IMX644 specifications

Analog input specifications

Input Terminals	PAD 34dB	GAIN	Actual Source Impedance	For Use With Nominal	Output level		Connector
					Nominal	Max. before clip	
MONO INPUT [1-6]	OFF	MAX	4.2kΩ	50Ω-600Ω Mics & 600Ω Lines	−54dBu(1.55mV)	−40dBu(7.75mV)	Euroblock (Balanced) (5.08mm pitch)
		MIN			−30dBu(24.5mV)	−16dBu(123mV)	
	ON	MAX	20kΩ		−20dBu(77.5mV)	−6dBu(387mV)	
		MIN			+4dBu(1.23V)	+18dBu(6.16V)	
STEREO INPUT [1L/R,2L/R,3L/R,4A L/R]	—		20kΩ	600Ω Lines	−4dBV(0.631V)	+10dBV(3.16V)	RCA Pin Jack (Unbalanced)

*1. In these specifications, 0dBu=0.775 Vrms. , 0dBV=1.00 Vrms.
*2. +48V DC(phantom power) is supplied to MONO INPUT[1-6]EUROBLOCK connectors via each individual switch.
*3. All AD converters are 24 bit linear, 64times oversampling.

Analog output specifications

Output Terminals	Actual Source Impedance	For Use With Nominal	Output level		Connector
			Nominal	Max. before clip	
OUTPUT [1A/B,2A/B,3,4]	900Ω	10kΩ Lines	+4dBu(1.23V)	+18dBu(6.16V)	Euroblock (Balanced) (5.08mm pitch)
REC OUT [L,R]	450Ω	10kΩ Lines	−4dBV(0.631V)	+10dBV(3.16V)	RCA Pin Jack (Unbalanced)

*1. In these specifications, 0dBu=0.775 Vrms. , 0dBV=1.00 Vrms.
*2. All DA converters are 24 bit linear,128times oversampling.

Digital input/output specifications

Terminal	Format	Data length	Level	Connector
STEREO INPUT [4B]	JEITA CP-1212	24bit	−24 ～ −14.5dBm *1	Rectangular optical connector
REC OUT			−21 ～ −15dBm *1	

*1. In these specifications, 0dBm=1mW

Control I/O specifications

| Terminal		Format	Level	Connector
GPI *1	IN	No-voltage make contact	Compatible with open collector output	D-SUB 25P (Female)
	OUT	Open collector	Open collector	
	POWER MONITOR OUTPUT	—	Open collector	
REMOTE		RS-232C	RS-232C	D-SUB 9P (Male)
USB		USB 1.1 Function	—	Type B

*1 Inputs: 8channels, Outputs: 8channels

Dimensions (W × H × D), Weight	480 × 88 × 366.9mm, 5.4kg (18-7/8" × 3-7/16" × 14-7/16", 11.9lbs)
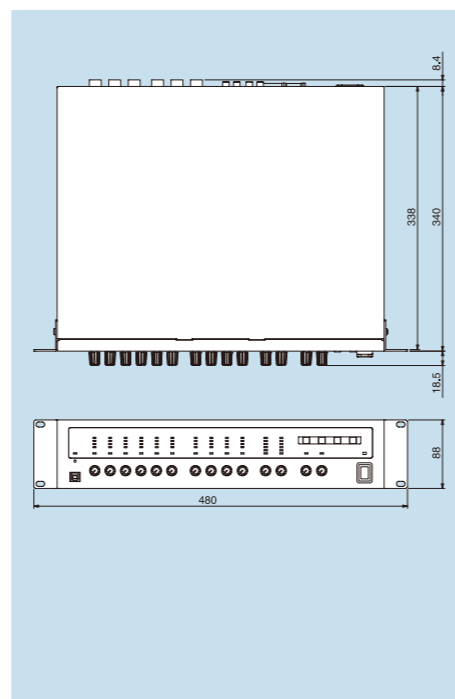
IPA8200 specifications

Output		1kHz, THD + N=1%	20Hz-20kHz, THD + N=1%	1kHz, 20ms Burst
	4Ω per channel	200W × 8	200W × 8	200W × 8
	8Ω per channel	100W × 8	100W × 8	100W × 8
	8Ω / BRIDGE	400W × 4	400W × 4	400W × 4
Maximum input level		+2.4dBu		
Input impedance		20kΩ (balanced), 10kΩ (unbalanced)		
Input sensitivity	Selector position	+4dBu	26dB	32dB
	8Ω, Att. Max	+4dBu	+5.2dBu	+0.8dBu
Maximum voltage gain	Selector position	+4dBu	26dB	32dB
	Att. Max	27.2dB	26dB	32dB
S/N ratio	A-weighted	≥ 100dB		
Total harmonic distortion	1kHz, half power, 4Ω	± 0.1%		
Frequency response	1W, 8Ω	20Hz-20kHz, +0dB, −1.5dB		
Channel separation	1kHz, half power, 8Ω Att. max. input 600Ω shunt	≥ 60dB		
Power consumption		At idle	1/8th power, 4Ω	Full power, 4Ω
		70W	350W	2500W
Controls	Front panel	Power switch, mute button × 8, 41-position attenuator × 8		
	Rear panel	Mode selector (STEREO, BRIDGE, PARALLEL) × 4, gain selector (+4dBu, 26dB, 32dB), HPF selector (OFF, 20Hz, 55Hz)		
Connectors		Input	Output	Power supply
		Euroblock (balanced) per channel	Barrier strip per channel	AC input
Indicators		POWER × 1 (White) PROTECT × 8 (Red) CLIP × 8 (Red) SIGNAL × 8 (Green) MUTE × 8 (Red) PARALLEL × 4 (Orange) BRIDGE × 4 (Orange)		
Load protection	Power on and power off	Mute the output		
	DC-fault	Shut down the power		
Amplifier protection	Thermal	Mute the output (heatsink temp ≥ 95°C)		
	Over current	Shut down the power		
Power supply protection	Thermal	Shut down the power (heatsink temp ≥ 85°C)		
Limiter circuit	Clip limit	Limiting level ≥ 100W at 8Ω or limiting level ≥ 200W at 4Ω		
Cooling fan		Variable-speed fan × 2		
Power requirements		100V-120V 50Hz/60Hz 220V-240V 50Hz		
Heat dissipation		172kcal/h		
Dimensions (W × H × D), weight		480 × 88 × 406.5mm, 10.5kg (18-7/8" × 3-7/16" × 16", 23.1 lbs)		
Accessories		Power cord (2.5m), hexagonal key, security cover, hexagonal screw × 2, hexagonal wrench, 3-pin Euroblock connector × 8, owner's manual		
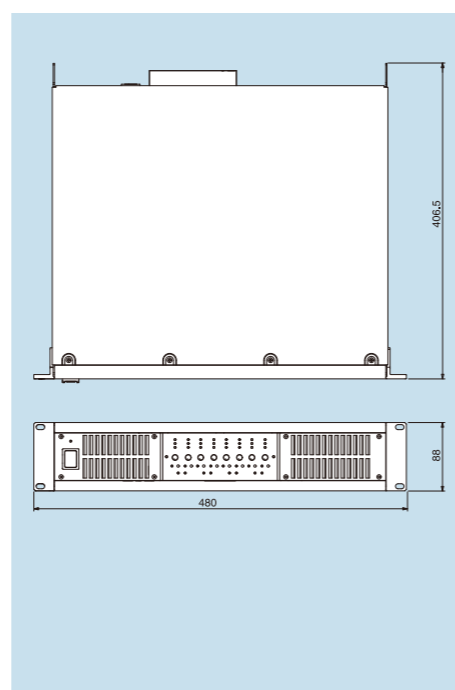
*All specifications are subject to change without notice.
*All trademarks and registered trademarks are property of their respective owners.

For details please contact:

P10021580

YAMAHA

Preliminary

INSTALLATION SERIES

IMX644 DIGITAL INSTALLATION MIXER
IPA8200 POWER AMPLIFIER

The Installation Series, a lineup of easy-to-use

audio components that provide

high-quality audio wherever they are installed,

has new additions.

Digital rack-mount mixer IMX644 and power amplifier IPA8200 have been added to the
Installation Series, renowned for providing unsurpassed sound quality in theaters and halls.
These new additions provide the best possible audio for more intimate environments such
as banquet rooms, conference rooms, and restaurants.

These products contain all the necessary features in their compact bodies, and combine the ease of

use that comes with the feel of an analog device with the high-quality sound production only possible

with a digital device. The devices are easy to use and do not require expertise in audio for operation.

The Installation Series offers an excellent, versatile audio system from a surprisingly simple and

compact setup.

Conference rooms   Banquet rooms   Classrooms and   Multi-purpose rooms   Bars and shops   and more.....
                                     auditoriums

IMX644 *Digital Installation Mixer*

- **Ideal digital mixer for permanent installations**
- **Simple volume control and memory recall**
- **Equipped with a high-quality digital processor**
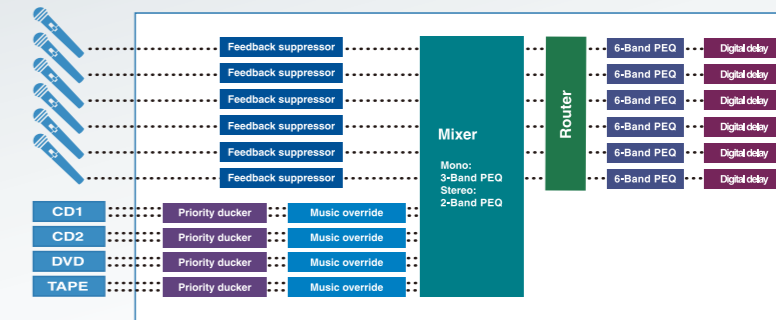
Front Panel

Rear Panel

Various input and output connectors consolidated into its compact body
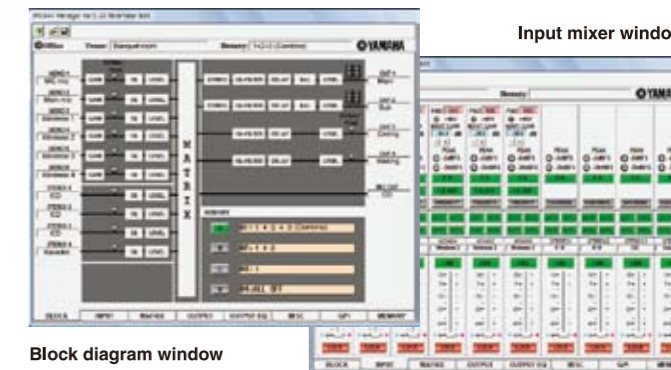
The IMX644 is equipped with six mono input connectors that can be used for microphone input. Phantom power supply (+48V) is available for condenser microphones. Furthermore, the IMX644 is equipped with four pairs of RCA jacks for input from stereo sources such as CD or MP3 players. It is also equipped with optical connectors for digital input. The built-in sample rate converter (SRC) saves you from having to specify difficult settings such as the word clock for digital connections. The IMX644 is equipped with two stereo outputs and two mono outputs as well as with REC OUT connectors for recording lectures and speeches.

Detailed configuration from a PC

Equalization and delay settings can be configured using the IMX644 Manager, a PC software application for the IMX644. Once these settings are properly configured, the end user only needs to adjust volume levels. The IMX644 Manager prevents the user from accidentally changing the settings from the front panel.

	Feedback suppressor		6-Band PEQ → Digital delay
	Feedback suppressor		6-Band PEQ → Digital delay
	Feedback suppressor	Mixer	6-Band PEQ → Digital delay
	Feedback suppressor	Mono: 3-Band PEQ	6-Band PEQ → Digital delay
	Feedback suppressor	Stereo: 2-Band PEQ	6-Band PEQ → Digital delay
	Feedback suppressor		6-Band PEQ → Digital delay
CD1	Priority ducker	Music override	
CD2	Priority ducker	Music override	
DVD	Priority ducker	Music override	
TAPE	Priority ducker	Music override	

High-quality, digital mixer occupies just 2U of rack space.

Input mixer window

Block diagram window

* To specify detailed settings for the IMX644, you must have a PC with the IMX644 Manager software installed.

IPA8200 *Multi-Channel Power Amplifier*

Highly efficient, multi-purpose, 8-channel amplifier that can be used in small- to large-scale installations

Front Panel

Rear Panel

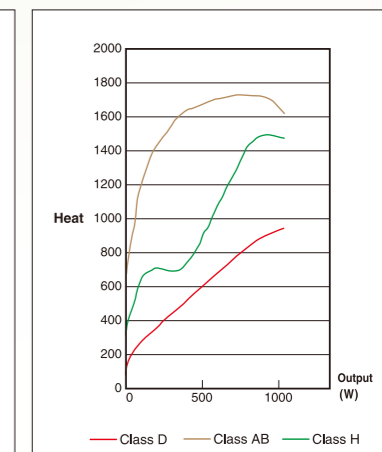## More output with less power consumption and heat generation

The IPA8200 is a high-power, 8-channel, 200W (4Ω) amplifier that fits in just 2U of rack space. It incorporates class D amplifiers that consume less power and dissipate less heat. Power amplifiers have a tendency to take up a lot of space in various installations, but because the IPA8200 requires less power to run and dissipates less heat, you can stack them one on top of the other, without having to leave an empty rack space above and below the amplifiers. In general, it is said that the endurance of machinery and circuitry increases as the amount of heat it dissipates decreases. This means longer service life for the IPA8200 amplifier circuitry.

| Amplifier 1/2 | Amplifier 3/4 | Amplifier 5/6 | Amplifier 7/8 |
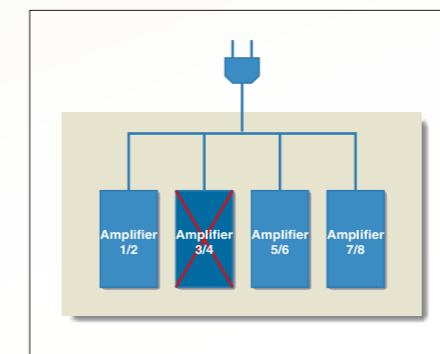
Because each pair of channels has its own power supply, a fault on one channel will not affect the other channel pairs.
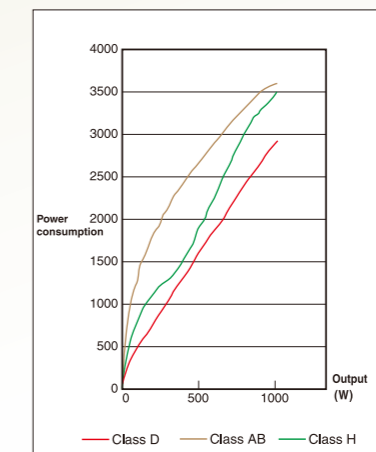
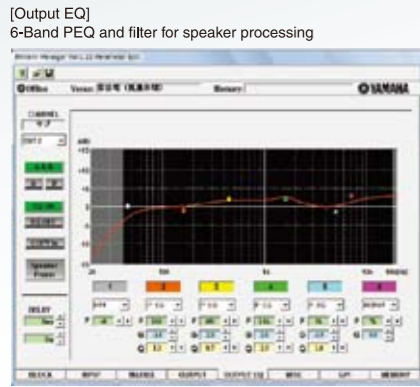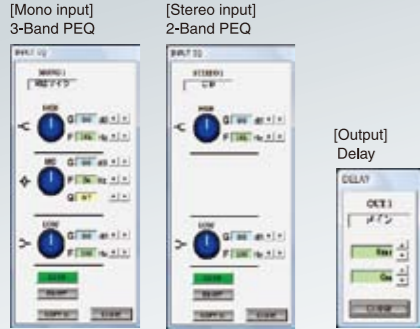**Comparison of efficiency (power consumption vs. output)**

Power consumption — Output (W)
— Class D — Class AB — Class H

Comparison of efficiency (heat vs. output)

Heat — Output (W)
— Class D — Class AB — Class H

IMX644
Digital Installation Mixer

[Mono input]
3-Band PEQ

[Stereo input]
2-Band PEQ

[Output]
Delay

[Output EQ]
6-Band PEQ and filter for speaker processing

High-quality DSP capable of precise adjustments for every application

The IMX644 is equipped with not only an input digital equalizer, but also numerous other features including digital filters for output delay and speaker processing. YAMAHA processing data can be used with YAMAHA speakers to produce high performance. Other useful features include priority ducker and feedback suppressor.

Feedback suppressor
The IMX644 is equipped with dynamic filters that are designed to automatically cut out the feedback that is often generated when a microphone is brought close to a speaker.

Output digital delay

Because the output digital delay appropriately applies delay to speakers, output from multiple speakers reaches the listeners at the same time. This makes the speaker easier to hear.

Digital delay

Delay 1
Delay 2
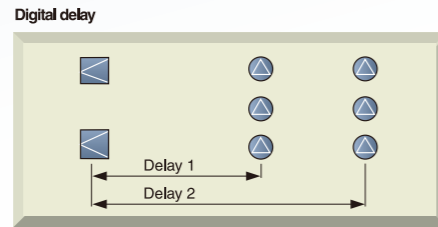
Priority ducker automatically fades background music in and out

Even when an audio operator is not available at a party, ceremony, lecture, or any other event, the priority ducking feature automatically fades background music in and out.

Priority ducker

When the speaker begins talking, the BGM fades out.

When the speaker finishes talking, the BGM fades in.

Music override can automatically switch the sound source to a priority input

Music override

Regular input

Emergency input

The music override feature automatically switches the input source from a music program to an emergency or evacuation signal.

16 memory settings can be stored for instant recall

Settings such as input level and output destination can be stored and instantly recalled to match various situations. For example, you may have your music program playing only in one room, but with a press of a button, another memory setting can be recalled, sending the same program to multiple rooms.
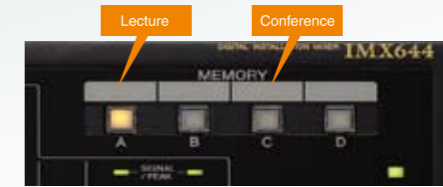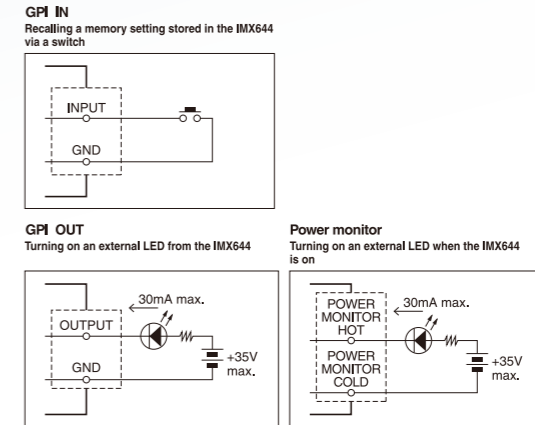
External control features let you customize the control panel for various situations

GPI connector

You can control the IMX644 through the use of simple switch circuits.

GPI IN
By connecting non-latching switches, you can add up to eight external memory keys.

GPI OUT
The output signals can be used to run external devices such as LEDs.
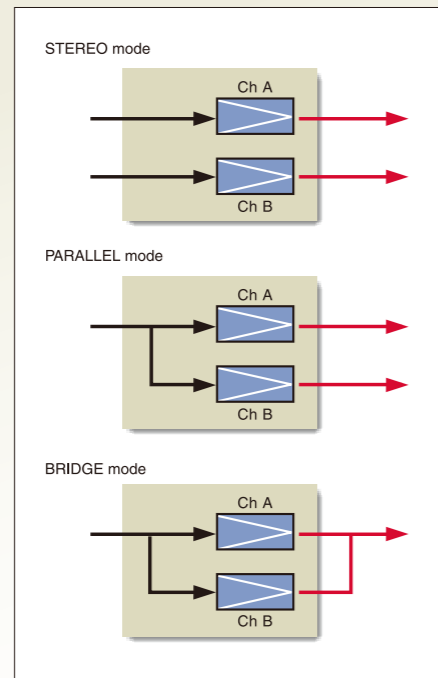
REMOTE connector

This connector can be used to control the IMX644 with RS232-C signals. You can control the IMX644 from a PC by writing your own custom control software. The IMX644 can also be controlled via AMX or Crestron touch panel systems.

Lecture   Conference

GPI IN
Recalling a memory setting stored in the IMX644 via a switch

INPUT
GND

GPI OUT
Turning on an external LED from the IMX644

OUTPUT
GND
30mA max.
+35V max.

Power monitor
Turning on an external LED when the IMX644 is on

POWER MONITOR HOT
POWER MONITOR COLD
30mA max.
+35V max.

IPA8200
Multi-Channel Power Amplifier

Amplifier drive modes

STEREO mode
Ch A
Ch B

PARALLEL mode
Ch A
Ch B

BRIDGE mode
Ch A
Ch B

Different drive modes available for different situations

STEREO mode

In STEREO mode, each channel operates independently (in stereo). You can use the volume controls on the front panel to adjust the attenuation of each channel.

PARALLEL mode
(Drives two channels with one mono signal)

In PARALLEL mode, the pair of channels operates as a 2-channel mono amplifier, with one mono input signal driving the pair. Attenuation can be adjusted on each channel.

BRIDGE mode
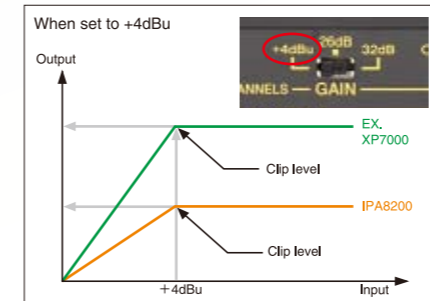(Drives two channels as a high-power mono amplifier)

In BRIDGE mode, the pair of channels will operate as a high-power mono amplifier.

Gain setting

Gain settings can be selected to meet various gain structures required by different speaker systems. The IPA8200 can be used in constant gain mode (26dB/32dB) or constant sensitivity mode (+4dBu).

When set to 32dB

Output
EX. PC6501N
Clip level
IPA8200
Clip level
Input
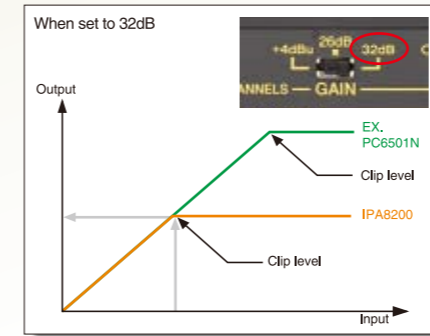
The input signal is amplified by 32dB.

When set to +4dBu

Output
EX. XP7000
Clip level
IPA8200
Clip level
+4dBu   Input

The amplifier produces its maximum output with +4dBu input.

Different high-pass filter settings for different speaker sizes

Depending on the size and frequency range of the speakers used, applying a high-pass filter may help protect the speakers from potentially harmful frequencies.

Generally, speakers with large woofers will not require this high-pass filter. Speakers with smaller woofers may benefit from the high-pass filter set to 20Hz. When driving speakers with even smaller woofers, such as ceiling speakers, the high-pass filter should be set to 55Hz.

Limiter

When excessive input is detected, the limiter turns the CLIP indicator on and activates the limiter circuitry to prevent damage to the speakers.

PARALLEL and BRIDGE indicators

Drive modes of the amplifier can be easily verified on the front panel of the amplifier.

Security cover included

This security cover prevents accidental changes to attenuation levels of the amplifier.

Euroblock input and barrier strip output connectors

• **Euroblock connectors**
These connectors are easy to install and can receive balanced signals without the use of costly XLR connectors.

• **Barrier strip connectors**
Terminal strips allow direct connection to copper wires.

Banquet rooms

The system below allows you to instantly change the room size and the necessary audio parameters according to the number of guests.
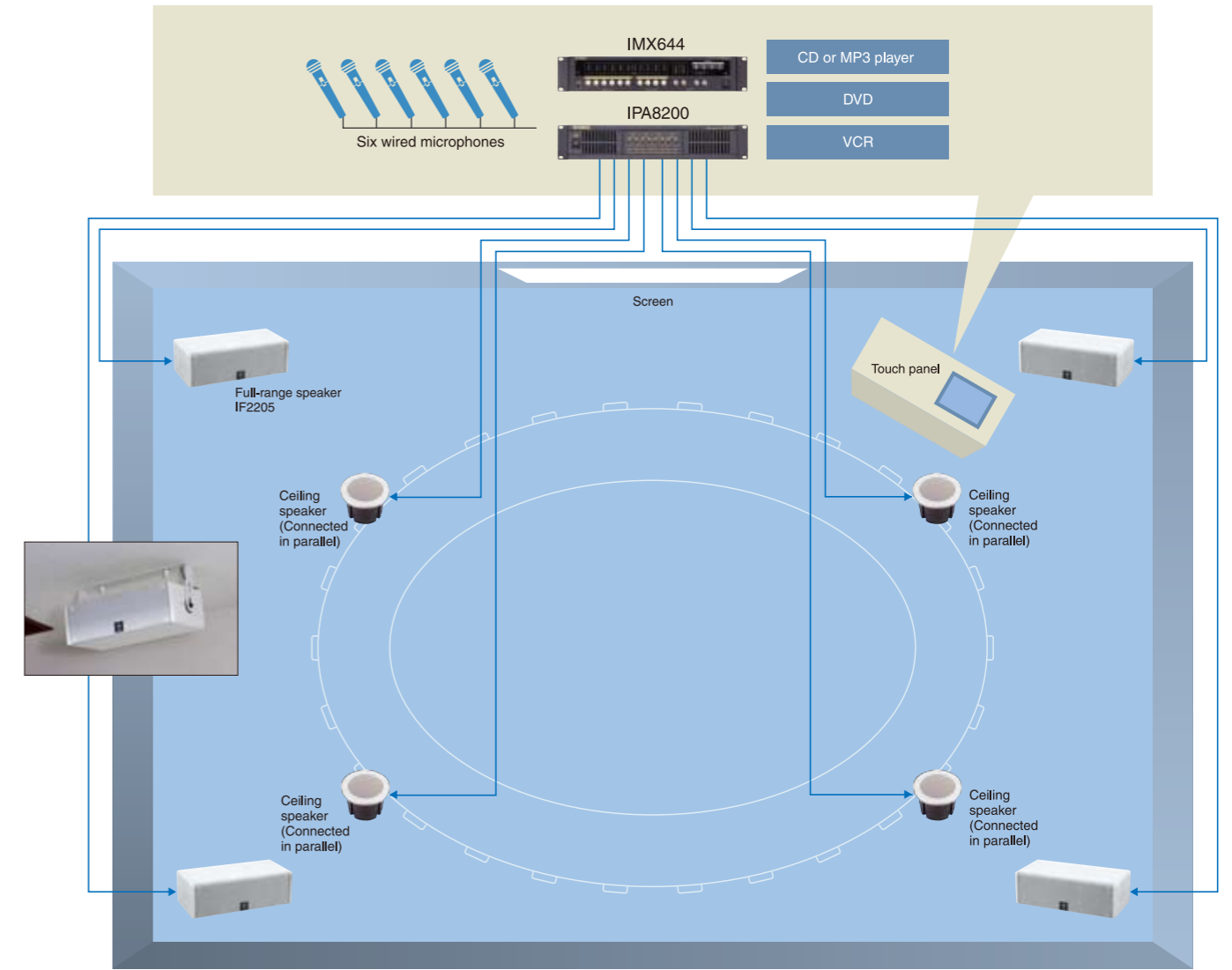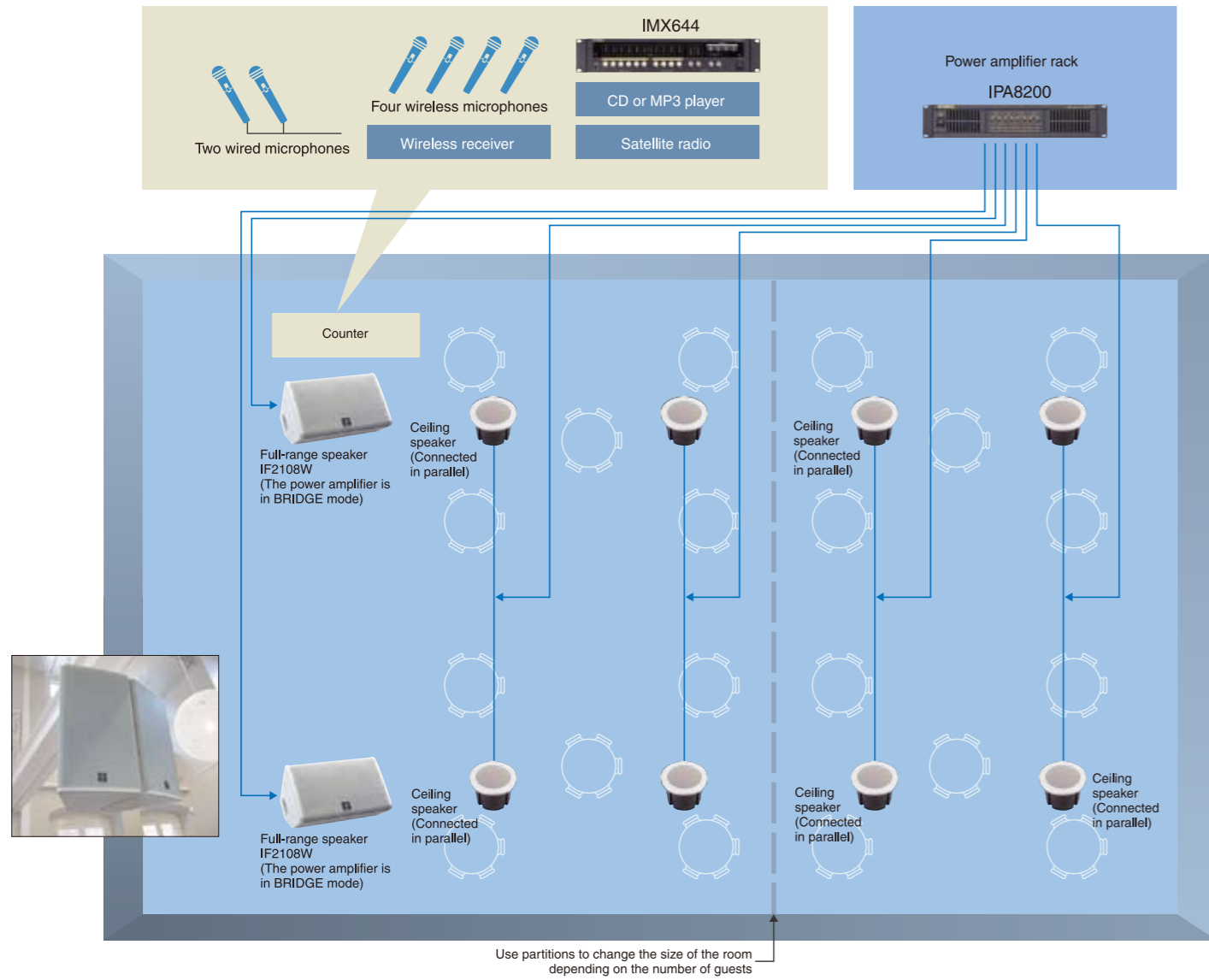
- You can use the memory feature to turn speakers on or off instantaneously depending on the size of the room.
- You can use proper delay settings to ensure that the speaker is easy to hear, even in highly reverberant rooms.
- You can cover various sizes of speakers with a single IPA8200 by connecting to the speakers in BRIDGE mode.

IMX644
CD or MP3 player
Four wireless microphones
Two wired microphones
Wireless receiver
Satellite radio

Power amplifier rack
IPA8200

Counter

Full-range speaker
IF2108W
(The power amplifier is in BRIDGE mode)

Ceiling speaker (Connected in parallel)

Ceiling speaker (Connected in parallel)

Full-range speaker
IF2108W
(The power amplifier is in BRIDGE mode)

Ceiling speaker (Connected in parallel)

Ceiling speaker (Connected in parallel)

Ceiling speaker (Connected in parallel)

Use partitions to change the size of the room depending on the number of guests

Conference rooms

The conference system presented here uses touch panels that can control audio and visual equipment together.

- Feedback suppressors in the input stage eliminate unexpected feedback.
- The priority ducker automatically fades out other sources during speeches.
- Touch panels that anyone can use allow you to control not only the AV and microphone volumes, but other tasks at the same time as well, such as manipulating the display screen or opening and closing the screen curtains.

IMX644
CD or MP3 player
IPA8200
DVD
Six wired microphones
VCR

Screen

Full-range speaker
IF2205

Touch panel

Ceiling speaker (Connected in parallel)

Ceiling speaker (Connected in parallel)

Ceiling speaker (Connected in parallel)

Ceiling speaker (Connected in parallel)

INSTALLATION SERIES

Speaker Systems

A varied lineup of speakers for use in installations such as halls and theaters

IF2208W
Power rating: 400W (PGM)
Nominal impedance: 8Ω
Dimensions (W × H × D):
283 × 673 × 250mm
(11.1" × 26.5" × 9.8")
Weight: 19.0kg (42lbs)

IF2112
Power rating: 1200W (PGM)
Nominal impedance: 8Ω
Dimensions (W × H × D):
378 × 695 × 454mm
(14.9" × 27.4" × 17.9")
Weight: 31.0kg (68.0lbs)

IF2112/AS

IF2115/AS
Power rating: 1200W (PGM)
Nominal impedance: 8Ω
Dimensions (W × H × D):
448 × 770 × 374mm
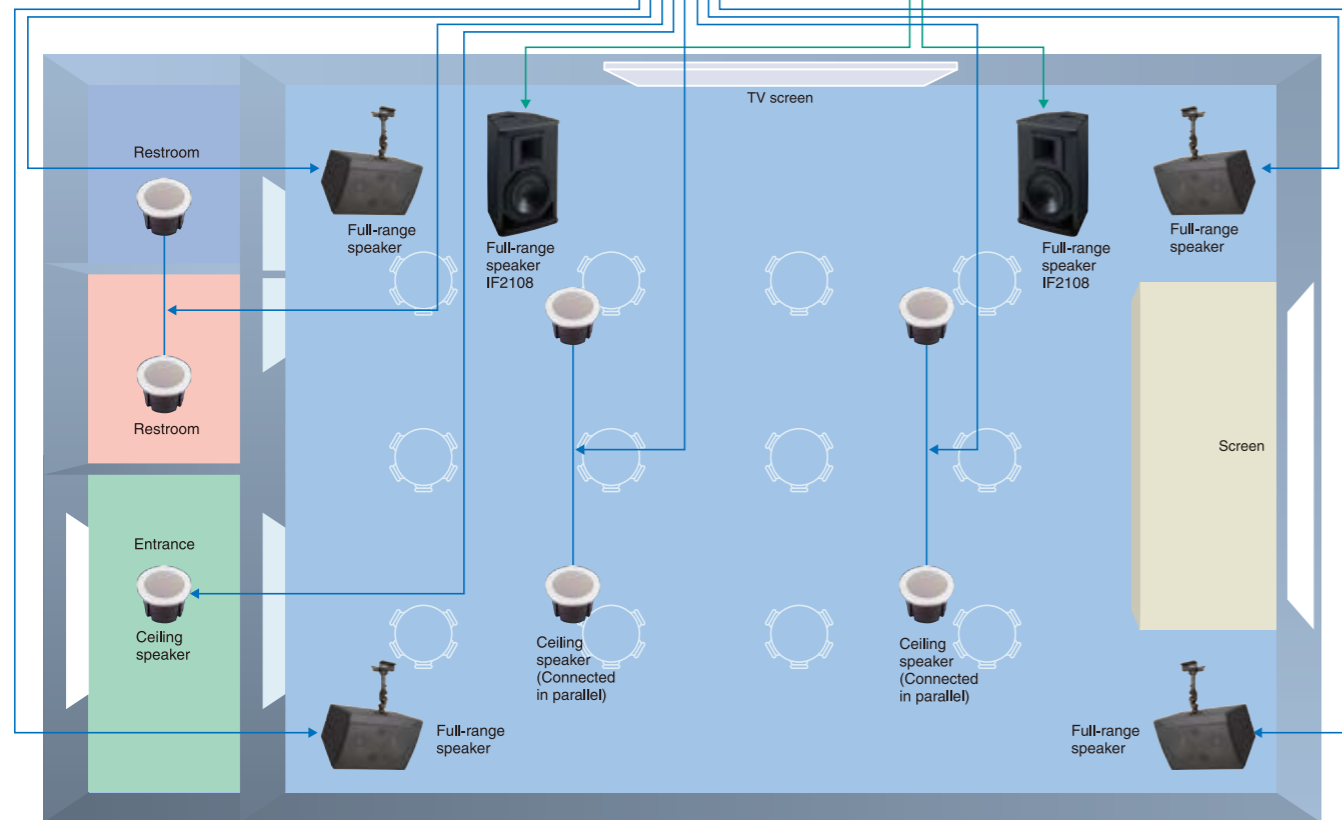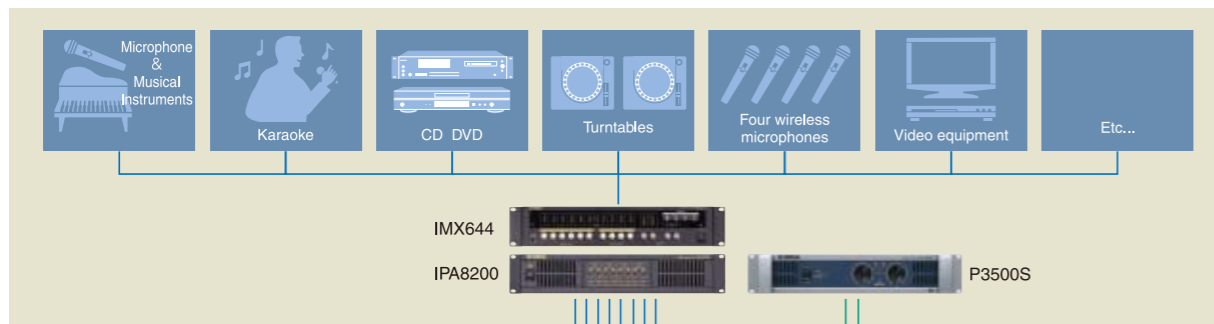(17.6" × 30.3" × 14.7")
Weight: 35.0kg (77lbs)
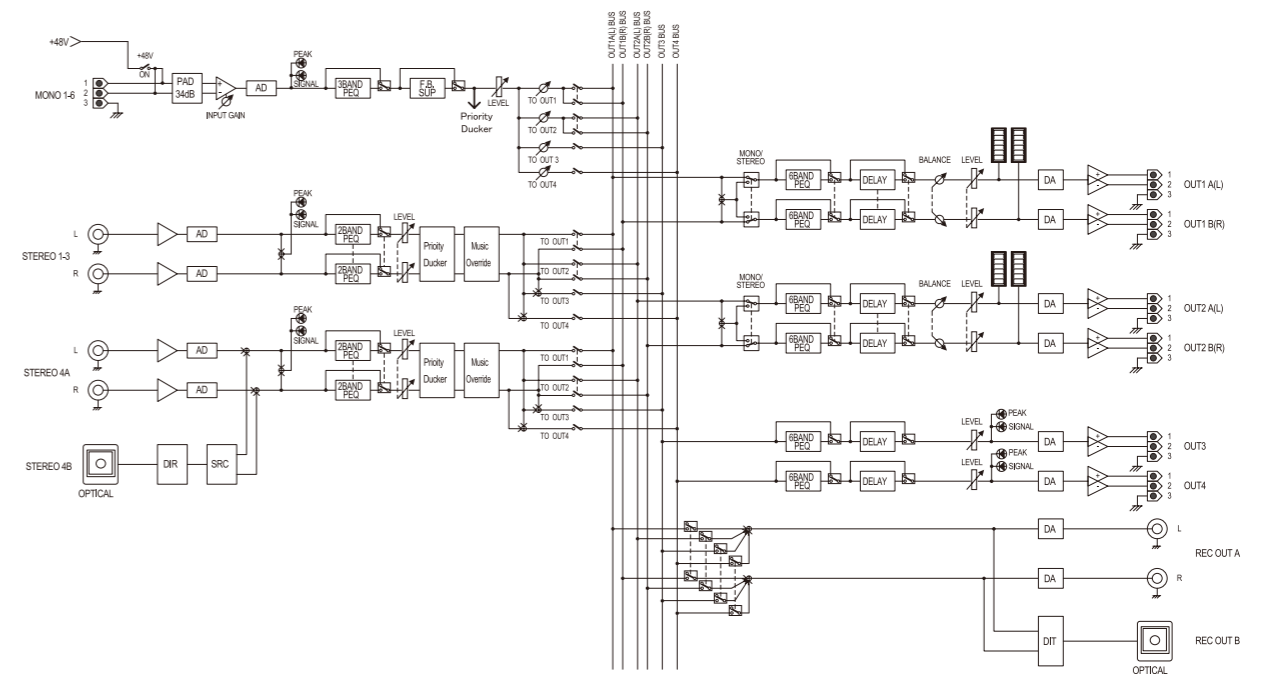
IF2115W

IF2115/99

Restaurants, cafes, clubs, and retail stores

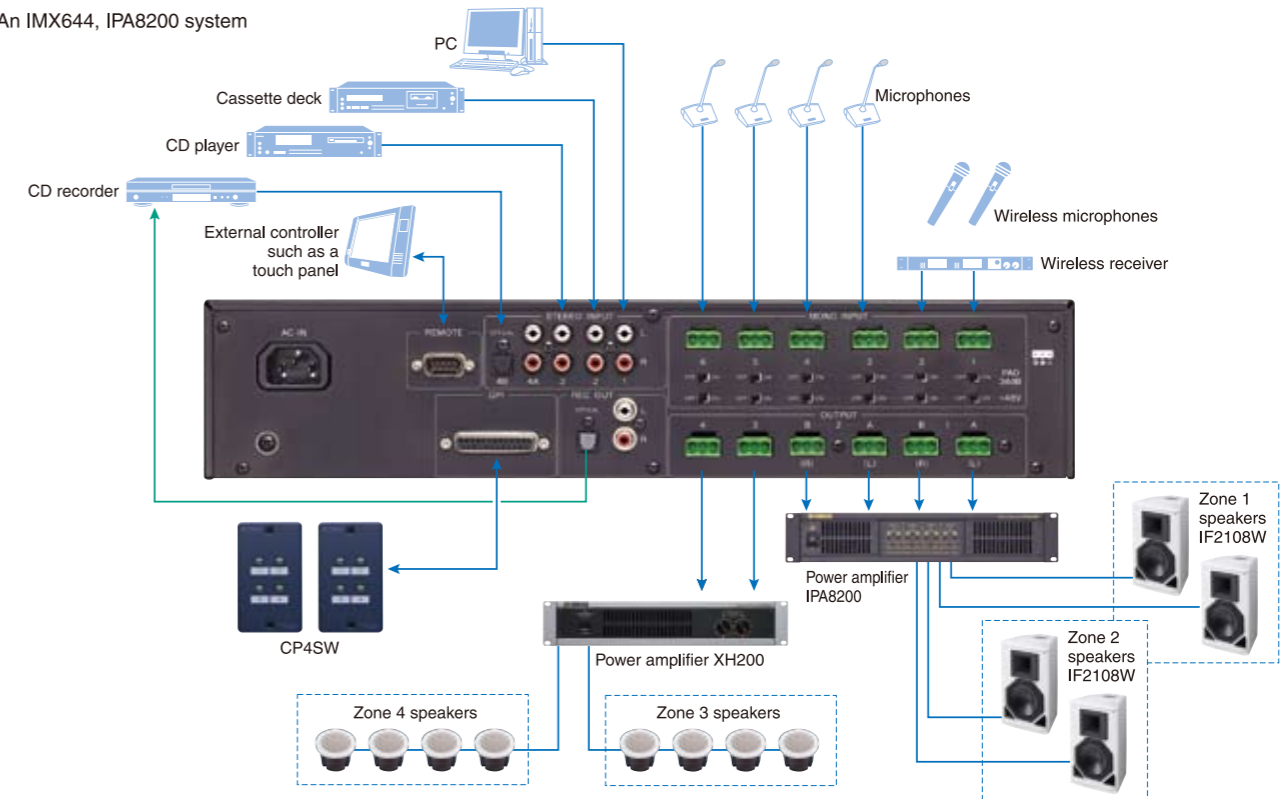**The multi-purpose system shown here can be used in various situations.**

- The IMX644 feeds signals not only to the main speakers, but also to utility speakers in other areas such as restrooms. A single push of a button changes settings to suit various situations.
- You can easily use memory recall to switch which output channels are assigned to which input sources.
- The IMX644 comes preset with processor data for YAMAHA speakers for optimum equalization.

Microphone & Musical Instruments | Karaoke | CD DVD | Turntables | Four wireless microphones | Video equipment | Etc...

IMX644

IPA8200 | P3500S

Restroom

Restroom

Entrance

Ceiling speaker

TV screen

Full-range speaker | Full-range speaker IF2108 | Full-range speaker IF2108 | Full-range speaker

Screen

Ceiling speaker (Connected in parallel) | Ceiling speaker (Connected in parallel)

Full-range speaker | Full-range speaker

IMX644 block diagram

An IMX644, IPA8200 system

PC

Cassette deck

CD player

CD recorder

Microphones

External controller such as a touch panel

Wireless microphones

Wireless receiver

CP4SW

Power amplifier XH200

Power amplifier IPA8200

Zone 4 speakers | Zone 3 speakers

Zone 1 speakers IF2108W

Zone 2 speakers IF2108W

Power Amplifier

The following lineup of amplifiers is available to suit every need in small- to large-scale installations.

XM Series (multi-channel)

XM4080
Dimensions (W × H × D):
480 × 412mm (18-7/8" × 3-7/16" × 16-1/4")
80W × 4 (8Ω)
Weight: 10kg (22lbs)

XM4180
Dimensions (W × H × D):
480 × 88 × 412mm (18-7/8" × 3-7/16" × 16-1/4")
180W × 4 (8Ω)
Weight: 10kg (22lbs)

XH Series (high-impedance)

XH200
Dimensions (W × H × D):
480 × 88 × 412mm (18-7/8" × 3-7/16" × 16-1/4")
200W × 2 (100V line)
Weight: 10kg (22lbs)

PC-1N Series

Networkable power amplifiers that provide superior sound quality and superior power conservation

PC9501N 900W + 900W（8Ω）
PC6501N 650W + 650W（8Ω）
PC4801N 450W + 450W（8Ω）
PC3301N 315W + 315W（8Ω）
PC2001N 200W + 200W（8Ω）

XP Series

Power amplifiers optimized for installation use that allow you to specify the input sensitivity and voltage gain

XP7000 700W + 700W（8Ω）
XP5000 500W + 500W（8Ω）
XP3500 350W + 350W（8Ω）
XP2500 250W + 250W（8Ω）
XP1000 100W + 100W（8Ω）

P Series

Power amplifiers with superb cost performance that are equipped with YS Processing and various inputs and outputs

P7000S 700W + 700W（8Ω）
P5000S 500W + 500W（8Ω）
P3500S 350W + 350W（8Ω）
P2500S 250W + 250W（8Ω）
P1000S 100W + 100W（8Ω）