

Over **85 years**
experience in
Professional Audio

and

Security

Equipment

Asia Pacific

PRODUCT LINEUP CATALOG



Smiles
for the
Public

TOA has acquired both ISO9001 quality assurance and ISO14001 environmental management certifications.

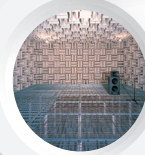


JAF-0020
ISO9001



JQA-EMF 400
ISO14001

• Head Office
• Takasuzuka
Headquarters
• Tokyo Branch
• Osaka Branch



We supply sound, not equipment.

Founded 1934 in the Japanese city of Kobe, we can draw upon more than 80 years of experience in researching, developing and selling commercial and professional audio and security equipment. Our pride is that we can use this knowledge to create acoustic sound fields for millions of people to make their lives safer and more pleasant. Since its founding, TOA has pursued its business based upon a solid Management Philosophy, which are the "Three Confidences". These important basic foundations will carry us into an even brighter and prosperous future.

TOA group has its headquarter in Kobe and consists of 19 subsidiaries, which are divided into 5 divisions. TOA Electronics Pte Ltd (TES) is located in Singapore since 2002 and has since become the regional office for Asia-Pacific with subsidiaries in Malaysia, Thailand, Vietnam and Indonesia. Our Export Sales Team in Singapore takes care of all other APAC countries.

In each of the Asia-Pacific countries we have authorized distributors, which take care of their country and your needs. TOA has a very good relationship to all of its distributors and is in constant communication to get best market knowledge.

Our Three Confidences

**Total confidence
of our customers in the
use of all products.**

**Total confidence
of our associates in all
business transactions.**

**Total confidence of
our employees in
all their effort.**

SOUND NAVIGATOR

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» Let me help you
navigate through the
TOA sound variety. «

Yours, Dr. Sound

Voice Evacuation Systems

VX-3000 series Highly Integrated Voice Alarm & Public Address System

Description

The issue of security is more than ever important. Our VX-3000 is a reliable and energy-saving voice alarm system that combines all important functions for PA/VA in one unit frame. The limited number of components makes the design and installation much easier, as well as saving space and reducing cable complexity. This enables rapid system configuration and makes the VX-3000 a cost effective system.

It comes with low loss modular class D amplifiers, with 3 different output ratings. These can easily be removed or replaced simply by unplugging them; there is no need for specialist tools. By using low loss modular class D amplifiers and modern power supply switching technology the system becomes much more energy efficient and keeps the operating costs low.

Thanks to its flexible and scalable system architecture the VX-3000 system can be used for both small and large applications, with up to 1,280 remote microphones and 1,920 audio sources.

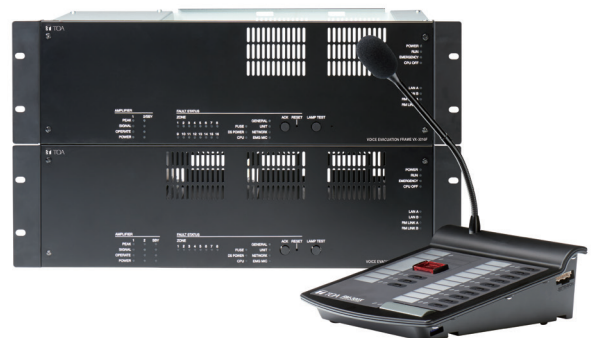
System Features

- Compact: All functions, all inputs and outputs in one unit
- Cost effective: Easy system configuration thanks to small number of system components
- Flexible: Broadcast of many different audio signals simultaneously, flexible speaker driving from 1 zone per amplifier up to 64 zones per amplifier
- Scalable: up to 1,280 remote microphones, 1,920 audio sources, and 2,560 speaker zones.
- Up to 4 systems can be integrated via VX link, allowing to configure one large-scale system with max. 1,920 audio inputs and max. 2,560 zones
- Light-weight: Modern supply switching technology and digital amplifiers
- Energy saving: Standby mode for low power consumption during battery backup reduces the required battery capacity
- Decentralized: IP Network based, hub-less and the ring topology
- Reliable: Advanced failure detection & indication
- DSP functions: Comp., SPEQ, FBS and Ambient Noise Control (ANC)
- Integration: Connectable with TOA's other system; NX-300 and IP-3000 Series
- Remote control: Remote protocol enables VX-3000 to be controlled by external devices. Furthermore VX-3000 complies with Modbus protocol.

Maximum System Capacity

Output Power	320,000W
Speaker Zones	2,560 *1
Remote Mic connection	1,280

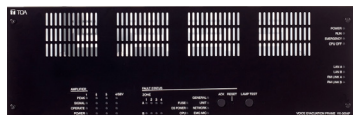
*1 When VX-3016Fs are used.



VX-3000 Series

»» Voice Evacuation Frame

VX-3004F



VX-3008F



VX-3016F



Model	VX-3004F	VX-3008F	VX-3016F
Power Source	20 to 33 V DC, removable terminal block (4 pins)		
Speaker Line	4 channels (with AB LINE speaker out)	8 channels	16 channels
LAN A, B	No. of Connectors: 2 (LAN A, LAN B) ; Network I/F: 100BASE-TX ; Network Protocol: TCP, UDP, ARP, ICMP, RTP, IGMP, FTP, HTTP ; Spanning tree Protocol: RSTP ; Audio Transmission System: TOA Packet Audio ; Audio Encoding Method: PCM ; Audio Sampling Frequency: 48 kHz, 16 bits Connection Device: other VX-3004F, VX-3008F, VX-3016F, NX-300, VX-3000PM, VX-3000CT and Switching HUB, Connector: RJ45 connector ; Connection Cable: CAT5 ; Number of Strage of Cascade Connection: Up to 7; Max. Cable Distance: 100 m		
RS Link A, B	2 (RS LINK A, RS LINK B) , Up to 8 RM units can be connected to a single VX-3XXXF, up to 4 RM units connectable per RS LINK		
DS Link	Connector: RJ45 connector, Connection Cable: CAT5-STP, Max. Cable Distance: 5 m		
Analog Link	Number of Connectors: 1 input, 1 output, Connection Device: other VX-3004F, VX-3008F, VX-3016F, Connector: RJ45 connector, Connection Cable: CAT5-STP or greater, Max. Cable Distance: 800 m		
Control Input	16 inputs, no-voltage make contact input, open voltage: 24 V DC, short-circuit current: 2 mA Fault Detection System: Short circuit, Open circuit, Method: Voltage detect ; Connector: RJ45 connector ; Connection Cable: CAT5-STP or greater		
Emergency Control IN	Input 2: Isolated voltage input, -24 to +24 V ; Connector: RJ45 connector ; Connection Cable: CAT5 or greater		
VOX Function	Threshold: -60 to 0 dB (1 dB steps), Hysteresis: 0 to +10 dB, Hold time: 10 ms – 10 s, Settable for each audio input		
Control Output	General outputs : 8 with CONTROL OUTPUT 1 ; Exclusive outputs : 3 with CONTROL OUTPUT 2 ; GENERAL FAULT, CPU FAULT, CPU OFF No-voltage make contact, electrical contact output, control current: 10 mA ; withstand voltage: 28 V DC ; Connector: RJ45 connector ; Connection Cable: CAT5-STP or greater		
ATT/Control Output	8 outputs, no-voltage make contact, relay contact (NC, NO, C), control current: 2 mA to 5 A ; withstand voltage: 125 V AC, 40 V DV ; Connector: Removable terminal block (12 pins) x 2		16 outputs, no-voltage make contact, relay contact (NC, NO, C), control current: 2 mA to 5 A; withstand voltage: 125 V AC, 40 V DV ; Connector: Removable terminal block (12 pins) x 4
DSP	Feedback suppression, Equalizer/Filter, Compressor, Delay and Ambient Noise Control (ANC)		
Audio Input	4 inputs (Line: -20 dBV / Mic: -60 dBV / ANC sensor, phantom power selectable)		
Standby Amplifier	Input: 1, Output: 1 ; Max. Voltage/Current: 100 Vrms, 5 Arms ; Connector: Removable terminal block (2 pins) x 2		
Extension Amplifier	-	Input: 2, Output: 2, Max. Voltage/Current: 100 Vrms, 5 Arms, Connector: R emovable terminal block (2 pins) x 4	Input: 1, Output: 1 ; Max. Voltage/Current: 100 Vrms, 5 Arms ; Connector: Removable terminal block (2 pins) x 2
Modules			
Number of Modules	4	3 (when Line Output module is installed... 2)	2
DA Control Link	4	3	2
DA Output Link	4 #	3 #	2 #
Dimensions (W x H x D)	483 x 132.6 x 345 mm (19", 3U)		
Weight	7.6 kg	7.9 kg	8.1 kg

(#) Used only when a power amplifier module is installed

»» Digital Power Amplifier Module

VX-015DA

VX-030DA

VX-050DA



Model	VX-015DA	VX-030DA	VX-050DA
Applicable Model	VX-3004F, VX-3008F, VX-3016F		
Power Source	31 V DC (operating range: 20 to 33 V DC) DC power in: M4 screw terminal, distance between barriers: 11mm		
Amplification System	Class D		
Power Consumption	1.3W (standby mode), 14 W (no audio input), 40 W (1/8 rated output), 190 W (rated output) *at 31 V DC, output voltage selection switch: 100V	1.3W (standby mode), 14 W (no audio input), 65 W (1/8 rated output), 375 W (rated output) *at 31 V DC, output voltage selection switch: 100V	1.3W (standby mode), 14 W (no audio input), 100 W (1/8 rated output), 590 W (rated output) *at 31 V DC, output voltage selection switch: 100V
Rated Output Power	150W (at 100V line) 105 W (at 70 V line) 75 W (at 50 V line) (at min. impedance & max. capacitive load) (at AC mains VX-3000DS or VX-3150DS: 187 - 253 V)	300 W (at 100 V line) 210 W (at 70 V line) 150 W (at 50 V line) (at min. impedance & max. capacitive load) (at AC Mains VX-3000DS or VX-3150DS: 187 - 253 V)	500 W (at 100 V line) 350 W (at 70 V line) 250 W (at 50 V line) (at min. impedance & max. capacitive load) (at AC Mains VX-3000DS or VX-3150DS: 187 - 253 V)
Output Voltage	100 V (70 V, 50 V: selectable)		
Min. Resistive Load	67 Ω (100 V), 47 Ω (70 V), 33 Ω (50 V)	33 Ω (100 V), 23Ω (70 V) , 17Ω (50 V)	20 Ω (100 V), 14 Ω (70 V), 10 Ω (50 V)
Max. Capacitive Load	0.5 μF		
Frequency Response	40 Hz to 20 kHz: - 5 to +1 dB		
Distortion	1 % or less (at 100 V line, A-weighted)		
Dimensions (W x H x D)	82.8 x 91 x 358.2 mm		
Weight		1.3kg	1.4kg

(*) 0dB = 1V

»» Control Panel

VX-3000CT



Model	VX-3000CT
Power Source	20 - 33 V DC, removable terminal block (4 pins)
Current Consumption	0.09 A at 33 V DC input 0.11 A at 24 V DC input
LAN A, B	Number of Connectors: 2 (LAN A, LAN B) Network I/F: 100BASE-TX Network Protocol: TCP, ARP, ICMP, HTTP Connection Device: VX-3004F, VX-3008F, VX-3016F, NX-300, VX-3000CT, VX-3000PM, Switching HUB Connector: RJ45 connector Connection Cable: Category 5 twisted pair cable (CAT5) or greater Maximum Cable Distance: 100 m
Indicators	POWER (Green) x 1, RUN (Green) x 1, LINK/ACT (Green) x 2, SIGNAL (Green) x 8, FAULT (Yellow) x 1, STATUS (Green/Yellow) x 9, SELECT (Green) x 9
Volume Control	8 channels
Operation	Function key x 9, Reset key x 1, IP address setting switch x 1
Operating Temperature	0 °C to +40 °C
Operating Humidity	90 %RH or less (non condensation)
Finish	Panel: Surface-treated Steel Plate, black, 30 % gloss, paint Volume Control Section Cover: ABS resin, Gray smoke
Dimensions (W x H x D)	482 x 44 x 315.2mm
Weight	3kg
Accessory	Rack mounting screw x 4, Removable Terminal Plug (4 pins) x 1

»» Pre-Amplifier Matrix Panel

VX-3000PM



Model	VX-3000PM
Power Source	20 - 33 V DC, removable terminal block (2 pins)
Current Consumption	0.33 A at 33 V DC input 0.35 A at 24 V DC input
LAN A, B	Number of Connectors: 2 (LAN A, LAN B) Network I/F: 100BASE-TX Network Protocol: TCP, UDP, ARP, ICMP, RTP, IGMP, HTTP Spanning Tree Protocol: RSTP Audio Transmission System: TOA Packet Audio (*1) Audio Encoding Method: PCM Audio Sampling Frequency: 48 kHz Audio Quantifying Bit Number: 16 bits Connection Device: VX-3004F, VX-3008F, VX-3016F, NX-300, VX-3000CT, VX-3000PM, Switching HUB Connector: RJ45 connector Connection Cable: Category 5 twisted pair cable (CAT5) or greater Maximum Cable Distance: 100 m
Audio Input	8 inputs Input Level: INPUT 1 - 4: -60 dBV / -40 dBV / -20 dBV / 0 dBV selectable, input impedance 600 Ω, transformer-balanced INPUT 5, 6: -20 dBV, input impedance 10kΩ, unbalanced INPUT 7, 8: 0 dBV, input impedance 10 kΩ, unbalanced Frequency Response: -60 dBV: 200 Hz - 10 kHz, -2 dB ± 3 dB -40 dBV / -20 dBV / 0 dBV: 100 Hz - 15 kHz, -2 dB ± 3 dB
Control Input	Distortion: 1 % or less Signal to Noise Ratio: 60 dB or more Removable Terminal Block (6 pins x 2, 4 pins x 2) Only Input 1 is used in common with the front-mounted ø6.3 mm phone jack 20 channels, np-voltage make contact input, open voltage: 30 V DC, short-circuit current: 2 -10 mA Connector: Removable terminal block (10 pins x 2, 12 pins x 2)
Control Output	Channels 1 - 5, relay (a contact), withstand voltage: 30 V DC, control current: 1 A Channels 6 - 10, open collector output (polarized), withstand voltage: 30 V DC, control current: 100 mA Connector: Removable terminal block (10 pins) x 2
Indicators	SIGNAL (Green) x 8, RUN (Green) x 1, LINK/ACT (Green) x 2
Volume Control	8 channels
Operation	Input level setting switch x 1, IP address setting switch x 1
Operating Temperature	0 °C to +40 °C
Operating Humidity	90 %RH or less (non condensation)
Finish	Panel: Pre-coated Steel Plate, black, 30 % gloss Volume Control Section Cover: Acrylic resin, Gray smoke
Dimensions (W x H x D)	482 x 44 x 292.4 mm
Weight	3.2kg
Accessory	Rack mounting screw x 4, Removable Terminal Plug (6 pins) x 2, Removable Terminal Plug (4 pins) x 2, Removable Terminal Plug (10 pins) x 4, Removable Terminal Plug (12 pins) x 2, Removable Terminal Plug (2 pins) x 1

(*1) TOA's unique technology which makes it possible to transmit high-quality audio signals in real time over an IP network.

»» Line Output Module

VX-300LO



Model	VX-300LO
Power Source	Supplied from the VX-3000 Frame (DA CONTROL LINK)
Current Consumption	Max. 2 mA (Current through DC POWER IN)
Input	DA CONTROL LINK: Connector (15 pins)
Audio Output (*)	1 channel Output signal level: 0 dBV Adjustable range of the volume control: - ∞ to 0 dB Output method: 10 kΩ, transformer-balanced Applicable load impedance: 2 kΩ or more Frequency response: 40 Hz - 20 kHz ± 1 dB Distortion: 1 % or less (0 dBV output, 1 kHz) Signal to Noise Ratio: 60 dB or more Removable Terminal Block (3 pins)
Operating Temperature	0 °C to +40 °C
Operating Humidity	90 %RH or less (non condensation)
Finish	Surface-treated Steel Plate
Dimensions (W x H x D)	76 x 39 x 33.2 mm
Weight	56 g
Accessory	DA CONTROL LINK Cable x 1, Removable Terminal Plug (3 pins) x 1, Mount Base for cable binding x 2, Fixing Screw x 1

(*)1 When installed in the VX-3000 frame

»» Fireman's Microphone

RM-200SF

»» Fireman's Microphone Extension

RM-320F



Model	RM-200SF	RM-320F
Power Source	24 V DC (operating range: 15 – 40 V DC)	From remote microphone
Current Consumption	240 mA or less	180 mA max.
Distortion	1 % or less	-
Frequency Response	200 Hz – 15 kHz	-
Signal-to-Noise Ratio	55 dB or more	-
Audio Output	0 dBV, transformer-balanced	-
Microphone	Unidirectional dynamic microphone with talk key, AGC (ON/OFF switchable)	-
Chime	Built inside (PCM sound source), Monitoring available with a built-in speaker	-
Volume Control	Microphone volume, Monitor speaker volume, Chime volume (using the software)	-
Connection Cable	Main line: Shielded CPEV cable or Shielded Category 5 twisted pair cable for LAN (CAT5-STP), M3 screw terminal	Connection to RM-200SF by dedicated cable
No. of Connectable RM -320F	Max. 4 units	-
Key Operation	Emergency key, Talk key, 3 Function keys	20 Function keys
Finish	ABS resin, bluish gray (PANTONE 538 or its equivalent)	
Dimensions (W x H x D)	200 x 215 x 95 mm	175 x 215 x 70 mm
Weight	1.48 kg	700 g



Remote Microphone

RM-300X



Model	RM-300X
Power Source	24 VDC (operating range: 15 - 40 VDC), supplied from the Voice Evacuation Frame or DC input power supply connector
Current Consumption	240 mA or less
Audio Output	0 dBV, 600 Ω, balanced
External Microphone Input	-40 dBV, 2.2 kΩ, unbalanced, ø3.5 mm phone jack, phantom powering [When used as AUX input] -20 dBV, 4.7 kΩ, unbalanced
Frequency Response	100 Hz – 20 kHz
Distortion	1 % or less
Signal-to-noise Ratio	60 dB or more
Microphone	Unidirectional electret condenser microphone with AGC (ON/OFF selectable)
Chime	Built inside (PCM sound source), Monitoring available with a built-in speaker
Volume Control	Microphone volume, Monitor speaker volume, Chime volume (using the software)
Connectable Cable	Main line: Shielded CPEV cable or Shielded Category 5 twisted pair cable for LAN (CAT5-STP), Branch line: Shielded Category 5 twisted pair cable (CAT5-STP), RJ45 connector
No. of Connectable RM-210F	Max. 7 units
Operation	Emergency/all-zone emergency broadcast key, Talk key, 13 Function keys
Finish	ABS resin, black
Dimensions (W x H x D)	190 x 76.5 x 215 mm (gooseneck microphone excluded)
Weight	880 g

Remote Microphone Extension

RM-210F



Model	RM-210F
Power Source	Supplied from the RM-300X (option)
Current Consumption	80 mA or less (Increase in power input at the RM-300X (option))
AC Power Consumption	2.4W (Including power loss of the Emergency Power Panel) 0.4W (Standby, including power supply lose of the Emergency Power Panel)
Operation	Zone selection key x 10
Indicators	Function switch indicator x 10, Zone selection indicator x 10
Operating Temperature	0 °C to +40 °C (32 °F to 104 °F)
Operating Humidity	35 % to 80 %RH (no condensation)
Finish	ABS resin, black, semi-gloss
Dimension (W x H x D)	110 x 76.5 x 215 mm (4.33" x 3.01" x 8.46")
Weight	350 g
Accessory	Connection cable (8 pins, 8 cm (3.15")) x 1, Joint bracket A x 2, Joint bracket B x 1, Screw for joint bracket x 12
Applicable Unit	Remote microphone: RM-300X
Option	Wall mounting bracket: WB-RM200

End Of Line Module

VM-300SV



Model	VM-300SV
Power Source	Supplied from VX-3008F, VX-3016F, VM-3240VA, VM-3360VA
Power Consumption	0.2W
Speaker Line Input	Screw connector, Applicable cable diameter: AWG 24 - AWG 19
Contact Output	Connected to the emergency contact input of VX-3008F / VX-3016F, VM-3240VA / VM-3360VA / VM-3240E / VM-3360E Connector cable: Twisted pair cable (shielded type in recommended) Max. cable length: 10 m (32.81ft)
Speaker Line	Max. cable length: 500 m (546.81yd) Max. load: 100 W *Applicable only for 100 V speaker line
Dimension (W x H x D)	70 x 18 x 45 mm (2.76" x 0.71" x 1.77")
Weight	20 g

Power Supply Manager

VX-3000DS
VX-3150DS



Model	VX-3000DS	VX-3150DS
Applicable Model	System VX-3000 / SX-2000; all amplifiers	
Power Source	220 – 230 VAC, 50/60Hz	
Power Consumption	2800W max in total (at rated output with charging), 650 w max in total, 350W max each (EN 60065)	1460W max in total (at rated output with charging)
DC Power Output (AC mode)	Rated output: 2300W (total DC power output), Peak output: 2780W (total DC power output)	Rated output: 1140W (total DC power output), Peak output: 1280W (total DC power output)
DC Power Output	8 x 31 V (19 – 33V) 25A max. each, M4 screw terminal, distance between barriers: 11 mm 3 x 31 V (19 – 33V) 5A max. each, removable terminal block (3 x 2 pins) 1 x 24 V (16 – 25V) 0.3A max., removable terminal block (1 x 2 pins)	
Charging Method	Temperature compensated trickle charging	
Charging Output Voltage	27.3V +/- 0.3V (at 25°C), Temperature correction coefficient: -40mV/°C	
Battery Connection	One each positive and negative terminal, applicable cable diameter: AWG 6 – AWG 0 (AWG 1/0) (16mm² – 50mm²) Line resistance within 4mΩ/ total	
Control Connector	RJ45 female connector for connecting the system and cascade connection,	
DS LINK IN/OUT	Shielded Twisted-pair straight cable (TIA/EIA-568A standard) Type of control signal: Battery check, AC power status, DC power status, charging circuit failure, battery failure, and communication	
Panel Indicator	AC power IN 1, IN 2 (Green), Charging (Green), Battery power (Green), Battery connect (Green), Battery condition (Green)	AC power IN 1, Charging (Green), Battery power (Green), Battery connect (Green), Battery condition (Green)
Dimensions (W x H x D)	482 x 132.6 x 400.5mm (19", 3U)	
Weight	11.8kg	9kg

VX-3000 Series System Configuration

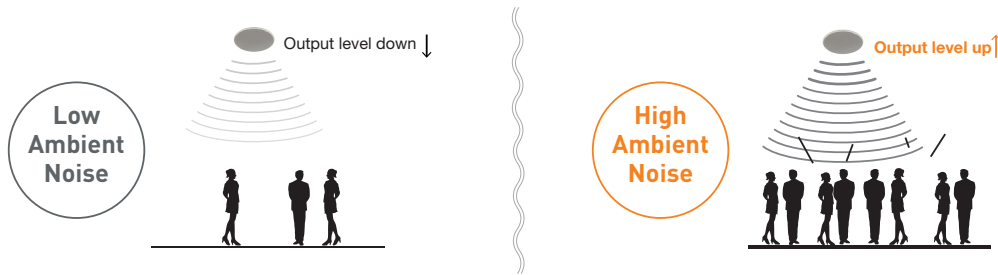
Flexible Broadcasting

Broadcast of many different audio signals to multiple zones simultaneously, flexible speaker driving

- | Broadcast initiation patterns: Remote microphone key operation, VX-3000CT key operation, internal timer, voice activation and more.
- | Selectable audio sources: Live announcement, pre-recorded message, music, and more.
- | Multi-phased priority setting

High Sound Quality & Intelligibility

- | Comprehensive DSP functions for inputs and outputs including automatic feedback suppressor
- | Automatic output volume adjustment depending on the ambient noise level (Ambient Noise Control function)



Ideal for Small to Large Scale Applications

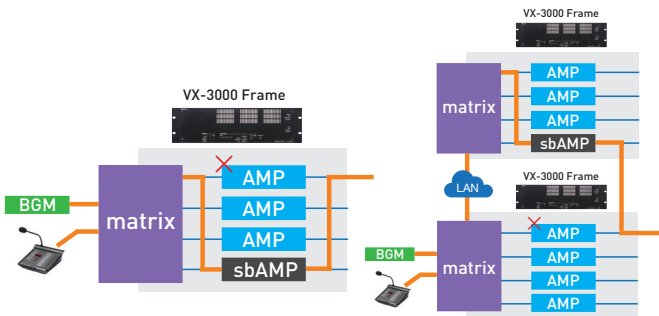
- | Minimized configuration - All functions, all inputs and outputs are incorporated in one VX-3000 Frame.
- | A small number of system components helps easy system configuration.
- | Scalability - One large-system with maximum 2560 speaker zones and 1280 remote microphones is possible.

Reliability

- | Certified to EN 54-16
- | Redundant system configuration - network connection, standby amplifier setting and backup power supply.
- | Advanced failure detection
- | Fault indications assignable to control outputs, remote microphone function keys, VX-3000 Frame's LEDs, buzzers, e-mail notifications, etc.

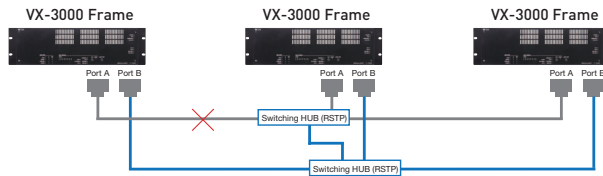
Redundant amplifier

A standby amplifier can be shared among the multiple VX-3000 Frames.



Redundant network

Redundant LAN connection can be configured for more reliable system.



Integration

- | Connectable with TOA's NX-300 Network Audio Adapter and IP-3000 Series IP Public Address System
 - | Remote Protocol enables VX-3000 to be controlled by external devices.
- Furthermore, VX-3000 complies with Modbus protocol.

Eco-Friendly

- | Light-weight and energy saving - Modern power supply switching technology and power efficient digital amplifiers
- | Battery saving - Standby function for low power consumption during battery backup reduces the required battery capacity

Intuitive, yet Sophisticated Setting Software

- | Setting software provides different modes according to the user role or level.

VX-3000 Series System Configuration

Flexibility

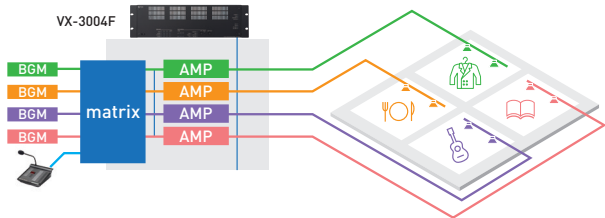
The underlying frames of the system are selectable according to the required broadcast pattern

Requirements

- The floor is divided into four zones.
- Each zone needs individual background music
- Announcement is sent to selected zone(s)
- Background music is override by announcement

VX-3004F

- Up to 4 modular amplifiers mountable
- Multi-route architecture
- Each zone has an exclusive amplifier
- One of mounted amplifiers can serve as a standby amplifier

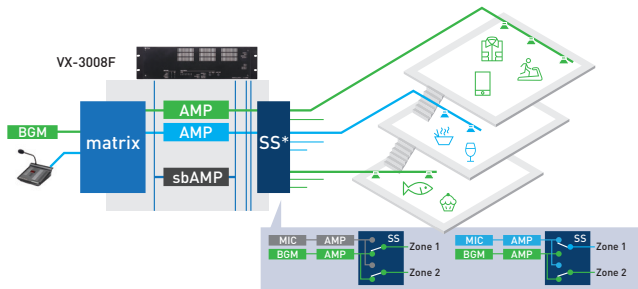


Requirements

- The floor is composed of multiple zones.
- Common background music is delivered to all zones
- Announcement is sent to selected zone(s) without disrupting the background music in the other zones.
- Background music is override by announcement

VX-3008F

- Up to 3 modular amplifiers mountable, one of which serves as a standby amplifier
- 2 bus lines and 8 switching zones
- One amplifier covers multiple zones

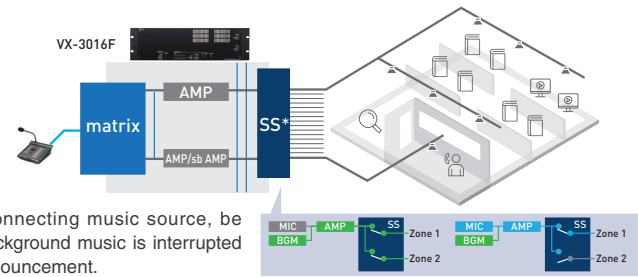


Requirements

- The floor is divided into multiple zones with individual attenuator
- No background music required
- Announcement is sent to selected zone(s)

VX-3016F

- Up to 2 modular amplifiers mountable 16 switching zones
- Broadcasting to multiple zones with only one amplifier is possible

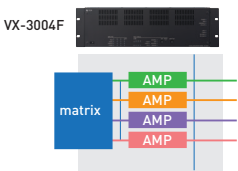


*SS stands for speaker selector

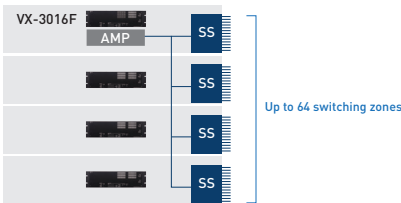
In case of connecting music source, be noted that background music is interrupted by paging announcement.

Flexible speaker driving from 1 zone per amplifier up to 64 zones per amplifier

1 zone per amplifier

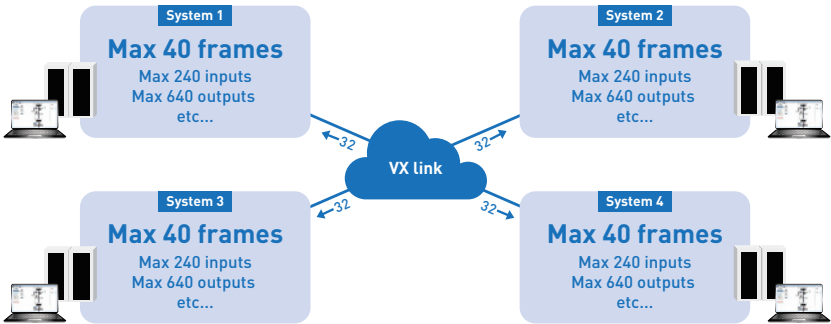


Speaker selector expansion



Scalability

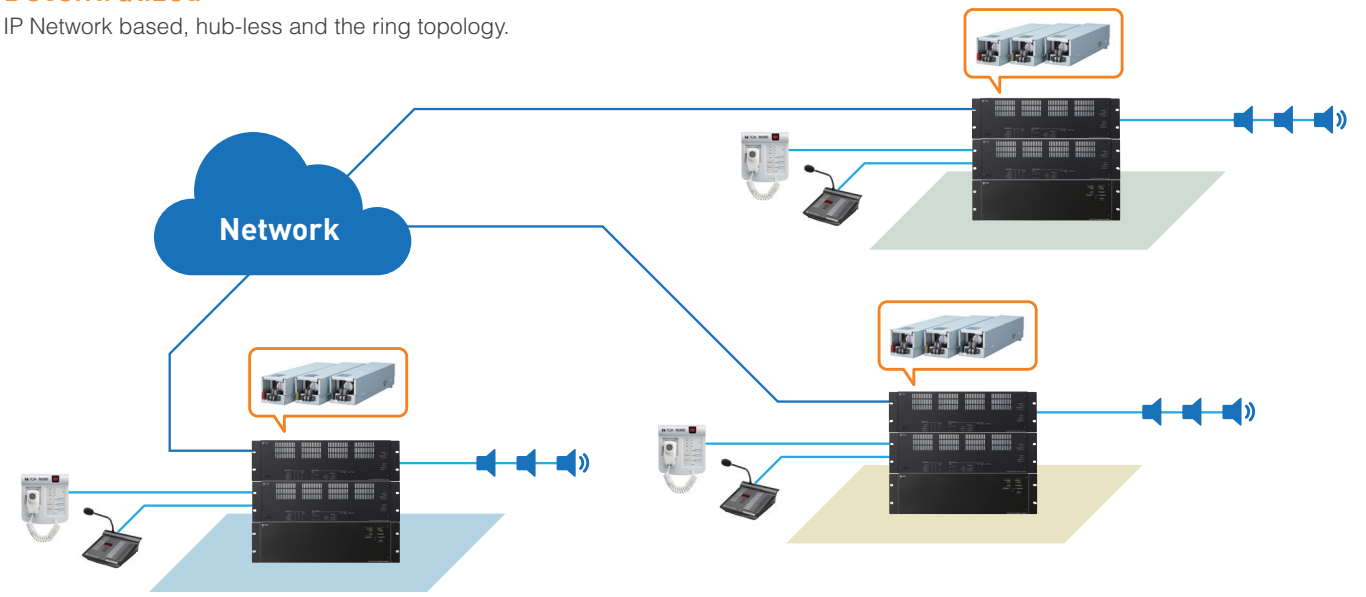
One system can be configured with max 40 frames, one of which is set to ID:0 and serves as a master frame. Up to 4 systems can be integrated via VX link, allowing to configure one large-scale system with maximum 1,920 audio inputs and maximum 2,560 zones.



VX-3000 Series System Configuration

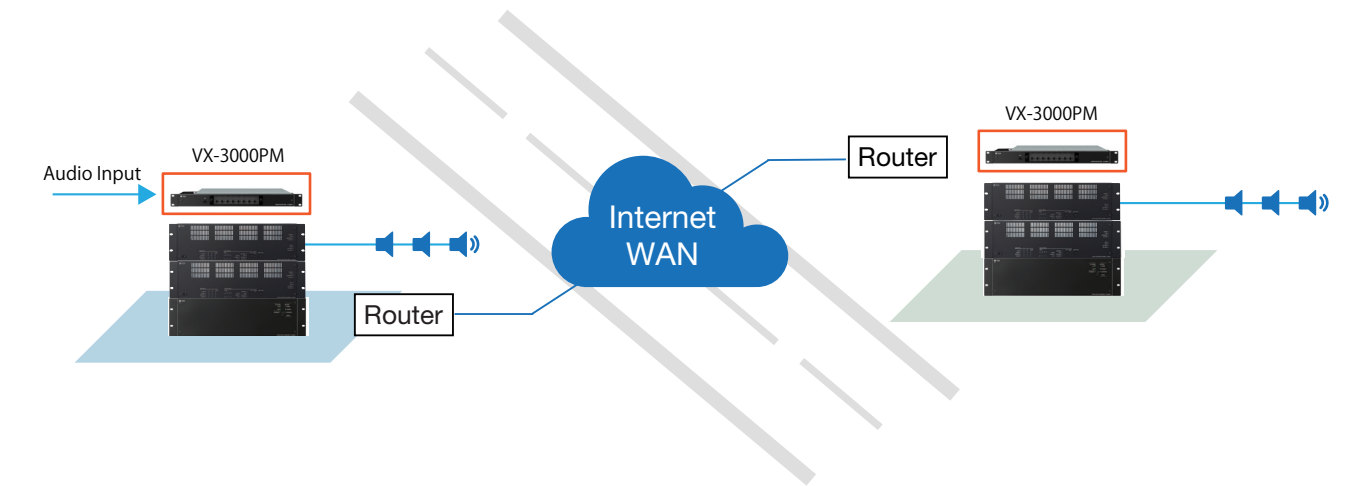
Decentralized

IP Network based, hub-less and the ring topology.



Audio Streaming over the WAN

VX-3000PM Preamp Matrix Panel enables unicast audio streaming via routers, which allows long distance broadcasts even between buildings across public roads.



System Component

Remote Microphones

RM-200SF

RM-320F

RM-300X

RM-210F

Amplifier Modules

VX-015DA / VX-030DA / VX-050DA

Frames

VX-3004F

VX-3008F

VX-3016F

Preamp Matrix Panel

VX-3000DS / VX-3150DS

Line Output Modules

VX-300LO

Control Panel

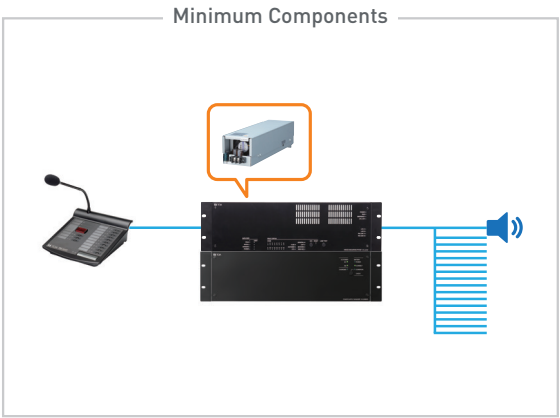
VX-3000CT

Power Supply

VX-3000DS / VX-3150DS

Cost Effective / Space saving

All important functions for PA/VE are incorporated in one unit frame.



Description

The FV-200 Series Emergency Public Address System is suitable for small to mid-scale venues, allowing up to 50 speaker lines, for general purpose and/or emergency broadcasts. The system provides automatic playback of messages through EV audio files, delivering broadcasts to all areas and over-riding external attenuators.

Pre-loaded with 4 voice alarm messages, FV-200EV enables emergency broadcasts to be made automatically to all zones through connection to a fire alarm system. It can also be activated manually using the fireman's microphone which has the highest priority, or via it's built-in buttons on the front panel.

For general broadcasts, audio output from the main operation panel FV-200PP can be configured to either a 1-channel output of mixed background music (BGM) and priority broadcast, or a 2-channel output of BGM and priority broadcast separately. Announcements to specific areas can be achieved through the Remote Microphone Receiver Panel FV-200RF and Remote Microphone RM-200M using the zone selector keys on the RM-200M or RM-210. In addition, broadcast areas can also be selected when used with SS-2010, SS-1010 or SS-1010R Speaker Selector.

System Features

- FV-200EV loaded with pre-recorded voice alarm messages (Alert, Evacuation, False Alarm, Clear) for emergency broadcasts
- Link fire alarm system to FV-200EV to broadcast automatic announcement during emergency
- Highest priority broadcast is given to announcements made via FV-200EV's fireman microphone. Next priority broadcast is given to timer, paging, and remote microphone on FV-200PP
- 4 additional control output on FV-200EV to connect to external devices (e.g. attenuator, led indicator etc)
- 4 additional Mic/Line and 2 Aux input on FV-200PP
- Select interrupted or non-interrupted BGM with FV-200PP
- Choice of amplifiers: FV-224PA (240W) or FV-248PA (480W)
- Connect up to 4 remote microphones (RM-200M) with FV-200RF. Maximum 4 remote extension units (RM-210) per remote microphone
- FV-200RF can control up to 50 speaker lines and all-zone calls
- FV-200CA enables automatic changeover to a working standby amplifier when the duty amplifier becomes faulty
- MP-210 is built in with a speaker and LED display, allowing overall operation of an equipment rack
- Up to 10 amplifier output levels can be selected and monitored with MP-210
- Connect FV-200PS to an emergency power supply (VX-2000DS) for uninterrupted DC power during AC power failure

Maximum System Capacity

Output Power	24,000W
Speaker Zones	50
Remote Mic connection	4



FV-200 Series

»» Emergency Message Panel

FV-200EV

Model	FV-200EV
Power Source	Useable power supply unit: FV-200PS 24 V DC (operating range: 19.5 - 27V), M3 Screw Terminal
Current Consumption	250 mA
Emergency Announcement	Alert, Evacuation, False and Clear (Repeated continuously)
Emergency Warning Language	English (default)
Audio Input	Fireman's mic: -55dBV, 600Ω, unbalanced, XLR-3P connector
Audio Output	EV: -20dBV, unbalanced, Removable terminal block (2 pins) FA Input: No-voltage make contact input, Open voltage: 24V DC, Short-circuit current: 5 mA or less, Removable terminal block (2 pins)
Control Input	Control output: Relay contact output x 4, Rated voltage: 24 V DC, Removable terminal block (2 pins)
Control Output	Control output: Relay contact output x 4, Rated voltage: 24 V DC, Removable terminal block (2 pins)
Frequency Response	20 Hz - 20 kHz, ±3 dB, 1 kHz
Distortion	1% or less (1kHz, rated output)



Wave Format	44.1kHz sampling frequency, 16bit PCM (monaural)
Recording System	USB data transfer from rear panel
Max. Recording Time	6 minutes (use built in memory)
Operation	Alert/Evacuation/False/Clear/Stop announcement button)
LED Indicator	Green: Power, Alert / Evacuation / False and Clear Announcement/USB Red: Fire
Operating Temperature	0 °C to +40 °C
Operating Humidity	90% or less RH (no condensation)
Finish	Front Panel: Aluminium, black, alumite
Dimensions (W x H x D)	482 x 100 x 396.7 mm
Weight	4.3 kg with microphone
Accessories	Removable terminal plug (2 pins) x 7, Fireman's Microphone x 1, Instruction manual x 1

Note: Specification measured at DC 24 V

»» Pre-Amplifier Mixer Panel

FV-200PP

Model	FV-200PP
Power Source	Useable power supply unit: FV-200PS 24 V DC (operating range: 19.5 - 27V), M3 Screw Terminal
Current Consumption	110 mA
Audio Input	EV / Timer: -20dBV, 600Ω, unbalanced, Removable terminal block (2 pins) Paging / MIC/LINE Input 1-4: -60/-20dBV (selectable), 600Ω, balanced, Removable terminal block (3pins) RF Link: 0dBV, 600Ω, unbalanced, Removable terminal block (2 pins) AUX 1-2: -20dBV, 10 kΩ, unbalanced, RCA Jack
Audio Output	Priority output, BGM output: 0dBV, balanced, Removable terminal block (3 pins)
Control Input	EV/Timer/Paging: No-voltage make contact input, Open voltage: 24V DC, Short-circuit current: 5 mA or less, Removable terminal block (2 pins)
Control Output	All Calls: Contact Switch(Normally Open), Removable terminal block (2 pins)
Muting	MIC/INPUT 1: Mutes other input signals (Mic/Line 2-4: AUX1-2) by 0 - 30dB attenuation



Frequency Response	50 Hz - 15 kHz, ±3 dB, 1 kHz
Phantom Power	MIC/INPUT 1 (selectable)(+21 V DC)
Priority Control	Fireman's Mic->EV-> Timer->Paging->Remote Mic->Mic/Line 1->Mic/Line 2-4 and AUX 1-2
Tone Control	Bass: -10 dB at 100 Hz, +10 dB at 100 Hz (for INPUT BGM) Treble: -10 dB at 10 kHz, +10 dB at 10 kHz (for INPUT BGM)
S/N Ratio	60 dB or more
Distortion	1% or less (1kHz, rated output)
LED Indicator	Green: Power
Operating Temperature	0 °C to +40 °C
Operating Humidity	90% or less RH (no condensation)
Finish	Front Panel: Aluminium, black, alumite
Dimensions (W x H x D)	482 x 88.4 x 353.3 mm
Weight	4.2 kg
Accessories	Removable terminal plug (2 pins) x 7, Removable terminal plug (3 pins) x 8, Instruction manual x 1

Note: Specification measured at DC 24 V

»» Microphone Receiver Panel

FV-200RF

Model	FV-200RF
Power Source	Useable power supply unit: FV-200PS 24 V DC (operating range: 19.5 - 27V), M3 Screw Terminal
Current Consumption	230 mA
No. of Zone Groups in Speaker Selector	Max. 10 (SS-2010, SS-1010R, SS-1010)
Priority Control for Remote Microphone	Last-in-1st-out priority / 1st-in-1st-out priority / individual priority / selectable
Control Input	All Call: 1 input, No-voltage make contact input, Open voltage: 24V DC, Short-circuit current: 5 mA or less, Removable terminal block (2 pins)
Control Output	SS Control: 55 outputs, logic control output, Removable terminal block (6 pins)
RM Link	Usable Remote Mic No. of Connectable to Remote Mic Max. Cable Distance
	RM-200M Remote Microphone extension unit: RM-210 (Max. 4 unit) Max. 4 RM-200M Total 800 m



RF Link	
Audio Output	0 dBV, unbalanced, Removable terminal block (2 pins)
S/N Ratio	60 dB or more
Chime	Ascending 4-note tone
Distortion	1% or less (1kHz, rated output)
LED Indicator	Green: Power / Red: Error
Operating Temperature	0 °C to +40 °C
Operating Humidity	90% or less RH (no condensation)
Finish	Front Panel: Aluminium, black, alumite
Dimensions (W x H x D)	482 x 44 x 335.2 mm
Weight	4.2 kg
Accessories	Removable terminal plug (2 pins) x 2, Removable terminal plug (3 pins) x 1, Removable terminal plug (6 pins) x 10, Instruction manual x 1

Note: Specification measured at DC 24 V

»» Amplifier Changeover Panel

FV-200CA

Model	FV-200CA
Power Source	24 V DC (operating range: 21.6 - 26.4V), M3 Screw Terminal
Current Consumption	240 mA
No. of Input Channel	6 Duty Amplifier, 1 Standby Amplifier
No. of Output Channel	6 Output
Failure Detection	Fault Buzzer with Buzzer CTRL switch
Display	Green: Power indicator, Orange: Changeover indicator, Red: Fault indicator, Buzzer CTRL indicator



Operating Temperature	0 °C to +40 °C
Operating Humidity	90% or less RH (no condensation)
Finish	Front Panel: Aluminium, black, alumite
Dimensions (W x H x D)	482 x 44 x 343.8 mm
Weight	2.6 kg
Accessories	Removable terminal plug (2 pins) x 3, Removable terminal plug (8 pins) x 4

Note: Connectable up to 6 FV-200CA



**Please refer to specification sheet for detailed information.

» DC Power Supply Panel

FV-200PS

Model	FV-200PS
Power Source	200V - 230V AC, 50/60 Hz 24 V DC (operating range: 19.5 - 27V), M3 Screw Terminal
Current Consumption	160 W (275 VA) at rated power output (230V AC operation)
Output	AC operation: 24 V DC \pm 1, 5A (total) DC operation: Voltage lower DC input voltage approx. by 2V, M4 Screw Terminal
Display	Green: AC Power indicator, Orange: DC Power indicator



Operating Temperature	0 °C to +40 °C
Operating Humidity	90% or less RH (no condensation)
Finish	Front Panel: Aluminium, black, alumite
Dimensions (W x H x D)	482 x 44 x 335 mm
Weight	3.2 kg
Accessories	Power cable x 1

» Power Amplifier

FV-224PA FV-248PA



Model	FV-224PA	FV-248PA
Power Source	220V - 230V AC, 50/60 Hz 24 V DC (operating range: 19.5 - 27V), M4 Screw Terminal, distance between barriers: 12 mm	
Power Consumption	AC at rated output 565 W (condition: AC230V) AC at no signal: 22 W IEC60065: 245 W	AC at rated output 1110 W (condition: AC230V) AC at no signal: 44 W IEC60065: 480 W
Current Consumption	DC at rated output 15 A (condition: DC27V) DC at no signal: 0.3 A IEC60065: 5.8 A	DC at rated output 30 A (condition: DC27V) DC at no signal: 1.0 A IEC60065: 10.9 A
Rated Output	240 W	480 W
Input	2 inputs, 0 dBV, 20 k Ω , balanced, removable terminal plug (3 pins) Input module VP-200VX (Option)	
Output Impedance	21 Ω (70V), 42 Ω (100V)	10 Ω (70V), 21 Ω (100V)
Speaker Output	M4 Screw Terminal, distance between barriers: 12 mm	
Control Output	Fault output Make: Normal, Break: Error or Power Off	
S/N Ratio	60 dB or more	
Total Harmonic Distortion	1% or less (1kHz, 1/3 rated output)	
Frequency Response	80 Hz - 15 kHz, \pm 3 dB, 1 kHz	
Ventilation	Fan Cooling	
LED Indicator	Green: Power, Signal / Red: Peak, Fault	
Operating Temperature	0 °C to +40 °C	
Operating Humidity	90% or less RH (no condensation)	
Finish	Front Panel: Aluminium, black, alumite	
Dimensions (W x H x D)	482 x 88.4 x 337.2 mm	482 x 132 x 333.2 mm
Weight	13.4 kg	18.5 kg
Accessory	Removable terminal plug (3 pins) x 3, Instruction Manual x 1	
Option	VP-200VX Input Module	

Note: Specification measured at AC 230V, 50 Hz

FV-200 Series Microphones and Optional Accessories

» Remote Microphone

RM-200M



Model	RM-200M
Power Requirement	24 VDC (operating range: 14 – 28 VDC) Power input jack: Non-polarity type Usable power input plug*: Outer diameter ϕ 5.5mm, inner diameter ϕ 2.1mm, length 9.5 mm
Current Consumption	100mA or less
Distortion	1% or less
Frequency Response	100Hz – 20 kHz
Signal-to-Noise Ratio	60 dB or more
Audio Output	0 dBV, 600 Ω , balanced
Microphone	Uni directional electret condenser microphone
No. of Function Keys	13 Emergency key (covered), Talk key
Emergency Broadcast**	Activation of Emergency Broadcast (pre-recorded or live microphone announcement) by Emergency Broadcast Switch
Volume Control	Microphone volume control
Connection Cable and Connector	Category 5 STP cable, RJ45 connector (Max. up to 800 m)
Finish	ABS resin, bluish gray (PANTONE 538 or its equivalent)
Dimensions (W x H x D)	190 x 76.5 x 215 mm (Gooseneck microphone excluded)
Weight	750 g
Accessory	Link cable (3 m) x 1
Option	Wall Mounting Bracket: WB-RM200

(*) Use AC adapter AD-246 or equivalent
(**) Connecting VM-2000 only



» Remote Microphone Extension

RM-210

EN 54
16



Model	RM-210
Applicable Model	RM-200M, RM-200SA, RM-200SF
Power Requirement	From remote microphone
Current Consumption	20mA max. (in terms of RM-200M's DC power input) 80mA max. (in terms of DC power inputs of RM-200SA and RM-200SF)
Key Extension	10 keys, freely assignable
Connection Cable and Connector	Connection by way of dedicated cable
Finish	ABS resin, bluish gray (PANTONE 538 or its equivalent)
Dimensions (W x H x D)	110 x 76.5 x 215mm
Weight	350g

» Emergency Power Supply

VX-2000DS



Model	VX-2000DS
Applicable Model	VM-2000 Series / VM-3000 Series / SX-2000 Series / FV-200 Series / VP-2000 Series amplifier, not the VP-3000 Series amplifier
Power Source	230V AC, 50/60 Hz
Power Consumption	240W max.
Applicable Battery	YUASA NP Series (12V x 2 or 4), Panasonic LC-X1265PG / APG (65Ah)
Charging Method	Trickle charging
Charging Current	5A max
Charging Output Voltage	27.3V ±0.3V (at 25°C) Temperature correction coefficient: -40mV/°C
Power Supply Input	6 / M4 screw terminal, distance between barriers: 11 mm
DC Power Output	6 (25A max. each) M4 screw terminal, distance between barriers: 11mm
Control Connector	RJ45 female connector for connecting the SX-2000 series. Twisted-pair straight cable (TIA/EIA-568A standard) Type of control signal: Battery check, AC power status, DC power status, charging circuit failure, and battery failure
Battery Connection	1 pair of positive and negative terminals, applicable cable diameter: AWG 6 – AWG 1/0
Finish	Panel: Surface-treated steel plate, black, 30% gloss, paint
Dimensions (W x H x D)	482 x 88.4 x 377.6mm (19", 2U)
Weight	10.5kg

» Power Amplifier Input Module

VP-200VX

EN 54
16



Model	VP-200VX
Applicable Model	FV-224PA and FV-248PA
Power Source	Supplied from FV-224PA or FV-248PA
Current Consumption	30mA or less
Finish	Panel: Surface-treated steel plate
Dimensions (W x H x D)	88 x 25.8 x 53.2mm
Weight	50g

» Speaker Selector

SS-2010



SS-1010

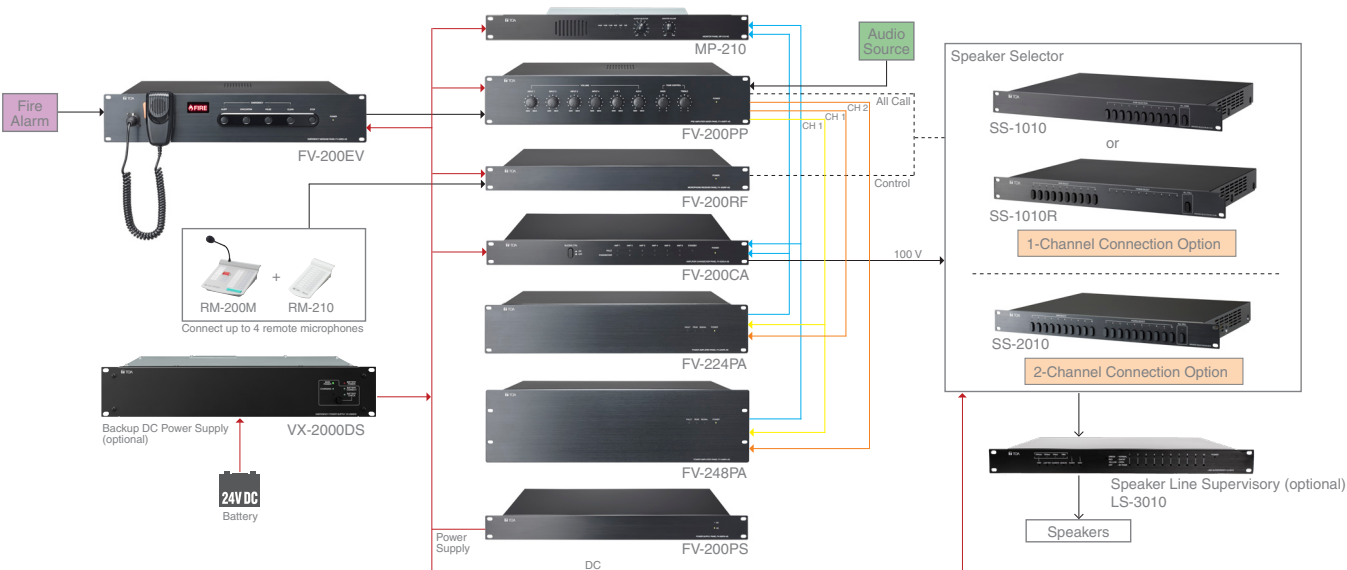


SS-1010R



Refer to page 27
for more info.

FV-200 Series System Configuration



VM-3000 series Integrated Voice Evacuation System

Description

The VM-3000 is a cost-effective integrated public address and voice alarm system. It is designed to fulfil the EN 54 European regulation for voice alarm and also engineered with powerful digital signal processor (DSP), ensuring high quality audio broadcasting for proper speech intelligibility. The compact design enables the system to fit best in various small to medium sized applications such as schools, shopping centres or restaurants.

System Features

- Cost-effective integrated public address and voice evacuation system
- Easy installation and compact design
- EN 54 certified
- Intuitive and userfriendly configuration through dedicated PC-Software
- 6 – 60 assignable speaker zones
- 4 – 13 MIC/LINE audio inputs (volume setting for each audio output)
- 8 remote microphones max. (4 x general + 4 x emergency; EN 54: max. 2 x emergency or 4 x general + 1 x emergency)
- 2 selectable BGM audio inputs
- 8 priority levels
- 1,000 system events can be logged
- 6 high quality electronic voice messages
- LCD display of current status and configuration settings
- Built-in emergency microphone
- Simultaneous broadcast of 2 emergency messages (alert and evacuation)
- Remote maintenance via LAN
- Continuous speaker line monitoring without interruption of BGM or paging announcements (no external amplifier required)
- Modbus protocol ready
- Complete fault detection and indication

Maximum System Capacity

Output Power	3,600W
Speaker Zones	60
Remote Mic connection	8



Certificate No: 1438-CPD-0180

VM-3000 Series

»» Voice Alarm System Amplifier

VM-3240VA

VM-3360VA



Model	VM-3240VA	VM-3360VA
Applicable Model	VM-3240E, VM-3360E, VX-3000DS, VX-3150DS	
Power Requirement	230 VAC, 50/60Hz	
Power Consumption	600 W (with rated output signal), 260 W (according to EN 62368-1)	850 W (with rated output signal), 380 W (according to EN 62368-1)
Rated Output	240 W	360 W
Frequency Response	50Hz – 20kHz, ± 3 dB (at 1/3 rated output)	
Distortion	Under 0.7 % (at rated output, 1 kHz)	
Signal-to-Noise Ratio	Over 85 dB	
Inputs	Input 1 – 3: -50 dBV (MIC) / -10 dB (LINE) (changeable), 600 Ω , electronically balanced combined, XLR connector (female) / phone jack Input 4: -50 dBV (MIC) / -10 dB (LINE) (changeable), 600 Ω , electronically balanced, removable terminal block (14 x 2 pins) BGM 1 - 2: -10 dB, 10 k Ω unbalanced, RCA pin jack (2 x 2) 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 dBV, 10 k Ω , unbalanced, RCA pin jack	
Control	Input 1 - 8: No-Voltage make contact input, open voltage: 24 VDC, short-circuit current: under 2mA, removable terminal block (14 pins) Output 1 - 8: Isolated open collector output, withstand voltage: 30 VDC, operating current: under 10mA, removable terminal block (14 x 2 pins)	
Emergency Control	Input 1 - 5: No-Voltage make contact input, open voltage : 24 VDC, short-circuit current: under 2mA, RJ45 female connector Input 6: Isolated voltage input: Inactive; -24 V ± 20 % / Active; +24 V ± 20 %, RJ45 female connector Status out: Relay contact output, withstand voltage: 40 VDC, operating current: 2 – 300mA, RJ45 female connector	
24V DC Output	24 VDC, maximum feeding current 0.3A	
Finish	Panel: Surface-treated steel plate, black, 30 % gloss, paint	
Dimensions (WxHxD)	482 x 132.6 x 431.2 mm (19", 3U)	
Weight	16.5 kg	19 kg

»» End Of Line Module

VM-300SV

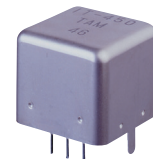


Refer to page 08 for more info.

»» Input Transformer

IT-450

Impedance: 600 Ω \pm 10%
Frequency Response: 200 Hz - 10 kHz



»» VM Extension Amplifier

VM-3240E

VM-3360E



Model	VM-3240E	VM-3360E
Applicable Model	VM-3240VA, VM-3360VA, VX-3000DS, VX-3150DS	
Power Requirement	230 VAC, 50/60Hz	
Power Consumption	600 W (with rated output signal), 260 W (according to EN 62368-1)	850 W (with rated output signal), 380 W (according to EN 62368-1)
Rated Output	240 W	360 W
Frequency Response	50Hz – 20kHz ± 3 dB (at 1/3 rated output)	
Distortion	Under 0.7 % (at rated output, 1kHz)	
Signal-to-Noise Ratio	Over 85 dB	
Inputs	External amplifier Input: 100 V Line removable terminal block (14 pins) Local input -50 dBV (Mic) / -10 dBV (Line), 600 Ω / electronically balanced, removable terminal block (14 x 2 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: 24 VDC, short-circuit current: under 2mA, removable terminal block (14 pins) Output 1 – 8: Isolated open collector output, withstand voltage: 30 VDC, operating current: under 10mA, removable terminal block (14 pins)	
Emergency Control	Input 1 – 5: No-Voltage make contact input, open voltage : 24 VDC, short-circuit current: under 2mA, female connector RJ45 Input 6: Isolated voltage input: Inactive; -24 V ± 20 % / Active; +24 V ± 20 %, RJ45 female connector Status out: Relay contact output, withstand voltage: 40 VDC, operating current: 2 – 300mA, RJ45 female connector	
24V DC Output	24 VDC, maximum feeding current 0.3A	
Finish	Panel: Surface-treated steel plate, black, 30 % gloss, paint	
Dimensions (WxHxD)	482 x 132.6 x 407 mm (19", 3U)	
Weight	16.5 kg	19 kg

VM-3000 Series Microphones and Optional Accessories

» Fireman's Microphone RM-300MF



Model	RM-300MF
Applicable Model	VM-3240VA, VM-3360VA, RM-320F
Power Requirement	24 VDC (operating range: 14 – 28 VDC)
Current Consumption	100mA (up to 550mA with 3x RM-320F)
Frequency Response	200Hz – 15 kHz
Distortion	Under 1 %
Signal-to-Noise Ratio	Over 55 dB
Audio Output	0 dBV, 600Ω, balanced
Microphone	Unidirectional dynamic microphone
Volume Control	Microphone, buzzer
Key Extension	Max. 3 RM-320F
Connection Cable	Shielded CPEV cable or Category 5 STP cable, M3 screw terminal
Finish	ABS resin, bluish gray (PANTONE 538 or its equivalent)
Dimensions (WxHxD)	200 x 215 x 82.5mm
Weight	1.1 kg

» Fireman's Microphone Extension RM-320F



» Remote Microphone RM-200M



» Remote Microphone Extension RM-210



» Power Supply Manager VX-3000DS VX-3150DS



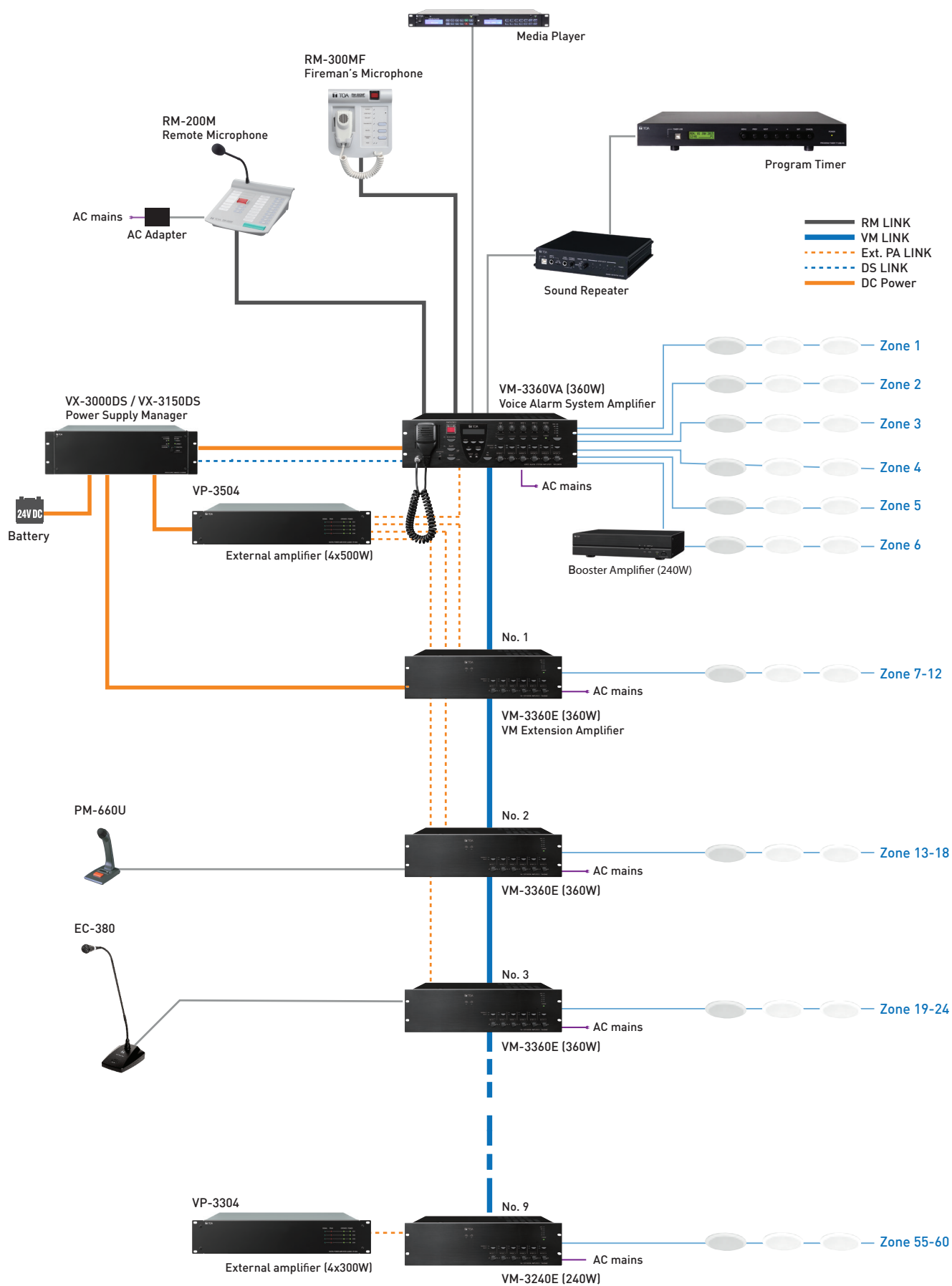
» Wall Mounting Bracket WB-RM200



Finish: Surface-treated steel plate, black, paint
Weight: 100g
Set Composition: Mount Bracket x 1
Accessory: Rack Mounting Screw x 1 set
Usable Unit: RM-200M, RM-200SA, RM-210



VM-3000 Series Application Example



VM-2000 series Cost-effective Package Amplifier

VM-2000 - Description

Taking advantage of TOA's long-accumulated technological expertise and knowledge in security and audio, the VM-2000 Series is part of a select range of sound management equipment. Featuring outstanding audio performance, this range of equipment satisfies the growing need for reliable and efficient communications for various applications including office buildings, schools, shopping malls, supermarkets, factories, hospitals and transportation terminals.

Targeted at medium-sized facilities, every VM-2000 Series unit offers three line/mic inputs, 2 BGM inputs and remote mic capability as well as telephone paging.

All controls and indicators are laid out in a logical, easy-to-see manner that aids operation. Tonal preferences may be set for each channel in order to optimize it to sound the best for speech or music signals. The processed input signals can then be sent on to any of five independent loudspeaker zones as desired, or automatically to all in the case of an emergency. Operation is simple and trouble-free for site staff. And the VM-2000 Series' clean, attractive design makes it well-suited for installation in a building's operation center equipment rack or even on a table or desk in a reception area.

Features

- > All-in-one package amplifiers
- > Built-in chime, control inputs and outputs
- > Options of surveillance and voice announcement boards
- > 3 x Mic/Line, 2 x BGM, 1 x telephone page inputs
- > 2 BUS

Maximum System Capacity

Output Power	2,160W
Speaker Zones	45 zones
Remote Mic connection	4 units



VM-2000 Series

»» System Management Amplifier

VM-2120

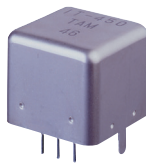
VM-2240



Model	VM-2120	VM-2240
Power Requirement	AC mains, 50/60Hz or 24V DC, 7.5A	
Rated Output	120 W	240 W
Frequency Response	50Hz – 16kHz	
Distortion	Under 1%	
S/N Ratio	Over 60 dB	
Tone Control	Bass: 100 Hz ±10 dB, Treble: 10 kHz ±10 dB	
Input	Mic/Line input x 3 Telephone paging input BGM input x 2 Power amplifier input External speaker line input	
Output	Speaker output Direct speaker line output Line output Recording output Preamplifier output	
Control Input and Output	(1) External control input •Activation of messages •Activation of power •Activation and stop of Emergency Broadcast •Unit's broadcast cutoff (when activated by an external emergency equipment) (2) Status output •Irregularity of communications with the Remote Microphone and an expansion amplifier •AC power condition •DC power condition •Irregularity of the sound source of the Voice Announcement Board •Failure (FAULT) indication on •Power switch on	
External Attenuator Control Output	Plug-in screw connector, relay, no-voltage make contact output, transfer type, withstand voltage: 30 V DC, 125 V AC, contact current: under 7 A (DC), under 7 A (AC)	
Surveillance Input and Output	Input: No-voltage make contact input, open voltage: 3.3 V DC, short-circuit current: under 1 mA Output: Open collector output, withstand voltage: 30 V DC, control current: under 10 mA	
Chime Tone	Built-in chime, Voice Announcement Board sound source	
Function	Two units stacking (VM-2120 or VM-2240) Emergency broadcast (sequential control) Broadcast priority control Surveillance (failure detection) function Power supply to only one Remote Microphone (RM-200M) Line resistance: Under 40 Ω (one way)	
Dimensions (W x H x D)	419 × 143.3 × 355.7 mm	
Weight	12.5 kg	14.5 kg

»» Input Transformer

IT-450

Impedance: 600Ω ± 10%**Frequency Response:** 200 Hz - 10 kHz

VM-2000 Series Microphones and Optional Accessories

» Remote Microphone RM-200M



» Remote Microphone Extension RM-210



» Voice Announcement Board EV-200M



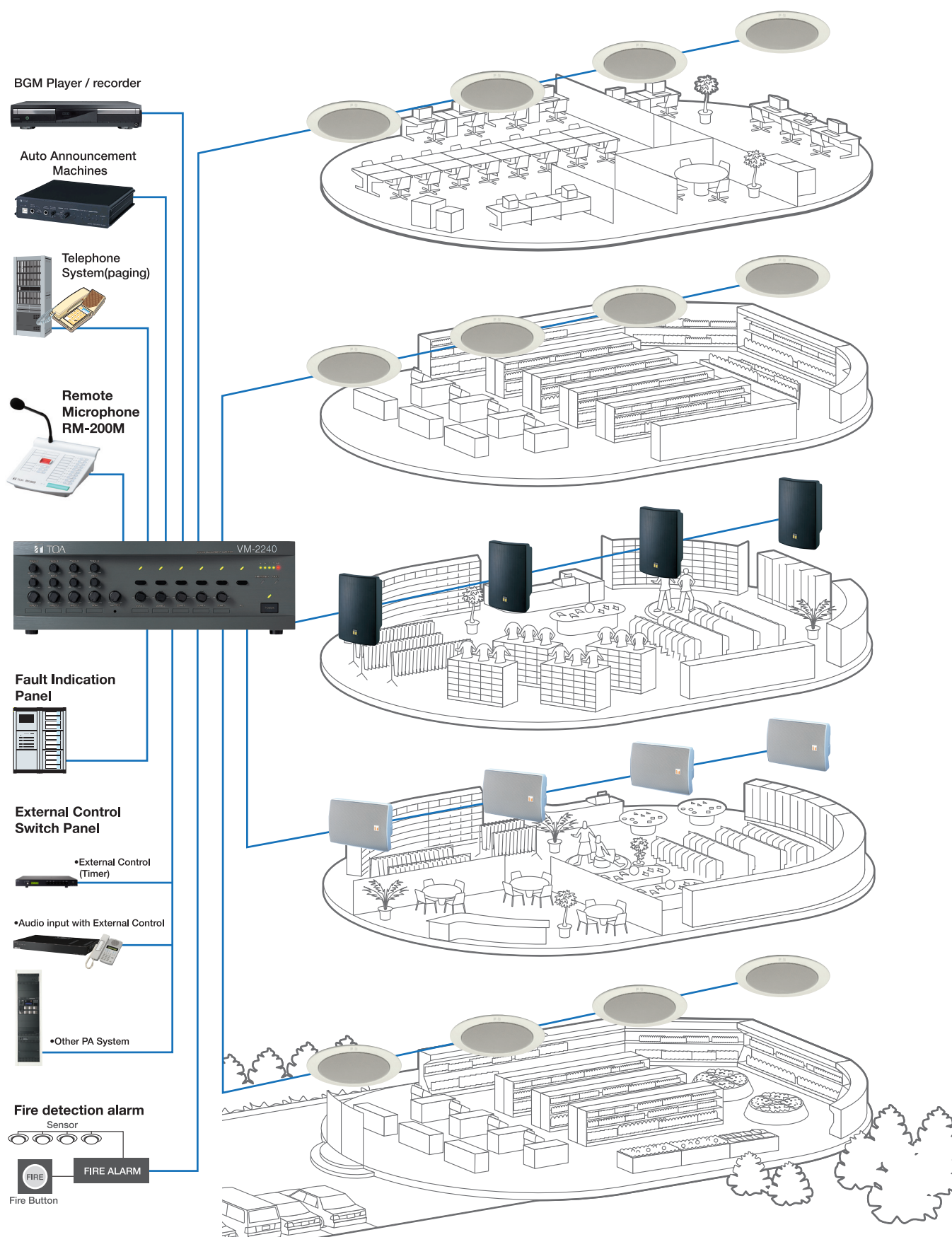
Model	EV-200M
Power Source	24 V DC, 0.2A
Power Consumption	5 W
Output	0 dBV
Frequency Response	20 Hz – 20 kHz (44.1 kHz sampling) 20 Hz – 14 kHz (32 kHz sampling)
Distortion	0.3% or less (44.1 kHz, recording method: Extremely High)
Playback Mode	Single source playback
No. of Playback Program	8 programs
Operating Temperature	0 °C to +50 °C
Operating Humidity	90% or less RH (no condensation)
Dimensions (WxHxD)	120 x 18.6 x 121 mm
Weight	120 g
Accessory	Mounting Screw x 2, CompactFlash card (128MB, preinstalled on the unit) x 1

» Surveillance Board SV-200MA



Model	SV-200MA
Power Source	24 V DC
Current Consumption	120 mA
Control Input/Output	Input: No-voltage make contact input, open voltage: 3.3 V DC, short-circuit current: 1 mA or less (1) Speaker line initial setting activation signal (2) Speaker line surveillance activation signal Output: Open collector output, withstand voltage: 30 V DC, control current: 10 mA or less (1) Monitoring short or open of individual speaker line (zone 1 - 5) (2) Ground fault (insulation resistance: 50 kΩ or less) (3) Power amplifier failures Input/Output Input: No-voltage make contact input, open voltage: 24 V DC, short-circuit current: 60 mA or less Output: Open collector output, withstand voltage: 24 V DC (used with VM 24 V DC output), control current: 20 mA or less (1) Speaker Zone information/selection (2) Power amplifier fault link Connector: D-sub connector (25-pin, female)
Failure Detection	Power amplifier failure: 20 kHz pilot tone detection Speaker line failure: 40 Hz impedance detection (Detectable minimum load: 5 W)
Speaker Line Surveillance	Speaker lines are automatically monitored at set time intervals
Set Time	(10 - 60 mins, at 10 mins intervals)
Operating Temperature	0 °C to +50 °C
Operating Humidity	90% or less RH (must be free from dew condensation)
Dimensions (WxHxD)	90 x 20.6 x 157 mm
Weight	140 g
Accessory	Flat cable x 2

VM-2000 Series System Configuration



Rack Mount Equipment

Audio Player

Media Player MD-200

Model	MD-200
Power Source	220V - 240V AC, 50/60 Hz
Power Consumption	15 W
Frequency Response	20 - 20 kHz, ±3 dB
Tuner Receiving Frequency	87.5 - 108 MHz (50 kHz step)
Audio Input	FM 75 Ω antenna terminals USB port for memory stick (up to 32 GB, Type file: MP3 file) SD/MMC card slot (up to 32 GB, Type file: MP3 file)
Headphone Output	RCA audio output L and R channels for PRIORITY RCA audio output L and R channels for FM RCA audio output L and R channels for USB / SD



Channels of memory Tuner	30 Channels in total for FM broadcasts
Indicators	2 LCD Display Light Blue, 2 LED Indicator Light Green
Finish	Front Panel: Steel Plate, Color Black Case: Steel Plate, Color Black
Dimensions (W x H x D)	482 x 44 x 186 mm
Weight	2.6kg
Accessory	AC power cord 1CE, AC power cord 4CE, Antenna FM Radio, Remote Control

Digital Announcer

Digital Announcer EV-700

Model	EV-700
Power Source	Supplied from an external 24 V DC (21.6 – 26.4 V)/400 mA power supply,Removable terminal block (2 pins) or from an optional AD-246 AC adapter
Power Consumption	10 W
Wave Format	44.1 kHz/32 kHz sampling rate, 16 bits PCM, WAV file (monaural)
Sound Source	LAN data transfer/Analog recording/ Rewriting Method Direct write to memory card using the setting software
Audio Input	MIC: –55 dBV (microphone input volume control in maximum position), 600 Ω, unbalanced, ø6.3 phone jack (2P) LINE(rear): –20 dBV (line input volume control in maximum position), 10 kΩ, unbalanced, Removable terminal block (12 pins) LINE(front): –29 dBV (line input volume control in maximum position), 10 kΩ, unbalanced, RCA pin jack
Audio Output	LINE 1, 2: 0 dBV, 600 Ω, unbalanced, Removable terminal block (12 pins) Headphones: 0 dBV, 100 Ω, monaural, ø3.5 mini jack (3P)
Frequency Response	20 Hz – 20 kHz ±3 dB (1 kHz) 50 Hz – 14 kHz ±3 dB (IT-450 mounted, 1 kHz)
Distortion	0.3 % or less (1 kHz, rated output)
Storage Media	Compatible with CompactFlash™ specification Memory card
Number of Mountable Memory cards	2 (1 Memory card containing preset sound sources is supplied.) Backup operation available when 2 cards are mounted.
No of Recordable Phrases	32768
Maximum Recording Time	About 3 hours (at 44.1 kHz sampling rate) or about 4 hours (at 32 kHz sampling rate)
Number of Playback Program	Direct mode: 16 programs / Binary mode: 256 programs 1 emergency message takes precedence over the above programs and is played back. R.E.M. (Recording Endless Message) playback* can be performed.



Audio Output Method	Single channel monaural
Control Input	Activations 1 – 16, playback, pause, recording, erasure/clear, emergency playback, emergency recording, emergency pause No-voltage make contact input, pulse make length: 50 ms or more, open voltage: 30 V DC, short-circuit current: 10 mA, Removable terminal block (16 pins)
Control Output	Shorting outputs 1 – 8 (busy), Error: contact capacity: 30 V DC, 0.5 A, Removable terminal block (8 pins)
Network	
Network I/F	100BASE-TX
Network protocol	TCP/IP, UDP, HTTP, FTP
Connector	RJ45 connector
Operating Display	7-segment LED, 5 digits
Finish	Panel: Aluminum, black, 30 % gloss, paint Case: Pre-coated steel plate, black, 30 % gloss
Dimensions (WxHxD)	420 x 44 x 222 mm
Weight	2.4 kg
Accessory	Memory card (Containing prerecorded audio files) x 1, Rubber foot x 4, Removable terminal plug (2 pins) x 1, Removable terminal plug (8 pins) x 2, Removable terminal plug (16 pins) x 2, Removable terminal plug (12 pins) x 2, Front cover fixing screw x 2, CD (setting software) x 1
Option	AC adapter: AD-246, Rack mounting bracket: MB-15B

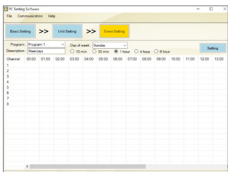
* An emergency broadcast function that repeatedly plays the sound source recorded on the spot with the highest priority in case of an emergency situation.

Notes

- Line output can be converted to balanced type using an optional IT-450 transformer.
- CompactFlash is a trademark of SanDisk Corporation.

Program Timer

Program Timer TT-208



• Setting Software available

Model	TT-208
Power Source	220V - 230V AC, 50/60 Hz
Power Consumption	10 W
Audio Output	Westminster Chime, Level 0 dB, 600 Ω
Frequency Response	20 Hz to 20 kHz
Synchronise Time	Send out pulse per 1 minute
Control Output	8 channels contact switch (NO), 1 output contact switch (NO)
Display	Power Indicator: Green, LCD Character: Back Light Green, USB Indicator PC Link: Orange
Power Output Protection	100 hours



Operating Humidity	Under 90% RH (no condensation)
Operating Temperature	0°C to +50°C
Finish	Front Panel: Aluminium, black, Alumite Case: SECC plate, black, Paint
Dimensions (W x H x D)	420 x 59 x 342 mm
Weight	3.2kg
Accessory	Power Cable (YA-301) x 1, Removable Terminal Plug (2 pins) x 12, CD ROM (Software & Manual) x 1
Option	Rack Mounting Bracket: MB-15B



Multi-Channel Monitors

» Monitor Panel MP-011

Model	MP-011
Power Source	24V DC
Power Consumption	400 mA
Input	10 zone high impedance level: 50V, 70V, 100 V (selectable) Line level: 0 dBV (1V)
Monitor Speaker	33 x 14 mm dynamic speaker, 3W / 8Ω



Meter	7-point LED meter
Control Signal Input	Emergency control signal (bypasses volume control) Talk switch signal (feedback prevention)
Dimensions (W x H x D)	482 x 44 x 219.1 mm
Weight	2.5 kg

» Monitor Panel MP-032B

Model	MP-032B
Function	Aural/Visual, monitoring (up to 10 power amplifiers)
Controls	Channel Selector switch, Monitor Volume Control, Watt Meter, Line Voltage Selector switch
Speakers	Full-range 12 cm speaker
Input Lines	25V (625Ω), 50V (2.5kΩ), 70V (5kΩ), 100V (10kΩ) switchable



Terminals	M4 screw terminals, distance between barriers: 8.8 mm
Finish	Surface-treated steel plate, black
Dimensions (W x H x D)	482 x 133 x 89 mm
Weight	2.2 kg
Accessory	Rack mounting screw (with washer) x 4

» Multi-Channel Monitor MP-1216

Model	MP-1216
Power Source	220V - 240V AC, 50/60 Hz
Power Consumption	25 W
Max. Display Level	Speaker (High Impedance: 100V, Low Impedance: 1200W/8Ω); Line: +10dB* 2.45V
Level Meter	12-point display, -30dB ±6dB (0.3W - 1200W/8Ω)
Speaker Output	Max. 3W
Headphone Output	8Ω



Finish	Front Panel: Alumite, black
Dimensions (W x H x D)	482 x 88.4 x 312.7 mm
Weight	5.3 kg
Accessory	AC Fuse, 250V T250 mA x 1, Rack Mounting Screw, Jumper Strip x 16
Option	Connection Cable, YA-8 (1m long, 8P Din plug)

(*) 0dB = 2.775V

» Monitor Panel MP-210

Model	MP-210
Power Requirement	24 V DC
Current Consumption	30 mA
Input	10 zone high impedance level: 100V line Level line: 40 dBV (100V)
Speaker Component	30 x 70 mm cone speaker 6W / 8Ω
Monitor Level	6-point LED display



Control Panel	Channel Selector switch, Volume Control switch
Finish	Front Panel: Black, Chassis and Case: Natural SECC
Dimensions (W x H x D)	482 x 44 x 116.4 mm
Weight	1.1 kg
Accessory	Removable Terminal Plug (2 pins) x 10

Line Supervisory

» Line Supervisory LS-3010

Model	LS-3010
Power Source	24 V DC, 450 mA
Measurement Frequency	50 Hz, 1 kHz
Measurement Range	20 Ω - 10 kΩ (1 W - 500 W)
Input	10 channels, 100 V from amplifier output
Output	10 channels, to speaker lines, max load 500 W each channel
Control Output	10 channels, dry contact (DC 30 V, 1 A)
Fault Control	2 channels, common for all channel (1-10)
LED Indicator	10 LED status ch (Normal: Green, Open: Orange, Short: Red) Green: 4 LED Timer, 1 LED Buzzer, 1 LED Reset, 1 LED Power



Switch	Timer, setting interval time (OFF, 1 min, 1 hour, 12 hour, 24 hour) Lamp Test, Calibrate, Measure Buzzer, Reset, 10 Channel
Finish	Front Panel: Aluminum, Hairline, Alumite Black Case: Steel plate, Painting black
Dimensions (W x H x D)	482 x 44 x 320 (H) mm
Weight	3.3 kg
Accessories	6P connector x 12, 2P connector x 1



**Please refer to specification sheet for detailed information.

Rack Mount Associated Equipment

» 1U-Size Blank Panel BK-013B

» 2U-Size Blank Panel BK-023B

» 3U-Size Blank Panel BK-033B



Model	BK-013B	BK-023B	BK-033B
Finish	Pre-treated steel plate, black, 30% gloss		
Dimensions (W x H x D)	482 x 44 x 10 mm	482 x 88.5 x 10 mm	482 x 133 x 10 mm
Weight	220 g	390 g	560 g
Accessory	Rack Mounting Screw (with fiber washer) x 4		

» 1U-Size Perforated Panel PF-013B

» 2U-Size Perforated Panel PF-023B



Model	PF-013B	PF-023B
Pantched Area Ratio	32 %	
Finish	Pre-coated steel plate, black, 30% gloss	
Dimensions (W x H x D)	482 x 44 x 10 mm	482 x 88.5 x 10
Weight	160 g	280 g
Accessory	Rack Mounting Screw x 4 (with fiber) x 4	

» Blower Panel BP-031B



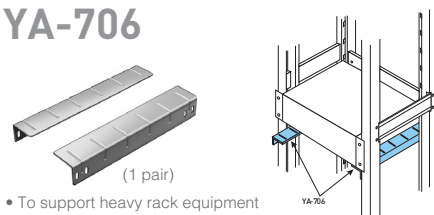
Model	BP-031B
Power Source	220 V AC, 50/60 Hz
Power Consumption	8.5 W
Control	3-function switch (MANUAL/OFF/AUTO)
Protection	1 AC fuse
Automatic Operation	Thermal switch ON (when rack temperature exceeds 48°C) / Thermal switch OFF (when rack temperature drops below 38°C)
Ventilation	1.5m ³ / min
Finish	Surface-treated steel plate, black, 30% gloss, paint
Dimensions (W x H x D)	482 x 133 x 152.7 mm
Weight	3.7 kg
Accessory	Rack Mounting Screw x 4, Fuse x 1, Power Cord (2m) x 1

» Power Switch Panel PS-011B



Model	PS-011B
Type	Power Remote Switch
Switch Capacity	5 A at 250 V AC; 10 A at 125 V AC
Finish	Panel: Surface-treated steel plate, black, 30 % gloss, paint
Dimensions (W x H x D)	483 x 44.5 x 90 mm
Weight	650 g
Accessory	Rack Mounting Screw (with washer) x 4, Fuse x 1

» Rack Supporting Runner YA-706



- To support heavy rack equipment

Model	YA-706
Finish	Surface-treated steel plate
Weight	720 g (2 pieces)
Applicable Racks	CR-273, CR-413 and CR-413-6
Accessory	Rack Mounting Screw x 1 set



Sound Repeater

» Desktop Sound Repeater

EV-20R



Model	EV-20R
Power Source	Supplied from an external 24 V DC/400 mA power supply or from an optional AD-246 AC adapter
Power Consumption	10 W (rated output)
Wave Format	44.1 kHz sampling frequency, 16-bit PCM (monaural)
Frequency Response	20 Hz - 20 kHz, ±3 dB (1kHz) 50 Hz - 14 kHz, ±3 dB (IT-450 mounted, 1kHz)
Distortion	1% or less (1kHz, rated output)
Recording System	USB data transfer or analog recording
Control Input	Play 1-4, stop: No-voltage make contact input, pulse make length: 200ms, open voltage: 30 V DC, short-circuit current: 10 mA, removable terminal block (22 pins)
Control Output	Busy: Contact capacity 30 V DC/0.5A, removable terminal block (22pins)
Input	Input/Recording input: Mic/Line changeable, -60 dBV, 2.2 kΩ (MIC), -20 dBV, 10 kΩ (LINE), unbalanced, phone jack Line input: 0 dBV, 10 kΩ, unbalanced, removable terminal block (22 pins)
Output	Line output: 0 dBV, 600Ω, unbalanced, removable terminal block (22 pins) Headphone output: 0 dBV, 100Ω, unbalanced, phone jack Speaker output: 3W, 8Ω, removable terminal block (22 pins)
LED Indicator	POWER, USB, START/STOP 1-4

Max. No. of Messages	4 Pre-recorded audio data: Message 1 Westminster chime* Message 2, Ascending 4-tone chime* Message 3, Descending 4-tone chime* Message 4, None Note: The above audio sources can be overwritten by using the supplied software
Max. Recording Time	6 minutes
Messages Delay Time	0, 2s, or 4s (selectable)
Playback Interval Time	∞, 0, 5s, 10s, 30s, 1min, 5mins, 10mins, 30mins, or 1hr (selectable)
Finish	ABS resin, black
Dimensions (W x H x D)	210 x 44.2 x 181 mm
Weight	730 g
Accessory	CD ROM (USB data transfer software and sample chimes recorded) x 1, Unbalanced-phone plug x 1, USB cable (1m) x 1, removable terminal block (22 pins) x 1, Rubber foot x 4
Option	Rack Mounting Bracket: MB-WT3 (for rack mounting one unit of EV-20R), MB-WT4 (for rack mounting 2 units of EV-20R), AC Adapter: AD-246

* These audio sources are also contained in the supplied CD-ROM as sample audio data

Speaker Selectors

» Speaker Selector

SS-2010

SS-1010

SS-1010R



Model	SS-2010	SS-1010	SS-1010R
Voltage Source	24 V DC		
Current Consumption	0.6 A	0.4 A	
Inputs	10 Inputs BGM, 10 Inputs Paging	10 Inputs Zone, 1 Emergency Override	10 Inputs BGM/Paging, 1 Link as Input/Output
Output	10 Outputs, each output channel max. 480W @ 100V Line	10 Outputs Zone, Each zone max. 480W	10 Outputs with 3 wire R-H-C, Each zone max. 480W
Controls (Front)	10 BGM Selectors, 10 Paging Selectors, 1 All Call Selector	10 Zone Selectors, 1 All Zone Selector	10 BGM Selectors, 1 All Call Selector
Controls (Rear)	1-10 Paging Controls In, All Paging Control In	1-10 Zone Controls In, All Zone Control In	1-10 Paging Controls In, All Paging Control In
LED Indicator	10 BGM Selector LEDs, 10 Paging Selector LEDs, 1 All Call LED	10 Zone Selector LEDs, 1 All Zone LED	10 BGM Selector LEDs, 10 Paging Selector LEDs, 1 All Call LED
Operating Temperature	0 °C to +40 °C		
Finish	Front Panel: Aluminum Hair Line, Etching Black; Case: Steel Plate, Black, Paint		
Dimensions	482 × 44 × 320 mm		
Weight	3.2 kg		
Accessory	6P Connectors x 12, 2P Connector x 1		

Cabinet Racks

» Cabinet Rack

CR-131N

CR-273

CR-413

CR-413-6



Model	CR-131N	CR-273	CR-413	CR-413-6
Finish	Top, Bottom: Surface-treated steel plate, t1.2, off-white, matte finish paint Side Panel: Surface-treated steel plate, t1.6, off-white, matte finish paint Rear Panel: Surface-treated steel plate, t1.0, off-white, matte finish paint	Chassis Section: Surface-treated steel plate Top Plate/Flame 2 mm thick Reinforcement 1.6 mm thick Base: steel plate (2 mm thick), power coating, black Design Section: Pre-coated steel plate (1 mm thick), Ivory, Semi-gloss		
Dimensions (W x H x D)	546 x 674.5 x 420	566 x 1364 x 435	566 x 2000 x 435	566 x 2000 x 615
Weight	20.3 kg	48 kg	60 kg	76 kg
Accessory	Plastic Feet x 4, Plastic Cable Ties x 12, Fixing Screw x 1 set	Screw Cover x 2, Screw Cover Rail x 6, Cable Clip x 12, Fixing Screw x 1 set	Screw Cover x 2, Screw Cover Rail x 8, Cable Clip x 20, Fixing Screw x 1 set	
Color	Pale Ivory	Ivory		
Option	-	Blower Unit: BU-412, Rack Runner: YA-706		

Network-Related Systems

Network Audio Adapters

»» Network Audio Adapter

NX-100

NX-100S



Model	NX-100	NX-100S
Power Source	24 V DC (removable terminal block (3 Pins)) or AC adapter AD-246 (optional) or the equivalent	AC adapter AD-246 (optional) or the equivalent
Current Consumption	200 mA (DC operation)	7 W (when AD-246 (optional) is used)
Audio Input	1 channel (transformer isolated), -58 dBV to 0 dBV, balanced (MIC/LINE changeable, volume adjustable with volume control), 2 kΩ, removable terminal block (3 Pins)	1 channel (transformer isolated), -58 dBV to 0 dBV, balanced (MIC/LINE changeable, volume adjustable with volume control), 2 kΩ, removable terminal block (3 Pins), Phantom power supply, (24 V, can be set with the switch)
Audio Output	2 channels (transformer isolated), balanced, 600 Ω, removable terminal block (3 Pins)	
Frequency Response	50 Hz - 14 kHz (when sampling frequency is 32 kHz)	
Distortion	0.3 % or less (1 kHz, when sampling frequency is 32 kHz)	
Control Input	8 channels, no-voltage make contact input, Open voltage: 12V DC, short-circuit current: 10 mA, removable terminal block (9 Pins)	
Control Output	8 channels, open collector output (polarized), withstand voltage: 30V DC, control current: 50 mA max., removable terminal block (9 Pins)	
Network Section	Network I/F: 10BASE-T/100BASE-TX, Auto-negotiation Network Protocol: TCP, UDP, ARP, ICMP, HTTP, RTP, IGMPv1 Audio packet transmission system: unicast (Up to 4 simultaneous transmissions), multicast (Up to 64 simultaneous)	
Serial Interface	RS-232C (DCE I/F), D-sub connector (9P, male), 9600bps - 115200 bps	-
Operating Temperature	-10 °C to + 50 °C, (0 °C to + 40 °C when AC adapter is in use.)	0 °C to + 40 °C
Operating Humidity	90 % RH or less (no dew condensation should be produced)	
Finish	Steel plate, black, 30 % gloss	
Dimensions (W x H x D)	210 x 44.7 x 188 mm	
Weight	1.2 kg	
Accessory	CD (PC Installation & Operation Software programs, Instruction Manuals) x 1, Power Supply Removable Terminal Plug (3 Pins) x 1, Audio I/O Removable Terminal Plug (3 Pins) x 2, Control I/O Removable Terminal Plug (9 Pins) x 2, RS-232C Connector Cover x 1, Bracket Mounting Screw x 8	CD (PC Installation & Operation Software programs, Instruction Manuals) x 1, Audio I/O Removable Terminal Plug (3 Pins) x 2, Ferrite Clamp x 1, Control I/O Removable Terminal Plug (9 Pins) x 2, Bracket Mounting Screw x 8
Option	Rack Mounting Bracket: MB-15B-BK (for rack mounting one NX-100/100S unit), MB-15B-J (for rack mounting two NX-100/100S units) AC adapter: AD-246	

Note: When you need the AC adapter, be sure to consult your TOA Dealer

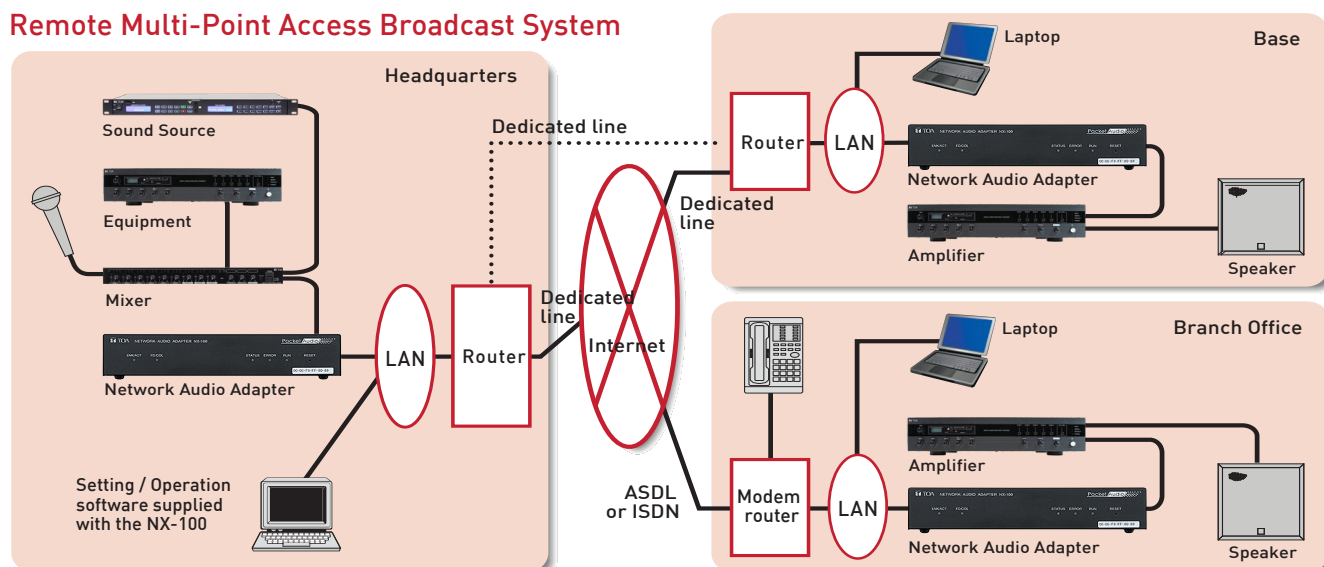
»» AC Adapter

AD-246



Model	AD-246
Power Source	220 - 240 V AC, 50/60 Hz (ER/UK), 110 - 120 V AC, 50/60 Hz (US)
Output	24 V DC, 1A
Current Consumption	300 mA (rated output) (ER/UK), 420 mA (rated output) (US)
Cord Length	1.5 m
Plug	RC6705 positive tip
Operating Temperature	0 °C to +40 °C
Finish	Case: Heat-resistant resin, Black
Weight	170 g
Accessory	Power Cord (2m) x 1

Remote Multi-Point Access Broadcast System



» Network Audio Adapter
NX-300



Model	NX-300
Power Source	Supplied from an external 24 V DC (21.6 - 26.4 V) power supply or AC adapter AD-246 (optional) or the equivalent
Power/Current Consumption	10 W (AC operation), 310 mA (DC operation)
Audio Input	2 channels, balanced (transformer isolated)/unbalanced changeable, 2 kΩ, LINE/MIC changeable, volume adjustable Rated input: -20 dBV (LINE)/-60 dBV (MIC) PAD function (-16 dBV), removable terminal block (6 Pins)
Audio Output	2 channels, balanced (transformer isolated), 600 Ω or less Rated output: 0 dBV (unbalanced input) /-2 dBV (balanced input), removable terminal block (6 Pins)
Frequency Response	50 Hz - 18 kHz (48 kHz sampling frequency, PCM, 0 to -6 dB deviation referred to 1 kHz)
Distortion	0.2 % or less (1 kHz, LINE signal level, at rated output)
Signal to Noise Ratio	73 dB or more (LINE signal level, at rated output)
Separation	70 dB or more (1 kHz, LINE signal level, BPF)
Audio Format	WAV file
Number of Storable Audio Files	Max. 8
Storable Time of Audio File	Max. 2 min. per audio file (16 kHz sampling frequency, sub-band-ADPCM, monaural operation)
Control Input	8 channels, no-voltage make contact input, Open voltage: 24V DC, short-circuit current: 2 mA or less, removable terminal block (9 Pins) (Only Channel 8 equipped with failure detection.)
Control Input Failure Detection Section	Connection resistance to make the function inactive: 20 kΩ -/+ 5 % Connection resistance to make the function active: 10 kΩ -/+ 5 % Connector cable: Twisted pair cable (shielded type is recommended)
Control Output	8 channels, open collector output (polarized), withstand voltage: 30 V DC, control current: 50 mA max., removable terminal block (9 Pins) 2 channels, relay output (non-polar), withstand voltage: 30 V DC, control current: 500 mA max., removable terminal block (4 Pins)
Network Section	Network I/F: 10BASE-T/100BASE-TX, Full-duplex/half-duplex Auto-negotiation Network Protocol: TCP, UDP, ARP, HTTP, RTP, IGMPv2, FTP, NTP Audio packet transmission system: unicast (Up to 16 simultaneous transmissions), multicast (Up to 64 simultaneous transmissions) Connector: RJ45 connector Voice sampling frequency: 8 kHz, 16 kHz, 32 kHz, 48 kHz (controllable on the software) Qualifying bit number: 16 bits Voice encoding method: PCM, sub-band ADPCM (controllable on the software) Voice packet loss recovery: Silence insertion Audio delay time: Min. 20 ms
Operation	2 channels, Audio input level control (convertible to Audio output level control)
Indicators	2 channels, audio input, SIGNAL (green)/PEAK (red), 2 channels, audio output, SIGNAL (green) LNK/ACT (green), BUSY (green), STATUS (green), ERROR (yellow), RUN (green)
Setting switch	Reset, grand lift changeable, audio input 2 channels PAD changeable, audio input 2 channels LINE/MIC changeable
SD Section	For log storage (Max. 10000) Media: SD/SDHC card (Max. 32 GB)* File system: FAT16, FAT32 *Use only SD memory cards rated at 100 mA current consumption or less *No SD card provided
Installation Method	Rack, Desk, Surface mount
Operating Temperature	-10 °C to + 50 °C, (0 °C to + 40 °C when AC adapter is in use.)
Operating Humidity	90 % RH or less (no condensation)
Finish	Pre-coated steel plate, black, 30 % gloss
Dimensions (W x H x D)	210 x 44.3 x 258 mm
Weight	1.7 kg
Accessory	Removable Terminal Block (3 Pins) x 1, Removable Terminal Block (6 Pins) x 2, Removable Terminal Block (9 Pins) x 2, Removable Terminal Block (4 Pins) x 1, Plastic Foot x 4, Screw for fitting plastic foot x 4
Option	Rack Mounting Bracket: MB-15B-BK (for rack mounting one NX-300 unit), MB-15B-J (for rack mounting two NX-300 units) Wall Mounting Bracket: YC-850, AC adapter: AD-246

* Not compatible with SDXC memory cards
Note: The NX-300 cannot be connected to other equipment using the MB-15B-J bracket for rack mounting.
When you need the AC adapter, be sure to consult your TOA dealers.



NX-300 Network Audio Adapter can convert audio signals to high quality digital signals. Regardless of the geographical distance, the digital signals can be transmitted simultaneously over the IP networks, such as LAN or Internet. The contact closure can operate the distant devices via the network.

IP Horn Speaker

» IP Horn Speaker IP-A1SC15

- Key benefits:**
- Maximum sound pressure level is 124 dB at 15 W powered with PoE+
 - Operating temperature -30° to +55°
 - Up to 20 sound sources can be pre-recorded
 - Individual volume level adjustment for each audio source



Model	IP-A1SC15
Power Source	PoE+ (IEEE802.3at Class 4), PoE (IEEE802.3af Class 3)
Power Consumption	22 W (at PoE+ powered, rated output) 13 W (at PoE powered, rated output) 5 W (IEC62368-1)
Amplifier Rated Output	15 W (at PoE+ powered), 8 W (at PoE powered)
Sensitivity	112 dB (1 W, 1 m) (500 Hz - 2.5 kHz, peak level)
Max. Sound Pressure Level	124 dB (at PoE+ powered, 15 W, 1 m) (500 Hz - 2.5 kHz, peak level) 121 dB (at PoE powered, 8 W, 1 m) (500 Hz - 2.5 kHz, peak level)
Frequency Response	280 Hz - 12.5 kHz
Audio Codec	PCMU (G.711u), PCMA (G.711a), G.722
Broadcasting Mode	SIP Broadcasting Mode: PCMU / PCMA / G.722 Multicast Broadcasting Mode: PCMU / PCMA / G.722, Max. 10 ports VMS Broadcasting Mode: Audio Backchannel, PCMC Internal Message Broadcasting Mode Note: Each broadcast mode can be assigned an order of priority using the Priority Setting Function.
Internal Messages	Max. 20 messages (Max. recording capacity: 80 MB) Supported file formats WAV file: 8/16/44.1/48 kHz sampling frequency, 8/16 bits, monaural/stereo MP3 file: 32/44.1/48 kHz sampling frequency, 64 - 320 kbps, CBR/VBR, monaural/stereo Repeat count: 1 - 10 times, Interval time: 0 - 30 sec Trigger: Control Input or Remote API (HTTP)
Network I/F	100BASE-TX, MDI/MDI-X, RJ-45
Network Protocol	TCP/IP, UDP, HTTP, RTP, ARP, ICMP, RTSP, SIP (RFC3261)
Control Input	2 channels, no-voltage make contact input, Open voltage: 5 V DC, short-circuit current: 2 mA or less, removable terminal block (3 Pins)
Control Output	1 channel, open collector output, withstand voltage: 30 V DC, control current: 10 mA or less., removable terminal block (3 Pins)
Indicators	LAN LINK/ACT (Green), STATUS (Orange)
Dust / Water Protection	IP66
Operating Temperature	- 30 °C to + 55 °C
Operating Humidity	90 % RH or less (no condensation)
Finish	Horn Flare and Body: Aluminum, Off-White (RAL 9010 equivalent), paint Reflector Horn: ABS resin, Off-White (RAL 9010 equivalent) Rear Cover: PC resin, Off-White (RAL 9010 equivalent), paint Bracket, Screws and Bolts: Stainless Steel
Dimensions (W x H x D)	222 x 211 x 276 mm
Weight	1.4 kg
Accessory	Rear Cover x 1, Removable Terminal Plug (3 Pins) x 2
Option	Speaker Mount Bracket: SP-131, SP-201, SP-301 Pole Band: YS-60B

Note: Take special care to avoid mounting this speaker directly to structures (such as ski lift towers) that generate large amount of vibration. Also, do not use this speaker in environments where is may be exposed to oil or other chemicals, as mounting parts could rapidly deteriorate, possibly resulting in personal injury or other accidents due to the speaker falling.



COMBINE VIDEO & AUDIO

Combined video and audio systems automate the primary response to emergency situations and help you respond immediately with a live announcement.

Surveillance	Analyze and Detect	Manage and Record	Alert
Endpoint Device	Video Content Analysis Software	Video Management Software	IP Horn Speaker



Intercom Systems (Window Intercom)

Window Intercom System

NF-2
NF-2S



Compact & Lightweight

The communication station can be installed in small spaces which is out of reach to other bulky or heavy communication equipment.

Instant Installation

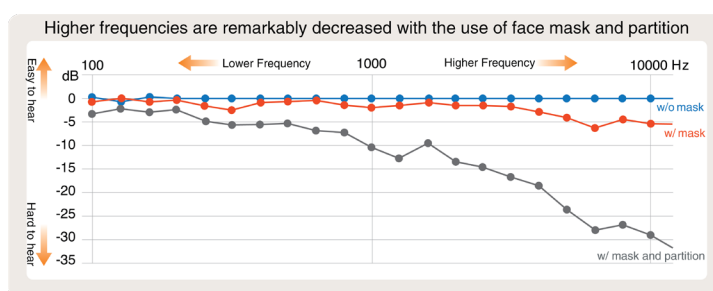
Simple wiring and mounting process makes it suitable for even temporarily booth setups and/or relocations.

Sophisticated Audio Control

Boosting higher frequencies to compensate intelligibility lost with the use of partitions. Higher frequencies also ensures lesser sound spread



A magnet is pre-mounted on the backside of the station for tool-free quick installation back to back. The optional magnetic plates with a double-sided tape are also included for more flexible installation



Model	NF-2	NF-2S
Power Source		9 V DC
Rated Output		1.7 W
Current Consumption		0.2 A
Signal to Noise Ratio		73 dB or more (volume: min.), 70 dB or more (volume: max.)
MIC Input		-30 dB ^{*1} , ø 3.5 mm mini jack (4P), phantom power supply
Speaker Output		16 Ω, ø 3.5 mm mini jack (4P)
Control Input	-	External mute input: No-voltage make contact inputs, open voltage: 9V DC or less, short-circuit current: 5 mA or less, push-in terminal block (2 pins)
Recording Output	0 dB ^{*1} , 10 kΩ unbalanced, RCA pin jack (monaural)	-
Indicators		Power LED, Signal LED
Finish		Base Unit: Case: ABS resin, white, paint / Panel: ABS resin, black, paint / Sub-Unit: ABS resin, white, paint
Dimensions (W x H x D)	Base Unit: 127 x 30 x 141 mm / Sub-Unit: 60 x 60 x 20 mm	Base Unit: 127 x 30 x 137 mm / Sub-Unit: 60 x 60 x 22.5 mm
Weight	Base Unit: 225 g / Sub-Unit: 50 g (per unit)	Base Unit: 225 g / Sub-Unit: 65 g (per unit)
Accessories	AC Adapter x 1, Power Cord x 1, Dedicated Cable (4 pins, 2m) x 2, Magnetic Plate for Mounting x 2, Rubber Foot for Base Unit x 4	Power Cord (1.8m) ^{*2} x 1, Dedicated Cable (4 pins, 2m) x 2, Metal Plate x 2, Rubber Foot for Base Unit x 4, Mounting Base x 4, Zip Tie x 4
Optional Accessories	5M Extension Cable: YR-NF5S / AC Adapter: AD-0910	Expansion set: NF-CS1 / 5M Extension Cable: YR-NF5S / AC Adapter: AD-0910

^{*1} 0dB = 1V

^{*2} No AC Adapter and Power Cord are supplied for Version W. For usable AC Adapter and Power Cord, consult your nearest TOA dealer.

Intercom Systems (IP Network)

Exchanges

» IP Network Intercom Exchange

N-8000EX
N-8010EX



Model	N-8000EX		N-8010EX	
Power Source	230 V AC (ver. CE) or 220 - 230 V AC (ver. CE-GB), 50/60 Hz			
Power Consumption	50 W (at rated), 75 W (max.)			
Interface Section or Station				
Speech Link	Internal: 4/ External: 8		Internal: 1/ External: 2	
Line Capacity	Up to 16 stations			
Wiring Method	1 set of twisted pair cables			
Transmission Range	Max. 1500 m (ø 0.65 mm. Loop resistance 170 Ω)			
Paging Output	Audio: 2 channels Max. 0 dBV, 600 Ω, balanced, detachable terminal block Control: 2 channels, no-voltage make contact output (24 V DC/0.5 A), removable terminal block		Station paging only	
Network Section				
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)			
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP			
Audio Packet Transmission System	Unicast, Multicast			
Voice Packet Loss Recovery	Silence insertion			
Audio Delay Time	80 ms, 320 ms (controllable on the software)			
Finish	Pre-coated steel plate, black, 30 % gloss			
Dimensions (W x H x D)	420 x 44.3 x 356 mm			
Weight	4.1 kg		4.2 kg	

Interfaces

» Multi-Interface Unit

N-8000MI



» Direct Select Unit

N-8000DI



» Audio Interface Unit

N-8000AF



Model	N-8000MI	N-8000DI	N-8000AF
Power Source	230 V AC, 50/60 Hz	220 - 240 V AC, 50/60 Hz	
Power Consumption	19 W (180 mA) (at rated), 24 W (230 mA) (max.)	16 W (Max.)	7 W (Max.)
Audio Input	Input: 2 inputs (2P/input), Max. 0 dBV, under 600 Ω, balanced, with a semi-fixed volume for adjustment (0 to -25 dB) Control: 2 inputs (2P/input), no-voltage make contact input, open voltage: 12 V DC, short-circuit current: 10mA Removable terminal block (8 pins)	-	1 input (transformer isolated), -58 dBV to 0 dBV, 2 kΩ, balanced (MIC/LINE input, controllable on the software) with input volume control knob, removable terminal block (3 pins)
Audio Output	Output: 2 outputs (2P/output), Max. 0 dBV, under 600 Ω, balanced Control: 2 outputs (2P/output), relay contact output, contact capacity: 24 V DC/0.5A Removable terminal block (8 pins)	-	1 output (transformer isolated), 0 dBV, 600 Ω, balanced, removable terminal block (3 pins)
Contact Input	16 inputs, no-voltage make contact input, open voltage; 12 V DC, short-circuit current: 10 mA, removable terminal block (18 pins) (1 common terminal for 4 inputs)	32 inputs, no-voltage make contact input, open voltage: 24 V DC, short-circuit current: 5 mA or less, removable terminal block (20 pins) (1 common terminal for 4 inputs)	8 inputs, no-voltage make contact input, open voltage: 24 V DC, short-circuit current: 5 mA or less, removable terminal block (10 pins), (1 common terminal for 4 inputs)
Contact Output	16 outputs, relay contact output, contact capacity: 24 V DC/0.5A, removable terminal block (18 pins)	32 outputs, relay contact output, contact capacity: 24 V DC/2 - 500mA, removable terminal block (32 pins)	8 outputs, relay contact output, contact capacity: 24 V DC/2 - 500mA, removable terminal block (32 pins)
Network Section			
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)		
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP		
Audio Packet Transmission System	Unicast, Multicast		
Voice Packet Loss Recovery	Silence insertion	-	Silence Insertion
Audio Delay Time	80 ms, 320 ms (controllable on the software)		
Finish	Pre-coated steel plate, black, 30% gloss		
Dimensions (W x H x D)	420 x 44.3 x 239.5 mm	420 x 44.3 x 267 mm	210 x 44.3 x 267 mm
Weight	2.8 kg	2.8 kg	1.7 kg
Options	-	Wall Mounting Bracket: YC-850	Rack Mounting Bracket: MB-15B-BK, MB-15B-J Wall Mounting Bracket: YC-850



Interfaces

»» Telephone Interface Unit N-8000AL



»» C/O Interface Unit N-8000CO



Model	N-8000AL	N-8000CO
Power Source	220 - 240 V AC, 50/60 Hz	
Power Consumption	8 W (Max.)	7 W (Max.)
Line: Public Switched telephone networks		
Number of Lines	1 line	
Selective Signal Type	DTMF Signal	
Signal System	-	Compatible with loop start signaling
Monitor Function	Line Loop detection	-
Control Function	Caller ID function	-
Wiring Method	1 pair of twisted pair cables	
Transmission Range	Max. 1500 m (ø 0.65 mm, Loop resistance 170 Ω)	
Network Section		
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)	
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP	
Audio Packet Transmission System	Unicast, Multicast	
Voice Packet Loss Recovery	Silence insertion	
Finish	Pre-coated steel plate, black, 30 % gloss	
Dimensions (W x H x D)	210 x 44.3 x 267 mm	
Weight	1.7 kg	
Options	Rack Mounting Bracket: MB-15B-BK, MB-15B-J, Wall Mounting Bracket: YC-850	

»» Sub-Station Interface Unit N-8000RS N-8010RS N-8400RS



Model	N-8000RS	N-8010RS	N-8400RS
Power Source	220 - 240 V AC, 50/60 Hz		
Power Consumption	40 W(at rated), 50 W (max.)	32 W (at rated), 38 W (max.)	30 W (at rated), 45 W (max.)
Interface Section for Sub-station			
Number of links	16 lines		
Number of Speech Links	2 links	1 link	2 links
Transmission Range	500 m / ø 0.5 mm, 800 m / ø 0.65 mm, 1300 m / ø 0.9 mm		1 km/ø0.5 mm, 1.5 km/ø0.65 mm, 2 km/ø0.9 mm
Wiring Method	Two-core shielded cable		2 sets of twisted pair cables
Network Section			
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)		
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP		
Audio Packet Transmission System	Unicast, Multicast		
Voice Packet Loss Recovery	Silence insertion		
Audio Delay Time	80ms, 320ms (controllable on the software)		
Finish	Pre-coated steel plate, black, 30 % gloss		
Dimensions (W x H x D)	420 x 44.3 x 325.5 mm		
Weight	3.9 kg	3.8 kg	4 kg
Options	Wall Mounting Bracket: YC-850		

Stations

IP Base Stations

»» IP Multifunctional Master Station
N-8600MS



»» IP Remote Microphone Station
N-8610RM



Model	N-8600MS	N-8610RM
Power Source	Power supply device that complies with IEEE802.3af standard or 12V DC (supplied from the AC adapter (optional))	
Power Consumption	3 W (max.)	Use of the AC adapter (12 V DC): 4 W (microphone only), 8.5 W (when connecting 4 RM-210 Extension units) Use of the PoE (48 V DC): 5.2W (microphone only), 7.5 W (when connecting 2 RM-210 Extension units)
Speech Method	Hands-free or handset conversation	Hands-free conversation (use of goose-neck microphone)
Audio Frequency Range	300 Hz – 7 kHz	
External Speaker Terminal	Maximum output 0.5 W, 8 Ω, screwless connector (2P)	-
No. of Connectable Expansion	-	Max.4 units (maximum 2 units at PoE power supply)
Network Section		
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)	
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP	
Audio Packet Transmission System	Unicast, Multicast	
Voice Packet Loss Recovery	Silence insertion	
Audio Delay Time	80 ms, 320 ms (controllable on the software)	
Finish	Body, Handset: ABS resin, gray	ABS resin, blueishgray
Dimensions (W x H x D)	148 x 208 x 70.5 mm (excluding a curl cord section)	190 x 76.5 x 215 mm (excluding microphone)
Weight	770 g	700 g
Options	Wall Mounting Bracket: YC-280, AC adapter: AD-1210P, AD-1215P	Remote Microphone Extension: RM-210 Wall Mounting Bracket: WB-RM200, AC adapter, AD-1210P, AD-1215P

»» IP Door Station
N-8640DS



»» IP Indoor Station
N-8650DS



»» Indoor Station Board
N-8640SB



Model	N-8640DS	N-8650DS	N-8640SB
Power Source	Power supply device that complies with IEEE802.3af standard or 12V DC (supplied from the AC adapter (optional))		
Power Consumption	5 W (max.)		
Speech Method	Hands-free conversation		
Audio Frequency Range	300 Hz – 7 kHz		
Contact Input	1 channel, no-voltage make contact input, open circuit voltage: 5V DC, short circuit current: 10mA or less, unterminated ends		
Contact Output	Open collector output, 4 channels, withstand voltage: 30V DC, control current; Max. 50mA (4 output 1COMMON), unterminated ends Relay contact output, 1 channel, withstand voltage: 30V DC. control current: Max. 500mA, unterminated ends		
External Speaker Terminal	0.5 W, 8 Ω		
Network Section			
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)		
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP		
Audio Packet Transmission System	Unicast, Multicast		
Voice Packet Loss Recovery	Silence insertion		
Audio Delay Time	80ms, 320ms (controllable on the software)		
Finish	Panel: Stainless steel, hairline Call button: Metal	ABS resin, dark gray	-
Dimensions (W x H x D)	115 x 162 x 58.5 mm	117.2 x 162 x 60 mm	79 x 134 x 53 mm
Weight	780 g	400 g	350 g
Options	For flush-mount: 3-gang Electrical Box or Back Box YC-150, Wall surface-mount: Wall Mount Box YS-13A, AC adapter: AD-1210P, AD-1215P		AC adapter: AD-1210P, AD-1215P

Note: An AC adapter, when used as power source, cannot be put in the YS-13A, YC-150 or a 3-gang electrical box together with the N-8640DS and N-8650DS because such boxes do not have enough room to accommodate both.
Be sure to ground the frame ground terminal on the unit's rear for N-8640DS



2-Wire Stations

» Multifunction Master Station
N-8000MS



» Standard Master Station
N-8010MS



» Standard Hands-Free Master Station
N-8011MS



Model	N-8000MS	N-8010MS	N-8011MS
Power Source	48 V DC (supplied from the IP network intercom exchange)		
Power Consumption	2.4 W (max.)		
Wiring Method	1 set of twisted pair cable		
Speech Method	Hands-free or handset conversation		Hands-free conversation
Audio Frequency Range	300 Hz - 7 kHz		
Transmission Range	Max. 1500 m (ø 0.65 mm. Loop resistance 170 Ω)		
External Speaker Terminal	0.6 W, 8 Ω, screwless connector (2P)	-	-
Finish	Body, Handset: ABS resin, gray		Body: ABS resin, gray
Dimensions (W x H x D)	148 x 208 x 70.5 mm(excluding a curl cord section)		2 x 195 x 56.1 mm
Weight	800 g	700 g	400 g
Options	Wall Mounting Bracket: YC-280		Wall Mounting Bracket: YC-290

» Industrial-Use Master Station
N-8020MS



» Flush-Mount Master Station
N-8033MS



» Flush-Mount Hands-Free Master Station
N-8031MS



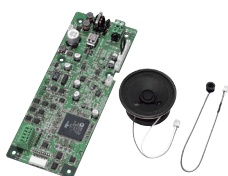
Model	N-8020MS	N-8033MS	N-8031MS
Power Source	48 V DC (supplied from the IP network intercom exchange)		
Power Consumption	2.4 W (max.)		
Wiring Method	1 set of twisted pair cable		
Speech Method	Hands-free or handset conversation		Hands-free or handset conversation (Handset conversation can be established in conjunction with the RS-191 (optional))
Audio Frequency Range	300 Hz - 7 kHz		
Transmission Range	Max. 1500 m (ø 0.65 mm. Loop resistance 170 Ω)		
Dial-in Contact Output	Open collector output (polarized) Withstand voltage: Max. 30 V DC, Control current: Max. 50 mA, screwless connector (2P)	-	-
External Dial Input	-	No-voltage make contact input, open voltage: 5 V DC, short-circuit current: 1 mA, screwless connector (5 pins)	
External Speaker Terminal	0.6 W, 8 Ω, screwless connector (2P)	-	-
Dust/Water Protection	IP54	IP65 (Note that panel edges must be sealed at installation.)	-
Resistance to Environment	-	Chemical Resistant	-
Finish	Body, Handset: ABS resin, gray	Membrane switch (Front pasting): Polyester film	Panel: Stainless steel (SUS304), hairline
Dimensions (W x H x D)	170 x 220 x 97.8 mm (excluding a curl cord section)	115 x 254 x 51 mm	
Weight	1 kg	850 g	
Options	Wall Mounting Bracket: YC-280	Back Box YC-841	Flush-mount: Back Box, YC-241 Wall surface-mount: Wall Mount Box YC-251 Handset: RS-191

» Handset for N-8031MS
RS-191



Handset Receiver: Dynamic type
Handset Transmitter: Electret condenser type
Operating Temperature: 0 °C to +40 °C (Temperature range not to freeze the speaker and switch)
Finish: ABS resin, pale white
Dimensions (W x H x D): 116 x 220 x 70 mm
Weight: 330 g
Accessory: Box Mounting Screw (M4 x 25) x 4, Box Mounting Screw (No. 6-32UNC x 18) x 4

»» Master Station Board
N-8031SB



»» Door Station
N-8050DS



»» Door Station Board
N-8050SB



Model	N-8050DS	N-8050SB	N-8031SB
Power Source	48 V DC (supplied from the IP network intercom exchange)		
Power Consumption	2.4 W (max.)		
Wiring Method	1 set of twisted pair cable		
Speech Method	Hands-free or handset conversation (Handset conversation can be established in conjunction with the RS-191 (optional))	Hands-free or handset conversation	
Audio Frequency Range	300 Hz - 7 kHz		
Transmission Range	Max. 1500 m (ø 0.65 mm. Loop resistance 170 Ω)		
Contact Output	-	Open collector output, withstand voltage: Max. 30 V DC, control current: Max. 50 mA, one shot: can be set from 1 to 9 sec, screw terminal (polarized)	
External Dial Input	No-voltage make contact input, open voltage: 5 V DC, short-circuit current: 1 mA, screwless connector (5 pins)	-	
Housing Protection	-	BS EN62262: 2002: IK02 equivalent	-
Dust/Water Protection	-	IP54 (Note that panel edges must be sealed at installation.)	-
Finish	-	Panel: Stainless steel, hairline/ Call button: Metal	-
Dimensions (W x H x D)	70 x 185 x 20.6 mm	115 x 162 x 54 mm	67 x 128.3 x 26 mm
Weight	205 g	680 g	100 g (including accessories)
Options	Handset: RS-191	Flush-mount: 3-gang Electrical Box or Back Box YC-150 Wall surface-mount: Wall Mount Box YS-13A	-

2-Core Shielded Cable Type Stations

» Substation
(Emergency Use)

RS-180



» Substation (Outdoor
Vandal-Resistant)

RS-170



» Substation (Indoor
Vandal-Resistant)

RS-160

» Substation
(Indoor)

RS-150



Model	RS-180	RS-170	RS-160	RS-150
Contact Output	Open collector output: 24 V DC, 30 mA (The open collector output is kept turned on till the conversation is finished after the call button was pressed.)	-		
Finish	Panel: Stainless steel (SUS304), hairline Call Button: Metal, red Printed Circuit Board: Weather-resistant coating	Panel: Stainless steel (SUS304), hairline Call Button: Metal		Panel: Stainless steel (SUS304), hairline Call Button: Resin, black
Dimensions (W x H x D)	120 x 120 x 58.5 mm	120 x 120 x 57.5 mm		120 x 120 x 48.5 mm
Weight	570g	540 g		410 g
Options	2-gang Electrical Box: YC-302, Indoor Wall-Mount Box: YC-822, Outdoor Wall-Mount Box: YC-823	2-gang Electrical Box: YC-302, Indoor Wall-Mount Box: YC-822, Outdoor Wall-Mount Box: YC-823	2-gang Electrical Box: YC-302, Indoor Wall-Mount Box: YC-822	

» IP Intercom Switch Panel

RS-144



» IP Intercom Switch Panel

RS-143



» IP Intercom Switch Panel

RS-140



Model	RS-144	RS-143	RS-140
Call-in Switch	Momentary (EMERGENCY, NORMAL)	Momentary	
Privacy Switch		-	Latching
Wiring	Two-core shielded cable		
Finish	Panel: Stainless steel, hairline Call-in Switch: Resin, red Privacy Switch (normal): Resin, white	Panel: Stainless steel, hairline Call-in Switch: Resin, red	Panel: Stainless steel, hairline Call-in Switch: Resin, red Privacy Switch (normal): Resin, white
Dimensions (W x H x D)	70 x 115 x 28.6 mm		
Weight	80 g		
Options	Flush-Mount Box: YC-801, Wall-Mount Box: YC-802, Handset: RS-141		

» Handset for RS-144, RS-143 and RS-140

RS-141



Handset Receiver: Dynamic type
Handset Transmitter: Electret condenser type
Wiring: Two-core shielded cable
Handset Receiver Volume Control: Slide volume
Max. Control Level: 12 - 18 dB
Operating Temperature: 0 °C to +40 °C
Finish: ABS resin, pale white
Dimensions (W x H x D): 116 x 220 x 71 mm
Weight: 350 g
Accessory: Box Mounting Screw (M4 x 25) x 4,
Box Mounting Screw (No. 6-32UNC x 18) x 4
Option: For flush-mount: 2-gang Electrical Box YC-302,
For surface-mount: Indoor Wall-Mount Box YC-822

» IP Intercom Switch Board for RS-141, N-8000RS and N-8010RS

RS-142



Call-in Switch Wiring: 4 cables (for 2 momentary switches)
Wiring: Two-core shielded cable
Transmission Range: 0.5 km / ø 0.5 mm (AWG24),
0.8 km / ø 0.65 mm (AWG22),
1.3 km / ø 0.9 mm (AWG19)
Operating Temperature: 0 °C to +40 °C
Weight: 30 g

4-Wire Stations

»» Analogue Standard Master Station

N-8410MS



Model	N-8410MS
Power Source	24V DC (supplied from the sub station interface unit N-8400RS)
Current Consumption	Max. 30 mA
Wiring Method	2 sets of twisted pair cables
Speech Method	Hands-free or handset conversation
Audio Frequency Range	300 Hz – 7 kHz
Transmission Range	1 km / ø 0.5 mm (AWG24), 1.5 km / ø 0.65 mm (AWG22), 2 km / ø 0.9 mm (AWG19)
Finish	Body, Handset: ABS resin, gray
Dimensions (W x H x D)	148 x 208 x 70.5 mm (excluding a curl cord section)
Weight	720 g
Options	Wall Mounting Bracket: YC-280

»» Substation (Emergency Use)

RS-480



»» Substation (Outdoor Vandal-Resistant)

RS-470



»» Substation (Indoor Vandal-Resistant)

RS-460



»» Substation (Indoor)

RS-450

Model	RS-480	RS-470	RS-460	RS-450
Call-in Switch	Momentary (Emergency call: Press twice within 400 ms)			
Contact Output	Open collector output: 30 V DC, 30 mA	-		
Wiring	Twisted pair cables (2-pair)			
Dust/Water Protection	IP54		-	
Finish	Panel: Stainless steel, hairline Call switch: Metal, red Circuit Board: Weather-resistant coating	Panel: Stainless steel, hairline Call switch: Metal, silver		Panel: Stainless steel, hairline Call Switch: Resin, black
Dimensions (W x H x D)	120 x 120 x 50.5 mm	120 x 120 x 49.5 mm		120 x 120 x 41.5 mm
Weight	575 g	550 g	540 g	510 g
Options	2-gang Electrical Box: YC-302, Hand-set: RS-481 Indoor Wall-Mount Box: YC-822, Outdoor Wall-Mount Box: YC-823	2-gang Electrical Box: YC-302, Indoor Wall-Mount Box: YC-822, Outdoor Wall-Mount Box: YC-823		2-gang Electrical Box: YC-302, Indoor Wall-Mount Box: YC-822

»» Handset for RS-480

RS-481



Handset Receiver: Dynamic type
Handset Transmitter: Electret condenser type
Handset Receiver Volume Control: Slide volume
Max. Control Level: 12 - 18 dB
Operating Temperature: 0 °C to +40 °C
Finish: ABS resin, pale white
Dimensions (W x H x D): 116 x 220 x 71 mm
Weight: 365 g
Accessory: Box Mounting Screw (M4 x 25) x 4,
Box Mounting Screw (No. 6-32UNC x 18) x 4
Applicable Box: 2-gang Electrical Box YC-302 (optional)

»» IP Intercom Switch Board for RS-481, RS-142 and N-8400RS

RS-442



Call Button Wiring: 4 cables (for 2 momentary switches)
Rated Input: 1 W
Control Output: Open collector
Max. Controlled Voltage: 30 V DC
Control Current: 30 mA
Microphone: Electret Condenser Microphone
Wiring: Twisted pair cables (2 pairs)
Transmission Range: 1 km / ø 0.5 mm (AWG24)
1.5 km / ø 0.65 mm (AWG22),
2 km / ø 0.9 mm (AWG19)
Operating Temperature: 0 °C to +40 °C
Weight: 140 g



Mounting Brackets and Optional Accessories

»» Terminal Board E-7000TB



Model	E-7000TB
Line Capacity	80 (40 lines)
Line Connection Terminal	Clip terminal
Finish	Panel: Surface-treated steel plate, black, 30 % gloss
Dimensions (W x H x D)	482 x 132.6 x 108.8 mm
Weight	2.5 kg
Accessory	Rack Mounting Screw x 4, Fiber Washer x 4, Name Plate x 4, Cord Clamp x 6

»» AC Adapter AD-1210P



Model	AD-1210P
Power Source	100 - 240 V AC, 50/60 Hz
Current Consumption	12 V DC, 1.5A
Microphone Element	0.5 A AC Input 100 V (rated output)
Polar Pattern	1.5 m
Chime Tones	Conductor: center *+*, ø 5.5 x ø 2.1 x L9.5 mm
Operating Temperature	0 °C to +40 °C
Finish	Case: PC Resin, Black
Weight	96 g

»» Wall-Mount Bracket YC-850



»» Wall-Mount Bracket YC-290



»» Wall-Mount Bracket YC-280



Model	YC-850	YC-290	YC-280
Finish	Surface-treated steel plate, black, 30 % gloss	Surface-treated steel plate, gray, paint	Surface-treated steel plate, gray, paint
Dimensions (W x H x D)	451 x 220 x 10 mm	64 x 131.5 x 31.8 mm	100 x 140 x 31.8 mm
Applicable Models	N-8000RS, N-8010RS, N-8400RS, N-8000Di, N-8000AF, N-8000AL, N-8000CO	N-8011MS	N-8000MS, N-8010MS, N-8020MS, N-8410MS, N-8510MS, N-8600MS

»» Surface-Mount Back Box YC-251



»» Flush-Mount Back Box YC-241



»» Surface-Mount Back Box YC-150



»» Surface-Mount Back Box YS-13A



Model	YC-251	YC-241	YC-150	YS-13A
Finish	Surface-treated steel plate, white	Colored Chrome painting	Zinc-painting	Zinc-painting
Dimensions (W x H x D)	124 x 258.5 x 50.5 mm	276 x 119 x 67 mm	184 x 119 x 57 mm	163.5 x 114.5 x 55 mm
Applicable Models	N-8031MS	N-8031MS	N-8050DS, N-8640DS	N-8050DS, N-8640DS

»» 2-Gang Electrical Box with Cover YC-302



»» Back Box YC-841



»» Outdoor Wall-Mount Box YC-823



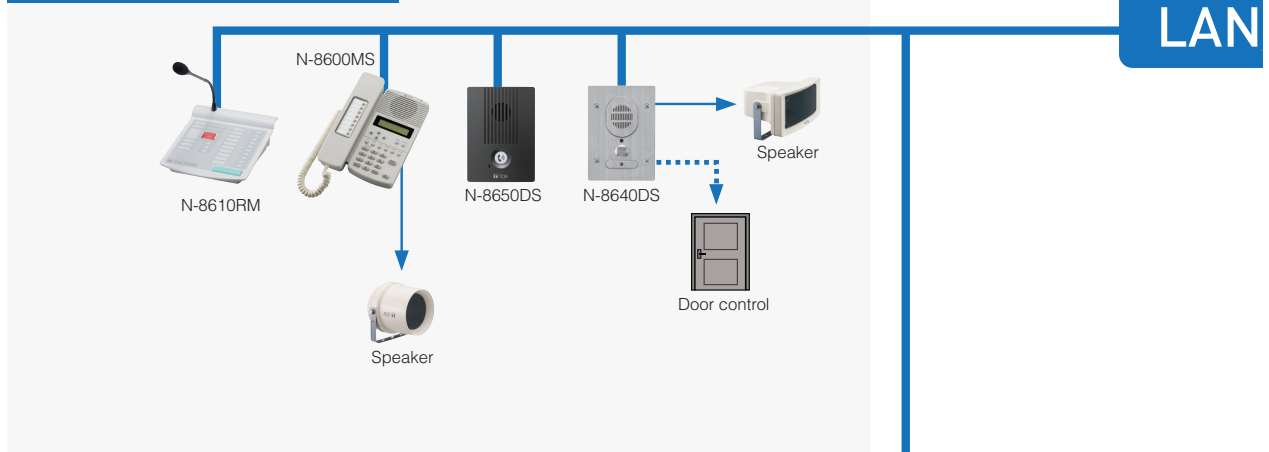
»» Indoor Wall-Mount Box YC-822



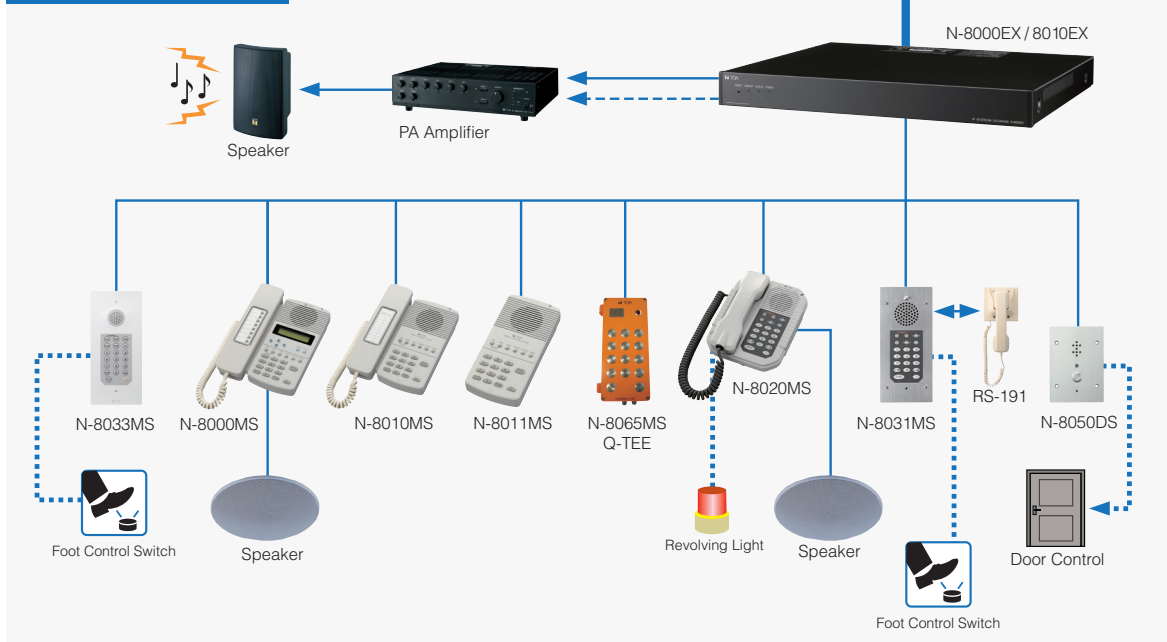
Model	YC-302	YC-841	YC-823	YC-822
Finish	SPHT, MFZn4 (glazed chromate)	Surface-treated steel plate, white	Stainless Steel plate, off-white	Surface-treated steel plate, off-white
Dimensions (W x H x D)	Outlet box: 102 x 102 x 44 mm Cover: 106 x 106 x 13 mm	119 x 258 x 57 mm	124 x 124 x 62 mm	124 x 124 x 61 mm
Applicable Models	RS-150, RS-160, RS-170, RS-180, RS-450, RS-460, RS-470, RS-480	N-8033MS	RS-170, RS-180 RS-470, RS-480	RS-150, RS-160, RS-170, RS-180, RS-450, RS-460, RS-470, RS-480

N-8000 System Overview

Direct Network Connection



2-Wire Connection



System Specifications

LAN Connections

Max. 192 units (total no. of Exchanges, Interface Units and IP stations)

Station Connections

Max. 3,072 stations (16 stations connected to each of 192 Exchanges)

Voice Links

Max. 768 links (4 links for each of 192 connected N-8000EX Exchanges)

Paging

Zones
Max. 192 zones

Paging Outputs

Max. 384 outputs (2 outputs for each of 192 connected N-8000 Exchanges or Multi-Interface units)

BGM

Max. 8 channels (number of channels selectable from a station)

PBX Interface

Max. 384 units (2 units for each of 192 connected Multi-Interface units)

Tie-Line Interface

Max. 384 units (2 units for each of 192 connected Multi-Interface units)

Outside-Line Interface

Max. 192 units

Telephone Interface

Max. 192 units (when 192 Telephone Interface units are connected)

External Contact Output

N-8000MI

Max. 3,072 (16 outputs for each of 192 connected Multi-Interface units)

N-8000DI

Max. 6,144 (32 outputs for each of 192 connected Direct Select units)

N-8000AF

Max. 1,536 (8 outputs for each of 192 connected Audio Interface units)

External Contact Input

N-8000MI

Max. 3,072 (16 inputs for each of 192 connected Multi-Interface units)

N-8000DI

Max. 6,144 (32 inputs for each of 192 connected Direct Select units)

N-8000AF

Max. 1,536 (8 inputs for each of 192 connected Audio Interface units)

[Network Relations]

Audio Delay Time

80 ms/320 ms; changeable

Connection Delay Time

Max. 1 second (when 191 multicast paging destinations are set)

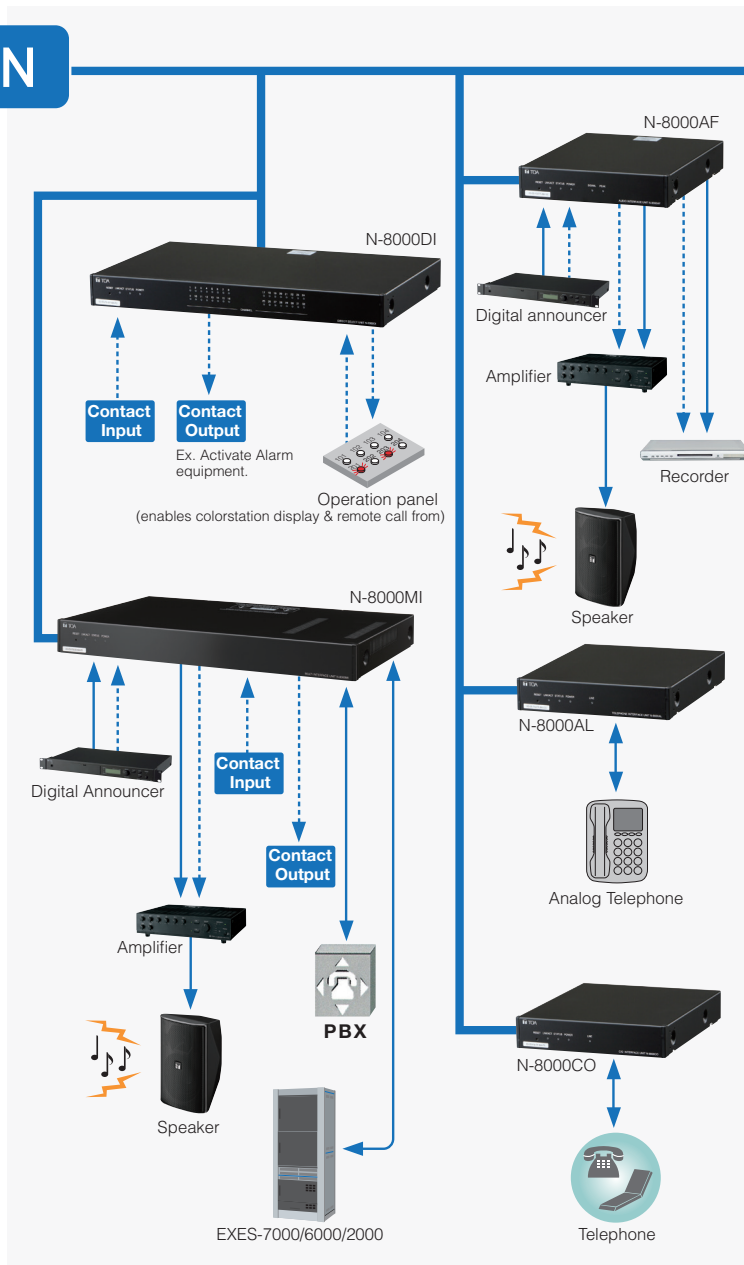
Bandwidth Used

Max. 2.08 Mbps (one-way)/unicast paging to 16 locations

Max. 130 Kbps (two-way)/per call

N-8000 System Overview

WAN



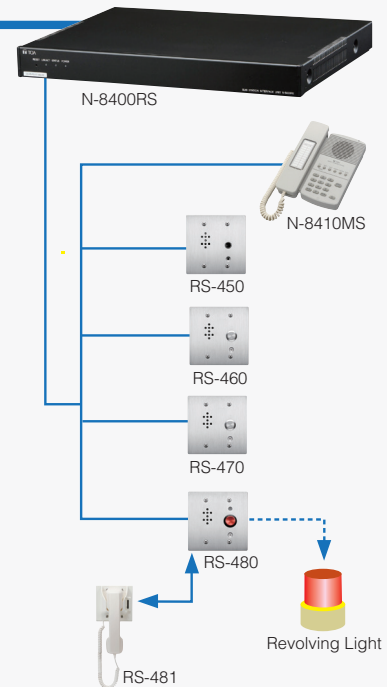
Permits the creation of a wide variety of system configurations through the free combination of individual interface units

- PBX Connection • Office line connection
- Tie-line connection • BGM
- External equipment control
- Remote door control • Conversation recording
- External input broadcast • Paging
- Paging interlock contact output control
- Call station indicator • CCTV interlock
- Remote dialing • Direct select
- Contact bridge • System diagnosis
- Time signal • Time correction

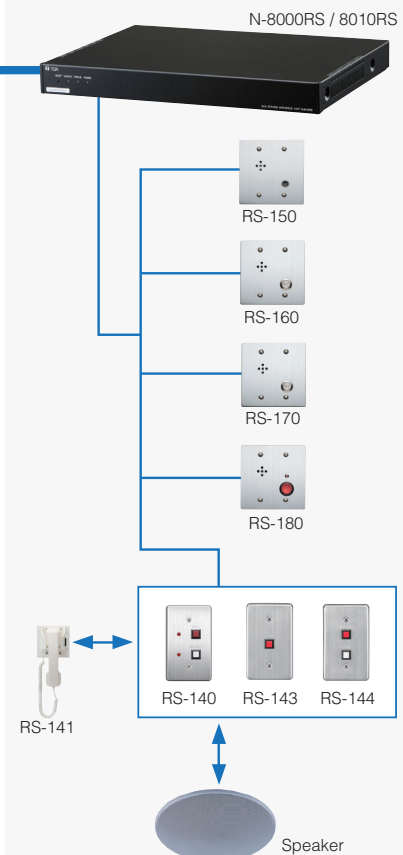
A variety of convenient functions

- Voice calling
- Hands-free conversation
- Automatic connection
- Continuous call
- One-touch dialing
- Call hold
- Automatic call forwarding
- Busy call
- Emergency call interruption
- Paging call
- Emergency all-group paging
- Emergency message broadcasts
- Paging response
- Scan monitor
- Three-party conference
- Door remote
- Emergency paging
- Audio trigger

4-Wire Connection



2-Core Shielded Wire Connection



Amplifiers

A-3200D Series

Latest addition to the TOA
amplifier range, the
A-3200D digital series
promises
high-performance and
cost-efficiency.



Key Functions: • Bluetooth • MP3 • Zone Selection • FM Radio • Equalizer

Ideal for: • Broadcasting • Paging • Background music

»» Digital Mixer Amplifier with MP3

A-3212DM **120W**

A-3224DM **240W**

A-3248DM **480W**



Model	A-3212DM	A-3224DM	A-3248DM
Power Source	100 – 240 V AC, 50 / 60 Hz		
Rated Output	120 W	240 W	480 W
Power Consumption (EN60065)	44 W	62 W	99 W
Frequency Response	(AC operation at 1/8 maximum output without clip) 50 Hz – 20 kHz		
Total Harmonic Distortion	Under 1 % at 1 kHz, 1/3 rated power		
Input	MIC 1: 1 mV (-60 dBV), 600 Ω, Balanced, phone jack, selectable to RJ45 MIC 2 - 3: 1 mV (-60 dBV), 600 Ω, Balanced, phone jack MIC 4: 1 mV (-60 dBV), 600 Ω, Balanced, phone jack, selectable to AUX 1 AUX 1: 100 mV (-20 dBV), 10 kΩ, Unbalanced, RCA pin jack, selectable to MIC 4 AUX 2: 100 mV (-20 dBV), 10 kΩ, Unbalanced, RCA pin jack MP3: LED Display, Support USB, SD/MMC card (up to 32GB), Bluetooth, Radio FM, Record		
Output	Speaker output in screw type terminal	Speaker output in screw type terminal	Speaker output in screw type terminal
Speaker out:	83 Ω (100 V) or 4 Ω	42 Ω (100 V) or 4 Ω	21 Ω (100 V) or 4 Ω
Direct Line (Selectable):	0 dBV, 600 Ω, Unbalanced, RCA pin jack	0 dBV, 600 Ω, Unbalanced, RCA pin jack	0 dBV, 600 Ω, Unbalanced, RCA pin jack
Rec out:			
Phantom Power	DC +21 V (MIC 1)		
S/N Ratio	Over 60 dB		
Tone Control	Bass: ±10 dB at 100 Hz / Treble: ±10 dB at 10 kHz		
Muting	MIC 1: Mutes other input signals by 0 – 30 dB attenuation		
Ventilation	Natural Air Cooling	Fan Cooling	
Finish	Panel: ABS resin, Black / Case: Steel Plate, Black		
Dimensions (W x H x D)	420 × 100.9 × 357 mm		
Weight	4.6 kg	4.9 kg	5.0 kg

»» Digital Mixer Amplifier with MP3 and Zones

A-3212DMZ 120W

A-3224DMZ 240W

A-3248DMZ 480W



Model	A-3212DMZ		A-3224DMZ	A-3248DMZ
Power Source			100 – 240 V AC, 50 / 60 Hz	
Rated Output	120 W		240 W	480 W
Power Consumption (EN60065)	44 W		62 W	99 W
Frequency Response			(AC operation at 1/8 maximum output without clip) 50 Hz – 20 kHz	
Total Harmonic Distortion			Under 1 % at 1 kHz, 1/3 rated power	
Input			MIC 1: 1 mV (-60 dBV), 600 Ω, Balanced, phone jack, selectable to RJ45 MIC 2 - 3: 1 mV (-60 dBV), 600 Ω, Balanced, phone jack MIC 4: 1 mV (-60 dBV), 600 Ω, Balanced, phone jack, selectable to AUX 1 AUX 1: 100 mV (-20 dBV), 10 kΩ, Unbalanced, RCA pin jack, selectable to MIC 4 AUX 2: 100 mV (-20 dBV), 10 kΩ, Unbalanced, RCA pin jack MP3: LED Display, Support USB, SD/MMC card (up to 32GB), Bluetooth, Radio FM, Record	
Output				
Speaker out:	Speaker output in screw type terminal		Speaker output in screw type terminal	
Direct Line (Selectable):	83 Ω (100 V) or 4 Ω		42 Ω (100 V) or 4 Ω	
Rec out:	0 dBV, 600 Ω, Unbalanced, RCA pin jack		0 dBV, 600 Ω, Unbalanced, RCA pin jack	
Zone Selection:	5 zone selector (all zones simultaneously selectable)		5 zone selector (all zones simultaneously selectable)	
Phantom Power			DC +21 V (MIC 1)	
S/N Ratio			Over 60 dB	
Tone Control			Bass: ±10 dB at 100 Hz / Treble: ±10 dB at 10 kHz	
Muting			MIC 1: Mutes other input signals by 0 – 30 dB attenuation	
Ventilation	Natural Air Cooling		Fan Cooling	
Finish			Panel: ABS resin, Black / Case: Steel Plate, Black	
Dimensions (W x H x D)			420 × 100.9 × 357 mm	
Weight	4.6 kg		4.9 kg	5.0 kg

»» Digital Mixer Amplifier with MP3 and EQ

A-3248DME 480W



Model	A-3248DME	
Power Source	100 – 240 V AC, 50 / 60 Hz	
Rated Output	480 W	
Power Consumption (EN60065)	99 W (AC operation at 1/8 maximum output without clip)	
Frequency Response	50 Hz – 20 kHz	
Total Harmonic Distortion	Under 1 % at 1 kHz, 1/3 rated power	
Input	MIC 1: 1 mV (-60 dBV), 600 Ω, Balanced, phone jack, selectable to RJ45 MIC 2 - 5: 1 mV (-60 dBV), 600 Ω, Balanced, phone jack AUX 1 - 2: 100 mV (-20 dBV), 10 kΩ, Unbalanced, RCA pin jack MP3: LED Display, Support USB, SD/MMC card (up to 32GB), Bluetooth, Radio FM, Record	
Output		
Speaker out:	Speaker output in screw type terminal	
Direct Line (Selectable):	21 Ω (100 V) or 4 Ω	
Rec out:	0 dBV, 600 Ω, Unbalanced, RCA pin jack	
Phantom Power	DC +21 V (MIC 1)	
S/N Ratio	Over 60 dB	
Tone Control	±10 dB at 80 Hz, 315 Hz, 1 kHz, 3.15 kHz, 8 kHz	
Muting	MIC 1: Mutes other input signals by 0 – 30 dB attenuation	
Ventilation	Fan Cooling	
Finish	Panel: ABS resin, Black / Case: Steel Plate, Black	
Dimensions (W x H x D)	420 × 100.9 × 357 mm	
Weight	5 kg	



**Please refer to specification sheet for detailed information.

»» Digital Mixer Amplifier

A-3224D 240W

A-3248D 480W



Model	A-3224D		A-3248D
Power Source	100 – 240 V AC, 50 / 60 Hz		
Rated Output	240 W		480 W
Power Consumption (EN60065)	62 W		99 W
	(AC operation at 1/8 maximum output without clip)		
Frequency Response	50 Hz – 20 kHz		
Total Harmonic Distortion	Under 1 % at 1 kHz, 1/3 rated power		
Input	MIC 1: 1 mV (-60 dBV), 600 Ω, Balanced, phone jack, selectable to RJ45 MIC 2 - 3: 1 mV (-60 dBV), 600 Ω, Balanced, phone jack MIC 4: 1 mV (-60 dBV), 600 Ω, Balanced, phone jack, selectable to AUX 1 AUX 1: 100 mV (-20 dBV), 10 kΩ, Unbalanced, RCA pin jack, selectable to MIC 4 AUX 2: 100 mV (-20 dBV), 10 kΩ, Unbalanced, RCA pin jack		
Output	Speaker out: Speaker output in screw type terminal Direct Line (Selectable): 42 Ω (100 V) or 4 Ω Rec out: 0 dBV, 600 Ω, Unbalanced, RCA pin jack		Speaker output in screw type terminal 21 Ω (100 V) or 4 Ω 0 dBV, 600 Ω, Unbalanced, RCA pin jack
Phantom Power	DC +21 V (MIC 1)		
S/N Ratio	Over 60 dB		
Tone Control	Bass: ±10 dB at 100 Hz / Treble: ±10 dB at 10 kHz		
Muting	MIC 1: Mutes other input signals by 0 – 30 dB attenuation		
Ventilation	Fan Cooling		
Finish	Panel: ABS resin, Black / Case: Steel Plate, Black		
Dimensions (W x H x D)	420 × 100.9 × 357 mm		
Weight	4.9 kg		5.0 kg

»» Digital Booster Amplifier

P-3248D 480W



Model	P-3248D
Power Source	100 – 240 V AC, 50 / 60 Hz or 24 V DC
Rated Output	480 W
Power Consumption (EN60065)	99 W (AC operation at 1/8 maximum output without clip)
Frequency Response	50 Hz – 20 kHz
Total Harmonic Distortion	Under 1 % at 1 kHz, 1/3 rated power
Input	Line In: 0 dBV, 10 kΩ, Balanced, Screw Terminal 100 V Line In: 40 dBV, 30 kΩ, Unbalanced, Screw Terminal
Output	Speaker out: Speaker output in screw type terminal Direct Line (Selectable): 21 Ω (100 V) or 4 Ω Loop out: 0 dBV, 10 kΩ, balanced, screw terminal
Control	Remote power control, screw terminal / Remote master volume bypass, screw terminal
S/N Ratio	Over 70 dB
Tone Control	Bass: ±10 dB at 100 Hz / Treble: ±10 dB at 10 kHz
Ventilation	Fan Cooling
Finish	Panel: ABS resin, Black / Case: Steel Plate, Black
Dimensions (W x H x D)	420 × 100.9 × 351.3 mm
Weight	5.2 kg



A-3500D Series

Key Features

- TOA class D amplifiers for maximum efficiency
- 2 - channel Zone Selector
- 4 microphone inputs and 1 auxillary input

- Emergency and Priority Paging
- Remote Zone Control

Applications:



- Schools



- Office



- Supermarkets

»» Digital Mixer Amplifiers

A-3506D 60W

A-3512D 120W

A-3524D 240W

A-3548D 480W



Model	A-3506D		A-3512D	A-3524D	A-3548D
Power Source	100 – 240 V AC, 50 / 60 Hz				
Rated Output	60 W	120 W	240 W	480 W	
Power / Current Consumption	96 W (rated output)	171 W (rated output)	314 W (rated output)	601 W (rated output)	
	40 W (based on EN62368)	48 W (based on EN62368)	70 W (based on EN62368)	113 W (based on EN62368)	
	200 mA or less (when power switch is OFF)				
Frequency Response	50 Hz – 20 kHz ±3 dB (1/8 rated output)				
Distortion	1 % or less at 1 kHz, rated power (20 kHz LPF (AUX-0025))				
Tone Control	Bass: ±10 dB at 100 Hz / Treble: ±10 dB at 10 kHz				
S/N Ratio	88 dB or more (Master volume: min.) 76 dB or more (Master volume: max.) 55 dB or more (INPUT 1 - 6) 72 dB or more (INPUT 7) (A-weighted)				
Audio Input	INPUT 1, 2: -60 dBV (MIC) / -20 dBV (LINE) selectable, 600 Ω, electronically-balanced, removable terminal block (5 pins) / ø6.3 mm phone jack (2P) Note: MIC inputs are equipped with phantom power (24 V DC, ON/OFF switchable). INPUT 3: -60 dBV, 600 Ω, electronically-balanced, ø6.3 mm phone jack (2P) INPUT 4: -60 dBV (MIC) / -20 dBV (LINE) selectable, 600 Ω, electronically-balanced, ø6.3 mm phone jack (2P) INPUT 5: -20 dBV, 10 kΩ, unbalanced, RCA pin jack x 2 PWR AMP IN: 0 dBV, 600 Ω, unbalanced, RCA pin jack				
Audio Output	Speaker out:	Low impedance (8 - 16 Ω) High impedance (DIRECT, ZONE 1/ZONE 2: 100 V / total 170 Ω), removable terminal block (6 pins) (ZONE 1 / ZONE 2 is selectable, Max. 60 W per output)	Low impedance (4 - 16 Ω) High impedance (DIRECT, ZONE 1/ZONE 2: 100 V / total 83 Ω), removable terminal block (6 pins) (ZONE 1 / ZONE 2 is selectable, Max. 120 W per output)	Low impedance (4 - 16 Ω) High impedance (DIRECT, ZONE 1/ZONE 2: 100 V / total 42 Ω), removable terminal block (6 pins) (ZONE 1 / ZONE 2 is selectable, Max. 240 W per output)	Low impedance (4 - 16 Ω) High impedance (DIRECT, ZONE 1/ZONE 2: 100 V / total 21 Ω), removable terminal block (6 pins) (ZONE 1 / ZONE 2 is selectable, Max. 480 W per output)
	Rec out: Line out 1, 2:	0 dBV, 600 Ω, unbalanced, RCA pin jack 0 dBV, 600 Ω, unbalanced, RCA pin jack (interlock with zone selection is possible)			
Control Input	2 channels, no-voltage make contact input, open voltage: 35 V DC or less, short-circuit current: 10 mA or less, removable terminal block (5 pins) REMOTE VOLUME: Removable terminal block (4 pins) ZONE CONTROL IN: No-voltage make contact input, open voltage: 35 V DC or less, short-circuit current: 10 mA or less, removable terminal block (4 pins)				
Control Output	POWER REMOTE OUT: Open collector output, withstand voltage: 30 V DC or less, control current: 25 mA or less, removable terminal block (4 pins) EMERGENCY OUT: Open collector output, withstand voltage: 30 V DC or less, control current: 25 mA or less, removable terminal block (4 pins) ZONE CONTROL OUT: Open collector output (polarized), withstand voltage: 30 V DC or less, control current: 25 mA or less, removable terminal block (4 pins)				
Indicators	5-point LED output level meter, Power indicator LED, Priority indicator LED, Emergency indicator LED, Thermal protection indicator LED, Over current protection indicator LED, Zone 1 indicator LED, Zone 2 indicator LED				
Operating Temperature	-10 °C to +40 °C				
Operating Humidity	85 %RH or less (no condensation)				
Finish	Panel: ABS resin, Black / Case: Surface-treated Steel Plate, Black, Paint				
Dimensions (W x H x D)	420 × 96.1 × 313.1 mm				
Weight	4.9 kg				5.1 kg
Accessory	Power cord (2 m) x 1, Audio Input removable terminal plug (3.81 mm, 5 pins) x 2, Control I/O removable terminal plug (3.81 mm, 4 pins) x 2 Remote Control removable terminal plug (3.5 mm, 4 pins) x 1 Speaker Out removable terminal plug (5 mm, 6 pins) x 1, Volume Control Cover x 4				
Option	Rack Mounting Bracket: MB-25B, Perforated Panel: PF-013B				



**Please refer to specification sheet for detailed information.

A-3600D Series

- Key Features**
- 4 selection of power amplifier output
 - TOA class D amplifiers for maximum efficiency
 - Feedback Suppressor (Dynamic feedback filters)
 - Speaker EQ (3 points equalizer)
 - Assignable input priorities
 - Built-in pre-announce chime
 - IP protocol available



»» Digital Mixer Amplifiers

A-3606D 60W

A-3612D 120W

A-3624D 240W

A-3648D 480W



Model	A-3606D	A-3612D	A-3624D	A-3648D
Power Source	100 – 240 V AC, 50 / 60 Hz			
Rated Output	60 W	120 W	240 W	480 W
Power / Current Consumption	96 W (rated output) 40 W (based on EN62368)	171 W (rated output) 48 W (based on EN62368)	314 W (rated output) 70 W (based on EN62368)	601 W (rated output) 113 W (based on EN62368)
Frequency Response	200 mA or less (when power switch is OFF) 50 Hz – 20 kHz ±3 dB (1/8 rated output)			
Distortion	1 % or less at 1 kHz, rated power (20 kHz LPF (AUX-0025))			
Tone Control	Bass: ±10 dB at 100 Hz / Treble: ±10 dB at 10 kHz			
S/N Ratio	88 dB or more (Master volume: min.) 76 dB or more (Master volume: max.) 55 dB or more (INPUT 1 - 6) 72 dB or more (INPUT 7) (A-weighted)			
Audio Input	INPUT 1, 2: -60 dBV (MIC) / -20 dBV (LINE) selectable, 600 Ω, electronically-balanced, removable terminal block (3 pins) Note: MIC inputs are equipped with phantom power (24 V DC, ON/OFF switchable). INPUT 3, 4: -60 dBV, 600 Ω, electronically-balanced, removable terminal block (3 pins) Note: Equipped with phantom power (24 V DC, ON/OFF switchable). INPUT 5, 6: MIC (BUS 1) / LINE (BUS 2) selectable MIC: -60 dBV, 600 Ω, electronically-balanced, removable terminal block (3 pins) LINE: -20 dBV, 10 kΩ, unbalanced, RCA pin jack x 2 INPUT 7: -20 dBV, 10 kΩ, unbalanced, RCA pin jack x 2 PWR AMP IN: 0 dBV, 600 Ω, unbalanced, RCA pin jack			
Input Bus	INPUT 1 - 4: BUS 1 INPUT 5, 6: BUS 1 / BUS 2 selectable INPUT 7: BUS 2			
Audio Output	Speaker out: Low impedance (8 - 16 Ω) High impedance (DIRECT, ZONE 1/ZONE 2: 100 V / total 170 Ω), removable terminal block (6 pins) (ZONE 1 / ZONE 2 is selectable, Max. 60 W per output) Rec out: 0 dBV, 600 Ω, unbalanced, RCA pin jack Line out 1, 2: 0 dBV, 600 Ω, unbalanced, RCA pin jack (interlock with zone selection is possible)			
Control Input	4 channels, no-voltage make contact input, open voltage: 35 V DC or less, short-circuit current: 10 mA or less, removable terminal block (4 pins) REMOTE VOLUME: Removable terminal block (4 pins) ZONE CONTROL IN: No-voltage make contact input, open voltage: 35 V DC or less, short-circuit current: 10 mA or less, removable terminal block (4 pins)			
Control Output	POWER REMOTE OUT: Open collector output, withstand voltage: 30 V DC or less, control current: 25 mA or less, removable terminal block (4 pins) EMERGENCY OUT: Open collector output, withstand voltage: 30 V DC or less, control current: 25 mA or less, removable terminal block (4 pins) ZONE CONTROL OUT: Open collector output, withstand voltage: 30 V DC or less, control current: 25 mA or less, removable terminal block (4 pins)			
Chime	1 - note, 2 - note, or ascending 4 - note chime, or None selectable with switch setting			
Indicators	5-point LED output level meter, Power indicator LED, LAN Connect indicator LED, Priority indicator LED, Emergency indicator LED, Thermal protection indicator LED, Over current protection indicator LED, CPU RUN indicator LED, Error indicator LED, Zone 1 indicator LED, Zone 2 indicator LED			
Operating Temperature	-10 °C to +40 °C			
Operating Humidity	85 %RH or less (no condensation)			
Finish	Panel: ABS resin, Black / Case: Surface-treated Steel Plate, Black, Paint			
Dimensions (W x H x D)	420 x 96.1 x 313.1 mm			
Weight	5.0 kg			5.2 kg
Accessory	Power cord (2 m) x 1, Audio Input removable terminal plug (3.81 mm, 3 pins) x 6, Control I/O removable terminal plug (3.81 mm, 4 pins) x 4 Remote Control removable terminal plug (3.5 mm, 4 pins) x 2 Speaker Out removable terminal plug (5 mm, 6 pins) x 1, Volume Control Cover x 4			
Option	Rack Mounting Bracket: MB-25B, Perforated Panel: PF-013B			



A-2000 Series

»» Digital Mixer Power Amplifier

A-2030D	30W	A-2120D	120W
A-2060D	60W	A-2240D	240W



Model	A-2030D	A-2060D	A-2120D	A-2240D
Power Source	220 – 240 V AC, 50 / 60 Hz			
Rated Output	30 W	60 W	120 W	240 W
Power Consumption	12 W	16 W	30 W	48 W
	(AC operation at 1/8 maximum output without clip)			
Frequency Response	50 Hz – 20 kHz (±3 dB)			
Distortion	Under 1% at 1 kHz, 1/3 rated power			
Input	MIC 1 – 3: -60 dBV, 600 Ω, Balanced, Phone jack / AUX 1, 2: -20 dBV, 10 kΩ, Unbalanced, RCA pin jack			
Output				
Speaker out:	Balanced (Floating)	Balanced (Floating)	Balanced (Floating)	Balanced (Floating)
High Impedance:	330 Ω (100 V)	170 Ω (100 V)	83 Ω (100 V)	42 Ω (100 V)
Rec out:	0 dBV, 600 Ω, Unbalanced, RCA pin jack	0 dBV, 600 Ω, Unbalanced, RCA pin jack	0 dBV, 600 Ω, Unbalanced, RCA pin jack	0 dBV, 600 Ω, Unbalanced, RCA pin jack
Phantom Power	DC +21 V (MIC 1)			
S/N Ratio	Over 60 dB			
Tone Control	Bass: ±10 dB at 100 Hz / Treble: ±10 dB at 10 kHz			
Muting	MIC 1: Mutes other input signals by 0 – 30 dB attenuation			
Indicator	Power LED, Signal LED, Peak LED			
Dimensions (W x H x D)	420 × 100.6 × 280.3 mm			
Weight	4 kg	4.6 kg		4 kg

»» Digital Mixer Power Amplifier

A-2120DT	120W	A-2240DT	240W
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Model	A-2120DT	A-2240DT
Power Source	220 – 240 V AC, 50 / 60 Hz	
Rated Output	120 W	240 W
Power Consumption	34 W	48 W
	(AC operation at 1/8 maximum output without clip)	
Frequency Response	50 Hz – 20 kHz (±3 dB)	
Distortion	Under 1 % at 1 kHz, 1/3 rated power	
Input	MIC 1 – 3: -60 dBV, 600 Ω, Balanced, 3P XLR / AUX 1, 2: -20 dBV, 10 kΩ, Unbalanced, RCA pin jack	
Output		
Speaker out:	Balanced (Floating)	Balanced (Floating)
High Impedance:	83 Ω (100 V)	42 Ω (100 V)
Rec out:	0 dBV, 600 Ω, Unbalanced, RCA pin jack	0 dBV, 600 Ω, Unbalanced, RCA pin jack
Tones	6 tones contact trigger (Chime, Bell, Evac, Siren, Lockdown, All Clear)	
Phantom Power	DC +21V (MIC 1)	
S/N Ratio	Over 60 dB	
Tone Control	Bass: ±10 dB at 100 Hz / Treble: ±10 dB at 10 kHz	
Muting	MIC 1: Mutes other input signals by 0 – 30 dB attenuation Tones will mute other Input Functions	
Indicator	Power LED, Signal LED, Peak LED	
Dimensions (W x H x D)	420 × 100.6 × 280.3 mm	
Weight	4 kg	



- Applications:
- Schools
 - Retail Shops
 - Offices
 - Factories
 - Houses of Worship
 - Large function rooms

» Mixer Power Amplifier

A-2030 30W

A-2120 120W

A-2060 60W

A-2240 240W



Model	A-2030	A-2060	A-2120	A-2240
Power Req.	110 – 120V AC (L Version) / 220 – 240V AC (H Version) or 24V DC			
Rated Output	30 W	60 W	120 W	240 W
Frequency Response	50 Hz – 20 kHz (±3 dB)			
Input	MIC 1 – 3: Phone jack / AUX 1, 2: RCA pin jack			
Output	34 W (EN60065), 78 W (AC operation at rated output), 2 A (DC operation at rated output)	72 W (EN60065), 150 W (AC operation at rated output), 4 A (DC operation at rated output)	124 W (EN60065), 260 W (AC operation at rated output), 8 A (DC operation at rated output)	238 W (EN60065), 520 W (AC operation at rated output), 15A (DC operation at rated output)
Phantom Power	DC +21 V (MIC 1)			
S/N Ratio	Over 60 dB			
Tone Control	Bass: ±10 dB at 100 Hz / Treble: ±10 dB at 10 kHz			
Muting	MIC 1: Mutes other input signals by 0 – 30 dB attenuation			
Dimensions (W x H x D)	420 × 100.9 × 280.3 mm		420 × 100.9 × 360.3 mm	
Weight	5 kg	7 kg	10.8 kg	13.2 kg

» Booster Amplifier

P-2240 240W



Model	P-2240
Power Req.	220 – 240V AC or 24 - 30 V DC
Rated Output	240 W
Power Consumption	238 W (EN60065), 520 W (AC operation at rated output), 15 A (DC operation at rated output)
Frequency Response	50 Hz – 20 kHz (±3 dB)
Input	Line in: 0 dBV, 10 kΩ, Balanced, Screw terminal, distance between barriers: 8.3 mm 100V line in: 40 dBV, 330 kΩ Speaker line in: 40 dBV, 330 kΩ, Unbalanced, Screw Terminal, distance between barriers: 8.3 mm Power remote control: Make contact
Output	Loop out: 0 dBV, 10 kΩ, balanced, screw terminal, distance between barriers: 8.3 mm Speaker out: Balanced (floating), 42 Ω (100 V), 21 Ω (70 V) (High Impedance) 4 Ω (31 V) (Low Impedance)
S/N Ratio	Over 60 dB
Tone Control	Bass: ±10 dB at 100 Hz / Treble: ±10 dB at 10 kHz
Dimensions (W x H x D)	420 × 100.9 × 351.3 mm
Weight	13.2 kg

» Mixer Power Amplifier

A-2128M 120W x 2



Model	A-2128M
Power Supply	220 V AC, 50 / 60 Hz, or 24 V DC
Power Consumption	AC: 520W (Rated output); AC: 286W (operation at EN60065); DC: 20 A (Rated output)
Rated Output	2 x 120W
Frequency Response	50 Hz - 20 kHz (±3 dB)
Distortion	Less than 1 % at 1 kHz, 1/3 rated power
Input (Sensitivity, Impedance, Connector)	(Rear) MIC 1: 1.0 mV (-60 dBV), 600 Ω, Balanced, 2 Pole-Phone Jack, Echo (Rear) MIC 2-5: 1.0 mV (-60 dBV), 600 Ω, Balanced, 2 Pole-Phone Jack (Rear) AUX 1-3: 300 mV (-10 dBV), 10 kΩ, Unbalanced, 2 RCA Pin Jack
Speaker Outputs	100 V x 2, 4 Ω x 2
PRE AMP OUT	1.0 V (0 dBV), 600 Ω x 2, Unbalanced, 2 RCA Pin Jack
PWR AMP IN	1.0 V (0 dBV), 10 kΩ x 2, Unbalanced, 2 RCA Pin Jack
REC OUT	1.0 V (0 dBV), 600 Ω x 2, Unbalanced, 2 RCA Pin Jack
Phantom Power	DC +21 V (MIC 1)
Noise Level (S/N)	More than 80 dB at All Volume Control Full CCW More than 50 dB at All Volume Control Full CW
Output Regulation	Less than 3 dB no load to full load
Controls	(Front) 5 Microphone Gain Controls, 3 AUX Gain Controls, 8 Bass Tone Controls, 8 Treble Tone Controls, 1 Echo Level Control, 2 Master Controls, 2 Output Channel ON/OFF switch (CH1, CH2), Power ON/OFF switch
Tone Controls	Bass: ±10 dB at 100 Hz; Treble: ±10 dB at 10kHz
LED Indicators	Output CH x 2, Signal x 2, Peak x 2, Power ON x 1
Finish	Front Panel: Aluminum painting Grey; Case: Steel Plate, Grey
Dimensions (W x H x D)	420 × 144 × 361 mm
Weight	19.3 kg



Digital Power Amplifiers

Multi-Channel Digital Power Amplifiers



» DA-1000 Series Multi-Channel Power Amplifier

DA-1000F

DA-1250D



Model	DA-1000F		DA-1250D	
CE and Non-CE	Non-CE			CE
Power Source	100-240 V AC, 50 / 60 Hz			
Amplification System	Class D			
Power Consumption	2000 W*1		1100 W*1	
Input	CH 1-4 : 20 kΩ (balanced) / 10 kΩ (unbalanced), 0.775 / 1.0 V / 32 dBV, XLR-F connector		CH 1-2 : 20 kΩ (balanced) / 10 kΩ (unbalanced), 0.775 / 1.0 V / 32 dBV, XLR-F connector	
Output	LINK CH 1-4 : XLR-M connector		LINK CH 1-2 : XLR-M connector	
	SPEAKER 1-4 : 4 channels : 650 W x 4 (8 Ω)*3 , 1000 W x 4 (4 Ω)*3 2 channels(BRIDGE) : 2000 W x 2 (8 Ω)*3 NL4 SPEAKON connector		SPEAKER 1-2 : 2 channels : 700 W x 2 (8 Ω)*2 , 1250 W x 2 (4 Ω)*3 1 channel(BRIDGE) : 2500 W x 1 (8 Ω)*3 NL4 SPEAKON connector	
Frequency Response	20 Hz to 20 kHz (+/-3 dB)		20 Hz to 20 kHz (+/-3 dB)	
Total Harmonic Distortion	≤0.1 %		≤0.15 %	
S/N Ratio	≥100 dB			
LED Indicator	Protect (Red)/ Clip (Red)/ -5dB (Green) / -10dB (Green) / -20dB (Green) / Signal (Green) / Power (Green)		Protect (Red)/ Clip (Red)/ -5dB (Green) / -10dB (Green) / -20dB (Green) / Signal (Green) / Power (Green)	
Cooling	Air flow from front to rear			
Operating Temperature	0 °C to +35 °C			
Operating Humidity	80 % RH or less (no condensation)			
Finish	Case : plated steel sheet, black			
Dimensions (W x H x D)	483 x 89 x 461 mm		483 x 89 x 305 mm	
Weight	9.2 kg		6.1 kg	6.4kg
Accessory	Power Cable x 1			Power Cable: ER type x 1, UK type x 1

*1 2/3 rated, 8Ω/CH

*2 The power is tested under the condition of 40ms burst 1kHz sin wave and 1% THD.

*3 The power is tested under the condition of 20ms burst 1kHz sin wave and 1% THD.

Applications:

Houses of Worship

Halls/Theaters

Stadiums

Arenas

»» 4-Channel Power Amplifier

DA-550F 550W x 4

DA-500FH 500W x 4

DA-250F 250W x 4

DA-250FH 250W x 4



Model	DA-550F	DA-500FH	DA-250F	DA-250FH
Power Source	220 – 240V AC, 50 / 60 Hz			
Number of Channels	4			
Total Output (all channels driven)	-	-	680 W (1 kHz, 8 Ω)	1,000 W (1 kHz, 4 Ω)
Power Output	4 x 550 W (4Ω) / 4 x 350 W (8Ω) / 2 x 1100 W (8Ω, bridged)	4 x 500 W (100 V, 20 Ω)	4 x 250 W (4Ω) / 4 x 170 W (8Ω) / 2 x 500 W (8Ω, bridged)	4 x 250 W (70 V / 100 V)
Power Consumption	480W (EN standard)	460W (EN standard)	200 W (EN standard)	
Frequency Response	20 Hz – 20kHz, -3 dB, +1 dB	50 Hz – 20kHz, -2 dB, +1 dB	20 Hz – 20kHz, ±1 dB	50 Hz – 20kHz, -3 dB, +1 dB
Distortion	0.1 % (1kHz)			
S/N Ratio (A weighted)	100 dB			
Input Impedance	10kΩ (electronically balanced)		10kΩ (unbalanced), 20kΩ (balanced)	
Controls	Volume control, LEDs: Indicator for each channel: input, output, peak, protection, power-on			
Connection	Input: Detachable terminal block (3 pins), XLR-3-31, Output: screw terminals (M4)		Inputs: Removable terminal block (electronically balanced), Outputs: Screw terminals (M4). For AWG 14-22	
Protection Circuit	Overheat, short circuit, overload, unusual DC voltage output		Amplifier section: DC output, overheat protection, load shorting, overload current, maximum output; Power supply section: overheat protection, AC rush current	
Finish	Front: Aluminum, alumite process, black / Case: plated steel sheet			
Dimensions (W x H x D)	482 x 88.4 x 404.2 mm		482 x 44 x 401.8 mm	
Weight	9 kg		6.8kg	

»» Dual-Channel Power Amplifier

DA-250D 250W x 2

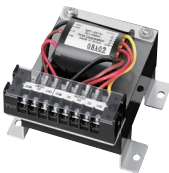
DA-250DH 250W x 2



Model	DA-250D	DA-250DH
Power Source	220 – 240 V AC, 50 / 60 Hz	
Number of Channels	2	
Power Output	2 x 250 W (4 Ω) / 2 x 170 W (8 Ω)	2 x 250 W (100 V line, 40 Ω)
Power Consumption	120 W (EN standard)	
Frequency Response	20 Hz – 20 kHz, ±1 dB	50 Hz – 20 kHz, -3 dB, +1 dB
Distortion	0.1 % (1 kHz)	
S/N Ratio (A weighted)	100 dB	
Input Impedance	10 kΩ (electronically balanced)	
Controls	Volume level control (per channel), LEDs: Power, Indicator for each channel: input, output, peak, protection	
Connection	Input: Detachable terminal block (3 pins), XLR-3-31 / Output: screw terminals (M4)	
Protection Circuit	Overheat, short circuit, overload, unusual DC voltage output	
Finish	Front: Aluminum, alumite process, black Case: plated steel sheet	
Dimensions (W x H x D)	482 x 44 x 401.8 mm (EIA standard rack)	
Weight	5.3 kg	

»» Matching Transformer for DA-500FH, DA-250FH and DA-250DH

MT-251H



Capacity: 0 - 250 W
Primary Side: 100 V line, 70 V line
Secondary Side: 100 V line, 70 V line, 50 V line, 35 V line
Frequency Response: 30 Hz - 18 kHz (+0 dB, -3 dB)
Connection Terminal: M3 Screw Terminal, distance between barriers: 6.6 mm
Dimensions (W x H x D): 108 x 80 x 122 mm
Weight: 2.4 kg



Mixer Power Amplifiers

»» Digital Mixer Amplifier

MX-6224D 240W x 2



Model	MX-6224D
Power Source	220V – 240V AC, 50 / 60Hz
Power Output	240W x 2 channels (100V, 42Ω, rated output)
Power Consumption	150W (according to IEC60065), 650W (at rated output, both channels)
Frequency Response	50Hz - 20kHz, ±3dB (at 1/3 rated output, rated load, rom power amplifier input)
Distortion	Less than 1% THD (at 1 kHz, 1/3 rated output power)
Input	MIC 1: -50dBV (24V phantom powered)/ -60dBV (phantom power OFF), 600Ω, electronically-balanced, ø 6.3mm phone jack MIC 2-4: -66dBV, 200Ω, electronically-balanced, XLR-3-31 type and ø 6.3mm phone jack (either one usable) MIC 5-6: -60dBV, 600Ω, electronically-balanced, XLR-3-31 type and ø 6.3mm phone jack (either one usable) AUX 1: -10dBV, 10kΩ mixed monaural, unbalanced, RCA pin jacks (1 pair) AUX 2: -20dBV, 10kΩ mixed monaural, unbalanced, ø 3.5 mm mini jack (3P: stereo) Power amplifier input: 0dBV, 10kΩ, unbalanced, RCA pin jacks (1 each for ROOM and OUTSIDE outputs)
Output	Speaker output: 2 zones, 100V (42Ω), galvanic isolated balanced, M4 screw terminal Recording output: 0dBV, 600Ω monaural, unbalanced, RCA pin jacks (1 pair) Effect bus output: 0dBV, 600Ω monaural, unbalanced, RCA pin jacks (1 pair) Preamplifier output: 0dBV, 600Ω monaural, unbalanced, RCA pin jacks (1 each for ROOM and OUTSIDE outputs)
S/N Ratio	60dB or more (all volume controls: min.)
Controls	6 Microphone volume controls, 2 AUX volume controls, 1 ROOM output switch, 1 ROOM volume control, 1 OUTSIDE output switch, 1 OUTSIDE volume control, 1 Effect control (0 to 100%) of Effect bus, 1 Effect preset type selection switch (DOME/HALL/DELAY/PLATE), 1 Effect Room size/Delay time selection switch (OFF/small/middle/large), 1 Effect output selection switch (ROOM/ROOM+OUTSIDE), 1 MIC 5 – 6 effect switch, 1 Low EQ control (±15dB, 80Hz) for MIC 1 – 6, 1 Mid EQ control (±15dB, 2.5kHz) for MIC 1 – 6, 1 High EQ control (±15dB, 12kHz) for MIC 1 – 6, 1 Speaker EQ (TC-631M, TC-651M) switch for OUTSIDE output, 1 Speaker EQ (BS-1030B, BS-1030W) switch for ROOM output, 1 Power switch, 1 Phantom switch for MIC 1, 1 Phantom switch for MIC 2 – 6 (XLR-3-31)
Indicators	SLEEP indicator, Output Level meters (2 points, -20 dB and 0 dB) for ROOM and OUTSIDE, Protection indicators for ROOM and OUTSIDE amplifiers, Output indicators for ROOM and OUTSIDE, EFFECT indicator for MIC 1 – 6
Dimensions (W x H x D)	420 x 99 x 364.8mm
Weight	6.5kg

»» Remote Controller for MX-6224D

RC-03



Model	SX-200RM
Power Source	5 V DC (supplied from MX-6224D)
Current Consumption	120 mA (max)
Terminal	RJ-45 connector
On/Off Control Switches	1 ROOM, 1 OUTSIDE, 1 Effect
Indicators	CONNECTION indicator, Output ON/OFF for ROOM and OUTSIDE, EFFECT ON/OFF
Connection Cable	CAT5-STP, CAT5-UTP

Max. Cable Length	200 m
Finish	Plated Steel sheet, paint, white (RAL 9016 equivalent), paint
Dimensions (W x H x D)	86 x 87.2 x 55.3mm
Weight	380 g
Accessory	Sticker for Arabic indication x 1

»» Mixer Amplifier

A-5006 60W

A-5012 120W



Model	A-5006	A-5012
Power Source	100 - 240 V AC, 50 / 60 Hz	
Rated Output	60 W	120 W
Power/ Current Consumption	106 W (rated output), 20 W (based on cULus standards) Max. 2 A	207 W (rated output), 39 W(based on cULus standards) Max. 3 A
Frequency Response	50 Hz - 20 kHz (1/8 output)	
Distortion	1 % or less (1 kHz, rated output)	
Input	INPUT 1, 2: MIC -60 dBV, LINE -20 dBV, MIC/LINE selectable 2.2 kΩ, electronically-balanced, removable terminal block (5 pins) INPUT 3, 4: LINE -20 dBV, 10 kΩ, unbalanced, RCA pin jack	
Output	SPEAKER: 4 Ω, 70 V (83 Ω), 100 V (170 Ω) removable terminal block (5 pins)	Speaker: 4 Ω, 70 V (42 Ω) , 100 V (83 Ω) removable terminal block (5 pins)
S/N Ratio	MIC 1, 2: 50 dB or more, LINE 1 - 4: 70 dB or more (A-weighted)	
Function	Equalizer: 5 points settable on each input (High-pass filter x 1, Parametric equalizer x 4), FBS: settable on input 1 and 2, Compressor:settable on input 1 and 2, Mute: MANUAL/AUTO/OFF settable on each input, Equalizer: 10 points settable on output (Through, Low-pass filter, Parametric equalizer, High-pass filter), Speaker parametric equalizer: 5 points settable on each output	
Finish	Panel: PS resin, black, Case: Sruface-treated steel plate, black. paint	
Dimensions (W x H x D)	210 x 52.5 x 375 mm	
Weight	3.6 kg	3.9 kg

»» Matrix Amplifier

MA-725F

250W x 2



Model		MA-725F
Power Source		100 – 240 V AC, 50 / 60Hz
Power Consumption		1350 W (rated output)
Frequency Response		20Hz – 20kHz (-3 dB / +1 dB, LPF OFF)
Total Harmonic Distortion		1% or less, at 1kHz, rated output
Input	Priority 1-2:	Mic -60dB/Line -10dBV selectable, 2.2kΩ, electronically-balanced, removable terminal block
	Line In 1-4:	-10dBV, 10kΩ, unbalanced, 2 RCA jacks (Stereo summing)
Output	Speaker 1-4:	70V (20Ω), 100V (40Ω), removable terminal block
	Line Out 1-4:	0dBV, 600Ω, unbalanced, RCA jack
	MOH:	0dBV, 600Ω, transformer balanced, removable terminal block
DSP Preset		16 presets in 4 banks at each output channel, selectable
S/N Ratio		Mic: 60dBV or more, Line: 75dBV or more (A-weighted)
Muting		Manual mute / Automatic mute
Mute Hold Time		50ms - 10 seconds, adjustable
Priority Level		PRIORITY 1 > PRIORITY 2 > LINE 1-4
Control	Power:	ON/OFF switch, Power remote terminal
	Priority 1-2:	MIC/LINE selector switch, Gain control, Assign switch, Auto mute switch, Mute sense control, Manual mute terminal, Mute hold time control, Priority mix switch
	Line In 1-4:	Gain control, Assign restriction switch
	Output 1-4:	LINE IN 1-4 selector switch, Output gain control, 70 V/100 V selector switch, HPF switch, DSP bank selector switch, DSP preset selector switch
	Remote 1-4:	Remote control connector (RJ-45), Remote link switch
Operating Temperature		0 °C to 40 °C degree
Operating Humidity		35 % to 80 %RH (no condensation)
Finish		Panel: Aluminum, hair line, black; Case: Steel plate, black, paint
Dimensions (W x H x D)		420 x 107.6 x 350 mm
Weight		7.6 kg
Accessories		Power Cord (2m) x1, Removable Terminal Plug (5 Pins x 2, 3 Pins x 1, 2 Pins x 4); Rack Mounting Bracket x 2, Bracket Mounting Screws x 4, User Manual x 1

»» Dual Channel Digital Mixer Amplifier

A-9500D2

500W x 2



Model		A-9500D2
Power Source		220-240 V AC, 50 / 60Hz
Power Consumption		220 W
Audio Input		Max. 8 channels, modular construction *1
Speaker Output 1, 2		100 V, 500 W, 20 Ω, M4 screw terminal
Module Slot		Analog Input (slot 1-8): -10 dBV,10 kΩ, unbalanced Digital Input (slot 1-4): 24 bit / 48 kHz MIX Output (slot 1-8): -14 dBV, 330 Ω (CH1 prefader output), unbalanced Digital Output (slot 5-7): 24 bit / 48 kHz Power Supply (Slot 1-8): +24 V, -24 V, + 6 V DC
Digital Audio Signal Ref. Level		-20 dB FS
Frequency Response		20 Hz – 20 kHz, +1, -3 dB
Total Harmonic Distortion		0.3 %
S/N Ratio		At input short, 20 Hz – 20 kHz, ALL FLAT or OFF setting Output volume min.: 85 dB Output volume max.: 61 dB (input 1 volume: 0 dB, other inputs: OFF)
Crosstalk		Above 60 dB (at 20 kHz)
Tone Control		Bass: +/-12 dB (at 100 Hz) / Treble: +/-12 dB (at 10 kHz)
Parametric EQ		10 bands, Freq: 20 Hz – 20 kHz, 31 points, Various range: +/- 12 dB, Q: 0.3 – 5
Speaker Equalizer		10 (PC software has 30 TOA speaker presets)
High-pass Filter		-12 dB/oct, Variable frequency range: 20 Hz - 20 kHz, 31 points
Compressor		Depth: 1 - 5
Delay		0 – 40 ms (1 ms steps), maximum 40 ms (CH1 + CH2), mixer mode only
Scene Memory		32
Auxiliary Function		Key Lock Function
Control Input/Output		RS-232C**2, D-sub connector (9P, female) Control input: 4 inputs, no-voltage make contact input, open voltage: 3.3 V DC, short-circuit current: under 1 mA, removable terminal block (14 pins) Control output: 4 outputs, open collector output, withstand voltage: 27 V DC, control current: 50mA, removable terminal block (14 pins) Remote volume: 2 channels, connect a 10 kΩ/linear taper variable resistor or Input 0 – 10 V DC, removable terminal block (14 pins)
Finish		Panel: Aluminium, hair-line, black; Case: Surface-treated steel plate, black, paint
Dimensions (W x H x D)		420 x 107.6 x 415 mm
Weight (without modules)		9.6 kg

(*1) Factory slot 1 is already installed D-001T module, other modules must be purchased separately.
(**2) Allowing it to be controlled by a control system such as AMX and Creston through RS-232C port.
Please refer to Page 54 for 9000 Series modules.



»» Package Amplifier

A-230 30W



Model	A-230
Power Source	220 – 230V AC, 50 / 60 Hz or 12 V DC
Rated Output	30 W
Frequency Response	50 Hz – 20 kHz
Input	MIC 1 – 3: phone jack / AUX: RCA pin jack
Output	Speaker out: High impedance: 330 Ω (100 V), Low impedance: 4 Ω (11 V)
S/N Ratio	60 dB or more (MIC 1 – 3), 70 dB or more (AUX)
Tone Control	Bass: -10 dB at 100 Hz / Treble: -10 dB at 10 kHz
Muting	MIC 1 overrides other Mic inputs and AUX inputs with 0 – 30 dB attenuation, attenuation by MIC 1 input
Dimensions (W x H x D)	350 x 105 x 240 mm
Weight	3.5 kg

»» School Digital Amplifier

SA-60D 60W



Model	SA-60D
Power Source	220 – 240V AC, 50 / 60 Hz
Rated Output	60 W
Power Consumption	100 W (rated output), 18 W (EN 60065)
Frequency Response	20 Hz – 20 kHz
Distortion	1 % or less
Input	MIC 1, 2: -52 dBV, 600 Ω, unbalanced, ø6.3 phone jack (2P) AUX 1, 2: -20 dBV, 10 kΩ, unbalanced, RCA pin jack
Output	Speaker out: Low impedance (2 x 8 Ω or 1 x 4 Ω), Push-in terminal
S/N Ratio	MIC 1, 2: 60 dB or more / AUX 1, 2: 70 dB or more
Protection	Power Supply Thermal Shut down Power Amplifier Thermal Shut down Power Amplifier Over Current Each protection will be restored automatically
Indicator	Power LED (Blue)
Finish	Case: Steel Plate, Off-White, Paint / Knob: ABS resin, Black
Dimensions (W x H x D)	210 x 70.6 x 180 mm
Weight	1.6 kg

Mobile Amplifiers

»» Mobile Amplifier

CA-115

CA-130

CA-160



Model	CA-115	CA-130	CA-160
Power Source	Standard voltage: 14 V DC, Operating range: 10 - 16 V DC (12 V battery used)		
Power Consumption	3 A or less (rated output)	5 A or less (rated output)	9 A or less (rated output)
Rated Output	15 W (35 W max.)	30 W (60 W max.)	60 W (120 W max.)
Output Impedance	4 Ω (BRN), 8 Ω (ORG), Common (WHT) Changeable by changing lead wire connections		
Distortion	5 % or less (1 kHz rated output)		
Frequency Response	100 Hz - 10 kHz		
Input	Mic 1, 2: 600 Ω, 4 mV, Phone jack AUX: 100 kΩ, 500 mV, Phone jack		
Finish	Front Panel: ABS resin, Black ; Case: Zinc plated steel sheet		
Dimension (W x H x D) (Mounting Device excluded)	178 x 50 x 132 mm	178 x 50 x 144 mm	178 x 50 x 170 mm
Weight	0.9 kg	1.1 kg	1.2 kg
Accessory	Microphone Holder x 1, Mounting Bracket x 1, Mounting Screw x 1, Fuse (4A) x 1, Connection Cord x 1 set	Microphone Holder x 1, Mounting Bracket x 1, Mounting Screw x 1, Fuse (8A) x 1, Connection Cord x 1 set	Microphone Holder x 1, Mounting Bracket x 1, Mounting Screw x 1, Fuse (12A) x 1, Connection Cord x 1 set
Accessory Microphone	Uni-directional Dynamic Microphone with talk switch, Impedance: 600 Ω, Sensitivity: -53 dB (1 kHz, 0 dB = 1 V/Pa)		

Portable Wireless Amplifiers

»» Portable Amplifier

WA-1830M

WA-1830MB



Model	WA-1830M	WA-1830MB
Power Source	100-240 V AC, 50 / 60 Hz; DC: 12 V, 2.3 Ah (Rechargeable battery* not included)	100-240 V AC, 50 / 60 Hz; DC: 12 V, 2.3 Ah (Rechargeable battery included)
Power Consumption	AC: 55 W (rated output) ; AC: 11 W (operation at EN60065)	
Rated Output	AC: 30 W ; DC: 10 W	
Applicable Tuner Unit	WTU-4800 (Optional)	
Battery Life	-	Approx. 5 hours continuous music
Battery Charging Time / Type	-	12 hours / 12 V, 2.3 Ah x 1 pc Lead Acid Battery
Frequency Response	50 Hz - 15 kHz, ± 3 dB	
Distortion	Under 5% (rated output)	
Input	Wired mic: -45 dB*, 600 Ω, Unbalanced, 6.3 mm phone jack External Input: -20 dB*, 10 kΩ, Unbalanced, RCA jack	
Output	External speaker: 4 - 16 Ω / over 30 W of rated input External Output: 0 dB*, 1 kΩ, Unbalanced, 6.3 mm phone jack	
Other Feature	Internal or External Speaker selection switch	
S/N Ratio	Over 60 dB (rated output)	
Antenna	Internal antenna (PCB Antenna)	
Internal Speaker	2-way speaker system: 20cm full-range speaker and tweeter	
MP3 Player	- Extension Type file is: MP3, WMA, WAV, AAC, FLAC - Max. supported storage size of the medium (stick): 32GB. (FAT16/FAT32) - Source: USB, SD/MMC, BLUETOOTH, FM, REC, AUX - We do not guarantee that it can support all kinds of USB/SD	
Operating Temperature	-10 °C to +50 °C	
Finish	ABS resin, Black	
Dimensions (W x H x D)	298 x 460 x 200 mm	
Weight	5.3 kg	6.2 kg
Accessories	Power cord (YA-301) x 1, Dust Cover x 1, Screw Driver x 1, Remote Control x 1	

Reference dimension of battery: 178 W x 60 H x 34 D mm



**Please refer to specification sheet for detailed information.

Mixers

9000 Series Digital Matrix Mixer

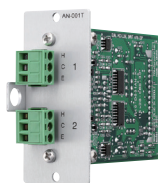
»» 9000M2 Digital Matrix Mixer M-9000M2



Model	M-9000M2
Power Source	220 - 240 V AC, 50 / 60 Hz
Power Consumption	40W
Frequency Response	20Hz – 20kHz
Audio Input	Max. 8 channels, modular (modules optional)
Audio Output	Preamplifier outputs 1 and 2: 0 dB V, 600Ω, balanced, removable terminal blocks (3-pins), max. 8 outputs
Control Inputs and Outputs	RS-232C, D-sub connector (9-pins), 4 control inputs and outputs each, remote volume control, removable terminal block
Crosstalk	> 64 dB (20kHz)
Signal Processing	Tone control (bass, treble: ±12 dB), 10-bands parametric equalizer (31 steps, Q: 0.3 - 5), 10 speaker equalizer, high pass (-12dB / Oct), low pass (-12dB / Oct), Compressor (Depth 1 - 5), Delay (0 ... 40 ms in 1 ms steps),
Scene/Event Memory	32
Auxiliary Function	Key lock function
Finish	Front: Aluminum, black / Case: steel plate, black
Dimensions (W x H x D)	420 x 107.6 x 353 mm
Weight	6kg (without modules)

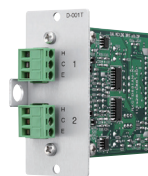
9000 Series Modules

»» Ambient Noise Control Module AN-001T



- Automatically adjusts output gain to compensate for changes in ambient noise level
- Each input can be assigned to control a specific output
- Two inputs with +24VDC phantom power for condenser mics
- 14 preset gain ratios
- Accessory sensing microphone available, model AN-9001
- Maximum two per chassis

»» Dual Mic/Line Input Module with DSP D-001T



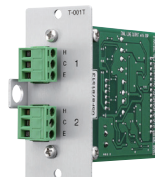
- Two Balanced Mic / Line Inputs
- Digital Signal Processing
- 10-Band Parametric EQ • Bass / Treble • Loudness
- High and Low Pass Filters • Compressor
- Adjustable Sensitivity (nine levels, -60 to -10 dBV)
- Phantom Power (24 VDC)
- Removable Terminal Block
- Maximum four per chassis
- Required for VOX function and input metering

»» Line Input Module D-001R



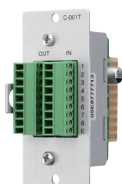
- Two RCA phone inputs per channel provides stereo summing
- Digital Signal Processing
- 10-Band Parametric EQ
- Bass / Treble
- Loudness
- High and Low Pass Filters
- Compressor

»» Dual Line Output Expansion Module with DSP T-001T



- Two Balanced Line Outputs
- Digital Signal Processing
- 10-Band Parametric EQ
- Bass / Treble • Loudness
- High and Low Pass Filters • Compressor
- TOA speaker EQ presets
- Removable Terminal Block
- Maximum three per chassis

»» Input / Output Control Module C-001T



- Eight assignable control inputs for activating Event, Volume Up/Down, Mute, Power On/Off, Emergency Mute or Sync On/Off
- Eight assignable control outputs for activating external relays
- Removable Terminal Block
- Maximum one per chassis

»» Telephone Zone Paging Module ZP-001T



- Telephone Paging to up to eight zones
- Uses DTMF dialing to access outputs
- Dial up to eight output zones in one operation
- Analog extension or page port compatible
- Page port operation requires contact closure activation
- RJ-11 Telephone Jack and Removable Terminal Blocks
- Maximum one per chassis

»» Remote Control Module RC-001T



- Allows use of up to 16 RS-485 remote control panels
- Bi-directional RS-485 communication provides control and status feedback display for each remote function
- Dual ports allows independent home runs for up to 8 modules each
- 24V DC power adapter (optional AD-246) required for each 1 port used
- May be used in any control option slot on 9000M2 mainframe in addition to a C-001T when spare slots are available

»» Wireless Tuner Module WTU-M9800



- PLL synthesizer controlled double super heterodyne diversity tuner
- Use with any 5000 series hand-held or belt-pack transmitter
- Use up to two tuners in 9000 series without any external power supply
- Up to 16 channels (*depending on your location*)
- BNC connectors for local antennas or remote mounted antennas



9000 Series Optional Accessories

» Remote Panel ZM-9001



- Six assignable buttons to activate preset selection or volume up/down
- Operates on Remote Volume Control terminal on the 9000M2 back panel

» Remote Panel ZM-9002



- Four assignable buttons to activate preset selection or volume up/down
- Variable knob to control volume
- Operates on Remote Volume Control terminal on the 9000M2 back panel

» Remote Panel ZM-9011



- Four assignable buttons each with LED status indicator can control Xpoint settings (on/off, select), paging activation, scene and relay activation
- Assignable ID rotary adjustment on box

» Remote Panel ZM-9012



- Rotary Encoder can be assigned to control any input or output volume
- Multiple input or outputs may be "ganged" for Master volume terminals
- Multi-segment LED indicator provides visual volume level status

» Remote Panel ZM-9013



- Eight assignable buttons each with LED status indicator can control Xpoint settings (on/off, select), paging activation, scene and relay activation
- Assignable ID rotary adjustment on box

» Remote Panel ZM-9014



- Four assignable buttons each with LED status indicator can control Xpoint settings (on/off, select), paging activation, scene and relay activation
- Assignable ID rotary adjustment on box

» Ambient Noise Sensing Microphone AN-9001



- Ceiling or wall-mount condenser microphone
- Fits one gang electrical box
- Use with AN-001T module

» Speaker Selector SS-9001



- Switch up to four speaker lines on one amplifier output
- Two amplifier inputs for Paging/BGM applications
- Triggered by ZP-001T module control outputs
- Wall-mount bracket included
- Requires optional 24VDC power supply, model AD-246

D-2000 Series Digital Mixing Systems

» Digital Mixing Processor Unit D-2008SP



Model	D-2008SP
Power Source	220 – 240 V AC, 50 / 60Hz
Power Consumption	76W
Frequency Response	20Hz – 20 kHz, ±1 dB (+4 dB* Input)
Sampling Frequency	48 kHz
Inputs / Outputs	Input: Max. 32 channels, modular construction (modules optional) Output: Max. 32 channels, modular construction (modules optional) Monitor bus; 1 stereo input, 1 stereo output, headphone: 1 stereo
Signal Processing	Feedback suppression function, auto mixing function, auto mixing group, parametric equalizer high-pass filter, low-pass filter, notch filter, all-pass filter, high shelving filter, low shelving filter, horn equalizer, crossover filter, compressor/auto-leveler, output delay, BUS delay, matrix, CobraNet matrix, crosspoint gain
Presets	32
Aux Functions	Key lock function
LAN	10BASE-T/100BASE-TX,(Automatic-Negotiation) connected via a switching hub Network protocol: TCP/IP Connection cable: Shielded Category 5 or higher twisted pair LAN cable (CAT5-STP) Maximum cable distance: 100 m (between D-2008SP and switching sub)
Control	RS-232C, D-sub connector (9 pins) used for external control, Module: Remote control module slot: 2
Dimensions (W x H x D)	482 x 132.6 x 343.4 mm
Weight	6.3 kg

(*) 0 dB = 0.775 V



**Please refer to specification sheet for detailed information.

» Remote Console Unit

D-2012C



Model	D-2012C
Power Source	220 – 240V AC, 50 / 60Hz
Power Consumption	18W
Volume Adjustment	100mm motorized fader × 12, Rotary encoder × 8
Line Input	1 channel (stereo), +10* to -20dB*, 10kΩ, unbalanced, RCA Pin-jack
Headphone Output	Stereo 100mW + 100mW (32Ω load), standard stereo phone-jack
Monitor-Bus	1 stereo input, 1 stereo output
LAN	Network I/F: 10BASE-T/100BASE-TX (Automatic-Negotiation) RJ45 connector, connected via a switching hub Network protocol: TCP/IP Connection cable: Shielded twisted pair (STP) Category 5 or higher LAN cable Maximum cable distance: 100m (between D-2008SP and switching sub)
Control	RS-232C: D-sub connector (9 pins) for maintenance use
Dimensions (W x H x D)	482 × 266 × 138mm
Weight	6.6kg

(*) 0 dB = 0.775 V

» Console Case for D-2012C

D-2012AS

Finish: Side Panel: MDF, paint, black, matte
Armrest: MDF, synthetic-leather, black, matte
Decorative Panel: Stainless steel, silver

Dimensions (W x H x D): 505 x 127.5 x 333.4 mm (assembled with the D-2012C)

Weight: 2.3 kg or 7.5 kg (assembled with D-2012C)

Accessory: Assemble screw x 11, Rubber foot x 4, Rubber foot mounting screw x 4



D-2000 Series Modules

» Mic/Line Input Module

D-2000AD1



- 4-channel, XLR connectors
- A/D converter: 24 bit
- Phantom power supply (48V)
- Distortion: 0.008% or less

» Line Output Module

D-2000DA1



- 4-channel, XLR connectors
- D/A converter: 24 bit
- Distortion: 0.008% or less

» CobraNet Interface Module

D-2000CB



- Allows audio transmission among D-2008SPs

* CobraNet was developed by Cirrus Logic, a US company and is a network protocol utilizing Ethernet networks to perform high-quality multi-channel digital transmission. It allows using existing Ethernet equipment such as CAT-5 switching hubs

D-901 Digital Mixer

» Digital Mixer

D-901



Model	D-901
Power Source	230 V AC, 50 / 60Hz
Power Consumption	27W
Frequency Response	20Hz – 20kHz, ±1 dB (±4 dB* 1 Input)
Input	Max. 12 channels, modular construction (modules optional)
Output	Max. 8 channels, modular construction (modules optional)
Signal Processing	Feedback suppression function: 12 filters (auto/dynamic), auto mixing function: ducker (automatic muting), NOM attenuation, equalizer / filter: parametric equalizer: 20 – 20kHz, ±15dB, Q: 0.267 – 69.249, filtering: high-pass filter 20 – 20kHz, 6 dB/oct., 12 dB/oct. low-pass filter 20 – 20kHz, 6 dB/oct, 12 dB/oct, notch filter 20 – 20kHz, Q: 8.651 – 69.249, all-pass filter 20 – 20kHz, Q: 0.267 – 69.249, high shelving filter 6 – 20kHz, ±15 dB, low shelving filter 20 – 500Hz, ±15 dB, horn equalizer 20kHz, 0 to +18 dB (1 dB steps), compressor: crossover filter: LR / BW / BE 20 – 20 kHz, 6 dB/oct, 12 dB/oct, 18 dB/oct, 24 dB/oct, threshold: -20dB to +20dB, ratio: 1:1, 2:1, 3:1, 4:1, 8:1, 12:1, 20:1, infinite:1, attack time: 0.2 ms – 5 s, release time: 10ms to 5 s, Delay gain: - infinite to +10 dB, delay time: 0 – 682.6ms (0.021 ms steps), matrix: 12 x 8
Preset Memory	16
Auxiliary Function	System locking function
Control	RS-232C, D-sub connector (9 pins), remote control module (option)
Front Panel Section	Preset memory recall key: 8, LCD screen, screen shift key (up/down/left/right), setting knob, Input level indicator: dual colour LED, output level indicator: dual colour LED, channel selector key: 12 (Input CH selection), 8 (Output CH selection), Channel volume control: 1 (Input CH selection), 1 (Output CH selection)
Rear Panel	Input module slot: 6 (input/output module slot: 2), Output module slot: 2, Remote control module slot: 1
Finish	Panel: aluminum, hair-line finish, black / Others: pre-coated steel plate, black, 30 % gloss
Dimensions (W x H x D)	482.6 x 132.6 x 320mm (excluding projection), 3 units
Weight	6.9kg

(*) 0 dB = 0.775 V

Note: When installing the unit never block the intake vents provided at the bottom of the unit near the rear.



D-901 / D-2000 Series Modules and Optional Accessories

>>> VCA Faber Unit
 D-911



Model	D-911
Power Source	5 V DC (supplied from the optional D-984VC)
Connector	RJ45 connector x 8
Input Fader Control	Input fader (100mm) x 12
Output Volume Control	Output volume control x 8
Contact Control	Illuminated switch x 8
Remote Switch	Seesaw switch for activating the remote function of the power distributor
Remote Output	No-voltage make contact output (contact capacity: 30 V DC, 4 A)
Finish	Panel: Pre-coated steel plate, black, 30 % gloss
Dimensions (W x H x D)	482.6 x 177 x 61.3mm (excluding projection)
Weight	2.7kg

>>> VCA Control Module
 D-984VC



- Interface to D-911 Remote Controller
- 8 RJ-45 connectors
- Control up to 12 inputs, 8 outputs

D-901 / DP-K1 / D-2000 Series Modules

>>> Mic/Line Input Module
 (24 bits Monaural Type)
 D-921F



- 2-channel, XLR connectors
- A/D converter: 24 bit
- Phantom power supply (15V)
- THD: 0.05% or less

>>> Mic/Line Input Module
 (24 bits Monaural Type)
 D-921E



- 2-channel, removable terminal block
- A/D converter: 24 bit
- Phantom power supply (15V)
- THD: 0.05% or less

>>> Stereo Input Module
 D-936R



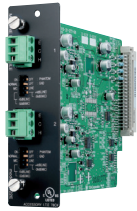
- 4-channel, RCA pin jack
- A/D converter: 24 bit
- THD: 0.05% or less

>>> Mic/Line Input Module
 (20 bits Monaural Type)
 D-922F



- 2-channel, XLR connectors
- A/D converter: 20 bit
- Phantom power supply (15V)
- THD: 0.05% or less

>>> Mic/Line Input Module
 (20 bits Monaural Type)
 D-922E



- 2-channel, removable terminal block
- A/D converter: 20 bit
- Phantom power supply (15V)
- THD: 0.05% or less

>>> Digital Input Module
 D-923AE



- 2-channel line input
- Applicable format: AES/EBU

>>> Digital Output Module
 D-972AE



- 4-channel line output
- XLR connectors
- Applicable format: AES/EBU

>>> Remote Control Module
 D-981



- 8 inputs/8outputs
- Removable terminal block connectors

>>> Remote Control Module
 D-983



- 24 inputs/16 outputs
- RJ45 connectors

>>> Line Output Module
 D-971M



- 4-channel, XLR connectors
- D/A converter: 24 bit
- THD: 0.05% or less

>>> Line Output Module
 D-971R



- 4-channel, RCA pin jack
- D/A converter: 24 bit
- THD: 0.05% or less

>>> Line Output Module
 D-971E



- 4-channel, removable terminal block
- D/A converter: 24 bit
- THD: 0.05% or less

Digital Stereo Mixers

» Mixer Pre-Amplifier

MX-9200



MX-9200 App Visual



Scan to download the app



Model	MX-9200
Power Source	220 - 240 V, 14 W
Audio Input	Input CH 1 with Phantom option 19 V DC: - CHIME MIC: Balanced, Selectable sensitivity -55 dB (1.8 mV) / -30 dB (30 mV), 2.2 kΩ, rated 1 kHz, RJ45 connector - MIC: Balanced, Selectable sensitivity -55 dB (1.8 mV) / -30 dB (30 mV), 2.2 kΩ, rated 1 kHz, Phone jack connector Input CH 2-4 with Phantom option 19 V DC: - Balanced, Sensitivity -55 dB (1.8 mV), 2.2 kΩ, rated 1 kHz, Phone jack connector Selectable Input CH 5 with options: - MIC: Balanced, Sensitivity -55 dB (1.8 mV), 2.2 kΩ, rated 1 kHz, Phone jack connector - AUX: Unbalanced, Sensitivity 0 dB, 10 kΩ, rated 1 kHz, RCA jack connector Selectable Sensitivity Input CH 6-8, Removable terminal 3 pins with sensitivity options: - LINE: Balanced, Sensitivity 0 dB, 2.2 kΩ, rated 1 kHz - MIC: Balanced, Sensitivity -55 dB (1.8 mV), 2.2 kΩ, rated 1 kHz Selectable sensitivity Input CH 9, Removable terminal 3 pins with sensitivity options: - MIC: Balanced, Sensitivity -55 dB (1.8 mV), 2.2 kΩ, rated 1 kHz - STREAMING: Unbalanced, Sensitivity 0 dB (1.8 mV), 10 kΩ, rated 1 kHz
Audio Output	Audio OUT A & B, Balanced, Removable terminal 3 pins Optional output level: 0 dB / -10 dB (300 mV) / -20 dB (100 mV), 600 Ω, rated 1 kHz
Control Output	9 Shortcut switch IN, 2 Shortcut switch OUT, 1 Shortcut switch VOLUME, 1 Shortcut switch TONE CONTROL, 1 Shortcut switch INPUT SELECTION, 1 Navigation switch (Right, Left, Push)
Tone Control	Bass ±13 dB at 100 Hz, Middle ±13 dB at 1 kHz, Treble ±13 dB at 10 kHz
Distortion	Under 1% at 1 kHz, rated power
Frequency Response	30 Hz - 20 kHz, ±3 dB
Indicator	LCD display with backlight GREEN, POWER indicator light GREEN, STATUS indicator light GREEN, SIGNAL indicator light GREEN, PEAK indicator light RED
Connection	Bluetooth 4.2, USB Type B (PC Setting / Update Firmware)
Finish	Front: Aluminum Hair Line, Paint, Black / Case: Steel Plate, Paint, Black
Dimensions (W x H x D)	420 x 59 x 339.7 mm
Weight	3.3 kg
Accessories	6P connector x 2, 3P connector x 2

» Digital Stereo Mixer

M-864D



Model	M-864D
Power Source	220 - 240 V AC, 50 / 60 Hz (CE/CE-GB) or 220 - 240 V AC, 50 Hz (CE-AU) or 100 - 120 V AC, 60 Hz (CU)
Power Consumption	30 W
Frequency Response	20 Hz – 20 kHz, ±1 dB
Sampling Frequency	48 kHz / 24 bits
Distortion	0.03% or less, 1 kHz, +4 dB* input/output, 20 Hz – 20 kHz BPF
Crosstalk	-80 dB or less, 1 kHz
Input	8 monaural input channels, removable terminal block (3P) • Phantom power (+24 V DC, 10 mA, ON/OFF switchable for each channel) • Gain setting (settable for each channel) 7 stereo input (L, R) channels (1-A, 1-B, 1-C, 2-A, 2-B, 2-C, front mounted input) RCA jack (stereo mini jack provided on the front panel) • -10 dB* (max. +10 dB*), 10 kΩ • Trim gain for each individual channel: -∞ to 0 dB (except front mounted input)
Output	4 output channels, +4 dB* (max. +24 dB*), applicable load 600 Ω or more, electronically-balanced, removable terminal block (3P) 1 recording output (L, R) channel: -10 dB* (max. +10 dB*), applicable load 1 kΩ or more, RCA jack, gain is adjustable
Contact Input	8 channels, open voltage: 24 V DC, short-circuit current: 5 mA, removable terminal block (10P)
Contact Output	8 channels, no-voltage make contact, contact capacity: 24 V DC/100 mA, removable terminal block (10P)
Signal Processing	Automatic Resonance Control (ARC) Function, Feedback Suppressor Function, Filter: 8 channels (each monaural input channel), high-pass filter: 20 Hz – 20 kHz, Tone Controller: BASS, MID, TREBLE, Parametric Equalizer: 20 Hz – 20 kHz, ±15 dB, 4 channels (each output channel), Matrix: 12 x 4, Crosspoint Gain: -∞ to 0 dB in 1 dB steps, Auto Mute Function
Network	Network I/F: 1 channel of 10BASE-T/100 BASE-TX (auto-negotiation), RJ45 connector, connection via switching hub Network protocol: TCP/IP, Connection cable: Shielded Cat. 5 or higher twisted pair cable for LAN (Cat. 5-STP or better) Maximum cable length: 100 m (between M-864D and switching hub)
Finish	Panel: Aluminum, hairline, black / Case: Surface treated steel plate
Dimensions (W x H x D)	482.6 x 177.1 x 157.2 mm
Weight	5.1 kg

(*) 0 dB = 0.775 V



»» Digital Stereo Mixer

M-633D



Model	M-633D
Power Source	220 - 240 V AC, 50 / 60 Hz (CE/CE-GB) or 120 V AC, 60 Hz (CU)
Power Consumption	14 W (CE/CE-AU) or 13W (CU)
Frequency Response	20Hz – 20kHz
Input	6 monaural input channels, selectable independently from 3 types of inputs for each channel: LINE, MIC or PHANTOM, LINE: -10 dBV, 2.4k Ω , MIC: -46 dBV, 2.4k Ω , PHANTOM: -46dBV, 2.4k Ω , supplies +24V DC / 10mA, electronically balanced, removable terminal block (3 pins), phone jack, 3 stereo inputs (L, R): -10 dBV / 10k Ω , RCA jack, stereo mini jack
Output	2 monaural outputs: 0dBV, electronically balanced, removable terminal block (3 pins) 1 stereo output (L, R): 0dBV, electronically balanced, removable terminal block (3 pins) 1 stereo recording output (L,R): -10dBV, RCA jack
Bus Line	Monaural channel x 2, stereo channel x 1
Distortion	0.03% or less
Sampling Frequency	48 kHz / 24 bits
Signal Processing	Automatic resonance control (ARC), feedback suppressor (FBS), automatic clipguard (ACG), automatic mute
S/N Ratio	90 dB or more (IHF-A weighted)
Finish	Front: Aluminum, black, hairline; Case: Precoated steel sheet, black, 30 % gloss
Dimensions (W x H x D)	420 x 44 x 341.3mm
Weight	4kg

Analog Mixer

»» Pre-Amplifier Mixer

MX-113



Model	MX-113
Power Source	220 - 240 V AC, 50 / 60 Hz
Power Consumption	4 W
Input	Mic 1-5: 600 Ω , -62 dBV, unbalanced, phone jack (voice switch OFF), 600 Ω , -54 dBV, unbalanced, phone jack (voice switch ON) (option IT-450 balance transformer) MIC 6: 600 Ω , -62 dBV, unbalanced, phone jack AUX 1: 10 k Ω , -12 dBV, unbalanced, phone jack/RCA jack (microphone 6 and AUX 1 are switch type) AUX 2, 3: 10 k Ω , -12 dBV, unbalanced, phone jack/RCA jack AUX 4: 600 Ω , -12 dBV, unbalanced, phone jack (option IT-450 balance transformer)
Output	Line output: 600 Ω , 0 dBV, balanced, phone jack / Record out: 1 k Ω , 0 dBV, unbalanced, RCA jack
Remote Terminal	Withstand voltage: DC 30 V, Current: 1 A, M3 Screw terminal, 6.4 mm
T.H.D	1 % or less (1 kHz, rated output)
Frequency Response	30 Hz - 20 kHz
Noise Level	60 dB
Finish	Front Panel: Aluminium, Black, Paint
Dimensions (W x H x D)	420 x 50 x 271 mm
Weight	3.2 kg
Accessory	Power Cable (2 pin)
Option	Rack Mount Bracket: MB-15B, Balance Transformer: IT-450

Signal Processing Equipment

Integrated DSP and Control Systems

»» Digital Audio Processor DP-K1



Model	DP-K1
Power Source	230 V AC, 50 / 60 Hz
Power Consumption	40W (450 mA)
Frequency Response	20Hz – 20kHz, ±1 dB (±4 dB* input)
Inputs / Outputs	Up to 8 channels, modular construction
Equalizer / Filter	Parametric equalizer: 20Hz – 20kHz, ±12 dB, Q: 0,267 - 69,249 Filter: (total amount of filters depends on the number of input and output channels) High pass filter: 20Hz – 20kHz, 6 dB/Oct., 12 dB/Oct Low pass filter: 20Hz – 20kHz, 6 dB/Oct., 12 dB/Oct Notch filter: 20Hz – 20kHz, Q: 8,651 - 69,249 All pass filter: 20Hz – 20kHz, Q: 0,267 - 69,249 High shelving filter: 6 – 20kHz, ±12 dB Low shelving filter: 20 – 500Hz , ±12 dB Horn-Equalizer: 20 kHz, 0 to +18 dB (0.5 dB steps) Crossover filter: 20Hz – 20kHz, 6 dB/Oct, 12 dB/Oct, 18 dB/Oct, 24 dB/Oct (LR, BW, BE)
Compressor	threshold: -16 to +24 dB (1 dB steps); Ratio: 1:1, 2:1, 3:1, 4:1, 8:1, 12:1, 20:1, ∞:1 Attack time: 0.2 - 100 ms , Release time: 10 ms - 5 s
Delay	Delay time: 0 - 682.0 ms (0.021 ms steps)
Matrix / Gain control	Matrix 8 x 8, Level control: -∞ to 0 dB (1 dB steps)
Preset Memory	8
Auxiliary Function	Key lock function
Network	10 BASE-T/100 BASE-TX, Auto-negotiation, RJ45 connector
Finish	Front: Aluminum, hair-line, black / Others: pre-coated steel plate, black, 30 % gloss
Dimensions (W x H x D)	482.6 x 132.6 x 320 mm
Weight	7.4 kg

(*) 0 dB = 0.775 V
Note: When installing the unit never block the intake vents provided at the bottom of the unit near the rear.

»» Digital Speaker Processor DP-SP3



Model	DP-SP3
Power Source	220 - 240 V AC, 50 [/ 60 Hz (CE) or 50 Hz (CE-AU)
Power Consumption	25W
Frequency Response	20Hz – 20kHz, ±1 dB
Sampling Frequency	96 kHz / 24 bits
Dynamic Range	Over 110 dB
Distortion	0.03 % or less, 1 kHz, +4 dB* input/output (20Hz – 20kHz BPF)
Crosstalk	-80 dB or less, 1 kHz
Input	2 channels, +4 dB* (Max. +24 dB*), 10 kΩ, electronically-balanced, removable terminal block (3P)
Output	6 channels, +4 dB* (Max. +24 dB*), applicable load 600 Ω or more, electronically-balanced, removable terminal block (3P)
Equalizer/Filter	Parametric equalizer: 20Hz – 20kHz, ±15 dB, Q: 0.267 – 69.249, Filter: High-pass filter: 20Hz – 20kHz, 6 dB/oct, Low-pass filter: 20Hz – 20kHz, 6 dB/oct, 12 dB/oct, Notch filter: 20Hz – 20kHz, Q: 8.651 – 69.249, All-pass filter: 20Hz – 20kHz, Q: 0.267 – 69.249, High-shelving filter: 20 – 20kHz, ±15 dB, Low-shelving filter: 20 – 500Hz, ±15 dB, Horn equalizer: 20kHz, 0 – 18 dB in 0.5 dB steps
Crossover	2 ways, 3 ways, 4 ways, Crossover filter: 20Hz – 20kHz, 6 dB/oct, 12 dB/oct, 18 dB/oct, 24 dB/oct, -15 to +12 dB, polarity switchable Delay: 0 – 170,656 ms in 0.01 ms steps
Compressor	Threshold: -20 to +20 dB* in 1 dB steps; Ratio: 1:1, 1.1:1, 1.2:1, 1.3:1, 1.5:1, 1.7:1, 2:1, 2.3:1, 2.6:1, 3:1, 4:1, 7:1, 8:1, 10:1, 12:1, 20:1, ∞:1, Attack time: 0.2 ms – 5 s, Release time: 10 ms – 5 s
Delay	Delay time: 0 – 682.656 ms in 0.01 ms steps
Matrix	2 x 6
Crosspoint Gain	– ∞ to 0 dB in 1 dB steps
Function	Input PAD (-14 dB) control, analog output attenuator (-∞ to 0 dB in 1 dB steps) control, EQ characteristic library for TOA speakers, input/output level indicator (4-point LED indicator), output MUTE switch x 6
Contact Inputs	4 channels, open voltage: 5V DC, short-circuit current: 5 mA, removable terminal block (5P), control function: preset memory selection, volume control, and mute
Network	Network I/F: 1 channel of 10BASE-T/100 BASE-TX (auto-negotiation), RJ45 connector, connection via switching hub Network protocol: TCP/IP, Connection cable: Shielded Cat. 5 or higher twisted pair cable for LAN (Cat. 5-STP or better) Maximum cable length: 100 m (between DP-SP3 and switching hub)
Finish	Panel: Aluminium, hairline, black / Case: Surface-treated steel plate
Dimensions (W x H x D)	482 x 44 x 289 mm
Weight	3.1 kg

(*) 0 dB = 0.775 V



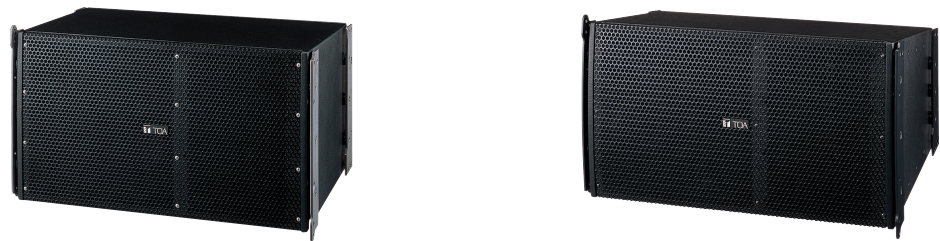
Speakers (Pro-Sound)

Line Array Speaker Systems

Type A Series

» Line Array Speaker

SR-A12L
SR-A12LWP
SR-A12S
SR-A12SWP



Model	SR-A12L	SR-A12LWP	SR-A12S	SR-A12SWP
Enclosure	Bass-reflex type			
Power Handling Capacity	Continuous program: Low frequency: 450 W, High frequency: 180 W			
Rated Impedance	Low frequency: 8 Ω, High frequency: 16 Ω			
Sensitivity (1 W, 1 m)	Low frequency: 98 dB High frequency: 110 dB		Low frequency: 98 dB High frequency: 109 dB	
Frequency Response	50 Hz – 20kHz (when recommended parameters are applied by the optional DP-SP3)			
Crossover Frequency	1kHz (when recommended parameters are applied by the optional DP-SP3)			
Directivity Angle	Horizontal: 90°, Vertical: 5°		Horizontal: 90°, Vertical: 15°	
Speaker Component	Low frequency: 30cm cone-type High frequency: Wave front control horn 90° (horizontal) × 5° (vertical) + compression driver × 2		Low frequency: 30cm cone-type High frequency: Wave front control horn 90° (horizontal) × 15° (vertical) + compression driver × 2	
Input Connector	M5 screw terminal, distance between barriers: 12.2mm and Neutrik NL4MP x 2 (usable cable connector: Neutrik NL4FC)	Direct cable withdrawal from internal speaker: ø8.6mm, conductor cross section: 1.25mm², 4-core cable, 3m	M5 screw terminal, distance between barriers: 12.2mm and Neutrik NL4MP x 2 (usable cable connector: Neutrik NL4FC)	Direct cable withdrawal from internal speaker: ø8.6mm, conductor cross section: 1.25mm², 4-core cable, 3m
Water Protection	-	IPX4	-	IPX4
Finish	Enclosure: Plywood black, paint Front grill: Punched steel plate, black, acrylic paint	Enclosure: Plywood, black, urethane coating Front grill: Punched stainless steel (SUS304), black, paint	Enclosure: Plywood black, paint Front grill: Punched steel plate, black, acrylic paint	Enclosure: Plywood, black, urethane coating Front grill: Punched stainless steel (SUS304), black, paint
Dimensions (W x H x D)	740 × 433 × 469mm		740 × 433 × 467mm	
Weight	49kg	51 kg	47 kg	48kg

» Subwoofer

SR-A18B

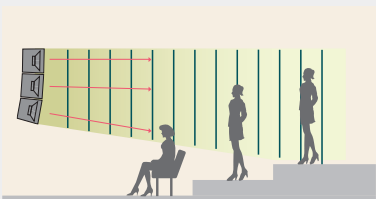


Model	SR-A18B
Enclosure	Bass-reflex type
Power Handling Capacity	Continuous program: 720 W
Rated Impedance	8 Ω
Sensitivity (1 W, 1 m)	95 dB
Frequency Response	40 Hz – 400 Hz (when recommended parameters are applied by the optional DP-SP3)
Crossover Frequency	80 Hz (when recommended parameters are applied by the optional DP-SP3)
Speaker Component	46 cm cone-type
Input Connector	M5 screw terminal, distance between barriers: 12.2 mm and Neutrik NL4MP x 2 (usable cable connector: Neutrik NL4FC)
Finish	Enclosure: Plywood black, paint / Front grill: Punched steel plate, black, acrylic paint
Dimensions (W x H x D)	740 x 573 x 698 mm
Weight	66 kg

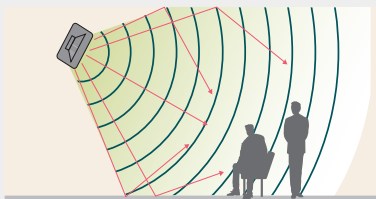
TOA Line Array Speakers:

- The 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. It is available in different configurations and with a wide range of mounting possibilities that will suit particular requirements precisely

Line Array Speaker



Standard Speaker



Type C Series

»» Line Array Speaker

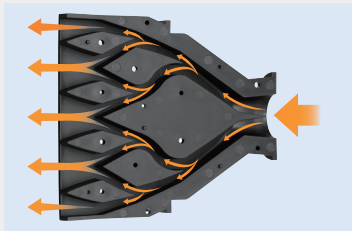
- SR-C8S
- SR-C8SWP
- SR-C8L
- SR-C8LWP



Model	SR-C8S	SR-C8SWP	SR-C8L	SR-C8LWP
Enclosure	Bass-reflex type			
Power Handling Capacity	Continuous program: 360W (single-amp mode) / low frequency: 360W, high frequency: 180W (bi-amp mode)			
Rated Impedance	16Ω (single-amp mode), low frequency: 16Ω, high frequency: 16Ω (bi-amp mode)			
Sensitivity (1W, 1m)	98dB (single-amp mode); low: 95dB; high: 110dB (bi-amp mode)			
Frequency Response	65Hz – 20kHz (when recommended parameters are applied by the optional DP-SP3)			
Crossover Frequency	1.6kHz (when recommended parameters are applied by the optional DP-SP3)			
Directivity Angle	Horizontal: 110°, vertical: 15°		Horizontal: 110°, vertical: 5°	
Speaker Component	Low frequency: 20cm cone-type / High frequency: Wave-front control horn + compression drivers × 2			
Input Connector	M5 screw terminal, distance between barriers: 12.2mm and Neutrik NL4MP × 2	Direct cable, 3m	M5 screw terminal, distance between barriers: 12.2mm and Neutrik NL4MP × 2	Direct cable, 3m
Water Protection	-	IPX4	-	IPX4
Finish	Enclosure: Plywood black, paint Front grill: Punched steel plate, black, acrylic paint	Enclosure: Plywood, black, urethane coating Front grill: Punched stainless steel, black, paint	Enclosure: Plywood black, paint Front grill: Punched steel plate, black, acrylic paint	Enclosure: Plywood, black, urethane coating Front grill: Punched stainless steel, black, paint
Dimensions (W x H x D)	526.6 × 293 × 294mm		526.6 × 293 × 296mm	
Weight	16kg		17kg	

Superior Sound Quality with Sync-Drive Technology

- "Sync-Drive" - Type C features TOA proprietary "Sync-Drive" wave guide technology, to provide an uniform, high frequency sound field offering excellent sound clarity and minimal interference.



»» Subwoofer

- SR-C15B
- SR-C15BWP



Model	SR-C15B	SR-C15BWP
Enclosure	Bass-reflex type	
Power Handling Capacity	Continuous program: 450W	
Rated Impedance	8Ω	
Sensitivity (1W, 1m)	93dB	
Frequency Response	40 Hz – 400Hz (when equalized at recommended parameters)	
Speaker Component	38cm cone-type	
Input Connector	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, 3 m
Water Protection	-	IPX4
Finish	Enclosure: Plywood, black, urethane paint, Front grille: Punched steel plate, black, paint	Enclosure: Plywood, black, urethane coating, Front grille: Punched stainless steel plate, black, paint
Dimensions (W x H x D)	526.6 × 594.8 × 550mm	
Weight	41kg	



Type H Series



Outstanding Sound Quality

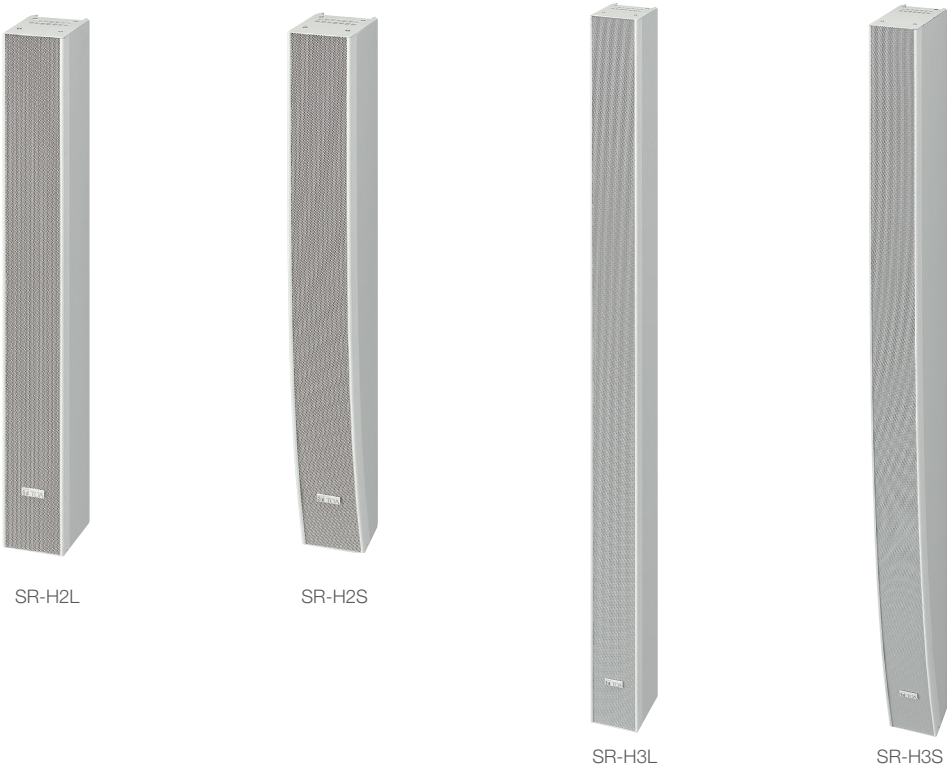
Application Versatility

Space / Energy Efficient Design

Easy & Flexible Installation

»» Line Array Speaker

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



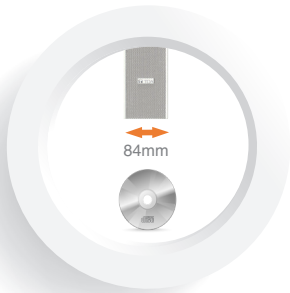
Model	SR-H2L	SR-H2S	SR-H3L	SR-H3S
Power Handling Capacity	Continuous program: 180 W		Continuous program: 360W	
Rated Impedance	8 Ω			
Sensitivity (1W, 1m)	92 dB	90 dB	95 dB	92 dB
Frequency Response	80Hz – 18 kHz	90Hz – 17 kHz	110Hz – 18 kHz	90Hz – 17 kHz
Speaker Component	7 cm cone-type x 9		7 cm cone-type x 16	
Directivity Angle	Horizontal: 90°/ Vertical: 0°	Horizontal: 90°/ Vertical: 20°	Horizontal: 90°/ Vertical: 0°	Horizontal: 90°/ Vertical: 20°
Finish	Enclosure: MDF, white, paint / Front grille: Punched steel plate, white, acrylic paint			
Dimensions (W x H x D)	84 x 668.4 x 115mm	84 x 663.4 x 115mm	84 x 1,186.4 x 115mm	84 x 1,177.2 x 157 mm
Weight	4.4kg	4.2kg	7.6kg	7.9kg

»» Matching Transformer

MT-S0301

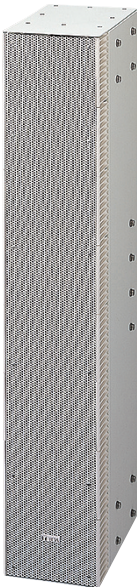


Rated Input Power: 30 W
Primary Side: 100 V line: 330 Ω (30 W), 1 kΩ (10 W),
70 V line: 170 Ω (30 W), 330 Ω (15 W), 1 kΩ (5 W)
Secondary Side: 8 Ω
Weight: 370 g

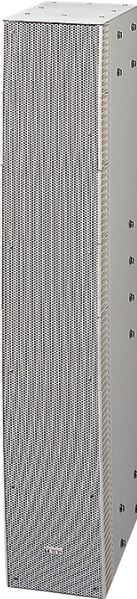


Type S Series

»» Line Array Speaker
SR-S4L
SR-S4LWP



»» Line Array Speaker
SR-S4S
SR-S4SWP



Model	SR-S4L	SR-S4LWP	SR-S4S	SR-S4SWP
Power Handling Capacity	Continuous program: 600 W			
Rated Impedance	8 Ω			
Sensitivity (1 W, 1 m)	94 dB		93 dB	
Frequency Response	70 Hz – 20 kHz			
Crossover Frequency	3.5 kHz			
Directivity Angle	Horizontal: 90°, Vertical: 0° (within the range of speaker height)		Horizontal: 90°, Vertical: 10°	
Speaker Component	Low frequency: 10 cm cone-type x 8, High frequency: 2.5 cm balanced dome-type x 24			
Input Connector	M5 screw terminal, distance between barriers: 12.2 mm and Neutrik NL4MP x 2 (usable cable connector: Neutrik NL4FC)	-	M5 screw terminal, distance between barriers: 12.2 mm and Neutrik NL4MP x 2 (usable cable connector: Neutrik NL4FC)	-
Connected Cable	-	Direct cable withdrawal from internal speaker: ø8.6 mm, conductor cross section: 1.25 mm², 4-core cable, 3 m	-	Direct cable withdrawal from internal speaker: ø8.6 mm, conductor cross section: 1.25 mm², 4-core cable, 3 m
Water Protection	-	IPX4	-	IPX4
Finish	Enclosure: MDF, white, paint Front grill: Punched steel plate, white, acrylic paint	Enclosure: Plywood, white, urethane coating Front grill: Punched stainless steel (SUS304), white, paint	Enclosure: MDF, white, paint Front grill: Punched steel plate, white, acrylic paint	Enclosure: Plywood, white, urethane coating Front grill: Punched stainless steel (SUS304), white, paint
Dimensions (W x H x D)	160 × 895 × 255 mm		160 × 892 × 303 mm	
Weight	16 kg			

»» Matching Transformer
MT-S0601



Rated Input Power: 60 W
Primary Side: 100 V line: 170 Ω (60 W), 330 Ω (30 W), 670 Ω (15 W)
70 V line: 83 Ω (60 W), 170 Ω (30 W), 330 Ω (15 W), 670 Ω (7.5 W)
Secondary Side: 8 Ω
Weight: 1.2 kg

Type T Series

»» Line Array Speaker
SR-T5



Model	SR-T5
Enclosure	Bass-reflex type
Power Handling Capacity	Continuous pink noise: 250 W, Continuous program: 750 W
Rated Impedance	8 Ω
Sensitivity	96 dB (1 W, 1 m equivalent, measured at 4 m)
Frequency Response	70 Hz - 20 kHz
Crossover Frequency	3 kHz
Directivity Angle	Horizontal: 100°, Vertical: 35°
Speaker Component	Low frequency: 13 cm (5.12") cone-type x 8 High frequency: Balanced dome type x 24
Recommended Installation Height	4 - 5.5 m (Speaker top, when installed in sport facilities 30 m in length)
Adjustable Angle Range	Downward: 0°, 1°, 2°, 3° (when the supplied mounting bracket is used) Horizontal (left or right): 5°, 10° (when the optional SR-PB5 Wall Pan Bracket is used)
Input Terminal	M5 screw terminal, distance between barriers: 12.2 mm
Finish	Enclosure: Plywood, black, urethane paint; Baffle: Polypropylene, black Punched net: Steel plate, black, acrylic paint; Mounting bracket: Steel plate, black, acrylic paint
Dimensions (W x H x D)	310 x 1,239 x 341 mm
Weight	29 kg (including accessories)
Accessories	Mounting bracket Ax 1, Mounting bracket Bx 1, Bracket mounting bolt x 6, Side cover x 5, Side cover mount screw x 10, Eye bolt x 1, Safety wire x 1
Option	Wall Pan Bracket SR-PB5; Matching Transformer: MT-S0601



Compact Array Speakers

- Features of Compact Array Speakers:
- Accurate directivity control
 - Versatile mounting options
 - Adjustable Dispersion
 - Advantage of multi-unit configuration

Line Array Speaker

HX-5B
HX-5W
HX-5B-WP
HX-5W-WP



Model	HX-5B	HX-5W	HX-5B-WP	HX-5W-WP
Enclosure	Bass-reflex type		Sealed type	
Power Handling Capacity	Continuous pink noise: 200 W / Continuous program: 600W			
Rated Impedance	8 Ω			
Sensitivity (1 W, 1 m)	96 dB (60° mode), 97 dB (45° mode), 98 dB (30° mode), 99 dB (15° mode)			
Frequency Response	70 Hz – 20 kHz (-10 dB) (60° mode)		95 Hz – 20 kHz (-10 dB) (60° mode)	
	75 Hz – 20 kHz (-10 dB) (45° mode)		100 Hz – 20 kHz (-10 dB) (45° mode)	
	80 Hz – 20 kHz (-10 dB) (30° mode)		105 Hz – 20 kHz (-10 dB) (30° mode)	
	85 Hz – 20 kHz (-10 dB) (15° mode)		110 Hz – 20 kHz (-10 dB) (15° mode)	
Crossover Frequency	4 kHz			
Directivity Angle	Horizontal: 100° (over 2 kHz), Vertical: 60° (over 800 Hz), 45° (over 1.2 kHz), 30° (over 1.6 kHz), 15° (over 3.2 kHz) variable			
Speaker Component	Low frequency: 12 cm cone-type x 4, High frequency: Balanced dome-type x 12			
Input Terminal	Speakon NL4MP x 2 and M4 screw terminal		-	
Speaker Cord	-		2-core cabtyre cord with diameter of 6 mm	
Water Protection	-		IP X4 (Install with every speaker module downward)	
Finish	Enclosure: Polypropylene, black or white		Enclosure: Polypropylene, black or white	
	Punched net: Surface-treated steel plate, black or white		Punched net: Surface-treated steel plate, black or white, rust-proof coating	
Dimensions (W x H x D)	408 x 546 x 342 mm			
Weight	16 kg			

Note: Factory preset: 60° mode

Matching Transformer

MT-200



Rated Input: 200 W
Primary Side: 100 V line: 50 Ω (200 W), 83 Ω (120 W), 167 Ω (60 W)
70 V line: 25 Ω (200 W), 50 Ω (100 W), 83 Ω (60 W), 167 Ω (30 W)
Secondary Side: 8 Ω
Water Protection: IPX4 (the tilt angle must be within 45°)*
Finish: Cover: Polypropylene, Mounting Bracket: Stainless Steel
Dimension (WxHxD): 164 x 141 x 129 mm
Weight: 2.8 kg
Accessory: Speaker mounting bolt (M8) with washer x 2

* Note: When matching transformer is installed on the HX-5 series rear mounting plate, the optional HY-WM1 series and HY-CW1 series Speaker Mounting Brackets, and HY-ST1 Speaker Stand Adapter cannot be used.

Subwoofer

FB-120B
FB-120W



Model	FB-120B	FB-120W
Rated Input	Continuous pink noise: 200W / Continuous program: 600W	
Impedance	8 Ω	
Sensitivity (1W, 1m)	90 dB at installation in free sound field, 96 dB at installation in 1/2 free sound field	
Frequency Response	40Hz – 1.2kHz (-10 dB)	
Speaker Component	30 cm cone-type speaker	
Input Terminal	Speakon NL4MP x 2 and M4 screw terminals	
Finish	Enclosure plywood, metal front grille black	Enclosure plywood, metal front grille white
Dimensions (W x H x D)	408 x 408 x 450mm	
Weight	15kg	

»» Line Array Speaker

HX-7B
HX-7W
HX-7B-WP
HX-7W-WP



Model	HX-7B	HX-7W	HX-7B-WP	HX-7W-WP
Enclosure	Bass-reflex type		Sealed type	
Power Handling Capacity	Continuous pink noise: 250W (IEC60268-5: 350W) / Continuous program: 750W			
Rated Impedance	8 Ω			
Sensitivity (1 W, 1 m)	100 dB			
Frequency Response	75 Hz – 20 kHz		105 Hz – 20 kHz	
Crossover Frequency	1.7 kHz			
Directivity Angle	Horizontal: 100°, Vertical: Depending on directivity angle mode			
Speaker Component	Low frequency: 13 cm cone-type x 8 High frequency: Wave front control horn with compression driver x 4			
Input Terminal	Speakon NL4MP x 2 and M4 screw terminal, distance between barriers: 9 mm (0.35")		M4 screw terminal, distance between barriers: 9 mm (0.35")	
Water Protection	-		IPX4 (Install with every speaker module tilted downward from the horizontal.)	
Finish	Enclosure: Polypropylene, black or white Punched net: Surface-treated steel plate, black or white, paint Hanging bracket: Steel plate, t3.0, black or white, paint		Enclosure: Polypropylene, black or white Punched net: Surface-treated steel plate, black & white, rust-proof coating	
Dimensions (W x H x D)	497 x 664 x 274 mm			
Weight	30 kg			

Note: Factory preset: 0° mode
For HX-7B-WP & HX-7W-WP: Every speaker module must be aimed horizontally or down to keep the weather resistant capability.

»» Matching Transformer

MT-200



Best solution for accoustically challenging spaces:

- Sports Venues
- Houses of Worship
- Concert Halls
- Boardrooms

»» Subwoofer

FB-150B
FB-150W

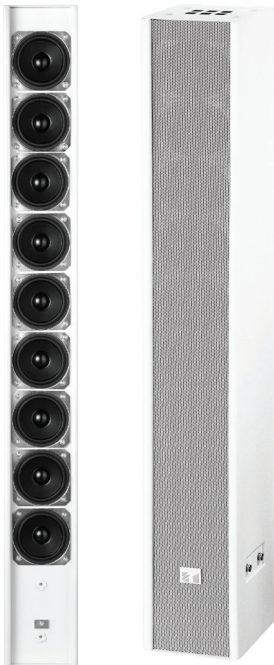


Model	FB-150B	FB-150W
Power Handling Capacity	Continuous pink noise: 200 W / Continuous program: 600 W	
Impedance	8 Ω	
Sensitivity (1 W, 1 m)	93 dB	
Frequency Response	40 Hz – 400 Hz (-10 dB)	
Speaker Component	38 cm cone-type	
Input Terminal	Speakon NL4MP x 2 and M5 screw terminal, distance between barriers: 12.2 mm	
Finish	Enclosure: MDF, black, urethane paint Punched net: Surface-treated steel plate, black, paint	Enclosure: MDF, white, urethane paint Punched net: Surface-treated steel plate, white, paint
Dimensions (W x H x D)	505 x 528 x 477 mm	
Weight	30 kg	



Slim Array Speaker

» Slim Array Speaker TZ-S60W

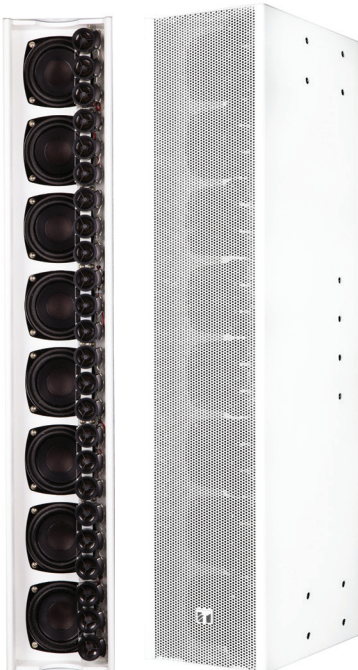


Model	TZ-S60W
Enclosure	Bass-Reflex type
Max. Input Power (Low Imp.)	120 W (continuous pink noise)
Rated Input (High Imp.)	60 W
Rated Impedance	100 V line: 167 Ω (60 W), 330 Ω (30 W), 500 Ω (20 W), 1 kΩ (10 W) Low Impedance: 8 Ω
Sensitivity (1W, 1m)	95 dB
Frequency Response	180 Hz– 15 kHz
Speaker Component	8 cm cone type x 9
Directivity Angle	Horizontal: 90°, Vertical: 0°
Finish	Enclosure: MDF, White paint Punched net, Wall bracket, Side, Panel, Metal Cover: SECC, White paint
Dimensions (W x H x D)	100 x 883 x 130 mm
Weight	8.2 kg

» Stacking Bracket HY-S60W



» Slim Array Speaker TZ-S240W



Model	TZ-S240W
Enclosure	Bass-Reflex type
Max. Input Power	240 W (continuous), 480 W (program)
Rated Impedance	8 Ω
Sensitivity (1W, 1m)	94 dB
Frequency Response	95 Hz– 20 kHz
Speaker Component	Low Frequency: 10 cm cone-type woofer x 8 High Frequency: 2.5 cm balanced-dome tweeter x 24
Directivity Angle	Horizontal: 100°, Vertical: 5°
Finish	Enclosure: MDF, White paint Net Grille: Punched steel plate, White paint
Dimensions (W x H x D)	160 x 950 x 262 mm
Weight	17 kg

SR Series Speakers

2-Way Passive Speakers

»» 2-Way Passive Speaker

SR-F04
SR-F08



Model	SR-F04	SR-F08
System Type	2-Way, Passive, Bass-Reflex type	
Power Handling Capacity	80 W (Continuous Program: 240 W)	120 W (Continuous Program: 360 W)
Rated Impedance	8 Ω	
Sensitivity (1W, 1m)	88 dB	91 dB
Frequency Response	80 Hz– 20 kHz	65 Hz– 20 kHz
Speaker Component	Low Frequency: 10 cm cone-type x 2 High Frequency: Compression Driver fitted with CD-Horn	Low Frequency: 20 cm cone-type High Frequency: Compression Driver fitted with CD-Horn
Directivity Angle	70° Conical	90° Horizontal, 60° Vertical (Horn at 90° Rotation, 60° Horizontal, 90° Vertical)
Crossover Frequency	3 kHz	1.5 kHz
Connection	Neutrik NL4MP x 2 and M4 screw terminal, distance between barriers: 11 mm	
Finish	Enclosure: Birch Plywood, black, polyurea coating; Grille: Steel plate, Black, 40% gloss, paint	
Dimensions (W x H x D)	165 x 400 x 177 mm	249 x 450 x 243 mm
Weight	5.8 kg	11 kg

»» Speaker Stand Adapter

HY-ST04



Only for SR-F04
Applicable speaker stand: ST-34B

»» Mounting Bracket

HY-UH04*
HY-UH08*



* For use in conjunction with HY-B0801, HY-C0801 or HY-W0801 mounting brackets
HY-UH04 / HY-UV04: for SR-F04
HY-UH08 / HY-UV08: for SR-F08

»» Mounting Bracket

HY-UV04*
HY-UV08*



»» Wall Mounting Bracket

HY-WM04
HY-WM08



HY-WM04: for SR-F04
HY-WM08: for SR-F08

Built-in passive network
produces
high **quality sound** &
high **output capability**.



HS Series Speakers

Coaxial Array Speakers

» Coaxial Array Speaker
HS-120B / W / 1200BT / WT
HS-150B / W / 1500BT / WT



Model	HS-120B / HS-120W	HS-1200BT / HS-1200WT	HS-150B / HS-150W	HS-1500BT / HS-1500WT
Power Handling Capacity	Continuous pink noise: 100W, Continuous program: 300W			
Rated Impedance	8Ω	8Ω, 100V: 170Ω (60), 330Ω (30), 670Ω (15W)	8Ω	8Ω, 100V: 170Ω (60), 330Ω (30), 670Ω (15W)
Sensitivity (1W, 1m)	97dB		98dB	
Frequency Response	80Hz – 20kHz	70Hz – 20kHz		60Hz – 20kHz
Speaker Component	30cm cone-type, Balanced dome-type x 6		38cm cone-type, balanced dome-type x 6	
Connection	Neutrik NL4MP Speakon and M4 screw terminal, distance between barriers: 9mm			
Finish	Polypropylene, black (HS-120B, HS-1200BT, HS-150B, HS-1500BT) or white (HS-120W, HS-1200WT, HS-150W, HS-1500WT)			
Dimensions (W x H x D)	361 x 448 x 320 mm		451 x 560 x 400 mm	
Weight	8.5kg	10kg	12kg	14kg

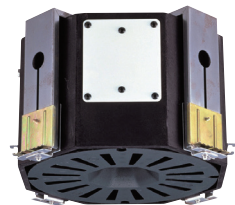


Enlarged Extensible Length: 1373 - 1968 mm
Load Capacity: Less than 35 kg
Speaker Mounting Pitch: 101 - 153 mm
Finish: Inner pipe, Outer pipe, legs: Aluminum, black, matte finish, paint
Bracket: Steel plate, black, matte finish, paint
Dimension: ø1290 (open legs) x 1373-1968 mm (height with bracket mounted)
Weight: 4.2 kg
Accessory: Bracket x 1, Speaker mounting Screw x 2, Speaker Mounting Washer x 2

ES Series Speakers

Flush Mount Ceiling Speaker

» High-Power 25cm Flush Mount Ceiling Speaker
ES-C0651



Model	ES-C0651
Enclosure	Sealed
Power Handling Capacity	60 W (Continuous Program: 180 W)
Rated Impedance	8 Ω (when use with optional matching transformer) 100 V line: 170 Ω (60 W), 300 Ω (30 W), 670 Ω (15 W) 70 V line: 83 Ω (60 W), 170 Ω (30 W), 330 Ω (15 W), 670 Ω (7.5 W)
Sensitivity (1W, 1m)	96 dB
Frequency Response	80 Hz – 20 kHz
Speaker Component	2-way coaxial unit. Low Frequency: 25 cm woofer; High Frequency: CD-Horn
Dispersion	60° x 60°
Crossover Frequency	2.5 kHz (passive)
Finish	Enclosure: MDF, black, urethane coating; Front Gri
Dimensions (W x H x D)	444 x 274 x 404 mm
Weight	17.8 kg

Note: Ensure the speaker is secured with an anchor bolt when installing.

» Front Grille for ES-C0651
FG-C0651



Fitting Method: Spring-catch installation
Finish: Baffle: Wood, white; Grille: Rolled steel plate, white
Dimension: ø 360 x 12 mm (exposed section)
Weight: 400 g

» Matching Transformer
MT-S0601



Rated Input Power: 60 W
Primary Side:
100 V line: 170 Ω (60 W), 330 Ω (30 W), 670 Ω (15 W)
70 V line: 83 Ω (60 W), 170 Ω (30 W), 330 Ω (15 W), 670 Ω (7.5 W)
Secondary Side: 8 Ω
Weight: 1.2 kg

H Series Speakers

»» 2-Way Flush Mount Speaker

H-1



Model	H-1
Power Handling Capacity	30 W (Continuous Program: 90 W)
Rated Input	12 W (16 Ω, High Impedance)
Rated Impedance	100 V: 830 Ω (12 W), 1.7 kΩ (6 W), 3.3 kΩ (3 W) 70 V: 420 Ω (12 W), 830 Ω (6 W), 1.7 kΩ (3 W), 3.3 kΩ (1.5 W) 4 Ω, 16 Ω
Sensitivity (1W, 1m)	85 dB
Frequency Response	120 Hz – 20 kHz
Speaker Component	Low: 8 cm x 5 cm cone-type, High: Balanced dome-type
Finish	Cover: Fire-resistant ABS resin, white, paint Punched Net: Steel plate, white, paint Adapter Frame: Stainless Steel
Dimensions (W x H x D)	312 x 126 x 90 mm
Weight	1.5 kg (including adapter frame)

Note: When installing, mount the adapter frame as an electrical box cover.
(The adapter frame HY-H1 is also available as an optional accessory)
It is also possible to mount the speaker directly to the electrical box (without a cover).

»» 2-Way Surface Mount Speaker

H-2

H-2WP



Model	H-2	H-2WP
Power Handling Capacity	40 W (Continuous Program: 120 W)	
Rated Input	12 W (16 Ω, High Impedance)	
Rated Impedance	100 V: 830 Ω (12 W), 1.7 kΩ (6 W), 3.3 kΩ (3 W) 70 V: 420 Ω (12 W), 830 Ω (6 W), 1.7 kΩ (3 W), 3.3 kΩ (1.5 W) 4 Ω, 16 Ω	
Sensitivity (1W, 1m)	88 dB	
Frequency Response	100 Hz – 20 kHz	
Speaker Component	Low: 10 cm cone-type; High: Balanced dome-type	
Dust/Water Protection	-	IP 64
Finish	Frame: Fire-resistant ABS resin, white, paint Punched Net: Steel plate, white, paint Base Frame: Steel plate	Frame: Fire-resistant ABS resin, white, paint Punched Net: Steel plate, white, powder coating Base Frame: Stainless plate
Dimensions (ø x H)	ø 268 x 111 mm	
Weight	2.1 kg	

Note: Without using an electrical box, mounting the supplied base frame directly to a wall or ceiling allows the speaker installation.
Do not install H-2WP where it is likely to be corroded such as places like indoor pools, bathrooms, seaside.

»» 2-Way Wall Mount Speaker

H-3

H-3WP



Model	H-3	H-3WP
Power Handling Capacity	50 W (Continuous Program: 150 W)	
Rated Input	30 W (16 Ω, High Impedance)	
Rated Impedance	100 V: 330 Ω (30 W), 670 Ω (15 W), 1.3 kΩ (7.5 W) 70 V: 170 Ω (30 W), 330 Ω (15 W), 670 Ω (7.5 W), 1.3 kΩ (3.75 W) 8 Ω, 16 Ω	
Sensitivity (1W, 1m)	89 dB	
Frequency Response	100 Hz – 20 kHz	
Speaker Component	Low: 4" cone-type x 2, High: 1" dome-type (neodymium magnet)	
Water Protection	-	IPX4
Finish	Enclosure: Fire-resistant ABS resin, black Front Frame: Fire-resistant ABS resin, off-white, paint Punched Net: Steel Plate, off-white, paint Base Frame: Steel plate, plating	Enclosure: Fire-resistant ABS resin, black Front Frame: Fire-resistant ABS resin, off-white, paint Punched Net: Steel Plate, off-white, powder coating Base Frame: Stainless Steel
Dimensions (W x H x D)	295 x 318 x 129 mm	
Weight	3.3 kg	

Note: Avoid using H-3WP near the shore or at an indoor swimming pool, as doing so may significantly reduce product life.

»» Wall/Ceiling Mount Speaker

HB-1



Model	HB-1
Power Handling Capacity	80 W (Continuous Program: 240 W)
Rated Impedance	8 Ω
Sensitivity (1W, 1m)	91 dB
Frequency Response	45 Hz – 20 kHz
Speaker Component	20 cm cone speaker
Finish	Enclosure: Stainless Steel, black, paint Front Frame: Fire-resistant ABS resin, off-white, paint Punched Net: Steel Plate, off-white, paint Mounting Bracket: Steel plate, black, paint
Dimensions (W x H x D)	430 x 544 x 135 mm
Weight	11 kg (including front grille and mounting bracket)



F Series Speakers

2-Way Wide-Dispersion Speakers

»» 2-Way Wide-Dispersion Speaker

F-1000B / W / BT / WT / BTWP / WTWP

F-1300B / W / BT / WT / BTWP / WTWP

F-2000B / W / BT / WT / BTWP / WTWP



Model	F-1000B	F-1000W	F-1000BT	F-1000WT	F-1000BTWP	F-1000WTWP
Enclosure	Bass-reflex type					
Power Handling Capacity	30 W (Continuous Program: 90 W)		30 W (Continuous Program: 90 W) (Low Impedance)		-	
Rated Input	-		15 W (high impedance)		15 W	
Rated Impedance	8Ω		8Ω; 100 V: 670Ω (15W), 2kΩ (5W), 3.3kΩ (3W), 10kΩ (1W) 70V: 330Ω (15W), 670Ω (7.5W), 2kΩ (2.5W), 3.3kΩ (1.5W), 10kΩ (0.5W)		100 V: 670Ω (15W), 2kΩ (5W), 3.3kΩ (3W), 10kΩ (1W) 70V: 330Ω (15W), 670Ω (7.5W), 2kΩ (2.5W), 3.3kΩ (1.5W), 10kΩ (0.5W)	
Sensitivity (1W, 1m)	87 dB					
Frequency Response	85 Hz – 20 kHz					
Crossover Frequency	5 kHz					
Directivity Angle	Horizontal: 90°, Vertical: 90°					
Speaker Component	Low Frequency: 10 cm cone-type, High Frequency: Balanced dome tweeter					
Water Protection	-				IPX4	
Finish	Enclosure: HIPS, Black (F-1000B/F-1000BT)/White (F-1000W/F-1000WT) Punched Net: Surface-treated steel plate, Black/White, paint Joint Bracket, Wall Bracket: Steel plate, t1.6, Black/White, paint Speaker Bracket: Die-cast Aluminum, Black/White, paint				Enclosure: HIPS, Black (F-1000BTWP)/White (F-1000WTWP) Punched Net: Surface-treated steel plate, Black/White, anti-corrosive paint Joint Bracket, Wall Bracket: Steel plate Speaker Bracket: Die-cast Aluminum, Black/White, paint	
Dimensions (W x H x D)	130 x 202 x 131 mm					
Weight	1.8 kg (including supplied brackets)		2 kg (including supplied brackets)			

Model	F-1300B	F-1300W	F-1300BT	F-1300WT	F-1300BTWP	F-1300WTWP
Enclosure	Bass-reflex type					
Power Handling Capacity	50 W (Continuous Program: 150 W)		50 W (Continuous Program: 150 W) (Low Impedance)		-	
Rated Input	-		30 W (high impedance)		30 W	
Rated Impedance	8Ω		8Ω; 100 V: 330Ω (30W), 1kΩ (10W), 3.3kΩ (3W), 10kΩ (1W) 70V: 170Ω (30W), 330Ω (15W), 1kΩ (5W), 3.3kΩ (1.5W), 10kΩ (0.5W)		100 V: 330Ω (30W), 1kΩ (10W), 3.3kΩ (3W), 10kΩ (1W) 70V: 170Ω (30W), 330Ω (15W), 1kΩ (5W), 3.3kΩ (1.5W), 10kΩ (0.5W)	
Sensitivity (1W, 1m)	90 dB					
Frequency Response	80 Hz – 20 kHz					
Crossover Frequency	2 kHz					
Directivity Angle	Horizontal: 110°, Vertical: 100°					
Speaker Component	Low Frequency: 13 cm cone-type, High Frequency: 25 mm dome tweeter					
Water Protection	-		-		IPX4	
Finish	Enclosure: HIPS, Black (F-1300B/F-1300BT)/White (F-1300W/F-1300WT) Punched Net: Surface-treated steel plate, Black/White, paint Joint Bracket, Wall Bracket: Steel plate, t1.6, Black/White, paint Speaker Bracket: Die-cast Aluminum, Black/White, paint				Enclosure: HIPS, Black (F-1300BTWP)/White (F-1300WTWP) Punched Net: Surface-treated steel plate, Black/White, anti-corrosive paint Joint Bracket, Wall Bracket: Steel plate Speaker Bracket: Die-cast Aluminum, Black/White, paint	
Dimensions (W x H x D)	162 x 250 x 161 mm					
Weight	3.1 kg (including supplied brackets)		3.6 kg (including supplied brackets)			

Model	F-2000B	F-2000W	F-2000BT	F-2000WT	F-2000BTWP	F-2000WTWP
Enclosure	Bass-reflex type					
Power Handling Capacity	60 W (Continuous Program: 180 W)		60 W (Continuous Program: 180 W) (Low Impedance)		-	
Rated Input	-		60 W (high impedance)		60 W	
Rated Impedance	8Ω		8Ω; 100 V: 170Ω (60W), 330Ω (30W), 670Ω (15W), 3.3kΩ (3W) 70V: 83Ω (60W), 170Ω (30W), 330Ω (15W), 670Ω (7.5W), 3.3kΩ (1.5W)		100 V: 170Ω (60W), 330Ω (30W), 670Ω (15W), 3.3kΩ (3W) 70V: 83Ω (60W), 170Ω (30W), 330Ω (15W), 670Ω (7.5W), 3.3kΩ (1.5W)	
Sensitivity (1W, 1m)	92 dB					
Frequency Response	65 Hz – 20 kHz					
Crossover Frequency	2.5 kHz					
Directivity Angle	Horizontal: 110°, Vertical: 100° ; Horizontal: 80°, Vertical: 80° (with horn adapter)					
Speaker Component	Low Frequency: 20 cm cone-type, High Frequency: 25 mm dome tweeter					
Water Protection	-		-		IPX4	
Finish	Enclosure: HIPS, Black (F-2000B/F-2000BT)/White (F-2000W/F-2000WT) Punched Net: Surface-treated steel plate, Black/White, paint Joint Bracket, Wall Bracket: Steel plate, t2.0, Black/White, paint Speaker Bracket: Die-cast Aluminum, Black/White, paint				Enclosure: HIPS, Black (F-2000BTWP)/White (F-2000WTWP) Punched Net: Surface-treated steel plate, Black/White, anti-corrosive paint Joint Bracket, Wall Bracket: Steel plate Speaker Bracket: Die-cast Aluminum, Black/White, paint	
Dimensions (W x H x D)	244 x 373 x 235 mm					
Weight	6.5 kg (including supplied brackets)		7.4 kg (including supplied brackets)			

Note: Bolts and nuts for mounting the bracket to the wall or ceiling are not included. Prepare them separately.
For TWP models: Avoid installing the speaker in locations close to the seashore or in indoor swimming facilities that are not well ventilated. In such locations the bracket may be vulnerable to corrosion, eventually allowing the speaker to fall resulting in personal injury. Caution on installation: Do not install at places where it is likely to be corroded such as bathrooms, indoor pools or seaside.

Wide-Dispersion Ceiling Speakers

»» High-Power 60W
2-Way Wide Range
(16cm cone)

F-2852C



»» 30W Series
2-Way Range
(12cm cone)

F-2352C



»» 30W Series
Full Range
(12cm cone)

F-2322C



»» 30W Series Full Range
(12cm cone, equalizing
controlled type)

F-122C



Model	F-2852C	F-2322C	F-2352C	F-122C
Rated Input	60W (High Impedance)	30W (High Impedance)		
Power Handling Capacity	90 W (8 Ω), 60 W (16 Ω) (Continuous program: 180 W (8 Ω), 120 W (16 Ω))	60 W (8 Ω), 30 W (16 Ω) (Continuous program: 120 W (8 Ω), 60 W (16 Ω))		
Rated Impedance	16Ω, 8Ω: 100 V line: 170Ω (60W), 330Ω (30W), 670Ω (15W), 3.3kΩ (3W) 70 V line: 83 Ω (60W), 170Ω (30W), 330Ω (15W), 670Ω (7.5W), 3.3kΩ (1.5W) 25 V line: 83Ω (7.5W), 170Ω (3.7W), 330Ω (1.9W), 670Ω (0.9W), 3.3kΩ (0.2W)	16Ω, 8Ω: 100 V line: 330 Ω (30W), 1 kΩ (10W), 3.3 kΩ (3W), 10 kΩ (1W) 70 V line: 170 Ω (30W), 330 Ω (15W), 1 kΩ (5W), 3.3 kΩ (1.5W), 10 kΩ (0.5W) 25 V line: 170 Ω (3.7W), 330 Ω (1.9W), 1 kΩ (0.6W), 3.3 kΩ (0.2W), 10 kΩ (0.06W)		
Sensitivity (1W, 1m)	91 dB	90 dB		
Frequency Response	60Hz – 20 kHz	70Hz – 20 kHz		
Mounting Hole Diameter	250 mm	200 mm		
Speaker Component	Low: 16 cm cone-type, High: Dome-type	Low: 12 cm cone-type; High: Balanced dome-type		12 cm cone-type
Finish	Enclosure: Steel plate, plating / Baffle: Fire-resistant ABS resin, black / Rim: Fire-resistant ABS resin, white / Punched net: Steel plate, white, paint			
Dimensions (ø x D)	ø 280 x 227 mm	ø 230 x 229 mm	ø 230 x 200 mm	ø 230 x 229 mm
Weight	5.1 kg	3.7 kg		

»» 6W Series Full Range / 6W Series 2-Way Range

F-1522SC
F-2352SC



Model	F-1522SC	F-2352SC
Rated Input	6 W (High Impedance)	
Power Handling Capacity	9 W (8 Ω), 6 W (16 Ω) (Continuous program: 18 W (8 Ω), 12 W (16 Ω))	
Rated Impedance	16Ω, 8Ω: 100 V line: 1.7 kΩ (6W), 3.3 kΩ (3W) 70 V line: 830 Ω (6W), 1.7 kΩ (3W), 3.3 kΩ (1.5W) 25 V line: 830 Ω (0.75W), 1.7 kΩ (0.4W), 3.3 kΩ (0.2W)	16Ω, 8Ω: 100 V line: 1.7 kΩ (6W), 3.3 kΩ (3W), 10 kΩ (1W), 20 kΩ (0.5W) 70 V line: 830 Ω (6W), 1.7 kΩ (3W), 3.3 kΩ (1.5W), 10 kΩ (0.5W), 20 kΩ (0.25W) 25 V line: 830 Ω (0.75W), 1.7 kΩ (0.4W), 3.3 kΩ (0.2W), 10 kΩ (0.06W), 20 kΩ (0.03W)
Sensitivity (1 W, 1 m)	88 dB	89 dB
Frequency Response	65 Hz – 18 kHz	80 Hz – 20 kHz
Mounting Hole Diameter	135 mm	200 mm
Speaker Component	10 cm cone-type	Low: 12 cm cone-type, High: Balanced dome-type
Finish	Baffle: Fire-resistant ABS resin, black / Rim: Fire-resistant ABS resin, white / Punched net: Steel plate, white, paint / Dust proof bag: Artificial fiber, black	
Dimensions (ø x D)	ø 155 x 117 mm	ø 230 x 154 mm
Weight	1 kg	1.5 kg



»» 60W Ceiling Subwoofer
FB-2862C



Model	FB-2862C
Rated Input	60 W (High Impedance)
Power Handling Capacity	60 W, 8 Ω (IEC60268-5) (Continuous Program: 120 W, 8 Ω)
Rated Impedance	100 V line: 170Ω (60W), 330Ω (30W), 670Ω (15W), 3.3kΩ (3W) 70 V line: 83 Ω (60W), 170Ω (30W), 330Ω (15W), 670Ω (7.5W), 3.3kΩ (1.5W) 25 V line: 83Ω (7.5W), 170Ω (3.7W), 330Ω (1.9W), 670Ω (0.9W), 3.3kΩ (0.2W), 8Ω (120W)
Sensitivity (1W, 1m)	87 dB
Frequency Response	60 Hz – 250 Hz
Speaker Component	Low Frequency: 16 cm cone-type
Mounting Hole	ø 250 mm
Finish	Enclosure: Steel plate, plating; Baffle: Fire-resistant ABS resin, black Rim: Fire-resistant ABS resin, white; Punched Net: Steel plate, white, paint
Dimensions (ø x D)	ø 280 x 198 mm
Weight	6.3 kg (including mounting accessory)

»» Back Can
HY-BC1

Finish: Surface-treated steel plate, t0.8, black, paint
Weight: 1.5kg
Accessory: Rubber Grommet x 2
Applicable Models: F-2322C, F-2352C, F-2352SC



»» Trim Ring
HY-TR1

Ceiling Hole Diameter: ø 200 - ø 300 mm
Finish: Surface-treated steel plate, white, paint
Weight: 500 g



»» Tile Bar Bridge
HY-TB1

Finish: Steel plate, plating
Weight: 500 g (for set of 2 bars)
Accessory: Mounting Screw x 4



»» Anchor Hanging Bracket
HY-AH1

Finish: Steel plate, plating
Weight: 700 g
Accessory: Paper Pattern x 2



»» Reinforcement Rine
HY-RR1

Ceiling Hole Diameter: ø 135 mm
Finish: Surface-treated steel plate,
Weight: 80 g



»» Reinforcement Rine
HY-RR2

Ceiling Hole Diameter: ø 200 mm
Finish: Surface-treated steel plate
Weight: 280 g



Compact Satellite Speaker System

»» Compact Satellite Speaker System
BS-301B / BS-301W
FB-601B / FB-601W
BS-S20B / BS-S20W



Model	BS-301B (FB-601B + BS-S20B)	BS-301W (FB-601W + BS-S20W)
Total Input	120 W, channel x 2	
Rated Impedance	6 Ω, channel x 2	
Sensitivity (1W, 1m)	83 dB (pink noise 300 Hz - 3.3 kHz) L channel or R channel only + 2 satellite	
Frequency Response	40 Hz – 20 kHz (L or R channel Subwoofer + 2 satellite)	
Mounting	135 mm	
Speaker Feature	Subwoofer x 1 pcs, Satellite Speaker x 4 pcs	
Input Connector	Push-in Terminals	
Total Weight	13.9kg (without bracket)	

Model	Subwoofer		Speaker	
	FB-601B	FB-601W	BS-S20B	BS-S20W
Sensitivity (1W, 1m)	85 dB (L channel or R channel)		85 dB (Pink noise 330 Hz - 3.3 kHz)	
Frequency Response	40 Hz – 190 Hz (-10 dB below SPL) (L channel or R channel)		150 Hz – 20 kHz (-20 dB below SPL)	
Speaker Component	16 cm 2-speaker		8 cm cone-type	
Connection	Push-in terminals (8 connected terminal points)		Push-in terminals (2 connected terminal points)	
Finish	Speaker Cabinet: Particle board with vinyl, black (FB-601B)/white (FB-601W) Front Cover: ABS resin, black/white Speaker Bracket: Steel plate, black/white, paint		Speaker Cabinet: HIPS resin, black (BS-S20B)/white (BS-S20W) Front Cover: HIPS resin, black/white Speaker Bracket: Steel plate, black/white, paint	
Weight	11.5 kg (without bracket)		0.6 kg (without bracket)	
Dimensions (W x H x D)	210 x 390 x 563 mm		92 x 97.5 x 100 mm	
Accessory	Rubber foot x 4, Speaker Mounting Bracket x 4, Tapping Screws (3x14) x 4		Speaker Bracket x 1, Hexagonal Bolts (M5 x 12, with ring and spring ring) x 2	



**Please refer to specification sheet for detailed information.

Speakers (Commercial Sound)

Long Range Slim Array Speaker

»» Logn Range Slim Array Speaker

HA-1010



Model	HA-1010
Rated Input	60 W
Rated Impedance	170 Ω (60 W), 330 Ω (30 W)
Sensitivity (1W, 1m)	114 dB
Max. SPL	132 dB (60W, 1m)
Frequency Response	350 Hz – 7 kHz
Speaker Component	Horn speaker unit x 8
Directivity Angle	Horizontal: 90° (2 kHz), vertical: 15° (2 kHz)
Water Protection	IP66
Finish	Case, Panel: Aluminum, Salt-resistant, paint, grey Front Grille: Aluminum, black
Dimensions (W x H x D)	167 x 1,233 x 140.5 mm
Weight	13.5 kg

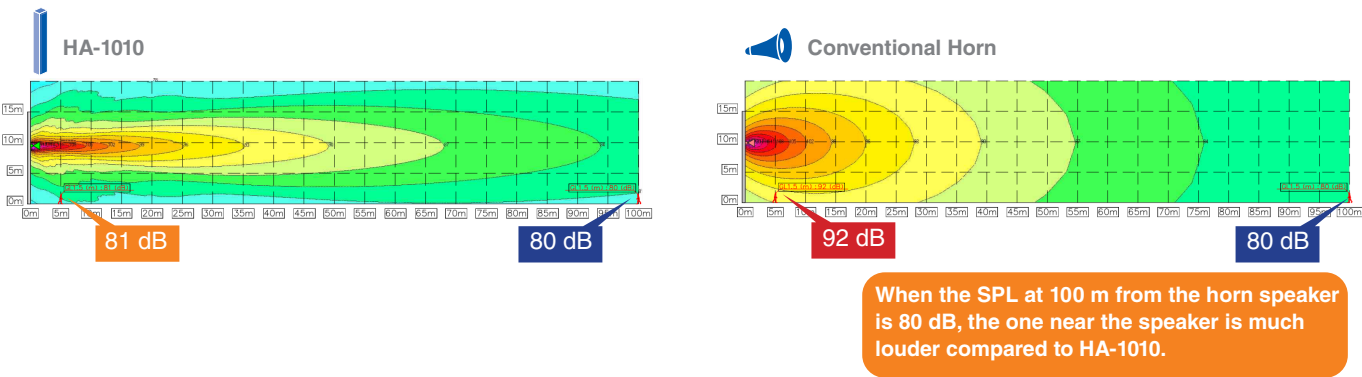
»» EQ Box for HA-1010

EQ-0101A



Power Source: DC 12 V - 24 V
Current Consumption: 100 mA
Audio Input/Output: Line 0 dB V, 600 Ω, balance
EQ: PEQX2 point, HPF
Limiter: Built-in
Volume Control Function: Adjust (±10 dB) the output gain after limiter
Finish: Surface-treated steel plate, black (Munsell N1.0)
Dimensions (WxHxD): 100 x 35 x 120 mm
Weight: 0.3 kg

Narrow vertical directivity (15°) provides gentle sound in near field and clear sound even in far distance.



Column Speakers

»» Column Speaker

TZ-105

TZ-205



Model	TZ-105	TZ-205
Rated Input	10W (100V)	20W (100V)
Rated Impedance	100V line: 1 kΩ (10W), 2 kΩ (5W)	100V line: 500 Ω (20W), 1 kΩ (10W)
Sensitivity (1W, 1m)	90 dB	93 dB
Frequency Response	150Hz – 10kHz	
Speaker Component	12cm cone-type x 2	12cm cone-type x 4
Water Resistance	IPX3	
Finish	Enclosure: Extruded aluminum, silver gray, full-glazed, baked paint Grille: Punched aluminum net, black, matte, baked paint Mounting bracket: Steel plate, silver gray, fully-glazed, baked paint	
Dimensions (W x H x D)	167 x 334 x 141 mm	167 x 580 x 141 mm
Weight	3.4 kg	5.1 kg



» Column Speaker

TZ-206B / W / BWP / WWP
TZ-406B / W / BWP / WWP
TZ-606B / W / BWP / WWP



TZ-206B/
TZ-206BWP

TZ-206W/
TZ-206WWP

TZ-406B/
TZ-406BWP

TZ-406W/
TZ-406WWP

TZ-606B/
TZ-606BWP

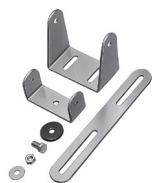
TZ-606W/
TZ-606WWP

Model	TZ-206B/W, TZ-406B/W, TZ-606B/W		TZ-206BWP/WWP, TZ-406BWP/WWP, TZ-606BWP/WWP	
Rated Input	TZ-206: 20W, TZ-406: 40W, TZ-606: 60W			
Rated Impedance	TZ-206: 100V line: 500Ω (20W), 1kΩ (10W), 2kΩ (5W), 4kΩ (2.5W); 70V line: 500Ω (10W), 1kΩ (5W), 2kΩ (2.5W), 4kΩ (1.3W) TZ-406: 100V line: 250Ω (40W), 500Ω (20W), 1kΩ (10W), 2kΩ (5W); 70V line: 250Ω (20W), 500Ω (10W), 1kΩ (5W), 2kΩ (2.5W) TZ-606: 100V line: 170Ω (60W), 330Ω (30W), 670Ω (15W), 1.3kΩ (7.5W); 70V line: 170Ω (30W), 330Ω (15W), 670Ω (7.5W), 1.3kΩ (3.8W)			
Sensitivity (1W, 1m)	TZ-206B/W: 90 dB TZ-406B/W: 93 dB TZ-606B/W: 95 dB		TZ-206BWP/WWP: 89 dB TZ-406BWP/WWP: 92 dB TZ-606BWP/WWP: 94 dB	
Frequency Response	150 Hz – 16 kHz		150 Hz – 13 kHz	
Speaker Component	TZ-206B/W: 10 cm cone-type x 2 TZ-406B/W: 10 cm cone-type x 4 TZ-606B/W: 10 cm cone-type x 6		TZ-206BWP/WWP: 10 cm cone-type x 2, waterproof TZ-406BWP/WWP: 10 cm cone-type x 4, waterproof TZ-606BWP/WWP: 10 cm cone-type x 6, waterproof	
IP Code	–		IP-65	
Finish	Enclosure: HIPS, black/white paint / Punched net: steel plate, black/white paint / Speaker bracket: Aluminium die-cast, black/white paint / Joint/wall bracket: Steel plate, t 1.6,black/white, paint		Enclosure: HIPS, black/white paint / Punched net: steel plate, black/white anti-rust paint / Speaker bracket: Aluminium die-cast, black/white paint / Joint/wall bracket: Steel plate, t 1.6,black, paint (ED coating)	
Dimensions (W x H x D)	TZ-206: 135 x 250 x 128 mm, TZ-406: 135 x 498 x 128 mm, TZ-606: 135 x 746 x 128 mm			
Weight	TZ-206: 1.9kg, TZ-406: 3.5kg, TZ-606: 5.5kg			

» Bracket for Metal Column

YS-301

(For TZ-105 or TZ-205 only)



Finish: Hot rolling steel plate (Metallic grey)
Adjustable Angle Range: TZ-105: 0°-29°; TZ-205: 0°-18°
Components: Mounting Bracket A x 2, Mounting Bracket B x 2, Mounting Bracket C x 2, Gasket x 2, Hexagonal Bolt (8x18) x 6, Washer x 8, Nut x 2

» Speaker Stand

ST-16A



Effective Extensible Length: 1130 - 1660 mm
Load Capacity: 7 kg (static load)
Finish: Stand: Aluminum, silver, matte finish
 Speaker Mounting Bracket: Polyamide resin, black
Weight: 1.7 kg (bracket included)
Accessory: Speaker mounting screw (M5 x 20) x 2
 Hexagon Headed Bolt (M8 x 20) 1,
 Washer x 1, Spacer x 1, Butterful Nut x 1



**Please refer to specification sheet for detailed information.

Box Speakers

Wall Mount Box Speakers

»» Wall Mount Box Speaker

BS-680F
BS-680FC



Model	BS-680F	BS-680FC
Rated Input	6W (100V), 3W (70V)	
Rated Impedance	100 V line: 1.7 kΩ (6 W), 3.3 kΩ (3 W), 6.7 kΩ (1.5 W), 13 kΩ (0.8 W) 70 V line: 1.7 kΩ (3 W), 3.3 kΩ (1.5 W), 6.7 kΩ (0.8 W), 13 kΩ (0.4 W)	
Sensitivity (1W, 1m)	94 dB (500 Hz - 5 kHz, pink noise)	94 dB (500 Hz - 5 kHz, pink noise) 77 dB (1W, 4m) (100 Hz - 10 kHz, pink noise) according to EN54-24 89 dB (100 Hz - 10 kHz, pink noise) converted based on EN54-24
Frequency Response	150Hz – 20kHz (peak -20 dB)	150Hz – 20kHz
Speaker Component	16 cm double cone-type	
Connection	Push In Connector (Bridging Terminal)	Screw Connector (Steatite Terminal x 2) Bridging
Finish	Baffle, Cabinet: Steel plate, off-white; Grille: Surface-treated steel plate net, off-white	
Dimensions (W x H x D)	310 x 190 x 90mm	
Weight	2.6 kg	

»» Wall Mount Box Speaker

BS-634 / BS-634T / BS-1034 / BS-1034S



Model	BS-634	BS-634T	BS-1034	BS-1034S
Rated Input	6W (100V)		10W (100V)	
Rated Impedance	100V: 1.7kΩ (6W), 3.3kΩ (3W); 70V: 1.7kΩ (3W), 3.3kΩ (1.5W)	100V: 1.7kΩ (6W) 70V: 1.7kΩ (3W)	100V: 1kΩ (10W), 2kΩ (5W), 3.3kΩ (3W), 10kΩ (1W) 70V: 500Ω (10W), 1kΩ (5W), 2kΩ (2.5W), 3.3kΩ (1.5W), 10kΩ (0.5W)	
Sensitivity (1W, 1m)	90 dB			
Frequency Response	120 – 18 kHz		120Hz – 20 kHz	
Speaker Component	12 cm cone-type		Low: 12 cm cone-type, High: Balanced dome-type	
Attenuator	-	Off, -12 dB, -6 dB, 0 dB	-	-
Finish	Enclosure: HIPS resin, off-white Grille: Surface-treated steel plate, off-white, paint			Enclosure: HIPS resin, silver Grille: Steel plate, silver, paint
Dimensions (W x H x D)	208 × 327 × 79mm			
Weight	1.3kg		1.4kg	

»» Wall Mount Box Speaker

BS-678 / BS-678B / BS-678T / BS-678BT



Model	BS-678	BS-678B	BS-678T	BS-678BT
Rated Input	6W (100V), 3 W (70 V)			
Rated Impedance	100 V line: 1.7 kΩ (6 W), 3.3 kΩ (3 W), 6.7 kΩ (1.5 W), 13 kΩ (0.8 W) 70 V line: 1.7 kΩ (3 W), 3.3 kΩ (1.5 W), 6.7 kΩ (0.8 W), 13 kΩ (0.4 W)			
Sensitivity (1W, 1m)	94 dB (500 Hz - 5 kHz, pink noise)			
Attenuator	-		Off, -12 dB, -6 dB, 0dB	
Frequency Response	150Hz – 20kHz (peak -20 dB)			
Speaker Component	16cm double cone-type			
Finish	Baffle: HIPS resin off-white (BS-678/BS-678T), black (BS-678B, BS-678BT) Cabinet: Particle board with PVC sheet, off-white/black Grille: Surface-treated steel plate net, off-white/black			
Dimensions (W x H x D)	250 × 190 × 110mm			
Weight	1.7 kg			



»» Wall Mount Box Speaker

BS-633A
BS-633AT



Model	BS-633A	BS-633AT
Rated Input	6W (100V), 3 W (70 V)	
Rated Impedance	100 V line: 1.7kΩ (6W), 3.3kΩ (3W), 10kΩ (1W); 70 V line: 1.7kΩ (3W), 3.3kΩ (1.5W), 10 kΩ (0.5W)	100 V line: 1.7kΩ (6W), 3.3kΩ (3W) 70 V line: 1.7kΩ (3W), 3.3kΩ (1.5W)
Sensitivity (1W, 1 m)	91 dB	
Frequency Response	120 Hz – 15kHz (-20 dB)	
Speaker Component	12 cm cone-type	
Attenuator	-	3W: Off, -12 dB, -6 dB, 0dB 6W: Off, -13 dB, -7 dB, 0dB
Finish	Enclosure: ABS resin, off-white / Rear board: Hard board	
Dimensions (W x H x D)	173 x 195 x 101mm	
Weight	780g	810g

»» Box Speaker

BS-4W



Model	BS-4W
Rated Input	5W
Rated Impedance (100V)	2kΩ (5W)
Sensitivity (1W, 1 m)	87 dB
Frequency Response	100Hz – 12kHz
Water Protection	IPX2
Speaker Component	10 cm cone-type
Finish	Enclosure: Polypropylene, gray paint / Grille: Aluminium punching net, silver gray, paint / Mounting bracket: Rolled steel plate, gray, paint
Dimensions (W x H x D)	196 x 177 x 160mm
Weight	1.5 kg

Note: Be sure to position the speaker with it's opening facing down from the horizontal axis. Doing otherwise may cause rainwater to accumulate inside the opening, possibly resulting in unit malfunction.
Do not use speaker in locations such as poolside where it is subjected to water splash or in high temperature and high humidity locations such as bathrooms, steam saunas where dew condensation may form. Do not dash water directly on the speaker.

Universal Speakers

»» Universal Speaker

BS-1030B
BS-1030W



Model	BS-1030B	BS-1030W
Rated Input	30W	
Rated Impedance	8 Ω 100 V line: 330 Ω (30 W), 500 Ω (20 W), 670 Ω (15 W), 1 kΩ (10 W), 2 kΩ (5 W) 70 V line: 170 Ω (30 W), 250 Ω (20 W), 330 Ω (15 W), 500 Ω (10 W), 1 kΩ (5 W)	
Sensitivity (1W, 1 m)	90 dB	
Frequency Response	80 Hz – 20kHz	
Speaker Component	12 cm cone-type + dome-type	
Finish	Enclosure: ABS resin, black (RAL 9011 graphite black), paint Net/Bracket: Surface treated steel plate, black (RAL 9011 graphite black), powder coating	Enclosure: ABS resin, white (RAL 9010 pure white), paint Net/Bracket: Surface treated steel plate, white (RAL 9010 pure white), powder coating
Dimensions (W x H x D)	196 x 290 x 150mm	
Weight	2.5kg	

Note: Install with the front facing downwards as that splash-proof capability will be lost if installed face-up. The logo mark needs to be located in the lower section when the speaker is installed vertically, and on the right side of the speaker (as viewed from the front) when installed horizontally.

»» Universal Speaker

BS-1110W
BS-1120W



Model	BS-1110W	BS-1120W
Rated Input	10 W	20W
Rated Impedance	100 V: 1kΩ (10W), 2kΩ (5W) 70 V: 500Ω (10W), 1kΩ (5W); 4Ω (10W)	100 V: 500Ω (20W), 1kΩ (10W) 70 V: 250Ω (20W), 500Ω (10W); 8Ω (20W)
Sensitivity (1W, 1 m)	92 dB	95 dB
Frequency Response	150Hz – 14kHz	150Hz – 20kHz
Speaker Component	12 cm cone-type x 2	12cm cone-type x 4 + balanced dome type x 1
Finish	Enclosure: Plywood vinyl coating, white Front: ABS resin, white, paint Rear: Steel plate, white, paint	
Dimensions (W x H x D)	180 x 360 x 100mm	180 x 720 x 100mm
Weight	2.9kg	5.1 kg



Interior Design Speakers

Pendant Speakers

»» Pendant Speaker

PE-64

PE-304



Model	PE-64	PE-304
Rated Input	6W	30W
Rated Impedance	100 V: 1.7kΩ (6W), 3.3kΩ (3W), 10kΩ (1W) 70V: 1.7kΩ (3W), 3.3kΩ (1.5W), 10kΩ (0.5W)	8Ω; 100 V: 330Ω (30W), 500Ω (20W), 670Ω (15W), 2kΩ (5W) 70V: 170Ω (30W), 250Ω (20W), 330Ω (15W), 500Ω (10W), 1kΩ (5W)
Sensitivity (1W, 1 m)	90 dB (500 Hz - 5 kHz, pink noise)	91 dB (500 Hz - 5 kHz, pink noise)
Frequency Response	100Hz – 18 kHz (peak -20 dB)	70Hz – 20kHz (peak -20 dB)
Finish	Enclosure: HIPS resin, off-white / Grille: Surface-treated steel plate net, off-white, paint	
Dimensions (ø x D)	ø 186 x 251 mm	
Weight	1.5 kg	2.1 kg

»» Projection Speaker

PJ-64

PJ-304



Model	PJ-64	PJ-304
Rated Input	6W (100 V line), 3 W (70 V line)	30W (100 V, 70 V line, 8Ω)
Rated Impedance	100 V: 1.7kΩ (6W), 3.3kΩ (3W), 10kΩ (1W) 70V: 1.7kΩ (3W), 3.3kΩ (1.5W), 10kΩ (0.5W)	8Ω; 100 V: 330Ω (30W), 500Ω (20W), 670Ω (15W), 2kΩ (5W) 70V: 170Ω (30W), 250Ω (20W), 330Ω (15W), 500Ω (10W), 1kΩ (5W)
Sensitivity (1W, 1 m)	90 dB (500 Hz - 5 kHz, pink noise)	91 dB (500 Hz - 5 kHz, pink noise)
Frequency Response	100Hz – 18 kHz (peak -20 dB)	70Hz – 20kHz (peak -20 dB)
Finish	Enclosure: HIPS resin, off-white / Grille: Surface-treated steel plate net, off-white, paint	
Dimensions (ø x D)	ø 186 x 369 mm	
Weight	1.5 kg	2.1 kg

»» Projection Speaker

PJ-100W

PJ-200W



Model	PJ-100W	PJ-200W
Rated Input	10W (100 V, 70 V, 50 V line)	20W (100 V, 70 V, 50 V line)
Rated Impedance	100 V: 1kΩ (10W), 2kΩ (5W), 4kΩ (2.5W) 70 V: 500Ω (10W), 1kΩ (5W), 2kΩ (2.5W), 4kΩ (1.25W) 50 V: 250Ω (10W), 500Ω (5W), 1kΩ (2.5W), 2kΩ (1.25W), 4kΩ (0.63W)	100 V: 500Ω (20W), 1kΩ (10W), 2kΩ (5W) 70 V: 250Ω (20W), 500Ω (10W), 1kΩ (5W), 2kΩ (2.5W) 50 V: 125Ω (20W), 250Ω (10W), 500Ω (5W), 1kΩ (2.5W), 2kΩ (1.25W)
Preset Impedance	1 kΩ	500 Ω
Sensitivity (1W, 1 m)	92 dB	95 dB
Speaker Diameter	12 cm	16 cm
Frequency Response	65 Hz – 15 kHz	50 Hz – 20 kHz
Finish	Cabinet, Cover: ABS Resin, off-white / Bracket: SPCC, off-white	
Dimensions (W x H x D)	160 x 200 x 195 mm	200 x 255 x 250 mm
Weight	1.8 kg	2.5 kg

Note: Avoid installing the speaker in locations which vibrate considerably or under environments easy to be oil-contaminated.

Ceiling Speakers

Flush Mount Ceiling Speakers

»» Flush Mount Ceiling Speaker

PC-2869

PC-2852



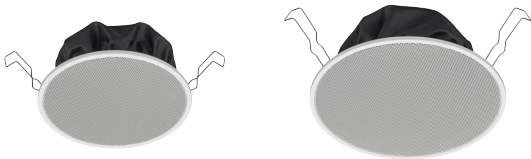
Model	PC-2869	PC-2852
Speaker Component	20 cm (8") double cone-type	20 cm (8") coaxial cone-type
Rated Input	6 W (100 V Line), 3 W (70 V Line)	15 W (100 V, 70 V Line)
Rated Impedance	100 V line: 1.7 kΩ (6 W), 3.3 kΩ (3 W), 6.7 kΩ (1.5 W), 13 kΩ (0.8 W) 70 V line: 1.7 kΩ (3 W), 3.3 kΩ (1.5 W), 6.7 kΩ (0.8 W), 13 kΩ (0.4 W)	100 V Line: 670Ω (15W), 1kΩ (10W), 2kΩ (5W), 3.3kΩ (3W) 70V Line: 330Ω (15W), 670Ω (7.5W), 1kΩ (5W), 2kΩ (2.5W), 3.3kΩ (1.5W)
Sensitivity	94 dB (1 W, 1 m) (500 Hz - 5 kHz, pink noise)	96 dB (1 W, 1 m) (500 Hz - 5 kHz, pink noise)
Frequency Response	40 Hz - 20 kHz (peak -20 dB)	45 Hz - 20 kHz (peak -20 dB)
Dimensions for Fixing Hole	Mounting hole: ø 250 ±3 mm; Ceiling thickness: 5 - 25 mm	
Speaker Mounting Method	Spring Clamp	
Applicable Cable	600 V vinyl-insulated cable (IV wire or HIV wire) Solid copper wire: ø 0.8 - ø 0.16 mm (equivalent to AWG 20 - 14) 7-core twisted copper wire: 0.75-1.25 mm² (equivalent to AWG 18 - 16)	
Connection	Push-in connector (bridging terminal - 2 branch type)	
Finish	Baffle: Steel plate, white (RAL 9016 equivalent), paint Grille: Surface-treated steel plate net, white (RAL 9016 equivalent), paint	
Dimensions (ø x D)	ø 280 x 92 mm	
Weight	1.4 kg	1.6 kg



» Flush Mount Ceiling Speaker

PC-1860 / PC-1860EN

PC-2360 / PC-2360EN



Model	PC-1860	PC-1860EN	PC-2360	PC-2360EN
Speaker Component	12 cm cone-type		16 cm cone-type	
Rated Input	6 W (100 V Line), 3 W (70 V Line)			
Rated Impedance	100 V line: 1.7 kΩ (6 W), 3.3 kΩ (3 W), 6.7 kΩ (1.5 W), 13 kΩ (0.8 W); 70 V line: 1.7 kΩ (3 W), 3.3 kΩ (1.5 W), 6.7 kΩ (0.8 W), 13 kΩ (0.4 W)			
Sensitivity (1 W, 1 m)	94 dB (500 Hz - 5 kHz, pink noise)	94 dB (500 Hz - 5 kHz, pink noise) 92 dB (100 Hz - 10 kHz, pink noise) 80 dB (1W, 4m) (100 Hz - 10 kHz, pink noise)	94 dB (500 Hz - 5 kHz, pink noise)	94 dB (500 Hz - 5 kHz, pink noise) 92 dB (100 Hz - 10 kHz, pink noise) 80 dB (1W, 4m) (100 Hz - 10 kHz, pink noise)
Maximum Sound Pressure Level	-	99 dB (6 W, 1 m) (100 Hz - 10 kHz, pink noise) 87 dB (6 W, 4 m) (100 Hz - 10 kHz, pink noise)	-	99 dB (6 W, 1 m) (100 Hz - 10 kHz, pink noise) 87 dB (6 W, 4 m) (100 Hz - 10 kHz, pink noise)
Frequency Response	80 Hz - 20 kHz (peak -20 dB)		60 Hz - 20 kHz (peak -20 dB)	
Coverage Angle (-6 dB)	-	Horizontal and Vertical: 165°(500 Hz), 175°(1 kHz), 165°(2 kHz), 70°(4 kHz) according to EN 54-24	-	Horizontal and Vertical: 160°(500 Hz), 170°(1kHz), 160°(2 kHz), 60°(4 kHz) according to EN 54-24
Environmental type	-	A (indoor applications)	-	A (indoor applications)
Dimensions for Fixing Hole	Mounting hole: ø 150 ±3 mm; Ceiling thickness: 5 - 25 mm		Mounting hole: ø 200 ±3 mm; Ceiling thickness: 5 - 25 mm	
Speaker Mounting Method	Spring Clamp			
Applicable Cable	Solid wire: 0.5 - 3 mm² (AWG 20 - 12)			
Connection	Push wire connection (Bridging terminal - 2 branch type)			
Finish	Frame: Steel plate, white (RAL 9016 equivalent), paint; Grille: Steel net, white (RAL 9016 equivalent), paint			
Dimensions (ø x D)	ø 180 x 70 mm		ø 230 x 76 mm	
Weight	560 g		740 g	

» Flush Mount Ceiling Speaker

PC-648R / PC-658R

PC-668R / PC-668RC



Model	PC-648R	PC-658R	PC-668R	PC-668RC
Rated Output	6 W (100 V Line), 3 W (70 V Line)		15 W (100 V, 70 V Line)	
Rated Impedance	100 V Line: 1.7 kΩ (6 W), 3.3 kΩ (3 W), 10 kΩ (1 W) 70 V Line: 1.7 kΩ (3 W), 3.3 kΩ (1.5 W), 10 kΩ (0.5 W)		100 V Line: 670 Ω (15 W), 1 kΩ (10 W), 2 kΩ (5 W), 3.3 kΩ (3 W) 70 V Line: 330 Ω (15 W), 670 Ω (7.5 W), 1 kΩ (5 W), 2 kΩ (2.5 W), 3.3 kΩ (1.5 W)	
Sensitivity (1 W, 1 m)	90 dB		96 dB (Pink Noise 500 Hz- 5 kHz)	
Frequency Response	100 Hz - 18 kHz (peak -20 dB)	65 Hz - 18 kHz (peak -20 dB)	65 Hz - 20 kHz (peak -20 dB)	
Speaker Component	12 cm cone-type	16 cm cone-type	20 cm double cone-type	
Dimensions for Fixing Hole	Mounting hole: ø 145 ± 5 mm Ceiling thickness 5 - 25 mm	Mounting hole: ø 170 ± 5 mm Ceiling thickness 5 - 25 mm	Mounting hole: ø 250 ± 5 mm Ceiling thickness 5 - 25 mm	
Input Connector	-			Push-In Connector (Bridging and branch connection possible)
Speaker Mounting Method	Spring Clamp			
Finish	Baffle: Polypropylene resin, white (RAL 9016 equivalent) Grille: Surface-treated Steel Plate Net, white (RAL 9016 equivalent), paint			
Dimensions (ø x D)	ø 168 x 77 (D) mm	ø 192 x 73 (D) mm	ø 280 x 90 (D) mm	
Weight	470 g	500 g	960 g	970 g
Accessory	Paper pattern x 1			

» Speaker Cover

HY-BC648



Material: HIPS UL-94V0 (non deca)
Color: Black
Dimensions: ø 135 x 93 (H) mm
Weight: 122 g (without accessories)
Accessory: Screw 3x10 B-tight W/Washer (2pcs)
Application: For model: PC-648R

» Speaker Cover

HY-BC658



Material: HIPS UL-94V0 (non deca)
Color: Black
Dimensions: ø 162 x 93 (H) mm
Weight: 154 g (without accessories)
Accessory: Screw 3x10 B-tight W/Washer (3pcs)
Application: For model: PC-658R

Separate Flush Mount Ceiling Speakers with Spring Catch

» Speaker Unit CM-760 / CM-960



Model	CM-760	CM-960
Rated Input	6 W	
Rated Impedance	1.7 kΩ (6 W), 3.3 kΩ (3 W), [6.7 kΩ (1.5 W), 13 kΩ (0.8 W): Internal wiring must be changed]	
Sensitivity (1 W, 1 m)	90 dB	92 dB
Frequency Response	100 Hz - 16 kHz	100 Hz - 12 kHz
Speaker Component	12 cm dynamic cone-type speaker	16 cm dynamic cone-type speaker
Dimensions for Fixing Hole	Mounting hole: ø 250; Ceiling thickness: 50 mm	Mounting hole: ø 200; Ceiling thickness: 50 mm
Speaker Mounting Method	Spring Catch	
Applicable Cable	600 V vinyl-insulated cable (IV wire or HIV wire); Solid copper wire: ø 0.8 - ø 1.2 mm; 7-core twisted copper wire: 0.75-1.25 mm ²	
Connection	Push-in connector (bridging and branch connection possible)	
Finish	Grille: Fire-resistant, high-impact styrene resin (resin material grade: UL94 V-0 or equivalent), black	
Dimensions (W x H x D)	215 x 134 x 89 mm	230 x 174 x 106.5 mm
Weight	630 g	850 g
Applicable Panels	CP-73 and CP-77	CP-93 and CP-97

» Front Grille for CM-760 / CM-960 CP-73 / CP-77 CP-93 / CP-97



Model	CP-73	CP-77	CP-93	CP-97
Speaker Mounting Method	Spring catch			
Finish	Frame: ABS resin, off-white Net: Aluminum, off-white, paint	Frame/Net: Aluminum, off-white, paint	Frame: ABS resin, off-white Net: Aluminum, off-white, paint	Frame/Net: Aluminum, off-white, paint
Dimensions (ø x D)	ø 180 x 11 mm (exposed section)		ø 230 x 12 mm (exposed section)	
Weight	70 g		100 g	
Applicable Speaker	CM-760		CM-960	

» Surface Mount Ceiling Speaker PC-2668 PC-2268 PC-2268WP



Model	PC-2668	PC-2268	PC-2268WP
Rated Input	6 W		
Rated Impedance	100 V line: 1.7 kΩ, 3.3 kΩ, 6.7 kΩ, 13 kΩ 70 V line: 1.7 kΩ, 3.3 kΩ, 6.7 kΩ, 13 kΩ		
Sensitivity (1W, 1m)	90 dB		
Frequency Response	100 Hz - 16 kHz	160 Hz - 14 kHz (peak -20 dB)	160 Hz - 16 kHz (peak -20 dB)
Mounting Method	Spring catch	-	
Speaker Component	12 cm dynamic cone-type	12 cm cone-type	
Connection	Push-in connector (bridging terminal-2 branch type)	Push-in connector (bridging terminal)	
Water Protection	-	-	IPX4
Finish	Baffle: ABS resin, off-white	Front case/Rear case: Fire-resistant HIPS resin, light gray	Front case/Rear case: Fire-resistant HIPS resin, light gray Speaker mounting bracket: Surface-treated steel plate, off-white, powder coating
Dimensions (ø x D)	ø 260 x 92 mm (exposed section)	ø 220 x 80.5 (D) mm (excluding projection)	ø 220 x 80.5 (D) mm (excluding projection) ø 150 x 5 mm (speaker mounting panel, excluding mounting screw)
Weight	820 g (Bracket included)	880 g	890 g (unit only), 180 g (speaker mounting panel)
Accessory	-	Switch box mounting screw (M4 x 35) x 2, Ceiling mounting screw (4 x 35) x 2	Speaker mounting panel x 1, Switch box mounting screw (M4 x 35) x 2, Ceiling mounting screw (4 x 35) x 2, Knob nut x 2



Clean Room / Splashproof Ceiling Speakers

- » Splashproof Ceiling Speaker for Clean Rooms & Steam/Wet Sauna Rooms
- » Non-Splashproof Ceiling Speaker for Clean Rooms
- » Splashproof Ceiling Speaker for Shower Rooms

PC-3CL



PC-5CL



PC-3WR



Model	PC-3CL	PC-5CL	PC-3WR
Rated Input	3W	5W	3W, 1W
Rated Impedance	100 V line: 3.3kΩ (3W), 10kΩ (1W) 70 V line: 3.3kΩ (1.5W), 10kΩ (0.5W)	100 V line: 2kΩ (5W) 70 V line: 2kΩ (2.5W)	3.3 kΩ (3W), 10 kΩ (1W)
Sensitivity (1W, 1m)	87 dB		88 dB
Frequency Response	150Hz – 20kHz		180Hz – 20kHz
Enclosure	-	Completely sealed type	-
Mounting Hole Diameter	100mm	98mm	150mm
Speaker Component	8cm cone-type (vibration section: high molecular substance)		-
Chemical Resistance	Resistive to formalin solvent and iodine liquid (disinfectant)	-	-
Dust/Water Protection	IP64	-	IP64
Dust Particle Prevention	-	No dust particle is produced by the method set out in JIS B-9926	-
Finish	Panel: Alloy-coated ABS resin Enclosure: ABS resin, Punched Net: Stainless steel	Panel: Alloy-coated ABS resin Enclosure: ABS resin, off-white Punched Net/Exposed Fixing Screw: Stainless steel	Panel / Case: ABS resin, off white Punched grille: stainless steel
Dimensions (ø x D)	ø 139 x 104.5mm	ø 116 x 110mm	ø 180 x 120 mm
Weight	550g	620g	700 g

Note: PC-3CL: Speaker cannot be used in dry sauna rooms or locations where unit is subjected to splashing of water.
PC-3WR: Avoid using unit in locations where unit is subjected to splashing of water.

Firedome Speakers

- » Firedome Speaker
- PC-1860F
- PC-1860BS



Model	PC-1860F	PC-1860BS
Speaker Component	12 cm (5") cone-type	
Rated Input	6 W (100 V Line), 3 W (70 V Line)	
Rated Impedance	100 V line: 1.7 kΩ (6 W), 3.3 kΩ (3 W), 6.7 kΩ (1.5 W), 13 kΩ (0.8 W); 70 V line: 1.7 kΩ (3 W), 3.3 kΩ (1.5 W), 6.7 kΩ (0.8 W), 13 kΩ (0.4 W)	
Sensitivity (1 W, 1m)	95 dB (500 Hz - 5 kHz, pink noise) 93 dB (100 Hz - 10 kHz, pink noise) 81 dB (1 W, 4 m) (100 Hz - 10 kHz, pink noise)	95 dB (500 Hz - 5 kHz, pink noise)
Maximum Sound Pressure Level	100 dB (6 W, 1 m) (100 Hz - 10 kHz, pink noise) 88 dB (6 W, 4 m) (100 Hz - 10 kHz, pink noise)	-
Frequency Response	170 Hz - 20 kHz (peak -20 dB)	
Coverage Angle (-6 dB)	Horizontal and Vertical: 165°(500 Hz), 175°(1 kHz), 165°(2 kHz), 70°(4 kHz) according to EN 54-24	-
Environmental type	A (indoor applications)	-
Dimensions for Fixing Hole	Mounting hole: ø156 ±3 mm; Ceiling thickness: 5 - 25 mm	
Speaker Mounting Method	Spring Catch	
Applicable Cable	Solid wire: 0.8 - 6 mm² (AWG 18 - 10)	Solid wire: 0.5 - 3 mm² (AWG 20 - 12)
Connection	2-Steatite connector (3 pole)	Push wire connection (Bridging terminal - 2 branch type)
Finish	Frame: Steel plate, white (RAL 9016 equivalent), paint ; Grille: Steel net, white (RAL 9016 equivalent), paint; Fire dome: Steel plate, black, paint	
Dimensions (ø x D)	ø 180 x 5 (exposed section) + 100 mm	
Weight	1.1 kg	1 kg

Horn Speakers

Separate Reflex Horn Speakers and Driver Units

» Separate Reflex Horn Speaker

TH-650
TH-660



Model	TH-650	TH-660
Sensitivity (1W, 1m)	110dB (when operated with a driver)	
Driver Coupling	1 3/8 18 threads (inch screw)	
Frequency Response	200Hz – 6kHz (when operated with a driver)	
Dust/Water Protection	IP65 (when operated with a driver)	
Finish	Horn Flare and Flange: Aluminum, Off-White, powder coating Reflector horn: ABS resin, Off-White; Bracket Holder: Aluminum, Gray, powder coating; Bracket: Steel, Gray, powder coating; Screws and Bolts: Stainless Steel	
Dimensions (ø x D)	ø 500 x 394mm	ø 600 x 425mm
Weight	2.9kg	3.6kg

» Separate Reflex Horn Driver Unit

TU-631 / TU-631M
TU-651 / TU-651M



Model	TU-631	TU-651	TU-631M	TU-651M
Rated Input	30W	50W	30W	50W
Line Voltage	100 V line or 70 V line			
Rated Impedance	16 Ω			
	100 V: 330Ω (30W), 670Ω (15W), 1kΩ (10W), 2kΩ (5W) 70 V: 170Ω (30W), 330Ω (15W), 670Ω (7.5W), 1kΩ (5W), 2kΩ (2.5W)			
	100 V: 200Ω (50W), 330Ω (30W), 670Ω (15W) 70 V: 100Ω (50W), 200Ω (25W), 330Ω (15W), 670Ω (7.5W)			
Sensitivity (1W, 1m)	110dB (when operated with JIS C 5504 standard horn)			
Frequency Response	150Hz – 6kHz (when operated with JIS C 5504 standard horn)			
Dust/Water Protection	IP65 (When operated with a horn)			
Horn Coupling	1 3/8 18 threads (inch screw)			
Polarity	Hot: Black, Com: White			
Finish	Flange: Aluminum, gray, powder coating / Rear cover: ABS resin, gray / Screws: Stainless steel			
Dimensions (ø x D)	ø 139 x 106mm			
	ø 139 x 149mm			
Weight	1.4kg	2kg	1.9kg	2.7kg

Note: Avoid installing the speaker in locations which vibrate considerably or under environments easy to be oil-contaminated. Doing otherwise may result in accident such as falling of the unit.

» Separate Reflex Horn Driver Unit

TU-660
TU-660M



Model	TU-660	TU-660M
Rated Input	60W	
Line Voltage	-	100 V line or 70 V line
Rated Impedance	16 Ω	100 V line: 170 Ω (60 W), 330 Ω (30 W), 670 Ω (15 W) 70 V line: 83 Ω (60 W), 170 Ω (30 W), 330 Ω (15 W), 670 Ω (7.5 W)
Sensitivity (1W, 1m)	110dB (when operated with JIS C 5504 standard horn)	
Frequency Response	150Hz – 8kHz (when operated with JIS C 5504 standard horn)	
Dust/Water Protection	IP65 (When operated with a horn)	
Horn Coupling	1 3/8 18 threads (inch screw)	
Polarity	Hot: Black, Com: White	
Finish	Flange: Aluminum, gray, powder coating / Rear cover: ABS resin, gray / Screws: Stainless steel	
Dimensions (ø x D)	ø 139 x 108mm	ø 139 x 151mm
Weight	2kg	2.7kg



>>> Separate Reflex Horn Speaker
TH-652



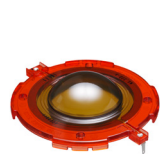
Model	TH-652
Sensitivity (1W, 1m)	110 dB (when operated with a driver)
Frequency Response	200Hz – 6kHz (when operated with a driver)
Dust/Water Protection	IP65
Driver Coupling	1 3/8 18 threads (inch screw)
Finish	Horn and Flange: Aluminum, White, powder coating Reflector horn: HIPS, White; Bracket: Steel, White, powder coating; Screws and Bolts: Stainless Steel
Dimensions (W x H x D)	ø 500 x 357 mm
Weight	2.7 kg

>>> Separate Reflex Horn Driver Unit
TU-632 / TU-632M
TU-652 / TU-652M



Model	TU-632	TU-652	TU-632M	TU-652M
Rated Input	30W	50W	30W	50W
Line Voltage	100 V line or 70 V line			
Rated Impedance	16 Ω		100 V: 330Ω (30W), 670Ω (15W), 1kΩ (10W), 2kΩ (5W) 70 V: 170Ω (30W), 330Ω (15W), 670Ω (7.5W), 1kΩ (5W), 2kΩ (2.5W)	100 V: 200Ω (50W), 330Ω (30W), 670Ω (15W) 70 V: 100Ω (50W), 200Ω (25W), 300Ω (15W), 670Ω (7.5W)
Sensitivity (1W, 1m)	110dB			
Frequency Response	150Hz – 6kHz			
Dust/Water Protection	IP65			
Horn Coupling	1 3/8 18 threads			
Finish	Upper Cover: Aluminum, white, powder coating / Unit Case: HIPS, white			
Dimensions (ø x D)	ø 139 x 106mm		ø 139 x 149mm	
Weight	1.5kg	2kg	1.8kg	2.7kg

>>> Diaphragm
DG-30DB



Rated Input: 50 W
Rated Impedance: 16 Ω
Sensitivity (1W, 1m): 110 dB
Frequency Response: 150 Hz - 6 kHz
Dimensions: ø 104 x 24 (D) mm
Weight: 24 g
Applicable Driver Unit: TU-631 / TU-631M / TU-651 / TU-651M / TU-632 / TU-632M / TU-652 / TU-652M

>>> Driver Unit Cover
UC-200A



Finish: Unit Cover: Glass Fiber mixed unsaturated polyester resin, ivory / Cover Fixing Screw: Stainless Steel
Weight: 590 g
Accessory: Washer x 2, Throat Gasket x 1
Applicable Driver Unit: TU-631 / TU-631M / TU-651 / TU-651M / TU-632 / TU-632M / TU-652 / TU-652M / TU-600 / TU-660M
Applicable Horn: TH-650 / TH-660 / TH-652 / DH-110 / DH-120

SC Series Reflex Horn Speakers

»» SC Series Reflex Horn Speaker

SC-610
SC-610M



Model	SC-610	SC-610M
Rated Input	10W (Mobile Mount Use: 5 W)	10W
Line Voltage	-	100 V line or 70 V line
Rated Impedance	8 Ω	100 V: 1kΩ (10W), 2kΩ (5W), 3.3kΩ (3W), 10kΩ (1W) 70 V: 500Ω (10W), 1kΩ (5W), 2kΩ (2.5W), 3.3kΩ (1.5W), 10kΩ (0.5W)
Sensitivity (1W, 1 m)	110dB (at 500 Hz - 2 kHz peak level)	
Frequency Response	315Hz – 12.5kHz	
Dust/Water Protection	IP65	
Finish	Horn Flare: Aluminum, Off-White, powder coating Reflector Horn and Rear Cover: ABS resin, Off-White Bracket, Screws and Bolts: Stainless Steel	
Dimensions (W x H x D)	172 x 161 x 188 mm	
Weight	1kg	1.2kg

»» SC Series Reflex Horn Speaker

SC-615
SC-615M



Model	SC-615	SC-615M
Rated Input	15W (Mobile Mount Use: 10 W)	15W
Line Voltage	-	100 V line or 70 V line
Rated Impedance	8 Ω	100 V: 670Ω (15W), 1kΩ (10W), 2kΩ (5W), 3.3kΩ (3W) 70 V: 330Ω (15W), 670Ω (7.5W), 1kΩ (5W), 2kΩ (2.5W), 3.3kΩ (1.5W)
Sensitivity (1W, 1 m)	112dB (at 500 Hz - 2 kHz peak level)	
Frequency Response	280Hz – 12.5kHz	
Dust/Water Protection	IP65	
Finish	Horn Flare: Aluminum, Off-White, powder coating Reflector Horn and Rear Cover: ABS resin, Off-White Bracket, Screws and Bolts: Stainless Steel	
Dimensions (W x H x D)	222 x 179 x 234 mm	
Weight	1.1 kg	1.3kg

»» SC Series Reflex Horn Speaker

SC-630
SC-630M



Model	SC-630	SC-630M
Rated Input	30W (Mobile Mount Use: 10 W)	30W
Line Voltage	-	100 V line or 70 V line
Rated Impedance	8 Ω	100 V: 330Ω (30W), 670Ω (15W), 1kΩ (10W), 2kΩ (5W) 70 V: 170Ω (30W), 330Ω (15W), 670Ω (7.5W), 1kΩ (5W), 2kΩ (2.5W)
Sensitivity (1W, 1 m)	113 dB (at 500 Hz - 2 kHz peak level)	
Frequency Response	250Hz – 10kHz	
Dust/Water Protection	IP65	
Finish	Horn Flare: Aluminum, Off-White, powder coating Reflector Horn and Rear Cover: ABS resin, Off-White Bracket, Screws and Bolts: Stainless Steel	
Dimensions (W x H x D)	285 x 227 x 277 mm	
Weight	1.7 kg	2kg

»» SC Series Reflex Horn Speaker

SC-632
SC-651



Model	SC-632	SC-651
Rated Input	30W	50W (Mobile Mount Use: 30 W)
Rated Impedance	8 Ω	16 Ω
Sensitivity (1W, 1 m)	113 dB (at 500 Hz - 2 kHz peak level)	109 dB
Frequency Response	250Hz – 10kHz (-40 dB of SPL)	250 Hz - 6 kHz
Dust/Water Protection	IP65	
Finish	Upper Cover: Aluminum, White, powder coating Horn Flare: HIPS resin, White Reflector Horn, Unit Case: ABS resin, White	Horn Flare: Aluminum, Off-white, powder coating Reflector Horn: ABS resin, Off-White Bracket Holder: Aluminum, Gray, powder coating Rear Cover: ABS resin, Gray Screws and Bolts: Stainless Steel
Dimensions (W x H x D)	292 x 234 x 280 mm	430 x 297.5 x 327 mm
Weight	1.8kg	2kg



TC Series Reflex Horn Speakers

TC Series Reflex Horn Speaker
TC-615 / TC-615M
TC-631 / TC-631M



Model	TC-615	TC-631	TC-615M	TC-631M
Rated Input	15W	30W	15W	30W
Line Voltage	100 V line or 70 V line			
Rated Impedance	8Ω	16Ω	100 V: 670Ω (15W), 1kΩ (10W), 2kΩ (5W), 3.3kΩ (3W) 70 V: 330Ω (15W), 670Ω (7.5W), 1kΩ (5W), 2kΩ (2.5W), 3.3kΩ (1.5W)	100 V: 330Ω (30W), 670Ω (15W), 1kΩ (10W), 2kΩ (5W) 70 V: 170Ω (30W), 330Ω (15W), 670Ω (7.5W), 1kΩ (5W), 2kΩ (2.5W)
Sensitivity (1W, 1m)	108dB	110dB	108dB	110dB
Frequency Response	250Hz – 7kHz	200Hz – 6kHz	250Hz – 7kHz	200Hz – 6kHz
Dust/Water Protection	IP65			
Finish	Horn flare: aluminum, off-white, powder coating / Reflector horn: ABS resin, off-white / Bracket holder: aluminum, gray, powder coating / Bracket: steel, gray, powder coating / Rear cover: ABS resin, gray / Screw and bolts: stainless steel			
Dimensions (ø x D)	ø 400 x 376mm	ø 500 x 463mm	ø 400 x 376mm	ø 500 x 463mm
Weight	3kg	4.1kg	3.2kg	4.5kg

TC Series Reflex Horn Speaker
TC-651M



Model	TC-651M
Rated Input	50W
Line Voltage	100 V line or 70 V line
Rated Impedance	100 V: 200Ω (50W), 330Ω (30W), 670Ω (15W), 70 V: 100Ω (50W), 200Ω (25W), 330Ω (15W), 670Ω (7.5W)
Sensitivity (1W, 1m)	111dB
Frequency Response	200Hz – 6kHz
Dust/Water Protection	IP65
Finish	Horn flare: aluminum, off-white, powder coating / Reflector horn: ABS resin, off-white / Bracket holder: aluminum, white, powder coating / Bracket: steel, gray, powder coating / Rear cover: ABS resin, gray / Screw and bolts: stainless steel
Dimensions (ø x D)	ø 400 x 376mm
Weight	4kg

Straight Horn Speakers

Straight Horn Speaker
DH-110
DH-120



(DHA-11 + DH-11B)



(DHA-11 + DH-12B)

Model	DH-110	DH-120
Sensitivity (1W, 1m)	110dB (When operated with a driver)	
Frequency Response	180Hz – 6kHz (When operated with a driver)	
Applicable Unit	TU-631, TU-651, TU-631M, TU-651M	
Finish	Horn: Aluminium, ivory, powder coating L-Shaped Adapter and Horn C: Aluminum, ivory, power coating Bracket: Steel plate, ivory, powder coating	Horn: Aluminium, ivory, powder coating L-Shaped Adapter and Adapter: Aluminum, ivory, power coating Bracket: Steel plate, ivory, powder coating
Dimensions (ø x D)	ø 518 x 968mm (w/o driver)	ø 518 x 884mm (w/o driver)
Weight	5.3kg	

Note: 01) An optional UC-200A cover protects the driver unit from rain, snow, sand, sunlight and salt water.
02) Only the bracket does not ensure the sufficient strength. Prepare separately a bracket mountable utilizing 2 M12 screw taps.

Explosion-Proof Combination Reflex Horn Speakers

Explosion-Proof Combination
Reflex Horn Speaker

TP-M15D
TP-M15E



Model	TP-M15D	TP-M15E
Rated Input	15W	
Rated Impedance	670Ω (15W), 1kΩ (10W), 2kΩ (5W)	
Sensitivity (1W, 1m)	104dB	
Category	eG4 (increased safety explosion-proof)	
Frequency Response	350Hz – 4.5kHz	300Hz – 5.5kHz
Finish	Horn: Ivory / Others: Dark brown / Bracket materials: Surface zinc treated steel plate	
Dimensions (ø x D)	ø 242 x 368mm	ø 392 x 475mm
Weight	4.3kg	4.9kg

Installation Locations:
* Locations where flammable gas and vapor of flammable liquid are mixed together under abnormal condition, creating an atmosphere close to the threshold of explosion.
* The TP-M15E / TP-M15D cannot be used in locations that can periodically create an explosive atmosphere when used and operated normally.

Weatherproof Horn Speakers

CS-760B / CS-760W
2-Way Weatherproof Speakers



Ideal for: • Parking spaces • Railway Stations • Sports Fields • Amusements Parks • Houses of Worship

»» 2-Way Weatherproof Speakers

CS-760B
CS-760W



Model	CS-760B	CS-760W
Rated Input	60 W (high impedance)	
Rated Impedance	100 V: 170 Ω (60 W), 330 Ω (30 W), 670 Ω (15 W), 1.3 kΩ (7.5 W) 70 V: 83 Ω (60 W), 170 Ω (30 W), 330 Ω (15 W), 670 Ω (7.5 W)	
Sensitivity (1W, 1 m)	100 dB	
Max. SPL	117 dB (60 W, 1 m)	
Frequency Response	100Hz – 20kHz	
Crossover Frequency	2.5 kHz	
Directivity Angle	Horizontal: 90° ; Vertical: 80°	
Speaker Component	Low Freq: 16 cm cone-type; High Freq: 2.5 cm dome tweeter	
Dust/Water Protection	IP66	
Connection	Speaker cord (Hot: Black, Com: White)	
Finish	Enclosure: ABS, black, paint Net: Surface-treated steel plate, black, paint Bracket: Stainless Steel, black, powder coating	Enclosure: ABS, white, paint Net: Surface-treated steel plate, white, paint Bracket: Stainless Steel, white, powder coating
Dimensions (W x H x D)	388 x 310 x 367 mm	
Weight	7.4 kg	

»» Wide Range Horn Speaker (Weatherproof)

CS-64



Model	CS-64
Rated Input	6 W (100 V)
Rated Impedance	100 V line: 1.7 kΩ (6 W), 3.3 kΩ (3 W), 10 kΩ (1 W) 70 V line: 830 Ω (6 W), 1.7 kΩ (3 W), 3.3 kΩ (1.5 W), 10 kΩ (0.5 W)
Sensitivity (1W, 1 m)	96 dB
Frequency Response	130Hz – 13 kHz
Speaker Component	12 cm cone-type (Treated for splash proof)
Finish	Horn, cover: ABS resin, off-white, paint / Bracket: Stainless steel / Punched net: Surface treated steel plate, dark-gray, powder coating / Screw: Stainless Steel
Dimensions (W x H x D)	233 x 224 x 208 mm
Weight	1.5 kg

»» Wide Range Horn Speaker (Weatherproof)

CS-154
CS-304



Model	CS-154	CS-304
Rated Input	15 W (100 V)	30 W (100 V)
Rated Impedance	100 V: 670Ω (15W), 1kΩ (10W), 2kΩ (5W) 70 V: 330Ω (15W), 670Ω (7.5W), 1kΩ (5W), 2kΩ (2.5W)	100 V: 330Ω (30W), 500Ω (20W), 1kΩ (10W) 70 V: 170Ω (30W), 330Ω (15W), 500Ω (10W), 1kΩ (5W)
Sensitivity (1W, 1 m)	97 dB	98 dB
Frequency Response	150Hz – 15 kHz	120Hz – 15 kHz
Speaker Component	12 cm cone-type (Treated for splash proof)	
Finish	Horn, Cover: ABS resin, off-white, paint / Bracket & Screw: Stainless steel / Net: Aluminium, gray, paint	
Dimensions (W x H x D)	366 x 230 x 272 mm	
Weight	2.8 kg	3.1 kg



Powered Speakers

»» Powered Horn Speaker

SC-P620



Model	SC-P620
Power Source	12 V DC, 2 A (DC Socket "+" Type A: 5.5 x 2.1 mm)
Power Consumption	15 W (1.25 A) at rated output; 25 W (2.10 A) at Max. output
Input	0 dB, 10 kΩ, unbalanced (RCA plug)
Signal Gain	8, 16, 24 or 32 dB (Factory pre-set to 16 dB)
Sensitivity (1 W, 1 m)	113 dB (at 500 Hz to 2.5 kHz peak level)
Dust/Water Protection	IP65
Frequency Response	250Hz – 10kHz
Finish	Horn Flare: HIPS resin, white Reflector Horn and Case: ABS resin, white Bracket, Screws and Bolts: Stainless Steel
Dimensions (W x H x D)	292 x 230 x 280 mm
Weight	1.8 kg

»» Powered Box Speakers

BS-P1030B

BS-P1030W



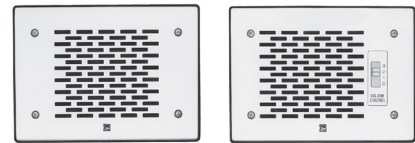
Model	BS-P1030B	BS-P1030W
Power Source	24 V DC, 1.5 A (DC Socket "+" Type A: 5.5 x 2.1 mm)	
Power Consumption	24W (1 A) at rated output	
Input	5 kΩ, unbalanced (RCA plug); Max Input: +6 dB V (2 Vrms)	
Signal Gain	+30 dB	
Sensitivity (1 W, 1 m)	90 dB	
Dust/Water Protection	IPX4	
Frequency Response	80 Hz – 20kHz	
Finish	Enclosure: ABS resin, black, paint Net and Bracket: Surface-treated steel plate, black, powder coating	Enclosure: ABS resin, white, paint Net and Bracket: Surface-treated steel plate, white, powder coating
Dimensions (W x H x D)	196 x 290 x 150 mm (unit only)	
Weight	2.5kg (unit only)	

Wall Flush-Mount Speakers

»» Wall Flush-Mount Speaker

PC-391

PC-391T



Model	PC-391	PC-391T
Rated Input	3 W (100 V)	
Attenuator	-	Off, -12dB, -6 dB, 0 dB
Sensitivity (3 W, 1 m)	90.7 dB	
Frequency Response	150Hz – 18kHz	
Speaker Component	7.7 cm cone-type	
Finish	Baffle: Stainless steel / Grille: Aluminium, silver	
Dimensions (W x H x D)	162 x 115 x 43mm (excluded the projected screw heads)	162 x 115 x 47 mm (excluded the projected screw heads)
Weight	560 g	600 g

»» Flush Mount Back Box

YC-150



Finish: zinc-plating, t1.6
Dimensions (WxHxD): 184 x 119 x 57 mm
Weight: 700 g

»» Flush Mount Back Box

YC-150E



Finish: Heavy chrome plating, t1.2
Dimension (WxHxD): 145 x 95 x 57 mm
Weight: 410 g

Garden Speakers

>>> Garden Speaker GS-302



Model	GS-302
Enclosure	Sealed type
Rated Input	30 W (100 V line), 15 W (70 V line)
Rated Impedance	100 V line: 330 Ω (30 W), 670 Ω (15 W), 1 kΩ (10 W), 2 kΩ (5 W), 3.3 kΩ (3 W) 70 V: 330 Ω (15 W), 670 Ω (7.5W), 1 kΩ (5 W), 2 kΩ (2.5 W), 3.3 kΩ (1.5W)
Sensitivity (1 W, 1 m)	87 dB
Water Protection	IPX4
Frequency Response	100Hz – 8kHz
Speaker Component	12 cm splash-proof cone-type
Input Terminal	Push-in terminal
Applicable Cable	Solid copper wire: ø 0.8 - ø 1.6 mm, Stranded copper wire: 0.75 - 1.25 mm ²
Finish	Top cover and base: FRP resin, dark gray, semi-gloss, paint Speaker panel: ABS resin, dark gray, semi-gloss, paint Legs: Aluminum, dark gray, semi-gloss, paint
Dimensions (ø x H)	ø 270 x 335 mm
Weight	2.4 kg

Others

Attenuators

>>> Attenuator AT-4012 / AT-4030 / AT-4060 AT-4120 / AT-4200



Model	AT-4012	AT-4030	AT-4060	AT-4120	AT-4200
Input Capacity	12 W	30 W	60 W	120 W	200 W
Attenuation	8 Steps (0 dB, -3 dB, -9 dB, -12 dB, -15 dB, -18 dB, OFF)				
Override Indicator	Red LED (4-wire connection only)				
Overriding Voltage	24 V, 11 mA DC (4-wire connection only)				
Finish	Knob, Cover Panel: ABS resin, White Front Panel (Plate): Surface-treated Steel plate				
Dimension (W x H x D)	86 x 86 x 24 mm	86 x 86 x 51 mm			
Weight	0.12 kg	0.45 kg	0.46 kg	0.48 kg	0.49 kg
Terminal	Screw Type x 5				
Usable Cable	Cable range 22 - 14 AWG				
Accessory	Box (85.5 x 85.5 x 60 mm) x 1, Back Plate Mounting Screw x 2				

>>> Attenuator AT-063AP / AT-303AP / AT-603AP



Model	AT-063AP	AT-303AP	AT-603AP
Input Range	0.5 W - 6 W	0.5 W - 30 W	0.5 W - 30 W
Attenuation	5 Setps (-0 dB, - 6dB, -12 dB, -18 dB, OFF)		
Applicable Cable	600 V vinyl-insulated cable (Indoor Vinyl) or heat-resistant Indoor Vinyl cable) Solid Cable: ø0.8 - ø1.6 mm		
Finish	Knob, Cover Panel: ABS resin, White Front Panel (Plate): Surface-treated Steel plate		
Dimension (W x H x D)	70 x 120 x 52.4 (with plare) / 41 x 108 x 52.4 (attenuator only)		
Weight	170 g (unit only)	210 (unit only)	
Terminal	Push-in connector		
Accessory	Plate x 1, Plate mounting screw x 2, box mounting screw x 2		
Applicable Plate / Box	YP-1AF (optional Plate) / YS-11A (optional Box)		



Impedance Meter

»» Impedance Meter

ZM-104A



Model	ZM-104A
Power Supply	R6 x 4 (1.5 V DC x 4)
Current Consumption	39 mA
Reading	Direct reading meter, unit: Ω
Measurement Range	x1 : 5 – 1 kΩ x10 : 50 – 10 kΩ x100 : 500 – 100 kΩ
Accuracy	±10 %
Oscillation Frequency	1 kHz ±10 %
Power Requirement	4 x R6 batteries (6 V)
Dimensions (W x H x D)	110 x 180 x 58 mm (Unit); 120 x 220 x 63 mm (incl. case)
Weight	700 g (incl. case)

Optional Accessories

»» Speaker Connector

YS-4CF / YS-4CM



Model	YS-4CF	YS-4CM
Connector	XLR-4-31-F77	XLR-4-32-F77
Current Capacity	10 A (AC)	
Usable Cable	600 V Vinyl-insulated cable with diameter of 0.8 - 1.6 mm or sectional area of 0.9 - 2.0 mm²	
Usable Plate	YP-1AF	
Usable Plug	XLR-4-12C	XLR-4-11C
Finish	Cover: ABS resin (off-white), Frame: Steel Plate (t=1.2)	
Dimensions (W x H x D)	45 x 110 x 53 mm	
Weight	95 g	80 g

»» Pole Mount Bracket

SP-131



Load Capacity: 5 kg
Finish: Bracket and Screw: Stainless Steel
Weight: 330 g (bracket only)
Product Composition: Mounting Bracket x 2, Mounting Screw (M10 x 25 bolt set, M8 x 20 bolt set) x 1 set each
Applicable Unit: SC-610, SC-610M, SC-615, SC-615M, SC-630, SC-630M

»» Wall and Pole Mount Bracket

SP-201



Load Capacity: 10 kg
Finish: Bracket and Screw: Stainless Steel
Weight: 610 g (bracket only)
Product Composition: Mounting Bracket x 2, Mounting Screw (M10 x 25 bolt set, M8 x 20 bolt set) x 1 set each
Applicable Unit: TH-650, TH-660, SC-610, SC-610M, SC-615, SC-615M, SC-630, SC-630M

»» Wall Mount Bracket

SP-301



Load Capacity: 5 kg
Finish: Bracket and Screw: Stainless Steel
Weight: 910 g (bracket only)
Product Composition: Mounting Bracket x 2, Mounting Screw (M10 x 25 bolt set, M8 x 20 bolt set) x 1 set each
Applicable Unit: SC-610, SC-610M, SC-615, SC-615M, SC-630, SC-630M

»» Cover Plate

YP-1AF



Applications: YM-1J, YM-3CF, YM-3CM, YS-4CF, YS-4CM
Finish: Aluminum t1.2, Hairline
Dimensions (WxHxD): 70 x 120 x 6 mm
Weight: 25 g

»» Wall Mounting Back Box

YS-11A



Finish: High impact polystyrene resin, milky white
Dimension (WxHxD): 70 x 120 x 40 mm
Weight: 60 g
Accessory: Countersunk head machine screw x 2, Round head wood screw x 2
Applicable Unit: AT Series Attenuators (Applicable plates: YP-1AF), YM/YS Series connector units (Applicable plates: YP-1AF)

»» Pole Band

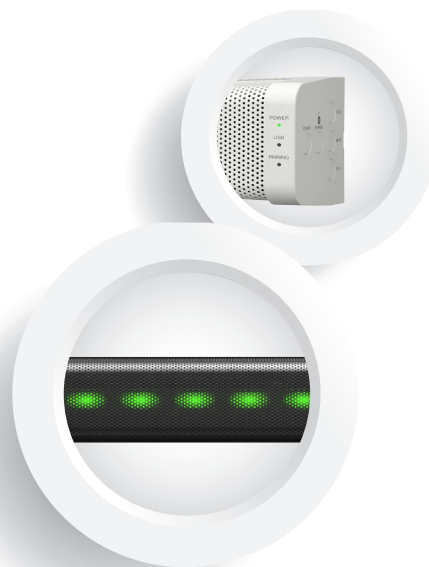
YS-60B



Mounting Pole Diameter: Approx. ø90 - ø340
Finish: Electroless zinc plating
Weight: 360 g (per band)
Product Composition: Pole Band x 2

Conference Systems

Integrated Audio Collaboration System



» Integrated Audio Collaboration System AM-CF1B / AM-CF1W



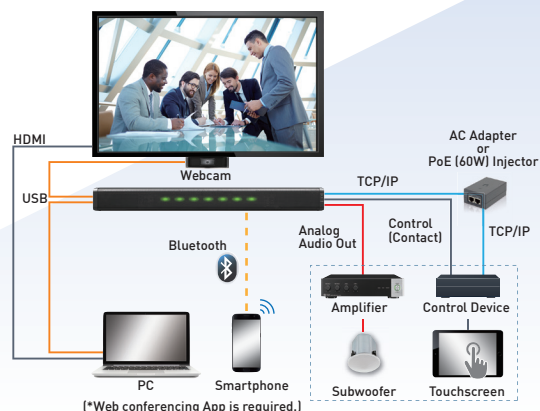
Model	AM-CF1B	AM-CF1W
Power Source	12 V DC (supplied from the specified AC adapter) or 52 V DC (supplied from the specified PoE extender)	
Current Consumption	3.5 A or less	
Inputs	USB Audio: 2 channels, USB 3.0/USB 2.0/USB 1.1 3.0 type-B port Bluetooth: 2 channels, Codec: 1 channel, RCA pin jack, -10 dBV, 10 kΩ, unbalanced type AUX: Stereo 1 channel, RCA pin jack, -10 dBV, 10 kΩ, unbalanced type	
Outputs	USB Audio: 2 channels, USB 3.0/USB 2.0/USB 1.1 3.0 type-B port Bluetooth: 1 channel Codec: 1 channel, RCA pin jack, -10 dBV, 600 Ω, unbalanced type AUX: Stereo 1 channel, removable terminal block (6 pins), 4 dB*, 600 Ω, balanced (electronically-balanced) type Internal speaker: 2-way x 2 (woofer x 2, tweeter x 1), 10 W x 2	
Control Inputs	2 inputs, removable terminal block (6 pins), no-voltage make contact	
Control Outputs	2 outputs, removable terminal block (6 pins), no-voltage make contact, relay contact output	
Network Interface	10BASE-T/100BASE-TX, RJ-45	
Array Microphone	Unidirectional electret condenser type	
Frequency Characteristics	20 Hz - 20 kHz (AUX IN - AUX OUT)	
Operation Section	Power switch, Bluetooth pairing, Mute, Volume Up/Down	
Indicator	Power (blue/green/orange/red), USB connection (green/blue), Bluetooth (blue), Multifunction (green/red)	
Finish	Body: Aluminum, Black Punched Net: Steel, Black (RAL 9005 equivalent) Side Cover: ABS resin, Black	Body: Aluminum, White Punched Net: Steel, White (RAL 9003 equivalent) Side Cover: ABS resin, White
Dimensions (ø x D)	800 x 83.2 x 85.8 mm	
Weight	4.6 kg	

(*1) 0 dB = 0.775 V

Configuration Example

- 3rd party controls are available
- Analog audio output (Line Level) :
Increase your hearing range by
connecting the AM-CF1 to an
external amplifier

* Note: The AM-CF1 supports most USB cameras.



**Please refer to specification sheet for detailed information.



Key Features

BEAM STEERING ARRAY MICROPHONE TECHNOLOGY

A line array with eight microphone elements enables to track sound automatically. TOA's proprietary DSP algorithm realizes a narrow microphone beam of 50 degrees to steer and efficiently focus on the targeted sound. It helps to clearly pick up the voice of a particular participant in the conference whether the person is positioning right next to the microphone or at the far end of the table.

REAL-TIME ILLUMINATED BEAM STEERING

Seven LED indicators behind the front grille illuminate the soundbar to visually monitor presenter location, microphone gain level, and microphone mute status.

GUI FOR EASY SETUP AND CONTROL

The browser interface is available to make adjustments to parameter settings such as mixer volume controls, audio processing, LED indicator management, control I/O, presets, and voice tracking field adjustments for coverage within a 20-foot (6m) range.



Key Benefits

- The AM-CF1 creates the most natural communication environment for team collaboration between remote locations. With the integrated array mic and soundbar positioned right below the display, participants can talk with each other just as they would in a normal conversation.
- Presentations become impactful with professional grade high-quality audio delivered via stereo soundbar and subwoofer output.
- For impromptu meetings, a smartphone can be quickly paired with the AM-CF1 via Bluetooth connectivity for exceptionally clear communication.

Product Features

- TOA's proprietary beam steering array microphone
- Integrated DSP functions including AEC and NC
- Stereo soundbar with auxiliary stereo audio inputs/outputs
- Built-in USB Hub for webcam integration
- Codec input /output and Contact Closure inputs/outputs
- Bluetooth interface for wireless connections

Applications



TS-D1000 Series Digital Conference System



Key features:

- Visual Noise-less design making it's presence felt only through the voice of the user
- Connectable up to 246 Chairman/Delegate units
- Operation-less meetings can be conducted, thanks for the Voice Activation feature
- Recording function available, using internal memory (1 GB) or USB memory up to 32GB
- New microphone unit and built-in speaker ensuring exceptional sound quality
- Built-in 7-point automatic feedback suppresser.
- Easy connection with CAT5e STP cable, auto ID assignment
- Remote protocol control function is available for 3rd party control.
- TOA free software is provided for control of external IP camera and activation of microphones.



» Master Control Unit

TS-D1000-MU

Model	TS-D1000-MU
Power Source	100 - 240 V AC, 50/60 Hz (use of the supplied AC adapter)
Power Consumption	60 W or less
Audio Transmission System	Time division multiplexing (TDM), 10 channels, 16-bit PCM, 32 kHz sampling frequency
Frequency Response	100 Hz - 13 kHz
Total Harmonic Distortion	0.5 % or less
Signal to Noise Ratio	80 dB or more (A-weighted)
MIC Input	-54 dBV, 600 Ω , unbalance, \varnothing 6.3 mm phone jack (2P)
Output	LINE: -10 dBV, 10 k Ω , unbalanced, \varnothing 6.3 mm phone jack (2P) REC: -10 dBV, 10 k Ω , unbalanced, RCA pin jack, monaural HEADPHONES: \varnothing 3.5 mm mini jack, monaural
EQ Insert Input/Output Terminal	-10 dBV, 10 k Ω , unbalanced, RCA pin jack
Video Conference System Input/Output Terminal	-10 dBV, 10 k Ω , unbalanced, RCA pin jack
No. of Connectable units	32 units (Chairman / Delegate Units)
No. of Connectable Sub Control Units	5 units
Max. Cable Distance	50 m (between Master Control Unit and terminal Chairman/Delegate unit at end of daisy chain)*1 1 m (between Master Control Unit and Sub Control Units) (Use the cable supplied with the Sub Control Unit)
Max. No. of Open Microphones	2 Chairman units, 8 Delegate units
Chairman/Delegate Unit Terminal	RJ45 connector x 2
Sub Control Units Terminal	RJ45 connector
LED Indicator	Power indicator, Conference mode indicator, No. of open microphone indicators, Microphone auto off indicator, Monitor speaker of conference units volume indicators, Connection test indicator, External control indicator, Setting lock indicator, Recording status indicator, USB Access status indicator, USB memory status indicator, Internal memory status indicator, Remaining USB memory capacity warning indicator, Remaining internal memory capacity warning indicator, LINK/ACT indicator, 10BASE-T/100BASE-TX indicator
Function Key	Conference mode selector key: Standard/Override/Voice Activation/Chairman Only Number of opne microphones selector key: 1 / 2 / 8 Microphone auto off setting key: ON / OFF Monitor speaker of conference units volume setting key: - / + Setting lock key: ON / OFF Headphone volume setting key: - / +
Operation Key	Connection test, Rec start, Rec stop
Record Ports	USB-A
Record Function	Recordings can be made to a USB memory device*2 or the internal memory. Recording format: MP3 (MPEG-1 Audio Layer-3), monaural Sampling Frequency: 32 kHz, Bit rate: 128 kbps
Network I/F	10BASE-T/100BASE-TX (Automatic-negotiation)
Network Protocol	TCP, HTTP, DHCP, ARP (APIPA), UDP (mDNS)
Network Connector	RJ45 connector
Finish	Panel: Surface-treated steel plate, black, 30 % gloss, paint
Weight	2.2 kg
Accessory	AC Adapter (Cord Length: 1.8 m) DC Cord, and 2 m detachable AC Cord x 1
Option	Rack Mounting Bracket: MB-TS920

(*1) Cable length can be extended to a maximum of 100 m with the use of the Extension Unit, TS-D1000-EX.

(*2) A USB 2.0 compatible FAT32-formatted flash memory device of up to 32 GB in capacity can be used.

There may be cases in which a USB flash drive cannot be used with the TS-D1000-MU, depending on the drive's attributes or recording conditions.

» Chairman Unit TS-D1000-CU

» Delegate Unit TS-D1000-DU



» Standard Microphone Unit TS-D1000-M1

» Long Microphone Unit TS-D1000-M2



Model	TS-D1000-CU	TS-D1000-DU
Power Source	24 V DC (supplied from TS-D1000-MU Master Control Unit (optional), TS-D1000-SU Sub Control Unit (optional), TS-D1000-EX Extension Unit (optional))	
Power Consumption	1.5 W or less	
Signal to Noise Ratio	65 dB or more (A-weighted)	
Input	Microphone terminal: XLR-3-31 type	
Output	Monitor Speaker: 8 Ω, 0.4 W Earphone: Ø3.5 mm mini jack (3P: monaural) x 2	
Speaker Output	75 dB SPL	
Connecting Terminal	RJ45 connector x 2	
LED Indicator	Power indicator, Speech indicator	
Function	Speech, Priority Speech, Earphone Volume Control (x2)	Speech, Earphone Volume Control (x2)
Finish	Case: ABS resin, black, matte finish, paint Speaker Net: Steel plate, black, matte finish, paint	
Dimensions (W x H x D)	208.9 x 71.3 x 160.5 mm	
Weight	880 g	875 g
Option	Microphone: TS-D1000-M1 (Standard), TS-D1000-M2 (Long)	

Model	TS-D1000-M1	TS-D1000-M2
Type	Electret Condenser Microphone	
Directivity	Unidirectional	
Rated Impedance	1.4 kΩ	
Rated Sensitivity	-37 dB (1 kHz 0 dB = 1V/Pa)	
LED Indicator	Speech Indicator (ring type) Red	
Frequency Response	100 Hz - 13 kHz	
Output Connector	Combined type of XLR-3-12C	
Finish	Gooseneck: Stainless steel, black / Other: ABS resin, black	
Length	518 mm	668 mm
Weight	110 g	125 g
Applicable Models	Chairman unit: TS-D1000-CU. Delegate Unit: TS-D1000-DU	

TS-D1000 Series Optional Accessories

» Sub Control Unit TS-D1000-SU



Model	TS-D1000-SU
Power Source	100 - 240 V AC, 50 / 60 Hz (use of the supplied AC adapter)
Power Consumption	80 W or less
No. of Connectable Units	48 units (Chairman / Delegate Units)
Chairman/Delegate Units Terminal	RJ45 connector x 3
Master/Sub Control Units Terminal	RJ45 connector x 2
Max. Cable Distance	50 m (between Sub Control Unit and terminal Chairman/Delegate Unit at end of daisy chain) *1
LED Indicator	Power indicator
Finish	Panel: Aluminum, black, 30% gloss, paint Case: Surface-treated Steel plate, black, 30% gloss, paint
Dimensions (W x H x D)	210 x 45.8 x 294.8 mm
Weight	1.6 kg
Accessory	AC adapter (Cord length: 1.8m) DC Cord and 2 m detachable AC Cord x 1, Connection cable (CAT5e STP, 1 m) x 1
Option	Rack mounting bracket: MB-15B-BK (to mount one unit) MB-15B-J (to mount two units)

(*1) Cable length can be extended to a maximum of 100 m with the use of the Extension Unit, TS-D1000-EX.

» Extension Unit TS-D1000-EX



Model	TS-D1000-EX
Power Source	100 - 240 V AC, 50 / 60 Hz (use of the supplied AC adapter)
Power Consumption	25 W or less
Connecting Terminal	RJ45 connector x 2
LED Indicator	Power indicator
Finish	ABS resin, white (RAL 9003 equivalent)
Dimensions (W x H x D)	124.3 x 100.3 x 35 mm
Weight	150 g
Accessory	AC adapter (Cord length: 1.8m) DC Cord and 2 m detachable AC Cord x 1

TS-920 / TS-820 Series Infrared Conference System

Key features:

- No worries about radio interference, eavesdropping, or information leakage, thanks to wireless system's IR communication method.
- Suitable for either permanent or temporary installation.
- Failure in one terminal unit does not affect other units.
- System can be controlled by external equipment via RS-232C and USB port.
- Individual control of units possible by assigning unit addresses.
- Exceptional sound quality
- Built-In audio recording on internal or external USB memory (TS-820RC/TS-920RC)
- Triple choice vote function for TS-920RC
- Bilingual conference capability.
- Built-In feedback suppressor for more efficient reduction of acoustic feedback.
- Stable and stylish hardware design.
- When speaker is on, chairman/delegate unit mic is turned off automatically to avoid feedback, and vice versa.

» Central Unit

TS-920RC

TS-820RC

TS-820



Model	TS-920RC	TS-820RC	TS-820
Power Source	100 - 240 V AC, 50/60 Hz (use of the supplied AC adapter)		
Power Consumption	72W		
Current Consumption	Max. 3 A DC (when 24 V DC is supplied from the accessory AC adapter)		
Carrier Frequency	Reception: Audio CH 1: 7.35 MHz, CH 2: 8.10 MHz, CH 3: 8.55 MHz, CH 4: 9.15 MHz, Control CH: 6.45 MHz Transmission: Base language CH: 1.95 MHz Translation language CH: 2.25 MHz	Reception: Audio CH 1: 7.35 MHz, CH 2: 8.10 MHz, CH 3: 8.55 MHz, CH 4: 9.15 MHz, Control CH: 6.45 MHz Transmission: Audio CH: 1.95 MHz	
Input	MIC 1 (Base language) & MIC 2 (Translation language): -60 dBV, 600 Ω, unbalanced, Ø 6.3 mm phone jack (2P) AUX 1 (Base language), AUX 2 (Translation language) & AUX 3 (Base and Translation Language): -20 dBV, 10 kΩ, unbalanced, Ø 6.3 mm phone jack (2P)	MIC: -60 dBV, 600 Ω, unbalanced, Ø 6.3 mm phone jack (2P) AUX: -20 dBV, 10 kΩ, unbalanced, Ø 6.3 mm phone jack (2P)	
Output	LINE: -10 dBV, 10 kΩ, unbalanced, Ø 6.3 mm phone jack (2P) / REC: -10 dBV, 10 kΩ, unbalanced, RCA pin jack HEADPHONES: Ø 3.5 mm mini jack (3P; monaural)		
Equalizer Input/Output	Input: -20 dBV, 10 kΩ, unbalanced, RCA pin jack / Output: -20 dBV, 10 kΩ, unbalanced, RCA pin jack		
No. of Connectable units	192 units (Chairman / Delegate Units)	64 units (Chairman / Delegate Units)	
No. of Connectable Infrared Transmitter / Receiver Units	Up to 4 units (with the use of distributor, up to 16 units connectable when they are all TS-905 and up to 12 units when they are all TS-907 or TS-905 & TS-907 are used in combination)		
Infrared Transmitter / Receiver I/O Terminal	BNC jacks		
External Control Connection Terminal	D-sub connector (9P, male) / USB-B selectable		
LED Indicator	Audio signal receiving 1-4CH, Data signal receiving, External control priority, External control communication, Battery (flashes when unit's battery nears complete discharge), Short-circuit		
	Voting result indicators 1-3 (7-segment LED, 3 digits), Recording status, Format in-progress, Access, Internal memory status, USB memory status, Remaining internal memory capacity warning, Remaining USB memory capacity warning		-
Record Switch	Recording start button, Recording stop button, Format button		-
Record Ports	USB-A (for USB memory devices) and USB mini-B (for PCs)		-
Record Function	Recordings can be made to a USB memory device*2 or the internal memory. Recording format: MP3 (MPEG-1 Audio Layer-3), monaural Sampling Frequency: 32 kHz, Bit rate: 128 kbps		-
Function Switch	Number of open microphones setting switch: 1 / 2 / 3 / 4 Mic-off setting switch: TIME Out ON / OFF Speech priority selector switch: FIRST / LATEST / FIRST:FIXED NEXT:LATEST FBS switch: AUTO / OFF / TEXT		
Finish	Panel: Surface-treated steel plate, black, 30 % gloss, paint		
Weight	2.8 kg		2.7 kg
Accessory	AC Adapter (Cord Length: 1.8 m) DC Cord, and 2 m detachable AC Cord (*1)		
Option	Rack Mounting Bracket: MB-TS920		

(*1) Not supplied with the TS-920RC, TS-820RC, TS-820. For the usable power supply cord and AC adapter, contact your nearest TOA dealer

(*2) A USB 2.0 compatible FAT32-formatted flash memory device of up to 32 GB in capacity can be used.

There may be cases in which a USB flash drive cannot be used with the TS-920RC, TS-820RC, depending on the drive's attributes or recording conditions.

» Infrared Chairman Unit

TS-921



» Infrared Delegate Unit

TS-922



» Infrared Chairman Unit

TS-821



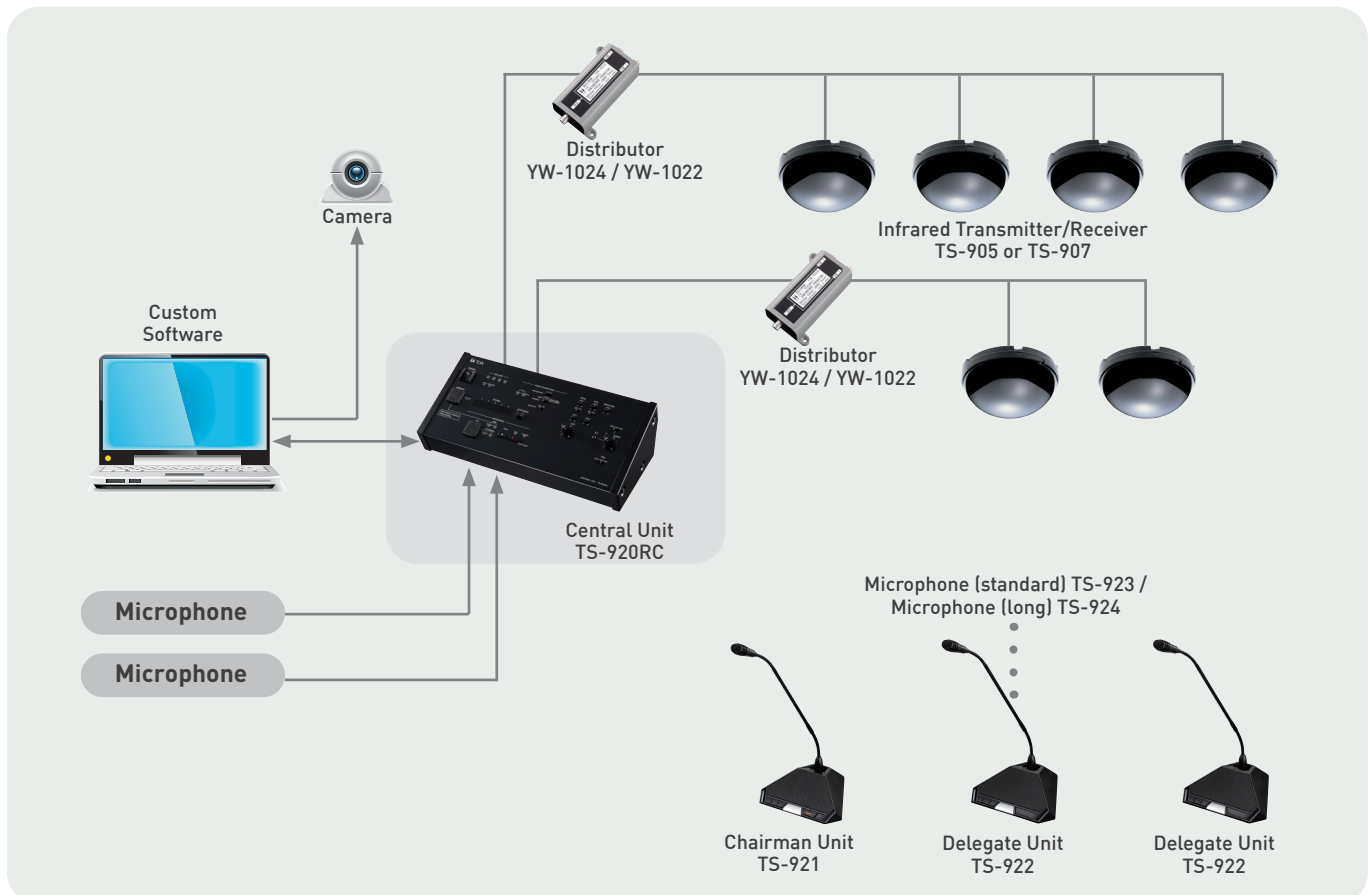
» Infrared Delegate Unit

TS-822



Model	TS-921	TS-922	TS-821	TS-822
Power Source	Supplied from optional lithium-ion battery or AC adapter)			
Current Consumption	Max. 390 mA			
Infrared Emitter / Detector	870 nm (AM: Brightness modulation)			
Wavelength				
Modulation Method	Frequency modulation			
Carrier Frequency	Transmission: Audio CH 1: 7.35 MHz, CH 2: 8.10 MHz, CH 3: 8.55 MHz, CH 4: 9.15 MHz, Control CH: 6.45 MHz		Transmission: Audio CH 1: 7.35 MHz, CH 2: 8.10 MHz, CH 3: 8.55 MHz, CH 4: 9.15 MHz, Control CH: 6.45 MHz	
	Reception: Base language CH: 1.95 MHz, Translation language CH: 2.25 MHz		Reception: Audio CH: 1.95 MHz	
Covering Range	7 m (radius)			
Input	Microphone Terminal XLR-4-31 type			
Output	Monitor speaker: 8 Ω, 0.2 W / Headphone: Ø 3.5 mm mini jack (3P: Monaural) x 2			
LED Indicator	Speech, Voting status 1-3, Power		Speech, Power indictor	
Function	Monitor volume control, Headphone volume control, Voting, Monitor selector switch (MAIN/SUB)		Monitor volume control, Headphone volume control	
	Priority speech	-	Priority speech	-
Battery Life	Approx. 10 hours			
Finish	Case: PC resin, black / Speaker Net: Steel plate, black, matte finish, paint			
Dimension	205.7 x 70.3 x 164.2 mm			
Weight	525 g			
Option	Microphone: TS-923, TS-903, TS-924, TS-904 (either one) / Lithium-ion Battery: BP-920, BP-900A / AC Adapter: AD-0910			

TS-920 Series System Configuration



TS-920 / TS-820 Series Optional Accessories

»» Standard Microphone Unit
TS-923 / TS-903

»» Long Microphone Unit
TS-924 / TS-904



Model	TS-923	TS-924	TS-903	TS-904
Type	Electret Condenser Microphone, Unidirectional			
Rated Impedance	1.4 kΩ		1.8 kΩ	
Rated Sensitivity	-37 dB (1 kHz, 0 dB = 1 V/Pa)			
LED Indicator	Speech (ring type) Red			
Frequency Response	100 Hz - 13 kHz			
Output Connector	Combined type of XLR-4-12C			
Flexible Part	2 parts		1 part	
Finish	Body: Aluminum, Black, Semi-Gloss, Paint / Shaft: Copper Alloy, Black, Semi-Gloss, Paint		Gooseneck: Stainless Steel, Black / Other: ABS resin, Black	
Length	470 mm	620 mm	368 mm	518 mm
Weight	130 g	150 g	90 g	105 g
Applicable Models	Chairman/Delegate Units: TS-921 / TS-922 / TS-821 / TS-822			

»» Infrared Transmitter / Receiver
TS-905 / TS-907



Model	TS-905	TS-907
Power Source	24 V DC (supplied from the optional TS-920RC, TS-820RC or TS-820)	
Current Consumption	Max. 150 mA	Max. 180 mA
Infrared Emitter/Detector	870 nm (AM: Brightness modulation)	
Wavelength	Frequency modulation	
Modulation Method	Transmission: Audio CH 1: 7.35 MHz, CH 2: 8.10 MHz, CH 3: 8.55 MHz, CH 4: 9.15 MHz, Control Channel: 6.45 MHz	
Carrier Frequency	Reception: Base language CH: 1.95 MHz, Translation language CH: 2.25 MHz	
Acceptance/Emission Angle	Vertical: 150° (75°+75°), Horizontal: 360°	Vertical: 90° (45°+45°), Horizontal: 360°
Communication Area	Approx. 6-7m radius from the point underneath the unit (ceiling height: 2.5-4.5m)	Approx. 6m radius from the point underneath the unit (ceiling height: 5-7m)
Connection Terminal	BNC jack	
LED Indicator	Power	
Finish	Dome: PC resin, visible light cut filter / Base: ABS resin, black	
Dimensions (ø x H)	ø 1120 x 71.3 mm	
Weight	230 g (unit only)	
Option	Microphone Stand (the mounting thread size must be U5/16 or NS5/8)	

»» RF Distributor
YW-1022



Frequency Response: 1.6 - 1 kHz (excluding 50-70 MHz)
Distribution Loss: 4.5 dB ±3 dB (between the mixing and each distribution terminals)
Input/Output Impedance: 75 Ω
Coaxial Connector: Mixing terminal: BNC jack, power passing type (30 V DC or less, 2 A or less), Distribution 1 and 2 terminals: BNC jack, power passing type (30 V DC or less, 1 A or less)
Finish: ABS resin, gray
Dimensions (WxHxD): 75 x 122 x 34 mm
Weight: 105 g

»» RF Distributor
YW-1024



Frequency Response: 1.6 - 1 kHz (excluding 50-70 MHz)
Distribution Loss: 8.5 dB ±3 dB (between the mixing and each distribution terminals)
Input/Output Impedance: 75 Ω
Coaxial Connector: Mixing terminal: BNC jack, power passing type (30 V DC or less, 2 A or less), Distribution 1-4 terminals: BNC jack, power passing type (30 V DC or less, 1 A or less)
Finish: ABS resin, gray
Dimensions (WxHxD): 75 x 122 x 34 mm
Weight: 120 g

»» Rechargeable Lithium Ion Battery
BP-920



Nominal Voltage: 7.4 V DC
Nominal Capacity: 1700 mAh
Dimensions (WxHxD): 71.6 x 20.4 x 37.6 mm
Weight: 82 g

»» Battery Charger
BC-920



Power Source: 100 - 240 V AC, 50/60 Hz (supplied from AC Adapter)
Current Consumption: Max. 1.4 A
Charging Time: Approx. 5 hours
Charging Capacity: 8 BP-900A batteries
Finish: Case: Steel, Black, paint / Battery Receptacles: PPO resin, black
Dimension (WxHxD): 240 x 70 x 115 mm
Weight: 1.1 kg
Accessory: AC Adapter x 1

»» Rack Mounting Bracket
MB-TS920



Finish: Surface-treated Steel Plate, black, 30% gloss, paint
Dimensions (WxHxD): 65.5 x 177 x 61 mm
Weight: 680 g
Accessory: Rack Mounting Screw x 4, Rack Mounting Washer x 4

»» AC Adapter
AD-0910



Power Source: 100 - 240 V AC, 50/60 Hz
Output: 9 V DC, 1 A
Ripple Voltage: 200 mV (p-p)
Power Consumption: 400 mA AC, Input 100 V
Cord Length: 1.8 m
Plug: RC6705, center "+"
Finish: Case: Resin, Black
Weight: 150 g
Accessory: AC Power Cord (2 m)



TS-780 / TS-690 Series

» Central Unit

TS-780

TS-690



Model	TS-780	TS-690
Power Source	220 - 240 V AC, 50/60 Hz	
Power Consumption	60 W	20 W
Rated Output	36 V DC, 650 mA x 2	36 V DC, 480 mA
Input	MIC: -60 dBV, 600 Ω, unbalanced, phone jack AUX: -20 dBV, 10 kΩ, unbalanced, phone jack	Selectable MIC or AUX Mic: -60dBV, 600 Ω, unbalanced, phone jack AUX: -20 dBV, 10k Ω, unbalanced, phone jack
Output	Recording: -20 dBV, 10 kΩ, unbalanced, phone jack, pin jack x 2 / Headphone: Mini jack	Recording: -20dBV, 10k Ω, unbalanced, RCA jack
Equalizer Insertion Input Terminal	Input: 0 dBV, 10 kΩ, pin jack / Output: 0 dBV, 10 kΩ, pin jack	-
Expansion Input and Output Terminal	Input / Output: 0 dBV, 10 kΩ, unbalanced, pin jack x 2 Control: 10 kΩ or more, voltage output, pin jack x 2	-
No. of connectable Units	64 (Max. 192) (Chairman/Delegate units)	Max. 24 units (Chairman/Delegate units)
Control	Priority Speech Chime Speaker Restriction Automatic Mic-Off Feedback Suppressor Operation of TS-781 priority button activates a single-tone chime No. of simultaneous-usable TS-782 can be set to 0 - 4 Off, 30 sec. (selectable) EXT, OFF, Auto, Manual mode (selectable) MP3 recording and playback Test Function	Operation of TS-691L-AS priority button activates a single-tone chime No. of simultaneous-usable TS-692L-AS can be set to 0 - 3 Off, 30 sec. (selectable) - -
Finish	Panel: Aluminum, black, 30% gloss, paint / Case: Steel plate, black, 30% gloss, paint	
Dimensions (W x H x D)	420 x 96.1 x 226.2 mm	420 x 96.1 x 222.5 mm
Weight	3 kg	2.7 kg

» Chairman Unit / Delegate Unit

TS-781

TS-782



Model	TS-781	TS-782
Power Source	36 V DC, 30 mA or less (supplied from Central Unit TS-780)	
Output	Headphone/Recording: 32 Ω (headphone) / 10 kΩ, -20 dBV (recording), unbalanced, mini jack (with VR) x 2 Internal Speaker: 130 Ω, 200 mW (with Volume control)	
Control	Speech Priority	Microphone, speaker on-off control by speech switch
	Mic, speaker on-off, other mic cut off and single-tone chime activation	-
Finish	Upper case: ABS resin, silver metallic, paint / Lower case: ABS resin, black	
Dimensions (W x H x D)	145.3 x 70.7 x 150.5 mm	
Weight	800 g	
Option	Microphone: TS-773 (Standard), TS-774 (Long)	

» Chairman Unit with Long Microphone / Delegate Unit with Long Microphone

TS-691L

TS-692L



» Booster Unit
TS-690BS



Model	TS-691L	TS-692L
Power Source	36 V DC, 30 mA or less (supplied from Central Unit TS-690-AS)	
Output	Headphone/Recording: Ø 3.5 mm, mini jack (3P: monaural) Internal Speaker: 130 Ω, 200 mW	
Control	Speech Volume Control Priority	Microphone, speaker on-off control by speech button Headphone/Recording and internal speaker volume adjustable Mic, speaker on-off, other mic cut off and single-tone chime activation by priority button
Microphone Unit	Electret condenser, Unidirectional	
Impedance	1.8 kΩ	
Sensitivity	-37 dB (1kHz, 0 dB = 1V/Pa)	
Frequency Response	100 Hz - 13 kHz	
Length / Weight	518 mm / 105 g	
Finish	Upper case: ABS resin, metallic grey, paint / Lower case: ABS resin, black	
Dimensions (W x H x D)	145.3 x 70.7 x 150.5 mm (excluding microphone unit)	
Weight	800 g (excluding microphone unit)	
Accessory	Long microphone unit x 1	

» Standard Microphone Unit / Long Microphone Unit

TS-773 / TS-774



Model	TS-773	TS-774
Type	Electret Condenser Microphone, Unidirectional	
Rated Impedance	1.8 kΩ	
Rated Sensitivity	-37 dB (1 kHz, 0 dB = 1 V/Pa)	
Frequency Response	100 Hz - 13 kHz	
Finish	Gooseneck: Stainless Steel, Black / Other: ABS resin, Black	
Length	368 mm	518 mm
Weight	90 g	105 g
Applicable Models	Chairman/Delegate Units: TS-691L / TS-692L / TS-781 / TS-782	

» Extension Cord
for TS-780 and TS-690

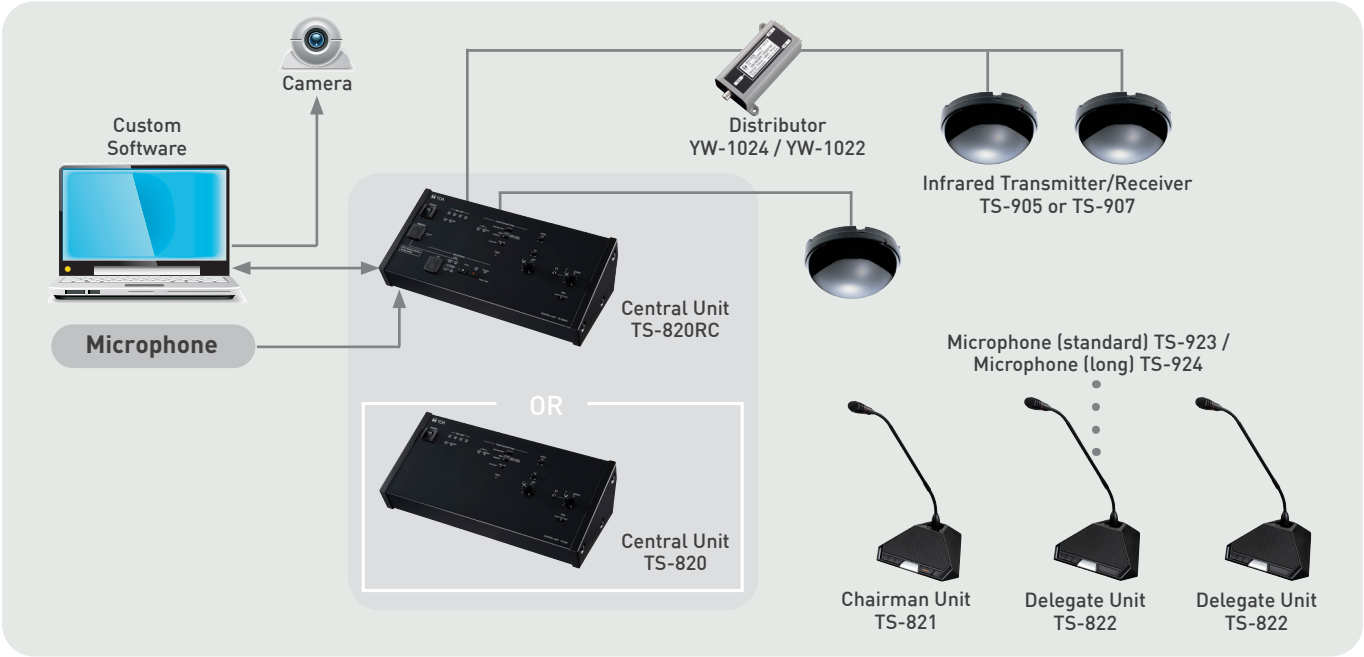
YR-780-2M
YR-780-10M



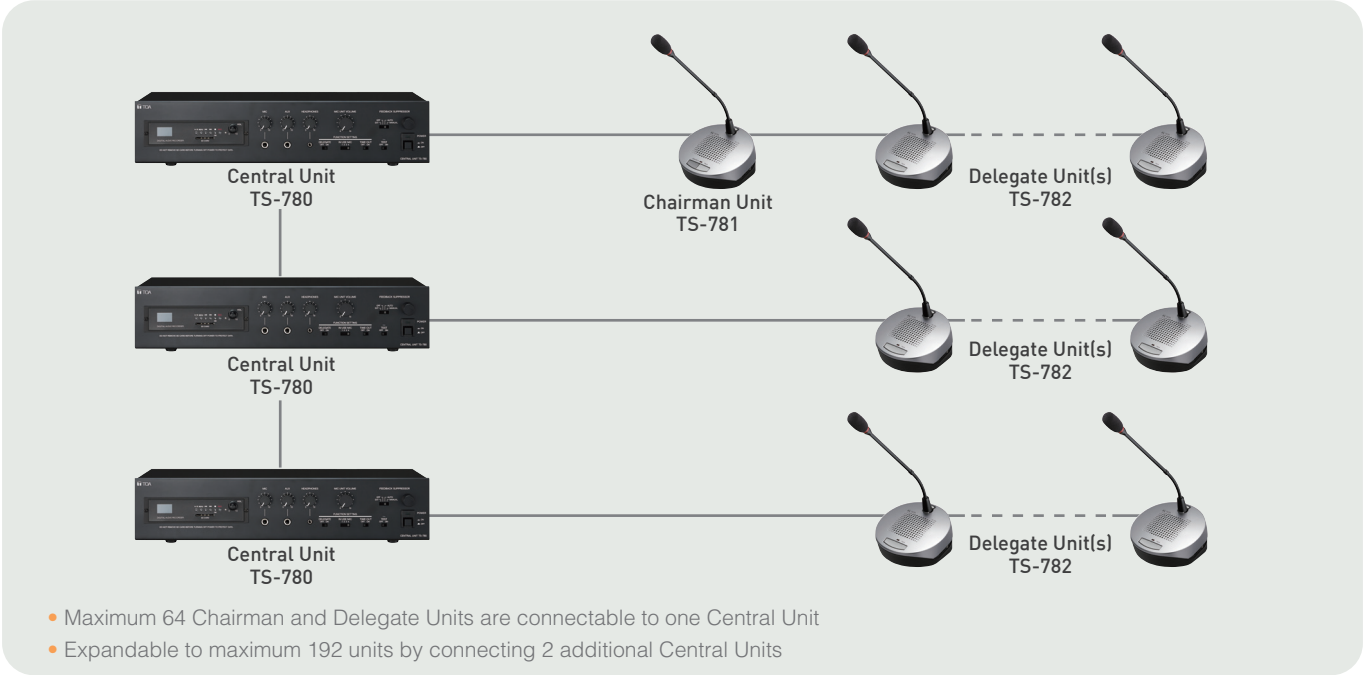
Cable Length: 2 m / 10 m
Connector: 8 pins DIN socket x 1 (going to base of unit), 8 pins DIN plug x 1 (going to the cord)

TS-820 / TS-780 / TS-690 Series System Configuration

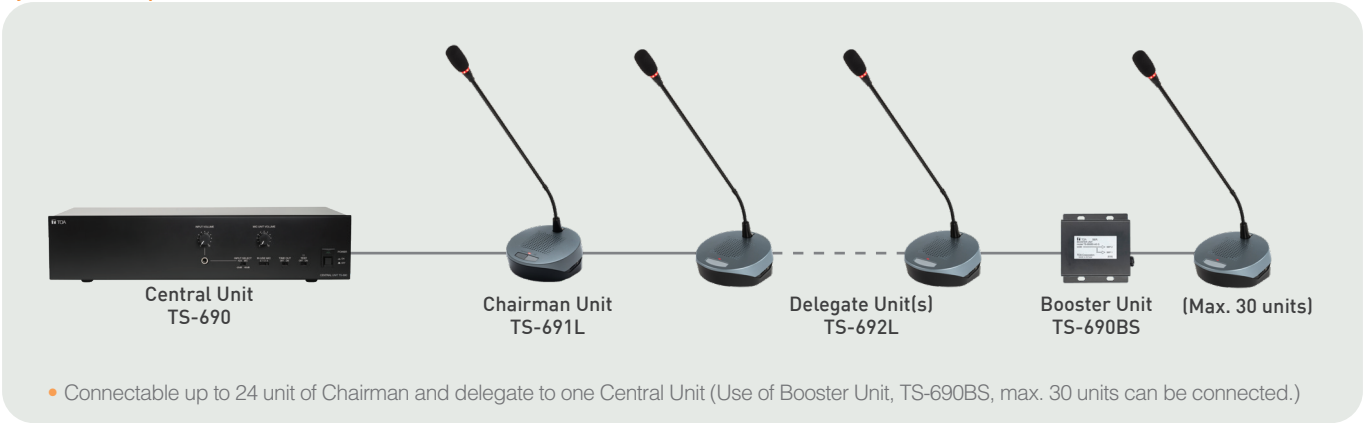
System Example for TS-820 Series



System Example for TS-780 Series



System Example for TS-690 Series



Microphones (Wireless)

D5000 Series Digital Wireless Mircophone System

»» Handheld Transmitter WM-D5200



»» Beltpack Transmitter WM-D5300



Model	WM-D5200	WM-D5300
Microphone Element	Electret condenser unit: Unidirectional	-
Modulation Type	FSK	
Frequency Range	606 - 636 MHz, 798 - 832 MHz, 694 - 703 MHz or 576 - 606 MHz	
Channel Selectable	160 channels (The number of channels may differ from country to country.)	
RF Carrier Power	Less than 50 mW	
Maximum Input Level	132 dB SPL (Sensitivity: L) / 122 dB SPL (Sensitivity: H)	-18 dBV (Sensitivity: L) / -28 dBV (Sensitivity: H)
Audio Frequency Response	100 Hz - 12 kHz	
Antenna	Built-in type	Lambda/4 whip antenna
Dynamic Range	Typ. 90 dB (when used with WT-D5800)	-
ID Selectable	10 patterns	
Battery	WB-2000* rechargeable battery (option) or AA Alkaline dry cell battery	
Battery Life	Approx. 8 hours	
Finish	Body: ABS resin, black, coating / Head: steel, black, paint	Body: ABS resin, black, paint
Dimensions (W x H x D)	ø 47 x 239.5 mm	C04/C07 ver.: 62(W) x 171(H) x 19(D) mm G01 ver.: 62(W) x 185(H) x 19(D) mm
Weight	220 g (with battery)	90 g (with battery)
Option	Battery charger: BC-2000* Ni-MH Battery: WB-2000-2*	Battery charger: BC-2000 / Ni-MH Battery: WB-2000-2 Unidirectional lavalier microphone: YP-M5300 Omnidirectional lavalier microphone: YP-M5310 Headset microphone: WH-4000A, WH-4000H

* Note: Cannot be used in the USA and Canada

»» Receiver WT-D5800

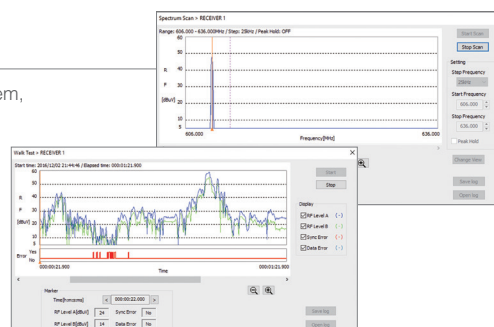


Model	WT-D5800
Power Source	AC mains (supplied AC adapter must be used)
Current Consumption	350 mA (13.5 V)
Receiving Frequency	606 - 636 MHz, 798 - 832 MHz, 694 - 703 MHz or 576 - 606 MHz
Channel Selectable	160 selectable frequencies
Receiving System	Double super-heterodyne
Diversity system	Space diversity (digital diversity)
Mixing Output	MIC/LINE (selectable): -60 dBV (MIC)/-20 dBV (LINE), 600 Ω phone jack (unbalanced), 600 Ω XLR-3-32 type connector (balanced)
Mixing Input	-20 dBV, 10 kΩ, unbalanced, phone jack
Antenna Input	75 Ω, BNC (phantom powering for antenna), 9 V DC, 30 mA (max)
Antenna Output	75 Ω, BNC (Gain 0 dB)
Contact Output	1 channel, no-voltage make contact output, withstand voltage: 30 V DC, control current 0.5 A max terminal block (2 pins)
Receiving Sensitivity	24 dBμV or less (Bit error rate: 1E-5 or less)
Antenna Input Attenuator	0 dB/-10 dB switchable
Indicator	Audio (5 steps), RF (5 steps), ANT A/B, Audio (peak), Battery alarm
Frequency Response	50 Hz - 12 kHz
Total Harmonic Distortion	0.5 % or less
Function	Frequencies scanning, Feedback suppressor, Equalizer (optimizing each compatible microphone)
ID Selectable	10 patterns
Finish	Resin, black
Dimensions (W x H x D)	210 x 44 x 211.9 mm
Weight	730 g
Option	Rack mounting bracket kit: MB-WT3 (to mount one unit) MB-WT4 (to mount two units)

Maintenance Software

Maintenance Software, which supports setup and better operation of D5000 digital wireless system, is available on TOA DATA LIBRARY: (www.toa-products.com/international/)

- Simultaneous status check of up to 16 receivers is possible.
- Walk-Test function allows you to check the antennas' reception level in the entire room where the microphone is used.
- Channel Scan displays unused frequency channels.
- Spectrum Scan visualizes the level and frequency of undesired signals in the specified frequency range.



**Please refer to specification sheet for detailed information.

Wireless Microphone Systems

WS-400 Series Wireless Microphone Systems

Key features:

- Available in dual channel and single channel models
- Handheld Microphone and beltpack provides up to 10 hours continuous usage with the use of only 1 x AA battery ensuring long term cost efficiency
- Long operating range of approx. 100 m (line of sight)
- IR Sync
- Single Channel: Selectable Up to 4 simultaneous channels
* depending on region
- Dual Channel: Selectable Up to 16 simultaneous channels
* depending on region

» Single Channel Wireless Microphone System

WS-420
WS-430



Model	WS-420	WS-430
Product Composition	Handheld Wireless Microphone x 1, Receiver x 1	Wireless Transmitter x 1, Receiver x 1, Lavalier Microphone x 1
Frequency Range	UHF band (633 - 671, 803 - 806 MHz)	
Channel Selectable	4 channels	
Tunable Frequencies	25kHz Steps	
Pilot Tone	32.768kHz	
Total Harmonic Distortion	<1% @ 1kHz	
Function	IR Sync, Channel Scan, Battery Indicator	
Accessories	AC Adapter x 1, Microphone Holder x 1	AC Adapter x 1, Screw Driver x 1, Lavalier Microphone x 1
Microphone / Transmitter		
Microphone unit	Dynamic with cardioid pattern	Back electret condenser, Omni-directional
RF Carrier Power	10 mW	
Audio Frequency Response	80 - 15 kHz	50 - 15 kHz
Audio input Level	140 dB SPL (maximum)	-6 dBV (maximum), mic gain 0 dB
Modulation System	PLL synthesizer	
Battery	1 AA size alkaline battery, 1.5 V	
Battery Life	approx. 10 hours	
Indicator	Battery status LED, 7 segments LED	
Finish	Resin, coating	
Dimensions (W x H x D)	approx. 250 x 50 mm	62 x 100 x 25 mm (with clip)
Weight	approx. 245 g (with battery)	approx. 85 g (with battery)
Receiver		
Diversity Reception	AC mains (supplied AC-DC adapter must be used)	
Sensitivity	10 uV at 45 dBA S/N	
Squelch (SQ)	Tone SQ, Carrier SQ, Noise SQ	
Audio Frequency Response	50 Hz - 15k Hz	
Audio Output Level (Maximum)	Balanced (XLR socket) : -20 dBu Unbalanced (1/4" jack socket) : 10 dBu	
Power Supply	11-18 V DC 300 mA	
Dimensions (W x H x D)	215 x 39 x 102 mm (excluding antenna and BNC)	
Weight	480 g	



» Dual Channel Wireless Microphone System

WS-402

WS-422

WS-432



Model	WS-402		WS-422	WS-432
Product Composition	Handheld Wireless Microphone x 1, Wireless transmitter x 1, Receiver x 1, Lavalier Microphone x 1		Handheld Wireless Microphone x 2, Receiver x 1	Wireless Transmitter x 2, Receiver x 1, Lavalier Microphone x 2
Frequency Range	UHF band (633 - 671, 803 - 806 MHz)			
Channel Selectable	Up to 16 channels (depending on region)			
Tunable Frequencies	25kHz Steps			
Pilot Tone	32.768kHz			
Total Harmonic Distortion	<1% @ 1kHz			
Function	IR Sync, Channel Scan, Battery Indicator			
Accessories	AC Adapter x 1, Microphone Holder x 1, Screw Driver x 1, Lavalier Microphone x 1		AC Adapter x 1, Microphone Holder x 2	AC Adapter x 1, Screw Driver x 1, Lavalier Microphone x 2
Microphone / Transmitter				
Microphone unit	(Microphone) Dynamic with cardioid pattern (Transmitter) Back electret condenser, Omni-directional		Dynamic with cardioid pattern	Back electret condenser, Omni-directional
RF Carrier Power	10 mW			
Audio Frequency Response	(Microphone) 80 - 15 kHz (Transmitter) 50 - 15 kHz		80 - 15 kHz	50 - 15 kHz
Audio input Level	(Microphone) 140 dB SPL (maximum) (Transmitter) -6 dBV (maximum), mic gain 0 dB		140 dB SPL (maximum)	-6 dBV (maximum), mic gain 0 dB
Modulation System	PLL synthesizer			
Battery	1 AA size alkaline battery, 1.5 V			
Battery Life	approx. 10 hours			
Indicator	Battery status LED, 7 segments LED			
Finish	Resin, coating			
Dimensions (W x H x D)	(Microphone) approx. 250 x 50 mm (Transmitter) 62 x 100 x 25 mm (with clip)		approx. 250 x 50 mm	62 x 100 x 25 mm (with clip)
Weight	(Microphone) approx. 245 g (with battery) (Transmitter) approx. 85 g (with battery)		approx. 245 g (with battery)	approx. 85 g (with battery)
Receiver				
Diversity Reception	AC mains (supplied AC-DC adapter must be used)			
Sensitivity	10 uV at 45 dBA S/N			
Squelch (SQ)	Tone SQ, Carrier SQ, Noise SQ			
Audio Frequency Response	50 Hz - 15k Hz			
Audio Output Level (Maximum)	Balanced (XLR socket) : 16 dBu Unbalanced (1/4" jack socket) : 10 dBu			
Power Supply	11-18 V DC 500 mA			
Dimensions (W x H x D)	210 x 44 x 202 mm (excluding antenna)			
Weight	720 g			
Optional Accessory	Mounting Bracket Kit: MB-WT3 (for racking mounting one unit) / MB-WT4 (for rack mounting two units)			

WS-400 Series Optional Accessories

» Ear-Hook Microphone

YP-MS4E



Type: Electret Condenser type, Omnidirectional
Frequency Response: 20 Hz - 20 kHz
Sensitivity: -67 dB ±3 dB (0 dB = 1V/0.1 Pa, 1 kHz)
Max. Input Level: 115 dB SPL, 1 kHz at 1%
Cord Length: 1.3 m
Terminal: ø 3.5 mm Stereo plug
Finish: Beige color
Weight: 16 g (cable included)

» Headset Microphone

YP-MS4H



Type: Electret Condenser type, Omnidirectional
Frequency Response: 20 Hz - 20 kHz
Sensitivity: -67 dB ±3 dB (0 dB = 1V/0.1 Pa, 1 kHz)
Max. Input Level: 115 dB SPL, 1 kHz at 1%
Cord Length: 1.3 m
Terminal: ø 3.5 mm Stereo plug
Finish: Beige color
Weight: 23 g (cable included)

UHF Wireless System and Optional Accessories

»» UHF Press-Talk Wireless Microphone WM-5420



Model	WM-5420
Emission	F3E
Frequency Range	636 - 666MHz, 794 - 806MHz, UHF
Channel Selectable	64 channels (No. of CH may differ from country to country)
Tone Frequency	32.768 kHz
Oscillator	PLL synthesized
RF Carrier Power	10 mW
Modulation Sensitivity	±4.8 kHz
Maximum Input Level	132 dB SPL (±38 kHz Dev.)
EXT Mic Input Level	-45 dB* (1 kHz ±4.8 kHz Dev.)
Microphone Element	Unidirectional Electret Condenser Microphone
Frequency Response	200 Hz ~ 12 kHz
Preamphasis	50us
Antenna	Built-In type

Battery	AA alkaline battery x 1
Battery Life	approx. 10 h (when the alkaline battery is used)
Function	A/B channels function SW, Talk SW lock, Mic sensitivity Lo/Hi SW Chim function SW, Battery life indicator, AUX microphone input
Finish	ABS Resin, coating
Weight	105 g (with battery)
Dimensions (W x H x D)	74 x 184 x 20 mm
Accessories	Clip x 1, Neck strap x 1, Screw driver x 1
Options	Headset microphone: YP-M301 Close-Talking microphone: YP-M201 Tie-Clip microphone: YP-M101 Tuners: WT-5800, WT-5805 or WT-5810

* 0 dB = 0.775 V

»» UHF Hand-Held Wireless Microphone WM-5270 / WM-5265 / WM-5225



Model	WM-5270	WM-5265	WM-5225
Microphone Element	Dynamic microphone: Unidirectional		Electret condenser microphone: Unidirectional
Frequency Range	576 - 865 MHz*, UHF		
Channel Selectable	64 channels (No. of CH may differ from country to country)		
RF Carrier Power	Less than 50 mW (factory preset 10 mW ERP)		
Maximum Input Level	142 dB SPL	132 dB SPL	126 dB SPL
Max. Deviation	±40 kHz		
Audio Frequency Response	80 Hz - 15 kHz	100 Hz - 15 kHz	
Dynamic Range (AF Circuit)	95 dB or more (with WT-5800)		
Battery	AA Alkaline Dry Cell Battery	AA Alkaline Dry Cell Battery or WB-2000 (Ni-MH battery)	
Finish	Metal, Dark Grey	Resin, coating	
Dimensions (ø x L)	ø 48 x 244 mm	ø 50 x 229 mm	ø 43.6 x 231.5 mm
Weight	340 g (with battery)	205 g (with battery)	180 g (with battery)
Accessories	Microphone holder (with stand adapter), Storage case, Rolling stopper	Microphone holder (with stand adapter), Storage case, Screw driver	Microphone holder (with stand adapter), Storage case, Screw driver

* Frequency range dependent on individual country regulatory codes.

»» UHF Wireless Transmitter WM-5325



Model	WM-5325
Frequency Range	576 - 937.5 MHz*, UHF
Channel Selectable	64 channels (No. of CH may differ from country to country)
Tone Frequency	32.768 kHz
Oscillator	PLL synthesized
RF Carrier Power	Less than 50 mW (factory preset 10 mW ERP)
Maximum Input Level	-14 dB to -29 dBV (Audio level control: Min. to Max.)
Max. Deviation	±40 kHz
Audio Frequency Response	200 Hz ~ 12 kHz
Battery	WB-2000 Rechargeable battery or AA alkaline battery
Battery Life	approx. 13 h (use of WB-2000) approx. 10 h (use of AA battery)

Antenna	Built-In type
Connector	ø 3.5 mm mini plug
Finish	Resin, coating
Weight	90 g (with battery)
Dimensions (W x H x D)	62 x 102.5 x 23 mm
Accessories	Storage case x 1, Neck strap x 1, Screw driver x 1
Options	Headset microphone: WH-4000A, WH-4000H Lavalier microphone: YP-M5300, YP-M5310 Battery Charger: BC-5000-2, BC-5000-6, BC-5000-12 Ni-MH Battery: WB-2000-2

* Frequency range dependent on individual country regulatory codes.



»» Unidirectional Lavalier Microphone

YP-M5300



»» Omnidirectional Lavalier Microphone

YP-M5310



»» Headset Microphone

WH-4000H



»» Headset Microphone

WH-4000A



Model	YP-M5300	YP-M5310	WH-4000H	WH-4000A
Type	Electret Condenser type			
Directivity	Unidirectional	Omnidirectional	Unidirectional	Unidirectional
Sensitivity	-63 dB ±3 dB (0 dB = 1 V/0.1Pa, 1kHz)	-64 dB ±3 dB (0 dB = 1 V/0.1Pa, 1kHz)	-66 dB ±3 dB (0 dB = 1 V/0.1Pa, 1kHz)	-66 dB ±3 dB (0 dB = 1 V/0.1Pa, 1kHz)
Frequency Response	100 Hz – 12 kHz	100 Hz – 15 kHz	-	
Max. Input Level	120 dB SPL	110 dB SPL	120 dB SPL	
Cable Length	1.3 m			
Terminal	ø 3.5 mm mini plug		ø 3.5 mm monaural plug	
Weight	20 g (cable included)		50 g (cable included)	
Finish	Dark Black		Frame: Stainless Steel, Black (silicon rubber) Gooseneck: Black (shrink tube)	Headband: EVA, Black Frame: Stainless Steel, Black (silicon rubber) Gooseneck: Black (shrink tube)

Note: WH-4000H and WH-4000A are expendable items. No warranty is provided for any trouble except incipient failure.
Windscreen is also available as optional parts.

»» Ear-Hook Microphone

YP-M5000E



Type: Electret Condenser type, Omnidirectional
Frequency Response: 20 Hz - 20 kHz
Sensitivity: -67 dB ±3 dB (0 dB = 1V/0.1 Pa, 1 kHz)
Max. Input Level: 115 dB SPL, 1 kHz at 1%
Cord Length: 1.3 m
Terminal: ø 3.5 mm Stereo plug
Finish: Beige color
Weight: 14 g (cable included)

»» Headset Microphone

YP-M5000H



Type: Electret Condenser type, Omnidirectional
Frequency Response: 20 Hz - 20 kHz
Sensitivity: -67 dB ±3 dB (0 dB = 1V/0.1 Pa, 1 kHz)
Max. Input Level: 115 dB SPL, 1 kHz at 1%
Cord Length: 1.3 m
Terminal: ø 3.5 mm Stereo plug
Finish: Beige color
Weight: 21 g (cable included)

»» Microphone Waist Holder

WH-4000P



Length: 800 mm
Finish: Elastic cloth, Black
Applicable Models: UHF Wireless Microphone:
 WM-4310A, WM-4310H

»» Microphone Windscreen (10pcs/set)

WH-4000S



Finish: Urethane form, Black
Applicable Models: Headset Microphones:
 WH-4000H, WH-4000A, WM-5320A, WM-5320H
Personal PA System: ER-1000

»» UHF Portable Receiver

WT-5100



Model	WT-5100
Power Source	1.5 V DC (Battery)
Frequency Range	576 - 865 MHz, UHF
Channel Selectable	16 selectable frequencies
Receiving System	Double Super-heterodyne
Receiving Sensitivity	60 dB or more S/N ratio (20 dB µV input, ±40 kHz deviation)
Frequency Response	200 Hz - 5 kHz (portable transmitter to portable receiver)
De-emphasis	50 µs
Output Level	4 mW (16 Ω load, 10 % distortion)
Battery	WB-2000 Rechargeable battery or AA alkaline battery

Battery Life	approx. 16 h (use of WB-2000) approx. 15 h (use of AA battery)
Finish	Resin, Dark silver
Weight	125 g (with battery)
Dimensions (W x H x D)	62 x 163.6 x 32.5 mm
Accessories	Neck strap x 1
Options	Assist Earphone: YP-E5000 Ear-Suspension Earphone: YP-E401 Battery Charger: BC-5000-2, BC-5000-6, BC-5000-12 Ni-MH Battery: WB-2000-2

Note: When using an earphone not made by TOA, use the one with a ø3.5 mm plug and impedance of over 16Ω.

»» Ear Suspension Earphone

YP-E401



Type: Dynamic type
Impedance: 16 Ω
Frequency Response: 300 Hz - 15 kHz
Rated Sensitivity: 88 dB (0dB = 2x10 Pa, 1kHz, 10mW)
Input: Max. 50 mW
Terminal: ø 3.5 mm monaural plug
Finish: Black
Weight: 17 g
Accessory: Ear-pad x 1, Suspension ring x 2



» UHF Wireless Tuner

WT-5800
WT-5805
WT-5810
WT-4820



Model	WT-5800		WT-5805	WT-5810		WT-4820
Power Requirement	AC mains (supplied AC Adapter must be used)					
Frequency Range	576 - 865 MHz, UHF					576 - 865 MHz, UHF (WTU-4800)
Channel Selectable	64 selectable frequencies			16 channels		
Receiving System	Double super-heterodyne					Double super-heterodyne (WTU-4800)
Diversity System	True diversity	Space diversity		Space diversity		Space diversity (WTU-4800)
Mixing Output	MIC: -60 dBV, 600Ω, balanced, XLR-3-32 type connector LINE: -20 dBV, 600Ω, unbalanced, phone jack					-
Mixing Input	-20 dBV, 10kΩ, unbalanced, phone jack					
Antenna	Whip antenna			Rod antenna		Whip antenna
Antenna Input	75Ω, BNC, 9 V DC	75Ω, BNC, 9 V DC		-		75Ω, BNC, 9 V DC
Antenna Output	75Ω, BNC (Gain 0 dB)	-		-		75Ω, BNC (Gain 0 dB)
Receiving Sensitivity	90 dB or more					80 dB or more (WTU-4800)
Squelch Sensitivity	18 - 40 dBμ V variable					18 dBμ V (WTU-4800)
Tone Frequency	32.768 kHz					-
S/N Ratio	110 dB or more (A-weight, unbalanced output)			104 dB or more (A-weight, unbalanced output)		102 dB or more (A-weight, balanced output)
Harmonic Distortion	1% or less (typical)					
Frequency Response	100 Hz - 15 kHz, ±3 dB					50 Hz - 18 kHz, ±3 dB
Finish	Resin, black					
Dimensions (W x H x D)	210 x 44 x 205.1 mm			206 x 40.6 x 152.7 mm		210 x 44 x 181 mm
Weight	700 g	700 g		590 g		770 g (without tuner module)

» Antenna Distributor

WD-5800



Model	WD-5800
Power Source	AC mains (supplied AC Adapter must be used)
Power Consumption	25 W or less
Current Consumption	1.6 A (12 - 15 V DC)
Frequency Range	VHF / UHF
Antenna Input	2 inputs per distribution channel (front x 1, rear x 1), 75 Ω, BNC (phantom powering for antenna)
Antenna Output	4 output per distribution channel, 75 Ω, BNC
DC Power Supply	4 output, (each output: 12 V DC/250 mA) (Output voltage of this unit depends on that of AC adapters)

Indicator	Power Lamp
Finish	Panel: Aluminium, black, paint Case: Steel plate, paint
Dimensions (W x H x D)	420 x 44 x 214 mm
Weight	2 kg
Accessory	AC adapter x 1, Power cord (2m) x 1, DC cable x 4, Rubber foot x 4
Option	Rack Mounting Bracket: MB-15B

» Battery Charger

BC-5000-2



Power Source: 12 V DC (AC Adapter AD-5000-2 must be used)
Power Consumption: 700 mA
Charging Time: Max. 3 hrs
No. of Wireless Mic to be charged simultaneously: 2 pieces
Finish: Case: ABS resin, gray
Microphone receptacle section: PPE resin, black
Dimension (WxHxD): 238 x 105 x 98
Weight: 500 g (with mounting adapters attached)
Accessory: Mounting adapter x 2

» Ni-MH Rechargeable Battery

WB-2000-2



Nominal: 12 V DC
Capacity: 1900 mAh (rated), 2000 mAh (typical)
Dimensions: ø 14.2 x 50.2 mm
Weight: 30 g (cable included)
Applicable Models:
Digital Wireless Microphone: WM-D5200, WM-D5300
Wireless Microphone: WM-5225, WM-5262
Wireless Transmitter: WM-5325
Portable Receiver: WT-5100

» AC Adapter

AD-5000-2



Power Source: 100 - 240 V AC, 47-63 Hz, 1 A
Output: 12 V DC, 2 A
Ripple Voltage: 120 mV p-p
Cord Length: 1.8 m
Plug: Dependent on the country where the unit is used
Finish: Case: PC/ABS alloy, Black
Weight: 175 g
Accessory: Power Cord (2m) x 1

» UHF Wireless Antenna (Wall Mountable)

YW-4500



Power Source: 7-12 V DC (supplied from amplifier or tuner)
Current Consumption: 15 mA or less
Receiving Frequency: 550 - 932 MHz, UHF
Dipole Ratio Relative Gain: 8 dB or more (780 MHz)
VSWR: 3.0 or less
Output Impedance: 75 Ω
Finish: AES resin, off white
Dimensions (WxHxD): 105 x 140 x 126 mm
Weight: 270 g



>>> UHF Wireless Tuner Unit
WTU-4800



Power Source: 7-12 V DC
Current Consumption: 100 mA
Receiving Frequency: 576 - 865 MHz, UHF
Receiving Sensitivity: 80dB or more, S/N ratio (20dB μ V input, 40kHz deviation)
Output: 0 dBV max. deviation, 2.2 k Ω load
Antenna Input Impedance: 75 Ω
Squelch System / Sensitivity: Noise SQ / 17 dB μ V
Harmonic Distortion: 1 % or less
Finish: Surface-treated steel plate
Dimensions (WxHxD): 60 x 25 x 139 mm
Weight: 130 g

TOA UHF Wireless Microphone Systems

Wireless convenience with newly
 enhanced **Versatility, Reliability**
 and **Cost Efficiency.**

UHF Wireless Microphone and Tuner Sets

5000 Series

>>> UHF Wireless Microphone and Tuner Set
WS-5225



Combination includes:

- WM-5225
- WT-5810



WS-5265



Combination includes:

- WM-5265
- WT-5810

WS-5325H



Combination includes:

- WM-5325
- WH-4000H
- WT-5810

WS-5325U



Combination includes:

- WM-5325
- YP-M5300
- WT-5810

WS-5325M



Combination includes:

- WM-5325
- YP-M5310
- WT-5810

Digital Wireless Guide Systems



»» 2-Way Wireless Guide Receiver
WG-D120R



»» 2-Way Wireless Guide Transmitter
WG-D120T



Model	WG-D120R	WG-D120T
Frequency Range	510-530 MHz, 803.3-805.7 MHz	
Modulation Type	GFSK	
Audio Sampling	8 kHz 16 bit	
Latency	35 ms	
Frequency Response	65 Hz - 3.8 kHz	
Dynamic Range	> 80 dB	
Signal to Noise	> 60 dB	
THD at 1 kHz	< 5.2 %	
Service Coverage	Indoor: 100 m / Outdoor: > 150 m	
RF Output Power	10 mW	
Receiver Sensitivity	- 88 dBm	
3.5mm Phone Jack	Earphone output x 1 (32 Ω) / AUX out x 1 (0 Ω)	Mic In x 1 / AUX In x 1
Microphone Source	Built-In	Built-In & External
Input Level	-	Mic: -35 dBV / AUX: -20 dBV
Buttons	Front + and - Buttons: Channel Selector / Power Button: Power ON/OFF	Front + and - Buttons: Channel Selector / Power Button: Power ON/OFF and Mute
Side Momentary 3way tact switch	+: Volume Up / Center Push: Push to talk / -: Volume Down	+: Volume Up / Center Push: 2-way mode / -: Volume Down
Battery	Ni-MH type "AA" 1.2 V x 1 / Alkaline "AA" 1.5 V x 1	
Battery Life	14 hours (based on 1 x AA Ni-MH 2600mAh rechargeable battery)	12 hours (based on 1 x AA Ni-MH 2600mAh rechargeable battery)
Charging Source	DC 5V Micro USB	
Charging Current	255 ± 10 mA	
LCD Display	Channel, Battery Indicator, Volume, Signal Strength, 2-Way Communication Indicator	
Antenna	Whip / Helical	Whip
Regulatory Compliance	CE FCC	
Color	Silver frame	
Dimensions (W x H x D)	40 x 83.5 x 24.6 mm	
Weight	38.6 g (batteries not included)	



>>> 1-Way Wireless Guide Receiver
WG-D100R



>>> 1-Way Wireless Guide Transmitter
WG-D100T



Model	WG-D100R	WG-D100T
Frequency Range	510-530 MHz, 803.3-805.7 MHz	
Modulation Type	GFSK	
Audio Sampling	8 kHz 16 bit	
Latency	22 ms	
Frequency Response	65 Hz - 3.8 kHz	
Dynamic Range	> 80 dB	
Signal to Noise	>70 dB	
THD at 1 kHz	<1.5 %	
Service Coverage	Indoor: 100 m / Outdoor: > 150 m	
RF Output Power	-	10 mW
Receiver Sensitivity	- 88 dBm	-
3.5mm Phone Jack	Earphone output x 1 (32 Ω) / AUX out x 1 (0 Ω)	Mic In x 1 / AUX In x 1
Microphone Source	-	Built-In & External
Input Level	-	Mic: -35.5 dBV / AUX: -25 dBV
Buttons	Front + and - Buttons: Channel Selector / Power Button: Power ON/OFF	Front + and - Buttons: Channel Selector / Power Button: Power ON/OFF and Mute
Side Momentary 3way tact switch	+ : Volume Up / Center Push: Corresponding frequency / - : Volume Down	
Battery	Ni-MH type "AA" 1.2 V x 1 / Alkaline "AA" 1.5 V x 1	
Battery Life	14 hours (based on 1 x AA Ni-MH 2600mAh rechargeable battery)	12 hours (based on 1 x AA Ni-MH 2600mAh rechargeable battery)
Charging Source	DC 5V Micro USB	
Charging Current	255 ± 10 mA	
LCD Display	Channel, Battery Indicator, Volume, Signal Strength	
Antenna	Headphone	Whip
Regulatory Compliance	CE FCC	
Color	Black frame	
Dimensions (W x H x D)	40 x 83.5 x 24.6 mm	
Weight	38.6 g (batteries not included)	

>>> Battery Charger
WG-TC12A



Model	WG-TC12A
Applicable Models	WG-D100 / WG-D120
Power Supply	DC 5V 4A
No. of Slots	12
Dimensions (W x H x D)	350 x 140 x 120 mm
Weight	1.11 kg
Accessory	AC Adapter x 1, Universal Plug Converter x 1

>>> Rechargeable Battery
WB-2000-2



* Can be used with WG-D100 and WG-D120



One system ideal for multiple applications.

» Desktop Transmitter
WM-2110



Model	WM-2110
Power Source	230 V AC, 50 Hz
Power Consumption	3 W
Transmitting Frequencies	470 MHz band (5 CH)
Oscillator	PLL synthesized
RF Carrier Power	5 mW
Input Level	Standard input: -54 dBV / -60 dBV / -66 dBV (Mic) -12 dBV / -18 dBV / -24 dBV (Line) Max. input: -30 dBV / -36 dBV / -42 dBV (Mic) +12 dBV / +6 dBV / 0 dBV (Line) Mic/Line selection, 600 Ω, unbalanced, phone jack

Frequency Response	150 Hz - 6 kHz (Desk-top transmitter to portable receiver)
Pre-emphasis	50 μs
Remote Input	Make contact input: Release voltage: 2V DC, short-circuit current: 0.2mA, loop resistance: under 100Ω, Remote control mode: Transmit radio signal when at make
Finish	ABS resin, dark gray
Weight	270 g
Dimensions (W x H x D)	140 x 31 x 119.5 mm
Accessories	AC-DC adapter (1.8m) x 1, Screw driver x 1, 3-pole phone plug cord (2m) x 1

» Portable Transmitter
WM-2100



Model	WM-2100
Power Source	1.5 V DC (Battery)
Transmitting Frequencies	470 MHz band (5 CH)
Oscillator	PLL synthesized
RF Carrier Power	2 mW
Input Level	-50 dB* (sensitivity Hi) -44 dB* (sensitivity Lo)
Pre-emphasis	50 μs

Frequency Response	200 Hz - 5 kHz (Portable transmitter to portable receiver)
Battery	LR 6 (1.5 V) x 1
Battery Life	18 hours (alkaline)
Finish	Resin, dark gray
Weight	115 g
Dimensions (W x H x D)	62 x 163.6 x 32.5 mm
Accessories	Neck strap x 1

* 0 dB = 0.775 V

» Tie-Clip Microphone
YP-M101



» Close-Talking Microphone
YP-M201



» Headset Microphone
YP-M301



Model	YP-M101	YP-M201	YP-M301
Type	Electret Condenser type, Unidirectional		
Sensitivity	-46 dB (0 dB=1V/Pa, 1 kHz, load: 2 kΩ)	-57 dB (0 dB=1V/Pa, 1 kHz, load: 2 kΩ)	-44 dB (0 dB=1V/Pa, 1 kHz)
Max. Input Level	115 dB SPL		
Terminal	ø 3.5 mm mono mini plug	ø 3.5 mm stereo plug	ø 3.5 mm monaural mini plug
Finish	Dark gray	Black	Headband: ABS resin, black
Weight	20 g (cable included)		
Accessory	Clip x 1	-	Storage case x 1, Windscreen x 2

» Portable Receiver
WT-2100



Model	WT-2100
Power Source	1.5 V DC (Battery)
Receiving Frequencies	470 MHz band (5 CH)
Receiving System	Double Super-Heterodyne
Receiving Sensitivity	Better than 25 dB, S/N ratio (7dB μVEMF input, ±1.7kHz deviation)
Frequency Response	200 Hz - 5 kHz (portable transmitter to portable receiver) 150 Hz - 6 kHz (desk-top transmitter to portable receiver)
De-emphasis	50 μs
Output Level	4 mW (16Ω load, 10% distortion)
Battery	LR 6 (1.5V) x 1
Battery Life	18 hours (alkaline)
Finish	Resin, Dark silver
Dimensions (W x H x D)	62 x 163.6 x 32.5 mm
Weight	112 g (battery included)
Accessory	Neck strap x 1

Note: When using an earphone not made by TOA, use one with a ø 3.5 mm plug and impedance of over 16 Ω

» Ear Suspension Earphone
YP-E401



Infrared Wireless Microphone Systems

Offers wireless **convenience**,
clear and interference-free
infrared voice transmission.



»» Infrared Hand-Held Wireless Microphone / Infrared Hands-Free Wireless Microphone

IR-200M
IR-300M



Model	IR-200M	IR-300M
Power Source	2 x IR-200BT-2 rechargeable battery or AA alkaline	
Infrared Emitter	Wavelength 870 nm (AM: Brightness modulation) Modulation Method Frequency modulation Carrier Frequency Channel A: 3.100 MHz/Channel B: 3.350 MHz Transmission Distance Approx. 20 m (Power selector switch: H; in an unobstructed space) Approx. 15 m (Power selector switch: N; in an unobstructed space)	
Tone Signal	32.768 kHz	
Modulation Sensitivity	±4.8 kHz (1 kHz, when SPL of 84 dB is input)	
Max. Input Sound Pressure	120dB SPL	
Input Sensitivity Adjustment	-	Adjustment range: -9 dB to 0 dB (factory preset: 0 dB)
Microphone Unit	Unidirectional electret condenser microphone	
Frequency Response	100 Hz – 12kHz	
Operation Time	Approx. 8 hours (IR-200BT-2, Power selector switch: N) / Approx. 6 hours (alkaline battery, Power selector switch: N)	
Finish	Control Section: ABS resin, metallic gray, 50% gloss, paint / Filter Section: Polycarbonate, optical cut filter	
Dimensions (W x H x D)	ø 37 x 241.8mm	64 x 91.3 x 27.3 mm
Weight	170 g (with batteries)	130 g (with battery & strap)

»» Tie Clip Microphone
YP-M101



»» Headset Microphone
YP-M301



»» Battery Charger

IR-200BC



Power Source: AC mains, 50/60 Hz (supplied from enclosed AC Adapter)
Power Consumption: Max. 2 A
Charging Time: Max. 3 hrs
No. of Wireless Mic to be charged simultaneously: 2 pieces
Finish: Case: ABS resin, metallic gray, 50% glossy, paint
Microphone receptacle section: PPE resin, black
Dimension (WxHxD): 238 x 109.5 x 98 mm
Weight: 635 g (unit, including mounting adapters)
Option: Ni-MH Battery IR-200BT-2

Note: Using the mounting adapter allows one each of the IR-200M and IR-300M to be charged in combination.

»» Infrared Wireless Tuner

IR-702T

Model	IR-702T
Power Source	AC mains 50/60Hz (used of the supplied AC adapter)
Power Consumption	15 W or less
Frequency Response	100 Hz – 12 kHz
Receiving Frequency	Channel A: 3.100 MHz / Channel B: 3.350 MHz
Receiver Sensitivity	S/N ratio over 50 dB (40 dB μ V input, 1 kHz modulation, \pm 4.8 kHz deviation)
Infrared Receiver Input	75 Ω , BNC jack x 2 (Infrared wireless receiver's power source: 24 VDC, max. 220 mA in total of 2 terminals)
Output	Channel A and B: -10 dBV (\pm 4.8 kHz deviation, at volume level max.), 600 Ω , electronically balanced, 3 pole phone jack Note: Channel A switchable to mixer output

»» Ni-MH Battery

IR-200BT-2



Nominal Voltage: 12 V DC
Nominal Capacity: min. 2300 mAh
Dimensions: ϕ 14.2 x 50.2 mm
Weight: 30 g (per piece)
Applicable Models:
Infrared Wireless Microphone: IR-200M, IR-300M, IR-310M

S/N Ratio	61 dB or more (60 dB μ V input, \pm 4.8 kHz deviation, A-weighted)
No. of Connectable Conference Receiver	4 (YW-1022 / YW-1024) / 16 (IR-700D, YW-1024 x 4)
Finish	Case: ABS resin, black
Dimensions (W x H x D)	210 x 44 x 210.9 mm
Weight	630 g (unit only)
Accessory	AC Adapter (DC cord length: 1.5m) x 1, Power Cord (2m) x 1, Cord with a phone plug (1m) x 1, Color Label (6 colors) x 1, Rubber Foot x 4
Option	Racking Mounting Bracket: MB-WT3, MB-WT4



»» Infrared Wireless Distributor

IR-700D

Model	IR-700D
Power Source	AC mains 50 / 60 Hz (used of supplied AC adapter)
Power Consumption	25 W or less
Input/Output	4 mixing inputs, 2 distribution outputs
Band-Pass Frequency	3.0 – 6.0 MHz
Gain	0 dB (\pm 3 dB)
Infrared Receiver Input	75 Ω , BNC jack x 4 (Infrared wireless receiver's power source: 24 VDC, max. 800 mA in total of 4 terminals)

No. of Connectable Conference Receiver	16 (YW-1024 x 4)
Distribution Output	75 Ω , BNC jack
Finish	Case: ABS resin, black
Dimensions (W x H x D)	210 x 44 x 200.9 mm
Weight	640 g (unit only)



»» RF Distributor

YW-1022



Frequency Range: 1.6 - 1 kHz (excluding 50 - 70 MHz)
Distribution Loss: 4.5 dB \pm 3 dB
(between the Mixing and each Distribution terminals)
Input/Output Impedance: 75 Ω
Coaxial Connector:
Mixing terminal: BNC jack, power passing type (30VDC or less, under 2A or less)
Distribution 1 and 2 terminals: BNC jack, power passing type (30VDC or less, 1A or less)
Finish: ABS resin, gray
Dimension (WxHxD): 75 x 122 x 34 mm
Weight: 105 g
Accessory: Unit fixing wood screw (4.1 x 25) x 2

»» RF Distributor

YW-1024



Frequency Range: 1.6 - 1 kHz (excluding 50 - 70 MHz)
Distribution Loss: 8.5 dB \pm 3 dB
(between the Mixing and each Distribution terminals)
Input/Output Impedance: 75 Ω
Coaxial Connector:
Mixing terminal: BNC jack, power passing type (30VDC or less, under 2A or less)
Distribution 1 and 4 terminals: BNC jack, power passing type (30VDC or less, 1A or less)
Finish: ABS resin, gray
Dimension (WxHxD): 75 x 122 x 34 mm
Weight: 120 g
Accessory: Unit fixing wood screw (4.1 x 25) x 2



» Infrared Wireless Receiver

IR-500R
IR-510R
IR-520R



Model	IR-500R	IR-510R	IR-520R
Power Source	24V DC (supplied from IR-702T)		
Current Consumption	Max. 40mA	Max. 60mA	Max. 30mA
Infrared Detector	870nm		
Carrier Frequency	Channel A: 3.100 MHz / Channel B: 3.350 MHz		
Reception Angle	Vertical: 80° (up to 30° movable downward), Horizontal: 80° (up to 30° movable left or right)	-	
Communication Area	Approx. 15m in a space without any obstacles	Approx. 7m in radius from the point underneath the unit (Ceiling Height: 2.5-3.0m, in a space without any obstacles)	Approx. 15m in a space without any obstacles
Connection Terminal	75 Ω, BNC jack		
Dimensions (W x H x D)	70 x 120 x 72 mm	ø 120 x 71.3 mm	84.5 x 63.5 x 32 mm
Weight	220 g (unit only)	205 g (unit only)	100 g (unit only)

» Infrared Wireless Tuner

IR-802T



Model	IR-802T
Power Source	AC mains 50/60Hz (supplied AC adapter must be used)
Power Consumption	8 W (based on UL standards) / Max. 40.8 W (rated output at IR-820SP)
Receiving Frequency	Teacher (Channel A): 3.100MHz, Student (Channel B): 3.350MHz
Receiver Sensitivity	50 dB or more, S/N ratio (40 dBμV input, 1 kHz modulation, ±4.8 kHz deviation)
S/N Ratio	Tuner: 60 dB or more (60 dBμV input, 1 kHz modulation, ±4.8 kHz deviation, A-weighted, Equalization: Centered) AUX: 75 dB or more (A-weighted, Equalization: Centered)
Input	AUX PC AUX DVD/TV AUX MP3 Mute
	Line, -10dBV, 10kΩ, unbalanced, stereo mini jack (internal mixing) Line, -10dBV, 10kΩ, unbalanced, 2P RCA jack (internal mixing) Line, -10dBV, 10kΩ, unbalanced, stereo mini jack (internal mixing) 25 V line signals of telephone paging from a school intercom system

Output	ALD (Assistive Listening Device): line, -10dBV, 10kΩ, unbalanced, monaural mini jack Speaker: RJ45 (dedicated terminal for IR-820SP connection)
Frequency Response	Tuner: 100 Hz- 12 kHz, AUX: 100 Hz - 20 kHz
Equalization	High: ±10 dB at 10kHz / Mid: ±10 dB at 1.3kHz / Low: ±10 dB at 100Hz
Mute Function	Muted by 25V line signals
Finish	Panel: Aluminum, black / Case: Steel plate, black
Dimensions (W x H x D)	210 x 46 x 312 mm
Weight	1.8kg
Accessory	AC Adapter (DC cord length: 1.8m) x 1, Power Cord (2m) x 1, Volume Control Cover x 6, Removable Terminal Plug (2 pins) x 1
Option	Half width blank panel: MB-15B-BK

» Infrared Speaker

IR-820SP

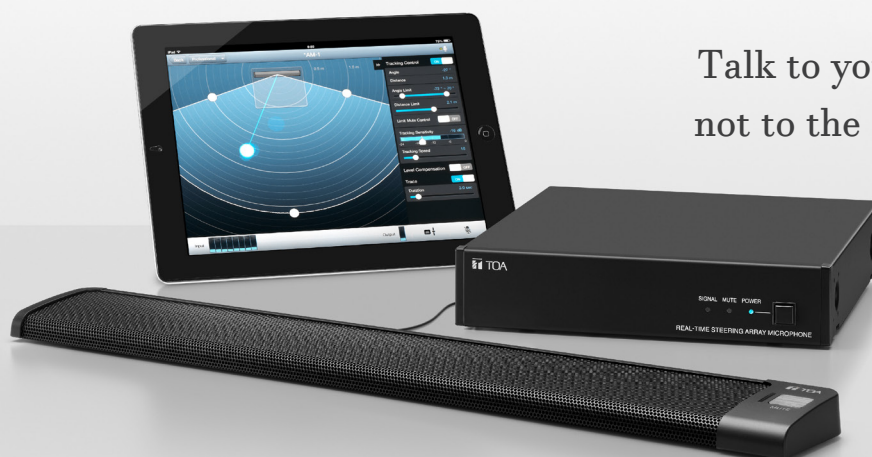


Model	IR-820SP
Power Source	24 VDC (supplied from IR-802T)
Power Consumption	4.4 W (based on UL standards)
Rated Output	20W
Frequency Response	100Hz – 20kHz (-10 dB) (at installation in 1/2 free sound field (Measured by installing the unit in the center of a ceiling)
Amplification System	Class D
Distortion	5% or less (rated output)
Wavelength	870 nm
Carrier Frequency	Channel A (for teacher) : 3.100 MHz, Channel B (for students) : 3.350 MHz
Reception Angle	360° (horizontal)

Connection Terminal	RJ-45
Connection Cable	CAT-5 UTP
Mounting Hole	ø 300 mm
Finish	Enclosure: Steel plate, plating / Baffle: Fire-resistant ABS resin (resin material grade: UL-94 V-0), white Punched net: Steel plate, white Filter section: Polycarbonate, optical cut filter
Dimensions (ø x D)	ø 320 x 205 mm
Weight	3.4 kg
Accessory	Safety wire x 1, Ceiling reinforcement ring x 1, Paper pattern x 1, Trim ring x 1
Option	Tile Bar Bridge: HY-TB1

Microphones (Wired)

Real-Time Steering Array Microphone



Talk to your audience,
not to the microphone.

»» Array Microphone

AM-1B

AM-1W



Model	AM-1B	AM-1W
Power Source	24 V DC (supplied from the Control Unit)	
Microphone	Unidirectional electret condenser microphone	
Directivity Angle	Horizontal 50° (800 Hz - 18 kHz, Array mode), 180° (Cardioid mode) / Vertical: 90°	
Frequency Response	150 Hz - 18k Hz	
Max. Input Sound Pressure	100 dB SPL	
Operation	Mute switch	
Indicator	Microphone status indicator (output: green, mute: red)	
Microphone Cable	Shielded twisted pair cable 10m with connector equivalent to TA-3	
Max. Cable Length	70 m (use of the AES/EBU cable)	
Finish	Body, punched net: Surface-treated steel plate, black, 30 % gloss Side cover: ABS resin, black	Body, punched net: Surface-treated steel plate, white (RAL9016 equivalent), 30 % gloss Side cover: ABS resin, white (RAL 9016 equivalent)
Dimensions (W x H x D)	483.9 x 22.1 x 64.9 mm (excluding cable)	
Weight	1.2 kg	



Model	Control Unit
Power Source	24 V DC (supplied from an optional AC adapter) Usable DC power supply plug: 5.5 mm outer diameter 2.1 mm inner diameter 9.5 mm long, and non-polarity type
Current Consumption	410 mA or less
Signal to Noise Ratio	90 dB or more
Input	Combined type of TA-3 (dedicated to the array microphone)
Output	Combined type of XLR-3-32, Removable terminal block (3 pins)
Network	Network I/F: 10 BASE-T/100BASE-TX, RJ-45 connector Network protocol: TCP/IP, HTTP
Level Control	Output level selection (+4 dB*, -10 dBV, -50dB*) LOW CUT ON/OFF
Operation	Power switch
Indicators	Power indicator (blue), Mute indicator (red), signal indicator (green)
Finish	Pre-coated steel plate, back, 30 % gloss
Dimensions (W x H x D)	210 x 45.7 x 271.5 mm
Weight	1.5 kg
Dedicated Software	iPad app, PC browser software (for setting of tracking distance/range, sensitivity/speed, mute ON/OFF)
Operating Temperature	0 °C to +40 °C
Operating Humidity	90 % RH (no condensation)
Accessory	Removable terminal plug (3 pins) x 1 AC Adapter : AD-246 Rack mounting bracket : MB-15B-BK (for rack mounting one control unit), MB-15B-J (for rack mounting two control units) Wall mounting bracket: YC-850 (for one control unit)
Option	

* 0 dB = 0.775 V

iPad is a registered trademark of Apple Inc.

**Please refer to specification sheet for detailed information.



Desktop Microphones

»» Paging Microphone

PM-660 / PM-660D / PM-660U



Model	PM-660	PM-660D	PM-660U
Type	Moving Coil Microphone, Unidirectional		
Rated Impedance	600Ω, unbalanced	600Ω, balanced	
Rated Sensitivity	-58 dB (1k Hz 0 dB = 1 V/Pa)		
Frequency Response	100Hz ~ 10kHz		
Output	2-conductor shielded cable (2.5m) with phone plug	4-conductor (2 shielded) cable (2.5m) with 5-pin DIN plug	4-conductor (2 shielded) cable (2.5m) without plug
Controls	Push-to-talk switch, Locking lever, Short-off type		
Finish	Head: Zinc plated steel wire, gray, paint / Body: ABS resin, gray		
Dimensions (W x H x D)	100 x 212 x 150 mm		
Weight	400 g		

»» Amplifier Control Unit for PM-660D

RU-2001 / RU-2002



Model	RU-2001	RU-2002
Power Supply	12 – 24 V DC, external or 12 V AC Adapter	
Power Consumption	60 mA	
Output	0 dB V, 600Ω, balanced, M3 screw terminal, distance between barriers: 6.4 mm)	
Microphone Input	-62 dB, 600 Ω, unbalanced, 5-pin DIN socket	
Chime	-	4, 2 or single tone chime, gong
Finish	Pre-coated Steel Plate, Black	
Dimensions (W x H x D)	124 x 42.5 x 159 mm	
Weight	600 g	

»» Chime Microphone

EC-380



Model	EC-380
Power Source	6V DC (4 x "AA" batteries) or DC adapter (9 - 24 V)
Current Consumption	13 mA during chime and 6 mA microphone operation
Microphone Element	Condenser
Polar Pattern	Cardioid
Chime Tones	4-Tone Chime (Up/Down)
Rated Impedance	600Ω, Balanced
Output	Microphone: -41dB ±3dB (1kHz 0dB=1V/Pa) / Chime Tones: -31dB ±3dB (max. position)
Frequency Response Mic.	50 Hz - 18 kHz
Output Connector	XLR-3-32 Equivalent / RJ45: Audio output, power supply and contact output
Finish	Stand Mic: ABS Resin, Black, Paint / Mic Shaft: Copper alloy, Black, Paint
Dimensions (W x H x D)	110 x 145 x 532 mm
Weight	558 g (exclude batteries)
Accessory	Windscreen x 1, XLR Cable Stereo Phone Plug (7.5 m) x 1
Optional Accessory	AD-246 AC Adapter

Note: Batteries and AC adapter are not supplied with the unit. Please purchase separately.

»» Gooseneck Microphone

EM-380

EM-800



Model	EM-380	EM-800
Type	Electret Condenser Microphone, Cardioid	
Rated Impedance	750 Ω, Balanced	120 Ω, Balanced
Rated Sensitivity	-41 dB ±3 dB (1 kHz 0 dB=1 V/Pa)	-35 dB (1 kHz 0 dB=1 V/Pa)
Phantom Power	9 - 52 V DC or 3 V DC (2xAA Batteries)	9 - 52 V DC
Frequency Response	50 Hz - 16 kHz	60 Hz - 20 kHz
Connector	XLR-3-32 Equivalent	XLR-3-12 Equivalent
Finish	Stand Mic: ABS Resin, Black, Paint Mic Shaft: Copper alloy, Black, Paint	Body, Shaft: Copper alloy, Black, Semi-Gloss, Paint
Dimensions (W x H x D)	110 x 145 x 532 mm	ø 12 x 420 mm
Weight	558 g (exclude batteries)	135 g
Accessory	Windscreen x 1, XLR to Phone Jack Cable (7.5 m) x 1	Windscreen x 1
Accessory Stand	-	ST-800 (optional)

Handheld Microphones

Designed with
superior voice clarity
for speech applications
ensuring optimal intelligibility.



» Uni-Directional Dynamic Microphone

DM-1100

DM-1200

DM-1200D

DM-1300

DM-1500



Model	DM-1100	DM-1200	DM-1200D	DM-1300	DM-1500
Type	Moving Coil Microphone, Unidirectional				
Rated Impedance	600Ω, unbalanced	600Ω, balanced			
Rated Sensitivity	-55 dB (1 kHz 0 dB = 1 V/Pa)	-52 dB (1 kHz 0 dB = 1 V/Pa)		-54 dB (1 kHz 0 dB = 1 V/Pa)	-56 dB (1 kHz 0 dB = 1 V/Pa)
Frequency Response	100 Hz – 12 kHz	50 Hz – 12 kHz		70 Hz – 15 kHz	
Connection Cable	Single-core shielded cable	Single-core shielded cable, unbalanced	2-core shielded cable and 2-core cable	Single-core shielded cable, unbalanced	2-core shielded cable, unbalanced
Cable Length	7.5 m	10 m	5 m	10 m	
Terminal of Cable	Phone plug		5-pin DIN plug	Phone plug	
Talk Switch	Short-off type, slide switch		Short-off type, slide switch with extra remote control contact	Short-off type, slide switch	
Finish	Body: Die cast aluminium, black / Head: ABS resin, zinc plated steel wire, black	Body: Die cast zinc, metallic gray / Head: Die cast aluminium, zinc-plated steel wire, metallic gray		Body: Die cast zinc, metallic gray / Head: Steel, zinc plated steel wire, metallic gray	Body: Die cast zinc, metallic gold / Head: Brass, zinc plated steel wire, metallic gold
Dimensions (ø x L)	ø 55 x 178 mm	ø 39.5 x 163 mm		ø 51 x 170 mm	ø 40.5 x 173 mm
Weight	155 g	265 g		245 g	280 g

» Uni-Directional Dynamic Microphone

DM-270

DM-320

DM-420

DM-520



Model	DM-270	DM-320	DM-420	DM-520
Type	Moving Coil Microphone, Unidirectional			
Rated Impedance	600Ω, balanced			
Rated Sensitivity	-52 dB (1 kHz 0 dB = 1 V/Pa)	-55 dB (1 kHz 0 dB = 1 V/Pa)	-52 dB (1 kHz 0 dB = 1 V/Pa)	-55 dB (1 kHz 0 dB = 1 V/Pa)
Frequency Response	100 Hz – 15 kHz	100 Hz – 12 kHz	80 Hz – 13 kHz	
Connection Cable	Separate type			
Cable Length	5 m	7.5 m		
Connector	XLR-3 type			
Talk Switch	Short-off type, slide switch			Short-off type, slide switch, magnetic switch, locking system
Finish	Body: Die cast Aluminum, black / Head: Die cast Aluminum, zinc plated steel wire, black	Body: Die cast Aluminum, dark gray / Head: Die cast Aluminum, zinc plated steel wire, dark gray	Body: Die cast Aluminum, dark gray / Head: Die cast Aluminum, zinc plated steel wire, silver	Body: Die cast Aluminum, dark gray / Head: Die cast Aluminum, zinc plated steel wire, dark gray
Dimensions (ø x L)	ø 47 x 175 mm	ø 52 x 183 mm		ø 50 x 176 mm
Weight	300 g		280 g	232 g



»» Paging Microphone

PM-120

PM-222

PM-222D

PM-222U



Model	PM-120	PM-222	PM-222D	PM-222U
Type	Moving Coil Microphone			
Directivity	Unidirectional			
Rated Impedance	250Ω, unbalanced	600Ω, unbalanced	600Ω, balanced	
Rated Sensitivity	-56 dB (1 kHz 0 dB = 1 V/Pa)		-47 dB (1 kHz 0 dB = 1 V/Pa)	
Frequency Response	50 Hz – 12 kHz		100 Hz – 10 kHz	
Cable	Coiled cable ø 6 x 2.5 m (at max. extended length)	1-core shielded cable, 2m (when extended)	2-core shielded plus 2-core cable, 2m (when extended)	
Terminal	-	Phone plug	5-pin DIN plug	No Connector
Talk Switch	Push-to-talk switch	Short-off type with lock		
Finish	Front: ABS resin, matte, champagne gold / Rear: ABS resin, matte, black	ABS resin, gray		
Dimensions (W x H x D)	ø 46 x 157 mm		44 x 160 x 38 mm	
Weight	230 g		200 g	

Note: PM-120 can be modified to the balanced type by changing a plug.

Other Microphones

»» Tie Clip Microphone

EM-361



»» Neck-Worn Microphone

EM-362



»» Headset Microphone

EM-370HS



Model	EM-361	EM-362	EM-370HS
Type	Electret Condenser Microphone		
Directivity	Unidirectional	-	Unidirectional
Rated Impedance	2 kΩ, unbalanced	600 Ω, balanced	2.5 kΩ, unbalanced
Power Source	1 x 1.5V AA Alkaline (LR6) battery	3 V DC (2 x AAA batteries) or Phantom Power	1 x AA (R65 or UM-3U) battery
Phantom Power	-	9 - 52 V	-
Rated Sensitivity	-29 dB (1k Hz 0 dB = 1 V/Pa)	-35 dB ± 3 dB (1k Hz 0 dB = 1 V/Pa)	-51 dB (1k Hz 0 dB = 1 V/Pa)
Frequency Response	60 Hz - 20 kHz		
Connector	1/4" Unbalanced Phone plug 6.3, Length 30 cm	1/4" Balanced L Plug, 200 mm	1/4" Unbalanced Phone jack
Cable Length	7 m		10 m
Finish	Case: ABS, black	Battery Case, Switch Unit, MIC unit: ABS resin, Black Flexible Shaft: Copper Alloy, Black, Paint, Shield Tube Wire Hanger: Steel wire shield rubber, Black, Paint	Battery Case: ABS, black / Headset: Metal, Black
Dimensions (L x H x D)	89.5 x 38.5 x 19 mm (microphone body)	260 x 135 mm	89.5 x 38 x 19 mm (microphone body)
Weight	140 g (exclude battery)	190 g (exclude battery)	142 g (exclude battery)

»» Lavalier Microphone

EM-410



»» Flush-Mount Boundary Microphone

EM-600



»» Boundary Microphone

EM-700



Model	EM-410	EM-600	EM-700
Type	Electret Condenser Microphone		
Directivity	Hyper-cardioid	Omnidirectional	Cardioid
Rated Impedance	120Ω, balanced		
Phantom Power	9 – 52VDC		
Rated Sensitivity	-47 dB (1kHz 0 dB = 1 V/Pa)	-36 dB (1k Hz 0 dB = 1 V/Pa)	
Frequency Response	100Hz – 15kHz	30Hz – 20kHz	35Hz – 20kHz
Connector	Balanced Phone plug	XLR-3-12 or equivalent	
Cable Length	5 m	-	7.5 m
Finish	Copper alloy, black, semi-gloss, paint	Body: Steel, white, semi-gloss, paint Head: Zinc-plated steel wire, white, semi-gloss, paint	Body: Die-cast aluminium, black, matte finish, paint Punched net: Surface-treated steel plate, black, matte finish, paint
Dimensions (L x H x D)	ø 8.9 x 28.6 mm	ø 28 x 68 mm	83 x 23 x 83 mm
Weight	100g	85g	290g



**Please refer to specification sheet for detailed information.

Optional Accessories

Desk Stands

»» Microphone Desk Stand

ST-800

ST-66A



Model	ST-800	ST-66A
Mounting Screw	-	U5/16 thread (thread adapter), NS5/8 thread (inner pipe)
Applicable Microphone	-	ø 18 - ø 35 mm in diameter, Mountable weight: Max. 500 g
Input Connector	XLR-3-31 or equivalent	-
Output Connector	XLR-3-32 or equivalent	-
Finish	Die-cast zinc, black, matte finish, paint	Shaft: Steel pipe for general use; Inner pipe: Chrome-plating Outer Pipe: Black, semi-gloss, paint Base: Iron casting, black, semi-gloss, paint
Dimensions (W x H x D)	115 x 40 x 124 mm	-
Weight	715 g	1.1 kg (without accessory)

Goosenecks

»» Flexible Gooseneck

ST-506

ST-507



Model	ST-506	ST-507
Finish	Chromium plating	
Length	150 mm	300 mm
Weight	130 g	210 g

Microphone Stands

»» Microphone Stand

ST-303A

ST-321B



Model	ST-303A	ST-321B
Effective Extensible Length	940 - 1,600 mm	1045 - 1,706 mm (Boom enlarged extendable Length: 53 - 660 mm)
Mounting Screw	NS5/8 (pipe thread), U5/16 (adapter)	
Finish	Steel Pipe for general use, chrome plating	Steel pipe for general use, black, matte finish, paint
Weight	1.7 kg	2.9 kg
Accessory	Thread Adapter x 1	Thread Adapter x 1



Microphone Connectors

»» Double Pole Jack

YM-1J



»» XLR Connector

YM-3CF



»» XLR Connector

YM-3CM



Model	YM-1J	YM-3CF	YM-3CM
Connector	Double pole Jack	XLM-3-31PCH-R	XLM-3-32PCH-R
Current Capacity	-	3A (AC)	
Usable Cable	Microphone vinyl cable with sectional area of 0.75 - 2.0mm ²		
Usable Plate	YP-1AF		
Usable Plug	Single or double pole plug	XLR-3-12C	XLR-3-11C
Finish	Cover: ABS resin (off-white), Frame: Steel Plate (t1.2)		
Dimensions (W x H x D)	45 x 110 x 48.1 mm	45 x 110 x 53 mm	45 x 110 x 52 mm
Weight	750 g	95 g	

Note: When routing a power or speaker line and a microphone line through the same electric box, provide a barrier between the two for insulation.
 For cables with sectional area of under 0.75mm², fold back their cores to increase the sectional area before making a connection.
 For YM-1J: (H) hot, C (cold) and (E) ground are shorted. Therefore, mixers or amplifiers using phantom power cannot be used.

»» Cover Plate

YP-1AF



Applications: YM-1J, YM-3CF, YM-3CM, YS-4CF, YS-4CM
Finish: Aluminium t1.2, Hairline
Dimension (WxHxD): 70 x 120 x 6 mm
Weight: 25 g
Accessory: Oval countersunk head machine screw (M3.5 x 5) x 2

»» Wall Mounting Back Box

YS-11A



Finish: High impact polystyrene resin, milky white
Dimension (WxHxD): 70 x 120 x 40 mm
Weight: 60 g
Accessory: Countersunk head machine screw x 2, Round head wood screw x 2
Applicable Unit:
 AT Series Attenuators (Applicable plates: YP-1AF),
 YM/YS Series Connectors Units (Applicable plate: YP-1AF)

Megaphones

Hand Grip Megaphones

»» Hand Grip Megaphone

ER-520



»» Hand Grip Megaphone with Whistle

ER-520W



»» Hand Grip Megaphone with Siren

ER-520S



Model	ER-520	ER-520W	ER-520S
Rated Output	6W (10W max.)		
Signals	-	Whistle	Siren
Audible Range approx.	Voice 250m	Voice 250m, Signal 315m	
Batteries: Qty / Type	RAP (AA) x 8 (12 V DC)		
Battery Life	Approx. 10 hours		
Battery Life on Signal	-	30min	40min
Diaphragm	Polyimide Film		
Finish	ABS-resin, white and grey Strap: Tetoron, black		ABS-resin, red Strap: Tetoron, black
Dimensions (W x H x D)	160 x 256 x 260mm		
Weight	620 g (without batteries)	650 g (without batteries)	

Note: JEITA: Japan Electronics and Information Technology Industrial Association. (EIAJ TT-4501A)
Batteries are optional.

»» Hand Grip Megaphone

ER-1215



»» Hand Grip Megaphone with Siren

ER-1215S



»» Hand Grip Megaphone with Shoulder Strap and Detactable microphone

ER-3215



»» Hand Grip Megaphone with Siren, Shoulder Strap and Detactable microphone

ER-3215S



Model	ER-1215	ER-1215S	ER-3215	ER-3215S
Rated Output	15W (23W max.)			
Signals	-	Siren (sounds at 5 secs intervals)	-	Siren (sounds at 5 secs intervals)
Audible Range approx.	Voice 315m	Voice 315m, Signal 500m	Voice 400m	Voice 400m, Signal 500m
Batteries: Qty / Type	R14P (C) x 6 (9 V DC)			
Battery Life	Approx. 14 hours		Approx. 9 hours	
Battery Life on Signal	-	Approx. 20 minutes	-	Approx. 20 minutes
Diaphragm	Polyimide Film (Voice coil, bobbin)			
Finish	ABS-resin, Horn: light grey / Other: grey Strap: Nylon, black	ABS-resin, red Strap: Nylon, black	ABS-resin, Horn: light grey / Other: grey Strap: Nylon, black	ABS-resin, red Strap: Nylon, black
Dimensions (W x H x D)	210 x 291 x 346mm		210 x 291 x 381mm	
Weight	1.1 kg (without batteries)	1.2kg (without batteries)	1.15 kg (body. without mic and batteries), Microphone: 150 g	

Note: JEITA: Japan Electronics and Information Technology Industrial Association. (EIAJ TT-4501A)
Batteries are optional.



Waterproof Hand Grip Megaphones



»» Splash Proof Megaphone

ER-1203

»» Splash Proof Megaphone

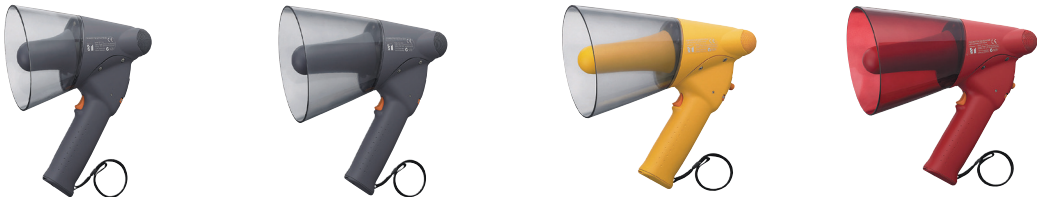
ER-1206

»» Splash Proof Megaphone with Whistle

ER-1206W

»» Splash Proof Megaphone with Siren

ER-1206S



Model	ER-1203	ER-1206	ER-1206W	ER-1206S
Rated Output	3W (4W max.)	6 W (10 W max.) (when using 6 x R6P batteries)		
Signals	-		Whistle	Siren (sounds at 5 secs intervals)
Audible Range approx.	125 m	250 m	Voice 250 m, Signal 315 m	
Batteries: Qty / Type	R6P (AA) x 4 (6 V DC)	R6P (AA) x 6 (9 V DC) or R6P (AA) x 4 (6 V DC)		
Battery Life	Approx. 8 hours			
Battery Life on Signal	-		20 min	
Frequency Response	500 Hz - 6 kHz (SPL -20 dB)	450 Hz - 6 kHz (SPL -20 dB)		
Magnetic Circuit	Neodymium magnet, inner magnet type			
Diaphragm	Polyimide Film (Voice coil, bobbin)			
Water Protection	IPX5			
Finish	ASA resin, Horn: clear dark gray / Other: dark grey / Strap: Nylon, black		ASA resin, Horn: clear dark gray / Other: yellow / Strap: Nylon, black	ASA resin, Horn: clear red / Other: dark red / Strap: Nylon, black
Dimensions (W x H x D)	137 x 257.8 x 210 mm	154 x 266 x 250 mm		
Weight	610 g (without batteries)	660 g (without batteries)	680 g (without batteries)	
Accessory	-	Battery spacer x 1		
Option	Wall Mounting bracket for megaphone: SP-1100			

Note: JEITA: Japan Electronics and Information Technology Industrial Association. (EIAJ TT-4501A)
 Batteries are optional.

»» Wall Mount Bracket

SP-1100



Finish: Stay: Stainless Steel; Holder and dustproof cover: ASA resin, clear dark grey
Dimension (WxHxD): 126 x 420 x 156 mm
Weight: 410 g
Accessory: Wall Mounting Screw (SUS self-tapping screws 4 x16) x 2



Shoulder Megaphones

»» Shoulder Megaphone

ER-2215



»» Shoulder Megaphone with Siren

ER-2215S



»» Shoulder Megaphone with Whistle

ER-2215W



»» Shoulder Megaphone with Whistle

ER-2230W



»» Shoulder Megaphone with Whistle

ER-2930W



Model	ER-2215	ER-2215S	ER-2215W	ER-2230W	ER-2930W
Rated Output	15W (23W max.)			30W (45W max.)	
Signals	-	Siren (sounds at 5 secs intervals)	Whistle (1.6 kHz - 2.4 kHz)		
Audible Range approx.	400m	Voice 400m, Signal 500 m		Voice 800m, Signal 1,000m	
Batteries: Qty / Type	R14P (C) x 6 (9 V DC)			Battery: R20P (D) x 10 (15V DC), External Power: 12V DC Battery	
Battery Life	Approx. 9 hours			Approx. 17 hours	
Battery Life on Signal	-	20min		1.5 hours	
AUX Input Sensitivity	-			-10 dBV, (300mV), 10 kΩ (ø3.5 mini jack, stereo plug acceptable), volume control	
EXT Mic Input	-			600 Ω,unbalanced, ø6.3 phone jack, volume control	
Receiving Frequency	-			UHF (800 MHz band) VHF (200 MHz band)	
Antenna	-			Fold-down flexible antenna	
Diaphragm	Polyimide Film (Voice coil, bobbin)				
Finish	ABS-resin Horn: light grey / Other: grey Strap: Nylon, black	ABS-resin, red Strap: Nylon, black	ABS-resin Horn: light grey / Other: grey Strap: Nylon, black	Horn Ring: Vinyl chloride, grey Horn: Aluminium, light grey, paint Case Top: Die cast Aluminium, grey, paint Strap: Nylon, black / Other: ABS resin, grey	
Dimensions (ø x D)	ø 210 x 336mm			ø 351 x 512mm	
Weight	1.1 kg (without microphone & battery) Microphone: 150 g		1.2 kg (without microphone & battery), Microphone: 150 g	3.6 kg (without battery) Microphone: 150 g	3.8 kg (without battery) Microphone: 150 g
Accessory	-			ø3.5 mini plug (AUX Input) x 1, External Power Supply Cord (1m) x 1, Splash-proof cover x 1	

Note: JEITA: Japan Electronics and Information Technology Industrial Association. (EIAJ TT-4501A)

Batteries are optional.

Do not use the unit in heavy rains or strong winds, or in locations where the unit is directly exposed to water even using with the supplied splash-proof cover.

»» Speaker Stand
ST-16A



Effective Extensible Length: 1,130 mm - 1,660 mm

Load Capacity: 7 kg (static load)

Finish: Stand: Aluminium, Silver, matter finish; Speaker

Mounting Bracket: Polyamide resin, black

Weight: 1.7 kg (bracker included)

Accessory: Speaker Mounting Screw (M5 x 20) x 2, Hexagon headed bolt (M8 x 20) x 1, Washer x 1, Spacer x 1, Butterfly Nut x 1



»» Wireless Tuner Unit for ER-2930W
WTU-4800



Model	WTU-4800
Power Requirement	7 - 12 V DC
Current Consumption	100 mA
Receiving Frequency	576 - 865 MHz, UHF
Receiving System	Double super-heterodyne
Receiving Sensitivity	80 dB or more, S/N ratio (20 dBμV input, 40 kHz deviation)
Antenna Input Impedance	75 Ω
Diversity System	Space diversity
Channel Selectable	16 channels

Squelch System	Noise SQ
Squelch Sensitivity	17 dBμV
Output	0 dB* (Max. deviation, 2.2 kΩ load)
Harmonic Distortion	1% or less
Frequency Response	100 Hz - 12 kHz, ±3 dB
Finish	Surface-treated steel plate
Weight	130 g
Dimensions (W x H x D)	60 x 25 x 139 mm
Accessories	Driver for channel changing x 1



Hands-Free Megaphones

»» Compact Power Megaphone

ER-1000A-BK

ER-1000A-WH

ER-1000A-YL



Model	ER-1000A-BK	ER-1000A-WH	ER-1000A-YL
Power Source	Alkaline battery (LR6): 6 pieces (9 V DC) or 4 pieces (*1) (6 V DC) Rechargeable nickel metal hydride (Ni-MH) battery (HR15/51): 6 pieces (7.2 V DC) or 4 pieces (*1) (4.8 V DC)		
Output	6 W (rated) and 10 W (max.) when 6 AA batteries (9 V DC) are used. 3 W (rated) and 4 W (max.) when 4 AA batteries (*1) (6 V DC) are used.		
Audible Range (*2)	Voice operation: Approx. 100 m (when 6 alkaline batteries or Ni-MH batteries are used) Approx. 80 m (when 4 (*1) alkaline batteries or Ni-MH batteries are used)		
Battery Life	Voice operation: (*3): Approx. 8 hours with 6 or 4 alkaline batteries, Approx. 7 hours with 6 or 4 Ni-MH batteries AUX stereo input operation (music reproduction) (*4): Approx. 9 hours with 6 or 4 alkaline or Ni-MH batteries		
Frequency Response	300 Hz - 14 kHz (deviation: -26 dB)		
Headset Microphone	Ear-on type, electret condenser microphone, sensitivity: -47 dB (0 dB = 1 V/1 Pa, 1 kHz)		
Input	MIC: -30 dB (*5), 3 kΩ, ø 3.5 mm monoaural mini-jack, phantom power supply AUX (*6): -10 dB (*5), 2 kΩ, ø 3.5 mm stereo mini-jack (supporting monoaural applications (*7))		
Belt Length	55 - 120 cm (*8)		
Finish	Front Case: ABS resin, black Rear Case: ABS resin, gray Grille: Surface-treated steel plate, black, paint Belt: Elastic rubber, black	Front Case: ABS resin, white Rear Case: ABS resin, gray Grille: Surface-treated steel plate, white, paint Belt: Elastic rubber, black	Front Case: ABS resin, yellow Rear Case: ABS resin, gray Grille: Surface-treated steel plate, yellow, paint Belt: Elastic rubber, black
Dimensions (W x H x D)	133 x 96 x 222 mm (belt excluded)		
Weight	Main PA unit (belt included, batteries excluded): 480 g / Headset microphone: 50g		

Note: JEITA: Japan Electronics and Information Technology Industrial Association. (EIAJ TT-4501A)

Prepare batteries separately, as they are not supplied with the product.

(*1) When the supplied battery spacers are used.

(*2) Audible range is measured on a quiet street with unit loaded with fresh batteries. Range varies depending on various conditions, such as battery consumption, ambient noise levels, wind direction and obstacles.

(*3) Battery life during voice output usage represents the period of time when the Personal PA System is continuously used with the volume control set to a position that does not cause feedback.

(*4) Battery life during AUX stereo input represents a value actually measures when music is continuously reproduced with a commercial audio player connected to the AUX input terminal. It varies depending on the connected external equipment's volume output or the type of music source.

(*5) 0 dB = 1 V

(*6) Adjust the volume of the AUX input at the connected external device

(*7) Volume during monoaural operation is smaller than during stereo operation

(*8) The 120 cm length is when the Belt is stretched out to it's maximum extend. When worn, consider a belt length of 100cm as a rule-of-thumb standard

»» Compact Power Megaphone

ER-604W













Model	ER-604W
Power Source	R6 battery x 8 (12 V DC) 12 V DC / 0.8 A or more (AC Adapter or DC power supply unit usable)
Rated Output	6W (10 W max.)
Battery Life	Voice: Approx. 10 hours (R6P manganese dioxide battery used) / Whistle: Approx. 30 minutes (continuous use)
Audible Range	Voice: 160 m (under noise level of 55 dB) / Whistle: 160 m (under noise level of 55 dB)
Microphone	Close-talking type, press-to-talk switch, volume control, Fixed to the microphone hanger on the unit's top panel
Signal	Whistle, push switch activation
Input	MIC 1: -40 dB, 1.5 kΩ, ø 6.3 mm phone jack MIC 2: -18 dB, 3 kΩ, ø 3.5 mm mini-jack, phantom power supply AUX: -12 dB, 18 kΩ, ø 3.5 mm mini-jack External Power Supply: 12 V DC Note: MIC 1, 2 and AUX inputs can be used at the same time. However, their individual volume cannot be adjusted as the unit's volume control is common to these inputs.
Other Function	Voice switch (functions to activate the unit with external input signals and to make the unit in stand-by status with no external signal.) Battery check.
Finish	Body, Microphone: ABS resin, off-white / Shoulder Pad, Belt: black
Dimensions (W x H x D)	102 x 258 x 216 mm (excluding shoulder belt)
Weight	1.6 kg (without batteries)
Accessory	ø 3.5 mm mini plug x 1, External Power Supply Cord (1 m) x 1
Options	Headset microphone: WH-4000A, WH-4000H / Dynamic Microphone: DM Series / Speaker Stand: ST-16A


















**Please refer to specification sheet for detailed information.















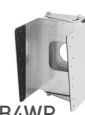













Selection Charts

Speaker Mounting Accessories Selection Chart

Speakers	Wide-Dispersion Speakers			
	F-1000B / F-1000BT F-1300B / F-1300BT	F-1000W / F-1000WT F-1300W / F-1300WT	F-1000BTWP / F-1300BTWP	F-1000WTWP / F-1300WTWP
Installation Configurations				
Cluster Bracket	HY-CL10B 			
Ceiling Mounting Bracket	HY-CM10B 	HY-CM10W 		
Board Hanger Bracket	HY-BH10B 			
Pole Mounting Bracket			YS-60B 	
Speaker Stand	ST-16A 			

Speakers	Wide-Dispersion Speakers			
	F-2000B / F-2000BT	F-2000W / F-2000WT	F-2000BTWP	F-2000WTWP
Installation Configurations				
Cluster Bracket	HY-CL20B 			
Ceiling Mounting Bracket	HY-CM20B 	HY-CM20W 		
Pole Mounting Bracket			SP-131 	YS-60B 
Speaker Stand	ST-16A 			

Speakers	Line Array Speakers Type A			
	Indoor Use		Outdoor Use	
Installation Configurations	SR-A12L / SR-A12S / SR-A18B		SR-A12LWP / SR-A12SWP	
				
Rigging Frame	SR-RF12 		SR-RF12WP 	
Tilt Joint Plate	SR-TP12 			


























Speakers	Line Array Speakers Type S				Slim Array Speakers	
	SR-S4L	SR-S4LWP	SR-S4S	SR-S4SWP	TZ-S60W	TZ-S240W
Installation Configurations						
						
Extension Plate	SR-EP4	SR-EP4WP	SR-EP4	SR-EP4WP		SR-EP4
Wall Tilt Bracket						
Wall Mounting Bracket						
Flying Bracket						
Stacking Bracket						
Stand Adapter						
Floor Stand						
Protection Pad	SR-PP4					






















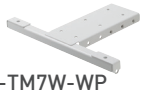






Speakers	Line Array Speakers Type C	
	Indoor Use SR-C8L / SR-C8S / SR-C15B	Outdoor Use SR-C8LWP / SR-C8SWP / SR-C15BWP
Installation Configurations		
Rigging Frame	SR-RF8 	SR-RF8WP
Cluster Bracket	SR-CL8 	
Rigging Support Bracket	SR-SB8 	
Tilt Joint Plate	SR-TP8 	






















Speakers	Line Array Speakers Type H			
	SR-H2L	SR-H2S	SR-H3L	SR-H3S
Installation Configurations				
Extension Plate	SR-EP3 		SR-EP3 	
Wall Mount Bracket	SR-WB3 			
Wall Tilt Bracket	SR-TB3 			
Flying Bracket	SR-FB3 			
Stand Adapter	SR-SA3 			











Speakers	Line Array Speakers Type T	
	SR-T5 	
Installation Configurations		
Wall Pan Bracket	SR-PB5 	

Speakers	FGM Speakers			
	H-1	BS-1030B	BS-1030W	BS-1110W
Installation Configurations				
Ceiling Mount Bracket				
Wall Mount Bracket	HY-H1 Adapter Frame	SP-410 		
Speaker Stand		ST-16A 		


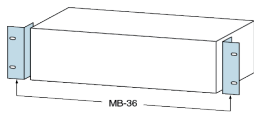

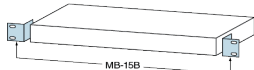

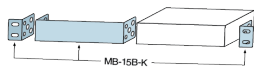

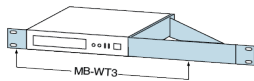

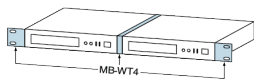

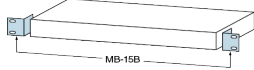

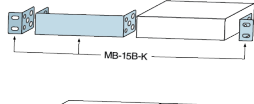
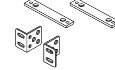
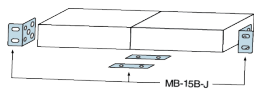



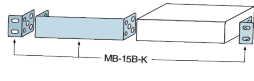
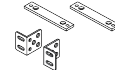
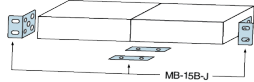

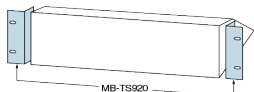

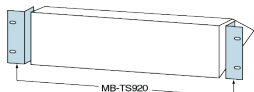

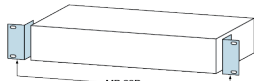
Speakers	Compact Array Speakers					
	HX-5B	HX-5W	HX-5B-WP	HX-5W-WP	FB-120B	FB-120W
Installation Configurations						
	 HY-PF1B	 HY-PF1W	 HY-PF1WP		 HY-PF1B	 HY-PF1W
Ceiling Mount Bracket	 HY-CW1B	 HY-CW1W	 HY-CW1WP			
Mount Bracket	 HY-WM1B  HY-WM2B	 HY-WM1W  HY-WM2W	 HY-WM1WP  HY-WM2WP			
Extension Bracket	 HY-CN1B	 HY-CN1W	 HY-CN1B-WP	 HY-CN1W-WP		
Speaker Stand Adapter	 HY-ST1					

Speakers	Compact Array Speakers					
	HX-7B	HX-7W	HX-7B-WP	HX-7W-WP	FB-150B	FB-150W
Installation Configurations						
	 HY-CN7B	 HY-CN7W	 HY-CN7B-WP	 HY-CN7W-WP		
	 HY-60DB	 HY-60DW	 HY-60DB-WP	 HY-60DW-WP		
	 HY-PF7B	 HY-PF7W			 HY-PF7B	 HY-PF7W
	 HY-VM7B	 HY-VM7W	 HY-TM7B-WP	 HY-TM7W-WP		
 HY-WM7B	 HY-WM7W	 HY-MS7B-WP	 HY-MS7W-WP			
Matching Transformer Adapter	 HY-MT7					
Speaker Stand Adapter	 HY-ST7					

Speakers		HS Series Speakers			
Installation Configurations	Wall / Ceiling Mount Bracket	HS-120B / HS-1200BT	HS-120W / HS-1200WT	HS-150B / HS-1500BT	HS-150W / HS-1500WT
					
	Vertical Installation	HY-1200VB 	HY-1200VW 	HY-1500VB 	HY-1500VW 
	Horizontal Installation	HY-1200HB 	HY-1200HW 	HY-1500HB 	HY-1500HW 
	Ceiling Mount Bracket	HY-C0801 	HY-C0801W 	HY-C0801 	HY-C0801W 
	Wall Mount Bracket	HY-W0801 	HY-W0801W 	HY-W0801 	HY-W0801W 
Speaker Stand		ST-34B 			

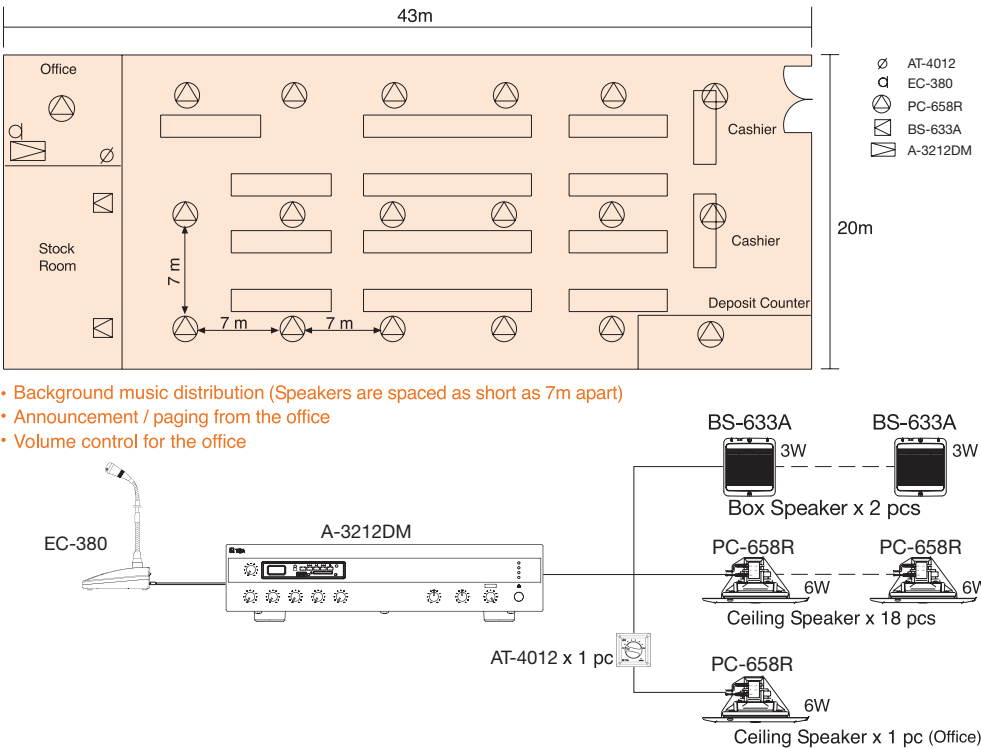
Speakers		SR Series Speakers	
Installation Configurations	Mounting Bracket	SR-F04	SR-F08
			
	Wall Mount Bracket	HY-UH04 	HY-UH08 
		HY-UV04 	HY-UV08 
	Speaker Stand Adapter	HY-WM04 	HY-WM08 
	Speaker Stand	HY-ST04 	
Speaker Stand		ST-34B 	

Rack Mount Selection Chart

Mountable Equipment			Rack Mounting Brackets	
Product Category	Name	Model	Appearance, Size & Color	Setting
Voice Evacuation Systems	VM-2000 Series	VM-2120	MB-36 (3-size) Color: Gray 	 MB-36
		VM-2240		
Wireless Microphone Systems	Power Antenna Distributor	WD-5800	MB-15B (1-size) Color: Black 	 MB-15B
	Infrared Wireless Tuner	IR-802T	MB-15B-BK (1-size) Color: Black 	 MB-15B-K
	Digital Receiver	WT-D5800	MB-WT3 (1-size) Color: Black 	 MB-WT3
	Dual Channel Receiver	WS-402 WS-422 WS-432		
	UHF Wireless Tuner	WT-5800 WT-5805 WT-4820		
	Infrared Wireless Tuner	IR-702T	MB-WT4 (1-size) Color: Black 	 MB-WT4
	Infrared Wireless Distributor	IR-700D		
Rack Mount Equipment	Sound Repeater	EV-20R	MB-15B (1-size) Color: Black 	 MB-15B
	Program Timer	TT-208		
	Digital Announcer	EV-700		
Network-Related Systems	Network Audio Adapter	NX-100 NX-100S NX-300	MB-15B-BK (1-size) Color: Black 	 MB-15B-K
Amplifiers	Mixer Amplifier	A-5000 Series	MB-15B-J (1-size) Color: Black 	 MB-15B-J
		A-2000 Series A-2000D Series A-2000DT Series A-3200D Series A-3500D Series A-3600D Series MX-6224D	MB-25B (2-size) Color: Black 	 MB-25B
	Power Amplifier	P-2240 P-3248D P-35xxD		
IP Intercom Systems	Audio Interface Unit	N-8000AL	MB-15B-BK (1-size) Color: Black 	 MB-15B-K
	Telephone Interface Unit	N-8000AF		
	CO Interface Unit	N-8000CO	MB-15B-J (1-size) Color: Black 	 MB-15B-J
Conference Systems	Expansion Unit	TS-918		 MB-TS920
	Sub Control Unit	TS-D1000-SU		
	Master Control Unit / Central Unit	TS-D1000-MU TS-920RC TS-820RC TS-820	MB-TS920 Color: Black 	 MB-TS920
		TS-780 TS-690	MB-23B (2-size) Color: Black 	 MB-23B

System Application 1

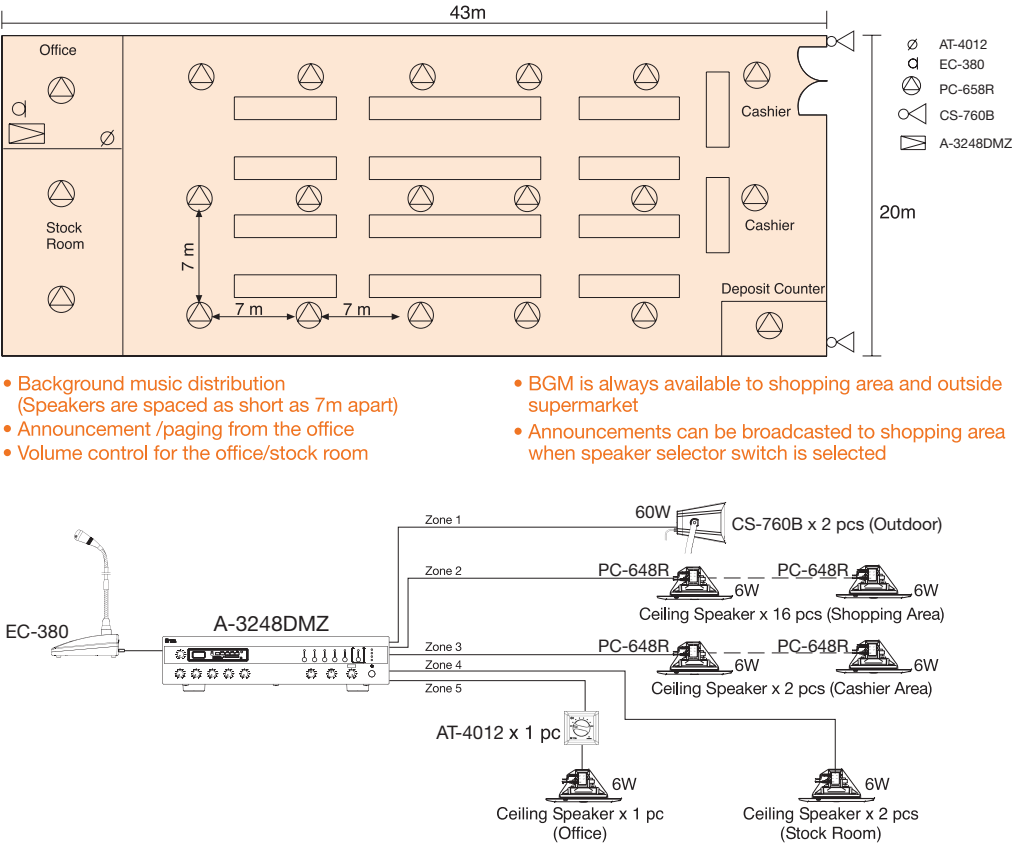
SUPERMARKET SYSTEM (SINGLE ZONE)



- Background music distribution (Speakers are spaced as short as 7m apart)
- Announcement / paging from the office
- Volume control for the office

System Application 2

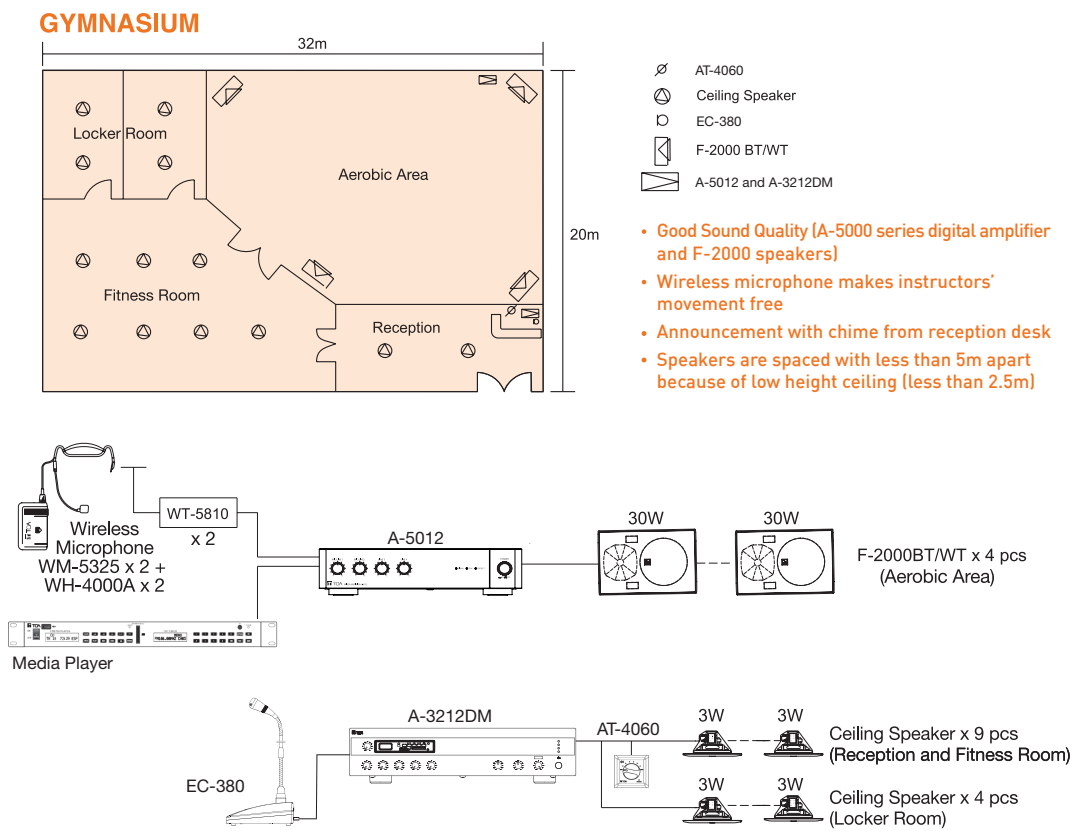
SUPERMARKET SYSTEM (5 ZONES)



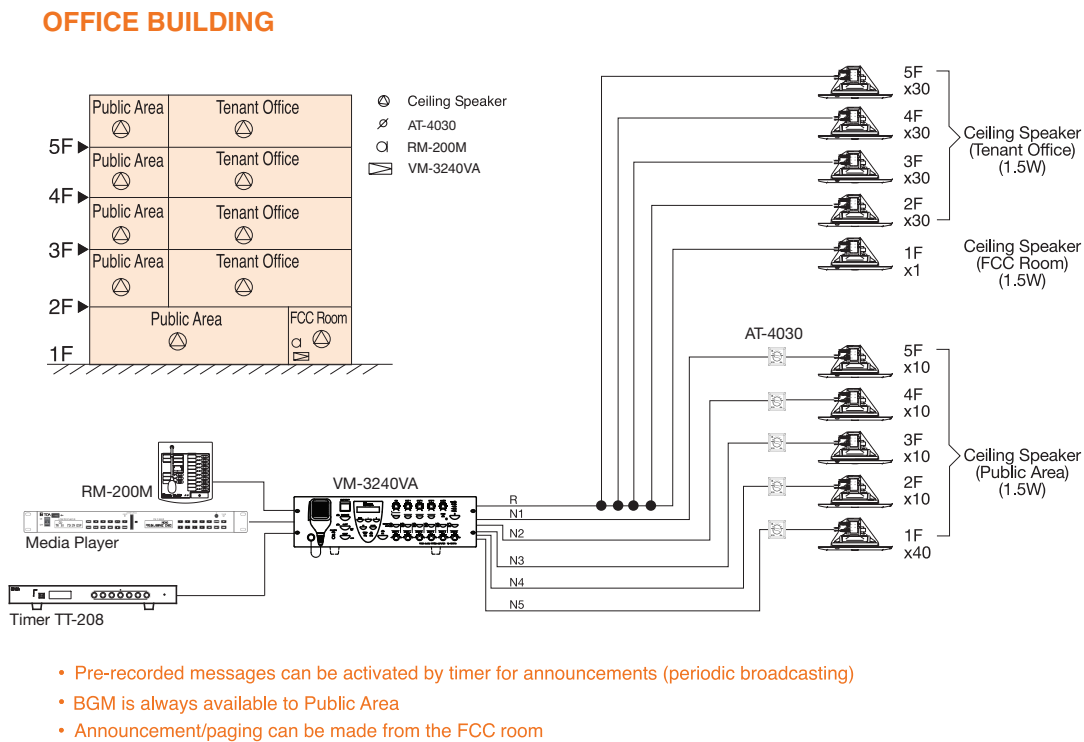
- Background music distribution (Speakers are spaced as short as 7m apart)
- Announcement / paging from the office
- Volume control for the office/stock room
- BGM is always available to shopping area and outside supermarket
- Announcements can be broadcasted to shopping area when speaker selector switch is selected



System Application 3

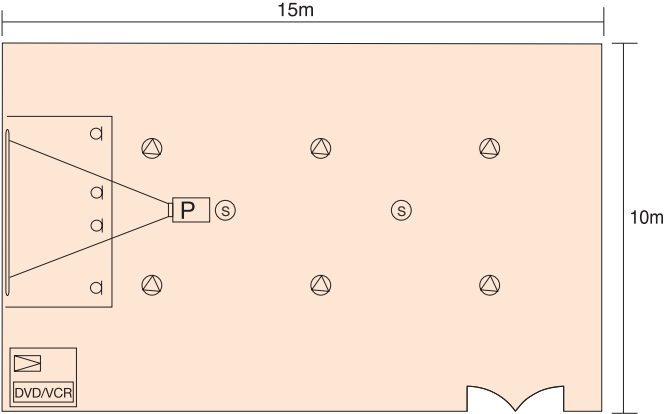


System Application 4



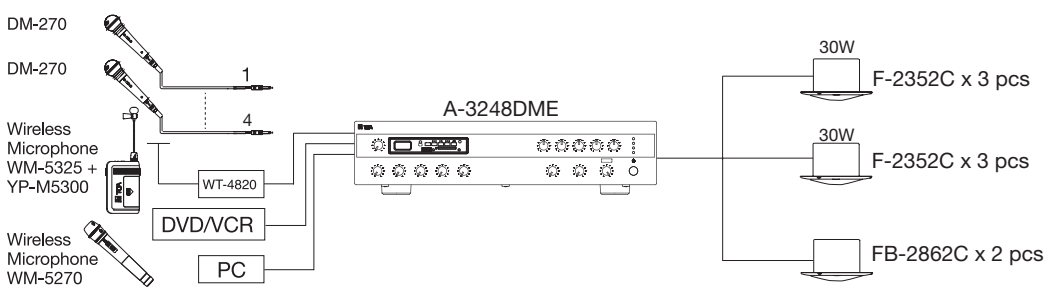
System Application 5

TRAINING / SEMINAR ROOM



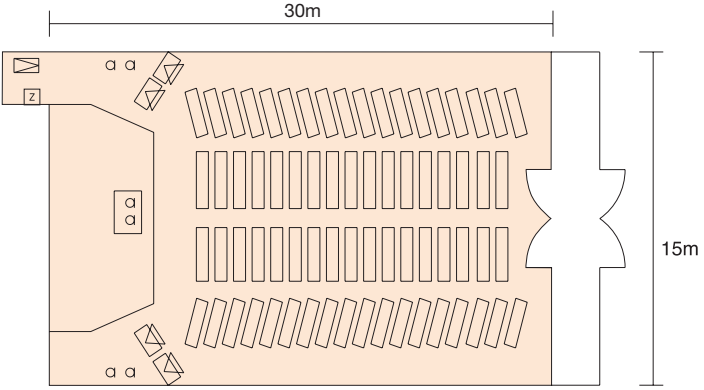
- DM-270
- A-3248DME
- F-2352C
- F-2352C
- Projector

- Good Sound quality (Amplifier and speaker system)
- Wireless microphones makes speakers movement free
- Total 4 microphones can be used
- DVD/VCR and PC sound can be broadcasted



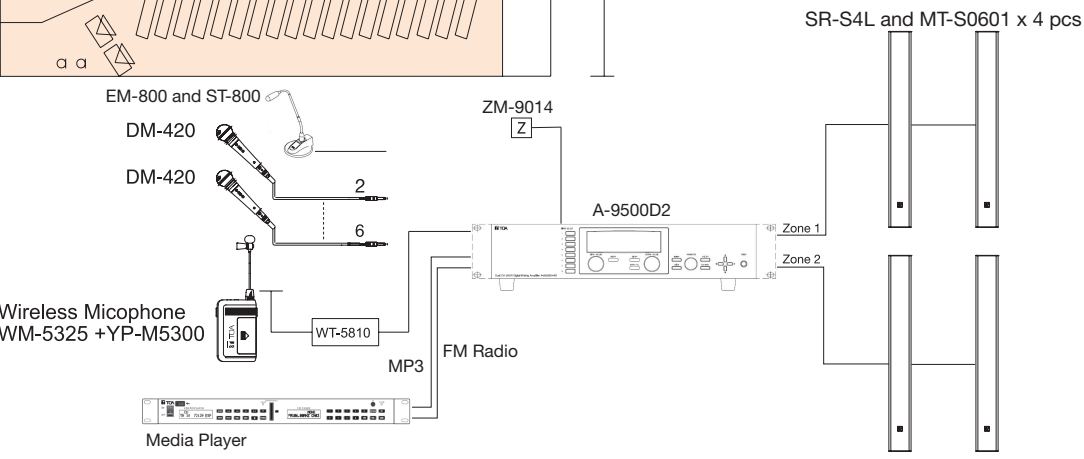
System Application 6

CHURCH



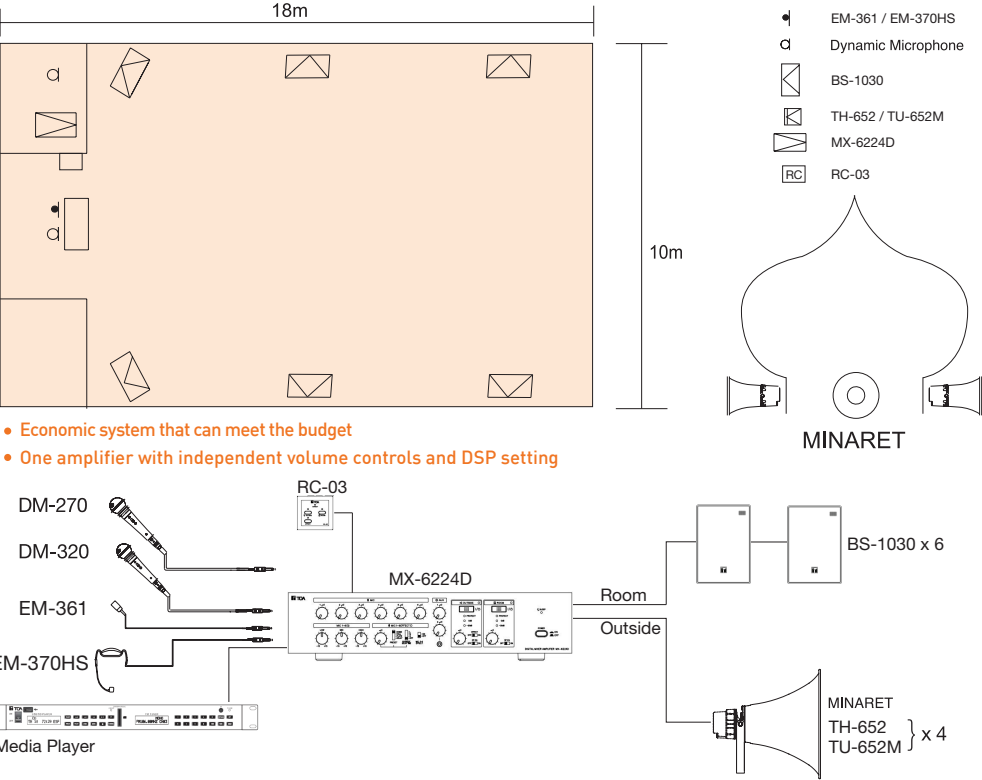
- DM-420 / EM-800 and ST-800
- SR-S4L and MT-S0601
- A-9500D2
- ZM-9014

- DSP setting Digital Power Amplifier A-9500D2 and SR-S4L Slim Array Speaker)
- High speech quality
- Wireless microphone makes priests' movement free



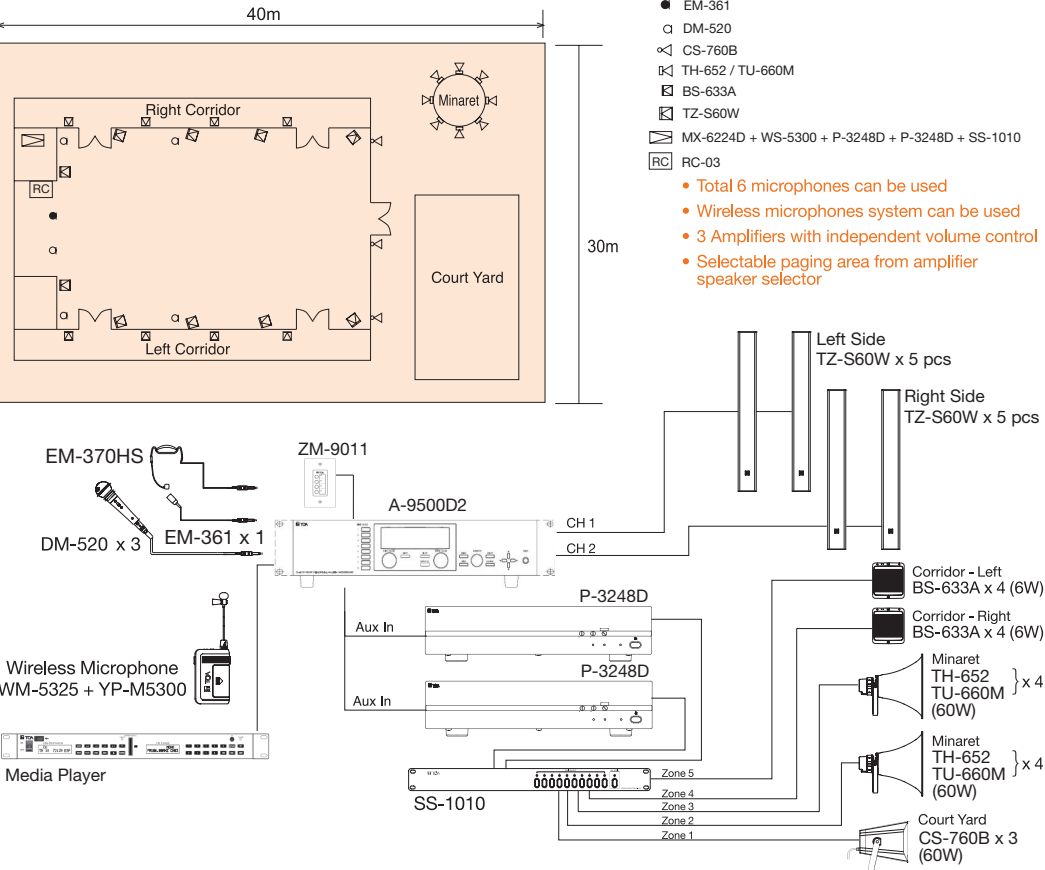
System Application 7

MOSQUE (SYSTEM A)



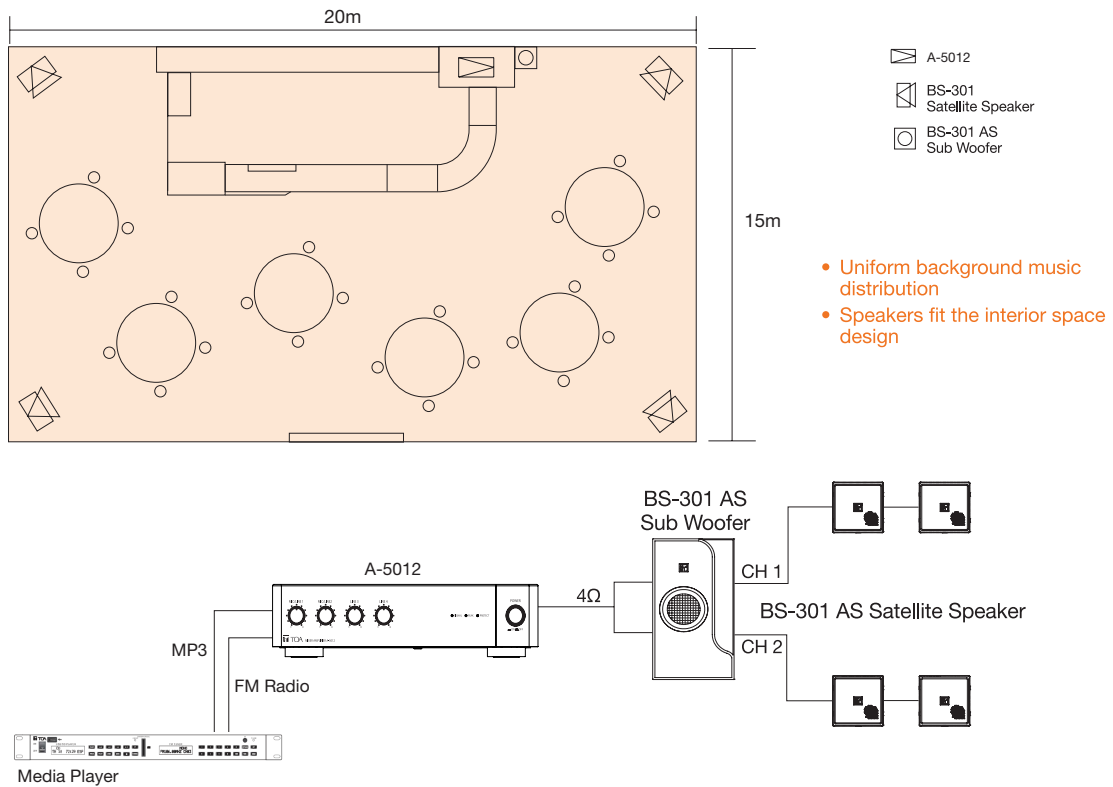
System Application 8

MOSQUE (SYSTEM B)



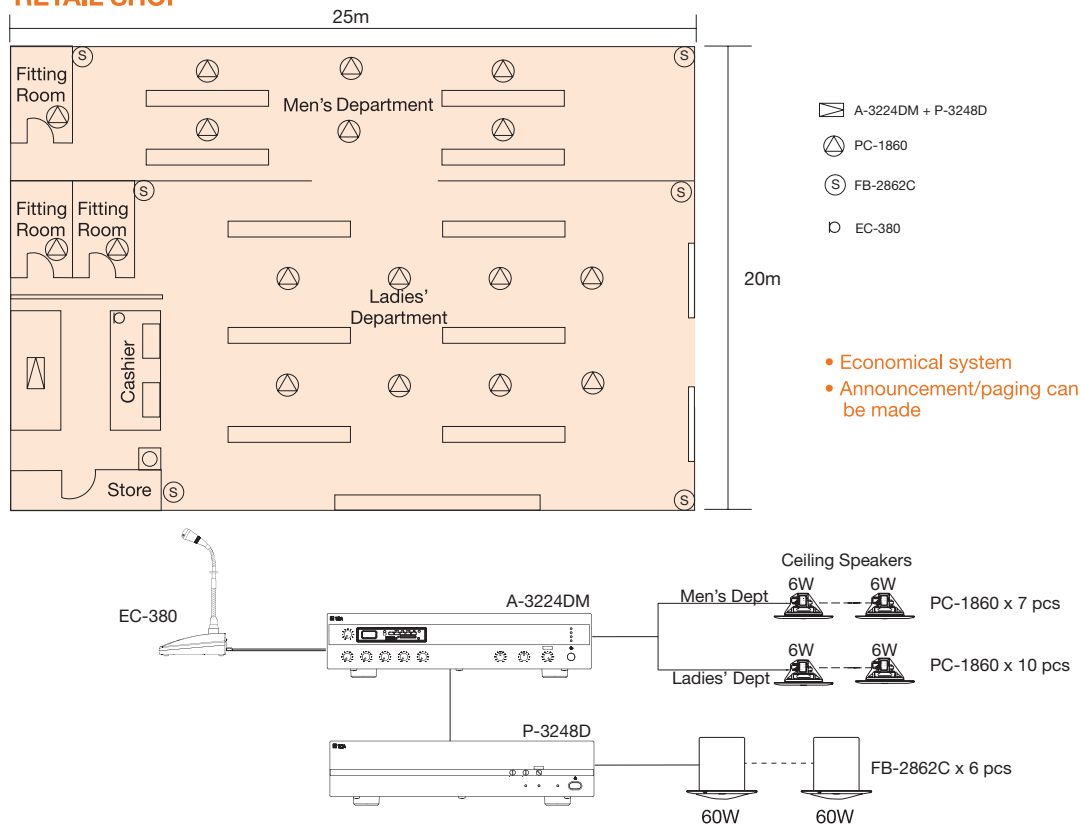
System Application 9

CAFE

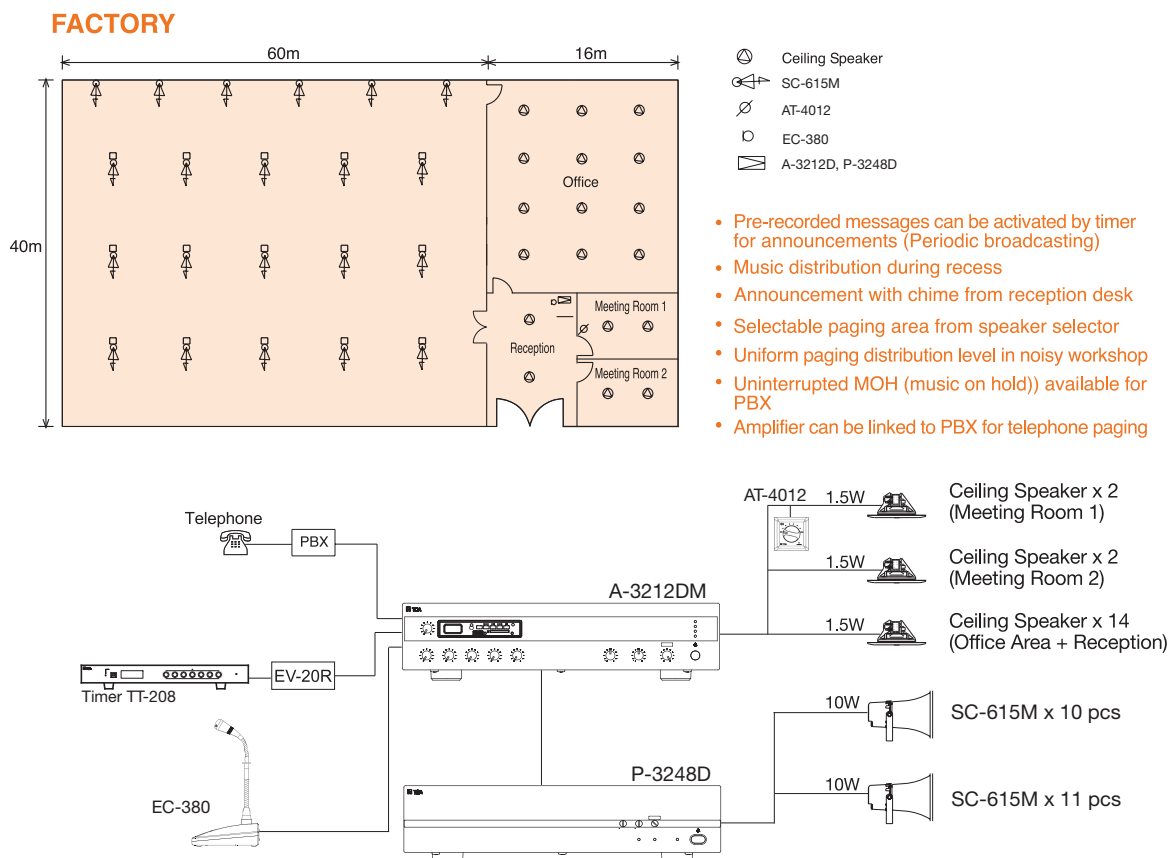


System Application 10

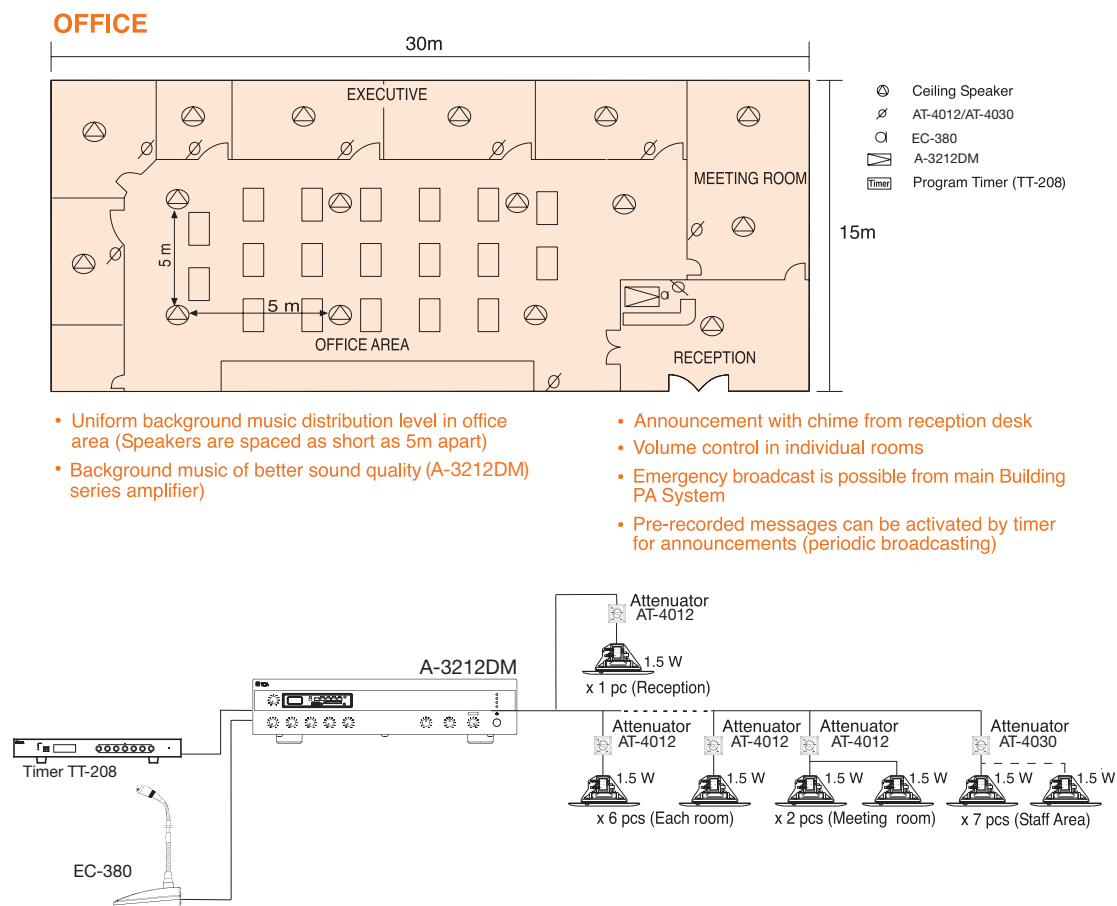
RETAIL SHOP



System Application 11



System Application 12

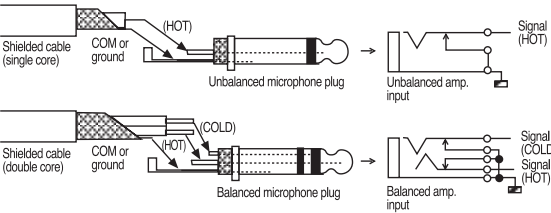


Microphone

Wiring of microphones

Output from a microphone is rather weak; therefore, it is important to use shielded cable for microphones to prevent line noise. The low impedance shielded cable intended for microphones are commercially available. The shielded cable is generally used to transmit the audio signals from microphones (-70dB/0.3mV) or source equipment (0dB/1V).

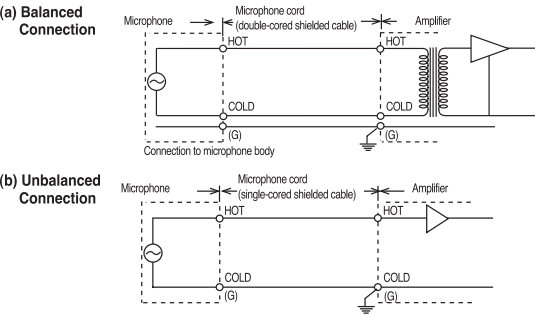
Balanced and unbalanced type



Balanced and unbalanced output

There are two kinds of output from a microphone: balanced and unbalanced. With balanced output, the audio signal appears between the hot (on-going audio signal) and cold (return audio signal), which are both independent of the ground. With unbalanced output, the audio signal appears between the hot and ground (connected to the cold). The connection between balanced output and balanced input (on the amplifier side) is virtually unaffected by external line noise, and it is used for wiring between long distances. Double-cored shielded cable is used for connecting.

balanced output, and single-cored shielded cable is used for connecting unbalanced output.



Distance of extension for microphone cords

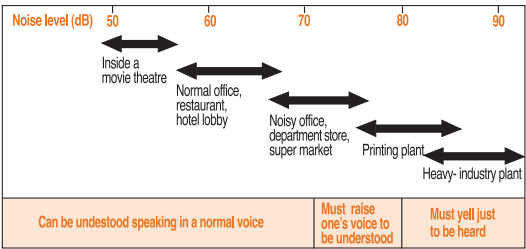
The following table shows the maximum extension distance for microphone cords. When distance extends beyond the following figures, excessive noise will make the microphone impractical, and therefore it will be necessary to use a microphone mixer to boost the signal level to minimize the influence of noise.

Microphone output	Amplifier input	Microphone cord extension distance
Unbalanced	Unbalanced	20m
Balanced	Unbalanced	20m
Balanced	Balanced	80m

Speaker 1

Rough guide for noise levels and audio levels necessary for loudspeaker (for all types of speakers)

Noise levels are expressed in decibels (dB). Below are some typical examples..



When transmitting voice or music through a speaker, it is necessary to transmit at a level that is higher than the ambient noise level. In the case of voice transmission, it should be transmitted at a level 5 to 10 dB higher than the noise level, background music 3 to 5 dB higher, and foreground music 15 to 20 dB higher.

Computation of intensity of sound

As an index to express the intensity of sound from a speaker, sound-pressure level (in dB) is generally used. The sound-pressure level rises as the electric input to the speaker increases, and falls as distance from the speaker increases. This relationship is shown by the following formula:

$$SPL (dB) = \boxed{SPL (1W/1m)} - \boxed{\text{Attenuation of SPL due to distance}} + \boxed{\text{Amount of increase of SPL due to electric input}}$$

The SPL (1W/1 m) indicates the sound pressure level at a point 1 meter away from a speaker when an electric input of 1 W is applied to that speaker. This is used to express comparative speaker efficiency, such as in a catalog.

Attenuation of SPL due to distance (amount of attenuation = 20 log D D: distance in meters from speaker)										
Distance (m)	2	5	10	15	20	30	40	60	80	100
Amount of increase (dB)	6.0	14.0	20.0	23.5	26.0	29.5	32.0	35.6	38.1	40.0

Increase of SPL due to electric input (amount of increase = 10 log W W: electric input)										
Electric Input (W)	1	1.5	3	5	6	10	15	20	30	50
Amount of increase (dB)	0	2.6	4.8	7.0	7.8	10	11.8	13	14.8	17

■ Example of calculation:
The SPL(1w/1m) of the model SC-615M is shown as 112 dB. The sound-pressure level of this model at distance of 10 meters with an input of 10 W can be calculated as follows according to the above table:
 $SPL = 112 \text{ dB} - 20 \text{ dB (10m)} + 10 \text{ dB (10W)} = 102 \text{ dB}$

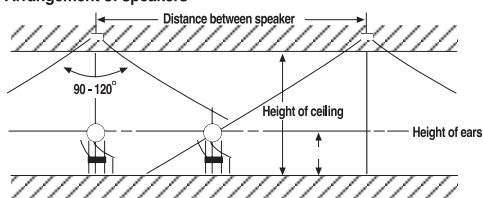
Arrangement of speakers in a general office (Ceiling speakers)

Ceiling-mounted speakers are generally used, and their coverage angle is between 90 and 120 degrees. The smaller the distance between speakers, the better the sound quality and the more even the sound volume. The following table shows the area that can be covered by one speaker.



Speaker 2

Arrangement of speakers

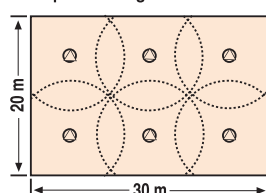


Area of coverage of one speaker

Purpose	Height of ceiling	Distance between speakers	Area of coverage of one speaker
Background music	Less than 2.5m	5m	About 25m ²
	2.5 - 4.5m	6m	About 36m ²
Announcement	4.5 - 15m	9m	About 81m ²
		9 to 12m	81 to 144 m ²

For general office use not to include background music, speakers should be arranged about 9 to 12 meters apart. Shown below is an example of speaker arrangement in a 30 m x 20 m office with ceiling height of 3 m, which indicates that this office requires about 6 speakers.

Example of arrangement



Office of 30 m x 20 m with 3 m ceiling without music

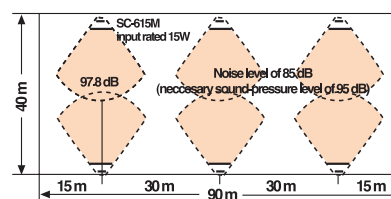
Number of speakers necessary: 6 to 8

Arrangement of speakers in a factory (Horn speakers)

Factories with high noise levels generally use horn speakers, which can produce high levels of sound. If you know where people are working in the factory, speakers are best arranged to cover such locations. If that is unknown, speakers should be arranged in accordance with the floor space.

Here is an example of a 40 m x 90 m room in factory with a noise level of 85 dB. In this factory, SC-615M speakers are installed; therefore, the sound pressure that can be obtained at a point 20 meters away with electric input of 15 W will be:
[112 dB (1W/1m) - 26.0 dB (20 m) + 11.8 dB (15 W)]=97.8 dB

This is a sufficient sound pressure level, 10 dB higher than the noise level. The speakers are installed 20 to 30 meters apart, and 6 speakers can generally cover the area. The sound pressure level near speakers is rather high, so it is necessary to install the speakers at a height of more than 4 meters.



Speaker wiring

For speaker connections, use 600V vinyl (PVC) insulated wire of 1.2mm to 1.6mm in diameter (AWG17 to AWG 14)

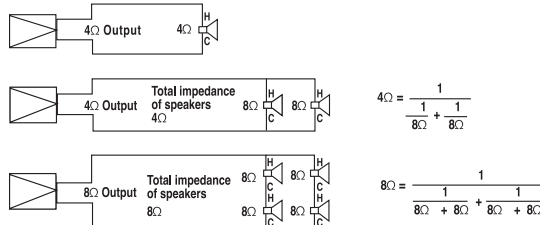
Speaker 3

High-impedance connection and low-impedance connection

The PA amplifiers generally come with low-impedance speaker outputs (indicated as 4 Ω, 8 Ω, 16 Ω, etc) and high-impedance outputs (indicated as 70V, 100V, etc). Low-impedance output is used when a small number of speakers (1 to 4) is used and there is a short distance (10-some meters) between amplifiers and speakers. High-impedance output, is used with a large number of speakers and a longer distance of wiring. Speakers with transformers are used for high-impedance output. For a PA system, high impedance connection should be used if possible, in consideration of wrong speaker connections and transmission efficiency.

■ Example of low-impedance connection:

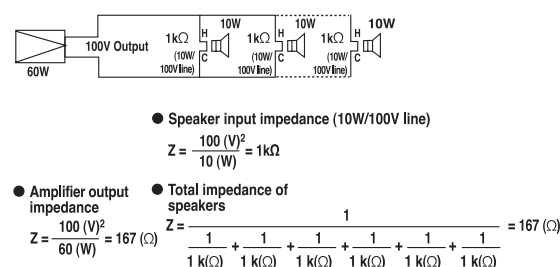
It is necessary to design the total speaker input impedance to be larger than the amplifier output impedance. When the total speaker impedance is lower than the amplifier output impedance, unstable operation or amplifier malfunction may result. The wiring distance between amplifier and speaker should be less than 10-some meters. If the wiring distance is greater than this, the output power from the amplifier will be consumed as heat in the cables, and not be able to supply the speaker with sufficient power.



■ Example of high-impedance connection:

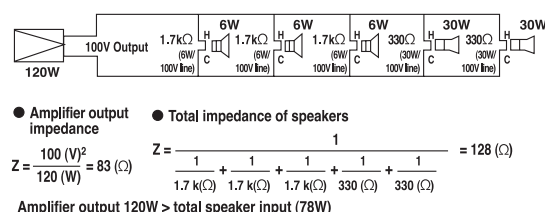
In a PA system to cover a large area, the wiring distance will be greater, so high impedance connection is used predominantly. In high-impedance connection, all speakers (each with a transformer) will be connected in parallel. Avoid using these speakers together with those without transformers.

In high-impedance connection, as long as you have parallel connection. It will be sufficient to design the total speaker input to be lower than the amplifier output, and this will help eliminate complex impedance calculation.



Amplifier output 60W = total speaker input (60W)

Even when connecting speakers with different inputs, there will be no problem as long as the total wattage of the speakers does not exceed the amplifier output.



Certifications & Standards

IP Grade Panel

This standard provides a system for classifying the degrees of protection provided by the enclosures of electrical equipment under the International Electrotechnical Commission (IEC) publication 529.

The type of protection covered by this system of classification is as follows.

- Protection of persons against contact with or approach to live parts and against contact with moving parts inside the enclosure and protection of the equipment against ingress of solid foreign bodies.
- Protection of the equipment inside the enclosure against harmful ingress of water.

1st Numeral: Protection against solid foreign objects			2nd Numeral: Protection against ingress of water		
0		Non-protected	0		Non-protected
1		Protected against solid foreign objects of 50mm ø and greater	1		Protected against vertically falling water drops
2		Protected against solid foreign objects of 12.5mm ø and greater	2		Protected against vertically falling water drops when enclosure tilted up to 15°
3		Protected against solid foreign objects of 2.5mm ø and greater	3		Protected against spraying water
4		Protected against solid foreign objects of 1.0mm ø and greater	4		Protected against splashing water
5		Dust-protected	5		Protected against water jets
6		Dust-light	6		Protected against powerful water jets
X		Non-tested	7		Protected against the effects of temporary immersion in water
			8		Protected against the effects of continuous immersion in water
			X		Non tested

ISO & European Standards



* TOA has been granted the "ISO 9001 (BS 575)" registration in the 9000 Series of Quality Assurance Standards by the International Organization for Standardization (ISO).



EN 54 is a standard of the European Union (EU) for fire alarm systems, ensuring high product quality and reliability, and enabling better integration of Voice Alarm (VA) and Public Address (PA). EN 54 plays a significant role in the market for voice evacuation equipment, as the member states of the European Union replace their local standards with the EN 54 standard. All emergency voice evacuation systems marketed in the members states of the European Union are required to be certified to this standard.

EN 54-16 Fire detection and fire alarm systems: Components for fire alarm voice alarm systems. Voice alarm control and indicating equipment

EN 54-24 Fire detection and fire alarm systems: Voice alarms - Loudspeakers



EN 50121-4 is an European electromagnetic standards which applies to a signaling and telecommunication apparatus installed in railway environment.

EN 50121-4 specifies limits for emission and immunity and provides performance criteria for signalling and telecommunications apparatus which may interfere with other apparatus in the railway environment, or increase the total emissions for the railway environment beyond the limits defined in the appropriate standard and so risk causing electromagnetic interference to apparatus outside the railway system.

Our Project References

TOA has provided innovative audio products and solutions to thousands of different places. Here are a few of the installations among the many projects we have completed to-date. At TOA, we strike to deliver only the clearest sound experience, be it for pleasure or in the case of emergency.



Our Tampines Hub (Commercial Facility)



Marina Bay Financial Centre Tower (Commercial Facility)



INTEC Education College (Education Facility)



The Higashiosaka Hanazono Rygby Stadium (Sports Facility)



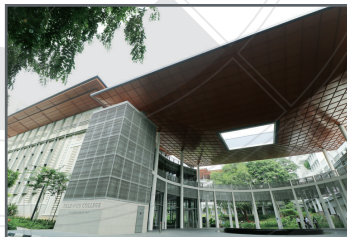
Siam Premium Outlet, Bangkok (Commercial Facility)



Exchange 106 (Commercial Facility)



Balikpapan Islamic Center (House of Worship)



Yales-NUC College (Educational Facility)



Eiffel Tower Bahria Town Karachi (Commercial Facility)



Light of Jesus Community Cebu (House of Worship)



Cartoon Network Amazone (Theme Park)



Yishun Community Hospital (Medical Facility)

Other Installations	• Transport: Ipoh International Airport, NSW Railways, Narita International Airport, Seoul Subway
	• Sports Facilities: Hanazono Rugby Stadium, Kyocera Dome Osaka, Wimbledon Tennis Court, Noevir Stadium Kobe
	• Hotels: The Capella Singapore, MGM Casino & Hotel Vietnam, Indonesia Gaia Cosmo Hotel, The Westin Awaji Island
	• Commerical Facilities: FPG Oleochemicals, TIMES Square Vietnam, Audi Centre Sydney, Sunway Velocity Medical Centre

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