'Mirror Mode' or failsafe operation.

## **AI8 Analog Input Box**

A single AI8 can house up to 8 AD input cards: the 2-channel LMY2-ML with A/B switchable microphone/line head amplifiers, or LMY4-MLF 4-channel microphone/line head amplifiers, or the 4-channel LMY4-AD with four line inputs.

## **AO8 Analog Output Box**

A single AO8 can house up to 8 4-channel LMY4-DA DA output cards.

## **DIO8 Digital I/O Box**

A single DIO8 can house up to 8 Digital I/O cards. A wide variety of digital I/O cards are available for full compatibility with all digital systems and formats. MY-series AD and DA cards can also be used.

# Specifications

## PM1D System

Number of scene memories	1000
Sampling Frequency	Internal: 48kHz/44.1kHz
	External: 44.1kHz-6%~48kHz+6%
Fader	67 x 100mm motorized
Fader Resolution	+10~-90, -∞dB
Total Harmonic	Less than 0.1% 20Hz~20kHz @+14dB into 600W
Distortion	Less than 0.01% 1kHz @+18dB into 600W CH IN to STEREO OUT
Frequency Response	+1, -3dB 20Hz~20kHz @+4dB into 600W
Dynamic Range (maximum level to noise level)	124dB min. DA Converter (STEREO OUT) 118dB typ. AD+DA (CH IN to STEREO OUT) 110dB min. AD+DA(CH IN to STEREO OUT)
Hum & Noise (Rs=15Ω) (Input Gain=Max.) (Input Sensitivity=-70dB)	-128dB Equivalent Input Noise. (20Hz~20kHz)
Input section CH1-96, ST IN1~8	
De-emphasis/DC cut	
Phase	Normal/Reverse
Patch	Input, Direct out, Insert in/out
Attenuation	-96dB~+10dB
Equalizer	HPF+4 band PEQ (LPF/HSF selectable 1band, LSF selectable 1 band)
Gate	Gate/Ducking selectable
Comp	Comp/Expander/comp+expander selectable
Delay	Delay time (0~250ms: fs=48kHz)
Fader	100mm motorized
On/Off	
Cue/Solo	On/Off (PFL/AFL)

Pan	LR/LCR selectable
Stereo/group assign	STEREO/GROUP 1~48 (FIX/VARI selectable)
Metering	Pre att peak, comp/gate gain reduction, Pre att/pre gate/pre fader/post fader/post on selectable
◆ Surround 3-1, 5.1, 6.1	
Output section STEREO A, B, GROUP 1-48, MATRIX 1-24	
Patch	Output, Insert in/out
Equalizer	6 band PEQ (LPF selectable 1band, HPF selectable 1band)
Comp	Comp/Expander/comp+expander selectable
Delay	Delay time (0~1000ms: fs=48kHz)
Fader	100mm motorized
On/Off	
Cue/Solo	On/Off (PFL/AFL)
Balance	Stereo A, B, Paired group & Matrix
Mono Stereo B	
to stereo assign	from group output
to matrix assign	from group/stereo output
Metering	comp gain reduction, pre att/pre fader/post fader/post on selectable
Dither	On/Off, Word length 16~24bit
◆ Attenuation 0~-96dB	
Other mixer section	
Effects	Internal patchable eight multi-effector
Graphic equalizer	Internal patchable twenty four 31 bands graphic equalizer with 4 notch filter each
Oscillator	sign/pink/band filtered pink
Talk back	From console A & B
Communication In	Including ducking control
12 DCA	with DCA mute, DCA cue/solo
12 Mute master	
Monitor A	2tr in1, 2, ST A, B, user define selectable with delay (max

	300msec)
Monitor B	2tr in1, 2, ST A, B, moni A, user define selectable
2tr in 1-6	from console
Cascade	In/Out group, stereo & cue bus cascade
Others	
LCD Display	800 x 600 Dots Graphic color LCD with backlit
VGA output	SVGA out D-Sub 15 pin connector (female)
Keyboard	PS2 mini DIN 6 pin connector
Mouse	PS2 mini DIN 6 pin connector
MIDI	In, Out, Thru
Timecode In	SMPTE XLR3-31 type Connector
GPI	D-Sub 25 pin connector (female)
USB	USB connector
PCMCIA card slot for external memory	

## ANALOG INPUT CHARACTERISTICS

Input Terminals	GAIN	Actual Load Impedance	For Use With Nominal	Input level		Connector
				Nominal	Max. before clip	
TALKBACK IN 1,2 *3. *5.	-44dB	3k $\Omega$	50-600 $\Omega$ Mics & 600 $\Omega$ Lines	-44dB(4.89mV)	-30dB(24.5mV)	XLR-3-31 type (Balanced)*1.
	+10dB			+10dB(2.45V)	+24dB(12.3V)	
2-TRACK IN ANALOG 1,2 *4.	-	10k $\Omega$	600 $\Omega$ Lines	+10dB(2.45V)	+24dB(12.3V)	XLR-3-31 type (Balanced)*1.

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

\*2. 0dB is referenced to 0.775 Vrms.

\*3. AD converters are 24bit linear, 128 times oversampling.

\*4. AD converters are 28bit 128 times oversampling.

\*5. +48V DC (Phantom power) is individually supplied to each TALKBACK connectors via 6.8k ohms resistors.

## ANALOG OUTPUT CHARACTERISTICS

Input Terminals	Actual Load Impedance	For Use With Nominal	Input level		Connector
			Nominal	Max. before clip	
MONITOR OUT A,B	150Ω	600Ω Lines	+10dB(2.45V)	+24dB(12.3V)	XLR-3-32 type (Balanced)*1.
CUE OUT	150Ω	600Ω Lines	+10dB(2.45V)	+24dB(12.3V)	XLR-3-32 type (Balanced)*1.
PHONES A1,B1	15Ω	8Ω Phones	75mW	150mW	Stereo Phone Jack (Unbalanced)*2.
		40Ω Phones	65mW	150mW	
PHONES A2,B2	15Ω	8Ω Phones	75mW	150mW	Stereo Phone Jack (Unbalanced)*2.
		40Ω Phones	65mW	150mW	

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

\*2. PHONES stereo phone jack are unbalanced. (Tip=LEFT, Ring=RIGHT, Sleeve=GND)

\*3. 0dB is referenced to 0.775 Vrms.

\*4. DA converters are 24bit linear, 128 times oversampling.

## DIGITAL INPUT&OUTPUT CHARACTERISTICS

INPUT/OUTPUT Terminals	FORMAT	LEVEL	CONNECTOR	
			TYPE	QUANTITY
DIGITAL I/O ENGINE A1,A2 ENGINE B1,B2 CONSOLE 1,2	-	RS422	D-SUB Half Pitch Connector 68P (Female)	6
2-TRACK IN DIGITAL AES/EBU 1-6	AES/EBU	RS422	XLR-3-31 type Connector	6
2-TRACK IN DIGITAL COAXIAL 1-2	IEC60958	0.5Vpp/75Ω	PIN JACK	2
STEREO OUT DIGITAL AES/EBU A,B	AES/EBU	RS422	XLR-3-32 type Connector	2

STEREO OUT DIGITAL COAXIAL A,B	IEC60958	0.5Vpp/75Ω	PIN JACK	2
WORD CLOCK IN	-	TTL/75Ω(ON/OFF)	BNC Connector	1
WORD CLOCK OUT	-	TTL/75Ω	BNC Connector	1
SVGA OUT	SVGA	2Vpp	High density D-sub 15pin Connector(Female)	1
KEYBOARD	PS2	TTL	Mini DIN 6pin Connector	2
MOUSE	PS2	TTL	Mini DIN 6pin Connector	2
NUMKEY	PS2	TTL	Mini DIN 6pin Connector	1
REMOTE RS-422	-	RS422	D-sub 9pin Connector(Female)	1
MIDI IN,OUT,THRU	MIDI	-	DIN 5pin Connector	3
TIME CODE IN	SMPTE	Nominal -10dB/10kΩ	XLR-3-31 type Connector	1
GPI	-	C-MOS IN, Open collector out	D-SUB 25pin Connector(Female)	1
PC CONTROL USB	-	0V - 3.3V	B Type USB Connector	1
PC CONTROL RS-232-C	-	RS-232-C	D-SUB 9pin Connector(Male)	1

INPUT/OUTPUT TERMINALS	FORMAT	LEVEL	CONNECTOR	
			TYPE	QUANTITY
CONTROL I/O ENGINE A 1IN,1OUT,2IN,2OUT ENGINE B 1IN,1OUT,2IN,2OUT ENGINE B 1IN,1OUT,2IN,2OUT	-	-0.225V -- 1.825V	BNC Connector	12
DC POWER INPUT	-	DC 60V	KN-27-31S 27pin(Female)	2

LCD Display 800 x 600 Dots Graphic color LCD with backlit PCMCIA card slot for external memory  
 PW1D Power Supply to the CS1D

## COMPONENTS

DSP1D: DSP unit	
10 digital signal in	68pin digital signal connector
6 digital signal out	68pin digital signal connector
Console I/O	2pair BNC 50Ω, 68pin digital signal connector
Cascade I/O	68pin digital signal connector
Word clock I/O	BNC 75Ω

AI8-ML8: AD unit	
Slot	8 slots for AD card
Phantom switch	+48V DC for Mic/Line inputs
Gain control	80dB (-70~+10) for Mic/Line inputs
A/B switch	A/B input selectable for Mic/Line inputs
AD converter	28bit, 128 times over-sampling
Digital signal Output	3 (A, B, C) 68pin digital connector
Word clock & control	Master select switch (A/B/C)

AO8-DA8: DA unit	
Slot	8 slots for DA card
Maximum Output level	24/18/15dB selectable
DA converter	27bit, 128 times over-sampling
Digital signal Input	2 (A, B) 68pin digital signal connector
Word clock & control	Master select switch (A/B)

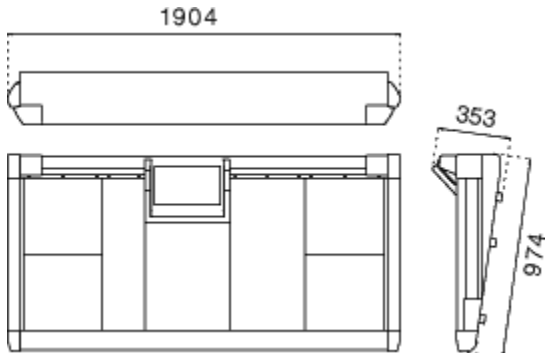
DIO8-DIGITAL I/O unit	
Slot	Mini-YGDAI 8 slots for Mini-YGDAI cards

Digital signal I/O	4 (in A, B, out A, B) 68pin digital signal connector
Word clock & control	Master select switch (OUT 1-4/5-8, in/out)

Dimensions (H x D x W)
<p>CS1D: Control Surface  353mm x 974mm x 1904mm  (13.9" x 38.3" x 74.9")  Weight 120kg (264.6 lbs.)</p>
<p>PW1D: Power supply  88mm (2U) x 355mm x 480mm  (3.5" x 13.9" x 18.9")  Weight 7kg (15.4 lbs.)  Power Consumption 400W</p>
<p>DSP1D: DSP unit  396mm (9U) x 480mm x 480mm  (15.6" x 18.9" x 18.9")  Weight 22kg (48.5 lbs.)  Power Consumption 200W</p>
<p>A18: AD unit (no cards)  AO8: DA unit (no cards)  132mm (3U) x 555mm x 480mm  (5.2" x 21.9" x 18.9")  Weight 14kg (30.9 lbs.)  Power Consumption 180W</p>
<p>DIO8: Digital I/O unit (no cards)  176mm (4U) x 400mm x 480mm  (6.9" x 15.7" x 18.9")  Weight 12kg (26.5 lbs.)  Power Consumption 100W</p>

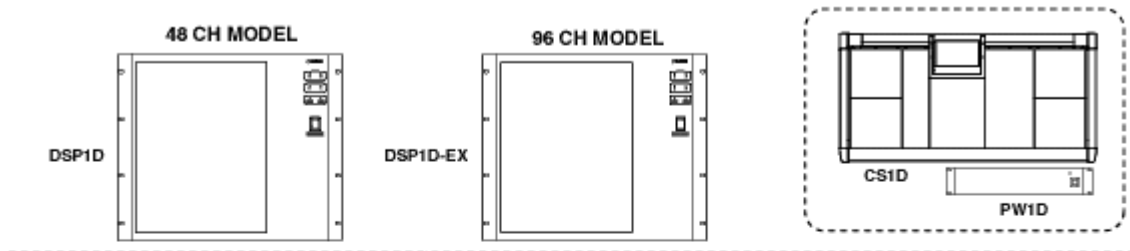
# Dimensions

## CS1D

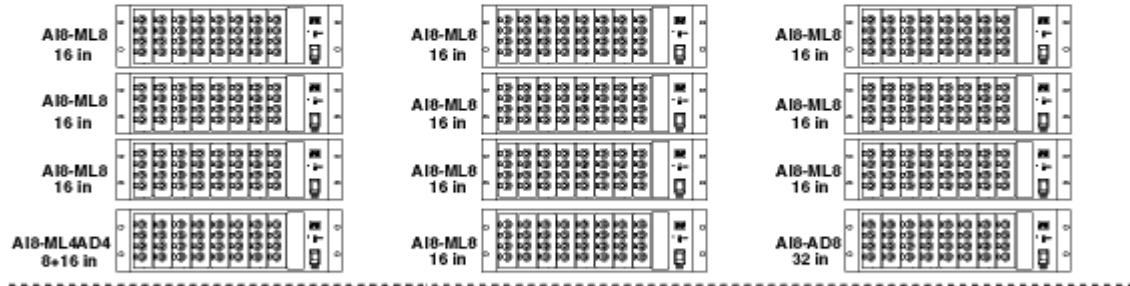


## PM1D : Digital Audio Mixing System

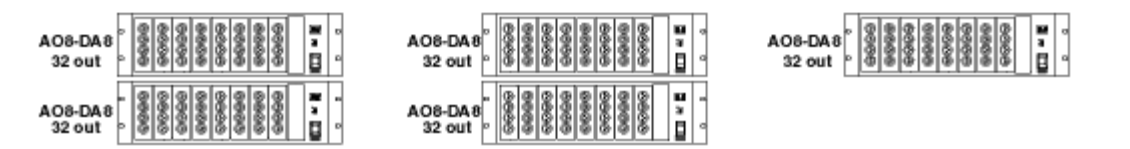
### ENGINE



### IN



### OUT



### 48CH MODEL

INPUT	OUTPUT
48 mono	2 stereo
4 st	24 mix

16 insert	12 matrix
Total 72 in	16 insert out
	8 (talkback, monitor, etc)
	<b>Total 64 out</b>

## 96CH MODEL

INPUT	OUTPUT
96 mono	2 stereo
8 st	24 mix
32 insert	12 matrix
Total 144 in	32 insert out
	24 (talkback, monitor, etc)
	<b>Total 96 out</b>

MODEL	48 CH	96 CH
CS1D	1	1
PM1D	1	1
DSP1D	1	0
DSP1D-EX	0	1
AI8-ML8	3	7
AI8-ML4AD4	1	0
AI8-AD8	0	1
AO8-DA8	2	3