TOA

PRODUCTCATALOG

We supply sound, not equipment.
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SOUND NAVIGATOR

Hello!

My name is Dr. Sound. I am the new acoustic expert at TOA and am always seeking the perfect sound. At TOA we have made it our mission to supply you not just with high-quality equipment but above all with first-class sound. Whether in schools, concert halls, airports or stadiums – our sound systems make millions of peoples' lives safer and more enjoyable.

Have fun in planning with and browsing through our products,

- Dr. Sound

We supply sound, not equipment.

Since being founded in 1934, as a manufacturer of commercial and professional audio equipment and security equipment, we have exported our products from Kobe to more than 100 other countries throughout the world.

In every company within the TOA group, which consists of the main company and 19 subsidiaries, we utilize the technical expertise and know-how that we have accumulated throughout the years in every aspect of production, from product planning and development right through to sales and management.

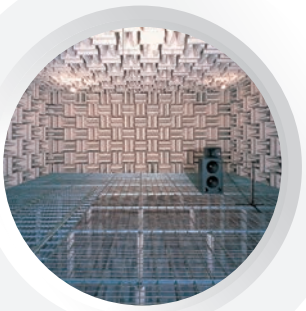
We are constantly improving our technological capabilities in areas such as acoustics, graphics and networks, and developing innovative products in order to provide customers with the ultimate in good sound and peace of mind to help make their lives more comfortable.

TOA's Environmental Principles

TOA recognizes preservation of the Earth's environment as an important aspect of doing business in the world today. Our staff as a whole remains actively committed to pursuing all corporate activities in ways that give strong consideration to environmental protection.

Declaration of Social Contribution

TOA voluntarily conducts activities to resolve diverse social issues and contribute to society in general as a "good corporate citizen" trusted by society. We aim to grow together with society and become viewed by society as an "indispensable company," by effectively using company resources and conducting original activities with a strong awareness of our relationship with "sound and video," a business field we specialize in.



Planning and Design Carried Out in Japan

Thorough Proving of Product Design and Production Processes

The basis of our quality assurance activities is the product planning and design that is carried out primarily in Japan in response to market needs and in compliance with ISO9001:14001 standards. Our dedicated professional staff inspect products at every stage of the production process using their years of experience and their high levels of technological expertise.

Quality Control by TOA HQ

TOA production plants both within Japan and overseas are part of TOA Group. Numerous technicians from Japan are sent to our overseas production plants where they use state-of-the-art equipment to produce products under the same stringent quality control system as is used in our production facilities in Japan. Furthermore, twice a year, staff from our Quality Control Division visit overseas production facilities to carry out inspections and ensure that quality standards are being maintained.

Our Three Confidences

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

Total confidence of our associates in all business transactions.

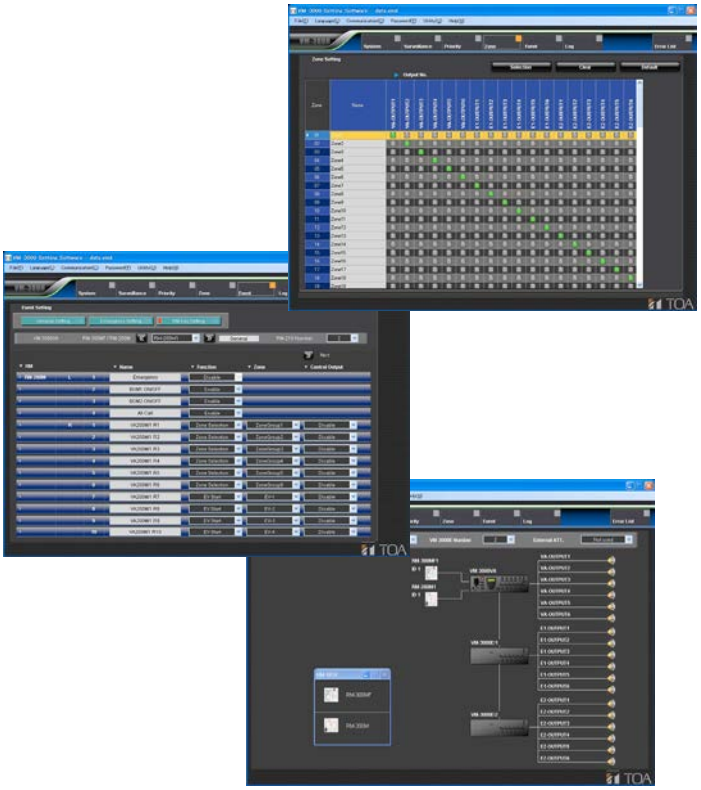
Total confidence of our employees in all their effort.

TOA

VM-3000 Series Integrated Voice Evacuation System

Full range audio distribution system that meets UL emergency notification and life safety standards!

- TOA high quality audio (50Hz - 20kHz)
- UL864 (Fire Voice) / UL2572 (MNS) / CAN UL S576 (MNS) certified system (when installed per the manufacturer's instructions)
- Up to six non-emergency pre-recorded messages stored as .wav files
- Up to four emergency pre-recorded messages stored as .wav files.
- Emergency alert tones for each emergency message customizable and stored as separate .wav files
- Comprehensive fault monitoring and reporting for all Emergency functions
- Speaker line fault monitoring and reporting per zone
- VM-3240VA capable of supporting 9 extension amplifiers (60 zones at 2000W)
- Assignable priorities for non-emergency signals (music/paging)
- Pages/pre-recorded messages may be programmed to override or be mixed with BGM
- Zoned non-emergency paging from RM-200MPS paging stations
- Programmed by free PC software, PC not required for operation
- Can be used with any UL certified addressable fire alarm panel
- Hardware lockout of LAN port for extra security



Voice Alarm System Amplifier
VM-3240VA

VM Extension Amplifier
VM-3240E

Emergency Power Distribution and Monitoring
VX-2000DS

VM-3000 Series Integrated Voice Evacuation System

❖Voice Alarm System Amplifier
VM-3240VA

- System Controller (one per system)
- Four mic/line inputs and two BGM inputs
- Provides from 1-6 zones of output at full power
- Non-emergency front panel volume controls for BGM/Program input
- Zoned emergency paging from front panel microphone
- Zoned non-emergency paging using the optional RM-200MPS
- UL 2572 and UL 864 listed

❖VM Extension Amplifier
VM-3240E

- Auxiliary line input for local amp input
- Adds additional 1-6 zones to system at full power
- Link up to 9 extension amplifiers to one VM-3240VA for a total of 60 zones at 2400 Watts (non-UL) or 2000 Watts (UL)
- Each additional extension amplifier provides 8 more GPIO contacts, 6 Emergency input contacts, and one additional Status output

❖Emergency Power Distribution and Monitoring
VX-2000DS

- Supplies DC power to equipment from two 12V backup batteries
- Monitors power and automatically switches to DC upon mains failure
- Monitors battery status
- Fully monitored by the system

❖Remote Microphone
RM-200MPS

- Up to four remote microphones can be connected but the maximum connection length for all cables is approximately 800 meters
- An external microphone input is provided to allow use of a headset microphone
- Internal microphone compression circuitry
- TALK button may be PTT or lock-type (selectable by Dip Switch)

VM-3000 Series Integrated Voice Evacuation System Optional Accessories

❖Remote Microphone Extension Unit
RM-210

- Up to four can be connected to a remote microphone for up to 50 zone selection buttons
- Emergency activation button is equipped with a cover

❖Fireman's Microphone Extension
RM-320F

- By connecting the RM-320F Fireman's Microphone Extension to the RM-300MFPS, the number of function keys can be expanded
- Zone selection or failure acknowledgement function can be assigned to such function keys

❖Meanwell Power Supply
RCP-100024

- 24V- 40A Hot-swappable power supply (Requires RCP-1UIU Frame)

❖Meanwell Power Supply Frame
RCP-1UIU

- 1U Power Supply Frame for 3 RCP-100024

❖Fireman's Microphone
RM-300MFPS

- Equipped with an emergency activation key, permitting pre-recorded evacuation and alert announcements to be activated, and microphone announcements to be made in emergency situations

❖Rail Power Supply
SDR-480-24

- 24V- 20A Fanless- DIN Rail Power Supply

* 0 dB = 1 V

Specifications

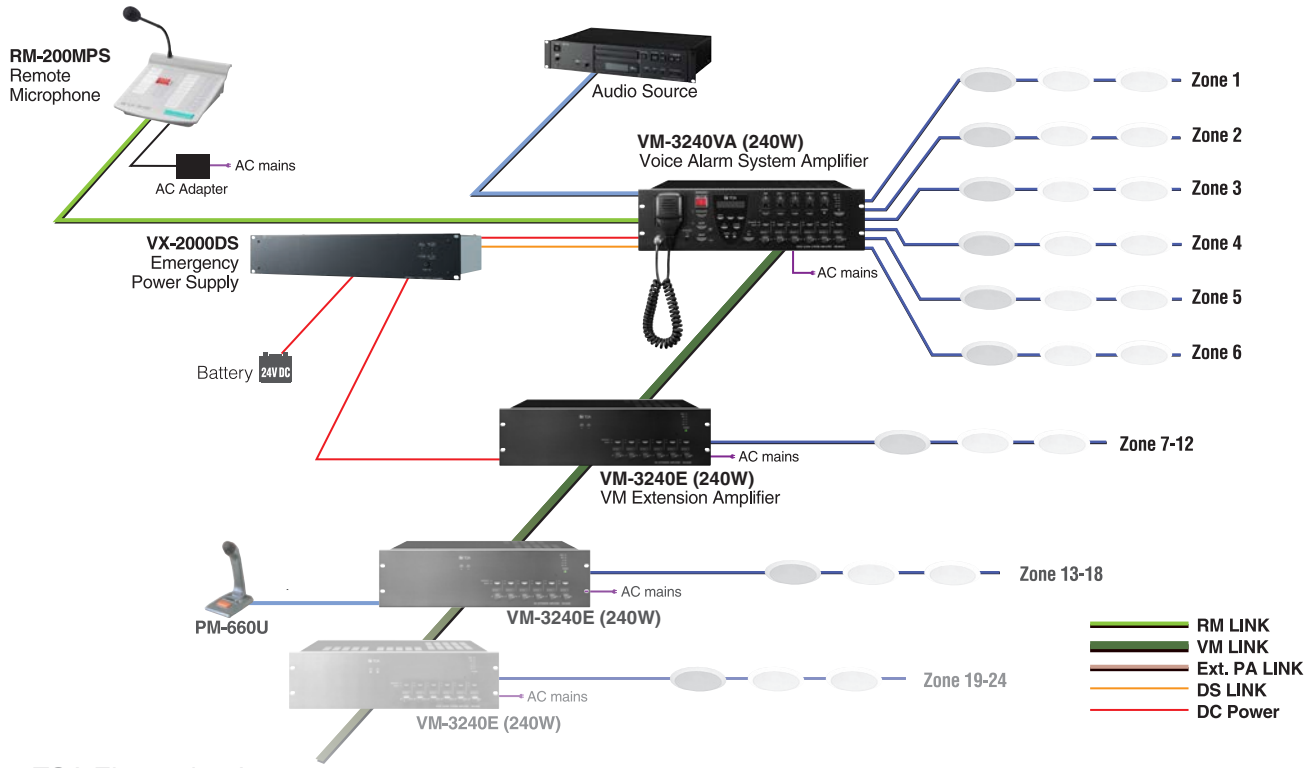
	VM-3240VA	VM-3240E
Power Source	120 V AC, 60 Hz	
Power Consumption	60 W (at rated output), 260 W (according to UL 60065), 63 W (at no signal)	
Rated Output	240 W, 21 Ω (according to UL 60065) 200 W, 25 Ω (according to UL 2572 and UL 864) 200 W, 25 Ω (according to CAN/ULC-S576 with separate UPS) 100 W, 50 Ω (according to CAN/ULC-S576) (All total of Speaker output 1 – 6 and Direct Output)	
Frequency Response	50 Hz – 20 kHz, ±3 dB (at 1/3 rated output), 800 Hz – 2.8 kHz (according to UL 2572 and UL 864), 400 Hz – 4 kHz (according to CAN/ULC-S576)	
Distortion	0.7% or less (at rated output, 1 kHz)	
S/N Ratio	85 dB or more	
Audio Input/Output Characteristic	Sampling frequency: 48 kHz A/D D/A converter: 24 bit	--
Input	Input 1 – 3: –50 dB* (MIC) / –10 dB* (LINE) (changeable), 600 Ω, electronically balanced, combined XLR connector (female) / phone jack Input 4: –50 dB* (MIC) / –10 dB* (LINE) (changeable), 600 Ω, electronically balanced, removable terminal block (14 pins) BGM 1 – 2: –10 dB*, 10 kΩ, unbalanced, RCA pin jack External AMP Input: 70 V line, removable terminal block (14 pins)	External amplifier Input: 70 V line, removable terminal block (14 pins) Local Input: –50 dB* (MIC) / –10 dB* (LINE) (changeable), 600 Ω, electronically balanced, removable terminal block (14 pins)
Output	Speaker output 1 – 2: Max. (240 W) per output Speaker output 3 – 6: Max. (120 W) per output Speaker output 1 – 6: Total within rated output, removable terminal block (14 pins) Allowable minimum load: 250 Ω (20 W) at 70 V line for speaker line failure detection Direct output: Direct output from internal or external amplifier, removable terminal block (16 pins) Recording output BGM/Paging: 0 dB*, 10 kΩ, unbalanced, RCA pin jack Ground faults detection: 0 Ω Wire to wire faults detection: 0 Ω	Speaker output 1 – 2: Max. (240 W) per output Speaker output 3 – 6: Max. (120 W) per output Speaker output 2 – 6: Total within rated output, removable terminal block (14 pins) Allowable minimum load: 250 Ω (20 W) at 70 V line for speaker line failure detection Direct output: Direct output from internal or external amplifier, removable terminal block (16 pins)
RM Link	Input 1 – 2: Connecting the RM-300MFPS/200MPS Remote Microphone, RJ45 female connector Maximum distance: Total 800 m (2624.67 ft) between this unit and remote microphones Link cable: Shielded Category 5	--
Network I/F	10BASE-T/100BASE-TX (selectable by automatic negotiation), RJ45 female connector Maximum distance: 100 m (328.08 ft) between this unit and a switching hub Link cable: Shielded Category 5	--
VM Link	Output: Connecting the VM-3240E, RJ45 female connector Link cable: Category 5 Shielded Twisted-Pair straight cable (CAT5-STP) Maximum distance: Total 800 m (2624.67 ft) between this unit and remote microphones Link cable: Shielded Category 5	Input: Connecting the VM-3240VA, RJ45 female connector Output: Connecting the VM-3240E, RJ45 female connector Link cable: Shielded Category 5
General Control	Input 1 – 8: No-Voltage make contact input, open voltage: 24 V DC, short-circuit current: 2 mA or less, removable terminal block (14 pins) Output 1 – 8: Isolated open collector output, withstand voltage: 30 V DC, operating current: 10 mA or less, removable terminal block (14 pins)	
Emergency Control	Input 1 – 5: No-Voltage make contact input, open voltage: 24 V DC, short-circuit current: 2 mA or less, 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 V DC, operating current: 2 – 300 mA, RJ45 female connector	
Power Input/Output	Power in: Connecting the VX-2000DS only (operating range: 20 – 40 V DC) PS out: 28 V DC / 18 A M4 screw terminal, distance between barriers: 11 mm (0.43")	
24 V DC Output	24 V DC, Maximum feeding current 0.3 A (for RM-200MPS only)	
DS Link	Connecting the VX-2000DS, RJ45 female connector Link cable: Shielded Category 5, Max distance 5m	
Operating Temperature	0 to 45 ºC (32 to 113°F)	
Operating Humidity	5% to 95% RH (no condensation)	
Finish	Panel: Aluminum, hair-line, black Case: Surface-treated steel plate, black, paint	
Dimensions	482 (w) x 132.6 (h) x 431.2 (d) mm / 18.98" x 5.22" x 16.98"	482 (w) x 132.6 (h) x 407 (d) mm / 18.98" x 5.22" x 16.02"
Weight	16.5 kg / 36.38 lb	
Included Accessories	AC power cord (2 m or 6.56 ft) x 1, Emergency microphone (hand-held type) x 1, Plastic foot x 4, Plastic foot mounting screw x 4, Removable terminal plug (14 pins) x 3, Removable terminal plug (16 pins) x 1, Link cable (3 m or 9.84 ft) x 2, Setting software-CD x 1	AC power cord (2 m or 6.56 ft) x 1, Plastic foot x 4, Plastic foot mounting screw x 4, Removable terminal plug (14 pins) x 3, Removable terminal plug (16 pins) x 1, Link cable (3 m or 9.84 ft) x 2
Optional product	Input transformer: IT-455	--

* 0 dB = 1 V

Specifications

	RM-200MPS	RM-210	RM-300MFPS	RM-320F
Power Requirement	24 V DC; Power input jack: Non-polarity type; Usable power input plug: Outer diameter ø5.5 mm (0.22"), inner diameter ø2.1 mm (0.08"), length 9.5 mm (0.37")	From remote microphone	24 V DC (operating range: 14 – 28 V DC)	From RM-300MFPS / RM-200MPS
Current Consumption	100 mA or less	20 mA max. (in terms of RM-200MPS's DC power input)	120 mA (up to 660 mA with 3x RM-320F)	180 mA max. (in terms of DC power inputs of RM-300MFPS)
Frequency Response	100 Hz – 20 kHz	-	200 Hz – 15 kHz	-
Distortion	1 % or less			
Signal-to-Noise Ratio	60 dB or more	-	55 dB or more	-
Audio Output	0 dB*, 600 Ω, balanced			
Microphone	Unidirectional electret condenser microphone	-	Unidirectional dynamic microphone	-
Zone Control	Assignable by PC setting software, Zones, Groups, All call		-	Assignable by PC setting software, Zones, Groups, All call
Voice Message Control	Activation of non-emergency messages		Activation of emergency messages	-
Volume Control	Microphone volume control	-	Microphone/buzzer	
Function Key	Number of keys: 10 Function: "Broadcast zone selector" or "Automatic general broadcast; Announcement Start" (Either function is assigned to individual keys by the dedicated software.)		Number of Keys- 3 plus Emergency Activation Function– Puts system into Emergency Status, Pre-recorded Emergency Message trigger, Reset	Number of keys 20 Function: Zone selection, Fault notification, Reset
Key Extension	Max 4 RM-210	10 keys, freely assignable	Max. 3 RM-320F	20 keys, freely assignable
Connection Cable and Connector	Shielded Category 5 cable, RJ45 connector	Dedicated ribbon cable	Shielded CPEV cable or Shielded Category 5 cable- M3 screw terminal	Dedicated ribbon cable
Finish	ABS resin, bluish gray (PANTONE 538 or its equivalent)			
Dimensions	190 (w) x 76.5 (h) x 215 (d) mm 7.48" x 3.01" x 8.46" (Gooseneck microphone excluded)	4.3" (w) x 3" (h) x 8.5" (d) 110 x 76.5 x 215 mm	7.9" (w) x 8.5" (h) x 3.2" (d) 200 x 215 x 82.5 mm	6.9" (w) x 8.5" (h) x 2.8" (d) 175 x 215 x 70 mm
Weight	750 kg / 1.65 lb	12.3 oz / 0.35 kg	2.4 lbs / 1.1 kg	1.5 lbs / 0.7 kg

VM-3000 Series Integrated Voice Evacuation System Example



SX-2000 Series Audio Management System

The SX-2000 is a networked audio management system for applications that require complex routing, distributed amplification and EN-54 emergency announcement capability. The system supports redundant power supplies, redundant networks, and self-healing networks. The SX-2000 may be used on LANs or WANs, making it ideal for large scale installations from airports and railway stations to factories, shopping malls and educational or office campuses.

❖System Manager
SX-2000SM

- Each SX-2000SM supports up to eight input frames (8 inputs per frame) and sixteen output frames (8 outputs per frame)
- Up to eight SX-2000SM systems with a full complement of frames may be linked
- Powered by batteries and/or 24VDC power supply
- Memory storage for 32 message files

❖Audio Output Unit
SX-2000AO

- Eight line level outputs
- Eight contact closure inputs and outputs

❖Audio Input Unit
SX-2100AI

- Allows up to four dual input cards
- 16 control inputs and 16 control outputs
- Powered by batteries and/or 24VDC power supply

❖Audio Output Unit
SX-2100AO

- Use with TOA VP series amplifiers to provide speaker line monitoring and automatic amplifier failover
- Eight contact closure inputs and outputs

❖Control Output Unit
SX-2000CO

- Equipped with 32 relay outputs

❖Control Input Unit
SX-2000CI

- Equipped with 32 control input channels
- Control input line failure monitoring (supervision)
- Supplies stable 24 V DC

SX-2000 Series Audio Management System Microphones and Optional Accessories

❖Remote Microphone
RM-200SA

- Equipped with 13 function switches, 1 covered
- Can be used to select individual zones or zone groups a covered switch and corresponding indicators
- An external microphone input terminal is provided to allow using a headset microphone, along with built-in internal compressor circuitry
- TALK button may be a PTT or lock-type
- Emergency activation button is equipped with a cover

❖Remote Microphone Extension Unit
RM-210

- Up to four remote microphones can be connected to a remote microphone
- 10 function keys

❖Fireman's Microphone
RM-200SF

- Equipped with an Emergency key, permitting it to be used as a remote microphone for emergency broadcast
- Zone selection and microphone announcement can be made at the time of emergency broadcast
- Offers a surveillance function to detect failures including microphone element failure

❖Power Amplifier
VP-2064, VP-2122, VP-2241, VP-2421

- Requires VP-200VX input module per channel
- DC power input
- Available in: 4x60w@70v, 2x120w@70v, 1x240w@70v, 1x420w@70v

Specifications

	SX-2000SM System Manager
Power Source	24 V DC (2 independent power inputs)
Current Consumption	Under 0.8 A
SX Link Network I/F	2 x 100 Base-TX circuits
LAN	Network I/F 1 10 BASE-T/100 BASE-TX circuit. Network Protocol TCP/IP. Connection Cable Shielded; Category 5 twisted pair cable for LAN (CAT5-STP)
Analog Link	Input/output connector output: 2, connection cable shielded category 5 twisted pair cable for LAN (CAT5-STP)
Failure Data	3 inputs (ACK/RESET/LAMP TEST) and 4 outputs (CPU FAULT/GENERAL FAULT/CPU OFF/BUZZER)
Memory Card	Insertion slot: 1 (supplied CF card (128 MB))
Control	8 control outputs, 8 control inputs
Finish	Panel: Aluminum, black, alumite Case: Surface-treated steel plate
Dimensions (W x H x D)	19" x 1.7" x 13" / 482 x 44 x 333 mm (1U)
Weight	8.4 lbs / 3.8 kg

	SX-2000CI Control In.	SX-2000CO Control Out.
Power Source	24 V DC (2 independent power inputs)	
Current Consumption	Under 0.55 A (when operated on 24 V DC)	Under 0.29 A (when operated on 24 V DC)
Control Inputs	32 inputs	--
Control Outputs	--	32 outputs, max. 40 V DC, 2 – 300 mA
Input/Output Connector	Input: 1, Output: 1; RJ45 connector	
Connection Cable	Shielded category 5 twisted pair cable (CAT5-STP)	
Maximum Cable Distance	800 m	
Output Voltage	24 V DC ±10 % or less	--
Maximum Feeding Current	100 mA	--
Connector	Removable terminal block (2 pins)	--
Finish	Panel: Aluminum, black, alumite Case: Surface-treated steel plate	
Dimensions (W x H x D)	19" x 1.7" x 13" 482 x 44 x 331.5 mm (19", 1U)	
Weight	7.9 lbs / 3.6 kg	

Specifications

	SX-2000AO Audio Out.
Power Source	24 V DC (2 independent power inputs, operating range: 20 – 40 V DC from VX-200PS)
Current Consumption	Under 0.79 A
Audio Output	8 outputs, 0 dBV, load: 600 Ω or more
Audio Output Characteristics	Frequency Response: 20 Hz – 20 kHz , sampling frequency 48 kHz, D/A converter 24 bit
Control Input / Control Output	8 inputs / 8 outputs, removable terminal blocks (6 pins)
Emergency Line Input	Emergency signals switched and sent to input 1 (H,C,E) by relay, removable terminal blocks (3 pins)
Emergency-Cutoff 24 V Input	1 input, input current < 5 mA, removable terminal block (2 pins)
Analog Link	1 input, 1 output, connection cable CAT5-STP, max. cable length 800 m, 2 x RJ45 connector
SX Link	2 x 100 Base-TX circuits with RJ 45 connector. Connection cable CAT5-STP, maximum cable length of 100 m to hub
Finish	Panel: Aluminum, black, alumite / Case: Surface-treated steel plate
Dimensions (W x H x D)	19" x 3.5" x 13.7" 482 x 88.4 x 349 mm (2U)
Weight	13.7 lbs / 6.2 kg

	SX-2100AI Audio In.
Power Source	24 V DC (2 independent power inputs)
Current Consumption	Under 1.5 A (when operated on 24 V DC)
Audio Inputs	8 inputs, for up to 4 modules
Audio Input Characteristics	Sampling frequency: 48 kHz
No. of Remote Mics	Max. 8
Analog Link Input / Output Connector Connection Cable / Device	1 input, 1 output, CAT5-STP, max. cable length 800 m, 2 x RJ45 connector
SX Link Network I/F Connection Cable / Device	2 x 100 Base-TX circuits CAT5-STP, maximum cable length 100 m to hub
Finish	Panel: Aluminum, black, alumite / Case: Surface-treated steel plate
Dimensions (W x H x D)	19" x 3.5" x 13.7" 482 x 88.4 x 349 mm (2U)
Weight	15.87 lbs / 7.2 kg

	SX-2100AO Audio Out.
Power Source	24 V DC (2 independent power inputs)
Current Consumption	Under 1.2 A
Audio Output	8 outputs, 0 dBV, load: 600 Ω or more
Audio Output Characteristics	Frequency Response: 20 Hz – 20 kHz , sampling frequency 48 kHz, D/A converter 24 bit
CI/CO Link	SX-2000CI / SX-2000CO: 1 interface, connection cable CAT5-STP, RJ45 connector
Local Audio Input	2 audio inputs, 0 dBV, 10 kΩ, electronically balanced, RJ45 connector; Frequency Response: 20 Hz – 20 kHz, sampling frequency 48 kHz, D/A converter 24 bit; 2 Control inputs Connection cable CAT5-STP
DS Link	VX-2000DS, VX-3000DS: 2 interfaces, connection cable CAT5-STP, RJ45 connector, VX-3000DS
Analog Link	1 input, 1 output, connection cable CAT5-STP, RJ45 connector
SX Link	2 x 100 Base-TX with RJ 45 connector, connection cable CAT5-STP
Finish	Panel: Aluminum, black, alumite Case: Surface-treated steel plate
Dimensions (W x H x D)	19" x 3.5" x 13.7" 482 x 88.4 x 349 mm (2U)
Weight	15.7 lbs / 7.1 kg

Specifications

	RM-200SA Remote Microphone	RM-210 Remote Microphone Ext.	RM-200SF Fireman's Microphone
Power Requirement	24 V DC (2 independent power inputs, operating range: 15 – 40 V DC)	From remote microphone	24 V DC (2 independent power inputs)
Current Consumption	240 mA max.	80 mA max. (in terms of DC power inputs of RM-200SA)	120 mA (up to 660 mA with 3x RM-210)
Expansion	Up to 2 RM-210	Connection to RM-200SA by dedicated cable	Up to 2 RM-210
Distortion	Under 1 %	--	Under 1 %
Frequency Response	100 Hz – 20 kHz	--	200 Hz – 15 kHz
Signal-to-Noise Ratio	60 dB or more	--	Over 55 dB
Audio Output	0 dBV, 600 Ω, balanced		
Microphone	Unidirectional electret condenser microphone, AGC on/off	--	Unidirectional dynamic microphone, AGC on/off
Volume Control	Microphone, sensitivity, speaker volume	--	Microphone, speaker
Emergency Broadcast	May be used as an emergency or general paging microphone station	--	Emergency broadcast only
Key Extension	Max. 2 RM-210	10 keys, freely assignable	Max. 2 RM-210, 10 keys each
Connection Cable and Connector	Shielded Category 5 cable, RJ45 connector	Dedicated ribbon cable	Shielded CPEV cable or Shielded Category 5 cable- M3 screw terminal
Finish	ABS resin, bluish gray (PANTONE 538 or its equivalent)		
Dimensions (W x H x D)	7.5" x 3" x 8.5" / 190 x 76.5 x 215 mm (Gooseneck microphone excluded)	4.3" x 3" x 8.5" / 110 x 76.5 x 215 mm	7.9" x 8.5" x 3.7" / 200 x 215 x 95 mm
Weight	1.9 lbs / 880 g	12.3 oz / 350 g	3.3 lbs / 1.48 kg

Specifications

	VP-2064 Amplifier	VP-2122 Amplifier	VP-2241 Amplifier	VP-2421 Amplifier
Power Source	28 V DC (operating range: 20 – 40 V DC) M4 screw terminal			
Current Consumption	4.8 A in total			7.6 A
Rated Output Power	4 x 60 W	2 x 120 W	1 x 240 W	1 x 420 W
Output Voltage/Impedance	167 Ω (100 V line), 83 Ω (70 V line), 41 Ω (50 V line) (selectable by the internal wiring change)	83 Ω (100 V line), 41 Ω (70 V line), 21 Ω (50 V line) (selectable by the internal wiring change)	41 Ω (100 V line), 21 Ω (70 V line), 10 Ω (50 V line) (selectable by the internal wiring change)	24 Ω (100 V line), 12 Ω (70 V line), 6 Ω (50 V line) (selectable by the internal wiring change)
Number of Channels	4	2	1	
Input	Specified by input module VP-200VX			
Number of Module Slots	4, usable module: VP-200VX	2, usable module: VP-200VX	1, usable module: VP-200VX	
Output	Power amplifier output (speaker line): M3.5 screw terminal			
Frequency Response	40 Hz – 16 kHz, ±3 dB (at 1/3 rated output)			
Distortion	Under 1 % (at rated output, 1 kHz)			
Signal-to-Noise Ratio	Over 80 dB			
Panel Indicator	Channel power indicator: 4 channels, dual color LED; Overheat indicator: Yellow LED			
Finish	Panel: Surface-treated steel plate, black, 30 % gloss, paint			
Dimensions (W x H x D)	19" x 3.5" x 13.4" / 482 x 88.4 x 340.5 mm (2U)			
Weight	24.7 lbs / 11.2 kg	20 lbs / 9.1 kg	17.9 lbs / 8.1 kg	21 lbs / 9.5 kg

SX-2000 Series Audio Management System Optional Accessories

❖Terminal Unit
RM-200RJ

- Designed to convert the RJ45 connector into a screw terminal block
- Used to connect between a trunk cable and a feeder cable in wiring a remote microphone
- Built-in indicator shows the voltage status of DC power cable

❖Power Amplifier Input Module
VP-200VX

- Designed to be used in conjunction with the VP-2xxx power amplifiers

❖Meanwell Power Supply
RCP-100024

- 24V- 40A Hot-swappable power supply (Requires RCP-1UIU Frame)

❖Meanwell Power Supply Frame
RCP-1UIU

- 1U Power Supply Frame for 3 RCP-100024

❖Emergency Power Supply Unit
VX-2000DS

- Supplies DC power to equipment
- Supports 2x/12v battery units for backup supply
- Distribution for 6 DC units

❖Rail Power Supply
SDR-480-24

- 24V- 20A Fanless- DIN Rail Power Supply

Specifications

	RM-200RJ
Applied Voltage / Withstand Voltage	Under 40V / 1A
Connection Cable and Connector	Monitor terminals: terminal No 7 (+) and terminal No 8 (–), extinguish voltage: 14V or less, lighting voltage: 21V or more, indicator ON/OFF switchable
Connector / Terminal	RJ45 connector: 1 / M3 screw terminal (10 pins), distance between barriers: 6.62mm
Finish	Surface-treated steel plate, black, paint
Dimensions (W x H x D)	3.3" x 4.6" x 1" / 84 x 116 x 25.7mm
Weight	8.8 oz / 250g

	VP-200VX
Power Source	Supplied from VP-2064, VP-2122, VP-2241 or VP-2421
Current Consumption	30 mA or less
Power Amplifier Link	RJ45 female connector for connecting the VX-200SP, VX-200SZ Audio Output module, or SX-2100AO. Twisted-pair straight cable (TI A/EI A-568A standard)
Finish	Panel: Surface-treated steel plate
Dimensions	88 (W) x 25.8 (H) x 53.2 (D) mm
Weight	50 g
Applicable Model	VP-2064, VP-2122, VP-2241, VP-2421

	VX-2000DS
Power Source	120VAC, 60Hz
Power Consumption	240W max.
Applicable Battery	Panasonic LC-X1265PG / APG (65Ah) (12V x 2 or 4)
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
DC Power Output	6 (25A max. each) M4 screw terminal, distance between barriers: 11mm
Control Connector	RJ45 female connector for connecting the VX-2000SF. 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 0 1/0
Finish	Panel: Surface-treated steel plate, black, 30% gloss, paint
Dimensions (W x H x D)	19" x 3.5" x 14.9" / 482 x 88.4 x 377.6mm (2U)
Weight	23 lbs / 10.5kg

SX-2000 Series Audio Management System Modules

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

- Two balanced mic or line level inputs
- 24-bit A/D converters
- Adjustable input sensitivity gain
- Phantom power
- Phoenix-style terminal block

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

- Two balanced mic or line level inputs
- 24-bit A/D converters
- Adjustable input sensitivity gain
- Phantom power
- XLR-F connectors

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

- Two balanced mic or line level inputs
- 20-bit A/D converters
- Adjustable input sensitivity gain
- Phantom power
- Phoenix-style terminal block connectors

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

- Two balanced mic or line level inputs
- 20-bit A/D converters
- Adjustable input sensitivity gain
- Phantom power
- XLR-F connectors

❖Stereo Select Input Module
D-936R

- Four stereo connector pairs
- Unbalanced line level
- Individual input gain
- Programmable switching between connector pairs or summing mode
- Occupies two input channels
- RCA pin jack connectors

❖Remote Microphone Interface Module
SX-200RM

- Dedicated remote microphone module for the audio input unit
- Can be used to connect two remote microphones
- Input sensitivity can be adjusted using the knobs located near the RJ45 connector

❖IP Interface Module (to interface with the N-8000 System)
SX-200IP

- 10BASE-T/100BASE-TX (Automatic-Negotiation)
- Voice encoding method - Sub-band ADPCM, Cryptosystem
- Voice Packet Loss Recovery - Silence insertion
- Audio delay time of 80ms, 320ms (controllable on the software)
- Voice sampling frequency of 16 kHz, 8 kHz (controllable on the software); 48 kHz, sample rate is used for SX-2000 system only

Specifications

	D-921E*2	D-921F	D-922E*2	D-922F	D-936R
Input	2 channels, Mic/Line changeable Mic: –50/–36dB*1 , 4.7k Ω , electronically-balanced Line: –10/+4dB*1 , 10k Ω , electronically-balanced Phantom power supply (+15V, can be used when set for the microphone via software) Ground lift switch		2 channels, –50/–36/–10/+4dB*1 (Selectable with the DIP switch), 4.7k Ω , electronically-balanced Phantom power supply (15V, can be set with the DIP switch) Ground lift switch (can be set with the DIP switch)		4 stereo inputs (selection of 1 stereo or mixing or all 4 stereo inputs) –10dB*1 , 10k Ω
Connector Type	Removable terminal block	XLR-3-31 female	Removable terminal block	XLR-3-31 female	RCA pin jack
A/D Converter	24 bits		20 bits		--
Frequency Response	20 – 20,000Hz, ± 1dB (+4dB*1 input)				
Sampling Frequency	48kHz				
Dynamic range	Over 100 dB (IHF-A weighted) (+4dB*1 input)		Over 85 dB (IHF-A weighted) (+4dB*1 input)		Over 100dB (IHF-A weighted)
Total Harmonic Distortion	Under 0.05% (+4dB*1 input)		Under 0.2% (+4dB*1 input)		Under 0.5%
Finish	Panel: Pre-coated steel plate, black, 30% gloss				
Dimensions	1.4" (W) x 4.7" (H) x 7" (D) / 35 (W) x 119.5 (H) x 178.4 (D) mm				
Weight	0.31lbs / 140 g	0.33lbs / 150 g	0.28 / 125g	0.3lbs / 135 g	0.32lbs / 145 g

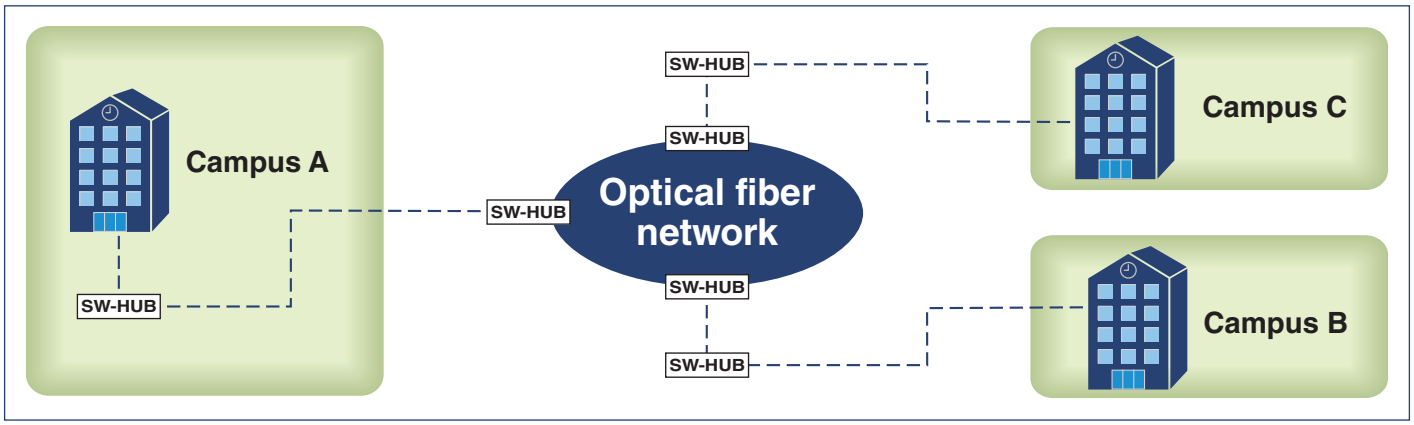
*1 0dB = 0.775V

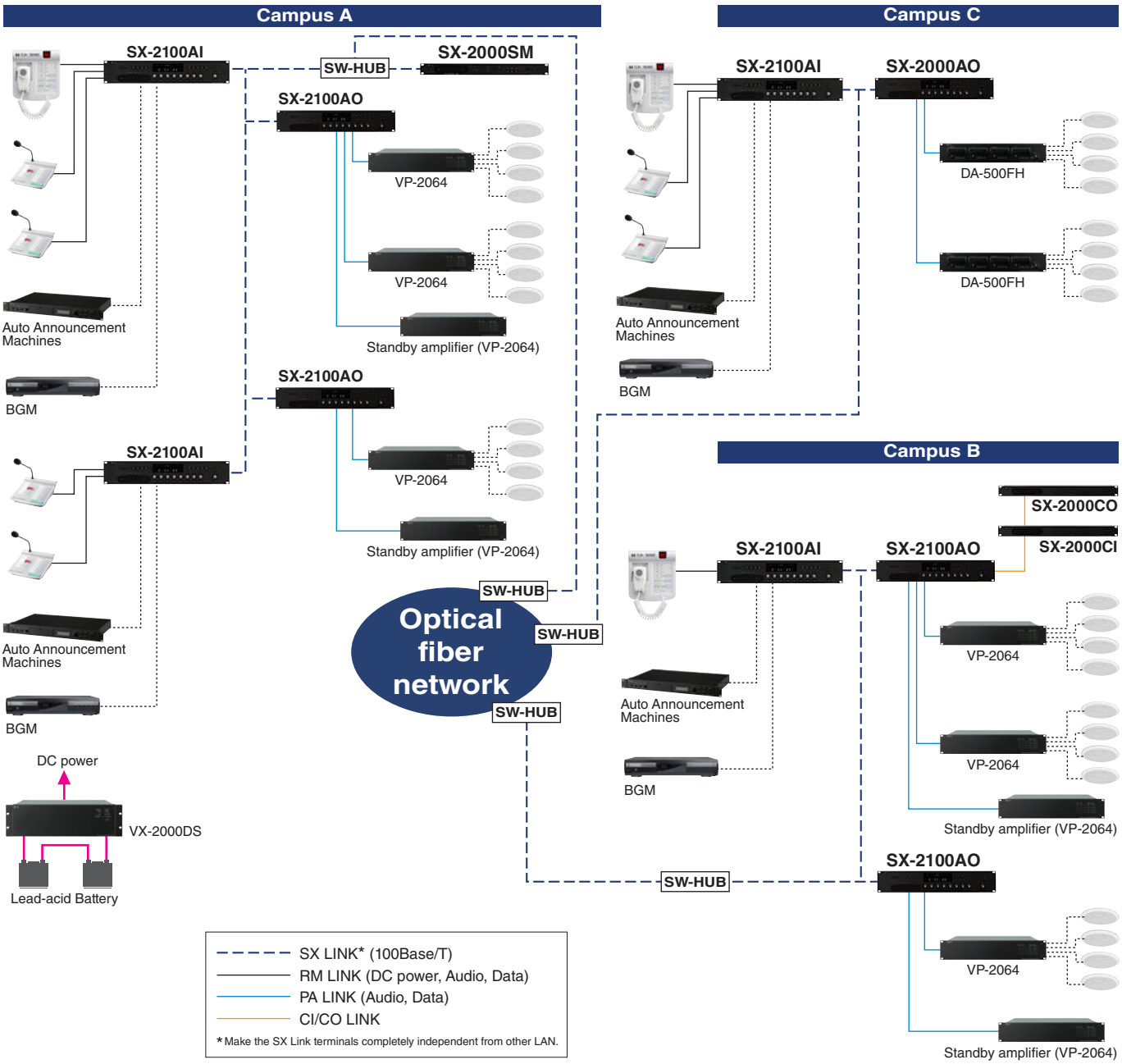
*2 Accessory: (D-921E/D-922E). Removable terminal block type connector (preinstalled on the unit) x 2

	SX-200RM	SX-200IP
Power Source	Supplied from SX-2100AI	--
Frequency Response	20 Hz – 20 kHz, ± 1 dB	--
Sampling Frequency	48 kHz	--
Dynamic Range	> 100 dB (IHF-A weighted)	--
Distortion	< 0.05 %	--
Finish	Panel: Pre-coated steel plate, black, 30 % gloss	
Network Section	--	Network I/F: 10BASE-T/100BASE-TX (Automatic-Negotiation); Network Protocol: TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP Voice sampling frequency: 16 kHz, 8 kHz (controllable on the software); Voice packet loss recovery: Silence insertion; Audio delay time: 80 ms, 320 ms (controllable on the software)
Indicator	--	Operation indicator (RUN)
Dimensions (W x H x D)	1.4" x 4.7" x 7" / 35 x 119.5 x 178.4 mm	
Weight	6.7 oz / 190 g	5.3 oz / 150 g

SX-2000 Series Audio Management System Application

Distributed Control System Example (University)





Mass Notification and Fire/Voice System Speaker Certifications

The days of three separate speaker systems in one building are gone!

TOA is proud to announce the arrival of the latest version of our VM-3000 system. The VM is designed around the same robust technology that has kept TOA a leader in reliability year after year.

- Broadcasts standard paging, background music and pre-recorded messages to up to 60 zones with the high quality, full range sound that TOA is known for around the world.
- Broadcasts Mass Notification pre-recorded and live announcements (certified UL2572 and CAN/ULC-S576) with full supervision and battery backup
- Broadcasts Fire/Voice alarms (pre-recorded temporal and voice announcements) and live announcements. When used with fire/voice certified (UL1480UUMW) loudspeakers and a UL listed FACP, the system is certified UL864.
- In systems where both MNS and Fire/Voice are required, priority can be given to the FACP or the MNS system as required by local codes.

TOA's Life Safety certified loudspeakers are suitable for Fire/Voice systems (certified UL1480UUMW) and are approved by the California State Fire Marshal.

TOA has been providing voice evacuation systems around the world for over 50 years.

We are the first audio manufacturer to provide a complete solution with the highest quality standard and life safety audio broadcasts.

More information on this, and other TOA life safety systems solutions can be found by visiting our website.

❖Public Address Speaker
BS-680U

- Quick and easy installation
- Innovative design based on the Golden Ratio (1:1.618)
- Strong all-metal body
- Horizontal / vertical installation
- Wall / in-wall mounting
- Ideally suited for voice alarm system application
- Two steatite screw terminal blocks and thermal fuse
- UL 1480 UUMW rated

❖F Series Wide Disperson Ceiling Speaker
F-122CU2

- Equalizing controlled type full range speaker for medium ceiling height (2 to 4 m)
- Cost effective if many speakers are installed
- Heat-resistant back can
- Optimized for use with optional digital processors
- Diffuser for wide dispersion of high frequencies
- UL 1480UUMW and 2043 plenum rated

❖Paging Horn Speaker
SC-630TU

- High-impedance, 70V line
- Shock-resistant aluminum oval horn
- IP65 certified weatherproof construction
- UL 1480 UUMW
- Stainless steel brackets and hardware (screws, bolts), and powder-coated horn ensure superb weatherproofing and corrosion-resistance

Specifications

	F-122CU2	BS-680U	SC-630TU
Rated Input	30W (100V line)	6W (70V line)	30W (100V line)
Rated Impedance	70V line: 170Ω (30W), 330Ω (15W), 1kΩ (5W), 3.3kΩ (1.5W) 25V line: 10kΩ (0.5W), 170Ω (3.7W), 330Ω (1.9W), 1kΩ (0.6W), 3.3kΩ (0.2W), 10kΩ (0.06W) Low (adjustable): 16Ω, 8Ω	70V line: 830Ω (6W), 1.67kΩ (3W), 5kΩ (1W) 25V line: 150Ω (6W), 210Ω (3W), 650Ω (1W)	70V line: 170Ω (30W), 330Ω (15W), 670Ω (7.5W) 25V line: 21Ω (30W), 42Ω (15W), 170Ω (3.9W), 330Ω (2.1W), 670Ω (1.1W)
Sensitivity (1W, 1m)	90dB	94 dB	113 dB
Frequency Response	70 – 20,000 Hz	150 – 20.000 Hz	250 – 10.000 Hz
Mounting Hole Diameter	200mm/7.825"	--	--
Speaker Component	12cm/5" cone-type	16cm/6.3" double cone-type	--
Dust/Water Protection	--	--	IP65
Operating Temperature	--	--	-40°C to +66°C / -40°F to 151°F
Finish	Enclosure: Steel plate, plating; Baffle: Fire-resistant ABS resin, black; Rim: Fire-resistant ABS resin, white; Punched net: Steel plate, white, paint	Enclosure: Steel plate, off-white; Grille: Stainless steel punching net, off-white	Horn flare: Aluminum, off-white, powder coating; Reflector horn: ABS resin, off-white; Bracket holder: Aluminum, gray, powder coating; Bracket: Stainless steel
Dimensions	230 x 238(D) mm 9.0625" x 9.375"	310(W) x 190(H) x 90(D) mm 12.2(W) x 7.48(H) x 3.54(D)in	285 (W) x 227 (H) x 277 (D) mm 11.2 (W) x 8.9 (H) x 10.9 (D) in
Weight	4.4kg / 9.7 lbs	2.6kg / 5.73lbs	2kg / 4.4lbs

Mass Notification and Fire/Voice System Speaker Certifications

❖Ceiling Mount Speakers

PC-580RU/PC-580RVU

- 8" in-ceiling speaker for high quality applications
- 25V & 70V transformer taps up to 5W
- Fits standard ceiling speaker template (PC-671R & others)
- perfect for retrofits
- Unique "monocoque" design provides better structural integrity
- High-performance, cost effective ceiling speaker for use in mass notification systems, voice evacuation, emergency paging and everyday paging and background music
- Meets UL 2572 (UL 1480 UUMW) (Fire alarm signaling) and UL 2043 (use in air handling spaces) when using the HY-BC580U back can

Specifications

	PC-580RU	PC-580RVU
Rated Input	10W (speaker), 5 W (transformer, 70.7 V line and 25 V line)	
Rated Impedance	70.7V line: 20K (0.25W), 10K, (0.5W), 5K (1W), 2.5K (2W), 1K (5W) Ω 25V line: 2.5K (0.25W), 1.25K (0.5W), 625 (1W), 312.5 (2W), 125 (5W) Ω	
Sensitivity (1W, 1m)	97 dB	
Frequency Response	50 - 16.5 kHz	
Speaker Component	200mm (8") dual cone type	
Finish	Baffle: Steel plate, white Grille: Surface-treated steel plate net, white	
Dimensions	Dia. 324 x 87.3 (d) mm / 12.8" x 3.4"	Dia. 324 x 87.3 (d) mm / 12.8" x 3.4
Weight	1.58 kg / 3.47 lbs	1.59 kg / 3.5 lbs
UL Standards	UL 2572 (ULC S541, UL 1480 UUMW) and UL 2043 when used with HY-BC580U	
Optional Accessories	Back can (for UL/ULC certified installation): HY-BC580U Tile rail, Q-HY-TB2 (2 required); Tile bridge, LBS8-R1-AM	

❖Pendant Speaker (UL1480UUMW rated)

PE-304BU / PE-304WU
PE-604BU / PE-604WU

- Directly attached 5m (16.4ft) hanging wire allows speaker to be suspended from high ceilings
- Driven on both high impedance (100V, 70V, and 25V) and low impedance (8Ω) lines
- Certified to UL 1480 UUMW standards
- Using supplied GRIPPLE® hangers will facilitate the speaker mounting height adjustment

Specifications

	PE-304BU	PE-304WU	PE-604BU	PE-604WU
Enclosure	Bass-reflex type			
Rated Input	30 W (100 V, 70 V line, 8 Ω), 3.7 W (25 V line)		60 W (100 V, 70 V line, 8 Ω), 7.5 W (25 V line)	
Rated Impedance	100 V line: 330 Ω (30 W), 1 kΩ (10 W), 3.3 kΩ (3 W), 10 kΩ (1.3 W) 70 V line: 170 Ω (30 W), 330 Ω (15 W), 1 kΩ (5 W), 3.3 kΩ (1.5 W), 10 kΩ (0.6 W) 25 V line: 170 Ω (3.7 W), 330 Ω (1.9 W), 1 kΩ (0.6 W), 3.3 kΩ (0.2 W), 10 kΩ (0.1 W) Low impedance: 8 Ω		100 V line: 170 Ω (60 W), 330 Ω (30 W), 670 Ω (15 W), 3.3 kΩ (3 W) 70 V line: 83 Ω (60 W), 170 Ω (30 W), 330 Ω (15 W), 670 Ω (7.5 Wl), 3.3 kΩ (1.5 W) 25 V line: 83 Ω (7.5 W), 170 Ω (3. 7 W), 330 Ω (1.9 W), 670 Ω (0.9 W), 3.3 kΩ (0.2 W) Low impedance: 8 Ω	
Sensitivity	90 dB (1 W, 1 ml 330 Hz - 3.3 kHz, pink noise)			
Frequency Response	95 Hz - 20 kHz (-10 dB)		110 Hz - 20 kHz (-10 dB)	
Speaker Component	12 cm (5" l cone-type + balanced dome-tweeter (coaxial)			
UL Code	UL 1480 UUMW, ULC-S541			
Operating Temperature	-10°C to +50°C (14°F to 122°F)			
Finish	Enclosure: ABS resin, black, Grille: Surface-treated steel plate mesh, black, paint	Enclosure: ABS resin, white (RAL 9010 equivalent) Grille: Surface-treated steel plate mesh, white (RAL 9010 equivalent), paint	Enclosure: ABS resin, black, Grille: Surface-treated steel plate mesh, black, paint	Enclosure: ABS resin, white (RAL 9010 equivalent) Grille: Surface-treated steel plate mesh, white (RAL 9010 equivalent!, paint
Dimensions	186 x 275 (H) mm / 7.32" x 10.83" (unit only)			
Weight	2 kg / 4.41 lb (unit only)		2.9 kg / 6.39 lb (unit only)	
Included Accessories	GRIPPLE® No.1 x 1, GRIPPLE® No.2 x 1, Release key (for GRIPPLE®) x 1, Safety wire (1.5 mm (0.06")) x 1, Hanging wire (2 mm (0.08")) x 1, Speaker Cable (4-core FPL listed cable 4.6 m (15.09 ft)) x 1 * GRIPPLE® No.1 and No.2 are hangers for suspending the speaker.			

* GRIPPLE® is a registered trademark of Gripple Limited, England.

N-SP80 SIP Intercom Series

- SIP-based intercom stations
- Compatible with a variety of SIP servers (Cisco, Avaya, Asterisk and Genetec)*
- Integrates with TOA N-8000 Intercom via N-8000SG SIP Gateway
- Peer-to-peer communication with unlimited stations
- N-SP80MS1 provides video conference capability
- Multi-cast transmission enables paging to multiple zones

*All company names mentioned above are trademarks or registered trademarks of their respective owners.

❖SIP Multimedia Station
N-SP80MS1

- 7-inch 16x9 touch screen
- Intuitive operation with dial keys
- Compatible with major video codecs
- Android-based for easy customization
- PoE or local power

❖Outdoor/Indoor SIP Video Door Station
N-SP80VS1

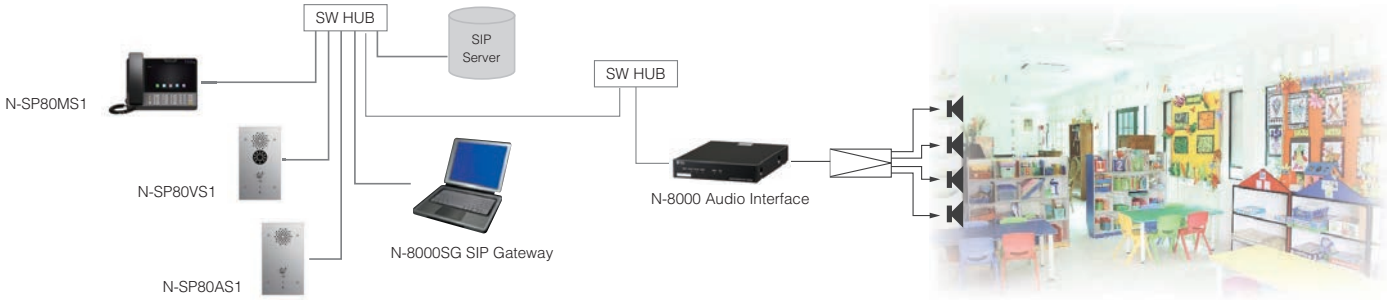
- Compatible with major audio codecs
- Built-in AEC (Acoustic Echo Canceller) enables full-duplex communication
- Photo Sensitive Sensor detects brightness
- IR LEDs help to capture video even in dark environments
- Resolution up to 1080p

❖Outdoor/Indoor SIP Audio Door Station
N-SP80AS1

- Compatible with major audio codecs
- High-quality audio transmission
- Built-in AEC (Acoustic Echo Canceller)
- Full-duplex communication
- Less cabling thanks to PoE

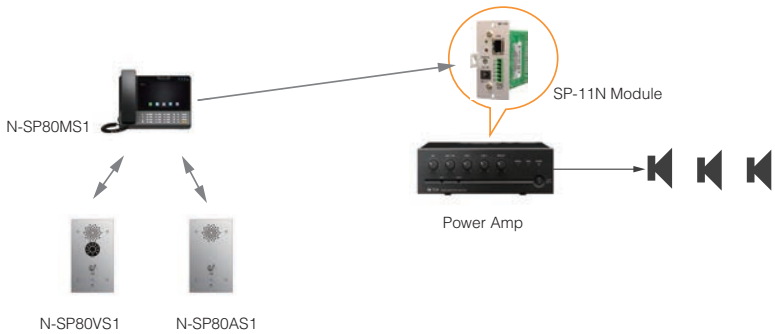
N-SP80 SIP Intercom Series Application with SIP Server

Integration with TOA's N-8000 Series allows N-SP80MS1 to do 2-way communication, general paging, and relay output control.



N-SP80 SIP Intercom Series Peer-to-Peer Application

When used with an SP-11N VoIP phone paging module and a compatible amplifier, paging system can be configured without a SIP server.



Specifications

	N-SP80MS1
Graphic Display	7-inch capacitive touch screen TFT LCD, 800 x 480 pixels, 16:9 wide screen aspect ratio
Camera	2 mega pixels CMOS camera, free rotation
Network Protocol	SIP RFC3261, TCP/UDP/IP, PPPOE, RTP/RTCP
Operation System	Android 4.2
Voice Codec	G.711A/μ, G.723, G.729a/b, G.722, iLBC, AMR-NB, AMR-WB, OPUS
Video Codec	H.263, H.264
DTMF Modes	Inband, RFC2833, SIP INFO
Audio Features	VAD, CNG, Echo Canceller G.165/G.168
Network Interface	Dual switched 10/100Mbps port, optional PoE
Wi-Fi	IEEE 802.11 b/g/n
External Interface	USB 2.0, 3.5mm headset jack, HDMI
IP assignment	Static IP, DHCP, PPPoE
Management	LCD Menu Configuration,TR069, WebUI
Dimensions (W x H x D)	230 × 218 x 93.7 mm / 9.06” x 8.58” x 3.69”

Specifications

	N-SP80VS1	N-SP80AS1
Camera	2 mega pixels	-
Resolution	Up to 1080p	-
Button	1 panic button; 1 reset button (on board)	
Microphone	1 integrated microphone, IP67	
Speaker	2 Watt, IP66	
Input Relay	2 input relays for alarm	
Output Relay	2 output relays for door opener	
Call Indication	1 RGB LED (colors: red, green, blue)	
Power Input	12V DC input	
Power Consumption	Less than 12W	
Dust/Water Protection	IP54	
Operating Temperature	-20 °C to +55 °C (-4 °F to +131 °F)	
Installation	Flush-mounted, Fits in Clipsal 164/4 back box	
Finish	316 grade stainless steel	
Dimensions	PCB: 74 x 140 mm / 2.91” x 5.51” With flush-mount kit (W x H x D) : 120 x 210 x 61 mm / 4.72” x 8.27” x 2.4”	

N-8000 Series SIP Gateway

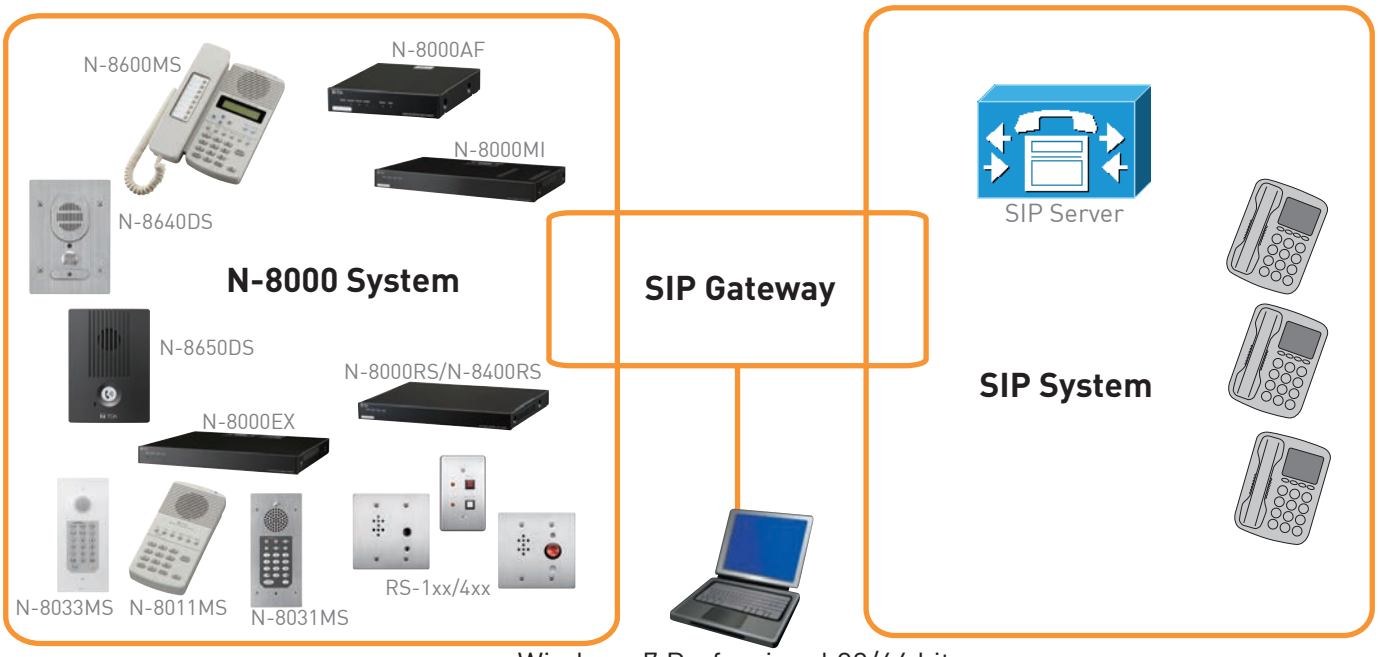
The N-8000SG SIP Gateway is an interface to the N-8000 IP Packet Intercom System. The N-8000SG acts as an endpoint (SIP Extension) on your existing SIP server, providing paging, duplex communication and relay control between up to five SIP ports (i.e. voice paths) and any master station or remote station on an N-8000 system. Multiple instances of the N-8000SG can exist on an N-8000 system.

The N-8000SG can access up to 192 paging zones and/or 3,056 remote stations/masters. It supports five simultaneous conversations (voice paths) per license. Multiple N-8000SG licenses may be used on the same N-8000 system. The N-8000SG supports 192 paging zones, full duplex communication (with IP and 2-wire master stations) and1/2 duplex communication with sub- stations. The N-8000 system can provide analog audio inputs and outputs, contact closure inputs and outputs, and remote station interfaces anywhere on a LAN or WAN. Any master or remote station can access the N-8000SG to ring an extension on the SIP system.

Features:

- Connects to VoIP phone system as SIP extension
- Provides a SIP server to the N-8000 IP Packet Intercom System (5 lines)
- Allows five separate 2-way conversations between the phone system and any master or sub-station on an N-8000 System.
- Allows remote control of sub-station contact closures from the phone system
- Can page up to 192 separate zones
- Zones can include any master or sub-station or analog audio output on the N-8000 system
- Zones can be grouped as needed
- Verified Compatible Cisco Product

N-8000 Series SIP Gateway System Example



IP Network Intercom

The N-8000 IP Network Intercom System provides a flexible intercommunications solution for small, medium, and large scale projects. Up to 3,072 stations may be connected via LAN or WAN. The N-8000 uses TOA's packet audio technology to provide high quality audio using less than 130 kbps for station to station calls. The N-8000 can easily interface with 3rd party systems using contact closure or the system's IP protocol. An SDK is available. The N-8000 is not server based and does not require a dedicated PC to operate. Available features include 192 paging zones, time based call-forwarding/hunting, scan monitoring, audio trigger, master clock functionality with sync to NTP server or through contact closure, bell schedule generation, telephone system interface (analog and VoIP), weather and vandal resistant stations, and more...

N-8000 Series IP Master Stations

❖IP Multifunctional Master Station
N-8600MS

- System allows Full-duplex conversation in hands-free mode
- External mic and headset connections
- Occupies one network node (192 max)
- LCD, speed-dial, paging
- PoE or external power

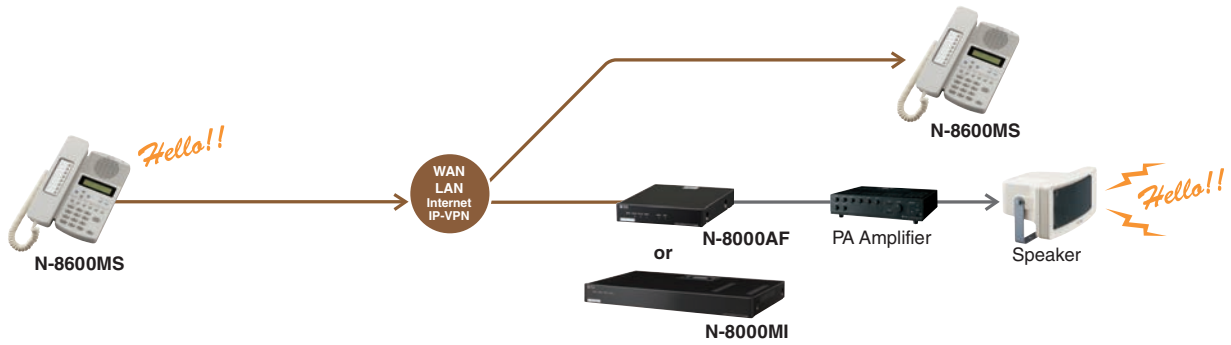
❖IP Remote Microphone Station
N-8610RM

- Allows multi-zone paging
- Wall or desk mounting
- 14 programmable keys
- Paging zone triggers expandable in groups of 10 with RM-210
- PoE or optional external power supply AD-1215P

Specifications

	N-8600MS	N-8610RM
Power Source	Power supply device that complies with IEEE 802.3af standard or 12V DC (supplied from the AC adapter (option))	
Power Consumption	3W (max.)	Use of the AC adapter (12 V DC): 4W (microphone only), 8.5W (when connecting 4 RM-210 Extension units) Use of the PoE (48 V DC): 5.2W (microphone only), 7.5W (when connecting 4 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 0.5W, 8Ω, screwless connector (2P)	--
No. of Connectable Expansion Units	--	Max.4 units (maximum 2 units if 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	80ms, 320ms (controllable on the software)	
Finish	Body, Handset: ABS resin, gray	ABS resin, blueishgray
Dimensions	148 (W) x 208 (H) x 70.5 (D)mm (excluding a curl cord section) 5.8 (W) x 8.2 (H) x 2.8 (D)in (excluding a curl cord section)	190 (W) x 76.5 (H) x 215 (D)mm (excluding microphone) 7.5 (W) x 3 (H) x 8.5 (D)in (excluding microphone)
Weight	770g / 1.7lbs	700g /1.5lbs
Option	Wall mounting bracket: YC-280 AC adapter: AD-1215P	Remote microphone extension: RM-210 AC adapter: AD-1215P

N-8000 Series Paging Function Example



N-8000 Series IP Door Stations

❖IP Door Station
N-8640DS

- Outdoor IP door station
- IP65 rated, for dust and water protection, chemical resistant for use in industrial/harsh environments
- External speaker connection 0.5W @ 8 Ω
- Equipped with 1 channel of control input, 5 channels of control outputs (including 1 channel of relay control output)
- Full-duplex conversation with Master Stations via AEC (Automatic Echo Canceller)
- PoE or optional external power supply

❖IP Door Station Board Unit
N-8640SB

- Board unit for custom application
- Equipped with 1 channel of control input, 5 channels of control outputs (including 1 channel of relay control output)
- External speaker connection 0.5W @ 8 Ω
- Full-duplex conversation with Master Stations via AEC (Automatic Echo Canceller)
- PoE or optional external power supply

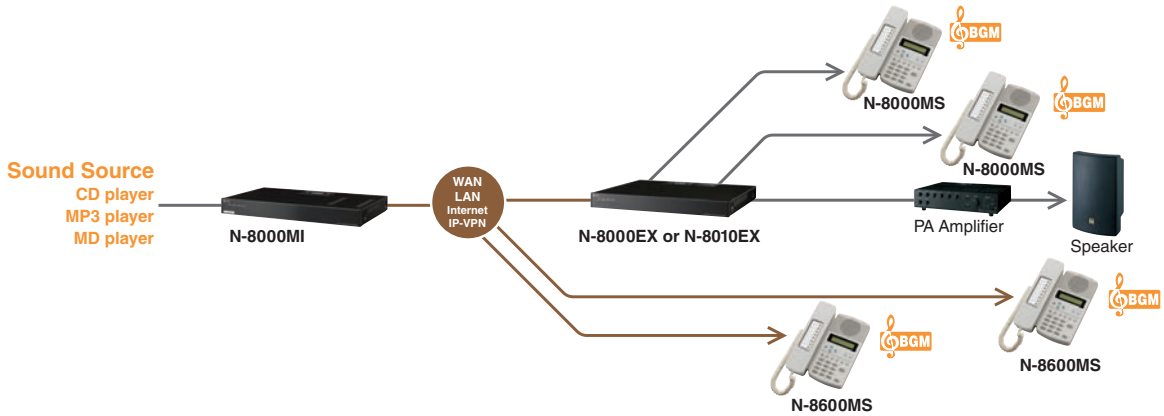
❖IP Indoor Station
N-8650DS

- Indoor IP door station
- Equipped with 1 channel of control input, 5 channels of control outputs (including 1 channel of relay control output)
- External speaker connection 0.5W @ 8 Ω
- Full-duplex conversation with Master Stations via AEC (Automatic Echo Canceller)
- PoE or optional external power supply

Specifications

	N-8640DS	N-8650DS	N-8640SB
Power Source	Power supply device that complies with IEEE 802.3af standard or 12V DC with optional AC adapter		
Power Consumption	5W (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	0.5W, 8Ω		
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)		
Dust/Water Protection	IP65 (Note that panel edges must be sealed at installation.)	--	--
Finish	Panel: Stainless steel, hairline/ Call button: Metal	ABS resin, dark gray	
Dimensions	115 (W) x 162 (H) x 58.5 (D)mm 4.5 (H) x 6.4 (H) x 2.3 (D)in	117.2 (W) x 162 (H) x 60 (D)mm 4.6 (W) x 6.4 (H) x 2.3 (D)in	79 (W) x 134 (H) x 53 (D)mm 3.1 (W) x 5.3 (H) x 2.1 (D)in
Weight	780g / 1.72lbs	400g / 0.88lbs	350g / 0.77lbs
Option	For flush-mount: 3-gang electrical box or Back Box YC-150, Wall surface-mount: Wall mount Box YS-13A, AC adapter: AD-1215P		AC adapter: AD-1215P

N-8000 Series BGM Broadcasting Example



N-8000 Series 2-Wire Master Stations

❖IP Network Intercom Exchange
N-8000EX

- 10/100BaseTX Ethernet network connection
- Occupies one network node (192 max.)
- Sixteen (16) station capacity
- Speech links: 4 internal / 8 external
- Two (2) audio paging outputs (0 dBV)
- Two (2) relay outputs
- Includes rack-mount and wall-mount brackets

❖IP Network Intercom Exchange
N-8010EX

- 10/100BaseTX Ethernet network connection
- Occupies one network node (192 max.)
- Sixteen (16) station capacity
- Speech links: 1 internal / 2 external
- Includes rack-mount and wall-mount brackets

❖Multifunctional Master Station
N-8000MS

- Full-Duplex communication is supported by this station
- Connects to N-8000EX or N-8010EX Exchange
- Handset or hands-free duplex communication
- LCD display

❖Standard Master Station
N-8010MS

- Full-Duplex communication is supported by this station
- Connects to N-8000EX or N-8010EX Exchange
- Handset or hands-free duplex communication

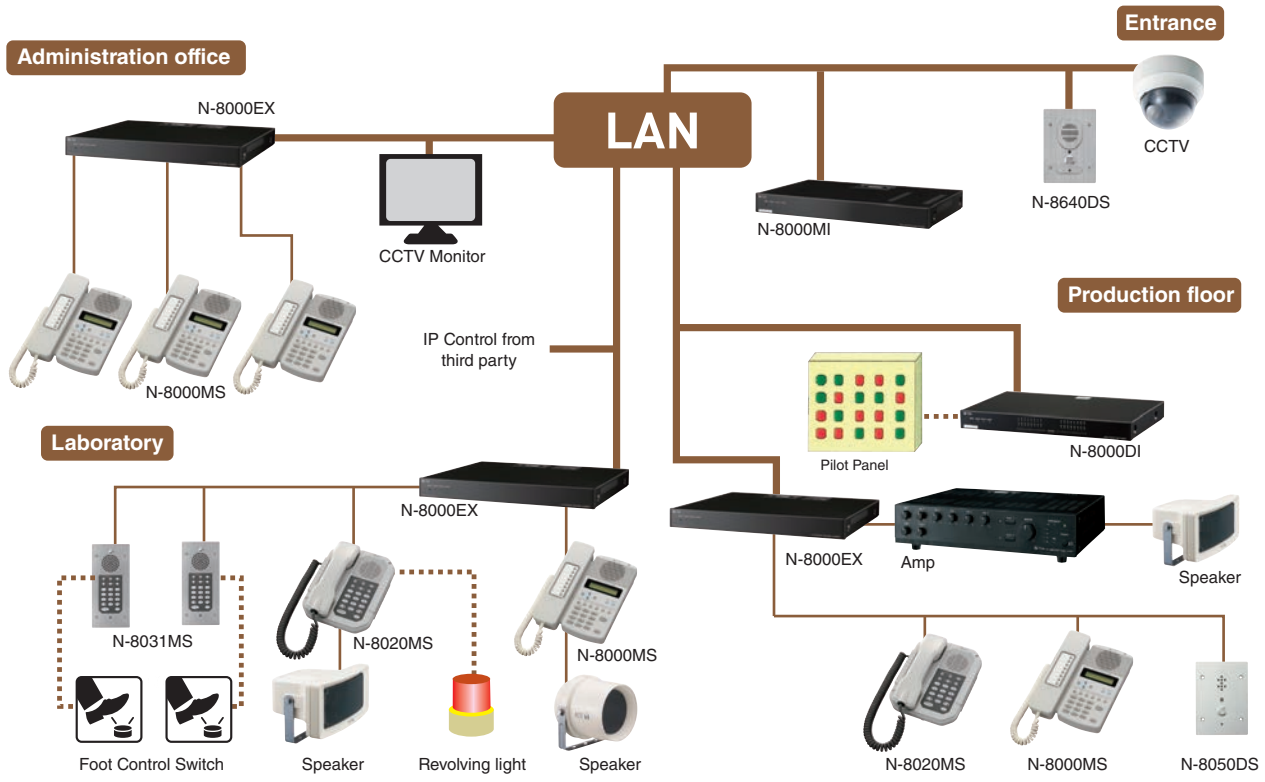
❖Industrial-Use Master Station
N-8020MS

- Full-Duplex communication is supported by this station
- Connects to N-8000EX or N-8010EX Exchange
- Heavy duty dustproof and waterproof construction (IP54 rating)
- External speaker terminal (0.6 W / 8 ohms)

❖Standard Hands-Free Master Station
N-8011MS

- Full-Duplex communication is supported by this station (handsfree mode only)
- Connects to N-8000EX or N-8010EX Exchange
- Hands-free duplex communication

N-8000 Series Factory Application Example



Specifications

	N-8000EX	N-8010EX
Power Source	120V AC, 50/60Hz	
Power Consumption	50W (at rated), 75W (max.)	
Interface Section or Station		
Speech Link	Internal: 4/External: 8	Internal: 1/External: 2
Line Capacity	Up to 16 stations	
Wiring Method	unshielded twisted pair (min. 24AWG)	
Transmission Range	Max. 1500m (0.65mm. Loop resistance 170Ω)	
Paging Output	Audio: 2 channels Max. 0dB (1V), 600Ω, balanced, detachable terminal block Control: 2 channels, no-voltage make contact output (24V DC/0.5A), 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	
Audio Packet Omission	Silence insertion	
Audio Delay Time	80ms, 320ms (Controllable on the software)	
Finish	Pre-coated steel plate, black, 30% gloss	
Dimensions	420 (W) x 44.3 (H) x 356 (D)mm / 16.5 (W) x 1.7 (H) x 14 (D)in	
Weight	4.1kg / 9lbs	4.2kg / 9.3lbs
Included Accessories	Rack-mount bracket, Wall-mount bracket, AC cord, CD with software	

Specifications

	N-8000MS	N-8010MS	N-8011MS	N-8020MS
Power Source	48V DC (supplied from the N-8000EX/N-8010EX intercom exchange)			
Power Consumption	2.4W (max.)			
Wiring Method	unshielded twisted pair (min. 24AWG)			
Speech Method	Hands-free or handset conversation		Hands-free conversation	Hands-free or handset conversation
Audio Frequency Range	300 – 7,000Hz			
Transmission Range	Max. 1500m (0.65mm. Loop resistance 170Ω)			
Dial-in Contact Output	--	--	--	Open collector output (The contacts have polarity.)/Withstand voltage- Max. 30V DC, Control current- Max. 50mA, screwless connector (2P)
External Speaker Terminal	0.6W, 8Ω, screwless connector (2P)	--	--	0.6W, 8Ω, screwless connector (2P)
Dust/Water Protection	--	--	--	IP54
Finish	Body, Handset: ABS resin, gray		Body: ABS resin, gray	Body, Handset: ABS resin, gray
Dimensions	148 (W) x 208 (H) x 70.5 (D)mm(excluding a curl cord section) 5.2 (W) x 8.2 (H) x 2.8 (D)in (excluding a curl cord section)		92 (W) x 195 (H) x 56.1 (D)mm 3.6 (W) x 7.7 (H) x 2.2 (D)in	170 (W) x 220 (H) x 97.8 (D)mm (excluding a curl cord section) 6.7 (W) x 8.7 (H) x 3.9 (D)in (excluding a curl cord section)
Weight	800g / 1.8lbs	700g / 1.5lbs	400g / 0.9lbs	1kg / 2.2lbs
Options	Wall mounting bracket: YC-280		Wall mounting bracket: YC:290	Wall mounting bracket: YC-280

N-8000 Series 2-Wire Type Stations

❖Flush-Mount Master Station
N-8033MS

- IP-65 rated outdoor in-wall Master Station
- Chemical resistant for use in industrial/harsh environments
- One input for use with foot switch dialing
- Four contact outputs
- Full-Duplex communication is supported by this station (handset mode only)
- Two-wire connection to N-8000EX or N-8010EX Exchange
- Hands-free duplex communication
- External dial inputs (7, 8, 9 and C keys)
- Optional Handset, model RS-191

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

- IP-65 rated outdoor in-wall Master Station
- Chemical resistant for use in industrial/harsh environments
- One input for use with foot switch dialing
- Four contact outputs
- Full-Duplex communication is supported by this station (handset mode only)
- Two-wire connection to N-8000EX or N-8010EX Exchange
- Hands-free duplex communication
- External dial inputs (7, 8, 9 and C keys)
- Optional Handset, model RS-191

❖Weather-Proof Door Station
Q-N-8050WP

- Half-Duplex communication is supported by this station
- Hands-free duplex communication
- Separate mic and speaker
- Control output (open collector)
- IP-54 rated
- Extra PCB moisture protection

❖Hands-Free Master Station Board Unit
N-8031SB

- N-8031SB PCB for custom station applications
- Speaker and microphone included
- Full-Duplex communication is supported by this station (handset mode only)
- Two-wire connection to N-8000EX or N-8010EX Exchange
- Hands-free duplex communication
- External dial inputs (7, 8, 9 and C keys)
- Optional Handset, model RS-191

❖Hands-Free Substation Board Unit
N-8050SB

- N-8050DS PCB for custom station applications
- Speaker and microphone included
- Control output (open collector)
- Call switch input
- LED Status Indicator output

❖Door Station
N-8050DS

- Hands-free half-duplex communication
- Separate mic and speaker
- Control output (open collector)
- IP-54 rated

❖Door Station
N-8052-DS-Q

- 2-gang version of N-8050DS

❖Optional Handset
RS-191

Specifications

	N-8033MS	N-8031MS	N-8031SB	N-8050DS	N-8050SB	N-8052-DS-Q
Power Source	48V DC (supplied from the IP network intercom exchange)					
Power Consumption	2.4W (max.)					
Wiring Method	1 set of twisted pair cable					
Speech Method	Hands-free conversation	Hands-free or handset conversation		Hands-free conversation		
Audio Frequency Range	300 – 7,000Hz					
Transmission Range	Max. 1500m (0.65mm. Loop resistance 170Ω)					
Contact Output	--	--	--	Open collector output, withstand voltage: Max. 30V DC, control current: Max. 50mA, one shot: can be set from 1 to 9 sec, screw terminal (polarized)		
External Dial Input	No-voltage make contact input, open voltage: 5V DC, short-circuit current: 1mA, screwless connector (5 pins)			--	--	--
Housing Protection	--	--	--	BS EN62262: 2002: IK02 equivalent	--	--
Dust/Water Protection	IP65 (Note that panel edges must be sealed at installation.)	--	--	IP54 (Note that panel edges must be sealed at installation.)	--	--
Resistance to Environment	Chemical Resistant	--	--	--	--	--
Finish	Membrane switch (Front pasting): Polyester film	Panel: Stainless steel (SUS304), hairline	--	Panel: Stainless steel, hairline/ Call button: Metal	--	Panel: Stainless steel, hairline Call Switch: Metal, silver
Dimensions	115 (W) x 254 (H) x 54.6 (D)mm 4.5 (W) x 10 (H) x 2.1 (D)in		70 (W) x 185 (H) x 20.6 (D)mm 2.6 (W) x 7.3 (H) x 0.8 (D)in	115 (W) x 162 (H) x 54 (D)mm 4.5 (W) x 6.4 (H) x 2.1 (D)in	67 (W) x 128.3 (H) x 26 (D)mm 2.6 (W) x 5 (H) x 1 (D)in	4.72" (W) × 4.72" (H) × 1.95" (D) 119.9 (W) x 119.9 (H) x 49.5 (D)
Weight	850g / 1.9lbs		205g including accessories / 0.6lbs	680g / 1.5lbs	100g including accessories / 0.2lbs	0.6kg / 1.27lbs
Options	Back Box YC-841	Flush-mount: Back Box, YC-241 Wall surface-mount: Wall mount Box YC-251 Handset: RS-191	Handset: RS-191	Flush-mount: 3-gang electrical box or Back Box YC-150 Wall surface-mount: Wall mount Box YS-13A	--	2-gang electrical box: YC-302, Indoor wall-mount box: YC-822

N-8000 Series Exchanges and Interface Units

❖Telephone Interface Unit
N-8000AL

- 10/100BaseTX Ethernet network connection
- Occupies one network node (192 max.)
- Allows third party handsets with DTMF and Caller-ID to function as a master station on the system

❖C/O Interface Unit
N-8000CO

- 10/100BaseTX Ethernet network connection
- Occupies one network node (192 max)
- Analog telephone system interface allows an outside line to perform any master station function
- Allows any pre-programmed station to access an outside line

❖Audio Interface Unit
N-8000AF

- 10/100BaseTX Ethernet network connection
- Occupies one network node (192 max.)
- One MIC/LINE level analog audio input
- One line level analog audio output
- Eight contact inputs/outputs
- Time Synchronization input
- Built-in bell schedule timer and tones

❖Multi Interface Unit
N-8000MI

- 10/100BaseTX Ethernet network connection
- Occupies one network node (192 max.)
- Two line level analog audio inputs/outputs
- Sixteen contact inputs
- Sixteen relay outputs
- PBX Interface (E&M type), two channels

❖SX-2000 System IP Interface Module
SX-200IP

- Allows two IP master stations to access an SX-2000 system
- Multiple SX-200IP may be installed on an SX-2000 system
- Please see the SX-2000 instruction manual for more information

❖Contact Closure Interface
N-8000DI

- General purpose input/output (GPIO)
- 10/100BaseTX Ethernet network connection
- Occupies one network node (192 max.)
- 32 contact inputs
- 32 contact outputs
- Events may be activated by contact closures or master station dialing commands
- Provides control interface to CCTV, door access and other external systems

Specifications

	N-8000AL	N-8000CO
Power Source	120V AC, 50/60Hz	
Power Consumption	8W (Max.)	7W (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 cable	
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	
Finish	Pre-coated steel plate, black, 30% gloss	
Dimensions	210 (W) x 44.3 (H) x 267 (D)mm / 8.3 (W) x 1.7 (H) x 10.5 (D)in	
Weight	1.7kg / 3.7lbs	
Included Accessories	AC Cord, CD software	
Options	Rack mounting bracket: MB-15B-BK, MB-15B-J; Wall mounting bracket: YC-850	

	SX-200IP
Network Section	Network I/F: 10BASE-T/100BASE-TX (Automatic-Negotiation); Network Protocol: TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP Voice sampling frequency: 16 kHz, 8 kHz (controllable on the software); Voice packet loss recovery: Silence insertion; Audio delay time: 80 ms, 320 ms (controllable on the software)
Indicator	Operation indicator (RUN)
Finish	Panel: Pre-coated steel plate, black, 30 % gloss
Dimensions (W x H x D)	1.4" x 4.7" x 7" / 35 x 119.5 x 178.4 mm
Weight	5.3 oz / 150 g

*0dB = 1 V

Specifications

	N-8000MI	N-8000DI	N-8000AF
Power Source	120V AC, 50/60Hz		
Power Consumption	21W (330mA) (max.)	16W (Max.)	7W (Max.)
Audio Input	Input: 2 inputs (2P/input), Max. 0dB*, under 600Ω, balanced, with a semi-fixed volume for adjustment (0 to –25dB); Control: 2 inputs (2P/input), no-voltage make contact input, open voltage: 12V DC, short-circuit current: 10mA; Removable terminal block (8 pins)	--	1 input (transformer isolated), -58dB* to 0dB*, 2kΩ, 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. 0dB*, under 600Ω, balanced; Control: 2 outputs (2P/output), relay contact output, contact capacity: 24V DC/0.5A Removable terminal block (8 pins)	--	1 output (transformer isolated), 0dB*, 600Ω, balanced, removable terminal block (3 pins)
Contact Input	16 inputs, no-voltage make contact input, open voltage; 12V DC, short-circuit current: 10mA, removable terminal block (18 pins), (1 common terminal for 4 inputs)	32 inputs, no-voltage make contact input, open voltage: 24V DC, short-circuit current: 5mA or less, removable terminal block (20 pins)	8 inputs, no-voltage make contact input, open voltage: 24V DC, short-circuit current: 5mA or less, removable terminal block (10 pins), (1 common terminal for 4 inputs)
Contact Output	16 outputs, relay contact output, contact capacity: 24V DC/0.5A, removable terminal block (18 pins)	32 outputs, relay contact output, contact capacity: 24V DC/2 – 500mA, removable terminal block (32 pins)	8 outputs, relay contact output, contact capacity: 24V DC/2 – 500mA, removable terminal block (16 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	80ms, 320ms (Controllable on the software)	--	80ms, 320ms (Controllable on the software)
Finish	Pre-coated steel plate, black, 30% gloss		
Dimensions	420 (W) x 44.3 (H) x 239.5 (D)mm 16.5 (W) x 1.7 (H) x 9.4 (D)in	420 (W) x 44.3 (H) x 267 (D)mm 16.5 (W) x 1.7 (H) x 10.5 (D)in	210 (W) x 44.3 (H) x 267 (D)mm 8.3 (W) x 1.7 (H) x 10.5 (D)in
Weight	2.8kg / 6.2lbs		1.7kg / 3.7lbs
Included Accessories	Rack mount bracket, AC Cord, CD software		AC cord, CD software
Options	--	Wall mounting bracket: YC-850	Rack mounting bracket: MB-15B-BK, MB-15B-J Wall mounting bracket: YC-850

	N-8000RS	N-8010RS
Power Source	120 V AC, 50/60 Hz	
Power Consumption	35 W (at rated), 45 W (max.)	26 W (at rated), 32 W (max.)
Interface Section for Sub-station	Number of lines: 16 lines Number of speech link: 2 links Transmission system: Analog baseband Transmission range: 500 m (546.81 yd)/11)0.5 mm (AWG24), 800 m (874.89 yd)/ 0.65 mm (AWG21), 1300 m (1421.7 yd)/0.9 mm (AWG19) Speech method: Half-duplex conversation by way of voice switch Connector: Removable terminal block (3 pins) Wiring method: Two-core shielded cable Audio output: Max. 1 W/line (conversation), Max. 0.5 W/line (paging) Feeding voltage/current: 22 V DC, 30 mA max. Control sianal: Call in button detection, privacy button detection, hook detection	Number of lines: 16 lines Number of speech link: 1 link Transmission system: Analog baseband Transmission range: 500 m (546.81 yd)/0.5 mm (AWG24), 800 m (874.89 yd)/ 0.65 mm (AWG21), 1300 m (1421.7 yd)/0.9 mm (AWG19) Speech method: Half-duplex conversation by way of voice switch Connector: Removable terminal block (3 pins) Wiring method: Two-core shielded cable Audio output: Max. 1 W/line (conversation), Max. 0.5 W/line (paging) Feeding voltage/current: 22 V DC, 30 mA max. Control sianal: Call in button detection, privacv button detection, hook detection
Network Section	Network I /F: 10BASE-T /100BASE-TX (Automatic-Negotiation) Network protocol: TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP Audio packet transmission system: Unicast, Multicast Number of paging destinations: 0, *Reception only Connector: RJ45 connector Voice sampling frequency: 16 kHz, 8 kHz (controllable on the software) Quantifying bit number: 16-bit Voice encoding method: Sub-band ADPCM, Cryptosystem Voice packet loss recovery: Silence insertion Audio delay time: 80 ms, 320 ms (controllable on the software)	
Indication	Network LNK/ ACT indication, Status lamp, Power-on indication lamp	
Other	Firmware update function, System data hold function, Reset switch (front panel), Forced air cooling	
Setting Method	Rack, Desk, Surface mount	
Operating Temperature	0°C to +40°C (32°F to 104°F)	
Operating Humidity	90 %RH or less (no condensation)	
Finish	Pre-coated steel plate, black, 30% gloss	
Dimensions	420 (W) x 44.3 (H) x 325.5 (D) mm (16.54" x 1.74" x 12.81")	
Weight	3.9 kg (8.6 lb)	3.8 kg (8.38 lb)
Accessory	Power cord (2 m (6.56 ft)) x 1, CD (for PC setting, maintenance use) x 1, Removable term in al plug (3 pins) x 16, Plastic foot x 4, Screw for fitting plastic foot x 4, Rack mountina bracket x 2, Screw for mountina bracket x 8, Screw for rack mounting x 4	
Option	Wall mounting bracket: YC-850	

N-8000 Series 2-Core Shielded Cable Type

❖Sub-station Interface Unit
N-8000RS

- 10/100BaseTX Ethernet network connection
- Occupies one network node (192 max)
- Connect up to 16 substations using shielded twisted pair cable
- Speech links: 2

❖Sub-station Interface Unit
N-8010RS

- 10/100BaseTX Ethernet network connection
- Occupies one network node (192 max)
- Connect up to 16 substations using shielded twisted pair cable
- Speech links: 1

❖Sub-station (Indoor Type)
RS-150

- Provides half-duplex communication
- Hairline brushed stainless steel faceplate, #14 Gauge
- For use with N-8000RS/N-8010RS only

❖Sub-station (Indoor Vandal-Resistant Type)
RS-160

- Provides half-duplex communication
- Heavy-duty brushed stainless steel faceplate, #11 Gauge
- Vandal resistant call button and speaker plate
- For use with N-8000RS/N-8010RS only

❖ Sub-station (Outdoor Vandal-Resistant Type)
RS-170

- Provides half-duplex communication
- Vandal resistant call button and speaker plate
- Heavy-duty brushed stainless steel faceplate, #11 Gauge
- Weather resistant printed circuit board coating
- For use with N-8000RS/N-8010RS only

❖Substation (ADA-Compliant Emergency Outdoor type)
Q-RS180BZ

- ADA compliant with Braille labeling
- Large easy-access mushroom button
- Contact output for use with emergency lighting or access control systems
- For use with N-8000RS/N-8010RS only

❖Sub-station (Emergency Use)
RS-180

- Vandal resistant call button and speaker plate
- Red Call Assurance LED for ADA-compliance
- Heavy-duty brushed stainless steel faceplate, #11 Gauge
- Weather resistant printed circuit board coating
- For use with N-8000RS/N-8010RS only

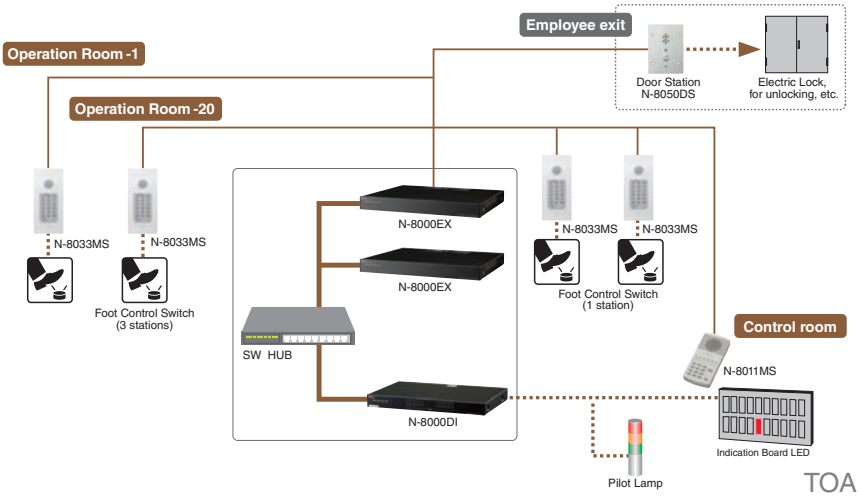
❖N-8000RS Adapter
Q-N8000LC

- Equipped with four channel outputs with level selection switch
- Accessory adapter for N-8000RS or N-8010RS Substation Interface Unit
- Converts the output signal of the interface unit into a line level audio signal or a 25V line speaker output

Specifications

	RS-180	RS-170	RS-160	RS-150
Control Output	Open collector output: 24V DC, 30mA (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	4.72" (W) × 4.72" (H) × 2.30" (D) 119.9 (W) x 119.9 (H) x 58.4 (D)	4.72" (W) × 4.72" (H) × 2.26" (D) 119.9 (W) x (119.9 (H) x 57.4 (D)		4.72" (W) × 4.72" (H) × 1.91" (D) 119.9 (W) x 119.9 (H) x 48.5 (D)
Weight	570 g / 1.26 lbs	540 g / 1.19 lbs		410 g / 0.9 lbs
Options	2-gang electrical box: YC-302, Indoor wall-mount box: YC-822, Outdor wall-mount box: YC-823		2-gang electrical box: YC-302, Indoor wall-mount box: YC-822	

N-8000 Series Hospital Application (2-wire)



N-8000 Series 2-Core Shielded Cable Type

❖Switch Panel
RS-140

- Call button and privacy button with LED Indicators
- Private conversation is available using the optional RS-141 Handset
- Prevents non-emergency calls, pages & scans by pushing the privacy switch
- Connects to N-8000RS/8010RS using shielded twisted pair cable

❖IP Intercom Switch Board
RS-142

- For custom applications
- May be programmed for dual-priority call or to call two different master stations
- Optional RS-141 Handset may also be used
- Connects to N-8000RS/8010RS using shielded twisted pair cable

❖IP Intercom Switch Panel
RS-143

- Call button for N-8000RS/N-8010RS
- Optional RS-141 Handset may also be used
- Connects to N-8000RS/8010RS using shielded twisted pair cable

❖IP Intercom Switch Panel
RS-144

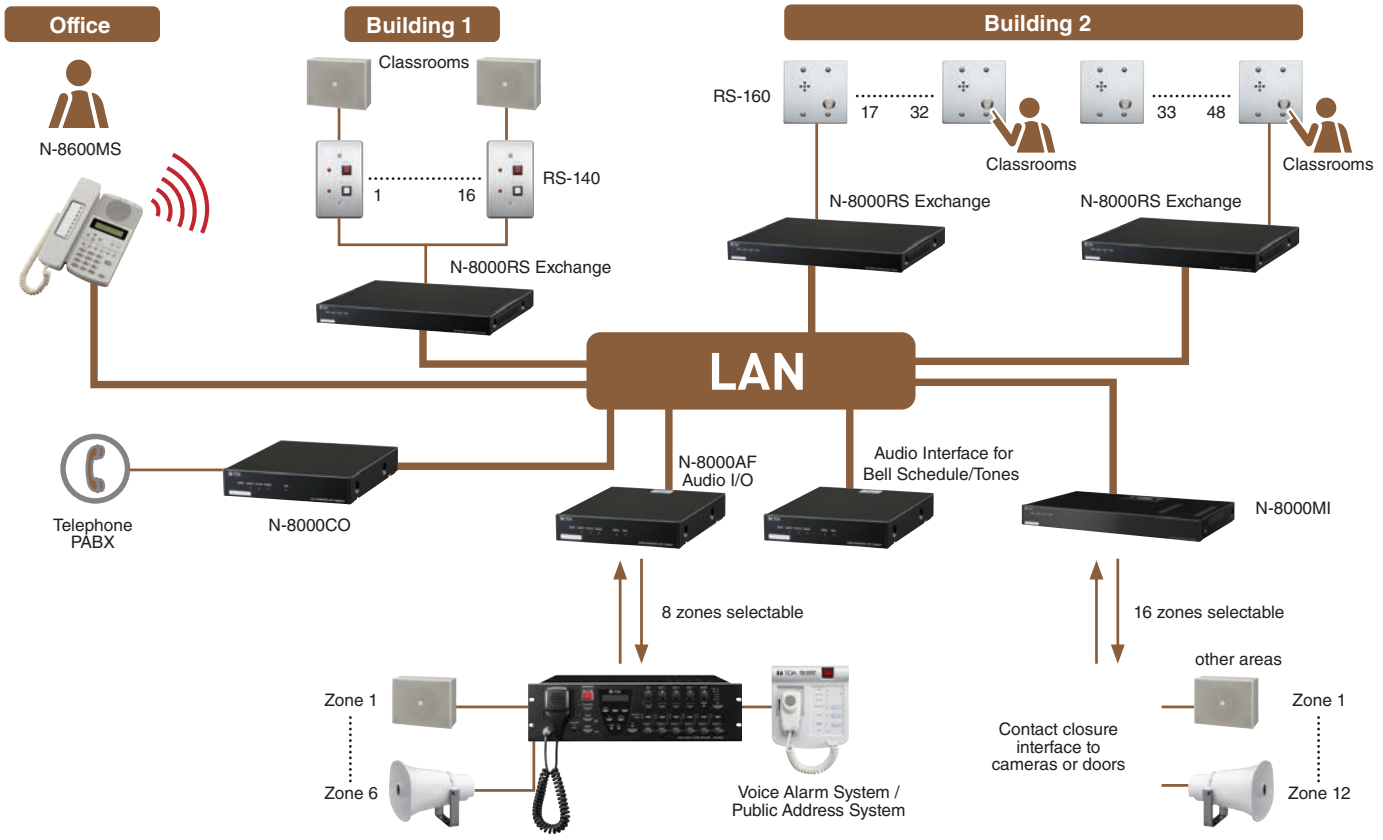
- May be programmed for dual-priority call or to call two different master stations
- Optional RS-141 Handset may also be used
- Connects to N-8000RS/8010RS using shielded twisted pair cable

Specifications

	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	2.76" (W) × 4.53" (H) × 1.13" (D) / 70.1 (W) x 115.1 (H) x 28.7 (D)		
Weight	0.18 lb / 81.7g		
Options	Handset: RS-141		

❖Optional Handset
RS-141

N-8000 Series Educational Facility Application



N-8000 Series 4-Wire Cable Type

❖4-Wire Intercom Exchange
N-8400RS

- 10/100BaseTX Ethernet network connection
- Occupies one network node (192 max)
- Connect up to 16 substations using 2 shielded twisted pair cables
- Speech links: 1

❖Optional Handset
RS-481

- Indoor handset used with the RS-480 substation
- Overrides speaker connected to RS-140/RS-480 call panel and allows private conversation

❖Analog Standard Master Station
N-8410MS

- Low-cost analog Master Station operates on 4-wire connection with N-8400RS
- Complete system can be configured on one exchange with RS-4xx substations

❖Sub-station (Video Intercom)
RS-480VSET

- Color video camera
- Indoor and outdoor use
- Easy connection via CAT5
- Supplied power interface

❖Sub-station (Emergency Use)
RS-480

- Provides half-duplex communication
- Dustproof and waterproof construction (IP54 rating)
- Heavy-duty brushed stainless steel faceplate
- Red vandal resistant call button
- Control output - open collector type for external relay control
- Weather resistant printed circuit board coating
- Built-in electret condenser microphone

❖Sub-station (Outdoor Vandal-Resistant Type)
RS-470

- Provides half-duplex communication
- Dustproof and waterproof construction (IP54 rating)
- Heavy-duty brushed stainless steel faceplate
- Vandal resistant call button
- Control output - open collector type for external relay control
- Weather resistant printed circuit board coating
- Built-in electret condenser microphone

❖Sub-station (Indoor Vandal-Resistant Type)
RS-460

- Provides half-duplex communication
- Heavy-duty brushed stainless steel faceplate
- Vandal resistant call button
- Control output - open collector type for external relay control
- Built-in electret condenser microphone

❖Sub-station (Indoor Type)
RS-450

- Provides half-duplex communication
- Heavy-duty brushed stainless steel faceplate
- Control output - open collector type for external relay control
- Built-in electret condenser microphone

❖IP Intercom Switch Board
RS-442

- For custom applications
- Optional RS-481 Handset may also be used
- Connects to N-8400RS using 2 shielded twisted pair cable

Specifications

*0dB = 1V

	N-8400RS
Power Source	120V AC, 50/60Hz
Power Consumption	30W(at rated), 45W(max.)
Interface Section for Sub-station	
Number of Lines	16 lines
Number of Speech Link	2 links
Transmission Range	1km/0.5mm, 1.5km/0.65mm, 2km/0.9mm
Wiring Method	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, Multcast
Voice Packet Loss Recovery	Silence insertion
Audio Delay Time	80ms, 320ms (Controllable on the software)
Finish	Pre-coated steel plate, black, 30% gloss
Dimensions	420 (W) x 44.3 (H) x 325.5 (D)mm 16.5 (W) x 1.7 (H) x 12.8 (D)in
Weight	4kg / 8.8lbs
Option	Wall mounting bracket: YC-850

	N-8410MS
Power Source	24V DC (supplied from the sub station interface unit N-8400RS)
Current Consumption	Max. 30mA
Wiring Method	2 set of twisted pair cable
Speech Method	Hands-free or handset conversation
Audio Frequency Range	300 – 7,000Hz
Transmission Range	1km/0.5mm (AWG24),1.5km/0.65mm (AWG22), 2km/0.9mm (AWG19)
Finish	Body, Handset: ABS resin, gray
Dimensions	148 (W) x 208 (H) x 70.5 (D)mm (excluding a curl cord section) 5.8 (W) x 8.2 (H) x 2.8 (D) in (excluding a curl cord section)
Weight	720g / 1.6lbs
Option	Wall mounting bracket: YC-280

Specifications

	RS-480	RS-470	RS-460	RS-450
Call-in Switch	Momentary (Emergency call: Press twice within 400 ms)			
Control Output	Open collector output: 30V DC, 30mA	--		
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	4.72" (W) × 4.72" (H) × 1.99" (D) 119.9 (W) x 119.9 (H) x 50.6 (D)	4.72" (W) × 4.72" (H) × 1.95" (D) 119.9 (W) x 119.9 (H) x 49.5 (D)		4.72" (W) × 4.72" (H) × 1.63" (D) 119.9 (W) x 119.9 (H) x 41.4 (D)
Weight	1.27 lb / 0.6kg	1.21 lb / 0.5kg	1.19 lb / 0.5kg	1.12 lb / 0.5kg
Options	2-gang electrical box: YC-302, Handset: 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	

N-8000 Series Optional Accessories

❖AC Adapter
AD-1215P

- AC adapter for IP Stations/Master Stations

❖Flush-Mount Back Box
YC-150

- Back box for N-8050DS and N-8640DS

❖Surface-Mount Back Box
YC-251

- Back box for N-8031MS

❖Wall-Mount Bracket
YC-280

- Bracket for N-8000MS, N-8010MS, N-8020MS, N-8410MS, N-8510MS and N-8600MS

❖Indoor Wall-Mount Box
YC-822

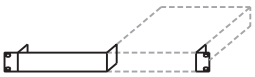
- Box for RS-150, RS-160, RS-170, RS-180, RS-450, RS-460, RS-470 and RS-480

❖Outdoor Wall-Mount Box
YC-823

- Box for RS-170, RS-180, RS-470 and RS-480

❖Half Width Blank Panel
MB-15B-BK

- Rack mount kit for N-8000AF, N-8000AL and N-8000CO



❖Surface-Mount Back Box
YS-13A

- Back box for N-8050DS and N-8640DS

❖Flush-Mount Back Box
YC-241

- Back box for N-8031MS

❖Back Box
YC-841

- Back box for N-8033MS

❖Wall-Mount Bracket
YC-290

- Bracket for N-8011MS

❖Wall-Mount Bracket
YC-850

- Wall-mount bracket for N-8000RS, N-8010RS, N-8400RS, N-8000DI, N-8000AF, N-8000AL and N-8000CO

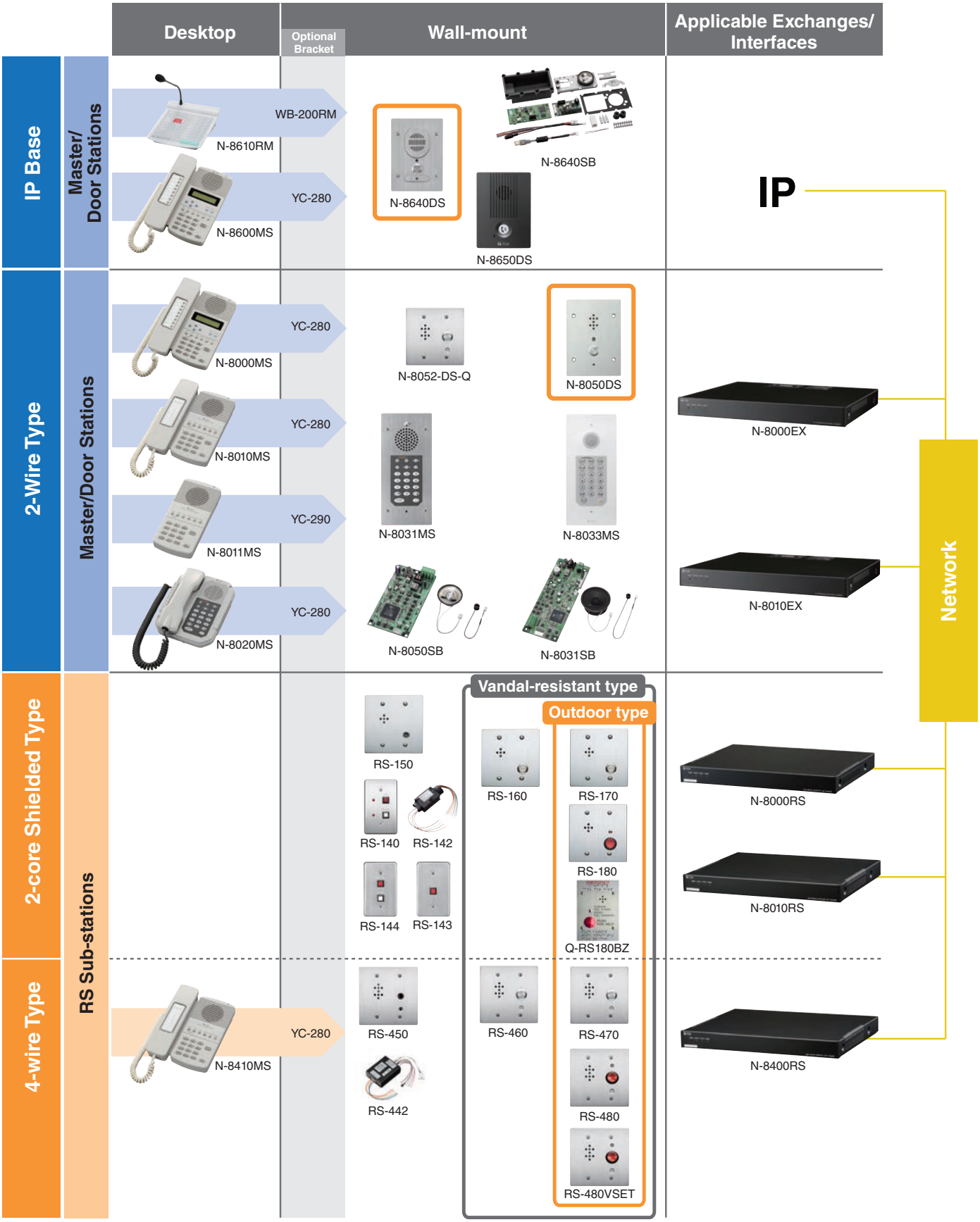
❖2-Gang Electrical Box
YC-302

- Box for RS-150, RS-160, RS-170,RS-180, RS-450, RS-460, RS-470 and RS-480

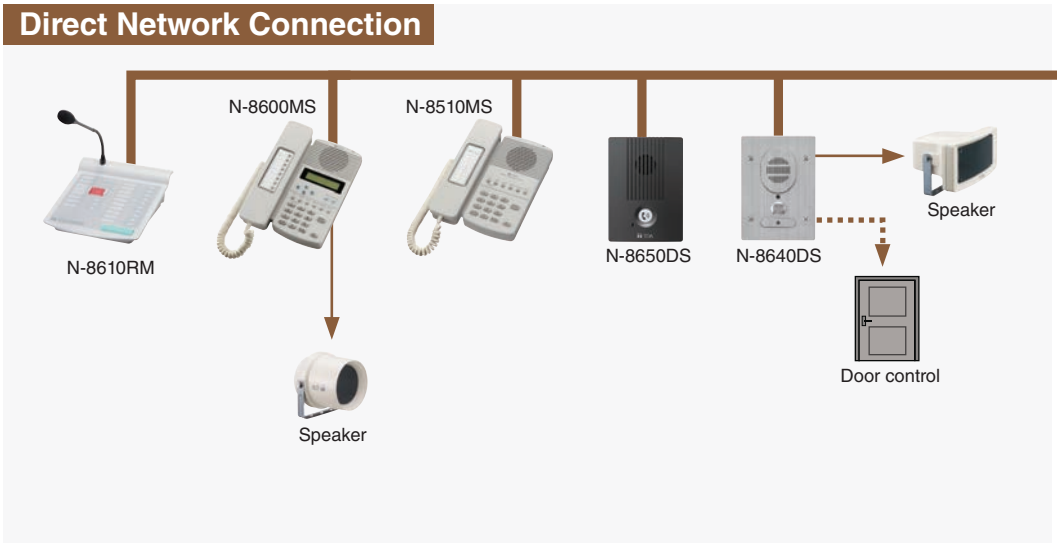
❖Rack Joint Bracket
MB-15B-J

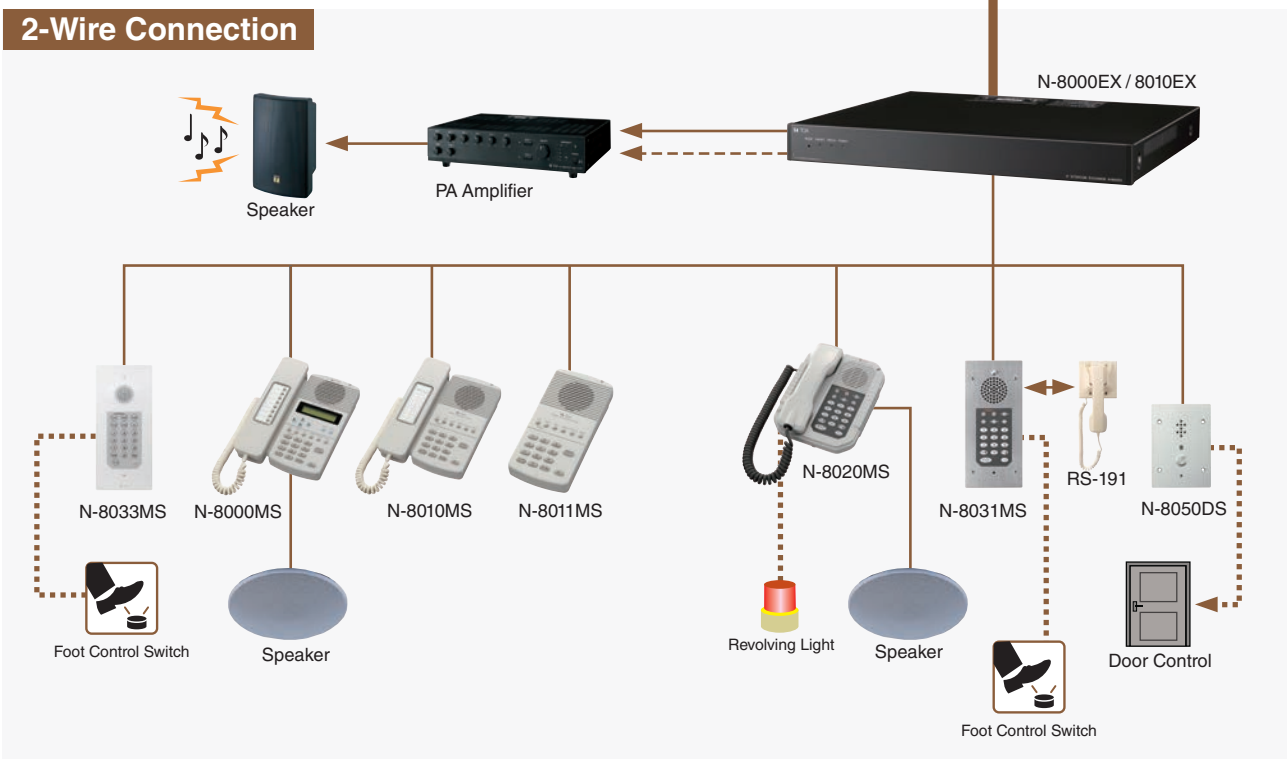
- Rack mount kit for N-8000AF, N-8000AL and N-8000CO

N-8000 Series Station Selection Chart



N-8000 Series System Overview





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)

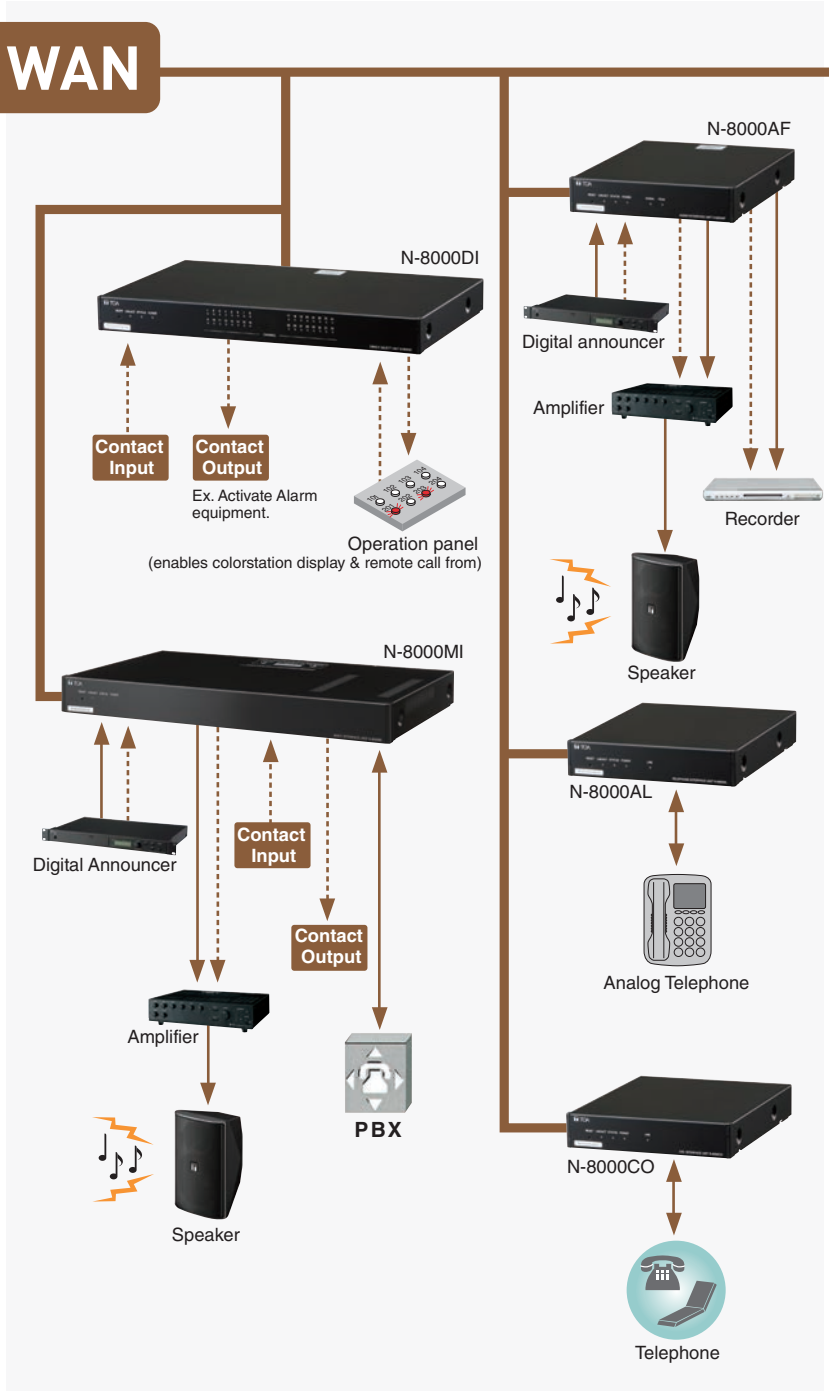
[Network Relations]
Audio Delay Time
80 ms/320 ms; changeable

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

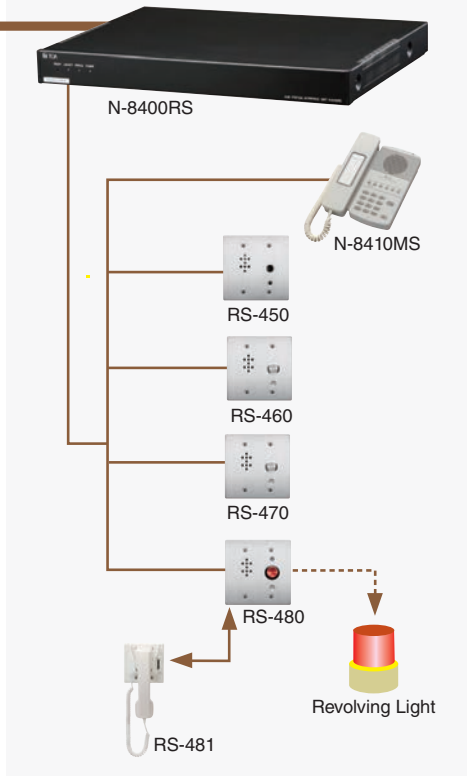
Bandwidth Used
Max. 2.08 Mbps (one-way)/unicast paging to 16 locations

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

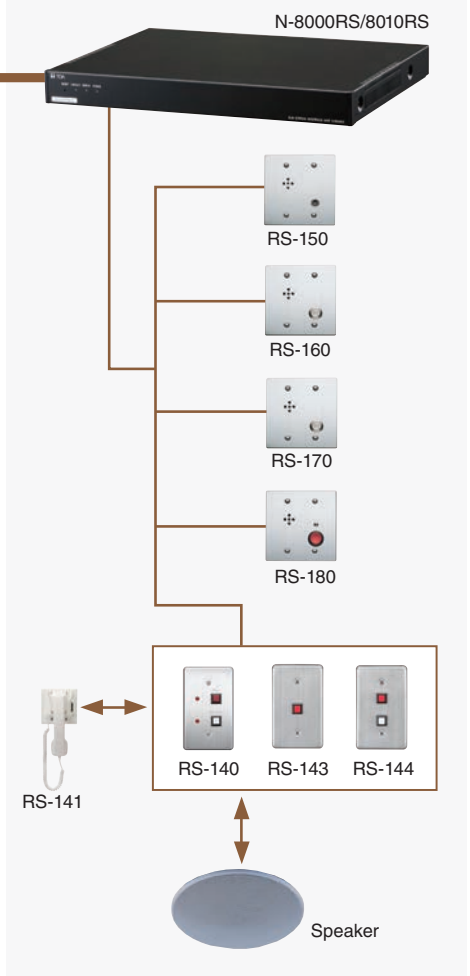
WAN



4-Wire Connection



2-Core Shielded Wire Connection



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

TOA Network Solutions

SIP Intercom Series

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N-8000 Intercom System

Page 23

SIP Module

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SX-2000 Series Audio Management System

Page 10

D-2000 Series Modular Digital Mixer

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NX-300 System

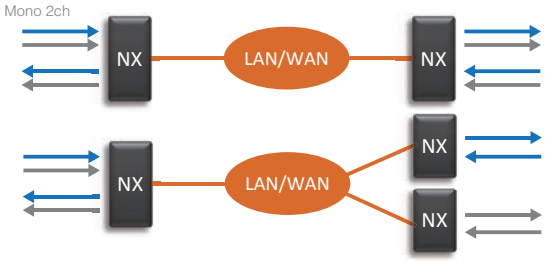
The NX-300PS uses an advanced implementation of TOA's Packet Audio™ streaming technology (same as NX-100PS) with improved broadcast capacity & system expandability. WAV file record functions and other advanced features are provided. The NX-300PS can be used to create wide area public address systems over any IP network. Ideal for transportation audio distribution systems, corporate messaging, ATMs, parking system communications & industrial facilities.

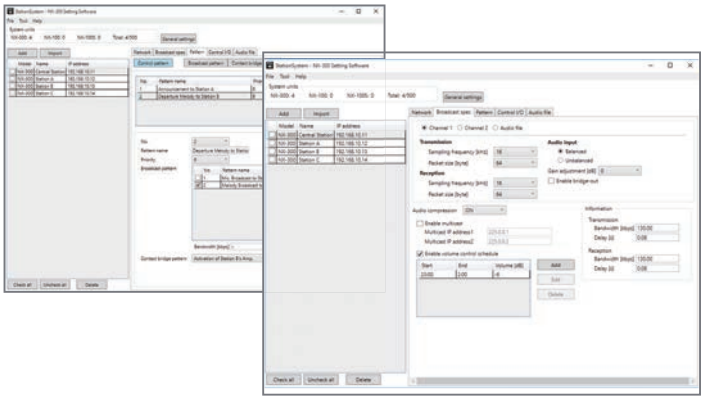
❖Network Audio Adapter

NX-300PS

- Transmits16 bit audio w/sample rates up 48kHz for better than CD audio quality
- Up to 500 NX-300PSs can be connected to each other via LAN or WAN
- Up to 1,000 links can be established and broadcast patterns
- Up to 64 NX-300PSs can be programmed for use over extremely wide areas
- High or low broadcast priority can be set to allow for paging override with alert tones, or announcements
- Broadcast patterns may be activated by contact closure and/or an on-screen GUI
- Dual-channel - Capable of one-way stereo signal paths or bi-directional (full-duplex) dual mono signals
- Transformer balanced ins & outs to accommodate virtually any mic or line level signal
- A built-in WAV-file recorder allows record/playback of up to eight 2-minute messages
- Eight control contact inputs and outputs
- Adjustable output volume of a broadcast via programmed scheduler
- System configuration, control and monitoring via the supplied GUI software and/or web browser

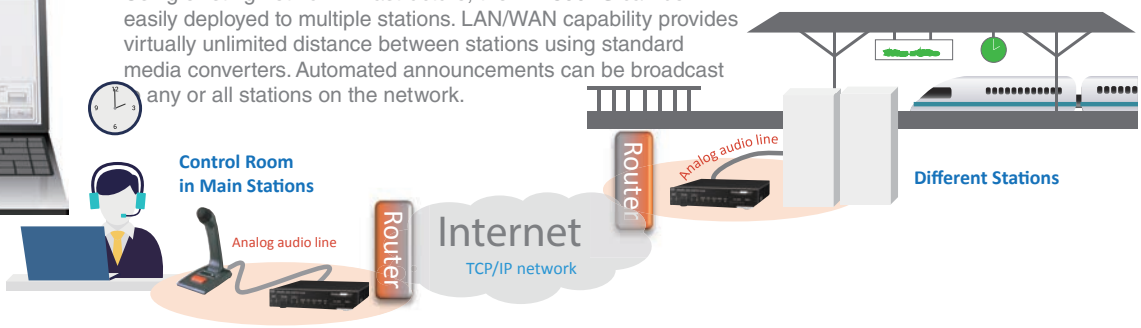
Duplex and Mono





NX-300 System Railway Station Example

Using existing network infrastructure, the NX-300PS can be easily deployed to multiple stations. LAN/WAN capability provides virtually unlimited distance between stations using standard media converters. Automated announcements can be broadcast any or all stations on the network.



Specifications

	NX-300PS
Power Source	External 24V DC (21.6 - 26.4 V) power supply or AC adapter AD-246 (option) or the equivalent
Power/Current Consumption	10 W (AC operation), 310 mA (DC operation)
Audio Input	2 channels, balanced (transformer isolated) unbalanced, 2kΩ, LINE/MIC changeable, volume adjustable Rated input: -20 dB(*1) (LINE)/-60 dB(*1) (MIC) PAD function (-16 dB(*1)), removable terminal block (6 pins)
Audio Output	2 channels, balanced (transformer isolated), 600 ohms or less Rated output: 0 dB(*1) (unbalanced input) / -2 dB(*1) (balanced input), removable terminal block (6 pins)
Frequency Response	50 Hz - 18 kHz (48 kHz sampling frequency, PCM, 0 to -6 dB deviation referenced 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 minutes per audio file (16 kHz sampling frequency, sub-band-ADPCM, monaural)
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), withstands 30V DC, control current: 50 mA max., removable terminal block (9 pins) 2 channels, dry contact relay output (non-polar), withstands 30V 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, UDF, ARP, HTTP, RTP, IGMP, FTP, NTP Audio packet transmission: 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 by 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)
Indicator	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, ground lift, audio input PAD, audio input MIC/LINE
SD Section	For log storage (Max. 10000) Media: SD/SDHC card (Max. 32 GB) (*2) 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 / 14°F to 122°F, (0°C to + 40°C/32°F to 104°F 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 (8.27” x 1.74” x 10.16”)
Weight	1.7 kg (3.75 lbs.)
Accessory (included)	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

(*1) 0dB = 1V

(*2) Not compatible with SDXC memory cards

NX-100 System

❖Network Audio Adapter

NX-100PS

❖Network Audio Adapter Economy Version

NX-100SPS

- Converts analog audio (mic or line level) to packet audio IP format for transmission over existing local or wide area networks (LAN/WAN)
- Bi-directional audio transport plus contact closures
- Serial RS-232 (NX-100PS only)
- Reduces installation and operational costs when distributing audio signals to remote locations
- Balanced mic/line input with adjustable volume control
- Phantom power for condenser microphones (NX-100SPS only)
- Balanced line output
- Built-in Ethernet port (10/100BaseT)
- Point-to-point transmission (Unicast) of audio signals to up to four locations (LAN/WAN/Internet)
- Simultaneous transmission (Multicast) of audio signals to up to 64 locations (LAN/WAN)
- Control inputs can initiate and terminate audio transmissions without the need for dedicated PC-based or other control equipment
- Eight control inputs with adjustable contact off delay time
- Eight control outputs: open collector output
- Adjustable sample rate and audio bandwidth allows efficient use of network resources
- Minimum delay: 20 ms
- Multiple error correction modes
- Intuitive configuration, operating and management software
- Browser-based software allows control and monitoring from any network-based PC
- Convenient end user features, including customizable Operation software, Operation logs and password protection
- Front panel indication: Link/Active, Full-Duplex/Collision, Status, Error, Run
- Signal and Peak Indicators (NX-100SPS only)
- Front panel reset button
- External 24 VDC input for battery backup operation (NX-100PS only)
- Easy to upgrade flash memory firmware
- Compact, half-rack size unit (1 RU)
- Requires AC power supply, model AD-246
- Optional rack-mount kits (1 RU), model MB-15B-BK (1 NX-100PS/NX-100SPS), model MB-15B-J (2 NX-100PS/NX-100SPS)

Specifications

* 0dB = 1V

	NX-100PS	NX-100SPS
Power Source	24V 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	200mA (DC operation)	7W (when AD-246 (optional) is used)
Audio Input	1 channel (transformer-isolated), –58dB* to 0dB*, balanced (MIC/LINE changeable, volume adjustable with volume control), 2kΩ, removable terminal block (3 pins)	1 channel (transformer-isolated), –58dB* to 0dB*, balanced (MIC/LINE changeable, volume adjustable with volume control), 2kΩ, removable terminal block (3 pins), phantom power supply (24V, can be set with DIP switch)
Audio Output	1 channel (transformer-isolated), balanced, 600Ω, removable terminal block (3 pins)	
Frequency Response	50 – 14,000Hz (when sampling frequency is 32kHz)	
Distortion	Under 0.3% (1kHz, when sampling frequency is 32kHz)	
Control Input	8 channels, no-voltage make contact input, open voltage - 12V DC, short-circuit current - 10mA, removable terminal block (9 pins)	
Control Output	8 channels, open collector output (polarized), withstand voltage - 30V DC, control current - 50mA max., removable terminal block (9 pins)	
Network I/F	10BASE-T/100BASE-TX, Auto-Negotiation	
Network Protocol	TCP, UDP, ARP, ICMP, HTTP, RTP, IGMP	
Audio packet Transmission System	Unicast (up to 4 simultaneous transmissions), Multicast (up to 64 simultaneous transmissions)	
Operating Temperature	0°C to +50°C / 32°F to 122°F (0°C to +40°C / 32°F to 104°F when AC adapter is in use)	0°C to +40°C / 32°F to 104°F
Operating Humidity	Under 90% RH (non-condensing)	
Finish	Steel plate, black, 30% gloss	
Dimensions	210 (W) × 44.7 (H) × 188 (D)mm / 8.3” x 1.8” x 7.4”	
Weight	1.2kg / 2.6lbs	
Accessory (included)	CD (PC Installation & Operation software programs, Instruction manuals) × 1, Power supply removable terminal plug (3 pins) × 1, Audio I/O removable terminal plug (3 pins) × 2, Control I/O removable terminal plug (9 pins) × 2, RS-232C connector cover × 1, Bracket mounting screw × 8	CD (PC Installation & Operation software programs, Instruction manuals) × 1, Audio I/O removable terminal plug (3 pins) × 2, Ferrite clamp × 1, Control I/O removable terminal plug (9 pins) × 2, Bracket mounting screw × 8
Options	Rack mounting bracket: MB-15B-BK (for one NX-100PS/NX-100SPS unit), MB-15B-J (for two NX-100PS/NX-100SPS units)	

NX Series Comparison

	NX-100PS	NX-100SPS	NX-300
Audio Inputs	1	1	2
Mic/Line Switch	Yes	Yes	Yes x 2
Phantom Power	No	Yes	No
Input PAD Adjust	No	No	-16dB x 2
Input Level Adjust	Variable	Variable	Variable x 2
Input signal LED	No	Yes	Yes x 2
Input peak level LED	No	Yes	Yes Input LED > Red x 2
Ground Lift	No	No	Yes x 2
Audio Outputs	1	1	2
Audio Output Signal LED	No	No	Yes x 2
Contact Inputs	8	8	8
Contact Outputs	8	8	8
Contact Outputs (Dry Contact)	No	No	2
RS-232C Bridge Control	Yes	No	No
Eithernet 10/100M Connection	Yes	Yes	Yes
DC Adapter Input	Yes	Yes	Yes
DC Phoenix Plug Input	Yes	No	Yes
Power Requirement	24V/200mA	24V/200mA	24V/310mA
DC Adapter Model	AD-246	AD-246	AD-246

NX Series Comparison

	NX-100PS	NX-100SPS	NX-300PS
Frequency Response	50Hz ~ 14kHz @ 32K Sample Rate	50Hz ~ 14kHz @ 32K Sample Rate	50Hz ~ 18kHz @ 48K Sample Rate
Maximum Sample Rate	32kHz	32kHz	48kHz
Unicast	4	4	16
Multicast	64	64	64
SD Card	No	No	Yes - 32G Max
Storable Files	-	-	8
Maximum Individual File Time	-	-	2 Minutes @ 32kHz
File Format	-	-	.wav
Built-in messaging	No	No	Yes
Surveillance Function	No	No	Yes
Rack Kit - Single	MB-15B-BK	MB-15B-BK	MB-15B-BK
Rack Kit - Double	MB-15B-J	MB-15B-J	MB-15B-J

NX System Application Examples

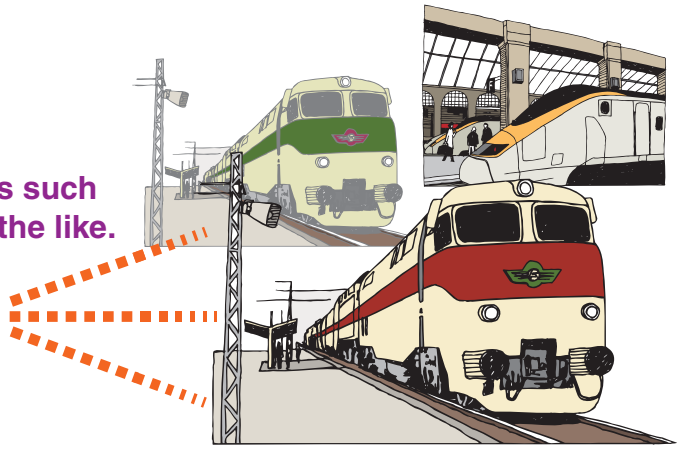
Using existing network infrastructure, the NX-100PS/NX-100SPS can be easily deployed to multiple stations. LAN/WAN capability provides virtually unlimited distance between stations using standard media converters.

Voice distribution to remote broadcast areas such as roadside locations, railway stations and the like.

example

Automated announcements at unattended stations.

EV-700PS Sound Repeater



General purpose broadcasts in supermarket chain stores, department stores and various locations in manufacturing plants.

example

Headquarters transmissions to designed locations.

Announcer

CD player, BGM and prerecorded voice announcements.

DT-930 Synthesized AM/FM Tuner

Digital Message Repeaters

❖Sound Repeater

EV-700PS

- High-quality WAV format (44.1kHz/32kHz, 16 bit)
- Emergency broadcasts override non-emergency broadcasts
- Automatic gain control (AGC) function adjusts the playback volume to a reference level
- Users can create or edit sound source files by directly inputting new phrases or combining prerecorded phrases to create up to 256 audio programs
- Create/edit/store audio files on CF memory card (storage capacity 32,768 sound source files and 256 audio programs)
- 35 preinstalled sound source files
- GUI software facilitates intuitive remote storage of sound source files and activation of broadcasts
- Simple and full function modes for basic or advanced user interaction

Specifications

	EV-700PS
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 included 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 Rewriting Method	LAN data transfer/Analog recording/Direct write to CF memory card using the setting software
Audio Input	MIC: –55 dB*1 (microphone input volume control in maximum position), 600 Ω, unbalanced, 1/4" mono phone jack LINE(rear): –20 dB*1 (line input volume control in maximum position), 10 kΩ, unbalanced, Removable terminal block (12 pins) LINE(front): –29 dB*1 (line input volume control in maximum position), 10 kΩ, unbalanced, RCA pin jack
Audio Output	LINE 1, 2: 0 dB*1, 600 Ω, unbalanced, Removable terminal block (12 pins) Headphones: 0 dB*1, 100 Ω, monaural, 1/8" stereo mini jack
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 at rated output)
Storage Media	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.
Number 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)
Audio Output Method	Single channel monaural
Number of Playback Program	Direct mode: 16 programs Binary mode: 256 programs 1 emergency message takes precedence over the above. R.E.M. (Recording Endless Message) playback *2 can be performed.
Control Input	Activations 1 – 16, playback, pause, recording, erasure/clear, emergency playback, emergency recording, emergency pause No-voltage make contact input, pulse make contact 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
Operating Temperature	0 °C to 40 °C / 32 °F to 122 °F
Operating Humidity	90% RH or less (no condensation)
Finish	Panel: Aluminum, black, 30 % gloss, paint Case: Pre-coated steel plate, black, 30 % gloss
Dimensions	420 (W) x 44 (H) x 222 (D) mm / 16.54" x 1.73" x 8.74"
Weight	2.4 kg / 5.29 lbs.
Included Accessories	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	Rack mounting bracket: MB-15B

*1 .0 dB = 1 V

*2 An emergency broadcast function will repeatedly play the recorded sound source recorded in this location 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.

Digital Message Repeaters

❖Sound Repeater

EV-20RPS

- Front panel-mounted recording inputs (mic/line switchable)
- PC connection via USB; CD-ROM with pre-recorded tones is included
- Pre-recorded message can be transferred via USB interface
- Up to 4 separate message selections or announcements with a total maximum of six minutes may be recorded
- Built-in interval timer allows messages to be repeated at various time intervals (∞ to 1 hour selectable)
- 3W / 8Ω amplifier section built-in for direct speaker connection
- Volume control for level adjustment of external source
- Line level input and output for recording and playback

Specifications

	EV-20RPS
Power Source	Supplied from included AD-246 AC adapter
Power Consumption	10W (rated output)
Wave Format	44.1 kHz sampling frequency, 16-bit PCM (monaural)
Frequency Response	20 Hz - 20 kHz ±3 dB (1 kHz) 50 Hz - 14 kHz ±3 dB (IT-455 mounted, 1 kHz)
Distortion	1 % or less (1 kHz, rated output)
Recordinq System	USB data transfer or analog recording
Control Input	Play 1-4, stop: No-voltage make contact input, pulse make length: 200 ms, open voltage - 30 V DC, short-circuit current - 10 mA removable terminal block (22 pins)
Control Output	Busy: Contact capacity - 30 V DC/0.5 A, removable terminal block (22 pins)
Input	Input/Recording input: Mic: -60 dB(0dB=1V), 2.2 kΩ/ Line: -20 dB(0dB=1V), 10 kΩ, (Mic or Line level), unbalanced, phone jack Line input: 0 dB(1V), 10 kΩ, unbalanced, removable terminal block (22 pins)
Output	Line output: 0 dB(1V), 600 Ω, unbalanced, removable terminal block (22 pins) Headphone output: 0 dB, 100 Ω, unbalanced, phone jack Speaker output: 3 W, 8Ω, removable terminal block (22 pins)
LED Indicator	POWER, USB, START/STOP 1-4
Maximum Number of Messages	4
Maximum Recording Time	6 min
Message Delay Time	0, 2 s or 4 s (selectable)
Playback Interval Time	∞, 0, 5 s, 10 s, 30 s, 1 min, 5 min, 10 min, 30 min or 1 h (selectable)
Operating Temperature	0°C to +40°C / 32°F to 104°F
Operating Humidity	90 %RH or less (no condensation)
Finish	Case: ABS resin, black
Dimensions	210 (W) X 44.2 (H) X 181 (D) mm / 8.3" x 1.7" x 7.1" (excluding projection)
Weight	730 g / 25.8 oz
Accessory	CD-ROM (USB data transfer software and sample chimes included) x 1, Unbalanced-phone plug x 1, USB cable (1 m) x 1, Removable terminal plua (22 pins) x 1, Rubber foot x 4
Option	Rack mounting bracket: MB-WT3 (for rack mounting one EV-20RPS unit) MB-WT4 (for rack mounting two EV-20RPS units) IT-455 input transformer, part number 1140312040

USB Data Transfer Software Operation Environment

Personal Computer	Windows PC
Main Specifications	CPU: Pentium compatible CPU >300 MHz Memory: 128 MB or more Free disk space: 10 MB or more Optical Drive: CD-ROM drive
OS	Windows XP (32-bit edition) / Vista (32-bit edition) / 7 (32-bit edition)

*Pentium is a trademark of Intel Corporation. Windows is a registered trademark or trademark of Microsoft Corporation. Other company names and products are trademarks of individual companies.

Program Timer

TT-104B

- Timer control of external equipment
- Four independent outputs with 30 events per output
- Contact closure outputs - 0.5A (24V DC)
- Weekly program with pause mode for vacations/holidays
- -/+5 second per month clock accuracy with four day backup battery if power fails

Specifications

	TT-104B
Power Source	110 - 120 V AC, 50/60 Hz
Power Consumption	3 W
Displayed Contents	Day of the week, hour and minute
Programmable Iterms	Day of the week, hour, minute, output channel
Number of Channels	4 channels (A,B,C,D)
Output Terminal	M4 screw terminal, distance between barriers: 9 mm / 0.35”
Power Outage Protection Period	100 hours
Operating Temperature	0°C to +50°C / 32°F to 122°F
Finish	Panel: Aluminum, black, 30 % gloss, paint Case: Pre-coated steel plate, black
Dimensions	420 (W) X 47.5 (H) X 246.5 (D) mm / 16.54” X 1.87” X 9.71”
Weight	2.5 kg / 5.51 lb
Optional	Rack-mounting bracket: MB-15B

Synthesized AM/FM Tuner

DT-930

- Frequency synthesized digital tuner with multi-function digital display
- AM mono, FM mono, FM stereo reception
- Presets for any combination of 40 AM and/or FM stations
- Automatic station scanning and manual tuning
- Automatic station storage to memory using auto-scan mode
- Direct input of station frequency
- Mono/Stereo output
- FM dipole and AM loop antenna included
- Optional rack mount kit available (MB-15B)

*0 dB = 1 V

Specifications

	DT-930
Power Source	120 V AC, 60 Hz (supplied from the AC adapter)
Power Consumption	180mA (when AC adapter is used)
Receiving Frequency	FM: 87.5 - 108.0 MHz (50 kHz step) AM: 522 - 1629 kHz (9 kHz step)
Antenna Input	FM: 300 Ω (balanced), 75 Ω (unbalanced) AM: Loop antenna (balanced), external antenna (unbalanced)
Audio Output	Stereo: -15 dB*, 10 kΩ, unbalanced, RCA jack Monaural: -15 dB*, 10 kΩ, unbalanced, M3 screw terminal, distance between barriers: 6.4 mm, RCA jack
Operating Temperature	0 °C to 40 °C / 32 °F to 122 °F
Finish	Panel: Aluminum (hair-line finish), black Case: Pre-coated steel plate, black
Dimensions	420 (W) X 53 (H) X 295 (D) mm / 16.5” x 2.1” x 11.6”
Weight	2.8 kg / 6.2 lbs
Included Accessories	AD-4800US, AC adapter x1, AM loop antenna x1, FM antenna x1, RCA stereo cord (1m) x1
Optional	Mounting bracket kit: MB-15B

A-5000 Series Digital Mixer Amplifiers

❖IP Remote Control/Monitor Mixer Amplifiers

A-5006 60w
A-5012 120w

- Compact 1RU design (1/2 width)
- Hi-/Low-Z speaker connection
- 4 inputs (2 x mic/line) with mute function
- Setup using intuitive GUI software
  - 5-band Parametric Equalizer for each input and output
  - Remote Master Volume Control
  - Mute (Mic 1 priority: Manual mute)
  - Compressor for each input 1 and 2
  - FBS on mic inputs 1 and 2

Specifications

	A-5006	A-5012
Power Source	100 - 240 V AC, 50/60 Hz	
Rated Output	60 W	120W
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 dB, LINE -20 dB, MIC/LINE selectable 2.2k ohms, electronically-balanced, removable terminal block (5 pins) INPUT 3, 4: LINE -20 dB, 10k ohms, unbalanced, RCA pin jack	
Output	SPEAKER: 4 ohms, 70 V (83 ohms), 100 V (170 ohms) removable terminal block (5 pins)	Speaker: 4 ohms, 70 V (42 ohms) , 100 V (83 ohms) removable terminal block (5 pins)
S/N Ratio	MIC 1, 2: 60 dB or more, LINE 1 - 4: 80 dB or more (A-weighted)	
Function	Input Equalizer: 5 filters per input; HPF 20Hz - 20kHz 6dB/Oct; Parametric equalizer 20Hz - 20kHz +/-15dB, Q: 0.267 - 69.249; Compressor: ON/OFF settable on Inputs 1 and 2 (OFF by default); Threshold, Ratio, Attack time, Release time, Gain adjustable per input; FBS: ON/OFF settable on inputs 1 and 2 (OFF by default); Mute: MANUAL/AUTO/OFF: Settable per input (OFF by default); Reduction level, Hold and Fade-in time per input; Auto Trigger threshold input 1; Output Equalizer: 10 points settable; Through, Low-pass filter 6/12dB Oct, Parametric equalizer Q: 0.267 - 69.249, High-pass filter 6/12dB/Oct; Output Speaker Parametric Equalizer: 5 points settable; 20Hz - 20kHz +/-15 dB, Q: 0.267 - 69.249	
Control	Mute control, Remote master volume control, Power ON/OFF switch, IP (see manual)	
LED Indicator	Power, Signal, Peak, Protect	
Network Interface	100BASE-TX	
Dimensions	8.27" x 2.07" x 14.76" (210 (W) X 52.5 (H) X 375 (D) mm)	
Weight	7.94 lbs. (3.6 kg)	8.6 lbs. (3.9 kg)
Accessory	1 x CD(setting software), 1 x Large type removable terminal plug (5 pins), 2 x Small type removable terminal plug (5 pins), 6 x Bracket mounting screw, 6 x Plain washer, 1 x Power supply cord (2 m (6.56 ft.))	
Options	Rack mounting brackets: MB-15-BK, MB-15B-J, YA-706	

A-5000 Series Digital Mixer Amplifier System Example

MA-725F Digital Matrix Mixer Amplifier

Preamplifier, Matrix, DSP and four channels of D-class amplification (250W/Ch) in an easy to use package that does not require a computer to configure. All settings are made by dip switches. There are two levels of priority for paging applications (manual or auto). Ideal for establishments where different kinds of background music are required for different zones, and/or where staff paging announcements are selectively directed to a zone or zones.

Features

- 4 BGM/Audio source selection on each output
- 4x 250W D-class power amplifiers
- 2 levels of priority paging/mute functions
- DSP preset EQ selection
- WP-700 zone source/volume control available

*0dB=1V

Specifications

		MA-725F
Power Source		100 - 240V AC, 50/60Hz
Power Consumption		1350 W (rated output), 200 W (based on cULus standards), 42.5 W (idle), 22 W or less (stand-by)
Frequency Response		20Hz - 20 kHz (-3 dB / + 1 dB, LPF OFF)
Total Harmonic Distortion		1% or less, at 1kHz, rated output
Certifications		cULus 60065, EN60065, EN55032, EN55020, FCC part15 class A
Input	Priority 1-2:	Mic -60 dB/Line -10 dB* selectable, 2.2 kΩ, electronically-balanced, removable terminal block
	Line In 1-4:	-10 dB*, 10 kΩ, unbalanced, 2 RCA jacks (Stereo summing)
Output	Speaker 1-4:	70 V (20 Ω), 100 V (40 Ω), removable terminal block
	Line Out 1-4:	0 dB*, 600 Ω, unbalanced, RCA jack
	MOH:	0 dB*, 600 Ω, transformer balanced, removable terminal block
DSP Preset		16 presets in 4 banks at each output channel, selectable
S/N Ratio		Mic: 60 dB* or more, Line: 75 dB* 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, 70V/100V 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 (32°F to 104°F)
Operating Humidity		35% to 80%RH (no condensation)
Finish		Panel: Aluminum, hair line, black; Case: Steel plate, black, paint
Dimension		420 (W) x 107.6 (H) x 350 (D) mm (16.54" x 4.24" x 13.78")
Weight		7.6 kg (16.7 lbs)
Accessories		Power cord (2m (5.65ft)) 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

MA-725F Matrix Digital Mixer Amplifier Accessory

❖Wall Panel Remote

WP-700

- Volume/Select Wall Panel Remote
- Up to four may be used

BG-2240D Class D Mixer/Amplifier vs. A-724 Mixer Power Amplifier

❖Class D Mixer/Amplifier
BG-2240D

- Rear panel-mounted DIP switches allow easy configuring of settings
- Provides auto/manual mute function with adjustable muting sensitivity
- Incorporates Remote volume control connection
- Optional TOA control AT-10K
- 2-channel broadcast capability together with zone 2 expansion capability in conjunction with BA-200 Series
- Tamper-proof, front-panel bass and treble controls are recessed to protect their settings
- Thermal protection circuitry prevents potential damage from excessive heat build-up
- AC Mains Circuit Breaker
- Supplied accessory security knobs for volume controls prevent unauthorized volume setting changes
- Optional rack-mount kit
- UL/cUL Listed
- Five Year Warranty

❖Mixer Power Amplifier
A-724

- Transformer-Isolation for Telephone Paging Applications (Input #1)
- 25 V, 70.7 V and 4 Ohm Speaker Outputs with removable terminal block connector
- Auto-Mute Priority Function assignable via external switches
- Channels 1-3 and Module configurable as Mute Send
- Channels 1-8 and Module configurable as Mute Receive
- Auto-Mute SENSE Control for adjusting mute activation threshold
- Individual Channel and Master Volume Controls
- Bass/Treble Tone Controls
- Output Level Meter and Power Indicator
- Remote Master Volume controlled with an external 10k ohm linear-taper potentiometer
- Optional TOA control AT-10K
- Auxiliary Output for connecting an external amplifier or recording device
- Pre-amp. Out / Power Amp. In Insert Jacks for connecting external signal processors
- Remote AC Turn-On for activating power with an external switch-closure
- Turn-On Delay disconnects output during power-up
- Over-current and Thermal Protection Circuitry prevents potential damage from overloads, short-circuit and overheating
- Detachable IEC-type AC Power Cord
- Volume Control Security Knobs Included (4)
- Optional Rack-Mount Kit, model MB-25B (2 RU)
- Optional Input Transformer: Model IT-455 can be added to Input 2 and/or Input 3 if necessary, (1) IT-455 is required for each channel
- UL / cUL Listed
- Five Year Warranty

		BG-2240D	A-724
GENERAL	Description	Compact five channel digital Mixer-Amplifier for background music and general announcements including music/ messaging-on-hold with 2-channel broadcast when used in conjunction with optional booster amplifiers BA-235 (35W) and BA-260 (60W).	Nine Channel Integrated Mixer/Amplifiers for PA system applications such as announcements and background music.
INPUTS	Mic Inputs	1 Mic input with Phantom Power (+ 24V DC)	6 Mic/Line inputs with Phantom Power (+23V DC) and mic trim
	Telephone	Line 1 / Telephone	Input 1 / Telephone
	Aux Inputs	LINES 2 & 3 on unbalanced, dual-RCA jacks	LINES 7 & 8 on unbalanced, dual-RCA jacks
	Module Slot	1 (for additional inputs and/or functions)	1 (for additional inputs and/or functions)
	Power Amp In	--	Single RCA return of inserted external signal processors
OUTPUTS	Line Out	Line Out, 0dB, 600Ω, unbalanced, removable terminal block	Rec Out, 0dB, 600Ω, unbalanced, dual-RCA jacks
	Zone 2	Balanced terminal block. Any of five inputs assignable to ZONE 2 output	--
	MOH Out	Balanced terminal block. Any of five inputs assignable to MOH output.	--
	Pre Amp Out	--	Single RCA insert jack for connecting external signal processors
	Speaker Out	70V	70V, 25V, and 4-16ohms
PROCESSOR	Tone Control	BASS/TREBLE	BASS/TREBLE
MUTING	Manual Mute (Send)	1 Activation Input for Mic Input, dry-contact	1 Activation Input (Mute CH assignable), dry-contact
	Auto Mute (Send)	Assignable for Mic, Line 1/ TEL and Module inputs	Assignable for Input 1-3 and Module
	Mute Receive	Any of five inputs configurable as Mute Receive	Channels 1-8 and Module configurable as Mute Receive
USER I/F	Master Volume	--	Yes
	LED Indicators	Output Signal Level, Peak, Power	5 Step Output Level Meter, Power
POWER	Remote On/Off	--	Remote AC Turn-On for activating power with an external switch-closure
	Turn-On Delay	--	Turn-On Delay disconnects output during power-up
	Cord	Attached power cord	Removable IEC power cord
OPTIONS	Rackmount Kit	MB-1000	MB-25B

Digital Power Amplifiers

❖Dual-Channel Power Amplifier

DA-250D
DA-250DH

❖4-Channel Power Amplifier

DA-250F
DA-250FH

❖4-Channel Power Amplifier

DA-550F
DA-500F-HL

- DA-250D
- 2x 250W (4 Ω)
- 2x 170W (8 Ω)
- 1x 500W bridged (8 Ω)

- DA-250F
- 4x 250W (4 Ω)
- 4x 170W (8 Ω)
- 2x 500W bridged (8 Ω)

- DA-500F-HL
- 4x 500W (70V)
- 4x 550W (8 Ω)
- 4x 100W (4 Ω)
- 2x 1000W bridged (140V)
- 2x 1100W (16 Ω)

- DA-250DH
- 2x 250W (70V)
- 1x 500W bridged (140V)
- High pass filter

- DA-250FH
- 4x 250W (70V)
- 2x 500W bridged (140V)
- Limiter and High pass filter

- DA-550F
- 4x 550W (4 Ω)
- 4x 350W (8 Ω)
- 2x 1000W (8 Ω)

High reliability

- All DA amplifiers have comprehensive protection circuitry for protection against:
  - excessive current flow due to overload
  - short circuit
  - DC voltage output
  - power amplifier heat sink temperature rise (over 100°C)
  - temperature rise inside the unit (over 80°C)

Lightweight design

- Easier handling and installation due to light weight.

High efficiency

- Extremely high amplifier efficiency (80-90%), resulting in reduced power consumption >60% compared to Class-AB amplifiers.

Highly durable

- Designed for continuous use. The DA amplifier has undergone rigorous testing and quality control to ensure its durability.

Compact design

- The DA-250 Series is 1RU, and can be efficiently mounted in racks requiring only a small installation space. Greater efficiency means less heat generated. Up to 5 units can be stacked together before vent plates are required.

Independent power supply

- Each channel has its own power supply. If the power supply of Channel 1 should fail, this won't affect the operation of other channels.

Specifications

	DA-250D	DA-250DH	DA-250F	DA-250FH	DA-550F	DA-500F-HL
Power Source	120V AC, 50/60Hz					
Number of Channels	2		4			
Power Consumption*						
Rated power consumption						
1kHz 8 ohms	420W, 5.9A	--	850W, 11.7A	--	1650W, 22.4A	2600W, 33.2A
4 ohms	650W, 8.7A	--	1300W, 16.9A	--	2800W, 35.5A	580W, 9.1A
70 Volts	--	580W, 7.8A	--	1200W, 15.9A	--	2350W, 30.4A
S/N Ratio (A weighted)	100dB					
Crosstalk at 10kHz (A weighted)	70dB					
Input impedance	10kΩ (unbalanced), 20kΩ (balanced)					
Input sensitivity	+4dB (1.23V)					
Input clipping	14V (25.1dBu)				12V (23.8dBu)	
Rated Output	2 channels: 250 W x 2 (4 Ω), 170 W x 2 (8 Ω) 1 channel (BRIDGE): 500 W (8 Ω)	2 channels: 250 W x 2 (70 V line, 19.6 Ω) 1 channel (BRIDGE): 500 W (140 V line, 39.2 Ω)	4 channels: 250 W x 4 (4 Ω), 170 W x 4 (8 Ω) 2 channels (BRIDGE): 500 W x 2 (8 Ω)	4 channels: 250 W x 4 (70 V line, 19.6 Ω) 2 channels (BRIDGE): 500 W x 2 (140 V line, 39.2 Ω)	4 channels: 550 W x 4 (4 Ω), 350 W x 4 (8 Ω) 2 channels (BRIDGE): 1,100 W x 2 (8 Ω)	4 channels: 500 W x 4 (70 V line, 9.8 Ω), 550 W x 4 (8 Ω), 100 W x 4 (4 Ω) 2 channels (BRIDGE): 1,000 W x 2 (140 V line, 19.6 Ω), 1,100 W x 2 (16 Ω)
	M4 screw terminal, distance between barriers: 8.8 mm (0.35")					
Protection Circuit						
Amplifier section	DC output, overheat protection, load shorting, overload current, maximum output					
Power supply section	Overheat protection, AC rush current					
Dimensions	482 (W) × 44 (H) × 401.8 (D)mm (19" x 1.7" x 15.8")				482 (W) × 88.4 (H) × 404.2 (D)mm (19"x3.5"x15.9")	
Weight	6.6kg (14.5 lbs)		5kg (11 lbs)		8.8kg (19.4 lbs)	

* 0dB=0.775Vrms

Digital Micro Amplifiers

❖Micro Amplifier

AV-20D

AV-60S **(not shown)**

- Micro Class D amplifier for use in meeting/board rooms & signage applications
- UL 2043-rated for plenum installation
- Energy Star certified including Auto Off/Standby
- AV-20D: 20W x 2 @ 4 Ohms / 40W @ 8 Ohms in Bridge Mode
- AV-60S: 60W x 1 @ 4 Ohms or 70V
- Small size (approx. 6" x 6" x 1.75") allows convenient & flexible placement.
- Clip Limiter prevents distortion due to overload.
- Remote Volume Control port for use with 10kΩ pot

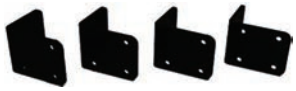
Micro Amplifiers Optional Accessories

❖Metal Pole Mount Bracket

MB-AV20PM

❖Metal Desk-mount Bracket

MB-DM820



❖Metal Rack Mount Kit

MB-AV20RM

- 1 or 2 amplifiers are mountable in 1 unit

❖Matching Transformer

MT-S0301

- The MT-S0301 allows for a 30W @ 70V output by connecting to the bridge output of the AV-20D.

*0dB = 1V, Reference = 1kHz

Specification

	AV-20D	AV-60S-AM
Power Supply	AC100V-240V, 50Hz/60Hz; AC inlet on rear panel	
Power consumption	Less than 1W: in standby mode Less than 10W: with No Signal Less than 60W: at rated output in all Channels	Less than 1W: power save mode; Less than 10W @ 70V, Less than 7W @ 4 Ohms: idle; Less than 85W @ 70V, Less than 110W @ 4 Ohms: rated output
Output	2 channel Speaker out: 15W @8 Ohm per each Channel; 20W @4 Ohm per each Channel BTL: 40W @8Ohm Terminal: Removable terminal block(4P) (rear panel) Screw-Lock type Connector	60W @ 4 Ohms, 60W @ 70V Speaker output, removable terminal block (2P)
Protection	Thermal protection (auto recovery) Short circut protection (auto recovery) Over current protection (auto recovery) DC protection Power source protection (Circuit Breaker)	Thermal protection Over current protection
Input	Line 1 : -10dBV/-20dBV (switchable), 10kOhm, removable terminal block(3P)x2, balanced (transformer isolated) Line 2 : -10dBV/-20dBV (switchable), 10kOhm, 3.5mm mini phone jack, unbalanced Line 3 : -10dBV/-20dBV (switchable), 10kOhm, RCA pin jack (red & white), unbalanced	Line 1: -10/-20dB* (selectable), 10K Ohms, transformer-balanced, removable terminal block (3P)x2 Line 2: -10/-20dB* (selectable), 10K Ohms, unbalanced, 3.5mm stereo jack Line 3: -10/-20dB* (selectable), 10K Ohms, unbalanced, RCA jacks
Indication	Power LED (green); Signal LED L/R Ch (green x2); Peak LED L/R Ch (red x2); Protect LED (yellow)	Power LED (green); Signal LED (green); Peak LED (red); Protect LED (yellow)
Frequency Response	20Hz to 20kHz +-3dB	4 Ohms mode: 20Hz to 20KHz ±3dB 70V mode: 60Hz to 20KHz ±3dB (Line1 input with transformer: 100Hz to 20KHz)
THD+N	Less than 0.15%	
S/N	More than 74dB (B.P. filter: 20Hz-20kHz, A-weighted)	--
Tone Control	Bass: ±10dB at 100Hz, Treble: ±10dB at 10KHz	
Controls	Master volume control, Remote volume control, Base/Treble tone control, Bridge ON/OFF switch, Mono/Strereo switch, Input sensitivity switch (Line1, Line2, Line3)	Master volume control, Remote volume control, Base/Treble tone control, 70V/4ohm switch, Input sensitivity switch (Line1, Line2, Line3)
Temperature Range (Operation)	-10 to +40°C	
Dimensions	150 (w) x 44 (h) x 156 (d) mm (5.90" x 1.73" x 6.14")	
Weight	1.00 Kg (2.2 lbs)	1.12 Kg (2.5 lbs)
Accessories	Removable terminal plug (2P) x 1, Removable terminal plug (3P) x 2, Removable terminal plug (4P) x 1, AC power cord x 1, Rubber foot x 4, EMT adaptor plate x 1	Removable terminal plug (2P) x 2, Removable terminal plug (3P) x 2, AC power cord x 1, Rubber foot x 4, EMT adaptor plate x 1

9000 Series Modular Digital Matrix Mixer/Amplifiers

A-9060DHM2
A-9120DHM2

- Flexible modular design - up to 8 mic/line inputs and 8 total outputs
- Intuitive GUI software
- RS-232 control for 3rd party control systems
- EQ presets for 30 TOA loudspeakers included
- Accepts TOA ZM series remote controls (RC-001T may be required)
- 32 scene memories and 32 paging memories
- Up to 12 filters plus compressor available for each input and output channel

Specifications

	A-9060DHM2	A-9120DHM2
Power Source	120 V AC, 60 Hz	
Power Consumption	150 W	250 W
Audio Input	Max. 8 channels, modular construction (modules optional); Power amplifier input 1, 2: 0 dBV, 10k Ω, RCA pin jack	
Audio Output	Preamplifier output 1, 2: 0dBV, 300Ω, unbalanced, RCA pin jack	
	Speaker output 1, 2: 60W, 70.7V line, 83Ω x 2, BTL output, removable terminal block (4 pins)	Speaker output 1, 2: 120W, 70.7V line, 41Ω x 2, BTL output, removable terminal block (4 pins)
Module Slot	Analog input (slot 1 - 8): -10 dB, 10 kΩ, unbalanced; Digital input (slot 1 - 4): 24 bit/48 kHz; MIX output (slot 1 - 8): -14 dB, 330Ω (CH 1 prefader output), unbalanced; Digital output (slot 5 - 7): 24 bit/48 kHz; Power supply (slot 1 - 8): +24 V, -24V, +6V DC	
Digital Audio Signal Reference Level	-20 dBFS	
Power Bandwidth	20 - 20,000 Hz, 0.008% THD	
Frequency Response	Power amplifier section: 20 - 20,000 Hz, +0, -1 dB; Analog input module to speaker output: 20 - 20,000 Hz, +1, -3 dB	
Total Harmonic Distortion	Power amplifier section: 0.0008% (22 kHz LPF, 1 kHz, rated power); Analog input module to speaker output: 0.008% (22 kHz LPF, 1 kHz rated power)	
S/N Ratio	At input short, 20 - 20,000 Hz, ALL FLAT or OFF setting; Output volume min.: 90dB (preamplifier output); Output volume max.: 61dB (preamplifier output, input 1 volume: 0 dB, other inputs: OFF); Power amplifier section: 110dB	
Cross Talk	Over 64 dB (at 20 kHz)	
Tone Control	Bass: ±12 dB (at 100 Hz) Treble: ±12 dB (at 10 kHz)	
Parametric Equalizer	10 bands, Freq: 20 - 20,000 Hz, 31 points, various range: ± 12 dB, Q: 0.3 - 5	
High-pass Filter	-12 dB/oct, variable frequency range: 20 Hz - 20 kHz, 31 points	
Low-pass Filter		
Compressor	Depth: 1 - 5	
Delay	0 - 40 ms (1 ms steps), maximum 40 ms (CH1 + CH2) (Mixer mode only)	
Scene/Event Memory	32	
Auxiliary Function	Key lock function	
Control Input/Output	RS-232C; D-sub connector (9P, female); Control input: 4 input, no-voltage make contact input, open voltage: 3.3V DC, short-circuit current: Under 1 mA, removable terminal block (14 pins); Control output: 4 outputs, open collector output, withstand voltage: 27V DC, control current: 50 mA, removable terminal block (14 pins); Remote volume: 2 channels, connect a 10k Ω/linear taper variable register or input the DC voltage of 0 to +10 V, removable terminal block (14 pins)	
Operating Temperature	-10°C to +40°C (14°F to 104°F)	
Operating Humidity	35% to 80% RH (no condensation)	
Finish	Panel: Aluminum, hair-line, black; Case: Surface-treated steel plate, black paint	
Dimensions	16.54" (W) x 4.24" (H) x 15.55" (D) / 420 (W) × 107.6 (H) × 395 (D) mm	
Weight	19.84lbs (9kg)	24.25lbs (11kg)
Accessory	Power cord (2 m (6.56ft)) x 1, Rack mounting bracket x 2, Bracket mounting screw x 4, Blank panel x 7, Blank panel mounting screw x 14, Removable terminal plug (4 pins) x 1, CD x 1, Removable terminal plug (14 pins) x 1	

For the mixer only version, see the M-9000M2 Modular Digital Matrix Mixer, on page 116.

9000 Series Modular Digital Matrix Mixer/Amplifiers

The TOA A-9000M2 Series Digital Matrix Mixer/Amplifier redefines the conventional mixer/amplifier by combining a modular frame, matrix mixer, digital signal processor (DSP) and amplification in a compact, two rack space package. The A-9000M2 series is ideal for multi-zone paging, music distribution and room-combining applications. The A-9000M2 Series allows for easy configuration of custom systems with up to eight discrete mic/line inputs and eight discrete outputs. Each A-9000M2 Series chassis has two output channels (amplified or line level depending on model) with built-in DSP, including ten band parametric EQ, compressor, and delay. Additional DSP is provided by adding input output cards as required. The A-9000M2 system provides powerful tools for both simple mixing and complex multi-zone paging applications. Input modules include SIP-based multi-zone paging, analog (DTMF) telephone zone paging, and ambient noise control. Dual-channel output modules are available (up to 3 per frame). Contact closure interface and RS-485 control interface cards (for TOA ZM series remote controls) are also available.

A-9060SM2
A-9120SM2
A-9240SHM2

Specifications

	A-9060SM2	A-9120SM2	A-9240SHM2
Power Source	120 V AC, 60 Hz		
Power Consumption	100W	150W	250W
Audio Input	**Max. 8 channels, modular construction (modules optional); Power amplifier input 1, 2: 0 dBV, 10k Ω, RCA pin jack**		
Audio Output	Preamplifier output 1: 0 dB, 300 Ω, unbalanced, RCA pin jack Preamplifier output 2: 0 dB, 600 Ω, unbalanced, removable terminal block (3 pins)		
	Removable terminal block (7 pins); Direct: 60W, 4Ω, unbalanced, Transformer: 60W, 8Ω 25V and 70V, balanced	Speaker output: Removable terminal block (7 pins); Direct: 120 W, 4Ω, unbalanced; Transformer: 120 W, 8Ω 25V & 70V, balanced	Speaker output: 240 W (70 V) removable terminal block (4 pins)
Module Slot	Analog input (slot 1 - 8): -10 dB, 10 k Ω, unbalanced; Digital input (slot 1 - 4): 24 bit/48 kHz; MIX output (slot 1 - 8): -14 dB, 330 Ω (CH 1 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 Reference Level	-20 dBFS		
Power Bandwidth	(D): 20 - 20,000 Hz, 0.02% THD (T): 50 - 20,000 Hz, 0.5% THD		20 - 20,000 Hz, 0.008% THD
Frequency Response	Power amplifier section: 20 - 20,000 Hz, +0, -1 dB Analog input module to speaker output: 20 - 20,000 Hz, +1, -3 dB		
Total Harmonic Distortion	Power amplifier section: 0.008% (22 kHz LPF, 1 kHz, rated power) Analog input module to speaker output: 0.008% (22 kHz LPF, 1 kHz, rated power)		
S/N Ratio	At Input short, 20 - 20,000 Hz, set to ALL FLAT or OFF setting; Output volume min.: 90 dB (preamplifier output); Output volume max.: 61 dB (preamplifier output, input 1 volume: 0 dB, other inputs: OFF); Power amplifier section: 110 dB		
Cross Talk	64 dB or more (at 20 kHz)		
Tone Control	Bass: ±12 dB (at 100 Hz), Treble: ±12 dB (at 10 kHz)		
Parametric Equalizer	**10 bands, Freq: 20 - 20,000 Hz, 31 points, various range: ± 12 dB, Q: 0.3 - 5**		
High-pass Filter	-12 dB/oct, Variable frequency range: 20 - 20 kHz, 31 points		
Low-pass Filter			
Compressor	Depth: 1 - 5		
Delay	0 - 40 ms (1 ms steps), maximum 40 ms per output		
Scene/Event Memory	32		
Auxiliary Function	Key lock function		
Control Input/Output	RS-232C, 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, with stand voltage: 27 V DC, control current: 50 mA, removable terminal block (14 pins); Remote volume: 2 channels, connect a 10 kΩ/linear taper variable resistor or input DC voltage of 0 to +10 V, removable terminal block (14 pins)		
Operating Temperature	-10°C to +40°C (14°F to 104°F)		
Operating Humidity	35% to 80% RH (no condensation)		
Finish	Panel: Aluminum, hair-line, black; Case: Surface-treated steel plate, black, paint		
Dimensions	16.54" (W) x 4.24" (H) x 13.98" (D) / 420 (W) × 107.6 (H) × 355 (D) mm		16.54" (W) x 4.24" (H) x 15.55" (D) 420 (W) × 107.6 (H) × 395 (D) mm
Weight	**24.25lbs (11kg)**	28.66lbs (13kg)	24.25lbs (11kg)
Accessory	Power cord **(2 m / 6.56ft)** x 1, Rack mounting bracket x 2, Bracket mounting screw x 4, Blank panel x 7, Blank panel mounting screw x 14, Removable terminal plug (3 pins) x 1, Removable terminal plug (4 pins) x 1, Removable terminal plug (14 pins) x 1 , CD x 1		

9000 Series Modular Digital Matrix Mixer/Amplifiers

❖Power Amplifier

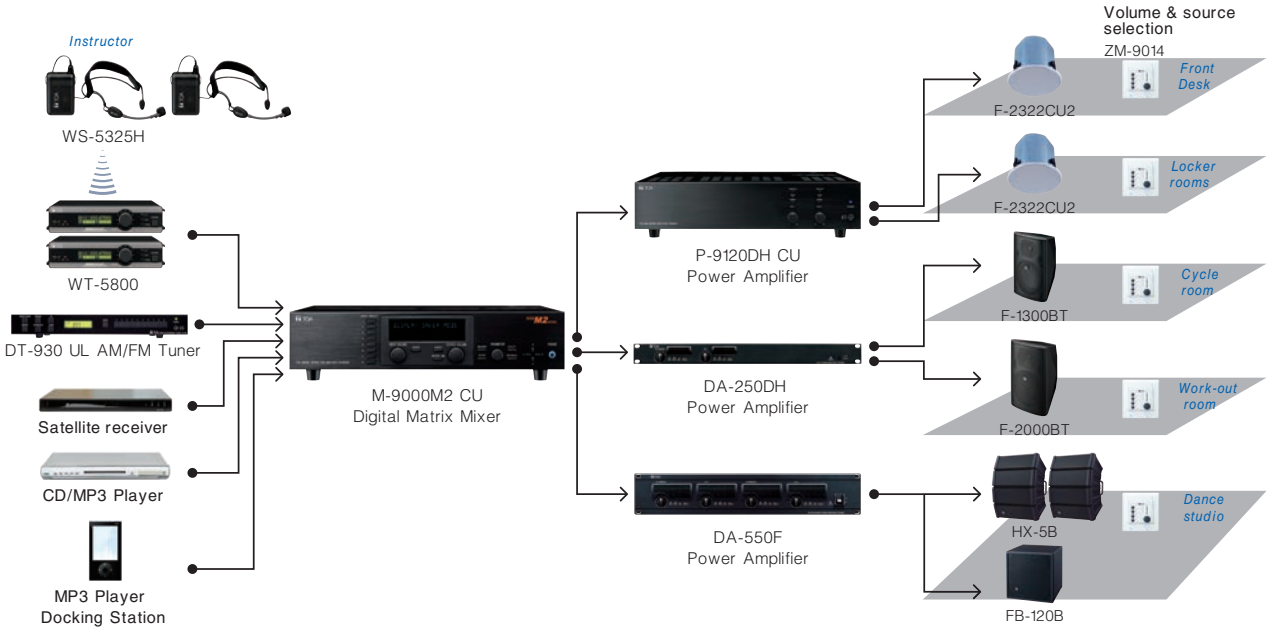
P-9060DH 60w
P-9120DH 120w

- 2-Channel Power Amplifiers with 70.7V outputs
- Power Amplifier models feature flexible output power allowing up to 50% power from one amplifier channel to be allocated to the second amplifier channel
- Channel 1 & 2 inputs balanced with selectable input sensitivity: 0dB or -20dB
- Channel 1 input may be routed to both channels
- 2 RU Rack Mounting hardware included
- Front panel LED indicators for: Protect, Peak, Signal and Power

Specifications *0 db

	P-9060DH	P-9120DH
Output Power	2x 60W @ 70.7V	2x 120W @ 70.7V
Input	CH 1, CH 2 input: –20 dB* or 0 dB* (switchable), 10 kΩ, electronically-balanced, removable terminal block (3 pins), CH 1 mode ON/OFF switch (ON: CH 1 to All ch, OFF: Each ch)	
Power Bandwidth	20 – 20,000 Hz, 0.08% T.H.D.	
Frequency Response	20 – 20,000 Hz (–3 dB, +1 dB)	
Total Harmonic Distortion	0.008% (22 kHz LPF, 1 kHz, rated output, input level selector switch in 0 dB* position)	
S/N Ratio	At Input short, 20 – 20,000 Hz, Input level selector switch in 0 dB* position Output volume min.: 105 dB, Output volume max.: 97 dB	
Function	Output disconnected for approx. 5 s after switching power on	
LED Indicator	Power (blue) x 1, Protect (red) x 2, Peak (red) x 2, Signal (green) x 2	
Ventilation System	Forced air cooling (fan speed: variable with temperature)	
Power Source	120 V AC, 60 Hz	
Power Consumption	225W (rated output), 106W (UL60065)	404W (rated output), 208W (UL60065)
OperatingTemperature	14° to 104° F (-10° to 40° C)	
Operating Humidity	35% to 80% RH (no condensation)	
Finish	Panel: Aluminum, hair-line, black; Case: Surface-treated steel plate, black paint	
Dimensions (W x H x D)	16.54" x 4.24" x 15.98"	
Weight (without modules)	18.08 lbs (8.2 kg)	22.05 lbs (10kg)

9000 Series Fitness Club Application



9000 Series Modular Digital Matrix Mixer/Amplifier 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
- 24VDC phantom power for condenser mics
- 14 preset gain ratios
- Use with model AN-9001 sensing microphone (not included)
- Maximum two per chassis

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

- Two balanced line level outputs
- Digital signal processing (10-Band Parametric EQ, Bass/ Treble, Loudness, High and Low Pass Filters, Compressor, TOA speaker EQ presets)
- Maximum three per chassis

❖Line Input Module with DSP
D-001R

- Two RCA phono inputs per channel provides stereo summing
- Digital signal processing (10-Band Parametric EQ, Bass/ Treble, Loudness, High and Low Pass Filters, Compressor)

❖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 (-60 to -10 dBV)
- Phantom power (24 VDC)
- Maximum four per chassis

*0 dB = 1 V

Specifications

	A-001T	D-001R	D-001T	T-001T
Power Source	+24 V DC, -24 V DC, +6 V DC			
Current Consumption	20 mA (at +24 V DC), 20 mA (at -24 V DC), 60 mA (at +6 V DC)			35 mA (at +24 V DC), 35 mA (at -24 V DC), 60 mA (at +6 V DC)
Input	Sensor input (Ambient noise sensor microphone input: 2 channels, 3 kΩ (when the phantom power is ON)/10 kΩ (when the phantom power is OFF), electronically-balanced, removable terminal block (3 pins)	2 channels, 2x RCA summed to mono per channel, 10 kΩ input impedance, unbalanced	2 channels, 3 kΩ (when the phantom power is ON)/10 kΩ (when the phantom power is OFF, electronically-balanced, removable terminal block (3 pins)	--
Output	--			2 channels, max. +20 dB* (at 10 kΩ load), 600Ω, electronically-balanced, removable terminal block (3 pins)
Input Sensitivity	-60, -54, -48, -42, -36, -30, -24, -18, -10 dB* (selectable)			--
Frequency Response	--	20 Hz - 20 kHz, +1 / -3 dB		
Total Harmonic Distortion + N	--	0.008 % (at 1 kHz, 20 Hz - 20 kHz BPF, Input sensitivity: -10 dB)		0.005 % (at 1 kHz, 20 Hz - 20 kHz BPF, 5 V output, 10 kΩ load)
Input Equivalent Noise	--		Under -112 dB (at 20 Hz - 20 kHz BPF, Input short, Input sensitivity: -60 dB)	--
S/N Ratio	--	Over 70 dB (at 20 Hz - 20 kHz BPF, Input short, Input sensitivity: -10 dB)	Over 73 dB (at 20 Hz - 20 kHz BPF, Input short, Input sensitivity: -10 dB)	Over 73 dB (at 20 Hz - 20 kHz BPF)
Cross Talk	--	Over 75 dB (at 20 kHz, Input sensitivity: -10 dB)		Over 87 dB (at 20 kHz)
CMRR	--		Over 62 dB (at 1 kHz, Input sensitivity: -60 dB)	--
A/D Converter	24 bit ΔΣADC			
Sampling Frequency	48 kHz			
Tone Control	--	Bass: ±12 dB (at 100 Hz) Treble: ±12 dB (at 10 kHz)		
Parametric Equalizer	--	10 bands, Frequency: 20 Hz - 20 kHz, 31 points, Variable range: ±12 dB, Q: 0.3 - 5		
High-pass Filter	--	-12 dB/oct, Variable frequency range: 20 Hz - 20 kHz, 31 points		
Low-pass Filter	--	-12 dB/oct, Variable frequency range: 20 Hz - 20 kHz, 31 points		
Compressor	--	Depth: 1 - 5		--
Delay	--			0 - 40ms (1ms step), maximum 40ms (CH 1 + CH 2), mixer mode only
Phantom Power	+24 V DC	--	+24 V DC	--
Ambient Noise Control Function	Sensor input reference level adjustment function; Maximum output signal level control: -15 to 0 dB Minimum output signal level control: -18 to -3 dB; Sample time setting: 10s, 15s, 20s, 30s, 1min, 2min, 3min, 5min Gain ratio setting (Ambient noise: Output signal level): 6: 3, 5: 3, 4: 3, 3: 3, 3: 4, 3: 5, 3: 6, 6: -3, 5: -3, 4: -3, 3: -3, 3: -4, 3: -5, 3: -6	--		

9000 Series Modular Digital Matrix Mixer/Amplifier Modules

❖Input/Output Control Module

C-001T

- Eight assignable control inputs for activating event volume, up/down, mute, power on/off, emergency mute or synch on/off
- Eight assignable control outputs for activating external relays
- Removable terminal block
- Maximum one per chassis

❖Telephone Zone Paging Module

ZP-001T

- Analog telephone paging to up to eight zones
- Requires DTMF
- 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-001TPS

- Supports up to 8 ZM Series remote control panels per port (2 ports per card)
- Bi-directional RS-485 communication provides control and status feedback for each remote function
- May be used in combination with C-001T
- Supports ZM-9011, ZM-9012, ZM-9013, ZM-9014 remote controls
- AD-246 - AC adapter supplied (qty 1 supplied additional AD-246 required for 2nd port)

Specifications

	C-001T	RC-001TPS	ZP-001T
Power Source	6 V DC		+24 V DC, +6 V DC
Current Consumption	15 mA	30 mA or less	38 mA (at +24 V DC), 18 mA (at +6 V DC)
Terminal	Removable terminal block (9 pins x2)	Removable terminal block (10 pins)	Removable terminal block (4 pins)
Number of Lines	--		1 line
Type of Selectable Signal	--		DTMF signal
Signaling System	--		Loop-Start (or Ground-Start, selectable)
TEL Line	--		0 dB, 600Ω, balanced, transformer-isolated, loop voltage: 24 V DC or more, which should be supplied from the PABX. RJ11 connector
Power Input	--	24 V DC input X 2 (Applicable AC adapter: AD-246 (option), power supply to Remote Control Panels) Adaptable DC plug: 9.5 (L) X 5.5 (0D) X 2.1 (ID) mm (0.37" X 0.22" X 0.08")	--
Paging Input	--		0 dB, 600Ω, balanced, transformer-isolated audio input, removable terminal block (4 pins)
Control Input	8 channels, open voltage: 3.3 V DC, short-circuit current: under 1 mA, removable terminal block (9 pins x2)	--	1 channel, no-voltage make contact, open voltage: 5 V DC, short-circuit current: 0.5 mA, removable terminal block (4 pins)
Control Output	8 channels, open collector output, withstand voltage: 27 V DC, control current: max. 50 mA, removable terminal block (9 pins)	--	4 channels, open collector output (isolated), withstand voltage: 35 V DC, control current: max. 50 mA, removable terminal block (4 pins)
Connection Cable	--	Shielded CAT5 or CPEV cable (paired data line and paired power line)	--
Maximum Cable Distance	--	800m (874.89 yd) in total	--
Connectable Number of Remote Control Panels	--	Maximum 16 units (2 link connectors used)	--
Operating Temperature	-10°C to +40°C (14°F to 104°F)		
Operating Humidity	--	35 % to 80 %RH (no condensation)	--
Finish	Panel: Aluminum, hair-line		
Dimensions	35 (W) X 78 (H) X 91.5 (D) mm (1.38" X 3.07" X 3.6")		
Weight	62 g	80 g (0.18 lb)	153 g
Accessory	Removable terminal plug (9 pins) x 2, Module mounting screw x 2	Module mounting screw x 2, Removable terminal plug (10 pins) x 1	Removable terminal plug (4 pins) x 3, Module mounting screw x 2

9000 Series Modular Digital Matrix Mixer/Amplifier Modules

❖Noise Generator

NM-01

- Generates band-limited pink noise for use in sound masking applications
- In/Out processor loop for external EQ
- Uses 1 9000 Series dual input slot

Specifications

	NM-01
Power Source	24 V DC (Supplied from amplifier)
Current Consumption	10mA
Output Level (to amplifier)	300mV
Noise Type	Analog random pink noise
Mute Function	Dry contact, normally open (close to mute)
Input	10kΩ, RCA pin jack
Output	150mV, 600>, RCA pin jack
Dimensions	35(W) x 78(H) x 88(D)mm (1.38" x 3.07" x 3.46")
Weight	64g (0.14lb)

❖SIP Module

SP-11NPS

- Allows zone paging from SIP phone systems
- Onboard browser provides easy set up from a PC
- Five dry contact outputs can be assigned to control contact inputs on the 9000 to route calls by zone
- Priority function is available

Specifications

	SP-11NPS
Power Source	AC Adaptor AD-1215P or its equivalent
Network Interface	RJ-45 connector 10BASE-T / 100BASE-TX, Auto-negotiation
Network Protocol	SIP (RFC3261), TCP. UDP, BOOTP, DHCP, RTP SNMP, ICMP, HTTP
Audio Format	G.711 μ-law / a-law
Control Output	5 channels open collector output (Max. Voltage: 27V DC, Control current: 50mA Max.) Removable terminal block (6 pin)
Operating Temperature	-32°F (0°C) to +104°F (+40°C)
Finish	Panel: Aluminum, Hairline finish
Dimensions	1.38"(W) x 3.07" (H) x 3.6"(D)
Weight	0.2lb (86g)

9000 Series Modular Digital Matrix Mixer Remote Control Modules

❖Remote Panel

ZM-9001

- Six buttons to activate preset selection or volume up/down
- Wiring: one pair to chassis remote volume terminals
- Max. loop resistance: 100 ohms (3000 ft. 22AWG)
- Fits one gang electrical box
- Maximum one ZM-9001/ZM-9002/ZM-90003 per remote volume terminal (2 terminals per chassis)

❖Remote Volume Switch Panel

ZM-9002

- Volume control knob
- Wiring: one pair to chassis remote volume terminals
- Max. loop resistance: 100 ohms (3000 ft. 22AWG)
- Four push buttons to activate preset selection or volume up/down
- Fits one gang electrical box
- Maximum one ZM-9001/ZM-9002/ZM-90003 per remote volume terminal (2 terminals per chassis)

❖Contact Closure Remote

ZM-9003

- Fits in a standard 2-gang electrical box
- Two momentary buttons and four latching buttons
- Requires C-001T for full functionality
- May be assigned to control program change, volume up/down, channel on/mute, emergency mute, power and paging prohibit function
- Maximum one ZM-9001/ZM-9002/ZM-90003 per remote volume terminal (2 terminals per chassis)

Specifications

	ZM-9001	ZM-9002	ZM-9003
Applicable Cable	2-conductor control cable		7 conductors total (application dependant)
Line Resistance	50 Ω or less (per line)		250 Ω or less (per line)
Terminal	M3 screw terminal, distance between barriers: 7.62 mm		Removable terminal block (7 pins)
Operating Temperature	-10°C to +40°C (14°F to 104°F)		
Finish	Surface-treated steel plate, white, paint		
Dimensions	72 (W) X 127 (H) X 45 (D) mm	72 (W) X 127 (H) X 56 (D) mm	120 (W) X 127 (H) X 53.3 (D) mm (4.72" X 5" X 2.1")
Weight	170 g		375 g (0.83 lb)
Accessory	Box mounting screw (No.6-32UNC X 30) x 2, Box mounting screw (M4 X 30) x 2, Panel mounting screw x 2		Box mounting screw (No.6-32UNC X 30) x 4, Box mounting screw (M4 x 30) x 4, Panel mounting screw x 2, Removable terminal plug (7 pins) x 1

Note: Electrical box not provided.

9000 Series Modular Digital Matrix Mixer Remote Control Modules

❖Assignable Remote Button Panel
ZM-9011

- Fits in a standard 1-gang electrical box
- Four assignable buttons each with LED status indicator
- Controls Xpoint settings (on/off, select), paging activation, scene and relay activation
- Supplied matching decor plate
- Requires RC-001T

❖Assignable Volume Controller
ZM-9012

- Fits standard 1-gang electrical box
- Multi-segment LED indicator provides visual volume level status
- Rotary encoder can be assigned to control any input or output volume
- Multiple input or outputs may be “ganged” for master volume control
- Supplied matching decor plate
- Requires RC-001T

❖Assignable Remote Button Panel
ZM-9013

- Fits in a standard 2-gang electrical box
- Eight assignable buttons each with LED status indicator
- Controls Xpoint settings (on/off, select), paging activation, scene and relay activation
- Supplied matching decor plate
- Requires RC-001T

❖Assignable Remote Button Panel w/Volume Control
ZM-9014

- Fits in a standard 2-gang electrical box
- Four assignable buttons each with LED status indicator
- Controls Xpoint settings (on/off, select), paging activation, scene and relay activation
- Assignable ID rotary adjustment on box
- Supplied matching decor plate
- Requires RC-001T

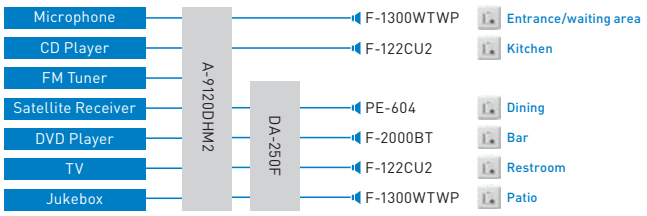
Specifications

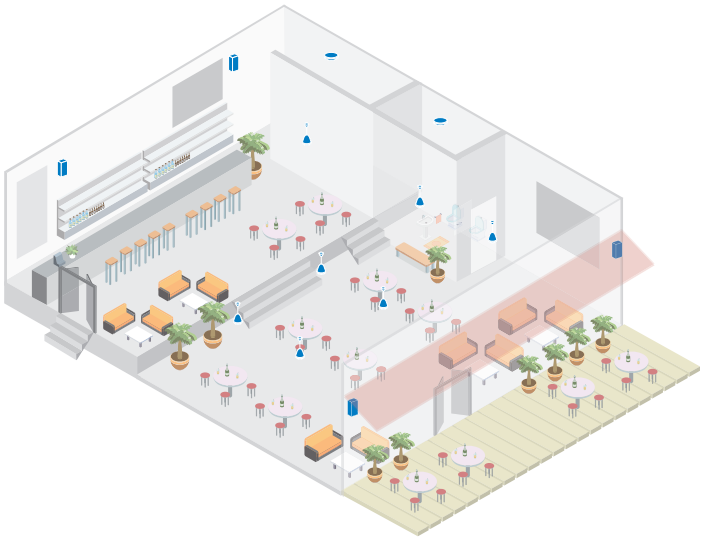
	ZM-9011	ZM-9012	ZM-9013	ZM-9014
Power Source	24 V DC (from RC-001T)			
Current Consumption	50 mA or less			
Terminal	Removable terminal block (10 pins)			
Connection Cable	Shielded CAT5 or CPEV cable (paired data line and paired power line)			
Operating Section	4 function buttons	1 volume control	8 function buttons	4 function buttons, 1 volume control
Indicator	4 function indicators (green LEDs)	Level indicators (green LEDs)	8 function indicators (green LEDs)	4 function indicators (green LEDs), Level indicators (green LEDs)
Operating Temperature	0°C to +40°C (32°F to 104°F)			
Operating Humidity	35 % to 80 %RH (no condensation)			
Finish	Surface-treated steel plate, white, paint			
Dimensions	72 (W) X 127 (H) X 49.5 (D) mm (2.83” X 5” X 1.95”)	72 (W) X 127 (H) X 57.5 (D) mm (2.83” x 5” X 2.26”)	120 (W) X 127 (H) X 50.5 (D) mm (4.72” X 5” X 1.99”)	120 (W) x 127 (H) x 58.5 (D) mm (4.72” x 5” x 2.3”)
Weight	160 g (0.35 lb)		300 g (0.66 lb)	
Accessory	Box mounting screw (No.6-32UNC X 30) x 2, Box mounting screw (M4 x 30) x 2, Panel mounting screw x 2, Removable terminal plug (10 pins) x 1		Box mounting screw (No.6-32UNC x 30) x 4, Box mounting screw (M4 X 30) x 4, Panel mounting screw x 4, Removable terminal plug (10 pins) x 1	

Note: Electrical box not provided.

Large Scale Multi Zone BGM/FGM Distribution System Example

An example of a bar/restaurant with six listening zones: Audio sources may be assigned per zone and announcements can duck or mute program material. Remote controls allow volume and source selection per zone. We highly recommend our premium quality F-Series Loudspeakers for the best possible sound.





9000 Series Modular Digital Matrix Mixer Speaker Selectors

Multi-Zone Paging System

The multi-zone paging system provides a cost-effective way to impliment a multi-zone paging system where multiple amplifiers are not possible. The system consists of a paging microphone system and a speaker level relay. Up to 12 zones (max 250 W total) are available per system. Uninterrupted background music may be provided with a second amplifier input.

❖Remote Microphone

Q-RM9012PS

- High-sensitivity electret-condenser gooseneck mic for clear voice
- 12 zone select buttons, All Call, Clear
- Contact Ouputs on 2 RJ-45 connectors (shielded CAT5 required)
- Connects to C-IN on 9000M2 (C-001T required for more than 4 zones) or Q-SS9012PS
- Supplied with AD-246 AC Adapter

(*1) 0dB = 1 V

Specifications

	Q-RM9012PS
Power Source	24 V DC from AC adaptor AD-246 or the equivalent
Power Consumption	80mA or less
Audio Output	0 dB(*1), 600 Ω, transformer balanced, RJ45 connector
Distortion	1% or less
Frequency Response	100 - 20,000Hz
S/N Ratio	60dB or more
Microphone	Unidirectional electret condenser microphone
Control Output	12 channels, open collector output, withstand voltage: 27V DC, control current: max. 50 mA, (2) RJ45 connectors
Number of Keys	12 zone selection keys, All call key, Cancel key, Talk key
Volume Control	Microphone volume control
Operating Temperature	-10°C to +40°C (14°F to 104°F)
Finish	ABS resin, Black
Dimensions	190(W) X 76.5(H) X 215(D) mm (Gooseneck microphone excluded)
Weight	750g
Option	AC Adaptor: AD-246

❖Speaker Selector

Q-SS9012PS

- 2 speaker level inputs (input 1 = paging input, input 2 = BGM input)
- 12 contact inputs and 12 speaker outputs
- Use of 2nd amplifier (input 2) allows uninterrupted background music to unpaged zones
- 19" rack-mountable (using optional MB-15B)
- Supplied with AD-246 AC Adapter
- IB-9012 Connection Adapter included with purchase of Q-RM9012PS Remote Microphone and Q-SS9012PS Speaker Selector

Specifications

	Q-SS9012PS
Power Source	24 V DC from AC adaptor AD-246 or the equivalent
Power Consumption	400mA or less
Power Handling	250W or less (70V/100V line) per channel (IN1, IN2)
Control Input	12 channels, dry (no voltage) contact closures, open voltage: 3.3V DC, short-circuit current: under 1 mA, removable terminal block (24 pins)
Speaker Terminal	Removable Terminal Block (2 pins, IN1, IN2, Zone1 - 12)
Control Terminal	Removable Terminal Block (24 pins)
Operating Temperature	-10°C to +40°C (14°F to 104°F)
Finish	Case: Surface-treated steel plate, Black
Dimensions	420(W) X 44(H) X 123(0) mm
Weight	1.6kg
Accessory	Removable Terminal plug (2 pins) x 2, Removable Terminal plug (12 pins) x 3, Removable Terminal plug (14 pins) x 1
Optional	Rack mount bracket: MB-15B, Wall mount bracket: YC-850

9000 Series Modular Digital Matrix Mixer Speaker Selectors

❖4-Zone Speaker Selector

SS-9001PS

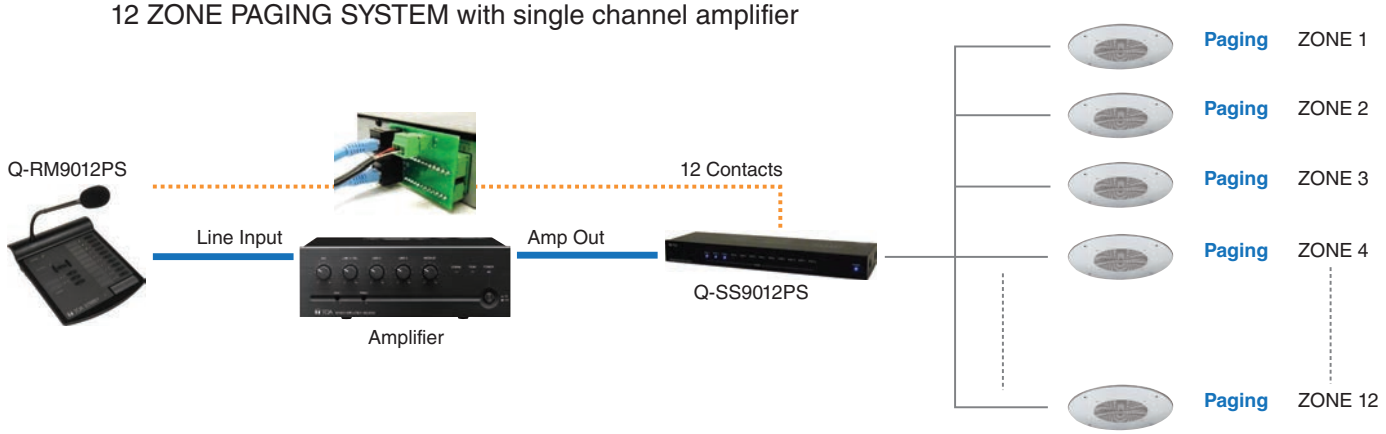
- Switch up to four speaker lines on one amplifier output
- Two speaker amplifier inputs provide uninterrupted BGM for unpaged zones
- Works with built in 9000M2 I/O control output, optional C-001T module or Q-RM9012PS
- Wall-mount bracket included
- Supplied with AD-246 AC Adapter

Specifications

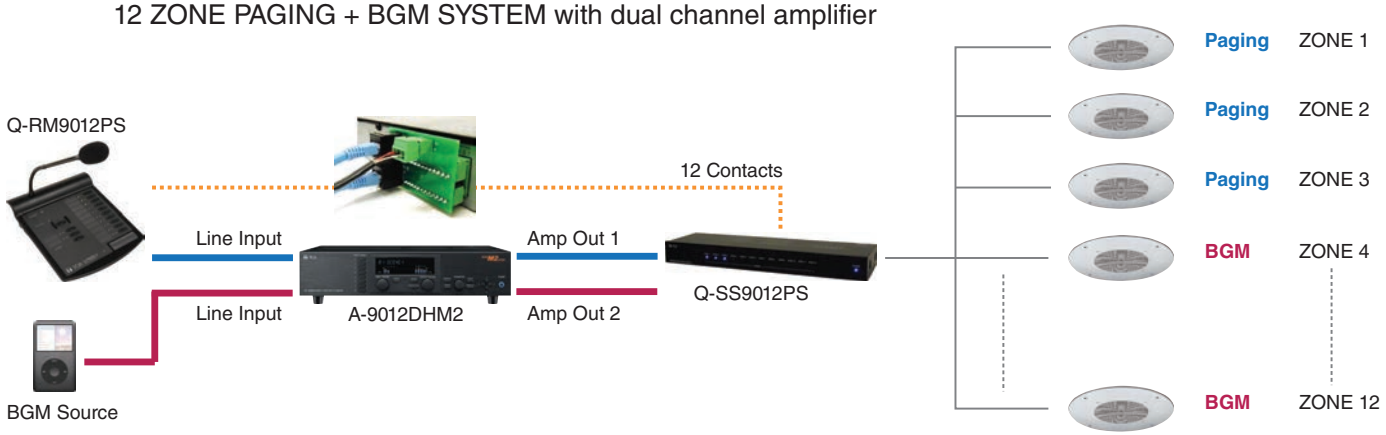
	SS-9001PS
Power Source	Supplied from the optional AD-246 AC adapter or an external 24 V DC/200 mA power supply.
Current Consumption	120 mA
Control Signal	No-voltage make contact input (polarized), open voltage: 24 V DC, short-circuit current: 3 mA
Control Power	240 W or less (70 V/100 V line)
Speaker Terminal	Removable terminal block (2 pins)
Control Terminal	Removable terminal block (10 pins)
Operating Temperature	-10°C to +40°C
Finish	Case: Surface-treated steel plate
Dimensions	112 (W) X 197 (H) X 30 (D) mm
Weight	530 g
Accessory	Removable terminal plug (2 pins) x 5, Removable terminal plug (10 pins) x 1, Cord clamp x 1, Mounting screw x 4

Multi-Zone Paging System Examples

12 ZONE PAGING SYSTEM with single channel amplifier



12 ZONE PAGING + BGM SYSTEM with dual channel amplifier



900 Series Amplifiers

❖8-Channel Mixer Preamplifier

M-900MK2

- Eight module slots accept any combination of TOA 900 Series plug-in modules for custom system configurations
- Balanced, transformer-isolated output with selectable impedance, screw terminal connector and protective cover plate
- Dual mute bus permits multiple levels of paging priority using optional mute-type modules
- External mute terminals for activating mute function with external switch-closure
- Remote master volume terminals for control with an external 10k ohm linear-taper potentiometer
- Individual channel and master volume controls
- Auxiliary output for connecting an external mixer or recording device
- Bridging input/output for input expansion or recording device
- Normal, clip, power, protect, and signal indicators provide unit status
- Optional rack-mount kit, model MB-25B (2 RU)

❖8-Channel Mixer Amplifier

A-903MK2 30w
A-906MK2 60w
A-912MK2 120w

- 4Ω / 25V / 70V outputs
- Eight module slots accept any combination of TOA 900 Series plug-in modules for custom system configurations
- Dual mute bus permits multiple levels of paging priority using optional mute-type modules
- External mute terminals for activating mute function with external switch-closure
- Remote master volume terminals for control with an external 10k ohm linear-taper potentiometer
- Individual channel and master volume controls
- Auxiliary output for connecting an external mixer or recording device
- Bridging input/output for input expansion or recording device
- Normal, clip, power, protect, and signal indicators provide unit status
- Optional rack-mount kit, model MB-25B (2 RU)

Specifications

	M-900MK2	A-903MK2	A-906MK2	A-912MK2
Type	8-channel mixer	8-channel mixer power amplifier		
Power Requirement	AC mains, 120 V, 60 Hz			
Power Consumption	18W	60W	100W	180W
Output Power	--	30 W RMS	60 W RMS	120 W RMS
Power Band Width	30 - 20,000 Hz, +20 dBm 0.5% THD 25 - 20,000 Hz, + 18 dBm 0.5% THD	(Direct Output) 20 - 20,000 Hz, 0.5% THD (Transformer Output) 50 - 20,000 Hz, 0.5% THD		
Frequency Response	20 - 20,000 Hz, ±1 dB	(Direct Output) 20 - 20,000 Hz, ±1 dB (Transformer Output) 20 - 15 kHz, ±1 dB, (Transformer Output) 20 - 20 kHz, +1 dB, -3 dB		
T.H.D	0.01% at 1 kHz, rated output	0.02% at 1 kHz, rated output		
Inputs	Eight Input Ports: accepts 900 Series input modules. One Bridging Input/Output			
Input Sensitivity /Impedance	Input Port #1 to #8: 100 mV/10 kΩ Bridging Input/Output: 100 mV/3.3 kΩ			
Preamp OUT /Power Amp IN	--	1000 mV into 600 Ω/1000 mV, 10 kΩ		
Outputs	Main: Balanced, 150/600 Ω AUX: Unbalanced, 10 kΩ, 0 dBm	Main (Transformer Output): 4 Ω, 25 and 70 volts, balanced, Main (Direct Output): 8 Ω, unbalanced; Aux: 10 kΩ, 1 V		
Output Regulation (1kHz)	Less than 1.5 dB, no load to full load	(Direct Output) Less than 0.5 dB, no load to full load, (Transformer Output) Less than 1.0 dB, no load to full load		
S/N Ratio (Band Pass 20 - 20,000 Hz) Tone defeat switch on	Master volume min: 90 dB Master volume max: 77 dB	Master volume min: 90 dB Master volume max: 77 dB Power amplifier only: 105 dB		
Tone Controls	Bass: ±10 dB at 100 Hz, Treble: ±10 dB at 10 kHz			
Controls	8 Input gain control; 1 Master gain control; 1 Bass control; 1 Treble control; 1 Power ON/OFF switch; 1 Tone defeat switch	8 Input gain control; 1 Master gain control; 1 Bass control; 1 Treble control; 1 Power ON/OFF switch ;1 Tone defeat switch; 1 Low-Cut switch (60 Hz, 6 dB/octave)		
Indicators	1 Power LED, 1 Protect LED, 1 Signal LED, 1 Normal LED, 1 Peak LED			
Protection	Self-protection, with AC fuse (inside)			
Connectors	Input No.1 to No.8: Card-edge connector; Bridging, Aux output: RCA phone jack; Output: Screw-terminal strip; Mute, Remote VR: Screw-terminal strip; AC power cord/plug: SJT, 3-prong type; AC outlet 3-pin grounding type	Input No.1 to No.8: Card-edge connector Bridging, Mixer preamp. output, Power amp. input, Aux output: RCA phono jack Output: Screw-terminal strip Mute, Remote VR: Screw-terminal strip AC outlet: 3-pin grounding type AC power cord/plug: SJT, 3-prong type		
Temperature Range	-10°C - +60°C (12°F - 140°F)			
Dimensions (W×H×D)	16.54" (W) x 3.90" (H) x 12.11" (D) 420 x 99.1 x 307.5 mm	16.54" (W) x 3.90" (H) x 12.52" (D) / 420 × 99.1 × 318 mm	16.54" (W) x 3.90" (H) x 14.09" (D) 420 × 99.1 × 358 mm	
Weight	11.68lbs / 5.3kg	17.20lbs / 7.8kg	21.16lbs / 9.6kg	25.13lbs / 11.4kg
Accessories	Volume control cover (YA-920) x 4			
Option	Rack mounting bracket (MB-25B)			

900 Series Amplifiers

❖Power Amplifier

P-906MK2 60w
P-912MK2 120w
P-924MK2 240w

- Modular single channel power amplifiers for paging, background/foreground music distribution and music/messaging-on-hold
- Input module slot accepts most TOA 900 Series plug-in modules for custom system configurations
- Direct low-impedance output mode bypasses output transformer
- Direct input for connecting an external mixer or other source
- Selectable input sensitivity to accommodate high or low input levels
- Low cut switch to limit low frequency response
- Optional rack-mount kits: P-906/P-912MK2: MB-25B (2 RU); P-924MK2: MB-35B (3 RU)

Specifications

	P-906MK2	P-912MK2	P-924MK2
Type	Power amplifier		
Power Requirement	AC mains, 120 V, 60 Hz		
Power Consumption	100 W	180 W	120 V / 3 A
Output Power	60 W RMS	120 W RMS	(Direct Output) 240 W RMS (Transformer Output) 220 W RMS
Power Band Width	(Direct Output) 20 - 20,000 Hz, 0.5% THD (Transformer Output) 50 - 20,000 Hz, 0.5% THD		
Frequency Response	(Direct Output) 20 - 20,000 Hz, ±1 dB (Transformer Output) 20 - 15 kHz, ±1 dB, (Transformer Output) 20 - 20 kHz, +1 dB, -3 dB		
T.H.D.	0.01% at 1 kHz, rated output		
Inputs	One Input Port: Port accepts any 900 Series input module (refer to input module manual) One Direct Input (Use of direct input prohibits use of modular input port.)		
Input Sensitivity/Impedance	Input Port: 100 mV or 1000 mV (switchable)/10 kΩ Direct Input: 100 mV or 1000 mV (switchable)/10 kΩ		
Outputs	Main (Transformer Output): 8 Ω, 25 and 70 volts, balanced Main (Direct Output): 4 Ω, unbalanced		
Output Regulation (1kHz)	(Direct Output) Less than 0.5 dB, no load to full load (Transformer Output) Less than 1.0 dB, no load to full load		
S/N Ratio (Band Pass 20 - 20,000 Hz)	Input level switch in 0 dBV (1000 mV) position: 108 dB Input level switch in -20 dBV (100 mV) position: 90 dB		
Controls	1 Input gain control, 1 Input level switch, 1 Power ON/OFF switch, 1 Low-Cut switch		
Indicators	1 Power LED, 1 Protect LED, 1 Signal LED, 1 Normal LED, 1 Peak LED		
Protection	Self-protection, with AC fuse (inside)		Self-protection with 2 AC fuses (inside), plus 2 DC fuses
Connectors	Input: Card-edge connector and screw-terminal strip Output: Screw-terminal strip AC outlet: 3-pin grounding type AC power cord/plug: SJT, 3-prong type		
Temperature Range	-10°C - +60°C (12°F - 140°F)		
Finish	Black		
Dimensions (W×H×D)	16.54" (W) x 3.9" (H) x 14.09" (D) 420 (W) × 99.1 (H) × 358 (D) mm		16.54" (W) x 6" (H) x 13.16" (D) 420 (W) × 151.3 (H) × 334.2 (D) mm
Weight	20.06lbs (9.1kg)	24.03lbs (10.9kg)	43lbs (19.5kg)
Accessory	Volume control cover (YA-920) x 1		
Option	Rack mounting bracket (MB-25B)		Rack mounting bracket (MB-35B)

900 Series Amplifiers

❖In-Wall Amplifier

W-906A 60w
W-912A 120w

- Modular design allows fast and easy custom configurations
- Engineered for high performance with wide frequency response, very low noise and distortion, and excellent output regulation
- Six module slots accept TOA 900 Series plug-in modules for unmatched flexibility, expandable to eight slots with optional WE-2
- Flush or surface-mount with optional back boxes - BX-9F (flush-mount) or BX-9S (surface-mount)
- Nine band graphic equalizer
- High and low pass filters
- Compressor prevents overload and distortion

Specifications

	W-906A	W-912A
Output Power	60 W RMS	120 W RMS
Power Bandwidth	(Direct Output) 20 to 20,000 Hz, 0.5% THD (Transformer Output) 50 to 20,000 Hz, 0.5% THD	
Frequency Response	(Direct Output) 30 to 20,000 Hz ±1 dB (Transformer Output) 30 to 15,000 Hz ±1 dB (Transformer Output) 30 to 20,000 Hz t1dB, -2 dB	
Total Harmonic Distortion	0.02% at 1kHz, Rated Output	
Inputs	Six Input Ports ; 100mV / 10kohms Each port accepts any 900 Series input module (refer to input module manual) T-01S T may be used in port #5 or #6 One Bridging Input/Output ; 100mV / 3.3kohms	
Outputs	(Transformer Output) 8 ohms, 25 V & 70 V, Balanced (Direct Output) 4 ohms, Unbalanced	
Output Regulation (lkHz)	(Direct Output) Less Than 0.5 dB, No Load to Full Load (Transformer Output) Less Than 1.0 dB, No Load to Full Load	
S/N Ratio	Band Pass : 20 to 20,000 Hz Controls OFF ; 90 dB Equalizer IN ; 88 dB Master Volume Max. ; 77 dB Compressor IN ; 84 dB	
Compression	Attack Time ; No Greater Than 2msec. Compression Range ; 30 dB Release Time ; Variable 20msec. to 2 sec Distortion ; Less Than 1 %	
Equalization	9-band Graphic Equalizer Center Frequencies ; ISO 63, 125, 250, 500, 1k, 2k, 4k, 8k, 16kHz Equalization Range ; ±12 dB	
Filters	High-pass Filter ; 180 Hz, 12 dB / octave Low-pass Filter ; 7kHz, 12 dB / octave	
Indicators	1 LED Power Indicator 1 LED Peak Indicator	
Protection Circuitry	Built-in with 2 AC Fuse (1 inside) and 1 Output Circuitry Output Circuitry Protection when Heatsink Temperature Overheats	
Connectors	Input #1 to #6 ; Card-edge Connector Output ; Screw-terminal strip Bridging Input/Output ; Screw-terminal Strip Mute ; Screw-terminal strip	
Power Requirement	120 V AC, 60 Hz	
Power Consumption	100 W	180 W
Expansion	Optional WE-2 kit adds two 900 Series module slots	
Weight	13.7kg (30.20 lbs) ; Without Input Modules and Back Box	17.3kg (38.14 lbs) ; Without Input Modules and Back Box

Note: Power Bandwidth and Frequency Response are from input port to power amplifier output.

900 Series In-Wall Amplifier Accessories

❖Two Input Expander Kit

WE-2

- Two input expander kit (W-906A, W-912A) [Requires 900 series modules]

❖Flush-Mount Back Box

BX-9F

- For flush mounting in any 4 inch wall

❖Surface-Mount Back Box

BX-9S

- For surface mounting on wall

900 Series Amplifiers Microphone Input Modules

❖Microphone Input Modules

M-01 Series (M-01F/M/P/S T)

- For balanced, low impedance microphone
- High and low cut filters for tone control
- Phantom power for condenser-type microphones
- Connectors: female XLR (M-01F), male XLR (M-01M), 1/4" phone jack (M-01P), removable terminal block (M-01S T)

* 0 dB=1 V

Specifications

	M-01F	M-01M	M-01P	M-01S T
Power Source	24 V DC (supplied from the main frame)			
Current Consumption	9 mA			
Input Sensitivity	-60 dB* (balanced transformer-isolated)	-60 dB* (rated output: -20 dB*), adjustable: -72 to -52 dB*		
Input Impedance	600 Ω, transformer balanced			
Frequency Response	25 Hz - 20 kHz ±2.0 dB			
Distortion	0.05 % or less (1 kHz output: 0 dB*)			
Noise Level	-86 dB* (20 Hz - 20 kHz BPF), input equivalent noise: -126 dB*			
Gain	32 - 52 dB			
Phantom Power	+22 V DC (active or disable selectable)			
Tone Control	100 Hz: 0 to -10 dB, 10 kHz: 0 to -10 dB			
Connector	Female XLR connector (XLR-3-31 equivalent)	Male XLR connector (XLR-3-32 equivalent)	6.3 (1/4") Phone jack (3P)	Removable terminal block (3P)
Dimensions	35 (W) x 78 (H) x 88 (D) mm (1.38" x 3.07" X 3.46")			
Weight	Max. 110 g (0.24 lb)			

❖Microphone Input with Voice Gate

M-51 Series (M-51F/S T)

- For balanced, low impedance microphones
- Low cut filter for tone control
- Phantom power for condenser-type microphones
- Gate function keeps module muted until input signal exceeds threshold
- Connectors: female XLR (M-51F), removable terminal block (M-51S T)

❖Microphone Input with Compressor

M-61 Series (M-61F/S T)

- For balanced, low impedance microphones
- High and low cut filters for tone control
- Phantom power for condenser-type microphones
- Compressor function prevents overload and distortion
- Connectors: female XLR (M-61F) or removable terminal block (M-61S T)

* 0 dB=1 V

Specifications

	M-51F	M-51S T	M-61F	M-61S T
Power Source	24 V DC (supplied from the main frame)			
Current Consumption	27 mA		33 mA	
Input Sensitivity	-60 dB* (rated output: -20 dB*), ad ju stable: -72 to -52 dB*			
Input Impedance	600 Ω, balanced transformer-isolated			
Frequency Response	--		25 Hz - 20 kHz ±1.5 dB	
Distortion	0.05 % or less (1 kHz output: 0 dB*)		0.1 % or less (1 kHz outout: -60 dB*)	
Noise Level	-86 dB* (20 Hz - 20 kHz BPF), input equivalent noise: -126 dB*			
Gain	32 - 52 dB			
Phantom Power	+22 V DC (active or disable selectable)			
Tone Control	100 Hz: 0 to -10 dB		100 Hz: 0 to -10 dB, 10 kHz: 0 to -10 dB	
Signal Muting Level	40 dB (at 1 kHz)		-	
Compressor Range	--		20 dB (Threshold ad ju stable input level: -66 to -46 dB*)	
Connector	Female XLR connector (XLR-3-31 equivalent)	Removable terminal block (3P)	Female XLR connector (XLR-3-31 equivalent)	Removable terminal block (3P)
Dimensions	35 (W) X 78 (H) X 88 (D) mm (1.38" X 3.07" X 3.46")			
Weight	Max. 110 g (0.24 lb)			

900 Series Amplifiers Microphone Input Modules

❖Microphone Input with Mute-Receive
M-11S T

- For balanced, low impedance microphone
- High and low cut filters for tone control
- Phantom power for condenser-type microphones
- Responds to mute bus activation via mute send module or switch-closure
- Two mute response modes: Normally-on (OFF during mute activation) or Normally-off (ON during mute activation)
- Connector: removable terminal block

❖Microphone Preamplifier with Remote Volume Control
M-21S

- For balanced, low impedance microphone
- High and low cut filters for tone control
- Phantom power for condenser-type microphones
- Allows remote control of input signal using an external 10kohm linear-taper potentiometer
- Connector: screw terminal

❖Microphone Paging Input with Mute-Send
M-41S

- For balanced, low impedance microphones
- For voice-activated over-ride of mute-receive modules
- High and low cut filters for tone control
- Phantom power for condenser-type microphones
- Signal at input terminals activates mute bus
- Connector: removable terminal block

❖Mic/Line Input w/Mute/Send Receive
ML-11T

- Switchable mic/lin input
- Adjustable Mute-Send threshold (VOX sensitivity)
- High and Low Cut Filters
- Combination Mute Send and Receive function
- Assign mute send or receive to each mute bus

❖High Impedance Microphone Input
M-03P

- For unbalanced, high impedance mics
- High and low cut filters for tone control
- Connector: 1/4” phone jack

* 0 dB=1 V

Specifications

	M-03P	M-11S T	M-21S	M-41S	ML-11T
Power Source	24 V DC (supplied from the main frame)				
Current Consumption	9 mA	14 mA	30 mA	Under 15 mA	25 mA
Input Sensitivity	-50 dB* (rated output: -20 dB*), adjustable: -62 to -42 dB*	-60 dB* (rated output: -20 dB*), adjustable: -72 to -52 dB*		0.2 - 5.0 mV (adjustable) (Rated Output 100 mV)	-60/-20 dB* (changeable)
Input Impedance	50 kΩ unbalanced	600 Ω balanced transformer-isolated			10 kΩ balanced
Low Cut Filter (100 Hz)	--			-5 to -15 dB	--
High Cut Filter (10 kHz)	--			-7 to -13 dB	--
Noise Output (20 - 20,000 Hz BPF)	--			Under 50 µ,V	--
Frequency Response	20 Hz - 20 kHz ±1.5 dB	25 Hz - 20 kHz ±1.5 dB		25 - 20,000 Hz	20 Hz - 20 kHz ±1.0 dB
Distortion	0.05 % or less (1 kHz output: 0 dB*)			Under 0.2%	0.05 % (1 kHz)
Noise Level	-86 dB* (20 Hz - 20 kHz BPF), input equivalent noise: -116 dB*	-86 dB* (20 Hz - 20 kHz BPF), input equivalent noise: -126 dB*		--	
Gain	22 - 42 dB	32 - 52 dB		--	32 - 52 dB
Phantom Power	--	+22 V DC (active or disable selectable)		Over 20 V	+ 22 V DC (active or disable selectable)
Tone Control	100 Hz: 0 to -10 dB, 10 kHz: 0 to -10 dB			--	
Signal Muting Level	--	60 dB (at 1 kHz)	--	--	--
Signal-Activated Muting				0.3 - 0.8 mV	--
Remote Control Range	--		0 to -55 dB	--	
Connector	6.3 (1/ 4”) Phone jack (3P)	Removable Terminal block (3P)	5 Screw terminals	Input: 3P terminal block Output: 6P card edge-connector	Removable terminal block (3P)
Dimensions	35 (W) x 78 (H) x 88 (D) mm (1.38” x 3.07” X 3.46”)				35 (W) X 78 (H) X 91.5 (D) mm (1.38” X 3.07” X 3.6”)
Weight	Max. 65 g (0.14 lb)	Max. 85 g (0.19 lb)	Max. 90 g (0.2 lb)	80 g	Max. 49 g (0.11 lb)
Accessory	Module mounting screw x 2	Removable terminal block (3P) x 1, Module mounting screw x 2	Module mounting screw x 2	Removable terminal block (3P) x 1, Module mounting screw x 2	

900 Series Amplifiers Line Input Modules

❖Balanced Line Input

B-01 Series (B-01F/S T)

- For balanced or unbalanced line level sources such as mixer outputs, signal processors and wireless microphone receivers
- Transformer isolation (10kΩ)
- Connector: female XLR (B-01F), removable terminal block (B-01S)

❖Balanced Line Input with Mute-Receive

B-11S T

- For balanced or unbalanced line level sources such as mixer outputs, signal processors and wireless microphone receivers
- Transformer isolation (10kΩ)
- Responds to mute bus activation via mute send module or switch-closure
- Connector: removable terminal block

❖Balanced Line Input with Remote Volume Control

B-21S

- For balanced or unbalanced, line level equipment such as tuners, tape decks and CD players
- Transformer isolation (10kΩ)
- Allows remote control of input signal using an external 10k ohm linear-taper potentiometer
- Connector: screw terminal

❖Balanced Line with Input with Mute-Send

B-41S

- For balanced or unbalanced, line level equipment
- For signal-active over-ride of mute-receive modules
- Transformer isolation (10kΩ)
- Signal at input terminals activates mute bus
- Connector: removable terminal block
- Recommended for phone paging applications

* 0 dB=1 V

Specifications

	B-01F	B-01S T	B-11S T	B-21S	B-41S
Power Source	24 VDC				
Current Consumption	--		5 mA	Less than 27 mA	Less than 9 mA
Input Sensitivity	-18 dB* (Rated output: -20 dB*)		-16 dB* (Rated output: -20 dB*)	0.9 - 10 V (adjustable) (Rated Output 1 V)	0. 7 - 1.4 V (Rated Output 1 V)
Input Impedance	10 kΩ, balanced transformer-isolated				
Distortion	--			Less than 0.05 %	--
Frequency Response	20 Hz - 20 kHz ±1.5 dB				
Signal Muting Level	--		60 dB* (at 1 kHz)	--	
Signal-Activated Muting	--				8 - 15 mV
Remote Volume Control	--			More than 55 dB	--
Connector	Female XLR connector (XLR-3-31 equivalent)	Removable terminal block (3P)		Input: 5P screw terminal	Input: 3P terminal block
Dimensions	35 (W) x 78 (H) x 88 (D) mm (1.38" x 3.07" X 3.46")				
Weight	110 g (0.24 lb)		80 g (0.18 lb)	90 g (0.2 lb)	80 g (0.18 lb)

❖Unbalanced Line Input

U-01 Series (U-01F/P/R/S T)

- For unbalanced, line level sources such as tuners, cassette decks, CD players, computer sound cards, jukeboxes, mixers and satellite receivers
- Connectors: female XLR (U-01F), 1/4" phone jack (U-01P),RCA jack (U-01R), removable terminal block (U-01S T)

Specifications

* 0 dB=1 V

	U-01F	U-01P	U-01R	U-01S T
Power Source	24 V DC (supplied from the main frame)			
Current Consumption	4 mA			
Input Sensitivity	-20 dB* (rated output: -20 dB*), adjustable: -20 to +10 dB*			
Input Impedance	220 kΩ, unbalanced			
Frequency Response	20 Hz - 20 kHz ±1.0 dB			
Distortion	0.05 % or less (1 kHz, output: 0 dB*)			
Noise Level	-106 dB* (20 Hz - 20 kHz BPF)			
Gain	-30 - 0 dB			
Connector	Female XLR connector (XLR-3-31 equivalent)	6.3 (1/4") Phone jack (3P)	RCA pin jack (1P)	Removable terminal block (3P)
Dimensions	35 (W) x 78 (H) x 88 (D) mm (1.38" x 3.07" X 3.46")			
Weight	75 g (0.17 lb)			

900 Series Amplifiers Line Input Modules

❖Line Matching Input

L-01 Series (L-01F/S T)

- For applications requiring 600Ω line-matching
- Transformer isolation (600Ω)
- Connector: female XLR (L-01F); removable terminal block (L-01S)

❖Line Matching Input with Mute-Send

L-41S T

- For applications requiring 600 Ω line-matching
- Responds to mute bus activation
- Transformer isolation (600Ω)
- Signal at input terminals activates mute bus
- Connector: removable terminal block

❖Line Matching Input with Mute-Receive

L-11S T

- For applications requiring 600Ω line-matching
- Responds to mute bus activation
- Transformer isolation (600Ω)
- Responds to mute bus activation via mute send module or switch-closure
- Connector: removable terminal block

* 0 dB=1 V

Specifications

	L-01F	L-01S T	L-11S T	L-41S T
Power Source	24 V DC (supplied from the main frame)			
Current Consumption	--		5 mA	9 mA
Input Sensitivity	-18 dB* (Rated output: -20 dB*)			
Input Impedance	600 Ω, balanced transformer-isolated			
Frequency Response	20 Hz - 20 kHz ±1.5 dB			
Signal Muting Level	--		60 dB (at 1 kHz)	--
Signal Activating Mute Sensitivity	--			-42 to -36 dB*
Connector	Female XLR connector (XLR-3-31 equivalent)	Removable terminal block (3P)		
Dimensions	35 (W) x 78 (H) x 88 (D) mm (1.38" x 3.07" X 3.46")			
Weight	110 g (0.24 lb)		80 g (0.18 lb)	85 g (0.19 lb)

❖Unbalanced Line Input with EQ

U-03 Series (U-03R/S)

- For unbalanced, line level sources such as tuners, cassette decks, CD players, computer sound cards, jukeboxes, mixers and satellite receivers
- Low and high tone controls
- Connectors: dual summing RCA jack (U-03R), removable terminal block (U-03S)

❖Unbalanced Line Input with Mute-Receive

U-11 Series (U-11R/S T)

- For unbalanced, line level sources such as tuners, cassette decks, CD players, computer sound cards, jukeboxes, mixers and satellite receivers
- Responds to mute bus activation via mute send module or switch-closure
- Connectors: RCA jack (U-11R), removable terminal block (U-11S T)

* 0 dB=1 V

Specifications

	U-03R	U-03S	U-11R	U-11S T
Power Source	24 V DC (supplied from the main frame)			
Current Consumption	Under 8 mA	Less than 8 mA	9 mA	
Input Sensitivity	100 - 3,600 mV (adjustable)	100 - 3,600 mV (adjustable)	-20 to + 10 dB* (Rated output: -20 dB*), adjustable: -20 to + 10 dB*	
Input Impedance	--		220 kΩ, unbalanced	
Low Cut Filter (100 Hz)	-5 to -15 dB		--	
High Cut Filter (10 kHz)	-7 to -13 dB		--	
Noise Output (20 Hz - 20 kHz BPF)	Less than 10 µV		--	
Frequency Response	20 Hz - 20 kHz		20 Hz - 20 kHz ±1.5 dB	
Distortion	Under 0.05 %		0.05 % or less (1 kHz, output: 0 dB*)	
Noise Level	--		-100 dB* (20 Hz - 20 kHz BPF)	
Signal Muting Level	--		60 dB (at 1 kHz)	
Gain	--		-30 - 0 dB	
Connector	Input: RCA pin jacks	Input: 3P terminal block	RCA pin jack (1P)	Removable terminal block (3P)
Dimensions	35 (W) x 78 (H) x 88 (D) mm (1.38" x 3.07" x 3.46")			
Weight	50 g (0.11 lb)		55 g (0.12 lb)	

900 Series Amplifiers Line Input Modules

❖Unbalanced Line Input with Variable Mute-Receive Depth

U-12S T

- Use for adjacent sources (less than 15ft from the host unit)
- For unbalanced, line level sources such as tuners, cassette decks, CD players, computer sound cards, jukeboxes, mixers and satellite receivers
- Responds to mute bus activation via mute send module or switch-closure
- Adjustable depth provides “ducking” rather than full muting
- Connector: removable terminal block

❖Unbalanced Line Input with High/Low Cut Filters and Mute-Receive

U-13 Series (U-13R/S)

- High and low cut filters for tone control
- For unbalanced, line level sources such as tuners, cassette decks, CD players, computer sound cards, jukeboxes, mixers and satellite receivers
- Responds to mute bus activation via mute send moduleor switch-closure
- Connectors: dual RCA jack w/passive summing (U-13R), removable terminal block (U-13S)

❖Dual Input Priority Module w/AGC

U-14R

- Two line inputs – Jukebox and BGM
- Individual input level controls
- 2x dual RCA jacks w/passive summing
- Auto-mute function with adjustable mute threshold (jukebox overrides BGM)
- Automatic Gain Control (AGC) on jukebox input for consistent signal levels
- Dual input module for applications with business music plus an on-premises CD jukebox or other source

Specifications

* 0 dB=1 V

	U-12S T	U-13R	U-13S	U-14R
Current Consumption	27 mA	Under 11 mA	Less than 11 mA	Under 30 mA
Input Sensitivity	-20 dB* (Rated output: -20 dB*), adjustable: -20 to + 10 dB*	100 - 3,600 mV (adjustable) (Rated Output 100 mV)		--
Input Impedance	220 kΩ, unbalanced	--		--
Low Cut Filter (100 Hz)	--	-5 to -15 dB		--
High Cut Filter (10 kHz)	--	-7 to -13 dB		--
Noise Output (20 Hz - 20 kHz BPF)	--	Less than 10 µV		
Maximum Output	--	--		+14 dB*
Output Level Variable Range	--	--		BGM: -24 to -4 dB* (-10 dB* input to L and R) JUKE: -24 to -4 dB* (-10 dB* input to L and R)
Juke Gate Threshold Level	--	--		-60 to -30 dB (adjustable)
Frequency Response	20 Hz - 20 kHz ±1.0 dB	20 Hz - 20 kHz		20 - 20,000 Hz (±1 dB)
Distortion	0.05 % or less (1 kHz, output: 0 dB*)	Under 0.05 %	Less than 0.05 %	BGM: Under 0.03 %; JUKE: Under 0.05 % (1 kHz, 1 V input)
Noise Level	-106 dB* (20 Hz - 20 kHz BPF)	--		--
Signal Muting Level	0 - 60 dB Adjustable (at 1 kHz)	Over 50 dB	More than 50 dB	Over 60 dB
Gain	-30 - 0 dB	--		--
Connector	Removable terminal block (3P)	Input: RCA pin jacks	Input: 3P terminal block	Input: RCA pin jacks

900 Series Amplifiers Line Input Modules

❖Unbalanced Line Input with Remote Volume Control

U-21S

- For unbalanced, line level sources such as tuners, cassette decks, CD players, computer sound cards, jukeboxes, mixers and satellite receivers
- Allows remote control of input signal using an external 10kΩ linear-taper potentiometer
- Master Remote Volume mode
- Connector: screw terminal

❖Unbalanced Line Input with Compressor

U-61S T

- Compressor function prevents overload and distortion
- Master compressor mode
- For unbalanced, line level sources such as tuners, cassette decks, CD players, computer sound cards, jukeboxes, mixers and satellite receivers
- Connector: removable terminal block

❖Unbalanced Line Input with High/Low Filters and Mute-Send

U-43 Series (U-43R/S)

- For unbalanced, line level sources such as tuners, cassette decks, CD players, computer sound cards, jukeboxes, mixers and satellite receivers
- High and low cut filters for tone control
- Signal at input terminals activates mute bus
- Connectors: dual RCA jack w/ passive summing (U-43R), removable terminal block (U-43S)

* 0 dB=1 V

Specifications

	U-21S	U-61S T	U-43R	U-43S
Power Source	24 V DC (supplied from the main frame)			
Current Consumption	27 mA	30 mA	Less than 15 mA	
Input Sensitivity	-20 dB* (rated output: -20 dB*), adjustable: -20 to +10 dB*	-20 to +10 dB* (Rated output: -20 dB*)	100 - 3,600 mV (adjustable) (Rated Output 100 mV)	
Input Impedance	220 kΩ, unbalanced		--	
Low Cut Filter (100 Hz)	--		-5 - -15 dB	
Hiqh Cut Filter (10 kHz)	--		-7 - -13 dB	
Noise Output (20 Hz - 20 kHz BPF)	--		Less than 10 µV	
Frequency Response	20 Hz - 20 kHz ±1.5 dB	20 Hz - 20 kHz ±1.0 dB	20 Hz - 20 kHz	
Distortion	0.05 % or less (1 kHz, output: 0 dB*)	0.05 % or less (1 kHz, output: -6 dB*)	Less than 0.05 %	
Noise Level	-106 dB* (0 Hz - 20 kHz BPF)	-90 dB* (20 Hz - 20 kHz BPF)	--	
Gain	-30 - 0 dB		--	
Remote Control Range	0 to -55 dB	--		
Compressor Range	-	20 dB (Threshold fixed input level: +2 dB*)	--	
Signal-Activated Muting	--		6 - 15 mV	
Connector	5 Screw terminals	Terminal block (3P)	Input: RCA phone jack	Input: 3P terminal block
Dimensions	35 (W) x 78 (H) x 88 (D) mm (1.38" x 3.07" x 3.46")			
Weight	65 g (0.14 lb)	60 g (0.13 lb)	50 g (0.11 lb)	

900 Series Amplifiers Special Function Modules

❖Equalization for TOA Speakers

E-03R (F-122CU)

- Optimized preset equalization for F-122CU speakers
- Connects between pre-amp output and power amp input

E-04R (H-1)

- Optimized preset equalization for H-1 speakers
- Connects between pre-amp output and power amp input

E-05R (H-2/H-2WP)

- Optimized preset equalization for H-2/H2WP speakers
- Connects between pre-amp output and power amp input

E-06R (H-3/H-3WP)

- Optimized preset equalization for H-3/H-3WP speakers
- Connects between pre-amp output and power amp input

❖Equalization for TOA Speakers

E-07S (FB-120 and HB-1)

- Low-pass-filter output module with a mix bus output to drive a dedicated external subwoofer amplifier

Specifications

	E-03R	E-04R	E-05R	E-06R	E-07S
Power Source	24 VDC				
Current Consumption	Less than 25 mA				Less than 35 mA
Input	1 V, 100 kΩ, RCA pin jack				--
Output	1 V, 1 kΩ, RCA pin jack				3-pin terminal block
Noise Output (20 Hz - 20 kHz BPF)	Less th an 50 μ, V				
Distortion	Less than 0.05 %				Less than 0.1 %
Dimensions	35 (W) X 78 (H) X 88 (D) mm				
Weight	55 g				95 g

❖1 kHz Sine Wave Test Tone

S-01S T

- Generates 1 kHz sine wave tone via switch-closure
- Ideal as a test tone for the audio system
- Connector: removable terminal block

❖Switch-Selectable Tone Generator

S-04S T

- Generates one of eight tones via switch-closure
- Single or continuous tone activation
- Connector: removable terminal block

❖Buzzer/Yelp Tone Generator

S-02S T

- Generates buzzer or yelp tones via switch-closure
- Connector: removable terminal block

* 0 dB=1 V

Specifications

	S-01S T	S-02S T	S-04S T
Power Source	24 V DC (supplied from the main frame)		
Current Consumption	7 mA	11 mA	20 mA
Output Level	-6 dB* (rated output: -20 dB*)	1.0 V (p-p) (rated output: -20 dB*)	1.5 V (p-p) (rated output: -20 dB*)
Distortion	0.5 % or less (1 kHz, output: -6 dB*)	--	
Noise Level	-80 dB* (20 Hz - 20 kHz BPF)	-100 dB* (20 Hz - 20 kHz BPF)	-80 dB* (20 Hz - 20 kHz BPF)
Gain	Off - 0 dB		
Available Tone	1 kHz sine wave	Buzzer/Yelp	1 /2/ 4 Tone chime (selectable)
Connector	Removable terminal block (3P)		
Dimensions	35 (W) x 78 (H) x 88 (D) mm (1.38" x 3.07" x 3.46")		
Weight	60 g (0.13 lb)	65 g (0.14 lb)	70 g (0.15 lb)

900 Series Amplifiers Special Function Modules

❖Balanced Line Output
T-01S T

- Transformer-Isolated line output of the mixing bus signal to feed other remote mixers, amplifiers, and tape recorders
- Output level control
- Connector: removable terminal block

❖Unbalanced Line Input with Music-On-Hold Output
T-02S

- Unbalanced line input for AM/FM tuners, cassette decks, CD players, computer sound cards, jukeboxes, mixers and satellite receivers
- Balanced transformer-isolated uninterrupted output of module's input signal
- Output level control for adjusting the MOH output signal level
- Connector: screw terminal

❖Unbalanced Line Input with Music-On-Hold Output and Input Mute-Receive
T-12S

- Unbalanced line input for AM/FM tuners, cassette decks, CD players, computer sound cards, jukeboxes, mixers and satellite receivers
- Balanced transformer-isolated uninterrupted output of module's input signal
- Output level control for adjusting the MOH output signal level
- Responds to mute bus activation via mute send module or switch-closure
- Connector: screw terminal

* 0 dB=1 V

Specifications

	T-01S T	T-02S	T-12S
Power Source	24 V DC (supplied from the main frame)		
Current Consumption	35 mA	38 mA	Less than 38 mA
Output Level	Adjustable -22 to -6 dB* (at 600 Ω terminated, input: -20 dB*)	--	
Output Impedance	600 Ω, balanced transformer-isolated	--	
Sensitivity	--	AUX Input: Adjustable -20 - 0 dB* Line Output: Adjustable -16 - 0dB* (at 600Ω terminated, input: -20 dB*	--
Source Impedance	--	AUX Input: 220 kΩ, unblanaced transformer-isolated Line Output: 600Ω, balanced transformer-isolated	--
Input Sensitivity (Rated Output 100 m V)	--		100 - 1,000 mV (adjustable)
Noise Output (20 Hz - 20 kHz BPF)	--		Less than 50 μV
Frequency Response	20 Hz - 20 kHz ±2.5 dB		20 Hz - 20 kHz
Distortion	0.1 % or less (1 kHz, output: 0 dB*)		Less than 0.1 %
Noise Level	-90 dB* (20 Hz - 20 kHz BPF)		--
Gain	4 - 20 dB	Mix bus: -20 - 0dB/slave: 4 - 20 dB	--
Line Output Level	--		70 - 800 mV (adjustable)
Muting Time	--		3 - 5 s
Signal Muting Level	--		More than 60 dB
Connector	Removable terminal block (3P)	5 Screw terminals	Input Connector 5P screw terminal
Dimensions	35 (W) x 78 (H) x 88 (D) mm (1.38" x 3.07" x 3.46")		
Weight	95 g (0.21 lb)	105 g (0.23 lb)	95 g

❖Noise Generator
NM-01

- Generates band-limited pink noise for use in sound masking applications
- In/Out processor loop for external EQ
- For use in TOA modular mixer-amps that support 900 Series modules

Specifications

	NM-01
Power Source	24 V DC (Supplied from amplifier)
Current Consumption	10mA
Output Level (to amplifier)	300mV
Noise Type	Analog random pink noise
Mute Function	Dry contact, normally open (close to mute)
Input	10kΩ, RCA pin jack
Output	150mV, 600>, RCA pin jack
Dimensions	35(W) x 78(H) x 88(D)mm (1.38" x 3.07" x 3.46")
Weight	64g (0.14lb)

900 Series Amplifiers Special Function Modules

❖SIP Module
SP-11NPS

- SIP interface for use in TOA modular mixer-amps that support 900/9000 Series modules
- Five dry contact outputs can be activated by the dial operation on the phone while the communication is established
- Priority function is available
- AD-1215 - AC adapter supplied

Specifications

	SP-11NPS
Power Source	AC Adaptor AD-1215P or its equivalent
Network Interface	RJ-45 connector 10BASE-T / 100BASE-TX, Auto-negotiation
Network Protocol	SIP (RFC3261), TCP. UDP, BOOTP, DHCP, RTP SNMP, ICMP, HTTP
Audio Format	G.711 μ-law / a-law
Control Output	5 channels open collector output (Max. Voltage: 27V DC, Control current: 50mA Max.) Removable terminal block (6 pin)
Operating Temperature	-32°F (0°C) to +104°F (+40°C)
Finish	Panel: Aluminum, Hairline finish
Dimensions	1.38"(W) x 3.07" (H) x 3.6"(D)
Weight	0.2lb (86g)

❖Remote Master Volume Control (VCA) Module
V-01S

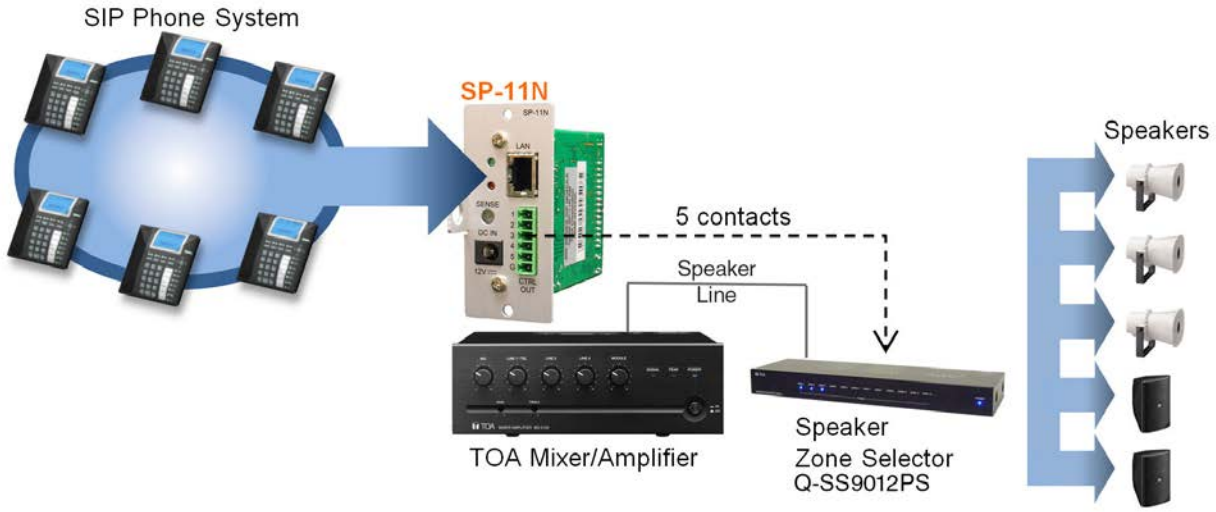
- Voltage Controlled Amplifier (VCA) for applications requiring preset remote master volume control
- Line input and output connect to host amplifier's pre-amp output and power amp input
- 24 VDC output and control input interfaces directly to RDL RLC3 remote level control
- RCA and phoenix-style connectors
- For 10k potentiometer volume control, use U-21S

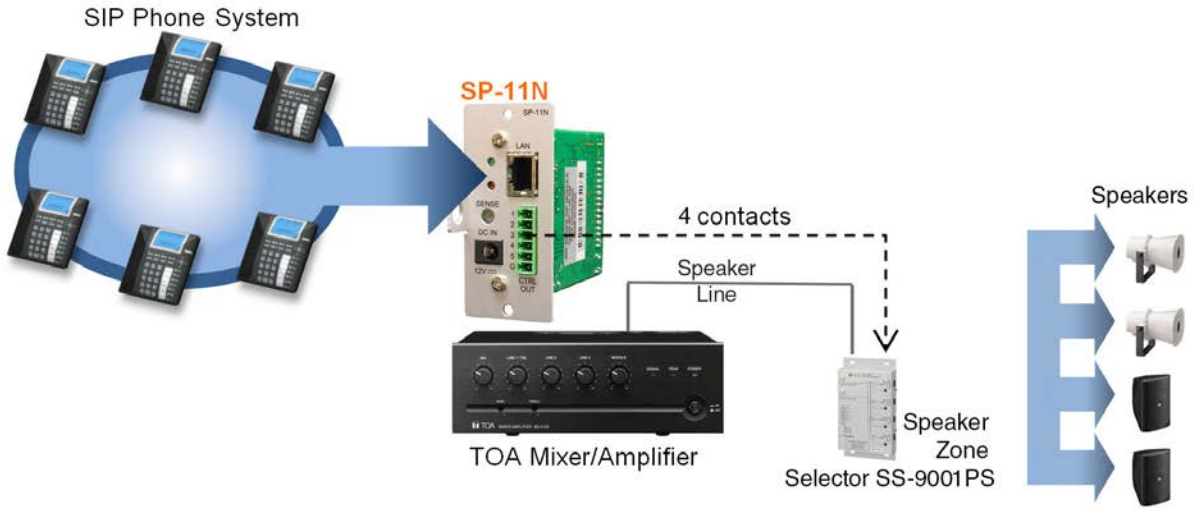
* 0 dB = 1 V

Specifications

	V-01S
Power Source	24 V DC
Current Consumption	Under 25 mA
Maximum Allowable Input	+14 dB*
Noise Output (20 Hz - 20 kHz BPF)	Under 50 μV
Distortion (1 kHz, 1 V)	Under 0.03 %
Frequency Response	20 - 20,000 Hz (±1 dB)
Input/Output Connectors	RCA pin jack
Control Input	3P phoenix connector
Dimensions	35 (W) x 78 (H) x 88 (D) mm (1.38" x 3.07" x 3.46")
Weight	51 g

SP-11NPS Connection Examples





A-700 Series Mixer Power Amplifiers

A-706 60w
A-712 120w
A-724 240w

- Nine channel integrated mixer/amplifiers for paging and background/foreground music distribution
- Six Mic/Line inputs, balanced, with mic trim, 23 VDC phantom power and removable terminal block connectors
- Two Auxiliary inputs, unbalanced, with dual-RCA jacks for convenient connection of stereo sources
- Module slot accepts 900 Series plug-in modules with additional features
- Transformer-isolation for telephone paging applications (Input #1) (optional on additional channels)
- 25 V, 70.7 V and 4 ohm speaker outputs with removable terminal block connector
- Auto-mute priority function assignable via external switches: Channels 1-3 and Module configurable as Mute Send; Channels 1-8 and Module configurable as Mute Receive
- Auto-mute sense control for adjusting mute activation threshold
- External mute terminals for activating mute function with external switch-closure
- Remote AC turn-on for activating power with an external switch-closure
- Turn-On delay disconnects output during power-up
- Optional rack-mount kit, model MB-25B (2 RU)
- UL/cUL Listed

* 0 dB = 1 V

Specifications

	A-706	A-712	A-724
Power Source	120 V AC, 60 Hz		
Rated Output	60 W	120 W	240 W
Power/Current Consumption	155 W (rated output), 68 W (based on UL60065), under 250 mA (when power switch is OFF)	285 W (rated output), 110 W (based on UL60065), under 400 mA (when power switch is OFF)	565 W (rated output), 215 W (based on UL60065), under 60 mA (when power switch is OFF)
Frequency Response	50 - 20,000 Hz (±3 dB)		
Distortion	Under 2% at 1 kHz, rated power		
Input	INPUT 1 - 6: -70 to -50 dB*, 600 Ω (MIC)/ -10 dB*, 600 Ω (LINE) INPUT 1: Transformer-balanced, removable terminal block (3 pins) INPUT 2 - 6: Electronically-balanced, removable terminal block (3 pins) INPUT 7 - 8 (LINE): -20 dB*, 10 kΩ, unbalanced, RCA jack MODULE: -20 dB*, 10 kΩ PWR AMP IN: 0 dB*, 10 kΩ, unbalanced, RCA jack (An equalizer or other signal processor connectable between PRE AMP OUT and PWR AMP IN terminals)		
Output	REC OUT: 0 dB*, 600 Ω, unbalanced, RCA jack PRE AMP OUT: 0 dB*, 600 Ω, unbalanced, RCA jack SPEAKER OUT: 70 V line (83 Ω), 25 V line (10 Ω), and 4 - 16 Ω, removable terminal block (4 pins)		
Phantom Power (+23 V DC)	ON or OFF for each INPUT 1 - 6 (MIC input) with switch setting		
S/N Ratio (Band pass: 20 - 20,000 Hz)	Over 55 dB (INPUT 1 - 6, mic trim volume: max., 600 Ω terminated) Over 70 dB (INPUT 1 - 6, mic trim volume: min., 600 Ω terminated) Over 76 dB (Master volume: max.) Over 90 dB (All input volume: min.)		
Tone Control	Bass: ±10 dB at 100 Hz Treble: ±10 dB at 10 kHz		
Control Input	REMOTE VOLUME: Removable terminal block POWER REMOTE: No-voltage make contact input, open voltage: under 14 V DC, short-circuit: under 0.5 mA, removable terminal block MUTE CONTROL: No-voltage make contact input, open voltage: under 17 V DC, short-circuit: under 1.5 mA, removable terminal block		
Indicator	5-point LED output level meter, Power indicator LED		
Operating Temperature	-10°C to +40°C (14°F to 104°F)		
Finish	Panel: ABS resin, black, hair line Case: Steel plate, black		
Dimensions	16.53" (W) x 4.24" (H) x 13.84" (D) / 420 (W) × 107.7 (H) × 351.5 (D) mm		
Weight	21lbs (9.5kg)	26lbs (12kg)	30lbs (13.5kg)
Accessory	AC power cord (6.6ft/2m) x 1, Removable terminal plug (3 pins) x 6, Removable terminal plug (4 pins) x 1, Removable terminal plug (6 pins) x 1, Volume control cover x 4		
Optional	Rack mounting bracket: MB-25B, Input transformer: IT-450, Volume control cover: YA-920		

BG-2000 Series Mixer Power Amplifiers

BG-2035 35w
BG-2060 60w
BG-2120 120w

- Compact five channel Mixer-Amplifier for paging, background/foreground music distribution and music/messaging-on-hold
- All inputs/outputs with removable terminal blocks allow quick and easy installation
- Any of five inputs assignable to MOH/ZONE 2 output
- RCA pin jacks for Lines 2 and 3
- Line 2 and 3 inputs equipped with summing RCA jacks
- Phantom Power (+ 24V DC) incorporated for MIC input
- Module slot accepts optional 900 Series plug-in modules for custom system configurations
- Rear panel-mounted DIP switches allow easy configuring of settings
- Auto/manual mute function with adjustable muting sensitivity
- Incorporates remote volume control connection
- 2-channel broadcast capability together with zone 2 expansion capability in conjunction with BA-200 Series
- Tamper-proof, front-panel bass and treble controls are recessed to protect their settings
- Thermal protection circuitry prevents potential damage from excessive heat build-up
- AC Mains Circuit Breaker
- Supplied accessory security knobs for volume controls prevent unauthorized volume setting changes
- Optional rack-mount kit (MB-1000)
- UL/cUL Listed.

❖Class D Mixer/Amplifier
BG-2240D 240w

- 240W output @ 70V
- Dual balanced priority mic/line inputs
- Dual unbalanced line inputs for BGM sources
- Assignable 2nd zone/MOH output
- Front panel bass & treble controls
- Remote volume control port
- Assignable mute function
- Module slot accepts optional 900 Series plug-in modules for custom system configurations

*0dB = 1V

Specifications

		BG-2035	BG-2060	BG-2120	BG-2240D
Power Source		120 V AC, 60 Hz			
Rated Output		35 W	60 W	120 W	240 W
Power Consumption		94 W (rated output), 50 W (based on cULus standards)	163 W (rated output), 80 W (based on cULus standards)	265 W (rated output), 120 W (based on cULus standards)	300 W (rated output), 55 W (based on cULus standards)
Frequency Response		50 Hz – 20k Hz			
Total Harmonic Distortion		0.5% or less, at 1 kHz, rated output			0.8% or less, at 1 kHz, 1/3 rated output, LPF 20KHz
Input		Mic: –60dB*, 600Ω, electronically balanced, removable terminal block Line 1: –10 dB*/TEL: –20 dB* Line 1/TEL: selectable, 10kΩ, electronically balanced, removable terminal block Line 2, 3: –10 dB*, 10 kΩ, unbalanced, removable terminal block or RCA jack Module			
Output	Speaker	4 Ω, 25 V (18Ω), 70 V (140Ω) balanced, removable terminal block	4 Ω, 25 V (10Ω), 70 V (83Ω) balanced, removable terminal block	4 Ω, 25 V (5.2Ω), 70 V (42Ω) balanced, removable terminal block	70 V (21Ω) balanced, removable terminal block
	MOH	0 dB*, 600 Ω, balanced, removable terminal block			
	Line	0 dB*, 600 Ω, unbalanced, removable terminal block			
Output Regulation		2 dB or less, no load to full load (1k Hz)			
Phantom Power		On/Off switch for Mic,+24V DC			
S/N Ratio		Mic: 60 dB or more, Line 1/TEL, Line 2, 3, Module: 75 dB or more (Band Pass: 20 Hz – 20 kHz, Tone Controls: Centered)			Mic: 60 dB or more, Line 1/TEL, Line 2, 3, Module: 73 dB or more (A-weighted, Tone Controls: Centered)
Tone Control		Bass: ±10 dB at 100 Hz, Treble: ±10 dB at 10k Hz			
Muting		Manual mute/Automatic mute			
Control		Mic gain control, Line 1/TEL gain control, Line 2 gain control, Line 3 gain control, Module: gain control, Bass tone control, Treble tone control, MOH out gain control, Mute control (Manual mute), Remote volume control, Mute sense control, Line 1/TEL selector switch, Phantom power switch (Mic), Auto mute switch (Mic, Line 1/TEL, Module), Mute receive switch (Mic, Line 1/TEL, Line 2, 3, Module), MOH assign switch (Mic, Line 1/TEL, Line 2, 3, Module), Power ON/OFF switch			
Indicator		Power LED, Signal level LED, Peak LED			
Operating Temperature		0 °C to 40 °C (32 °F to 104 °F)			
Finish		Panel: ABS resin, black; Case: Steel plate, black, paint			
Dimensions		264 (W) × 94.3 (H) × 267.3 (D) mm (10.39" × 3.71" × 10.52")			
Weight		5.3 kg (11.68 lb)		6 kg (13.23 lb)	3.5 kg (7.72 lb)
Accessory		Volume control cover: YA-920 × 5, Removable terminal plug (2 pins) × 4, Removable terminal plug (3 pins) × 2, Removable terminal plug (4 pins) × 1, Removable terminal plug (5 pins) × 1			
Option		Rack mounting brackets: MB-1000			

A-2240 Mixer Power Amplifier

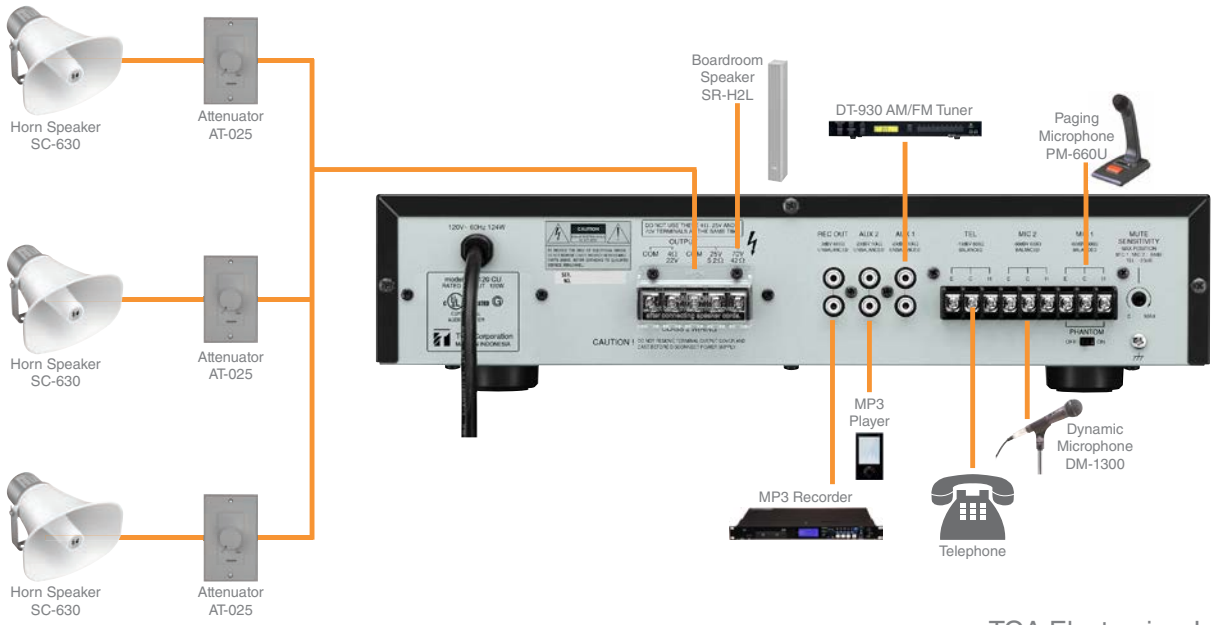
- Engineered for high performance with wide frequency response, low noise and distortion, and excellent output regulation
- Suitable for commercial audio systems in schools, offices, restaurants, shops, factories, houses of worship, and large meeting rooms
- Equipped with 2 balanced microphone inputs
- Phantom power on MIC 1 input
- Auto-mute for aux inputs triggered by voice activated paging by Microphone and Telephone inputs
- Scratch- and fingerprint-resistant front panel
- UL/cUL Listed

*0dB = 1V

Specifications

	A-2240
Power Source	120V AC, 50Hz
Rated Output	240W
Power Consumption	238W (EN60065), 520W (AC operation at rated output)
Frequency Response	50 – 20,000Hz (±3dB)
Distortion	Under 1% at 1kHz, 1/3 rated power
Input	MIC 1, 2: -60dB* (10mV), 600Ω, electronically balanced, screw terminal TEL: -10dB* (300mV), 10kΩ, transformer isolated balanced, screw terminal AUX 1, 2: -20dB* (100mV), 10kΩ, unbalanced, RCA pin jack
Output	Speaker out: Balanced (floating) High impedance: 21Ω (70V), 2.6Ω (25V) Low impedance: 4Ω (31V) Rec. out: 0dB* (1.0V), 600Ω, unbalanced, RCA pin jack
Phantom Power	+21V (MIC1, with ON/OFF switch)
S/N Ratio	Over 60dB
Tone Control	Bass: ±10dB at 100Hz Treble: ±10dB at 10kHz
Muting	MIC 1, MIC 2 and TEL overrides other input signals with -30dB attenuation. Sensitivity input level adjustable for MIC 1, MIC 2: 0 to -64dB, TEL: 0 to -23dB (MIC 1, MIC 2, TEL, same priority level)
Ventilation	Fan cooling
Indicators	Power, signal, peak
Finish	Panel: ABS resin, black Case: Steel plate, black
Dimensions	16.5” × 4.0” × 14.2” / 420 (W) × 100.9 (H) × 360.3 (D)mm
Weight	13.2kg / 29.10 lb

A-2240 Mixer Power Amplifier Connection Diagram



BG-200 Series PA Amplifiers

❖Mixer Amplifier

BG-220 20w

BG-235 35w

- Ideal for background music and paging applications
- 2-zone operation possible by using MOH/ZONE 2 output
- Tamper-proof bass and treble controls
- Security knobs for volume controls included
- Any of 3 inputs can be assigned to MOH/ZONE 2 output
- Line 2 and 3 outputs equipped with RCA jacks
- Line 2 and 3 inputs equipped with summing RCA jacks
- Automatic Mute threshold control
- Emergency mute function
- Removable terminal blocks and rear-mounted DIP switches for fast and easy installation/setup
- Thermal overload protection circuit with rear panel reset
- UL/cUL listed
- Optional rack and wall-mount kits: MB-25B-BK (2 RU) and MB-25B-J (two units, 2 RU)

*0dB = 1V

Specifications

		BG-220	BG-235
Power Source		120 V AC, 60 Hz	
Rated Output		20W	35W
Power Consumption		60 W (rated output), 36 W (based on cULus standards)	90 W (rated output), 55 W (based on cULus standards)
Total Harmonic Distortion		0.5% or less, at 1 kHz, rated output	
Frequency Response		50 Hz – 20k Hz	
Input		Mic.: –60 dB*/Line 1: –10 dB* Mic/Line 1 selectable, 600Ω, electronically balanced, removable terminal block Line 2, 3: –10 dB*, 10 kΩ, unbalanced, removable terminal block or RCA jack	
Output	Speaker	4 Ω, 25 V (31 Ω) and 70 V (245 Ω) balanced, removable terminal block	4 Ω, 25 V (18 Ω) and 70 V (140 Ω) balanced, removable terminal block
	MOH	0 dB*, 600 Ω, balanced, removable terminal block	
	Line	0 dB*, 600 Ω, unbalanced, removable terminal block	
Output Regulation		2 dB or less, no load to full load (1k Hz)	
S/N Ratio		Mic/Line 1: 60 dB or more/Line 2, 3: 80 dB or more (Band Pass: 20 Hz – 20 kHz, Tone Controls: Centered)	
Tone Control		Bass: ±10 dB at 100 Hz, Treble: ±10 dB at 10k Hz	
Control		Mic/Line 1 gain control, Line 2 gain control, Line 3 gain control, Bass tone control, Treble tone control, MOH out gain control, Mute control (Manual mute), Mute sense control, Auto mute switch (Mic/Line 1), Mic /Line 1 selector switch, Mute receive switch (Line 2, 3), MOH assign switch (Mic/Line 1, Line 2, 3), Power ON/OFF switch	
Indicator		Power LED, Signal level LED, Peak LED	
Operating Temperature		0°C to 40 °C (32°F to 104 °F)	
Operating Humidity		35 % to 80 % RH (no condensation)	
Finish		Panel: ABS resin, black/Case: Steel plate, black, paint	
Dimensions		210 (W) × 94.3 (H) × 265 (D)mm (8.27" × 3.71" × 10.43")	
Weight		3.5 kg (7.72 lb)	4 kg (8.82 lb)
Accessory		Volume control cover: YA-920 × 3, Removable terminal plug (2 pins) × 3, Removable terminal plug (3 pins) × 1, Removable terminal plug (4 pins) × 1,Removable terminal plug (5 pins) × 1	
Option		Rack mounting brackets: MB-25B-BK, MB-25B-J	

BA-200 Series PA Amplifiers

❖Power Amplifier

BA-235 35w

BA-260 60w

- Ideal for background music and paging applications
- Massive power supply for high-quality reliable sound
- Security knob for volume control included
- Remote master volume control possible by using an external volume control
- RCA line input jacks
- Bridge out
- Thermal overload protection circuit with rear panel reset
- UL/cUL listed
- Optional rack kits: MB-25B-BK (2 RU) and MB-25B-J (two units, 2 RU)

*0dB = 1V

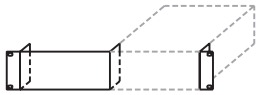
Specifications

		BA-235	BA-260
Power Source		120 V AC, 60 Hz	
Rated Output		35 W	60 W
Power Consumption		90 W (rated output), 52 W (based on cULus standards)	130 W (rated output), 66 W (based on cULus standards)
Frequency Response		50 Hz – 20k Hz	
Total Harmonic Distortion		0.5% or less, at 1 kHz, rated output	
Input		Line input: 0 dB*/+4 dB* (selectable), 10k Ω, unbalanced, removable terminal block or RCA jack	
Output	Speaker	4 Ω, 25 V (18Ω), 70 V (140Ω) balanced, removable terminal block	4 Ω, 25 V (10Ω), 70 V (83Ω) balanced, removable terminal block
	Bridge	Parallel in Line input, removable terminal block	
Output Regulation		2 dB or less, no load to full load (1k Hz)	
S/N Ratio		80 dB or more (Band Pass: 20 Hz – 20k Hz, Tone Controls: Centered)	
Tone Control		Bass: ±10 dB at 100 Hz, Treble: ±10 dB at 10k Hz	
Control		Master gain control, Bass tone control, Treble tone control, Input level selector switch, Remote Volume control, Power ON/OFF switch	
Indicator		Power LED, Signal level LED, Peak LED	
Operating Temperature		0°C to 35 °C (32°F to 95 °F)	
Finish		Panel: ABS resin, black; Case: Steel plate, black, paint	
Dimensions		210 (W) × 94.3 (H) × 265 (D)mm (8.27" × 3.71" × 10.43")	
Weight		4 kg (8.82 lb)	4.6 kg (10.14 lb)
Accessory		Volume control cover: YA-920 × 1, Removable terminal plug (2 pins) × 3, Removable terminal plug (4 pins) × 1	
Option		Rack mounting brackets: MB-25B-BK, MB-25B-J	

BA-200 Series PA Amplifiers Optional Accessories

❖Half Width Blank Panel

MB-25B-BK



❖Rack Joint Bracket

MB-25B-J

CA Series Mobile Mixer Amplifiers

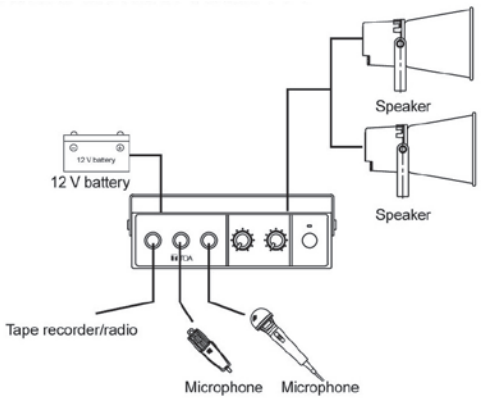
CA-115 15w
CA-130 30w
CA-160 60w

- Applications: Automobiles; Boats; Buses; Construction Vehicles; Emergency Vehicles; Law Enforcement Vehicles; Parade Floats; Theme Park Rides
- 12 VDC powered
- Two microphone inputs with volume controls
- Supports 4 or 8 ohm speaker loads
- Handheld microphone included - unidirectional, dynamic-type with talk switch, 6' cord and mounting hardware
- Auxiliary input for connecting other line level sources
- Mounting hardware included - mounts under dashboard or into standard DIN-size console cutout

Specifications

	CA-115	CA-130	CA-160
Power Source	Standard voltage : 14VDC Usable voltage : 10 – 16 VDC (12 V battery used)		
Power Consumption	2.2 A or less at rated output	4.4 A or less at rated output	9 A or less at 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	Less than 5 % (at 1,000 Hz rated output)		
Frequency Response	100 – 10,000 Hz		
Input	Mic 1, 2 : 600 Ω , 4 mV, Phone jack Aux : 10 kΩ, 500 mV, Phone jack		
Finish	Front panel : ABS resin, black Case : Zinc plated steel sheet		
Dimensions	178 (W) x 50 (H) x 132 (D) mm (Mounting device excluded)	178 (W) x 50 (H) x 144 (D) mm (Mounting device excluded)	178 (W) x 50 (H) x 170 (D) mm (Mounting device excluded)
Weight	900 g	1.1 kg	1.2 kg
Accessory	Microphone holder ... 1		
	Mounting bracket ... 1		
	Mounting screw ... 1		
	Fuse (4 A) ... 1	Fuse (8 A) ... 1	Fuse (12 A) ... 1
	Connection cord ... 1 set		
Accessory Microphone	Unidirectional dynamic type with talk switch Impedance : 600 Ω Sensitivity : – 53 dB (1 kHz, 0 dB = 1 V / Pa)		

CA Series Mobile Mixer Amplifier Connection Example



Module Selection Chart

		Removable Terminal Block	Female XLR	Male XLR	1/4" Phone Jack	RCA Jack	Dual RCA Jacks	5 Screw Terminals
Microphone Input Modules	Mic/Line Input w/Mute Send/Receive H/L Filters, Phantom	ML-11T						
	Standard with high/low cut filters, Phantom	M-01S T	M-01F	M-01M	M-01P			
	Mute-Receive with high/low cut filters, Phantom	M-11S T						
	Mute-Send with high/low cut filters, Phantom	M-41S						
	Voice Gate with low cut filter, Phantom	M-51S T	M-51F					
	Compressor with high/low cut filters, Phantom	M-61S T	M-61F					
	Remote Volume Control with high/low filters, Phantom							M-21S
	For high-Z mic. only with high/low cut filters				M-03P			
Line Input Modules*	Mic/Line Input w/Mute Send/Receive H/L Filters	ML-11T						
	Standard, no special feaures or adjustments	B-01S T L-01S T U-01S T	B-01F L-01F U-01F		 U-01P	 U-01R		
	Standard with high/low cut filters	U-03S T					U-03R	
	Standard with Mute-Receive U-11S T/R with Gain	B-11S T L-11S T U-11S T				 U-11R		
	Mute-Receive with high/low cut filters, Gain	U-13S					U-13R	
	Mute Receive with variable mute depth, Gain	U-12S T						
	Mute-Send	B-41S L-41S T						
	Mute-Send with high/low cut filters	U-43S					U-43R	
	Remote Volume Control with Gain							B-21S U-21S
	Compressor with Gain	U-61S T						
	Dual input priority with AGC and Gain						U-14R	
Special Function Modules	Line output with Gain	T-01S T						
	Line input with Gain, MOH output with Gain							T-02S
	Line input w/Gain & Mute-Receive, MOH output w/ Gain							T-12S
	1 kHz Sine Wave test tone with Gain	S-01S T						
	Buzzer/Yelp signal tone with Gain	S-02S T						
	Switch-selectable tones (4) with Gain	S-04S T						
	Noise Masking Module						NM-01	
	VoIP Phone Paging SIP supported (power supply A-1215P required)	SP-11NPS						
	Equalizer for F-122C/CU2 Speakers						E-03R	
	Equalizer for H-1 Speakers						E-04R	
	Equalizer for H-2/H-2WP Speakers						E-05R	
	Equalizer for H-3/H-3WP Speakers						E-06R	
	Low Pass Filter for FB-120/HB-1 Subwoofers	E-07S						
	Remote master volume control (VCA)	V-01S						

**For Line Input Modules:*

Use "B" modules or ML-11T for balanced/unbalanced sources. "B" modules are transformer decoupled.

Use "L" modules only for 600 ohm balanced/unbalanced impedance matching. "L" modules are transformer decoupled.

Use "U" for unbalanced sources with short cables (≤ 15 feet).

Note: All "S" type modules with 3-screw terminal connectors transitioned to Removable Terminal Block (Phoenix-type) in 2004. Models include: B-01S T, B-11S T, L-01S T, L-11S T, L-41S T, M-01S T, M-11S T, M-51S T, M-61S T, S-01S T, S-02S T, S-04S T, T-01S T, U-01S T, U-03S T, U-11S T, U-12S T, and U-61S T. Modules B-41S, M-41S, T-02S, T-12S, U-13S, and U-43S use Removable Terminal Block (Phoenix-type) connectors but are not marked with a "T". ***New Removable Terminal Block (Phoenix-type) connectors, part number 1233619290, have the following pin-out: H:Hot, C:Common, E:Earth equivalent to 3,2,1 respectively.***

Amplifier Selection Chart

Model Number	Power	Inputs				Outputs							Rack Ears
		Mic	Aux	Tel	Module	70V	25V	Record / Bridge / Line	Pre-amp	4 ohm	8 ohm	MOH	
A-5006	60W	2	--	--	--	Yes	--	--	--	Yes	--	--	Optional
A-5012	120W	2				Yes				Yes			Optional
MA-725F	250W x 4	2	--	--	--	Yes	--	Yes x 4	--	--	--	Yes	--
A-2240	240W	2	2	1	--	Yes	Yes	Yes	--	Yes	--	--	No
A-706	60W	6 (Mic or Line)	2	*1	1 (900 Series)	Yes	Yes	Yes	Yes	Yes	--	Optional Module	Optional MB-25-B
A-712	120W												
A-724	240W												
A-903MK2	30W	8 module slots / +2 slots *3			8 (900 Series)	Yes	Yes	Yes	Yes	Yes	Yes	Optional Module	Optional MB-25-B
A-906MK2	60W												
A-912MK2	120W												Optional MB-35-B
P-906MK2	60W	--	1	--	1 (900 Series)	Yes	Yes	--	--	Yes	Yes	Optional Module	Optional
P-912MK2	120W												
P-924MK2	240W												
W-906A	60W	6 module slots			6 (900 Series)	Yes	Yes	Yes	--	Yes	Yes	Optional Module	No
W-912A	120W												
AV-20D	20W x 2	--	3	--	--	--	--	--	--	Yes	Yes	--	Optional MB-AV20RM
AV-60S	60W x 1					Yes					--		
BA-235	35W	--	1	--	--	Yes	Yes	Yes	--	Yes	--	--	Optional MB-25B-BK x 1 MB-25B-J x 2
BA-260	60W												
BG-220	20W	1	2 (3)*2	--	--	Yes	Yes	Yes	--	Yes	--	Yes	Optional MB-25B-BK x 1 MB-25B-J x 2
BG-235	35W												
BG-2035	35W	1	2 (3)*2	1	1 (900 Series)	Yes	Yes	Yes	--	Yes	--	Yes	Optional MB-1000
BG-2060	60W												
BG-2120	120W												
BG-2240D	240W						--			--			
A-9060DHM2	60W x 2	Selectable 4 dual module slots	Selectable 4 dual module slots	--	8 (900 Series)	Yes	--	3 dual module slots	Yes	--	--	Yes	Yes Supplied
A-9120DHM2	120W x 2												
A-9060SM2	60W						Yes			Yes	Yes		
A-9120SM2	120W						Yes			Yes	Yes		
A-9240SHM2	240W						--			--	--		
P-9060DH	60W x 2	--	2	--	--	Yes	--	--	--	--	--	--	Yes Supplied
P-9120DH	120W x 2												
CA-115	15W	2	1	--	--	--	--	--	--	Yes	Yes	--	No
CA-130	30W												
CA-160	60W												
DA-250F	See DA power output chart below	--	4	--	--	--	--	--	--	Yes	Yes	--	Yes By Design
DA-250FH			4			Yes				--	--		
DA-250D			2			--				Yes	Yes		
DA-250DH			2			Yes				--	--		
DA-500F-HL			4			Yes				Yes	Yes		
DA-550F			4			--				Yes	Yes		

*1 Transformer-Isolation for Telephone Paging Applications (Input #1 is one of the 6 mic/line inputs); *2 Selectable; *3 With optional WE-2 expansion kit

DA Amplifier Power Output Chart	
Model	Power Output
DA-250D	2x 250W (4 ohms)
	2x 170W (8 ohms)
	1x 500W bridged (8 ohms)
DA-250DH	2x 250W (70V)
	1x 500W bridged (140V)
DA-250F	4x 250W (4 ohms)
	4x 170W (8 ohms)
	2x 500W bridged (8 ohms)

DA Amplifier Power Output Chart	
Model	Power Output
DA-250FH	4x 250W (70V)
	2x 500W bridged (140V)
DA-500F-HL	4x 500W (70V)
	2x 1000W bridged (140V)
	4x 550W (8 ohm)
	4x 100W (4 ohms)
	2x 1100W (16 ohms)
DA-550F	4x 550W (4 ohms)
	4x 350W (8 ohms)
	2x 1100W bridged (8 ohms)

Optional Accessories Chart

Power Amplifier
A-5006
A-5012

MB-15B-BK

MB-15B-J

YA-920

Mixer Power Amplifiers
A-706
A-712
A-724

MB-25B

IT-450

YA-920

8-Channel Mixer Amplifier (UL version)
A-903MK2
A-906MK2
A-912MK2

MB-25B

YA-920

Micro Amplifier
AV-20D
AV-60S

MB-AV20PM AM

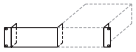
MB-AV20RM AM

MB-DM820 AM

MT-S0301

Power Amplifier
BA-235
BA-260

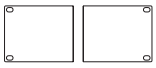
MB-25B-BK



MB-25B-J

BG-2000 Series Mixer/Amplifiers
BG-2035, BG-2060,
BG-2120, BG-2240D

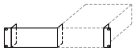
MB-1000



YA-920

Mixer Amplifier
BG-220
BG-235

MB-25B-BK



MB-25B-J

WB-900B

Digital Power Amplifiers
DA Series

MT-251

Matrix Mixer Amplifier
MA-725F

WP-700-AM

Power Amplifier (UL version)
P-906MK2
P-912MK2
P-924MK2

MB-25B

MB-35B

YA-902

In-Wall Amplifier (UL version)
W-906A
W-912A

BX-9F

BX-9S

WE-2

Digitally Steerable Self-Powered Column Array Speakers

Optimal Parameter Settings Produce Clear Sound

A total of 16 speakers (in up to four stacks) can be controlled as a single unit using TOA's intuitive software.

The software provides control of all functions, including mixing, digital signal processing, and simulations.

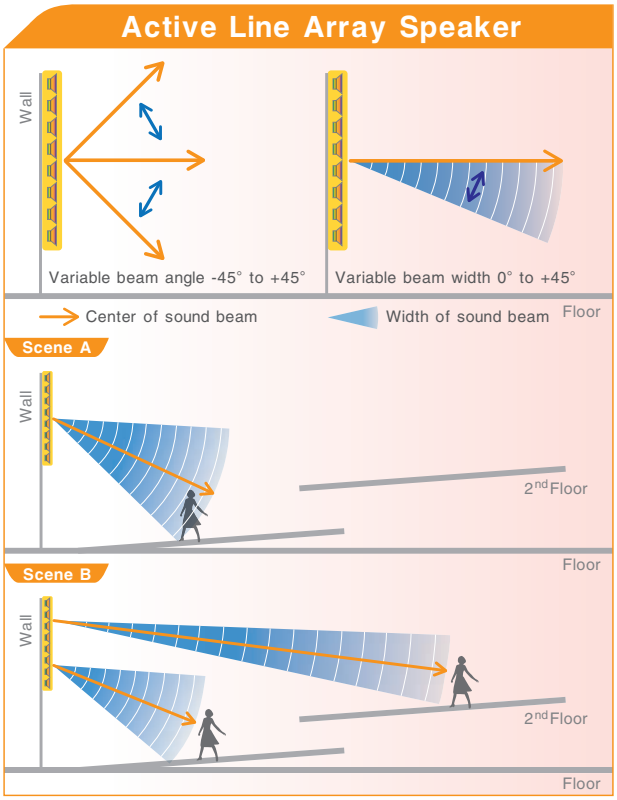
The control software enables instant simulations that—coupled with exceptionally high communication speeds—drastically reduce the time required for designing systems and tuning their acoustic performance. Users can immediately see and hear the results of changing the parameter settings.

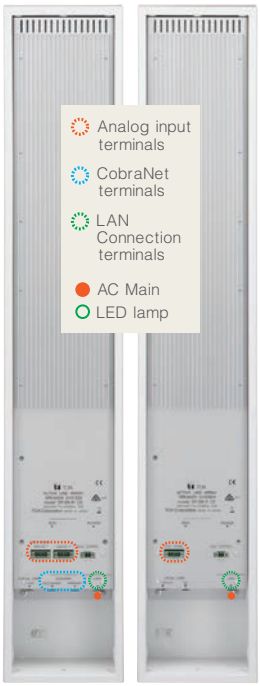
The SR-D8 comes with a full set of DSP functions, including gain, mute, compression, delay, auto-mixing, high/low pass filters, high/low shelving filters, and notch filters.

Each master is equipped with two analog audio input terminals and four CobraNet digital audio input terminals. The speaker supports 6 x 2 matrix mixing. Using the Auto-mix function—which can be set for each input—allows users to prioritize selected inputs for broadcasting.

Users can switch from one preset to another, either directly, using the GUI interface, or remotely, using a web browser and the control unit's Ethernet connection.

Amplifier modules are constantly monitored for excess temperature and current.





SR-D8-M SR-D8-S

Main screen of the GUI control software

HX-7 Variable Dispersion Loudspeakers

Meets the need for powerful audio.

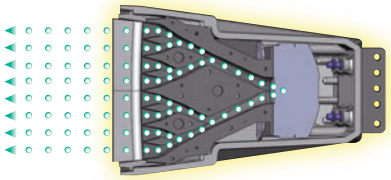
- Power handling: 750W Continuous Program@8 ohms
- Sensitivity (1W,1m): 100 dB

- 2 × 5.5" LF speakers.
- Waveguide loaded 1" HF compression driver.

- Design consists of four integrated speaker "cells" that can be adjusted to optimize the vertical dispersion angle.

Increases coverage and enhances intelligibility.

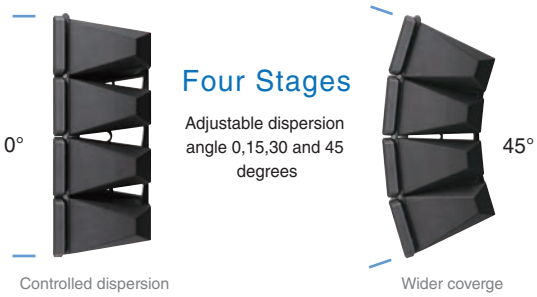
- Built-in isophasic wavefront control horn ensures precise HF control and superior reproduction of HF sounds.



High frequencies compression driver.

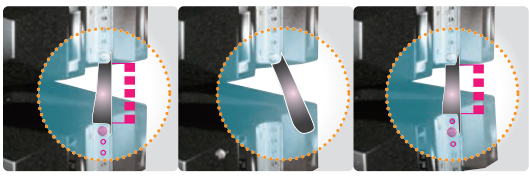
- Newly added 0° mode facilitates the most effective line array set-up.

*60°mode is also available with optional HY-60D brackets.



Offers ease of installation.

- Easily adjustable vertical dispersion angle.



0° mode ▶ 15° mode

Multi unit configuration.

- 2-4 HX-7s may be combined to form longer arrays (wall mount not availble for this application)

Performance HX-7 Series

See page 97 for specifications.

HX-7B/HX-7B-WP

HX-7W/HX-7W-WP

* "-WP" is weather-proof type.

FB-150B

FB-150W

Compact HX-5 Series

See page 96 for specifications.

HX-5B/HX-5B-WP

HX-5W/HX-5W-WP

FB-120B

FB-120W

Interior Design Ceiling Speakers

- Sleek, stylish appearance blends well with modern architecture for background/foreground music and paging systems
- Minimum reflection design reduces sound wave reflections typical of conventional bracket-mounted “box” type speakers
- Two-way, sealed enclosure
- Weather-resistant versions (H-2WP/H-3WP)
- Wide coverage area:
  - (H-1) 120°H x 100°V
  - (H-2/H-2WP) 100°H x 60°V
  - (H-3/H-3WP) 140°H x 70°V
- Loudspeaker components rotate internally to allow flexible aiming (H-1/H-2/H-2WP)
- Built-in passive crossover with optimized filter slopes
- Paintable grille
- Fire-resistant ABS resin enclosure (H-1/ H-2)

❖2-Way Flush Mount Speaker System
H-1

❖2-Way Surface Mount Speaker System
H-2
H-2WP

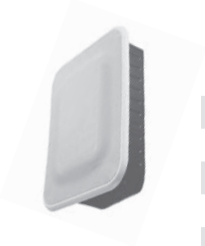
❖2-Way Wall Mount Speaker System
H-3
H-3WP

Specifications

	H-1	H-2	H-2WP	H-3	H-3WP
Power Handling Capacity	90W (continuous program)	120W (continuous program)		150W (continuous program)	
Rated Input (100V line)	12W (16Ω)	12W (16Ω)		30W (16Ω)	
Rated Impedance	4Ω or 16Ω/100V line: 830Ω (12W), 1.7kΩ (6W), 3.3kΩ (3W) 70V line: 420Ω (12W), 830Ω (6W), 1.7kΩ (3W), 3.3kΩ			4Ω or 16Ω/100V line: 330Ω (30W), 670Ω (15W), 1.3kΩ (7.5W) 70V line: 170Ω (30W), 330Ω (15W), 670Ω (7.5W), 1.3kΩ (3.75W)	
Sensitivity (1W, 1m)	85 dB	88dB		89dB	
Frequency Response	120Hz – 20kHz	100Hz – 20kHz			
Speaker Component	Low: 8 x 5cm cone-type, High: Balanced dome-type	Low: 10cm cone-type, High: Balanced dome-type		Low: 10cm cone-type x 2, High: 2.5cm dome-type (neodymium magnet)	
Finish	Adapter frame: Stainless steel/ Cover: Fire-resistant ABS resin, white/Punched net: Steel plate, white paint	Frame: Fire-resistant ABS resin, white/ Base frame: Steel plate/ Punched net: Steel plate, white paint		Enclosure: Fire-resistant ABS resin, black/ Frame: Fire-resistant ABS resin, off-white Punched net: Stainless plate, off-white, paint/ Base Frame: Steel plate, plating	Enclosure: Fire-resistant ABS resin, black/ Frame: Fire-resistant ABS resin, off-white/ Punched net: Steel plate (zinc plating),off-white, powder coating/ Base Frame: Stainless steel
Dimensions	312 (W) x 126 (H) x 90(D) mm (12.3” x 5” x 3.5”)	268 x 111 (H) mm (10.5” x 4.4”)		295 (W) x 318 (H) x 129 (D) mm (11.6” x 12.5” x 5.1”)	
Weight	1.5kg (3.3 lbs)	2.1kg (4.6 lbs)		3.3kg (7.3 lbs)	
Dust/Water Protection	--	--	IPX4	--	IPX4

❖Wall/Ceiling Mount Subwoofer System
HB-1

- High-power 8” woofer with 110mm ferrite magnet and aluminum bobbin
- Bandpass filter construction
- Thin-wall metal frame, with large interior volume for excellent low-frequency audio response, plus efficient heat dispersion
- Installs between standard studs on 16 inch centers
- Specially engineered brackets allow simplified “blind” flush mounting in wall or ceiling



Specifications

	HB-1
Power Handling Capacity	240W (continuous program)
Rated Impedance	8Ω
Sensitivity (1W, 1m)	91dB
Frequency Response	45 – 200Hz
Speaker Component	20cm cone speaker
Finish	Enclosure; Steel plat, black paint Front Frame; Fire-resistant ABS resin, off-white, paint Punched net; Steel plate, off-white, paint
Dimensions	430 (W) x 544 (H) x 135 (D) mm (16.9” x 21.4” x 5.3”)
Weight	11kg (24.3 lbs)

Interior Design Ceiling Speakers Optional Accessories

❖900 Series Equalization Modules
E-04R (H-1)
E-05R (H-2/H-2WP)
E-06R (H-3/H-3WP)
E-07S (HB-1)

Refer to page 106 for more information.

❖Adapter Frame
HY-H1

❖Matching Transformer
MT-S0601

- Rated Input Power: 60 W

Pendant/Projection Speakers

❖Pendant Speaker

PE-304
Q-PE-304BK
PE-64

- Stylish and outstanding design inspired by the finest lighting fixtures
- Sturdy cable extendable up to 5 meters
- Paintable
- Input impedance easily changeable
- Ideally suited for BGM and announcements
- Q-PE-304BK Black version

❖Projection Speaker

PJ-304

- Stylish and outstanding design inspired by the finest lighting fixtures
- Flexible speaker direction adjustment with accessory brackets
- Paintable
- Input impedance easily changeable
- Ideally suited for BGM and announcements

Specifications

	PE-304/Q-PE-304BK	PE-64	PJ-304
Rated Input (100V line)	30W	6W (100V line), 3W (70V line)	30W
Rated Impedance	100 line: 330Ω (30W), 500Ω (20W), 670Ω (15W), 1kΩ (10W), 2kΩ (5W) 70V line: 170Ω (30W), 250Ω (20W), 330Ω (15W), 500Ω (10W), 1kΩ (5W)	100 line: 1.7kΩ (6W), 3.3kΩ (3W), 10kΩ (1W) 70V line: 1.7kΩ (3W), 3.3kΩ (1.5W), 10Ω (0.5W)	100 line: 330Ω (30W),500Ω (20W), 670Ω (15W), 1kΩ (10W), 2kΩ (5W) 70V line: 170Ω (30W), 250Ω (20W), 330Ω (15W), 500Ω (10W, 1kΩ (5W)
Sensitivity (1W, 1m)	91 dB	90 dB	91 dB
Frequency Response	70 – 20,000 Hz	100 - 18,000 Hz (peak -20dB)	70 – 20,000 Hz
Speaker Component	12cm cone-type + balanced dome tweeter	12cm (5") cone-type	12cm cone-type + balanced dome tweeter
Finish	Enclosure: HIPS resin, off-white / Grille: Surface-treated steel plate net, off-white		
Dimensions	186 x 251(H) mm (unit only) (7.3" x 9.9")		186 x 369 (H) mm (7.3" x 14.5")
Weight	2.1kg (4.6 lbs)	1.5kg (3.31lbs) (unit only)	2.1kg (4.6 lbs)

❖Pendant Speaker (UL1480UUMW rated)

PE-304BU
PE-304WU
PE-604BU
PE-604WU

- Directly attached 5m (16.4ft) hanging wire allows speaker to be suspended from high ceilings
- Driven on both high impedance (100V, 70V, and 25V) and low impedance (8Ω) lines
- Certified to UL 1480 UUMW (life safety) standards
- Using supplied GRIPPLE® hangers will failitate the speaker mounting height adjustment

Specifications

	PE-304BU	PE-304WU	PE-604BU	PE-604WU
Enclosure	Bass-reflex type			
Rated Input	30 W (100 V, 70 V line, 8 Ω), 3.7 W (25 V line)		60 W (100 V, 70 V line, 8 Ω), 7.5 W (25 V line)	
Rated Impedance	100 V line: 330 Ω (30 W), 1 kΩ (10 W), 3.3 kΩ (3 W), 10 kΩ (1.3 W) 70 V line: 170 Ω (30 W), 330 Ω (15 W), 1 kΩ (5 W), 3.3 kΩ (1.5 W), 10 kΩ (0.6 W) 25 V line: 170 Ω (3.7 W), 330 Ω (1.9 W), 1 kΩ (0.6 W), 3.3 kΩ (0.2 W), 10 kΩ (0.1 W) Low impedance: 8 Ω		100 V line: 170 Ω (60 W), 330 Ω (30 W), 670 Ω (15 W), 3.3 kΩ (3 W) 70 V line: 83 Ω (60 W), 170 Ω (30 W), 330 Ω (15 W), 670 Ω (7.5 Wl), 3.3 kΩ (1.5 W) 25 V line: 83 Ω (7.5 W), 170 Ω (3. 7 W), 330 Ω (1.9 W), 670 Ω (0.9 W), 3.3 kΩ (0.2 W) Low impedance: 8 Ω	
Sensitivity	90 dB (1 W, 1 ml 330 Hz - 3.3 kHz, pink noise)			
Frequency Response	95 Hz - 20 kHz (-10 dB)		110 Hz - 20 kHz (-10 dB)	
Speaker Component	12 cm (5") cone-type + balanced dome-tweeter (coaxial)			
UL Code	UL 1480 UUMW, ULC-S541			
Operating Temperature	-10°C to +50°C (14°F to 122°F)			
Finish	Enclosure: ABS resin, black, Grille: Surface-treated steel plate mesh, black, paint	Enclosure: ABS resin, white (RAL 9010 equivalent) Grille: Surface-treated steel plate mesh, white (RAL 9010 equivalent), paint	Enclosure: ABS resin, black, Grille: Surface-treated steel plate mesh, black, paint	Enclosure: ABS resin, white (RAL 9010 equivalent) Grille: Surface-treated steel plate mesh, white (RAL 9010 equivalent!, paint
Dimensions	186 x 275 (H) mm / 7.32" x 10.83" (unit only)			
Weight	2 kg / 4.41 lb (unit only)		2.9 kg / 6.39 lb (unit only)	
Included Accessories	GRIPPLE® No.1 x 1, GRIPPLE® No.2 x 1, Release key (for GRIPPLE®) x 1, Safety wire (1.5 mm (0.06")) x 1, Hanging wire (2 mm (0.08")) x 1, Speaker Cable (4-core FPL listed cable 4.6 m (15.09 ft)) x 1 * GRIPPLE® No.1 and No.2 are hangers for suspending the speaker.			

* GRIPPLE® is a registered trademark of Gripple Limited, England.

F Series Wide-Dispersion Ceiling Speakers

- Expanded listening coverage area through extra-wide dispersion characteristics
- Minimal high frequency roll off allows clear and well-balanced sound reproduction over a wide listening area
- Designed to blend into ceilings with a smooth, low-profile design
- Extra ease of use and higher cost-effectiveness with metal “back can” enclosure for speaker back. (F-122C, F-2352C,F-2852C, F-2322C models)

F-122C
F-122CU2

- Equalizing controlled type full range speaker for medium ceiling height (2 to 4 m)
- Cost effective if many speakers are installed
- Heat-resistant back can
- Optimized for use with optional digital processors
- Diffuser for wide dispersion of high frequencies
- Is UL 1480UUMW rated
- CU2 is UL 2043 plenum rated

F-2852C
F-2852CU2

- 2-way speaker for high power (60W) applications e.g. for high ceilings (3 to 6 m)
- Diffuser for wide dispersion of high frequencies
- Metal back can
- CU2 is UL 2043 plenum rated

F-2322C
F-2322CU2

- Full range speaker for medium ceiling height (2 to 4 m)
- Metal back can
- CU2 is UL 2043 plenum rated

F-2352C
F-2352CU2

- 2-way speaker for medium ceiling height (2 to 4 m)
- Diffuser for wide dispersion of high frequencies
- Metal back can
- CU2 is UL 2043 plenum rated

F-2352SC

- 2-way wide range speaker with diffuser for low power applications and medium ceilingheight (2 to 4m)
- Easy installation
- Diffuser for wide dispersion of high frequencies
- For use in ceilings with minimal depth

F-1522SC

- Cost-effective compact full range speaker for medium ceiling height (2 to 4 m)
- Only 117 mm mounting depth
- Flat front panel

Note: CU2 version comes with 2 speakers in a box and 2 tile bridges.

Specifications

	F-2852C/CU2	F-2322C/CU2	F-2352C/CU2	F-122C/CU2	F-2352SC	F-1522SC
Rated Input (100V line)	60W	30W			6W	
Rated Impedance	70V line: 83Ω (60W), 170Ω (30W), 330Ω (15W), 670Ω (7.5W), 3.3kΩ (1.5W) 25V line: 83Ω (7.5W), 170Ω (3.7W), 330Ω (1.9W), 670Ω (0.9W), 3.3kΩ (0.2W) Low (adjustable): 16Ω, 8Ω					
Sensitivity (1W, 1m)	91dB	90dB			89dB	88dB
Frequency Response	80 – 20,000 Hz	70 – 20,000 Hz		40 – 20,000 Hz	80 – 20,000 Hz	65 – 18,000 Hz
Mounting Hole Diameter	250 mm	200mm				ø135mm
Speaker Component	Low: 16cm cone-type, High: Dome-type	12cm cone-type	Low: 12cm cone-type, High: Balanced dome-type	12cm cone-type	Low: 12cm cone-type, High: Balanced dome-type	10cm 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				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	280 x 236(D) mm (11” x 9.29”)	230 x 209 (D) mm (9.1” x 8.23”)	230 x 238(D) mm (9.06” x 9.37”)		230 x 154(D) mm (9.1” x 6.1”)	155 x 117(D) mm (6.1” X 4.6”)
Weight	5.8kg (12.79 lbs)	4.3kg (9.48 lbs)			1.5kg (3.3 lbs)	1kg (2.2 lbs)

F Series Wide-Dispersion Ceiling Speakers Optional Accessories

❖Equalization for F-122C
E-03R (900 Series module)

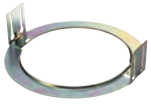
❖Drywall Rough-in Kit
F-DRYWALLKIT

❖Back Can
HY-BC1

❖Black Replacement Grill
Q-F122GRBK

❖Reinforcement Ring
HY-RR1

❖Reinforcement Ring
HY-RR2



❖Tile Rails
HY-TB1

❖Trim Ring
HY-TR1

Refer to page 106 for more information.

Ceiling Mount Speakers

PC-580RU
PC-580RVU

- High quality 8" in-ceiling speaker
- 25V & 70V transformer taps up to 5W
- Fits standard ceiling speaker template (PC-671R & others) perfect for retrofits
- Unique "monocoque" design provides better structural integrity
- High-performance, cost effective ceiling speaker for use in mass notification systems, voice evacuation, emergency paging and everyday paging and background music
- Meets UL 2572 (UL 1480 UUMW) (Fire alarm signaling) and UL 2043 (use in air handling spaces) when using the HY-BC580U back can

Specifications

	PC-580RU	PC-580RVU
Rated Input (100V line)	10W (speaker), 5 W (transformer, 70.7 V line and 25 V line)	
Rated Impedance	70.7V line: 20K (0.25W), 10K, (0.5W), 5K (1W), 2.5K (2W), 1K (5W) Ω 25V line: 2.5K (0.25W), 1.25K (0.5W), 625 (1W), 312.5 (2W), 125 (5W) Ω	
Sensitivity (1W, 1m)	97 dB	
Frequency Response	50 - 16.5 kHz	
Speaker Component	200mm (8") dual cone type	
Finish	Baffle: Steel plate, white Grille: Surface-treated steel plate net, white	
Dimensions	Dia. 324 x 87.3 (d) mm (12.8" x 3.4")	Dia. 324 x 87.3 (d) mm (12.8" x 3.4)
Weight	1.50 kg (3.31 lbs)	1.52 kg (3.35 lbs)
UL Standards	UL 2572 (ULC S541, UL 1480 UUMW) and UL 2043 when used with HY-BC580U	
Optional Accessories	Back can (required for UL/ULC certified installation): HY-BC580U Tile rail, Q-HY-TB2; Tile bridge, LBS8-R1	

Ceiling Mount Speaker Optional Accessories

❖Back Box
HY-BC580U

❖Tile Rail
Q-HY-TB2

❖Tile Bridge
LBS8-R1

Special-Use Ceiling Speakers

❖Splashproof Ceiling Speaker
PC-3CL

- Clean room / shower room speaker
- For humid or high temperature areas
- IP64 certified weatherproof construction
- Resistant against formalin and iodine solutions
- Wide temperature range of -4°F to 140°F
- Fits in 100 mm/3.9" holes

❖Clean Room Ceiling Speaker
PC-5CL

- Sealed high-molecular speaker membrane to prevent floating dust particles from contaminating the environment
- Resistant against formalin
- Wide temperature range -4°F to 131°F
- Fits in 98mm/3.8" holes

Specifications

	PC-3CL	PC-5CL
Rated Input (100V line)	3W	5W
Rated Impedance	100V line: 3.3kΩ/3W, 10kΩ/1W 70V line: 3.3kΩ/1.5W, 10kΩ/0.5W	100V line: 2 kΩ(5W) 70V line: 2 kΩ(2.5W)
Sensitivity (1W, 1m)	87 dB	
Frequency Response	150 – 20k Hz	
Mounting Hole Diameter	100 mm/3.9"	98 mm/3.8"
Speaker Component	8 cm cone-type	
Finish	Frame: Alloy-coated ABS resin/Grille: Stainless steel punching net	Panel: Alloy-coated ABS resin/Enclosure: ABS resin, off-white/ Punching net: Stainless steel/Exposed fixing screw: Stainless steel
Dimensions	139 x 104.5 (D)mm / 5.5" x 4.1"	116 x 110 (D) mm / 4.6" x 4.3"
Weight	550g/1.2lbs	620 g/1.4 lbs
Operating Temperature	20°C to 60°C / 68°F to 140°F	-20°C to +55°C / -4°F to 131°F

Spring Loaded Ceiling Speakers

PC-648R

- Spring clamp mechanism for easy speaker mounting to the ceiling
- High cost performance
- PP Resin, SECC punching net

PC-1869

- Spring clamp mechanism for easy mounting to the ceiling
- Input impedance easily changed by adjusting the tap position of the transformer
- Push-in type input terminal block
- Allows bridge wiring

PC-2369

- Speaker designs that harmonize with the venue's architecture and decor
- Quick and easy installation thanks to new SUS spring clamp installation method
- Wide frequency response
- Greater variety of ceiling speaker diameters (5", 6", 8" (12, 16, 20cm))
- Thin panel does not clash with interior design

Specifications

	PC-648R	PC-1869	PC-2369
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, 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: 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	90 dB (1 W, 1 m) (500 Hz - 5 kHz, pink noise)		93 dB (1 W, 1 m) (500 Hz - 5 kHz, pink noise)
Frequency Response	100 - 18 kHz (peak -20 dB)	55 Hz - 18 kHz (peak -20 dB)	45 Hz - 20 kHz (-20 dB)
Speaker Component	12 cm (5") cone-type		16 cm (6") double cone-type
Dimensions for Fixing Hole	Mounting hole: 145±5 mm (5.71"±0.2") Ceiling thickness: 5 - 25 mm m2" - 0.98")	Mounting hole: 150±3 mm (5.91"±0.12") Ceiling thickness: 5 - 25 mm rn.2" - 0.98")	Mounting hole: 200±3 mm (7.87"±0.12") Ceiling thickness: 5 - 25 mm (0.2" - 0.98")
Speaker Mounting Method	Spring clamp		
Applicable Cable	-	600 V vinyl-insulated cable (IV wire or HIV wire) Solid copper wire: 0.8 - 1.6 mm (equivalent to AWG 20 - 14) 7-core twisted copper wire: 0.75 - 1.25 mm² (equivalent to AWG 18 - 16)	Solid copper wire: 0.8 - 1.6 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: Polypropylene resin, off-white (RAL 9010 or equivalent color) Grille: Surface-treated steel plate net, off-white (RAL 9010 or equivalent color), paint	Baffle: Steel plate, white (RAL 9016 equivalent), paint Grille: Surface-treated steel plate net, white (RAL 9016 equivalent), paint	
Dimensions	168 X 77 (D) mm (6.61" X 3.03")	180 X 72 (D) mm (7.09"" X 2.83"")	230 X 79 (D) mm (9.06" X 3.11")
Weight	470 g (1.04 lb)	620 g (1.37 lb)	760 g (1.68 lb)
Accessory	Paper pattern x 1		

Garden Speaker

GS-302

- Compact Garden Speaker ideal for paging and background music broadcast in gardens, theme parks and resort facilities
- Corrosion resistant exterior, ensures long life
- Small an inconspicious blends in with surrounding envrionment

Specifications

	GS-302
Enclosure	Sealed type
Rated Input	30W (100V line), 15W (70V line)
Rated Impedance	100V line: 330Ω (30W), 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	87dB (1W, 1m)
Frequency Response	100 – 8,000Hz
Speaker Component	12cm splash-proof cone-type
Input Terminal	Push-in terminal
Applicable Cable	Solid copper wire: 0.8 – 1.6mm Stranded copper wire: 0.75 – 1.25mm²
Water Capability	Meets IPX4 requirements
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	270 × 335 (H)mm / 10.6" x 13.2"
Weight	2.4kg/5.3"

Wide Range Horn Speakers

CS-64
CS-64U*

- Wide-range paging speaker for paging, background music and tone signaling distribution
- Exponential horn improves directivity characteristics and ensure uniform and clear sound dispersion
- Weatherproof polyurethane resin paint and impact-proof lightweight ABS resin enclosure
- Stainless steel hardware protects the speaker from corrosion
- *UL 1480 UEAY listed

CS-154/CS-154U*
CS-304/CS-304U*

- Wide-range speaker for paging, background music and tone signaling distribution
- Constant directivity horn improves directivity characteristics and ensure uniform and clear sound dispersion
- High sensitivity: up to 98 dB (1W/1m)IP65 certified weatherproof construction
- Weatherproof polyurethane resin paint and impact-proof lightweight ABS resin enclosure
- Stainless steel hardware protects the speaker from corrosion
- *UL 1480 UEAY listed

Specifications

	CS-64	CS-154	CS-304
Rated Input (100V line)	6W	15W	30W
Rated Impedance	100V line: 1.7kΩ, 3.3kΩ, 10kΩ 70V line: 830Ω, 1.7kΩ, 3.3kΩ, 10kΩ	100V line: 670Ω, 1kΩ, 2kΩ 70V line: 330Ω, 670Ω, 1kΩ, 2kΩ	100V line: 330Ω, 500Ω, 1kΩ 70V line: 170Ω, 330Ω, 500Ω, 1kΩ
Sensitivity (1W, 1m)	96 dB	97 dB	98 dB
Frequency Response	130 – 13.000 Hz	150 – 15.000 Hz	120 – 15.000 Hz
Speaker Component	12cm cone-type (Treated for splash proof)	12cm cone-type	
Finish	Horn, cover: ABS resin, off-white, paint; Bracket: Stainless steel Punched net: Surface treated steel plate, dark-gray, powder coating	Horn, cover: ABS resin, off-white, paint Bracket: Stainless steel/Net: Aluminium, gray	
Dimensions	233 (W) x 224 (H) x 208 (D) mm 9.2 (W) x 8.8 (H) x 8.2 (D) in	366 (W) x 230 (H) x 272 (D) mm 14.4 (W) x 9.1 (H) x 10.7 (D) in	
Weight	1.5kg (3.3lbs)	2.8kg (6.2lbs)	3.1kg (6.8lbs)
Dust/Water Protection	Equivalent to IPX4	IP65	

Paging Horn Speakers

SC-610
SC-610T

SC-615
SC-615T

SC-630
SC-630TU*

SC-651

- Both high-impedance (70V/100V lines) models and low impedance (8Ω & 16Ω) models available
- Stainless steel brackets and hardware (screws, bolts), and powder-coated horn ensure superb weatherproofing and corrosion-resistance
- Shock-resistant aluminum oval horn
- IP65 certified weatherproof construction
- *UL 1480 UUMW version

Specifications

	SC-610	SC-610T	SC-615	SC-615T	SC-630	SC-630TU*	SC-651
Rated Input (100V line)	10W		15W		30W (8Ω)	30W	50W
Rated Impedance	8Ω	70V line: 500Ω, 1kΩ, 2kΩ, 3.3kΩ, 10kΩ	8Ω	70V line: 330Ω, 670Ω, 1kΩ, 2kΩ, 3.3kΩ	8Ω	70V line: 170Ω, 330Ω, 670Ω, 1kΩ, 2kΩ	16Ω
Sensitivity (1W, 1m)	110 dB		112 dB		113 dB		109 dB
Frequency Response	315 – 12,500 Hz		280 – 12,500 Hz		250 – 10.000 Hz		250 – 6,000 Hz
Finish	Horn flare: Aluminum, off-white, powder coating/Reflector horn: ABS resin, off-white/Bracket holder: Aluminum, gray, powder coating/Bracket: Stainless steel						
Dimensions	172 (W) x 161 (H) x 188 (D) mm 6.8 (W) x 6.3 (H) x 7.4 (D) in		222 (W) x 179 (H) x 234 (D) mm 8.8 (W) x 7 (H) x 9.2 (D) in		285 (W) x 227 (H) x 277 (D) mm 11.2 (W) x 8.9 (H) x 10.9 (D) in		430 (W) x 297.5 (H) x 327 (D) mm (16.9 (W) x 11.7 (H) x 12.9 (D) in)
Weight	1kg (2.2lbs)	1.2kg (2.6lbs)	1.1kg (2.4lbs)	1.3kg (2.9lbs)	1.7kg (3.7lbs)	2kg (4.4lbs)	3.4kg (7.5lbs)
Dust/Water Protection	IP65						
Operating Temperature	-20°C to +55°C						

Horn Speakers Optional Accessories

❖Pole Mount Bracket
SP-131

❖Swivel Mount Bracket
YS-151S

❖Pole Band
YS-60B

❖Wall and Pole Mount Bracket
SP-201

Powered Horn Speaker

The Q-SC-P620 is a highly intelligible and compact horn speaker with a built-in 20W digital power amplifier, that provides public address announcement and remote paging for network video surveillance applications. This powered horn speaker can operate at extreme temperature. It comes with powder-coated finish and stainless steel screws to ensure its weatherproof capability. Ideal choice for indoor and outdoor applications in train stations, airports and many more.

Q-SC-P620

- Integrated 20W power amplifier which utilises latest Class D technology
- Switchable Gain: 8dB, 16dB, 24dB & 32dB
- Internal volume control to allow on-site tuning
- Integration to CCTV systems possible with the majority of IP CCTV systems equipped with an audio line output
- Weatherproof to IP65 rating

*0dB = 1 V

Specifications

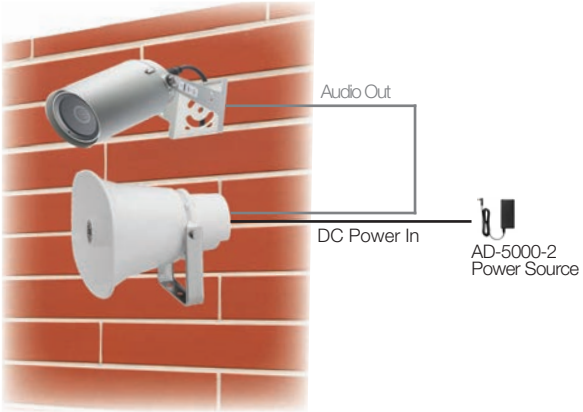
	Q-SC-P620
Power Source	12V DC, 2A (DC Socket "+" Type A: 5.5 x 2.1mm)
Power Consumption	15W (1.25A) at Rated output 25W (2.10A) at Maximum output
Input	0 dB*, 10kΩ, Unbalanced (RCA plug)
Signal Gain	8, 16, 24, 32dB (Factory pre-set to 16dB)
Volume Adjustment	Internal volume control (Factory pre-set to max. position)
Sound Pressure Level	113dB (1W, 1m at 500Hz to 2.5kHz peak level) Max. SPL (above 120dB)
Frequency Response	250 - 10,000 Hz
Operating Temperature	-20°C to +55°C / -4°F to 131°F (must be free from dew condensation)
Dust/Water Protection	IP 65
Finish	Horn Flare: HIPS resin, white (RAL 9010 equivalent) Reflector Horn & Case: ABS resin, white (RAL 9010 equivalent) Bracket, Screws & Bolts: Stainless Steel
Cable Cord	Length: 2m Flying Lead (RCA plug) & DC socket ("+")
Dimensions	292 (W) x 230 (H) x 280 (D) mm / 11.5" x 9" x 11"
Weight	Approx. 1.8kg/4lbs
Option	AD-5000-2 AC Adapter

Powered Horn Speaker Accessory

❖AC Adapter

AD-5000-2

Powered Horn Speaker Network Camera Configuration



F Series Surface Mount Speakers

- Compact box speaker for music and voice paging distribution
- Octagonal horn design for smooth coverage
- Adjustable high frequency dispersion (F-2000 models)
- Extruded cabinet design improves low frequency performance
- Splashproof design in compliance with IPX4, available on models "BTWP/WTWP"
- Great variety of brackets available
- Paintable enclosure and front grille

F-1000BT
F-1000BTWP
F-1000WT
F-1000WTWP

- LF Driver: 4" cone woofer
- HF Driver: balanced dome tweeter
- Dispersion: 90°H x 90°V
- Optional rust-proof aluminum grill

F-1300BT
F-1300BTWP
F-1300WT
F-1300WTWP

- LF Driver: 5" cone woofer
- HF Driver: 1" dome tweeter
- Dispersion: 110°H x 100°V
- Optional rust-proof aluminum grill

F-2000BT
F-2000BTWP
F-2000WT
F-2000WTWP

- LF Driver: 8" cone woofer
- HF Driver: 1" hard-dome dome tweeter
- Dispersion (adjustable): 110°H x 100°V; 80°H x 80°V (with supplied throat adapter)

Specifications

	F-1000BT F-1000WT	F-1000BTWP F-1000WTWP	F-1300BT F-1300WT	F-1300BTWP F-1300WTWP	F-2000BT F-2000WT	F-2000BTWP F-2000WTWP
Rated Input (100V line)	15W		30W		60W	
Rated Impedance	8Ω/100V line: 670Ω (15W), 2kΩ (5W), 3,3kΩ (3W), 10kΩ (1W) 70V line: 330Ω (15W), 670Ω (7.5W), 2kΩ (2.5W), 3.3kΩ (1.5W), 10kΩ (0.5W)		8Ω/100V line: 330Ω (30W), 1kΩ (10W), 3.3kΩ (3W), 10kΩ (1W) 70V line: 170Ω (30W), 330Ω (15W), 1kΩ (5W), 3.3kΩ (1.5W), 10kΩ (0.5W)		8Ω/100V line: 170Ω (60W), 330Ω (30W), 670Ω (15W), 3.3kΩ (3W) 8Ω/70V line: 83Ω (60W), 170Ω (30W), 330Ω (15W), 670Ω (7.5W), 3.3kΩ (1.5W)	
Sensitivity (1W, 1m)	87 dB		90dB		92dB	
Frequency Response	85 – 20,000 Hz		80 – 20,000 Hz		65 – 20,000 Hz	
Speaker Component	Low: 10cm cone-type, High: Balanced dome tweeter		Low: 13cm cone-type, High: 2.5cm dome tweeter		Low: 20cm cone-type, High: 2.5cm dome tweeter	
Finish	Enclosure: HIPS resin, black or white Punched net: Surface-treated steel plate, black or white, paint		Enclosure: HIPS resin, black or white Punched net: Surface-treated steel plate, black or white, paint		Enclosure: HIPS resin, black or white Punched net: Surface-treated steel plate, black or white, paint	
Dimensions	130 (W) x 202 (H) x 131(D) mm / 5.1" x 8" x 5.2"		162 (W) x 250 (H) x 161(D) mm / 6.4" x 9.8" x 6.3"		244 (W) x 373 (H) x 235(D) mm / 9.6" x 14.7" x 9.3"	
Weight	1.8kg / 4 lbs	2kg / 4.4 lbs	3.6kg / 7.9 lbs		7.4kg / 16.3 lbs	
Dust/Water Protection	--	IPX4	--	IPX4	--	IPX4

F Series Wide-Disperson Speakers Optional Accessories

❖Cluster Bracket
HY-CL10B*

❖Ceiling Mounting Bracket
HY-CM10B*

❖Ceiling Mounting Bracket
HY-CM10W*

❖Board Hanger Bracket
HY-BH10B*

❖Cluster Bracket
HY-CL20B*

❖Ceiling Mounting Bracket
HY-CM20B*

❖Ceiling Mounting Bracket
HY-CM20W*

❖Pole Mounting Bracket
SP-131

❖Pole Mounting Bracket
YS-60B

❖Rust-Proof Aluminum Grill
Q-F1000GRBA
Q-F1000GRWA
Q-F1300GRBA
Q-F1300GRWA

**Indoor use only.*

Refer to page 107 for more information.

Coaxial Array Speakers

HS-1200BT
HS-1200WT

HS-1500BT
HS-1500WT

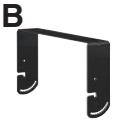
- For mobile or fixed installation e.g. clubs, banquet rooms or schools
- Can be used as a floor monitor
- 2-way unit system equipped with a large diameter woofer (12”/15”) and array tweeter
- Twin input terminal connectors (Speakon and screw terminals)
- Well-controlled sound coverage: 90°horizontal x 40°vertical
- Offers a built-in matching transformer, for use in high-impedance applications
- A wide variety of optional mounting bracket is available

Specifications

	HS-1200BT/WT	HS-1500BT/WT
Power Handling Capacity	Continuous pink noise: 100W (Low impedance)	
Sensitivity (1W, 1m)	97 dB	98 dB
Rated Impedance	8Ω/100V line; 170Ω, 330Ω, 670Ω 70V line; 83Ω, 170Ω, 330Ω, 670Ω	8Ω/100V line; 170Ω, 330Ω, 670Ω 70V line; 83Ω, 170Ω, 330Ω, 670Ω
Frequency Response	70 – 20,000 Hz	60 – 20,000 Hz
Speaker Component	Low: 30cm cone-type, High: Balanced dome tweeter x 6	Low: 38cm cone-type, High: Balanced dome tweeter x 6
Finish	Enclosure: Polypropylene, black or white/Punched net: Surface-treated steel plate, black or white	
Dimensions	361 (W) x 448 (H) x 320 (D) mm / 14.2 (W) x 17.6 (H) x 12.6 (D) in	451 (W) x 560 (H) x 400(D) mm / 17.8 (W) x 22 (H) x 15.7 (D) in
Weight	10kg / 22lbs	14kg / 30.9lbs

Coaxial Array Speakers Optional Accessories

❖Wall-Mount Bracket
HY-1200HB



❖Wall-Mount Bracket
HY-1200HW

❖Ceiling-Mount Bracket
HY-1200VB

❖Ceiling-Mount Angle Bracket
HY-C0801

❖Ceiling-Mount Bracket
HY-1200VW

❖Wall-Mount Bracket
HY-1500HB

❖Wall-Mount Bracket
HY-1500HW

❖Ceiling-Mount Angle Bracket
HY-C0801W

❖Ceiling-Mount Bracket
HY-1500VB

❖Ceiling-Mount Bracket
HY-1500VW

❖Wall-Mount Angle Bracket
HY-W0801

❖Wall-Mount Angle Bracket
HY-W0801W

Refer to page 107 for more information.

Wall Mount Box Speakers

❖Public Address Speaker
BS-678

- Stylish, compact and unobtrusive design
- Quick and easy installation
- Horizontal / vertical installation
- Push-type input terminal allows easy cable connections and bridge wiring
- Ideally suited for BGM and announcements

❖Public Address Speaker
BS-680FC
BS-680U*

- Quick and easy installation
- Strong all-metal body
- Horizontal / vertical installation
- Wall / in-wall mounting
- Ideally suited for voice alarm system application
- Two statite screw terminal blocks and thermal fuse
- *UL 1480 UUMW version

Specifications

	BS-678	BS-680FC	BS-680U
Rated Input	6W (100V line)		6W (70V line)
Rated Impedance	100V line: 1.7kΩ, 3.4kΩ, 6.7kΩ, 13kΩ 70V line: 1 .7kΩ, 3.4kΩ, 6.7kΩ, 13kΩ	100V line: 1.7kΩ, 3.3kΩ, 6.7kΩ, 13kΩ 70V line: 1.7kΩ, 3.3kΩ, 6.7kΩ, 13kΩ	70V line: 830Ω (6W), 1.67kΩ (3W), 5kΩ (1W) 25V line: 150Ω (6W), 210Ω (3W), 650Ω (1W)
Sensitivity (1W, 1m)	94 dB	96 dB	94 dB
Frequency Response	150 – 20.000 Hz		
Speaker Component	16cm/6.3" double cone-type		
Finish	Enclosure: Wood, off-white or black Grille: Surface-treated steel plate net, off-white or black	Enclosure: Steel plate, off-white Grille: Stainless steel punching net, off-white	
Dimensions	250(W) x 190(H) x 110(D)mm 9.8(W) x 7.5(H) x 4.3(D)in	310(W) x 190(H) x 90(D) mm 12.2(W) x 7.48(H) x 3.54(D)in	
Weight	1.7kg / 3.7lbs	2.6kg / 5.73lbs	

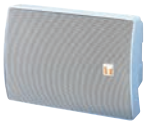
❖Wall-Mount Public Address Speakers
BS-1034
BS-1034S

- Easy and quick installation
- Low profile, beautiful design
- Creates a distinctly different impression depending on whether it is installed horizontally or vertically
- Available in off-white, which matches any interior style, and silver
- Ideally suited for BGM and announcements

Specifications

	BS-1034	BS-1034S
Rated Input (100V line)	10W	
Rated Impedance	100V line: 1kΩ, 2kΩ, 3.3kΩ, 10kΩ/70V line: 500Ω, 1kΩ, 2kΩ, 3.3kΩ, 10kΩ	
Sensitivity (1W, 1m)	90 dB	
Frequency Response	120 – 18,000 Hz	
Speaker Component	Low: 12cm cone-type, High: Balance dome-type	
Finish	Enclosure: HIPS resin, off-white Grille: Steel plate net, off-white	Enclosure: HIPS resin, silver Grille: Steel plate net, silver
Dimensions	210(W) x 330(H) x 80(D)mm / 8.3(W) x 13(H) x 3.1(D)in	
Weight	1.4kg (3.1lbs)	

❖Music/Paging Speakers
BS-1030B
BS-1030W



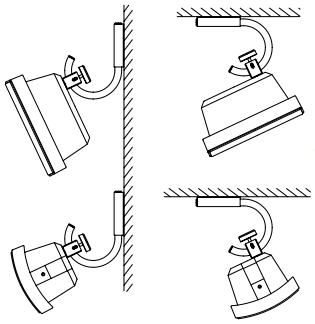
- 2-Way bass reflex speaker
- Cost-effective high power PA box speaker
- Aesthetically pleasing design blends in modern buildings and other facilities, such as boutique, restaurant and amusement park
- Low impedance (8Ω) or high impedance (100V/70V) selectable by rotary switch
- Splashproof construction in compliance with IPX4

Specifications

	BS-1030B/W
Rated Input (100V line)	30W
Rated Impedance	8Ω/100V line: 330Ω, 500Ω, 200kΩ, 670Ω, 1kΩ, 2kΩ/ 70V line: 170Ω, 250Ω,330Ω, 500Ω, 1kΩ
Sensitivity (1W, 1m)	90 dB
Frequency Response	80 – 20.000 Hz
Speaker Component	12cm dynamic cone-type + dome-type
Finish	Enclosure: ABS resin, black or white/ Grille:Surface treated steel plate, black or white, powder coating
Dimensions	196 (W) x 290 (H) x 150 (D) mm / 7.7 (W) x 11.4 (H) x 5.9 (D) in
Weight	2.5kg / 5.5lbs

❖Wall Mount Bracket
SP-410

- For BS 1030B/W



SP-410 Wall Mount Bracket Configurations

Plane Wave Speakers

- Sound radiates in narrow horizontal and vertical pattern to deliver clear audio to a limited targeted area with minimal attenuation
- Splash-proof, rust resistant construction, IPX4
- Beam tilting function directs sound radiation about five degrees down
- Built-in high-pass filter
- Ideal for information broadcast applications such as in railway stations

❖Compact Double-Sided Radiation Type

PW-1230DB
PW-1230DW

❖Large Double-Sided Radiation Type

PW-1430DB
PW-1430DW

❖Compact Single-Sided Radiation Type

PW-1230SB
PW-1230SW

❖Compact Single-Sided Radiation Type

PW-1430SB
PW-1430SW

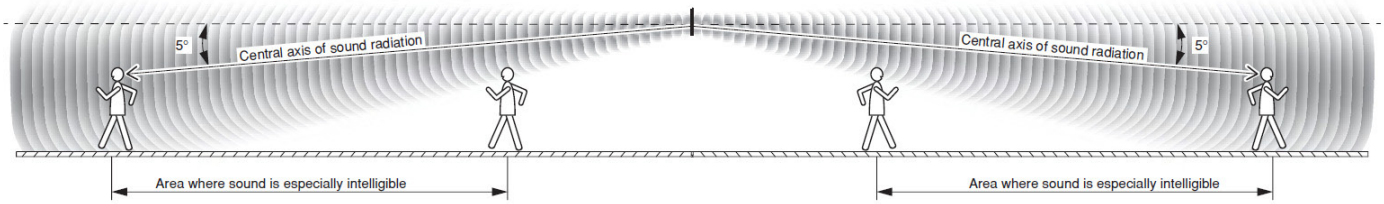
Specifications

	PW-1230DB	PW-1230DW	PW-1230SB	PW-1203SW
Type of Radiation	Double-sided radiation (The side with the TOA logo affixed: Positive pressure wave, Rear: Negative pressure wave)		Single-side radiation	
Rated Impedance	100V line: 330Ω (30W), 670Ω (15W), 1kΩ (10W), 2kΩ (5W); 70V line: 170Ω (30W), 330Ω (15W), 670Ω (7.5W), 1kΩ (5W), 2kΩ (2.5W)			
Sensitivity	86 dB (1W, 1m equivalent measured at 4m, 1-10 kHz) 86 dB (1W, 1m measured at 1m, 1-10 kHz) (Beam tliting: FLAT, High pass filter: OFF)		87 dB (1W, 1m equivalent measured at 4m, 1-10 kHz) 87 dB (1W, 1m measured at 1m, 1-10 kHz) (Beam tliting: FLAT, High pass filter: OFF)	
Frequency Response	300 Hz – 17.5 kHz (beam tilting: FLAT, high pass filter: OFF)		450 Hz – 17.5 kHz (beam tilting: FLAT, High pass filter: OFF)	
Speaker Unit	Plane wave unit (152 x 214 mm / 5.98" x 8.43") x 2			
Directivity Angle	Horizontal: 38° (2 kHz, 1/3 octave band), / Vertical: 75° (2 kHz, 1/3 octave band)			
Finish	Enclosure, Punched net and Mounting bracket: Stainless, black, semi-gloss, paint	Enclosure, Punched net and Mounting bracket: Stainless, light ivory, semi-gloss, paint	Enclosure, Punched net and Mounting bracket: Stainless, black, semi-gloss, paint	Enclosure, Punched net and Mounting bracket: Stainless, light ivory, semi-gloss, paint
Dimensions	524 (W) x 355 (H) x 60 (D)mm / 20.63" x 13.98" x 2.36" (including mounting bracket)			
Weight	7.3 kg / 16.09 lb (including mounting bracket)		7.8 kg / 17.2 lb (including mounting bracket)	
Water Protection	IPX4			

	PW-1430DB	PW-1430DW	PW-1430SB	PW-1430SW
Type of Radiation	Double-sided radiation (The side with the TOA logo affixed: Positive pressure wave, Rear: Negative pressure wave)		Single-side radiation	
Rated Impedance	100V line: 330Ω (30W), 670Ω (15W), 1kΩ (7.5W), 2kΩ (5W); 70V line: 170Ω (30W), 330Ω (15W), 670Ω (7.5W), 1kΩ (5W), 2kΩ (2.5W)			
Sensitivity	88 dB (1W, 1m equivalent measured at 4m, 1-10 kHz) 85 dB (1W, 1m measured at 1m, 1-10 kHz) (Beam tliting: FLAT, High pass filter: OFF)		90 dB (1W, 1m equivalent measured at 4m, 1-10 kHz) 87 dB (1W, 1m measured at 1m, 1-10 kHz) (Beam tliting: FLAT, High pass filter: OFF)	
Frequency Response	250 Hz – 17.5 kHz (beam tilting: FLAT, high pass filter: OFF)		400 Hz – 17.5 kHz (beam tilting: FLAT, High pass filter: OFF)	
Speaker Unit	Plane wave unit (152 x 214 mm / 5.98" x 8.43") x 2			
Directivity Angle	Horizontal: 38° (2 kHz, 1/3 octave band), / Vertical: 75° (2 kHz, 1/3 octave band)			
Finish	Enclosure, Punched net and Mounting bracket: Stainless, black, semi-gloss, paint	Enclosure, Punched net and Mounting bracket: Stainless, light ivory, semi-gloss, paint	Enclosure, Punched net and Mounting bracket: Stainless, black, semi-gloss, paint	Enclosure, Punched net and Mounting bracket: Stainless, light ivory, semi-gloss, paint
Dimensions	831 (W) x 355 (H) x 60 (D)mm / 32.72" x 13.98" x 2.36" (including mounting bracket)			
Weight	11.4 kg / 25.13 lb (including mounting bracket)		11.9 kg / 26.23 lb (including mounting bracket)	
Water Protection	IPX4			

Plane Wave Speakers Beam Tilting Function

When shifted to "DOWNWARD" (Double-sided type)

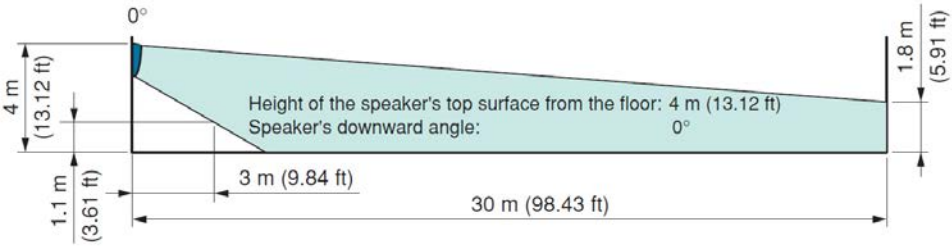


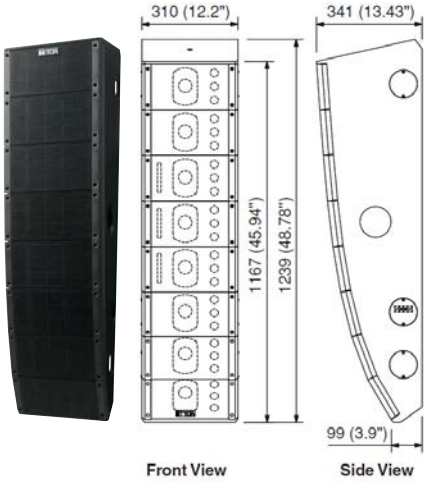
All-In-One Fixed Dispersion Array Speaker

The TOA SR-T5 is a 2-way line array speaker featuring 8 13cm (5.2") low-frequency cones and 24 tweeters, in which low- and high-frequency speaker units are arranged vertically within close proximity to each other. The curved vertical speaker arrangement covers the entire audience area from front to rear with uniform sound volume. Thanks to the excellent vertical coverage control, reflection of sound waves off the ceiling and walls is reduced, delivering clear sound without causing strain on the listeners' ears. The superb speech clarity and sturdy impact-resistant construction of the SR-T5 make it ideal for installations in sports facilities with strong reverberation, such as school gymnasiums, and with no additional protector grille required.

SR-T5

- Uniform sound volume and clear audio output.
- Sturdy impact-resistant construction.
- Internal two-way passive crossover network circuitry for single-amplifier operation.
- Speaker's downward angle adjustable with accessory mounting bracket.
- Horizontal angle adjustable in conjunction with optional SR-PB5 Wall Pan Bracket.
- Optional MT-S0601 Matching Transformer for use in high-impedance applications.
- Safety wire supplied to prevent the speaker from falling during installation work and after installation.





Specifications

	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 / 13.12 ft)
Frequency Response	70 – 20,000 Hz
Crossover Frequency	3 kHz
Directivity Angle	Horizontal: 100°, Vertical: 35°
Speaker Component	Low frequency: 13 cm (5.12") cone-type × 8; High frequency: Balanced dome type × 24
Recommended Installation Height	4 – 5.5 m (13.12 – 18.04 ft) (Speaker top, when installed in sport facilities 30 m (98.43 ft) 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 (0.48")
Finish	Enclosure: Plywood, black, urethane paint; Baffle: Polypropylene, black; Punched net: Steel plate, black, acrylic paint; Mounting bracket: Steel plate, black, acrylic paint
Dimensions	310 (W) × 1,239 (H) × 341 (D) mm / 12.2" × 48.78" × 13.43"
Weight	29 kg / 63.93 lb (including accessories)
Accessories	Mounting bracket A × 1, Mounting bracket B × 1, Bracket mounting bolt × 6, Side cover × 5, Side cover mount screw × 10, Eye bolt x 1, Safety wire × 1
Options	Wall Pan Bracket: SR-PB5; Matching Transformer: MT-S0601

All-In-One Fixed Dispersion Array Speaker Optional Accessories

❖Wall Pan Bracket

SR-PB5

- Adjustable Angle Range: Horizontal (left or right): 5°, 10°
- Finish: Steel plate, black, paint
- Weight: 4.1 kg (9.04 lb) (including accessories)

❖Matching Transformer

MT-S0601

- Rated Input Power: 60 W
- Input Impedance: 100V Line; 170 Ω (60W), 330 Ω (30W), 670 Ω (15W)
- 70V Line; 83 Ω (60W), 170Ω (30W), 330 Ω (15W), 670 Ω (7.5W)
- Output Impedance: 8 Ω
- Weight: 1.2 kg (2.65 lb)

Compact Variable Dispersion Array Speakers

HX-5B
HX-5B-WP

HX-5W
HX-5W-WP

- Innovative modular speaker design includes four preassembled modules with four LF drivers and twelve HF dome tweeters
- Adjustable dispersion angle to 60, 45, 30 or 15 degrees
- Improved intelligibility through tailored coverage
- In-line driver arrangement for superior vertical coverage control
- Contoured waveguide-baffle for distortion-free coverage control
- High power handling; 600W continuous (200W pink noise)
- Splashproof versions (HX-5B-WP/HX-5W-WP)
- Parallel connectors - dual speakon and screw terminal
- A wide variety of optional mounting hardware is available

Specifications

	HX-5B/W	HX-5B-WP/W-WP
Power Handling Capacity	Continuous program: 600W	
Rated Impedance	8Ω	
Sensitivity (1W, 1m)	96dB (60° mode), 97dB (45° mode), 98dB (30° mode), 99dB (15° mode)	
Frequency Response	70 – 20,000Hz (60° mode)	95 – 20,000Hz (60° mode)
Speaker Component	Low: 12cm cone-type x 4, High: Balanced dome-type x 12	
Directivity Angle	Horizontal: 100°/Vertical: 60°, 45°, 30°, 15° variable	
Finish	Enclosure: Polypropylene, black or white/Punched net: Surface-treated steel plate, black or white	
Dimensions	408 (W) x 546 (H) x 342(D)mm / 16 (W) x 21.5 (H) x 13.5 (D)in	
Weight	16kg / 35.3lbs	
Dust/Water Protection	--	IPX4

❖Subwoofer
FB-120B
FB-120W

- Compact subwoofer
- Extremely wide frequency range
- For floor-, wall-, corner- or ceiling-mount
- 600W continuous program high-power subwoofer system
- Optional rigging frame for suspended mounting locations

Specifications

	FB-120B/W
Power Handling Capacity	Continuous program: 600W
Rated Impedance	8Ω
Sensitivity (1W, 1m)	90 dB
Frequency Response	40 – 1,200Hz
Speaker Component	30cm cone-type
Finish	Enclosure: Plywood, black or white, paint/Steel plate, black or white, paint
Dimensions	408 (W) x 408 (H) x 450(D)mm / 16.1 (W) x 16.1 (H) x 17.7(D)in
Weight	15kg / 33lbs

Compact Variable Dispersion Array Speakers Optional Accessories

❖Extension Bracket
HY-CN1B

❖Extension Bracket
HY-CN1W

❖Extension Bracket
HY-CN1B-WP

❖Extension Bracket
HY-CN1W-WP

❖Ceiling Mount Bracket
HY-CW1B

❖Rigging Frame
HY-PF1B

❖Rigging Frame
HY-PF1W

❖Rigging Frame
HY-PF1WP

❖Mount Bracket
HY-WM1B

❖Ceiling Mount Bracket
HY-CW1W

❖Mount Bracket
HY-WM1W

❖Mount Bracket
HY-WM1WP

❖Mount Bracket
HY-WM2B

❖Mount Bracket
HY-WM2W

❖Ceiling Mount Bracket
HY-CW1WP

❖Mount Bracket
HY-WM2WP

❖Matching Transformer
MT-200

❖Speaker Stand Adapter
HY-ST1

Refer to page 108 for more information.

Performance Variable Dispersion Array Speakers

HX-7B
HX-7B-WP

HX-7W
HX-7W-WP

- 4 cell configuration each incorporating:
  - (2) 5 ½" Low-frequency drivers
  - (1) Center-mounting, waveguide-loaded 1" compression driver
- Flexible vertical angle adjustment between 0˚ and 45˚ (60˚ w/optional adapter)
- Power handling: 750W Continuous Program @ 8 Ohms
- Frequency response: 75Hz to 20kHz
- 100dB sensitivity (1W @ 1m)
- Optional hardware for stand, wall, ceiling & flown installations
- Black or White & weather-proof (WP) versions available

Specifications

	HX-7B/HX-7W	HX-7B-WP/HX-7W-WP
Enclosure	Bass-reflex type	Sealed type
Power Handling Capacity	Continuous pink noise: 250 W (IEC60268-5: 350 W); Continuous program: 750 W	
Rated Impedance	8 Ω	
Sensitivity	100 dB (1 W, 1 m)	
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 (5.5") 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 (HX-7B/W) Punched net: Surface-treated steel plate, black or white (HX-7B/W), paint Hanging bracket: Steel plate, t3.0, black or white (HX-7B/W), paint	Enclosure: Polypropylene, black or white (HX-7B/W-WP) Punched net: Surface-treated steel plate, black & white (HX-7B/W-WP), rust proof coating
Dimensions	497 (W) x 664 (H) x 274 (D) mm / 19.57" x 26.14" x 10.79"	
Weight	30 kg / 66.14 lb	

❖Subwoofer
FB-150B
FB-150W

- Partner Subwoofer for HX-7 (may be used with other TOA speakers)
- High-compliance 15" low-frequency speaker
- Bass-reflex enclosure
- Screw-terminal & Speakon™ connectors
- Power handling 600W Continuous Program @ 8 Ohm
- Black or White versions available

Specifications

	FB-150B/FB-150W
Power Handling Capacity	Continuous pink noise: 200 W; Continuous program: 600 W
Rated Impedance	8 Ω
Sensitivity	93 dB (1 W, 1 m)
Frequency Response	40 Hz - 400 Hz (-10 dB)
Speaker Component	38 cm (15") cone-type
Input Terminal	Speakon NL4MP x 2 and M5 screw terminal, distance between barriers: 12.2 mm / 0.48"
Finish	Enclosure: MDF, black or white (FB-150B/W), urethane paint Punched net: Surface-treated steel plate, black & white (FB-150B/W), paint
Dimensions	505 (W) x 528 (H) x 477 (D) mm / 19.88" x 20.79" x 19.17"
Weight	30 kg / 66.14 lb

Performance Variable Dispersion Array Speakers Optional Accessories

❖Ceiling Bracket Set
HY-CM7BSET

❖Ceiling Bracket Set
HY-CM7WSET

❖Joining Bracket
HY-CN7B-WP

❖Joining Bracket
HY-CN7W-WP

❖Wall Mount Bracket Set
HY-WM7BSET

❖Rigging Frame
HY-PF7B

❖Rigging Frame
HY-PF7W

❖T Rigging Bracket
HY-TM7B-WP

❖T Rigging Bracket
HY-TM7W-WP

❖Wall Mount Bracket Set
HY-WM7WSET

❖Matching Transformer Adapter
HY-MT7

❖Matching Transformer
MT-200

❖Speaker Stand Adapter
HY-ST7

❖Angle Adjustment Bracket
HY-60DB-WP-3

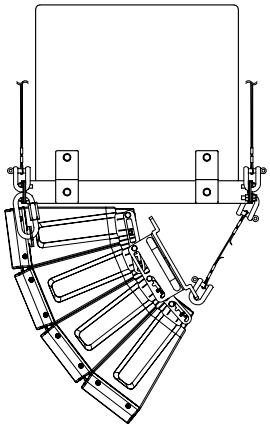
❖Angle Adjustment Bracket
HY-60DW-WP-3

Refer to page 109 for more information.

Compact Variable Dispersion Array Speakers Mounting Option Examples

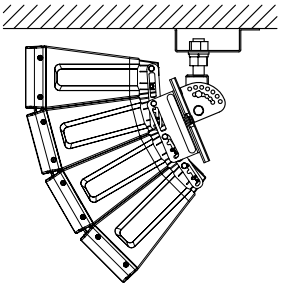
HY-PF1B / HY-PF1W / HY-PF1WP

Hanging vertically with subwoofer



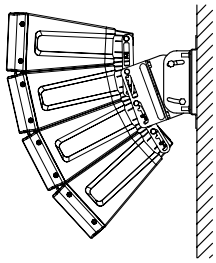
HY-CW1B / HY-CW1W / HY-CW1WP

On the ceiling vertically



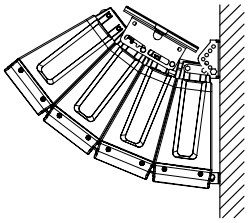
HY-WM1B / HY-WM1W / HY-WM1WP

On the wall horizontally



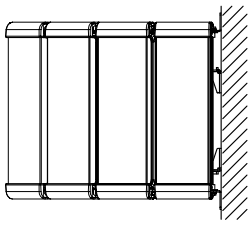
HY-WM2B / HY-WM2W / HY-WM2WP

On the wall vertically



HY-WM2B / HY-WM2W / HY-WM2WP

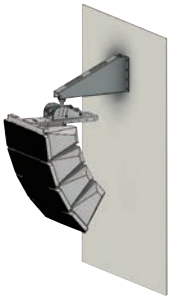
On the wall horizontally



Performance Variable Dispersion Array Speakers Mounting Option Examples

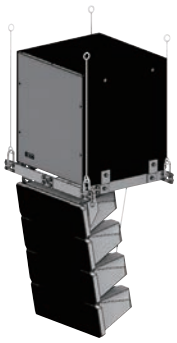
HY-WM7BSET / HY-WM7WSET

On the wall (HY-VM7B/W+HY-WM7B/W)



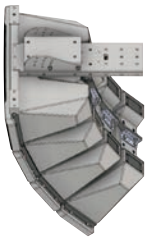
HY-PF7B / HY-PF7W

Hanging vertically with subwoofer



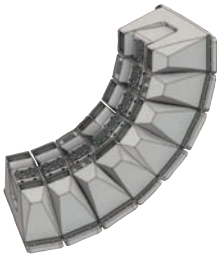
HY-WM7BSET / HY-WM7WSET

On the ceiling (HY-VM7B/W+HY-WM7B/W)



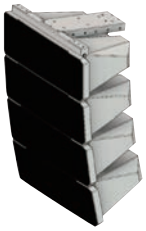
HY-CN7B-WP / HY-CN7W-WP

Two speakers connected



HY-TM7B-WP / HY-TM7W-WP

On building structures



Mid-Size Line Array Speakers

TOA's Type C Mid-Size, Two-Way Line Array Speakers feature wave front control technology which creates a sound field with high sound clarity and uniform sound pressure level. Recommended digital processor is the DP-SP3 (D-901 or D-2008 acceptable). They can be converted to operate in bi-amplifier or full-range modes with a simple internal adjustment.

SR-C8L
SR-C8LWP

SR-C8S
SR-C8SWP

- Superior sound quality - Sync-Drive™ technology keeps the audio in phase with its source at the driver to create an ideal linear sound source
- High-fidelity sound - due to the design of the speakers phase wave-front control technology, high-fidelity sound is produced without causing attenuation of high-frequency sound
- Long throw and short throw options
- Single or bi-amp mode - by internal connector

Specifications

		SR-C8L	SR-C8LWP	SR-C8S	SR-C8SWP
Power Handling Capacity		Continuous program: 360 W(Single-amp mode; Low 360 W, High: 180 W (Bi-amp mode)			
Rated Impedance		16Ω (single-amp mode); Low: 16Ω, High: 16Ω (bi-amp mode); Low: 8Ω (bi-amp mode)			
Sensitivity (1W, 1m)		98 dB (single-amp mode) Low: 95dB, High: 110dB (bi-amp mode)			
Frequency Response		65 – 20,000 Hz (when using an optional DSP processor)			
Speaker Component		Low Frequency: 20 cm cone type; High Frequency: Wave front control horn 110° (horizontal) x 5° (vertical) + compression driver x 2		Low Frequency: 30cm cone type; High Frequency: Wave front control horn 110° (horizontal) x 15° (vertical) + compression driver x 2	
Directivity Angle		Horizontal: 90°, Vertical: 5°		Horizontal: 90°, Vertical: 15°	
Finish	Enclosure:	Plywood, black, urethane paint	Plywood, black, urethane coating	Plywood, black, urethane paint	Plywood, black, urethane coating
	Front grille:	Punched steel plate, black, paint	Punched stainless steel, black, paint	Punched steel plate, black, paint	Punched stainless steel, black, paint
Dimensions		526.6 (W) x 293 (H) x 296 (D) mm / 20.73" x 11.54" x 11.65"		526.6 (W) x 293 (H) x 294 (D) mm / 20.73" x 11.54" x 11.57"	
Weight		17 kg / 37.48 lb		16 kg / 35.27 lb	
Water Protection		--	IPX4	--	IPX4

❖Subwoofer
SR-C15B
SR-C15BWP

- Designed for use in conjunction with the SR-C Series Line Array Speakers
- Indoor and outdoor versions available, weather-resistant version has cable connection
- 15" high power woofer
- 450 W continuous power handling

Specifications

		SR-C15B	SR-C15BWP
Power Handling Capacity		Continuous program: 450 W	
Rated Impedance		8Ω	
Sensitivity (1W, 1m)		93 dB	
Frequency Response		40 – 400Hz (when using optional DSP processor)	
Speaker Component		38 cm / 15" cone-type	
Finish	Enclosure:	Plywood, black, urethane paint	Plywood, black, urethane coating
	Front grille:	Punched steel plate, black, paint	Punched stainless steel, black, paint
Dimensions		526.6 (W) x 594.8 (H) x 550 (D) mm / 20.73" x 23.42" x 21.65"	
Weight		41 kg / 90.39 lb	
Water Protection		--	IPX4

Mid-Size Line Array Speakers Optional Accessories

❖Cluster bracket, black
SR-CL8

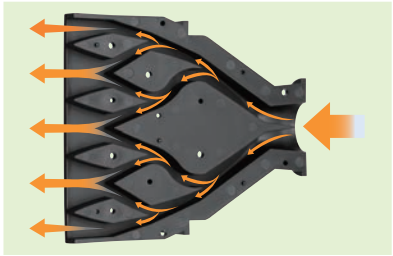
❖Rigging frame
SR-RF8

❖Rigging frame, weather resistant
SR-RF8WP

❖Rigging support bracket
SR-SB8

Refer to page 108 for more information.

❖Tilt joint bracket
SR-TP8



Full-Size Line Array Speakers

TOA's Type A Full-Size, Two-Way Line Array Speakers feature a linear wave front control technology that creates a uniform sound field with uniform sound pressure and high sound clarity. The SR-A12L and SR-A12S are two-way line array speakers ideal for long (SR-A12L) or short (SR-A12S) distance sound transmission. The SR-A Series can utilize bi-amplification methods for improved frequency tuning and is complimented by using the DP-SP3 Processor or the D-901 or D-2008 Digital Mixers.

SR-A12L
SR-A12LWP

SR-A12S
SR-A12SWP

- Designed for wide bandwidth response
- Compact and powerful 2-way modular speaker units used in multiple configurations as required to deliver greater output power and extended frequency response
- High-performance driver
- Each Type A Series speaker module contains a 30cm (12") low frequency unit and a high-frequency horn attached to two compression drivers for greater output
- Wavefront control throat function to obtain the best possible performance from the high frequency drivers
- Simple maintenance and servicing for permanent installations

Specifications

		SR-A12L	SR-A12LWP	SR-A12S	SR-A12SWP
Power Handling Capacity		Continuous program, Low Frequency: 450W, High Frequency 180W			
Rated Impedance		Low Frequency: 8Ω, High Frequency: 16Ω			
Sensitivity (1W, 1m)		Low Frequency: 98dB, High Frequency: 110dB		Low Frequency: 98dB, High Frequency: 109dB	
Frequency Response		50 – 20,000 Hz (when using an optional DSP processor)			
Speaker Component		Low Frequency: 30cm cone type; High Frequency: Wave front control horn 90° (horizontal) x 5° (vertical) + compression driver x 2		Low Frequency: 30cm cone type; High Frequency: Wave front control horn 90° (horizontal) x 15° (vertical) + compression driver x 2	
Directivity Angle		Horizontal: 90°, Vertical: 5°		Horizontal: 90°, Vertical: 15°	
Finish	Enclosure:	Plywood, black, paint	Plywood, black, urethane coating	Plywood, black, paint	Plywood, black, urethane coating
	Front grille:	Punched steel plate, black, acrylic paint	Punched stainless steel, black, paint	Punched steel plate, black, acrylic paint	Punched stainless steel, black, paint
Dimensions		740 (W) x 433 (H) x 469 (D)mm / 29.1 (W) x 17 (H) x 18.5 (D)in		740 (W) x 433 (H) x 467 (D)mm / 29.1 (W) x 17 (H) x 18.4 (D)in	
Weight		49 kg / 108 lbs	51 kg / 112.4 lbs	47kg / 103.6 lbs	48kg / 106 lbs
Water Protection		--	IPX4	--	IPX4

❖Subwoofer
SR-A18B

- Designed for use in conjunction with the Full-Size SR-A Series Line Array Speakers
- Compact indoor subwoofer system
- High-power 18" woofer, 720W, 8 ohm
- Ideal for reproducing dynamic low-frequency energy

Specifications

	SR-A18B
Power Handling Capacity	Continuous program: 720W
Rated Impedance	8Ω
Sensitivity (1W, 1m)	95 dB
Frequency Response	40 – 400Hz (when using optional DSP processor)
Speaker Component	46 cm cone-type
Finish	Enclosure: Plywood, black, paint; Front Grille: Punched steel plate, black, acrylic paint
Dimensions	740 (W) x 573 (H) x 698 (D)mm / 29.1 (W) x 22.6 (H) x 27.5 (D)in
Weight	66 kg / 145.5 lbs (including accessories)

Full-Size Line Array Speakers Optional Accessories

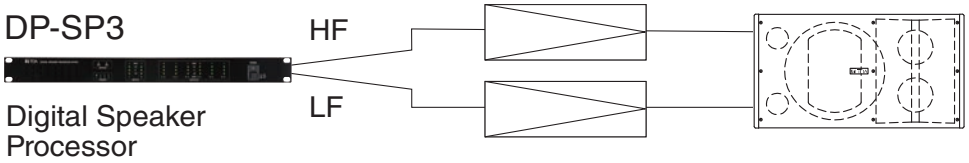
❖Rigging frame
SR-RF12

❖Rigging frame, weather resistant
SR-RF12WP

❖Tilt joint bracket
SR-TP12

Refer to page 109 for more information.

Full-Size Line Array Speakers Connection Diagram



Digitally Steerable Self-Powered Column Array Speakers

TOA brought together it s proprietary line array technology and digital signal processing (DSP) technology in the SR-D8 Steerable Line Array Speaker. Both analog and CobraNet audio input are provided. This innovative speaker harnesses 8 built-in digital amplifiers to project sound waves to targeted areas with greater precision than is possible with conventional speakers. By digitally shaping the width and angle of acoustic beams, it can steer sound precisely to desired areas without requiring a change of installation location.

❖Main Unit

SR-D8-M

❖Pattern Extension Unit

SR-D8-S

- A maximum of 16 units (4 Mains + 12 Pattern Extensions) can be controlled as a single unit via software.
- The intuitive GUI enables instant simulations that reduce the time required for designing systems and tuning their acoustic performance.
- The speaker comes with DSP functions, including gain, mute, compression, delay, auto-mixing, high/low pass filters, high/low shelving filters, and notch filters.
- Equipped with two analog audio input terminals and four CobraNet channels, the input section supports 6 x 2 matrix mixing.

SR-D8-S SR-D8-M

Specifications

	SR-D8-M	SR-D8-S
Power Consumption	320 W (rated output), 72 W (based on UL/CSA standards)	315 W (rated output), 72 W (based on UL/CSA standards)
Coverage	Horizontal: 90° Vertical Beam Width: up to 45° Vertical Beam Angle: ±45° (adjustable by using the supplied SR-D8 setting software)	
Frequency Response	130 Hz – 20 kHz	
Speaker Component	Low Frequency: 10 cm cone-type x 8; High Frequency: 2.5 cm balanced dome-type x 24	
Maximum SPL	Max. 93 dB SPL (A-weighted, pink noise, 30 m/33 yd)	
Finish	Enclosure: MDF, white, paint; Front Grille: Punched steel plate, white, acrylic paint	
Dimensions	160 (W) x 895 (H) x 255 (D) mm / 6.3" x 35.24" x 10.04"	
Weight	21 kg / 46.3 lb	

Digitally Steerable Self-Powered Column Array Speakers Optional Accessories

❖Wall mounting adapter

SR-D8CL

❖Wall mounting adapter

SR-D8CS

❖Extension plate

SR-D8EP

❖Fixing bar

SR-D8FB

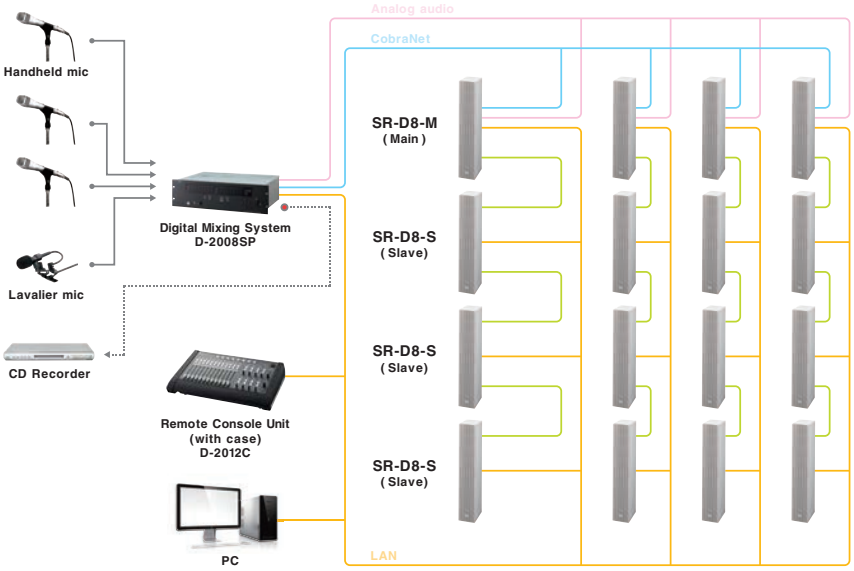
❖Hoisting bracket

SR-D8HB

❖Wall mounting bracket

SR-D8WB

Digitally Steerable Self-Powered Column Array Speakers Example



*In this case, either analog audio or CobraNet will be used.

High Powered Column Array Speakers

❖Straight
SR-S4L
SR-S4LWP

❖Curved
SR-S4S
SR-S4SWP

- 2-way line array speaker with 8 10-cm (4") woofers and 24 high-frequency drivers
- Clear sound with reduced attenuation over distance
- Splashproof versions (SR-S4LWP/SR-S4SWP)
- Biamp or single amp drive possible
- A wide variety of optional mounting brackets are available
- Optional matching transformer MT-S0601 for high-impedance operation

Specifications

		SR-S4L	SR-S4LWP	SR-S4S	SR-S4SWP
Power Handling Capacity		Continuous program: 600W			
Rated Impedance		8Ω			
Sensitivity (1W, 1m)		94dB		93dB	
Frequency Response		70 – 20,000Hz			
Speaker Component		Low: 10cm cone-type x 8, High: 2.5cm balanced dome-type x 24			
Directivity Angle		Horizontal: 90°/Vertical: 0°		Horizontal: 90°/Vertical: 10°	
Finish	Enclosure:	MDF, white, paint	Plywood, white, urethane coating	MDF, white, paint	Plywood, white, urethane coating
	Front grille:	Punched steel plate, white, acrylic paint	Punched stainless steel (SUS304), white paint	Punched steel plate, white, acrylic paint	Punched stainless steel (SUS304), white paint
Dimensions		160 (W) x 895 (H) x 255(D)mm / 6.3" x 35.2" x 10"		160 (W) x 892 (H) x 303(D)mm / 6.3" x 35" x 12"	
Weight		16kg / 35.3lbs			
Dust/Water Protection		--	IPX4	--	IPX4

High Powered Column Array Speakers Optional Accessories

❖Extension Plate
SR-EP4

❖Extension Plate
SR-EP4WP

❖Flying Bracket
SR-FB4

❖ Floor Stand
SR-FS4

❖Wall Mounting Bracket
SR-WB4

❖Stand Adapter
SR-SA4

❖Wall Tilt Bracket
SR-TB4

❖Wall Tilt Bracket
SR-TB4WP

❖Protection Pad
SR-PP4

❖Wall Mounting Bracket
SR-WB4WP

Refer to page 110 for more information.

High Powered Column Array Speakers Appearance and Dimensional Diagrams

SR-S4L/SR-S4LWP

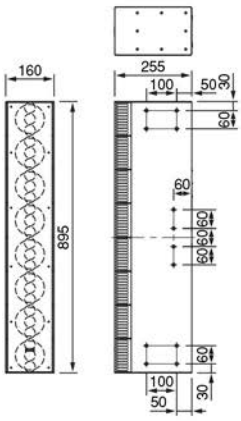
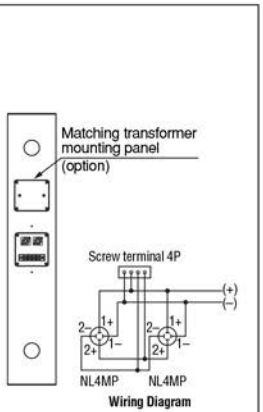


Illustration of SR-S4L



SR-S4L/SR-S4S (Rear)

SR-S4S/SR-S4SWP

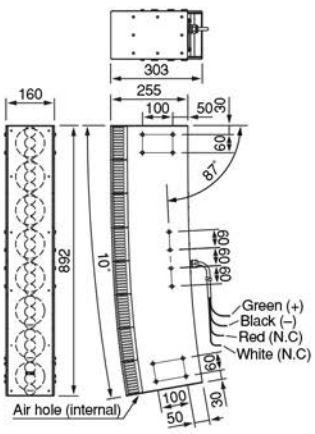
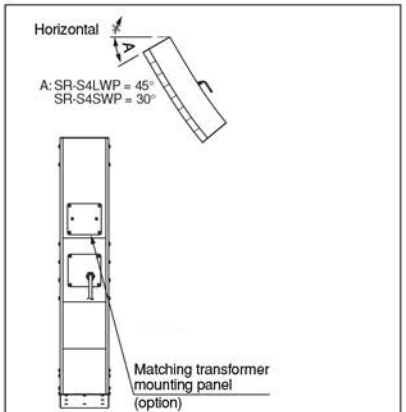


Illustration of SR-S4SWP



SR-S4LWP/SR-S4SWP (Rear)

Slim Line Column Array Speakers

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

- Slim line array with excellent directivity
- Narrow 84 mm design allows speakers to fit in well withthe interior decor of the venue
- Sync-Drive (Synchronous Nexus Control) technology create ideal linear sound source
- Clear sound with reduced attenuation over distance
- Curved speaker models for wider vertical dispersion
- A wide variety of optional mounting brackets are available
- Optional matching transformer MT-S0301 for high-impedance operation

Specifications

		SR-H2L	SR-H2S	SR-H3L	SR-H3S
Power Handling Capacity		Continuous program: 180W		Continuous program: 360W	
Rated Impedance		8Ω			
Sensitivity (1W, 1m)		92dB	90dB	95dB	92dB
Frequency Response		80 – 18,000Hz	90 – 17,000Hz	110 – 18,000Hz	90 – 17,000Hz
Speaker Component		7cm cone-type x 9		7cm 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		84 (W) x 668.4 (H) x 115 (D)mm 3.3" x 26.3" x 4.5"	84 (W) x 663.4 (H) x 115 (D)mm 3.3" x 26" x 4.5"	84 (W) x 1,186 (H) x 115 (D)mm 3.3" x 3.9' x 4.5"	84 (W) x 1,177.2 (H) x 157 (D)mm 3.3" x 3.9' x 6.2"
Weight		4.4kg/9.7lbs	4.2kg/9.3lbs	7.6kg/16.8lbs	7.9kg/17.4lbs

Slim Line Column Array Speakers Optional Accessories

❖Extension Plate
SR-EP3

❖Flying Bracket
SR-FB3

❖Matching Transformer
MT-S0301

❖Stand Adapter
SR-SA3

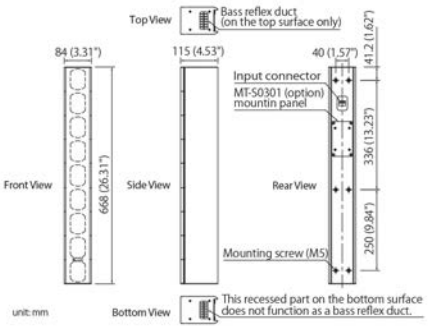
❖Wall Tilt Bracket
SR-TB3

❖Wall Mounting Bracket
SR-WB3

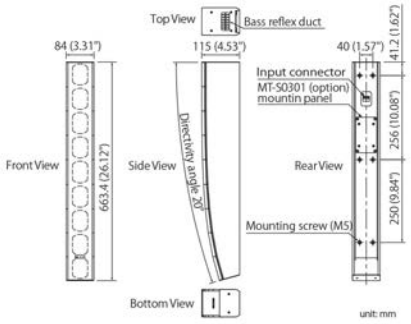
Refer to page 110 for more information.

Slim Line Column Array Speakers Appearance and Dimensional Diagrams

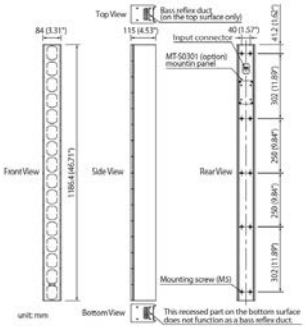
SR-H2L



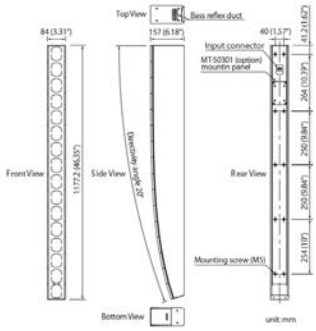
SR-H2S



SR-H3L



SR-H3S



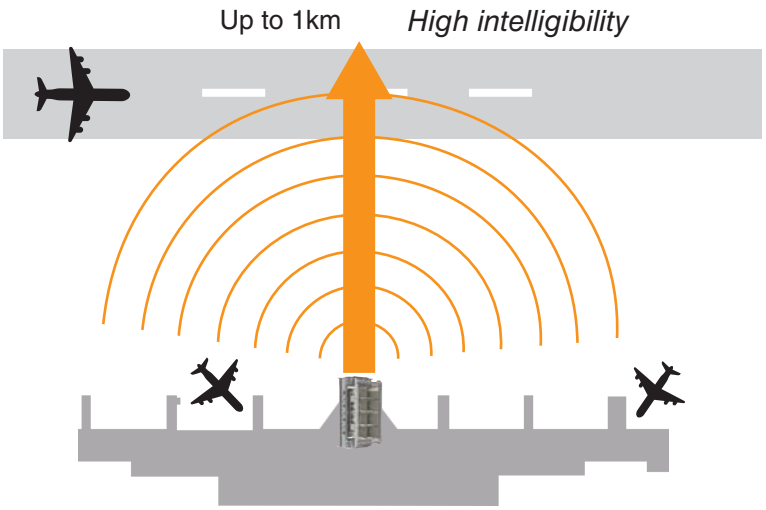
Horn Array Speakers

HA-450H
HA-450L

- Outdoor long range speaker incorporating line array speaker technology
- Less sound decay and can deliver sound about twice as far as conventional outdoor speakers (when compared with point source speakers)
- Even coverage over long distances

Specifications

	HA-450H	HA-450L
Rated Input	50W x 4 (Max. at 70V)	50W x 4
Impedance (Individual Driver)	100Ω (50W), 200Ω(25W), 330Ω(15W), 670Ω(7.5W) Selectable by rotary switch	16Ω
Sound Pressure Level	110dB (1W, 1m)	
Frequency Response	150Hz ~ 6,000Hz	
Finish	Horn: Aluminum die casting, beige, powder coating; Driver Unit Case: Weatherproof ABS resin, brown; Bracket: Rolled steel plate, powder coating	
Dimensions	19.80"(W) x 32.55" (H) x 23.62"(D) (503 x 827 x 599mm)	
Weight	110lb (50kg)	



Long Range Compact Horn Array Speaker

HA-1010

The HA-1010 is composed of multiple horn speakers positioned in a vertical array. It features longer range sound coverage than conventional horn speakers, and narrowly focused vertical directivity that allows excessive volume to be controlled at closer proximity. 90° horizontal x 15° vertical wide directivity high-frequency array horn speaker.

Specifications

	HA-1010
Rated Input	50W
Rated Impedance	100Ω (50W), 200Ω (25W)
Sound Pressure Level	114dB (1W, 1m)
Maximum Sound Pressure Level	131dB (50W, 1m)
Frequency Response	350Hz - 7kHz
Directivity Angle	Horizontal: 90° (2kHz), Vertical: 15° (2kHz)
Speakers Component	Horn speaker unit x 8
Operating Temperature	-20°C to +55°C (-4°F to +131°F)
Water Protection	IPX5
Finish	Case, Panel: Aluminum, salt-resistant, paint, gery; Front grille: Aluminum, black; Bracket: Stainless steel (SUS 304), paint, grey
Dimensions	167 (W) x 1233 (H) x 140.5 (D) mm / 6.57" x 48.54" x 5.53" in
Weight	13.5 kg / 29.76lb
Accessory	Installation nut (M10) x 4, Washer (M10) x 8, Spring Washer (M10) x 4, Mounting Bracket x 2, Bolt M8 x 20 x 2, Washer (M8) x 4, Spring Washer (M8) x 2

70 Volt Stepped Wall Attenuators

AT-025
AT-100
AT-100EMG
AT-10K

- Flush-mounted wall attenuators
- Volume can be adjusted in thirteen steps (AT-10K continuous)
- Push-in terminals
- Accepts two conductors for easy bridging
- 2 wire connection for normal speaker line attenuation
- 3 wire connection for emergency paging attenuator override (AT-100EMG)

Specifications

	AT-025	AT-100	AT-100EMG	AT-10K
Power Rating	25W	100W		1/2W
Resistance	-			10k ohm
Attenuation	3dB per step (33dB total)			Continuous (stops at 0/max.)
Use With	25/70/100V speaker line			VCA control or audio circuit
Activation	Rotary dial			Rotary knob
Volume Positions	0-10			-
Termination	Phoenix-style			
Wire Capacity	14-gauge			
Wall Plate	1-gang decorator style			
Finish	White			
Priority Relay	-		24VDC@15mA relay for emergency signal bypass	-
	-			Incremental detents for precision feel
	Fits standard E.O. box (2.125 in. min. depth)			

Impedance Meter

❖Impedance Meter

ZM-104A

- Measures impedance of speaker lines up to 100k ohms
- Batteries: 4 (AA) (not included)
- Zero adjustment for accuracy on all ranges
- Easy to read meter calibrates directly in ohms
- Includes carrying case, test leads and impedance to power reference chart

Specifications

	ZM-104A
Power Source	R6 X 4 (1.5 V DC X 4)
Current Consumption	39 mA
Reading	Direct reading meter, unit: Ω
Measurement Range	x 1 range: 5 Ω - 1 kΩ x 10 range: 50 Ω - 10 kΩ x 100 range: 500 Ω - 100 kΩ
Accuracy	±10 %
Oscillation Frequency	1 kHz, ±10 %
Battery Life When Continuously Used	x 1 range: 30 h x 10 range and x 100 range: 60 h
Operating Temperature	-5 °C to +40 °C (23 °F to 104 °F)
Dimensions	120 (W) x 220 (H) x 63 (D) mm / 4.72" x 8.66" x 2.48" (carrying case) 110 (W) x 180 (H) x 58 (D) mm / 4.33" x 7.09" x 2.28" (unit only)
Finish	ABS resin, black
Weight	700 g / 1.54 lb (including carring case, without batteries)
Accessory	Test leads ... 1 set
Measurement Catagory	CAT I

Note: Batteries are optional.

Speaker Mounting Accessories Charts

	Interior Design Speakers			Subwoofer
Model	H-1	H-2/H-2WP	H-3/H-3WP	HB-1
Ceiling Mount Bracket	HY-H1	--	--	--
Equalization Module	E-04R	E-05R	E-06R	E-07S

F Series Ceiling Speakers						
Model	F-122C/F-122CU2	F-2322C/F-2322CU2	F-2352C/F-2352CU2	F-2352SC	F-1522SC	F-2852C/F-2852CU2
Tile Support Rails	HY-TB1			Note: F-2352SC: When using the HY-TB1 the HY-RR2 is required. Supplied with CU2 versions.	-	HY-TB1
Ceiling Reinforcement Ring	HY-RR2				HY-RR1	-
Trim Ring	HY-TR1			Note: F-2352SC: When using the HY-TR1 the HY-RR2 is required. Supplied with CU2 versions.	-	-
Back Can	HY-BC1				-	-
C2 Version Tile Bridge	TB-200				-	TB-250
Equalization Module	E-03R	-				
Drywall Rough-in Kit	F-DRYWALLKIT				-	-
Black Replacement Grill	Q-F122GRBK				-	-

7020116720 - Ceiling reinforcement ring, fits model F-2852C
507-07-240-30 - CU2 version tile bridge included with F-2852CU2
507-07-239-50 - CU2 version tile bridge included with F-122CU2, F-2322CU2, F-2352CU2

Speaker Mounting Accessories Charts

F Series Wide-Dispersion Box Speakers						
Model	F-1000BT/WT	F-1000BTWP/WTWP	F1300BT/WP	F-1300BTWP/WTWP	F-2000BT/WT	F-2000BTWP/WTWP
Cluster Bracket	HY-CL10B				HY-CL20B	
Ceiling Mount Bracket	HY-CM10B		HY-CM10W		HY-CM20B	HY-CM20W
Board Hanging Bracket	HY-BH10B				-	
Pole Mounting Bracket	YS-60B					
Rust-Proof Aluminum Grill	Q-F1000GRBA	Q-F1000GRWA	Q-F1300GRBA	Q-F1300GRWA	-	

Coaxial Array Speakers				
Models	HS-1200BT	HS-1200WT	HS-1500BT	HS-1500WT
Wall/Ceiling Mount Bracket Vertical Installation	HY-1200VB	HY-1200VW	HY-1500VB	HY-1500VW
Wall/Ceiling Mount Bracket Horizontal Installation	HY-1200HB	HY-1200HW	HY-1500HB	HY-1500HW
Ceiling Mount Bracket	HY-C0801		HY-C0801W	
Wall Mount Bracket	HY-W0801		HY-W0801W	

Speaker Mounting Accessories Charts

	Compact Variable Dispersion Array Speakers				Subwoofer	
Model WP=Weather Proof	HX-5B	HX-5W	HX-5B-WP	HX-5W-WP	FB-120B	FB-120W
Rigging Frame	HY-PF1B	HY-PF1W	HY-PF1WP		HY-PF1B	HY-PF1W
Ceiling Mount Bracket	HY-CW1B	HY-CW1W	HY-CW1WP		--	--
Mounting 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				--	--
Matching Transformer	MT-200				--	--

	Mid-Size Line Array Speakers					
Model	Indoor Use			Outdoor Use		
	SR-C8L	SR-C8S	SR-C15B	SR-C8LWP	SR-C8SWP	SR-C15BWP
Rigging Frame	SR-RF8			SR-RF8WP		
Cluster Bracket	SR-CL8					
Rigging Support Bracket	SR-SB8					
Tilt Joint Plate	SR-TP8					

Speaker Mounting Accessories Charts

	Performance Variable Dispersion Array Speakers				Subwoofer	
Model WP=Weather Proof	HX-7B	HX-7W	HX-7B-WP	HX-7W-WP	FB-150B	FB-150W
Rigging/Hanging Frame	HY-PF7B		HY-PF7W		HY-PF7B	HY-PF7W
Ceiling Mount Bracket Set	HY-CM7BSET		HY-CM7WSET		--	--
Wall Mount Bracket Set	HY-WM7BSET		HY-WM7WSET		--	--
T Rigging Bracket	HY-TM7B-WP		HY-TM7W-WP		--	--
Speaker Joining Bracket	HY-CN7B-WP		HY-CN7W-WP		--	--
Angle Adjustment Bracket	HY-60DB-WP-3		HY-60DW-WP-3		--	--
Speaker Stand Adapter	HY-ST7				--	--
Matching Transformer and Transformer Adapter	MT-200 (Matching Transformer) & HY-MT7 (Matching Transformer Adapter) Adapter is required when installing transformer.				--	--

	Full-Size Line Array Speakers				
Model	Indoor Use			Outdoor Use	
	SR-A12L	SR-A12S	SR-A18B	SR-A12LWP	SR-A12SWP
Rigging Frame	SR-RF12			SR-RF12WP	
Tilt Joint Plate	SR-TP12				

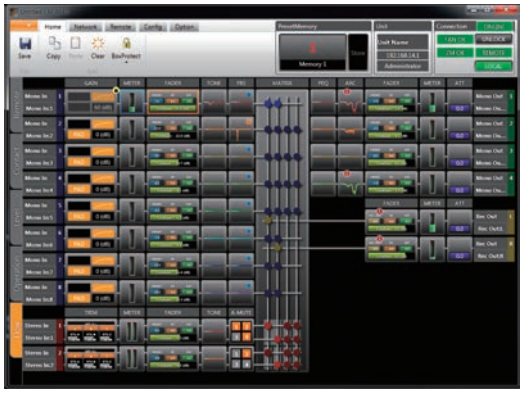
Speaker Mounting Accessories Charts

	Slim Line Column Array Speakers				High Powered Column Array Speakers			
Model	SR-H2L	SR-H2S	SR-H3L	SR-H3S	SR-S4L	SR-S4LWP	SR-S4S	SR-S4SWP
Extension Plate	SR-EP3	--	SR-EP3	--	SR-EP4	SR-EP4WP	SR-EP4	SR-EP4WP
Wall Tilt Bracket	SR-TB3				SR-TB4	SR-TB4WP	SR-TB4	SR-TB4WP
Wall Mounting Bracket	SR-WB3				SR-WB4	SR-WB4WP	SR-WB4	SR-WB4WP
Stand Adapter	SR-SA3				SR-SA4			
Flying Bracket	SR-FB3				SR-FB4			
Floor Stand	--				SR-FS4			
Protection Pad	--				SR-PP4			
Matching Transformer	MT-S0301				MT-S0601			

M-864D Digital Stereo Mixer

The M-864D is a user friendly rack-mountable digital stereo mixer suitable as a stage manager's mixer in performance venues or as a main mixer for educational or boardroom use. Three user interfaces are available- Front Panel operation, PC control by a Windows PC, or iPad control for a simplified interface. The M-864D accepts TOA 9000 series RS-485 remote controls, contact closure inputs and outputs to trigger presets, etc. and TCP/IP control, making it especially useful in projects that include room combining. Eight mic/line inputs and two groups of three stereo line level inputs are routable to any output by the onboard matrix. DSP includes Feedback Reduction, Automatic Resonance Control, and parametric equalization. Front panel controls may be disabled in software as required.

M-864D GUI Software
for PC or Microsoft Surface



M-864D App for iPad

M-864D Digital Stereo Mixer Optional Remote Control Modules

❖Assignable Remote Button Panel
ZM-9011

- Fits in a standard single-gang electrical box
- Four assignable buttons each with LED status indicator can control Xpoint settings (on/off, select), paging activation, scene and relay activation
- Supplied matching decor plate
- Up to sixteen remotes on two busses (Requires one AD-246 per buss)

❖Assignable Volume Controller
ZM-9012

- Fits standard single-gang electrical box
- Rotary encoder can be assigned to control any input or output. Inputs and outputs may be grouped as required
- Multi-segment LED indicator provides visual volume level status
- Supplied matching decor plate
- Up to sixteen remotes on two busses (Requires one AD-246 per buss)

❖Assignable Remote Button Panel
ZM-9013

- Fits in a standard dual-gang electrical box
- Eight assignable buttons each with LED status indicator can control Xpoint settings (on/off, select), paging activation, scene and relay activation
- Supplied matching decor plate
- Up to sixteen remotes on two busses (Requires one AD-246 per buss)

❖Assignable Remote Button Panel w/ Volume Control
ZM-9014

- Fits in a standard dual-gang electrical box
- Four assignable buttons each with LED status indicator can control Xpoint settings (on/off, select), paging activation, scene and relay activation, volume for any input or output plus all functions of the ZM-9012
- Supplied matching decor plate
- Up to sixteen remotes on two busses (Requires one AD-246 per buss)

Specifications

*0dB = 0.775V

	M-864D
Frequency Response	20Hz – 20kHz
Sampling Frequency	48kHz
Dynamic Range	100dB or more (IHF-A weighted)
Distortion	0.03% or less, 1kHz, +4dB* input/output, 20Hz – 20kHz BPF
Crosstalk	-80dB or less, 1kHz
Input	8 monaural input channels, removable terminal block (3P); Phantom power (+24V DC, 10mA, ON/OFF switchable for each channel); Gain setting (settable per channel) 7 stereo input (L, R) channels (1-A, 1-B, 1-C, 2-A, 2-B, 2-C, front mounted input) RCA jack (3.5 stereo mini jack provided on the front panel): -10dB* (max. +10dB*), 10k; Trim gain for each individual channel: -∞ to 0dB (except front mounted input)
Output	4 output channels, +4dB* (max. +24dB*), applicable load 600 or more, electronically-balanced, removable terminal block (3P) 1 recording output (L, R) channel: -10dB* (max. +10dB*), applicable load 1k or more, RCA jack Gain is adjustable
Contact Input	8 channels, open voltage: 24V DC, short-circuit current: 5mA, removable terminal block (10P)
Contact Output	8 channels, no-voltage make contact, contactcapacity: 24V DC/100mA, removable terminal block (10P)
Remote Control Panel	2 channels, Maximum number of units: 8 units per channel (16 per unit) 24V DC input x 2, termination ON/OFF switch x 1, removable terminal block (10P) Type of cable:Shielded CPEV cable (a pair of data cable and a pair of power supply cable) or shielded Cat 5 twisted pair cable for LAN (CAT5-STP)
Network	Network I/F: 1 channel of 10BASE-T/100BASE-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 (CAT5-STP or better) Maximum cable length: 100m (between M-864D and switching hub)
Preset Memory	16
Signal Processing	Automatic Resonance Control (ARC) Function Feedback Suppressor Function Filter: 8 channels (for each monaural input channel), high-pass filter: 20Hz – 20kHz Tone Controller: BASS, MID-PARAMETRIC, TREBLE Parametric Equalizer: 20Hz – 20kHz, +/-15dB, 4 channels (each output channel) Matrix: 12 x 4 Crosspoint Gain: -∞ to 0dB in 1dB steps Auto Mute Function
Function	Input PAD control, Low cut control, Analog output attenuator control, Front panel operation lock function, Stereo summing function, Function setting panel
Front Panel Section	Input Level Indicator, Output Level Indicator, ARC Measuring Start Switch: ON/OFF switch, Feedback Suppressor (FBS) Function: ON/OFF switch, Low Cut: ON/OFF switch, Stereo Summing: ON/OFF switch Tone Control: BASS/MID/TRWBLE, Monaural Input, Analog Setting: Gain setting, PAD ON/OFF, Phantom power ON/OFF Stereo Input, Analog Setting: Trim setting, REC OUT gain setting, Preset Memory switch, Front Panel Operation Lock switch, Operation Status Indication, Analog Volume Fader
Option	Wall-mount remote controlsl: ZM-9011/9012/9013/9014, AC adapter: AD-246 (one required per remote port)
Personal Computer Requirements	
Requirements	CPU: Pentium 4, 2GHz or faster/ Memory: 1.5GB or more (2GB recommended) Display: 1024 x 768 resolution or higher Free hard Disk Space: 16MB or more. however 600MB or more is required for the 32-bit version or 1.5GB or more for the 64-bit version when "NET Framework" is not yet installed Optical Driver: CD-ROM drive, Network Adapter: 10BASE-T or faster connection
OS	Windows XP SP3 or later, Windows Vista (32/64-it) SP1 or later, Windows 7 (32/64-it edition)
Required Component	NET Framework 4 Client Profile

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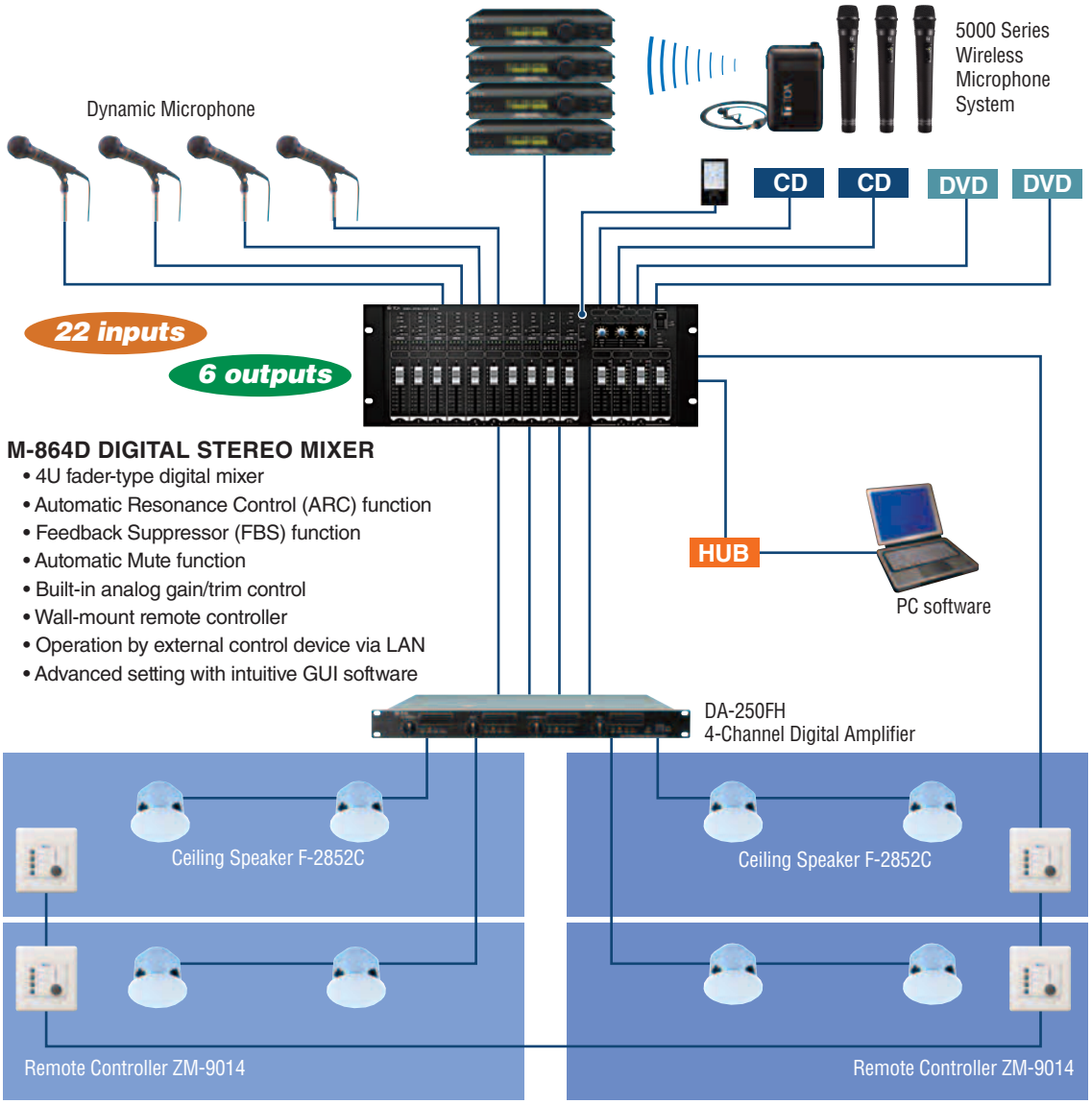
Pentium is a registered trademark of Intel Corporation. Other company names and products are also trademarks of individual companies.

Specifications

	ZM-9011	ZM-9012	ZM-9013	ZM-9014
Power Source	24 V DC (supplied from M-864D)			
Current Consumption	50 mA or less			
Terminal	Removable terminal block (10 pins)			
Connection Cable	Shielded CPEV cable (paired data line and paired power line) or Category 5 twisted pair cable for LAN (CAT5-STP)			
Operating Section	4 function buttons	1 volume control	8 function buttons	4 function buttons, 1 volume control
Indicator	4 function indicators (green LEDs)	Level indicator (green LED) array	8 function indicators (green LEDs)	4 function indicators (green LEDs), Level indicator (green LED) array
Operating Temperature	0°C to +40°C / 32°F to 104°F			
Operating Humidity	35 % to 80 %RH (no condensation)			
Finish	Surface-treated steel plate, white, paint			
Dimensions	72 (W) X 127 (H) X 49.5 (D) mm 2.83" X 5" X 1.95"	72 (W) X 127 (H) X 57.5 (D) mm 2.83" x 5" X 2.26"	120 (W) X 127 (H) X 50.5 (D) mm 4.72" X 5" X 1.99"	120 (W) x 127 (H) x 58.5 (D) mm 4.72" x 5" x 2.3"
Weight	160 g / 0.35 lb		300 g / 0.66 lb	
Included Accessories	Box mounting screw (No.6-32UNC X 30) x 2, Box mounting screw (M4 x 30) x 2, Panel mounting screw x 2, Removable terminal plug (10 pins) x 1		Box mounting screw (No.6-32UNC x 30) x 4, Box mounting screw (M4 X 30) x 4, Panel mounting screw x 4, Removable terminal plug (10 pins) x 1	

Note: No electrical box is supplied with the unit, obtain it separately.

M-864D Digital Stereo Mixer Room Combining Application

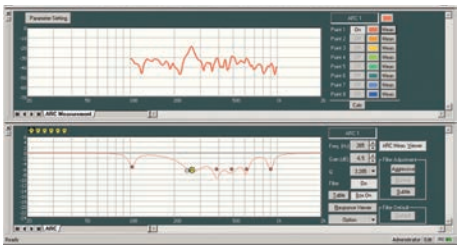


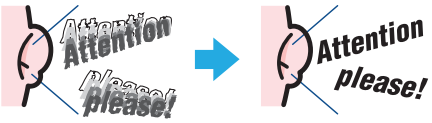
What is ARC?

"Room mode compensation"

Automatic Resonance Control (ARC)

- Advanced measurement and processing algorithm
- Improves speech intelligibility and sound quality in facilities with challenging acoustic environments
- Automatically identifies room mode frequencies
- Applies an inverse response curve to compensate for the measured room response





MM-700F Digital Matrix Mixer

The MM-700F is a four channel matrix/preamp with analog control of digital processing. No PC is required to set up and operate this versatile unit. Enhanced functionality tailored to both background music and paging applications. Matrix and DSP settings, can be made simply, without the need for a computer. Wiring, installation and time spent on adjustments are all greatly reduced. The paging function has a two-levels of priority; by manual activation or by automatic (vox) activation. Ideally suited for establi shments where different kinds of background music are required for different zones, or where staff paging announcements are selectively directed to one area such as a restaurant or sales area. The optional WP-700 provides volume control and source selection for up to four zones.

Specifications

		MM-700F
Power Source		100 - 240V AC, 50/60Hz
Power Consumption		9 W or less
Frequency Response		20Hz - 20 kHz (-3 dB / + 1 dB)
Total Harmonic Distortion		1% or less, at 1kHz, rated output
Certifications		cULus 60065, EN60065, EN55032, EN55020, FCC part15 class A
Input	Priority 1-2:	Mic -60 dB/Line -10 dB* selectable, 2.2 kΩ, electronically-balanced, removable terminal block
	Line In 1-4:	-10 dB*, 10 kΩ, unbalanced, 2 RCA jacks (Stereo summing)
Output	Line Out 1-4:	0 dB*, 600 Ω, unbalanced, removable terminal block
	MOH:	0 dB*, 600 Ω, transformer balanced, removable terminal block
DSP Preset		16 presets in 4 banks (64) at each output channel, selectable
S/N Ratio		Mic: 60 dB* or more, Line: 75 dB* 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, 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 / 32 °F to 104 °F
Operating Humidity		35% to 80%RH (no condensation)
Finish		Panel: Aluminum, hair line, black; Case: Steel plate, black, paint
Dimension		420 (W) x 107.6 (H) x 350 (D) mm / 16.54" x 4.24" x 13.78"
Weight		5.7 kg / 12.3 lbs
Included Accessories		Power cord (2m/5.65ft) 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
Option		WP-700 Wall Panel Remote

*0dB=1V

MM-700F Digital Matrix Mixer Accessory

❖Wall Panel Remote

WP-700

- Volume/Select Wall Panel Remote
- Up to four may be used
- Single-gang wall box
- Applicable cable CAT5/5e/6 STP

Modular Digital Matrix Mixer

M-9000M2

- Flexible modular design - up to 8 mic/line inputs and 8 outputs
- Any combination of inputs may be routed to any combination of outputs
- Detailed GUI software screens make even complex settings intuitive and easy to understand
- Use up to 16 dedicated RS-485 wall-mount remote controls, or control from 3rd party systems using RS-232
- 32 scene memories and 32 paging memories
- Accepts 9000 and 900 series modules (9000 modules are dual input and include DSP, except for the ZP-001T)
- 2 built in line level outputs on frame
- Requires at least one input module

Specifications

	M-9000M2
Power Source	120 V AC, 60 Hz
Power Consumption	40W
Audio Input	Max. 8 channels, modular construction (modules optional)
Audio Output	Preamplifier output 1, 2: 0 dB, 600 Ω, balanced, removable terminal block (3 pins)
Module Slot	Analog input (slot 1 - 8): -10 dB, 10 k Ω, unbalanced; Digital input (slot 1 - 4): 24 bit/48 kHz; MIX output (slot 1 - 8): -14 dB, 330 Ω (CH 1 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 Reference Level	-20 dBFS
Power Bandwidth	20 - 20,000 Hz, 0.008% THD
Frequency Response	20 - 20,000 Hz, +1, -3 dB
Total Harmonic Distortion	0.008% (at 22 kHz LPF, 1 kHz, +10 dB output)
S/N Ratio	At Input short, 20 - 20,000 Hz, set to ALL FLAT or OFF setting; Output volume min.: 90 dB; Output volume max.: 61 dB (Input 1 volume: 0 dB, Other Inputs: OFF)
Cross Talk	Over 64 dB (at 20 kHz)
Tone Control	Bass: ±12 dB (at 100 Hz), Treble: ±12 dB (at 10 kHz)
Parametric Equalizer	10 bands, Freq: 20 - 20,000 Hz, 31 points, various range: ± 12 dB, Q: 0.3 - 5
High-pass Filter	-12 dB/oct, Variable frequency range: 20 - 20 kHz, 31 points
Low-pass Filter	
Compressor	Depth: 1 - 5
Delay	0 - 40 ms (1 ms steps), maximum 40 ms (CH 1 + CH 2) (mixer mode only)
Scene/Event Memory	32
Auxiliary Function	Key lock function
Control Input/Output	RS-232C, 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 pin); Control output: 4 outputs, open collector output, with stand voltage: 27 V DC, control current: 50 mA, removable terminal block (14 pin); Remote volume: 2 channels, connect a 10 kΩ/linear taper variable resistor (AT-10K) or input DC voltage of 0 to +10 V, removable terminal block (14 pin)
Operating Temperature	-10°C to +40°C / 14°F to 104°F
Operating Humidity	35% to 80% RH (no condensation)
Finish	Panel: Aluminum, hair-line, black; Case: Surface-treated steel plate, black, paint
Dimensions	16.54" (W) x 4.24" (H) x 13.9" (D) / 420 (W) × 107.6 (H) × 353 (D) mm
Weight	13.23lbs / 6kg
Included Accessories	Power cord (6.56ft [2m]) x 1, Rack mounting bracket x 2, Bracket mounting screw x 4, Blank panel x 7, Blank panel mounting screw x 14, Removable terminal plug (3 pin) x 2, Removable terminal plug (14 pin) x 1 , CD x 1

Optional modules and accessories begin on page 54.

D-2000 Series Modular Digital Mixer

❖Digital Mixing Processor Unit

D-2008SP

- High quality digital mixing system expandable to 128 channels of input/output using "D" seriesinput/output/control modules
- 24-bus matrix forflexible input-to-output signal routing
- Three modes of automatic microphone mixing; NOM, gated, ducking
- Highly effective assignable feedback suppression algorithms with Auto or Realtime modes
- Professional quality Delay, high-pass, low-pass and notch filters, parametric equalizers, crossovers (with or without variable-Q), compressors/auto levelers, gates, crossovers, crosspoint gain
- 32 preset memories for user convenience
- Intuitive Windows PC GUI for ease of setup and system tuning
- Optional Q-D-2012C provides level and preset control over Ethernet
- D-2000 Series units can be used in conjunction with the optional D-911 VCA Fader Unit providing
- Simple "stage manager" mixer user interface
- RS-232C port allows external control by 3rd party control systems
- Optional CobraNet* module allows linking of frames and connection to other Cobranet devices

Dedicated D-2008 Control Software

D-2000 Series Modular Digital Mixer Modules

❖Mic/Line Input Module

D-2000AD1

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

❖Line Output Module

D-2000DA1

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

❖CobraNet Interface Module

D-2000CB

- Allows audio transmission among D-2008SP's.

Specifications

	D-2000AD1
Input	4 channels, Mic/Line selectable; Mic: -50/-36dB, 2.6kΩ, electronically-balanced Line: -10dB , 2.6kΩ/+4dB 7kΩ, electronically-balanced Connector: XLR-3-31 equivalent, Phantom power supply (48V DC can be used when set for the Mic) Ground lift switch
A/D Converter	24 bit
THD	0.008% or less (+4dB input)

	D-2000DA1
Output	4 channels, +4dB /-10dB (changeable), adaptable load of 600Ω or more, balanced (electronically-balanced)/unbalanced (changeable), XLR-3-32 equivalent
D/A Converter	24 bit
THD	0.008% or less

	D-2000CB
Network I/F	CobraNet*: 100BASE-TX, PRIMARY/SECONDARY 2 system, RJ45 connector, enables decentralized installation. (audio transmission only) Connection Cable: shielded twisted pair (STP) CAT-5 or higher LAN cable (note network should be completely independent of other LAN.) Number of D-2008SP per system: Max. 4 Switching Sub Stage: Max 7 Max Extend Distance: 100m (328.1ft) (connected via a switching hub)
Input	16 channels, 20/24 bit
Output	16 channels, 20/24 bit

* CobraNet* was developed by Cirrus Logic, a US company, and is 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.
* CobraNet is a registered trademark of Cirrus Logic Corporation

* 0 dB = 0.775 V

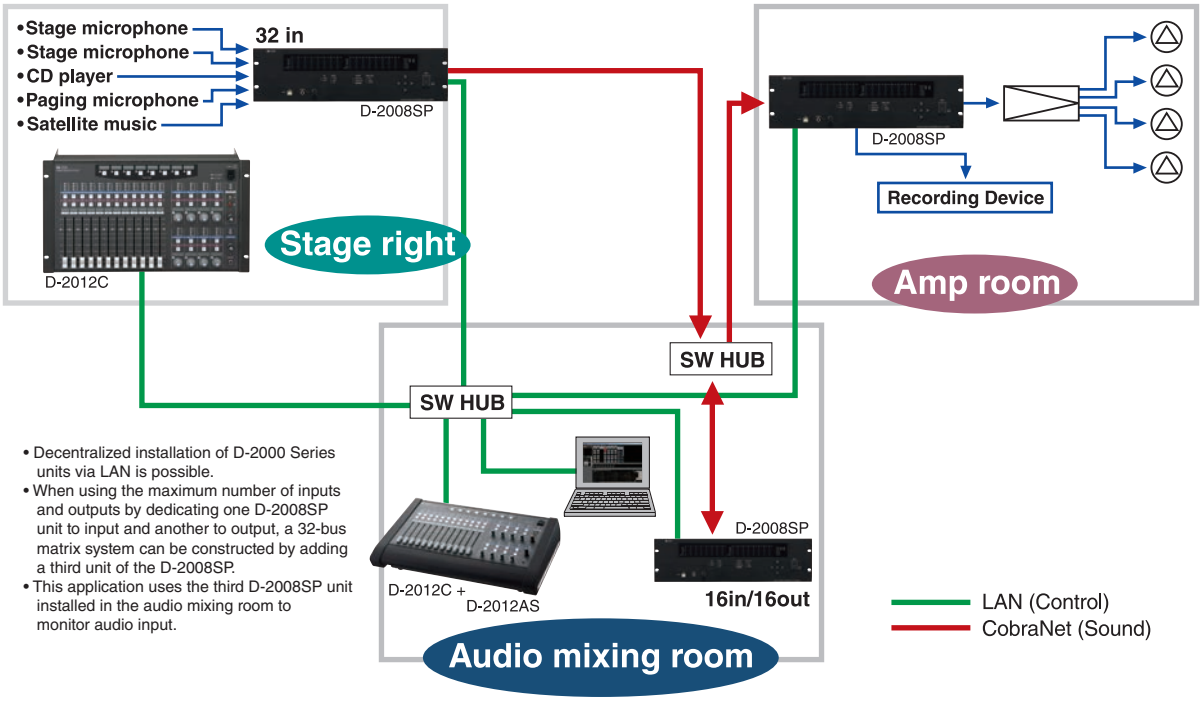
Specifications

	D-2008SP
Power Source	120 V AC, 60 Hz
Power Consumption	78 W
Frequency Response	20 Hz - 20 kHz, ±1 dB (+4 dB* input)
Sampling Frequency	48 kHz
Input and Output	Input: Max. 32 channels, modular construction (modules optional) Output: Max. 32 channels, modular construction (modules optional) Headphone: 1 stereo
Signal Processing	
Feedback Suppression Function	12 filters (auto + dynamic), maximum 4 bus channels
Auto-Mixing Function	Ducker (automatic muting), NOM attenuation
Auto-Mixing Group	4 groups
Equalizer / Filter	Parametric equalizer: 20 Hz - 20 kHz, ±15 dB, Q: 0.267-69.249 Filtering: High-pass filter 20 Hz - 20 kHz, 6 dB/oct, 12 dB/oct Low-pass filter 20 Hz - 20 kHz, 6 dB/oct, 12 dB/oct Notch filter 20 Hz - 20 kHz, Q: 8.651 - 69.249 All-pass filter 20 Hz - 20 kHz, Q: 0.267 - 69.249 High shelving filter 6 - 20 kHz, ±15 dB Low shelving filter 20 - 500 Hz, ±15 dB Horn equalizer 20 kHz, 0 to +18 dB (0.5 dB steps) Crossover filter: 20 Hz - 20 kHz, 6 dB/oct, 12 dB/oct, 18 dB/oct, 24 dB/oct
Compressor / Auto-Leveler	(Compressor mode) Threshold: -20 to +20 dB (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, 5: 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 Gain: -∞ - +10 dB Knee type: hard knee, soft knee 1, soft knee 2 (Auto-leveler mode) Target level: -20 to + 10 dB (1 dB steps) Maximum gain: 0 to + 20 dB (1 dB steps) Attack time: 10 ms - 10 s Release time: 100 ms - 10 s
Output Delay	Delay time: 0 - 1360 ms (0.021 ms steps)
BUS Delay	Delay time: 0 - 677 ms (0.021 ms steps)
Matrix	Input: Max. 34 (32+2) channels x 24 buses, Output: Max. 44 (24 + 4 + 16) buses x 32 channels
CobraNet Matrix	Input: Max. 16 channels x 24 buses, Output: Max. 28 (24 + 4) buses x 16 channels
Crosspoint Gain	-∞ - 0 dB (1 dB steps)
Preset Memory	32
Auxiliary Function	Key Locking function
LAN	Network I /F: 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: 100m (between D-2008SP and switching hub)
Control	RS-232C: D-sub connector (9 pins) Used for external control Module: Remote control module slot: 2
Operating Temperature	+5°C to +40°C / 41°F to 104°F
Finish	Panel: Aluminum, hair-line finish, black Case: Surface-treated steel plate
Dimensions	482 (W) x 132.6 (H) x 343.4 (D) mm / 18.98" x 5.22" x 13.52"
Weight	6.3 kg / 13.89 lb
Include Accessories	Power cord (2 m / 6.5 ft) x 1, Module mounting screw (spare) x 4, Blank panel (preinstalled on the module slot) x 8, CD (Set-up software) x1
Option	Mic/line input module: D-2000AD1, D-921 E, D-921 F, D-922E, D-922F Stereo select input module: D-936R Digital input module: D-923AE, D-937SP Line output module: D-971 E, D-971 M, D-971 R, D-2000DA 1 Digital output module: D-961 SP, D-972AE CobraNet interface module: D-2000CB Remote control module: D-981, D-983 VCA control module: D-984VC
Personal Computer Requirements	
CPU	Intel Pentium4 2 GHz or higher
Memory	1.5 GB or more (2 GB or more recommended)
Display	1024 X 768 resolution or higher
Free Hard Disk Space	16 MB or more (for D-2000 Setting Software installation) 500 MB or more (when "NET Framework" needs to be installed)
LAN Card	Compatible to 10BASE-T or faster connection
OS	Windows XP SP2 or later, Windows Vista (32/64-bit edition), Windows 7 (32/64-bit edition)
Required Component	.NET Framework 3.5 SP1

Pentium is a registered trademark of Intel Corporation.

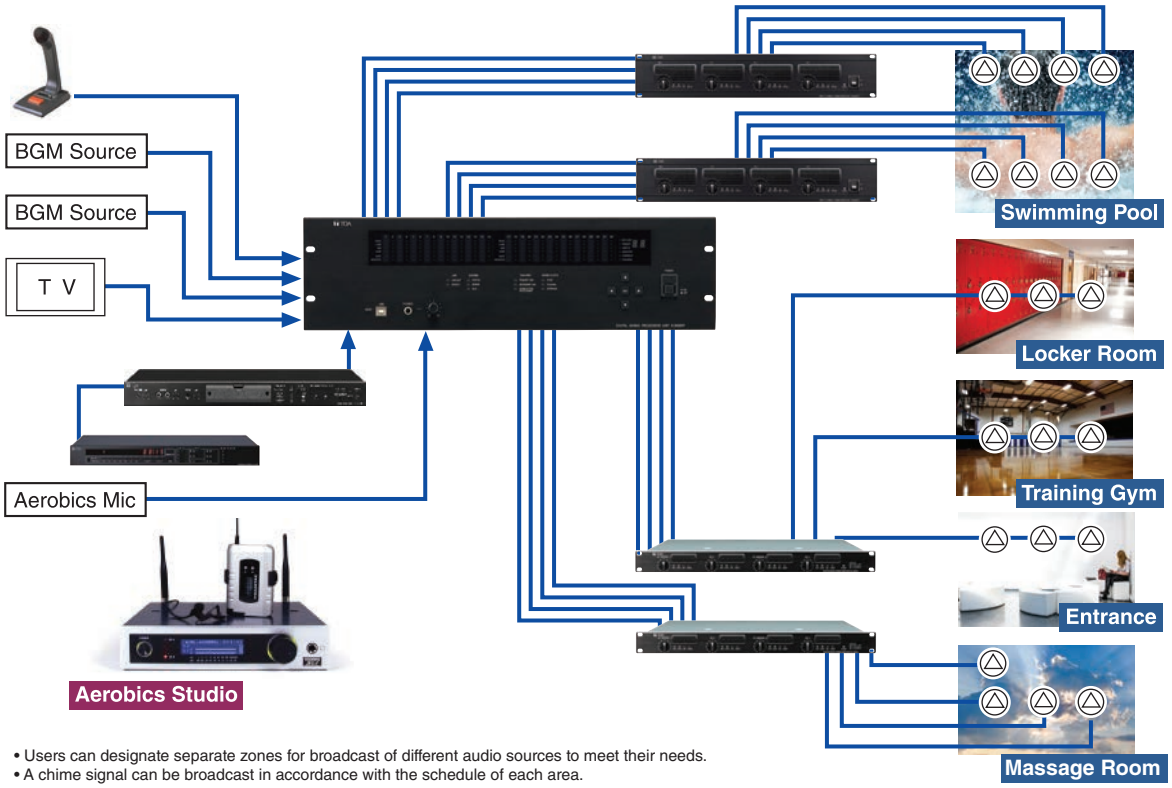
Windows, Windows Vista is a registered trademark of Microsoft Corporation.

D-2000 Series Modular Digital Mixer Municipal Hall Application



- Decentralized installation of D-2000 Series units via LAN is possible.
- When using the maximum number of inputs and outputs by dedicating one D-2008SP unit to input and another to output, a 32-bus matrix system can be constructed by adding a third unit of the D-2008SP.
- This application uses the third D-2008SP unit installed in the audio mixing room to monitor audio input.

D-2000 Series Modular Digital Mixer Fitness Club Application



- Users can designate separate zones for broadcast of different audio sources to meet their needs.
- A chime signal can be broadcast in accordance with the schedule of each area.

D-2000 Series Modular Digital Mixer Optional Accessories

The Q-D-2012C is a network connected remote control surface designed for use with the D-2008SP Digital Mixing Processor. The Q-D-2012C's 12 motorized faders and 8 rotary encoders can remotely adjust input or output volumes. 8 function keys allow recall of Preset memories. The Q-D-2012C is equipped with one stereo line level input, which allows a local source to be transmitted to the D-2008SP. Audio signals i can be monitored via headphones using the dedicated monitor bus. The Q-D-2012C can be installed on a desk with the additional use of an optional Q-D-2012AS Console Case.

❖Remote Console Unit
Q-D-2012C

Specifications

*0 dB= 0.775 V

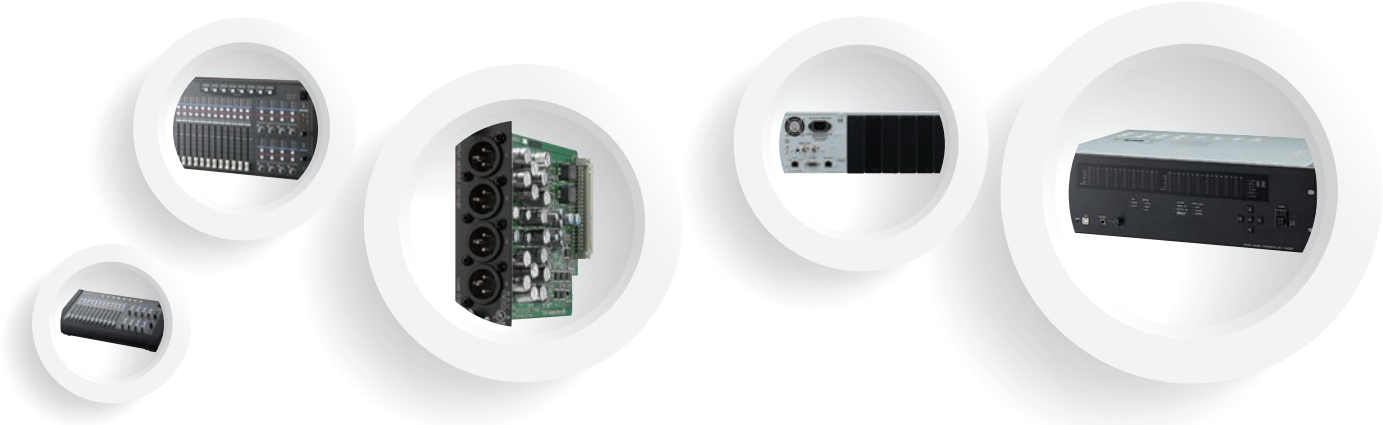
	Q-D2012C
Power Source	220 - 240 V AC, 50/60 Hz
Power Consumption	18 W
Volume Adjustment	100 mm motorized fader x 12
Line Input	1 channel (stereo), + 10 to -20 dB*, 10 kO, unbalanced, RCA Pin-jack
Headphone Output	Stereo 100 mW + 100 mW (32 0 load), standard stereo phone-jack
Monitor Bus	1 stereo input, 1 stereo output Connector: RJ45 connector Connection cable: Shielded twisted pair (STP) Cat 5 or higher LAN cable (2 pairs of data lines) Maximum cable distance: 100 m (109.36 yd) (between Q-D-2012C and D-2008SP)
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) Cat 5 or higher LAN cable Maximum cable distance: 100 m (109.36 yd) (between D-2008SP and switching hub)
Control	RS-232C: D-sub connector (9 pins) for maintenance use
Finish	Panel: Surface-treated steel plate, Laminated with polycarbonate sheet, gray, mat; Rack mounting bracket: Surface-treated steel plate, gray, mat
Dimensions	482 (W) X 266 (H) X 138 (D) mm / 18.98" X 10.4" X 5.43"
Weiqht	6.6 kg / 14.55 lb
Included Accessories	Power cord (2 m / 6.5 ft) x 1, Rack mounting screw x 4, Fader knob (yellow) x 3, Fader knob (red) x 3, Cord clamp (fitting screw) x 1
Option	Console case: Q-D-2012AS

❖Console Case for Q-D-2012C
Q-D-2012AS

Q-D-2012C pictured with Q-D-2012AS Case

Specifications

	Q-D-2012AS
Finish	Side Panel: MDF, black, paint, mat; Armrest: MDF, synthetic-leathered, black, mat; Decorative panel: Stainless steel, silver
Dimensions	505 (W) x 127.5 (H) x 333.3 (D) mm / 19.88" x 5.02" x 13.12" (assembled)
Weight	2.3 kg / 5.07 lb (assembled: 7.5 kg / 16.53 lb)
Accessory	Assemble screw x 11, Rubber foot x 4, Rubber foot mounting screw x 4



D-901 & D-2000 Series Modular Digital Mixer Optional Input Modules

❖Mic/Line Input Module (24 bit/ Monaural Type)

D-921E

- Two balanced mic or line level inputs
- 24-bit A/D converters
- Adjustable input sensitivity gain (via software setting)
- +15V Phantom power (via software setting)
- Phoenix-style terminal block

❖Mic/Line Input Module (24 bit/ Monaural Type)

D-921F

- Two balanced mic or line level inputs
- 24-bit A/D converters
- Adjustable input sensitivity gain (via software setting)
- +15V Phantom power (via software setting)
- XLR-F connectors

❖Mic/Line Input Module (20 bit/ Monaural Type)

D-922E

- Two balanced mic or line level inputs
- 20-bit A/D converters
- Adjustable input sensitivity gain (via switch)
- +15V Phantom power (via switch)
- Phoenix-style terminal block connectors

❖Mic/Line Input Module (20 bit/ Monaural Type)

D-922F

- Two balanced mic or line level inputs
- 20-bit A/D converters
- Adjustable input sensitivity gain (via switch)
- +15V Phantom power (via switch)
- XLR-F connectors

❖Stereo Select Input Module

D-936R

- Four stereo connector pairs
- Unbalanced line level
- Individual input gain
- Programmable switching between connector pairs or summing mode
- Occupies two input channels
- RCA pin jack connectors

❖AES/EBU Digital Input Module

D-923AE

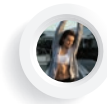
- Two digital inputs
- AES/EBU format
- XLR-F connector
- Maximum distance: 328ft (100m)

Specifications

	D-921E*2	D-921F	D-922E*2	D-922F	D-936R
Input	2 channels, Mic/Line changeable Mic: –50/–36dB*1 , 4.7k Ω , electronically-balanced Line: –10/+4dB*1 , 10k Ω , electronically-balanced Phantom power supply (+15V, can be used when set for the microphone via software) Ground lift switch		2 channels, –50/–36/–10/+4dB*1 (Selectable with the DIP switch), 4.7k Ω , electronically-balanced Phantom power supply (15V, can be set with the DIP switch) Ground lift switch (can be set with the DIP switch)		4 stereo inputs (selection of 1 stereo or mixing or all 4 stereo inputs) –10dB*1 , 10k Ω
Connector Type	Removable terminal block	XLR-3-31 female	Removable terminal block	XLR-3-31 female	RCA pin jack
A/D Converter	24 bits		20 bits		
Frequency Response	20 – 20,000Hz, ± 1dB (+4dB*1 input)				
Sampling Frequency	48kHz				
Dynamic range	Over 100 dB (IHF-A weighted) (+4dB*1 input)		Over 85 dB (IHF-A weighted) (+4dB*1 input)		Over 100dB (IHF-A weighted)
Total Harmonic Distortion	Under 0.05% (+4dB*1 input)		Under 0.2% (+4dB*1 input)		Under 0.5%
Finish	Panel: Pre-coated steel plate, black, 30% gloss				
Dimensions	1.4" (W) x 4.7" (H) x 7" (D) / 35 (W) x 119.5 (H) x 178.4 (D) mm				
Weight	0.31lbs / 140 g	0.33lbs / 150 g	0.28 / 125g	0.3lbs / 135 g	0.32lbs / 145 g

*1 0dB = 0.775V

*2 Accessory: (D-921E/D-922E). Removable terminal block type connector (preinstalled on the unit) x 2



D-901 & D-2000 Series Modular Digital Mixer Optional Output Modules

❖AES/EBU Digital Output Module
D-972AE

- Four digital outputs
- AES/EBU format
- XLR-M connectors
- Maximum distance: 328ft (100m)

❖Line Output Module
D-971M

- Four balanced line level outputs
- XLR-M connectors

❖Line Output Module
D-971E

- Four balanced line level outputs
- 3-pin phoenix-style terminal block connectors

❖Line Output Module
D-971R

- Four stereo or mono sum line level outputs
- RCA pin jack connectors

Specifications

	D-971M	D-971E*2	D-971R	D-972AE
Output	4 channels, +4dB*1, adaptable load of over 600 Ω, electronically-balanced		4 channels (2 outputs for each channel), –10dB*1, adaptable load of over 600 Ω	4 channels, 5.0 V (p-p), 110 0, XLR-3-32 or equivalent X 2
Connector Type	XLR-3-32	Removable terminal block	RCA pin jack	--
Applicable Format	--			AES/EBU (2 channel multiplexed)
D/A Converter	24 bits			--
Sampling Frequency	48kHz			
Frequency Response	20 – 20,000Hz, ± 1dB			--
Dynamic range	Over 100dB (IHF-A weighted)			--
Total Harmonic Distortion	Under 0.05%			--
Finish	Panel: Pre-coated steel plate, black, 30% gloss			
Dimensions	1.38" (W) x 4.7" (H) x 7" (D) / 35 (W) x 119.5 (H) x 178.4 (D)mm			
Weight	0.36lbs / 165g	0.31lbs / 140g	0.33lbs / 150g	130g

*1 0dB = 0.775V

*2 Accessory: Removable terminal block type connector (preinstalled on the unit)

D-901 & D-2000 Series Modular Digital Mixer Optional Control Modules

❖Remote Control Module
D-981

- Eight programmable switch closure inputs for activation of memory, volume up/down, channel on/off and stereo input selection
- Eight programmable relay outputs of memory, channel on/off, contact input status and stereo input selection

❖Remote Control Module
D-983

- Twenty-four programmable switch closure inputs for activation of memory, volume up/down, channel on/off and stereo input selection
- Sixteen programmable relay outputs of memory, channel on/off, contact input status and stereo input selection

Specifications

	D-981*2	D-983
Contact input	COM + terminals 1-8: Open voltage: 5V DC, short-circuit current: 5mA removable terminal block type connector	COM + terminals 1-24: Open voltage: 5V DC, short-circuit current: 5mA RJ45 connector x 4
Control		
Preset memory selection	Any preset memory can be recalled. Control method: No-voltage make of over 100ms/no-voltage make single pulse of over 100ms	
Volume control	Any input/output channel volume can be turned UP or DOWN. Control method: 1 step variation for no-voltage make single pulse of over 100ms 1 step continuous operation for every 70ms for no-voltage make of over 100ms. Can be reset when at break. Variable range; - ∞ dB to +10dB	
Channel	Any input/output channels can be turned ON and OFF. Control method: No-voltage make of over 100ms/no-voltage make single pulse of over 100ms	
Stereo selection	Input channel lines of the D-936R (optional) or the D-937SP (optional) (4 stereo input module) can be selected. Control method: No-voltage make of over 100ms/no-voltage make single pulse of over 100ms	
Contact output	COM + terminals 1-8: No-voltage make contact input, contact capacity: 24V DC, 100mA removable terminal block type connector	COM + terminals 1-16: No-voltage make contact input, contact capacity: 24V DC, 100mA RJ45 connector x 4
Finish	Panel: Pre-coated steel plate, black, 30% gloss	
Dimensions	1.38" (W) x 4.7"(H) x 7" (D) / 35 (W) x 119.5 (H) x 178.4 (D)mm	
Weight	0.28lbs / 125g	0.37lbs / 170g

*1 0dB = 0.775V

*2 Accessory: Removable terminal block type connector (preinstalled on the unit)

D-901 & D-2000 Series Modular Digital Mixer Optional Control Module

❖VCA Control Module

D-984VC

- Eight RJ-45 connectors
- Control up to 12 inputs, eight outputs
- Interface to D-911 Remote Controller via Cat5 cables
- Eight programmable switch closure inputs for activation of memory, volume up/down, channel on/off and stereo input selection
- Eight programmable relay outputs of memory, channel on/off, contact input status and stereo input selection

Specifications

	D-984VC
VCA Control Input	+5 V, GND, Terminal 1 - 20 (12 Input channels, 8 output channels), RJ45 connector x 4 Control contents: Volume control of each input/output channel Variable range: -∞dB to + 0 dB
Contact Input	COM + Terminal 1 - 8: Open voltage: 5 V DC, short-circuit current: 5 mA, RJ45 connector X 2
Control	
Preset Memory Selection	Any preset memory can be recalled. Control method: No-voltage make of over 100 ms / No-voltage make single pulse of over 100 ms
Volume Control	Any input/output channel volume can be turned UP or DOWN. Control method: 1 step variation for no-voltage make single pulse of over 100 ms 1 step continuous operation for every 70ms for no-voltage make of over 100ms. Can be reset when at break. Variable Range: -∞dB to + 10 dB
Channel	Any input/output channel can be turned ON and OFF. Control method: No-voltage make of over 100 ms / No-voltage make single pulse of over 100 ms
Stereo Selection	Input channel lines of the D-936R (optional) (4 stereo input module) can be selected. Control method: No-voltage make of over 100 ms / No-voltaae make sin ale pulse of over 100 ms
Contact Output	COM + Terminals 1 - 8: No-voltage make contact, contact capacity: 24 V DC, 100 mA, RJ45 connector x 2
Finish	Panel: Pre-coated steel plate, black, 30% gloss
Dimensions	35 (W) X 119.5 (H) X 178.4 (D) mm / 1.4" x 4.7" x 7"
Weight	170 g / 0.37 lbs

D-901 & D-2000 Series Modular Digital Mixer Optional Fader Control

❖VCA Fader Unit

D-911

- Remote control of up to twelve inputs and eight outputs
- Eight programmable control switches and LED's
- Connects to D-984VC module via Cat5 cables (maximum distance 100m / 328ft using Cat5)

Specifications

	D-911
Power Supply	5 V DC (supplied from the optional D-984VC)
Connector	RJ45 connector x 8
Input Fader Control	Input fader (100 mm) X 12
Output Volume Control	Output volume control x 8
Contact Control	Illuminated switch x 8
Remote Output	No-voltage make contact output (contact capacity: 30 V DC, 4 A)
Remote Switch	Seesaw switch for activating the remote function of the power distributor
Finish	Panel: Pre-coated steel plate, black, 30% gloss
Dimensions	482.6 (W) X 177 (H) X 61.3 (D) mm / 19" x 7" x 2.4" (excluding projection)
Weight	2.7 kg / 6 lbs
Included Accessories	Fader knob (Red, Yellow) x 3 each, Volume knob (Red) x 2, Rack mounting screw x 4, Rack mounting bracket (preinstalled on the unit) x 2

Modular Digital Mixer

D-901

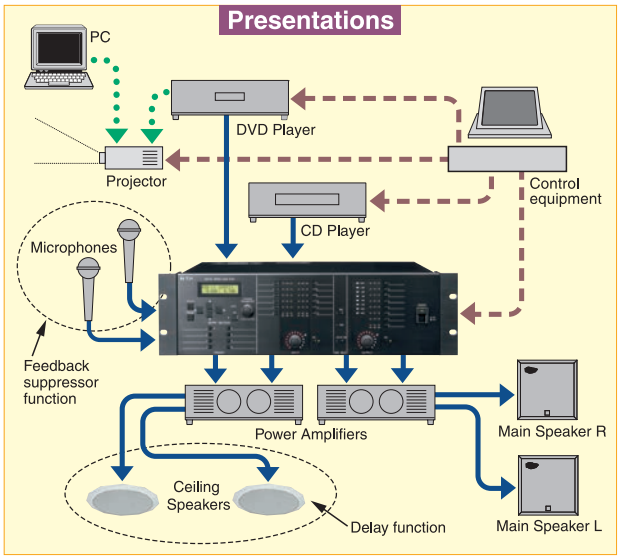
- Modular design allows versatile configurations of up to 12 inputs and 8 outputs
- Auto-Mixing allows “set-and-forget” operation
- Feedback Suppression automatically attenuates up to 12 problem frequencies
- Eight bus matrix with crosspoint gain control allows flexible input-to-output signal routing for zoning or room-combining
- PC software for offsite programming and archiving settings
- 16 internal memories for storage and recall of different signal routing and parameter configurations
- RS-232 control for 3rd party systems (AMX and Crestron software modules available)

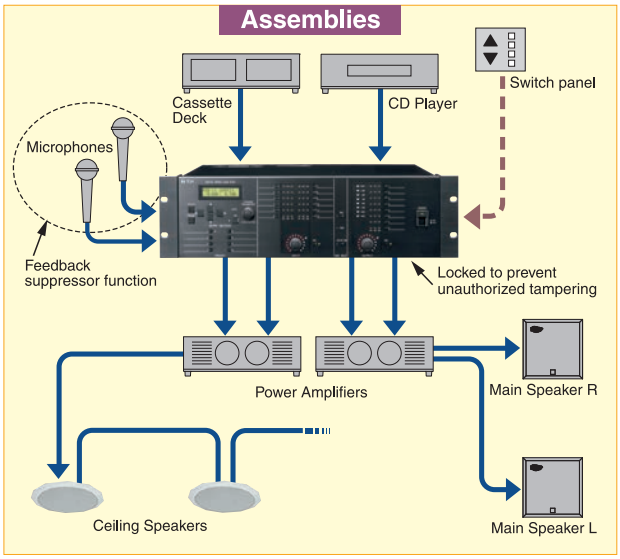
* 0 dB = 0. 775 V

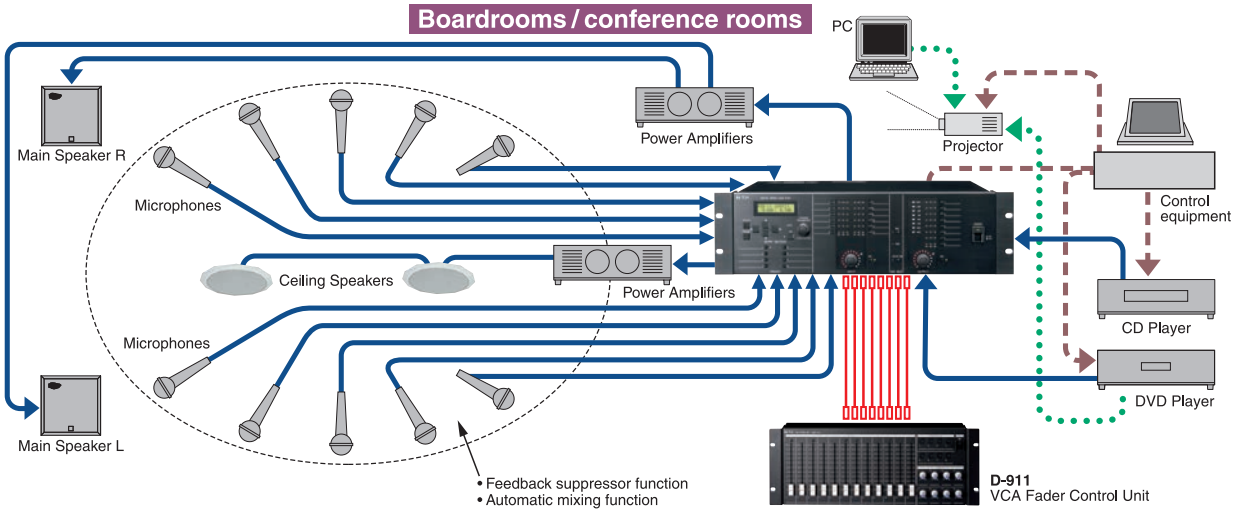
Specifications

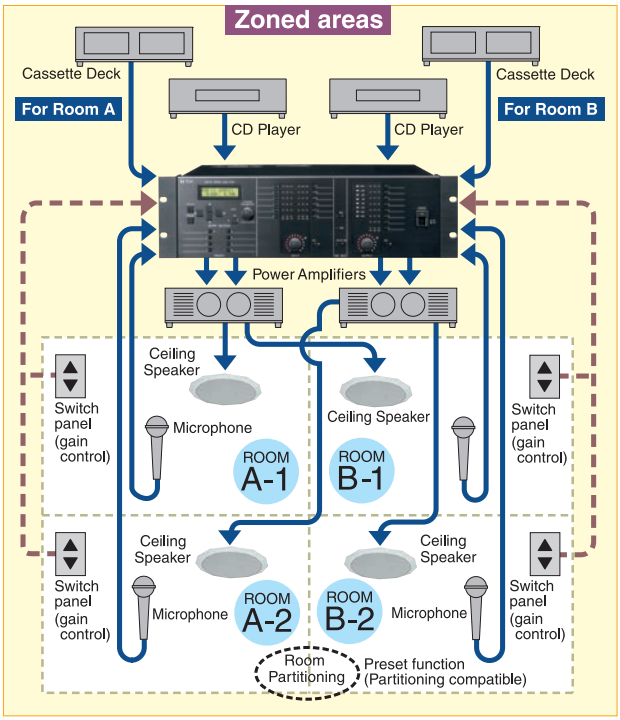
	D-901
Power Source	100 - 120 V, 230 V AC, 50/60 Hz
Power Consumption	40 W
Frequency Response	20 - 20,000 Hz, ±1 dB (+4 dB* input)
Input	Max. 12 channels, modular construction (modules optional)
Output	Max. 8 channels, modular construction (modules optional)
Signal Processing	
Feedback Suppression Function	12 filters (auto/dynamic)
Auto-Mixing Function	Ducker (automatic muting), NOM attenuation
Auto-Mixing Group	4 groups
Equalizer / Filter	Parametric equalizer: 20-20,000 Hz, ±15 dB, Q: 0.267-69.249 Filtering: High-pass filter 20 - 20,000 Hz, 6 dB/oct, 12 dB/oct Low-pass filter 20 - 20,000 Hz, 6 dB/oct, 12 dB/oct Notch filter 20 - 20,000 Hz, Q: 8.651 - 69.249 All-pass filter 20 - 20,000 Hz, Q: 0.267 - 69.249 High shelving filter 6 - 20,000 Hz, ±15 dB Low shelving filter 20 - 500 Hz, ±15 dB Horn equalizer 20 kHz, 0 to +18 dB (1 dB steps) Crossover filter: 20 - 20,000 Hz, 6 dB/oct, 12 dB/oct, 18 dB/oct, 24 dB/oct
Compressor / Auto-Leveler	(Compressor mode) Threshold: -20 to + 20 dB (1 dB steps) Ratio: 1:1, 2:1, 3:1, 4:1, 8:1, 12:1, 20:1,oo:1 Attack time: 0.2 ms - 5 s Release time: 10 ms to 5 s Gain: -∞ to +10 dB (Auto-leveler mode) Target level: -20 to +20 dB (1 dB steps) Maximum gain: 0 to + 20 dB (1 dB steps) Attack time: 10 ms - 10 s Release time: 100 ms to 10 s
Delay	Delay time: 0 - 682.6 ms (0.021 ms steps)
Matrix	12 X 8
Crosspoint Gain	-∞ to 0 dB (1 dB steps)
Preset Memory	16
Auxiliary Function	System Lockinq 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 color LED Output level indicator: Dual color LED Channel selector key: 12 (input channel selection); 8 (output channel selection) Channel volume control: 1 (input channel selection); 1 (output channel selection)
Rear Panel	Input module slot: 6 (input/output module slot: 2) Output module slot: 2 Remote control module slot: 1
Operating Temperature	+5°C to +40°C / 41°F to 104°F
Finish	Panel: Aluminum, hair-line finish, black Others: Pre-coated steel plate, black, 30% gloss
Dimensions	482.6 (W) X 132.6 (H) X 320 (D) mm / 19” x 5.2” x 12.6” (excluding projection)
Weight	6.9 kg / 15.2 lbs
Included Accessories	Power cord (2 m) x 1, Rack mounting screw x 4, Rack mounting bracket (pre installed on the unit) x 2, Module mounting screw (spare) x 4, Blank panel (preinstalled on the module slot) x 9
Option	D-911 VCA surface control fader unit

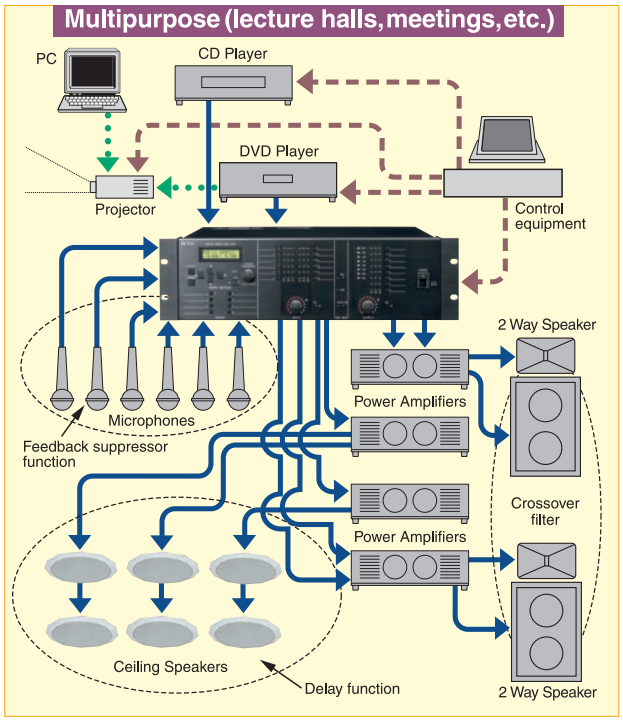
Modular Digital Mixer Common System Configuration Examples











Digital Stereo Mixer

M-633D

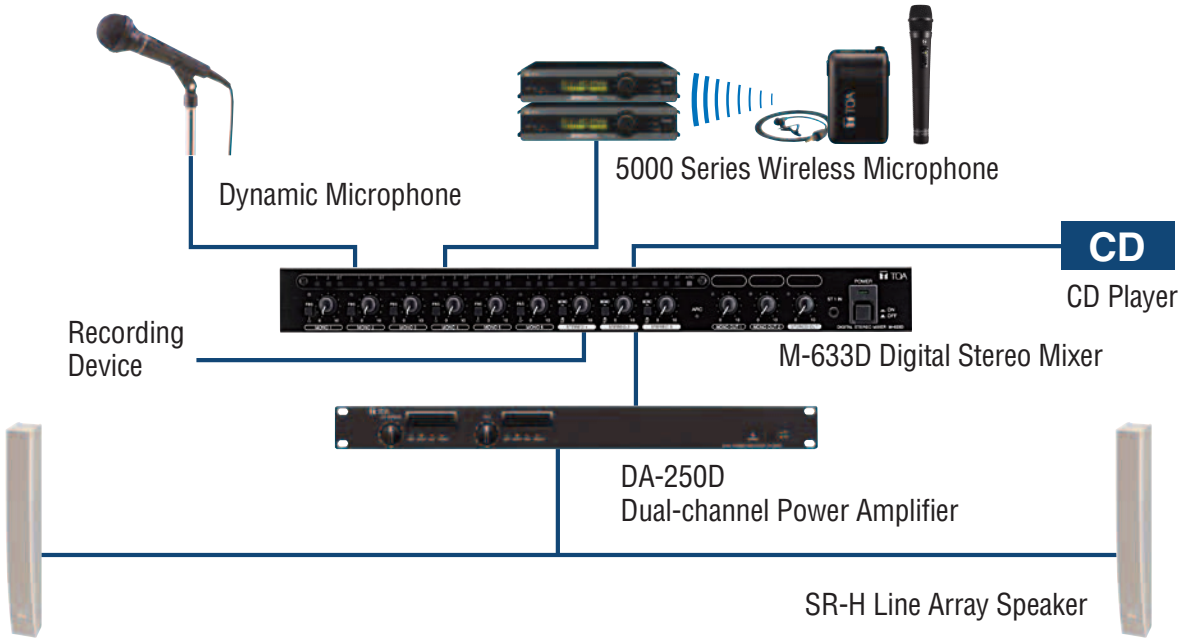
- Inputs may be assigned to either of two mono busses, or a stereo output bus
- ARC to identify and control unwanted room resonances
- Features:
  - Automatic Resonance Control (ARC) function, Feedback Suppression function, and Automatic Clipguard enhance sound intelligibility
  - Automatic mute
  - Stereo mixer with 12 input channels (6 monaural inputs and 3 stereo inputs) and 6 output channels (2 monaural outputs, 1 stereo output, and 1 stereo recording output)
- Ideal for houses of worship, gymnasiums, meeting rooms, and more

*0 dB = 1V

Specifications

	M-633D
Input	6 monaural input channels, switchable LINE, MIC or PHANTOM LINE: -10dB*, 2.4k Ω; MIC:-46 dB*, 2.4k Ω PHANTOM:-46 dB*, 2.4k Ω, +24V Dc, electronically balanced Removable terminal block (3 pins), phone jack, 3 stereo inputs (L, R) -10 dB* / 10k Ω, RCA jack, stereo mini jack
Bus Line	Monaural channel x 2, stereo channel x 1
Frequency Response	20 Hz - 20kHz
Sampling Frequency	48 kHz
A/D Converter	24 bits
D/A Converter	25 bits
Dynamic Range	90 dB or more (IHF-A weighted)
Output	2 monaural outputs; 0 dB*, electronically balanced, removable terminal block (3 pins) 1 stereo output (L, R); 0 dB*, electronically balanced, removable terminal block (3 pins) 1 stereo recording output (L, R); -10 dB*, RCA jack
Signal Processing	Automatic Resonance Control (ARC); Feedback Suppressor (FBS); Automatic Clipguard (ACG); Automatic Mute
Dimensions	16.54" (W) x 1.73" (H) x 13.44" (D) / 420 (W) x 44 (H) x 341.1 (D) mm
Weight	8.82lbs / 4kg

Digital Stereo Mixer System Example



6-Channel Stereo Mixer

M-243

- Two mono mic/line inputs, each with compressor and high pass filter
- Four stereo inputs with RCA and 1/4" phone plug connectors
- Stereo output with separate paralleled record outputs
- Two mono outputs, switchable to stereo sum
- Inputs independently assignable to any combination of stereo and mono outputs
- Stereo and mono sub-inputs for direct access to individual mixing buses
- Auto-priority of mono over stereo inputs for paging/BGM applications
- Low and high frequency EQ for stereo output (with clipping indicators)
- Security cover and rack-mount kit included (1 RU)

*0 dB = 0.775 V

Specifications

	M-243
Power Source	120 V AC, 50/60 Hz
Power Consumption	10 W
Monaural Input	Line: -10 dB*, 10 kΩ, unbalanced, phone jack; Mic: -60 dB*, 1 kΩ, balanced, XLR3-pin connector; Mic (Pad): -40 dB*, 1 kΩ, balanced, XLR3-pin connector
Stereo Input (L, R)	-10 dB*, 10 kΩ, unbalanced, RCA jack
Auxiliary Stereo Input	+4 dB*, 50 kΩ, unbalanced, phone jack
Stereo Output (L, R)	+4 dB*, 1 kΩ, unbalanced, phone jack
Monaural Output (1, 2)	+4 dB*, 1 kΩ, unbalanced, RCA jack
REC Output (L, R)	-10 dB*, 1 kΩ, unbalanced, RCA jack
Frequency Response	20 - 20,000 Hz (+1, -2 dB)
T.H.D.	0.01 % or less (1,000 Hz, rated input/output)
Noise Level (IHF-A)	When all volume controls are in minimum position: Stereo Output (L, R): -105 dB* or less; Monaural Output (1, 2): -98 dB* or less When the stereo, monaural (1, 2) are in maximum position: Stereo Output (L, R): -94 dB* or less; Monaural Output (1, 2): -95 dB* or less
Finish	Front Panel: Alumite, black Case: Steel, black
Dimensions	19.02" (W) × 1.81" (H) × 11.88" (D) / 483 (W) × 46 (H) × 301.8 (D) mm
Weight	8.38lbs / 3.8kg
IncidedAccessories	Rack mounting screw x 4, Rubber foot x 4, Knob (blue, small) x 2, Knob (red, small) x 2, Knob (blue, large) x 1, Knob (red, large) x 1

Digital Speaker Processor

The DP-SP3 Digital Speaker Processor is a professional grade loudspeaker processor that provides all the tools needed to set up and tune performance sound systems. Well suited for use with our SR-A, SR-C and HX-7 loudspeaker system, the DP-SP3 can also be used as a high performance distribution amplifier.

DP-SP3

- 10 filters on each input and 12 filters on each output
- 2 inputs & 6 outputs, for passive, bi-amplified and tri-amplified systems
- 24-bit, 96 kHz sampling for crystal-clear, professional quality audio
- Setting and operation via a LAN connected PC using the supplied dedicated control/operation software
- 16 Preset memories
- Preset sync capability when used in conjunction with the M-864D mixer

*0dB = 0.775V

Specifications

	DP-SP3
Frequency Response	20Hz – 20kHz, ±1dB
Sampling Frequency	96kHz
Dynamic Range	110dB or more
Distortion	0.03% or less, 1kHz, +4dB* input/output 20Hz – 20kHz BPF
Crosstalk	-80dB or less, 1kHz
Input	2 channels, +4dB* (Max. +24dB*), 10kΩ, electronically-balanced, removable terminal block (3P)
Output	6 channels, +4dB* (Max. +24dB*), applicable load 600Ω or more, electronically-balanced, removable terminal block (3P)
A/D Converter	24 bits
D/A Converter	24 bits
Preset memory	16
Signal Processing Section	
Equalizer/Filter	Parametric equalizer: 20Hz – 20kHz, ±15dB, Q: 0.267 – 69.249 Filter: High-pass filter; 20Hz – 20kHz, 6dB/oct, 12dB/oct Low-pass filter; 20Hz – 20kHz, 6dB/oct, 12dB/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, ±15dB Low-shelving filter; 20 – 20kHz, ±15dB Horn equalizer; 20kHz, 0 – 18dB in 0.5dB steps
Crossover	2 ways, 3 ways, 4 ways Crossover filter: 20Hz – 20kHz, 6dB/oct, 12dB/oct, 18dB/oct, 24dB/oct, -15 to +12 dB, polarity switchable Delay: 0 – 170.656ms in 0.01ms steps
Compressor	Threshold: -20 to +20dB* in 1dB 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: 0.2ms – 5s, Release time: 10ms – 5s
Delay	Delay time: 0 – 682.656ms in 0.01ms steps
Matrix	2 x 6
Crosspoint Gain	-∞ to 0dB in 1dB steps
Function	Input PAD (-14dB) control, analog output attenuator (-∞ to 0dB in 1dB steps) control, EQ characteristic library for TOA speakers via brower access, input/output level indicator (4-point LED indicator), output MUTE switch x 6
Control	
Contact Inputs	4 channels, open voltage: 5V DC, short-circuit current: 5mA, 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: 109.36 yd (100m) (between DP-SP3 and switching hub)
Dimensions	482 (W) x 44 (H) x 289 (D) mm / 18.98" x 1.73" x 11.38"
Weight	3.1kg / 6.83lbs

DP-SP3 Software

Digital Audio Procesor

The DP-K1 is a 3U rack mountable Digital Audio Processor. It features Automatic Resonance Control (ARC) that automatically generates an optimum filter curve to improve sound clarity after measuring the room's acoustic characteristics. It permits flexible configuration of inputs and outputs, from 2-input/4-output to 8-input/8-output using optional "D" series modules. All functions are set by a PC using the simple, dedicated software. Settings can be stored in internal memory and can be recalled using contact closure or IP protocol.

DP-K1

- Modular design allows up to 8 mic/line inputs and 8 line outputs (modules not included)
- Auto Resonance Control (ARC): Advanced measurement and processing algorithm improves speech intelligibility and sound quality in facilities with challenging acoustic environments
- Essential audio processing tools — compressors, gates, crossovers, multi-band filtering, parametric, high/low-pass, all-pass and notch filters, horn EQ, high/low shelving and output delay

*0dB= 0.775 V

Specifications

	DP-K1
Power Source	100 - 120 V AC, 50/60 Hz
Power Consumption	40 W (750 mA)
Frequency Response	20 Hz - 2 kHz, ±1 dB (+4 dB* input)
Input	Max. 8 channels, modular construction (modules optional)
Output	Max. 8 channels, modular construction (modules optional)
Signal Processing	
Automatic Resonance Control Function	Parametric equalizer: 20 Hz - 2 kHz, ±12 dB, 0: 0.267 - 69.249
Level Control	-∞ to +12 dB (0.5 dB steps), with polarity selector
Equalizer /Filter	Parametric equalizer: 20 Hz - 20 kHz, ±12 dB, 0: 0.267 - 69.249 Filtering: High-pass filter 20 Hz - 20 kHz, 6 dB/oct, 12 dB/oct Low-pass filter 20 Hz - 20 kHz, 6 dB/oct, 12 dB/oct Notch filter 20 Hz - 20 kHz, 0: 8.651 - 69.249 All-pass filter 20 Hz - 20 kHz, 0: 0.267 - 69.249 High shelving filter 6 - 20 kHz, ±12 dB Low shelving filter 20 - 500 Hz, ±12 dB Horn equalizer 20 kHz, 0 to +18 dB (0.5 dB steps) Crossover filter: 20 Hz - 20 kHz, 6 dB/oct, 12 dB/oct, 18 dB/oct, 24 dB/oct
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: 0.02 - 100 ms Release time: 10 ms - 5 s
Noise gate	Threshold: -∞ to -26 dB* (1 dB steps) Attack time: 0.1 - 100 ms Release time: 20 ms - 5 s
Delay	Delay time: 0 - 682.0 ms (0.021 ms steps)
Matrix	8 X 8; Level control: -∞ to 0 dB (1 dB steps), with polarity selector
Preset Memory	8
Auxiliary Function	Key lock function
Setting Software	OS: Windows 2000/XP /Vista (32-bit edition), Windows 7 (32/64-bit edition) Control system: 10 BASE - T /100 BASE-TX, Auto-Negotiation, RJ45 connector
Front Panel Section	Preset memory recall knob: 1; Input indicator: Green LED; Output indicator: Green LED
Module Slot (Rear Panel)	Input module slot: 4; Output module slot: 2; Remote control module slot: 1
Operating Temperature	+5°C to +40°C / 41°F to 104°F
Finish	Panel: Aluminum, hair-line finish, black; Others: Pre-coated steel plate, black, 30% gloss
Dimensions	482.6 (W) x 132.6 (H) x 320 (D) mm / 19" x 5.2" x 12.6" (excluding projection)
Weight	7.4 kg / 16.31 lbs
Included Accessories	Power cord (2 m/6.6 ft) x 1, Rack mounting bracket (preinstalled on the unit) x 2, Rack mounting screw x 4, Blank panel (preinstalled on the unit) x 5, Module mounting screw (spare) x 4, CD (software) x 1
Option	Mic/Line input module: D-921 E, D-921 F, D-922E, D-922F; Stereo input module: D-936R; Digital input module: D-923AE; Line output module: D-971 E, D-971 M, D-971 R; Digital output module: D-972AE; Remote control module: D-981, D-983

Windows is a registered trademark or trademark of Microsoft Corporation in the United States and/or other countries.

Digital Ambient Noise Controller

DP-L2

- Digital ambient noise control (ANC) function with 4-LED metering automatically adjusts output gain to match changes in ambient noise levels
- Exclusive TOA algorithm distinguishes unit output sound level from ambient noise levels, for more accurate control
- Monitor output for sound picked up by the ambient noise sensor microphone
- Automatic level control feature with 4-LED metering maintains input signal at a constant level by adjusting input signals to appropriate levels when the sound level is too low

*0 dB = 0. 775 V

Specifications

	DP-L2
Power Source	110 - 120 V AC, 50/60 Hz
Power Consumption	20 W (300 mA)
Frequency Response	20 - 20,000 Hz, ±1 dB
Samplina Freauencv	48 kHz
Dvnamic Ranae	Over 108 dB (IHF-A weighted)
Distortion	Under 0.006%, 1 kHz, +4 dB* input/output (20 - 20,000 Hz BPF)
Input	Sensor input (Ambient noise sensor microphone input): +4/-48 dB* changeable, 10 kΩ, electronically-balanced, removable terminal block (4 pins), phantom power (+ 15 V DC, can be turned on or off with Phantom switch) with +15 V DC terminal Input 1,2: +4/-8/-20 dB* changeable, 15 kΩ, electronically-balanced, removable terminal block (3 pins)
Output	Monitor output: +4 dB*, 600Ω, electronically-balanced, removable terminal block (3 pins) Output 1,2: +4 dB*, 600Ω, electronically-balanced, removable terminal block (3 pins)
A/D Converter	24 bit
D/A Converter	24 bit
Signal Processing	
Automatic Level Control Function	Level meter (4 LED meters), Automatic input signal level control function, Automatic input sensitivity setting function: +4/-8/-20 dB*, Noise gate level setting: -99 to -3 dB
Ambient Noise Control Function	Level meter (4 LED meters), BGM/Announce level control function, Automatic sensor input reference level measuring function, Sensor input reference level fine adjustment function, Maximum output signal level control: -15 to O dB, Minimum output signal level control: -18 to -3 dB, Sample time setting: 10 s, 20 s, 30 s, 1 min, 5 min Gain ratio setting: (Ambient noise: Output signal level) 6: 3, 5: 3, 4: 3, 3: 3, 3: 4, 3: 5, 3: 6, Ambient noise measuring frequency setting: 20 - 20,000 Hz, 3 points
Maximum Output Signal Level Control Function	-12, -6, 0, +4, +6, +12, +18, +24 dB*
Input Level Indicator	8 LEDs indicator
Output Level Indicator	8 LEDs indicator
Other Feature	Phantom power switch (sensor input), Key lock function, Ground lift switch (INPUT 1, INPUT 2), Input/Output bypass function in power off
Operatinq Temperature	0°C to +40°C
Operating Humidity	Under 90% RH (no condensation)
Finish	Pre-coated steel plate, black, 30% qloss
Dimensions	482 (W) X 44 (H) X 303 (D) mm / 19" x 1.7" x 12"
Weight	3.7 kg/8.2 lbs
Included Accessories	Power cord (2 m/6.6 ft) x 1, Removable terminal plug (4 pins) x 1, Removable terminal plug (3 pins) x 5

❖Ambient Noise Sensing Microphone

AN-9001

- Ceiling or wall-mount condenser microphone
- Fits one gang electrical box - not included
- Use with AN-001T module (9000M2 Series Mixer) or DP-L2 processor

Specifications

	AN-9001
Type	Electret condenser microphone
Phantom Power	14 - 26 V DC
Current Consumption	7 mA (at 24 V DC)
Directivity	Omnidirectional (hemispherical)
Impedance	200Ω
Rated Sensitivity	-5dB (1kHz, 0dB = 1V/Pa)
Frequency Response	100 - 10,000Hz
Output Terminal	Removable terminal block (3 pins)
Operating Temperature	-10°C to +40°C
Finish	Panel: ABS resin, white Frame, Case: Surface-treated steel plate
Dimensions	130 x 37 (D) mm / 5.1" x 1.5"
Weight	170 g / 6 oz
Included Accessories	Removable terminal plug (3 pins) x 1, Box mounting screw (No.6-32UNC X 30) x 2, Box mounting screw (M4 X 30) x 2
Option	9000 series plug-in module: AN-001T

2-Channel 2/3 Octave Graphic Equalizer

E-232

*0 dB=0.775 Vrms

- 14 filters on 2/3 octave center frequencies from 40 Hz to 16k Hz (+/- 6 or 12 dB)
- Noiseless center-detent slide controls with precision-calibrated linear scales
- Independent selection for boost and cut of 6 or 12 dB
- ±12 dB input gain control and high pass filter
- In/out peak level indicator
- Automatic bypass if power fails EQ in/out with “hardwire” bypass if power fails
- Security cover and rack-mount brackets included (1 RU)

Specifications

	E-232
Power Requirment	120 V AC 60 Hz
Power Consumption	11 W
Input	+4 dB* 30 kΩ (GAIN : 0 dB), unbalanced, phone-jack and screw terminal
Output	+4 dB* 1 kΩ, unbalanced, phone-iack and screw terminal
Max. Input Level	+32 dB (GAIN : -12 dB)
Max. Output Level	+20 dB
Frequency response	20 Hz to 20,000 Hz (+1 dB, -2 dB)
Total Harmonic Distortion	Less than 0.01 % at 1,000 Hz (rated output)
Equalization Center Frequency	40 Hz, 63 Hz, 100 Hz, 160 Hz, 250 Hz, 400 Hz, 630 Hz 1 kHz, 1.6 kHz, 2.5 kHz, 4 kHz, 6.3 kHz, 10 kHz, 16 kHz
Control Equalizer Sliders	Boost: +12 dB or +6 dB, Cut : -12 dB or -6 dB (switchable)
Highpass Filter	-12 dB / oct (Adjustable cutoff frequency 15 Hz to 300 Hz variable)
Hum and Noise (IHF-A)	Less than -98 dB* (EQ : ON, HPF : 15 Hz, GAIN : 0 dB, all sliders at 0 position)
Finish	Front panel : Aluminium, black Case : steel, black
Dimensions(WxHxD)	483 x 46 x 311 mm / 19.01” x 1.81” x 12.24”
Weight	3.8 kg / 8.38 lbs

Monitors

❖Monitor Panel

MP-032B

- VU meter
- Ten input channels for monitoring high impedance speaker lines
- Internal speaker with selector switch for individual channel monitoring
- Built-in rack-mount brackets (3 RU)

Specifications

	MP-023B
Functions	Aural /visual monitoring (up to 10 power amplifiers)
Controls	Channel selector switch; Monitor volume control; Watt meter; Line voltage selector switch
Speaker	Full-range 12 cm/5” speaker
Input Lines	25 V (625 Ω), 50 V (2.5 kΩ), 70 V (5 kΩ), 100 V (10 kΩ) switchable
Terminals	M4 screw terminals, distance between barriers: 8.8 mm
Finish	Surface-treated steel plate, black
Dimensions	483 (W) X 133 (H) X 87 (D) mm / 19” x 5.2” x 3.4”
Weight	2.2 kg / 4.85 lbs
Included Accessory	Rack mounting screw (with washer) x 4

❖Multi-Channel Monitor

MP-1261

- Sixteen transformer-isolated, bridging inputs for monitoring line level or low/high impedance speaker line signals
- Separate bar graph meter for each input
- Internal speaker with selector switch for individual channel monitoring
- Two units can be linked for 32 channel monitoring using optional cable, model YA-8
- Built-in rack-mount brackets (2 RU)

Specifications

	MP-1216
Power Requirement	AC mains, 50/60 Hz
Power Consumption	21 W (120 V)
Mox. Display Level	Speaker; High impedance: 100 V; Low impedance: 1200 W I 8 Ω ; Line: +10 dB (2.45 V)
Level Meter	12-point display, -30 dB ~ +6 dB (0.3 W ~ 1200 W / 8 Ω)
Speaker Output	Max. 3 W
Headphone Output	8 Ω
Finish	Front panel: Alumite, block
Dimensions	482.6 (W) X 88.4 (H) X 312.7 (D) mm (19” X 3.48” X 12.31”)
Weight	5.3 kg (11.68 lb)
Included Accessories	AC fuse, 250 V 1 A (120 V version) x1, AC fuse, 250 V T250 mA (220 - 240 V version) x1, Rack mounting screw x4

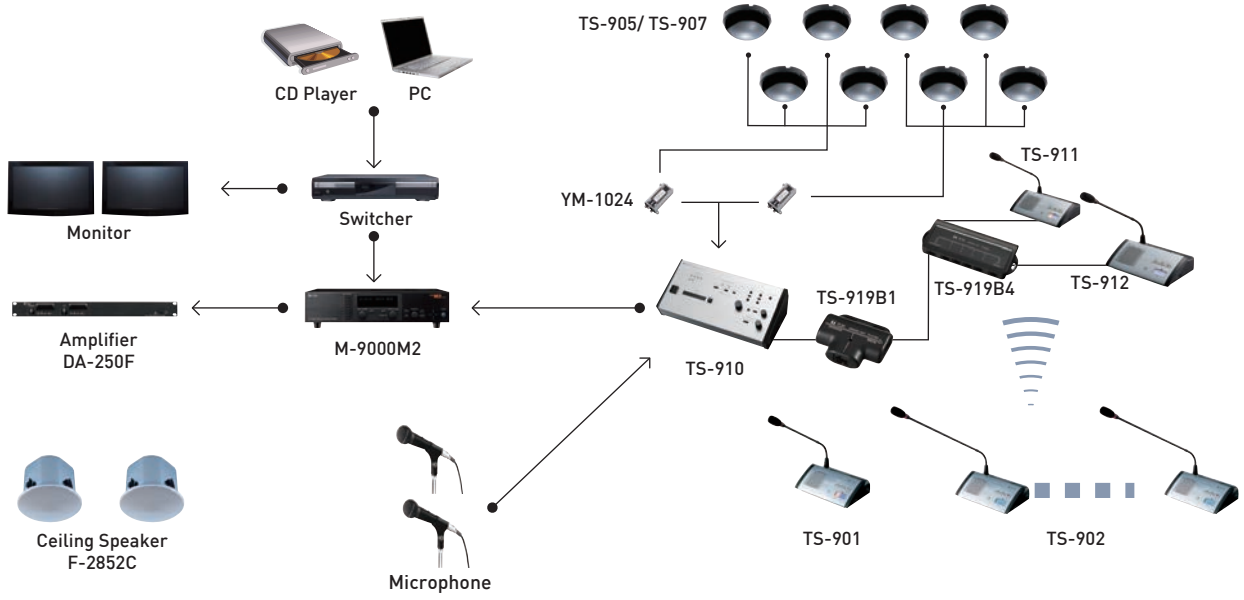
PresetMemory
1
Memory 1
Store
METER
FADER
TONE
FBS
MATRIX
PEQ
ARC
FADER
0 (dB)
FADER
METER
METER
FADER
TONE
A-MUTE

Dr. Sound

TS-910 Series Infrared Conference System

The TS-910 Series permits both infrared and wired systems to be used in combination. With both types of connectivity available on the same system, aesthetic or practical challenges can be easily overcome. There is no radio interference and all communications stay within the coverage area of the IR transceivers. It offers exceptional sound quality, efficient communication for any type of conference and is suitable for either permanent or temporary installations.

TS-910 Series Infrared Conference System Example



■ Image Drawing

TS-910 Series Infrared Conference System

- For clear communications in any kind of conference application
- Safe and secure infrared wireless technology
- Up to 96 active units per system
- Chairman unit features a priority speech key
- Auto Mic-Off function
- Voting function
- Compact and attractive chairman and delegate units
- No cabling makes installation easy
- Speaker restriction function
- Installation status check function

❖Central Unit

TS-910

- Works with TS-811/812 & TS-911/912 wired stations (requires TS-918 and TS-919B1 or B4)
- Compatible with exisitingTS-800/900 IR stations (replaces TS-900 controller)
- Adds voting & interpretation features to wired configurations
- Wired & wireless stations may be combined to create larger “hybrid” configurations
  - Total station capacity: 192 stations (combined wired & wireless)
- Includes Feedback Suppressor function
- Control & monitoring via free PC Software using USB connection
  - Individual station volume control via RS-232
- FBS selection: External/Off/Auto/Manual

*0dB = 1V

Specifications

	TS-910
Input	2 x Mic: -60dB*, 600 ohms, unbalanced, phone jack 3 x AUX: -20 dB*, 10k ohms, unbalanced, phone jack
Output	1 x Line: -20dB*, unbalanced, phone jack 2 x Recording: -20dB*, 10k ohms, unbalanced, phone jack/RCA pin jack 1 x Headphone: mini jack
External EQ	Input: -20dB*, 10k ohms, RCA pin jack Output: -20dB*, 10k ohms, RCA pin jack
No. of connectable Chairman/Delegate Unit	192
External Control Terminal	D-sub connector (9P, male)/USB-B selectable
Function Switch	Speaker restriction: set to 1,2,3 and 4 Mic-off function: off or on (selectable) Speech priority selector A/B/C A: First-in-first-out, B: Last-in-first-out, C: Fixed for the first unit and last-in-last out for the subsequent units FBS selection: External/Off/Auto/Manual
Applicable Unit	TS-901/902/911/912, TS-801/802/811/812
Dimensions	359(W) x 118.8(H) x 184.7(D) mm / 14.13” x 4.68” x 7.27”
Weight	2.8 kg / 6.17 lb
Option	Rack mounting bracket: MB-TS900

IR Versions

❖Chairman Unit

TS-901

❖Delegate Unit

TS-902

Wired Versions

❖Chairman Unit

TS-911

❖Delegate Unit

TS-912

- 3 voting keys
- Channel selector for conference language
- 2 different versions for chairman and delegates
- To prevent feedback, the built-in speaker is turned off while the microphone is on
- 2 headphone jacks

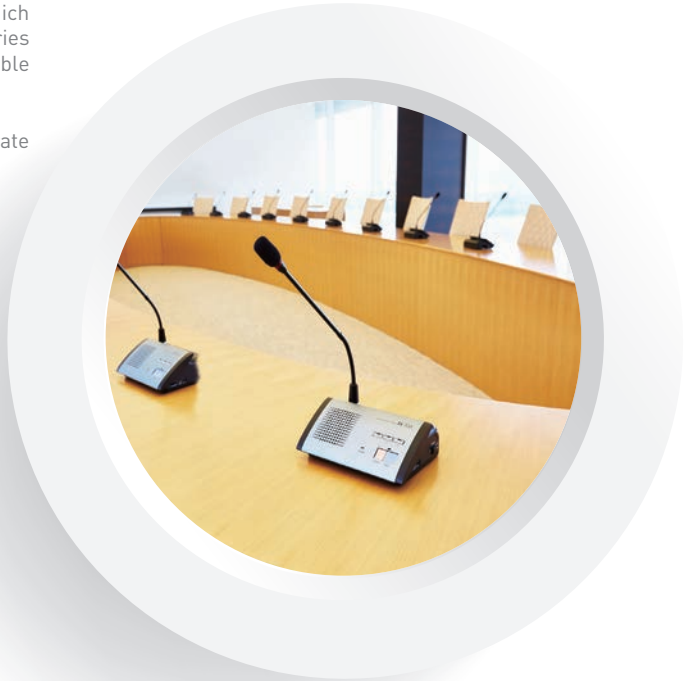
Specifications

	TS-901	TS-902	TS-911	TS-912
Power Source	7.4V DC (battery) or 9V DC (AD-0910 AC adapter)		24V DC (supplied from the optional TS-918 Expansion Unit)	
Input	Microphone terminal: XLR-4-31 type		Microphone terminal: XLR-4-31 type	
Output	Monitor speaker: 8 ohms, 0.2W Headphone: Mini jack x 2		Monitor speaker: 8 ohms, 0.2W Headphone: Mini jack x 2	
Battery Life	Approx. 10 hours		-	
Connection Terminal	-		RJ45 connector	
Function	Monitor speaker volume Headphone volume Priority speech function Voting function Monitor selector switch	Monitor speaker volume Headphone volume Voting function Monitor selector switch	Monitor speaker volume Headphone volume Priority speech function Voting function Monitor selector switch	Monitor speaker volume Headphone volume Voting function Monitor selector switch
Dimensions	210(W) x 65.9(H) x 152(D) mm / 8.27” x 2.59” x 5.98”			
Weight	640g / 1.41 lb			

TS-910 Series Infrared Conference System Management & Voting Software

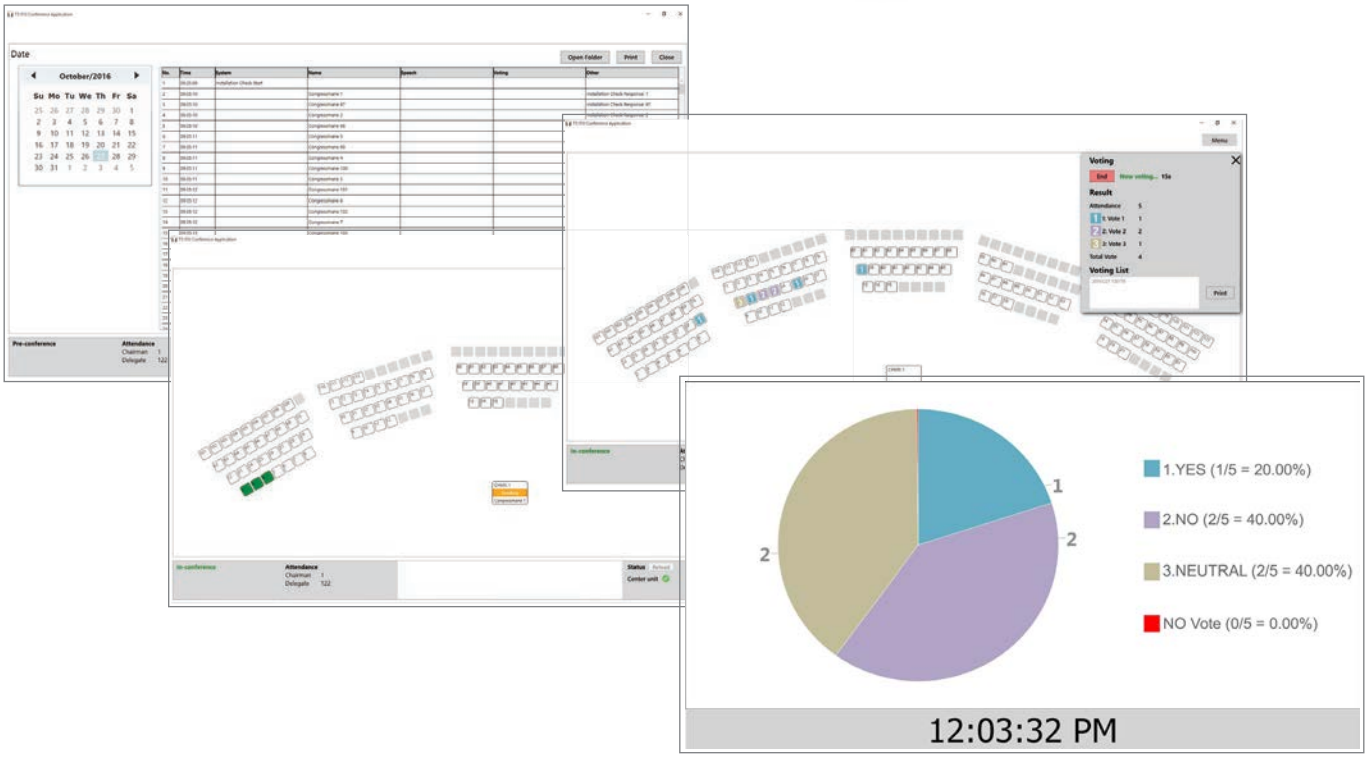
The Management and Voting Software is a Windows-based software which provides monitoring and control functionalities for the TOA TS-910 Series Conference System in real-time. With its customizable GUI, users are able to configure the layout of the software to match their seating plan.

Together with the use of software, TS-910 Conference System can integrate with specific CCTV systems and specific Card Access system.



Key Features

- Ability to monitor and control up to 192 conference units
- Up to 4 speakers can talk simultaneously.
- All speaking control can be done using this software.
- Real-time monitoring of all conference unit speaking status and battery status
- Adjusting of each speech volume remotely
- Managing of voting result and keeping the record
- Storing of operation logs and voting logs
- Multi-screen corresponding ability
- Pie chart voting result can be display at the external monitor
- Integration with CCTV system for monitoring of the conference room and speakers
- Integration with Card access system for managing of conference unit accurately such as disabled or enabled.
- Encryption security
- Built-in FBS for reduction of feedback

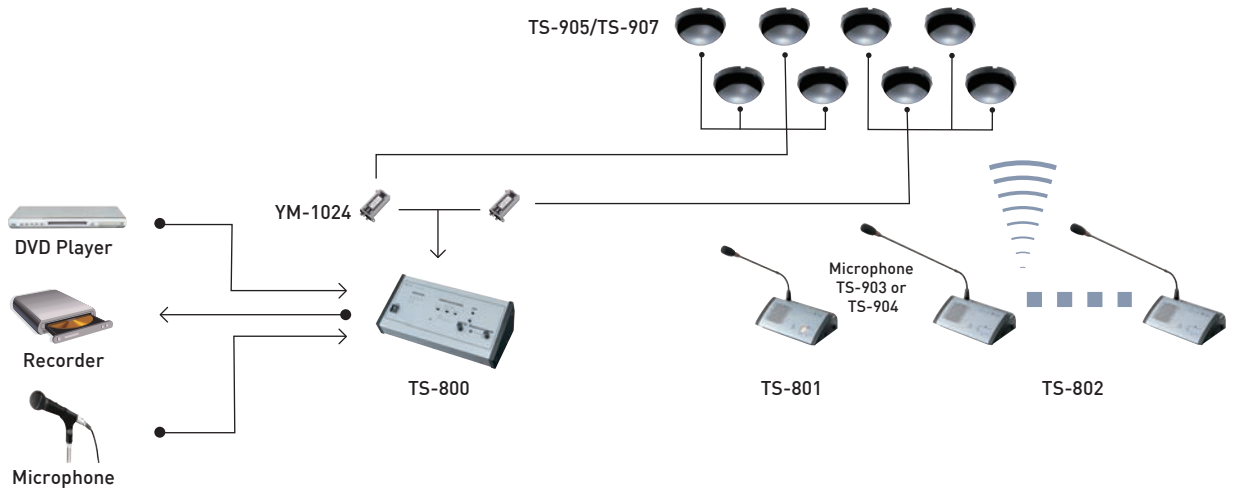


Encryption Security
The software is encryption protected; allowing only authorized users to access. Users require USB security dongles in order to operate the software.

TS-800 Series Infrared Conference System

The TS-800 Series is a wireless infrared conference system that can be installed and removed quickly and easily. Since the TS-801 chairman unit and the TS-802 delegate unit require no wiring, they permit easy installation based on an unrestricted layout. The infrared transmitter/receiver unit and recording equipment are connected to the TS-800 central unit, and the system function settings and status indications are performed at the central unit. The TS-800 Series is ideal for conferences and meetings in corporate, courtroom, educational and hotel applications.

TS-800 Series Infrared Conference System Example



TS-800 Series Infrared Conference System

- Suitable for either permanent or temporary installation
- No worries about radio interference, eavesdropping, or information leakage thanks to IR communication method
- System can be controlled by 3rd party equipment via RS-232C
- Individual control of units possible by assigning individual unit addresses
- Connect a recording device for high quality audio recording of conferences
- When loudspeaker is on, chairman/delegate unit mic is turned off automatically to avoid feedback and vice versa

❖Central Unit

TS-800

- Efficient communication for each kind of conference
- Safe and secure wireless technology
- Up to 64 active units per system - TS-801 Chairman and TS-802 Delegate Units
- Four ports for model TS-905/TS-907 infrared transceivers
- AUX and MIC inputs
- Headphone output
- Up to four simultaneous speakers (chairmen/delegates)

*0dB = 1V

Specifications

	TS-800
Input	1 x Mic: -60dB*, 600 ohms, unbalanced, phone jack 1 x AUX: -20 dB*, 10k ohms, unbalanced, phone jack
Output	2 x Recording: -20dB*, 10k ohms, unbalanced, phone jack/RCA pin jack 1 x Headphone: mini jack
External EQ	-
No. of connectable Chairman/Delegate Unit	64
External Control Terminal	D-sub connector (9P, male)
Function Switch	Speaker restriction: set to 1,2 and 4 Mic-off function: off or on (selectable) Speech priority selector A/B/C A: First-in-first-out, B: Last-in-first-out, C: Fixed for the first unit and last-in-last out for the subsequent units
Applicable Unit	TS-801/802
Dimensions	359(W) x 118.8(H) x 184.7(D) mm / 14.13" x 4.68" x 7.27"
Weight	2.7 kg / 5.95 lb
Accessory	AC adapter (Cord length: 1.8 m DC cord, and 2 m detachable AC cord) x 1
Option	Rack mounting bracket: MB-TS900

TS-800 Series Infrared Conference System

IR Versions

❖Chairman Unit
TS-801

❖Delegate Unit
TS-802

Wired Versions

❖Chairman Unit
TS-811

❖Delegate Unit
TS-812

- 2 different versions for chairman and delegates
- To prevent feedback, the built-in speaker is turned off while the microphone is on
- 2 headphone jacks

Specifications

	TS-801	TS-802	TS-811	TS-812
Power Source	7.4V DC (battery) or 9V DC (AD-0910 AC adapter)		24V DC (supplied from the optional TS-918 Expansion Unit)	
Input	Microphone terminal: XLR-4-31 type		Microphone terminal: XLR-4-31 type	
Output	Monitor speaker: 8 ohms, 0.2W Headphone: Mini jack x 2		Monitor speaker: 8 ohms, 0.2W Headphone: Mini jack x 2	
Battery Life	Approx. 10 hours		-	
Connection Terminal	-		RJ45 connector	
Function	Monitor speaker volume Headphone volume Priority speech function	Monitor speaker volume Headphone volume	Monitor speaker volume Headphone volume Priority speech function	Monitor speaker volume Headphone volume
Dimensions	210(W) x 65.9(H) x 152(D) mm / 8.27" x 2.59" x 5.98"			
Weight	630g / 1.41 lb			

TS-910/800 Series Infrared Conference System Optional Accessories

❖Microphone
TS-903

❖Microphone
TS-904

❖Infrared Transmitter/Receiver
TS-905

❖Infrared Transmitter/Receiver
TS-907

❖Rack Mount Bracket
MB-TS900

❖TS-910 Expansion Unit
TS-918

❖Single Wired Station Bridge Unit for TS-910
TS-919B1

❖4 Wired Station Bridge Unit for TS-910
TS-919B4

❖AC Adapter
AD-0910

❖Battery Charger
BC-900

❖Rechargeable Lithium-Ion Battery
BP-900

❖Distributor
YW-1022

❖Distributor
YW-1024

TS-770 Series Wired Conference System

- Maximum 70 Chairman and Delegate Units (up to 35 units* per line x 2 lines) are connectable to one Central Unit
  - *If the TS-775 Remote Delegate Interface Unit is used, up to 35 TS-775 Remote Delegate Interface Units can be connected per line also
- Expandable to maximum 210 units by connecting 2 additional Central Units
- Equipped with an All-Mic-On function that simultaneously turns on all microphones for sound collecting and recording of all units
- Remote conferencing is possible, enabling people at a remote location to participate in the conference
- The Test Function feature enables easy checking of the connection status of all connected units
- Number of simultaneously usable delegate units can be selected
- Automatic Mic-Off function (TIME OUT)

❖Central Unit
TS-770

- Supplies DC Power to all units, with lamp indicator
- Jack for microphone input, and AUX input
- Microphone, AUX, line (for conference unit's built-in speaker) and chime (on chairman's unit) volume controls
- Equalizer input
- Recording output

* 0 dB = 1 V

Specifications

	TS-775
Power Requirement	35 V DC, under 30 mA (supplied from Central Unit TS-770)
Input	–50dB*, 200 ohms, balanced, mini phone jack with VR control
Output	–40dB*, 22 ohms, balanced, mini phone jack with VR control
Speech Mode	AUTO: Voice-activated Automatic switching MANUAL: Talk key on-off switching
Connection Cable	2m (6.56 ft)
Operating Temperature	0°C to 40°C / 32°F to 104°F
Operating Humidity	Under 90 % RH (no condensation)
Finish	Pre-coated steel plate, black
Dimensions	160 (W) × 41.8 (H) × 100 (D) mm / 6.3" × 1.65" × 3.94" (excluding projection)
Weight	700g / 1.54 lb

❖Remote Delegate Interface Unit
TS-775

- For connection of external delegates via telephone, IP telephone (up to 70 PCs per TS-770) and mobile phone
- Line input for other conference units
- Speech method selectable; Auto: Voice-activated automatic switching; Manual: Talk-key activated

*0 dB = 1 V

Specifications

	TS-770
Power Requirement	AC mains, 50/60 Hz
Power Consumption	Max. 60 W
Rated Output	35V DC, 650mA × 2
Input	MIC: –60 dB*, 600 ohms, unbalanced, phone jack AUX: –20 dB*, 10k ohms, unbalanced, phone jack
Output	Recording: –20 dB*, 10 k ohms, unbalanced, phone jack, pin jack × 2
Equalizer Insertion Input Terminals	Input: –20 dB*, 10 k ohms, pin jack Output: –20 dB*, 10 k ohms, pin jack
Expansion Input/ Output Terminals	Input: –20 dB*, 10 k ohms, pin jack × 2 Output: –20 dB*, 10 k ohms, pin jack × 2 Control: 10 k ohms or more, voltage output, pin jack × 2
Control	Priority Speech chime: Operation of TS-771's priority button activates a single-tone chime Speaker restriction: Number of simultaneously-usable TS-772s and TS-775s can be set to 1, 3, or 6 Automatic Mic-off: Function OFF/20 s/40 s (selectable)
Number of Connectable Conference Units	70 (Max. 35 units per line), Max. 210 (with 3 Central Units)
Operating Temperature	0°C to 40°C / 32°F to 104°F
Operating Humidity	Under 90 % RH (no condensation)
Finish	Panel: Aluminum, hairline, black Case: Pre-coated steel plate, black, 30% gloss
Dimensions	210 (W) × 107.1 (H) × 316 (D) mm / 8.27" × 4.22" × 12.44"
Weight	4 kg / 8.82 lb
Accessory	Power cord (2m / 6.56 ft) × 1
Option	Extension cord: YR-770-2M, YR-770-10M

TS-770 Series Wired Conference System Optional Accessories

❖Microphone
TS-773

❖Microphone
TS-774

❖Extension Cord
YR-770-2M

❖Extension Cord
YR-770-10M

TS-770 Series Wired Conference System

❖Chairman Unit

TS-771

❖Delegate Unit

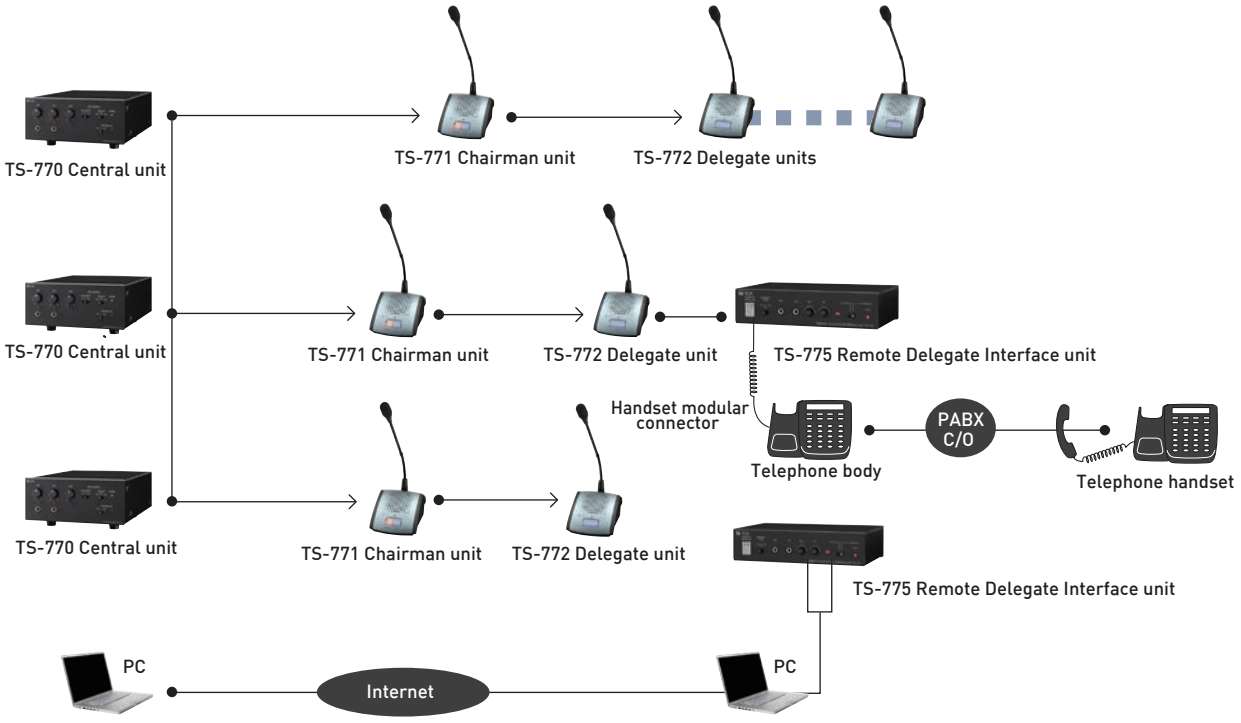
TS-772

- To prevent feedback, the built-in speaker is turned off while the microphone is on
- Press-to-talk priority speech button activates chime and overrides delegate unit (TS-771 only)
- Headphone/recording output

Specifications

	TS-771	TS-772
Power Requirements	35 V DC, under 30 mA (supplied from Central Unit TS-770)	
Output	Headphone/Recording: 32 ohms (headphone) 10 k ohms, –20 dB* (recording), unbalanced, mini jack (with VR) Internal speaker: 130 ohms 200 mW Contact output: 24 V DC, max. 50 mA (open collector output)	
Control	Speech button: Microphone, speaker on-off control by speech switch Priority button: Microphone, speaker on-off, other microphone cutoff, and single-tone chime activation	Microphone, speaker on-off control by priority key
Connection Cable	2m / 6.56 ft	
Operating Temperature	0°C to 40°C (32°F to 104°F)	
Operating Humidity	Under 90 % RH (no condensation)	
Finish	Case: ABS resin, black Panel: ABS resin, gray metallic, semi-gloss, paint	
Dimensions	114.5 (W) × 78.4 (H) × 152.9 (D)mm / 4.51" × 3.09" × 6.02"	
Weight	780g / 1.72 lb	
Option	Microphone: TS-773 (standard), TS-774 (long) (select either one)	

TS-770 Series Wired Conference System Example



AMIO Real-Time Steering Array Microphone System

Equipped with a built-in sensor to detect and track sound sources, the AMIO by TOA captures voices clearly and continuously from either side, above or below. Presenters are free to move back and forth in the vicinity of the podium, turn or tilt their heads to address different sections of the audience, or gesture naturally without concern for the location of the microphone. Placed unobtrusively on top of the podium or pulpit, this innovative voice-tracking microphone eliminates the inconvenience of gooseneck or handheld mics. Intuitive parameter setting by iPad* adds further convenience.

Unobstrusive desktop design

- Low profile design for flexible placement options.
- Freedom from traditional microphone distance limitations.

Intuitive, trouble-free setting and monitoring

Permits quick, one-touch adjustment of control unit parameter settings from an iPad* using a dedicated app or firmware:

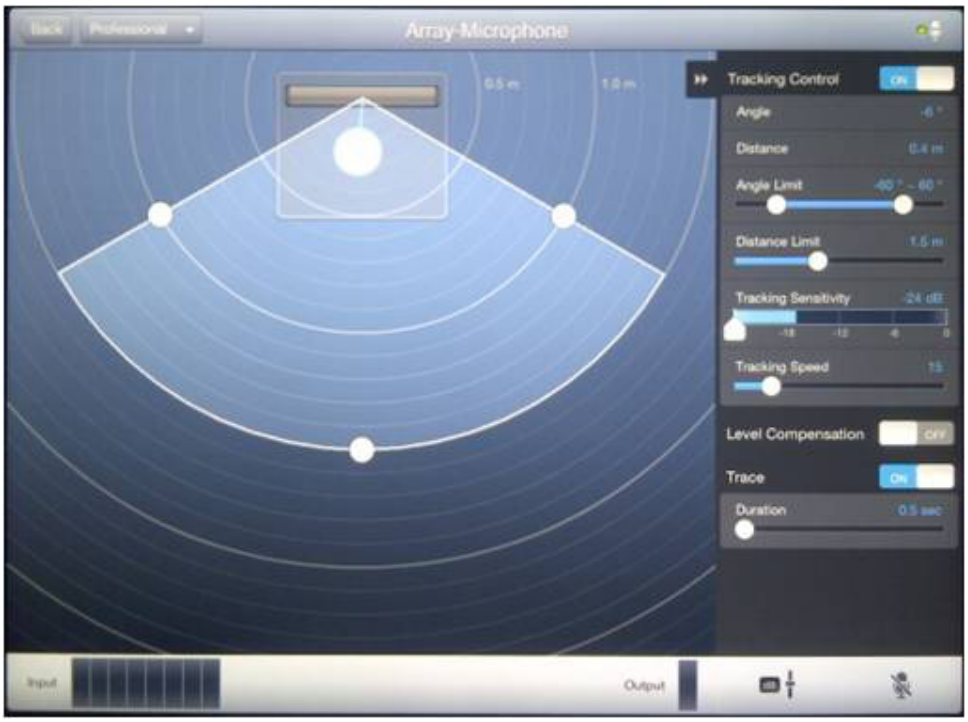
- Tracking distance/range
- Tracking sensitivity/speed
- Mute on/off

**iPad is a registered trademark of Apple Inc.*

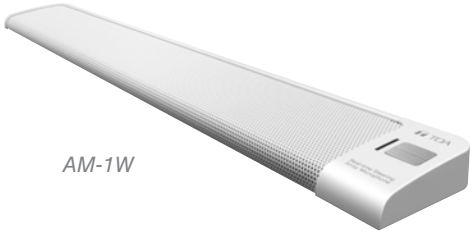
Unprecedented voice-tracking capability

Patented design tracks presenter's voice within a user defined "area of acceptance":

- Built-in voice detection/tracking sensor
- Voice capture from up to 3 meters and to tracking range angles up to 180 degrees
- Level compensation for reduced volume variations
- Narrow (50-degree) beamwidth assures minimal acoustic feedback



AM-1 Real-Time Steering Array Microphone System



AM-1W

AM-1C (rear)

Specifications

	AM-1B/W
Power Source	24V DC / 200 mA (supplied from control unit)
Frequency Response	150 Hz - 18k Hz
Directivity (Beam width)	50°
Max. Cable Length	230 ft / 70 m (between microphone & control)
Applicable Cable	Low-capacitance (AES-EBU) STP cable
Mute Function	Capacitive mute switch
Dimensions	19" (W) x 0.8" (H) x 2.6" (D) / 482 x 20 x 65 mm
Weight	2.4 lbs / 1.1kg

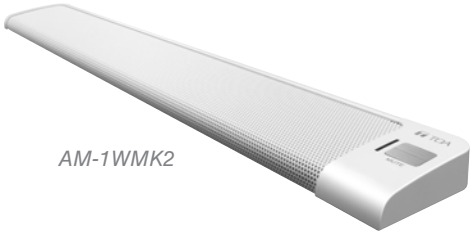
	AM-1C
Power Source	24V DC / 400 mA (including microphone power/supplied by optional AD-246 AC adapter)
S/N (Microphone)	Over 90dB
Input	Microphone input (dedicated audio and communication), female XLR 3P x 1
Audio Output	+4dBu/-10dBV (selectable), male XLR 3P x 2 AES/EBU 24bit 110 SL TCP/IP HTTP, male XLR 3P x 1
Network Port	RJ45
Optional	AD-246 AC adapter
Weight	1.3 lbs / 0.6 kg

AM-1 Real-Time Steering Array Microphone System Accessory

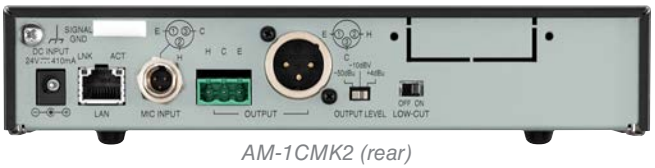
❖Wall/Ceiling Mount Bracket

WB-AM1BWC (Black)
WB-AM1WWC (White)

AMIO Real-Time Steering Array Microphone System



AM-1WMK2



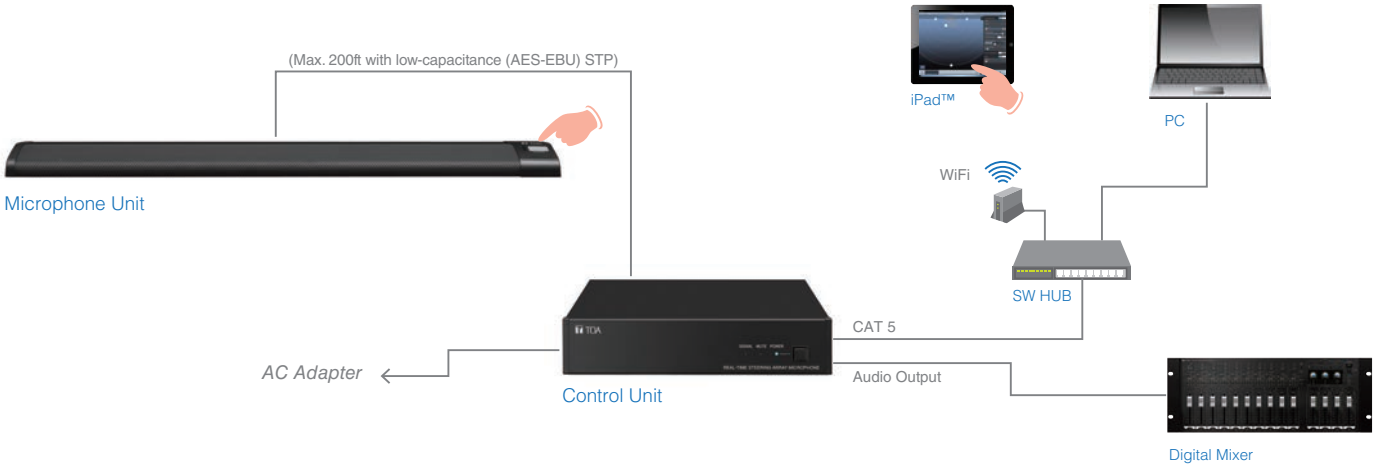
AM-1CMK2 (rear)

AMIO Real-Time Steering Array Microphone System Accessory

❖Wall/Ceiling Mount Bracket

WB-AM1BWC (Black)
WB-AM1WWC (White)

AMIO Real-Time Steering Array Microphone System Connection Diagram



Specifications

	AM-1BMK2	AM-1WMK2
Power Source	24V DC (supplied from the Control Unit)	
Microphone	Unidirectional electret condenser microphones	
Directivity Angle	Horizontal 50° (800 Hz - 18 kHz, Array mode), 180° (Cardioid mode) Vertical: 90°	
Frequency Response	150 Hz - 18k Hz	
Maximum Input Sound Pressure	100 dB SPL	
Operation	Mechanical mute switch	
Indicator	Microphone status indicator (output: green, mute: red)	
Microphone Cable	Low-capacitance (AES-EBU) shielded twisted pair cable 10m (32.81 ft) with connector equivalent to TA-3	
Maximum Cable Length	70 m (229.66 ft) (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 (RAL9016 equivalent)
Dimensions	483.9 (W) x 22.1(H) x 64.9 (D) mm (19.05" x 0.87" x 2.56") excluding cable	
Weight	1.2 kg (2.65 lbs.)	

*1) 0 dB= 0.775 V; *2) 0 dB= 1 V

Specifications

	AM-1CMK2
Power Source	24V DC (supplied from an optional AD-246 AC adapter) Usable DC power supply plug: 5.5 mm (0.22") outer diameter 2.1 mm (0.08") inner diameter 9.5 mm (0.37") 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 conncector Network protocol: TCP/IP, HTTP
Level Control	Output level selection (+4 dB*1, -10 dB*2, -50dB*1) 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	210 (W) x 45.7 (H) x 271.5 (D) mm (8.27" x 1.8" x 10.69")
Weight	1.5 kg (3.31 lbs.)

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 (32 °F to 104 °F)
Operating Humidity	90 % RH (no condensation)
Accessory	Removable terminal plug (3 pins)
Option	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) Wall/Ceiling mounting bracket: WB-AM1BWC/WB-AM1WWC

Progression of the Real-Time Steering Array Microphone System

AM-1

Moved to the back.

Output volume has been removed.

AMIO

Addition of Signal indicator.

Half rack size with available brackets.

Terminal block output has been added.

Extended frequency response with new low frequency cut-off switch.

MIC input connector has been changed from XLR to mini XLR (TA-3 connector).

Mute switch has been changed from a touch switch to a mechanical push switch. Colors of LED changed to green for “ON” and red for “MUTE”.

Unidirectional Microphones

DM-1200

- Rigid diecast zinc microphone body
- Switching and handling noise suppression
- 10 m XLR-F to 1/4" Tip/Sleeve
- Balanced output for long distance connection
- Dynamic hand-held microphone for speech use
- Microphone holder provided as standard accessory

DM-1300

- Rigid diecast zinc microphone body
- Switching and handling noise suppression
- 10 m XLR-F to 1/4" Tip/Sleeve
- Balanced output for long distance connection
- Microphone holder provided as standard accessory
- Dynamic hand-held microphone for vocal/speech use

Specifications

	DM-1200	DM-1300
Type	Moving coil microphone (Dynamic microphone)	
Directivity	Unidirectional: Cardioid	
Rated Impedance	600 Ω, balanced	
Rated Sensitivity	–55 dB (1k Hz 0 dB = 1 V/Pa)	–54 dB (1k Hz 0 dB = 1 V/Pa)
Frequency Response	50 Hz – 12 kHz	70 Hz – 15 kHz
Weight	265 g / 9 oz (without connection cable)	245 g / 8.6 oz (without connection cable)
Dimensions (W x H x D)	39.5 x 163 mm / 1.6" x 6.4"	51 x 170 mm / 2" x 6.7"
Talk switch	Short-off type, slide on/off switch	
Finish	Body: Die cast zinc, painted metallic gray Head: Die cast aluminum, zinc plated steel wire, painted metallic gray	Body: Die cast zinc, painted metallic gray Head: Aluminum, zinc plated steel wire, painted metallic gray
Standard accessory	Microphone holder (U 5/8, NS 5/8, W 3/8)	Thread adapter (NS 5/8 → U 5/16 or [W 3/8])

Paging Microphones

PM-660U

- Dynamic paging microphone
- Large PPT switch with locking lever
- Extra switch contact for mute or relay control
- Fitted with 2.5m/8.4', 2-core shielded cable without plug

PM-222U

- Noise-canceling for high noise environments
- Lock-on push-to-talk switch for continuous use
- Pig-tail cord with external control contacts and conductors
- Mounting sleeve included for wall-mounting

Specifications

	PM-660U	PM-222U
Rated Impedance	600, balanced	
Rated Sensitivity	-58 dB (1kHz, 0 dB = 1 V/Pa)	-47 dB (1kHz, 0 dB = 1 V/Pa)
Frequency Response	100 Hz to 10kHz	
Remote Switch	Leaf spring contact (interlocked with talk switch), 30 V DC, under 500 mA	Make contact (linked with talk switch) 30 V DC, 500 mA or less
Finish	Head: Zinc plated steel wire, gray, paint Body: ABS resin, gray	ABS resin, gray
Dimensions	100 (W) x 215 (H) x 150 (D) mm / 3.94" x 8.46" x 5.91"	44 (W) x 160 (H) x 38 (D)mm / 1.73" x 6.29" x 1.49"
Weight	440g / 0.97 lbs (cable excluded)	200g / 0.44 lbs

Ambient Noise Sensing Microphone

AN-9001

- Ceiling or wall-mount condenser microphone
- Fits one gang electrical box
- Use with AN-001T module or DP-L2 processor

Specifications

	AN-9001
Type	Electret condenser microphone
Phantom Power	14 - 26 V DC
Current Consumption	7 mA (at 24 V DC)
Directivity	Omnidirectional (hemispherical)
Impedance	200Ω
Rated Sensitivity	-5dB (1kHz, 0dB = 1V/Pa)
Frequency Response	100 - 10,000Hz
Output Terminal	Removable terminal block (3 pins)
Operating Temperature	–10°C to +40°C / 14°F to 104°F
Dimensions	130 x 37 (D) mm / 5.12" x 1.46"
Included Accessories	Removable terminal plug (3 pins) x 1, Box mounting screw (No.6-32UNC X 30) x 2, Box mounting screw (M4 X 30) x 2

Note: Requires 1-gang electrical box (not included).

EM Series Wired Microphones

❖Flush-Mount Boundary Microphone

EM-600

- Electret condenser microphone for conference room recording and security monitoring
- Wide frequency range (30Hz-20kHz) provides well-balanced sound with clarity and a satisfying tonal response
- Unobtrusive design allows easy flush-mounting in walls, ceilings, and desktops
- Optimized to deliver best performance when used on a desk or attached to a ceiling
- A 50 Hz low-cut filter reduces intrusive noise, such as air conditioner rumble or door opening/closing
- Two rubber isolation rings provided as an accessory serving to reduce vibration

❖Unidirectional Microphone

EM-700

- Electret condenser microphone for speech and recording applications
- Optimized to deliver best performance when used on a desk
- Slim, stylish design
- Rejection of undesirable off-axis sound minimizes possible feedback
- Low-cut 100 Hz filter switch
- Wide frequency range of 35 to 20 kHz provides well-balanced sound with clarity and a satisfying tonal response
- 7.5m/24.61' cord

❖Gooseneck Microphone

EM-800

- Electret condenser microphone for such speech applications as meetings, lectures, and religious services
- Excellent high-frequency response of 60 to 20k Hz delivers clear output
- High sensitivity
- Gooseneck with two adjustment points provides flexible microphone positioning angles
- Rejection of undesirable off-axis sound minimizes feedback

❖Microphone Desk Stand for EM-800

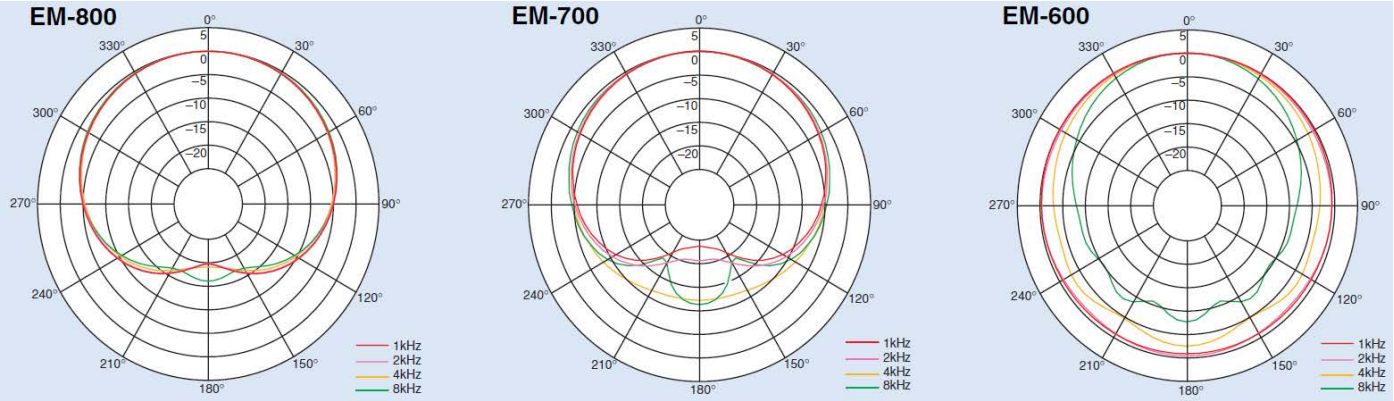
ST-800

- Pictured with microphone EM-800 and stand ST-800

Specifications

	EM-600	EM-700	EM-800
Directivity	Omnidirectional	Cardioid	
Rated Impedance	120, balanced		
Rated Sensitivity	-36 dB (1k Hz 0 db = 1 V/Pa)	-33 dB (1k Hz 0 db = 1 V/Pa)	-35 dB (1k Hz 0 db = 1 V/Pa)
Phantom Power	9-52V DC		
Frequency Response	30 Hz - 20kHz	35 Hz - 20kHz	60 Hz - 20kHz
Output Connector	XLR-3-12 or equivalent		
Finish	Body: Steel, white, semi-gloss, paint Head: Zinc-plated steel wire, white, semi-gloss, paint	Body: Die-cast, aluminum, black, mat finish, paint Punch net: Surface-treated steel plate, black, mat finish, paint	Body, shaft: Copper alloy, black semi-gloss, paint
Dimensions	28 x 68mm / 1.1" x 2.68"	83 (W) x 23 (H) x 83 (D)mm 3.2" x 0.9" x 3.2" (core excluded)	12 x 420mm / 0.47" x 16.5"
Weight	85g / 3oz	290g / 10.2oz	135g / 4.8oz
Included Accessories	Rubber Isolation Ring x 2, M20 Nut x 1	-	Windscreen x 1

EM Series Wired Microphones Polar Response



TRANTEC S5.3 Premier Wireless Solution

S5.3 UHF Professional Wireless Microphone System is perfect for the demands of a wide range of theater and broadcast applications. The high quality audio and RF dynamics combine with true diversity operation to provide a system with excellent multi-channel capability, enabling up to 12 channels to operate simultaneously without interference. Single AA cell battery operation provides over 10 hours of continuous use.

Frequency Band Selection: G7: 606-636MHz; H2: 576-606MHz, UHF
[Note: for part numbers with frequency bands and ordering information see page 156.]

❖Receiver

S5.3-RX

- True diversity operation
- Up to 640 selectable frequencies (12 Simultaneous channels)
- USB based computer monitoring
- Frequency scan function
- Integral triple tone grip/noise and signal strength mute circuit for protection against external interference
- Simple programming of transmitter with built-in infrared data link
- Clear and intuitive LCD display
- Professional metal enclosure

Specifications

Model	S5.3-RX
Diversity System	Space diversity (true diversity)
Audio Output	Line: -22 dB/Mic: 62 dB Line/Mic selectable, 600Ω, balanced, KLR-3-32 type connector Headphone: max, 100 mW 16Ω, unbalanced, phone jack -23 dB, 600Ω, unbalanced, phone jack
Receiving Sensitivity	0 dB V or less (12 dB SINAD)
Squelch Sensitivity	6 - 36 dB V variable
Squelch System	Combined use of noise SQ, carrier SQ and tone SQ
Indicator	LCD, Power lamp, Mute lamp, ANT A/B lamp
S/N Ratio	110 dB or more (A-weight)
Harmonic Distortion	1% or less (typical)
Frequency Response	50 Hz - 20 kHz, ±3 dB
Dimensions	210 (W) x 46 (H) x 210 (D) mm / 8.3" x 1.8" x 8.3" (excluding antenna)
Weight	1.3kg / 2.87lbs

❖Handheld Microphone

S5.3-HDX (Dynamic)
S5.3-HCX (Condenser)

- Simple programming of transmitter with built-in infrared data link
- Frequency & Power lock facility
- Single AA operation of transmitters with battery life of over 10 hours
- Integral antenna
- Clear and intuitive LCD display
- Color coded ID band
- Professional metal enclosure

❖Transmitters

S5.3-BTX (Bodypack)

- Credit card size beltpack
- Frequency & Power lock facility
- Clear and intuitive LCD display
- Simple programming of transmitter with built-in infrared data link
- Single AA operation of transmitters with battery life of over 10 hours
- Detachable antenna
- Professional metal enclosure
- Microphone sold separately

Specifications

	S5.3-HDX	S5.3-HCX	S5.3-BTX
RF Carrier Power	Less than 50mW (Factory preset 10mW ERP)		
Modulation System	-	-	PLL synthesizer
Maximum Input Level	146 dB SPL (microphone sensitivity: Gain "0")	142 dB SPL (microphone sensitivity: Gain "0")	120 dB SPL (microphone sensitivity: Gain "0")
Audio Frequency Response	60 Hz - 20 kHz	90 Hz - 20 kHz	-
Dynamic Range	110 dB or more		
Audio Inout Connector	-	-	TA-4 (Mini-XLR 4 pins)
Battery	LR6 (AA)		
Battery Life	10 hours (Alkaline)		
Indicator	LCD display, Power lamp		
Dimensions	50 x 247.9 mm / 2" x 9.8"	50 x 232.9 mm / 2" x 9.2"	55 (W) x 80 (H) x 22 (D) mm / 2.1 x 3.1" x 0.9"
Weight	380g / 13.4oz (with battery)	300g / 10.6oz (with battery)	140g / 4.9oz (with battery)

TRANTEC S5.3 Series Kits

❖Dynamic Handheld Mic Set

S5.3-HD S5.3-RX+S5.3-HDX Set

❖Condenser Handheld Mic Set

S5.3-HC S5.3-RX+S5.3-HCX Set

❖Lavalier Microphone Set

S5.3-L S5.3-RX+S5.3-BTX+Lavaliere Mic Set

TRANTEC S4.10 Series Economy Wireless Solution

The S4.10 Series is designed to make multi channel wireless as simple as possible. The system is encased in a sturdy yet compact metal frame. It can be used with a wide range of microphones, or musical instruments making it the perfect solution for amateur and semi professional musicians and theatre performers.

❖Receiver

S4.10-RXA

- 10 selectable frequencies available
- Up to 10 simultaneous channels
- Fully synthesised PLL quartz tuning technology
- Channel scan, IR synch, and pilot tone capabilities
- Receiver LED's show AF peak level, RF level, diversity channel A or B, and transmitter battery life
- Diversity operation with detachable antennas
- 19" rack mount option for one or two receivers

❖Handheld Microphone

S4.10-HDX (Dynamic)

- 4 switchable licence free frequencies
- Fully synthesised PLL quartz tuning technology
- Dynamic Microphone with cardioid pattern
- Mic gain switch (0, -10dB)
- Up to 8 hours use on one AA battery

❖Bodypack Transmitter with Lavalier Microphone

S4.10-LTX

- 4 switchable licence free frequencies
- Fully synthesised PLL quartz tuning technology
- Detachable antenna
- Locking 3.5mm jack
- Integral switch for selection between instrument and microphone
- Up to 8 hours use on one AA battery

Specifications

	S4.10-RXA
Diversity Reception	Antenna Diversity
Sensitivity	10uV at 45dBA, S/N
Squelch	Tone SQ, Carrier SQ, Noise SQ
Audio Frequency Response	50Hz - 1.5 kHz
Audio Output Level (Max.)	Balanced (XLR socket): -20dBu Unbalanced (1/4" jack socket): 10dBu
Power Supply	12 VDC 500mA
Dimensions	215 (W) x 39 (H) x 102 (D) mm / 8.5" x 1.5" x 4" (excluding antenna and BNC)
Weight	480g / 1lbs

Specifications

	S4.10-HDX	S4.10-LTX
RF Carrier Power	10 mW	
Audio Frequency Response	80 Hz -1.5 kHz	50 Hz -1.5 kHz
Audio Input Level	140 dBSPL (maximum)	-6 dBV (maximum), mic gain 0dB
Power Supply	1 AA size alkaline battery, 1.5 V	
Battery Life	Approx. 10 hours	
Finish	Resin, coating	
Dimensions	250 x 55 mm / 9.8" x 2.2"	62 (W) x 100 (H) x 25 (D) mm / 2.4" x 4" x 1" (with clip)
Weight	245g / 8.6oz (with battery)	85g / 3oz (with battery)

TRANTEC S4.10 Series Economy Wireless Solution Kits

❖Dynamic Handheld Microphone Set

S4.10-HD S4.10-RXA + S4.10-HDX

❖Lavalier Microphone Set

S4.10-L S4.10-RXA + S4.10-LTX

TRANTEC S4.04 Series Economy Wireless Solution

The S4.04 is Trantec's simplest plug and play system, designed to launch you in to the world of wireless. It's rugged and compact frame hold a reliable multifunctioning system that is optimized for use with a range of microphones from handheld, to lapels, to headsets, or alternatively can be used with a musical instrument.

❖Receiver

S4.04-RX

- 4 switchable licence free frequencies
- Fully synthesised PLL quartz tuning technology
- Channel scan, IR synch, and pilot tone capabilities
- Receiver LED's show AF peak level, RF level, diversity channel A or B, and Transmitter battery life
- 19" rack mount option for one or two receivers

❖Handheld Microphone

S4.04-HDX (Dynamic)

- 4 switchable licence free frequencies
- Fully synthesised PLL quartz tuning technology
- Dynamic Microphone with cardioid pattern
- Mic gain switch (0, -10dB)
- Up to 8 hours use on one AA battery

❖Bodypack Transmitter with Lavalier Microphone

S4.04-LTX

- 4 switchable licence free frequencies
- Fully synthesised PLL quartz tuning technology
- Detachable antenna
- Locking 3.5mm jack
- Integral switch for selection between instrument and microphone
- Single AA transmitter battery life of approximately 8 hours

Specifications

	S4.04-RX
Diversity Reception	Antenna Diversity
Sensitivity	10uV at 45dBA, S/N
Squelch	Tone SQ, Carrier SQ, Noise SQ
Audio Frequency Response	50Hz - 1.5 kHz
Audio Output Level (Max.)	Balanced (XLR socket): -20dBu Unbalanced (1/4" jack socket): 10dBu
Power Supply	12 VDC 500mA
Dimensions	215 (W) x 39 (H) x 102 (D) mm (excluding antenna and BNC)
Weight	480g / 1.06lbs

Specifications

	S4.04-HDX	S4.04-LTX
RF Carrier Power	10 mW	
Audio Frequency Response	80 Hz -1.5 kHz	50 Hz -1.5 kHz
Audio Input Level	140 dBSPL (maximum)	-6 dBV (maximum), mic gain 0dB
Power Supply	1 AA size alkaline battery, 1.5 V	
Battery Life	Approx. 10 hours	
Finish	Resin, coating	
Dimensions	250 x 55 mm / 9.8" x 2.2"	62 (W) x 100 (H) x 25 (D) mm / 2.4" x 4" x 1" (with clip)
Weight	245g / 8.6oz(with battery)	85g / 3oz (with battery)

TRANTEC S4.04 Series Economy Wireless Solution Kits

❖Dynamic Handheld Microphone Set

S4.04-HD S4.04-RX + S4.04-HDX

❖Lavalier Microphone Set

S4.04-L S4.04-RX + S4.04-LTX

TRANTEC Optional Microphones

❖Lavalier Microphone
MIC-X2 for S5 Series

❖Lapel Microphone for S4 Bodypack Transmitter, 1/8" plug
MIC-LP2

❖Headworn Microphone
MIC-XEM77-P for S5 Series
*Q-EM77 available for S4 Series

❖Lavalier Microphone
MIC-X212-P-R (Beige)
MIC-X212-B-R (Black)
for S5 Series

TRANTEC Series Accessories

❖Wall Mount Antenna
YW-4500

❖Directional Antenna
YW-7570

❖Antenna Booster
YW-7000 G

❖Instrument Cable
LD-X-JAC

❖19" Rack tray for two receivers
MB-S4RX for S4 Series

❖Rack Mounting Bracket
ACC-S5RX-MB1 for single S5 tuner

❖Rack Mounting Bracket
ACC-S5RX-MB2 for two S5 tuners

❖Pouch for S5 Bodypack Transmitter
ACC-S5-POUCH

TRANTEC S5.3 Premier Wireless Solution 12-Unit Rack System Example

Systems
- 2 - S5.3-HC Handheld Condenser Mic System
- 6 - S5.3-HD Handheld Dynamic Mic System
- 4 - S5.3-L Lavalier Mic System

Antenna Distribution
- 2 - YW-4500 Remote Antenna
- 4 - WD-4800 Diversity Antenna Distributor
- 4 - MB-15B Rack Mount Kit

Accessories
- 2 - MIC-XEM77-P Micro headworn microphone
- 2 - LD-X-JAC Instrument cable

5000 Series Performance Wireless Solution

High performance wireless microphones for commercial use with professional features at a reasonable price. Condenser and dynamic handheld microphones are available, as are beltpack transmitter for use with headset or lavaliere microphones. Select transmitters are rechargeable (with TOA NiMH batteries) using optional battery chargers. The WT-5100 receiver expands the range of applications, including museums, conferences and theaters, enhancing the Series' versatility and usability.

Frequency Band Selection: G02: 606-636MHz; H01: 576-606MHz, UHF
[Note: for part numbers with frequency bands and ordering information see page 156.]

❖Receiver
WT-5800

- Phase Locked Loop (PLL) synthesis operation
- Auto mixing input function
- Squelch function (carrier, noise, tone)
- Frequency and open channel scanning
- Compact half-rack format
- Low noise compander circuitry
- Transmitter battery indicator on receiver (wireless microphone's battery voltage becomes low)
- True diversity technology space diversity
- Antenna distribution output
- Two-line LCD display
- 64 selectable channels
- 6 section audio level meter for microphone sensitivity adjustment
- Rack mountable
- Available remote antennas

❖Receiver
WT-5805

- Phase Locked Loop (PLL) synthesis operation
- Auto mixing input function
- Squelch function (carrier, noise, tone)
- Frequency and open channel scanning
- Compact half-rack format
- Low noise compander circuitry
- Transmitter battery indicator on receiver (wireless microphone's battery voltage becomes low)
- True diversity technology space diversity
- Two-line LCD display
- 64 selectable channels
- 6 section audio level meter for microphone sensitivity adjustment
- Rack mountable
- Available remote antennas

❖Receiver
WT-5810

- Phase Locked Loop (PLL) synthesis operation
- Auto mixing input function
- Squelch function (carrier, noise, tone)
- Frequency and open channel scanning
- Compact half-rack format
- Low noise compander circuitry
- Transmitter battery indicator on receiver (wireless microphone's battery voltage becomes low)
- TOA space diversity technology
- Balanced output (XLR connector) and phone jack output
- 16 selectable channels

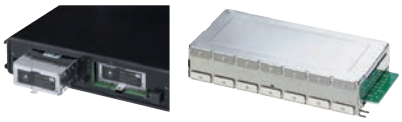
*1 0dB = 1 V

Specifications	WT-5800	WT-5805	WT-5810
Power Source	AC mains (supplied AC-DC adapter must be used)		
Channel Selectable	64 channel capability (Max. 16 Simultaneous channels)		16 channels
Diversity System	True diversity	Space diversity	
Mixing Output	MIC: –60dB*1, 600Ω, balanced, XLR-3-31 type connector; LINE: –20dB*1, 600Ω, unbalanced, phone jack		
Mixing Input	–20dB*1, 10 kΩ, unbalanced, phone jack		
Antenna Input	75Ω, BNC (phantom powering for antenna) 9V DC, 30mA (max.)		-
Antenna Output	75Ω, BNC (Gain 0dB)	-	
Receiving Sensitivity	90dB or more, S/N ratio (20dBμV input, 40kHz deviation)		
Squelch Sensitivity	16 – 40dBμV variable		
Squelch System	Combination noise SQ, carrier SQ and tone SQ		
Indicator	Audio (6 step), RF (6 step), ANT A/B, Audio (peak), battery alarm		ANT A/B, Audio (peak), battery alarm
S/N Ratio	110dB or more (A-weight, unbalanced output)		104dB or more (A-weight, unbalanced output)
Harmonic Distortion	1% or less (typical)		
Frequency Response	100 – 15kHz, ±3 dB		
Dimensions	210(W) × 44(H) × 205.1(D) mm / 8.27" x 1.73" x 8.07"		206(W) × 40.6(H) × 152.7(D) mm / 8.1" x 1.6" x 6"
Weight	700 g / 1.54 lbs		590 g / 1.3 lbs

❖Receiver
WT-4820

- Modular dual channel wireless receiver
- 16 selectable channel frequencies
- Antenna cascade output function (parallel connection possible for linking two WT-4820 units)
- TOA space diversity technology
- Auto mixing input function
- Antenna distribution output
- Accept up to two WTU-4800 tuner units
- Compact half-rack size body
- External antenna input

❖Receiver Unit
WTU-4800



Specifications

	WT-4820
Power Source	12 – 18 V DC
Mixing Input	–20dB, 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 0dB)
Indicator	ANT A/B, Audio (peak), Power
S/N Ratio	Over 102dB (A-weight, unbalanced output)
Harmonic Distortion	Under 1%
Frequency Response	50 – 18,000 Hz, ±3 dB
Dimensions	210(W) × 44(H) × 181(D) mm / 8.3" x 1.7" x 7.1"
Weight	770 g / 27.2 oz (without receiver unit)

5000 Series Performance Wireless Solution

❖Wireless Portable Receiver
WT-5100

- Commercial earphones can also be used* (3.5 mm, impedance: over 16Ω)
- Allows up to 16 different frequencies to be received by selection
- An optimized PLL-synthesizer minimizes the oscillation frequency drift resulting from the ambient temperature or voltage fluctuation.
- WB-2000 rechargeable battery or single AA battery operation for compact and lightweight body
- Built-in antenna

❖Rechargeable Battery
WB-2000-2

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

Specifications

	WT-5100
Power Source	1.5 V DC (Battery)
Receiving Sensitivity	Better than 60 dB Signal to Noise ratio (20 dBμV input, ±40 kHz deviation)
Frequency Response	200 Hz – 5 kHz (Portable transmitter to Portable receiver)
Output Level	4 mW (16Ω load, 10% distortion)
Battery	WB-2000-2 rechargeable battery (option) or LR6/AA alkaline dry cell battery
Battery Life	16 h (when the WB-2000-2 rechargeable battery is used) 15 h (when the alkaline battery is used)
Dimensions	62 (W) × 163.6 (H) × 32.5 (D)mm / 2.4" x 6.4" x 1.3"
Weight	125 g / 4.4 oz (battery included)

❖Handheld Microphone
WM-5225

- Electret condenser microphone unit: Unidirectional
- 64 selectable channels
- ON/OFF roll stopper switch prevents the microphone from rolling
- WB-2000 rechargeable battery or single AA battery provides a compact and lightweight body
- Built-in antenna

❖Handheld Microphone
WM-5265

- Dynamic microphone unit: Unidirectional
- 64 selectable channels
- ON/OFF roll stopper switch prevents the microphone from rolling
- WB-2000 rechargeable battery or single AA battery provides a compact and lightweight body
- Built-in antenna

❖Handheld Microphone
WM-5270

- Dynamic microphone unit: Unidirectional
- 64 selectable channels
- Rolling stopper prevents the microphone from rolling
- Single AA battery operation for a more compact and light weight body
- Built-in antenna

❖Beltpack Transmitter
WM-5325

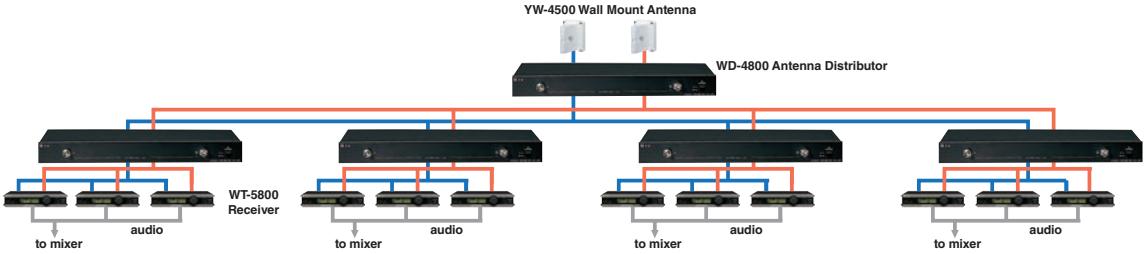
- 64 selectable channels
- Maximum input level: -14 dB to -29 dB
- Built-in circuitry minimizes ambient noise effects
- Connector for ø3.5 mini-plugs
- Built-in antenna
- Microphone sold separately
- WB-2000 rechargeable battery or single AA battery provides a compact and lightweight body

Specifications

	WM-5270	WM-5265	WM-5225	WM-5325
RF Carrier Power	Less than 50mW (Factory preset 10mW ERP)			
Oscillator	PLL synthesizer			
Maximum Input Level	142 dB SPL	132 dB SPL	126 dB SPL	-14dB to -29dB*1 (Audio level control: Min. to Max.)
Audio Input Connector	-	-	-	3.5mm (1/8") mini plug
Audio Frequency Response	80Hz – 15kHz	100Hz – 15kHz		
Dynamic Range (AF Circuit)	95dB or more (with WT-5800)			-
Battery	AA alkaline dry cell battery	WB-2000 (Ni-MH battery) or LR6(AA)		
Battery Life	Approx. 10h (when the alkaline battery is used)	Approx. 13h (when the WB-2000 rechargeable battery is used) Approx. 10h (when the alkaline battery is used))		
Indicator	Power/Battery lamps			
Dimensions	48 × 244 mm / 1.89" x 9.61"	50 × 229 mm / 1.97" x 9.02"	43.6 × 231.5 mm / 1.72" x 9.11"	62(W)×102.5(H)×23(D)mm / 2.4"x4"x0.9"
Weight	340g / 11.99oz (with battery)	205g / 7.2oz (with battery)	180g / 6.3oz (with battery)	90g / 3.17oz (with battery)

*1 0dB = 1 V

5000 Series Performance Wireless Antenna Distribution Example



5000 Series Performance Wireless Solution Microphones

❖Headworn Microphone
WH-4000A

- Unidirectional electret condenser microphone
- Ideal for sports applications

❖Single Ear Microphone
Q-EM-77

- Omnidirectional electret condenser microphone element
- Compatible with WM-5325
- 3.5mm connector

❖Lavalier Microphone
YP-M5300

- Unidirectional electret condenser microphone element
- Connector for 3.5 mini-plug

❖Headworn Microphone
WH-4000H

- Unidirectional electret condenser microphone

❖Earphone
YP-E5000

❖Lavalier Microphone
YP-M5310

- Omidirectional electret condenser microphone element
- Connector for 3.5 mini-plug

5000 Series Performance Wireless Solution Kits

❖Handheld mic. (unidirectional) set
WS-5225 WM-5225+WT-5810 Set

❖Dynamic handheld mic. (unidirectional) set
WS-5265 WM-5265+WT-5810 Set

❖Lavalier mic. (unidirectional) with beltpack
WS-5325U WM-5325+YP-M5300+WT-5810 Set

❖Headworn mic. with beltpack set
WS-5325H WM-5325+WH-4000H+WT-5810 Set

❖Lavalier mic. (omnidirectional) with beltpack
WS-5325M WM-5325+YP-M5310+WT-5810 Set

5000 Series Performance Wireless Solution Accessories

❖AC Adapter
AD-5000-2

❖AC Adapter
AD-5000-6

❖2 Slot Battery Charger
BC-50002PS

❖6 Slot Battery Charger
BC-50006PS

❖12 Slot Battery Charger
BC-500012PS

❖Rechargeable Battery
WB-2000-2

❖Waist Pouch
WH-4000P

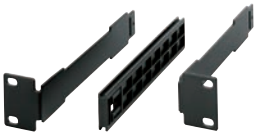
❖Windscreen
WH-4000S

❖Wall Mount Remote Antenna
YW-4500

❖Rack Mount Bracket
MB-15B

❖Rack Mount Bracket (single)
MB-WT3

❖Rack Mount Bracket (dual)
MB-WT4



❖Antenna Distributor
WD-4800

❖Antenna
XWT-4800ANT

(Please note that the power supplies/AC Adapter (AD-5000-6, AD-5000-2) for the 5000 Series UHF Wireless Battery Chargers (BC-500012PS; BC-50006PS; BC-50002PS) are sold separately)

Wireless Microphone Ordering Information

	G Band: 606 - 636 MHz	*H Band: 576 - 606 MHz*	*M Band: 503-538 MHz*
Model / Description	**Part Number**	**Part Number**	**Part Number**
TRANTEC S5.3 Series 12 Channel Premier Wireless Solution			
KITS			
S5.3HD Handheld Dynamic Kit	S5.3-HD-G7USQ	S5.3-HD-H2USQ	
S5.3HC Handheld Condenser Kit	S5.3-HC-G7USQ	S5.3-HC-H2USQ	
S5.3L Lavalier Kit	S5.3-L-G7US Q	S5.3-L-H2US Q	

	G Band: 606 - 636 MHz	*H Band: 576 - 606 MHz*	*M Band: 503-538 MHz*
Model / Description	**Part Number**	**Part Number**	**Part Number**
TRANTEC S4.10 Series 10 Channel Economy Wireless Solution			
KITS			
S4.10-HD Handheld Dynamic Kit			S4.10-HD-AM RM3QU
S4.10-L Lavaliere Kit			S4.10-L-AM RM3QU

	G Band: 606 - 636 MHz	*H Band: 576 - 606 MHz*	*M Band: 503-538 MHz*
Model / Description	**Part Number**	**Part Number**	**Part Number**
TRANTEC S4.04 Series 4 Channel Economy Wireless Solution			
KITS			
S4.04-HD Handheld Dynamic Kit			S4.04-HD-AM RM4QU
S4.04-L Lavalier Kit			S4.04-L-AM RM4QU

	G Band: 606 - 636 MHz	*H Band: 576 - 606 MHz*	*M Band: 503-538 MHz*
Model / Description	**Part Number**	**Part Number**	**Part Number**
TOA 5000 Series 16 Channel Performance Wireless Solution			
KITS			
WS-5225 Handheld Condenser Kit	WS-5225 G02US	WS-5225 H01US	
WS-5265 Handheld Dynamic Kit	WS-5265 G02US	WS-5265 H01US	
WS-5325U Lavalier (uni) Kit	WS-5325U G02US	WS-5325U H01US	
WS-5325M Lavalier (omni) Kit	WS-5325M G02US	WS-5325M H01US	
WS-5325H Headworn (uni) Kit	WS-5325H G02US	WS-5325H H01US	
INDIVIDUAL UNITS			
WT-5800 Receiver	WT-5800 G02US	WT-5800 H01US	
WT-5805 Receiver	WT-5805 G02US	WT-5805 H01US	
WT-5810 Receiver	WT-5810 G02US	WT-5810 H01US	
WT-4820 US Receiver (add WTU-4800, max. 2)			
WTU-4800 Receiver Unit	WTU-4800 G02	WTU-4800 H01	
WM-5270 Handheld Dynamic Mic	WM-5270 G02	WM-5270 H01	
WM-5265 Handheld Dynamic Mic	WM-5265 G02	WM-5265 H01	
WM-5225 Handheld Condenser Mic	WM-5225 G02	WM-5225 H01	
WM-5325 Belt Pack	WM-5325 G02	WM-5325 H01	
WT-5100 Portable Receiver	WT-5100 G02	WT-5100 H01	

Wireless Microphone Selection Guide

TOA 5000 Series Wireless Microphone Selection Guide

Description	Model	Compatible With
Handheld Wireless Microphones		
Handheld microphone, condenser, unidirectional	WM-5225	Receiver: WT-5100; WT-5800; WT-5805; WT-5810; WT-4820
Handheld microphone, dynamic, unidirectional	WM-5265	
Handheld microphone, dynamic, unidirectional	WM-5270	
Beltpack Transmitter (microphone sold separately)		
Wireless beltpack transmitter	WM-5325	Microphone: WH-4000A; WH-4000H; YP-M5300; YP-M5310; Battery: WB-2000-2; Battery Charger: BC-50002PS; BC-50006PS; BC-500012PS
Wireless Microphones		
Lavalier microphone, condenser, unidirectional	YP-M5300	Transmitter: WM-5325 Receiver: WT-5100; WT-5800; WT-5805; WT-5810; WT-4820
Lavalier microphone, condenser, omnidirectional	YP-M5310	
Headset microphone, condenser, unidirectional	WH-4000H	
Aerobic headset microphone, condenser, unidirectional	WH-4000A	
Single ear microphone, condenser, omnidirectional	Q-EM-77	
Optional Accessories - Microphones		
Battery charger for 2 mics/receivers (BC-50002PS + AD-5000-2)	BC-50002PS	Transmitter: WM-5225; WM-5265; WM-5325; Receiver: WT-5100
Battery charger for 6 mics/receivers (BC-50006PS + AD-5000-6)	BC-50006PS	
Battery charger for 12 mics/receivers (BC-500012PS + AD-5000-6)	BC-500012PS	
Battery (2pcs)	WB-2000-2	
Aerobics waist pack (belt)	WH-4000P	Microphone: WH-4000A
Replacement windscreen	WH-4000S	Microphone: WH-4000A; WH-4000H
Wireless Receivers		
True diversity receiver	WT-5800	Transmitter: WM-5225; WM-5265; WM-5270; WM-5325
Space diversity receiver	WT-5805	
Space diversity receiver	WT-5810	
Wireless microphone receiver	WT-4820	WT-4820 (Up to 2 units)
UHF wireless tuner module	WTU-4800	Module for WT-4820
Portable Receiver	WT-5100	Transmitter: WM-5225; WM-5265; WM-5270; WM-5325
Optional Accessories - Receivers		
Antenna distributor	WD-4800	Receiver: WT-5800; WT-5805; WT-4820
UHF wireless antenna	YW-4500	
Rack mount kit for single receiver (1RU)	MB-WT3	
Rack mount kit for dual receiver (1RU)	MB-WT4	
Rack mount kit	MB-15B	Antenna distributor: WD-4800
Wireless Microphone Kits (includes Microphone and Receiver)		
Handheld condenser kit	WS-5225	Microphone: Q-EM-77; WH-4000A; WH-4000H; YP-M5300; YP-M5310
Handheld dynamic kit	WS-5265	
Lavalier condenser (unidirectional) kit	WS-5325U	
Lavalier condenser (omnidirectional) kit	WS-5325M	
Headworn condenser (unidirectional) kit	WS-5325H	

TRANTEC Series Wireless Microphone Selection Guide

Description	Model	Compatible With
Optional Microphones		
Lavalier microphone	MIC-X2; MIC-X212-P-R; MIC-X212-B-R	Bodypack: S5.3-BTX
Lavalier microphone	MIC-LP2	Bodypack: S4.04-LTX; S4.10-LTX
Guitar cable	LD-X-JAC	Bodypack: S5.3-BTX
Headworn microphone	MIC-XEM77-P; Q-EM-77; WH-4000A; WH-4000H	Bodypack: S4.04-LTX; S4.10-LTX
Pouch for S5 bodypack transmitter	ACC-S5-POUCH	Bodypack: S5.3-BTX
Optional Accessories - Receivers		
Antenna booster	YW-7000 RF	Receiver: S5.3-RX; S4.4-RX
Directional antenna	YW-7570	
Wall mount antenna	YW-4500	
Rack mount kit	ACC-S5RX-MB1; ACC-S5RX-MB2	Receiver: S5.3-RX
Antenna distributor	WD-4800	
19” rack tray for 2 S4.10/S4.04 series receivers	MB-S4RX	

IR-802PA Infrared Wireless Classroom System

TOA's educational microphone system offers uniform classroom-wide sound quality with a single wide-dispersion speaker which provides ample 100 m² coverage. Quick & easy installation requiring just one CAT-5 cable. This system includes the IR-820SP Infrared Speaker, IR-802T Infrared Wireless Tuner, IR-310M Infrared Wireless Microphone, IR-310BC Battery Charger, and IR-200BT-2 Rechargable Batteries.

❖Infrared Wireless Tuner

IR-802T

- 3 AUX inputs for PC, TV/DVD player and MP3 audio player
- Output muting by 25 V line signal from telephone paging
- Equalizer control knobs for low-, mid- and high-frequency outputs
- Mixing output terminal for ALD (Assistive Listening Device)
- Frequency response optimized to reduce acoustic feedback in 30 ft x 30 ft classrooms

*0 dB = 1 V

Specifications

	IR-802T
Power Source	120 V AC, 50/60 Hz
Power Consumption	8 W (based on UL standards) Max. 40.8 W (rated output of IR-820SP)
Receiving Frequency	Teacher (Channel A): 3.100 MHz Student (Channel B): 3.350 MHz
Receiver Frequency	50 dB or more, Signal-to-noise ratio (40 dBμV input, 1 kHz modulation, ±4.8 kHz deviation)
S/N Ration	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)
Tone Squelch Frequency	32.768 kHz
Input	
AUXPC:	line, -10 dB*, 10 kΩ, unbalanced, stereo mini jack (internal mixing)
AUX DVD/TV:	line, -10 dB*, 10 kΩ, unbalanced, 2P RCA jack (internal mixing)
AUX MP3:	line, -10 dB*, 10 kΩ, unbalanced, stereo mini jack (internal mixing)
Mute:	25 V line signals of telephone paging from a school intercom system
Output	ALD (Assistive Listening Device): line, -10 dB*, 10 kΩ, unbalanced, monaural mini jack Speaker: RJ45 (dedicated terminal for IR-820SP connection)
Frequency Response	Tuner: 100 Hz - 12k Hz, AUX: 100 Hz - 20k Hz
Equalization	High: ±10 dB at 10 kHz/Mid: ±10 dB at 1.3 kHz/Low: ±10 dB at 100 Hz
Mute Function	Muted by 25 V line signals
LED Indicator	Power (green) x 1, Infrared reception (yellow) x 2, Mute (red) x 1
Operating Temperature	-10 °C to +50 °C (14 °F to 122 °F)
Operating Humidity	90%RH or less (no condensation)
Finish	Panel: Aluminum, black/Case: Steel plate, black
Dimensions (W) x (H) x (D)	8.27" x 1.81" x 12.28" / 210 x 46 x 312 mm
Weight	1.80 kg / 3.97 lbs
Included Accessories	AC adapter (DC cord length:5.91 ft) x 1, AC power cord (6.56 ft) 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

- Built-in infrared receiver and 20W digital amplifier
- Unique wide-dispersion acoustic structure employing innovative TOA technology to achieve uniform output over a wide radius
- Bass-reflex speaker system achieving a wide frequency range and high power-handling capability
- Easy one wire installation

Specifications

	IR-820SP
Power Source	24 V DC (supplied from IR-802T)
Power Consumption	4.4 W (based on UL standard)
Rated Output	20 W
Frequency Response	100 Hz – 20 kHz (-10 dB) at installation in 1/2 free sound field (Measured by installing the unit in the center of a ceiling.)
Amplication System	Clase D
Distortion	5 % or less (rated output)
Speaker Component	12 cm (4.72") cone-type
Infrared Wireless Receiver	
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
LED Indicator	Power (green) x 1
UL Code	UL60065, UL2043
Mounting Hole	300 mm (11,81")
Usage Cable	CAT-5 UTP
Operating Temperature	-10 °C to +50 °C (14 °F to 122 °F)
Operating Humidity	90% RH or less (no condensation)
Finish	Enclosure : Steel plate, plating Baffle : Fire-resistant ABS resin (resin material grade: UL94 V-0), white Punched net : Steel plate, white Filter section : Polycarbonate, optical cut filter
Dimensiones	12.6" x 8.07" (D) / 320 x 205 mm
Weight	3.4 kg / 7.5 lbs
Included Accessories	Safety wire x 1, Ceiling reinforcement ring x 1, Trim ring x 1, Paper pattern x 1
Option	Tile bar bridge: HY-TB1

*0 dB = 1 V

❖Audio Interface Unit

IR-801AF

- Interface unit enabling paging and control of external devices with IR-310M's function button
- Installation between IR-820SP and IR-802T with CAT-5 cable

Specifications

	IR-801AF
Power Source	24 V DC (supplied from IR-802T)
Infrared Frequency Channel	Channel A: 3100 MHz
Contact Output	Relay contact output, contact capacity: 30 V DC/2 - 500 mA, removable terminal block
Audio Output	-20 dB*, electrically-balanced, removable terminal block (3 pins)
Operating Temperature	-10 °C to +50 °C (14 °F to 122 °F)
Operating Humidity	90% RH or less (no condensation)
Finish	Control section: ABS resin, Black
Dimensions (W) x (H) x (D)	8.27" x 2.73" x 7.13" / 210 x 44 x 181 mm
Weight	1.23 lbs / 560 g

IR-700 Infrared Wireless Microphone System

TOA's Infrared Wireless Microphone System incorporates a range of conference and communication enhancing features that will appeal to users who want confidentiality as well as interference-free communication. Because the microphones use infrared signals, sensitive matters being discussed in a meeting room won't leave the room. Multiple wireless microphone systems can be used in several adjacent classrooms simultaneously without interference.

❖Infrared Wireless Tuner
IR-702T

- Built-in 2-channel fixed-frequency tuner
- Up to 4 infrared light receivers per unit
- Equipped with signal reception light and knob for microphone volume control
- Two line outputs, one with a MIX output switch allowing output of mixed voice from channels A and B

Specifications

	IR-702T
Power Source	AC mains 50/60Hz (supplied from the accessory AC adaptor)
Power Consumption	15W or less
Receiving Frequency	Channel A: 3.100MHz/Channel B: 3.350MHz
Receiver Sensitivity	S/N ratio over 50dB (40dBμ V input, 1 kHz modulation, ±4.8 kHz deviation)
Infrared Receiver Input	75 Ω, BNC jack × 2 (Infrared wireless receiver's power source: 24V DC, max. 220mA in total of 2 terminals)
Output	Channel A and B: –10 dB (±4.8kHz deviation, at volume level max.), 600 Ω, electronically balanced, 3 pole phone jack Note: Channel A switchable to mixer output
Frequency Response	100Hz – 12kHz
Operating Temperature	14° F to 122° F
Dimensions	210 (W) × 44 (H) × 210.9 (D) mm / 8.27" x 1.73" x 8.3"
Weight	630g / 1.39lbs (unit only)

❖Infrared Wireless Distributor
IR-700D

- Equipped with 4 receiver mixingoutputs and 2 distributor outputs
- By using the IR-700D in conjunctionwith IR-702T and YW-1022/ YW-1024, a system with up to 16 infrared receivers is configurable

Specifications

	IR-700D
Power Source	AC mains 50/60Hz (supplied from the accessory AC adaptor)
Power Consumption	25W or less
Input/Output	4 mixing inputs, 2 distribution outputs
Band-Pass Frequency	3.0 – 6.0MHz
Gain	0dB (±3dB)
Infrared Receiver Input	75 Ω , BNC jack x 4 (IR Wireless receiver's power source: 24V DC, 800mA max. in total of 4 terminals)
Distribution Output	75Ω, BNC jack
Operating Temperature	14° F to 122° F
Operating Humidity	30% to 85% RH
Dimensions	8.3" (W) x 1.7" (H) x 7.9" (D) / 210 x 44 x 200.9 mm
Weight	1.4 lbs (unit only)

Infrared Wireless Accessories

❖Wall-mount Receiver
IR-500R

- Reception area approx. 15m / 49.2ft
- Adjustable reception angle

❖Ceiling-mount Receiver
IR-510R

- Reception radius approx. 8m / 23ft

❖Wall-mount Receiver
IR-520R

- Reception area approx. 15m / 49.2ft

Specifications

		IR-500R	IR-510R	IR-520R
Power Source		24V DC (supplied from the optional IR-702T)		
Current Consumption		Max. 40mA	Max. 60mA	Max. 30mA
Infrared Detector				
Wavelength		870nm		
Carrier Frequency		Channel A: 3.100MHz/Channel B: 3.350MHz		
Reception Area		Approx. 49.2' (in the space where no obstacles exist)	Practical radius of approx. 23' in a space without any obstacle	Approx. 49.2' (in the space where no obstacles exist)
Reception Angle		Horizontal: 80° (up to 30° movable left or right)	---	---
Connection Terminal		75Ω, BNC jack		
Operating Temperature		32° F to 104° F		
Operating Humidity		30% to 85% RH		
Finish	Case:	Polycarbonate resin, visible light cut filter		
	Base:	ABS resin, off-white	ABS resin, black	--
Dimensions		3.0" (W) x 4.7" (H) x 2.8" (D) / 70 x 120 x 72 mm	4 .7 " (W) x 2.8" (H) x 0.5" (D) / 120 x 71.3 mm	3 .3" (W) 2.5" (H) x 1.3" (D) / 84.5 x 63.5 x 32 mm
Weight		0.5 lbs / 220 g (unit only)		0.2 lbs / 100 g (unit only)

Infrared Wireless Optional Accessories

❖Infrared Wireless Microphone
IR-200M

- Lightweight
- 2 selectable channels
- Antibacterial treatment
- Low-battery indicator
- Stable voice transmission
- Electret condenser microphone unit
- Infrared light emission intensity adjustable
- Ergonomic positioning of the emitter avoids drop-outs through user's handling

❖Infrared Wireless Microphone
IR-300M

- 2 selectable channels
- Antibacterial treatment
- Low-battery indicator
- Ready-to-wear design with neck strap
- Built-in electret condenser microphone
- Infrared light emission intensity adjustable
- External MIC input with level adjustable
- Optional external microphone
- Ergonomic positioning of the emitter avoids drop-outs through user's handling

❖Infrared Wireless Microphone
IR-310M

- Usable as hands-free or hand-held microphone
- Lightweight body with unobtrusive styling
- 8-hour operation with single AA battery
- Microphone sensitivity adjustable to suit application
- Sturdy clothing clip to prevent wobbling or rotation during hands-free use

❖Battery Charger
IR-200BC

- Charger for IR-200M Infrared Wireless Microphone and IR-300M Infrared Wireless Microphone

❖Rechargable Batteries
IR-200BT-2

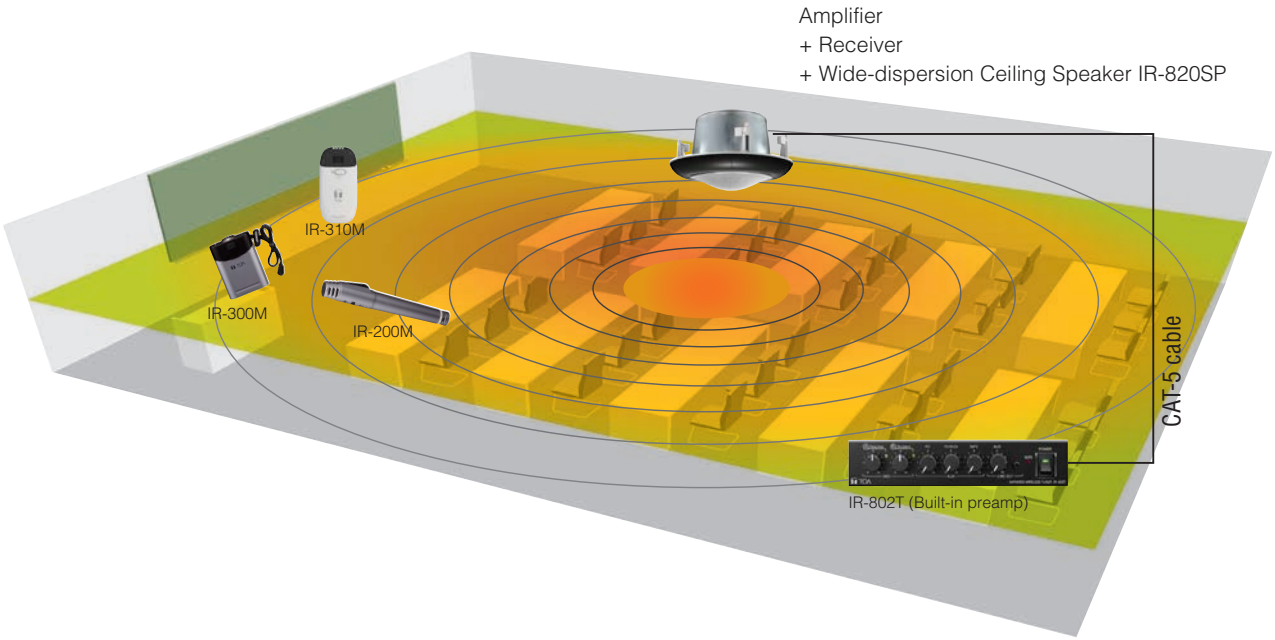
❖Battery Charger
IR-310BC

- Charger for IR-310M Infrared Wireless Microphone

Specifications

	IR-310M	IR-300M	IR-200M
Batteries	One piece of IR-200BT-2 rechargeable battery for the infrared wireless microphone (option)	IR-200BT-2 rechargeable batteries for the infrared wireless microphone (option) or AA alkaline dry cell batteries (2 pieces)	
Current Consumption	Typical 215 mA (1.2 V)	Typical 250 mA (2.4 V, Power selector switch: N) / Typical 340 mA (2.4 V, Power selector switch: H)	
Infrared Emitter			
Wavelength	870 nm (AM: Brightness modulation)		
Carrier Frequency	Channel A: 3.100 MHz/Channel B: 3.350 MHz		
Transmission Distance	50 ft (In an unobstructed space)	Approx. 65 ft (Power selector switch: H; In an unobstructed space) Approx. 50 ft (Power selector switch: N; In an unobstructed space)	
Maximum Input Sound Pressure	120 dB SPL		
Input Sensitivity Adjustment	Adjustment range: 2 levels (High, Low)	Adjustment range: -9 dB to 0 dB (factory-preset: 0 dB)	-
Microphone Unit	Unidirectional electret condenser microphone		
Frequency Response	100 Hz – 12 kHz		
Preemphasis	300 µs		
Input	External microphone input (3.5 monaural mini jack, phantom powered)		-
Battery Operation Time	Approx. 8 hours (one piece of IR-200BT-2)	Approx. 8 hours (IR-200BT-2, Power selector switch: N) Approx. 6 hours (Alkaline batteries, Power selector switch: N)	
Operating Temperature	0 °C to + 40 °C (32 °F to 104 °F)		
Operating Humidity	90 % RH or less (no condensation)	30 % to 85 %RH	
Finish	Control Section: ABS resin, white/Filter Section: Polycarbonate, optical cut filter	Control Section: ABS resin, metallic gray, paint, 50% gloss Filter Section: Polycarbonate, optical cut filter	
Dimensions	2.13" (W) x 4.29" (H) x 1.06" (D) 54.2 x 109 x 27 mm	2.52" (W) x 3.59" (H) x 1.07" (D) 64 x 91.3 x 27.3 mm	1.46" x 9.52" / 37 x 241.8 mm
Weight	0.21 lbs / 95 g (with battery and strap)	0.29 lbs / 130g (with batteries and strap)	0.37 lbs / 170 g (with alkaline batteries)
Accessories	Neck strap x 1	Screw driver (for setting) x 1, Color label (6 colors) x 1	

IR-802PA Infrared Wireless Classroom System Example



IR-700 Infrared Wireless Microphone System Example

- Anti-bacterial treatment for all models (mouth/microphone and handle)
- High durability ABS or ASA resin construction
- Wide frequency range for enhanced audio quality
- Polyimide speaker diaphragms
- Wireless Function (ER-2930W only)
- Long-lasting battery life
- Compact and lightweight
- Neodymium magnets for high audio performance
- Extended audible range

Splashproof Hand Grip Type Megaphones

ER-1203
- 4W max.
- IPX5*

ER-1206
- 10W max.
- IPX5*

ER-1206S
- 10W max.
- IPX5*
- with siren

ER-1206W
- 10W max.
- IPX5*
- with whistle

❖Wall Mount Bracket SP-1100

Specifications

	ER-1203	ER-1206	ER-1206S	ER-1206W
Power Source	R6P (AA) × 4 (6V DC)	R6P (AA) × 6 (9V DC) or R6P (AA) × 4 with battery spacer (6V DC)		
Rated Output	3W	6W		
Maximum Output	4W	10W		
Battery Life	Approx. 8 hours	When using six R6P batteries (JEITA)*1 Voice: Approx. 8 hours - When using four R6P batteries (JEITA)*1 Voice: Approx. 5 hours -	When using six R6P batteries (JEITA)*1 Voice: Approx. 8 hours Siren: Approx. 20 minutes When using four R6P batteries (JEITA)*1 Voice: Approx. 5 hours Siren: Approx. 10 minutes	When using six R6P batteries (JEITA)*1 Voice: Approx. 8 hours Whistle: Approx. 20 minutes When using four R6P batteries (JEITA)*1 Voice: Approx. 5 hours Whistle: Approx. 10 minutes
Audible Range	Voice: Approx. 125m/410ft (JEITA)*1	Voice: Approx. 250m/820ft (JEITA)*1	Voice: Approx. 250m/820ft (JEITA)*1 Siren: Approx. 315m/345yd (JEITA)*1	Voice: Approx. 250m/820ft (JEITA)*1 Whistle: Approx. 315m/345yd (JEITA)*1
Signal Sound	-	-	Siren (sounds of 5 seconds intervals)	Whistle
Frequency Response	500 – 6,000Hz (SPL –20dB)	450 – 6,000Hz (SPL –20dB)		
Magnetic Circuit	Neodymium magnet, inner magnet type			
Diaphragm	Polyimide film (voice coil, bobbin)			
Anti-bacteria Treatment	Mouth and handle			
Water Protection	IPX5			
Operating Temperature	–10°C to +40°C / 14°F to +104°F			
Finish	Horn: ASA resin, clear dark gray Other: ASA resin, dark gray Strap: Nylon, black		Horn: ASA resin, clear red Other: ASA resin, red Strap: Nylon, black	Horn: ASA resin, clear dark gray Other: ASA resin, yellow Strap: Nylon, black
Dimensions	137 (W) × 257,8 (H) × 210 (D)mm 5.4" x 10" x 8"	153 (W) × 266 (H) × 250 (D)mm / 6" x 10.5" x 9.8"		
Weight	610g/1.3lbs (without batteries)	660g/1.5lbs (without batteries)	680g/1.5lbs (without batteries)	
Accessory	-	Battery spacer × 1		
Option	Wall mounting bracket for megaphone : SP-1100			

*1 JEITA: Japan electronics and information technology industries association. (EIAJ TT-4501A)

Notes:
- Batteries not included.
- The indications of the audible range and battery life are based on the JEITA Standard*1.
- Audible Range presumes that the megaphone employs new batteries and is used on a quiet street. It varies depending on such conditions as battery consumption, ambient noise, wind direction and obstacles.
- Battery Life assumes that megaphone is used for 30 minutes a day.

Specifications

	SP-1100
Finish	Stay: Stainless steel; Holder and Dustproof cover: ASA resin, clear dark gray
Dimensions	126 (W) x 420 (H) x 156 (D) mm / 5" x 16.5" x 6.1" (when the dustproof cover and holder are opened)
Weight	410 g / 14.5 oz
Accessory	Wall mounting screw (SUS self-tapping screw 4 x 16) x 2
Applicable Megaphone (option)	ER-1203, ER-1206, ER-1206S, ER-1206W

Hand Grip Type Megaphones

ER-520
- 10W max.

ER-520S
- 10W max.
- with siren

ER-520W
- 10W max.
- with whistle

ER-1215
- 23W max.

ER-1215S
- 23W max.
- with siren

ER-3215
- 23W max.

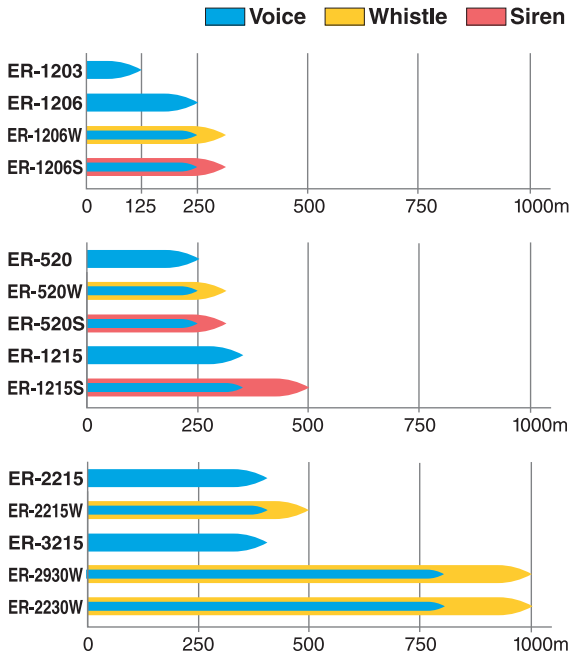
Specifications

	ER-520	ER-520S	ER-520W	ER-1215	ER-1215S	ER-3215
Power Source	R6P (AA) × 8 (12V DC)			R14P (C) × 6 (9V DC)		
Rated Output	6W			15W		
Maximum Output	10W			23W		
Battery Life	Approx. 10 hours (JEITA)*1	Approx. 10 hours (JEITA)*1 Siren: Approx. 40 min (JEITA)*1	Approx. 10 hours (JEITA)*1 Whistle: Approx. 30 min (JEITA)*1	Voice: Approx. 14 hours (JEITA)*1	Voice: Approx. 14 hours (JEITA)*1 Siren: Approx. 20 min (JEITA)*1	Voice: Approx. 9 hours (JEITA)*1
Audible Range	Voice: Approx. 250m/ 273yd (JEITA)*1	Voice: Approx. 250m/ 273yd (JEITA)*1	Voice: Approx. 250m/ 273yd (JEITA)*1	Voice: Approx. 315m/ 344.5yd (JEITA)*1	Voice: Approx. 315m/ 344.5yd (JEITA)*1	Voice: Approx. 400m/ 437.5yd (JEITA)*1
Signal Sound	-	Siren	Whistle	-	Siren	-
Diaphragm	Polyimide film (voice coil, bobbin)					
Anti-bacteria Treatment	Mouth and handle					
Operating Temperature	–10°C to +40°C / 14°F to +104°F					
Finish	Horn: ABS resin, light gray Others: ABS resin, gray Strap: Nylon, black	Horn: ABS resin, red Others: ABS resin, red Strap: Nylon, black	Horn: ABS resin, light gray Others: ABS resin, gray Strap: Nylon, black		Horn: ABS resin, red Others: ABS resin, red Strap: Nylon, black	Horn: ABS resin, light gray Microphone and others: ABS resin, gray Strap: Nylon, black
Dimensions	160 (W) × 256 (H) × 260 (D)mm / 6.3" x 10.1" x 10.2"			210 (W) × 291 (H) × 346 (D)mm 8.3" x 11.5" x 13.6"		210 (W) x 219 (H) x 381 (D)mm / 8.3" x 11.5" x 15" (when attaching the microphone)
Weight	620g / 1.4lbs (without batteries)	650g / 1.4lbs (without batteries)	650g / 1.4lbs (without batteries)	1.1kg / 2.4lbs (without batteries)	1.2kg / 2.6lbs (without batteries)	Body: 1.15kg/2.5lbs (without microphone and batteries) Microphone: 150g/5.3oz

*1 JEITA: Japan electronics and information technology industries association. (EIAJ TT-4501A)

Notes:
- Batteries not included.
- The indications of the audible range and battery life are based on the JEITA Standard*1.
- Audible Range presumes that the megaphone employs new batteries and is used on a quiet street. It varies depending on such conditions as battery consumption, ambient noise, wind direction and obstacles.
- Battery Life assumes that megaphone is used for 30 minutes a day.

Audible Range of Megaphones



Shoulder Type Megaphones

ER-2215
- 23W max.

ER-2215W
- 23W max.
- with whistle

ER-2230W
- 45W max.
- with whistle

ER-2930W
- 45W max.
- with whistle and wireless function

❖UHF Wireless Tuner Unit
WTU-4800

Specifications

	ER-2215	ER-2215W	ER-2230W	ER-2930W
Power Source	R14P (C) × 6 (9V DC)		Battery: R20P (D) x 10 (15V DC) External Power: 12V DC Battery	
Rated Output	15W		30W	
Maximum Output	23W		45W	
Battery Life	Approx. 9 hours (JEITA)*2	Approx. 9 hours (JEITA)*2 Whistle: Approx. 20 min (JEITA)*2	Voice: Approx. 17 hours (JEITA)*2 Whistle: Approx. 90 min (JEITA)*2	
Audible Range	Voice: Approx. 400m/437.5yd (JEITA)*2	Voice: Approx. 400m/437.5yd (JEITA)*2 Whistle: Approx. 500m/547yd (JEITA)*2	Voice: Approx. 800m/875yd (JEITA)*2 Whistle: Approx. 1000m/1094yd (JEITA)*2	
Signal Sound	-	Whistle (1,600Hz to 2,400Hz)	-	Whistle (1,600Hz to 2,400Hz)
AUX Input Sensitivity	-		–10dB*1 (300mV), 10kΩ (3.5 mini jack, stereo plug acceptable), volume control	
EXT Mic Input	-		600Ω, unbalanced, 6.3 phone jack, volume control	
Receiving Frequency	-			UHF (800MHz band) and VHF (200MHz band)
Antenna	-			Fold-down flexible antenna
Diaphragm	Polyimide film (voice coil, bobbin)			
Anti-bacteria Treatment	Microphone			
Remaining Battery Indication	-		LED (also serves as a power indicator) Stereo ON: Normal use, Flashing: Batteries need replacement	
Operating Temperature	–10°C to +40°C / 14°F to +104°F			
Finish	Horn: ABS resin, light gray Microphone and others: ABS resin, gray Strap: Nylon, black		Horn ring: Vinyl chloride, gray; Horn: Aluminum, light gray, paint Case top: Die-cast aluminum, gray, paint Strap: Nylon, black; Others: ABS resin, gray	
Dimensions	210 × 336mm / 8.3" x 13.2"		351 x 512mm / 13.8" x 20.2"	
Weight	Body: 1.1kg/2.4lbs (without microphone and batteries) Microphone: 150g/5.3oz	Body: 1.2kg/2.6lbs (without microphone and batteries) Microphone: 150g/5.3oz	Body: 3.6kg/8lbs (without microphone and batteries) Microphone: 150g/5.3oz	Body: 3.8kg/8.4lbs (without microphone and batteries) Microphone: 150g/5.3oz
Accessories	-		3.5 mini plug (AUX input x 1, External power supply cord (1m/3.3ft) x1, Splash-proof cover x 1*3	
Option	-			Wireless tuner: WTU-4800 series

*1 0dB = 1V

*2 JEITA: Japan electronics and information technology industries association. (EIAJ TT-4501A)

*3 Do not use the unit in 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.

Notes:
- Batteries not included.
- The indications of the audible range and battery life are based on the JEITA Standard*2.
- Audible Range presumes that the megaphone employs new batteries and is used on a quiet street. It varies depending on such conditions as battery consumption, ambient noise, wind direction and obstacles.
- Battery Life assumes that megaphone is used for 30 minutes a day.

ER-2930W Control Panel

Hands-Free Type Megaphones

❖Compact Power Megaphone
ER-604W

- Compact and lightweight body
- Maximum output power of 10 W
- Built-in electronic whistle
- 2 mic inputs and 1 aux input
- Battery status indicator
- Supplied hand-held type microphone equipped with press-to-talk switch and volume control
- Approx. 10 hours of operation with 8 R6P manganese dioxide batteries (without use of whistle)

❖Personal PA System
ER-1000

- Ideal for school teachers, sports instructors, tour guides, trade show personnel, and police officers, all of whom can benefit from the system's hands free convenience
- Ultra-light body of only about 480 g/1lbs, yet with a maximum output of 10W and a maximum audible range of 80 m/87.5yd
- Supplied headset microphone
- 80 cm/31.5" long elastic waist belt extendable to up to 120 cm/47"
- A 30 cm/1 ft extension belt is included.
- Large rotating volume control and the independent power on/off switch for easy knob and switch operation even with a gloved hand
- AUX input terminal
- 8 hours operation with 6 alkaline AA batteries

Specifications

	ER-604W
Power Source	8 x AA batteries (LR6); External Power: 12 VDC / 0.8 A
Rated Output	6W
Maximum Output	10W
Battery Life	Voice: Approx.20 hours (w/ alkaline batteries); Whistle: Approx. 90 minutes (continuous use)
Audible Range (ambient noise level of 55 dB)	Voice/Whistle: 525 ft. (160 m)
Microphone	Close-talking type w/ press-to-talk switch and volume control
Signal	Whistle tone, pushbutton activation
Input	MIC 1: -40 dBV,1.5k Ω,6.3 mm (1/4") phone jack; MIC 2: -18 dBV, 3k Ω, 3.5 mm (0.14") mini jack, w/ phantom power; AUX: -12 dBV,18 k Ω,3.5 mm (0.14") mini jack; External Power: 12 VDC
Other Functions	Voice switch: preserves battery power when no external input signal is present (MIC 1/2 and AUX); Battery Check: flashes to indicate low battery status.
Finish	Body, microphone: ABS resin, off-white; Shoulder pad, belt: Black
Dimensions (W x H x D)	4.08" x 10.32" x 8.64" / 102 x 258 x 216 mm
Weight (without batteries)	3.5 lbs. / 1.6 kg
Accessories (included)	3.5 mm (0.14") mini plug: 1; External power supply cord: 1
Options	WH-4000H Headset Microphone; WH-4000A Headset Microphone,Moisture-Resistant; DM-1200 Handheld Microphone w/ 25 ft.Cable

Specifications

(*1) 0 dB = 1 V

	ER-1000
Power Source	Alkaline battery (LR6): 6 pieces (9 V DC) or 4 pieces (*2) (6 V DC); Rechargeable nickel metal hydride (Ni-MH) battery (HR15/51): 6 pieces (7.2 V DC) or 4 pieces(*2) (4.8 V DC); Black manganese battery (R6PU): 6 pieces (9 V DC) or 4 pieces (*2) (6 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(*2) (6 V DC) are used.
Battery Life	Voice operation(*3): Approx. 8 hours (when 6 or 4 (*2) alkaline batteries are used).; AUX stereo input operation (music reproduction)(*4): Approx. 4.5 hours (when 6 or 4 (*2) alkaline batteries are used); Approx. 5.5 hours (when 6 or 4 (*2) Ni-MH batteries are used); Approx. 3 hours (when 6 or 4 (*2) black manganese batteries are used)
Audible Range (*5)	Voice operation: Approx. 80 m (87.49 yd) (when 6 alkaline batteries or Ni-MH batteries are used); Approx. 40 m (43. 74 yd) (when 4 (*2) alkaline batteries or Ni-MH batteries are used) Note: The audible range when black manganese batteries are used is approximately 80% of each of the above mentioned distances.
Frequency Response	300 Hz - 14 kHz (deviation: -26 dB)
Headset Microphone	Ear-on type, electret condenser microphone, sensitivity: -4 7 dB (0 dB =1 V /1 Pa, 1 kHz)
Input	MIC: -30 dB(*1), 3 kΩ, 3.5 (0.14") monaural mini-jack, phantom power supply; AUX(*6): -10 dB(*1), 2 kΩ, 3.5 (0.14") stereo mini-jack (supporting monaural applications(*7))
Belt Length	55 - 120(*8) cm (1.80 - 3.94(*8) ft); 90 - 160(*9) cm (2.95 - 5.25(*9) ft) (when wearing a extension belt (accessory))
Operating Temperature	0ºC to +40ºC (32ºF to 104ºF)
Finish	Front case: ABS resin, light grayish purple; Rear case: ABS resin, dark grayish purple; Grille: Surface-treated steel plate, dark grayish purple, paint; Belt: Elastic rubber, black
Dimensions	133 (W) X 96 (H) X 222 (D) mm (5.24" X 3.78" X 8.74") (belt excluded)
Weight	Main PA unit (belt included, batteries excluded): 480 g (1.06 lb); Headset microphone: 50 g (0.11 lb); Extension belt: 40 g (1.41 oz)
Accessory	Headset microphone (with headband and wind screen) x 1, Belt (attached to the main PA unit) x 1, Extension belt x 1, Battery spacer x 2

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

(*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. Reference standard: JEIT A (Japan Electronics and Information Technology Industries Association) TT-45018

(*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 auxiliary (AUX) input terminal. It varies depending on the connected external equipment's volume output or the type of music source.

(*5) Audible range is measured on a quiet street with the Personal PA System loaded with fresh batteries. Range varies depending on surrounding environmental conditions, such as battery consumption, ambient noise levels, wind direction and obstacles. (Reference standard: JEITA TT-45018)

(*6) Ad just the volume of the auxiliary (AUX) input at the connected external device.

(*7) Volume during monaural operation is smaller than during stereo operation.

(*8) The 120 cm (3.94 ft) length is when the Belt is stretched out to its maximum extent. When worn, consider a Belt length of 100 cm (3.28 ft) (of waist size when clothes are worn) as a rule-of-thumb standard.

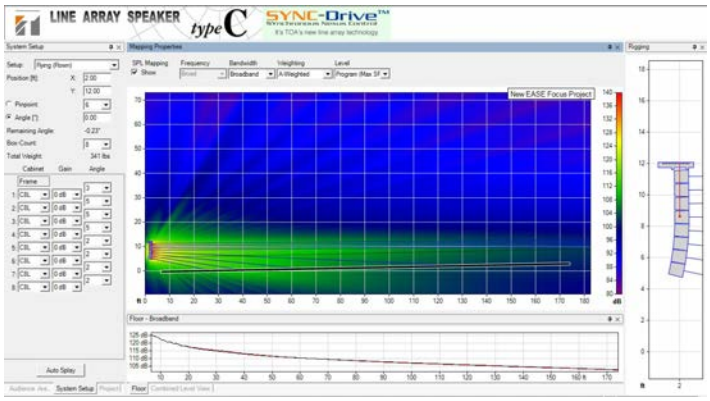
(*9) The 160 cm (5.25 ft) length is when the Belt is stretched out to its maximum extent. When worn, consider a Belt length of 150 cm (4.92 ft) (of waist size when clothes are worn) as a rule-of-thumb standard.

Note: Batteries not included.

EASE Focus - Generic Aiming & Acoustic Modeling Sofware

EASE Focus is a software that allows the modeling of acoustic sources, in particular line arrays, in two dimensions. It considers the direct field created by the complex addition of the sound contributions of the individual loudspeakers or array elements. Based on an intuitive and consistent interface, the design of EASE Focus is targeted at the end user, but also at the R&D engineer.

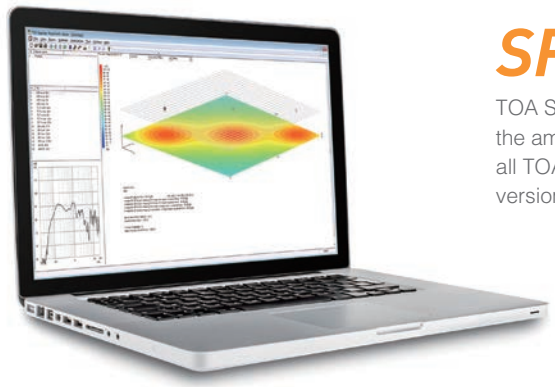
- Aiming and color mapping display
  - Zoomed rigging display
  - Extended report for printing
  - Levels over audience areas
  - COM and tilt angle calculation for multiple selected pinpoint
- Presets for audience areas and array setup
- Acoustic calculation
  - SPL in 1/3rd octave, octave, 3 octaves, broadband
  - RMS, program and peak levels
  - Flat and A-weighted levels
  - Air attenuation according to ISO 9613
  - Complex modeling of cabinets with multiple sources per cabinet
  - Amplitude shading
  - Optimized SPL calculation routines for interactive aiming



FAQ Database

Find answers to frequently asked questions in our FAQ Database on our website - easily accessible from our website homepage by clicking on FAQ on the upper right side of the page, and at http://toaelectronics.com/toa-faq.

Software for Acoustic Simulation: SPV



SPV *(TOA Speaker Placement Viewer Software)*

TOA Speaker Placement Viewer is the easy way to simulate the amount of speakers necessary in a room. In addition to all TOA Public Address and Pro Sound speakers, the latest version allows you to simulate the TOA Line Arrays as well.

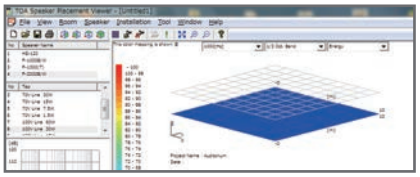
Easy-to-Use

Step 1 Set the room parameter.

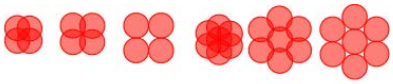
Step 2 Select a speaker, drag and drop to the room.

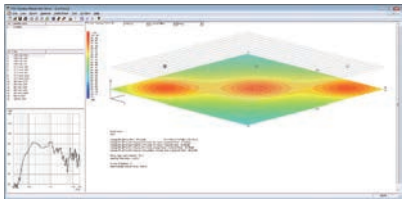
Step 3 The result is shown immediately.

- Enter the size of the room.

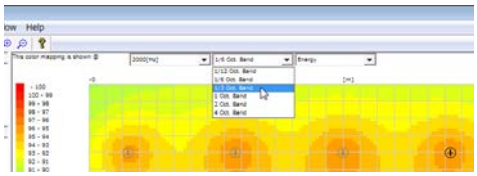


- Ceiling speakers are automatically placed by simply selecting your preferable placement from 6 layout patterns.

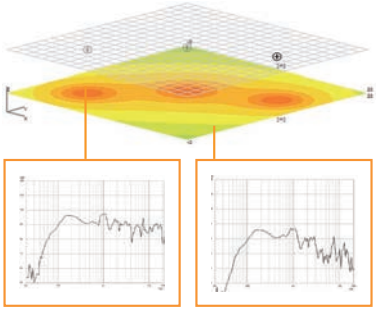




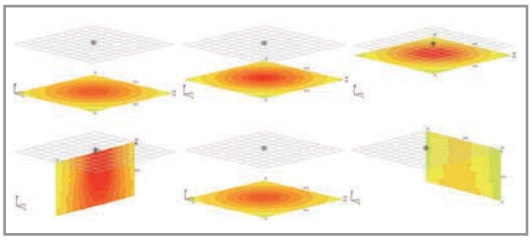
You can check sound pressure level distribution by selected frequency and bandwidth.



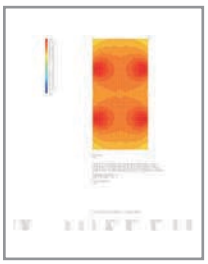
- Frequency characteristics graphs of any random point can be viewed by placing the mouse cursor over the simulation graphics.



- Sound pressure level distribution from various faces



- The result of simulation can be printed out.



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