

COMSEC PROTECTION SYSTEMS LTD.

UNIT 26, STADIUM BUSINESS PARK, • BALLYCOOLIN ROAD, • DUBLIN 11, • IRELAND

PHONE: +353 (0)1 8853008 • FAX: +353 (0)1 8853007

EMAIL: info@comsec.ie • WEB: <http://www.comsec.ie>

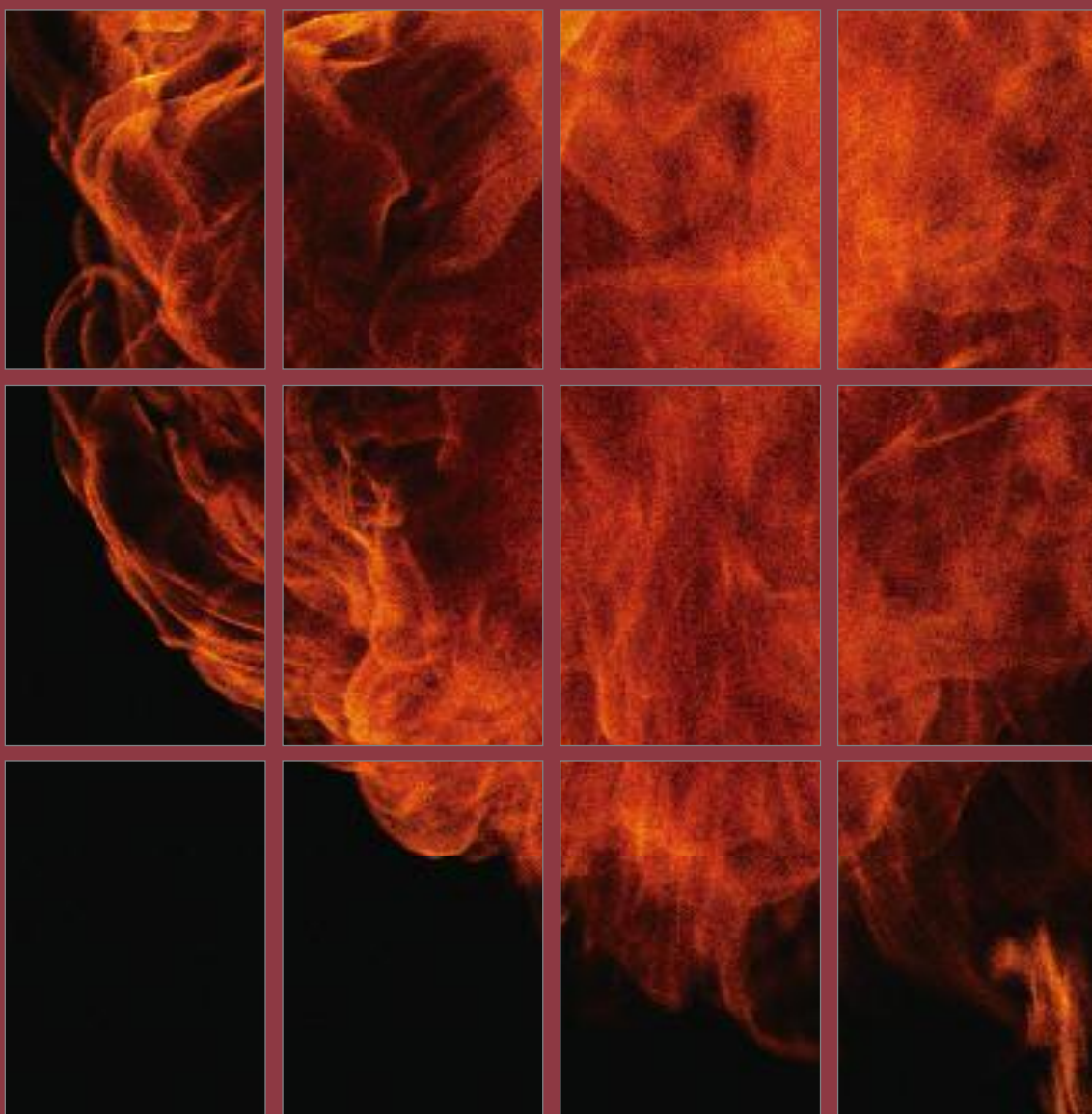


TOA Corporation (UK) Ltd

HQ3 Unit 2 Hook Rise South Surbiton Surrey KT6 7LD England

Telephone: +44 (0)870 774 0987 Facsimile: +44 (0)870 777 0839

Web site: www.toa.co.uk



VM-3000 - VX-2000 - SX-2000
Integrated Voice Alarm Management & Evacuation Systems
Including loudspeakers



the future is **safe&sound**

TOA Quality Assurance



The EN 54 Marque - TOA's Commitment to Quality

EN 54 is a standard marque of the European Union (EU) for fire detection and fire alarm systems. The relevant parts to the voice alarm and audio industry are part 16, which are concerned with voice alarm control and indicating equipment (VACIE),

part 24, refers to loudspeakers and part 4, refers to power supplies

The EN 54 standard is a EU regulation and therefore mandatory in each EU member state without the necessity of being adopted as a national standard. It belongs to the Construction Product Directive (CPD, 89/106/EEC) and requires a certification by a notified body (which ensures a high product quality and reliability).

The EN 54 will come into force April 2011

It is imperative that installers and consultants follow these new regulations in order to maintain the continuity of quality and safety when designing and installing voice alarm systems. This will enable them to spearhead better integration of Voice Alarm (VA) and Public Address (PA) as the directive takes hold. Furthermore EN 54 will play a significant role in the market for Voice Evacuation as the member states of the European Union will be obliged to replace their local standards with the EN 54 standard by April 2011.

As part of TOA's commitment to professionalism, quality, service and support, we



Human society with Sound & Communication

Content

VM-3000 Series

PA Management System	04
System Management Amplifier	05
Extension Amplifier	07
Application Example	08
Emergency Remote Microphone	09
Remote Microphone	10

VX-2000 Series

Audio Management System	12
System Manager	13
Surveillance Frame	14
Emergency & Standard Supply	15
Power Supply	16
System Amplifier	17
Emergency Remote Microphone	19
Remote Microphone	20
System Configuration	21
Modules	22

SX-2000 Series

SX-2000 Network Audio Management System	28
System Management Amplifier	29
Audio Input Unit	30
System Remote Microphone & Modules for SX-2000AI	31
Audio Output Unit for SX-2000AO	33
Control Input Unit for SX-2000CI	35
Control Output Unit for SX-2000CO	36
Remote Microphone Interface Module	37
System Configuration	38
Emergency Remote Microphone	39
Remote Microphone	40

Speakers

Metal Cabinet Speaker	42
Wall Mount Speaker	43
Flush Ceiling mounted speakers	46
Splashproof Projection Speaker	49
Reflex Horn Speaker	51
Projection Speakers	51

Line Array Performance Speakers

Type-H	56
Type-S	59



VM-3000 series PA Management System

VM-3000 - Description

The VM-3000 Series is digitally audio processed and controlled, with fully digital audio mixing and a built-in high-quality electronic voice message feature. The system may be set up directly using the controls and LCD display on the front panel, which also enables easy operation of the system. Operational versatility is further enhanced by a dedicated PC software configuration capability for uploading and downloading settings via LAN.

The incorporation of wide-ranging functional capabilities, superb reliability and versatility make the VM-3000 a highly cost-effective emergency broadcast system.

System Features

- Max. 4 MIC/LINE inputs
- 2 BGM inputs
- Up to 4 Remote Microphones connectable (max. 2 Fireman's Microphones)
- Max. 60 assignable speaker zone outputs (6 zones per amplifier)
- Volume setting possible for each zone
- Digital audio processed & controlled
- Full digital audio mixing (DSP)
- Built-in high quality electronic voice message
- Intuitive configuration
- Zone setting, priority setting, failure detection setting by dedicated PC software
- LCD display of current status and configuration setting of system units.

Emergency Functions

- Continuous speaker line monitoring without interruption of BGM distribution or paging announcements
- Complete fault detection and indication
- Both built-in and remote Fireman's Microphones
- Built-in voice alarm message
- 2-Phase voice alarm message (Alert and Evacuation) broadcasting

Paging Functions

- 2 Remote Microphone interface lines
- Paging (All zones/Group/Individual)
2-channel broadcast with external amplifier (Paging/BGM)



First fully EN 54 certified voice alarm system



VM-3000 Series System Management Amplifier



Certificate No : 1483-CPD-0180



VM-3240VA/VM-3360VA

Features

- ▶ Central units in the VM-3000 system
- ▶ Power outputs 240 W (VM-3240VA) and 360 W (VM-3360VA)
- ▶ 1 unit per system
- ▶ Front panel-mounted LCD display for Setting and operation status
- ▶ Automatic message function
- ▶ Play back of up to 6 recorded general announcements and 2 recorded emergency announcements
- ▶ Up to 2 RM-300MF Emergency Remote Fireman's Microphones can be connected
- ▶ Up to a total of 4 RM-200M General Broadcast Remote Microphones and RM-300MF Fireman's Microphones can be connected

Options

- ▶ VM-3240E: 240 W Extension Amplifier
- ▶ VM-3360E: 360 W Extension Amplifier
- ▶ RM-300MF: Emergency Microphone
- ▶ RM-200M: Remote Microphone
- ▶ IT-450: Input Transformer



VM-3000 Series System Management Amplifier



Specifications

VM-3240VA

VM-3360VA

	230 V AC, 50/60 Hz	
Power Requirement		
Power Consumption (AC mains)	600 W (with rated output signal), 260 W (according to EN60065)	850 W (with rated output signal), 380 W (according to EN60065)
Rated Output	240W	360W
Frequency Response	50 – 20,000 Hz, ± 3 dB (at 1/3 rated output)	50 – 20,000 Hz, ± 3 dB (at 1/3 rated output)
Distortion	Under 0.8% (at rated output, 1kHz)	Under 0.8% (at rated output, 1kHz)
Signal-to-Noise Ratio	Over 85dB	Over 85dB
Inputs	Input 1 – 3: -50 dB* (MIC)/-10dB (LINE) (changeable) 600 Ohm, electronically balanced combined XLR connector (female)/phone jack Input 4: -50 dB* (MIC) / -10 dB (LINE) (changeable) 600 Ohm, electronically balanced, removable terminal block (14 pins) BGM 1 – 2 : -10 dB, 10 kOhm unbalanced, RCA pin jack External amplifier Input: 100 V Line removable terminal block (14 pins)	
Outputs	Speaker output 1 – 6: Total within rated output, removable terminal block (14 pins), Direct output from internal or external amplifier, removable terminal block (16 pins) Recording output BGM / Paging 0 dB*, 10 kOhm, unbalanced, RCA pin jack	
Control	Input 1 – 8: No-Voltage make contact input, open voltage: 24V DC, short-circuit current: under 2mA, removable terminal block (14 pins) Output 1 – 8: Isolated open collector output, with stand voltage: 30V DC, operating current: under 10mA, removable terminal block (14 pins)	
Emergency Control	Input 1 – 5: No-Voltage make contact input, open voltage : 24V DC, short-circuit current: under 2mA, RJ45 female connector Input 6: Isolated voltage input: Inactive; -24V $\pm 20\%$ /Active; +24V $\pm 20\%$, RJ45 female connector Status out: Relay contact output, withstand voltage: 40V DC, operating current: 2 – 300mA, RJ45 female connector	
DC-24 V-Output	24 V DC, maximum feeding current 0.3 A	24V DC $\pm 10\%$ Maximum feeding current 0.4A
Dimensions (W x H x D)	482 (W) x 132.6 (H) x 460 (D)mm	482 (W) x 132.6 (H) x 460 (D)mm
Weight	16.5 kg	19kg

VM-3000 Series Extension Amplifier



First fully EN 54 Certified Voice Alarm System



VM-3240E/VM-3360E

Features

System can be expanded by connecting up to 9 VM-3240E or VM-3360E Extension Amplifiers. The 240 W VM-3240E and 360 W VM-3360E are both equipped with 6 speaker line outputs. Both also feature 8 contact inputs and 8 contact outputs for general broadcasts and 6 inputs and 3 outputs for emergency broadcasts. They are connected to the VM-3240VA or VM-3360VA via the VM Link connector.

EN54-16 Certificate No. 1438/CPD/0180

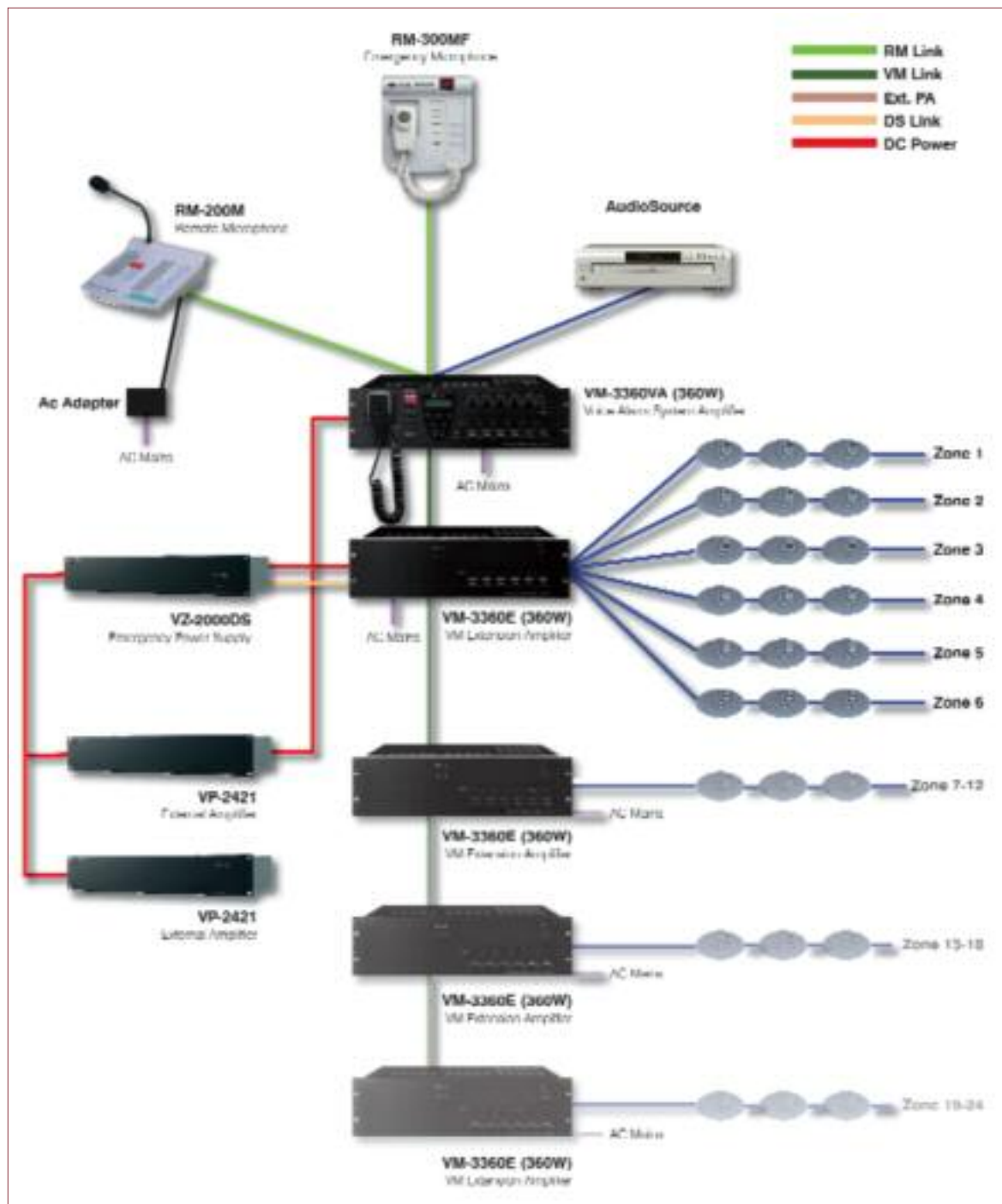
Options

- VM-3240VA: 240 W System Amplifier
- VM-3360VA: 360 W System Amplifier
- IT-450: Input Transformer

Specifications

	VM-3240E	VM-3360E
Power Requirement	230 V AC, 50/60 Hz	
Power Consumption (AC mains)	600 W (with rated output signal), 260 W (according to EN60065)	850 W (with rated output signal), 380 W (according to EN60065)
Rated Output	240W	360W
Frequency Response	50 – 20,000 Hz, ± 3 dB (at 1/3 rated output)	50 – 20,000 Hz, ± 3 dB (at 1/3 rated output)
Distortion	Under 0.7% (at rated output, 1kHz)	Under 0.8% (at rated output, 1kHz)
Signal-to-Noise Ratio	Over 85dB	Over 85dB
Inputs	External amplifier Input: 100 V Line removable terminal block(14 pins)	
Outputs	Speaker output 1 – 6: Total within rated output, removable terminal block (14 pins) Direct output from internal or external amplifier, removable terminal block (16 pins)	
Control	Input 1 – 8: No-Voltage make contact input, open voltage: 24V DC, short-circuit current: under 2mA, removable terminal block (14 pins)	
Output	1 – 8: Isolated open collector output, withstand voltage: 30V DC, operating current: under 10mA, removable terminal block (14 pins)	
Emergency Control RJ45	Input 1 – 5: No-Voltage make contact input, open voltage : 24V DC, short-circuit current: under 2mA, female connector Input 6: Isolated voltage input: Inactive; -24V $\pm 20\%$ /Active; +24V $\pm 20\%$, RJ45 female connector Status out: Relay contact output, withstand voltage: 40V DC, operating current: 2 – 300mA, RJ45 female connector	
DC-24 V-Output	24 V DC, maximum feeding current 0.3 A	24V DC. maximum feeding current 0.4A
Dimensions (W x H x D)	482 x 132.6 x 407	482 (W) x 132.6 (H) x 460 (D)mm
Weight	16.5 kg	19 kg
Certificates	EN54 16 1438 - CPD - 0180	

VM-3000 Series Application Example



VM-3000 Series Emergency Remote Microphone



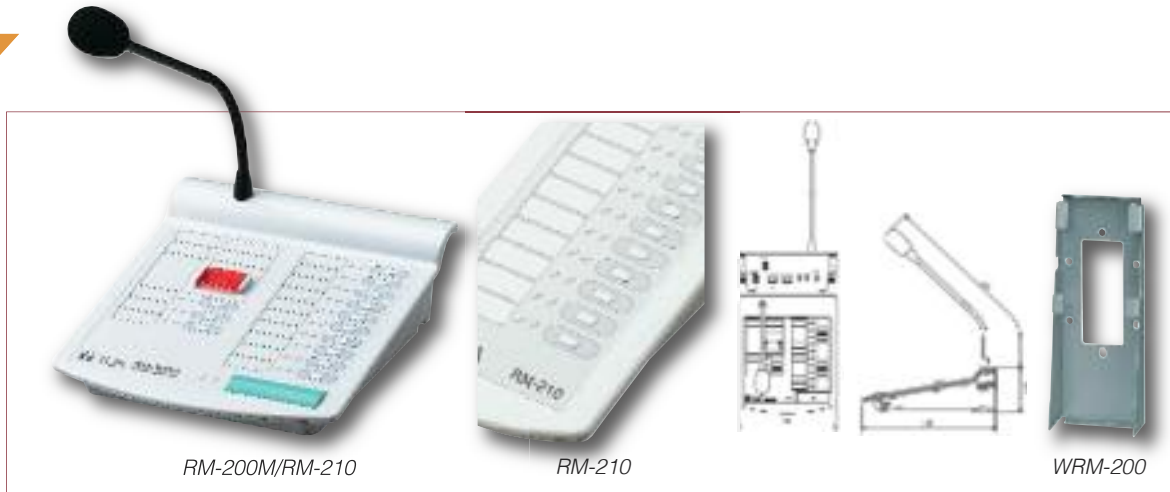
Features

- Exclusively for broadcasts made by firemen in emergency situations
- For activation of emergency mode, start and stop automatic broadcasts of emergency announcements, reset emergency signals, and live microphone announcements
- CPU OFF switch allows all-zone calls (simultaneous attenuator-free global calls).
- No general broadcasts can be made.
- The RM-320F Emergency Microphone Extension enables zone selection or failure indication/failure acknowledgment function.
- Up to 3 RM-320Fs can be connected to the Emergency Microphone, expanding the available keys up to 20 per unit.
- 20 function buttons per unit.
- Zone selection (1 – 20) and failure indication/acknowledgement functions can be assigned to each function key using the dedicated software.

Specifications

	RM-300MF	RM-320F
Power Requirement	24 V DC (Operating range: 14 – 28 V DC)	From RM-200X/M/XF
Current Consumption	100 mA (up to 550 mA with 3x RM-320F)	155 mA max. (in terms of DC power inputs of RM-300MF)
Distortion	Under 1%	-
Frequency Response	200 – 15,000 Hz	-
Signal-to-Noise Ratio	Over 55 dB	-
Audio Output	0 dBV, 600 Ohm, balanced	-
Microphone	Unidirectional dynamic microphone	-
Volume Control	Microphone, buzzer	-
Operation key	Emergency button, Evacuate button, Alert button, Emergency reset key, CPU switch, Reset switch	
Key Extension	20 keys extension per RM-320F, extension connector	20
Connection Cable	Shielded CPEF cable or Category 5 STP cable, by M3 screw terminal	Connection to RM-200M, RM-200X or RM-20-200XF by way of dedicated cable
Finish	ABS resin, bluish gray	ABS resin, bluish grey (PANTONE 538 or its equivalent)
Dimensions (W x H x D)	200 x 215 x 82.5 mm	110 x 76.5 x 215 mm
Weight	1.1 kg	350 g

VM-3000 Series Remote Microphone



Features

- Elegant design
- Zone, group and all-call paging, and starting pre-recorded messages
- Extraordinary clarity and freedom from distortion by built-in compression circuit
- Up to 4 remote microphones can be connected to the VM-3000 system amplifier
- Up to 800 m total cable length

- RM-210: Allows announcements in Up to 60 zones
- Colour: Bluish grey

Options

- WH-4000A: Headset
- WB-RM200: Wall-mounting bracket

Specifications

	RM-200M	RM-210
Power Requirement	24 V DC (Operating range: 14 – 28 V DC)	From RM-200X/M/XF
Current Consumption	100 mA maximum	20 mA max. (in terms of DC power inputs of RM-200X and RM-200XF)
Distortion	Under 1%	-
Frequency Response	100 – 20000 Hz	-
Signal-to-Noise Ratio	Over 60 dB	-
Audio Output	0 dBV, 600 Ohm, balanced	-
Microphone	Unidirectional electret condenser microphone	-
Speaker Control	Controllable by PC software	-
Voice Message Control	Activation of 5 messages	-
Key Extension	10 keys extension per RM-210, extension connector	10
Connection Cable and Connector	Category 5 STP cable, RJ45 connector	Connection to RM-200M, RM-200X or RM-200XF by way of dedicated cable
Finish	ABS resin, bluish grey	ABS resin, bluish grey (PANTONE 538 or its equivalent)
Dimensions (W x H x D)	190 x 76.5 x 215 mm (Gooseneck microphone excluded)	110 x 76.5 x 215 mm
Weight	750 g	350 g



VX-2000 Series Audio Management System



Certificate No : 1134-CPD-110

VX-2000 - Description

The VX-2000 Series is a versatile broadcast and public address system that fulfills the requirements of EN60849/IEC60849 standard for general purpose and emergency broadcasts.

It is configured for simple as well as for complex installations.

The total system is composed of a System Manager, Surveillance Frame, Power Amplifiers, Power Supply, Emergency Power Supply, Fireman's Microphone and user-specified number of Remote Microphones.

The most important factor in an emergency system is total reliability.

The VX-2000 features include multiple failure detection measures that constantly check components and speaker lines for any faults or abnormalities which are informed via indicators and buzzers.

The VX-2000 features a scalable architecture that can be easily expanded as requirements dictate.

Its fully modular configuration facilitates assembling a system that is ideally optimized for a particular application with specific modules.

The VX-2000 offers a high-performance cost-effective solution to any environment's broadcast and public address requirements.



Features

- Full compliance with EN60849 standards
- System status can be confirmed on Remote Microphones
- Emergency Microphone is available
- Simultaneous dual-origin recorded message broadcasts
- Convenient multi-language software
- 1 per 100 second frequency program non-interruptive surveillance

Applications

- Public buildings for example schools, train stations, shopping malls or administrative buildings which need to fulfill the demanding requirements of emergency evacuation according to EN 60849 as well as standard PA requirements

Options

- EV-200M: Voice announcement board
- IT-450: Isolation transformer (audio link output)

VX-2000 Series System Manager



First fully EN 54 Certified Voice Alarm System



Features

- Input matrix unit that assigns input signals to 4 audio buses
- Functions as the VX-2000 system's manager
- Up to 8 units of the VX-200XI, VX-200XR, and 900 Series input modules can be mounted in the System Manager
- The VX-2000 can control audio signal routing, priorities, and peripheral equipment
- Input and output control settings are performed by way of a PC software

- Up to 2000 system events and failures can also be recorded, and the log can be viewed from a PC

Options

- VX-200XR: Remote Mic Input Module
- VX-200XI: Audio / Control Input Module
- 900 series plug-in modules: (M-01F, U-01F, U-01R, U-03R)

Specifications VX-2000

Power Source	24 V DC (operating range: 20 – 40V DC)
Current consumption	Under 650 mA (20 V DC)
Input	–20 dBV, unbalanced, number of module slots: 8
Audio Link Output	Number of audio buses: 4, 0 dBV, electronically balanced, RJ45 female connector
Monitor Output	0 dBV, electronically balanced, XLR receptacle (3 pins)
Frequency Response	20 – 20000 Hz
S/N Ratio	Over 60 dB
Distortion	Under 0.5 %
Cross Talk	Under –60 dB (1 kHz, 0 dB)
Control Input	16 inputs, RJ45 connector x 2
Control Output	16 outputs, RJ45 connector x 2
Chime Tone	Built-in chime: 4-tone chime (up)/4-tone chime (down)/2-tone chime/Gong
Communication System	PC (setting software to be installed): D-sub connector (9 pins), cross cable, RS-232C, VX-2000SF: RJ45 connector, twisted-pair straight cable (TIA/EIA-568A standard), LONWORKS RS-485
Operating Temperature	0° C to +40° C
Finish	Panel: Surface-treated steel plate, black, 30 % gloss, paint
Dimensions (W x H x D)	482 x 132.6 x 337 mm
Weight	6.4 kg

VX-2000 Series Surveillance Frame



Features

- Surveillance Frame is the output matrix section of the VX-2000 system
- A total of 10 units of output modules and control modules can be installed
- Assigns audio signals to individual zones from 4 audio buses
- Extendable to up to 5 units
- Rack-mountable, 3 units height
- 1 standby amplifier per VX-2000SF
- In case of power amplifier failure, output is automatically switched to the standby amplifier
- Output volume setting with PC system software
- 6 types of modules can be used:
 - The VX-200SP/200SP-2 Pilot Tone Detection module, the VX-200SZ/200SZ-2 Impedance Detection module, the VX-200SI Control Input module, and the VX-200SO Control Output module

Options

- Pilot Tone Detection Modules: VX-200SP-2, VX-200SP
- Impedance Detection Modules: VX-200SZ, VX-200SZ-2
- VX-200SI: Control Input Module
- VX-200SO: Control Output Module

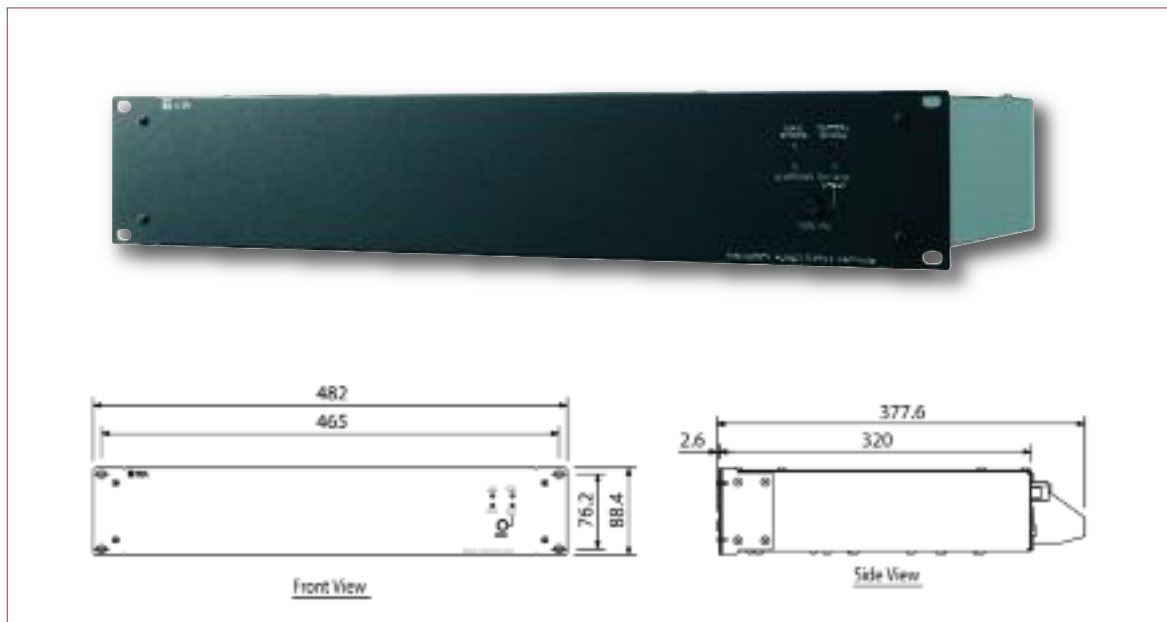
Specifications VX-2000SF

Power Source	24 V DC (operating range: 20 – 40V DC)
Current Consumption	Under 2 A (40V DC)
Number of Module Slot	10, usable modules: VX-200SZ, VX-200SZ-2, VX-200SP, VX-200SP-2, VX-200SI, VX-200SO
Frequency Response	20 Hz -20000 kHz (when use VX-200SZ: 120 Hz ... 20 kHz)
S/N Ratio	Over 60 dB
Distortion	Under 0.5 %
Cross Talk	Under -60 dB (1 kHz, 0 dBV)
Audio Link Input/Output	Number of audio buses: 4, 0 dBV, electronically balanced, RJ45 connector
Standby Amplifier Link	RJ45 female connector for connecting the VP-2064, VP-2122, VP-2241, VP-2421 Power Amplifier.
Communication System	VX-2000, VX-2000SF: RJ45 female connector x 2, LONWORKS RS-485 VX-2000DS: RJ45 connector x 2
Operating Temperature	0° C to +40° C
Finish	Panel: Surface-treated steel plate, black, 30% gloss, paint
Dimensions (W x H x D)	482 x 132.6 x 337 mm
Weight	5.6 kg
Accessory	Pre-installed rack mounting bracket (pre-installed on the unit), blank panel x 9, standby amp. cable (3m) x 1

VX-2000 Series Emergency & Standard Power Supply



First fully EN 54 Certified Voice Alarm System



Features

- ▶ The VX-2000DS Emergency Power Supply Unit supplies the DC power to each component in the VX-2000 system by connecting the VX-2000PS Power Supply Unit. It keeps the battery unit that contains 2 × 12 V sealed lead batteries charged compensating for the temperature of the battery charging voltage.
- ▶ Automatically switch-over in case of AC mains failure
- ▶ EN 54-4 certified
Certificate No : 1134-CPD-083

Specifications VX-2000DS

Power Source	230 V AC, 50/60 Hz
Power Consumption	240 W max.
Applicable Battery	Panasonic LC-X1265PG / APG (65 Ah) (12V x 2 or 4)
Charging Method	Trickle charging
Charging Current	5 A max
Charging Output Voltage	27.3 V \pm 0.3 V (at 25°C) Temperature correction coefficient: -40 mV/°C
Power Supply Input	6 M4 screw terminal, distance between barriers: 11 mm
DC Power Output	6 (25 A max. each) M4 screw terminal, distance between barriers: 11 mm
Control Connector	RJ45 female connector for connecting the VX-2000SF. Twisted-pair straight cable (TIA/EIA-568A standard) Type of control signal:
Battery Connection	1 pair of positive and negative terminals, applicable cable diameter: AWG 6 – AWG 1/0
Operating Temperature	0°C to +40°C
Finish	Panel: Surface-treated steel plate, black, 30% gloss, paint
Dimensions (W x H x D)	482 x 88.4 x 377.6 mm
Weight	10.5 kg

VX-2000 Series Power Supply



VX-2000PS

Features VX-2000PS

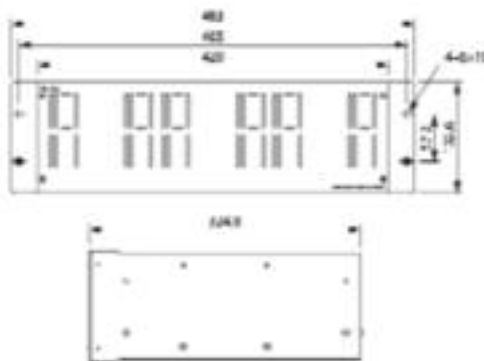
- Up to 3 VX-200PS Power Supply units (6 channels) can be mounted in one VX-2000PF Power Supply Frame
- 2 DC output channels per unit
- EN 54-4 Certified
Certificate No : 1134-CPD-083



VX-2000PF

Features VX-2000PF

- VX-2000PF frame for rack mounting of up to 3 VX-200PS Power Supply Units
- EN54-4 Certified
Certificate No: 1134-CPD-083



Specifications

VX-2000PS

Power Source	-	230 V AC, 50/60 Hz
Power Consumption	-	500 W VX-2000PF
PS OUT	-	Rated output: 210 W (29 V, 7.25 A) x 2, Peak output: 400 W x 2, M4 screw terminal
Operating Temperature	-	0° to +40°C
Finish	Panel: Surface-treated steel plate, black, 30 % gloss, paint	Surface-treated steel plate
Dimensions (W x H x D)	483 x 132.6 x 324.8 mm	135 x 118.2 x 333.8 mm
Weight	5.5 kg	13.2 kg
Product Composition	Side panel x 2, Chassis x 1, Front panel x 1	Fuse (T3.15A L) x 1, Power cable x 1
Accessory	Rack mounting screw x 4, Fiber washer x 4	-
Usable Unit	VX-200PS (up to 3)	-

VX-2000 Series System Amplifier



Features

- ▶ 4 different power configurations:
60 W x 4 Channels (VP-2064)
120 W x 2 Channels (VP-2122)
240 W x 1 Channel (VP-2241)
420 W x 1 Channel (VP-2421)
- ▶ Usable as standby amplifier for emergency switch over

- ▶ Power Amplifier uses 1 VP-200VX Power Amplifier Input Module per channel
- ▶ Programmable power amplifier standby function maximizes battery-powered operation time

Options

- ▶ VP-200VX: Amplifier Input Module for transmission of status and audio signals between amplifier and control modules
- ▶ VP-200VX-BGM: Amplifier Input Module with additional input for BGM

VX-2000 Series System Amplifier - Specification

Specifications

VP-2064

VP-2122

Type	Power Amplifier 4 x 60 W	Power Amplifier 2 x 120 W
Power Source	28 V DC (operating range: 20 40 V DC) M4 screw terminal, distance between barriers: 12 mm	28 V DC (operating range: 20 40 V DC) M4 screw terminal, distance between barriers: 12 mm
Current Consumption (EN60065)	4.8 A in total	4.8 A in total
Rated Output Power	4 x 60 W	4 x 120 W
Output Voltage/Impedance	100 V/167 Ohm, 70 V/83 Ohm, 50 V/41 Ohm (selectable by the internal wiring change)	100 V/83 Ohm, 70 V/41 Ohm, 50 V/21 Ohm (selectable by the internal wiring change)
Number of Channels	4	2
Input	Specified by input module VP-200VX	Specified by input module VP-200VX
Number of Module Slots	1, usable module: VP-200VX	1, usable module: VP-200VX
Output	Power amplifier output (speaker line): M3.5 screw terminal	Power amplifier output (speaker line): M3.5 screw terminal
Frequency Response	40 16,000 Hz, ± 3 dB (at 1/3 rated output)	40 16,000 Hz, ± 3 dB (at 1/3 rated output)
Distortion	Under 1% (at rated output, 1kHz)	Under 1% (at rated output, 1kHz)
S/N Ratio	Over 80 dB	Over 80 dB
Panel Indicator	Channel power indicator: 4 channels, dual colour LED Overheat indicator: Yellow LED	Channel power indicator: 4 channels, dual colour LED Overheat indicator: Yellow LED
Operating Temperature	0° ... +40°C	0° ... +40°C
Finish	Panel: Surface-treated steel plate, black, 30% gloss, paint	Panel: Surface-treated steel plate, black, 30% gloss, paint
Dimensions (W x H x D)	482 x 88.4 x 340.5 mm	482 x 88.4 x 340.5 mm
Weight	11.2 kg	9.1 kg
Accessory	Rack mounting screw x 4, Fiber washer x 4	Rack mounting screw x 4, Fiber washer x 4

Specifications

VP-2241

VP-2421

Type	Power Amplifier 120 W	Power Amplifier 420 W
Power Source	28 V DC (operating range: 20 40 V DC) M4 screw terminal, distance between barriers: 12 mm	28 V DC (operating range: 20 40 V DC) M4 screw terminal, distance between barriers: 12 mm
Current Consumption (EN60065)	4.8 A	7.6 A
Rated Output Power	1 x 240 W	1 x 420 W
Output Voltage/Impedance	100 V/41 Ohm, 70 V/21 Ohm, 50 V/10 Ohm (selectable by the internal wiring change)	100 V/24 Ohm, 70 V/12 Ohm, 50 V/6 Ohm (selectable by the internal wiring change)
Number of Channels	1, usable module: VP-200VX	1, usable module: VP-200VX
Input	Specified by input module VP-200VX	Specified by input module VP-200VX
Number of Module Slots	4, usable module: VP-200VX	2, usable module: VP-200VX
Output	Power amplifier output (speaker line): M3.5 screw terminal	Power amplifier output (speaker line): M3.5 screw terminal
Frequency Response	40 16,000 Hz, ± 3 dB (at 1/3 rated output)	40 16,000 Hz, ± 3 dB (at 1/3 rated output)
Distortion	Under 1% (at rated output, 1kHz)	Under 1% (at rated output, 1kHz)
S/N Ratio	Over 80 dB	Over 80 dB
Panel Indicator	Channel power indicator: 4 channels, dual colour LED Overheat indicator: Yellow LED	Channel power indicator: 4 channels, dual colour LED Overheat indicator: Yellow LED
Operating Temperature	0° ... +40°C	0° ... +40°C
Finish	Panel: Surface-treated steel plate, black, 30% gloss, paint	Panel: Surface-treated steel plate, black, 30% gloss, paint
Dimensions (W x H x D)	482 x 88.4 x 340.5 mm	482 x 88.4 x 340.5 mm
Weight	8.1 kg	9.5 kg
Accessory	Rack mounting screw x 4, Fiber washer x 4	-Rack mounting screw x 4, Fiber washer x 4

VX-2000 Series Emergency Remote Microphone



Features

- Special microphone for fireman's use
- For emergency broadcast and general purpose broadcast applications
- Push-button zone selection
- PC-programmable system software allows assigning of functions to the individual keys (each with 2 LED)
- Per 1 RM-200XF up to 10 extensions of RM-210
- Up to 4 Emergency microphones per 1 system
- CPU-switch for emergency broadcast to all zones even in case of a CPU error

- Automatic failure detection of emergency keys and in the signal path (control and audio signals) between microphone (including microphone element) and system manager

Options

- RM-210: Extension Unit
- WB-RM200: Wall-mounting bracket for

Specifications

RM-200XF

Power Source	24 V DC (operating range: 16 – 40 V DC)
Current Consumption	Under 200 mA (RM-200XF), 850 mA (with 10 RM-210s connected)
Audio Output	0 dBV, 600 Ohm, balanced
Hand-Held Microphone	Dynamic microphone, function switch (default: press-to-talk), microphone element fault detection
Frequency Response	200 – 15,000 Hz
S/N Ratio	Over 55 dB
Functions	Internal monitor speaker 200 mW/Volume control: microphone, monitor speaker
Number of Function Keys	5 (including hand-held microphone's switch), extendable up to 105 (with 10 RM-210s connected)
Key Extension	10 keys extension per RM-210, EXTENSION connector
Number of Connectable Units	4
Communication System	LONWORKS twisted pair free topology transceiver
Connection Cable and Connector	Category 5 STP cable, plug-in screw connector
Communication Distance	500 m (Free topology wiring)
Finish	ABS resin, bluish grey (PANTONE 538 or equivalent)
Dimensions (W x H x D)	200 x 215 x 82.5 mm (excluding the coiled cord)
Weight	1.2 kg

VX-2000 Series Remote Microphone



Features

- **RM-200X: System remote microphone**
- **For both emergency and general purpose broadcast**
- **Zone selection or all call**
- **PC-programmable system software permits desired functions to be assigned to individual function keys (equipped with 2 LED indicators)**
- **Up to 9 RM-210 Remote Microphone Extension units can be used with each RM-200X Remote Microphone**

- **Up to 8 in total of RM-200X and RM-200XF units can be connected within one system**
- **RM-210: Key extension unit**
- **10 additional keys**

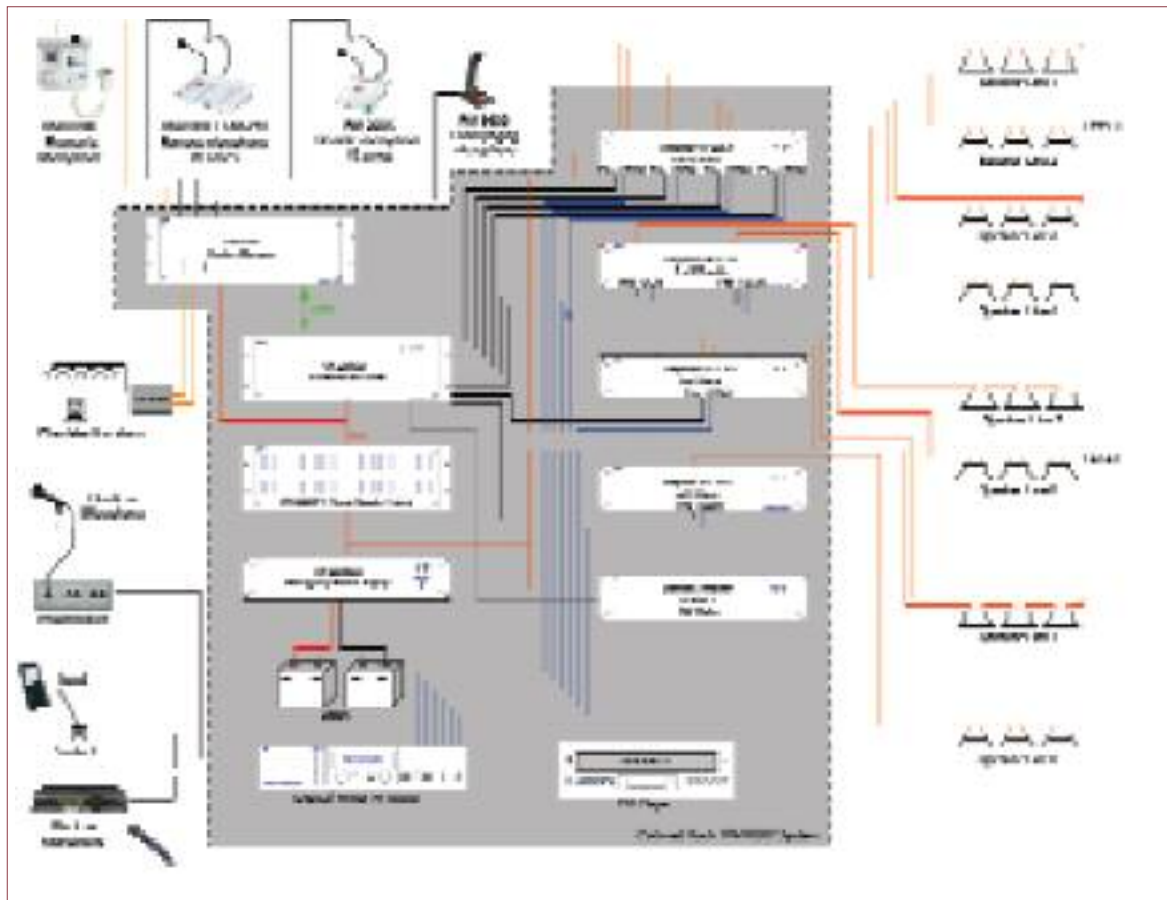
Options

- **WB-RM200: Wall mounting bracket for**
- **WH-4000A: Headset**

Specifications

	RM-200X	RM-210
Power Source	24 V DC (operating range: 16 – 40 V DC), supplied from RJ45 connector or power input jack (non-polarity type)	From RM-200X/XF
Current Consumption	Under 200 mA (RM-200X), 750 mA (with 9 RM-210s connected)	20 mA max. (in terms of DC power inputs of RM200X and RM-200XF)
Audio Output	0 dBV, 600 Ohm, balanced, RJ45 connector	-
External Microphone Input	-40 dB, 2.2 kΩ, unbalanced, mini jack, phantom powering	-
Distortion	Under 1 %	-
Frequency Response	100 Hz ... 20 kHz	-
S/N Ratio	Over 60 dB	-
Internal Monitor Speaker	200 mW	-
Volume Control	Microphone volume control, Monitor speaker volume control	-
Number of Function Keys	15, extendable up to 105 (with 9 RM-210s connected, 10 keys each)	10
Number of Connectable Units	8 (including RM-200XF)	-
Communication	System: LONWORKS twisted pair free topology transceiver, Distance: max. 500 m (Free topology wiring)	-
Connection Cable and Connector	Category 5 STP cable, RJ45 connector way of dedicated cable	Connection to RM-200M, RM-200X or RM-200XF by
Finish	ABS resin, bluish grey (PANTONE 538 or its equivalent)	ABS resin, bluish grey (PANTONE 538 or its equivalent)
Dimensions (W x H x D)	190 x 76.5 x 215 mm (gooseneck microphone excluded)	110 x 76.5 x 215 mm
Weight	850 g	350 g

VX-2000 Series System Configuration



Automatic Dual Broadcasting

When activated by a remote microphone or fire detection system link, simultaneous dual broadcasting is possible by using 2 voice announcement cards to allow different messages* to be available at the same time such as alert and evacuation messages.

***A maximum of 4 broadcasts are simultaneously possible.**

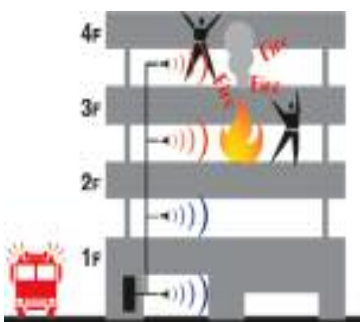
(2 EV-200M voice announcement boards installed in the VX-2000)

Red

In an emergency, the system automatically broadcasts one evacuation message to the buildings 3rd and 4th floors.

Blue

Along with the evacuation message, the system automatically broadcasts an alert message to the 1st and 2nd floors simultaneously.



VX-2000 Series Modules

VX-200XI (For VX-2000)



External Equipment

VX-200XR (For VX-2000)



Paging Station Connection

VX-200SZ (For VX-2000)



Impedance Monitoring

Features

- ▶ Audio Input Module with Control Input
- ▶ Control input terminals
- ▶ Low-cut and high-cut filters
- ▶ Gain controls
- ▶ Connects e.g. to paging microphone or other sound source equipment with both audio and control outputs
- ▶ Audio input sensitivity -70 dB or -20 dB by internal switch
- ▶ For input module slot of the VX-2000 frame

Features

- ▶ Remote Microphone Input Module for RM-200X Remote Microphone or RM-200XF Fireman's Microphone
- ▶ For VX-2000 frame's input module slot

Features

- ▶ Impedance Detection Module is an audio signal output module
- ▶ Speaker line impedance detection
- ▶ For VX-2000SF Surveillance Frame
- ▶ Detection of speaker line short circuits, open circuits by comparing impedance values, and ground fault

Specifications

	VX-200XI	VX-200XR	VX-200SZ	VX-200SZ-2 (s. next page)
Power Source	Supplied from VX-2000	Supplied from VX-2000	Supplied from VX-2000SF	Supplied from VX-2000SF
Current Consumption	Under 30 mA	Under 17 mA	Under 150 mA	Under 170 mA
Connectable Microphones	–	RM-200X and RM-200XF		
Input Sensitivity	MIC: -70 to -42.5 dBV LINE: -20 to $+7.5$ dBV MIC or LINE with selector switch	–		
Speaker Output			Plug-in screw connector	2 outputs (A, B), plug-in screw connector
Power Amplifier Input			Plug-in screw connector for connecting the VP-2064, VP-2122, VP-2241, VP-2421 power amplifier	
Fault Detection System			Short circuit, open circuit (impedance detection method), ground fault	
Control Input	No-voltage make contact, open voltage: 17 V DC, short circuit current: Under 5 mA	–		
Finish	Panel: Aluminium, hairline	Panel: Aluminium, hairline	Panel: Surface-treated steel plate	
Dimensions (W x H x D)	35 x 78 x 88 mm	35 x 78 x 88 mm	30.5 x 132.6 x 290.3 mm	
Weight	70 g	70 g	320 g	335 g
Applicable Model	VX-2000	VX-2000	VX-2000SF	VX-2000SF

VX-2000 Series Modules

VX-200SZ-2 (For VX-2000SF)



Dual circuit Impedance Monitoring

VX-200SP (For VX-2000SF)



Return Loop Monitoring

VX-200SP-2 (For VX-2000SF)



End of Line Monitoring

Features

- ▶ Impedance Detection Module
- ▶ Similar to the VX-200SZ's features
- ▶ 2 speaker outputs (A and B), broadcasts can be maintained even if 1 of the 2 outputs fails
- ▶ Failures indication by LED on the panel

Features

- ▶ Pilot Tone Detection Module
- ▶ Audio signal output module with speaker line pilot tone detection
- ▶ Detection of speaker line short circuits, open circuits by monitoring for the presence of a pilot signal, and ground fault

Features

- ▶ Consists of Pilot Tone Detection Module + End of Line Module
- ▶ Similar to the VX-200SP's features
- ▶ Connected to the end of the speaker line
- ▶ Eliminates the necessity of using the speaker line for line monitoring
- ▶ Shielded cable must be used for the speaker line

Specifications

VX-200SP

VX-200SP-2

Power Source	Supplied from VX-2000SF	Supplied from VX-2000SF
Current Consumption	Under 100 mA	Under 100 mA
Power Amplifier Link	RJ45 female connector for connecting the VP-2064, VP-2122, VP-2241, VP-2421 Power Amplifier.	
Line Monitor	Plug-in screw connector	Plug-in screw connector
External Attenuator	Plug-in screw connector, relay, no-voltage make contact output	Plug-in screw connector, relay, no-voltage make contact output
Control Output	Transfer type, withstand voltage: 30 V DC, 250 V AC, contact current: Under 7A	Transfer type, withstand voltage: 30 V DC, 250 V AC, contact current: Under 7A
Speaker Output	Plug-in screw connector	Plug-in screw connector
Power Amplifier Input	Plug-in screw connector for connecting the VP-2064, VP-2122, VP-2241, VP-2421 Power Amplifier	
Fault Detection System	Short circuit, open circuit (pilot tone detection method), ground fault	Short circuit, open circuit (pilot tone detection method), ground fault
Finish	Panel: Surface-treated steel plate	Panel: Surface-treated steel plate
Dimensions (W x H x D)	30.5 x 132.6 x 290.3 mm	30.5 x 132.6 x 290.3 mm
Weight	240 g	235 g
Applicable Model	VX-2000SF	VX-2000SF
End Of Line Unit (Accessory)		Power supplied from the VX-200SP-2, speaker line connection: Plug-in connector, weight: 22 g

VX-2000 Series Modules

VX-200SO (For VX-2000SF)



VX-200SI (For VX-2000SF)



VX-200SE (For VX-2000SF)



Features

- Control Output Module
- Increases the number of control outputs in the VX-2000 system
- 16 control outputs
- No-voltage 'make' contacts can be output to external equipment depending on the internal event
- Up to 128 control outputs per system

Features

- Control Input Module
- Increases the number of control inputs
- 16 control inputs
- Receives a contact signal from connected external equipment and controls the system
- Up to 128 control inputs per system

Features

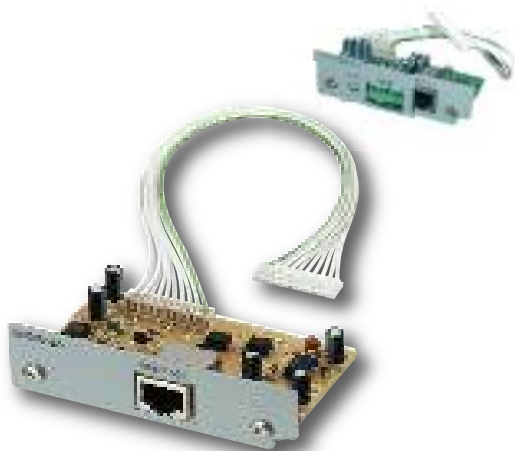
- Equalizer Card
- 9-band, 1-channel equalizer
- To be mounted on the circuit board of the VX-200SP Pilot Tone Detection module
- VX-200SP-2 Pilot Tone Detection module
- VX-200SZ Impedance Detection module
- VX-200SZ-2 Impedance Detection module
- Settings are performed by using the PC system software

Specifications

	VX-200SO	VX-200SI	VX-200SE
Power Source	Supplied from VX-2000SF	Supplied from VX-2000SF	Supplied from VX-200SZ, VX-200SP
Current Consumption	Under 150 mA	Under 100 mA	Under 50 mA
Equalizer Centre Frequency	–	–	80 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, 12 kHz
Gain Range	–	–	±12 dB, adjustable in 2 dB steps
Control Output	16 outputs, no-voltage make contact, contact capacity: 28 V DC, 1A, RJ45 connector	16 inputs, no-voltage make contact, open voltage: 24 V DC, short circuit current: under 10mA, RJ45 connector,	
Finish	Panel: Surface-treated steel plate	Panel: Surface-treated steel plate	
Dimensions (W x H x D)	30.5 x 132.6 x 290.3 mm	30.5 x 132.6 x 290.3 mm	110 x 90 x 21.4 mm
Weight	250 g	200 g	50 g
Applicable Model	VX-2000SF	VX-2000SF	VX-200SZ, VX-200SP

VX-2000 Series Modules

VP-200VX (For VP-2000 Amps)/VP-200VX-



EV-200M (For VX-2000)



Features

- ▶ **Power Amplifier Input Module**
- ▶ **For transmission of status and audio signal between amplifier and control module**
- ▶ **To be built into the VP-2064, VP-2122, VP-2241 or VP-2421 power amplifier**
- ▶ **VP-200VX-BGM features additional BGM input plus muting**

Features

- ▶ **Sound Repeater Module**
- ▶ **Up to 7 messages, 5 general messages/music, 1 alert and 1 evacuation (in compressed format it will allow 20 minutes) plus of message duration and can be recorded and played back**
- ▶ **Includes compact memory flash card**

Specifications

VP-200VX (For VP-200 Amps)

EV-200M (For VX-2000)

--Power Source	Supplied from VP-2064, VP-2122, VP-2241 or VP-2421	24 V DC, 0.2 A
Power Consumption	Under 30 mA	5 W
Output		0 dBV
Frequency Response		20 Hz ... 20 kHz (44.1 kHz sampling)
Power Amplifier Link	RJ45 connector for connecting the VX-200SP or VX-200SZ audio output module	
Distortion		Under 0.3% (44.1 kHz, recording method: Extremely high)
Playback Mode		Single source playback
No. of Playback Program		8 programs
Operating Temperature		0°C to +50°C
Finish	Panel: Surface-treated steel plate	
Dimensions (W x H x D)	88 x 25.8 x 73.2 mm	120 x 18.6 x 121 mm
Weight	50 g	110 g

VX-2000 Series Modules



Features

- Microphone input module
- Phantom power
- Balanced, low impedance
- Filter: High pass, low pass
- Connector:M-01F : XLR

Features

- U-03R Module Input (RCA connector)
- U-01F Module Aux input (XLR connector)
- U-01S Module Input (Phoenix connector)

Specifications

	M-01	U-03R
Input Impedance	200 Ohm, balanced	
Current Consumption	9 mA	Under 8 mA
Sensitivity	-60 dBv	100 - 3,600 mV (adjustable)
Frequency range	25 Hz ... 20 kHz	20 Hz - 20 kHz
Finish	Front: Steel plate	Front: Steel plate
Dimensions (W x H x D)	35 x 78 x 88 mm	35 x 78 x 88 mm
Weight	110 g	50g
Applicable Model	VX-2000	VX-2000



SX-2000 Series

Network Enabled for Extended System Installations



Certificate No : 1134-CPD-102

SX-2000 - Description

The SX-2000 is a new scalable system for configuring versatile and highly effective PA systems. The system features new matrixing capabilities, so that a single system can have its components distributed in different locations under centralized control. Ideal for large scale installations ranging from multiple buildings to local systems, the versatile SX-2000 Series is particularly suitable for using in airports and railway stations, factories, shopping malls and large offices. The system's versatility such as dual power source and redundancy for fail-safe operation makes it a reliable solution for any specific installation without long lead times and the expense of custom systems.

SX-2000 System Configuration

The basic system comprises one SX-2100AI Audio Input Unit, one SX-2000AO or SX-2100 Audio Output Unit and the SX-2000SM System Manager. It enables from 2 inputs/8 outputs right up to 64 inputs and 256 outputs, with further expansion to 1,416 control inputs/outputs if needed. The SX-2000 Series makes it simple to control an expanded system by use of networking with commercial switching hub and cables, IP Intercom Network audio adaptor(s) can also be used. It features functions such as feedback suppressor, compressor/ auto-leveler, equalizer/filters, and auto mixing (with feedback ducker) to ensure high sound quality. The SX-2100AI modular construction simplifies system configuration as only plug-in modules have to be used. Therefore it allows flexibility of use with a wide range of input devices such as CD player, FM etc. to suit a particular application.

Fail-Safe Operation

The system is featuring a self-diagnosis to continuously monitor the status as well as speaker lines and connections. It generates alerts and email notifications to the system administrator along with a failure log. Power failure protection is given by two power supply channels plus a battery back-up keeps the system operational without requiring an UPS. An additional analog backup line from the microphone to the amplifier allows simultaneous broadcasting even during a breakdown of the system's digital functions. The SX-2000 system can be password-protected and key locked at external devices.

Operational Simplicity and Low Maintenance

Control over the entire system is software-driven. Operation tasks are performed easily through menu and function buttons assisted by an LCD and status LEDs. Operation and maintenance tasks are easier compared to conventional systems with parameter settings saved to a compact flash card.



SX-2000 Series System Management



Features

- ▶ Matrix system in combination with an audio input unit, audio output unit, and remote microphone
- ▶ Audio signal routing and priority control
- ▶ 8 control inputs, 8 control outputs
- ▶ Failure status outputs, failure data inputs/switches
- ▶ Access indicators, mode indicators and failure indicators enabling a wide range of controls and status monitoring
- ▶ Control can be performed by way of a CF card inserted into the SX-2000SM unit
- ▶ Operations can be recorded and their contents stored on a CF card as an operation log
- ▶ Two power inputs for creation of a dual-redundant power system

- ▶ Automatic voice announcement for emergency purpose available
- ▶ System settings via Dual LAN connection

Options

- ▶ SX-2000AO Audio Output Unit
- ▶ SX-2100AI Audio Input Unit
- ▶ SX-2100AO Audio Output Unit

Specifications *SX-2000SM*

Power Source	24 V DC; 2 power inputs
Current Consumption	Under 0.8 A
SX Link Network I/F	2 100BASE-TX circuits
Matrix System Specification	Bus: 16; audio input: Max. 64 ch, audio output: Max. 256 zones. Contact input: Max. 1,416, contact output: Max. 1,416. Priority control: 256 steps. Event log: Max. 10,000 events
Matrix System Configuration	Connectable SX-2100AI No.: Max. 8 units. Connectable SX-2100AO No.: Max. 32 units. Connectable RM-200S No.: Max. 64 units (up to 4 RM-200S per SX-2000AI) Connection cable / device shielded category 5 twisted pair cable for LAN (CAT5-STP)
LAN	Network I/F 1 10 BASE-T/100 BASE-TX circuit. Network Protocol TCP/IP. Connection Cable Shielded Category 5 twisted pair cable for LAN (CAT5-STP)
Analogy Link	Input/output connector output: 2. Connection cable shielded category 5 twisted pair cable for LAN (CAT5-STP)
Failure Data	3 inputs (ACK/RESET/LAMP TEST) and 4 outputs (CPU FAULT/GENERAL FAULT/CPU OFF/BUZZER)
Memory Card	Insertion slot: 1 (supplied CF card (128MB))
Control	8 Control outputs, 8 control inputs
Finish	Panel: Aluminum, black, alumite, case: Surface-treated steel plate
Dimensions (W x H x D)	482 x 44 x 333 mm
Weight	3.8 kg

SX-2000 Series Audio Input Unit



Features

- Modular audio input
- 2 to 8 inputs per unit
- Multiple units can be decentralized in a whole system
- Audio signals are transmitted digitally to the audio output unit
- Analogy audio output function (1 channel)
Enables simultaneous all-zone calls for use in emergency situations
- Audio input levels (post-fader levels) are indicated on the level meters provided for each input channel
- Volumes can be adjusted for each channel using the volume controls on the front panel or the SX-2000 software

- Volume controls can be locked using the SX-2000 software
- Input channels can be monitored using the internal speaker
- 2 power inputs for redundant power system to support a dual-redundant power supply system

Options

- SX-200RM: Remote Microphone Interface Module
- RM-200SF: Remote Microphone
- RM-200SA: Remote Microphone
- RM-210: Extension Unit
- D-921E: Mic/Line Input Module
- D-921F: Mic/Line Input Module
- D-922E: Mic/Line Input Module
- D-922F: Mic/Line Input Module
- D-936R: Stereo Select Input Module

Specifications VX-2100AI

Power Source	24 V DC (2 independent power inputs)
Current Consumption	Under 1.5 A
Audio Input	8 inputs, for up to 4 modules
Audio Input Characteristics	Sampling frequency: 48 kHz
Analog Link	
Input / Output Connector	1 input, 1 output,
Connection Cable / Device	CAT5-STP, max. cable length 800m, 2 x RJ45 connector
SX Link Network I/F	2 x 100 Base TX
Connection Cable / Device	CAT5-STP, maximum cable length 100m to hub
Operating Temperature	0° C to +40° C
Finish	Panel: Aluminum, black, alumite, case: Surface-treated steel plate
Dimensions (W x H x D)	482 x 88.4 x 349 mm
Weight	7 kg

SX-2000 Series System Remote Microphone and Modules for SX-2000AI for SX-2100AI



RM-200SA / RM-210

RM-200SF

RM-200SA Remote Microphone

The RM-200SA is a remote microphone designed for TOA's Matrix System. It is equipped with: 13 function switches (which can be programmed to select individual zones or zone groups), a covered switch, and corresponding indicators.

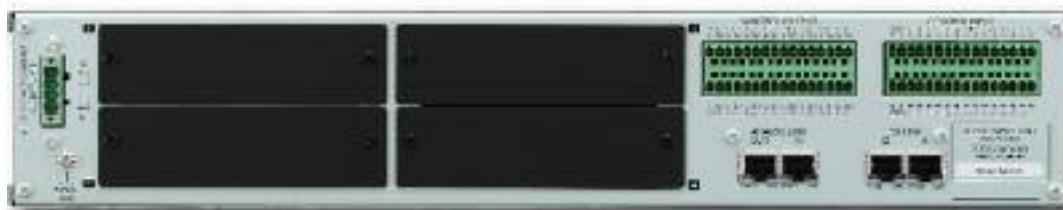
RM-210 Remote Microphone Extension

The RM-210 is an extension unit for increasing the number of function keys of RM-200S, Remote Microphones.

RM-200SF

RM-200SF is a Fireman's Microphone of the matrix system. It is equipped with an Emergency key, permitting it to be used as a remote microphone for

SX-2000 Series System Remote Microphone and Modules for SX-2100AI



SX-2100AI (rear)



SX-200RM

Remote Microphone Interface Module

The SX-200RM is a dedicated remote microphone module for the SX-2000 Series audio input unit and can be used to connect two remote microphones. Input sensitivity can be adjusted.



D-921E

Mic/Line Input Module (24 bits monaural type)

The D-921E is a dedicated 2-channel microphone/line input module designed for use with the SX-2100AI and equipped with removable terminal block type connectors.



D-921F

Mic/Line Input Module (24 bits monaural type)

The D-921F is a dedicated 2-channel microphone/line input module designed for use with the SX-2100AI and equipped with XLR connectors.



D-922E

Mic/Line Input Module (20 bits monaural type)

The D-922E is a dedicated 2-channel microphone/line input module designed for use with the SX-2100AI and equipped with removable terminal block type connectors.



D-922F

Mic/Line Input Module (20 bits monaural type)

The D-922F is a dedicated 2-channel microphone/line input module designed for use with the SX-2100AI and equipped with XLR connectors.



D-936R

Stereo Select Input Module

The D-936R is a dedicated 4 stereo input module designed for use with the SX-2000AI and equipped with standard RCA pin jacks.

SX-2000 Series Audio Output Unit SX-2000AO



SX-2000AO

Features

- ▶ Audio output unit
- ▶ Units can be operated in a decentralized system
- ▶ 8 audio outputs and 2 inputs, can be mixed
- ▶ 8 control inputs and 8 control outputs
- ▶ Receives audio signals from the audio input unit via digital transmission
- ▶ Analog audio input function (1 channel) enables simultaneous all-zone calls for use in emergency situations
- ▶ Audio output levels (post-fader levels) indicated on the level meters separate for each output channel
- ▶ Volumes adjustable for each channel by front volume controls or the SX-2000 software
- ▶ The volume controls can be locked by SX-2000 software
- ▶ Any output channel can be monitored using the internal speaker
- ▶ Emergency audio input and 24V emergency cut-off input
- ▶ 2 power inputs for dual-redundant power supply system
- ▶ Automatic control of stand-by amplifier

Options

- ▶ DA-250DH Digital 2 Channel Amplifier
- ▶ DA-250FH Digital 4 Channel Amplifier
- ▶ DA-550FH Digital 4 Channel Amplifier
- ▶ VX-2000DS: Emergency Power Supply
- ▶ VX-200PS: Power Supply Unit
- ▶ VX-2000PF: Power Supply Frame

Specifications SX-2000AO

Power Source	24 V DC (operating range: 20 – 40V DC from VX-200PS)
Current Consumption	Under 0.79 A
Audio Output	8 outputs, 0 dB, load: 600 Ohm or more
Audio Output Characteristics	Frequency Response: 20 Hz ... 20 kHz, sampling frequency 48 kHz, D/A converter 24 bit
Control Input / Control Output	8 inputs / 8 outputs, removable terminal blocks (6 pins)
Emergency Line Input	Emergency signals switched and sent to input 1 (H,C,E) by relay, removable terminal blocks (3 pins)
Emergency-Cutoff 24 V Input	1 input, input current < 5 mA, removable terminal block (2 pins)
Analogy Link	1 input, 1 output, connection cable CAT5-STP, max. cable length 800m, 2 x RJ45 connector
SX Link	2 x 100 Base TX with RJ 45 connector. Connection cable CAT5-STP, maximum cable length of 100m to hub
Operating Temperature	0° C to +40° C
Finish	Panel: Aluminum, black, alumite, case: Surface-treated steel plate
Dimensions (W x H x D)	482 x 88.4 x 349 mm
Weight	6.2 kg

SX-2000 Series Audio Output Unit SX-2100AO



SX-2100AO

Features

- Multiple units can be decentralised in a system
- 8 audio outputs
- 8 control inputs and 8 control outputs
- 1 SX-2000CI Control Input Unit and 1 SX-2000CO Control Output Unit each can be cascaded
- 2 local audio inputs with control inputs are provided for the audio inputs
- Emergency switch over to a standby amplifier
- Analogy transmission path (1 channel) enables all-zone calls for use in emergency situations
- 2 channels of link connection terminals for connecting to two VX-2000DS
- 2 inputs can be mixed and output.
- 2 power inputs for redundant power supply

- Level meters for each output channel allow monitoring of audio output levels
- Output volumes adjustable on the front panel
- Any output channel can be monitored using the internal speaker
- Key lock function

Options

- VP-2064: 60 W by 4 channels amplifier
- VP-2122: 120 W by 2 channels amplifier
- VP-2241: 240 W by 1 channel amplifier
- VP-2421: 420 W by 1 channel amplifier
- VX-2000DS: Emergency Power Supply
- VX-200PS: Power Supply Unit
- VX-2000PF: Power Supply Frame

Specifications SX-2100AO

Power Source	24 V DC (2 power inputs)
Current Consumption	Under 1.2 A
Audio Output	8 outputs, 0 dB, load: 600 Ohm or more
Audio Output Characteristics	Frequency Response: 20 Hz ... 20 kHz, sampling frequency 48 kHz, D/A converter 24 bit
CI/CO Link	SX-2000CI / SX-2000CO: 1 interface, connection cable CAT5-STP, RJ45 connector
Local Audio Input	2 audio inputs, 0 dB, 10 kOhm, electronically balanced, RJ45 connector Frequency Response: 20 Hz ... 20 kHz, sampling frequency 48 kHz, D/A converter 24 bit 2 Control inputs Connection cable CAT5-STP,
DS Link	VX-2000DS: 2 interfaces, connection cable CAT5-STP, RJ45 connector
Analogy Link	1 input, 1 output, connection cable CAT5-STP, RJ45 connector
SX Link	2 x 100 Base TX with RJ 45 connector. Connection cable CAT5-STP
Operating Temperature	0° C to +40° C
Finish	Panel: Aluminum, black, alumite, case: Surface-treated steel plate
Dimensions (W x H x D)	482 x 88.4 x 349 mm
Weight	7.1 kg

SX-2000 Series Control Input Unit SX-2000CI



SX-2000CI

Features

- ▀ Decentralised installation possible
- ▀ 32 control inputs
- ▀ Control input line failure detection
- ▀ Front panel LED for monitoring the line status
- ▀ Supply of stabilized 24 V DC
- ▀ 2 independent power inputs
- ▀ RJ45 connectors

Options

- ▀ SX-2100AO Audio Output Unit
- ▀ SX-2000AO Audio Output Unit

Applications

- ▀ Airports, Exhibition Centres, Event Centres, Hotels

Specifications SX-2000CI

Power Source	24 V DC, 2 independent Inputs
Current Consumption	Under 0.55 A (when operated on 24 V DC)
Control Inputs	32 inputs
CI/CO Link	Input: 1 input, output: 1 output, input/output connector : RJ45 connector Connection cable: Shielded category 5 twisted pair cable (CAT5-STP)
Maximum Cable Distance	800 m
Finish	Panel: Aluminum black, alumite, Case: Steel plate
Dimensions (W x H x D)	482 x 44 x 331.5 mm
Weight	3.6 kg

SX-2000 Series Control Output Unit SX-2000CO



SX-2000CO

Features

- ▀ Decentralised installation possible
- ▀ 32 control outputs
- ▀ Control input line failure detection
- ▀ Front panel LED for monitoring the line status
- ▀ Supply of stabilized 24 V DC
- ▀ 2 independent power inputs
- ▀ RJ45 connectors

Options

- ▀ SX-2100AO Audio Output Unit

Applications

- ▀ Airports, Exhibition Centres, Event Centres, Hotels

Specifications SX-2000CO

Power Source	24 V DC, 2 independent Inputs
Current Consumption	Under 0.29A (when operated on 24V DC)
Control Outputs	32 outputs
CI/CO Link	Input: 1 input, output: 1 output, input/output connector : RJ45 connector Connection cable: Shielded category 5 twisted pair cable (CAT5-STP)
Maximum Cable Distance	800 m
Finish	Panel: Aluminum black, alumite, Case: Steel plate
Dimensions (W x H x D)	482 x 44 x 331.5 mm
Weight	3.6 kg

SX-2000 Series Remote Microphone Interface Module



SX-200RM

Features

- ▶ Module for mounting in the SX-2100AI
- ▶ 2 inputs
- ▶ RJ45 connectors
- ▶ Input sensitivity separately adjustable

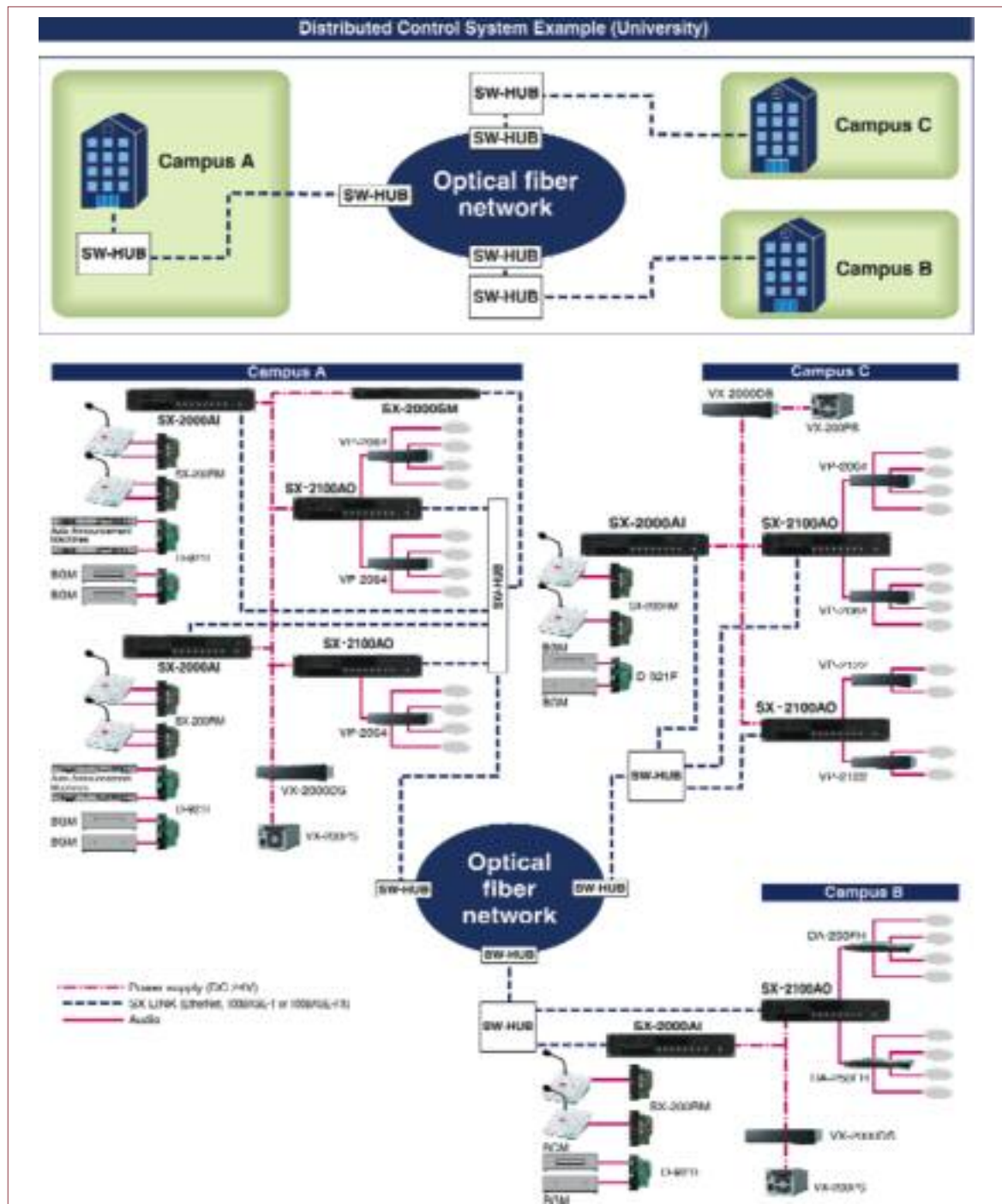
Options

- ▶ SX-2100 AI: Audio Input Unit

Specifications *SX-200RM*

Power Source	Supplied from SX-2000AI
Input	Monaural x 2, -10 dB (0 dB=0.775V), 10 Ohm, RCA pin jack
A/D Converter	24 bits
Frequency Response	20 - 20 000 Hz, ± 1 dB (+4 dB input, 0 dB=0.775V)
Sampling Frequency	48 kHz
Dynamic Range	> 100 dB (IHF-A weighted)
Total Harmonic Distortion	< 0.05 % (+4 dB input, 0 dB=0.775V)
Finish	Panel: Pre-coated steel plate, black, 30% gloss
Dimensions (W x H x D)	35 x 119.5 x 178.4 mm
Weight	180 g
Applicable Model	SX-2100AI

SX-2000 Series System Configuration



SX-2000 Series Emergency Remote Microphone



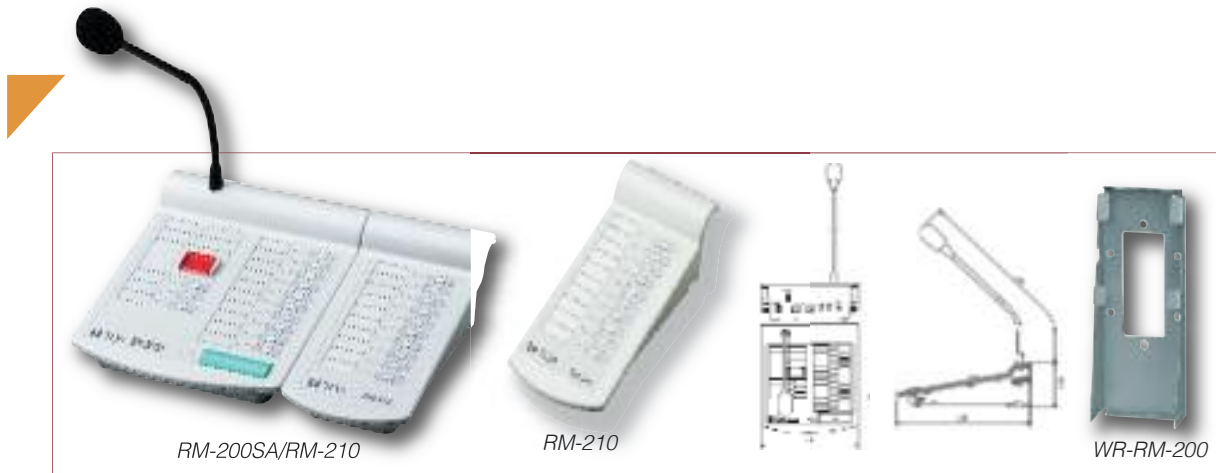
Features

- Exclusively for emergency broadcasts made by firemen to evacuate
- For activation of emergency mode, start and stop automatic broadcasts of emergency announcements, reset emergency signals, and live microphone announcements
- CPU OFF switch allows all-zone calls (simultaneous attenuator-free global calls).
- No general broadcasts can be made.
- RM-210: Key extension unit
- 10 additional keys

Specifications *RM-200SF*

Power Requirement	24 V DC (Operating range: 14 – 28 V DC)
Current Consumption	100 mA (up to 550 mA with 3x RM-320F)
Distortion	Under 1%
Frequency Response	200 – 15,000 Hz
Signal-to-Noise Ratio	Over 55 dB
Audio Output	0 dBV, 600 Ohm, balanced
Microphone	Unidirectional dynamic microphone AGC
Volume Control	Microphone, buzzer
Operation key	Emergency key, Evacuate key, Alert key, Emergency reset key, CPU switch, Reset switch
Key Extension	10 keys extension per RM-210, extension connector
Connection Cable	Shielded CPEF cable or Category 5 STP cable, M3 screw terminal
Finish	ABS resin, bluish gray
Dimensions (W x H x D)	200 x 215 x 95 mm
Weight	1.48 kg

SX-2000 Series Remote Microphone



Features

- Elegant design
- 13 function switches
- Zone, group, all-call paging, and starting pre-recorded messages
- Emergency sequence can be started with the alarm button which is covered by a hinged lid
- Indication of system failure, line failure, busy zones etc.
- Extraordinary clarity and freedom from distortion by built-in compression circuit

- Up to 64 remote microphones can be connected
- Covered switch prevents against accidental use
- RM-210: Allows extended zone selection
- Colour: Bluish grey

Options

- WH-4000A: Headset
- WB-RM200: Wall mounting bracket

Specifications

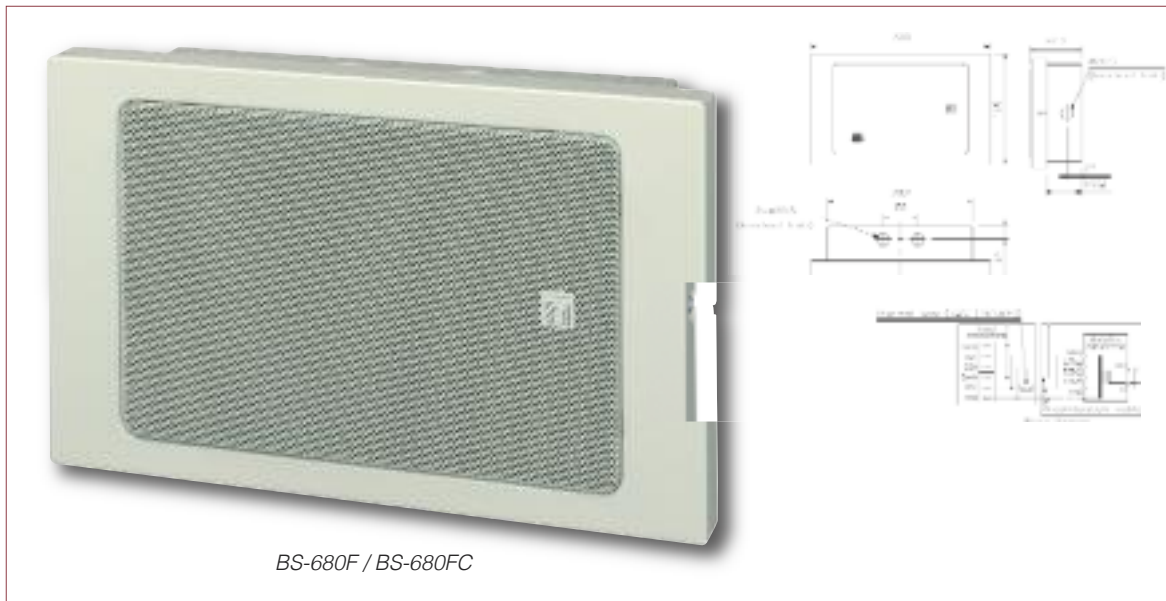
	RM-200SA	RM-210
Power Requirement	24 V DC (Operating range: 15 – 40 V DC)	From RM-200X/M/XF
Current Consumption	290 mA maximum	20 mA max. (in terms of DC power inputs of RM-200X and RM-200XF)
Distortion	Under 1%	-
Frequency Response	100 – 20,000 Hz	-
Signal-to-Noise Ratio	Over 60 dB	-
Audio Output	0 dBV, 600 Ohm, balanced	-
Microphone	Uni directional electret condenser microphone	-
Volume Control	Microphone, buzzer, monitor speaker	-
Emergency Broadcast	Activation of emergency broadcast (pre-recorded announcement or live microphone announcement) by emergency broadcast switch	-
Voice Message Control	Activation of 5 messages	-
Key Extension	10 keys extension per RM-210, extension connector	10
Connection Cable and Connector	Category 5 STP cable, RJ45 connector	Connection to RM-200M, RM-200X or RM-200XF by way of dedicated cable
Finish	ABS resin, bluish grey	ABS resin, bluish grey (PANTONE 538 or its equivalent)
Dimensions (W x H x D)	190 x 76.5 x 215 mm (Gooseneck microphone excluded)	110 x 76.5 x 215 mm
Weight	880 g	350 g



Wall Mounted Ceiling Speakers BS-680F/680FC Metal Cabinet Speaker



Certificate No : 1438/CPD/0178



BS-680F / BS-680FC

Features

- ▶ Surface or flush-mounting
- ▶ 9 W continuous program
- ▶ High sound quality & Sound pressure
- ▶ Colour: off-white (RAL 9010 or equivalent)
- ▶ Bridge wiring possible
- ▶ Two ceramic screw terminal blocks and thermal fuse (BS-680FC)
- ▶ Enclosure metal

Applications

- ▶ Voice Evacuation System Speaker according to EN 54-24
- ▶ BS5839 part 8 ISO 7240-24 certified BS-680FC is EN54-24 certified and is therefore legalised for the use in conjunction with fire detection systems

Certificate No : 1438/CPD/0178

Notified Body : CNBOP-1438

Specifications

	BS-680F	BS-680FC
Speaker Element	16 cm double cone type	16 cm double cone type
Input	6 Watts rated input (100 V Line)	6 Watts rated input (100 V Line)
Tappings 100 V	6 W / 3 W / 1.5 W / 0.8 W	6 W / 3 W / 1.5 W / 0.8 W
Frequency Response	150 Hz ... 20 kHz	150 Hz ... 20 kHz
Sensitivity	94 dB (1 W / 1 m)	94 dB (1 W / 1 m)
Connector	Push-in connector (bridging terminal)	Ceramic screw terminals, thermal fuse
Dimensions (W x H x D)	310 x 190 x 87.2 mm	310 x 190 x 87.2 mm
Weight	3 kg	3 kg
Protection		IP32c
Certificates	–	EN 54-24: 1438-CPD-0178, Type A, complies with BS5839-8

BS-1015BSB/BSW

2 Way Design Speaker (15W)



Certificate No : 0359-CPD-0104



BS-1015BSB



BS-1015BSW

Features

- 2-way hi-fi speaker
- 22.5 W continous program
- Splash proof

Applications

- Voice Evacuation Systems according to EN 54-24
- BS-5839 part 8 ISO 7240-24 certified
- BS-1015BSB/BSW is EN 54-24 certified and is therefore legalised for use in conjunction with fire detection systems.

Certificate No : 0359-CPD-0104

Notified Body : Intertek

Specifications

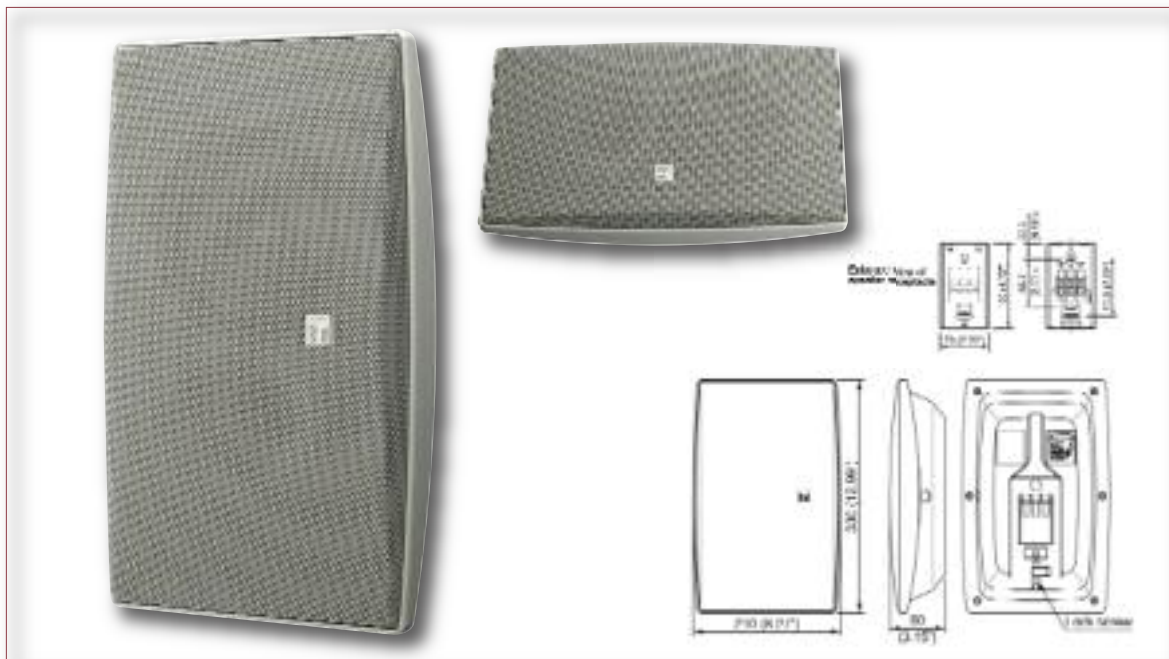
BS-1015BSB/BSW

Input	15 Watt rated input (100 V Line)
Rated Impedance (100 V)	670 Ω (15 W), 1 k Ω (10 W) and 2 k Ω (5 W)
Sensitivity	90dB (1 W / 1 m, 500 Hz -5 kHz, pink noise)
Frequency Response	80 - 20,000 Hz
Coverage Angle	Horizontal: 220° (500 Hz), 150° (1 kHz), 120° (2 kHz), 90° (4 kHz). Vertical: 330° (500 Hz), 160° (1 kHz), 120° (2 kHz), 70° (4 kHz)
Enviromental Type	A (indoor applications)
Speaker Component	Low frequency: 12 cm cone-type. High frequency: 2.5 cm balanced dome tweeter
Enclosure Type	2 -way bass-reflex system
Operating Temperature	-10 °C to +50 °C
Speaker Mounting Method	Wall-mount
Cable Gland	Size: PG 13.5. One cable gland is factory-installed. For bridge connection, one supplied cable gland can be added
Connection	Ceramic screw terminals, thermal fuse. Can be bridged
Finish	ABS resin; grill + Bracket ; steel. BS-1015BSB: Black (RAL 9011) : BS-1015BSW : White (RAL9010)
Dimensions	196 (W) x 290 (H) x 186 mm (D) without bracket
Weight	2.4 kg without bracket
Accessories	Bracket x 1, Bracket mounting screws x 2, Rear cover x 1
Protection	IP21c
Certificates	EN54-24: 0359-CPD-0104 Type A. ISO 7240-24, according BS-5839-8

BS-1034EN 2 Way Design Speaker (10W)



Certificate No : 0359-CPD-0102



Features

- Easy and quick installation
- Beautiful design due to the Golden Ratio (1: 1.618)
- Innovative speaker design
- Low profile

Applications

- Voice Evacuation Systems according to EN 54-24
 - Ideally suited for BGM and announcements
- BS-1034EN is EN 54-24 certified and is therefore legalised for use in conjunction with fire detection systems.**

Certificate No : 0359-CPD-0102

Notified Body : Intertek

Specifications

BS-1034EN

input	10 Watt rated input (100 V Line)
Rated Impedance (100 V)	1 k Ω (10 W), 2 k Ω (5 W), 3.3 k Ω (3 W), and 10 k Ω (1 W)
Sensitivity	89dB (1 W / 1 m, 500 Hz -5 kHz, pink noise)
Frequency Response	120 - 20,000 Hz
Coverage Angle	Horizontal: 360° (500 Hz), 150° (1 kHz), 115° (2 kHz), 100° (4 kHz). Vertical: 300° (500 Hz), 130° (1 kHz), 160° (2 kHz), 80° (4 kHz)
Speaker Component	Low frequency: 12 cm cone-type. High frequency: 2.5 cm balanced dome tweeter
Enclosure Type	2 -way system
Operating Temperature	-10 °C to +50 °C
Speaker Mounting Method	Wall-mount
Connection	Ceramic screw terminals, thermal fuse. Can be bridged. Mounting bracket includes screw terminal
Finish	Enclosure: HIPS resin (fire resistant grade UL94 V-0), off-white (RAL 9010 or equivalent colour). Grille: surface treated steel plate, off white (RAL 9010 or equivalent colour), paint
Dimensions	210 (W) x 330 (H) x 80 mm (D) without bracket
Weight	1.4 kg
Accessories	Speaker receptacle x 1, Wall mounting screws x 2, Terminal block with thermal fuse x 1
Protection	IP21c
Certificates	EN54-24: 0359-CPD-0102 Type A (indoor applications). ISO 7240-24

BS-678BSB/BSW 2 Way Design Speaker (6W)



Certificate No : 0359-CPD-0103



BS-678BSW



BS-678BSB

Features

- Stylish, compact and unobtrusive design
- Quick and easy installation
- Cost effective
- Horizontal and Vertical mounting
- Suitable for background music

Applications

- Voice Evacuation Systems according to EN 54-24
- BS-678BSB/SW is EN 54-24 certified and is therefore legalised for use in conjunction with fire detection systems.

Certificate No : 0359-CPD-0103

Notified Body : Intertek

Specifications

BS-678BSB/SW

Speaker	16 cm cone speaker
Input	6 Watt rated input (100 V Line)
Tappings 100 V	6 W, 3 W, 1.5 W, 0.8 W
Sensitivity	94dB (1 W / 1 m, 500 Hz -5 kHz)
Frequency Response	150 - 18,000 Hz
Input Terminal	Ceramic screw terminals, thermal fuse
Finish	Cabinet wood, frame: HIPS resin, grille: steel, BS-678BSW white (RAL 9010) BS-678BSB black (RAL9011)
Dimensions	250 x 190 x 110 mm
Weight	1.7 kg
Protection	IP21c
Certificates	EN 54-24: 0359-CPD-0103 Type A. ISO 7240-24, according BS-5839-8

Ceiling Speakers - PC-1867F/FC Firedome Ceiling Mount Speaker



Certificate No : 1438/CPD/0178



Features

- ▶ Ceiling speakers
- ▶ 9 W (continuous program)
- ▶ Fire dome made of steel
- ▶ Easy installation with spring catches
- ▶ Baffle, frame, net: aluminum steel
- ▶ Colour: off-white (RALF 9010)
- ▶ 12 cm speaker

Applications

- ▶ Voice Evacuation Systems according to EN 54-24
- ▶ BS-5839 part 8
- ▶ PC-1867FC is EN 54-24 certified and is therefore legalised for use in conjunction with fire detection systems.

Certificate No : 1438/CPD/0183

Notified Body : CNBOP-1438

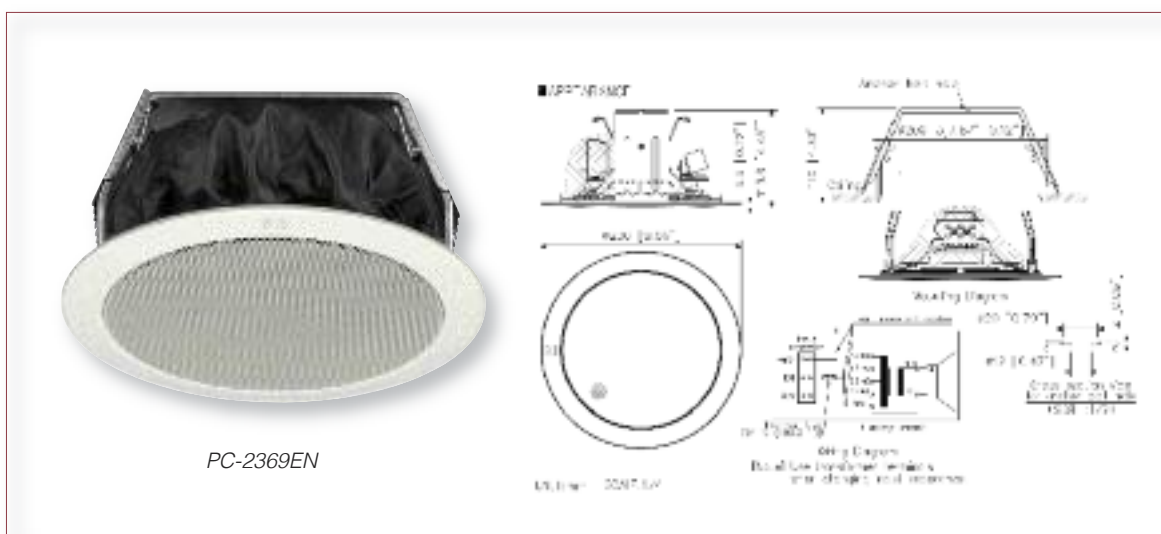
Specifications

	PC-1867F	PC-1867FC
Dynamic Cone Driver	12 cm	12 cm
Input	6 Watt rated input (100 V Line)	6 Watt rated input (100 V Line)
Tappings 100 V	6 W / 3 W / 1.5 W / 0.8 W	6 W / 3 W / 1.5 W / 0.8 W
Frequency Response	100 Hz ... 16 kHz	100 Hz ... 16 kHz
Sensitivity	90dB (1 W / 1 m, 500 Hz -5 kHz)	90dB (1 W / 1 m, 500 Hz -5 kHz)
SPL at Rated Input (1 m)	98 dB	98 dB
Dimension of Baffle	ø 180 mm	ø 180 mm
Mounting Depth	110 mm	110 mm
Ceiling Hole Diameter	156 mm	156 mm
Weight	1.4 kg	1.4 kg
Protection	IP32c	IP32c
Certificates	–	EN 54-24: 1438/CPD/0178 Type A. According BS-5839-8

Ceiling Speaker - PC-2369EN



Certificate No : 0359-CPD-0101



Features

- ▶ 9 W (continuous program)
- ▶ Easy installation with spring catches
- ▶ Baffle, frame, net: aluminum steel
- ▶ Colour: off-white (RAL 9010)
- ▶ 16 cm speaker
- ▶ For mounting in 110 mm depth
- ▶ Ceramic screw terminal block and thermal fuse

Applications

- ▶ Voice Evacuation Systems according to EN 54-24
- ▶ PC-2369EN is EN 54-24 certified and is therefore legalised for use in conjunction with fire detection systems.

Certificate No : 0359-CPD-0101

Notified Body : Intertek

Specifications

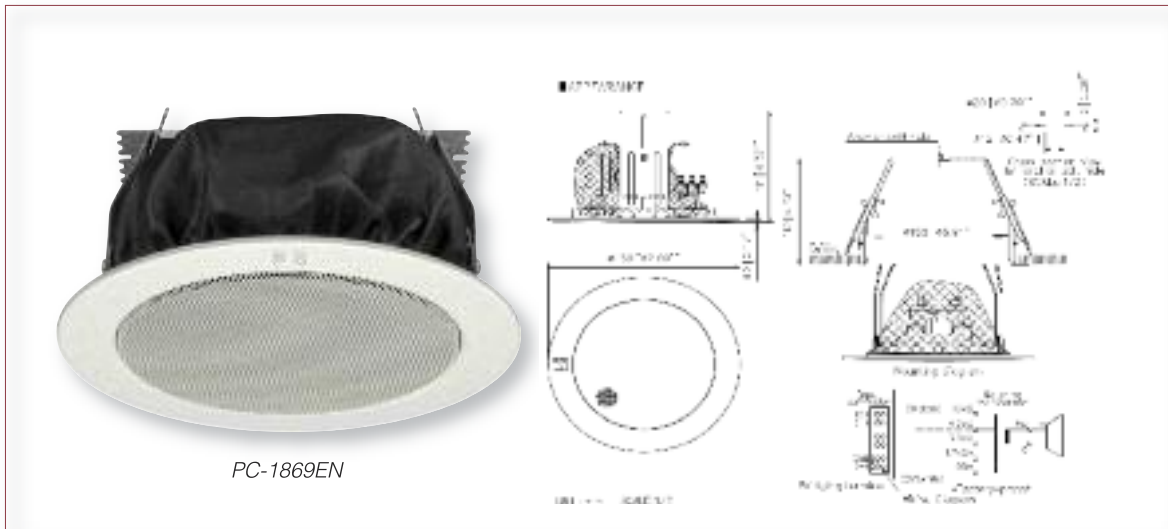
PC-2369EN

Input	6 Watt rated input (100 V Line)
Rated Impedance (100 V)	1.7 kΩ (6 W), 3.3 kΩ (3 W), 6.7 kΩ (1.5 W) and 13 kΩ (0.8 W)
Sensitivity	94dB (1 W / 1 m, 500 Hz -5 kHz, pink noise)
Frequency Response	70 - 18,000 Hz
Coverage Angle	Horizontal and Vertical: 160° (500 Hz), 170° (1 kHz), 160° (2 kHz), 60° (4 kHz).
Speaker Component	16 cm double cone-type
Operating Temperature	-10 °C to +50 °C
Speaker Mounting Method	Spring clamp
Connection	Ceramic screw terminals, thermal fuse. Can be bridged
Finish	Baffle: Steel plate, off-white (RAL 9010 or equivalent colour), paint. Grille: Surface - treated steel plate net, off-white (RAL 9010 or equivalent colour, paint)
Dimensions	ø 230 x 113.8 (D) mm
Weight	1.1kg
Protection	IP 21c
Certificates	EN54 -24: 0359-CPD-0101, Type A (indoor applications), ISO 7240-24

Ceiling Speaker - PC-1869EN



Certificate No : 0359-CPD-0100



PC-1869EN

Features

- ▶ Flat front panel
- ▶ Quick and easy installation
- ▶ Front grille: white (RAL 9010)
- ▶ 12 cm speaker

Applications

- ▶ Voice Evacuation Systems according to EN 54-24
- ▶ PC-1869 is EN 54-24 certified and is therefore legalised for use in conjunction with fire detection systems.

Certificate No : 0359-CPD-0100

Notified Body : Intertek

Specifications

PC-1869EN

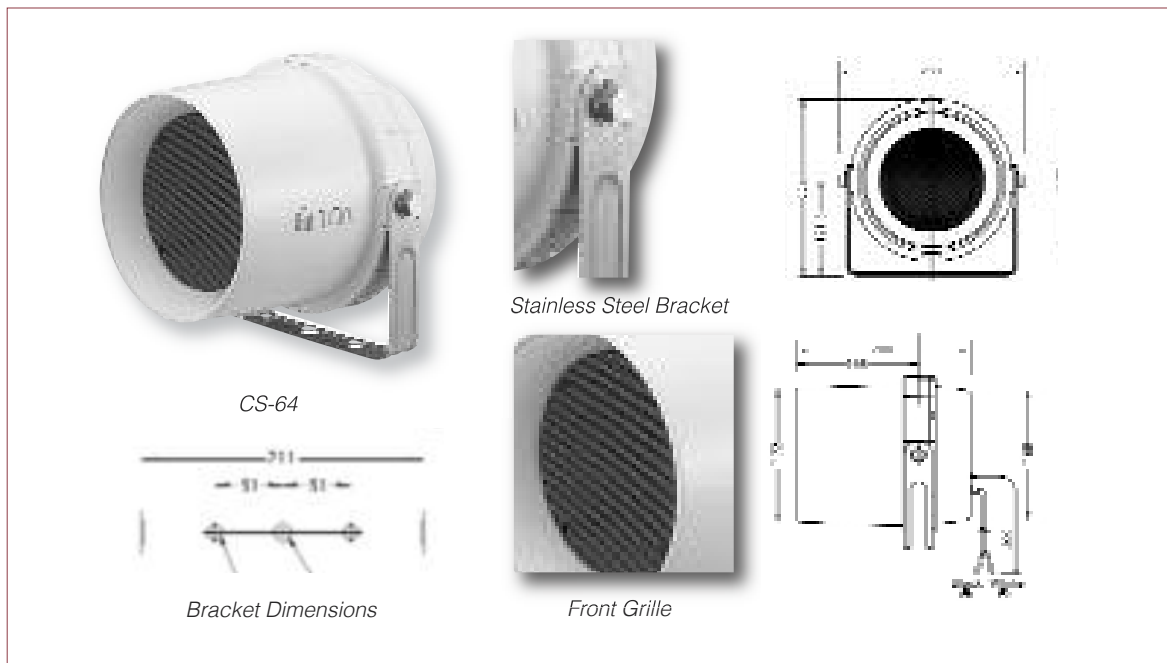
Speaker	12 cm Cone Driver
Rated Input	6 Watt rated input (100 V Line)
Tappings 100 V	6 W, 3W, 1.5W, 0.8W
Sensitivity	94dB (1 W / 1 m, 500 Hz -5 kHz, pink noise)
Frequency Response	100 - 18000Hz
Input Terminal	Ceramic screw terminals, thermal fuse
Finish	Steel, white paint (RAL 9010 equivalent)
Dimensions	Ø 180 x 77.5mm
Weight	820 g
Protection	IP 21c
Certificates	EN54 -24: 0359-CPD-0100, Type A (indoor applications), ISO 7240-24

CS-64BS

Splashproof Projection Speaker



Certificate No : 0359-CPD-0107



Features

- For outdoor use
- Lightweight and rugged construction
- Exponential horn for improved directivity
- High SPL

Applications

- Voice Evacuation Systems according to EN 54-24
- BS-5839 part 8
- CS-64BS is EN 54-24 certified and is therefore legalised for use in conjunction with fire detection systems.

Certificate No : 0359-CPD-0107

Notified Body : Intertek

Specifications

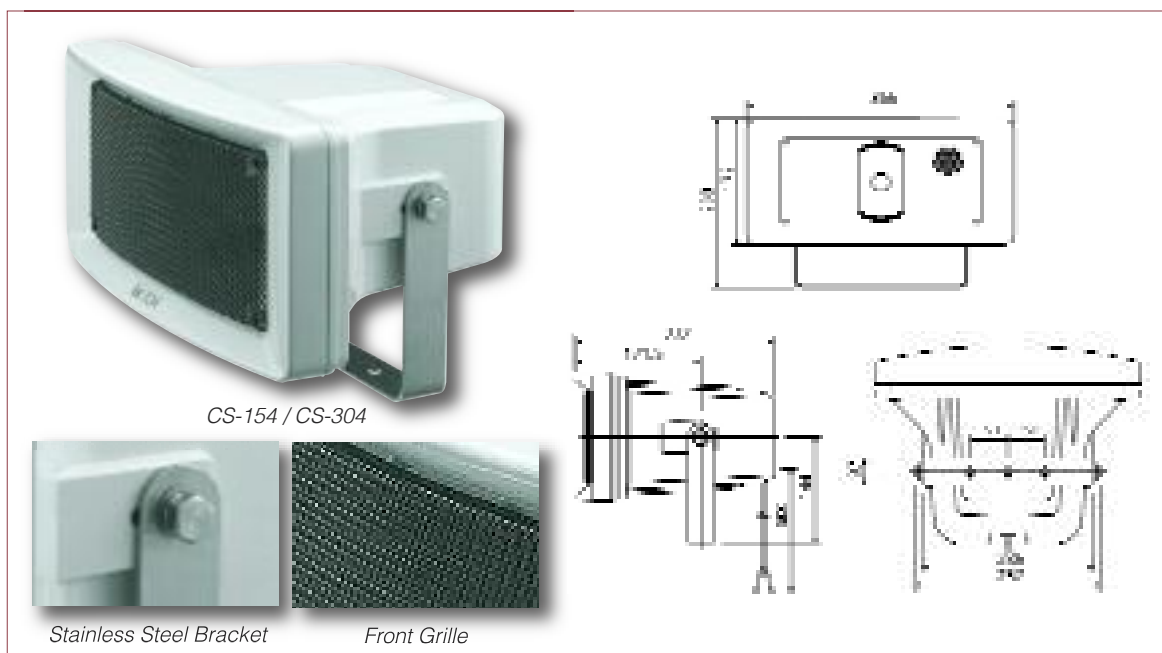
CS-64BS

Input	6 Watt rated input (100 V Line)
Rated Impedance (100 V)	1.7 k Ω (6 W), 3.3 k Ω (3 W) and 10 k Ω (1 W)
Sensitivity	96dB (1 W / 1 m, 330 Hz -3.3 kHz, pink noise)
Frequency Response	130 - 13,000 Hz
Coverage Angle	Horizontal and Vertical: 360° (500 Hz), 210° (1 kHz), 85° (2 kHz), 45° (4 kHz).
Speaker Component	12 cm cone-type (treated for splash proof)
Operating Temperature	-20 °C to +55 °C
Speaker Mounting Method	Wall-mount
Cable Gland	Size: PG 13.5. One cable gland is factory-installed. For bridge connection, one supplied cable gland can be added.
Connection	Ceramic screw terminals, thermal fuse. Can be bridged
Finish	Horn, Cover and Terminal cover: ABS resin, off-white, paint. Bracket: Stainless steel. Punched net: Surface-treated steel plate, dark-gray, powder coating. Screws: Stainless steel
Dimensions	233 (W) x 224 (H) x 249 mm (D)
Weight	1.7 kg
Accessories	Terminal Cover x 1
Protection	IP 33c
Certificates	EN54 -24: 0359-CPD-0107, Type B (outdoor applications), ISO 7240-24, complies with BS-5839-8

CS-154BS Splash-proof Projection Speaker



Certificate No : 0359-CPD-0108



Features

- Square weatherproof speaker (IP 65c) for outdoor use
- High SPL
- Weatherproof polyurethane resin paint
- Impact-proof light weight
- Complete with stainless steel bracket

Applications

- Voice Evacuation Systems according to EN 54-24
- BS-5839 part 8
- CS-154BS is EN 54-24 certified and is therefore legalised for use in conjunction with fire detection systems.

Certificate No : 0359/CPD/0108

Notified Body : Intertek

Specifications

CS-154BS

Input	15 Watt rated input (100 V Line)
Rated Impedance (100 V)	670 Ω (15 W), 1 k Ω (10 W) and 2 k Ω (5 W)
Sensitivity	97dB (1 W / 1 m, 330 Hz -3.3 kHz, pink noise)
Frequency Response	150 - 15,000 Hz
Coverage Angle	Horizontal: 140° (500 Hz), 90° (1 kHz), 90° (2 kHz), 100° (4 kHz). Vertical: 200° (500 Hz), 155° (1 kHz), 90° (2 kHz), 60° (4 kHz)
Speaker Component	12 cm cone-type
Operating Temperature	-20 °C to +55 °C
Speaker Mounting Method	Wall-mount
Cable Gland	Size: PG 13.5. One cable gland is factory-installed. For bridge connection, one supplied cable gland can be added.
Connection	Ceramic screw terminals, thermal fuse. Can be bridged
Finish	Horn, Cover and Terminal cover: ABS resin, off-white, paint. Bracket: Stainless steel. Net: Aluminum, gray, paint. Screws: Stainless steel
Dimensions	366 (W) x 230 (H) x 310 mm (D)
Weight	3 kg
Accessories	Terminal Cover x 1
Protection	IP 65c
Certificates	EN54 -24: 0359-CPD-0108, Type B (outdoor applications), ISO 7240-24, complies with BS-5839-8

SC-615BS

Reflex Horn Speaker with Wide Emergency Response



Certificate No : 0359-CPD-0109



Features

- All weather durability
- Unique oval shape
- Excellent speech clarity
- High SPL
- The enclosure complies with IP-65 Standards

Applications

- Voice Evacuation Systems according to EN 54-24
- BS-5839 part 8
- SC-615BS is EN 54-24 certified and is therefore legalised for use in conjunction with fire detection systems.

Certificate No : 0359-CPD-0109

Notified Body : Intertek

Specifications

SC-615BS

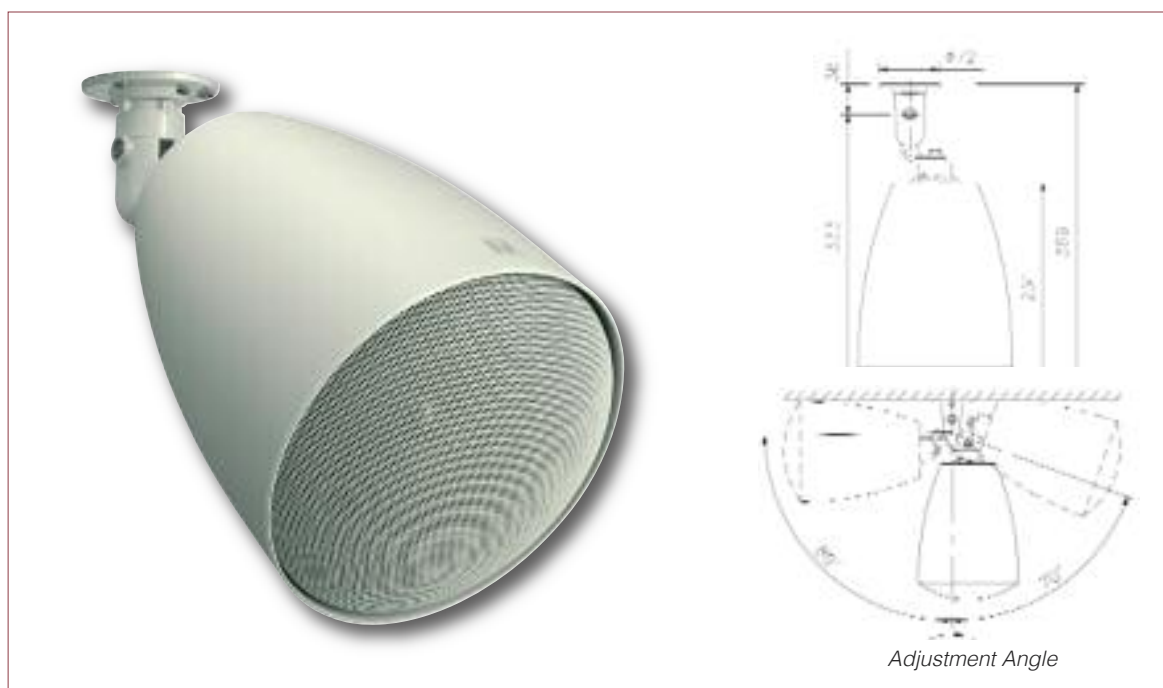
Input	15 Watt rated input (100 V Line)
Rated Impedance (100 V)	670kΩ (15 W), 1 kΩ (10 W) 2 kΩ (5 W) and 3.3 kΩ (3 W)
Sensitivity	109dB (1 W / 1 m, 500 Hz - 2.5 kHz, peak level)
Frequency Response	315 - 12,500 Hz
Coverage Angle	Horizontal : 360° (500 Hz), 160° (1 kHz), 85° (2 kHz), 45° (4 kHz). Vertical: 360° (500 Hz), 200° (1 kHz), 115° (2 kHz), 60° (4 kHz).
Operating Temperature	-20 °C to +55 °C
Speaker Mounting Method	Wall-mount
Cable Gland	Size: PG 13.5. One cable gland is factory-installed. For bridge connection, one supplied cable gland can be added.
Connection	Ceramic screw terminals, thermal fuse. Can be bridged
Finish	Horn flare: Aluminum, off-white, powder coated. Reflector horn, Trans case and terminal cover: ABS resin, off-white. Bracket, Screws and bolts: Stainless steel
Dimensions	172 (W) x 195 (H) x 229 mm (D)
Weight	1.5 kg
Accessories	Terminal Cover x 1
Option	Swivel bracket: YS-151S (Can be used instead of the supplied bracket)
Protection	IP-65c
Certificates	EN54 -24: 0359-CPD-0109, Type B (outdoor applications), ISO 7240-24, complies with BS-5839-8

PJ-154BS

Projection Speaker for Ceiling and Wall



Certificate No : 0359-CPD-0106



Features

- Wide range frequency response
- Complete with mounting bracket for easy installation

Applications

- Voice Evacuation Systems according to EN 54-24
- BS-5839 part 8
- PJ-164BS is EN 54-24 certified and is therefore legalised for use in conjunction with fire detection systems.

Certificate No : 0359-CPD-0106

Notified Body : Intertek

Specifications

PJ-154BS

Input	15 Watt rated input (100 V Line)
Rated Impedance (100 V)	670 kΩ (15 W), 1 kΩ (10 W) and 2 kΩ (5 W)
Sensitivity	91 dB (1 W / 1 m, 500 Hz - 5 kHz, peak level)
Frequency Response	70 - 20,000 Hz
Coverage Angle	Horizontal and Vertical: 360° (500 Hz), 170° (1 kHz), 90° (2 kHz), 70° (4 kHz).
Speaker Component	Low frequency: 12 cm cone-type. High frequency: 2.5 cm balanced dome tweeter.
Operating Temperature	-10 °C to +50 °C
Speaker Mounting Method	Wall-mounting and ceiling mounted
Cable Gland	Size: PG 13.5. One cable gland is factory-installed. For bridge connection, one supplied cable gland can be added.
Connection	Ceramic screw terminals, thermal fuse. Can be bridged. External connection box. 5-wire BS-compliant
Finish	Enclosure: HIPS resin, off white (RAL 9010 or equivalent colour) Grille: Surface - treated steel plate net, off-white (RAL 9010 or equivalent colour), paint
Dimensions	ø186 x 251 (H) mm (speaker only)
Weight	2.1 kg (without swivel bracket)
Accessories	Terminal Cover x 1
Accessories	Swivel bracket x1, swivel bracket mounting screws 4 x 16 ---3
Protection	IP 21c
Certificates	EN54 -24: 0359-CPD-0106, Type A (indoor applications), ISO 7240-24, complies with BS-5839-8

PE-154BS/EN Speaker for Ceiling Suspension Installation



Certificate No : 0359-CPD-0105



Features

- Special design to blend with lighting equipment
- Rugged HIPS resin enclosure
- Excellent sound quality
- Suitable for Supermarket, shopping mall, lobby, rooms without suspended ceilings

Applications

- Voice Evacuation Systems according to EN 54-24
- BS-5839 part 8
- PE-154BS/EN is EN 54-24 certified and is therefore legalised for use in conjunction with fire detection systems.

Certificate No : 0359-CPD-0105

Notified Body : Intertek

Specifications

	PE-154BS	PE-154EN
Rated input	15 Watt rated input (100 V Line)	
Rated Impedance (100 V)	670 kΩ (15 W), 1 kΩ (10 W) and 2 kΩ (5 W)	
Sensitivity	91dB (1 W / 1 m, 500 Hz - 5 kHz, peak level)	
Frequency Response	70 - 20,000 Hz	
Coverage Angle	Horizontal and Vertical: 360° (500 Hz), 170° (1 kHz), 90° (2 kHz), 70° (4 kHz).	
Speaker Component	Low frequency: 12 cm cone-type. High frequency: 2.5 cm balanced dome tweeter.	
Operating Temperature	-10 °C to +50 °C	
Speaker Mounting Method	PE-154BS: Wall-mounting PE-154EN: Ceiling suspension	
Speaker Cable	5-core cable, 3m	2-core cable 5 m
Connection	Ceramic screw terminals, thermal fuse. Can be bridged	
Finish	Enclosure: HIPS resin, off white (RAL 9010 or equivalent colour) Grille: Surface - treated steel plate net, off-white (RAL 9010 or equivalent colour), paint	
Dimensions	ø186 x 251 (H) mm (speaker only)	
Weight	2.1 kg (without swivel bracket)	2.33 kg (speaker only)
Accessories	Ceiling cover x 1, ceiling bracket, mounting hanger, tapping screws	
Accessories	Swivel bracket x1, swivel bracket mounting screws 4 x 16 ---3	
Protection	IP 21c	
Certificates	EN54 -24: 0359-CPD-0105, Type A (indoor applications) ISO 7240-24 complies with BS-5839-8	

Certificates





Line Array Speaker Systems Type-H / Type-S Series

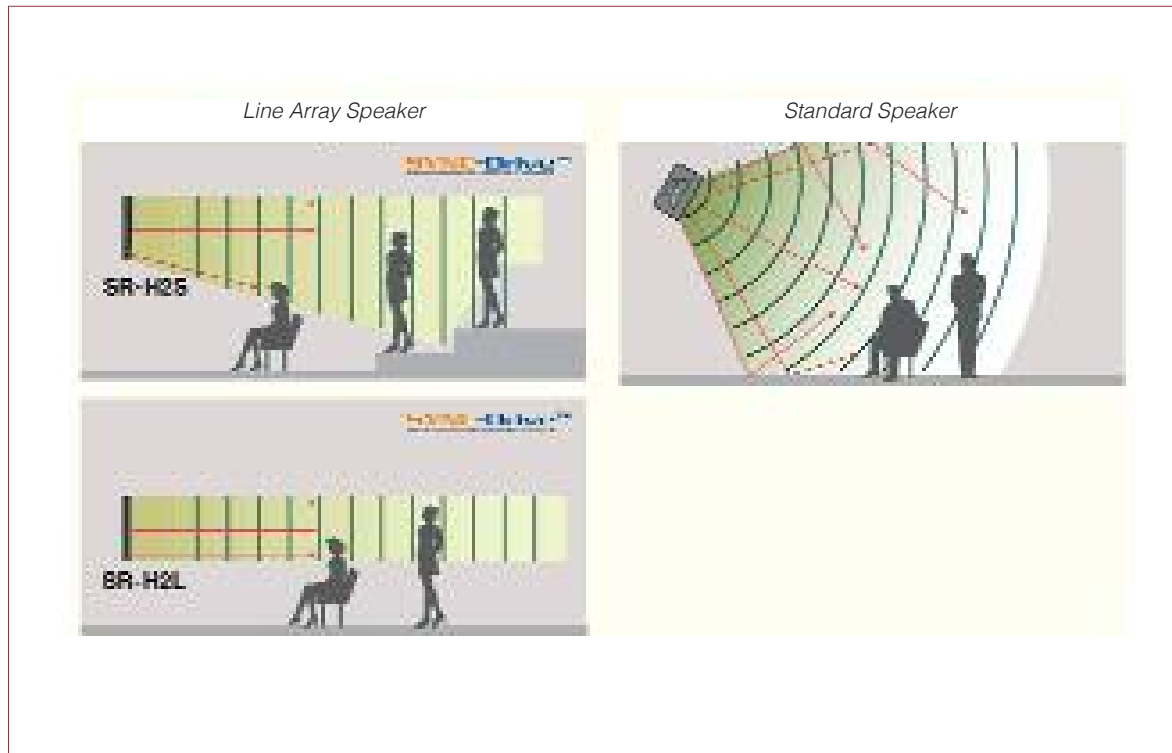
Slim Line Array Speakers with Clear and Well Focused Sound Enhancement

Among TOA's wide range of sound reinforcement products, Line Array Speaker Systems play an important role in providing high quality audio for medium sized venues that can range from houses of worship, gymnasiums, to various sports facilities and other problematic environments.

TOA Line Array Speaker Systems are designed to perform optimally with ideal sound dispersion characteristics in spaces that pose difficulties for more conventional speaker systems. Available in different configurations and with a wide range of mounting possibilities to suit particular requirements precisely, these slim tower-configured speakers and modular speaker systems offer perfect solutions for difficult sound reinforcement problems that require effective coverage.

TOA Line Array Speaker Systems are designed for permanent installations and are available in slim, tower-configured types, the SR-S4L and SR-S4S (Type S). The SR-H Series comprises of small, unobtrusive Line Arrays and is especially designed for locations with regular speech transmission.

The ultimate goal in providing this sophisticated acoustical design is to increase intelligibility even in situations where the listener is under stress such as emergency situations..



Line Array Speaker Systems - Type-H Series

SR-H2L / SR-H2S / SR-H3L / SR-H3S



Outstanding Sound Quality

- Sync-Drive (Synchronous Nexus Control) technology keeps the audio in phase with its source at the speakers to create an ideal linear sound source.
- Line array configuration of speakers works to produce clear sound with reduced attenuation over distance.
- Speakers are reflection-free and feedback resistant.
- Speakers are designed for optimally precise directivity of sound, especially horizontal directivity, so the audio dispersion can be more accurately focused at the targeted area.

- Curved speaker models rely on a hyper-clothoid concept curved array that ensures improved horizontal dispersion.

Application Versatility

- Selection among four models is possible, enabling more extensive customization of the listening area.
- Most applications are fully covered by no-extension (one cabinet) set-ups, but up to two units can be connected when an expanded vertical coverage area is suitable.
**Straight type only*
- Attractive & narrow 84mm design is thinner than earlier similar units, allowing speakers to fit in well with the interior decor of the venue.

Space/Energy Efficient Design

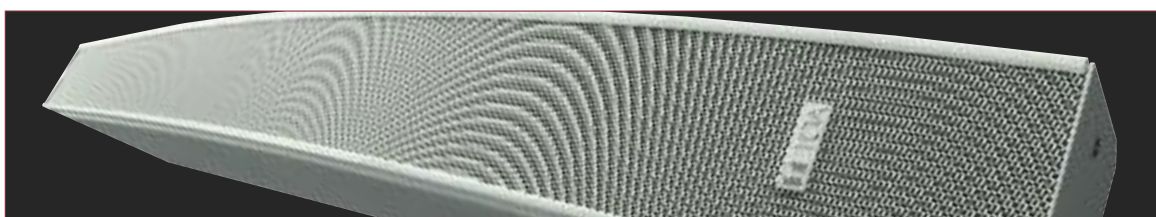
- Energy-efficient line array configuration requires less input power to deliver required output.
- High-quality sound reproduction even when an equalizer is not used.
- Fully effective operation is possible without additional amplification equipment, saving space and adding to the unit's cost effectiveness.

Easy and Flexible Installation

- A wide variety of optional mounting brackets is available, for wall-mounting, rigging, and stand mounting the Type H speakers.
- Removable input terminal connectors make hook-ups easier and less cumbersome.
- For high-impedance operation, an optional matching transformer MT-S0301 is available.



Line Array Speaker Systems - Type-H Series System Specification



Specifications	SR-H2L	SR-H2S
Enclosure	Bass-reflex type	Bass-reflex type
Power Handling Capacity	Continuous program: 180W	Continuous program: 180W
Rated Impedance	8Ω	8Ω
Sensitivity (1W, 1m equivalent measured at 4m)	92dB	90dB
Frequency Response	80 – 18,000Hz (when using optional Digital processor)	90 – 17,000Hz (when using optional Digital processor)
Directivity Angle	Horizontal: 90° Vertical: 0° (within the range of speaker height)	Horizontal: 90° Vertical: 20° (within the range of speaker height)
Speaker Component	7cm (2.8") cone-type x 9	7cm (2.8") cone-type x 9
Input Connector	Removable input connector	Removable input connector
Finish Enclosure:	MDF, white, urethane paint	MDF, white, urethane paint
Front grille:	Punched steel plate, white, acrylic paint	Punched steel plate, white, acrylic paint
Dimensions	84 (W) x 668.4 (H) x 115 (D)mm (3.31" x 26.31" x 4.53")	84 (W) x 663.4 (H) x 115 (D)mm (3.31" x 26.12" x 4.53")
Weight	4.4kg (9.7 lb)	4.2kg (9.26 lb)
Option	Extension plate: SR-EP3, Wall mounting bracket: SR-WB3, Wall tilt bracket: SR-TB3, Flying bracket: SR-FB3, Speaker stand adapter: SR-SA3, Speaker stand: ST-33B, Matching transformer: MT-S0301, Digital processor:	

Specifications	SR-H3L	SR-H3S
Enclosure	Bass-reflex type	Bass-reflex type
Power Handling Capacity	Continuous program: 180W	Continuous program: 180W
Rated Impedance	8Ω	8Ω
Sensitivity (1W, 1m equivalent measured at 4m)	95dB	92dB
Frequency Response	110 – 18,000Hz (when using optional Digital processor)	90 – 17,000Hz (when using optional Digital processor)
Directivity Angle	Horizontal: 90° Vertical: 0° (within the range of speaker height)	Horizontal: 90° Vertical: 20° (within the range of speaker height)
Speaker Component	7cm (2.8") cone-type x 16	7cm (2.8") cone-type x 16
Input Connector	Removable input connector	Removable input connector
Finish Enclosure:	MDF, white, urethane paint	MDF, white, urethane paint
Front grille:	Punched steel plate, white, acrylic paint	Punched steel plate, white, acrylic paint
Dimensions	84 (W) x 1186.4 (H) x 115 (D)mm (3.31" x 46.71" x 4.53")	84 (W) x 1177.2 (H) x 157 (D)mm (3.31" x 46.35" x 6.18")
Weight	7.6kg (16.75 lb)	7.9kg (17.42 lb)
Option	Extension plate: SR-EP3, Wall mounting bracket: SR-WB3, Wall tilt bracket: SR-TB3, Flying bracket: SR-FB3, Speaker stand adapter: SR-SA3, Speaker stand: ST-33B, Matching transformer: MT-S0301, Digital processor	

Line Array Speaker Systems - Type-S Series

SR-S4L / SR-S4LWP / SR-S4S / SR-S4SWP



Driver Complement

- Both speaker types are 2-way line array speakers, each containing 32 speaker elements 8 x 10 cm woofers and 24 high frequency drivers. Driver units are installed vertically and with minimal space between units in order to create a continuous linear sound source. This enables delivering a uniform sound pressure that resists attenuation with distance.

Sound Dispersion Characteristics

- The SR-S4L speaker features a linear design tailored for distance sound transmission applications and the SR-S4S features a gently curved line designed for a 10° vertical coverage area which offers ideal sound coverage over a shorter distance.

Directed Sound Dispersion

- Type S Series speakers limit vertical sound dispersion in order to focus directivity at the targeted listening area.

Multi Speaker Array Configurable

- Both systems can be combined to realize a versatile speaker array that performs equally well in terms of sound coverage and dispersion over short and long distances. Less difference in sound level is perceived whether close to or somewhat

distant from the speakers, providing a uniform response. Individual speaker systems of each type can be assembled together as multiple configurations, acting as longer sound sources that can deliver greater output as well as project the sound a greater distance.

Reflection Free

- The speakers' construction and characteristics make them resist floor and ceiling-originating reflections, enhancing clarity even in reverberant spaces and other problematic environments.

Feedback Resistant

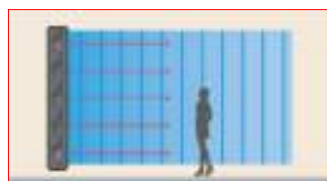
- The design of the speakers also makes them highly resistant to annoying feedback because volume levels are not extraordinarily high even close to the speakers and makes setting gain levels easier.

Biamp or Single Amp Drive

- Factory-set for single amplifier driving, the Type S series speakers can simply be set for biamping by making a simple internal wiring change. For optimal biamping, a digital signal processor can be employed to set crossover frequency points.

High Impedance Compatible

- The speaker can also be conveniently set for high impedance applications by using the optional MT-S0601 matching transformer. This option is only possible when driving the speaker with a single amplifier.



Line Array Speaker



Standard Speaker

Line Array Speaker Systems - Type-S Series

SR-S4L / SR-S4LWP / SR-S4S / SR-S4SWP

Specifications

	SR-S4L	SR-S4LWP
Enclosure	Bass-reflex type	Sealed type
Power Handling Capacity	Continuous program: 600W (single amp mode) Low 240W, High 240W (biamp mode)	Continuous program: 600W (single amp mode) Low 240W, High 240W (biamp mode)
Rated Impedance	8Ω (single amp mode) / Low 8Ω, High 8EΩ (biamp mode)	8Ω (single amp mode) / Low 8Ω, High 8EΩ (biamp mode)
Sensitivity (1W, 1m)	94dB (1W, 1m)	94dB (1W, 1m)
Frequency Response	70 – 20,000Hz (when using the optional Digital processor)	
Crossover Frequency	3,500Hz	3,500Hz
Directivity Angle	Horizontal: 90° Vertical: 0° (within the range of speaker height)	Horizontal: 90° Vertical: 0° (within the range of speaker height)
Speaker Component	Low frequency: 10cm (4") cone-type × 8 High frequency: 2.5cm (1") balanced dome-type × 24	Low frequency: 10cm (4") cone-type × 8 High frequency: 2.5cm (1") balanced dome-type × 24
Input Connector	M5 screw terminal, distance between barriers: 12.2mm and Neutrik NL4MP × 2	M5 screw terminal, distance between barriers: 12.2mm and Neutrik NL4MP × 2
Connected Cable	—	Direct cable withdrawal from internal speaker: ø8.6mm, conductor cross section: 1.25mm ² , 4-core cable, 3m
Dust/Water Protection	—	IPX4
Finish	Enclosure: MDF, white, paint Front grille: Punched steel plate, white, acrylic paint	Plywood, white, urethane coating Punched stainless steel (SUS304), white, paint
Dimensions	160 (W) × 895 (H) × 255 (D)mm (6.30" × 35.24" × 10.04")	160 (W) × 895 (H) × 255 (D)mm (6.30" × 35.24" × 10.04")
Weight	16kg (35.27 lb)	16kg (35.27 lb)
Accessory	Bi-amplifier drive rating label × 1, Bi-amplifier drive input indication label × 1	
Option	Matching transformer: MT-S0601, Extension plate: SR-EP4, Flying bracket: SR-FB4, Wall mounting bracket: SR-WB4, Wall tilt bracket: SR-TB4, Stand adapter: SR-SA4, Protection pad: SR-PP4, Floor stand: SR-FS4, Digital processor: DP-0206	Matching transformer: MT-S0601, Extension plate: SR-EP4WP, Wall tilt bracket: SR-TB4WP, Wall mounting bracket: SR-WB4WP, Protection pad: SR-PP4, Digital processor: DP-0206

Specifications

	SR-S4S	SR-S4SWP
Enclosure	Bass-reflex type	Sealed type
Power Handling Capacity	Continuous program: 600W (single amp mode) Low 240W, High 240W (biamp mode)	Continuous program: 600W (single amp mode) Low 240W, High 240W (biamp mode)
Rated Impedance	8Ω (single amp mode) / Low 8Ω, High 8Ω (biamp mode)	8Ω (single amp mode) / Low 8Ω, High 8Ω (biamp mode)
Sensitivity (1W, 1m)	93dB (1W, 1m)	93dB (1W, 1m)
Frequency Response	70 – 20,000Hz (when using the optional Digital processor)	
Crossover Frequency	3,500Hz	3,500Hz
Directivity Angle	Horizontal: 90° Vertical: 10°	Horizontal: 90° Vertical: 10°
Speaker Component	Low frequency: 10cm (4") cone-type × 8 High frequency: 2.5cm (1") balanced dome-type × 24	Low frequency: 10cm (4") cone-type × 8 High frequency: 2.5cm (1") balanced dome-type × 24
Input Connector	M5 screw terminal, distance between barriers: 12.2mm and Neutrik NL4MP × 2	M5 screw terminal, distance between barriers: 12.2mm and Neutrik NL4MP × 2
Connected Cable	—	Direct cable withdrawal from internal speaker: ø8.6mm, conductor cross section: 1.25mm ² , 4-core cable, 3m
Dust/Water Protection	—	IPX4
Finish	Enclosure: MDF, white, paint Front grille: Punched steel plate, white, acrylic paint	Plywood, white, urethane coating Punched stainless steel (SUS304), white, paint
Dimensions	160 (W) × 892 (H) × 303 (D)mm (6.30" × 35.12" × 11.93")	160 (W) × 892 (H) × 303 (D)mm (6.30" × 35.12" × 11.93")
Weight	16kg (35.27 lb)	16kg (35.27 lb)
Accessory	Bi-amplifier drive rating label × 1, Bi-amplifier drive input indication label × 1	
Option	Matching transformer: MT-S0601, Extension plate: SR-EP4, Flying bracket: SR-FB4, Wall tilt bracket: SR-TB4, Stand adapter: SR-SA4, Protection pad: SR-PP4, Digital processor: DP-0206	Matching transformer: MT-S0601, Extension plate: SR-EP4WP, Wall tilt bracket: SR-TB4WP, Protection pad: SR-PP4, Digital processor: DP-0206

Compact Line Array HX-5B / HX-5W / HX-5B-WP / HX-5W-WP

EN54 **UNDER**
24 **consideration**



Features

- Variable Dispersion Speaker System.
- Four speaker modules ensure high power and high quality.
- The changeable orientation of each of the four speaker modules independently allows the directivity angle of the speaker system to be adjusted
- Weather Proof

- Available in Black or White
- Kick proof

Applications

- Stadiums
- Gymnasiums
- Sports Halls
- Arenas

Specifications

Specifications	HX-5B	HX-5W	HX-5B-WP	HX-5W-WP
Enclosure	Bass-reflex type		Sealed type	
Power Handling Capacity	Continuous pink noise: 200W, Continuous program: 600W			
Rated Impedance	8Ω			
Sensitivity	96dB (60° mode), 97dB (45° mode), 98dB (30° mode), 99dB (15° mode)*			
Frequency Response	70 – 20,000Hz (–10dB) (60° mode), 75 – 20,000Hz (–10dB) (45° mode), 80 – 20,000Hz (–10dB) (30° mode), 85 – 20,000Hz (–10dB) (15° mode)		95 – 20,000Hz (–10dB) (60° mode), 100 – 20,000Hz (–10dB) (45° mode), 105 – 20,000Hz (–10dB) (30° mode), 110 – 20,000Hz (–10dB) (15° mode)	
Crossover Frequency	4kHz			
Directivity Angle	Horizontal: 100° (over 2000Hz) Vertical: 60° (over 800Hz), 45° (over 1.2kHz), 30° (over 1.6kHz), 15° (over 3.2kHz) variable			
Speaker Component	Low frequency: 12cm cone-type × 4 High frequency: Balanced dome-type × 12			
Input Terminal	Speakon NL4MP × 2 and M4 screw terminal		—.	
Water Protection	—.		IPX4 (Install with the every speaker module downward)	
Operating Temperature	—.		–15°C to +50°C	
Finish	Enclosure: Polypropylene, black	Enclosure: Polypropylene, white	Enclosure: Polypropylene, black	Enclosure: Polypropylene, white
Dimensions	408 (W) × 546 (H) × 342 (D)mm			
Weight	16kg			
Accessory	Hanging bracket × 2, Hex. wrench × 1			

Other Speakers under consideration for EN54 applications

For more information regarding EN54 and Public Address Equipment, please contact our technical department or visit our website www.toa.fr



SC-630M (30 W)

Rated Input: 30W
Line Voltage: 100V line or 70V line
Rated Impedance: 100V line: 330 ohms (30W), 670 ohms (15W), 1k ohm (10W), 2k ohms (5W)/70V line: 170 ohms (30W), 330 ohms (15W), 670 ohms (7.5W), 1k ohm (5W), 2k ohms (2.5W)
Sound Pressure Level: 113dB (1W, 1m at 500 to 2,500Hz peak level)
Frequency Response: 250–10,000Hz
Sensitivity (0dB = 1mW/10 dynes/cm²): –20dB at 1kHz (when used as Microphone)
Dust/Water Protection: IP65
Polarity: Hot: Black, Com: White
Operating Temperature: –20°C to +55°C (must be free from dew condensation)
Finish: Horn flare: Aluminum, off-white, powder coating/Reflector horn and rear cover: ABS resin, off-white/Bracket, Screws and bolts: Stainless steel/Speaker cable: Polyvinyl chloride insulated catytre cable (6mm in diameter, 600mm in length)
Dimensions: 285 (W) × 227 (H) × 277 (D)mm
Weight: 2kg



CS-304 (30 W)

Rated Input: 30W
Rated Impedance: 100 V line: 330 ohms (30W), 500 ohms (20W), 1k ohm (10W)/70 V line: 170 ohms (30W), 330 ohms (15W), 500 ohms (10W), 1k ohm (5W)
Sensitivity (1W, 1m): 98dB
Frequency Response: 120–15,000Hz
Speaker Component: 12cm cone-type
Horizontal Directivity: Constant directivity horn 90° (± 45° horizontal from front axis)/Over 93dB (1W, 1m), 3kHz at ± 45°
Speaker Cord: 2-core catytre cable with diameter of 6mm
Operating Temperature: –20°C to +55°C
Dust/Water Protection 2: IP65
Finish: Horn, cover: ABS resin, off-white, paint/Bracket: Stainless steel/Net: Aluminum, gray, paint/Screw: Stainless steel
Dimensions: 366 (W) × 230 (H) × 272 (D)mm
Weight: 3.1kg



F-2000 (60 W)

Enclosure Type: Bass-reflex type
Rated Input: 60W
Rated Impedance: 8 ohms/
100V line: 170 ohms (60W), 330 ohms (30W), 670 ohms (15W), 3.3 k ohms (3W)
Sensitivity (1W, 1m): 92 dB at installation in 1/2 free sound field/93 dB at installation in 1/2 free sound field (with horn adapter)
Frequency Response: 65 – 20,000 Hz, -10 dB at installation in 1/2 free sound field
Crossover Frequency: 2.5 kHz
Directivity Angle: Horizontal: 110°, Vertical: 100°/
Horizontal: 80°, Vertical: 80° (with horn adapter)
Speaker Component: Low frequency: 20 cm (8") cone-type
High frequency: 25 mm (1") dome tweeter
Input Terminal: Push-in terminal
Finish: F-2000BT: Enclosure: HIPS resin, black/
Punched net: Surface-treated steel plate, black, paint/
Joint bracket, wall bracket: Steel plate, t1.6, black, paint
Speaker bracket: Die-cast aluminum, black, paint
F-2000WT: Enclosure: HIPS resin, white/
Punched net: Surface-treated steel plate, white, paint/
Joint bracket, wall bracket: Steel plate, t1.6, white, paint
Speaker bracket: Die-cast aluminum, white, paint
Dimensions: 244 (W) × 373 (H) × 235 (D) mm
Weight: 7.4kg (including the supplied brackets)
Recommended Subwoofer: FB-100, FB-120BW



F-1300 (30 W)

Enclosure Type: Bass-reflex type
Rated Input: 30W
Rated Impedance: 8 ohms/
100V line: 330 ohms (30W), 1 k ohms (10W), 3.3 k ohms (3W), 10 k ohms (1W)
Sensitivity (1W, 1m): 90dB at installation in 1/2 free sound field
Frequency Response: 80 – 20,000Hz, -10dB at installation in 1/2 free sound field
Crossover Frequency: 2 kHz
Directivity Angle: Horizontal: 110°, Vertical: 100°
Speaker Component: Low frequency: 13 cm (5") cone-type/
High frequency: Balanced dome tweeter
Input Terminal: Push-in terminal
Finish: F-1300BT: Enclosure: HIPS resin, black/
Punched net: Surface-treated steel plate, black, paint/
Joint bracket, wall bracket: Steel plate, t1.6, black, paint
Speaker bracket: Die-cast aluminum, black, paint
F-1300WT: Enclosure: HIPS resin, white/
Punched net: Surface-treated steel plate, white, paint/
Joint bracket, wall bracket: Steel plate, t1.6, white, paint
Speaker bracket: Die-cast aluminum, white, paint
Dimensions: 162 (W) × 250 (H) 161 (D) mm
Weight: 3.6kg (including the supplied brackets)
Recommended Subwoofer: HB-1, FB-100



F-2352SC (6 W)

Rated Input: 6W (high impedance)
Power Handling Capacity: Continuous pink noise; 9W (8 ohms), 6W (16 ohms)/Continuous program; 12W (16 ohms)
Impedance: 100V line; 1.7k ohms (6W), 3.3k ohms (3W), 10k ohms (1W), 20k ohms (0.5W)/70V line; 830 ohms (6W), 1.7k ohms (3W), 3.3k ohms (1.5W), 10k ohms (0.5W), 20k ohms (0.25W)/25V line; 830 ohms (0.75W), 1.7k ohms (0.4W), 3.3k ohms (0.2W), 10k ohms (0.06W), 20k ohms (0.03W)/Low (adjustable); 16 ohms, 8 ohms
Sensitivity (1W, 1m): 89dB
Frequency Response: 80 – 20,000Hz (–10dB), 50 – 20,000Hz (–20dB) at installation in 1/2 free sound field (measured by installing the unit in the center of a ceiling.)
Speaker Component: High frequency; Balanced dome-type/Low frequency; 12cm cone-type
Mounting Hole: ø200 (maximum ceiling thickness; 37mm)
Input Terminal: Push-in connector (Bridging terminal-2 branch type)

Usable Cable: 600V Vinyl-insulated cable (IV wire or HIV wire)/
Solid copper wire; ø0.8 – ø1.6mm (equivalent to AWG No.20 – 15)/
7-core twisted copper wire; 0.75 – 1.25mm² (equivalent to AWG No.18 – 17)
Finish: Baffle; Fire-resistant ABS resin (resin material grade; UL-94 V-0 or its equivalent), black/Rim; Fire-resistant ABS resin (resin material grade; UL-94 V-0 or its equivalent), white, paint/Punched net; Steel plate, white, paint/Dust-proof bag; Artificial fiber, black
Dimensions: ø230 × 154 (D)mm
Weight: 1.5kg (including panel)
Accessory: Panel × 1, Paper pattern × 1
Option: Back can; HY-BC1, Reinforcement ring; HY-RR2, Anchor hanging bracket; HY-AH1 (HY-RR2 required), Tile-94 V-0 or its equivalent; HY-TB1 (HY-RR2 required), Trim ring; HY-TR1 (HY-RR2 required)



F-2852C (60 W)

Enclosure: Bass reflex type
Rated Input: 60W (high impedance)
Power Handling Capacity: Continuous pink noise; 90W (8 ohms), 60W (16 ohms)/Continuous program; 180W (8 ohms), 120W (16 ohms)
Impedance: 100V line; 170 ohms (60W), 330 ohms (30W), 670 ohms (15W), 3.3k ohms (3W)/70V line; 83 ohms (60W), 170 ohms (30W), 330 ohms (15W), 670 ohms (7.5W), 3.3k ohms (1.5W)/25V line; 83 ohms (7.5W), 170 ohms (3.7W), 330 ohms (1.9W), 670 ohms (0.9W), 3.3k ohms (0.2W)/Low (adjustable); 16 ohms, 8 ohms
Sensitivity (1W, 1m): 91dB
Frequency Response: 60 – 20,000Hz (–10dB), 45 – 20,000Hz (–20dB) at installation in 1/2 free sound field (measured by installing the unit in the center of a ceiling.)
Speaker Component: High frequency; Dome-type/Low frequency; 16cm cone-type

Mounting Hole: ø250mm (maximum ceiling thickness; 37mm)
Input Terminal: Removable locking connector with screw-down terminals (2 input terminals and 2 bridge terminals)
Usable Cable: Solid copper wire; ø0.5 – ø1.6mm (equivalent to AWG No. 24 – 14)/Stranded copper wire; 0.2 – 2.5mm² (equivalent to AWG No. 24 – 14)
Finish: Enclosure; Steel plate, plating/Baffle; Fire-resistant ABS resin (resin material grade; UL-94 V-0 or its equivalent), black/Rim; Fire-resistant ABS resin (resin material grade; UL-94 V-0 or its equivalent), white, paint/Punched net; Steel plate, white, paint
Dimensions: ø280 × 227 (D)mm
Weight: 5.1kg (including mounting accessories)
Accessory: Panel × 1, Ceiling reinforcement ring × 1, S safety wire × 1, Paper pattern × 1
Option: Anchor hanging bracket: HY-AH1, Tile bar bridge: HY-TB1



F-122C (30 W)

Enclosure: Bass reflex type
Rated Input: 30W (high impedance)
Power Handling Capacity: Continuous pink noise; 60W (8 ohms), 30W (16 ohms)/Continuous program; 120W (8 ohms), 60W (16 ohms)
Impedance: 100V line; 330 ohms (30W), 1k ohm (10W), 3.3k ohms (3W), 10k ohms (1W)/70V line; 170 ohms (30W), 330 ohms (15W), 1k ohm (5W), 3.3k ohms (1.5W), 10k ohms (0.5W)/25V line; 170 ohms (3.7W), 330 ohms (1.9W), 1k ohm (0.6W), 3.3k ohms (0.2W), 10k ohms (0.06W)/Low (adjustable); 16 ohms, 8 ohms
Sensitivity (1W, 1m): 90dB
Frequency Response: 70 – 20,000Hz (–10dB), 50 – 20,000Hz (–20dB) at installation in 1/2 free sound field (measured by installing the unit in the center of a ceiling.)
Speaker Component: 12cm cone-type

Mounting Hole: ø200 (maximum ceiling thickness; 37mm)
Input Terminal: Removable locking connector with screw-down terminals (2 input terminals and 2 bridge terminals)
Usable Cable: Solid copper wire; ø0.5 – ø1.6mm (equivalent to AWG No. 24 – 14)
Finish: Enclosure; Steel plate, plating/Baffle; Fire-resistant ABS resin (resin material grade; UL-94 V-0 or its equivalent), black/Rim; Fire-resistant ABS resin (resin material grade; UL-94 V-0 or its equivalent), white, paint/Punched net; Steel plate, white, paint
Dimensions: ø230 × 229 (D)mm
Weight: 3.7kg (including mounting accessories)
Accessory: Panel × 1, Ceiling reinforcement ring × 1, Safety wire × 1, Paper pattern × 1
Option: Anchor hanging bracket: HY-AH1, Back can: HY-BC1, Tile bar bridge: HY-TB1/Trim ring: HY-TR1