TOA

- Microphones
- Wireless Systems
- Digital Message Repeaters/ Program Timer
- Mixers
- Amplifiers
- Speakers
- Conference System
- Megaphones
- Professional Audio
- Security & Safety
- Technical Column

TOA Audio Catalog

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

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

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

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

TOA 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

S O U N D &

Basic Management Policy (Three Confidence)

• Total confidence of our customers in the use of all products.
• Total confidence of our associates in all business transactions.
• Total confidence of our employees in all their effort.

TOA's Environmental Principles

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

Declaration of Social Contribution

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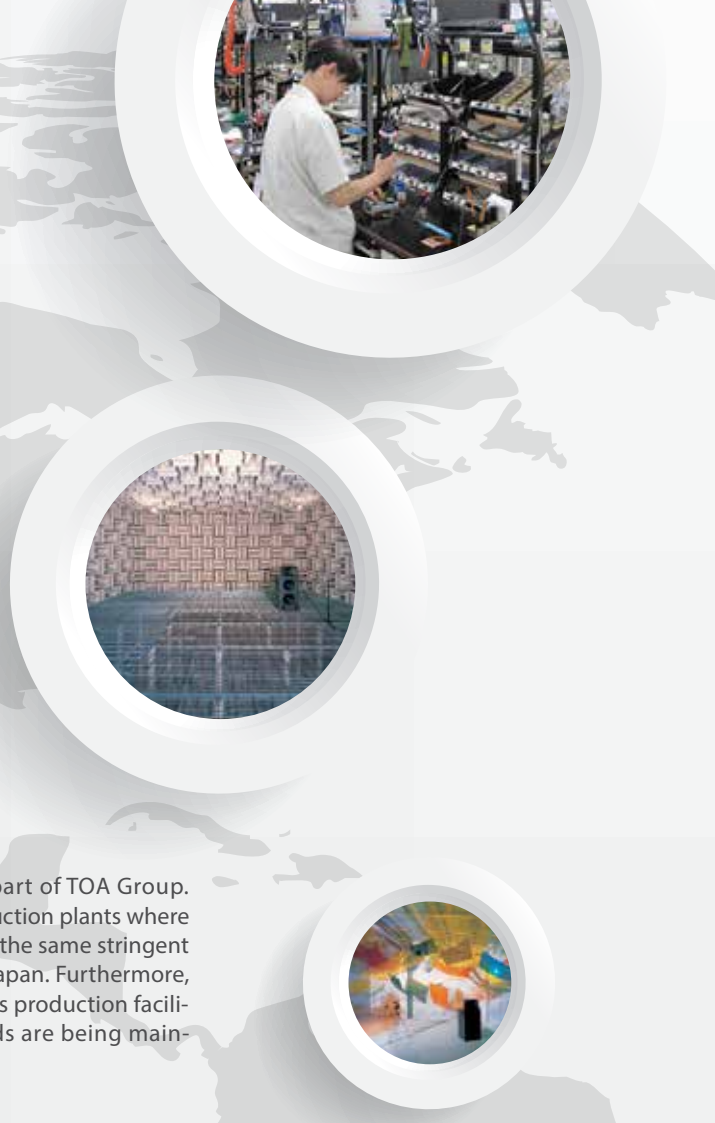
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Planning and Design
Carried Out in Japan

Thorough Proving of Product Design and Production Processes

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

Quality Control by TOA HQ

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

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Dynamic Microphones

⋙ Unidirectional Microphone
DM-1100

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

⋙ Unidirectional Microphone
DM-1200

- Dynamic hand-held microphone for speech use
- Rigid diecast zinc microphone body
- Switching and handling noise suppression
- 10 m 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 diecast zinc microphone body
- Switching and handling noise suppression
- 10 m 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 diecast 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	600 Ω, unbalanced	600 Ω, balanced		
Rated Sensitivity	−55 dB (1k Hz 0 dB = 1 V/Pa)		−54 dB (1k Hz 0 dB = 1 V/Pa)	−56 dB (1kHz 0 dB = 1 V/Pa)
Frequency Response	100 Hz – 12,000 Hz	50 Hz – 12 kHz	70 Hz – 15 kHz	
Weight	155 g (without connection cable)	265 g (without connection cable)	245 g (without connection cable)	280 g (without connection cable)
Dimensions (W x H x D)	ø 55 x 178 mm	ø 39.5 x 163 mm	ø 51 x 170 mm	ø 40.5 x 173 mm
Talk switch	Short-off type, slide on/off switch			
Finish	Body: Die cast aluminum, painted black Head: ABS resin, black/ zinc platedsteel wire, painted black	Body: Die cast zinc, painted metallic gray Head: Die cast aluminum, zinc plated steel wire, painted metallic gray	Body: Die cast zinc, painted metallic gray Head: Aluminum, zinc plated steel wire, painted metallic gray	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", W3/8")	Microphone holder (W 5/16")	

⋙ Moving Coil Microphone
DM-524S
Fixed Lo-Z Gooseneck Microphone with Switch

ST-73A
For DM-524B/524S

DM-524B
Fixed Lo-Z Gooseneck 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

Model	DM-524S	DM-524B
Type	Moving coil microphone	
Directivity	Cardioid	
Rated Impedance	600 Ω, balanced	
Rated Sensitivity	-56 dB (1 kHz, 0 dB=1 V/Pa)	
Frequency Range	100 - 10,000Hz	
Switch	ON/OFF switch	—
Output Connector	φ21, 3-pin plug (BTS21P3B)	
Finish	Microphone body: Gold, sparkling paint Gooseneck shaft: Nickel-pear skin-plating	
Weight	475g	465g
Accessory	φ21 3-pin receptacle (BTS21R3A) x 1, M3×10 screw x 3, W3 washer x 3, SW3 spring washer x 3, M3 nut x 3	

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Condenser Microphones

⋙ Lavalier Microphone
EM-410

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

⋙ 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 from being picked up
• Wide frequency range of 35 to 20 kHz provides well-balanced sound with clarity and a satisfying tonal response

⋙ Gooseneck Microphone
EM-800   ST-800
                             For EM-800

(With microphone stand: ST-800)

• Electret condenser microphone for such speech applications as meetings, lectures, and religious services
• Excellent high-frequency response of 60 to 20k Hz delivers clear output
• High sensitivity (-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

Model	EM-410	EM-600	EM-700	EM-800
Directivity	Hyper-cardioid	Omnidirectional	Cardioid	
Rated Impedance	120 Ω, balanced			
Rated Sensitivity	–47 dB (1k Hz 0 dB = 1 V/Pa)	–36 dB (1k Hz 0 dB = 1 V/Pa)	–33 dB (1k Hz 0 dB = 1 V/Pa)	–35 dB (1kHz 0 dB = 1 V/Pa)
Phantom power	9-52V DC			
Frequency Response	100 Hz – 15kHz	30 Hz – 20kHz	35 Hz – 20kHz	60 Hz – 20kHz
Output Connector	Blanced-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 aluminum, black, mat finish, paint Punched net: Surface-treated steel plate, black, mat finish, paint	Body, Shaft: Copper alloy, black,semi-gloss, paint
Dimensions	ø8.9 × 28.6mm (cord excluded)	ø28 × 68mm	83 (W) × 23 (H)× 83 (D)mm (cord excluded)	ø12 × 420mm
Weight	100g	85g	290g	135g
Accessory	Windscreen × 1, Clip Holder × 1	Rubber Isolation Ring × 2, M20 Nut × 1	—	Windscreen × 1

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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	600 Ω, unbalanced	600 Ω, balanced	
Rated Sensitivity	−58 dB (1 kHz, 0 dB = 1 V/Pa)		
Frequency Response	100 Hz to 10 kHz		
Remote Switch	None	Leaf spring contact (interlocked with talk switch), 30 V DC, under 500 mA	
Finish	Head: Zinc plated steel wire, gray, paint Body: ABS resin, gray		
Dimensions	100 (w) x 215 (h) x 150 (d) mm (3.94" x 8.46" x 5.91")		
Weight	440 g (0.97 lb) (cable excluded)		

Microphone Stands

Desktop Microphone Stand
ST-65A
• Desk-top type
• Clip type microphone holder (U5/16" thread)
• Height adjustable from 120 to 175 mm

Desktop Microphone Stand
ST-66A
• Desk-top type
• Clip type microphone holder (U5/16" thread)
• Height adjustable from 225 to 340 mm

Microphone Stand with boom
ST-321B
• Floor microphone stand with folding legs and boom (53 to 660 mm)
• Hight adjustable from 1045 to 1706 mm
• NS5/8" pipe thread, U5/16" adapter

Microphone Stand
ST-322B
• Floor microphone stand with folding legs
• Hight adjustable from 971 to 1627 mm
• NS5/8" pipe thread, U5/16" adapter

Microphone Stand
ST-303A
• Floor microphone stand with folding legs
• Hight adjustable from 940 to 1600 mm
• NS5/8" pipe thread, U5/16" adapter

Microphone Stand
ST-304A
• Floor microphone stand
• Hight adjustable from 865 to 1530 mm
• NS5/8" pipe thread, U5/16" adapter

Flexible Gooseneck
ST-506
• Length 150 mm • U5/16" thread
• Mountable to the desk-top microphone stands

ST-507
• Length 300 mm • U5/16" thread
• Mountable to the floor microphone stands

YM-121
• Length 367 mm • Applicatble stand: ST-73A
• Applicable microphone: DM-1200, DM-1300 and DM-1500

ST-506   ST-507   YM-121

Wireless Systems

TRANTEC Wireless Microphone Systems S5 and S4 Series

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

TRANTEC S5.5/S5.3 Series

S5.5/S5.3 UHF Professional Wireless Microphone System incorporates the latest technological advances, enabling it to satisfy the demands of a wide range of theater and broadcast applications. The high quality audio and RF dynamics combine with true diversity operation to provide a system with excellent multi-channel capability, enabling up to 24 channels to operate simultaneously without interference.
Microphone size and running costs have been reduced, thanks to 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 Infra-red data link
- Clear and intuitive LCD display
- EQ and phase reversal
- Professional metal enclosure

Model	S5.5-RX
Diversity System	Space diversity (true diversity)
Audio Output	Line: -22 dB*/ Mic: 62 dB* Line/Mic selectable, 600 Ω, balanced, XLR-3-32 type connector. Headphone: max. 100 mW 16 Ω, unbalanced, phone jack -28 dB*, 600 Ω, unbalanced, phone jack
Receiving Sensitivity	0 dB V or less (12 dB SINAD)
Squelch Sensitivity	6 - 36 dB 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	110 dB or more (A-weight)
Harmonic Distortion	1% or less (typical)
Frequency Response	50 Hz - 20 kHz, ±3 dB
Dimensions	210 (W) x 46 (H) x 210 (D) mm (excluding antenna)
Weight	1.3kg

⟫ Handheld Microphone
S5.5-HDX (Dynamic)
S5.5-HCX (Condenser)

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

⟫ Beltpack Transmitter
S5.5-BTX

- Credit card size beltpack
- Simple programming of transmitter with built-in Infra-red 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
- Professional metal enclosure

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

For S5.5 Series optional microphone/accessories, see the page 13.

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TRANTEC S5.3 Series   12 Channel Wireless Solution

≫ Receiver
S5.3-RX

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

Model	S5.3-RX
Diversity System	Space diversity (true diversity)
Audio Output	Line: -22 dB*/ Mic: 62 dB* Line/Mic selectable, 600 Ω, balanced, XLR-3-32 type connector Headphone: max. 100 mW 16 Ω, unbalanced, phone jack -28 dB*, 600 Ω, unbalanced, phone jack
Receiving Sensitivity	0 dB V or less (12 dB SINAD)
Squelch Sensitivity	6 - 36 dB 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	110 dB or more (A-weight)
Harmonic Distortion	1% or less (typical)
Frequency Response	50 Hz - 20 kHz, ±3 dB
Dimensions	210 (W) x 46 (H) x 210 (D) mm (excluding antenna)
Weight	1.3kg (2.87lb)

≫ Handheld Microphone
S5.3-HDX   (Dynamic)
S5.3-HCX   (Condenser)

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

≫ Beltpack Transmitter
S5.3-BTX

- Credit card size beltpack
- Simple programming of transmitter with built-in Infra-red 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
- Professional metal enclosure

Model	S5.3-HDX	S5.3-HCX	S5.3-BTX
RF Carrier Power	Less than 50mW (Factory preset 10mW ERP)		
Modulation System	—		PLL synthesizer
Maximum Input Level	146 dB SPL (microphone sensitivity: Gain "0")	142 dB SPL (microphone sensitivity: Gain "0")	120 dB SPL (microphone sensitivity: Gain "0")
Audio Frequency Response	60 Hz - 20 kHz	90 Hz - 20 kHz	—
Dynamic Range	110 dB or more (with S5.5-RX)		—
Audio Input Connector	—		TA-4 (Mini-XLR 4 pins)
Battery	LR6 (AA)		
Battery Life	10 hours (Alkaline)		
Indicator	LCD display, Power lamp		LCD display, Power lamp
Dimensions	ø50 x 247.9 mm	ø50 x 232.9 mm	55 (W) x 80 (H) x 22 (D) mm
Weight	380g (with battery)	300g (with battery)	140g (with battery)

For S5.3 Series optional microphone/accessories, see the page 13.

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TOA Wireless Microphone Systems 5000 Series

TOA 5000 Series is the ultimate choice for the presenter, offering incredible intelligibility so 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 a transmitter 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. The WT-5100 receiver, a new addition to the 5000 Series, expands the range of applications, including museums, conferences and theaters, and enhances the Series' versatility and usability.

⋙ Receiver
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)

⋙ Receiver
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)

⋙ Receiver
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 CH
Diversity System	Space divercity (true diversity)	Space diversity	
Mixing Output	MIC: −60dB*¹, 600Ω, balanced, XLR-3-31 type connector LINE: −20dB*¹, 600Ω, unbalanced, phone jack		
Mixing Input	−20dB*¹, 10 kΩ, unbalanced, phone jack		
Antenna Input	75Ω, BNC (phantom powering for antenna) 9V DC, 30mA (max.)		—
Antenna Output	75Ω, BNC (Gain 0dB)	—	
Receiving Sensitivity	90dB or more, S/N ratio (20dBμV input, 40kHz deviation)		
Squelch Sensitivity	18 – 40dBμV variable		
Squelch System	Using together of noise SQ, carrier SQ and tone SQ		
Indicator	Audio (6 step), RF (6 step), ANT A/B, Audio (peak), battery alarm		ANT A/B, Audio (peak), battery alarm
S/N Ratio	110dB or more (A-weight, unbalanced output)		104dB or more (A-weight, unbalanced output)
Harmonic Distortion	1% or less (typical)		
Frequency Response	100 – 15kHz, ±3 dB		
Dimensions	210(W) × 44(H) × 205.1(D) mm		206(W) × 40.6(H) × 152.7(D) mm
Weight	700 g		590 g

*1 0dB = 1 V

⋙ Receiver Unit
WTU-4800

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TOA 5000 Series   16 Channel Wireless Solution

⋙ Handheld Microphone

WM-5270

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

⋙ Handheld Microphone

WM-5265

- Dynamic 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

⋙ 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: -14 dB to -29 dB
- 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 synthesizer			
Maximum Input Level	142 dB SPL	132 dB SPL	126 dB SPL	-14dB to -29dB[*1] (Audio level control: Min. to Max.)
Audio Input Connector	—	—	—	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) orLR6(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 × 244 mm	ø50 × 229 mm	ø43.6 × 231.5 mm	62 (W) × 102.5 (H) × 23 (D) mm
Weight	340g (with battery)	205g (with battery)	180g (with battery)	90g (with battery)

*1 0dB = 1 V

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⟫ Wireless Lavalier Microphone

WM-4300

- Unidirectional electret condenser microphone element
- 64 selectable channels
- Input sensitivity control included
- Built-in circuitry minimizes ambient noise effects
- Highly reliable TA-4 (XLR-type) mini-cannon microphone plug
- Belt clip rotatable 360 degrees

Model	WM-4300
RF Carrier Power	Less than 50mW (Factory preset 10mW ERP)
Oscillator	PLL synthesizer
Maximum Input Level	120 dB SPL
Battery	6LR61 (9 V × 1)
Battery Life	10 hours (alkaline)
Indicator	Power/Battery indicator (common use)
Dimensions	62 (W) × 142 (H) × 32 (D) mm
Weight	135g (with battery)

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

TOA 5000 Series   Set

WS-5225
WM-5225+WT-5810 Set

WS-5265
WM-5265+WT-5810 Set

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

WS-5325M
WM-5325+YP-M5310+WT-5810 Set

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

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TOA 5000 Series   Accessories

⟫ Antenna Distributor
WD-4800

⟫ Wall Mount Antenna
YW-4500

⟫ Rechargeable Battery
WB-2000-2

⟫ Battery Charger
BC-5000-2

⟫ Battery Charger
BC-5000-6

⟫ Battery Charger
BC-5000-12

⟫ AC Adapter
AD-5000-2

⟫ WB-2000-2 Rechargeable Battery
AD-5000-6

⟫ Waist Pouch
WH-4000P

⟫ Windscreen
WH-4000S

⟫ Rack Mount Bracket
MB-15B

⟫ Rack Mount Bracket
MB-WT3

⟫ Rack Mount Bracket
MB-WT4

⟫ ROM Writer
RW-4800

Microphones

Wireless Systems

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TRANTEC S4.16 Series 12 Channel Wireless Solution

Multichannel wireless simply does not get any easier. The S4.16 is 16 channels of tough, reliable quality that is priced to suit the tightest of budgets.
This multifunction system is optimized for use with handheld, lapel mic and a range of headsets – or switch to use with a
musical instrument. A single 9V battery gives approximately 10 hours of quality performance with a range of up to 100 meters.

≫ Receiver
S4.16-RX

- 16 selectable frequencies
- Up to 12 simultaneous channels
- Fully synthesized PLL quartz tuning technology
- Receiver LED's 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	S4.16-RX
Audio Output	Balanced output: +16 dB(*1)(max), 600 Ω, balanced, XLR-3-31 type connector Unbalanced output: +10 dB(*1)(max), 600 Ω, unbalanced, phone jack
Receiving Sensitivity	Over 90 dB, S/N ratio (20 dB V input, 40 kHz deviation)
Squelch Sensitivity	18 - 40 dBμV variable
Squelch System	Using together of noise SQ, carrier SQ and tone SQ
Indicator	ANT A/B, Audio (peak), RF level, Power
S/N Ratio	Over 95 dB (A-weight, unbalanced output)
Harmonic Distortion	Under 1% (typical)
Frequency Response	60 - 16,000 Hz, ±3 dB
Dimensions	214 (W) x 35 (H) x 100.5 (D) mm (excluding antenna)
Weight	580g

*1 0dB = 0.775 V

≫ Handheld Microphone
S4.16-HDX   (Dynamic)

- 16 selectable frequencies
- Fully synthesized PLL quartz tuning technology
- Detachable antenna
- Single 9V transmitter battery life of approx. 10 hours

≫ Beltpack Transmitter
S4.16-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 9V transmitter battery life of approx. 10 hours

Model	S4.16-HDX	S4.16-BTX
RF Carrier Power	Max. 10 mW	
Modulation System	PLL Synthesizer	
Mic Input Connector	—	ø3.5 mini jack
Battery	6LR61 (PP3 9V)	
Battery Life	Approx. 10 Hours	
Indicator	Battery Status LED	
Dimensions	ø50 x 270 mm	62 (W) x 102 (H) x 31.5 (D) mm (excluding antenna)
Weight	220g	90g

≫ Receiver
S4.16-RX2

- Modular dual channel wireless receiver • 16 selectable channel frequencies
- Fully synthesised PLL quartz tuning technology
- Receiver LED's show AF Peak level, RF Level, and Diversity Channel A or B
- Diversity operation with detachable antennae
- 19" rack mount option for one or two receivers

Model	WT-4820
Power Consumption	250 mA (13.8V DC)
Channel Selectable	16 CH
Receiving Frequency	606-614 MHz. UHF
Antenna Input	75 Ω, BNC (phantom powering for antenna) 9 V DC, 30 mA (max.)
Antenna Output	75 Ω, BNC (Gain 0dB)
Indicator	ANT A/B, Audio (peak), Power
S/N Ratio	Over 100dB (A-weight)
Harmonic Distortion	Under 1%
Frequency Response	Handheld: 80 – 16 kHz, ±3 dB; Beltpack: 60 – 16 kHz, ±3 dB
Dimensions	210(W) × 44(H) × 181(D) mm
Weight	720 g

For S4.16 Series optional microphone/accessories, see the page 13.

TRANTEC S4.4 Series   Wireless Starter Pack

Trantec S4.4 is a function-packed system designed to launch you into the world of wireless. Tough, reliable and compact, this multi-function system is optimised for use with handheld, lapel mic and a range of headsets – or switch to use with a musical instrument.
Not only does the S4.4 come with a bargain basement price tag, it is also extremely economical to run. A single 9V battery will give you approximately 10 hours of quality performance with a range of up to 100 meters.

⟫ Receiver
S4.4-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	S4.4-RX
Audio Output	Balanced output: +16 dB(*1)(max), 600 Ω, balanced, XLR-3-31 type connector Unbalanced output: +10 dB(*1)(max), 600 Ω, unbalanced, phone jack
Receiving Sensitivity	Over 90 dB, S/N ratio (20 dB V input, 40 kHz deviation)
Squelch Sensitivity	18 - 40 dBμV variable
Indicator	ANT A/B, Audio (peak), RF level, Power
S/N Ratio	Over 95 dB (A-weight, unbalanced output)
Harmonic Distortion	Under 1% (typical)
Frequency Response	100 - 15,000 Hz, ±3 dB
Dimensions	214 (W) x 35 (H) x 100.5 (D) mm (excluding antenna)
Weight	580g

*1 0dB = 0.775 V

⟫ Handheld Microphone
S4.4-HDX   (Dynamic)

• Four switchable licence-free frequencies
• Fully synthesized PLL quartz tuning technology
• Detachable antenna
• Single 9V transmitter battery life of approx. 10 hours

⟫ Beltpack Transmitter
S4.4-BTX

• Four switchable free frequencies
• Fully synthesized PLL quartz tuning technology
• Detachable antenna
• Locking 3.5mm jack
• Integral switch for selection between instrument and microphone
• Single 9V transmitter battery life of approx. 10 hours

Model	S4.4-HDX	S4.4-BTX
RF Carrier Power	Max. 10 mW	
Modulation System	PLL Synthesizer	
Mic Input Connector	—	ø3.5 mini jack
Battery	6LR61 (PP3 9V)	
Battery Life	Approx. 10 Hours	
Indicator	Battery Status LED	
Dimensions	ø50 x 270 mm	62 (W) x 102 (H) x 31.5 (D) mm (excluding antenna)
Weight	220g	90g

For S4.4 Series optional microphone/accessories, see the page 13.

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TRANTEC S5.5/S5.3 S4.16/S4.4 Series   Optional Microphones

>>> Lavalier Microphone

for S5 Series   MIC-X2
for S4 Series   MIC-LP2

>>> Lavalier Microphone

for S5 Series   MIC-X55
for S4 Series   MIC-SJ55

>>> Glasses Frame Microphone

for S5 Series   MIC-X690H
for S4 Series   MIC-SJ690H

>>> Lavalier Microphone

for S5 Series
MIC-X212-BE (Beige)
MIC-X212-BK (Black)
for S4 Series
MIC-SJ212-BE (Beige)
MIC-SJ212-BK (Black)

>>> Headworn Microphone

for S5 Series   MIC-X33
for S4 Series   MIC-SJ33

>>> Headworn Microphone
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)

>>> Headworn Microphone
for S5 Series
MIC-X22-B-R (Black)
MIC-X22-P-R (Pink)
for S4 Series
MIC-SJ22-B-R (Black)
MIC-SJ22-P-R (Pink)

>>> Headworn Microphone

for S5 Series   MIC-XEM77
for S4 Series   MIC-SJEM77

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TRANTEC S5.5/S5.3 S4.16/S4.4 Series   Accessories

>>> Antenna Distributor
S5-ADU

>>> Antenna Booster YW-7000
YW-7000 RF

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

>>> Directional Antenna
YW-7570

>>> Omnidirectional Antenna
YS-7520

On-site Tours

>>> Wall Mount Antenna
YW-4500

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

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

>>> Whip Antenna
AMT-54 BTX-D/BTX-G

>>> Helical Antenna
for S4 Series
ANT-54 HDX-D/HDX-G

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

>>> Antenna Extension Cable
for S4 Series
LD-TNC ADU

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

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

>>> Blank Panel
MW-1U-BLANK

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

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Wireless Meeting Amplifier

⋙ Diversity Meeting Amplifier
WA-1822

⋙ Diversity Meeting Amplifier with Cassette
WA-1822C

- Compact and lightweight but tough and very portable
- Maximum output power of 25W through the built-in 2 way speaker
- Accept up to two WTU-4800 tuner units
- Input volume and tone control for microphones, AUX input,and cassette player (WA-1822C)
- External speaker terminal
- Continuous operation for approx. 24 hours (using alkaline batteries, non-cassette mode)
- Recording, tape speed control and auto-reverse function (WA-1822C)
- Built-in storage for wireless/wired microphones on the back

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's handling
- Electret condenser microphone unit
- Lightweight
- Infrared light emission intensity adjustable
- Two selectable channels
- Antibacterial treatment
- Low-battery indicator

⋙ Infrared Wireless Microphone
IR-300M

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

⋙ Battery Charger
IR-200BC

⋙ Ni-MH Battery
IR-200BT-2

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	870 nm (AM: Brightness modulation) Frequency modulation Channel A: 3.100 MHz/Channel B: 3.350 MHz Approx. 20 m (Power selector switch: H; In an unobstructed space.)/Approx. 15 m (Power selector switch: N; In an unobstructed space.)	
Maximum Input Sound Pressure	120 dB 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 × 241.8mm	64 (W) × 91.3 (H) × 27.3 (D)mm
Weight	170g (with batteries)	130g (with batteries & strap)

⋙ Infrared Wireless Tuner
IR-702T
(CE-GB/US version)

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

⋙ 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

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

⋙ Distributor
YW-1022
- 1 into 2 outputs

YW-1024
- 2 into 4 outputs

⋙ Wall-mount Receiver
IR-500R

- Reception area approx. 15m
- Adjustable reception angle

⋙ Ceiling-mount Receiver
IR-510R

- Reception radius approx. 8m

⋙ 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.

• An uniform classroom-wide sound quality with a single wide-dispersion speaker which provides ample 100 m² coverage
• Quick & easy installation requiring just one CAT-5 cable
• 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.250 mA (1.2 V)
Infrared Emitter Transmission Distance	Approx.15m (In an unobstructed space)
Input Sensitivity Adjustment	Adjustment range: 2 levels (High, Low)
Microphone Unit	Unidirectional electret condenser microphone
Frequency Response	100 Hz – 12 kHz
Preemphasis	300 μs
Input	External microphone input (ø3.5 monaural mini jack)
Battery Operation Time	Approx. 8 hours (one piece of IR-200BT-2)
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 x 1

⟫⟫ Infrared Speaker

IR-820SP

Version	IR-820SP
Power Source	24 V DC (supplied from IR-802T)
Rated Output	20 W
Frequency Response	100 Hz – 20 kHz (-10 dB) at installation in 1/2 free sound field (Measured by installing the unit in the center of a ceiling.)
Amplification System	Class D
Speaker Component	12 cm (4.72") cone-type
Infrared Wireless Receiver Wavelength Carrier Frequency Reception Angle	870 nm Teacher (Channel A) : 3.100 MHz Student (Channel B) : 3.350 MHz 360° (Horizontal)
Connection Terminal	RJ-45
Connection Cable	CAT-5 UTP
Operating Temperature	-10℃ to 50℃
Dimensions	ø320 × 205 (D) mm
Weight	3.4 kg

*0 dB = 1V

⟫⟫ Infrared Wireless Tuner

IR-802T

(CE-GB/CU version)

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

*0 dB = 1V

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

Optional Microphone

IR-310M

IR-300M

IR-200M

IR-200M

IR-300M

CAT-5 cable

IR-802T (Built-in Preamp)
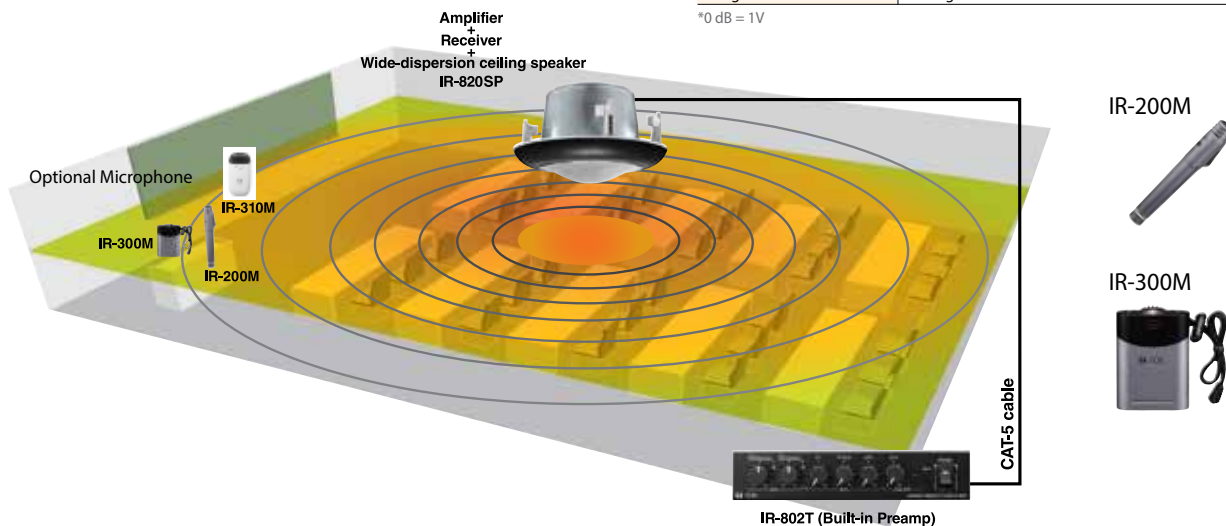
Digital Message Repeaters/ Program Timer

Digital Message Repeaters

≫ Sound Repeter
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
- Pre-recorded 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 players or dedicated BGM inputs

≫ Digital Announcer
EV-350R

- Holds up to 2 memory cards (EV-CF 128M)
- The combination of 2 sampling frequencies (32k Hz and 44.1k Hz) and 4 recording grades (long, normal, high and extremely high) permits selection of up to 8 levels of recording sound quality
- Recorded sentences can be combined into complete messages and played back as a program
- Up to 256 programs can be played back
- Up to 256 or 1024 sentences (changeable) can be recorded (when 2 memory cards are installed)
- 2 difference messages can be simultaneously output to 2 locations
- In emergency situations, Emergency messages (pre-recorded) can be set to override current programs
- Recording, playback, erasure, and stop can be remotely controlled by external equipment
- Built-in timer allows the same messages to be repeated at preset time intervals

Program Timer

≫ Program Timer
TT-104B

- For timed control of external equipment and events
- Four independent outputs with 30 programmable steps per output
- Outputs features 0.5A (24V DC) five second dry contact closures
- Weekly program with pause mode for vacations/holidays
- -/+5 second per month clock accuracy with four day backup battery if power fails

Mixers

Digital Stereo Mixers

≫ Digital Stereo Mixer
M-633D

- Stereo mixer with 12 input channels (6 monaural inputs and 3 stereo inputs) and 6 output channels (2 monaural outputs, 1 stereo output, and 1 stereo recording output)
- 2 monaural bus lines allow each input signal to be assigned to each bus line individually
- Automatic Resonance Control function, Feedback Suppression function, and Automatic Clipguard enhance sound intelligibility
- Automatically eliminates unpleasant reverbration and feedback to deliver clear, highly articulate sound
- Ideal for houses of worship, gymnasiums, meeting rooms, and more

M-864D

- Stereo mixer with22 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

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Amplifiers

A-2000 Series   Mixer Power Amplifiers

⋙ Mixer Power Amplifier

A-2030 `30w`
A-2060 `60w`
A-2120 `120w`
A-2240 `240w`
(L/H version)

- Cost effective and durable mixer power amplifier
- User friendly front panel allows easy operation
- 2 electronically balanced microphone inputs, 2 AUX inputs and recording output.
- Phantom power at MIC 1
- Wide tone-control adjustment range of -/+10 dB for both bass and treble
- 100V / 70V line or 4Ω speaker outputs
- Booster amplifier for additional power

⋙ Power Amplifiers
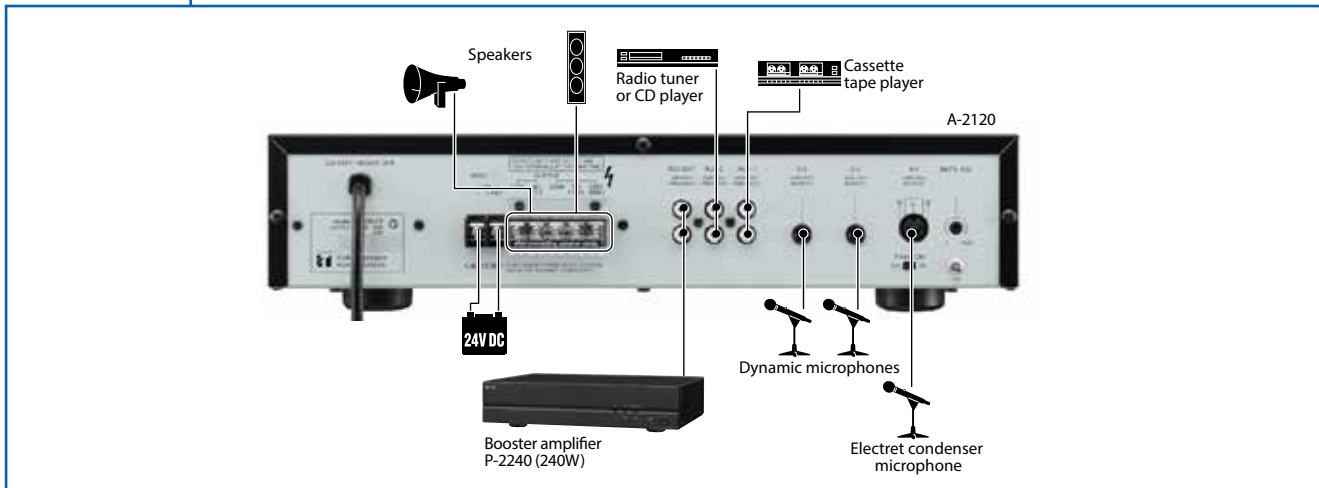
P-2240 `240w`
(L/H version)

- 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(H version only)

Model	A-2030	A-2060	A-2120	A-2240	P-2240
Power Req.	110 – 120V AC (L Version)/220 – 240V AC (H Version) or 24V DC				
Rated Output	30W	60W	120W	240W	
Frequency Response	50 – 20,000Hz (±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
Output	34W (EN60065), 78W (AC operation at rated output), 2A (DC operation at rated output)	72W (EN60065), 150W (AC operation at rated output), 4A (DC operation at rated output)	124W (EN60065), 260W (AC operation at rated output), 8A (DC operation at rated output)	238W (EN60065), 520W (AC operation at rated output), 15A (DC operation at rated output)	238W (EN60065), 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) × 100.9 (H) × 280.3 (D)mm		420 (W) × 100.9 (H) × 360.3 (D)mm		420 (W) × 100.9 (H) × 351.3 (D)mm
Weight	5kg	7kg	10.8kg	13.2kg	

*0dB = 1V

Typical Connection | A-2000 Series

Speakers

Radio tuner or CD player

Cassette tape player

A-2120

24V DC

Booster amplifier
P-2240 (240W)

Dynamic microphones

Electret condenser microphone

Microphones

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A-1800 Series Mixer Power Amplifiers

⋙ Mixer Power Amplifier

A-1803 `30w`
A-1806 `60w`
A-1812 `120w`
(ER version)

- 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`
(ER version)

- 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	50 – 20,000Hz (±3dB)			
Input	MIC1: Combination (XLR/Phone) AUX2: RCA pin jack EMERGENCY: M3 screw terminal	MIC2-3: Combination (XLR/Phone) AUX3: Combination (XLR/Phone)	AUX1(MOH): RCA pin jack TEL: 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	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 – 20,000Hz)	100dB or More			
Tone Control	Bass: ±10dB at 100Hz, Treble: ±10dB 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 and LINE 2 outputs can be interlocked with ZONE 1 and ZONE 2 speaker selectors, respectively. (This function 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.)

Typical Connection │ A-1800 Series

Microphones

Wireless Systems

Digital Message Repeaters/
Program Timer

Mixers

Amplifiers

Speakers

Conference System

Megaphones

Professional Audio

Security & Safety

Technical Column

A-1700 Series   Mixer Power Amplifiers

⋙ Microphone Mixer Power Amplifier

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

(ER version)

- 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		50 – 20,000Hz (±3dB)	
Input	MIC 1-6: Combination(XLR/Phone) AUX5: Combination(XLR/Phone)	AUX1-2: Combination(XLR/Phone) PWR AMP IN: RCA pin jack	AUX3-4: 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 – 20,000Hz)		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

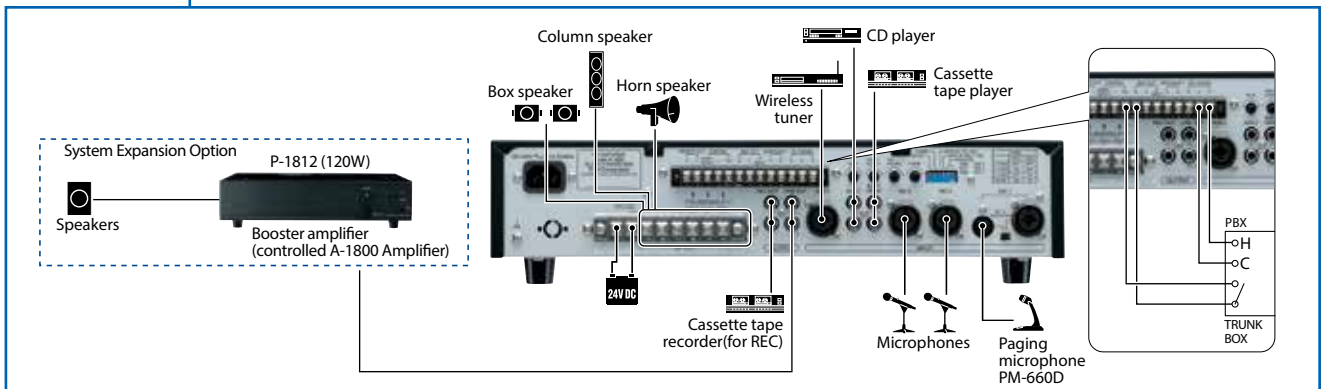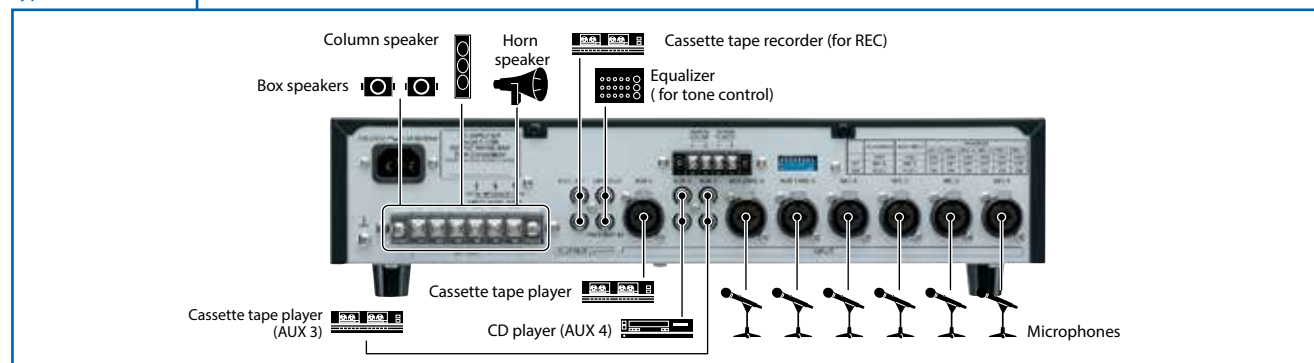Note: Distance between barriers on the above screw terminals: M3 = 7mm, M4 = 9mm
* 0dB = 1V

Typical Connection | A-1700 Series

Column speaker
Box speakers
Horn speaker
Cassette tape recorder (for REC)
Equalizer (for tone control)
Cassette tape player
Cassette tape player (AUX 3)
CD player (AUX 4)
Microphones

⋙ Rack Mount Bracket
MB-25B
For A-2000, A-1800 and A-1700 series,

Package Amplifier

⋙ Package Amplifier
A-230   `30w`

(HV version)

- 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 other Mic inputs and AUX inputs with 0 – 30dB attenuation, attenuation by MIC 1 input
Dimensions	350 (W) × 105 (H) × 240 (D)mm (13.78" × 3.97" × 9.45")
Weight	3.5kg (7.72 lb)

*0dB = 1V

Microphones

Wireless Systems

Digital Message Repeaters/ Program Timer

Mixers

Amplifiers

Speakers

Conference System

Megaphones

Professional Audio

Security & Safety

Technical Column

9000M2 Series   Modular Digital Matrix Mixer/Amplifier

The TOA M-9000M2 Digital Matrix Mixer redefines the mixer category, by combining a modular matrix mixer and digital signal processor (DSP) in a compact two-rack package. This versatile new modular unit is ideal for multi-zone paging, music distribution and room-combining applications. The M-9000M2 combines an enhanced GUI programming interface with exceptional audio quality

≫ Digital Matrix Mixer/Amplifier

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 & Output channels: 10-Band Parametric EQ/High and Low Pass Filters/Bass and Treble/Loudness/Compressor/Gate/Ducker/NOM (Automix)/ Delay (Output channel only)/TOA Speaker EQ Presets (Output channel only)/ DSP included on M-9000M2 Mainframe Outputs,D-001T, D-001R and T-001T modules

Model	A-9120DHM2
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, balanced, removable terminal block (3 pins)
Frequency Response	e 20Hz – 20kHz +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 vol.: 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	10 (setup software has 30 TOA speaker presets)
High-pass Filter	-12 dB/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 (1 ms steps), maximum 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 × 107.6 x 353mm
Weight (without modules)	6kg

*0dB = 1V

9000M2 Series   Modules

≫ Dual Mic/ Line Input Module with DSP	≫ Line Input Module	≫ Input/Output Control Module	≫ Dual Line Output Expansion Module with DSP
D-001T	D-001R	C-001T	T-001T

≫ Remote Control Module	≫ Ambient Noise Control Module	≫ Telephone Zone Paging Module	≫ Ambient Noise Sensing Microphone
RC-001T	AN-001T	ZP-001T	AN-9001

9000M2 Series   Remote Panels

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

Microphones

Wireless Systems

Digital Message Repeaters/
Program Timer

Mixers

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Professional Audio

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Technical Column

System Management Amplifiers

⋙ System Management Amplifier

VM-2120 `120w`
(ER/L version)

VM-2240 `240w`
(ER/304L version)

- 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 pre-set
- 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: 120V, 50/60Hz (L/304L version), 230V, 50/60Hz(ER version) DC: 24V/15A
Rated Output	120W(VM-2120), 240W(VM-2240)
Frequency Response	50Hz – 16kHz
Distortion	Under 1%
S/N Ratio	Over 60 dB
Tone Control	Bass: 100 Hz ±10 dB, Treble: 10 kHz ±10 dB
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: 30 V DC, 125 V AC, contact current: under 7 A (DC), under 7 A (AC)
Surveillance Input and Output	Input: No-voltage make contact input, open voltage: 3.3 V DC,short-circuit current: under 1 mA Output: Open collector output, withstand voltage: 30 V DC,control current: under 10 mA
Chime Tone	Built-in chime, Voice Announcement Board sound source
Function	Two units stacking (VM-2120 or VM-2240) Emergency broadcast (sequential control) Broadcast priority control Surveillance (failure detection) function Power supply to only one Remote Microphone (RM-200M) Line resistance: Under 40 Ω (one way)
Dimensions	419 (W) ×143.3 (H) × 355.7 (D) mm
Weight	12.5kg (VM-2120), 14.5kg (VM-2240)

*0dB = 1V

VM-2000 Series   Optional Accessories

⋙ Voice Announcement Board
EV-200M

⋙ Surveillance Board
SV-200MA

⋙ Remote Microphone
RM-200M

⋙ Remote Microphone Extension Unit
RM-210

⋙ Rack Mount Bracket
MB-36

Digital Power Amplifiers

⋙ Dual-Channel Power Amplifier

DA-250D
DA-250DH

(CE301/CU version)

⋙ 4-Channel Power Amplifier

DA-250F
DA-250FH

(CE301/CU version)

⋙ 4-Channel Power Amplifier

DA-550F
DA-500FH

(CE301 version)

⋙ Matching Transformer
MT-251H

• High reliability
The DA amplifier has a comprehensive protection circuitry for protection 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 been conducting a "non-stop driving test" 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. Because the amplifiers do not generate much heat, 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 the other channel as a spare amplifier.

CE301 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 8 ohms / 4 ohms / 100 Volts	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 (A weighted)	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: 250 W x 2 (4 Ω), 170 W x 2 (8 Ω) 1 channel (BRIDGE): 500 W (8 Ω)	2 channels: 250 W x 2 (100 V line, 40 Ω)	4 channels: 250 W x 4 (4 Ω), 170 W x 4 (8 Ω) 2 channels (BRIDGE): 500 W x 2 (8 Ω)	4 channels: 250 W x 4 (100 V line, 40 Ω)	4 channels: 550 W x 4 (4 Ω), 350 W x 4 (8 Ω) 2 channels (BRIDGE): 1,100 W x 2 (8 Ω)	4 channels: 500 W x 4 (100 V line, 20 Ω)
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	

CU Model	DA-250D	DA-250DH	DA-250F	DA-250FH	DA-550F
Power Source	120V AC, 50/60Hz				
Number of Channels	2		4		
Power Consumption* Rated power consumption 1kHz 8 ohms / 4 ohms / 70 Volts	420W, 5.9A 650W, 8.7A —	— — 580W, 7.8A	850W, 11.7A 1300W, 16.9A —	— — 1200W, 15.9A	1650W, 22.4A 2800W, 35.5A —
S/N Ratio (A weighted)	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: 250 W x 2 (4 Ω), 170 W x 2 (8 Ω) 1 channel (BRIDGE): 500 W (8 Ω)	2 channels: 250 W x 2 (70 V line, 19.6 Ω) 1 channel (BRIDGE): 500 W (140 V line, 39.2 Ω)	4 channels: 250 W x 4 (4 Ω), 170 W x 4 (8 Ω) 2 channels (BRIDGE): 500 W x 2 (8 Ω)	4 channels: 250 W x 4 (70 V line, 19.6 Ω) 2 channels (BRIDGE): 500 W x 2 (140 V line, 39.2 Ω)	4 channels: 550 W x 4 (4 Ω), 350 W x 4 (8 Ω) 2 channels (BRIDGE): 1,100 W x 2 (8 Ω)
	M4 screw terminal, distance between barriers: 8.8 mm (0.35")				
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	6.6kg		5kg		8.8kg

0dB=0.775Vrms

Microphones

Wireless Systems

Digital Message Repeaters/ Program Timer

Mixers

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Megaphones

Professional Audio

Security & Safety

Technical Column

Speakers

Ceiling Speakers

⋙ Flush Mount Type Ceiling Speaker

PC-1869   PC-2369   PC-2852   PC-2869

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

Model	PC-1869	PC-2369	PC-2852	PC-2869
Rated Input (100V line)	6W		15W	6W
Rated Impedance	100V line: 1.7kΩ, 3.3kΩ, 6.7kΩ, 13kΩ 70V line: 1.7kΩ, 3.3kΩ, 6.7kΩ, 13kΩ		100V line: 670Ω, 1kΩ, 2kΩ, 3.3kΩ 70V line: 330Ω, 670Ω, 1kΩ, 2kΩ, 3.3kΩ	100V line: 1.7kΩ, 3.3kΩ, 10kΩ 70V line: 1.7kΩ, 3.3kΩ, 10kΩ
Sensitivity (1W, 1m)	90 dB	93dB	96dB	94dB
Frequency Response	55 – 18,000 Hz	45 – 20,000 Hz		40 – 20,000 Hz
Mounting Hole Diameter	ø150 +/-3 mm	ø200 +/-3 mm	ø250 +/-3 mm	
Speaker Component	12cm cone-type	16cm double cone-type	20cm coaxial cone-type	20cm double cone-type
Finish	Frame: Steel plate, off-white/Grille: Surface-treated steel plate net, off-white			
Dimensions	ø180 x 72(D) mm	ø230 x 79 (D) mm	ø280 x 92(D) mm	
Weight	620g	760g	1.6kg	1.4kg

⋙ Flush Mount Type Ceiling Speaker

PC-648R   PC-658R

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

⋙ Surface Mount Type Ceiling Speaker

PC-2268
PC-2268WP

- Clearly audible vocal and smooth sound reproduction for easy-to-hear broadcasts
- Contemporary low-profile design that blends perfectly with interior decor
- Fire-resistant enclosure with HIPS resin front and rear cases
- PC-2268WP: IPX4 compliant splash-proof construction
  Ideal for such locations as rooms with high humidity, under eaves, connecting corridor, etc
- Application versatility with transformer tap position input power changes

Model	PC-648R	PC-658R	PC-2268	PC-2268WP
Rated Input (100V line)	6W			
Rated Impedance	100V line: 1.7kΩ, 3.3kΩ, 10kΩ 70V line: 1.7kΩ, 3.3kΩ, 10kΩ	100V line: 1.7kΩ, 3.3kΩ, 6.7kΩ, 13kΩ 70V line: 1.7kΩ, 3.3kΩ, 6.7kΩ, 13kΩ	100V line: 1.7kΩ, 3.3kΩ, 6.7kΩ, 13kΩ 70V line: 1.7kΩ, 3.3kΩ, 6.7kΩ, 13kΩ	
Sensitivity (1W, 1m)	90 dB			
Frequency Response	100 – 18,000 Hz	65 – 18,000 Hz	160 – 14,000 Hz	
Mounting Hole Diameter	ø145 +/-5 mm	ø170 +/-5 mm	—	
Speaker Component	12cm cone-type	16cm cone-type	12cm cone-type	
Finish	Frame: Polypropylene resin, off-white/Grille: Surface-treated steel plate net, off-white		Frame: Fire-resistant HIPS resin/Grille: Fire-resistant HIPS resin	
Dimensions	ø168 x 77(D) mm	ø192 x 73(D) mm	ø220 x 80.5 (D)mm	
Weight	470g	500g	880g	890g

⋙ Surface Mount Type Ceiling Speaker

PC-2668

- 12 cm 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

⋙ Attenuator

ATT-311

⋙ Splashproof Ceiling Speaker

PC-3CL

- Clean room / shower room speaker
- For humid or high temperature areas
- IP64 certified weatherproof construction
- Resistant against formalin and iodine solutions
- Wide temperature range of -20 to 60ºC
- Fits in φ100 mm holes

Model	PC-2668	PC-3CL
Rated Input (100V line)	6W	3W
Rated Impedance	100V line: 1.7kΩ, 3.3kΩ, 6.7kΩ, 13kΩ 70V line: 1.7kΩ, 3.3kΩ, 6.7kΩ, 13kΩ	100V line: 3.3kΩ, 10kΩ 70V line: 3.3kΩ, 10kΩ
Sensitivity (1W, 1m)	90 dB	87 dB
Frequency Response	100 – 16,000 Hz	150 – 20,000 Hz
Mounting Hole Diameter	—	ø100 mm
Speaker Component	12cm dynamic 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	ø139 x 104.5 (D)mm
Weight	820g	550g

Microphones

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Technical Column

Ceiling Speakers

⋙ Clean Room Ceiling Speaker

PC-5CL

⋙ Splashproof Ceiling Speaker

PC-3WR

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

• Ideal for wet and humid locations
• IP64 certified weatherproof construction
• Fits in ø150 mm holes

Model	PC-5CL	PC-3WR
Rated Input (100V line)	5W	3W, 1W
Rated Impedance	100V line: 2 kΩ(5W) 70V line: 2 kΩ(2.5W)	3.3kΩ, 10kΩ
Sensitivity (1W, 1m)	87 dB	88 dB
Frequency Response	150 – 20k Hz	180 – 20,000 Hz
Mounting Hole Diameter	ø98 mm	ø150 mm
Speaker Component	8 cm cone-type	8cm cone-type
Finish	Panel: Alloy-coated ABS resin/Enclosure: ABS resin, off-white/ Punching net: Stainless steel/Exposed fixing screw: Stainless steel	Frame: Alloy-coated ABS resin/Grille: Stainless steel punching net
Dimensions	ø116 x 110 (D) mm	ø116 x 110 (D) mm
Weight	620 g	700g
Operating Temperature	-20℃ to +55℃	-10℃ to +50℃

⋙ Ceiling Mount Fire Dome Speaker

PC-1867F
PC-1867FC

• Metallic firedome construction prevents flame and smoke from spreading into ceiling installation
• 12 cm speaker
• Easy installation with spring catches
• Push-in terminals for speaker cable (PC-1867F) or ceramic-terminals (PC-1867FC)
• Aluminum baffle
• PC-1867FC in accordance with British Standard BS5839 (Part 8)
• EN 54-24 certified in 2010 (Certificate No.: 1438/CPD/0183)

Model	PC-1867F	PC-1867FC
Rated Input (100V line)	6W	
Rated Impedance	100V line: 1.7kΩ, 3.3kΩ, 6.7kΩ, 13kΩ/70V line: 1.7kΩ, 3.3kΩ, 6.7kΩ, 13kΩ	
Sensitivity (1W, 1m)	90 dB	
Frequency Response	100 – 16,000 Hz	160 – 13,000 Hz
Mounting Hole Diameter	ø156 mm +/-3 mm	
Speaker Component	12cm cone-type	
Finish	Frame: Aluminum, off-whit/Grille: Aluminum net, off-white	
Dimensions	ø180 x 121(D) mm	
Weight	1.4kg	
Operating Temperature	-10° to +50°	

Combination Type Reflex Horn Speakers

⋙ Wide Range Horn Speaker

CS-64

⋙ Wide Range Horn Speaker

CS-154
CS-304

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

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

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

Microphones

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Technical Column

Powered Horn Speakers

>>> Powered Horn Speaker

APH-20

- Efficent and durable horn speaker, ideal for industrial use
- Stainless steel brackets and hardware
- Built in with a 20 watt power amplifier
- IP65 certified weatherproof construction
- Featres internal volume control

Model	APH-20
Termination	2m Flying Lead
Input Level/Impedance	1V p-p at 1kΩ
Sensitivity (1W, 1m)	106 dB
Frequency Response	350 – 9,000 Hz
Finish	ABS Resin Light Grey (RAL 7035) Stainless Steel Bracket
Dimensions	Ø 165X238mm
Weight	1.55kg
Dust/Water Protection	IP65
Operating Temperature	-20°C to +55°C

Combination Type Reflex Horn Speakers

>>> Paging Horn Speaker
SC-610
SC-610M

>>> Paging Horn Speaker
SC-615
SC-615M

>>> Paging Horn Speaker
SC-630
SC-630M

- Both high-impedance (70V/100V lines) models 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 aluminum oval horn
- IP65 certified weatherproof construction

Model	SC-610	SC-610M	SC-615	SC-615M	SC-630	SC-630M
Rated Input (100V line)	10W		15W		30W (8Ω)	30W
Rated Impedance	8Ω	100V line: 1kΩ, 2kΩ, 3.3kΩ, 10kΩ 70V line: 500Ω, 1kΩ, 2kΩ, 3.3kΩ, 10kΩ	8Ω	100V line: 670Ω, 1kΩ, 2kΩ, 3.3kΩ 70V line: 330Ω, 670Ω, 1kΩ, 2kΩ, 3.3kΩ	6Ω	100V line: 330Ω, 670Ω, 1kΩ, 2kΩ 70V line: 170Ω, 330Ω, 670Ω, 1kΩ, 2kΩ
Sensitivity (1W, 1m)	110 dB		112 dB		113 dB	
Frequency Response	315 – 12,500 Hz		280 – 12,500 Hz		250 – 10.000 Hz	
Finish	Horn flare: Aluminum, off-white, powder coating/Reflector horn: ABS resin, off-white/Bracket holder: Aluminum, 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	
Weight	1kg	1.2kg	1.1kg	1.3kg	1.7kg	2kg
Dust/Water Protection	IP65					
Operating Temperature	-20°C to +55°C					

>>> Paging Horn Speaker

SC-651

- Newly developed polyimide diaphragm ensures durability during 50W output
- Paging horn speaker for voice paging and tone signaling distribution
- Weather-Resistant to withstand demanding environmental conditions
- Shock-resistant aluminum oval horn
- IP65 certified weatherproof construction
- Wide temperature range: -20°C to 55°C

Model	SC-651
Rated Input (100V line)	50W
Rated Impedance	16Ω
Sensitivity (1W, 1m)	109 dB
Frequency Response	250 – 6,000 Hz
Finish	Horn flare: Aluminum, off-white, powder coating/ Reflector horn: ABS resin, off-white/ Bracket holder: Aluminum, gray, powder coating/ Bracket: Stainless steel
Dimensions	430 (W) x 297.5 (H) x 327 (D) mm
Weight	3.4kg
Dust/Water Protection	IP65
Operating Temperature	-20°C to +55°C

Optional Accessories

>>> Pole Mount Bracket
SP-131

>>> Pole Band
YS-60B

>>> Wall Mount Bracket
SP-301

>>> Wall and Pole Mount Bracket
SP-201

Microphones

Wireless Systems

Digital Message Repeaters/ Program Timer

Mixers

Amplifiers

Speakers

Conference System

Megaphones

Professional Audio

Security & Safety

Technical Column

Combination Type Reflex Horn Speakers

>>> Horn Speaker
TC-615
TC-615M

>>> Horn Speaker
TC-631
TC-631M

>>> Horn Speaker
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 aluminum 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 aluminum round horn
- Wide temperature range of -20°C to 60°C
- Compliance with IP65

Model	TC-615	TC-615M	TC-631	TC-631M	TC-651M
Rated Input (100V line)	15W		30W		
Rated Impedance	8Ω	100V line: 670Ω, 1kΩ, 2kΩ, 3.3kΩ 70V line: 330Ω, 670Ω, 1kΩ, 2kΩ, 3.3kΩ	16Ω	100V line: 330Ω, 670Ω, 1kΩ, 2kΩ 70V line: 170Ω, 330Ω, 670Ω, 1kΩ, 2kΩ	100V line: 200Ω, 330Ω, 670Ω 70V line: 100Ω, 200Ω, 330Ω, 670Ω
Sensitivity (1W, 1m)	108 dB		110 dB		111 dB
Frequency Response	250 – 7,000 Hz		200 –6,000 Hz		
Finish	Horn flare: Aluminum, off-white, powder coating/Reflector horn: ABS resin, off-white Bracket holder: Aluminum, gray, powder coating/Bracket: Steel, gray, powder coating				
Dimensions	ø400(W) x 376(D) mm		ø500 (W) x 463(D) mm		ø400 (W) 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 Horn
TH-650

>>> Reflex Horn
TH-660

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

Model	TH-650	TH-660
Sensitivity (1W, 1m)	110 dB*	
Frequency Response	200 – 6,000 Hz*	
Finish	Horn flare: Aluminum, off-white, powder coating/Bracket: Steel, gray, powder coating	
Dimensions	ø500 – 394 (D) mm	ø600 – 425 (D) mm
Weight	2.9kg	3.6kg

*When operated with TU-631/631M/651/651M driver unit.

Separate Type Horn Speakers

>>> Driver Unit
TU-631
TU-651

>>> Driver Unit
TU-631M
TU-651M

>>> Driver Unit Cover
UC-200A

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

- Glass fiber-mixed unsaturated polyester resin to protect the driver unit from sever weather conditions

Model	TU-631	TU-651	TU-631M	TU-651M
Rated Input	30W	50W	30W	50W
Rated Impedance	16Ω		100V line: 330Ω, 670Ω, 1kΩ, 2kΩ / 70V line: 170Ω, 330Ω, 670Ω, 1kΩ, 2kΩ	100V line: 200Ω, 330Ω, 670Ω / 70V line: 100Ω, 200Ω, 330Ω, 670Ω
Sensitivity (1W, 1m)	110 dB*			
Frequency Response	150 – 6,000 Hz *			
Finish	Flange: Aluminum, gray, powder coating/Rear cover: ABS resin, gray/Screws: Stainless steel			
Dimensions	ø139 x 106 (D)mm		ø139 x 149 (D)mm	
Weights	1.4kg	1.9kg	1.9kg	2.7kg
Dust/Water Protection	IP65*			
Operating Temperature	-20℃ to +60℃	-20℃ to +55℃	-20℃ to +60℃	-20℃ to +55℃

*When operated with TH-650 and TH-660.

Garden Speaker

GS-302

- Stylish, attractively designed out door speaker
- Blends well into 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: 330Ω, 670Ω, 1kΩ, 2kΩ, 3.3kΩ / 70V line: 330Ω, 670Ω, 1kΩ, 2kΩ, 3.3kΩ
Sensitivity (1W, 1m)	87 dB
Frequency Response	100 – 8.000 Hz
Speaker Component	12cm splash proof cone-type
Finish	Top cover and base: FRP resin, dark gray/ Speaker panel: ABS resin, dark grayLegs: Aluminum, dark gray
Dimensions	ø270 x 335(H) mm
Weight	2.4kg
Dust/Water Protection	Equivalent to IPX4

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 colors 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: 1.7kΩ, 3.3kΩ/70V line: 1.7kΩ, 3.3kΩ		100V line: 1kΩ, 2kΩ, 3.3kΩ, 10kΩ/70V line: 500Ω, 1kΩ, 2kΩ, 3.3kΩ, 10kΩ	
Sensitivity (1W, 1m)	90 dB			
Frequency Response	120 – 18,000 Hz			
Speaker Component	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
Dimensions	210(W) x 330(H) x 80(D)mm			
Weight	1.3kg		1.4kg	

Microphones

Wireless Systems

Digital Message Repeaters/ Program Timer

Mixers

Amplifiers

Speakers

Conference System

Megaphones

Professional Audio

Security & Safety

Technical Column

Wall Mount Box Speakers

BS-678
BS-678B

BS-678T
BS-678BT

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
• Ideally suited for voice alarm system application

(BS-680FC)
• 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: 1.7kΩ, 3.4kΩ, 6.7kΩ, 13kΩ/70V line: 1 .7kΩ, 3.4kΩ, 6.7kΩ, 13kΩ		100V line: 1.7kΩ, 3.3kΩ, 6.7kΩ, 13kΩ/70V line: 1.7kΩ, 3.3kΩ, 6.7kΩ, 13kΩ	
Sensitivity (1W, 1m)	94 dB			
Frequency Response	150 – 20.000 Hz			
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	250(W) x 200(H) x 110(D)mm	310(W) x 190(H) x 87.2(D) mm	
Weight	1.7kg		2.6kg	

Box Speakers

>>> Wall Mount Box Speaker

BS-633A

>>> Wall Mount Box Speaker

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: 1.7kΩ, 3.3kΩ, 10kΩ 70V line: 1.7kΩ, 3.3kΩ, 10kΩ	100V line: 1.7kΩ, 3.3kΩ 70V line: 1.7kΩ, 3.3kΩ
Sensitivity (1W, 1m)	91 dB	
Frequency Response	120 – 15.000 Hz	
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

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

>>> Wall Mount Bracket

SP-410

Microphones

Wireless Systems

Digital Message Repeaters/
Program Timer

Mixers

Amplifiers

Speakers

Conference System

Megaphones

Professional Audio

Security & Safety

Technical Column

Pendant/Projection Speakers

>>> Pendant Speaker
PE-64
PE-304

>>> Projection Speaker
PJ-64
PJ-304

>>> Projection Speaker
PJ-100W

>>> Projection Speaker
PJ-200W

- 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

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

- Wide range projection speaker
- 2 rated input model 10W and 20W available

Model	PE-64	PE-304	PJ-64	PJ-304	PJ-100W	PJ-200W
Rated Input (100V line)	6W	30W	6W	30W	10W	20W
Rated Impedance	100 line: 1.7kΩ, 3.3kΩ, 10kΩ 70V line: 1.7kΩ, 3.3kΩ, 10kΩ	100 line: 330Ω, 500Ω, 670Ω, 1kΩ, 2kΩ 70V line: 170Ω, 250Ω, 330Ω, 500Ω, 1kΩ	100 line: 1.7kΩ, 3.3kΩ, 10kΩ 70V line: 1.7kΩ, 3.3kΩ, 10kΩ	100 line: 330Ω, 500Ω, 670Ω, 1kΩ, 2kΩ 70V line: 170Ω, 250Ω, 330Ω, 500Ω, 1kΩ	50V line: 250Ω, 500Ω, 1kΩ, 2kΩ, 4kΩ/ 70V line: 500Ω,1kΩ, 2kΩ, 4kΩ/ 100V line: 1kΩ, 2kΩ, 4kΩ	50V line: 125Ω, 250Ω, 500Ω, 1kΩ, 3kΩ/ 70V line: 250Ω,500Ω, 1kΩ, 2kΩ/ 100V line: 500Ω, 1kΩ, 2kΩ
Sensitivity (1W, 1m)	90 dB	91 dB	90 dB	91 dB	92 dB	95 dB
Frequency Response	100 – 18,000 Hz	70 – 20,000 Hz	100 – 18,000 Hz	70 – 20,000 Hz	65 – 18,000 Hz	50 – 20,000 Hz
Speaker Component	12cm cone-type	12cm cone-type + balanced dome tweeter	12cm cone-type	12cm cone-type + balanced dome tweeter	12cm	16cm
Finish	Enclosure: HIPS resin, off-white/ Grille: Surface-treated steel plate net, off-white				Cabinet, Cover: ABS Resin, off-white/ Bracket: SPCC, off-white	
Dimensions	ø186 x 251(H)mm (unit only)		ø186 x 369 (H)mm		160 (W) x 200 (H) x 195 (D)mm	200 (W) x 255 (H) x 250 (D)mm
Weight	1.5kg	2.1kg	1.5kg	2.1kg	1.8kg	2.5kg

Column Speakers

>>> Universal Speaker
BS-1110W

>>> Universal Speaker
BS-1120W

- Column speakers with speakers arrayed in a vertical line
- Create unique sound spaces featuring a wide horizontal spread of sound that remains tightly focused in the vertical plane

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

>>> Speaker Mount
Bracket for TZ-105/205
YS-301

Microphones

Wireless Systems

Digital Message Repeaters/ Program Timer

Mixers

Amplifiers

Speakers

Conference System

Megaphones

Professional Audio

Security & Safety

Technical Column

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

F-1000BT
F-1000BTWP

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

F-1300BT
F-1300BTWP

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

F-2000BT
F-2000BTWP

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

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

>>> Pole Mounting Bracket
YS-60B

*Indoor use only.

Microphones

Wireless Systems

Digital Message Repeaters/ Program Timer

Mixers

Amplifiers

Speakers

Conference System

Megaphones

Professional Audio

Security & Safety

Technical Column

F Series   Wide-dispersion Ceiling Speakers

- Expanded listening coverage area through extra-wide dispersion characteristics
- Minimal high frequency rolloff allows clear and well-balanced sound reproduction over a wide listening area
- Designed to blend into ceilings with a smooth, low-profile design
- Extra ease of use and higher cost-effectiveness with 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 e.g. for high ceilings (3 to 6 m)
- Diffusor for wide dispersion of high frequencies
- Metal back can

F-2322C

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

F-2352C

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

F-122C

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

F-2352SC

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

F-1522SC

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

Model	F-2852C	F-2322C	F-2352C	F-122C	F-2352SC	F-1522SC
Rated Input (100V line)	60W	30W			6W	
Rated Impedance		100V line: 170Ω, 330Ω, 670Ω, 3.3kΩ 70V line: 83Ω, 170Ω, 330Ω, 670Ω, 3.3kΩ 25V line: 83Ω, 170Ω, 330Ω, 670Ω, 3.3kΩ Low (adjustable): 16Ω, 8Ω				
Sensitivity (1W, 1m)	91dB	90dB			89dB	88dB
Frequency Response	80 – 20,000 Hz	70 – 20,000 Hz		40 – 20,000 Hz	80 – 20,000 Hz	65 – 18,000 Hz
Mounting Hole Diameter	ø250 mm	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 fiber, 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

F Series Optional Brackets

⟫⟫ Back Can
HY-BC1

⟫⟫ Trim Ring
HY-TR1

⟫⟫ Tile Bar Bridge
HY-TB1
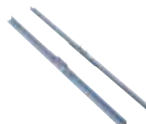
⟫⟫ Anchor Hanging Bracket
HY-AH1

⟫⟫ Reinforcement Ring
HY-RR1

⟫⟫ Reinforcement Ring
HY-RR2

Microphones

Wireless Systems

Digital Message Repeaters/ Program Timer

Mixers

Amplifiers

Speakers

Conference System

Megaphones

Professional Audio

Security & Safety

Technical Column

Interior Design Speakers

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

〉〉〉 Adapter Frame
HY-H1

〉〉〉 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

	H-1	H-2	H-2WP	H-3	H-3WP
Power Handling Capacity	90W (continuous program)	120W (continuous program)		150W (continuous program)	
Rated Input (100V line)	12W (16Ω)	12W (16Ω)		30W (16Ω)	
Rated Impedance	4Ω or 16Ω/100V line: 830Ω, 1.7kΩ, 3.3kΩ 70V line: 420Ω, 830Ω, 1.7kΩ, 3.3kΩ			4Ω or 16Ω/100V line: 330Ω, 670Ω, 1.3kΩ 70V line: 170Ω, 330Ω, 670Ω, 1.3kΩ	
Sensitivity (1W, 1m)	85 dB	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 aluminum 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 inches centers
• 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	45 – 200Hz
Speaker Component	20cm cone speaker
Finish	Enclosure; Steel plat, black paint/ Front Frame; Fire-resistant ABS resin/, off-white, paint/ Punched net; Steel plate, off-white, paint
Dimensions	430 (W) x 544 (H) x 135 (D) mm
Weight	11kg

Compact Satellite Speaker System

〉〉〉 Compact Satellite Speaker System
BS-301B

〉〉〉 Compact Satellite Speaker System
BS-301W

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

Model	BS-301B (Black)/BS-301W (White)
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	40 – 20,000Hz* 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
Dimensions	210 (W) x 390 (H) x 563 (D)mm / Weight: 11.5kg (excluding mounting bracket)
Satellite Speaker Dimensions	Speaker component: 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 × 1 set, Satellite speaker mounting bracket (black or white) × 6, Satellite speaker mounting screw and plain washer and spring washer x 1 set, Sticker for satellite speaker (black or white) × 8

* Overall characteristics measured in a set configuration of a subwoofer (L or R channel) and 2 satellite speakers

Microphones

Wireless Systems

Digital Message Repeaters/
Program Timer

Mixers

Amplifiers

Speakers

Conference System

Megaphones

Professional Audio

Security & Safety

Technical Column

Steerable Active Line Array Speaker

⟩⟩⟩ Compact Satellite Speaker System

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, including gain, mute, compression, delay, auto-mixing, high/low pass filters, high/low shelving filters, 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 - 90º
  Vertical Beam Width - 45º
  Verticle Beam Angle - ±45º (Adjustable via dedicated GUI software)

Model	SR-D8
Power Source	220-240V AC, 50/60Hz
Power Consumption	320 W (Rated output), 72 W (Based on EN Standards)
Frequency Response	140 Hz - 20 kHz
S/N Ratio	90 dB or more (A-weighted)
Amplification System	Class D, 8 channels
Output	30 W, 1 channel (1% THD+N)
Max SPL	Max. 93 dB SPL (A-weighted, pink noise, 30 m)
Finish	Enclosure: MDF, white, paint, Front grille: Punched steel plate, white, acrylic paint
Dimensions	160 (W) x 895 (H) x 255 (D) mm (6.3" x 35.24" x 10.04")
Weight	21 kg (46.3 lb)
Accessories	Power supply cord (2 m) 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

* CobraNet is a registered trademark of Cirrus Logic Corporation

Line Array Speaker Type H

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

- Slim line array with excellent directivity
- Narrow 84 mm design allows speakers to fit in well with the interior decor of the venue
- Sync-Drive (Synchronous Nexus Control) technology create 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 bracket is 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	2dB
Frequency Response		80 – 18,000Hz	90 – 17,000Hz	110 – 18,000Hz	90 – 17,000Hz
Speaker Component		7cm cone-type x 9		7cm cone-type x 16	
Directivity Angle		Horizontal: 90°/Vertical: 0°			Horizontal: 90°/Vertical: 20°
Finish	Enclosure:	MDF, white, paint			
	Front grille:	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 1,186 (H) x 115 (D)mm	84 (W) x 1,177.2 (H) x 157 (D)mm
Weight		4.4kg	4.2kg	7.6kg	7.9kg

Optional Accessories

⟩⟩⟩ Wall Mounting Bracket	⟩⟩⟩ Wall Tilt Bracket	⟩⟩⟩ Flying Bracket	⟩⟩⟩ Extension Plate	⟩⟩⟩ Stand Adapter	⟩⟩⟩ Matching Transformer
SR-WB3	SR-TB3	SR-FB3	SR-EP3	SR-SA3	MT-S0301

Microphones

Wireless Systems

Digital Message Repeaters/ Program Timer

Mixers

Amplifiers

Speakers

Conference System

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Professional Audio

Security & Safety

Technical Column

Line Array Speaker Type S

SR-S4L
SR-S4LWP

SR-S4S
SR-S4SWP

- 2-way line array speaker with 8 10-cm (4") woofers and 24 high-frequency drivers, installed vertically
- Sync-Drive (Synchronous Nexus Control) technology create 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 bracket is 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		70 – 20,000Hz			
Speaker Component		Low: 10cm cone-type x 8, High: 2.5cm balanced dome-type x 24			
Directivity Angle		Horizontal: 90°/Vertical: 0°		Horizontal: 90°/Vertical: 10°	
Finish	Enclosure:	MDF, white, paint	Plywood, white, urethane coating	MDF, white, paint	Plywood, white, urethane coating
	Front grille:	Punched steel plate, white, acrylic paint	Punched stainless steel (SUS304),white paint	Punched steel plate, white, acrylic paint	Punched stainless steel (SUS304),white paint
Dimensions		160 (W) x 895 (H) x 255(D)mm		160 (W) x 892 (H) x 303(D)mm	
Weight		16kg			
Dust/Water Protection		—	IPX4	—	IPX4

Optional Accessories

⋙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

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 bracket is available

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

Subwoofers

FB-120B   FB-120W

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

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

HX-5B/HX-5W   Optional Accessories

>>> Rigging Frame
HY-PF1B

>>> Ceiling Mount Bracket
HY-CW1B

>>> Mount Bracket
HY-WM1B

>>> Mount Bracket
HY-WM2B

>>> Extension Bracket
HY-CN1B

>>> Rigging Frame
HY-PF1W

>>> Ceiling Mount Bracket
HY-CW1W

>>> Mount Bracket
HY-WM1W

>>> Mount Bracket
HY-WM2W

>>> Extension Bracket
HY-CN1W

>>> Speaker Stand Adapter
HY-ST1

HX-5B-WP/HX-5W-WP   Optional Accessories

>>> Rigging Frame
HY-PF1WP

>>> Ceiling Mount Bracket
HY-CW1WP

>>> Mount Bracket
HY-WM1WP

>>> Mount Bracket
HY-WM2WP

>>> Extension Bracket
HY-CN1B-WP

>>> Extension Bracket
HY-CN1W-WP

HX-5   Series   Optional Accessory

>>> Matching Transformer
MT-200

Coaxial Array Speakers

HS-120B	HS-1200BT	HS-150B	HS-1500BT
HS-120W	HS-1200WT	HS-150W	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 pink noise: 100W	Continuous pink noise: 100W (Low impedance)	Continuous pink noise: 100W	Continuous pink noise: 100W (Low impedance)
Sensitivity (1W, 1m)	97 dB		98dB	
Rated Impedance	8Ω	8Ω/100V line; 170Ω, 330Ω, 670Ω/ 70V line; 83Ω, 170Ω, 330Ω, 670Ω	8Ω	8Ω/100V line; 170Ω, 330Ω, 670Ω/ 70V line; 83Ω, 170Ω, 330Ω, 670Ω
Frequency Response	80 – 20,000 Hz	70 – 20,000 Hz		60 – 20,000 Hz
Speaker Component	Low: 30cm cone-type, High: Balanced dome tweeter x 6		Low: 38cm cone-type, High: Balanced dome tweeter x 6	
Finish	Enclosure: Polypropylene, black or white/Punched net: Surface-treated steel plate, black or white			
Dimensions	361 (W) x 448 (H) x 320 (D) mm		451 (W) x 560 (H) x 400(D) mm	
Weight	8.5kg	10kg	12kg	14kg

Optional Brackets

≫ 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-C0801*

≫ For ceiling
HY-C0801W*

≫ For wall
HY-W0801*

≫ For wall
HY-W0801W*

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

Optional Speaker Accessories

≫ Speaker Stand
ST-16A

≫ Speaker Stand
ST-34B

≫ Attenuator
AT-063P

≫ Attenuator
AT-303P

≫ Attenuator
AT-603P

Impedance Meter

≫ Impedance Meter
ZM-104A

Microphones

Wireless Systems

Digital Message Repeaters/
Program Timer

Mixers

Amplifiers

Speakers

Conference System

Megaphones

Professional Audio

Security & Safety

Technical Column

Conference System

Infrared Conference System TS-800/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

CD Player   PC

Monitor

Switcher

TS-905/ TS-907

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
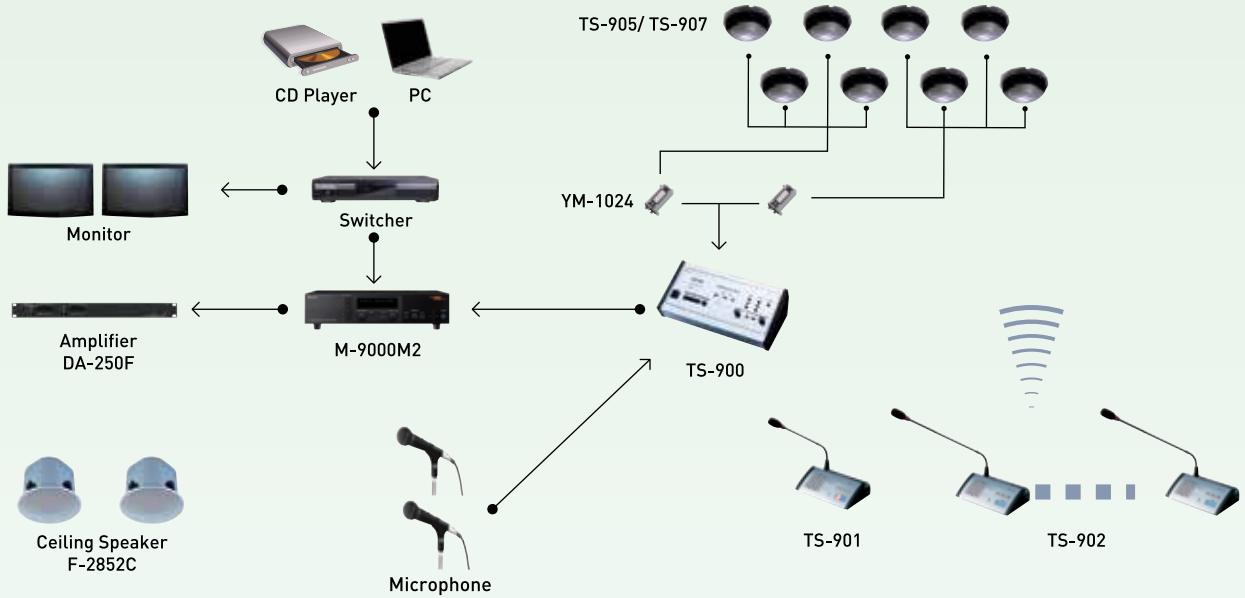
⋙ Central Unit
TS-900

- 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

- 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

⋙ Delegate Unit
TS-902

Microphones

Wireless Systems

Digital Message Repeaters/
Program Timer

Mixers

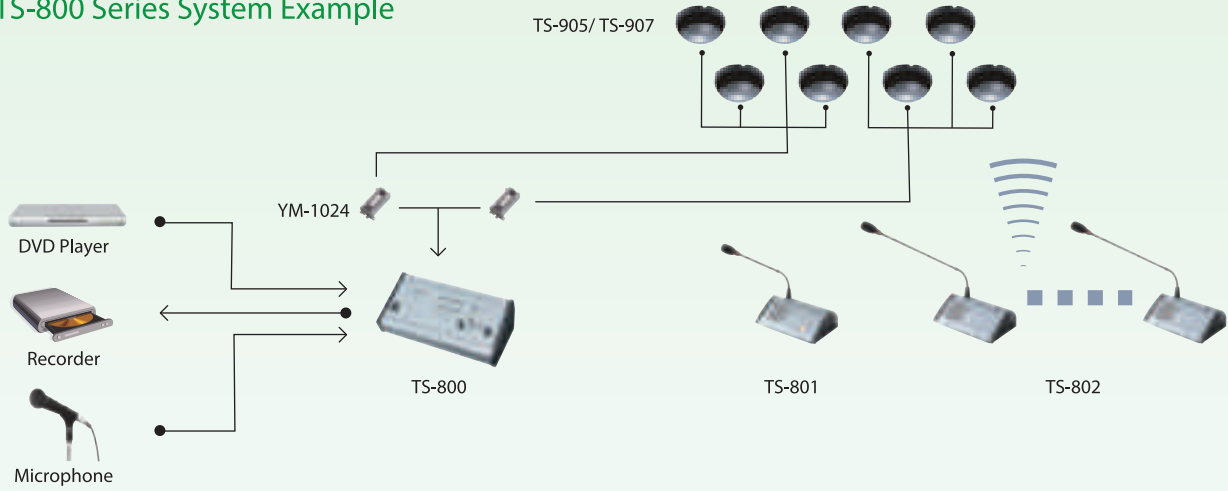Amplifiers

Speakers

Conference System

Megaphones

Professional Audio

Security & Safety

Technical Column

Infrared Conference System TS-800/TS-900 Series

TS-800 Series System Example

TS-905/ TS-907

YM-1024

DVD Player

Recorder

TS-800

Microphone

TS-801

TS-802

>>> **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

>>> **Rechargeable**
Lithium-Ion Battery
BP-900

>>> **Battery Charger**
BC-900

>>> **Infrared Transmitter/**
Receiver
TS-905

>>> **Infrared Transmitter/**
Receiver
TS-907

>>> **AC Adapter**
AD-0910

>>> **Distributor**
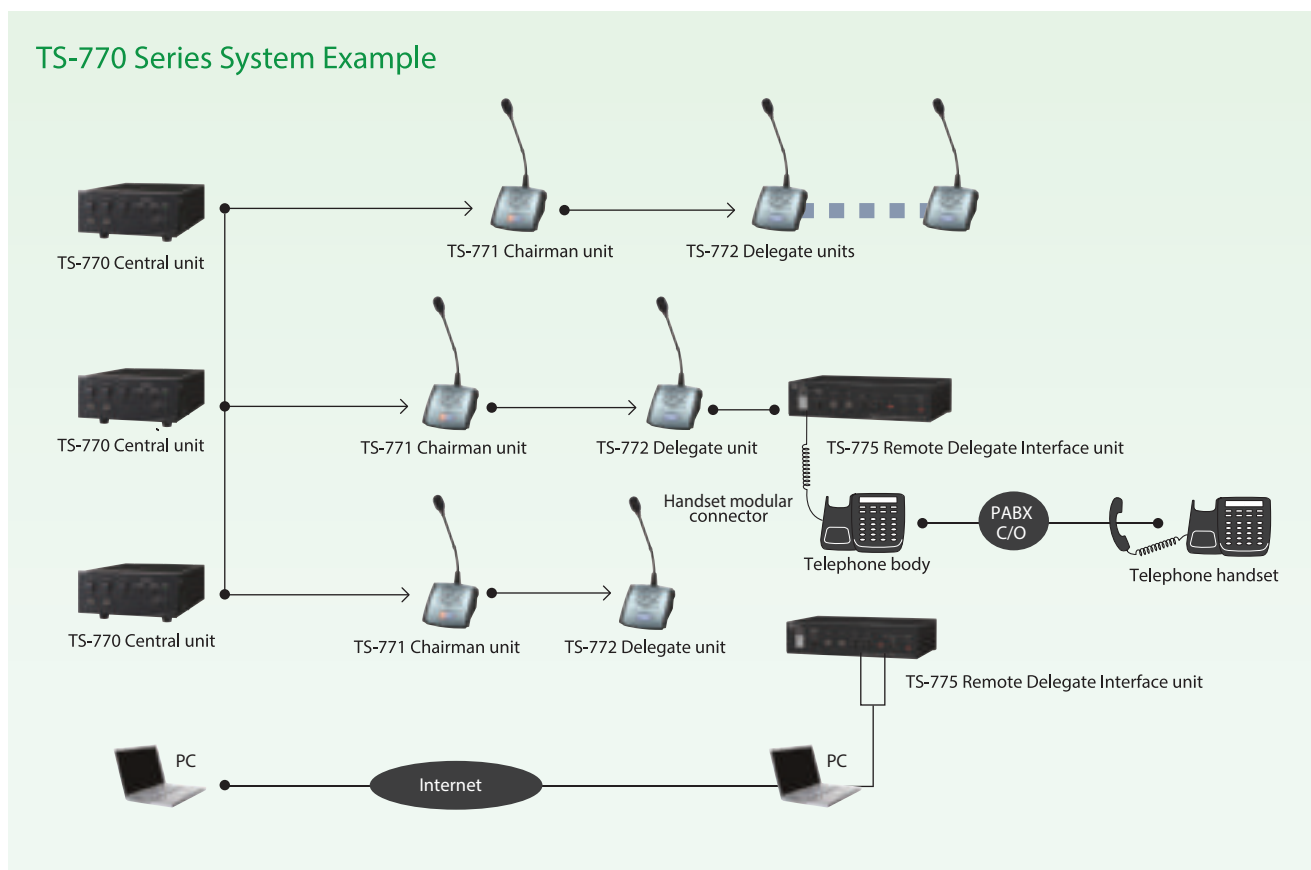### YW-1022

>>> **Distributor**
YW-1024

>>> **Rack Mount**
Bracket
MB-TS900

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 also
- Expandable to maximum 210 units by connecting 2 additional Central Units
- Equipped with an All-Mic-On function that simultaneously turns on all microphones for sound collecting and recording of all units
- Remote conferencing is possible, enabling people at a remote location to participate in the conference
- The Test Function feature enables easy checking of the connection status of all connected units
- Number of simultaneously usable delegate units can be selected
- Automatic Mic-Off function (TIME OUT)

TS-770 Series System Example

TS-770 Central unit

TS-771 Chairman unit   TS-772 Delegate units

TS-770 Central unit   TS-771 Chairman unit   TS-772 Delegate unit   TS-775 Remote Delegate Interface unit

Handset modular connector

Telephone body   PABX C/O   Telephone handset

TS-770 Central unit   TS-771 Chairman unit   TS-772 Delegate unit

TS-775 Remote Delegate Interface unit

PC   Internet   PC

⟫ Central Unit
TS-770

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

⟫ Chairman Unit
TS-771

⟫ Delegate Unit
TS-772

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

⟫ 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

Microphones

Wireless Systems

Digital Message Repeaters/ Program Timer

Mixers

Amplifiers

Speakers

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Megaphones

Professional Audio

Security & Safety

Technical Column

Microphones

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Technical Column

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
- Polyimide speaker diaphragms
- Wireless Function (ER-2930W only)

- Long-lasting battery life
- Compact and lightweight
- Neodymium magnets for high audio performance
- Extended audible range

Splashproof Hand Grip Type Megaphones

ER-1203
- 4W max.
- IPX5*

ER-1206
- 10W max.
- IPX5*

ER-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-1215
- 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

≫ UHF Wireless Tuner Unit
WTU-4800

Hands-Free Type Megaphones

≫ Compact Power Megaphone
ER-604W

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

≫ Personal PA System
ER-1000

- Ideal for school teachers, sports instructors, tour guides, trade show personnel, and police officers, all of whom can benefit from the system's hands free convenience
- Ultra-light body of only about 480 g, yet with a maximum output of 10W and a maximum audible range of 80 meters
- Supplied headset microphone
- 80 cm long elastic waist belt extendable to up to 120 cm
- A 30 cm 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

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 Stereo Mixer
M-864D

⟫ Digital Mixer
D-901

⟫ Digital Signal Processor
DP-K1

Line Array Speaker Type C

- Module-type 2-way Speaker
- 20-cm LF Neodymium woofer + two 2.5 cm Neodymium drivers
- Power Handling Capacity: 360W LF + 180W HF

Line Array Speaker Type A

- Module-type 2-way Speaker
- 30-cm (12") LF driver and 2 compression drivers
- Power Handling Capacity: 450W LF + 180W HF

Security & Safety

Integrated Voice Evacuation System

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

SX-2000 Series

VX-2000 Series

VM-3000 Series

IP Network Intercom System

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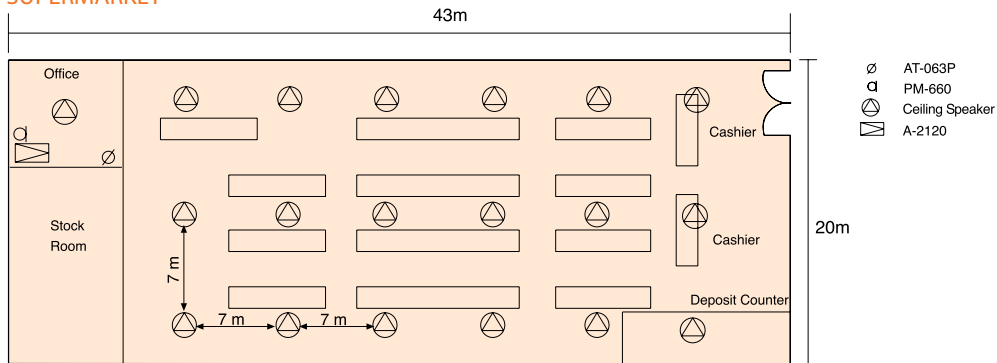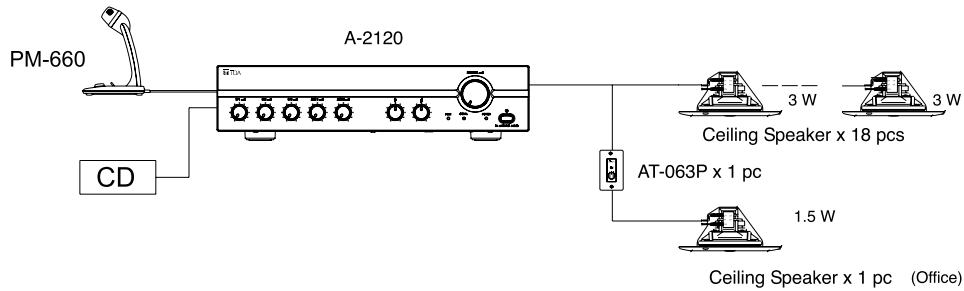
N-8000 Series

Microphones
Wireless Systems
Digital Message Repeaters/Program Timer
Mixers
Amplifiers
Speakers
Conference System
Megaphones
Professional Audio
Security & Safety
Technical Column

Microphones

Wireless Systems

Digital Message Repeters/ Program Timer

Mixers

Amplifiers

Speakers

Conference System

Megaphones

Professional Audio

Security & Safety

Technical Column

Technical Column

System Application 1

SUPERMARKET

43m

Office

Stock Room

7 m

7 m   7 m

Cashier

Cashier

Deposit Counter

20m

∅ AT-063P
ɑ PM-660
△ Ceiling Speaker
▷ A-2120

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

PM-660

A-2120

CD

3 W   3 W

Ceiling Speaker x 18 pcs

AT-063P x 1 pc

1.5 W

Ceiling Speaker x 1 pc   (Office)

System Application 2

OFFICE

30m

EXECUTIVE

MEETING ROOM

5 m

5 m

OFFICE AREA

RECEPTION

15m

⊙ Ceiling Speaker
∅ AT-063P/AT-303P
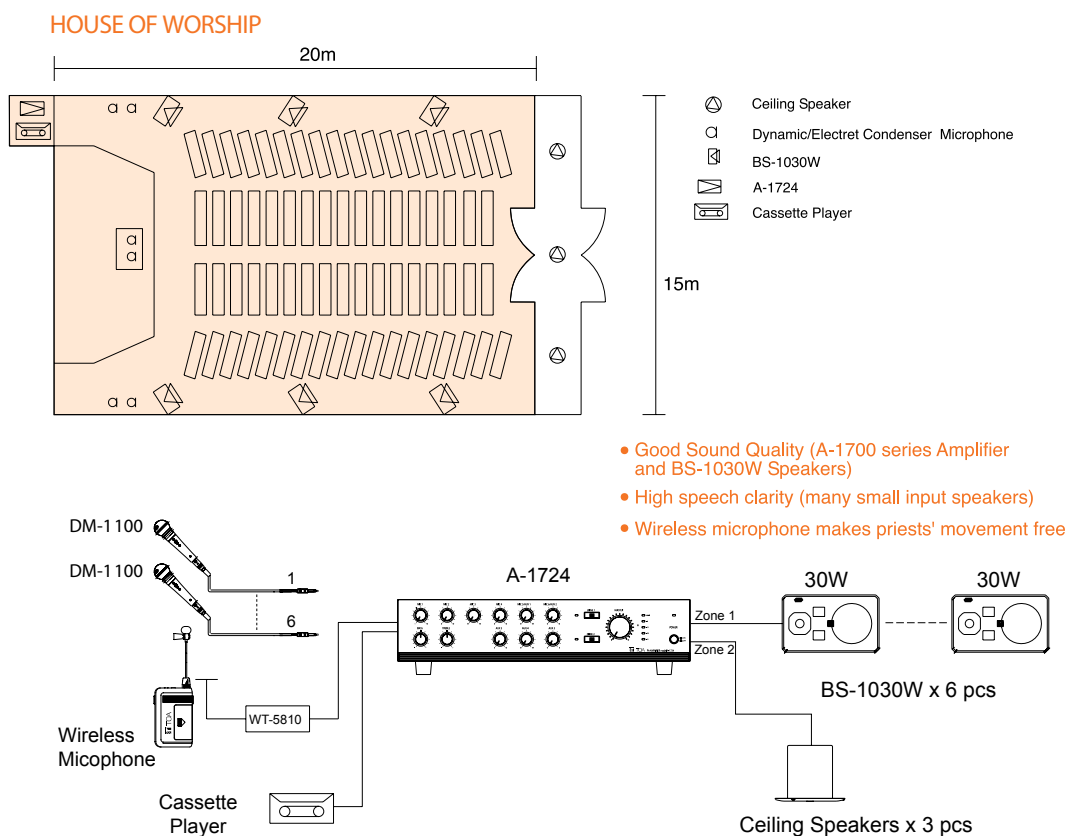ɑ PM-660D
▷ A-1803
Timer Program Timer (TT-104B)
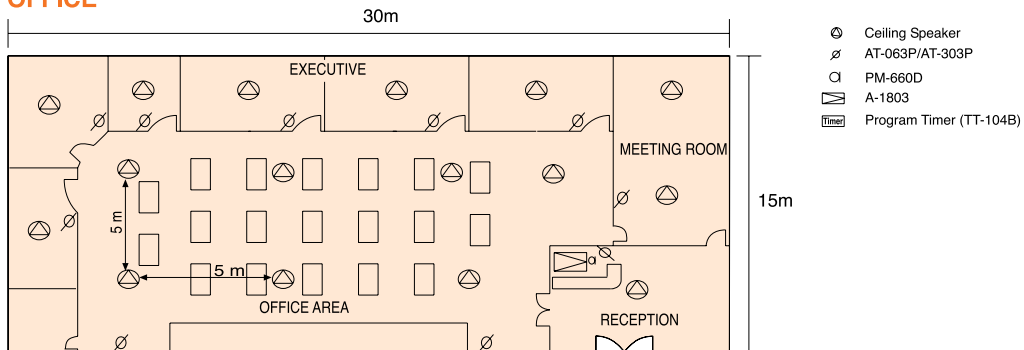
• Uniform background music distribution level in office
  area (Speakers are spaced as short as 5m apart)
• Background music of better sound quality (A-1800
  series amplifier)

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

Main PA System

CD

RADIO TUNER

TIMER   EV-20R

A-1803

Zone 1

PM-660D

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

Attenuator
AT-063P
1.5 W
x 1 pc (Reception)

Attenuator AT-063P   Attenuator AT-063P   Attenuator AT-063P   Attenuator AT-303P

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

System Application 3

Microphones
Wireless Systems
Digital Message Repeters/ Program Timer
Mixers
Amplifiers
Speakers
Conference System
Megaphones
Professional Audio
Security & Safety
Technical Column

FACTORY

60m   16m

40m

Office

Meeting Room 1

Reception

Meeting Room 2

Ceiling Speaker
SC-615M
AT-063P
PM-660D
A-1803, P-1812

- Pre-recorded 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

Telephone
PBX
CD Player   CD
Cassette Player
TIMER   EV-20R
PM-660D
A-1803
MOH
Zone 1
P-1812   Zone 2
P-1812   Zone 2

Ceiling Speaker x 2 (Meeting Room 1)

Ceiling Speaker x 2 (Meeting Room 2)

Ceiling Speaker x 12 (Office Area)

SC-615M x 10 pcs

SC-615M x 11 pcs

System Application 4

HOUSE OF WORSHIP

20m

15m

Ceiling Speaker
Dynamic/Electret Condenser Microphone
BS-1030W
A-1724
Cassette Player

- 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
1
6
A-1724
Zone 1
Zone 2
30W   30W
BS-1030W x 6 pcs
Wireless Micophone
WT-5810
Cassette Player
Ceiling Speakers x 3 pcs

Microphones

Wireless Systems

Digital Message Repeters/
Program Timer

Mixers

Amplifiers

Speakers

Conference System

Megaphones

Professional Audio

Security & Safety

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 cable intended for microphones are commercially available. The shielded cable is generally used to transmit the audio signals from microphones (-70dB/0.3mV) or source equipment (0dB/1V).

Balanced and unbalanced type
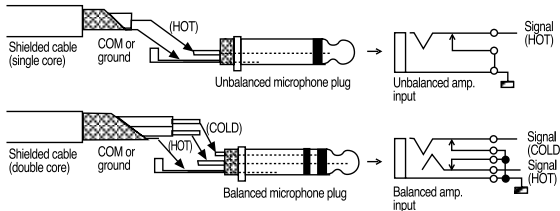
Balanced and unbalanced output

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

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

(a) Balanced Connection

(b) Unbalanced Connection
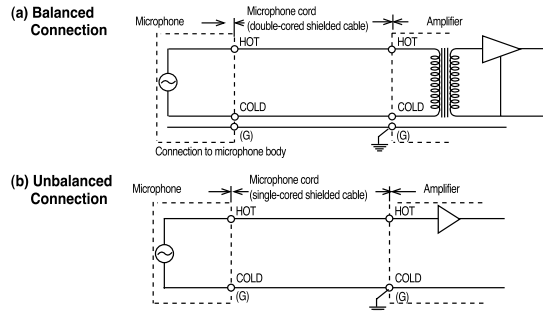
Distance of extension for microphone cords

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

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

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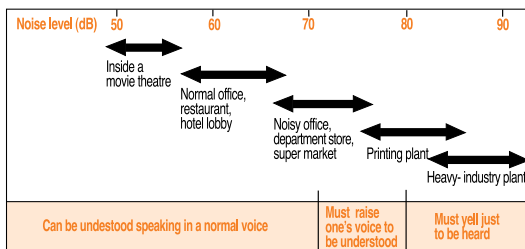
When transmitting voice or music through a speaker, it is necessary to transmit at a level that is higher than the ambient noise level. In the case of voice transmission, it should be transmitted at a level 5 to 10 dB higher than the noise level, background music 3 to 5 dB higher, and foreground music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

Computation of intensity of sound

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

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

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

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

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

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

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

■ **Example of calculation:**

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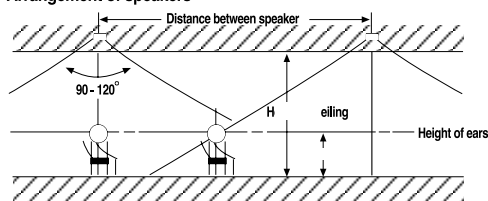
SPL = 112 dB - 20 dB (10m) + 10 dB (10W) = 102 dB

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
Wireless Systems
Digital Message Repeater/ Program Timer
Mixers
Amplifiers
Speakers
Conference System
Megaphones
Professional Audio
Security & Safety
Technical Column

Speakers 2

Arrangement of speakers

Area of coverage of one speaker

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

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

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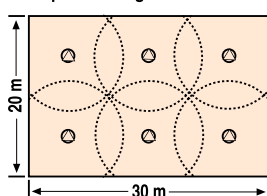
Office of 30 m x 20 m with 3 m ceiling without music

Number of speakers necessary: 6 to 8

Arrangement of speakers in a factory (Horn speakers)

Factories with high noise levels generally use horn speakers, which can produce high levels of sound. If you know where people are working in the factory, speakers are best arranged to cover such locations. If that is unknown, speakers should be arranged in accordance with the floor space.
Here is an example of a 40 m x 90 m room in factory with a noise level af 85 dB. In this factory, SC-615M speakers are installed; therefore, the sound pressure that can be obtained at a point 20 meters away with electric input of 15 W will be:
[112 dB (1W/1m) - 26.0 dB (20 m) + 11.8 dB (15 W)]=97.8 dB

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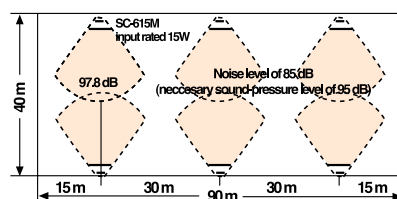
Speaker wiring

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

Speakers 3

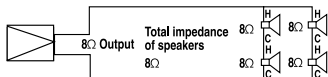### High-impedance connection and low-impedance connection

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

■ **Example of low-impedance connection:**
It is necessary to design the total speaker input impedance to be larger than the amplifier output impedance. When the total speaker impedance is lower than the amplifier output impedance, unstable operation or amplifier malfunction may result. The wiring distance between amplifier and speaker should be less than 10-some meters. If the wiring distance is greater than this, the output power from the amplifier will be consumed as heat in the cables, and not be able to supply the speaker with sufficient power.
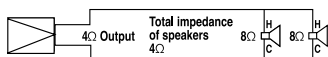
$$4\Omega = \frac{1}{\dfrac{1}{8\Omega} + \dfrac{1}{8\Omega}}$$

$$8\Omega = \frac{1}{\dfrac{1}{8\Omega} + \dfrac{1}{8\Omega} + \dfrac{1}{8\Omega} + \dfrac{1}{8\Omega}}$$

■ **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 together with those without transformers.

In high-impedance connection, as long as you have parallel connection. It will be sufficient to design the total speaker input to be lower than the amplifier output, and this will help eliminate complex impedance calculation.
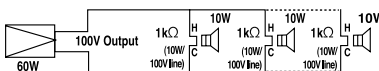
● Speaker input impedance (10W/100V line)

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

● Amplifier output impedance

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

● Total impedance of speakers

$$Z = \frac{1}{\dfrac{1}{1\ k(\Omega)} + \dfrac{1}{1\ k(\Omega)} + \dfrac{1}{1\ k(\Omega)} + \dfrac{1}{1\ k(\Omega)} + \dfrac{1}{1\ k(\Omega)} + \dfrac{1}{1\ k(\Omega)}} = 167\ (\Omega)$$

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.
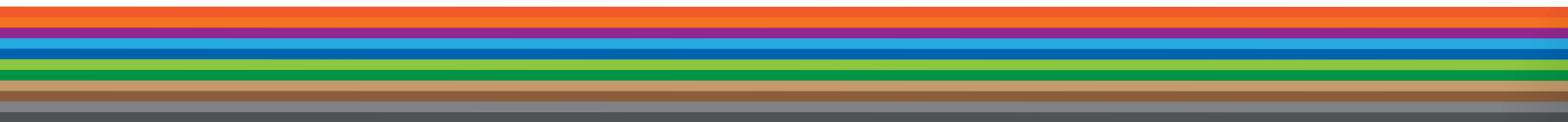

● Amplifier output impedance

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

● Total impedance of speakers

$$Z = \frac{1}{\dfrac{1}{1.7\ k(\Omega)} + \dfrac{1}{1.7\ k(\Omega)} + \dfrac{1}{1.7\ k(\Omega)} + \dfrac{1}{330\ (\Omega)} + \dfrac{1}{330\ (\Omega)}} = 128\ (\Omega)$$

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

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