



# AUDIO MANAGEMENT SYSTEM

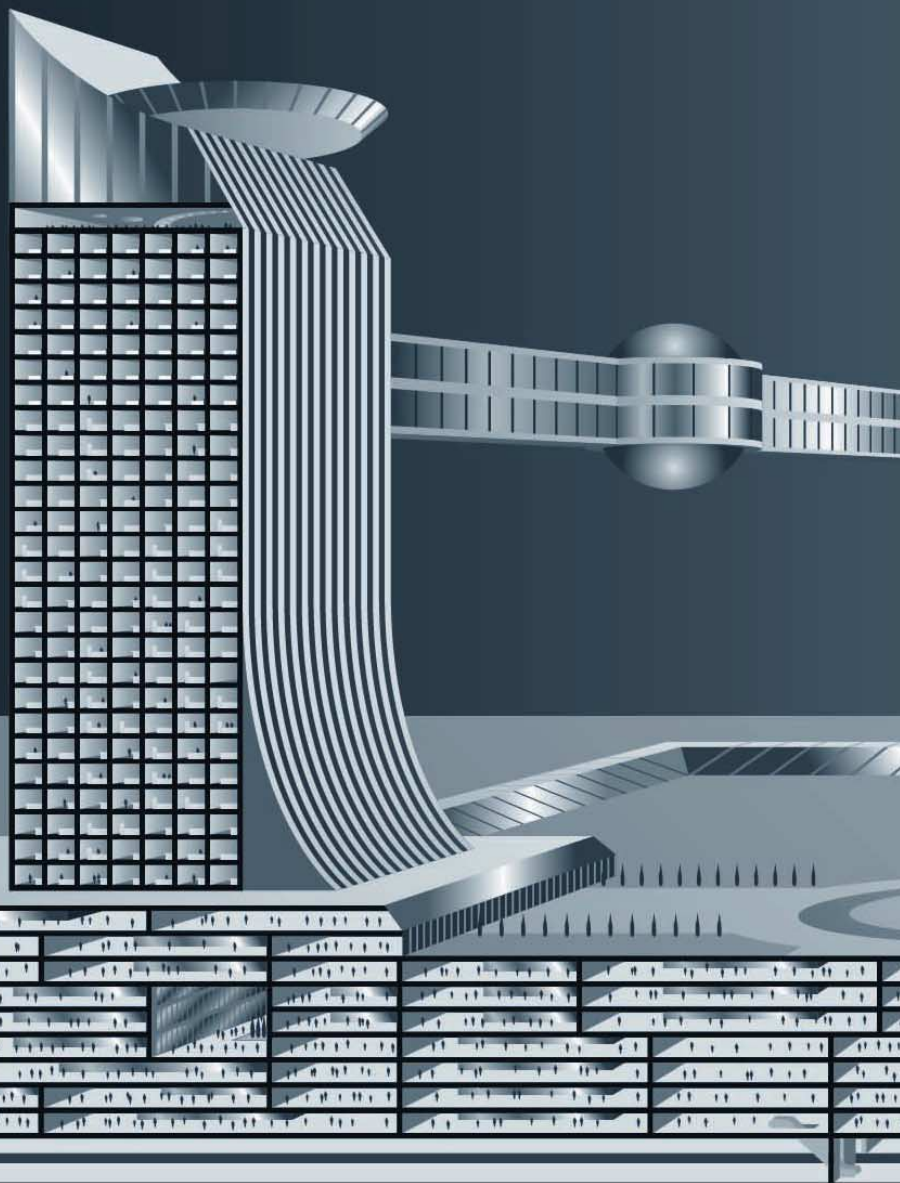


***Network-enabled for extended system installations in various locations and for efficient centralized control, the SX-2000 Series sets a new standard for high-performance, no-compromise systems.***

# Ideal for creating ultra-reliable large scale PA systems

Introducing a scalable new system for configuring versatile and highly effective PA applications. The system features new matrixing capabilities, so a single system can have its components distributed in different locations under centralized control. Ideal for large scale installations ranging over multiple buildings as well as local systems, the versatile SX-2000 Series is particularly well-suited for airports and railway stations, factories, shopping malls and large offices. The system's versatility is ensured by such features as a dual power source and redundant backups for fail-safe operation, making it a cost-effective solution for virtually any installation, and without long lead times or the expense of a custom system. A fireman's microphone feature is also included, for enhanced effectiveness in an emergency. SX-2000 Series components enable creation of an ideal system for all sorts of application requirements.

- **Integrated public address and voice alarm**
- **Digital surveillance**
- **Decentralized system capability**
- **DSP for clear announcements & enjoyable BGM**
- **Four different simultaneous emergency messages**



A futuristic architectural rendering of a building with a central bridge-like structure. The building features a grid-like facade and a central bridge with a spherical element. A red crosshair is overlaid on the image, with a vertical line passing through the center and a horizontal line intersecting it. The text is positioned along the vertical line.

High performance

Installation versatility

Operational reliability

Scalability

User-friendly operation

***SX-2000 Series***



# SX-2000 System Configuration

The SX-2000 system is comprised of the units presented below.  
The SX-2000SM, SX-2100AI and SX-2100AO/2000AO can create a minimum system with 8 audio inputs/8 audio outputs. The system is expandable to maximum 64 audio inputs/128 audio outputs and 776 control inputs/776 control outputs.

**SX-2000SM System Manager**

**SX-2100AI Audio Input Unit**

**SX-2100AO Audio Output Unit**

**SX-2000AO Audio Output Unit**

**SX-2000CI Control Input Unit**

**SX-2000CO Control Output Unit**

**RM-200SF Fireman's Microphone**

**RM-200SA Remote Microphone**

**RM-210 Remote Microphone Extension**





SX-2000SM System Manager



SX-2100AI Audio Input Unit



SX-2100AO Audio Output Unit



SX-2000AO Audio Output Unit



SX-2000CI Control Input Unit



SX-2000CO Control Output Unit

# SX-2000 Series





## Convenient system component distribution to different locations through a network

- Uses commercially available switching hub (certain specifications are required).\*
- Uses commercially available cables.\*
  - CAT-5 (100 Base-TX).
  - Optical fiber (100 Base-FX).

\*Please contact our dealers.

## Full digital signal processing for improved performance

- Digital signal processing allows public announcements with high fidelity 48 kHz sampling frequency and 24-bit PCM AD/DA conversion.
- Available audio inputs/outputs.
  - Inputs: 64
  - Outputs: 128
 Each audio output has signal processing functions includes 6-band filters, COMP and Delay.
- Maximum 16 ch simultaneous broadcasting channels.
- Available control 776 inputs and 776 outputs.

## Multipurpose remote control

- Makes it easy to configure broadcast zones independently or by groups and allows BGM programming as desired. Automatic Mic-Off function prevents inappropriate microphone use when inadvertently left on.
- The RM-200SF/200SA/210 can display the malfunctions or failure signals in the SX-2000 system.



## Failsafe operation

- Fully operable on DC power
- Power failure measures
- Redundant dual power supply
- Additional analog backup
- Fully redundant dual network

## Failure detection and emergency broadcasting

- Malfunctions or failures in the SX-2000 system are detected within 100 seconds, generating an alert on the display and a sound signal. At the same time, a failure log is created and can be stored on PC by TCP/IP. The system also constantly checks and measures speaker impedance values to prevent potential overloads or wiring errors.



- A Fireman's Microphone function allows the system to be used for emergency broadcasts.
- Each SX-2100AO can connect one standby amplifier.
- Failures of external equipment connected the SX-2000 Series units are also detected.





## Quick maintenance

- Parameter settings storable on CF cards.
  - Current parameter settings are instantly restored if the unit has to be replaced.
- Network connectivity simplifies wiring requirements (fewer cables required) and speeds up connections.



## Future expandability

- Easy expansion simply by adding more units.
- Easy connectivity with minimal wiring requirements.

## Reduced power consumption

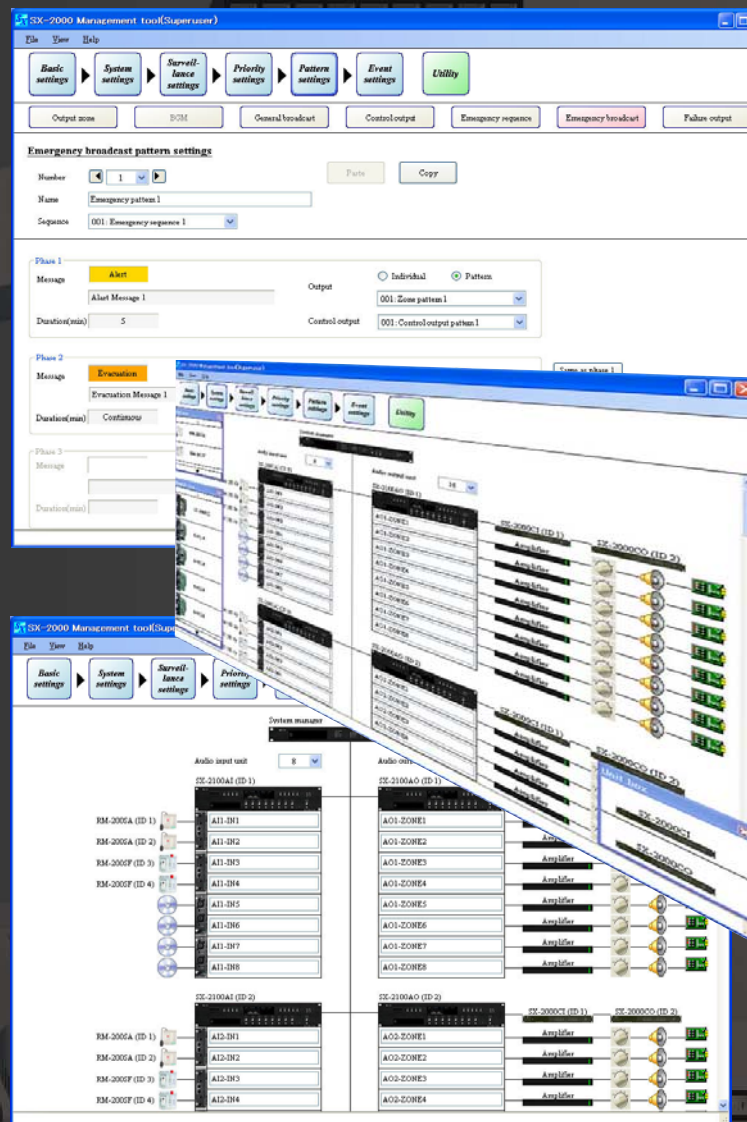
- Power consumption reduced an increase in power supply efficiency.

## Compact and space saving

- Multi-channel amplifier zone installation for dedicated amplifier/channel usage.
- System configuration suited for use in multiple zones.
- Smaller dimensions.

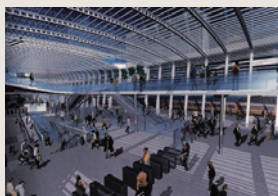
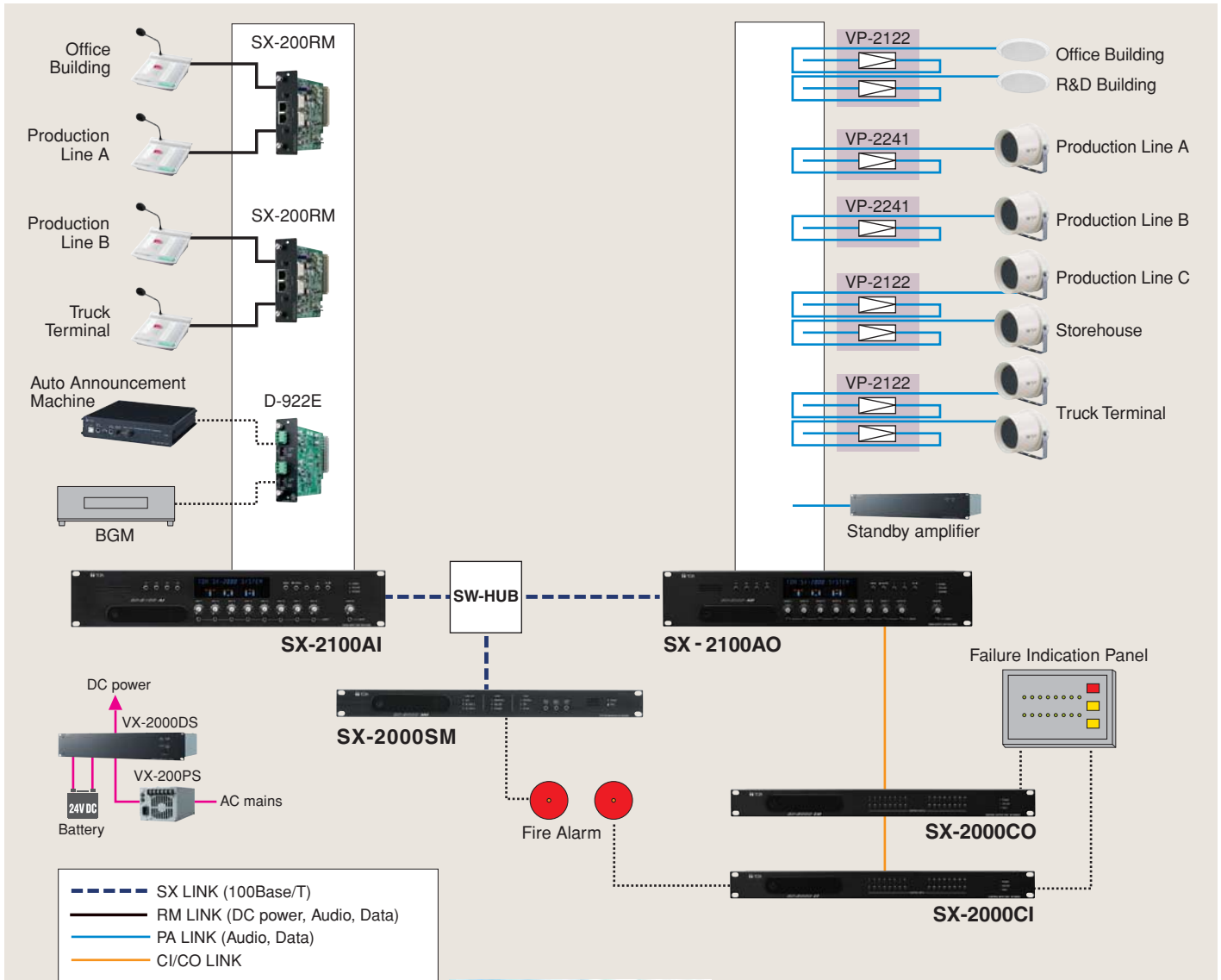
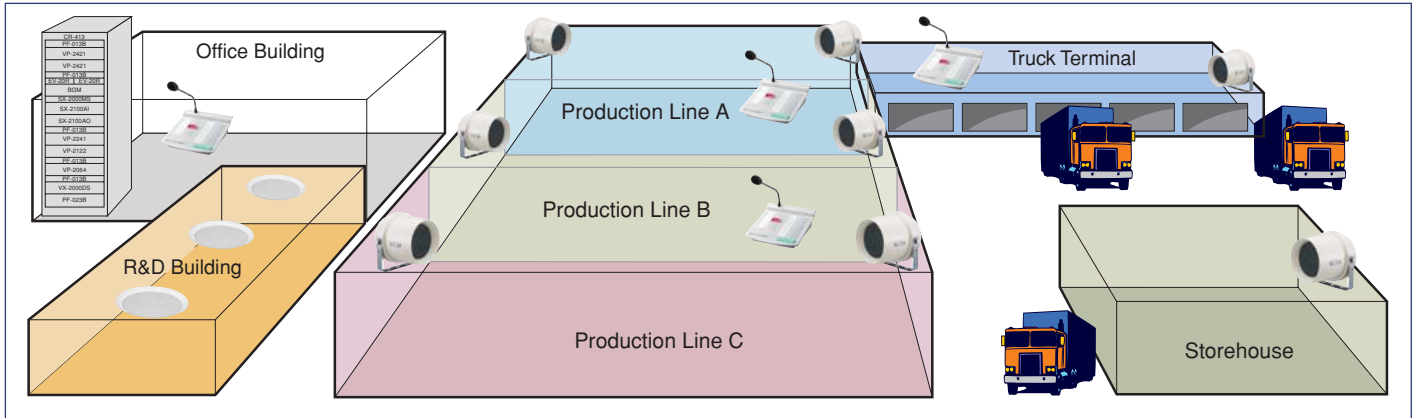
## Software setting

- Parameter settings including fade-in/fade-outs for various input sources, priority level assignment of multiple input sources, and operation logs can be conveniently stored in a CF card.



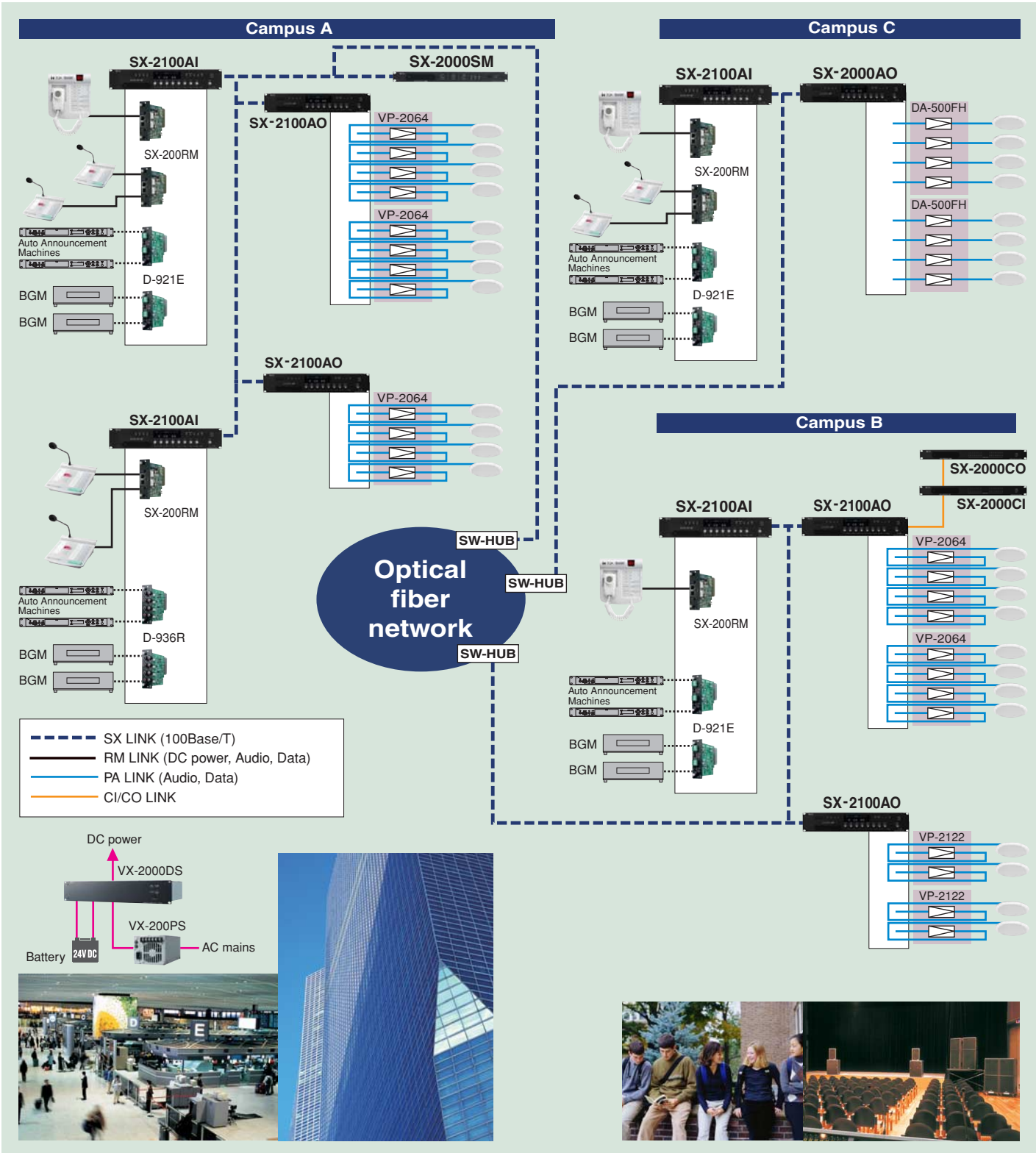
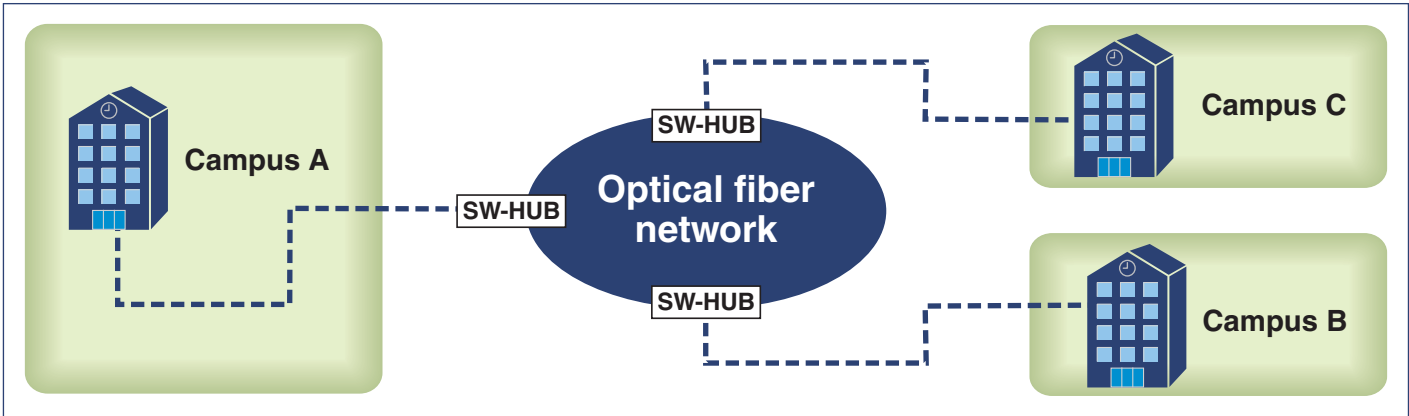
# SX-2000 Series

## Centralized Control System Example (Factory)





## Distributed Control System Example (University)



SPECIFICATIONS

Model No. SX-2000SM System Manager		
Power Source		24V DC, Two power inputs construction enables dual- redundant power supply.
Current Consumption		Under 0.8A (when operated on 24V DC)
SX Link	Network I/F	2 100BASE-TX circuits, RJ45 connector
	Matrix System Specification	Bus: 16 Audio input: Max. 64 ch, Audio output: Max. 128 zones Contact input: Max. 776, Contact output: Max. 776 Priority control: 512 steps Event log: Max. 1,000 events × 32 files Failure log: Max. 100 events × 32 files
	Matrix System Configuration (Maximum connectable units)	SX-2100AI: Max. 8 units, SX-2100AO/2000AO: Max. 16 units, SX-2000CI: Max. 16 units (one per SX-2100AO/2000AO), SX-2000CO: Max. 16 units (one per SX-2100AO/2000AO), RM-200SF/200SA: Max. 32 units (up to 4 RM-200SF/200SA per SX-2100AI)
	Connection Cable/Device	Shielded Category 5 twisted pair cable (CAT5-STP)
LAN	Network I/F	1 10 BASE-T/100 BASE-TX circuit, RJ45 connector for maintenance use
	Network Protocol	TCP/IP
	Connection Cable	Shielded Category 5 twisted pair cable for LAN (CAT5-STP)
Analog Link	Input/Output Connector	Output: 2, RJ45 connector
	Connection Cable	Shielded Category 5 twisted pair cable (CAT5-STP)
DS Link	Usable Unit	VX-2000DS
	Connector/Cable	2 interface, RJ45 connector, Shielded Category 5 twisted pair cable (CAT5-STP)
Failure Data Input		3 inputs (ACK/RESET/LAMP TEST)
Failure Data Output		4 outputs (CPU FAULT/GENERAL FAULT/CPU OFF/BUZZER)
Control Input		8 inputs
Surveillance Section for The Control Input Lines		Connection resistance to make the function inactive: 20kΩ ±5% Connection resistance to make the function active: 10kΩ ±5% Connector cable: Twisted pair cable (shielded type is recommended) Maximum cable distance: 10m
Control Output		8 outputs
24V DC Output	Maximum Feeding Current	100mA
	Output Voltage	24V DC ±10% or less
Memory Card		Insertion slot: 1 (supplied CF card (128MB))

Model No. SX-2100AI Audio Input Unit		
Power Source		24V DC, Two power inputs construction enables dual- redundant power supply.
Current Consumption		Under 1.50A (when operated on 24V DC)
Audio Input		8 inputs, module construction (max. 4 modules)
Control Input		16 inputs
Control Output		16 outputs
Audio Input Characteristic		Sampling frequency: 48kHz
SX Link	Network I/F	2 100BASE-TX circuits, RJ45 connector
	Connection Cable/Device	Shielded Category 5 twisted pair cable (CAT5-STP).
Analog Link	Input/Output Connector	Input: 1 input, RJ45 connector
	Connection Cable	Output: 1 output, RJ45 connector Shielded Category 5 twisted pair cable (CAT5-STP)

Model No. SX-2100AO Audio Output Unit		
Power Source		24V DC, Two power inputs construction enables dual- redundant power supply.
Current Consumption		Under 1.2A (when operated on 24V DC)
PA Link	Audio Output	8 outputs and standby AMP, 0dB*, suitable load: 600Ω or above, electronically-balanced, RJ45 connector
	Audio Output Characteristic	Frequency response: 20 – 20,000Hz Sampling frequency: 48kHz D/A converter: 24 bit
	Connection Cable	Shielded Category 5 twisted pair cable (CAT5-STP)
Local Audio Input		
	Audio Input	2 inputs, 0dB*, 10kΩ, electronically-balanced, RJ45 connector
	Audio Input Characteristic	Frequency response: 20 – 20,000Hz Sampling frequency: 48kHz D/A converter: 24 bit
	Control Input	2 inputs
	Connection Cable	Shielded Category 5 twisted pair cable (CAT5-STP)
SX Link	Network I/F	2 100 BASE-TX circuits, RJ45 connector
	Connection Cable	Shielded Category 5 twisted pair cable (CAT5-STP)
Analog Link	Input/Output Connector	Input: 1 input, RJ45 connector/Output: 1 output, RJ45 connector
	Connection Cable	Shielded Category 5 twisted pair cable (CAT5-STP)
DS Link	Usable Unit	VX-2000DS
	Connector/Cable	2 interface, RJ45 connector, Shielded Category 5 twisted pair cable (CAT5-STP)
CI/CO Link	Usable Unit	SX-2000CI or SX-2000CO
	Connector/Cable	1 interface, RJ45 connector, Shielded Category 5 twisted pair cable (CAT5-STP)
Speaker Line Failure Detection Section		
	Connection Cable	Removable terminal block, SP/AMP: 8 pins, STANDBY AMP: 2 pins, AWG 24 – AWG 16
	Maximum Input	100Vrms, 5Arms
	Fault Detection System	Short circuit, open circuit, ground fault
	Method	Impedance or End of line
	End of Line	In case of normal: Terminated by 470kΩ between the speaker line and the shielded
		In case of open: Opened between the speaker line and the shield
	Impedance	Minimum load: 2kΩ (5W) at 100V line
Control Input		8 inputs
Control Output		8 outputs

\*0dB = 1V

Model No. SX-2000AO Audio Output Unit		
Power Source		24V DC, Two power inputs construction enables dual- redundant power supply.
Current Consumption		Under 0.79A (when operated on 24V DC)
Audio Output		8 outputs, 0dB*, suitable load: 600Ω or above, electronically-balanced output changeable into transformer-balanced output (optional)
Audio Output Characteristic		Frequency response: 20 – 20,000Hz Sampling frequency: 48kHz D/A converter: 24 bit
Emergency Line Input		Emergency signals switched and sent to Input 1 (H, C, E) by relay
Emergency-Cutoff 24V Input		1 input, input current: under 5mA
SX Link	Network I/F	2 100 BASE-TX circuits, RJ45 connector
	Connection Cable/Device	Shielded Category 5 twisted pair cable (CAT5-STP)
Analog Link	Input/Output Connector	Input: 1 input, RJ45 connector/Output: 1 output, RJ45 connector
	Connection Cable	Shielded Category 5 twisted pair cable (CAT5-STP)
CI/CO Link	Usable Unit	SX-2000CI or SX-2000CO
	Connection Cable	1 interface, RJ45 connector, Shielded Category 5 twisted pair cable (CAT5-STP)
Control Input		8 inputs
Control Output		8 outputs

\*0dB = 1V



Model No.	D-921E Mic/Line Input Module (24 bits Monaural Type)
Input	2 channels, Mic/Line changeable Mic: -50/-36dB*, 4.7kΩ, electronically-balanced Line: -10/+4dB*, 10kΩ, electronically-balanced Phantom power supply
Connector	Removable Terminal Block connector
A/D Converter	24 bits
Sampling Frequency	48kHz
Frequency Response	20 – 20,000Hz, ±1 dB
Dynamic Range	Over 100 dB
Total Harmonic Distortion	Under 0.05%

Model No.	D-922E Mic/Line Input Module (20 bits Monaural Type)
Input	2 channels, -50/-36/-10/+4dB* (Selectable with , the DIP switch), 4.7kΩ, electronically-balanced Phantom power supply Ground lift switch
Connector	Removable Terminal Block connector
A/D Converter	20 bits
Sampling Frequency	48kHz
Frequency Response	20 – 20,000Hz, ±1 dB
Dynamic Range	Over 85 dB
Total Harmonic Distortion	Under 0.2%

Model No.	D-936R Stereo Select Input Module
Input	4 stereo inputs, -10dB*, 10kΩ
A/D Converter	24 bits
Sampling Frequency	48kHz
Frequency Response	20 – 20,000Hz, ±1 dB
Dynamic Range	Over 100 dB
Total Harmonic Distortion	Under 0.05%

Model No.	SX-2000CI Control Input Unit	
Power Source	24V DC, Two power inputs construction enables dual- redundant power supply.	
Current Consumption	Under 0.55A (when operated on 24V DC)	
Control Input	32 inputs	
Surveillance Section for The Control Input Lines	Connection resistance to make the function inactive: 20kΩ ±5% Connection resistance to make the function active: 10kΩ ±5% Connector cable: Twisted pair cable (shielded type is recommended) Maximum cable distance: 10m	
CI/CO Link	Input/Output Connector	Input: 1 input, Output: 1 output RJ45 connector
	Connection Cable	Shielded Category 5 twisted pair cable (CAT5-STP)
24V DC Output	Connector Maximum Feeding Current Output Voltage	Removable terminal block (2 pins) 100mA 24V DC ±10% or less

Model No.	SX-2000CO Control Output Unit	
Power Source	24V DC, Two power inputs construction enables dual- redundant power supply.	
Current Consumption	Under 0.29A (when operated on 24V DC)	
Control Input	32 outputs	
CI/CO Link	Input/Output Connector	Input: 1 input, Output: 1 output RJ45 connector
	Connection Cable	Shielded Category 5 twisted pair cable (CAT5-STP)

Model No.	RM-200SA Remote Microphone
Power Source	24V DC (supplied from the SX-2100AI audio input unit) or DC input power supply connector (when the optional AD-246 power supply unit used)
Current Consumption	Under 240mA
Audio Output	0dB*, 600Ω, balanced
External Microphone Input Distortion	-40dB*, 2.2kΩ, unbalanced, mini jack Under 1%
Frequency Response	100 – 20,000Hz
S/N Ratio	Under 60dB
Microphone	Unidirectional electret condenser microphone with AGC (ON/OFF selectable)
Chime	Built inside, monitoring possible using built-in speaker
Level Control	Microphone sensitivity control, Monitor speaker volume control, Chime (adjustable using the software)
Connection Cable	Main line: Shielded CPEV cable or Shielded Category 5 twisted pair cable (CAT5-STP) Branch line: Shielded Category 5 twisted pair cable (CAT5-STP)
No. of Connectable Expansion	Max. 4 units
Monitor Speaker	Built inside
Indicator	Power indicator, Failure indicator, Function switch indicator, Covered switch indicator, Broadcast switch indicator
Dimensions	190 (W) × 76.5 (H) × 215 (D)mm (excluding microphone)
*0dB = 1V	

Model No.	RM-210 Remote Microphone Extension
Current Consumption	20mA max. (in terms of RM-200SF/200SA's DC power input)
Connection	Connection by way of dedicated cable
Number of Function Keys	10
Dimensions	110 (W) × 76.5 (H) × 215 (D)mm

Model No.	D-921F Mic/Line Input Module (24 bits Monaural Type)
Input	2 channels, Mic/Line changeable Mic: -50/-36dB*, 4.7kΩ, electronically-balanced Line: -10/+4dB*, 10kΩ, electronically-balanced Phantom power supply
Connector	XLR connector
A/D Converter	24 bits
Sampling Frequency	48kHz
Frequency Response	20 – 20,000Hz, ±1 dB
Dynamic Range	Over 100 dB
Total Harmonic Distortion	Under 0.05%

Model No.	D-922F Mic/Line Input Module (20 bits Monaural Type)
Input	2 channels, -50/-36/-10/+4dB* (Selectable with the DIP switch), 4.7kΩ, electronically-balanced Phantom power supply Ground lift switch
Connector	XLR connector
A/D Converter	20 bits
Sampling Frequency	48kHz
Frequency Response	20 – 20,000Hz, ±1 dB
Dynamic Range	Over 85 dB
Total Harmonic Distortion	Under 0.2%

Model No.	SX-200RM Remote Microphone Interface Module
Audio Input	2 inputs, 0dB* <sup>1</sup>
Audio Input Characteristic	Sampling frequency: 48kHz A/D converter: 24bits
Level Control	Audio input (0 to +12dB)
* 0dB = 0.775V * <sup>1</sup> 0dB = 1V	

Model No.	RM-200SF Fireman's Microphone
Power Source	24V DC (supplied from the SX-2100AI audio input unit)
Current Consumption	Under 240mA
Audio Output	0dB*, transformer-balanced
Distortion	Under 1%
Frequency Response	200 – 15,000Hz
S/N Ratio	Over 55dB
Microphone	Unidirectional dynamic microphone with talk key, AGC (ON/OFF selectable), microphone element failure detectable by using a built-in small oscillator
Connection Cable	Shielded CPEV cable or Shielded Category 5 twisted pair cable (CAT5-STP)
No. of Connectable Expansion	Max. 5 units
Monitor Speaker	Built inside
Operation	Emergency key, Function keys, CPU switch, Reset switch
Indicator	Status indicators, Power indicator, Failure indicator, CPU indicator, Selection indicators, Microphone indicator, Broadcast status indicator
Dimensions	200 (W) × 215 (H) × 95 (D)mm
*0dB = 1V	

Model No.	RM-200RJ Terminal Unit
Applied Voltage	Under 40V
Withstand Voltage	1A
Voltage Indicator	Monitor terminals: Terminal No 7 (+) and terminal No 8 (-), extinguish voltage: 14V or less, lighting voltage: 21V or more, indicator ON/OFF switchable
Connector	RJ45 connector: 1
Terminal	M3 screw terminal (10 pins), distance between barriers: 6.62mm
Dimensions	84 (W) × 116 (H) × 25.7 (D)mm

## SYSTEM EQUIPMENT



**VP-2064** (60 W × 4)  
**VP-2122** (120 W × 2)  
**VP-2241** (240 W × 1)  
**VP-2421** (420W × 1)

### Power Amplifier

Power Amplifier uses the VP-200VX Power Amplifier Input Module per channel.

Power Source	28V DC
Current Consumption (EN60065)	VP-2064/VP-2122: 4.8A in total, VP-2241: 4.8A, VP-2421: 7.6A
Output Voltage/Impedance	VP-2064: 100/167Ω, 70V/83Ω, 50V/41Ω VP-2122: 100/83Ω, 70V/41Ω, 50V/21Ω VP-2241: 100/41Ω, 70V/21Ω, 50V/10Ω VP-2421: 100/24Ω, 70V/12Ω, 50V/6Ω
Number of Module Slot	VP-2064: 4, VP-2122: 2, VP-2241/VP-2421: 1
Output	Power amplifier output (speaker line)
Frequency Response	40 – 16,000Hz
Distortion	Under 1%
S/N Ratio	Over 80dB



### VX-2000DS

#### Emergency Power Supply

The VX-2000DS Emergency Power Supply Unit supplies the DC power to each equipment in the SX-2000 system by connecting the VX-200PS Power Supply Unit.

Power Source	AC mains, 50/60Hz
Power Consumption	240W max.
Charging Method	Trickle charging
Charging Current	5A max.
Charging Output Voltage	27.3V ±0.3V
Power Supply Input	6
DC Power Output	6

### VX-200PS

#### Power Supply Unit

The VX-200PS Power Supply Unit is mounted in the VX-2000PF Power Supply Frame when in use.



Power Source	AC mains, 50/60Hz
Power Consumption	580W
PS OUT	Rated output: 210W (29V, 7.25A) × 2 Peak output: 400W × 2



### VX-2000PF

#### Power Supply Frame

The VX-2000PF permits the VX-200PS Power Supply Unit to be mounted in an equipment rack. Up to 3 VX-200PS units can be installed in the unit.



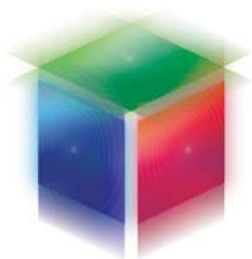
### DA-250FH/500FH

#### Multichannel Power Amplifier

The DA-250FH/500FH are 4-Channel Digital Amplifiers designed for 100V line high-impedance distribution and features lightweight, compact, high power output, and high efficiency.

Power Source	AC mains, 50/60HZ
Amplification System	Digital Class D
Power Consumption (based on EN standards)	DA-250FH: 200W DA-500FH: 460W
Input	4 circuits, +4dB*, 10kΩ
Rated Output	DA-250FH: 250W × 4 (40Ω) DA-500FH: 500W × 4 (20Ω)
Frequency Response	50 – 20,000Hz
Total Harmonic Distortion	0.1% (1kHz)
S/N Ratio	100dB
Crosstalk	70dB
Cooling	Forced air cooling

\*0dB = 0.775V



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