YAMAHA

PM5D
DIGITAL MIXING CONSOLE

A New Dimension In Digital Live Sound

A lot has changed in the past few years —with more than a little help from Yamaha. Where analog consoles were the only accepted means of handling serious sound reinforcement applications, high-performance digital consoles such as the Yamaha PM1D now share the limelight with their analog brothers such as the PM4000, and more recently the PM5000.

Digital consoles are accepted particularly in applications where programmability and recall capability are proving to be of monumental importance. As a small indication of just how much things have changed in the world of professional sound reinforcement, there are more than 400 PM1Ds in use in prestigious halls, broadcast studios, and touring companies around the world (as of March 2004). The accolades keep coming in for other Yamaha digital consoles, too. The fact that the DM2000 digital production console has received both the coveted TEC (Technical Excellence & Creativity) award and the MIPA (Musikmesse International Press Award) for —best sound reinforcement console — indicates how much people have come to embrace the benefits of digital technology.

The PM5D series Digital Mixing Consoles and PM5D-RH Digital Mixing Consoles now take the digital revolution to the next level. They are smaller relatives of PM1D, offering state-of-the-art digital performance for a significantly broader range of SR applications that require a more dedicated control surface than the DM2000. What's more, they offer a system solution that can enhance the entire sound production process from input to output through integration with digital systems such as DME64N and AD8HR.

Specifications

GENERAL SPECIFICATIONS

All faders are nominal when measured. Output impedance of signal generator:150

Internal Signal Processing	32-bit (Accumulator 58-bit)	
Sampling Frequency	Internal	44.1kHz, 48kHz, 88.2kHz, 96kHz
	External	Normal rate: 44.1kHz (-10%) — 48kHz (+6%)
		Double rate: 88.2kHz (-10%) — 96kHz (+6%)
Signal Delay	Less Than 2.3ms INPUT to STEREO A, B (@ Fs = 48kHz) Less Than 1.15ms INPUT to STEREO A, B (@ Fs = 96kHz)	
Fader	Motorized, Stroke: 100mm All Faders	
Fader Resolution	+10 — -138, - ∞ dB (1024 steps) All Faders	
Total Harmonic Distortion **Input Gain = Min.**	Less Than 0.05 % 20Hz — 20kHz @+4dBu into 600Ω INPUT 1 — 48 ch to STEREO A,B OUT (@Sampling frequency = 44.1kHz or 48kHz) Less Than 0.05 % 20Hz —40kHz @+4dBu into 600Ω INPUT 1 — 48 ch to STEREO A,B OUT (@Sampling frequency = 96kHz)	
Frequency Response	PM5D	0.5, -1.5dB 20Hz — 20kHz @1kHz into 600Ω INPUT 1 — 48 ch to STEREO A,B OUT (@Sampling frequency = 44.1kHz or 48kHz) 0.5, -2dB 20Hz — 40kHz @1kHz into 600Ω INPUT 1 — 48 ch to STEREO A,B OUT (@Sampling frequency = 96kHz)
	PM5D-RH	1.0, -3.0dB 20Hz — 20kHz @1kHz into 600Ω INPUT 1 — 48 ch to STEREO A,B OUT (@Sampling frequency = 44.1kHz or 48kHz) 1.0, -3.0dB 20Hz — 40kHz @1kHz into 600Ω INPUT 1 — 48 ch to STEREO A,B OUT (@Sampling frequency = 96kHz)
Dynamic Range **(Max. level to noise level)**	110 typ. DA Converter (STEREO A, B OUT) (@Sampling frequency = 44.1kHz or 48kHz) 108 typ. AD + DA (to STEREO A, B OUT), GAIN: Min., PAD: ON (@Sampling frequency = 44.1kHz or 48kHz) 110 typ. DA Converter (STEREO A, B OUT) (@Sampling frequency = 96kHz) 106 typ. AD + DA (to STEREO A, B OUT), GAIN: Min., PAD: ON (@Sampling frequency= 96kHz)	
Hum & Noise **Rs = 150** **Input Gain = Max.** **Input Pad = 0dB** **Input sensitivity = -60dB**	-128dBu Equivalent Input Noise (20Hz — 20kHz) STEREO A, B OUT -86dBu Residual Output Noise, ST Master Off.	
Maximum Voltage Gain **@1kHz**	84dB INPUT 1 — 48 to STEREO A, B OUT, Rs = 150Ω, Input Gain: Max., PAD: Off 84dB INPUT 1 — 48 to MIX OUT/MATRIX OUT/CUE OUT/MONITOR OUT (via STEREO Bus)	
*Input Gain = Min. *Hum & Noise is measured with a 6dB/octave filter @12.7kHz; equivalent to a 20kHz filter with infinite dB/octave attenuation. *Total Harmonic Distortion is measured with a 18dB/octave filter @80kHz *Dynamic range is measured with a 6dB/octave filter @12.7kHz; equivalent to a 20kHz filter with infinite dB/octave attenuation.		
Crosstalk @1kHz	-80dB Adjacent Input 1 — 48 -80dB Input to Output	

Power Requirements	PM5D	480W DC 24V 20A (Use PW800W Only)
	PM5D-RH	600W DC 24V 25A (Use PW800W Only)
Dimensions	W x D x H (mm) 1551 x 950 x 283	
Net Weight	PM5D: 98 kg, PM5D-RH: 97 kg	
Operation free-air Temperature Range	10 — 35 °C	
Storage Temperature Range	-20 — 60 °C	

LIBRARIES

Name	Number	Total
Scene Memory	Preset 1 + User 500	501
Input Patch Library	Preset 1 + User 99	100
Output Patch Library	Preset 1 + User 99	100
Input Channel Library	Preset 1 + User 199	200
Output Channel Library	Preset 1 + User 199	200
Input EQ Library	Preset 40 + User 159	199
Output EQ Library	Preset 3 + User 196	199
GATE Library	Preset 4 + User 195	199
COMP Library	Preset 36 + User 163	199
Effect Library	Preset 54 + User 145	199
GEQ Library	Preset 1 + User 199	200
HA Library	Preset 1 + User 199	200

Specifications and appearance subject to change without notice.

ANALOG INPUT CHARACTERISTICS (PM5D)

Input Terminals	PAD	GAIN	Actual Load Impedance	For Use With Nominal	GAIN SW *4
INPUT 1 —48	0	-60dB	3kΩ	50-600Ω Mics & 600Ω Lines	—
	26	-16dB			
STEREO INPUT 1 -4 [L, R]		-34dB	4kΩ	600Ω Lines	—
		10dB			
INSERT IN 1 —48			10kΩ	600Ω Lines	—
2TR IN ANALOG 1, 2 [L, R]			10kΩ	600Ω Lines	+24dB (default)
					+18dB
TALKBACK			3kΩ	50-600Ω. Mics & 600. Lines	—

Input Terminals	PAD	GAIN	Input Level			Connector
			Sensitivity *1	Nominal	Max. Before Clip	
INPUT 1 – 48	0	-60dB	-80dBu (0.0775mV)	-60dBu (0.775mV)	-40dBu (7.75mV)	XLR-3-31 Type (Balanced) *2
		-16dB	-36dBu (12.3mV)	-16dBu (123mV)	+4dBu (1.23V)	
	26		-10dBu (245mV)	+10dBu (2.45V)	+30dBu (24.51V)	
STEREO INPUT 1 – 4 [L, R]		-34dB	-54dBu (1.55mV)	-34dBu (15.5mV)	-14dBu (155mV)	XLR-3-31 Type (Balanced) *2
		10dB	-10dBu (245mV)	+10dBu (2.54V)	+30dBu (24.51V)	
INSERT IN 1 – 48			-16dBu (123mV)	+4dBu (1.23V)	+24dBu (12.28V)	Phone Jack (TRS) (Balanced) *3
2TR IN ANALOG 1, 2 [L, R]			-6dBu (388mV)	+4dBu (1.23V)	+24dBu (12.28V)	XLR-3-31 Type (Balanced) *2
			-12dBu (195mV)	-2dBu (0.616V)	+18dBu (6.16V)	
TALKBACK			-60dBu (0.775mV)	-50dBu (2.45mV)	-30dBu (24.5mV)	XLR-3-31 Type (Balanced) *2

ANALOG INPUT CHARACTERISTICS (PM5D-RH)

Input Terminals	GAIN	Actual Load Impedance	For Use With Nominal	GAIN SW *4
INPUT 1 – 48	-60dB	3kΩ	50-600Ω Mics & 600Ω Lines	—
	+10dB			
STEREO INPUT 1 – 4 [L, R]	-62dB	3kΩ	50-600Ω Mics & 600Ω Lines	—
	+10dB			
2TR IN ANALOG 1, 2 [L, R]		10kΩ	600Ω Lines	+24dB (default)
				+18dB
TALKBACK		3kΩ	50-600Ω Mics & 600Ω Lines	—

Input Terminals	GAIN	Input Level			Connector
		Sensitivity *1	Nominal	Max. Before Clip	
INPUT 1 – 48	-60dB	-82dBu (61.6µV)	-62dBu (0.616mV)	-42dBu (6.16mV)	XLR-3-31 Type (Balanced) *2
	+10dB	-10dBu (245mV)	+10dBu (2.45V)	+30dBu (24.5V)	
STEREO INPUT 1 – 4 [L, R]	-62dB	-82dBu (61.6µV)	-62dBu (0.616mV)	-14dBu (6.16mV)	XLR-3-31 Type (Balanced) *2
	+10dB	-10dBu (245mV)	+10dBu (2.45V)	+30dBu (24.5V)	
2TR IN ANALOG 1, 2 [L, R]		-6dBu (388mV)	+4dBu (1.23V)	+24dBu (12.28V)	XLR-3-31 Type (Balanced) *2
		-12dBu (195mV)	-2dBu (0.616V)	+18dBu (6.16V)	

TALKBACK	-60dBu (0.775mV)	-50dBu (2.45mV)	-30dBu (24.5mV)	XLR-3-31 Type (Balanced) *2

*1 Sensitivity is the lowest level that will produce an output of +4dBu (1.23V) or the nominal output level when the unit is set to maximum gain. (All faders and level controls are maximum position.)

*2 XLR-3-31 type connectors are balanced. (1 = GND, 2 = HOT, 3 = COLD)

*3 Phone jacks are balanced. (Tip = HOT, Ring = COLD, Sleeve = GND)

*4 There are switches inside the body to preset the maximum input level.

•In these specifications, 0dBu = 0.775 V rms.

•All input AD converters are 24bit linear, 128times (@48kHz) oversampling.

•+48V DC (phantom power) is supplied to INPUT (1 – 48) XLR type connectors via each individual switch.

ANALOG OUTPUT CHARACTERISTICS

Output Terminals	Actual Source Impedance	For Use With Nominal	GAIN SW *4
STEREO A, B [L, R]	150Ω	600Ω Lines	+24dB (default)
			+18dB
MONITOR OUT [L, R, C]	150Ω	600Ω Lines	+24dB (default)
			+18dB
CUE OUT [L, R]	150Ω	600Ω Lines	+24dB (default)
			+18dB
MATRIX OUT 1 – 8	150Ω	600Ω Lines	+24dB (default)
			+18dB
MIX OUT 1 – 24	150Ω	600Ω Lines	+24dB (default)
			+18dB
INSERT OUT 1 – 48	150Ω	10kΩ Lines	—
PHONES (x2)	15Ω	8Ω Phones	—
		40Ω Phones	—

Output Terminals	Output Level		Connector
	Nominal	Max. Before Clip	
STEREO A, B [L, R]	+4dBu (1.23 V)	+24dBu (12.28 V)	XLR-3-32 Type (Balanced) *1
	-2dBu (616mV)	+18dBu (6.16V)	
MONITOR OUT [L, R, C]	+4dBu (1.23 V)	+24dBu (12.28 V)	XLR-3-32 Type (Balanced) *1
	-2dBu (616mV)	+18dBu (6.16V)	
CUE OUT [L, R]	+4dBu (1.23 V)	+24dBu (12.28 V)	XLR-3-32 Type (Balanced) *1
	-2dBu (616mV)	+18dBu (6.16V)	
MATRIX OUT 1 – 8	+4dBu (1.23 V)	+24dBu (12.28 V)	XLR-3-32 Type (Balanced) *1
	-2dBu (616mV)	+18dBu (6.16V)	
MIX OUT 1 – 24	+4dBu (1.23 V)	+24dBu (12.28 V)	XLR-3-32 Type (Balanced) *1
	-2dBu (616mV)	+18dBu (6.16V)	

INSERT OUT 1 – 48	+4dBu (1.23 V)	+24dBu (12.28 V)	Phone Jack (TRS) (Balanced) *2 *5
PHONES (x2)	75mW (*6)	150mW	Stereo Phone Jack (TRS) (Unbalanced) *3
	65mW (*6)	150mW	

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

*2.Phone jack are balanced. (Tip = HOT, Ring = COLD, Sleeve = GND)

*3.PHONES stereo phone jack is unbalanced. (Tip = LEFT, Ring = RIGHT, Sleeve = GND)

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

*5.INSERT OUTs are only provided for PM5D

*6.The position of the level control is 10dB lowered from Max.

•In these specifications, 0dBu = 0.775 Vrms.

•All output DA converters are 24bit, 128times (@48kHz) oversampling.

DIGITAL INPUT CHARACTERISTICS

Terminal			Format	Data Length	Level	Connector
2TR IN DIGITAL (*2)	1	AES/EBU	AES/EBU	24bit	RS422	XLR-3-31 Type (Balanced) *1
	2	AES/EBU	AES/EBU	24bit	RS422	XLR-3-31 Type (Balanced) *1
	3	COAXIAL	IEC-60958	24bit	0.5Vpp/75Ω	RCA Pin Jack
CASCADE IN			—	—	RS422	D-Sub Half Pitch Connector 68P (Female)

*1.XLR-3-31 type connectors are balanced. (1 = GND, 2 = HOT, 3 = COLD)

*2.With Sampling Rate Converter

DIGITAL INPUT CHARACTERISTICS

Terminal			Format	Data Length	Level	Connector
2TR OUT DIGITAL (*3)	1	AES/EBU	AES/EBU Professional Use	24bit*1	RS422	XLR-3-32 Type (Balanced) *2
	2	AES/EBU	AES/EBU Professional Use	24bit*1		XLR-3-32 Type (Balanced) *2
	3	COAXIAL	IEC-60958 Consumer Use	24bit*1	0.5Vpp/75Ω	RCA Pin Jack
CASCADE OUT			—	—	RS422	D-Sub Half Pitch Connector 68P (Female)

*1.Dither :word length 16/20/24 bit

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

*3.With Sampling Rate Converter

PW800W Specifications

GENERAL SPECIFICATIONS

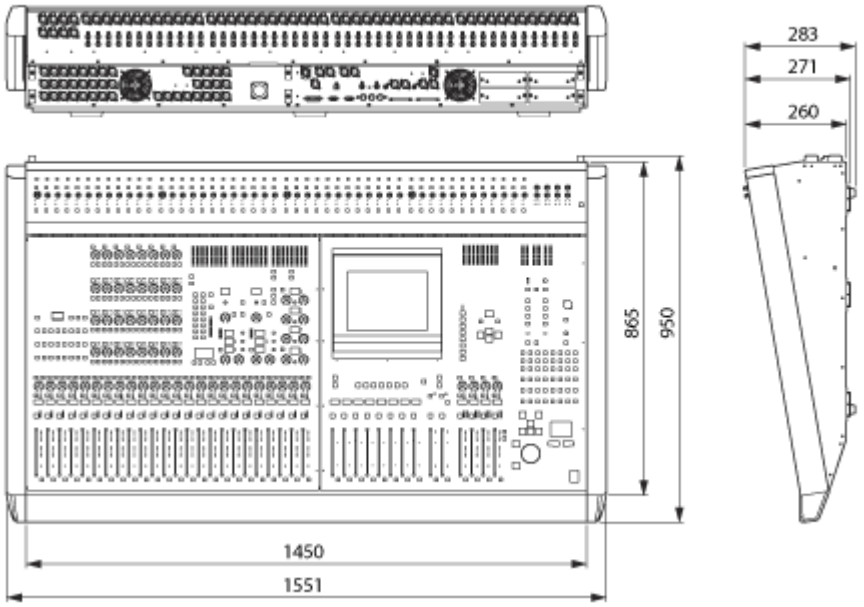
Power Requirements		100 – 240V, 50/60Hz 1000W (Max.)
Dimensions	**W x H x D (mm)**	480 x 132 (=3U) x 355
DC Output	**Voltage**	24V
	Current	23A (Max.)
Net Weight		10kg
Operation Temperature Range		10 – 35 °C
Storage Temperature Range		-20 – 60 °C

OUTPUT CHARACTERISTICS

OUTPUT TERMINAL	FORMAT	LEVEL	CONNECTOR
DC OUTPUT	—	DC 24V	JL05-2A22-14PC 24pin (Male)

Dimensions

PM5D



PM5D-RH