TOA

Microphones

Digital Message Repeaters

Beam Steering Microphones

Wireless Systems

Amplifiers

Mixers

Speakers

Security & Safety

Conference Systems

Megaphones

Professional Audio

Technical Column

TOA Audio Catalogue

We supply sound, not equipment

We Supply Sound,
Not Equipment.
That's Our Corporate
Philosophy.

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

In every country within the TOA group, which consists of the main company and 19 subsidiaries, we utilise 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 excellent sound and peace of mind to help make their lives more comfortable.
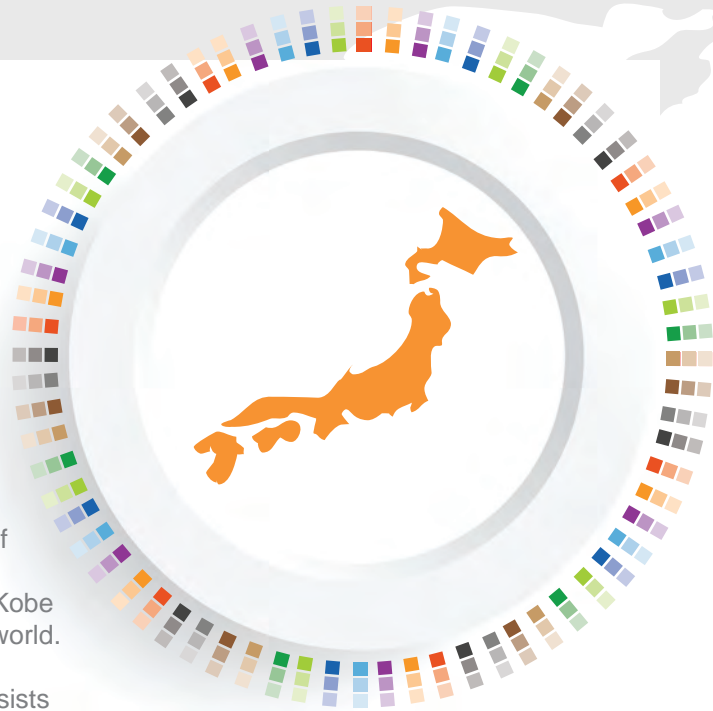
S O U N D &

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

JMI-0020
ISO9001
● Head Office
● Takarazuka
  Headquarters
● Tokyo Branch
● Osaka Branch

JQA-EM1400
ISO14001
● Takarazuka
  Headquarters

Basic Management Policy (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 efforts

TOA's Environmental Principles
TOA recognises preservation of the Earth's environment is an important aspect of doing business in the world today. Our entire staff remain 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 specialise 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 the 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.

COMMUNICATION

Dr. Sound

My name is Dr. Sound and I am the acoustic expert at TOA. I'm always striving for the perfect sound. At TOA we have made it our mission to supply you, not only 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. As such, we create smiles for the public.

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Dynamic Microphones

⋙ Unidirectional Microphone

DM-1100

- Dynamic hand-held microphone for general use
- Rigid die-cast aluminium microphone body
- Switching and handling noise suppression
- 7.5m phone plug cable supplied with unit
- Microphone holder provided as standard accessory

⋙ Unidirectional Microphone

DM-1200

- Dynamic hand-held microphone for speech use
- Rigid die-cast aluminium microphone body
- Switching and handling noise suppression
- 10m phone plug cable supplied with unit
- Microphone holder provided as standard accessory
- Balanced output for long distance connection

⋙ Unidirectional Microphone

DM-1300

- Dynamic hand-held microphone for vocal/speech use
- Rigid die-cast zinc microphone body
- Switching and handling noise suppression
- 10m phone plug cable supplied with unit
- Microphone holder provided as standard accessory
- Balanced output for long distance connection

⋙ Unidirectional Microphone

DM-1500

- Suitable for vocal and speech application
- Robust die-cast zinc microphone body
- Short type slide on/off switch reduces handling noise
- XLR connector (balanced) and 10m cable with phone plug
- Adapter for stand mount is provided

Model	DM-1100	DM-1200	DM-1300	DM-1500
Type	Moving coil microphone (Dynamic microphone)			
Directivity	Unidirectional: Cardioid			
Rated Impedance	600Ω, Unbalanced	600Ω, Balanced		
Rated Sensitivity	-55dB (1kHz 0dB = 1V/Pa)		-54dB (1kHz 0dB = 1V/Pa)	-56dB (1kHz 0dB = 1V/Pa)
Frequency Response	100Hz - 12kHz	50Hz - 12kHz	70Hz - 15kHz	
Weight	155g (without connection cable)	265g (without connection cable)	245g (without connection cable)	280g (without connection cable)
Dimensions	ø55 x 178mm	ø39.5 x 163mm	ø51 x 170mm	ø40.5 x 173mm
Talk Switch	Short-off type, slide on/off switch			
Finish	Body: Die-cast aluminium, painted black Head: ABS resin, black, zinc plated steel wire, painted black	Body: Die-cast zinc, painted metallic grey Head: Die-cast aluminium, zinc plated steel wire, painted metallic grey	Body: Die-cast zinc, painted metallic grey Head: Aluminium, zinc plated steel wire, painted metallic grey	Body: Die-cast zinc, painted metallic gold Head: Brass and zinc plated steel wire, painted metallic gold
Standard Accessory	Microphone holder (W 5/16", W 5/8")	Microphone holder (W 5/16", W 5/8", W 3/8")	Microphone holder (W 5/16")	

⋙ Moving Coil Microphone

- Flexible and durable goosenecks
- For lecture desk or for paging
- Suppresses handling noise
- DM-524S has a built-in On/Off switch
- 600Ω Impedance (balanced)
- 3-pin connector
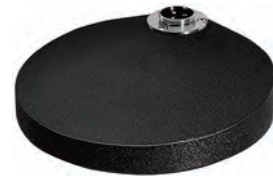
DM-524S

Fixed Lo-Z Gooseneck
Microphone with Switch

DM-524B

Fixed Lo-Z Gooseneck
Microphone

ST-73A

For DM-524B/524S

Model	DM-524S	DM-524B
Type	Moving coil microphone	
Directivity	Cardioid	
Rated Impedance	600Ω, Balanced	
Rated Sensitivity	-56dB (1kHz 0dB = 1V/Pa)	
Frequency Range	100Hz - 10kHz	
Switch	Slide/short-off type	—
Output Connector	ø21, 3-pin plug (BTS21P3B)	
Finish	Microphone body: Gold, sparkling paint gooseneck Shaft: Nickel-pear skin-plating	
Weight	475g	465g
Accessory	ø21 3-pin receptacle (BTS21R3A) x 1, M3x10 screw x 3, W3 washer x 3, SW3 spring washer x3, M3 nut x 3	

Condenser Microphones

>>> Lavalier Microphone

EM-410

- Electret condenser microphone element for voice orientated applications such as lectures, presentations and religious services
- Designed for best performance when attached to the chest area
- Capsule rotates 360 degrees, for optimal pickup even when worn on a lapel

>>> Flush-Mount Boundary Microphone

EM-600

- Electret condenser microphone for conference room recording and secure 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
- Optimised to deliver best performance when used on a desk or attached to a ceiling
- A 50Hz 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

>>> Boundary Microphone

EM-700

- Electret condenser microphone for speech and recording applications
- Design optimized to deliver best performance when used on a desk
- Slim, stylish design suits interior decor
- Rejection of undesirable off-axis sound minimizes possible feedback
- Low-cut filter switch prevents interference from ambient noise being picked up
- Wide frequency range of 35 - 20kHz provides well-balanced sound with clarity and a satisfying tonal response

>>> Gooseneck Microphone

EM-800

ST-800
For EM-800

- Electret condenser microphone for such speech applications as meetings, lectures, and religious services
- Excellent high-frequency response of 60Hz - 20kHz delivers clear output
- High sensitivity (-35dB) provides a satisfying tonal response
- Gooseneck with two adjustment points allows more flexible microphone positioning angles
- Rejection of undesirable off-axis sound minimizes possible feedback

(With microphone stand ST-800)

Model	EM-410	EM-600	EM-700	EM-800
Directivity	Hyper-cardioid	Omnidirectional	Cardioid	
Rated Impedance	120Ω, Balanced			
Rated Sensitivity	-47dB (1kHz 0dB = 1V/Pa)	-36dB (1kHz 0dB = 1 V/Pa)	-33dB (1kHz 0dB = 1 V/Pa)	-35dB (1kHz 0dB = 1 V/Pa)
Phantom Power	9-52V DC			
Frequency Response	100Hz - 15kHz	30Hz - 20kHz	35Hz - 20kHz	60Hz - 20kHz
Output Connector	Balanced-phone plug	XLR-3-12 equivalent		
Finish	Body: Copper alloy, black, semi-gloss, paint	Body: Steel, white, semi-gloss, paint Head: Zinc-plated steel wire, white, semi-gloss, paint	Body: Die-cast aluminium, black, matte finish, paint Punched net: Surface-treated steel plate, black, matte finish, paint	Body shaft: Copper alloy, black, semi-gloss, paint
Dimensions	ø8.9 x 28.6mm (cord excluded)	ø28 x 68mm	83(W) x 23(H) x 83(D)mm (cord excluded)	ø12 x 420mm
Weight	100g	85g	290g	135g
Accessory	Windscreen x 1, Clip Holder x 1	Rubber Isolation Ring x 2, M20 Nut x 1	—	Windscreen x 1

Optional Accessories

>>> Impedance Meter

ZM-104A

- Portable analogue meter measures loudspeaker impedance (at 1kHz) in three ranges (5-1000, 50-10000 and 500-10000 ohms) with a clear analogue display.
- To use simply disconnect the speaker line from the amplifier, connect the meter across the line and read the impedance.
- Battery life approx. 30 hours continuous use (at first range, 60 hours at higher ranges). Supplied complete with carrying case, test leads and impedance power chart.
- Dimensions: 120 (W) x 220 (D) x 63 (H) mm including case.
- Weight: less than 1kg including 4 x AA batteries (not supplied)

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Desktop Paging Microphones

>>> Paging Microphones

PM-660

- Dynamic paging microphone with phone jack
- Large talk switch with locking lever
- Fitted with 2.5m, 1-core shielded cable

PM-660D

- Dynamic paging microphone with DIN Connector
- Large talk switch with locking lever
- Extra switch contact for mute or relay control
- Fitted with 2.5m, 2-core shielded cable and DIN plug

PM-660U

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

Model	PM-660	PM-660D	PM-660U
Rated Impedance	600Ω, Unbalanced	600Ω, Balanced	
Rated Sensitivity	-58dB (1kHz, 0dB = 1 V/Pa)		
Frequency Response	100Hz to 10kHz		
Remote Switch	None	Leaf spring contact (interlocked with talk switch), 30V DC, under 500mA	
Finish	Head: Zinc plated steel wire, grey paint Body: ABS resin, grey		
Dimensions	100(W) x 215(H) x 150(D)mm (3.94" x 8.46" x 5.91")		
Weight	440g (0.97lb) (cable excluded)		

>>> Amplifier Control Units

RU-2001, RU-2002

- Amplifier control unit for 5 pin DIN plug remote switch type paging microphone (PM-660D)
- Desktop or wall mounting
- Outputs remote control signals for main amplifier power ON/OFF, and for initiating all-call paging
- Microphone volume control and talk ON indicator
- Power supplied by locally available AC adaptor
- RU-2002: Activates selectable 4-tone, 2-tone and single tone chimes, plus gong, when paging remote microphone's talk switch is pressed

Model	RU-2001/RU-2002
Power Requirements	12 - 24V DC or 12V AC Adaptor
Current Consumption	60mA
Mic	Input -62dBV, 600Ω, unbalanced
Output	0dBV, 600Ω, balanced
Finish	Steel colour plate, black
Dimensions	124 (W) x 42.5 (H) x 159 (D) mm
Weight	700g

Model	EC-100M
Power Requirements	30 V DC
Current Consumption	2mA in an operation of mic and chime 10µ in no operation
Chime Unit	Series of 4 notes - Frequencies: 442, 553, 660 and 883Hz
Microphone	Unidirectional dynamic type
Output	Chime signal: -45dBv max. 600Ω (unbalanced) at 1kHz, 0dB-1V/pa (phone jack)
Finish	Metallic gold (stand base)
Dimensions	112 (W) x 293 (H) x 150 (D) mm
Weight	465g

>>> Desktop Microphone

EC-100M

- Unidirectional dynamic microphone with built in electronic chime unit
- Generates 2 series of 4 notes - from low to high - before an announcement and vice versa afterwards
- 2 push buttons for easy operation

Digital Message Repeaters

>>> Sound Repeater

EV-20R

- For supermarkets and department stores with a distributed speaker system
- Up to 4 separate message selections or announcements to a total maximum of six minutes may be recorded
- Front panel-mounted recording inputs (mic/line switchable)
- PC connection via USB. A CD-ROM with various chimes is included
- Prerecorded message can be transferred via USB-interface
- Built-in interval timer allows messages to be repeated at various time intervals (0.5 seconds up to ∞)
- 3W / 8Ω amplifier section built-in for direct speaker connection. Volume control for level adjustment of an external source
- A line input and output for connecting various program sources including CD

>>> Digital Announcer

EV-700

- Network connection
- Recorded sentences can be combined and played back as a program
- Up to 256 programs can be played back, up to 32768 phrases can be recorded
- Pre-announcement gong and chime possible
- Emergency messages (prerecorded) can override current programs
- Recording, playback, erasure, and stop can be remotely controlled by external equipment
- Maximum recording time about 3 hours (at 44.1kHz sampling rate) or about 4 hours (at 32kHz sampling rate)

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MeetingIO Series

The AM-1 Real-time Steering Array Microphone is the newly upgraded premier flagship conferencing microphone in TOA's meetingIO Series. Delivering the most natural kind of speaking and conversation experience for corporate speeches, company meetings, and team collaborations between remote locations. That same benefit can be extended to executive offices, houses of worship, court rooms, higher education classrooms, and even theatrical venues. The AM-CF1 Audio Collaboration System is a cutting edge TOA product. A professional steerable system with integrated stereo soundbar, it's the perfect all-in-one conferencing solution for small to medium sized conference spaces and offers great return on investment.

Real-time Steering Array Microphone Set

⟩⟩⟩ Array Microphone Set

AM-1B/AM-1W

• Built-in voice detection sensor captures voices from up to 3m, with tracking range angles up to 180°
• Level compensation for reduced volume variations
• Narrow (50°) directivity, assuring minimal acoustic feedback
• Innovative pad-like form permitting unobtrusive placement
• Freedom to adopt a comfortable speaking posture
• Permits quick, one-touch adjustment of control unit parameter settings from an iPad using a dedicated app or firmware. Adjustment by PC is also possible
• Tracking distance/range, sensitivity/speed, mute on/off
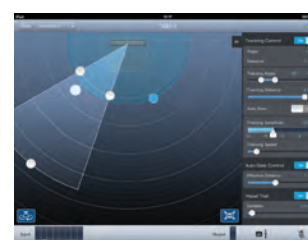• AM-1C matching control unit included

⟩⟩⟩ Controller Unit

AM-1C

⟩⟩⟩ iPad Display
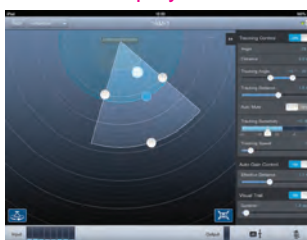
Integrated Audio Collaboration System

⟩⟩⟩ Audio Collaboration System

AM-CF1B/AM-CF1W

• High quality audio supports natural conversation at a distance
• Easily connectable via USB for a PC-based Web conference and for USB-connectable camera
• Bluetooth® interface allows attendees via phone-line
• LED light confirms that your voice has been successfully collected and delivered
• Wall-mount installation frees up desk-top space
• Black or white colour selectable depending on interior preferences/requirements
• Compatible with Ultra PoE and power supply
• Built-in DSP functions such as Automatic Echo Cancellation and Automatic Noise Reduction

Wireless Systems

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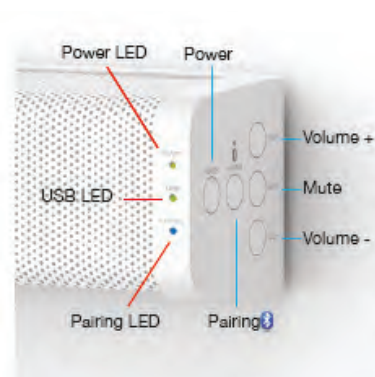
TOA Wireless Microphone Systems 5000 Series

TOA 5000 Series is the ultimate choice for the presenter, offering incredible intelligibility so that your audience won't miss a single word. You can be assured that with TOA's continuous commitment to research and development, we will always provide wireless solutions that allow your voice to be heard clearly by all.

TOA 5000 Series 16 Channel Wireless Solution

The series lineup consists of microphones operating on a single battery, as well as microphones and transmitters powered by rechargeable batteries. Battery chargers have also been added, for use with TOA-exclusive batteries. The chargers are available in different capacities, while the transmitter is now a standalone unit, to allow users to select the type of microphone best suited to their needs.

⟫⟫ Receivers

WT-5800

- Phase Locked Loop (PLL) synthesis operation • 64 selectable channels
- True diversity technology • Two-line LCD display • Auto mixing input function
- Squelch function (carrier, noise, tone)
- Usable frequencies scanning and vacant channel search function
- Compact half-rack size body
- 6 points audio level meter for microphone sensitivity adjustment
- Compander circuitry for minimizing ambient noise • Antenna distribution output
- Low battery indicator (wireless microphone's battery voltage becomes low)

WT-5805

- Phase Locked Loop (PLL) synthesis operation • 64 selectable channels
- TOA space diversity technology • Two-line LCD display
- Auto mixing input function • Squelch function (carrier, noise, tone)
- Usable frequencies scanning and vacant channel search function
- Compact half-rack size body
- 6 points audio level meter for microphone sensitivity adjustment
- Compander circuitry for minimizing ambient noise
- Low battery indicator (wireless microphone's battery voltage becomes low)

WT-5810

- Phase Locked Loop (PLL) synthesis operation
- 16 selectable channel frequencies
- TOA space diversity technology • Auto mixing input function
- Squelch function (carrier, noise, tone)
- Usable frequencies scanning and vacant channel search function
- Compact portable design
- Compander circuitry for minimizing ambient noise
- Balanced output (XLR connector) and phone jack output
- Low battery indicator (wireless microphone's battery voltage becomes low)

Model	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 Channel Capability
Diversity System	Space diversity (true diversity)	Space diversity	
Mixing Output	MIC: -60dB, 600Ω, BALANCED, xlr-3-31 type connector LINE: -20dB, 600Ω, unbalanced, phone jack		
Mixing Input	-20dB, 10kΩ, unbalanced, phone jack		
Antenna Input	75Ω, BNC (phantom power 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	18 - 40dBμV variable		
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, ±3dB		
Dimensions	210(W) x 44(H) x 205.1(D)mm		206(W) x 40.6(H) x 152.7(D)mm
Weight	700g		590g

*1 0dB =1V

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TOA 5000 Series 16 Channel Wireless Solutions

>>> Handheld Microphone
WM-5270
- Dynamic microphone unit: Unidirectional
- 64 selectable channels
- Rolling stopper prevents microphone from rolling
- Single AA battery operation for more compact and lightweight body
- Built-in antenna

>>> Handheld Microphone
WM-5265
- Dynamic microphone unit: Unidirectional
- 64 selectable channels
- ON/OFF switch prevents microphone from rolling
- WB-2000 rechargeable battery or single AA battery operation for compact and lightweight body
- Built-in antenna

>>> Handheld Microphone
WM-5225
- Electret condenser microphone unit: Unidirectional
- 64 selectable channels
- ON/OFF switch prevents the microphone from rolling.
- WB-2000 rechargeable battery or single AA battery operation for compact and lightweight body
- Built-in antenna

>>> Beltpack Transmitter
WM-5325
- 64 selectable channels
- Maximum input level: -14dB to -29dB
- Built in circuitry minimizes ambient noise effects
- WB-2000 rechargeable battery or single AA battery operation for compact and lightweight body
- Connector for ø3.5 mini-plugs
- Built-in antenna

Model	WM-5270	WM-5265	WM-5225	WM-5325
RF Carrier Power	Less than 50mW (Factory preset 10mW ERP)			
Oscillator	PLL synthesized			
Maximum Input Level	142dB SPL	132dB SPL	126dB SPL	-14dB - -29dB*1 (Audio level control: min. to Max.)
Audio Input Connector	—	—	—	ø3.5mm (ø0.14") 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	ø48 x 244mm	ø50 x 299mm	ø43.6 x 231.5mm	62(W) x 102.5(H) x 23(D)mm
Weight	340g (with battery)	205g (with battery)	180g (with battery)	90g (with battery)

*1 0dB =1V

TOA 5000 Series Optional Microphones

>>> Lavalier Microphone
YP-M5300

- Unidirectional electret condenser microphone element
- Connector for ø3.5 mini-plug

>>> Lavalier Microphone
YP-M5310

- Omnidirectional electret condenser microphone element
- Connector for ø3.5 mini-plug

>>> Headworn Microphone
WH-4000H

- Unidirectional electret condenser microphone

>>> Headworn Microphone
WH-4000A

- Unidirectional electret condenser microphone
- Ideal for sports applications

>>>Earworn Microphone
YP-M5000E

- Omnidirectional electret condenser earworn microphone

YP-M5000H

- Omnidirectional electret condenser microphone

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TOA 5000 Series Set

WS-5225
WM-5225+WT-5810 Set

WS-5265
WM-5265+WT-5810 Set

WS-5325U
WM-5235+YP-M5300+WT-5810 Set

WS-5325M
WM-5325+WT-5810 Set

WS-5325H
WM-5325+WH-4000H+WT-5810 Set

TOA 5000 Accessories

〉〉〉Antenna Distributor
WD-5800

〉〉〉Wall Mount Antenna
YW-4500

〉〉〉Waist Pouch
WH-4000P

〉〉〉Windscreen
WH-4000S

〉〉〉Battery Charger
BC-5000-2

〉〉〉Battery Charger
BC-5000-6

〉〉〉Battery Charger
BC-5000-12

〉〉〉Rechargeable Battery
WB-2000-2

〉〉〉Charger AC Adapter
AD-5000

〉〉〉Rack Mount Bracket
MB-15B

〉〉〉Rack Mount Bracket
MB-WT3

〉〉〉Rack Mount Bracket
MB-WT4

〉〉〉UHF Receiver Unit
WTU-4800

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TOA D-5000 Digital Wireless System

The TOA D-5000 Series provides unprecedented speech clarity for delivering the presenter's voice to audiences in any speaking scenario. Experience for yourself the clarity, ease and safety of this wireless solution. Perfect for the classroom, office meeting rooms, banquet halls, courthouses, or multipurpose halls.

• Feedback suppressor function: prevent feedback with the built-in FBS function
• Up to 32 simultaneous channels (depending on region)
• Encryption function, with TOA proprietary security IDs
• EQ setting optimises audio characteristics of each type of microphone
• 15 compatible channels per 6 MHz. 20 compatible channels per 8 MHz TV channel
• Approx. 100m operating range (line of sight)
• Dedicated maintenance software enables visual monitoring of any interfering radio waves or changes to incoming radio waves
• Signal stability is assured using the digital diversity method
• Control of peripherals is possible using contact output

Model	WT-D5800
Power Source	AC Mains (supplied adaptor must be used)
Power Consumption	305mA (13.5V)
Frequency Range	606-638MHz
Antenna Input	1 input, BNC jack, 75Ω, 2 channels. Power supply: 9V DC, 30mA (max)
Antenna Cascade Output	1 output, BNC jack, 75Ω, 2 channels
Receiving Sensitivity	24dBμV or less (Bit error rate: 1E-5 or less)
Antenna Input Attenuator	0dB/-10dB switchable
Modulation System	FSK
Receiving System	Double Super-heterodyne
Frequency Response	50 Hz-12 kHz
D/A Converter Resolution	24 bits, 48kHz sampling
ID Selectable	10 Patterns
Finish	Resin, black
Dimensions	210 (w) x 44 (H) x 211.9 (D) mm
Weight	730g

>>> Digital Wireless Receiver
WT-D5800

>>> Digital Handheld Wireless Microphone
WM-D5200

Model	WM-D5200
Microphone Element	Undirectional electret condenser type
Frequency Range	606-638 MHz
Modulation System	FSK
RF Carrier Power	Less than 50mW
Transmission Distance	100m or more (open area)
Audio Frequency Response	100 Hz - 12 kHz
Antenna	Built in type (internal helical antenna)
Dynamic Range	Typ. 90dB, (when used with WT-D5800)
ID Selectable	10 Patterns
Battery	WB-2000 rechargeable battery (optional BC-2000 charger) or one AA alkaline battery
Battery Life	Approx. 8 hours
Maximum Input Sound Pressure Level	132 dB SPL Sensitivity: L (at gain of -18dB) 122 dB SPL Sensitivity: H (at gain of -28dB)
Dimensions	47 x 239.5 mm
Weight	340 g

>>> Digital Beltpack Wireless Transmitter
WM-D5300

Model	WM-D5300
Modulation System	FSK
Frequency Range	606-638 MHz
Maximum Input Sound Pressure Level	132 dB SPL Sensitivity:L (at gain of -18dB) 122 dB SPL Sensitivity:H at gain of -28dB)
RF Carrier Power	Less than 50mW
Transmission Distance	100m or more (open area)
Audio Frequency Response	100 Hz - 12 kHz
Antenna	Built in type (internal helical antenna)
Dynamic Range	Typ. 90dB, (when used with WT-D5800)
ID Selectable	10 Patterns
Battery	WB-2000 rechargeable battery (optional BC-2000 charger) or one AA alkaline battery
Battery Life	Approx. 8 hours
Weight	900 gwwwwww
Dimensions	62w x 171h x 19d mm

Microphones

Digital Message Repeaters

Beam Steering Microphone

Wireless Systems

Amplifiers

Mixers

Speakers

Security & Safety

Conference Systems

Megaphones

Professional Audio

Technical Column

TRANTEC Wireless Microphone Systems S5 and S4 Series

The Trantec S5 and S4 Series are synonymous with quality among vocalists, musicians and theatrical performers. Additionally, presenters also enjoy the wide variety of accessories that Trantec has to offer, allowing them to meet their professional needs.

TRANTEC S4 Series

The new TRANTEC S4 Series is designed for use on the UHF Frequency Band and is suitable for both speech and vocal reinforcement applications. It features a compander circuit to minimize the influence of ambient noise. With the option of either 4 or 10 simultaneous channels the new S4 Series is the affordable choice for all.

TRANTEC S4.10 Series

>>> Receiver
S4.10-RX

- 16 selectable frequencies
- Up to 10 simultaneous channels
- Fully synthesized PLL quartz tuning technology
- Receiver LEDs show AF peak level, RF Level, and Diversity Channel A or B
- Diversity operation with detachable antenna
- Professional metal enclosure
- 19" rack mount option for one or two receivers

Model	S4.10RX
Diversity Reception	Antenna Diversity
Sensitivity	10uV at 45dBA S/N
Squelch (SQ)	Tone SQ, Carrier SQ, Noise SQ
Audio Frequency Response	50 Hz - 1.5 kHz
Audio Output Level (maximum)	Balanced (XLR socket) : 16 dBu Unbalanced (1/4" jack socket): 10 dBu
Power Supply	12 VDC 500 mA
Dimensions	215 (W) x 39 (H) x 102 (D) mm (excluding antenna and BNC)
Weight	480g

Model	S4.10RX2A-EB
Diversity Reception	Antenna Diversity
Sensitivity	10uV at 45dBA S/N
Squelch (SQ)	Tone SQ, Carrier SQ, Noise SQ
Audio Frequency Response	50 Hz - 1.5 kHz
Audio Output Level (maximum)	Balanced (XLR socket) : 16 dBu Unbalanced (1/4" jack socket): 10 dBu
Power Supply	11-18 VDC 300 mA
Dimensions	215 (W) x 39 (H) x 102 (D) mm (excluding antenna and BNC)
Weight	480g

>>> Dual Receiver
S4.10-RX2A-EB

- Dual channel wireless receiver with audio mixing output
- 16 Selectable frequencies available with up to 10 simultaneous channels
- Fully synthesised PLL quartz tuning technology
- Receiver LEDs show AF peak level, RF level & diversity channel A or B
- Diversity operation with detachable antenna
- 19" rack mount option for one or two receivers

>>> Handheld Microphone
S4.10-HDX (Dynamic)

- 16 selectable frequencies
- Fully synthesized PLL quartz tuning technology
- Single AA transmitter battery life of approx. 10 hours

Model	S4.10-HDX
Microphone Unit	Dynamic with Cardioid Pattern
RF Carrier Power	10 mW
Audio Frequency Response	80 Hz - 1.5 kHz
Audio Input Level	140 dBSPL (maximum)
Battery Life	approx. 10 hours
Power Supply	1 AA size alkaline battery, 1.5V
Finish	Resin, coating
Dimensions	250 x ø55 mm
Weight	245g (with battery)

Model	S4.10-BTX
Microphone Unit	TRANTEC series lavalier and headset microphone
RF Carrier Power	10 mW
Audio Frequency Response	50 Hz - 1.5 kHz
Audio Input Level	-6dBV (maximum), mic gain 0dB
Battery Life	approx. 10 hours
Power Supply	1 AA size alkaline battery, 1.5 V
Finish	Resin, coating
Dimensions	62 (W) x 100 (H) x 25 (D) mm (with clip)
Weight	85g (with battery)

>>> Beltpack Transmitter
S4.10-BTX

- 16 selectable frequencies
- Fully synthesized PLL quartz tuning technology
- Detachable antenna
- Locking 3.5mm jack
- Integral switch for selection between instrument and microphone
- Single AA transmitter battery life of approx. 10 hours

TRANTEC S4.04 Wireless Starter Pack

Microphones

Digital Message Repeaters

Beam Steering Microphone

Wireless Systems

Amplifiers

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Speakers

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Conference Systems

Megaphones

Professional Audio

Tactical Column

››› Receiver

S4.04-RX

- Four switchable frequencies
- Fully synthesized PLL quartz tuning technology
- Receiver LED's show AF peak level, RF Level, and Diversity Channel A or B
- Professional metal enclosure
- 19" rack mount option for one or two receivers

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

Model	S4.04-HDX
Microphone Unit	Dynamic with Cardioid Pattern
RF Carrier Power	10 mW
Audio Frequency Response	80 Hz - 1.5 kHz
Audio Input Level	140 dBSPL (maximum)
Battery Life	approx. 10 hours
Power Supply	1 AA size alkaline battery, 1.5V
Finish	Resin, coating
Dimensions	250 x ø55 mm
Weight	245g (with battery)

››› Handheld Microphone

S4.04-HDX

- 4 switchable frequencies
- Fully synthesized PLL quartz tuning technology
- Single AA transmitter battery life of approx. 10 hours

Model	S4.04-BTX
Microphone Unit	TRANTEC series lavalier and headset microphone
RF Carrier Power	10 mW
Audio Frequency Response	50 Hz - 1.5 kHz
Audio Input Level	-6dBV (maximum), mic gain 0dB
Battery Life	approx. 10 hours
Power Supply	1 AA size alkaline battery, 1.5 V
Finish	Resin, coating
Dimensions	62 (W) x 100 (H) x 25 (D) mm (with clip)
Weight	85g (with battery)

››› Beltpack Transmitter

S4.04-BTX

- Four switchable frequencies
- Fully synthesized PLL quartz tuning technology
- Detachable antenna
- Locking 3.5mm jack
- Integral switch for selection between instrument and microphone
- Single AA transmitter battery life of approx. 10 hours

TRANTEC S2.4 Series Digital Wireless Microphone System

The new TRANTEC S2.4 16 channel Digital Wireless Microphone System has adopted ISM 2.4GHz digital Audio Frequency, which automatically filters out radio interference. The comprehensive application of Digital Audio Processing Technology makes sound clear and natural whilst the smart .ID code Identifying Synchronisation Technology makes installation much easier.

S2.4-RX1-G3 - Single System
S2.4-RX2-G3 - Dual Receiver System

- 2.4GHz ISM Digital Wireless Microphone System
- Up to 2 simultaneous channels
- GFSK Modulation
- No RF noise
- Can transmit up to a distance of 30m
- 16 bit, 38.4kHz audio format
- Low battery consumption, single battery lasts for over 5 hours
- Single system comes with either handheld microphone or beltpack transmitter
- Dual Receiver System comes with both a handheld microphone and a beltpack transmitter

Model	S2.4RX1-G3/S2.4RX2-G3
Carrier Frequency	2.404-2.474 GHz
Available Channels	16
Band Range	2 MHz
Dynamic Range	85 dB
Total Harmonic Distortion	<0.1%
Receiver	
Power Supply	DC17V
Consumption Power	2W
Signal To Noise Ratio	>95dB
Receiving Sensitivity	-80dBm
Hand Microphone	
Transmitter Power	10mW
Modulation Type	GFSK
Ultraharmonics	-20dBm
Battery Voltage	2 x 1.5V AA batteries
Continuous Operation	>5 hours

TRANTEC S4.16 In Ear Monitoring System

The Trantec S4.16 IEM is available in channel 38 and 70 making it an affordable choice for semi-professional and professional musicians broadcasting up to 8 simultaneous channels. Features such as, rugged metal mainframe, stereo and mono mode options, 16 selectable preset frequencies, PLL synthesized technology, built in limiting circuitry avoiding distortion and long battery life are among some of the qualities expected with Trantec. With its lightweight and durable body pack receiver with infrared interface, programming and pairing is simple, quick and easy.

>>>Transmitter

IEM-S4.16-TX G01 (CH38)

IEM-S4.16-TX D04 (CH70)

- PLL Synthesized design.
- Frequency agility over a 24MHz bandwidth, with 16 pre-programmed frequencies.
- Dynamic circuitry delivers outstanding S/N ratio
- Selectable stereo or mono audio output.
- Bright LCD channel display.
- Dynamic limited circuitry.
- Highly efficient power consumption circuitry ensures long operating hours from two AA batteries.

Model	IEM-S4.16-TX
Frequency range	606.250-613.850 863-864.870
Bandwidth	24MHz
Oscillation	PLL synthesized
Channel Separation Interval	25kHz
Frequency Stability	±40kHz
Modulation Mode	FM stereo
Transmitter Output Power	low <10mW high <100mW
Spurious Rejection	<4nW
Stereo Separation	>45dB (at 1kHz)
Maximum Deviation Range	±40kHz
Frequency Response	50 - 15kHz ±3dB
Audio Input	line level x 2 XLR ø6.3mm combined jack
Audio Output	ø6.3mm jack x 2
Dimensions	210(L) x 206(W) x 44(H)mm
Rating Power	5W
Weight	1.1kg

Model	IEM-S4.16-RX
Frequency Range	606.250-613.850 863-864.870
Bandwidth	24MHz
Oscillation	PLL synthesized
Channel Separation Interval	25kHz
Frequency Stability	±0.005% 0°c -50°C
Modulation Mode	FM stereo
Maximum Deviation	±68kHz
Frequency Response	80Hz - 15kHz ±3dB
Stereo Separation	>45dB (at 1kHz)
Output Jack	ø3.5mm stereo headphone jack
Power	AA battery x 2
Battery Life	8 hours (under normal operating conditions)
Antenna	Fixed 1/2
Dimensions	88(L) x 65(W) x 32(H)mm
Weight	105g

>>>Receiver

IEM-S4.16-RX G01(CH38)

IEM-S4.16-RX D04(CH70)

- PLL Synthesized design.
- Frequency agility over a 24MHz bandwidth, with 16 pre-programmed frequencies.
- Dynamic circuitry delivers outstanding S/N ratio
- Selectable stereo or mono audio output.
- Bright LCD channel display.
- Dynamic limited circuitry.
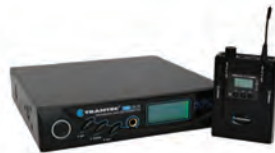- Highly efficient power consumption circuitry ensures long operating hours from two AA batteries.

Trantec S4.16 IEM Set

IEM-S4.16-G01(CH38)

IEM-S4.16-D04(CH70)

Comes with Transmitter, Receiver and earphones

Trantec S4.16 IEM Rack Mount Brackets

MB-IEM-1

For single system

MB-IEM-2

For 2 systems

TRANTEC S5.5 Series

The new TRANTEC S5.5 UHF Professional Wireless Microphone Systems incorporate the latest technological advances, enabling them to satisfy the demands of a wide range of theatre and broadcast applications. The high quality audio and RF dynamics combine with true diversity operation to provide a system with excellent multichannel capability, enabling up to 24 channels to operate simultaneously without interference. Microphone size and running costs have been reduced, thanks to a single AA cell battery operation, providing over 10 hours of continuous use. The S5.5 professional Microphone System offers powerful features combined with an exceptional cost/performance ratio, and comes with all you need for quick and easy installation and operation.

TRANTEC S5.5 Series 24 Channel Wireless Solution

>>> Receiver

S5.5-RX

- True diversity operation
- Up to 1400 selectable frequencies (24 Simultaneous channels)
- Interactive USB based computer control and monitoring for all aspects of performance
- 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
- All black fascia design with distinctive colour backlit indicators
- EQ and phase reversal
- Clear and intuitive LCD display

Model	S5.5-RX
Diversity System	Space Diversity (true diversity)
Audio Output	Line: -22dB*/ Mic: 62dB* Line/Mic selectable, 600Ω, balanced, XLR-3-32 type connector. Headphone: max. 100mW 16Ω, unbalanced, phone jack -28dB*, 600Ω, unbalanced, phone jack
Receiving Sensitivity	0dBV variable
Squelch Sensitivity	6-36dB V variable
Squelch System	Using together of noise SQ, carrier SQ and tone SQ
Indicator	LCD, Power lamp, Mute lamp, ANT A/B lamp
S/N Ratio	110dB or more (A-weight)
Harmonic Distortion	1% or less (typical)
Frequency Response	50Hz - 20kHz, ±3dB
Dimensions	210(W) x 46(H) x 210(D)mm (excluding antenna)
Weight	1.3kg

>>> Handheld Microphone

S5.5-HDX (Dynamic)
S5.5-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
- Colour coded ID band
- Removable capsules (dynamic, condenser or 3rd party

>>> Beltpack Transmitter

S5.5-BTX

- Credit card size beltpack
- Simple programming of transmitter with built-in Infrared data link
- Frequency & Power lock facility
- Clear and intuitive LCD display
- Single AA operation of transmitters with battery life of over 10 hours
- Detachable antenna
- Now with stronger belt clip

Model	S5.5-HDX	S5.5-HCX	S5.5-BTX
RF Carrier Power	Less than 50mW (Factory preset 10mW ERP)		
Modulation System	PLL synthesized		
Maximum Input Level	146dB SPL (microphone sensitivity: Gain "0")	142dB SPL (microphone sensitivity: Gain "0")	120dB SPL (microphone sensitivity: Gain "0")
Audio Frequency Response	60Hz - 20kHz	90Hz - 20kHz	—
Dynamic Range	110 dB or more (with S5.5-RX)		—
Audio Input Connector	-		TA-4 (Mini-XLR 4pins)
Battery	LR6 (AA)		
Battery Life	Approx. 10 hours (when the alkaline battery is used)		
Indicator	LCD, Power Lamp, Mute lamp, ANT A/B lamp		LCD display, Power lamp
Dimensions	ø50 x 247.9mm	ø50 x 232.9mm	55(W) x 80(H) x 22(D)mm
Weight	380g (with battery)	300g (with battery)	140g (with battery)

Microphones

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The new TRANTEC S5.5 Rack 'n' Ready

The new Trantec S5 range builds on the excellence of the previous S5 series to enhance, improve and upgrade it. Combining a comprehensive upgrade with a distinctive new look, the new S5 offers the professional multi-channel radio mic user a powerful set of features with an unrivalled performance/cost ratio. This coveted made to order system is robust and perfect for hire stock, schools, amateur dramatics, houses of worship and audio-visual applications.

S5.5

• Up to 24 simultaneous channels of true diversity operation
• USB based computer monitoring
• Simple programming of transmitters via infrared
• Credit card sized beltpack transmitters
• Single AA transmitter battery life of approx. 10 hours
• Professional metal enclosure on both transmitters and receivers

>>> Upgraded Features:

• All black fascia designs with distinctive colour backlit indicators
• Stronger belt clip
• Handheld transmitters with removable capsules (dynamic, condenser, or 3rd party)
• RF link out for cascading receivers (Racks up to 8-way with no ADU!)
• RF Walk Test added to Software Ver1.6
• Monitoring software now compatible with Windows 7,8,10

S4.10 Series also available in Rack 'n' Ready format

| S5.5 4Way | S5.5 6Way | S5.5 8Way | S5.5 10Way | S5.5 12Way |

TRANTEC S5.5/S4.10/4.04 Series Optional Microphones

>>> Lavalier Microphone

LP-2

For S5 Series **MIC-X2**
For S4 Series **MIC-LP2**
For Lemo Series **MIC-TS2**

>>> Lavalier Microphone

LM-55

For S5 Series **MIC-X55**
For S4 Series **MIC-SJ55**
For Lemo Series **MIC-TS55**

>>> Lavalier Microphone

LM-212

For S5 Series
MIC-X212-P-R (Beige)
MIC-X212-B-R (Black)

For S4 Series
MIC-SJ212-P-R (Beige)
MIC-SJ212-B-R (Black)

For Lemo Series
MIC-TS212-P-R (Beige)
MIC-TS212-B-R (Black)

>>> Headworn Microphone

HM-33

For S5 Series **MIC-X33**
For S4 Series **MIC-SJ33**
For Lemo Series **MIC-TS33**

>>> Headworn Microphone

HM-66

For S5 Series
MIC-X66-BK (Black)
MIC-X66-BL (Blue)
MIC-X66-YE (Yellow)

For S4 Series
MIC-SJ66-BK (Black)
MIC-SJ66-BL (Blue)
MIC-SJ66-YE (Yellow)

For Lemo Series
MIC-TS66-BK (Black)
MIC-TS66-BL (Blue)
MIC-TS66-YE (Yellow)

>>> Headworn Microphone

HM-22

For S5 Series
MIC-X22-P-R (Beige)
MIC-X22-B-R (Black)

For S4 Series
MIC-SJ22-P-R (Beige)
MIC-SJ22-B-R (Black)

For Lemo Series
MIC-TS22-P-R (Beige)
MIC-TS22-B-R (Black)

>>> Earworn Microphone

YP-MS4

For S4 Series

YP-MS4E
YP-MS4H

>>> Headworn Microphone

EM-77

For S5 Series **MIC-XEM77**
For S4 Series **MIC-SJEM77**
For Lemo Series **MIC-TSEM77**

Model	LP-2	LM-55	LM-212	SJ-690H	HM-33	HM-66	HM-22	EM-77	YP-MS4
Type	Omni-directional electret condenser				Electret condenser	Super cardioid condenser	Omni-directional electret condenser	Black electret condenser	Electret condenser
Nominal Impedance	3000Ω	4700Ω	4400Ω	1000Ω	3300Ω	3000Ω	4400Ω	—	--
Max SPL	>120dB	>120dB		>58dB	>120dB	>125dB	>120dB	—	--
Frequency Response	60Hz - 16kHz +3dB	30Hz - 16kHz +3dB	40Hz - 16kHz +3dB	20Hz - 20kHz +3dB	20Hz - 16kHz	60Hz - 16kHz +3dB	40Hz - 16kHz +3dB	20Hz - 20kHz +3dB	20Hz-20kHz +3dB
Cable Length	1500mm		1200mm	1300mm	1500mm	1500mm	1200mm	1200mm	1300mm

TRANTEC S5.5/5.3 S4.10/4.04 Series Accessories

>>> UK Power Supply for S4/S5
Series Receiver
PS-S115-UK

>>>Power Supply for S4/S5 Series Receiver
PS/RACK-PDU

>>> IEC Lead
SKT-IEC-S5000

>>> Wireless Antenna Distributor
WD-5800

>>> Wall Mount Antenna
YW-4500

>>> UHF Paddle Antenna
ANT-UHF-PADA (Active)
ANT-UHF-PADP (Passive)

>>>S4.16 Head Amplifier
ACC-S4.16HA

>>> Passive Antenna Splitter
ACC-SPLIT-2W

>>> ABS Carry Case
ACC-CASEA

>>> Leather Belt Pouch
ACC-S5-POUCH

>>>Professional Flight Case
ACC-4U-CASE
ACC-5U-CASE
ACC-6U-CASE
ACC-8U-CASE

>>> Professional Cube Flight Case
ACC-CUBE-CASE

>>> Leather Microphone Pouch
ACC-S5-HHPOUCH

>>> Neoprene Aerobic Belt
ACC-AB1000

>>> Antenna Extension Cable for S5/S4 Series
LD-BNC-BNC

>>>Antenna Extension Cable for S4 Series
LD-S5-ANT

>>>Guitar Cable for S4 Series
LD-SJ-JAC

>>>Receiver Antenna for S4.16 Series
ANT-S4.16RX-D/RX-G

>>>Receiver Antenna for S5 Series
ANT-S5RX-D/RX-G

>>> Whip Antenna
AMT-S4BTX-D/BTX-G

>>> Helical Antenna for S4 Series
ANT-S4HDX-D/HDX-G

>>>TNC Rack Mount Panel
PAN-1U19-BNC

>>> Blank Panel
MW-1U-BLANK

>>>Rack Tray for Two Receivers
MB-S4RX-5-EB

>>>Rack Mount Kit for S5 Series
ACC-S5RX-MB1
ACC-S5RX-MB2
ACC-S5RX-MB3

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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, and the wireless microphones can be used in several adjacent classrooms simultaneously without interference.

>>>Infrared Wireless Microphone

IR-200M

- Stable voice transmission
- Intelligent positioning of the emitter avoids drop-outs through user handling
- Lightweight
- Infrared light emission intensity adjustable
- Two selectable channels
- Antibacterial treatment
- Low-battery indicator

IR-300M

- Ready to wear design with neck strap
- Intelligent positioning of the emitter avoids drop-outs through user handling
- Built in electret condenser microphone
- Infrared light emission intensity adjustable
- Two selectable channels
- Antibacterial treatment
- Low-battery indicator
- Connection of optional external microphone possible
- An external MIC input level adjustable

Model	IR-200M	IR-300M
Battery	IR-200BT-2 Ni-MH battery or AA alkaline (2 pieces)	
Infrared Emitter Wavelength / Modulation Method / Carrier Frequency / Transmission Distance	870nm (AM: Brightness modulation) Frequency modulation Channel A: 3.100MHz Channel B: 3.350MHz Approx. 20m (Power selector switch: In an unobstructed space)	
Maximum Input Sound Pressure	120dB SPL	
Input Sensitivity Adjustment	—	Adjustment range: -9dB to 0dB (factory-preset: 0dB)
Microphone Unit	Unidirectional electret condenser microphone	
Frequency Response	100Hz - 12kHz	
Input	—	External microphone input (ø3.5 monaural mini jack)
Battery Operation Time	Approx. 8 hours (IR-200BT-2, Power selector switch: N) Approx. 6 hours (alkaline battery, Power selector switch: N)	
Dimensions	ø37 x 241.8mm	64(W) x 91.3(H) x 27.3(D)mm
Weight	170g (with batteries)	130g (with batteries & strap)

Model	IR702T
Power Source	AC mains 50/60Hz (supplied from the accessory AC adaptor)
Receiving Frequency	Channel A: 3.100MHz/ Channel B: 3.350MHz
Receiving Sensitivity	S/N ratio over 50dB (40dBμ V input, 1kHz modulation, ±4.8kHz deviation)
Infrared Receiver Input	75Ω, BNC jack x 2 (infrared wireless receiver's power source: 24V DC, max 220mA in total of 2 terminals)
Output	Channel A and B: -10dB (±4.8kHz deviation, at volume level max.), 600Ω, electronically balanced, 3 pole phone jack Note: Channel A switchable to mixer output
Frequency Response	100Hz - 12kHz
Dimensions	210(W) x 44(H) x 210.9(D)mm
Weight	630g (unit only)

>>>Infrared Wireless Tuner

IR-702T

- Built in two-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

>>>Infrared Wireless Distributor

IR-700D

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

>>>Wall-Mount Receiver

IR-500R

- Reception area approx. 15m
- Adjustable reception angle

>>>Ceiling-Mount Receiver

IR-510R

- Reception area approx. 8m

>>>Distributor

YW-1022
- 1 into 2 outputs

YW-1024
- 2 into 4 outputs

>>>Battery Charger

IR-200BC

>>>Ni-MH Battery

IR-200BT-2

>>>Wall-Mount Receiver

IR-520R

- Reception area approx. 15m

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Infrared Wireless Classroom System

TOA's educational microphone system offers wireless convenience and clear, interference free infrared voice transmission that brings classrooms to life.

- Uniform classroom wide sound quality with a single wide-dispersion speaker which provides ample 100m² coverage
- Quick and easy installation requiring just one CAT-5 cable
- TOA lightweight, low fatigue infrared wireless microphones

>>>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

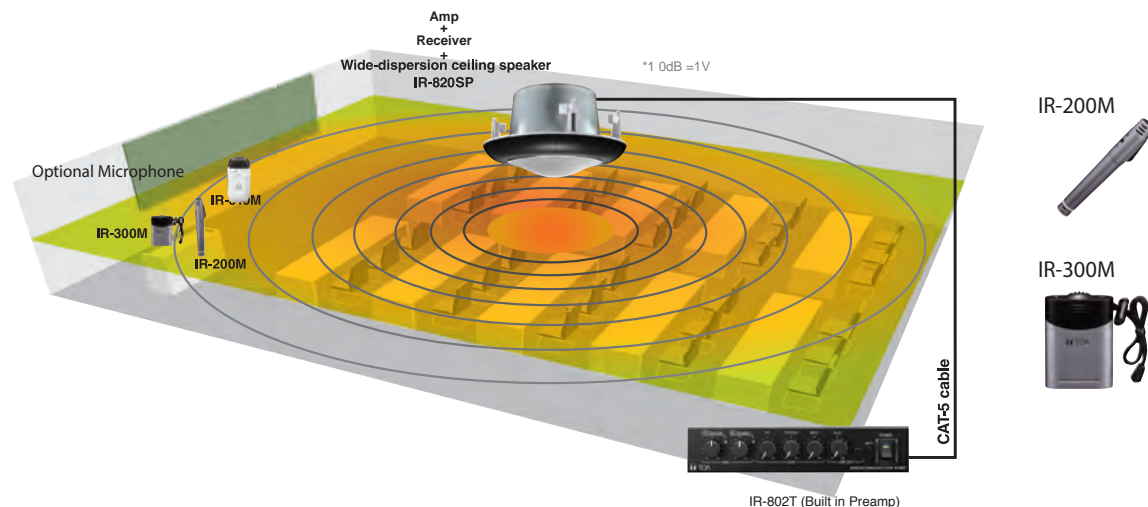## >>>Battery Charger
IR-310BC

Model	IR-310M
Batteries	One piece of IR-200BT-2 rechargeable battery for the infrared wireless microphone (option)
Current Consumption	typ.250mA (1.2V)
Infrared Emitter Transmission Distance	Approx. 15m (in an obstructed space)
Input Sensitivity Adjustment	Adjustment range: 2 levels (High, low)
Microphone Unit	Unidirectional electret condenser microphone
Frequency Response	100Hz - 12kHz
Preemphasis	300µs
Input	External microphone input (ø3.5 monaural mini jack)
Battery Operation Time	Approx. 8 hours
Finish	Control Section: ABS resin, white Filter section: Polycarbonate, optical cut filter
Dimensions	54(W) x 109(H) x 27(D)mm
Weight	100g with battery and strap
Accessories	Neck strap

>>>Infrared Speaker

IR-820SP

>>>Infrared Wireless Tuner

IR-802T

Model	IR-820SP
Power Source	24V DC (supplied from IR-802T)
Rated Output	20W
Frequency Response	100Hz - 20kHz (-10dB) at installation in 1/2 free sound field (measured by installing the unit in the centre of a ceiling)
Amplification System	Class D
Speaker Component	12cm (4.72") cone type
Infrared Wireless Receiver Wavelength Carrier Frequency Reception Angle	870nm Teacher (channel A) :3.100mHz Student (channel B) :3.350mHz 360° (horizontal)
Connection Terminal	RJ-45
Operating Temperature	-10°C - 50°C
Dimensions	ø320 x 205(D)mm
Weight	3.4kg

Model	IR-802T
Power Source	AC mains, 50/60Hz (supplied AC adapter must be used)
Receiving Frequency	teacher (channel A) :3.100MHz student (channel B) :3.350MHz
Receiver Sensitivity	520dB or more, signal-to-noise ratio (40dBµV input, 1kHz modulation, ±4.8kHz deviation)
S/N Ratio	Turner: 60dB or more (60dBµV input, 1kHz modulation, ±4.8kHz deviation, A-weighted, Equalization: Centered) AUX: 75dB or more (A-weighted, Equalization: Centered)
Input Aux PC: AUX DVD/TV: AUX MP3: Mute:	line, -10dB*, 10kΩ, unbalanced, stereo mini jack (internal mixing) line, -10dB*, 10kΩ, unbalanced, 2P RCA jack (internal mixing) line, -10dB*, 10kΩ, unbalanced, stereo mini jack (internal mixing) 25V line signals of telephone paging from a school intercom system
Output	ALD (Assistive Listening Device): line, -10dB*, 10kΩ, unbalanced, monaural mini jack. Speaker: RJ45 (dedicated terminal for IR-820SP connection)
Equalization	High: ±10dB at 10kHz/Mid: ±10dB AT 1.3kHz Low: ±10dB at 100Hz
Mute Function	Muted by 25V line signals
Dimensions	210(W) x 46(H) x 312(D)mm
Weight	1.8kg

Amp
+
Receiver
+
Wide-dispersion ceiling speaker
IR-820SP

*1 0dB =1V

Optional Microphone

IR-310M

IR-300M

IR-200M

IR-200M

IR-300M

CAT-5 cable

IR-802T (Built in Preamp)

Amplifiers

A-2000/A-2000D Series Mixer Power Amplifiers

>>> Mixer Power Amplifier

A-2030 `30w`
A-2060 `60w`
A-2120 `120w`
A-2240 `240w`

- Cost effective and durable mixer power amplifier
- User friendly front panel allows easy operation
- 3 electronically balanced microphone inputs, 2 AUX inputs and recording output
- Phantom power at MIC 1
- Wide tone-control adjustment range of -/+10dB for both bass and treble
- 100V/70V line or 4Ω speaker outputs (100V D Models)
- Booster amplifier for additional power
- Finished with a scratch and fingerprint resistant surface for easy handling
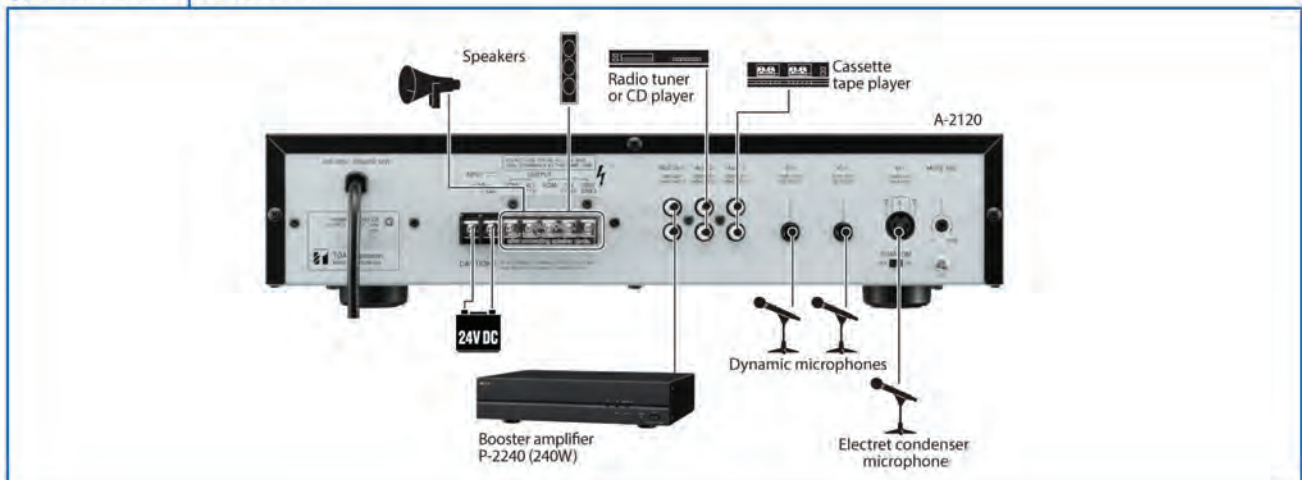
>>> Power Amplifier
P-2240 `240w`

- 100V line input allows connection to speaker output of A-2000 Series amplifiers
- Power remote switch by make contact input
- Emergency bypass of master volume

Model	A-2030/A2030D	A-2060/A-2060D	A-2120/A-2120D	A-2240/A-2240D	P-2240
Power Req.	220-240V AC or 24V DC (D Models AC only)				
Rated Output	30W	60W	120W	240W	
Frequency Response	50Hz - 20kHz (±3dB)				
Input	MIC 1 - 3: Phone jack AUX 1, 2: RCA pin jack				Line in: Screw terminal 100V line in: Screw terminal Power remote control: Make contact
Power Consumption	34W (EN60065) 12WD (D Model) 78W (AC operation at rated output) 2A (DC operation at rated output)	72W (EN60065) 16WD (D Model) 150W (AC operation at rated output) 4A (DC operation at rated output)	124W (EN60065) 30WD (D Model) 260W (AC operation at rated output) 15A (DC operation at rated output)	238W (EN60065) 48WD (D Model) 520W (AC operation at rated output) 15A (DC operation at rated output)	238W (EN60065) 48WD (D Model) 520W (AC operation at rated output) 15A (DC operation at rated output)
Phantom Power	DC +21V (MIC 1)				—
S/N Ratio	Over 60dB				
Tone Control	Bass: ±10dB at 100Hz/ Treble: ±10dB at 10kHz				
Muting	MIC 1: Mutes other input signals by 0-30dB attenuation				—
Dimensions	420(W) x 100.9(H) x 280.3(D)mm		420(W) x 100.9(H) x 360.3(D)mm		420(W) x 100.9(H) x 351.3(D)mm
Weight	5kg/4kg	7kg/4.6kg	10.8kg/13.2kg		13.2kg

Typical Connection | A-2000 Series

A-1800 Series Mixer Power Amplifiers

>>> **Mixer Power Amplifier**

A-1803 `30w`
A-1806 `60w`
A-1812 `120w`

• Matching the needs for a small PA system with emergency function, 2 speaker zones and all-call
• 3 microphone inputs, 2 AUX inputs, telephone and priority input
• Provide phantom power to all connected microphones
• Emergency call even if the amplifier is switched off
• 3 priorities: emergency, telephone or paging microphone (MIC1) with priority overriding
• All call from telephone
• Selectable chimes
• Booster amplifier for additional power

>>> **Power Amplifier**

P-1812 `120w`

• 100V line input allows connection to speaker output of A-1800 Series amplifiers
• Power remote switch by make contact input
• Emergency bypass of master volume

Model	A-1803	A-1806	A-1812	P-1812
Power Source	220-230V AC 50/60Hz, or 24V DC (M4 screw terminal)			
Rated Output	30W	60W	120W	
Frequency Response	50Hz - 20kHz (±3dB)			
Input	MIC1: Combination (XLR/Phone) Mic 2-3: Combination (XLR/Phone) AUX1(MOH): RCA pin jack AUX 2: RCA pin jack AUX 3: Combination (XLR/Phone) TEL: M3 screw terminal EMERGENCY: M3 screw terminal			Line: 0dB*¹/-10dB*¹ (switchable), 10kΩ, transformer balanced. RCA pin jack
Output	REC: RCA pin jack LINE 1, 2: RCA pin jack MOH: M3 screw terminal SPEAKER SELECTOR: 2 zone, high impedance (100V line/330Ω), individual selector switch, M4 screw terminal DIRECT SPEAKER OUT: High impedance (100V line/330Ω), M4 screw terminal Low impedance (4 – 16Ω), M4 screw terminal (Both Low and High impedance terminals cannot be used at the same time.)	REC: RCA pin jack LINE 1, 2: RCA pin jack MOH: M3 screw terminal SPEAKER SELECTOR: 2 zone, high impedance (100V line/167Ω), individual selector switch, M4 screw terminal DIRECT SPEAKER OUT: High impedance (100V line/167Ω), M4 screw terminal Low impedance (4 – 16Ω), M4 screw terminal (Both Low and High impedance terminals cannot be used at the same time.)	REC: RCA pin jack LINE 1, 2: RCA pin jack MOH: M3 screw terminal SPEAKER SELECTOR: 2 zone, high impedance (100V line/83Ω), individual selector switch, M4 screw terminal DIRECT SPEAKER OUT: High impedance (100V line/83Ω), M4 screw terminal Low impedance (4 – 16Ω), M4 screw terminal (Both Low and High impedance terminals cannot be used at the same time.)	LINE: RCA pin jack SPEAKER: High impedance (100V line/83Ω), M4 screw terminal Low impedance (4 – 16Ω), M4 screw terminal (Both Low and High impedance terminals cannot be used at the same time.)
Phantom Power	ON or OFF for each MIC 1 – 3 with switch setting			—
S/N Ratio (Band pass: 20 Hz - 20 kHz)	100dB or More			
Tone Control	Bass:±10dB at 100Hz, Treble: ±dB at 10kHz			—
Control Input	TEL: No-voltage make contact input, short-circuit: under 5mA, M3 screw terminal EMERGENCY*⁴: No-voltage make contact input, short-circuit: under 10mA, M3 screw terminal			POWER REMOTE: No-voltage make contact input, open voltage: 24V DC, short-circuit: under 1mA, M3 screw terminal EMERGENCY*⁴: No-voltage make contact input, open voltage: 24V DC, short-circuit: under 1mA, M3 screw terminal
Control Output	Power remote: Open collector output, withstand voltage: 35V DC, control current: under 50mA, M3 screw terminal			—
Chime	1-tone, 2-tone, or ascending 4-tone chime, or None selectable with switch setting, activated at MIC 1's DIN or CONTROL TEL terminal			—
Indicator	5 point LED output level meter, Power indicator LED, Zone indicator LED, Emergency LED, TEL LED			5 point LED output level meter, Power indicator LED
Priority	EMERGENCY: Overrides other inputs TEL: Overrides other inputs except "EMERGENCY", ON/OFF selectable with switch setting MIC 1: Overrides other inputs except "EMERGENCY & TEL", ON/OFF selectable with switch setting			—
Dimensions	420(W) x 107.7(H) x 367(D)mm			
Weight	8.1kg	9.4kg	12.6kg	12.2kg

Note: Distance between barriers on the above screw terminals: M3=7mm, M4=9mm
*1 0dB=1V
*2 Can be transformer-balanced with the addition of optional IT-453A input transformer
*3 LINE 1 an LINE 2 outputs can be interlocked with ZONE 1 and ZONE 2 speaker selectors, respectively. (This funtion needs internal modification)
*4 Operation when activated can be selected from the following: Turning ON the unit's power (factory-preset) or OFF. The OFF function needs internal modification)

>>> **Rack Mount Bracket**

MB-25B
For A-2000, A-1800, and A-1700 series

A-1700 Series Mixer Power Amplifiers

>>> Microphone Mixer Power Amplifier

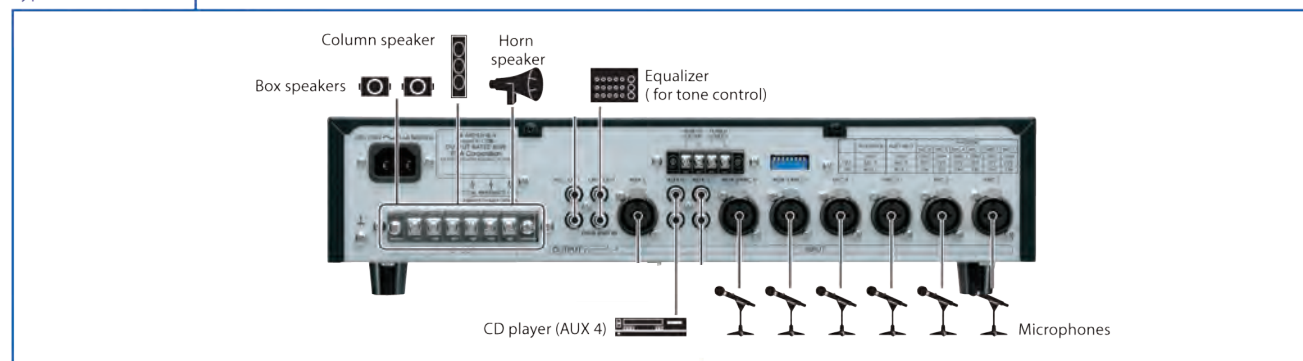**A-1706** 60w
A-1712 120w
A-1724 240w

- 6 microphone and 5 AUX-inputs offer excellent flexibility, simultaneous use of 9 inputs possible
- Provide phantom power to all connected microphones
- AUX 3 and AUX 4 are stereo inputs
- Input 5 and 6: Switchable mic or line level
- An equalizer may be inserted before the power amplification stage
- 2 speaker zones can be accessed or all-call
- Remote control of volume
- Remote power-on

Model	A-1706	A-1712	A-1724
Power Source	220-230V 50/60Hz		
Rated Output	60W	120W	240W
Frequency Response	50Hz - 20kHz (±3dB)		
Input	MIC 1-6: Combination (XLR/Phone) AUX 1-2: Combination (XLR/Phone) AUX 3-4: RCA pin jack AUX 5: Combination(XLR/Phone) PWR AMP IN: RCA pin jack		
Output	REC: RCA pin jack LINE: RCA pin jack SPEAKER SELECTOR; M4 screw terminal DIRECT SPEAKER OUT: High impedance (100V line: 167Ω), Low impedance (4-16Ω), M4 screw terminal	REC: RCA pin jack LINE: RCA pin jack SPEAKER SELECTOR; M4 screw terminal DIRECT SPEAKER OUT: High impedance (100V line: 83Ω), Low impedance (4-16Ω), M4 screw terminal	REC: RCA pin jack LINE: RCA pin jack SPEAKER SELECTOR; M4 screw terminal DIRECT SPEAKER OUT: High impedance (100V line: 42Ω), Low impedance (4-16Ω), M4 screw terminal
Phantom Power	ON or OFF for each MIC 1 – 6 with switch setting		
S/N Ratio (Band Pass: 20 Hz - 20 kHz)	Over 100dB (Master volume: min)		
Tone Control	Bass: ±10dB at 100Hz, Treble: ±10dB at 10kHz		
Control Input	REMOTE VOLUME: M3 screw terminal POWER REMOTE: No-voltage make contact input, short-circuit: under 10mA, M3 screw terminal		
Dimensions	420(W) x 107.7(H) x 367(D)mm		
Weight	9.3kg	12.6kg	13.5kg

Typical Connection | A-1700 Series

Column speaker
Horn speaker
Box speakers
Equalizer (for tone control)
CD player (AUX 4)
Microphones

Package Amplifier

>>> Package Amplifier

A-230 30w

- Cost effective package amplifier that's compact, lightweight and best suited for paging and background music distribution
- 3 microphone inputs and 1 AUX input
- 100V and 4 ohm speaker outputs
- Muting function for MIC1 over-ride of the other inputs

Model	A-230
Power Source	220-230V AC, 50/60 Hz or 12 V DC
Rated Output	30W
Frequency Response	50Hz - 20kHz
Input	MIC 1 - 3:phone jack AUX: RCA pin jack
Output	Speaker out: High impedance: 330Ω (100V), Low impedance: 4Ω (11V)
S/N Ratio	60dB or more (MIC 1-3), 70dB or more (AUX)
Tone Control	Bass: -10dB at 100Hz, Treble: -10dB at 10kHz
Muting	MIC 1 overrides Mic inputs and AUX inputs with 0-30dB attenuation, attenuation by MIC 1 input
Dimensions	350(W) x 105(H) x 240(D)mm (13.78" x 3.97" x 9.45")
Weight	3.5kg (7.72lb)

System Management Amplifiers

>>> System Management Amplifier

VM-2120 `120w`
VM-2240 `240w`

- Programmable system management amplifier
- 5 switchable high impedance speaker zones with adjustable attenuators
- 9 units can be combined to increase the output power and number of zones (Up to 45 zones)
- 4 input channels come with volume and bass/treble control on the front panel
- Both BGM inputs with level pre-adjustment
- The routing to the zones of the 3 microphone/line level inputs and the telephone paging input can be preset
- Additional features: Emergency power input, remote power control, 7 built-in chimes etc.
- 19" rack mountable (3 units, optional MB-36 brackets required)
- EN 60849 certified

Model	VM-2120/2240
Power Source	AC:220-230V, 50/60Hz DC: 24V/15A
Rated Output	VM-2120: 120W, VM-2240: 240W
Frequency Response	50Hz - 16kHz
Distortion	Under 1%
S/N Ratio	Over 60dB
Tone Control	Bass: 100Hz ±10dB, Treble: 10kHz ±10dB
Audio Input	Mic/Line input × 3 Telephone paging input BGM input × 2 Power amplifier input External speaker line input
Audio Output	Speaker output Direct speaker line output Line output Recording output Preamplifier output
Control Input and Output	(1) External control input •Activation of messages •Activation of power •Activation and stop of Emergency Broadcast •Unit's broadcast cutoff (when activated by an external emergency equipment) (2) Status output •Irregularity of communications with the Remote Microphone and an expansion amplifier •AC power condition •DC power condition •Irregularity of the sound source of the Voice Announcement Board •Failure (FAULT) indication on •Power switch on
External Attenuator Control Output	Plug-in screw connector, relay, no-voltage make contact output, transfer type, withstand voltage: 30V DC, 125V AC, contact current: under 7A (DC), under 7A (AC)
Surveillance Input and Output	Input: No-voltage make contact input, open voltage: 3.3V DC,short-circuit current: under 1mA Output: Open collector output, withstand voltage: 30V DC,control current: under 10mA
Chime Tone	Built-in chime, Voice Announcement Board sound source
Function	Two units stacking (VM-2120 or VM-2240) Emergency broadcast (sequential control) Broadcast priority control Surveillance (failure detection) function Power supply to only one Remote Microphone (RM-200M) Line resistance: Under 40Ω (one way)
Dimensions	419(W) ×143.3(H) × 355.7(D)mm
Weight	12.5kg (VM-2120), 14.5kg (VM-2240)

VM-2000 Series Optional Accessories

>>> Voice Announcement Board	>>> Surveillance Board	>>> Remote Microphone	>>> Remote Microphone Extension Unit	>>> Rack Mount Bracket
EV-200M	**SV-200MA**	**RM-200MS**	**RM-210S**	**MB-36**

Digital Power Amplifiers

Microphones

Digital Message Repeaters

Beam Steering Microphone

Wireless Systems

Amplifiers

Mixers

Speakers

Security & Safety

Conference Systems

Megaphones

Professional Audio

Technical Column

>>> Dual-Channel Power Amplifiers

DA-250D
DA-250DH

>>> 4-Channel Power Amplifier

DA-250F
DA-250FH

>>> 4-Channel Power Amplifier

DA-550F
DA-500FH

>>> Matching Transformer

MT-251H

• High reliability
The DA amplifier has comprehensive protection circuitry to protect against excessive current flow due to overload, short circuit, unusual DC voltage output, and power amplifier heat sink temperature rise (over 100°C), temperature rise inside the unit (over 80°C).

• Amplifier with lightweight design
Installation has become much easier thanks to the lightweight design.

• High efficiency
Extremely high amplification efficiency of 80-90%, resulting in reduction in power consumption by more than 60% compared with Class-AB amplifiers.

• Highly durable
Stands up to extended hours of operation. The DA amplifier has undergone a large number of rigorous tests to prove its durability. In addition, TOA has conducted "nonstop driving tests" of the DA Series.

• Compact design
The DA-250 Series is 1-unit size, and they can be efficiently mounted on a rack, so they require only a small installation space. The amplifiers do not generate much heat, which means 5 units can be stacked together in a rack.

• Independent power supply
Each of the channels has its own power supply. If the power supply of Channel 1 should fail, this won't affect the operation of Channel 2. It is also possible to use either channel as a spare amplifier.

Model	DA-250D	DA-250DH	DA-250F	DA-250FH	DA-550F	DA-500FH
Power Source	220-240V AC, 50/60Hz					
Number of Channels	2		4			
Power Consumption Rated Power Consumption 1kHz 8Ω 4Ω 100V	400W, 2.8A 620W, 4.2A —	— — 580W, 3.9A	800W, 5.8A 1200W, 8.7A —	— — 1150W, 8.3A	1550W, 11.3A 2750W, 19.9A —	— — 2300W, 16.8A
S/N Ratio	100dB					
Crosstalk at 10kHz (A weighted)	70dB					
Inputs Input Impedance Input Sensitivity Input Clipping	10kΩ (unbalanced), 20kΩ (balanced) +4dB (1.23V) 14V (25.1dBu)				10kΩ (unbalanced), 20kΩ (balanced) +4dB (1.23V) 12V (23.8dBu)	
Rated Output	2 channels: 250W x 2 (4 Ω), 170W x 2 (8 Ω) 1 channel (BRIDGE): 500 W (8 Ω)	2 channels: 250W x 2 (100V line, 40Ω)	4 channels: 250W x 4 (4Ω), 170W x 4 (8Ω) 2 channels (BRIDGE): 500W x 2 (8Ω)	4 channels: 250W x 4 (100V line, 40Ω)	4 channels: 550W x 4 (4Ω), 350W x 4 (8Ω) 2 channels (BRIDGE): 1,100W x 2 (8Ω)	4 channels: 500W x 4 (100V line, 20Ω)
Protection Circuit Amplifier Section Power Supply Section	DC output, overheat protection, load shorting, overload current, maximum output Overheat protection, AC rush current					
Dimensions	482(W) × 44(H) × 401.8(D)mm				482(W) × 88.4(H) × 404.2(D)mm	
Weight	5.3kg		6.8kg		9kg	

Digital Mixer Amplifiers

A-5000

- 1U-half size compact and simple hardware for easy setting
- Hi-/Low-Z speaker connection
- 60W and 120W models
- 2 x mic/line inputs with mute
- Ideal for restaurants, coffee shops, retail shops etc.
- Intuitive GUI software for sound optimization
  - 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

Model	A-5006	A-5012
Power Source	100-240V AC, 50/60Hz	
Rated Output	60W	120W
Power/Current Consumption	106W (rated output), 20W (based on cULus standards) Max. 2A	207W (rated output), 39W(based on cULus standards) Max. 3 A
Frequency Response	50Hz - 20kHz, 1/8 output	
Distortion	1% or less (1kHz, rated output)	
Inputs	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), 100V(170 ohms), removable terminal block (5 pins)	
S/N Ratio	MIC 1, 2: 60dB or more, LINE 1-4: 80dB or more (A-weighted)	
Function	Parametric equalizer: 5 points settable on each input and output, 20 Hz - 20k Hz +/-15 dB, Q: 0.267 - 69.249 Compressor: ON/OFF settable on Inputs 1 and 2 (OFF by default) Threshold, Ratio, Attack time, Release time, and Gain are settable independently on each input	
Control	Mute control, Remote master volume control, Power ON/OFF switch, Ground lift	
Indicator	Power, Signal, Peak, Protect	
Dimensions	210(W) x 52.5(H) x 375(D)mm	
Weight	3.6kg	3.9kg

MX-6224D

- Dual 240W digital amplifier.
- 6 microphone inputs, 2 AUX input.
- Independent input and output volume controls.
- Tone controls (bass, middle and treble).
- Speaker EQ for BS-1030 and TC-631M
- Remote control connection
- Suitable for small to medium sized House of Worship applications

Model	MX-6224D
Power Supply	220V-240V AC, 50HZ/60HZ
Power Output	2ch x 240W (100V 42 ohms, rated output)
Power Consumption	150W (according to IEC60065), 650W (at rated output, both 2ch)
Power Amplifier Class	Class D, output transformer less Galvanic isolated output
Frequency Response	50Hz - 20kHz ±3dB (at 1/3 rated output, rated load, from Power Amplifier Input)
Distortion	Less than 1% THD (at 1kHz, rated output power)
Output Regulation	Less than 2dB no load to full load (at 1kHz, 1/3 rated output power)
Inputs (Sensitivity, Impedance, Connector)	MIC 1: 3.0mV (-50dBV)/+12V ON, 1.0mV (-60dBV)/OFF, Electronically balanced 600 ohms, Phantom +12V (ON/OFF) (TRS phone jack) MIC 2, 3, 4: 0.5mV (-66dBV), Electronically balanced 200 ohms, Phantom +12V (XLR Only) (TRS phone jack, XLR connector) MIC 5, 6: 1.0Mv (-60dBV), Electronically balance 600 ohms, Phantom +12V (XLR only), (TRS phone jack, XLR connector) AUX1: 330mV (-10dBV), Unbalanced 10k ohms monaural, (2Pair-RCA pin jack) AUX2 (Front): 100mV(-20dBV), Unbalanced 10k ohms monaural, (Stereo mini jack) PWR AMP IN ROOM: 1.0V (0dBV), Unbalanced 10K ohms, (RCA pin jack) PWR AMP IN OUTSIDE: 1.0V (0dBV), Unbalanced 10k ohms, (RCA pin jack)
Outputs	PWR AMP OUT ROOM: 100V (42 ohms), Galvanic isolated Balanced, Screw terminals PWR AMP OUT OUTSIDE: 100V (42 ohms), Galvanic isolated Balanced, Screw terminals REC OUT: 1.0V (0dBV), Unbalanced 600 ohms monaural, (2Pair-RCA pin jack) EFFECT BUS OUT: 1.0V (0dBV), Unbalanced 600 ohms monaural, (2Pair-RCA pin jack) PRE AMP OUT ROOM: 1.0v (0dBV) Unbalanced 600 ohms monaural, (RCA pin jack) PRE AMP OUT OUTSIDE: 1.0V (0dBV) Unbalanced 600 ohms monaural, (RCA pin jack)
Signal to Noise Ratio	More than 60dB (Master volume min)
Indicators	SLEEP, Output Level Meters (2 points, -20dBV and 0dB) fo ROOM and OUTSIDE, Protection for amplifiers ROOM and OUTSIDE, Outputs ON/OFF for ROOM and OUTSIDE, EFFECT ON/OFF
Ambient Temperature	0°C to +40°C
Dimensions	420(W) x 99(H) x 364.8(D) mm, 2 Unit Height
Mounting	Desktop mount, Rack mount with Mounting Bracket MB-25B(optional)
Weight	6.5kg
Finish	Front Panel: Aluminium, black, Case: Steel plate, black

Microphones
Digital Message Repeaters
Beam Steering Microphone
Wireless Systems
Amplifiers
Mixers
Speakers
Security & Safety
Conference Systems
Megaphones
Professional Audio
Technical Column

Microphones

Digital Message Repeaters

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Digital Matrix Mixer Amplifier

MA-725F

- All-in-one solution for multi-channel or multi-zone applications
- 6 x 4 audio matrix, DSP and 4ch Class-D amplifier in one chassis
- 4 independent line inputs, 2 MIC/LINE priority inputs
- Each output with independent DSP preset adjustment with input source matrix selection
- Ideal for restaurants, coffee shops, pubs, retail stores, schools, offices etc
- High power (250W x 4 at 70 V/100 V)

Model	MA- 725F
Power Source	100-240V AC, 50HZ/60HZ
Power Consumption	1350W (rated output), 200W (based on cULus standards), 42.5W (idle), 22W or less (Stand-by)
Frequency Response	20Hz-20kHz (-3dB/+1dB, LPF OFF)
Total Harmonic Distortion	1% or less, at 1kHz, rated output
Certification	cULus 60065, EN60065, EN55032,EN55020, FCC part 15 class A
DSP Preset	16 presets in 4 banks at each output channel, selectable
S/N Ratio	Mic: 60 dB* or more, Line: 75dB* or more (A-weighted)
Input	PRIORITY 1,2: Mic -60dB*/Line -10dB* selectable, 2.2kΩ, electrically balanced, removable terminal block LINE IN 1, 2, 3, 4: -10dB*, 10kΩ, unbalanced, 2 RCA jacks (stereo summing)
Output	SPEAKER 1,2,3,4: 70V (20Ω), 100V (40Ω), removable terminal block LINE OUT 1,2,3,4: 0dB*, 600Ω, unbalanced, RCA jack MOH: 0dB*, 600Ω, transformer balanced, removable terminal block
Muting	Manual mute/Automatic mute
Mute Hold Time	50ms - 10 seconds, adjustable
Priority Level	PRIORITY 1 > PRIORITY 2 > LINE 1,2,3,4
Dimensions	420(W) x 107.6(H) x 350(D) mm (16.54" x 4.24" x 13.78")
Accessories	Power cord (2m), user's manual, removable terminal plug, rack mounting bracket, bracket mouting screw
Weight	7.6kg
Finish	Panel: Aluminium, hair line, black Case: Steel plate, black, paint

WP-700

- Wall remote control panel for M-700 Series Digital Matrix Mixer
- Designed to remotely control MA-725F (or MM-700F) Matrix Mixer amplifiers
- Select input source and adjust volume level of connected output
- Up to 4 units can be connected to one MA-725F/MM-700F unit (1 WP-700 per each output channel)
- Single CAT5/5e/6 STP cable is required for each connection (max 300 feet)
- Can be mounted in a 1-gang standard electrical box

Model	WP-700
Application Cable	CAT5 /5e/ 6 STP cable
Control Operation	Input select swtich x1, Volume control knob x1
Terminal	RJ-45 connector
Operation Temperature	-10 °C to 40 °C (14 °F to 104° F)
Finish	Surface treated steel plate, white paint (RAL 9016)
Dimension	72 x 128 x 60 mm (2.83" x5. 04" x2.36")
Weight	210g (0.463lb)

Microphones

Digital Message Repeaters

Beam Steering Microphone

Wireless Systems

Amplifiers

Mixers

Speakers

Security & Safety

Conference Systems

Megaphones

Professional Audio

Tactical Column

Mixers

Digital Stereo Mixers

M-243

- Flexible 2 monaural & 4 stereo inputs and 1 stereo & 2 monaural outputs.
- Each input signal can be assigned to each of 3 outputs.
- Stereo output can be divided among two monaural output channels.
- Depending on level reading, monaural input may be selected as either mic or line.
- Built-in limiter circuit prevents damage from overloads.
- Selectable internal hi-pass filter (HPF) switch.
- "AUTO MUTE" ON/OFF button to mute stereo signals by detecting monaural signals.
- Stereo output equipped with music output/ audio tone (high/low) equalizer.
- Colour coding of controls makes them easier to distinguish and to operate.

M-633D

- 6 mono and 3 stereo input channels and 2 mono and 2 stereo output channel
- 1 Stereo input is located on the front panel for easy connection of audio/MP3 players
- Provides automatic audio adjustment with push-button ease with no need for complex PC settings
- Automatic Resonance Control function, a Feedback Suppression Function, Automatic Mute Function and an Automatic Clipguard Function for enhanced sound intelligibility
- Compact 1U size

M-864D

- Stereo mixer with 22 input channels including 8 monaural input channels and 7 stereo input channels
- 6 output channels including 4 monaural output channels and 1 stereo recording output channel and 4 bus channels
- Automatic Resonance Control (ARC) measurement and processing algorithm that optimizes speech and sound clarity for individual acoustic environments
- Automatic stereo input mute (Auto Mute or Ducker) function that mutes stereo input automatically when detecting a monaural control signal
- Dedicated GUI software facilitating higher precision parameter setting adjustment on PC via Ethernet LAN
- Finer speaker setting possible when used in combination with optional Digital Speaker Processor DP-SP3

⟫ Remote Mixer

SO-MIXT-24V

- Microphone and line level input
- Two inputs, one output
- XLR connector (balanced output) microphone input
- Individual volume control with joint bass and treble control
- Automatic mix with selectable Talkover function. 30dB, Talkover time: 3 seconds.

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9000M2 Series Modular Digital Matrix Mixer/Amplifier

The TOA 9000M2 Series Digital Matrix Mixer/Amplifiers redefine the conventional mixer/amplifier category by combining a modular matrix mixer, digital signal processor (DSP) and amplifiers in a compact, two rack space package. The versatile new series is ideal for multi-zone paging, music distribution and room-combining applications. The 9000 Series allows for easily configured, custom systems with up to eight mic/line inputs and eight outputs. Each 9000M2 Series chassis has two output channels with built-in DSP, including; ten band parametric EQ, compressor, delay and more. Input and output modules include additional DSP. A new integrated operating mode provides powerful functionality for both simple mixing and complex multi-zone paging applications. Features include telephone zone paging, automatic microphone mixing and ambient noise control.

››› Digital Matrix Mixer

M-9000M2

- Flexible modular design - up to 8 mic/line inputs and 8 outputs
- Detailed GUI software screens make even complex settings intuitive and easy to understand
- Any of the 30 EQ presets appropriate to the TOA speakers used may be selected for each output
- Up to 16 flush-mount remote panels connectable
- Programmed operating system - 32 scene memories and 32 paging memories
- Dual Channel Digital Signal Processor (DSP) on input and output channels: 10-band Parametric EQ/ High & Low Pass Filters/ Bass & Treble/ Loudness/ Compressor/ Gate/ Ducker/ NOM (Automix)/ Delay (Output channel only)/ TOA Speaker EQ Presets/ DSP included on M-9000M2 Outputs, D-001T, D-001R & T-001T modules

Model	M-9000M2
Power Source	AC Mains, 50/60Hz
Power Consumption	40W
Audio Input	Max. 8 channels, modular construction (modules optional)
Audio Output	Preamplifier output 1, 2: 0dB*, 600Ω, unbalanced, removable terminal block (4 pins)
Frequency Response	20Hz - 20kHz, +0, -1dB +1, -3dB
S/N Ratio	At input short, 20Hz - 20kHz, ALL FLAT or OFF setting Output volume min.:90dB Output volume max.: 61dB (input 1 volume: 0dB, other inputs: OFF)
Crosstalk	64dB or more at 20kHz
Tone Control	Bass +/-12dB (at 100Hz), Treble +/-12dB (at 10kHz)
Parametric EQ	10 bands, Freq: 20Hz - 20kHz, 31 steps, Various range: +/- 12dB, Q:0.3-5
Speaker Equalizer	30 (presets for TOA speakers)
High-pass Filter	-12dB/oct, Variable frequency range: 20Hz - 20kHz, 31 steps
Low-pass Filter	-12dB/oct, Variable frequency range: 20Hz - 20kHz, 31 steps
Compressor	Depth: 1-5
Delay	0-40ms (1ms steps), max. 40ms (CH1 + CH2)
Scene/Paging Memory	32/32
Control Input/Output	RS-232C, D-sub connector (9P, female) Control input: 4 inputs, no-voltage make contact input, open voltage: 3.3V DC, short-circuit current: 1mA or less, removable terminal block Control output: 4 outputs, open collector output, withstand voltage: 27V DC, control current: 50mA, removable terminal block Remote volume: 2 channels, connect a 10kΩ/linear taper variable Resister or 0 – 10V DC, removable terminal block
Dimensions	420(W) x 107.6(H) x 395(D)mm
Weight (without modules)	6kg

››› Digital Matrix Mixer/Amplifier

CP-9550M2/CP-9500M2

- Dual Channel Power Amplifier
  - CP-9550M2: 550W (4Ω) or 350W (8Ω)
  - CP-9500M2: 500W (100V line, high impedance 20Ω)
- Compact solution for conference rooms, gymnasiums or restaurants
- Can be used in conjunction with optional modules as mixer or paging amplifier by settings, depending on the application
- Enhanced GUI programming interface for PC configuration and uploading/ downloading of settings
- Exceptional Audio Quality: 24-bit, 48kHz sampling
- Independent power supply
- Speaker line switching - select up to four speaker lines from a single amplifier output using optional model SS-9001speaker selector and AD-146 Power Supply
- RS-232C serial port allows upload & download of programming templates and firmware upgrades

Model	CP-9550M2/CP9500M2
Power Supply	220-240 VAC (50/60Hz)
Power Consumption	CP-9550M2:253W, CP9500M2:220W(according to IEC/EN 60065)
Audio Input	Max. 8 channels, modular construction (modules optional
Speaker Output	CP-9550M2: 550W x 2(4Ω), 350W (8Ω) Connector: Neutrik NL4MD-H-1 x 2 CP-9500M2: 500W x 2 (20Ω), Connector: M4 screw terminal
Amplifier	Class D (100V)
Module Slot	Analog input (slot 1-8): -10dB*, 10kΩ, unbalanced
Control Input/Output	RS-232C, D-sub connector (9P, female) Control input: 4, no-voltage make contact, Open voltage: 3.3V DC, short-circuit current: 1mA or less, removable terminal block (14 pins) Control output: 4 outputs, open collector output, withstand voltage: 27V DC, control current: 50mA, removable terminal block Remote volume: 2 channels, connect a 10kΩ/linear taper variable resister or 0 – 10V DC, removable terminal block(14 pins)
Signal Processing	24bit/48kHz
Cross Talk	>60dB (20kHz)
Functions	Tone Control Bass: +/-12dB (at 100Hz), Treble: +/-12dB (at 10kHz) Parametric EQ 10 bands, Freq: 20Hz - 20kHz, 31 steps, Variable range: +/-12dB, Q: 0.3-5 Speaker Equalizer 10 (setup software has 30 TOA speaker presets) High-Pass Filter -12dB/oct, Variable frequency range: 20Hz - 20kHz, 31 steps Low-Pass Filter -12dB/oct, Variable frequency range: 20Hz - 20kHz, 31 steps Compressor Depth: 1-5 Delay 0-40ms (1ms steps), max. 40ms (CH1 + CH2) Scene/Event Memory 32, Auxiliary Function Key lock function
Frequency Response	20Hz - 20kHz
THD	CP-9550M2: < 0.008% CP-9500M2: < 0.3%
S/N Ratio	CP-9550M2: 90dB CP-9500M2: 85dB
Dimensions	420(W) x 107.6(H) x 415(D)mm
Weight (without modules)	9.6kg

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Paging Microphone for 9000M2 Series

RM-9012
RM-9012C

- Ideal in combination with M-9000M2 and SS-9012/SS-9001
- Unidirectional electret condenser microphone with balanced audio output
- Announcement to the selected zones out of a maximum of 12 zones
- An all-call button, plus an all-call button for clearing all zone selections
- 1-tone chime function with switch setting on the RM-9012C
- LED indicator for each selection

>>> Speaker Selectors

SS-9012   ## SS-9001

9000M2 Series Remote Panels

ZM-9001 ZM-9002 ZM-9003 ZM-9011 ZM-9012 ZM-9013 ZM-9014

9000M2 Series Modules

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

>>> Line Input Module
D-001R

>>> Input/Output Control Module
C-001T

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

>>> Sound Masking Module
NM-01

>>> Remote Control Module
RC-001T

>>> Ambient Noise Control Module
AN-001T

>>> Telephone Zone Paging Module
ZP-001T

>>> Ambient Noise Sensing Microphone
AN-9001

>>> Phone Paging Module
SP-11N

D-901/D-2000 Series Modular Digital Matrix Mixer/Amplifier

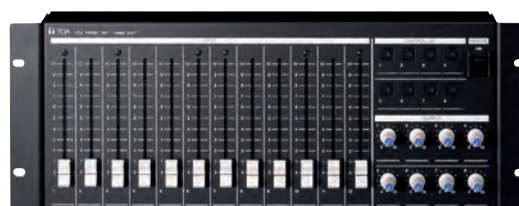>>> Modular Digital Matrix Mixer

D-901

- Fully modular digital mixer featuring 12 inputs, 8 bus and 8 output configuration with easy operation that can be expanded as applications require
- Automatic mixing function adjusts input level automatically to make operating easier
- Convenient front panel controls and display make it easy to perform all functions and confirm parameter settings without requiring a PC
- 16 sound parameter setting configurations can be stored in memory for instant recall when required
- Can be externally controlled with an external signal trigger or the RS-232C port on the back which enables the D-901 to easily interface with external equipment
- Compressor can be switched in to reduce the dynamic range between the smallest and largest signals preventing amplifier clipping at high levels

>>> VCA Fader Unit

D-911

- Significantly expands the operational scope of the D-901 Digital Mixer.
- Adds useful control capabilities when connected to the D-984VC.
- Full VCA operation becomes possible, allowing all the D-901's 12 inputs and 8 outputs channel gain levels and 8 contact controls.

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>>> Modular Digital Mixing System

D-2000 Series

- Up to 32 different routing and parameter configurations can be stored in memory and can be called up to handle venues such as multipurpose halls and conference rooms that require frequent changes in staging, seating and speaker arrangement
- Intuitive GUI helps streamline settings and adjustments
- D-2008SP can be connected via network to the D-2012C mixing console with 12 motorized faders and 8 rotary encoders enabling simplified mixing operation to suit non-professional users
- The RS-232C port allows external control when connected to external devices such as AMX and Creston control units. This allows full control over venue lighting and power curtains from a central remote location
- The fully modular design makes it easy to create a configuration that meets specific user requirements
- The new Q-2008SPD digital mixing processor unit uses Dante digital audio networking. This means that the processing modules can be connected to a LAN for remote operation with exceptional transmission quality with near zero latency between another Q-2008SPD and any other Dante compatible device

D-2012C Digital Mixing Console

D-2008SP Digital Mixing Processor Unit

D-901/ D-2000 Series Input Modules

>>> MIC/Line Input Modules

>>> 20-bit XLR Connector
D-922F

>>> 24-bit XLR Connector
D-921F

>>> 20-bit Removable Terminal Block Connector
D-922E

>>> 24-bit Removable Terminal Block Connector
D-921E

>>> Stereo Type
D-936R

>>> 4 Channel XLR Conector for D-2000 Series Only
D-2000AD1

>>> Digital Input Modules

>>> Applicable AES/EBU Format
D-923AE

>>> Applicable S/PDIF Format
D-937SP

D-901/ D-2000 Series Output Modules

>>> Line Output Modules

>>> XLR Connector
D-971M

>>> Removable Terminal Block Connector
D-971E

>>> RCA Pin Jack Connector
D-971R

>>> 4 Channel XLR Conector for D-2000 Series Only
D-2000DA1

>>> Digital Output Modules

>>> Applicable AES/EBU Format
D-972AE

>>> Applicable S/PDIF Format
D-961SP

D-901/ D-2000 Series Remote Control Modules

>>> Remote Control Module

>>> 8 Inputs, 8 Outputs
D-981

>>> 24 Inputs, 16 Outputs
D-983

>>> VCA Control Module

>>> VCA Control + 8 Inputs, 8 Outputs
D-984VC

D-2000 Series CobraNet Interface Module

>>> Allows audio transmission among D-2008SPs
D-2000CB

Speakers

Ceiling Speakers

>>> Flush Mount Type Ceiling Speakers

PC-1868W **PC-1869S** **PC-2369** **PC-2852**
PC-2869

- Speaker designs that harmonize with the venue's architecture and decor
- Quick and easy installation thanks to 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

Model	PC-1868W	PC-1869S	PC-2369	PC-2852	PC-2869
Rated Input (100V line)	6W			15W	6W
Rated Impedance	100V line: 6W, 3W, 1W 70V line: 3W, 1.5W, 10W	100V line: 6W, 1.5W, 0.7W 70V line: 3W, 1.5W, 0.7W, 0.3W		100V line: 15W, 10W, 5W, 3W 70V line: 15W, 7W, 5W, 2.5W, 1.5W	100V line: 6W, 3W, 1W 70V line: 3W, 1.5W, 0.5W
Sensitivity (1W, 1m)	90dB		93dB	96dB	94dB
Frequency Response	100Hz - 16kHz	55Hz - 18kHz		45Hz - 20kHz	40Hz - 20kHz
Mounting Hole Diameter	ø150 +/-3mm		ø200 +/-3mm	ø250 +/-3mm	
Speaker Component	12cm cone type		16cm double cone type	20cm coaxial cone type	20cm double cone type
Finish	Baffle: ABS resin, traffic white(RAL 9016) Grille: Net traffic white paint(RAL 9016)	Frame: Steel plate, traffic white (RAL 9016) Grille: Surface-treated steel plate net: traffic white (RAL 9016)			
Dimensions	ø180 x 110(D)mm	ø180 x 111(D)mm	ø230 x 79(D)mm	ø280 x 92(D)mm	
Weight	675g	750g	760g	1.6kg	1.4kg

PC-648R **PC-658R**

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

Model	PC-648R	PC-658R
Rated Input (100V line)	6W	
Rated Impedance	100V line: 6W, 3W, 1W 70V line: 3W, 1.5W, 0.5W	100V line: 6W, 3W, 1.5W, 0.75W 70V line: 3W, 1.5W, 0.7W, 0.4W
Sensitivity (1W, 1m)	90dB	
Frequency Response	100Hz – 18kHz	65Hz – 18kHz
Mounting Hole Diameter	ø145 +/-5mm	ø170 +/-5mm
Speaker Component	12cm cone-type	16cm cone-type
Finish	Frame: Polypropylene resin, off white/Grille: Surface-treated steel plate net, off white	
Dimensions	ø168 x 77(D)mm	ø192 x 73(D)mm
Weight	470g	500g

Optional Accessories

>>> Attenuator

AT-4012-B (12W)
AT-4030-B (30W)
AT-4060-B (60W)
AT-4120-B (120W)
AT-4200-B (200W)

Designed with the ergonomics of the human hand in mind, the AT-4000 Series Attenuators' control knob comes in a size that provides a comfortable grip and excellent control with every turn. Consisting of 8 step attenuation, the series is built to provide precision volume control with a difference of 3dB in every step. The built in overriding relay feature allows emergency paging which is indicated by the LED when activated.

Ceiling Speakers

Surface Mount Type Ceiling Speaker

PC-2668

- 12cm speaker
- Easy installation with spring catches
- Push-in terminals for speaker cable
- Exposed installation to the ceiling
- In/Out bridge connection
- ABS resin baffle
- Mounting bracket for back box included

Splashproof Ceiling Speaker

PC-3WR

- Ideal for wet and humid locations
- IP64 certified weatherproof construction
- Fits in ø150 mm holes
- Wide temperature range of -10°c to +50°C

Model	PC-2668	PC-3WR
Rated Input (100V line)	6W	3W, 1W
Rated Impedance	100V line: 6W, 3W, 1.5W, 0.75W 70V line: 3W, 1.5W, 0.7W, 0.4W	3W, 1W
Sensitivity (1W, 1m)	90dB	88dB
Frequency Response	100Hz – 16kHz	180Hz - 20kHz
Mounting Hole Diameter	—	ø150mm
Speaker Component	12cm dynamic cone-type	8cm cone type
Finish	Frame: ABS resin, off white Grille: ABS resin, off white	Frame: Alloy-coated ABS resin/Grille: Stainless steel punching net
Dimensions	ø260 x 202(D)mm	ø116 x 110(D)mm
Weight	820g	700g

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
- Fits in ø100 mm holes

Clean Room Ceiling Speaker

PC-5CL

- Sealed high-molecular speaker membrane to prevent floating dust particles from contaminating the environment
- Resistant against formalin
- Fits in ø98mm holes

Model	PC-3CL	PC-5L
Rated Input (100V line)	3W	5W
Rated Impedance	100V line: 3W, 1W 70V line: 1.5W, 0.5W	100V line: 5W 70V line: 2.5W
Sensitivity (1W, 1m)	87dB	87dB
Frequency Response	150Hz - 20kHz	150Hz - 20kHz
Mounting Hole Diameter	ø100mm	ø98mm
Speaker Component	—	8cm 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	ø139 x 104.5(D)mm	ø116 x 110(D)mm
Weight	550g	620g
Operating Temperature	-20°C to +60°C	-20°C to +55°C

Ceiling Mount Fire Dome Speaker

PC-1867FC

- Metallic firedome construction prevents damage to the speaker from objects falling from above
- 12cm speaker
- Easy installation with spring catches
- Ceramic terminals
- Aluminium baffle
- In accordance with British Standard BS5839 (Part 8)
- EN 54-24 certified in 2010 (Certificate No.:. 1438/CPD/0183)

Model	PC-1867FC
Rated Input (100V line)	6W
Rated Impedance	100V line: 6W, 3W, 1.5W, 0.75W 70V line: 3W, 1.5W, 0.7W, 0.4W
Sensitivity (1W, 1m)	90dB
Frequency Response	160Hz - 13kHz
Mounting Hole Diameter	ø156mm +/-3mm
Speaker Component	12cm cone type
Finish	Frame: Aluminium, off white Grille: Aluminium net, off white
Dimensions	ø180 x 121(D)mm
Weight	1.4kg

Combination Type Wide Range Horn Speakers

>>> Wide Range Horn Speaker
CS-64

- Wide-range paging speaker for voice paging, background music and tone signalling distribution
- Exponential shaped horn improves directivity characteristics and ensures uniform and clear sound dispersion
- Weatherproof polyurethane resin paint and impact-proof lightweight ABS resin enclosure
- Stainless steel hardware protects the speaker from corrosion

>>> Wide Range Horn Speaker
CS-154
CS-304

- Wide-range paging speaker for voice paging, background music and tone signalling distribution
- Constant directivity horn improves directivity characteristics and ensure uniform and clear sound dispersion
- High sensitivity: up to 98 dB (1W/1m)
- IP64 certified weatherproof construction
- Weatherproof polyurethane resin paint and impact-proof lightweight ABS resin enclosure
- Stainless steel hardware protects the speaker from corrosion

Model	CS-64	CS-154	CS-304
Rated Input (100V line)	6W	15W	30W
Rated Impedance	100V line: 6W, 3W, 1W 70V line: 6W, 3W, 1.5W, 0.5W	100V line: 15W, 10W, 5W 70V line: 15W, 7W, 5W, 2.5W	100V line: 30W, 20W, 10W 70V line: 29W, 15W, 10W, 5W
Sensitivity (1W, 1m)	96dB	97dB	98dB
Frequency Response	130Hz - 13kHz	150Hz - 15kHz	120Hz - 15kHz
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 grey, powder coating	Horn, cover: ABS resin, off white, paint Bracket: Stainless steel/Net: Aluminium, grey	
Dimensions	233(W) x 224(H) x 208(D)mm	366(W) x 230(H) x 272(D)mm	
Weight	1.5kg	2.8kg	3.1kg
Dust/Water Protection	Equivalent to IP64		

Combination Type Reflex Horn Speakers

>>> Paging Horn Speakers

SC-610
SC-610M

SC-615
SC-615M

SC-630
SC-630M

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

SC-651

- Newly developed polyimide diaphragm ensures durability during 50W output
- Paging horn speaker for voice paging and tone signalling distribution
- Weather-resistant to withstand demanding environmental conditions
- Shock resistant aluminium oval horn
- IP65 certified weatherproof construction

Model	SC-610	SC-610M	SC-615	SC-615M	SC-630	SC-630M	SC-651
Rated Input (100V line)		10W		15W	30W (8Ω)	30W	50W
Rated Impedance	8Ω,	100V line: 10W, 5W, 3W, 1W 70V line: 10W, 5W, 1.5W, 0.5W	8Ω	100V line:15W, 10W, 5W, 3W 70V line: 15W, 7W, 5W, 2.5W, 1.5W	8Ω	100V line: 30W, 15W, 10W, 5W 70V line: 29W, 15W, 7W, 5W, 2.5W	16Ω
Sensitivity (1W, 1m)		110dB		112dB		113dB	109dB
Frequency Response		315Hz - 12.5kHz		280Hz - 12.5kHz		250Hz - 10kHz	250Hz - 6kHz
Finish	Horn flare: Aluminium, off white, powder coating Reflector horn: ABS resin off white Bracket holder: Aluminium, grey, powder coating Bracket: Stainless steel						
Dimensions	172(W) x 161(H) x 188(D)mm		222(W) x 179(H) x 234(D)mm		285(W) x 227(H) x 277(D)mm		430(W) x 297.5(H) x 327(D)mm
Weight	1kg	1.2kg	1.1kg	1.3kg	1.7kg	2kg	3.4kg
Dust/Water Protection	IP65						
Operating Temperature	-20°C to +55°C						

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Combination Type Reflex Horn Speakers

>>> Horn Speakers

TC-615
TC-615M

TC-631
TC-631M

TC-651M

- Both high-impedance (70V/100V lines) models and low-impedance (8Ω/15W model, 16Ω/30W model) models available
- Two power ratings: 15W and 30W
- Stainless steel hardware(screws, bolts, nuts), and powder-coated horn and bracket ensure superb weatherproofing and corrosion-resistance.
- Shock-resistant aluminium round horn
- Compliance with IP65

- High durability, high heat-resistance and improved low frequency sound thanks to polyimide diaphragm
- More than 100 hours of operation at 50 W in continuous load test employing test signal that meets IEC 60268-1: 1985 standard
- Stainless steel hardware (screws, bolts, nuts), and powder-coated horn and bracket for weatherproofing and corrosion-resistance.
- Shock-resistant aluminium round horn

Model	TC-615	TC-615M	TC-631	TC-631M	TC-651M
Rated Input (100V line)	15W			30W	
Rated Impedance	8Ω	100V line: 15W, 10W, 5W, 3W, 70V line: 15W, 7W, 5W, 2.5W, 1.5W	16Ω	100V line: 30W, 15W, 10W, 5W 70V line: 29W, 15W, 7W, 5W, 2.5W	
Sensitivity (1W, 1m)	108dB		110dB		111dB
Frequency Response	250Hz - 7kHz		200Hz - 6kHz		
Finish	Horn flare: Aluminium, off white, powder coating Bracket holder: Aluminium, grey, powder coating		Reflector horn: ABS resin, off white Bracket: Steel, grey, powder coating		
Dimensions	ø400 x 376(D)mm		ø500 x 463(D)mm		ø400 x 376(D)mm
Weight	3kg	3.2kg	4.1kg	4.5kg	4kg
Dust/Water Protection	IP65				
Operating Temperature	-20°C to +55°C				

Separate Type Horn Speakers

>>> Reflex Horns

TH-650

TH-660

- External stainless steel hardware (screws, bolts, nuts), and powder-coated horn and bracket ensure superb weatherproofing and corrosion-resistance.
- Shock-resistant aluminium round horn.

Model	TH-650	TH-660
Sensitivity (1W, 1m)	110dB	
Frequency Response	200Hz - 6kHz	
Finish	Horn flare: Aluminium, off white, powder coating Bracket: Steel, grey, powder coating	
Dimensions	ø500 x 394(D)mm	ø600 x 425(D)mm

>>> Driver Units

TU-631
TU-651

TU-631M
TU-651M

- Both high-impedance (70V/100V lines) models and low-impedance (16 Ω) models available.
- Two power ratings: 30W and 50W.
- Input impedance selector on high-impedance models facilitates input impedance matching from the outside.
- IP65 certified weatherproof construction

Model	TU-631	TU-651	TU-631M	TU-651M
Rated Input (100V line)	30W	50W	30W	50W
Rated Impedance	16Ω		100V line: 30W, 15W, 10W, 5W 70V line: 29W, 15W, 7W, 5W, 2.5W	
Sensitivity (1W, 1m)	110dB			
Frequency Response	150Hz - 6kHz			
Finish	Flange: Aluminium, grey, powder coating Rear cover: ABS resin, grey Screws: Stainless steel			
Dimensions	ø139 x 106(D)mm		ø139 x 149(D)mm	
Weight	1.4kg	1.9kg	1.9kg	2.7kg
Dust/Water Protection	IP65			
Operating Temperature	-20°C to +60°C	-20°C to +55°C	-20°C to +60°C	-20°C to +55°C

New Ring-type Driver Units

>>> Driver Units

TU-660   TU-660M

• New ring-type polyimide diaphragm construction

The TU-660 and TU-660M are highly intelligent driver units suited to public address announcement applications. Their powder-coated finish and stainless steel screws ensure their weatherproof capabilities. Also, employing a newly developed ring diaphragm ensures their high frequency characteristics.

Model	TU-660	TU-660M
Rated Input (100V line)	60W	
Rated Impedance	16Ω	100 V line: 170 Ω (60 W), 330 Ω (30 W), 670 Ω (15 W) 70 V line: 83 Ω (60 W), 170 Ω (30 W), 330 Ω (15 W), 670 Ω (7.5 W)
Sensitivity (1W, 1m)	110dB	
Frequency Response	150Hz – 8kHz	150Hz – 8kHz
Finish	Flange: Aluminum, gray, powder coating Rear cover: ABS resin, gray Screws: Stainless steel	Flange: Aluminum, gray, powder coating Rear cover: ABS resin, gray Screws: Stainless steel
Dimensions	φ139 × 109 (D) mm (φ5.47" × 4.29")	φ139 × 151 (D) mm (φ5.47" × 5.94")
Weight	2kg/2.7kg	
Dust/Water Protection	IP65	IP65
Operating Temperature	-20 °C to +55 °C	-20 °C to +55 °C

Music Horn Speakers

CS-530BS-EB   CS-660BS-EB

• Highly intelligible: suited to voice alarm, public address and BGM application by 2-way system.
• Certified to EN 54-24, ISO 7240-24 and compliant with BS 5839-8.
• All weather durability, water and dust protection to IP 66.
• Impedance change available by tapping changing located inside the terminal cover.

Model	CS-530BS-EB	CS-660BS-EB
Rated Power	30W	60W
Rated Impedance	30W, 15W, 7.5W, 3.75W	60W, 30W, 15W, 7.5W
Maximum SPL	111dB	115dB
Sound Pressure Level	96dB (1m,1W)	97dB (1m, 1W)
Frequency Response	120Hz - 20kHz	100Hz - 20kHz
Speaker Component	Bass: 12.7cm Coating Rubber Surround, Treble: High Efficiency Tweeter	Bass: 16.5cm Coating Rubber Surround, Treble: High Efficiency Tweeter
Coverage Angle	Horizontal: 140°/60°/90°/90° Vertical: 180°/100°/95°/140°	Horizontal: 105°/50°/80°/80° Vertical: 140°/70°/90°/150°
Dust/Water Protection	IP66	
Operating Temperature	-20°C to +55°C	-25°C to +70°C
Finish	Horn and terminal cover: ABS resin, light grey Brackets and screws: Stainless steel	
Dimensions	315(W) x 215(W) x 355.5(D)mm	

Powered Horn Speakers

>>> Powered Horn Speaker

SC-P620-EB

• Efficient and durable horn speaker, ideal for industrial use
• Stainless steel brackets and hardware
• With a built in 20 watt power amplifier
• IP65 certified weatherproof construction
• Features internal volume control

>>> IP Horn Speaker

UC-4SC615Q

• Integrated 15W power amplifier which utilises latest Class D technology
• PoE++
• ONVIF & SIP compatible
• Integration to majority of IP CCTV systems possible
• Built in microphone/USB port

Model	SC-P620-EB	UC-4SC615Q
Power Source	12 V DC, 2A	PoE++
Sound Pressure Level	113dB	109dB (1W, 1W)/121dB (15W, 1M)
Operating Temperature	-20°C to +55°C	-20C to +55C
Dust/Water Protection	IP65	IP65
Finish	HIPS resin, white (RAL 9010) Stainless steel brackets	HIPS resin, white (RAL 9010) Stainless steel brackets
Dimensions	292(W) x 230(H) x 280(D) mm	222(W) x 208(H) x 285(D) mm
Weight	1.8kg	TBC

Optional Accessories

>>> Pole Mount Bracket
SP-131

>>> APH Power Supply
PS-APH

>>> APH Power Supply Lead
SKT-IEC-S5000

AB Wiring Speakers

>>> Wall Mount Speaker

BS-250AB-EB

- For indoor applications
- 2 separate 100V transformers
- Wide temperature range of -10°C to +55°C
- Fire resistant according to UL 94-V0
- A/B wiring
- EN 54-24 certified + BS 5839 Part 8

>>> Flush Mount Speaker with Firedome

PC-245AB-EB

- Firedome construction prevents damage to the speaker from objects falling from above
- 2 separate 100V transformers and 2 speakers
- Easy installation
- A/B wiring
- EN 54-24 certified + BS 5839 Part 8

>>> Surface Mount Ceiling Speaker

PC-275AB-EB

- Only 86mm depth
- 2 separate 100V transformers and 2 speakers
- 2 separate ceramic terminal blocks
- Quick-mount through U-shaped bracket assembly with spring
- A/B wiring
- EN 54-24 certified + BS 5839 Part 8

Model	BS-250AB-EB	PC-245AB-EB	PC-275AB-EB
Rated Input	2 x 6W		
Rated Impedance	1.5W, 3W, 6W		
Sensitivity (1W, 1m)	86dB	88dB	
Frequency Response	150Hz - 20kHz		
Speaker Component	2 full range dual cone (10cm) (A/B 2-lines)	2 full range dual cone (8 x 12cm) (A/B 2-lines)	2 full range dual cone (7 x 12cm) (A/B 2-lines)
Finish	Enclosure ABS (UL 94V),grille: steel	Steel, White	Steel, White
Dimension	250(H) x 200(W) x 85(D)mm	ø245 x 131(D)mm	ø274.4 x 86.5(H)mm
Weight	1.75kg	2.05kg	1.49kg

Wall Mount Box Speakers

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

- Low profile, beautiful design due to the Golden Ratio (1:1.618)
- Easy and quick installation
- Creates a distinctly different impression depending on whether it is installed horizontally or vertically
- Two colours selectable: off white, which matches any interior style, and silver, which adds a quality appearance
- Ideally suited for BGM and announcements
- Equipped with an attenuator (BS-634T)

Model	BS-634	BS-634T	BS-1034	BS-1034S
Rated Input (100V line)	6W		10W	
Rated Impedance	100V line: 6W, 3W 70V line: 3W, 1.5W		100V line: 10W, 5W, 3W, 1W 70V line: 10W, 5W, 2.5W, 1.5W, 0.5W	
Sensitivity (1W, 1m)	90dB			
Frequency Response	120Hz - 18kHz			
Speaker Component	12cm cone-type		Low: 12cm cone-type, High: Balance dome-type	
Finish	Enclosure: HIPS resin, off white Grille: Surface- treated steel plate net, off white		Enclosure: HIPS resin, off white Grille: Steel plate net, off white	Enclosure: HIPS resin, silver Grille: Steel plate net, silver
Dimension	210(W) x 330(H) x 80(D)mm			
Weight	1.3kg		1.4kg	

Box Speakers

BS-678B
BS-678BT

BS-678
BS-678T

BS-680F
BS-680FC

- Stylish, compact and unobtrusive design
- Quick and easy installation, which saves time on setting-up
- Horizontal/vertical installation
- A push-type input terminal allows easy cable connections and bridge wiring
- Ideally suited for BGM and announcements
- Equipped with an attenuator (BS-678T/678BT)

- Innovative design based on the Golden Ratio (1:1.618)
- Quick and easy installation
- Strong all-metal body
- Horizontal/vertical installation
- Wall/in-wall mounting
- BS-680FC: Ideally suited for voice alarm system applications
- Two steatite screw terminal blocks and thermal fuse
- EN 54-24 certified in 2010 (Certificate No.: 1438/CPD/0178)
- In accordance with British Standard BS5839 (Part 8)

Model	BS-678/BS-678B	BS-678T/BS-678BT	BS-680F	BS-680FC
Rated Input (100V line)	6W			
Rated Impedance	100V line: 6W, 3W, 1.5W, 0.75W 70V line: 3W, 1.5W, 0.7W, 0.4W		100V line: 6W, 3W, 1.5W, 0.75W 70V line: 3W, 1.5W, 0.7W, 0.4W	
Sensitivity (1W, 1m)	94dB			
Frequency Response	150Hz - 20kHz			
Speaker Component	16cm 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		310(W) x 190(H) x 87.2(D)mm	
Weight	1.7kg		2.6kg	

›› Universal Speaker

BS-1030B
BS-1030W
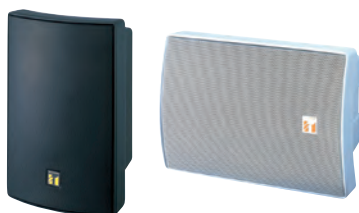
- Aesthetically pleasing design blends in modern buildings and other facilities, such as boutique, restaurant and amusement park
- Cost-effective high power PA box speaker
- 2-Way bass reflex speaker
- Low impedance (8Ω) or high impedance (100V) selectable by rotary switch
- Splashproof construction in compliance with IPX4

Model	BS-1030B/BS-1030W
Rated Input (100V line)	30W
Rated Impedance	100V line: 30W, 20W, 15W, 10W, 5W 70V line: 29W, 20W, 15W, 10W, 5W
Sensitivity (1W, 1m)	90dB
Frequency Response	80Hz - 20kHz
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
Weight	2.5kg

›› Wall Mount Bracket

SP-410

BS-633A

BS-633AT

- Compact and unobtrusive design
- Quick and easy installation
- High cost-effectiveness
- A push-type input terminal allows easy cable connections and bridge wiring
- Ideally suited for BGM and announcements

Model	BS-633A	BS-633AT
Rated Input (100V line)	6W	
Rated Impedance	100V line: 6W, 3W, 1W 70V line: 3W, 1.5W, 0.5W	100V line: 6W, 3W 70V line: 3W, 3W
Sensitivity (1W, 1m)	91dB	
Frequency Response	120Hz - 15kHz	
Speaker Component	12cm cone type	
Finish	Enclosure: ABS resin, off white Grille: ABS resin, off white	
Dimensions	173(W) x 195(H) x 101(D)mm	
Weight	780g	810g

Microphones

Digital Message Repeaters

Beam Steering Microphone

Wireless Systems

Amplifiers

Mixers

Speakers

Security & Safety

Conference Systems

Megaphones

Professional Audio

Technical Column

Column Speakers

>>>TZ Series

- TZ Series Column Speakers are compact speakers ideal for medium sized venues
- Weatherproof versions are available with IP-65 rating
- Focused sound directivity
- Brackets available for flexibility within installations

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

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

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

Model	TZ-206B/W, TZ-406B/W, TZ-606B/W	TZ-206BWP/WWP, TZ-406BWP/WWP, TZ-606BWP/WWP
Enclosure	Sealed type	
Frequency Response	150Hz - 16kHz	150Hz - 13kHz
Speaker Component	10cm cone type x 2	10cm cone type x 2, waterproof
IP Code		IP-65
Finish	Enclosure: HIPS, black with paint/ white Punched Net: Surface treated steel plate, black/white paint Speaker Bracket: Aluminium die-cast, black/white paint Joint/wall bracket: Steel plate, t1.6, black/white paint	Enclosure: HIPS, black with paint/ white Punched Net: Surface treated steel plate, black/white anti-rust paint Speaker Bracket: Aluminium die-cast, black/white paint Joint/wall bracket: Steel plate, t1.6, black/white paint (ED coating)
Input Terminal	Push-in terminal	
Dimensions	TZ-206: 135(W) x 250(H) x 128(D)mm TZ-406: 135(W) x 498(H) x 128(D)mm TZ-606: 135(W) x 746(H) x 128(D)mm	
Option	Speaker Stand: ST-16A	

F Series Wide-dispersion 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
- Low impedance models also available

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

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

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

- LF Driver: 4" cone woofer
- HF Driver: balanced dome tweeter
- Dispersion: 90°H x 90°V

- LF Driver: 5" cone woofer
- HF Driver: 1" dome tweeter
- Dispersion: 110°H x 100°V

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

Model	F-1000B/ F-1000W	F-1000BT/ F-1000WT	F-1000BTWP/ F-1000WTWP	F-1300B/ F-1300W	F-1300BT/ F-1300WT	F-1300BTWP/ F-1300WTWP	F-2000B/ F-2000W	F-2000BT/ F-2000WT	F-2000BTWP/ F-2000WTWP
Rated Input	-	15W		-	30W		-	60W	
Power Handling Capacity	30W (continuous pink noise) 90W (continuous program)	-		30 W (continuous pink noise) 90 W (continuous program)	-		60 W (continuous pink noise) 180W (continuous program)		
Rated Impedance	8Ω	100V line: 15W, 5W, 3W, 1W 70V line: 15W, 7.5W, 2.5W, 1.5W, 0.5W		8Ω	100V line: 30W, 10W, 3W, 1W 70V line: 30W, 15W, 5W, 1.5W, 0.5W		8Ω	100V line: 60W, 30W, 15W, 3W 70V line: 60W, 30W, 15W, 7.5W, 1.5W	
Sensitivity (1W, 1m)	87dB			90dB			92dB		
Frequency Response	85Hz - 20kHz			80Hz - 20kHz			65Hz - 20kHz		
Speaker Component	10cm cone-type,	Balanced dome tweeter		13cm cone type,	2.5cm dome type		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								
Dimensions	130(W) x 202(H) x 131(D)mm			162(W) x 250(H) x 161(D)mm			244(W) x 373(H) x 235(D)mm		
Weight	1.8kg	2kg		3.1kg	3.6kg		6.5kg	7.4kg	

F Series Optional Brackets

>>> 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

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 in to ceilings with a smooth, low-profile design
• Extra ease of use and higher cost-effectiveness with the metal "back can" enclosure for the speaker rear. (F-122C, F-2352C, F-2852C, F-2322C models)

F-2852C

• 2-way speaker for high power applications eg high ceilings (3-6m)
• Diffuser for wide dispersion of high frequencies
• Metal back can

F-2352C

• 2-way speaker for medium ceiling height (2-4m)
• Diffuser for wide dispersion of high frequencies
• Metal back can

F-2352SC

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

F-2322C

• Full range speaker for medium ceiling height (2-4m)
• Metal back can

F-122C

• Equalizing controlled type full range speaker for medium ceiling height (2-4m)
• 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

F-1522SC

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

Model	F-2852C	F-2322C	F-2352C	F-122C	F-2352SC	F-1522SC
Rated Input	60W	30W			6W	
Rated Impedance	100V line: 60W, 30W 15W, 3W 70V line: 60W, 30W 15W, 7.5W 1.5W 25V line: 7.5W, 3.7W, 1.9W, 0.9W, 0.2W	100V line: 30W, 10W, 3W, 1W 70V Line: 30W, 15W, 5W, 1.5W, 0.5W 25V line: 3.7 W, 1.9W, 0.6W, 0.2W, 0.06W			100V line: 6W, 3W 1W, 0.5W 75V line: 6W, 3W, 1.5W, 0.5W 0.25W 25V line: 0.75W, 0.4W, 0.2W, 0.06W, 0.03W	100V line: 6W, 3W 70V line: 6W, 3W, 1.5W 25V line: 0.75W, 0.4W, 0.2W
Rated impedance Low (Adjustable):	16Ω, 8Ω					
Sensitivity (1W, 1m)	91dB	90dB			89dB	88dB
Frequency Response	80Hz - 20kHz	70Hz - 20kHz		40Hz - 20kHz	80Hz - 20kHz	65Hz - 18kHz
Mounting Hole Diameter	ø250mm	ø200mm				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 fibre, black	
Dimensions	ø280 x 227(D)mm	ø230 x 200(D)mm	ø230 x 229(D)mm		ø230 x 154(D)mm	ø155 x 117(D)mm
Weight	5.1kg	3.7kg			1.5kg	1kg

>>> Back Can
HY-BC1

>>> Tile Bar Bridge
HY-TB1

>>> Anchor Hanging Bracket
HY-AH1

>>> Trim Ring
HY-TR1

>>> Reinforcement Ring
HY-RR1
For F-1522SC

>>> Reinforcement Ring
HY-RR2

Microphones

Digital Message Repeaters

Beam Steering Microphone

Wireless Systems

Amplifiers

Mixers

Speakers

Security & Safety

Conference Systems

Megaphones

Professional Audio

Technical Column

Interior Design Speakers

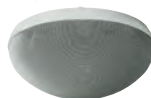>>> 2-Way Flush Mount
Speaker System

H-1

>>> 2-Way Surface Mount
Speaker System

H-2
H-2WP

>>> 2-Way Wall Mount
Speaker System

H-3
H-3WP

- 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)

Model	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	100V line: 12W, 6W, 3W 70V line: 12W, 6W, 3W			100V line: 15W, 7W, 7.6W 70V line: 29W, 15W, 7W, 3.8W	
Sensitivity (1W, 1m)	85dB	88dB			
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	ø268 x 111(H)mm		295(W) x 318(H) x 129(D)mm	
Weight	1.5kg	2.1kg		3.3kg	
Dust/water protection	—	—	IPX4	—	IPX4

>>> Wall/ Ceiling Mount Subwoofer System

HB-1

- High-power 8" woofer with 110mm ferrite magnet and aluminium bobbin
- Acoustic super-woofer with acoustical bandpass filtering 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 centres
- TOA designed brackets allow simplified "blind" flush mounting in wall or ceiling

Model	HB-1
Power Handling Capacity	240W (continuous program)
Rated Impedance	8Ω
Sensitivity (1W, 1m)	91dB
Frequency Response	45Hz - 200Hz
Speaker Component	20cm cone speaker
Finish	Enclosure: Steel plating, 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
Weight	11kg

Garden Speaker

GS-302

- Stylish, attractively designed outdoor speaker
- Blends well in to the surroundings of various locations
- Highly reliable performance
- Splashproof construction: meets IPX4 requirements

Model	GS-302
Rated Input (100V line)	30W
Rated Impedance	100V line: 30W, 15W, 10W, 5W, 3W 70V line: 15W, 7W, 5W, 2.5W, 1.5W
Sensitivity (1W, 1m)	87dB
Frequency Response	100Hz - 8kHz
Speaker Component	12cm splash proof type cone
Finish	Top cover and base: FRP resin, dark grey Speaker panel: ABS resin, dark grey Legs: Aluminium, dark grey
Dimension	ø270 x 335(H)mm
Weight	2.4kg
Dust/Water Protection	Equivalent to IPX4

Pendant/Projection Speakers

>>> Pendant Speaker
PE-64
PE-304

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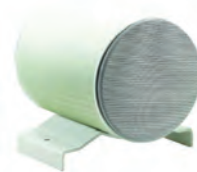- Ideally suited for BGM and announcements

>>> Projection Speaker
PJ-64
PJ-304

- 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

>>> Bidirectional Sound Projector Speaker
PJ-202DL-EB

- For indoor and outdoor applications
- 2 x 5" cone speaker + HC
- Ceramic Screw Terminal
- Rugged bracket included
- Water proof according IP 44
- Extreme wide temperature range: -25°C to +70°C
- EN 54-24 certified +BS 5839 Part 8

Model	PE-64	PE-304	PJ-64	PJ-304	PJ-202DL-EB
Rated Input (100V line)	6W	30W	6W	30W	20W (20W-10W-5W)
Rated Impedance	100V line: 6W, 3W, 1W 70V line: 3W, 1.5W, 0.5W	100V line: 30W, 20W, 15W, 10W, 5W 70V line: 29W, 20W, 15W, 10W, 5W	100V line: 6W, 3W, 1W 70V line: 3W, 1.5W, 0.5W	100V line: 30W, 20W, 15W, 10W, 5W 70V line: 29W, 20W, 15W, 10W, 5W	20W, 10W, 5W
Sensitivity (1W, 1m)	90dB	91dB	90dB	91dB	89dB
Frequency Response	100Hz - 18kHz	70Hz - 20kHz	100Hz - 18kHz	70Hz - 20kHz	120Hz - 20kHz
Speaker Component	12cm cone type	12cm cone type + balanced dome tweeter	12cm cone type	12cm cone type + balanced dome tweeter	2 coated cone speakers (12cm) with mylar dome
Finish	Enclosure: HIPS resin, off white Grille: Surface treated steel plate net, off white				Aluminium Alloy, White
Dimensions	ø186 x 251(H)mm (unit only)		Ø186 x 369(H)mm		ø146 x 186(D)mm
Weight	1.5kg	2.1kg	1.5kg	2.1kg	3.3kg

>>> Pendant Speaker
PE-304/604/BU/WU

- Remarkably lightweight with stylish design inspired by modern lighting fixtures
- 8Ω and 25V/70V/100V operation
- Input impedance is easily changed with a rotary switch on the top of the speaker
- With speaker cable, GRIPPLE® hanging wire & safety wire pre-attached, for faster, easier and more secure installation
- Certified to UL 1480 UUMW and ULC-S541 standards.

Model	PE-304BU/304WU	PE-604BU/604WU
Rated Input (100V line)	30W (100V, 70V line, 8Ω), 3.7W (25V line)	60W (100V, 70V line, 8Ω), 7.5W (25V line)
Rated Impedance	100V line: 30W, 10W, 3W, 1.3W	100V line: 60W, 30W, 15W, 3W
Sensitivity (1W, 1m)	90dB (330Hz - 3.3kHz, pink noise)	
Frequency Response	95Hz - 20kHz (-10dB)	110Hz - 20kHz (-10dB)
Speaker Component	12cm cone type + balanced dome tweeter (coaxial)	
Finish	Enclosure: HIPS resin	
Dimensions	ø186 x 275(H)mm (not including wires and cable)	
Weight	2kg (not inc. wires and cables)	2.9kg (not inc. wires and cables)

Compact Satellite Speaker System

>>> Compact Satellite Speaker System
## BS-301B
BS-301W

- Consists of a set of 4 satellite speakers and a subwoofer, which are individually fitted with their own mounting brackets
- The mounting brackets fitted onto the satellite speakers can be for 1 speaker or 2 speaker installation
- Compact and highly efficient in performance

Model	BS-301B/BS-301W
Power Handling Capacity	Continuous program: 160W x 2 channels/ Continuous pink noise: 80W x 2 channels
Sensitivity	81dB (1W, 1m) x 2 channels
Frequency Response	40Hz - 20kHz x 2 channels
Weight	13.9kg (excluding mounting bracket)
Subwoofer	Speaker component: 16cm cone type x 2 channels/ Finish: Front panel ABS resin, enclosure wood, Speaker bracket: steel plate 210(W) x 97.5(H) x 100(D)mm 11.5kg excluding mounting bracket
Satellite Speaker	8cm cone type Finish: Enclosure, Front-panel HIPS resin, speaker bracket; steel plate 92(W) x 97.5(H) x 100(D)mm Weight 600g excluding mounting bracket
Product Composition	Subwoofer x 1, satellite speaker x 4
Accessory	Subwoofer mounting bracket (black or white) x 4, Rubber foot and fixing screw for subwoofer x 4, Subwoofer mounting screw x 1 set, Satellite speaker mounting bracket (black or white) x 6, Satellite speaker mounting screw and plain washer and spring washer x 1 set, Sticker for satellite speaker (black or white) x 8

Microphones
Digital Message Repeaters
Beam Steering Microphone
Wireless Systems
Amplifiers
Mixers
Speakers
Security & Safety
Conference Systems
Megaphones
Professional Audio
Tactical Column

Long Range Horn Array Speaker

HA-1010Q

- Long-range sound coverage two times further than conventional horn speakers
- Better speech intelligibility thanks to horn array technology
- Compact and lightweight design
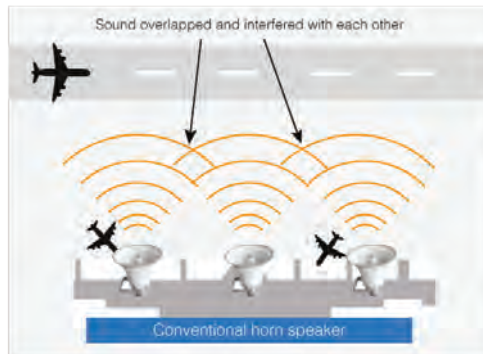
Model	HA-1010
Power Handling Capacity	60W
SPL (1W, 1m)	114dB
Frequency Response	350Hz - 7kHz
Directivity Angle	Horizontal: 90° (2kHz) Vertical: 15° (2kHz)
Speaker Unit	Horn speakers unit x 8
Water Protection	IP66
Dimensions	167 x 1233 x 140.5mm
Weight	13.5kg

Sound overlapped and interfered with each other

Conventional horn speaker

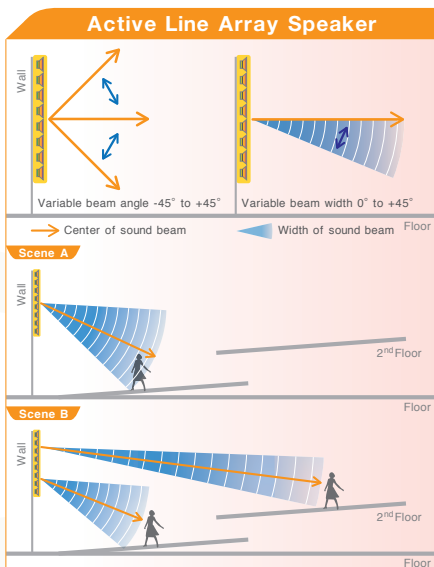High intelligibility up to 600 m thanks to array technology

Horn array speaker

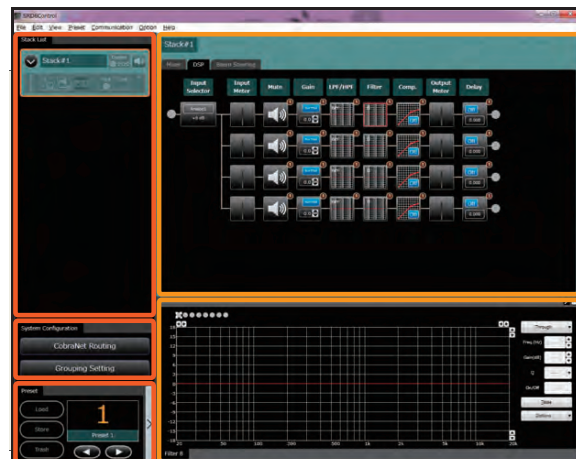# Steerable Active Line Array Speaker

SR-D8

- A total of 16 speakers (in up to 4 stacks) can be controlled as a single unit via GUI-operated software
- The GUI software provides control of all functions, including mixing, digital signal processing and simulations
- The speaker comes with a wealth of DSP functions, and a notch filter
- Equipped with two analog audio input terminals and four digital audio input terminals for CobraNet connection, the speaker supports 6 x 2 matrix mixing. Using the Auto-mix function - which can be set for each input - enables users to prioritize selected inputs for broadcasting.
- Coverage: Horizontal -90°, Vertical Beam Width - 45°, Vertical Beam Angle - ±45° (Adjustable via dedicated GUI software)

Model	SR-D8
Power Source	220 - 240V AC, 50/60Hz
Power Consumption	320W (rated output), 72W (based on EN standards)
Frequency Response	140Hz - 20kHz
S/N Ratio	90dB or more (A-weighted)
Amplification System	Class D, 8 channels
Output	30W, 1 channel (1% THD+N)
Max SPL	Max. 93dB SPL (A-weighted, pink noise, 30m)
Finish	Enclosure: MDF, white, paint Front grille: Punched steel plate, white, acrylic paint
Dimensions	160(W) x 895(H) x 255(D)mm
Weight	2kg
Accessories	Power supply cord (2m) x 1, Removable terminal plug (3 pins) x 2 Removable terminal plug (2 pins) x 2 Ferrite clamp x 1 CD-ROM (setting software) x 1

Active Line Array Speaker

Variable beam angle -45° to +45°   Variable beam width 0° to +45°

→ Center of sound beam   Width of sound beam

Scene A

2nd Floor

Scene B

2nd Floor

Main screen of the GUI control software

Line Array Speaker Type H & Type S

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

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

Model	SR-H2L	SR-H2S	SR-H3L	SR-H3S
Power Handling Capacity	Continuous program: 180W		Continuous program: 360W	
Rated Impedance	8Ω			
Sensitivity (1W, 1m)	92dB		95dB	92dB
Frequency Response	80Hz - 18kHz	90Hz - 17kHz	110Hz - 18kHz	90Hz - 17kHz
Speaker Component	7cm cone type x 9		7cm cone type x 16	
Directivity Angle	Horizontal: 90°/Vertical: 0°			Horizontal: 90°/ Vertical: 20°
Finish Enclosure: Front Grille:	MDF, white, paint Punched Steel Plate, white, acrylic paint			
Dimensions	84(W) x 668.4(H) x 115(D)mm	84(W) x 663.4(H) x 115(D)mm	84(W) x 1186(H) x 115(D)mm	84(W) x 1177.2(H) x 157(D)mm
Weight	4.4kg	4.2kg	7.6kg	7.9kg

SR-S4L
SR-S4LWP

SR-S4S
SR-S4SWP

- 2-way line array speaker with 8 10cm (4") woofers and 24 high-frequency drivers, installed vertically
- Sync-Drive (Synchronous Nexus Control) technology creates ideal linear sound source
- Clear sound with reduced attenuation over distance
- Speakers are reflection-free and feedback resistant
- 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

Model	SR-S4L	SR-S4LWP	SR-S4S	SR-S4SWP
Power Handling Capacity	Continuous program: 600W			
Rated Impedance	8Ω			
Sensitivity (1W, 1m)	94dB		93dB	
Frequency Response	70Hz - 20kHz			
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: Front Grille:	MDF, white, paint Punched Steel Plate, white, acrylic paint	Plywood, white, urethane coating Punched stainless steel (SUS304), white paint	MDF, white, paint Punched Steel Plate, white, acrylic paint	Plywood, white, urethane coating Punched stainless steel (SUS304), white paint
Dimensions	160(W) x 895(H) x 255(D)mm		160(W) x 892(H) x 303(D)mm	
Weight	16kg			
Dust/Water Protection	—	IPX4	—	IPX4

Optional Accessories Line Array Speaker Type H and S

>>> Extension Plate
SR-EP4

>>> Wall Tilt Bracket
SR-TB4

>>> Wall Mounting Bracket
SR-WB4

>>> Stand Adapter
SR-SA4

>>> Protection Pad
SR-PP4

>>> Extension Plate
SR-EP4WP

>>> Wall Tilt Bracket
SR-TB4WP

>>> Wall Mounting Bracket
SR-WB4WP

>>> Flying Bracket
SR-FB4

>>> Floor Stand
SR-FS4

>>> Matching Transformer
MT-S0601

>>> Wall Mounting Bracket
SR-WB3

>>> Wall Tilt Bracket
SR-TB3

>>> Flying Bracket
SR-FB3

>>> Extension Plate
SR-EP3
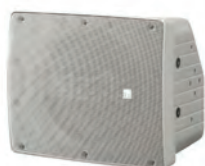
>>> Stand Adapter
SR-SA3

>>> Matching Transformer
MT-S0301

Coaxial Array Speakers

HS-120B
HS-120W

HS-1200BT
HS-1200WT

HS-150B
HS-150W

HS-1500BT
HS-1500WT

- For mobile or fixed installation e.g. in clubs, banquet rooms or schools, etc
- 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
- A model with a built-in matching transformer, for use in high-impedance applications
- A wide variety of optional mounting bracket is available

Model	HS-120B/HS-120W	HS-1200BT/HS-1200WT	HS-150B/HS-150W	HS-1500BT/HS-1500WT
Power Handling Capacity	Continuous program:300W	Continuous program:300W (low impedance)	Continuous program:300W	Continuous program:300W (low impedance)
Sensitivity (1W,1m)	97dB		98dB	
Rated Impedance	8Ω	100V line: 60W, 30W, 15W 70V line: 60W, 29W, 15W	8Ω	100V line: 60W, 30W, 15W 70V line: 60W, 29W, 15W, 7W
Frequency Response	80Hz - 20kHz	70Hz - 20kHz		60Hz - 20kHz
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		451(W) x 560(H) x 400(D)mm	
Weight	8.5kg	10kg	12kg	14kg

Optional Brackets

Microphones
Digital Message Repeaters
Beam Steering Microphone
Wireless Systems
Amplifiers
Mixers
Speakers
Security & Safety
Conference Systems
Megaphones
Professional Audio
Tactical Column

>>> For wall/ceiling
HY-1200HB

>>> For wall/ceiling
HY-1200HW

>>> For wall/ceiling
HY-1200VB

>>> For wall/ceiling
HY-1200VW

>>> For wall/ceiling
HY-1500HB

>>> For wall/ceiling
HY-1500HW

>>> For wall/ceiling
HY-1500VB

>>> For wall/ceiling
HY-1500VW

>>> For ceiling
HY-CO801*

>>> For ceiling
HY-C0801W*

>>> For wall
HY-W0801*

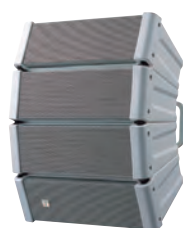>>> For wall
HY-W0801W*

*In combination with HY-1200/HY-1500 series brackets

Compact 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 brackets are available

Model	HX-5B/HX-5W	HX-5B-WP/HX-5W-WP
Power Handling Capacity	Continuous program: 600W	
Rated Impedance	8Ω	
Sensitivity (1W,1m)	96dB (60° mode), 98dB (30° mode), 99dB (15° mode)	
Frequency Response	70Hz - 20kHz (60° mode)	95Hz - 20kHz (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	
Weight	16kg	
Dust/Water Protection	—	IPX4

Variable Dispersion Line Array

HX-7B
HX-7B-WP

HX-7W
HX-7W-WP

- Speaker design consists of four integrated modules that can be adjusted individually to optimise the vertical dispersion angle
- Adjustable dispersion angle to 60, 45, 30, 15 or 0 degrees
- Built-in isophasic wavefront control horn with compression driver ensures precise HF control and superior reproduction of HF sounds
- Power handling: 750 W Continuous Program at 8 ohms
- Splashproof versions (HX-7B-WP/HX-7W-WP)
- A wide variety of optional mounting brackets are available

Model	HX-7B/HX-7W	HX-7B-WP/HX-7W-WP
Power Handling Capacity	Continuous program: 750W	
Rated Impedance	8Ω	
Sensitivity (1W,1m)	100dB (1W, 1m)	
Frequency Response	75Hz - 20kHz	105Hz - 20kHz
Speaker Component	Low frequency: 13cm cone-type x 8 High frequency: Wave front control horn with compression driver x 4	
Directivity Angle	Horizontal: 100° Vertical: 45°,30°,15°, 0° variable, 60° with optional bracket	
Finish	Enclosure: Polypropylene, black or white, Punched net: Surface treated steel plate, black or white, Hanging bracket: Steel plate, t3.0, black or white, paint WP version: rust proof coating	
Dimensions	497(W) x 664(H) x 274(D)mm	
Weight	30kg	

Subwoofers

FB-120B

FB-120W

FB-150B

FB-150W

Model	FB-120B/FB-120W	FB-150B/FB-150W
Power Handling Capacity	Continuous program: 600W	Continuous program: 600W
Rated Impedance	8Ω	
Sensitivity (1W,1m)	90dB	93dB
Frequency Response	40Hz - 1.2kHz	40 - 400Hz
Speaker Component	30cm cone-type	38cm cone-type
Finish	Enclosure: Plywood, black or white, paint Steel plate: black or white, paint	Enclosure: MDF black or white, urethane paint Punched net: surface treated steel plate, black or white paint
Dimensions	408(W) x 408(H) x 450(D)mm	505(W) x 528(H) x 477(D)mm
Weight	15kg	30kg

• Compact subwoofer
• Extremely wide frequency range
• For floor, wall, corner, or ceiling-mount
• 600W continuous program high-power subwoofer system

HX-5 Series Optional Accessories

>>> Rigging Frame
HY-PF1B

>>> Ceiling Mount Bracket
HY-CW1B

>>> Mount Bracket
HY-WM1B

>>> Mount Bracket
HY-WM2B

>>> Extension Bracket
HY-CN1B
HY-CN1B-WP

>>> Rigging Frame
HY-PF1W
HY-PF1WP

>>> Ceiling Mount Bracket
HY-CW1W
HY-CW1WP

>>> Mount Bracket
HY-WM1W
HY-WM1WP

>>> Mount Bracket
HY-WM2W
HY-WM2WP

>>> Extension Bracket
HY-CN1W
HY-CN1W-WP

>>> Speaker Stand Adapter
HY-ST1

>>> Matching Transformer
MT-200

HX-7 Series Optional Accessories

>>> Rigging Frame
HY-PF7B

>>> Speaker Connection Bracket
HY-CN7B
HY-CN7B-WP

>>> Angle Adjustment Bar
HY-60DB
HY-60DB-WP

>>> Rigging Bracket
HY-VM7B
HY-TM7B-WP

>>> Wall Mounting Bracket
HY-WM7B
HY-WM7W

>>> Rigging Frame
HY-PF7W

>>> Speaker Connection Bracket
HY-CN7W
HY-CN7W-WP

>>> Angle Adjustment Bar
HY-60DW
HY-60DW-WP

>>> Rigging Bracket
HY-VM7W
HY-VM7W-WP

>>> Wall Mounting Bracket
HY-MS7B-WP
HY-MS7W-WP

>>> Speaker Stand Adapter
HY-ST7

>>> Matching Transformer
MT-200

>>> Matching Transformer Adapter
HY-MT7

Microphones

Digital Message Repeaters

Beam Steering Microphone

Wireless Systems

Amplifiers

Mixers

Speakers

Security & Safety

Conference Systems

Megaphones

Professional Audio

Technical Column

Security & Safety

Integrated Voice Evacuation Systems

The TOA voice evacuation product line-up includes management system, amplification, DSP, matrix, speakers.
In-fact we can offer the complete system from small to large, all complying to EN54.

EN 54

VX-3000 Series

TOA's VX-3000 Series is a combined highly integrated voice alarm and public address system. The VX-3000 Series is a reliable and energy saving voice alarm system that combines all the important functions for PA and VA in one unit frame. This system saves space and can be configured rapidly thanks to the limited number of components needed.

- Compact: All functions, inputs and outputs are all in one unit
- Cost effective: Easy system configuration thanks to the small number of system components
- Flexible: Broadcast many different audio signals simultaneously, flexible speaker driving with up to 64 zones per amplifier
- Scalable: Up to 256 remote microphones
- Energy Saving: Standby function for low power consumption during battery backup reduces the required battery capacity
- Decentralized: IP Network based
- Advanced Ambient Noise Control (ANC)(Q4)
- Master-less system providing high security if one line fails

⟫⟫ Frames
VX-3004F, VX-3008F, VX-3016F

- VX-3004F - Up to 4 amps (1-zone - 1 amp, 4 AB-zones or 3 AB-zones + standby amp)
- VX-3008F - Up to 3 amps (8 zones switching between 2 amps + standby amp or 8 zones freely assignable to 1 or 2 amps)
- VX-3016F - Up to 2 amps (16 switched zones + standby amp or 2 x 8 switched zones)
- EN54-16 certified
- Status indication for each speaker line
- Fault acknowledge and lap test button
- Input DSP: flexible filtertypes and compressor
- Output DSP: Flexible filtertypes, compressor and delay up to 2.7 sec.

Model	VX-3004F	VX-3008F	VX-3016F
Power Source	31VDC (Operating range: 20-40VDC)		
Speaker Output	4 AB Zones	8	16
Power Amplifier	4	3	2
Audio Input	4(Line: -20dBV, phantom power selectable)		
RM Link	2 (Max. 8 RM)		
LAN	2		
Control Input	16+2 (FDS)		
Control Output	8+3 (CPU OFF)		
ATT Control Output	8	8	16
Finish	Panel: Surface treated steel plate, black, 30% gloss, paint		

⟫⟫ Amplifiers
VX-015DA, VX-030DA, VX-050DA

- Low loss modular class D amplifiers
- Modules to be mounted in the frame units
- Three different power levels: 150W, 300W, 500W
- Can easily be removed and replaced simply by unplugging
  them; no need for specialist tools
- Dust filter, easy to clean
- 100V output with transformer resulting in lightweight units
- Fuse easily accessible from the rear

Model	VX-015DA	VX-030DA	VX-050DA
Power Source	31VDC (Operating range: 20-40VDC)		
Amplification System	Class D		
Rated Output Power	150 W at 100 V line	300 W at 100 V line	500 W at 100 V line
Supported Loads	50V / 70V / 100V		
Frequency Response	40Hz - 16kHz ± 3 dB		
Distortion	1% or less (at 100 V line, A-weighted)		
Finish	Surface-treated steel plate		

⟫⟫ Emergency Remote Microphone
RM-200SF

- Exclusively for emergency broadcasts made by fire officer to evacuate
- For activation of emergency mode, start and stop automatic emergency broadcast announcements, reset emergency signals and live microphone announcements
- CPU-switch for emergency broadcast to all zones
- No general broadcasts can be made
- Optional RM-320F available to increase number of function keys by 20

Model	RM-200SF
Power Requirement	24 VDC (Operating range: 15 - 40 VDC)
Distortion	Under 1%
Frequency Response	200Hz - 15kHz
Signal to Noise Ratio	Over 55dB
Audio Output	0 dBV, 600 Ohm, balanced
Microphone	Unidirectional dynamic microphone AGC
Volume Control	Microphone, speaker
Operation Key	Emergency Key, CPU switch, Reset switch, 3 function keys
Finish	ABS resin, bluish grey (PANTONE 538 or its equivalent)
Dimensions	200(W) x 215(H) x 95(D) mm
Weight	1.48 kg

>>> Remote Microphone
RM-300X

- For both emergency and general purpose broadcast
- Zone selection and all call
- PC-programmable system software permits desired functions to be assigned to individual function keys (equipped with 2 LED indicators)
- Optional RM-210F available to increase number of function keys by 10

Model	RM-300X
Power Source	24 VDC (Operating range: 15 - 40 VDC) supplied from the audio input unit or DC input power supply connector (when the optional AD-246 power supply unit is used)
Current Consumption	Under 240mA
Audio Output	0 dBV, 600 ohm, balanced
External Microphone Input	-40 dB, 2.2kΩ, unbalanced, mini jack, phantom powering
Frequency Response	100Hz - 20 kHz
Distortion	Under 1%
Signal to Noise Ratio	Over 60 dB
Volume Control	Microphone volume control, Monitor speaker volume control
Connectable Extensions	7
Maximum Cable Distance	1200 m
Finish	ABS, resin, black
Dimensions	190(W) x 76.5(H) x 215(D) mm (gooseneck microphone exluded)
Weight	850 g

>>> Power Supply
VX-3000DS

- Supplies DC power to all system components
- Combines two built-in power source units with a high-performance charger
- If the AC power supply is down, the VX-3000DS switches automatically to auxiliary battery power
- EN 54-4 certified, Certificate No: 1134-CPR-137

VX-3150DS-EB

- Total wattage of the VX-3150DS-EB is half the wattage of the VX-3000DS
- Can be used with SX-2000, VX-2000 and VM-3000 Series' as well as VX-3000 Series
- EN 54-4 and EN 54-16 Certified

Model	VX-3000DS	VX-3150DS-EB
Power Source	220-230V AC, 50/60Hz	
Power Consumption	2800W max. in total (at rated output with charging)	1460W max. in total (at rated output with charging)
DC Power Output (AC mode)	Rated output: 2300W (31 V, 72.5A, total DC power output), Peak output: 2780W (29V, total DC power output)	Rated output: 1140W total DC power output, Peak output: 1280W total DC power output
DC Power Output	8 x 31V (19-33V) 25A max. each, M4 screw terminal, distance between barriers: 11mm 3 x 31V (19-33V) 5A max. each, removable terminal block (3 x 2 pins) 1 x 24V (16-25V) 0.3A max., removable terminal block (1 x 2 pins)	
Charging Method	Temperature compensated trickle charging	
Charging Output Voltage	27.3V ±0.3V (at 25°C), Temperature correction coefficient: -40mV/°C	
Battery Connection	One each positive and negative terminal, applicable cable diameter: AWG 6-AWG 0 (AWG 1/0) (16mm²-50mm²) Line resistance within 4mΩ/total)	
Control Connector DS LINK IN/OUT	RJ45 female connector for connecting the system and cascade connection Shielded Twisted-pair straight cable (TIA/EIA-568A standard) Type of control signal: Battery check, AC power status, DC power status, charging circuit failure, battery failure, and communication	
Panel Indicator	AC power IN 1, IN 2 (Green), Charging (Green), Battery power (Green), Battery connect (Green), Battery condition (Green)	
Dimensions	482(W) x 132.6(H) x 400.5(D) mm	
Weight	11.8kg	9kg
Finish	Panel: Surface-treated steel plate, black, 30% gloss, paint	

VX-3000 Series Wall Mount System

Comprising a fully assembled VX-3008F with 2x VX-030DA and a VX-3150DS, the VX-3308WM is a convenient solution for a wall mounted voice alarm and public address system that is ready to go out of the box. With all of the same great features and technology, the VX-3308WM can be flawlessly integrated with any other aspect of the VX-3000 Series. The VX-3065BB is an optional unit that can be connected to the VX-3308WM and has been designed and engineered to house a pair of 12V 65AH batteries: this allows the system to run on a DC battery pack in the event of an AC mains failure.

>>> Voice Alarm & Public Address System
VX-3308WM

>>> Battery Box
VX-3065BB

Microphones
Digital Message Repeaters
Beam Steering Microphone
Wireless Systems
Amplifiers
Mixers
Speakers
Security & Safety
Conference Systems
Megaphones
Professional Audio
Tactical Column

VM-3000 Series

TOA's VM-3000 Series is a combined emergency voice alarm and public address system. The VM-3000 Series is a highly reliable and versatile system and was the first voice evacuation system to be certified with EN 54-16. The system is digitally audio processed and controlled, with fully digital audio mixing and a built in high quality electronic voice message feature.

- 6-60 assignable speaker zones
- 240 - 3600 watt integrated system management amplifier
- Maximum 8 remote microphones - 4 general and 4 emergency
- 2 selectable BGM audio inputs
- 8 priority levels
- 1000 system events can be logged
- 6 high quality electronic voice messages
- LCD display of current status and configuration settings
- Built in emergency microphone
- Simultaneous broadcast of 2 emergency messages
- Remote maintenance via LAN

⟫⟫ System Management Amplifiers
VM-3240VA, VM-3360VA

- 1 unit per system
- VM-3240VA - 240 watt power output
- VM-3360VA - 360 watt power output
- 6 recorded general announcements and 2 recorded emergency announcements
- Maximum 8 remote microphones - up to 4 emergency remote microphones
- 6 zones selectable from front panel
- Built in high quality electronic voice message

Model	VM-3240VA	VM-3360VA
Power Source	AC mains, 50/60 Hz DC: 24 V DC	
Power Consumption	600W	850W
Rated Output	240W	360W
Frequency Response	50 Hz - 20 kHz, ±3dB (at 1/3 rated output)	
Distortion	Under 0.8% (at rated output, 1kHz)	
Signal to Noise Ratio	Over 85dB	
Audio Input/Output Characteristic	Sampling frequency: 48kHz A/D D/A CONVERTER: 24bit	
Input	Input 1-3: -50dB (MIC)/-10dB (LINE) (changeable) 600Ω, electronically balanced combined XLR connector (female)/phone jack Input 4: -50dB (MIC)/-10 dB (LINE) (changeable) 600Ω, electronically balanced plug in screw connector BGM 1 – 2 : -10 dB, 10kΩ RCA pin jack External AMP Input: 100V Line plug in screw connector	
Output	Speaker output 1 – 2 : max (240w) per output Speaker output 3 – 6 : max (120w) per output Total with in 240W Plug-in screw connector Direct output : Direct output from internal or external amplifier Plug-in screw connector Recording output BGM / Paging : 0dB, 10kΩ, RCA pin jack	Speaker output 1 – 2 : max (360w) per output Speaker output 3 – 6 : max (120w) per output Total with in 360W Plug-in screw connector Direct output : Direct output from internal or external amplifier Plug-in screw connector Recording output BGM / Paging : 0dB, 10kΩ, RCA pin jack
Dimensions	482(W) x 132.6(H) x 460(D) mm	
Weight	16.5kg	19kg

⟫⟫ Extension Amplifiers
VM-3240E, VM-3360E

- System management amplifier can be expanded by connecting up to 9 extension amplifiers
- 6 speaker line outputs
- 8 control inputs and 8 control outputs for general purpose
- 6 control inputs for emergency purpose and 3 control outputs for status information
- Connection to system management amplifier via VM Link

Model	VM-3240A	VM-3360A
Power Source	AC Mains, 50/60 Hz DC: 24 V DC	
Power Consumption	600W	850W
Rated Output	240W	360W
Frequency Response	50 Hz - 20kHz, ±3dB (at 1/3 rated output)	
Distortion	Under 0.8% (at rated output, 1kHz)	
Signal to Noise Ratio	Over 85dB	
Input	External Amp Input: 100 V LINE plug in screw connector	
Audio Input	-50dB (MIC)/ -10dB (LINE) (changeable) 600Ω, electronically balanced plug in screw connector	
Output	Speaker output 1-2: max (240w) per output Speaker output 3-6: max (120w) per output Total 240W Direct Output: Direct output from internal or external amplifier	Speaker output 1-2: max (360w) per output Speaker output 3-6: max (120w) per output Total 360W Direct Output: Direct output from internal or external amplifier
Dimensions	482 (W) x 132.6 (H) x 460 (D) mm	

Microphones
Digital Message Repeaters
Beam Steering Microphone
Wireless Systems
Amplifiers
Mixers
Speakers
Security & Safety
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Megaphones
Professional Audio
Technical Column

>>> Emergency Power Supply

VX-2000DS

- Supplies DC power to all systems in the VX-2000 Series
- Ambient temperature controlled charging voltage
- Automatically switch-over in case of AC mains failure
- Keeps the batteries charged

Model	VX-2000DS
Power Requirement	230V AC, 50/60Hz
Power Consumption	240W max.
Charging Method	Trickle Charging
Charging Current	5A max
Charging Output Voltage	27.3V ±0.3V (at 25°C) Temperature correction coefficient: -40mV/°C
Power Supply Input	6 M4 screw terminal, distance between barriers: 11mm
Operating Temperature	0°C to +40°C
Finish	Panel: Surface treated steel plate, black, 30% gloss, paint
Dimensions	482 (W) x 88.4 (H) x 377.6 (D) mm
Weight	10.5kg

Model	VX-200PS
Power Requirement	230V AC, 50/60Hz
Power Consumption	580W PS OUT Rated output: 210W x 2 Peak Output: 400W x 2
Finish	Surface treated steel plate
Dimensions	135(W) x 118.2(H) x 333.8(D) mm
Weight	13.2kg

>>> Power Supply Unit

VX-200PS

- Supplies power to the VP system amplifiers

>>> Emergency Remote Microphone

RM-300MF

- Exclusively for broadcasts made by firemen in emergency situations
- For activation of emergency mode, start and stop automatic broadcasts of emergency announcements, reset emergency signals and live microphone announcements
- CPU-switch for emergency broadcast to all zones even in case of a CPU error
- Up to 3 RM-320F extension units can be connected to the emergency microphone
- 20 function buttons per extension unit
- System software allows assigning of functions to the individual keys

Model	RM-300MF
Power Source	24V DC
Current Consumption	Under 240 mA
Frequency Response	150Hz - 16kHz (at rated output)
Distortion	Under 1%
S/N Ratio	Over 55dB
Microphone	Unidirectional dynamic microphone with talk key, compressor
Finish	ABS resin
Dimensions	200(W) x 215(H) x 95(D) mm

Model	RM-200M
Power Requirement	24V DC
Distortion	Less than 1%
Frequency Response	100Hz - 10kHz
Signal to Noise Ratio	More than 60dB
Audio Output	0dB, 600Ω, balanced
Microphone	Unidirectional electret condenser microphone, gooseneck type
Finish	ABS resin
Dimensions	190(W) x 75.7(H) x 21.5(D) mm

>>> Remote Microphone

RM-200M

- 11 function keys, 10 freely assignable
- Zone, group and all call paging, and activating pre recorded messages
- Extraordinary clarity and freedom from distortion by built-in compression circuit
- Up to 4 RM-200M can be used per system management amplifier
- Up to 800m total cable length
- Extension unit with 10 keys available - RM-210

>>> System Amplifier

VP-2241INCL, VP-2421INCL

- With built in system amplifier input module VP-200VX
- Module for transmission of status and audio signal between amplifier and control module
- VP-2241INCL - 1 x 240w, VP-2421INCL - 1 x 420w

>>> Pilot Tone Detection Module

VM-300SV

- Speaker line failure can be detected with high accuracy
- Module for installation between the speaker line end and the emergency input terminal

IP Network Intercom System

TOA's unique N-8000 IP Intercom System is an integrated audio communication system that employs packet audio technology over the IP network to achieve fast, accurate communications with optimal security and reliability.

Its open architecture permits flexible interfacing with other systems, moreover, reducing costs by enabling users to upgrade and expand their intercom system without replacing currently installed equipment, such as surveillance cameras, telephones and access controls. Since the N-8000 system is not server based, users can use dedicated TOA software to manage settings and centralised control on a PC and to conduct real time monitoring of system operation and line status using an internet browser.

N-8000 Series

IP Network PA System

The IP-3000 System is a fully network compatible audio management system with TOA's original 'Packet Audio' technology.
The IP-3000 series provides stable, accurate and instant audio transmission over the network. Together with the easy installation and simple system composition, the IP-3000 series is suitable for a range of applications including hotels, schools, offices and commercial towers or complexes.

>>> System Manager
IP-3000SM

- Whole PA system control
- Back up function is available if two units of network system manager are set

Model	IP-3000SM
Power Source	100-240 V AV wide range
Maximum No. of Input/Output	1024 x 1024
Bus No.	1024
Priority Control	300 step
Maximum No. of Control Input/Output	4096
Event Log	Max. 1 000 000 log
Emergency Log	Max. 1 000 000 log
Sampling Frequency	48kHz
Frequency Response	20Hz - 20kHz
Network Protocol	TCP/IP
Connector	RJ-45:2 RS-232:1
Operating Temperature	-10°C to +50°C
Colour	Black
Dimensions	427(D) x 366(W) x 89.2(H) mm

>>> Audio Interface Unit
IP-3010AF

- Can implement the IP streaming media transmission of the Analog audio input 4CH, Analog audio output 4CH
- Can implement the signal control of the 16 control input channel/ 16 control output channel

Model	IP-3010AF
Power Source	220V AC 50Hz, 24V DC
Power Consumption	AC: 0.22A or less DC: 1A or less (energy is supplied for removable terminal block 2P)
Control Input	16 channels, no voltage make contact input, open voltage: 24V DC, short circuit current, 5mA or less, removable terminal block (20P)
Control Output	16 channels, relay contact output, withstand voltage: 24V DC, maximum current: 500mA, removable terminal block (32P)
Network Section	Network I/F: 100BASE-T x1 Network Protocol: TCP, UDP Connector: RJ45 connector Voice Sampling Frequency: 48kHz Quantifying Bit No.: 16 bit
Audio Input	4 channel electronically-balanced input, supplier voltage with phantom power: 17V, MIC -60dB/ line 0dB, input impedance 2.2kΩ, removable terminal block 3P x4, (adopter, balanced output can be chosen)
Audio Output	Channel electronically-balanced output, 0B, 10kΩ, removable terminal block (3Px4), (adopter, balanced output can be chosen)
Frequency Response	MIC 100Hz-16kHz±3dB, LINE 20Hz-20kHz±3dB
Switch	Reset switch front DIP switch Back: switch MIC/LINE, switch on phantom power
Indicator	Network LNK/ACT: green x1, Signal: green x4, Peak: red x4 Output: green x4, Power indicator green x1
Volume Control	4 channel input volume knob, black
Finish	Steel plate, black (munsell N1.0 or equivalent colour)
Dimensions	420(D) x 44.3(W) x 360(H) mm
Weight	4.3kg

Microphones

Digital Message Repeaters

Beam Steering Microphone

Wireless Systems

Amplifiers

Mixers

Speakers

Security & Safety

Conference Systems

Megaphones

Professional Audio

Technical Column

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>>> IP Network Remote Microphone

IP-300RM

- The microphone and software interface can choose the broadcasting zone
- Can implement the Analog audio input 1CH, Analog audio output 1CH
- IP streaming media can choose the audio channel as monitor output

Model	IP-300RM
Power Source	220V AC, 50Hz
Power Consumption	130mA or less
Control Input	no-voltage make contact input, no screw terminal plug open voltage: DC24V, shot circuit current: 5mA or less
Network Connection	for 100BASE-T network connection, ethernet RJ45 plug
Audio Input	-20dB, 10kΩ, unbalanced, 3.5mm stereo mini jack
Audio Output	0dB, 600Ω, unbalanced, 3.5mm stereo mini jack
Frequency Response	20Hz - 20kHz (MIC 100Hz-16kHz)
Microphone	Unidirectional Electret Condenser Microphone
Keys	13 zone slection keys, emergency key x1, talk key x1
Indicator	Power indicator: green x1, failure indicator: orange x1 emergency indicator: red x1, selection indicator: green/orange x13
Volume Control	Audio input volume control, studio monitor volume control Audion input volume control, microphone volume control, monitor speaker volume control
Finish	Panel: ABS resin, black Case: steel plate, black (munsell N1.0 or equivalent colour)
Dimensions	190(W) x 113(H) x 216.5(D) mm
Weight	1.5kg

IP Network Audio Adaptors

Model	NX-300
Power Source	External 24 V DC /310 mA power supply, removable terminal block (3 pins) or from an optional AD-246 AC adaptor
Audio Input	2 channel MIC level -60dBV/ LINE level -20dBV MIC/LINE changeable, volume adjustable with volume control LINE: balanced (transformer)/ unbalanced changeable MIC: unbalanced
Audio Output	2 channel (transformer-isolated), balanced
Frequency Response	50Hz - 18kHz (when sampling frequency is 48kHz)
Distortion	Under 0.2% (1kHz, when sampling frequency is 48kHz)
Control Input	8 channels, no-voltage make contact input, open voltage: 12V DC, short-circuit current: under 2mA, (surveillance function 1 channel only)
Control Output	8 channels, open collector output (polarised), withstand voltage: 30V DC, control current: 50mA max., 2 channels relay contact output (withstand voltage: 30 V DC current: 0.5A)
Network I/F	10BASE-T/ 100 BASE-TX, Auto-Negotiation
Operating Temperature	-10°C to +50°C (0°C to +40°C when AC adapter is in use)
Operating Humidity	Under 90% RH (no dew condensation should be produced)
Finish	Steel plate, black, 30% gloss
Dimensions	210(W) x 44.3(H) x 256(D) mm
Weight	2.0kg

NX-300

- Uses an advanced implementation of its Packet Audio streaming technology with 16 bit audio and sample rates up 48kHz
- Dual-channel device capable of one-way stereo signal paths or bi-directional (full-duplex) dual mono signals.
- A built-in WAV-file recorder allows recording and playback of up to eight messages, each up to 2 minutes in length, assignable to any broadcast pattern.
- System can be configured, controlled, and monitored via the supplied GUI software and also via web browser.

NX-100, NX-100S

- Real time transmission of high quality audio via IP networks
- Uses dedicated lines and internet for transmission to remote areas
- Reduces communication costs by allowing the internet to be used

Model	NX-100S	NX-100
Power Source	AC adaptor AD-246 (optional) or equivalent	24V DC (removable terminal block (3 pins)) or AC adaptor AD-246 (optional) or the equivalent
Current Consumption	7W (when AD-246 is used)	200mA (DC operation
Audio Input	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	1 channel (transformer-isolated), -58dB to 0dB, balanced (MIC/LINE changeable, volume adjustable with volume control), 2kΩ, removable terminal block (3 pins)
Audio Output	1 channel (transformer-isolated), balanced, 600Ω, removable terminal block (3 pins)	
Frequency Response	50Hz - 14kHz (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 (polarised), withstand voltage: 30V DC, control current: 50mA max., removable terminal block (9 pins)	
Network I/F	10BASE-T/ 100 BASE-TX, Auto-Negotiation	
Network Protocol	TCP, UDP, ARP, ICMP, HTTP, RTP, IGMP	
Operating Temperature	0°C to +40°C	0°C to +50°C (0°C to +40°C when AC adapter is in use)
Operating Humidity	Under 90% RH (no dew condensation should be produced)	
Finish	Steel plate, black, 30% gloss	
Dimensions	210(W) x 44.7(H) x 188(D) mm	
Weight	1.2kg	

Microphones
Digital Message Repeaters
Beam Steering Microphone
Wireless Systems
Amplifiers
Mixers
Speakers
Security & Safety
Conference Systems
Megaphones
Professional Audio
Technical Column

Conference System

Combined Wired & Wireless Voting Conference System TS-900/910 Series

- For efficient communications in each kind of conference
- Safe and secure infrared wireless technology eliminates radio interference, eavesdropping, or information leakage
- Up to 192 units per system
- Chairman unit features a priority speech key
- Versatile Cat 5 cable connection available for wired units
- Suitable for both permanent or temporary installation

- System can be controlled by external equipment via RS-232C and USB port.
- Can connect a recording device for high-quality audio recording of conferences
- Triple choice vote function
- Built in feedback suppressor for more efficient reduction of acoustic feedback
- Bilingual conference capability
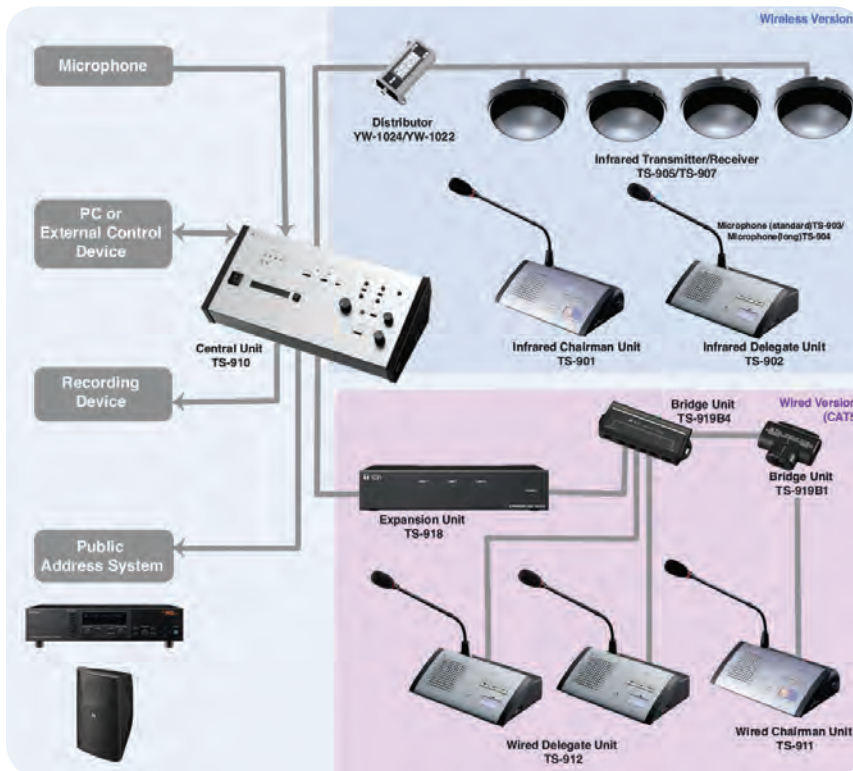
››› Central Unit
TS-910

- Designed for use with a combination of wired and infrared conference units
- The incorporated Feedback Suppressor (FBS) function helps to effectively suppress acoustic feedback
- Up to 192 units per system
- 2 channels of audio signal lines are provided for base language and translation language

››› Chairman Unit
TS-901/911

- 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
- Can be used with either the standard or long type microphone

››› Delegate Unit
TS-902/912

››› Expansion Unit
TS-918

- Connects to the TS-910 Central Unit with a coaxial cable and to the TS-919B1 or TS-919B4 Bridge Unit with a Cat 5 cable
- Necessary interface for incorporating the Wired Conference Units in to the conference system
- Can be mounted in an EIA Standard equipment rack (1 unit size)

››› Bridge Units
TS-919B4

- Bridge Unit for connecting four Wired Conference units of the TS-811, TS-911, TS-812 or TS-912
- Connects to the Conference Unit with a Cat 5 cable

TS-919B1

- Bridge Unit for connecting a single Wired Conference Unit of the TS-811, TS-911, TS-812 or TS-912
- Connects to the Conference Unit via a Cat 5 cable

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Infrared Conference System TS-900 Series

- For efficient communications in each kind of conference
- Safe and secure infrared wireless technology
- Up to 96 active units (TS-900) or 64 active units (TS-800) per system
- Chairman unit features a priority speech key
- Auto Mic-Off function
- System with voting function (TS-900) or standard system (TS-800)
- Compact and lightweight chairman and delegate units
- No cabling makes installation easy
- Speaker restriction function
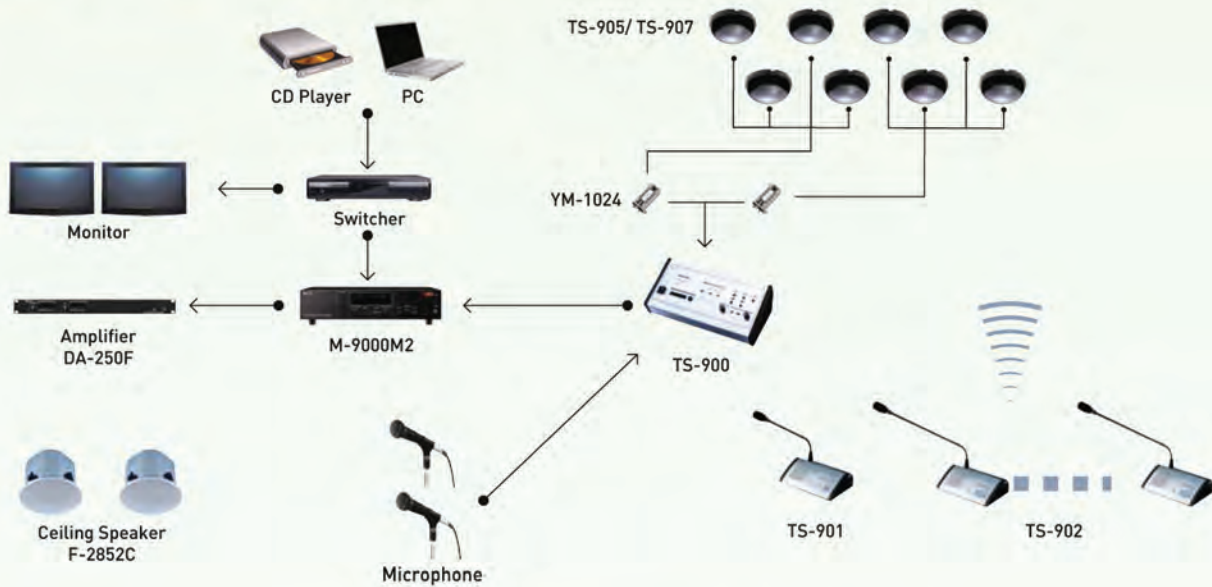- Installation status checkup function

TS-900 Series System Example

TS-905/ TS-907

CD Player   PC

Monitor   Switcher

YM-1024

Amplifier DA-250F   M-9000M2

TS-900

Ceiling Speaker F-2852C

Microphone

TS-901   TS-902

Image Drawing

F-2852C Ceiling Speaker

Wired Microphone

TS-900 Series

>>> Central Unit
TS-900

- 2 channels for 2 languages
- For bilingual conferencing and voting with triple choice vote function
- Up to 96 units per system
- 1 line and 1 recording output

>>> Chairman Unit
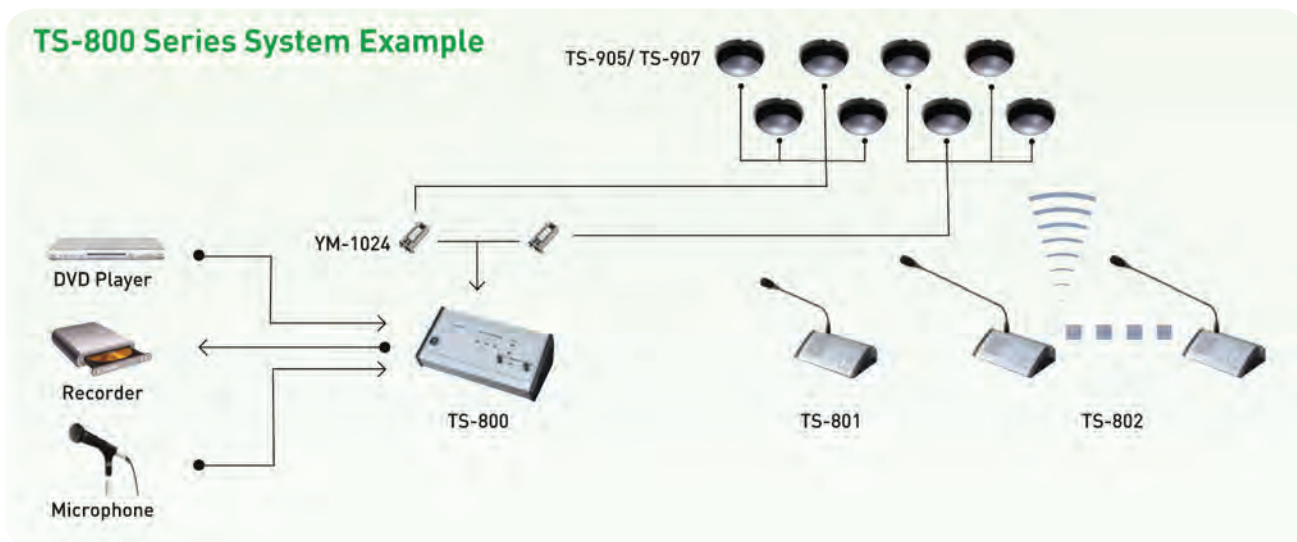## TS-901

>>> Delegate Unit
TS-902

- 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

53 TOA Audio Catalogue

Infrared Conference System TS-800 Series

TS-800 Series System Example

TS-905/ TS-907

DVD Player

YM-1024

Recorder

TS-800

TS-801

TS-802

Microphone

>>> Central Unit
TS-800

- Up to 64 active units per system
- Audio input from a wired microphone or other sound source
- 1 line and 1 recording output

>>> Chairman Unit
TS-801

>>> Delegate Unit
TS-802

- 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

>>> Microphone
TS-903

>>> Microphone
TS-904

>>> Infrared Transmitter/ Receiver
TS-905

>>> Infrared Transmitter/ Receiver
TS-907

>>> AC Adapter
AD-0910

>>> Rechargeable Lithium-ion Battery
BP-900

>>> Battery Charger
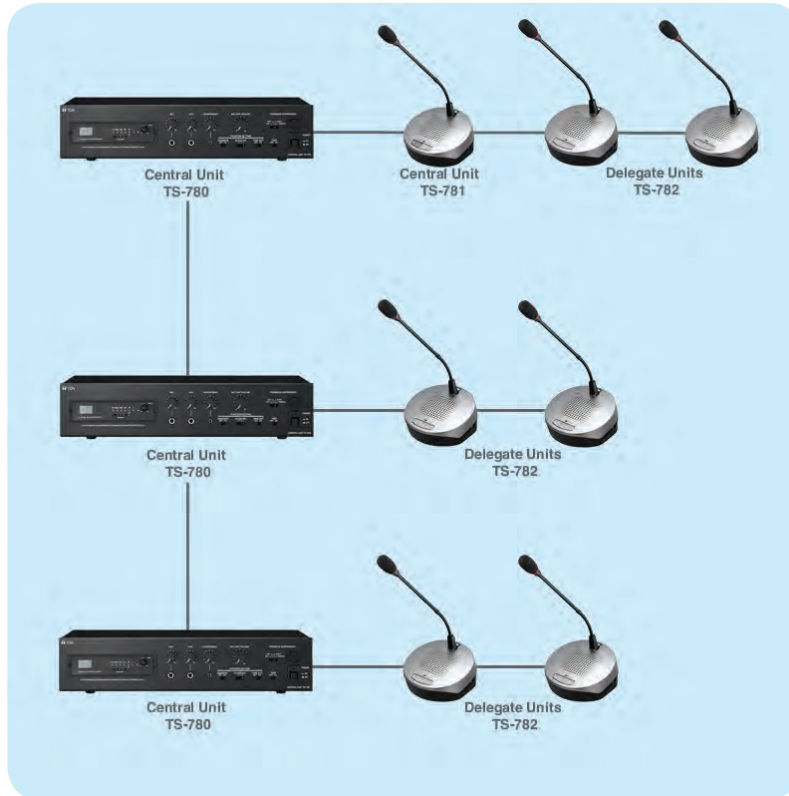## BC-900

>>> Distributor
YW-1024

>>> Distributor
YW-1022

>>> Rack Mount Bracket
MB-TS900

Microphones

Digital Message Repeaters

Beam Steering Microphone

Wireless Systems

Amplifiers

Mixers

Speakers

Security & Safety

Conference Systems

Megaphones

Professional Audio

Technical Column

Wired Conference System TS-780 Series

- Maximum 64 Chairman and Delegate Units are connectable to one Central Unit
- Expandable to maximum 192 units by connecting 3 additional Central Units
- 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)
- Conferences can be recorded on to SD card or external recording device

Central Unit
TS-780

Central Unit
TS-781

Delegate Units
TS-782

Central Unit
TS-780

Delegate Units
TS-782

Central Unit
TS-780

Delegate Units
TS-782

⟫⟫ Central Unit
TS-780 Series

- System expandable to 192 units by connection of 3 Central Units
- Built in MP3 Recorder for quick conference recording
- Test function allows connections to be accurately verified
- Conferences can be recorded onto SD card or external recording device
- Built-in feedback suppressor
- External equalizing capability
- Compact and stable hardware design

⟫⟫ Chairman Unit
TS-781
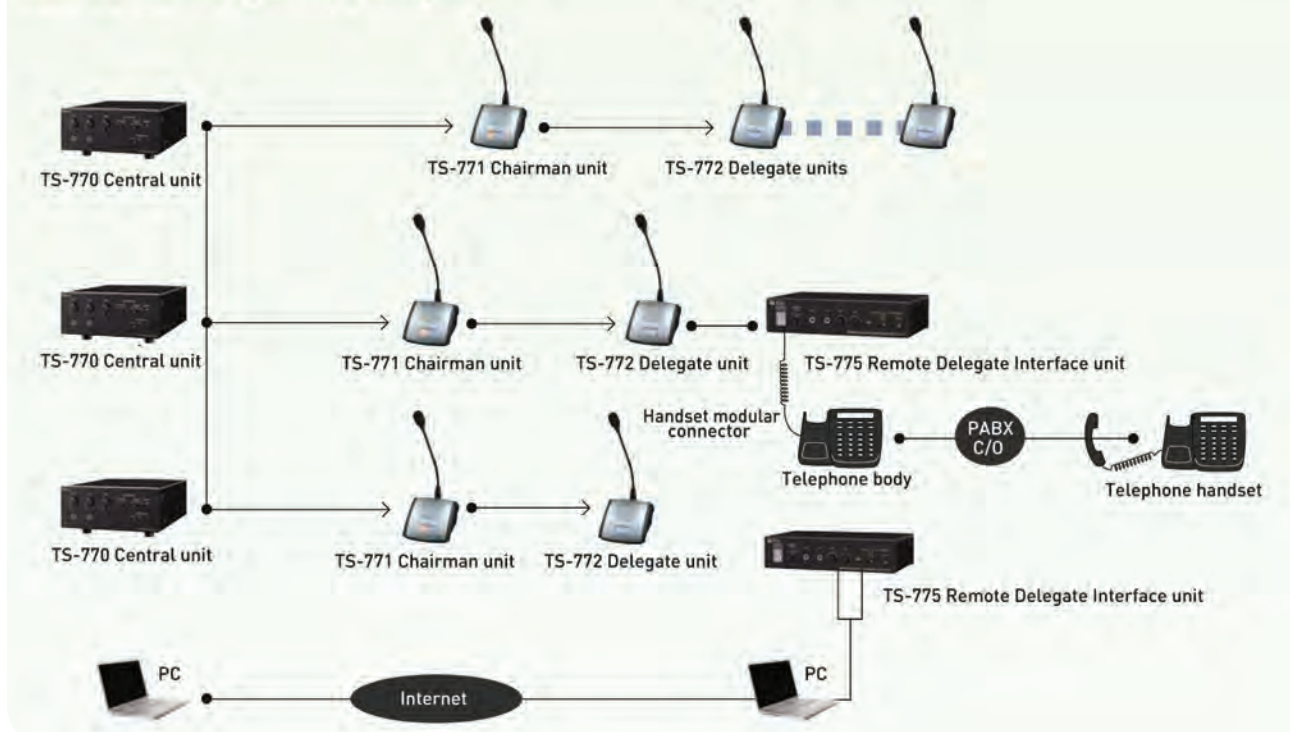
⟫⟫ Delegate Unit
TS-782

- 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-781 only)
- Headphones/recording output

Wired Conference System TS-770 Series

- Maximum 70 Chairman and Delegate Units (up to 35 units* per line) 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
- 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)

TS-770 Series System Example

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 units built in speaker) and chime (on chairmans unit) volume controls
- Equalizer input
- Recording output

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)
- Headphones/recording output

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

Microphone
TS-773

Microphone
TS-774

Extension cord
YR-770-2M

Extension Cord
YR-770-10M

Megaphones

- Anti-bacterial treatment for all models (mouth, microphone and handle)
- High durability ABS or ASA resin construction
- Wide frequency range for enhanced audio quality
- Polymide 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-1206W
- 10W max
- IPX5*
- with whistle

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

>>> Wall Mount Bracket
SP-1100
- Applicable models: ER-1203/ER-1206/ER-1206S/ER-1206W

*Protected against water jets by a nozzle against the enclosure from any direction

Hand Grip Type Megaphones

ER-520
- 10W max

ER-520W
- 10W max
- with whistle

ER-520S
- 10W max
- with siren

ER-125
- 23W max

ER-1215S
- 23W max
- with siren

ER-3215
- 23W max

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

Hands-Free Type Megaphones

>>> 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 480g yet with a maximum output of 10W and a maximum audible range of 80 metres
- 80cm long elastic waist belt extendable to up to 120cm
- A 30cm 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
- Comes with the HM-33 head-set

>>> Headworn Microphone
HM-33

- Perfect for sports teachers, journalists, event organisers, restaurateurs, active professionals
- Ultra high performance
- Hands-free operation
- Supplied with foam windshield

Microphones

Digital Message Repeaters

Beam Steering Microphone

Wireless Systems

Amplifiers

Mixers

Speakers

Security & Safety

Conference Systems

Megaphones

Professional Audio

Tactical Column

Professional Audio

The TOA professional audio product lineup includes wireless microphones, digital amplification, DSP, matrix and mixers, in fact all the way through to the loudspeaker.

≫ Digital Speaker Processor

DP-SP3

- Enhanced sound-space creation
- 24-bit, 96kHz sampling for clear, high-quality and realistic sound, with a full sense of presence
- 10 filters on each input and 12 filters on each output. Any combinations of parametric equalizer and high/low pass, and high/low shelving filters, as well all-pass, notch filters and CD horn equalizer are all possible
- 2 inputs and 6 outputs, and processor can work with a 3-way multi-amp system
- Setting and operation via a LAN on a PC with installation of the provided intuitive control/ operation software
- Preset memory for up to 16 different setting patterns, for instant recall of patterns best suited to a particular venue
- Flexible remote control operation: 4 contact input terminals, for memory recall, output volume control, and output muting. Switching of preset paramter patterns, speaker EQ pattern selection, and matrix selection by a Web browser via Ethernet
- 2-way linkage with M-864D digital mixer's preset switching possible
- Setting of input sensitivity with input PAD switch
- Analogue output attenuator

≫ Digital Signal Processor

DP-K1

- Operational versatility for wide range of applications
- Allows up to 8 line/mic inputs and 8 line outputs as well as flexible contact/ closure remote control
- The ARC function along with gain, equalizer, crossover, noisegate, matrix and delay functions can be applied to each of the 8 inputs and outputs
- Automatic parameter adjustments ensure clear sound simply and easily
- Quick and easy setting of parameters via a PC
- Rack mountable

Modular Line Array Speakers

SR-C Series

TOA Type C Speakers are module-type 2-way line array speaker systems featuring a 20cm low frequency Neodymium woofer and two 2.5cm Neodymium drivers. They are designed to take advantage of original TOA phase wave front control technology, enabling the creation of a sound field combining clear audio reproduction and uniform sound dispersion.

SR-A Series

TOA Type A Series line array speakers deliver a high output and wide badwidth sound in a compact configuration that can be combined with other units to provide high-fidelity sound. They are permanent installation solutions in environments exhibiting severe acoustic problems.

Microphones

Digital Message Repeaters

Beam Steering Microphone

Wireless Systems

Amplifiers
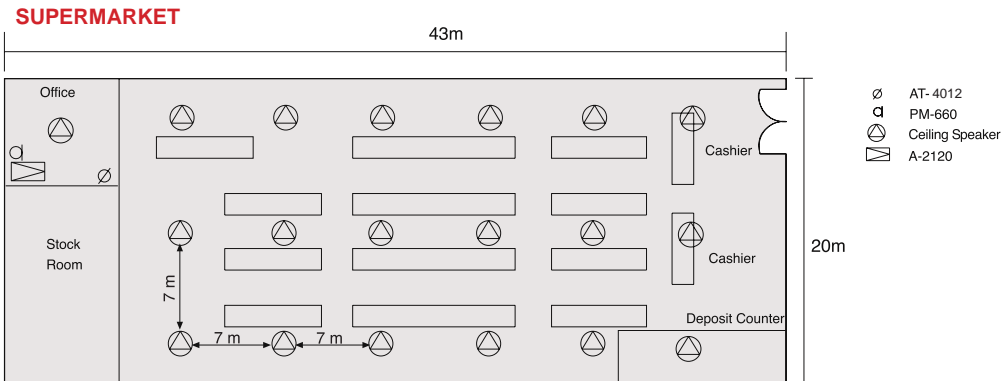
Mixers

Speakers

Security & Safety
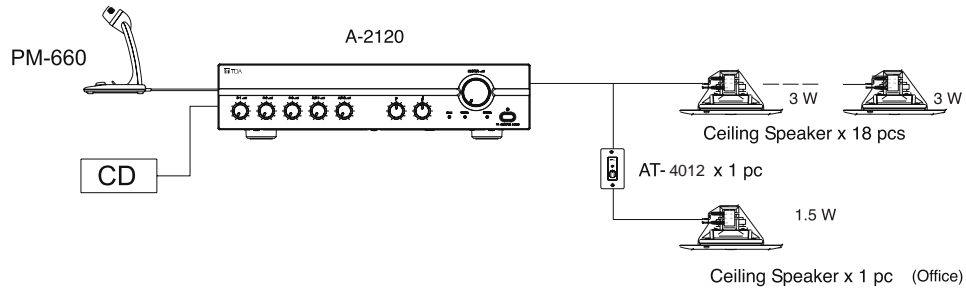
Conference Systems

Megaphones

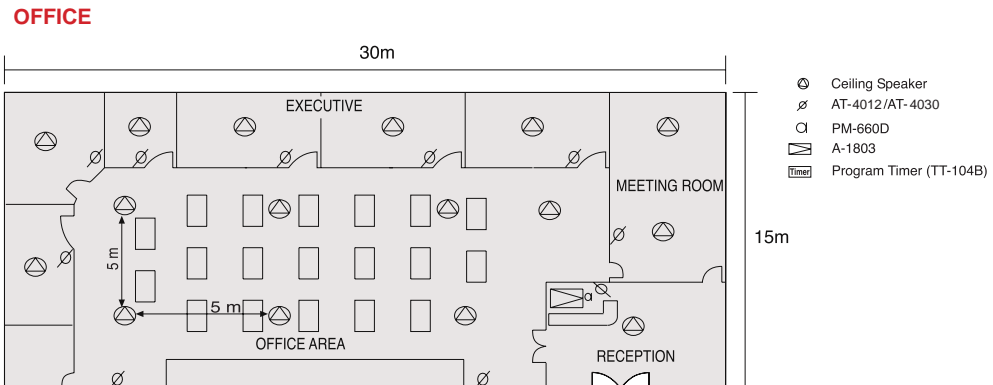Professional Audio

Technical Column

Technical Column

System Application 1

SUPERMARKET

43m

Office

Stock Room

Cashier

Cashier

Deposit Counter

20m

7 m

7 m   7 m

∅   AT-4012
◁   PM-660
△   Ceiling Speaker
▷   A-2120

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

PM-660

A-2120

CD

Ceiling Speaker x 18 pcs   3 W   3 W

AT-4012 x 1 pc

1.5 W

Ceiling Speaker x 1 pc   (Office)

System Application 2

OFFICE

30m

EXECUTIVE

MEETING ROOM

15m

5 m

5 m

OFFICE AREA

RECEPTION

◎   Ceiling Speaker
∅   AT-4012/AT-4030
◁   PM-660D
▷   A-1803
Timer   Program Timer (TT-104B)

· Uniform background music distribution level in office
   area (Speakers are spaced as short as 5m apart)
• Background music of better sound quality (A-1800
   series amplifier)

• Announcement with chime from reception desk
• Volume control in individual rooms
• Emergency broadcast is possible from main building PA System
• Prerecorded messages can be activated by timer for
   announcements (periodic broadcasting)

Main PA System

CD

RADIO TUNER

TIMER —— EV-20R

A-1803

Zone 1

Attenuator
AT-4012

1.5 W

x 1 pc (Reception)

Attenuator   Attenuator   Attenuator   Attenuator
AT-4012   AT-4012   AT-4012   AT-4030

1.5 W   1.5 W   1.5 W   1.5 W   1.5 W   1.5 W

x 6 pcs (Each room)   x 2 pcs (Meeting room)   x 7 pcs (Staff Area)

Ceiling Speaker

• 3-wire attenuator must be used in this
application. It can be achieved by using
Zone 2 output as 'R' line

PM-660D

System Application 3

FACTORY

⊘	Ceiling Speaker
⊄	SC-615M
∅	AT-4012
◖	PM-660D
▷	A-1803, P-1812

- Prerecorded messages can be activated by timer for announcements (Periodic broadcasting)
- Music distribution during recess
- Announcement with chime from reception desk
- Selectable paging area from speaker selector
- Uniform paging distribution level in noisy workshop
- Uninterrupted MOH (music on hold) available for PBX
- Amplifier can be linked to PBX for telephone paging

System Application 4

HOUSE OF WORSHIP

⊘	Ceiling Speaker
⊂	Dynamic/Electret Condenser Microphone
◪	BS-1030W
▷	A-1724

- Good Sound Quality (A-1700 series Amplifier and BS-1030W Speakers)
- High speech clarity (many small input speakers)
- Wireless microphone makes priests' movement free

DM-1100

DM-1100

A-1724

Zone 1

Zone 2

30W 30W

BS-1030W x 6 pcs

Wireless Micophone

WT-5810

CD Player CD

Ceiling Speakers x 3 pcs

Microphones

Digital Message Repeaters

Beam Steering Microphone

Wireless Systems

Amplifiers

Mixers

Speakers

Security & Safety

Conference Systems

Megaphones

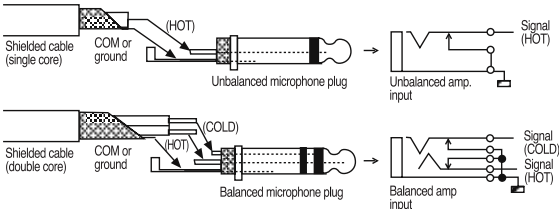Professional Audio

Technical Column
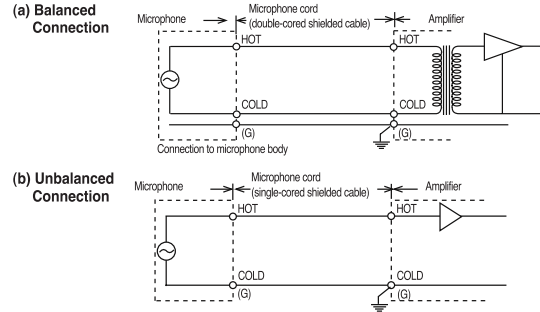
Microphone

Wiring of microphones

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

Balanced and unbalanced type

Shielded cable (single core) | COM or ground | (HOT) | Unbalanced microphone plug | Unbalanced amp. input | Signal (HOT)

Shielded cable (double core) | COM or ground | (HOT) (COLD) | Balanced microphone plug | Balanced amp input | Signal (COLD) Signal (HOT)

Balanced and unbalanced output

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

(a) Balanced Connection

(b) Unbalanced Connection

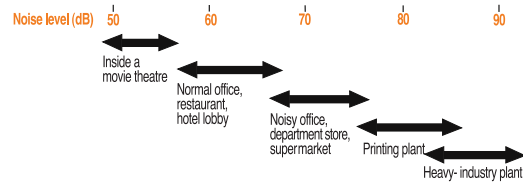## Distance of extension for microphone cords

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

Microphone Output	Amplifier Unit	Microphone cord extension distance
Unbalanced	Unbalanced	20m
Balanced	Unbalanced	20m
Balanced	Balanced	80m

Speakers 1

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

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

Noise level (dB) 50 60 70 80 90

Inside a movie theatre

Normal office, restaurant, hotel lobby

Noisy office, department store, supermarket

Printing plant

Heavy- industry plant

Can be undestood speaking in a normal voice	Must raise one's voice to be understood	Must yell just to be heard

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

Computation of intensity of sound

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

SPL(dB) = SPL (1W/1m) — Attenuation of SPL due to distance + Amount of increase of SPL due to electric input

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

Attenuation of SPL due to distance
(amount of attenuation = 20 log D   D: distance in metres from speaker)

Distance (m)	2	5	10	15	20	30	40	60	80	100
Amount of increase (dB)	6.0	14.0	20.0	23.5	26.0	29.5	32.0	35.6	38.1	40.0

Increase of SPL due to electronic input
(amount of increase = 10 log W   W: electric input)

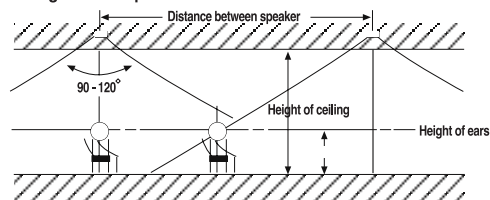| Electric Input(W)	1	1.5	3	5	6	10	15	20	30	50
Amount of increase (dB)	0	2.6	4.8	7.0	7.8	10	11.8	13	14.8	17

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

Arrangement of speakers in a general office (Ceiling speakers)

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

Microphones

Digital Message Repeaters

Beam Steering Microphone

Wireless Systems

Amplifiers

Mixers

Speakers

Security & Safety

Conference Systems

Megaphones

Professional Audio

Technical Column

Speakers 2

Arrangement of speakers

Distance between speaker

90 - 120°

Height of ceiling

Height of ears

Area coverage of one speaker

Purpose	Height of ceiling	Distance between speakers	Area of coverage of one speaker
Background music	Less than 2.5m 2.5-4.5m 4.5-15m	5m 6m 9m	About 25m² About 36m² About 81m²
Announcement		9-12m	81-144m²

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

Example of arrangement

20 m

30 m

Office of 30m x 20m with 3m ceiling without music
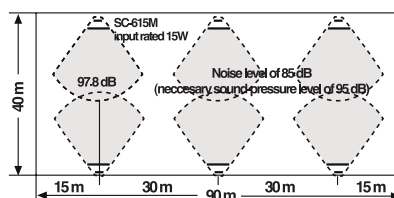
Number of speakers necessary: 6 to 8
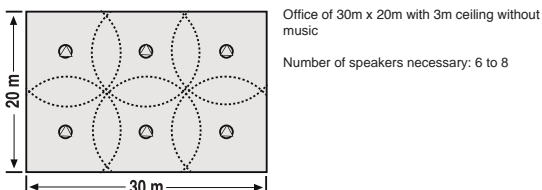
Arrangement of speakers in a factory (Horn speakers)

Factories with high noise levels generally use horn speakers, which can produce high levels of sound. If you know where people are working in the factory, speakers are best arranged to cover such locations. If that is unknown, speakers should be arranged in accordance with the floor space. Here is an example of a 40m x 90m room in a factory with a noise level of 85dB. In this factory, SC-615M speakers are installed, therefore the sound pressure that can be obtained at a point, 20 metres away with electric input of 15W will be:

112dB(1W/1m) - 26.0dB (20m) + 11.8dB (15W) = 97.8dB

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

SC-615M input rated 15W

40 m

97.8 dB

Noise level of 85 dB (neccesary sound-pressure level of 95 dB)

15 m   30 m   30 m   15 m

90 m

Speaker wiring

For speaker connections use 600V vinyl (PVC) insulated wire of 1.2mm to 1.6mm in diameter (AWG17 TO AWG14)
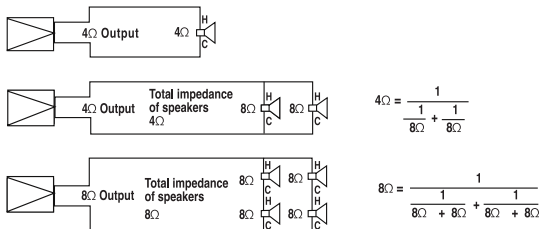
Speakers 3

High-impedance connection and low-impedance connection

The PA amplifiers generally come with low-impedance speaker outputs (indicated as 4Ω, 8Ω, 16Ω, etc) and high-impedance outputs (indicated as 70V, 100V etc). Low impedance output is used when a small number of speakers (1 to 4) is used and there is a short distance (up to 10 metres) between amplifiers and speakers. High-impedance output is used with a large number of speakers and a longer distance of wiring. Speakers with transformers are used for high-impedance output. For a PA system, high impedance connection should be used if possible, in consideration of wrong speaker connections and transmission efficiency.
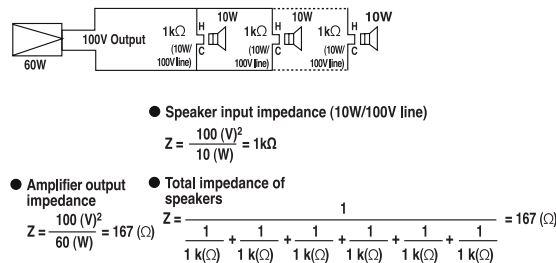
Example of low-impedance connection:
It is necessary to design the total speaker input impedance to be larger than the amplifier output impedance. When the total speaker impedance is lower than the amplifier output impedance, unstable operation or amplifier malfunction may result. The wiring distance between amplifier and speaker should be less than up to 10 metres. If the wiring distance is greater than this, the output power from the amplifier will be consumed as heat in the cables, and not be able to supply the speaker with sufficient power.

4Ω Output   4Ω

4Ω Output   Total impedance of speakers 4Ω   8Ω   8Ω

$$4\Omega = \cfrac{1}{\cfrac{1}{8\Omega} + \cfrac{1}{8\Omega}}$$

8Ω Output   Total impedance of speakers 8Ω   8Ω   8Ω   8Ω   8Ω

$$8\Omega = \cfrac{1}{\cfrac{1}{8\Omega} + \cfrac{1}{8\Omega}} + \cfrac{1}{\cfrac{1}{8\Omega} + \cfrac{1}{8\Omega}}$$
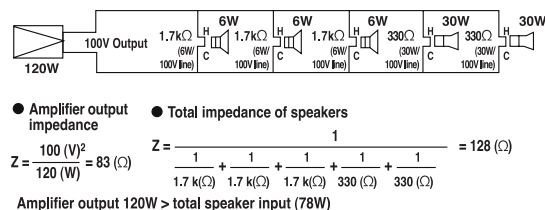
Example of high-impedance connection:
In a PA system to cover a large area, the wiring distance will be greater, so high impedance connection is used predominantly. In high-impedance connection, all speakers (each with a transformer) will be connected in parallel. Avoid using these speakers altogether with those without transformers.

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

100V Output   1kΩ (10W/100V line)   10W   1kΩ (10W/100V line)   10W   1kΩ (10W/100V line)   10W

60W

● **Speaker input impedance (10W/100V line)**

$$Z = \frac{100 \, (V)^2}{10 \, (W)} = 1k\Omega$$

● **Amplifier output impedance**

$$Z = \frac{100 \, (V)^2}{60 \, (W)} = 167 \, (\Omega)$$

● **Total impedance of speakers**

$$Z = \cfrac{1}{\cfrac{1}{1\,k(\Omega)} + \cfrac{1}{1\,k(\Omega)} + \cfrac{1}{1\,k(\Omega)} + \cfrac{1}{1\,k(\Omega)} + \cfrac{1}{1\,k(\Omega)} + \cfrac{1}{1\,k(\Omega)}} = 167 \, (\Omega)$$

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

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

100V Output   1.7kΩ (6W/100V line)   6W   1.7kΩ (6W/100V line)   6W   1.7kΩ (6W/100V line)   6W   330Ω (30W/100V line)   30W   330Ω (30W/100V line)   30W

120W

● **Amplifier output impedance**

$$Z = \frac{100 \, (V)^2}{120 \, (W)} = 83 \, (\Omega)$$

● **Total impedance of speakers**

$$Z = \cfrac{1}{\cfrac{1}{1.7\,k(\Omega)} + \cfrac{1}{1.7\,k(\Omega)} + \cfrac{1}{1.7\,k(\Omega)} + \cfrac{1}{330\,(\Omega)} + \cfrac{1}{330\,(\Omega)}} = 128 \, (\Omega)$$

Amplifier output 120W > total speaker input (78W)

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