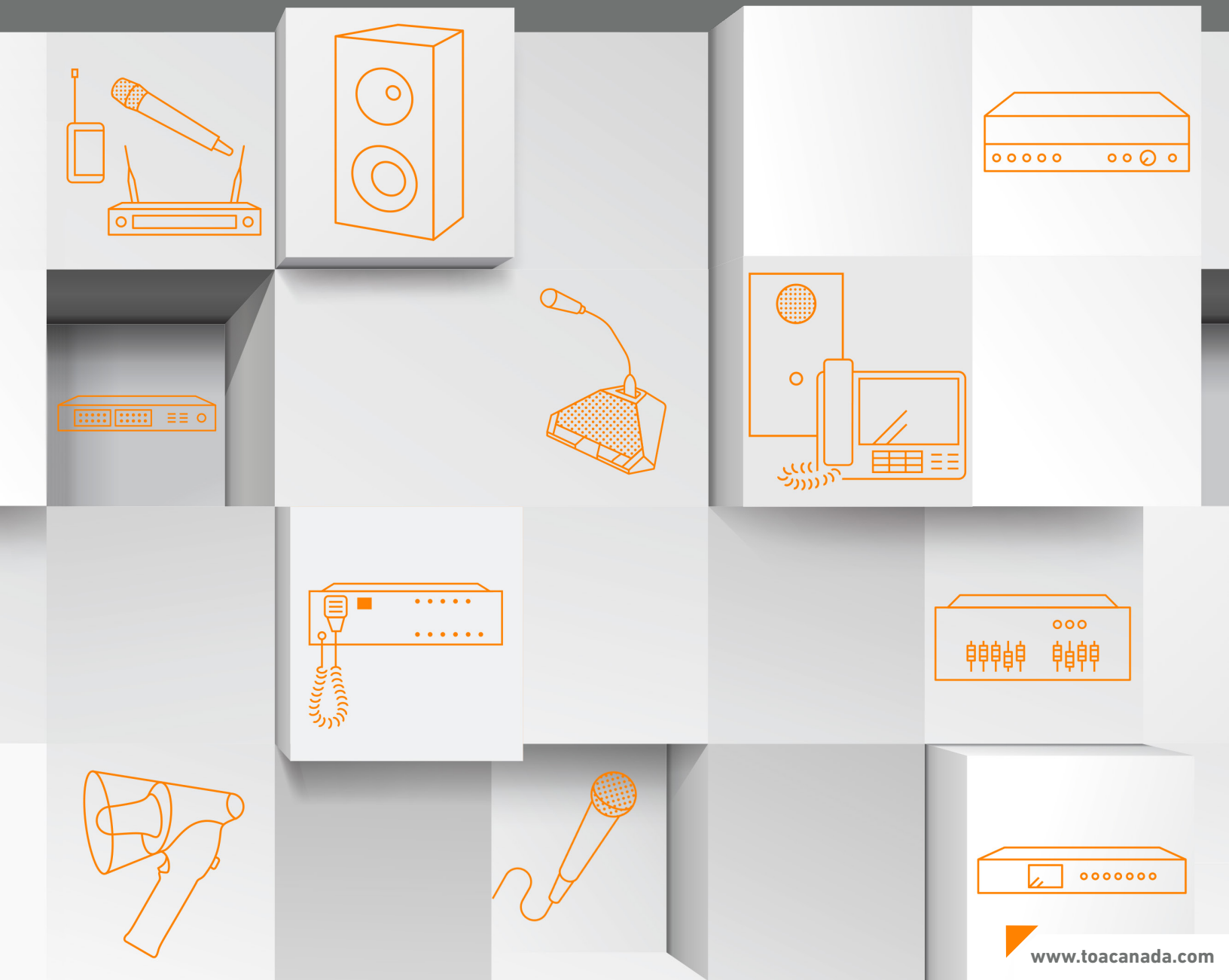
TOA

Audio & Intercom
Product Catalogue

We supply sound, not equipment



www.toacanada.com

Founded in 1934 in Kobe Japan, we can draw upon more than 90 years of experience in researching, developing, and selling commercial and professional audio and security equipment. Our pride is that we can use this knowledge to create acoustic sound fields for millions of people to make their lives safer and more pleasant. Since its founding, TOA has pursued its business based upon a solid Management Philosophy, which are the “Three Confidences”. These important basic foundations will carry us into an even brighter and prosperous future.

TOA group has its headquarter in Kobe and consists of 19 subsidiaries, which are divided into 5 divisions. Since its opening in 1990, TOA Canada Corporation has been primarily located in Ontario, Canada, with our sales force also stationed across Canada.

TOA Canada is a complete sound solutions provider, specializing in commercial audio, including, public address, voice communications, voice evacuation and emergency paging requirements. TOA Canada Corporation offers complete solutions for all corporate and commercial audio communications and intercom requirements.

Furthermore, our Canadian warehouse located centrally in Ontario ensures immediate access to thousands of TOA products to offer you a high delivery performance.

Our Three Confidences

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

2. Total confidence of our associates in all business transactions

3. Total confidence of our employees in all their efforts

We supply sound,
not equipment

Dr. Sound

Dear reader,

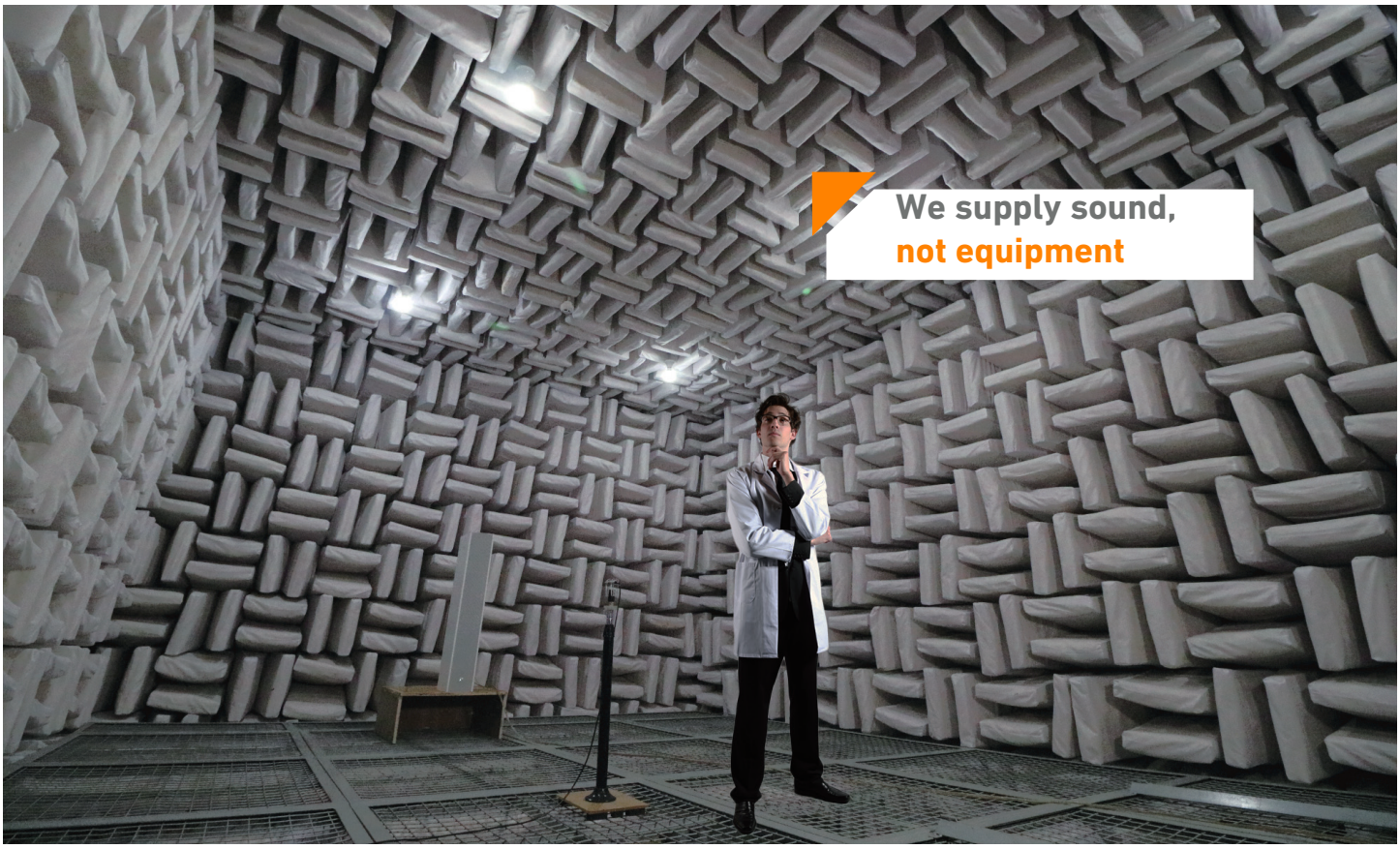
My name is Dr. Sound. I am the acoustic expert at TOA and am always seeking the perfect sound. At TOA we have made it our mission to supply you with high-quality equipment, and above all, with first-class sound.

Whether in schools, concert halls, airports or stadiums – our sound systems make millions of peoples' lives safer and more enjoyable.

Have fun browsing through our product catalogue and planning your next installation with TOA products.

If you should have a question, please e-mail me at: technicalsupport@toacanada.com.

Yours, Dr. Sound



Dr Sound in TOA's Anechoic Chamber.

Symbol Legend

Network Connection Required
Network Connection Optional
PC & Software Required
PC & Software Optional
RS-232 Required
RS-232 Optional
iOS APP Available
USB Required

TOA Canada Corporation

The TOA Advantage

Experience:
- Over 90 years of experience
- World leader in commercial & professional audio products
- World renowned installations

Quality:
- Most products have a FIVE year limited warranty
- Reliable & Durable: best MTBF in the industry

Selection:
- Broad product range for applications in:
  - Corporate & Commercial
  - Correctional Facilities
  - Education
  - Government & Hospitals
  - Halls & Theatres
  - Hospitality & Retail
  - Houses of Worship
  - Intercom
  - Sports Complexes
  - Transportation
  - Voice Evacuation & Mass Notification Systems

Distribution:
- Canadian stocking warehouse for products and service parts

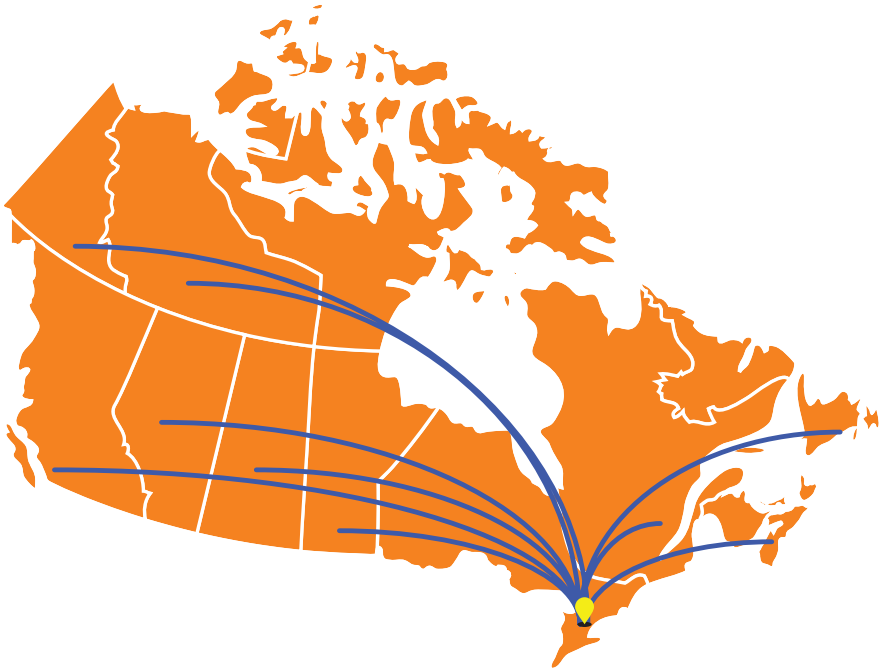
Customer Service:
- Canadian technical support & design team
- FREE Designs & Consultation
- Extensive field representation nationally
- Monthly web-based training
- Customized dealer sales & technical training

Commitment:
- Competitively priced, quality products and the utmost in customer service

Canadian Headquarters

Canadian Technical Support

Canadian Warehouse & Expedited Shipping



Additional Support & Design Services:

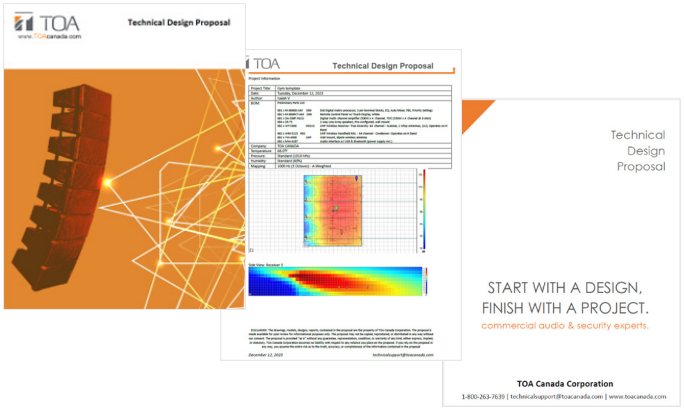
At TOA Canada, we are passionate about empowering professionals in the field of audio technology and sound engineering. With nearly a century of experience and knowledge, we've developed a plethora of educative materials with the utmost accessibility in mind, promoting technical excellence for all things audio. Through both our on-demand and live offerings, we've developed a wide range of content tailored to meet the evolving demands of the industry.

Whether you're an aspiring sound engineer, a seasoned technician, or a professional seeking to refresh your expertise, we're here to support your journey. With content covering our powerful and reliable equipment, commercial audio innovations, and a learning environment based around accessibility, we aim to transform your passion for sound into mastery.

Technical Design Proposals:

We make projects easier, from start to finish. With free project design and recommended BOM, our team of designers removes the burden of designing the initial project plan.

TDP services include delivering documentation of the acoustical performance of the complete sound system, recommended equipment, and wireframes/layouts. All in a tidy design proposal.



Our tech team works diligently, providing clients with exhaustive and comprehensive documents of how the recommended systems will provide efficient coverage and high-quality sound.

A project's beginnings can differ vastly, from a "ground-up" design to a simple BOM. In the case of the latter, the desired materials and layout are already noted by the client, meaning we assist by ensuring clients have the right amount of all products specified based on the design. Naturally the former of the two ends of this range is more intensive.

After-Sales Services:

Have a question? We'd love to hear from you. We aim to support our clients long after each sale, whether its through our web-based support via email or online chat, fillable forms for additional designs/repairs, or by contacting our Canadian support team directly via phone.

Delivering sound solutions from coast to coast to coast, and everywhere in between.









TOA Canada is dedicated to delivering quality service and dependable support in every province and territory. We take pride in how hard our home-grown Canadian talent works to ensure we not only meet but also exceed the expectations of our customers.

NEW @ TOA

CX-1000 IP Intercom System

Our new IP communication system will afford users expanded functionality, alongside a new suite of modernized form factors. The CX-1000 series utilizes IP network protocol to achieve fast, accurate communications with optimal security and reliability.

» Video Operation Station

CX-OP1700

» Operation Station

CX-OP1500

» Video Call Station

CX-CL1750

» Call Station

CX-CL1550

» Remote Microphone

CX-RM1700

» Power Amp (120W 10SS)

CX-PA1120

» System Manager

CX-SM1000

» Power Amp (240W 10SS)

CX-PA1240

» Audio Interface (6 in - 2 out)

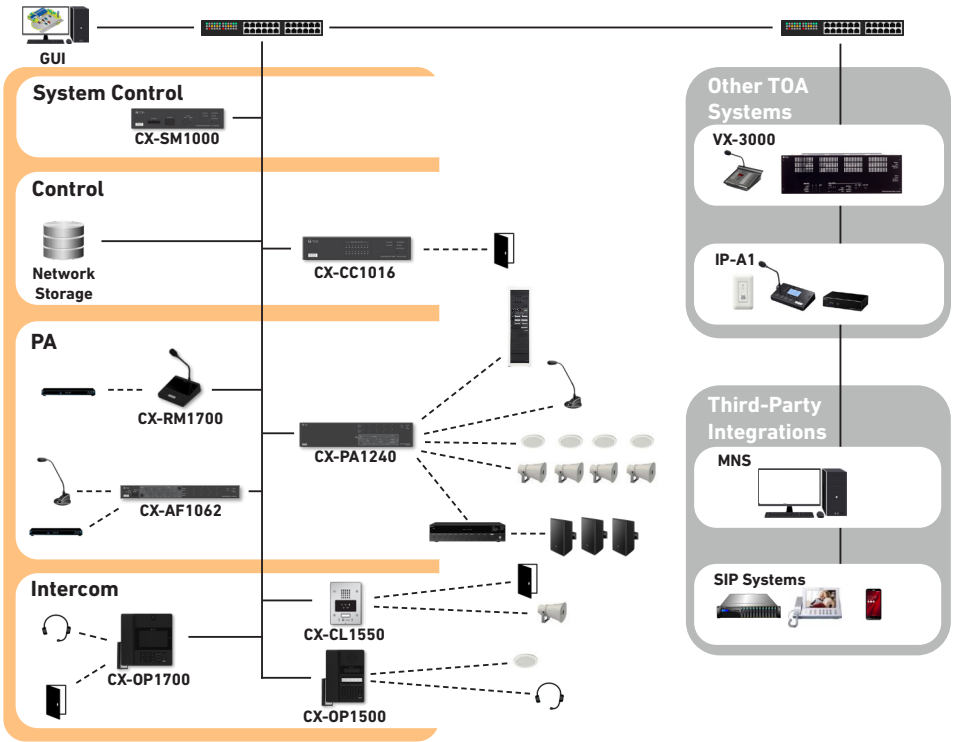
CX-AF1062

» Control I/O Unit

CX-CC1016

Using only the components from phase one, applications vary widely, including conversation, paging, broadcasting, audio triggering, background music, and enhanced security/emergency functions.

With additional phases set for future releases, the capabilities of the series will continue to grow. Future-proof your facility and unlock limitless possibilities with the CX-1000 series!



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SPEAKERS

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FLUSH MOUNT

Speakers

Ceiling Speakers

Flush Mount Type Ceiling Speaker

PC-1860 F00 **PC-1860S F00**


- Speaker design that harmonizes with the venue's architecture and decor
- Quick and easy installation thanks to new SUS spring clamp installation method
- Wide frequency response
- 5" ceiling speaker diameter
- Thin panel does not clash with interior design
- Back box BB-1864 for use with PC-1860S F00**

Model	PC-1860 F00	PC-1860S F00**
Rated Input (100V line)	6W	
Rated Impedance	100V line: 1.7kΩ (6W), 3.3kΩ (3W), 6.7kΩ (1.5W), 13kΩ (0.8 W); 70V line: 1.7kΩ (3W), 3.3kΩ (1.5W), 6.7kΩ (0.8W), 13kΩ (0.4W)	
Sensitivity (1W, 1m)	90 dB (500 - 5,000 Hz, pink noise)	
Frequency Response	55 – 18,000 Hz (peak -20 dB)	
Mounting Hole Diameter	ø150 ±3 mm (5.9" ±0.12")	
Speaker Component	12cm (5") cone-type	
Finish	Frame: Steel plate, white; Grille: Surface-treated steel plate net, white	
Dimensions	ø180 x 72(D) mm (ø7.09" x 2.9")	ø180 x 111(D) mm (ø7.09" x 4.37")
Weight	620 g (1.37 lbs)	750 g (1.65 lbs)
Accessory	12" round baffle for 5-inch speakers	

Flush Mount Type Ceiling Speaker

PC-648R F00 **PC-658R F00**


- Spring clamp mechanism for easy speaker mounting to the ceiling
- High cost performance
- PP Resin, SECC punching net
- Back box BB-1864 for use with PC-648R F00
- *Available in lots of 4 (use part number: PC-648R F00-4, PC-658R F00-4)*

Model	PC-648R F00	PC-658R F00
Rated Input (100V line)	6W (100 V line), 3 W (70 V line)	
Rated Impedance	100V line: 1.7kΩ (6W), 3.3kΩ (3W), 10kΩ (1W) 70V line: 1.7kΩ (3W), 3.3kΩ (1.5W), 10kΩ (0.5W)	100V line: 1.7kΩ (6W), 3.3kΩ (3W), 10kΩ (1W) 70V line: 1.7kΩ (3W), 3.3kΩ (1.5W), 10kΩ (0.5W)
Sensitivity (1W, 1m)	90 dB (500 - 5,000 Hz, pink noise)	
Frequency Response	100 – 18,000 Hz (peak -20 dB)	65 – 18,000 Hz (peak -20 dB)
Mounting Hole Diameter	ø145 ±5 mm (5.71" ±0.2")	ø170 ±5 mm (6.69" ±0.2")
Speaker Component	12cm (5") cone-type	16cm (6") cone-type
Finish	Baffle: Polypropylene resin, white/Grille: Surface-treated steel plate net, white	
Dimensions	ø168 x 77(D) mm (6.61" x 3.03")	ø192 x 73(D) mm (7.56" x 2.87")
Weight	470 g (1.04 lb)	500 g (1.1 lb)

Ceiling Mount Speaker

PC-580RU
PC-580RVU

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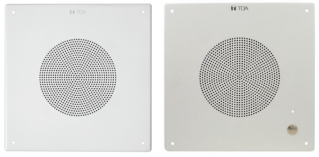
- 8" in-ceiling speaker for high quality applications
- 25V & 70V transformer taps up to 5W
- Fits standard ceiling speaker template perfect for retrofits
- Unique "monocoque" design provides better structural integrity
- PC-580RU and PC-580RVU: High-performance, cost effective ceiling speaker for use in mass notification systems, voice evacuation, emergency paging and everyday paging and background music
- PC-580RU and PC-580RVU: Meets ULC S541, UL 1480 UUMW *(Fire alarm signaling)*, ULC S576 and UL 2043 (*use in air handling spaces)* when using the HY-BC580U back can
- PC-580S: High-performance, cost effective ceiling speaker for use in general paging and back ground music requirements
- *Available in lots of 10 (use part number: PC-580RU-10, PC-580RVU-10, PC-580S-10)*

Square Mounted Speaker

PC-580S
PC-580SBT



Model	PC-1869 F00	PC-1869S F00**	PC-580S	PC-580SBT
Rated Input (100V Line)	10W (speaker), 5 W (transformer, 70.7 V line and 25 V line)			5W (70.7 V line and 25 V line)
Rated Impedance	70.7V line: 20K (0.25W), 10K, (0.5W), 5K (1W), 2.5K (2W), 1K (5W) Ω 25V line: 2.5K (0.25W), 1.25K (0.5W), 625 (1W), 312.5 (2W), 125 (5W) Ω			70.7 V line: 1 kΩ (5 W), 2 kΩ (2.5 W), 5 kΩ (1 W), 8.3 kΩ (0.6 W), 16.6 kΩ (0.3 W) 25 V line: 125 Ω (5 W), 250 Ω (2.5 W), 625 Ω (1 W), 1 kΩ (0.6 W), 2 kΩ (0.3 W)
Sensitivity (1W, 1m)	97 dB (1W, 1m)		97 dB	97 dB (1 W, 1 m)
Frequency Response	50 Hz - 16.5 kHz			
Speaker Component	200 mm (8") Dual cone-type			
Finish	Baffle: Steel plate, white Grille: Surface-treated steel plate net, white			Panel: Steel plate, white, paint Grille: Steel plate, white
Dimensions	Dia. 324 x 87.3 (d) mm (12.8" x 3.4)		318 X 318 X 84.5 (D) mm (12.52" X 12.52" X 3.2")	318 X 318 X 87 (D) mm (12.52" X 12.52" X 3.43")
Weight	1.50 kg (3.31 lbs)	1.52 kg (3.35 lbs)	1.74 kg (3.84 lbs)	2 kg (4.4 lbs)
UL Standards	ULC S541, UL 1480 UUMW, ULC S576 and UL 2043 when used with HY-BC580U		--	--
Optional Accessories	Back can (for UL/ULC certified installation): HY-BC580U Back can (for other installations): BB-580D; Tile bridge, mounting channel: Q-HY-TB2		Flush mount back box: Q-BB-580S Surface mount back box: Q-BB-580WD	

Optional Accessories - PC Series

Back Box

HY-BC580U

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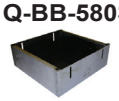
Back Box

BB-580D

Square Flush Mount Back Box

Q-BB-580S



White Square Surface Mount Back Box

Q-BB580WD

Mounting Channel

Q-HY-TB2

Back Box

for PC-1860S, PC-648R

BB-1864

Baffle

for PC-1860S

HY-RB1860

Ceiling Speakers

Clean Room Ceiling Speaker

PC-5CL

Model	PC-5CL
Rated Input (100V line)	5W
Rated Impedance	100V line: 2 kΩ (5W) 70V line: 2 kΩ (2.5W)
Sensitivity (1W, 1m)	87 dB
Frequency Response	150 – 20k Hz
Mounting Hole Diameter	ø98 mm (3.9")
Speaker Component	8 cm cone-type
Finish	Panel: Alloy-coated ABS resin/Enclosure: ABS resin, off-white/ Punching net: Stainless steel/Exposed fixing screw: Stainless steel
Dimensions	ø116 x 110 (D) mm (4.6" x 4.3")
Weight	620 g (1.37")
Operating Temperature	-20°C to +55°C (-4 ºF to 131ºF)

Combination Type Reflex Horn Speakers

Wide Range Horn Speaker

CS-64 / CS-64U**

- 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 Horn Speaker

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

- 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

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c UL LISTED

Model	CS-64	CS-64U**	CS-154	CS-154U**	CS-304	CS-304U**
Rated Input (100V line)	6W		15W		30W	
Rated Impedance	100V line: 1.7kΩ (6W), 3.3kΩ (3W), 10kΩ (1W) 70V line: 830Ω (6W), 1.7kΩ (3W), 3.3kΩ (1.5W), 10kΩ (0.5W)		100V line: 670Ω (15W), 1kΩ (10W), 2kΩ (5W) 70V line: 330Ω (15W), 670Ω (7.5W), 1kΩ (5W), 2kΩ (2.5W)		100V line: 330Ω (30W), 500Ω (20W), 1kΩ (10W) 70V line: 170Ω (30W), 330Ω (15W), 500Ω (10W), 1kΩ (5W)	
Sensitivity (1W, 1m)	96 dB		97 dB		98 dB	
Frequency Response	130 Hz – 13 kHz		150 Hz – 15 kHz		120 Hz – 15 kHz	
Speaker Component	12 cm (5") cone-type (Treated for splash proof)		12 cm (5") 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: Aluminum, gray	Horn, cover: Fire-resistant ABS resin, off-white, paint Bracket: Stainless steel Net: Aluminum, gray	Horn, cover: ABS resin, off-white, paint Bracket: Stainless steel Net: Aluminum, gray	Horn, cover: Fire-resistant ABS resin, off-white, paint Bracket: Stainless steel Net: Aluminum, gray
Dimensions	233 (W) x 224 (H) x 208 (D) mm (9.2" x 8.1" x 8.2")		366 (W) x 230 (H) x 272 (D) mm (14.4" x 9.1" x 10.7")			
Weight	1.5kg (3.3 lbs)		2.8kg (6.2 lbs)		3.1kg (6.8 lbs)	
Dust/Water Protection	--		--	IP65	--	IP65
UL Code (outdoor use)	--	UL1480 UEAY	--	UL1480 UEAY	--	UL1480 UEAY

** Special order product

2-Way Coaxial Horn Speaker

»» Horn Speakers

CS-761 B/W

- 60W 2-way coaxial speaker construction
- 83 Ω up to 670 Ω for 70 V line
- Rotary switch enabling impedance change
- Elegant enclosure, black and white available
- Special paint coat prevents color degradation
- Weatherproof to IP66 rating

Model	CS-761B	CS-761W
Rated Input (100V Line)	60W	
Rated Impedance	100V line: 170Ω (60W), 330Ω (30W), 670Ω (15W), 1.3kΩ (7.5W) 70V line: 83Ω (60W), 170Ω (30W), 330Ω (15W), 670Ω (7.5W)	
Sensitivity	100 dB (1W, 1M) (1kHz - 10kHz, pink noise)	
Frequency Response	100Hz – 20kHz	
Speaker Component	Low frequency: 16cm (6") cone-type, High frequency: 2.5cm (1") tweeter	
Directivity Angle	Horizontal: 90°, Vertical: 80°	
Operating Temperature	-10°C to +50°C (14°F to 122°F)	
Dust/Water Protection	IP66	
Connection	Speaker cable (Hot: Black, Com: White)	
Finish	Enclosure: ABS resin, black (RAL 9011 equivalent), paint Punched net: Steel plate, black (RAL 9011 equivalent), paint Bracket: Stainless steel, black (RAL 9011 equivalent), powder coating	Enclosure: ABS resin, white (RAL 9011 equivalent), paint Punched net: Steel plate, white (RAL 9011 equivalent), paint Bracket: Stainless steel, white (RAL 9011 equivalent), powder coating
Dimensions	388(W) x 310(H) x 367(D) mm (15.28" x 12.2" x 14.45")	
Weight	7.6kg (16.75)	
Option	Speaker mount bracket: SP-201 Pole band: YS-60B Speaker stand: ST-34B	

Powered Horn Speaker

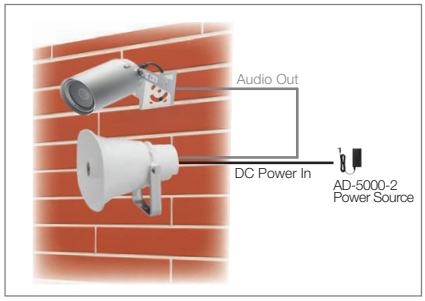
Paging Horn Speaker

Q-SC-P620

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

Model	Q-SC-P620
Power Source	12V DC, 2A (DC Socket "+" Type A : 5.5 x 2.1mm)
Signal Gain	8, 16, 24 or 32db (Factory pre-set to 16db)
Sound Pressure Level	113dB (1 W, 1 m at 500Hz to 2.5KHz peak level) Max. SPL (above 120dB)
Frequency Response	250 - 10,000 Hz
Finish	Horn flare: HIPS resin, white (RAL9010 equivalent) Reflector horn and case: ABS resin, white (RAL9010 equivalent) Bracket, screws and bolts: Stainless steel
Dimensions	292 (W) x 230 (H) x 280 (D) mm
Weight	Approx. 1.8 kg
Dust/Water Protection	IP65
Operating Temperature	-20°C to +55°C (-4°F to 131°F)
Option	AD-5000-2 (LTE24E-S2-1) AC Adapter

Network Camera Configuration



Combination Type Reflex Horn Speakers

Paging Horn Speaker

SC-615
SC-615T

Paging Horn Speaker

SC-630
SC-630TU

- 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
- SC-630TU is certified to UL 1480 UUMW and ULC-S541 standards

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Model	SC-615	SC-615T	SC-630	SC-630TU
Rated Input (100V line)	15W (Mobile mount use: 15W)	15W	30W (Mobile mount use: 15W)	30W
Rated Impedance	8Ω	70V line: 330Ω (15W), 650Ω (7.5W), 1.3kΩ (3.8W); 25V line: 42Ω (15W), 83Ω (7.5W), 330Ω(1.9W), 650Ω; (1W), 1.3kΩ (0.5W)	6Ω	70V line: 170Ω (30W) , 330Ω (15W), 650Ω (7.5) 25V line: 21Ω (30W), 42Ω (15W), 170Ω (3.9W), 330Ω (2.1W), 650Ω (1.1W)
Sensitivity (1W, 1m)	112 dB		113 dB	
Frequency Response	280 Hz – 12.5 kHz		250 Hz – 10 kHz	
Finish	Horn flare: Aluminum, off-white, powder coating; Reflector horn and rear cover: ABS resin, off-white; Bracket screws and bolts: Stainless steel; Speaker cable: Polyvinyl chloride insulated cabtyre cable (6 mm in diameter, 600 mm in length)			Horn flare: Aluminum, white, powder coating; Reflector horn: ABS resin, white; Rear cover: ABS resin, gray; Bracket screws and bolts: Stainless steel
Dimensions	222 (W) x 179 (H) x 234 (D) mm (8.7" x 7.0" x 9.2")		285 (W) x 227 (H) x 277 (D) mm (11.2" x 8.9" x 10.9")	
Weight	1.1kg (2.4 lbs)	1.3kg (2.9 lbs)	1.7kg (3.1 lbs)	2kg (4.4 lbs)
Dust/Water Protection	IP65			
UL Code	--			UL 1480 UUMW, ULC-S541
Operating Temperature	-20°C to +55°C (-4°F to 131°F)			-40°C to +66°C (-40°F to 151°F)
Option	Swivel bracket: YS-151S (can be used with the supplied bracket)			

Paging Horn Speaker

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 Hz – 6 kHz
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 (16.9" x 11.7" x 12.9")
Weight	3.4kg (7.5 lbs)
Dust/Water Protection	IP65
Operating Temperature	-20°C to +55°C (-4°F to 131°F)

See next page for SC Horn accessory*

cUL Safety Certified Models

Note:

- All TOA Canada Corporation products requiring AC power are cUL Safety Certified.

Model	UL 2043	ULC S541S	UL 1480 UUMW/UEAY	CAN/CSA C22.2 No. 205 UEAY7	UL60065
BS-680U		Yes	Yes		
CS-64U, CS-154U, CS-304U			Yes		
F-122CU2, F-2322C, F-2352CU2, F-2852CU2	Yes		Yes	Yes	
IR-820SP	Yes				Yes
PC-580RU, PC-580RVU	Yes[1]	Yes[1]	Yes[1]		
PE-304BU, PE-304WU, PE-604BU, PE-604WU		Yes	Yes		
SC-630TU		Yes	Yes		

Combination Type Reflex Horn Speakers

Horn Speaker

TC-631
TC-631M

- Both high-impedance (70V/100V lines) models and low-impedance (8Ω/15W model, 16Ω/30W model) models available
- Two power ratings: 30W and 50W
- Stainless steel hardware (screws, bolts, nuts), and powder-coated horn and bracket ensure superb weatherproofing and corrosion-resistance.
- Shock-resistant aluminum round horn
- Requires drivers

Model	TC-631	TC-631M
Rated Input (100V line)	30W	
Rated Impedance	16Ω	100V line: 330Ω (30W), 670Ω (15W), 1kΩ (10W), 2kΩ (5W) 70V line: 170Ω (30W), 330Ω (15W), 670Ω (7.5W), 1kΩ (5W), 2kΩ (2.5W)
Sensitivity (1W, 1m)	110 dB	
Frequency Response	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	ø500 (W) x 463(D) mm (ø19.7" x 18.2")	
Weight	4.1kg (9 lbs)	4.5kg (9.9 lbs)
Dust/Water Protection	IP65	
Operating Temperature	-20°C to +55°C (-4°F to 131°F)	

Separate Type Horn Speakers

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
- Requires drivers

Model	TH-660
Sensitivity (1W, 1m)	110 dB*
Frequency Response	200 Hz – 6 kHz*
Finish	Horn flare: Aluminum, off-white, powder coating Bracket: Steel, gray, powder coating
Dimensions	ø600 – 425 (D) mm (23.6" x 16.7")
Weight	3.6kg (7.9 lbs)

*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

- 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

Model	TU-631	TU-651	TU-631M	TU-651M
Rated Input	30W	50W	30W	50W
Rated Impedance	16Ω		100V line: 330Ω (30W), 670Ω (15W), 1kΩ (10W), 2kΩ (5W) 70V line: 170Ω (30W), 330Ω (15W), 670Ω (7.5W), 1kΩ (5W), 2kΩ (2.5W)	100V line: 200Ω (50W), 330Ω (30W), 670Ω (15W) 70V line: 100Ω (50W), 200Ω (25W), 330Ω (15W), 670Ω (7.5W)
Sensitivity (1W, 1m)	110 dB*			
Frequency Response	150 Hz – 6 kHz *			
Finish	Flange: Aluminum, gray, powder coating; Rear cover: ABS resin, gray; Screws: Stainless steel			
Dimensions	ø139 x 106 (D) mm (ø5.5" x 4.2")		ø139 x 149 (D)mm (ø5.5" x 5.9")	
Weights	1.4kg (3.1 lbs)	2kg (4.41 lbs)	1.9kg (4.2 lbs)	2.7kg (6 lbs)
Dust/Water Protection	IP65*			
Operating Temperature	-20°C to +60°C (-4°F to 140°F)	-20°C to +55°C (-4°F to 131°F)	-20°C to +60°C (-4°F to 140°F)	-20°C to +55°C (-4°F to 131°F)

*When operated with TH-660.

Optional Accessory for Network Horns, SC Series, & TH-660

Swivel Bracket

YS-151S

Wall Mount Box Speakers

BS-1034

BS-1034S

- Low profile
- 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

Model	BS-1034	BS-1034S
Rated Input (100V line)	10W	
Rated Impedance	100V line: 1kΩ (10W), 2kΩ (5W), 3.3kΩ (3W), 10kΩ (1W) / 70V line: 500Ω (10W), 1kΩ (5W), 2kΩ (2.5W), 3.3kΩ (1.5W), 10kΩ (0.5W)	
Sensitivity (1W, 1m)	90 dB	
Frequency Response	120 Hz – 20 kHz	
Speaker Component	Low: 12 cm (5") cone-type, High: Balance dome-type	
Finish	Enclosure: HIPS resin, off-white Grille: Steel plate net, off-white	Enclosure: HIPS resin, silver Grille: Steel plate net, silver
Dimensions	210 (W) x 330 (H) x 80 (D) mm (8.3" x 13" x 3.1")	
Weight	1.4kg (3.1 lbs)	

BS-678

- 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

BS-680U

- Innovative design
- Quick and easy installation
- Strong all-metal body
- Horizontal / vertical installation
- Wall / in-wall mounting
- Ideally suited for voice alarm system application
- Two steatite screw terminal blocks and thermal fuse
- BS-680U is certified to UL 1480 UUMW, ULC-S541

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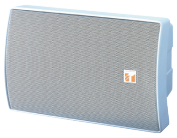
Model	BS-678	BS-680U
Rated Input (100V line)	6W (100 V line), 3 W (70 V line)	6W
Rated Impedance	100V line: 1.7kΩ (6W), 3.3kΩ (3W), 6.7kΩ (1.5W), 13kΩ (0.8W) 70V line: 1.7kΩ (3W), 3.3kΩ (1.5W), 6.7kΩ (0.8W), 13kΩ (0.4W)	70V line: 830Ω (6W), 1.67kΩ (3W), 5kΩ (1W) 25V line: 105Ω (6W), 210Ω (3W), 650Ω (1W)
Sensitivity (1W, 1m)	94 dB	
Frequency Response	150 Hz – 20 kHz	
Speaker Component	16 cm (6") double cone-type	
UL Code	--	UL 1480 UUMW, ULC-S541
Finish	Enclosure: Wood, white; Grille: Surface-treated steel plate net, white	Baffle, Cabinet: Steel plate, white, powder coating Grille: Surface-treated steel plate mesh, white, paint
Dimensions	250 (W) x 190 (H) x 110 (D) mm (9.8" x 7.5" x 4.3")	310 (W) x 190 (H) x 90 (D) mm (12.2"x7.5"x3.5")
Weight	1.7kg (3.7lbs)	2.6kg (5.7 lbs)

Box Speakers

»» 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/70V) 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 (30W), 500Ω (20W), 670Ω (15W), 1kΩ (10W), 2kΩ (5W) 70V line: 170Ω (30W), 250Ω (20W),330Ω (15W), 500Ω (10W), 1kΩ (5W)
Sensitivity (1W, 1m)	90 dB
Frequency Response	80 Hz – 20 kHz
Speaker Component	12 cm (5") dynamic cone-type + dome-type
Finish	Enclosure: ABS resin, black or white Grille: Surface treated steel plate, black or white, powder coating
Dimensions	196 (W) x 290 (H) x 150 (D) mm (7.7" x 11.4" x 5.9")
Weight	2.5kg (5.5 lbs)
Accessory	Bracket x 1, bracket mounting screw x 2, bracket mounting washer x 2

Optional Accessories BS-1030

»» Wall Mount Bracket

SP-410

»» Wall Mount Bracket

SP-420

Pendant/Projection Speakers

Pendant Speaker

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

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

Projection Speaker

PJ-64
PJ-304
Q-PJ-304BK

- 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
- Q-PJ-304BK Black version

Pendant Speaker

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

SIGNALING c UL LISTED

- Stylish and outstanding design inspired by the finest lighting fixtures
- Coaxial bass-reflex design featuring 12cm (5") cone-type woofer and a balanced-done tweeter
- 8Ω and 25V/70V/100V operation
- UL 1480 UUMW and ULC-S541 listed. Certified to work with emergency announcement systems
- Input impedance is easily changed with a rotary switch on the top of the speaker
- Ideally suited for BGM and announcements
- Hanging wire, safety wire, and speaker cable are pre-attached for quick and easy installation
- Gripple hangers facilitate speaker mounting height adjustment.

Model	PE-64	PE-304 / Q-PE-304BK	PE-304BU / PE-304WU	PE-604BU / PE-604WU	PJ-64	PJ-304 / Q-PJ-304BK
Rated Input (100V line)	6W	30W	30W	60W	6W	30W
Rated Impedance	100 line: 1.7kΩ (6W), 3.3kΩ (3W), 10kΩ (1W) 70V line: 1.7kΩ (3W), 3.3kΩ (1.5W), 10kΩ (0.5W)	100 line: 330Ω (30W), 500Ω (20W), 670Ω (15W), 1kΩ (10W), 2kΩ (5W) 70V line: 170Ω (30W), 250Ω (20W), 330Ω (15W), 500Ω (10W), 1kΩ (5W)	100 line: 300Ω (30W), 1kΩ (10W), 3.3kΩ (3W), 10kΩ (1.3W) 70V line: 170Ω (30W), 330Ω (15W), 1kΩ (5W), 3.3kΩ (1.5W), 10 kΩ (0.6W) 25V line: 170Ω (3.7W), 330Ω (1.9W) 1kΩ (0.6W), 3.3kΩ (0.2W), 10 kΩ (0.1W) Low Impedance: 8Ω	100 line: 170Ω (60W), 330Ω (30W), 670kΩ (15W), 3.3kΩ (3W) 70V line: 83Ω (60W), 170Ω (30W), 330Ω (15W), 670Ω (7.5W), 3.3 kΩ (1.5W) 25V line: 83Ω (7.5W), 170Ω (3.7W) 330Ω (1.9W), 670Ω (0.9W), 3.3kΩ (0.2W) Low Impedance: 8Ω	100 line: 1.7kΩ (6W), 3.3kΩ (3W), 10kΩ (1W) 70V line: 1.7kΩ (3W), 3.3kΩ (1.5W), 10kΩ (0.5W)	100 line: 330Ω (30W), 500Ω (20W), 670Ω (15W), 1kΩ (10W), 2kΩ (5W) 70V line: 170Ω (30W), 250Ω (20W), 330Ω (15W), 500Ω (10W, 1kΩ (5W)
Sensitivity (1W, 1m)	90 dB	91 dB	90 dB		90 dB	91 dB
Frequency Response	100 Hz – 18 kHz	70 Hz – 20 kHz	95 Hz – 20 kHz (-10 dB)	110 Hz – 20 kHz (-10 dB)	100 Hz – 18 kHz	70 Hz – 20 kHz
Speaker Component	12cm (5") cone-type	12cm (5") cone-type + balanced dome tweeter	12cm (5") cone-type + balanced dome tweeter (coaxial)		12cm (5") cone-type	12cm (5") cone-type + balanced dome tweeter
Finish	**PE-64 & PE-304:** Enclosure: HIPS resin, off-white; Grille: Surface-treated steel plate net, off-white, paint **Q-PE-304BK:** Enclosure: HIPS resin, black; Grille: Surface-treated steel plate net, black, paint		**PE-304BU & PE-604BU :** Enclosure: ABS resin, black; Grille: Surface-treated steel plate mesh black, paint **PE-304WU & PE-604WU:** Enclosure: ABS resin, white; Grille: Surface-treated steel plate mesh, white, paint		**PE-64 & PE-304:** Enclosure: HIPS resin, off-white; Grille: Surface-treated steel plate net, off-white, paint **Q-PE-304BK:** Enclosure: HIPS resin, black; Grille: Surface-treated steel plate net, black, paint	
Dimensions	ø186 x 251 (H) mm (ø7.3" x 9.9") (unit only)		ø186 x 275 (H) mm (ø7.3" x 10.83") (unit only)		ø186 x 369 (H) mm (ø7.3" x 14.5")	
Weight	1.5kg (3.3 lbs)	2.1kg (4.6 lbs)	2kg (4.41 lbs)	2.9kg (6.39 lbs)	1.5kg (3.3 lbs)	2.1kg (4.6 lbs)
UL Code	--		UL1480 UUMW, ULC-S541		--	

Projection Speaker

PJ-100W

Projection Speaker

PJ-200W**

Model	PJ-100W	PJ-200W
Rated Input (100V line)	10W	20W
Rated Impedance	50V line: 250Ω (10W), 500Ω (5W), 1kΩ (2.5W), 2kΩ (1.25W), 4kΩ (0.63W) 70V line: 500Ω (10W),1kΩ (5W), 2kΩ (2.5W), 4kΩ (1.25W) 100V line: 1kΩ (10W), 2kΩ (5W), 4kΩ (2.5W)	50V line: 125Ω (20W), 250Ω (10W), 500Ω (5W), 1kΩ (2.5W), 3kΩ (1.25W) 70V line: 250Ω (20W), 500Ω (10W), 1kΩ (5W), 2kΩ (2.5W) 100V line: 500Ω (20W), 1kΩ (10W), 2kΩ (5W)
Sensitivity (1W, 1m)	92 dB	95 dB
Frequency Response	65 Hz – 15 kHz	50 Hz – 20 kHz
Speaker Component	12cm (5")	16cm (6")
Finish	Cabinet, Cover: ABS Resin, off-white Bracket: SPCC, off-white	
Dimensions	160 (W) x 200 (H) x 195 (D) mm (6.3" x 7.9" x 7.7")	200 (W) x 255 (H) x 250 (D) mm (7.9" x 10" x 9.8")
Weight	1.8kg (3.97 lbs)	2.5kg (5.5 lbs)

- Wide range projection speaker
- 2 rated input model 10W and 20W available
- *Available in lots of 2 (use part number: PJ-100W-2, PJ-200-2)*

** Special order product

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)

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

Model	H-1	H-2	H-2WP	H-3	H-3WP
Power Handling Capacity	90W (continuous program)	120W (continuous program)		150W (continuous program)	
Rated Input (100V line)	12W (16Ω)	12W (16Ω)		30W (16Ω)	
Rated Impedance	4Ω or 16Ω / 100V line: 830Ω (12W), 1.7kΩ (6W), 3.3kΩ (3W) 70V line: 420Ω (12W), 830Ω (6W), 1.7kΩ (3W), 3.3kΩ (1.5W)			8Ω or 16Ω/100V line: 330Ω (30W), 670Ω (15W), 1.3kΩ (7.5W) 70V line: 170Ω (30W), 330Ω (15W), 670Ω (7.5W), 1.3kΩ (3.75W)	
Sensitivity (1W, 1m)	85 dB	88dB		89dB	
Frequency Response	120Hz – 20kHz	100Hz – 20kHz			
Speaker Component	Low: 8 x 5cm cone-type, High: Balanced dome-type	Low: 10cm cone-type, High: Balanced dome-type		Low: 10cm cone-type x 2, High: 2.5cm dome-type (neodymium magnet)	
Finish	Cover: Fire-resistant ABS resin, white, paint Punched net: Steel plate, white paint Adapter frame: Stainless steel	Frame: Fire-resistant ABS resin, white, paint Base frame: Steel plate Punched net: Steel plate, white paint	Frame: Fire-resistant ABS resin, white, paint Base frame: Steel plate Punched net: Steel plate, white powder coating	Enclosure: Fire-resistant ABS resin, black Frame: Fire-resistant ABS resin, off-white Punched net: Stainless plate, off-white, paint Base Frame: Steel plate, plating	Enclosure: Fire-resistant ABS resin, black Frame: Fire-resistant ABS resin, off-white Punched net: Steel plate (zinc plating), off-white, powder coating Base Frame: Stainless steel
Dimensions	312 (W) x 126 (H) x 90(D) mm (12.3" x 5" x 3.5")	ø268 x 111 (H) mm (10.5" x 4.4")		295 (W) x 318 (H) x 129 (D) mm (11.6" x 12.5" x 5.1")	
Weight	1.5kg (3.3 lbs)	2.1kg (4.63 lbs)		3.3kg (7.3 lbs)	
Dust/Water Protection	—	IP64		IPX4	

Optional Accessories

Adapter Frame

HY-H1

Equalization Module

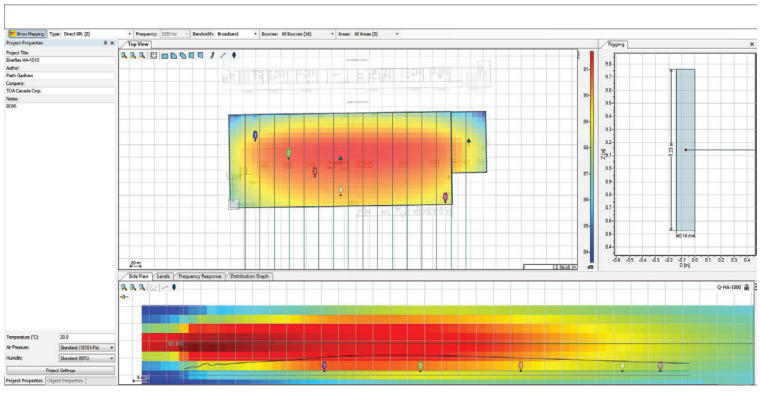
E-04R
E-05R
E-06RB**
E-07S

Matching Transformer

MT-S0601

EASE Focus 2 - Generic Aiming & Acoustic Modeling Software

TOA Canada Corporation uses EASE Focus 2 for system design. EASE Focus 2 is a three-dimensional, acoustic simulation software for the configuration and modeling of line array systems, digitally steered columns and conventional loudspeakers. EASE Focus 2 is free for the end user but loudspeaker companies need to license their brand in order to add loudspeakers to the database.



- 3D modeling of direct sound, displayed in horizontal and vertical cutting planes.
- Support for EASE GLL files and data exchange with EASE and other AFMG software packages.
- Export your full array configuration for further use in EASE.
- Capability to use multiple sound sources, both line array systems and regular loudspeakers, in a single project.
- Support for digitally steered columns and other configurable loudspeakers; this requires an additional proprietary DLL that can provide e.g. beam steering filters.
- Virtual equalizer for tuning a line array in the simulation.
- Full frequency range from 20 Hz to 20 kHz.
- High accuracy due to high internal data resolution and GLL data format.
- Many helpful features for pre-production and on-site setup, e.g. extensive PDF-reports, additional rigging details, etc.

F Series Wide-Dispersion Speakers

Versatile Box Speakers

F-03 / F-05 / F-08 / FB-08

- New version of our F-box speakers
- Designed to fit several installation locations
- Simplified installation process with supplied wall bracket
- Elegant enclosure, black and white available
- Designed for vertical or horizontal mounting, with pan/tilt/diagonal configuration
- Satisfying sound quality without need of tuning
- WP versions developed with IP65 rating

New F-Series Box Speakers

Model	F-03WT/BT	F-03BT/WT-WP	F-05WT/BT	F-05BT/WT-WP	F-08WT/BT	F-08BT/WT-WP
Rated Input (100V Line)	15 W (100 V line, 70 V line)		30 W (100 V line, 70 V line)		60 W (100 V line, 70 V line)	
Rated Impedance	8 Ω 100 V line: 670 Ω (15 W), 2 kΩ (5 W), 3.3 kΩ (3 W), 10 kΩ (0.5 W) 70 V line: 330 Ω (15 W), 670 Ω (7.5 W), 2kΩ (2.5 W), 3.3 kΩ (1.5 W), 10 kΩ (0.5 W)	8 Ω 100 V line: 670 Ω (15 W), 2 kΩ (5 W), 3.3 kΩ (3 W), 10 kΩ (1 W) 70 V line: 330 Ω (15 W), 670 Ω (7.5 W), 2 kΩ (2.5 W), 3.3 kΩ (1.5 W), 10 kΩ (0.5 W)	8 Ω 100 V line: 330 Ω (30 W), 1 kΩ (10 W), 3.3 kΩ (3 W), 10 kΩ (1 W) 70 V line: 170 Ω (30 W), 330 Ω (15 W), 1 kΩ (5 W), 3.3 kΩ (1.5 W), 10 kΩ (0.5 W)		8 Ω 100 V line: 170 Ω (60 W), 330 Ω (30 W), 670 Ω (15 W), 3.3 kΩ (3 W) 70 V line: 83 Ω (60 W), 170 Ω (30 W), 330 Ω (15 W), 670 Ω (7.5 W), 3.3 kΩ (1.5 W)	
Sensitivity	87 dB (1 W, 1 m) at installation in 1/2 free sound field	86 dB (1 W, 1 m) (1 - 10 kHz, pink noise)	90 dB (1 W, 1 m) at installation in 1/2 free sound field	89 dB (1 W, 1 m) (1 - 10 kHz, pink noise)	91 dB (1 W, 1 m) at installation in 1/2 free sound field	90 dB (1 W, 1 m) (1 - 10 kHz, pink noise)
Frequency Response	85 Hz – 20 kHz –10 dB at installation in 1/2 free sound field	100 Hz - 20 kHz, -10 dB at installation in 1/2 free sound field	60 Hz - 20 kHz, -10 dB at installation in 1 /2 free sound field	80 Hz - 20 kHz, -10 dB at installation in 1 /2 free sound field	50 Hz - 20 kHz, -10 dB at installation in 1 /2 free sound field	70 Hz - 20 kHz, -10 dB at installation in 1 /2 free sound field
Directivity Angle	Horizontal: 100°, Vertical: 100°		Horizontal: 100°, Vertical: 100°		Horizontal: 100°, Vertical: 100°	
Speaker Component	9 cm (3.5") Full-range PPcone-type		Low frequency: 13 cm (5") PPcone-type High frequency: 25 mm (1") dome tweeter		Low frequency: 20 cm (8") PPcone-type High frequency: 25 mm (1") dome tweeter	
Input terminal	Push-in terminal	M4 screw terminal, distance between barriers: 9 mm (0.35")	Push-in terminal	M4 screw terminal, distance between barriers: 9 mm (0.35")	Push-in terminal	M4 screw terminal, distance between barriers: 9 mm (0.35")
Operating Temperature	-10°C to +50°C (14°F to 122°F)					
Finish	Enclosure: HIPS, black/white, paint Grille: Aluminum, black/white, paint Speaker bracket: Die-cast aluminum, black/white, paint Base bracket: Steel plate, t4, black/white, paint Base bracket cover: HIPS, black	Enclosure: HIPS, black/white, paint Grille: Aluminum, black/white, paint U bracket, Speaker bracket: Stainless steel, t2, black/white, paint	Enclosure: HIPS, black/white, paint Grille: Aluminum, black/white, paint Speaker bracket: Die-cast aluminum, black/white, paint Base bracket: Steel plate, t4, black/white, paint Base bracket cover: HIPS, black/white	Enclosure: HIPS, black/white, paint Grille: Aluminum, black/white, paint U bracket, Speaker bracket: Stainless steel, t2, black/white	Enclosure: HIPS, black/white, paint Grille: Aluminum, black/white, paint Speaker bracket: Die-cast aluminum, black/white, paint Base bracket: Steel plate, t4, black/white, paint Base bracket cover: HIPS, black/white	Enclosure: HIPS, black/white, paint Grille: Aluminum, black/white, paint U bracket, Speaker bracket: Stainless steel, t2, black/white
Water/Rust Protection	N/A	IP65	N/A	IP65	N/A	IP65
Dimensions	130 (W) x 221 (H) x 132 (D) mm (5.12" x 8.7" x 5.2")		162 (W) X 274 (H) X 164 (D) mm (6.38" X 10.79" X 6.46")		251 (W) X 392 (H) X 216 (D) mm (9.88" X 15.43" X 8.5")	
Weight	1.7 kg (3.75 lb)		2.7 kg (5.95 lb)	2.8 kg (6.17 lb)	5.2 kg (11.46 lb)	5.5 kg (12.13 lb)
Accessory	Speaker bracket x1, Base bracket x1, Base bracket cover x1, Bracket fixing screw x1 set	U bracket x1, Speaker bracket x2, Bracket fixing screw x1 set, Terminal cover x1, Terminal cover mounting screw x4	Speaker bracket x1, Base bracket x1, Base bracket cover x1, Bracket fixing screw x1 set	U bracket x1, Speaker bracket x2, Bracket fixing screw x1 set, Terminal cover x1, Terminal cover mounting screw x4	Speaker bracket x1, Base bracket x1, Base bracket cover x1, Bracket fixing screw x1 set	U bracket x1, Speaker bracket x2, Bracket fixing screw x1 set, Terminal cover x1, Terminal cover mounting screw x4
Option	Adapter plate: HY-F03B/W Speaker stand: ST-34B Note: K&M 19780 or K&M 19610 is required.	N/A	Adapter plate: HY-F05B/W Speaker stand: ST-34B Note: K&M 19780 or K&M 19610 is required.	N/A	Adapter plate: HY-F08B/W Speaker stand: ST-34B Note: K&M 19780 or K&M 19610 is required.	N/A

Model	FB-08WT/BT
Rated Input (100V Line)	120 W (100 V line, 70 V line)
Rated Impedance	(8 Ω) 100 V line: 83 Ω (120 W), 167 Ω (60 W) 70 V line: 50 Ω (100 W), 83 Ω (60 W), 167 Ω (30 W)
Sensitivity	84 dB (1 W, 1 m) at installation in free sound field, 90 dB (1 W, 1 m) at installation in 1/2 free sound field
Frequency Response	45 Hz - 300 Hz, -10 dB at installation in 1/2 free sound field
Speaker Component	20 cm (8") cone-type
Input terminal	M4 screw terminal, distance between barriers: 9 mm (0.35")
Operating Temperature	-10 °C to +50 °C (14 °F to 122 °F)
Finish	Enclosure: MDF, black/white, paint Grille: Surface treated steel plate, black/white, paint
Dimensions	200 (W) X 350 (H) X 400 (D) mm (7.87" X 13.78" X 15.75")
Weight	16 kg (3.53 lb)
Option	Subwoofer wall mounting bracket: HY-WM-FB08B/W, Subwoofer ceiling mounting bracket: HY-CM-FB08B/W

F Series Wide-Dispersion Speakers Accessories

Mounting Bracket
HY-F03W/B

Mounting Bracket
HY-F05W/B

Mounting Bracket
HY-F08W/B

Mounting Bracket
HY-WM-FB08W/B

Mounting Bracket
HY-CM-FB08W/B

F Series Wide-dispersion Ceiling Speakers

- NOW AVAILABLE WITH A BLACK GRILL Q-F122GRBK for F-122C and F-2352C models
- Minimal high frequency roll off allows clear and well-balanced sound reproduction over a wide listening area
- Designed to blend into ceilings with a smooth, low-profile design, extra-wide dispersion
- 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-2852CU2, F-2322CU2, F-2352CU2, F-122CU2 are certified to UL1480 (UEAY), UL2043, CAN/CSA C22.2 No. 205 (UEAY7)

SIGNALING c UL LISTED

F-2852C, F-2852CU2

- 2-way speaker for high power
- Applications e.g. for high ceilings (3 to 6m)
- Wide-dispersion: 120° conical (1-4k Hz avg.)
- Diffuser for wide dispersion of high frequencies
- Metal back can

F-2352C, F-2352CU2

- 2-way speaker for medium ceiling height (2 to 4 m)
- Wide-dispersion: 170° conical (1-4k Hz avg.)
- Diffuser for wide dispersion of high frequencies
- Metal back can

F-2352SC

- 2-way wide range speaker with diffuser for low power applications and medium ceiling height (2 to 4m)
- Wide-dispersion: 155° conical (1-4k Hz avg.)
- Diffuser for wide dispersion of high frequencies
- For use in ceilings with minimal depth

F-2322C, F-2322CU2

- Full range speaker for medium ceiling height (2 to 4 m)
- Wide-dispersion: 170° conical (1-4k Hz avg.)
- Metal back can

F-122C, F-122CU2

- Equalizing controlled type full range speaker for medium ceiling height (2 to 4 m)
- Wide-dispersion: 180° conical (1-4k Hz avg.)
- Cost effective if many speakers are installed
- Heat-resistant back can
- Optimized for use with optional digital processors
- Diffuser for wide dispersion of high frequencies

F-1522SC

- Cost-effective compact full range speaker for medium ceiling height (2 to 4 m)
- Wide-dispersion: 160° conical (1-4k Hz avg.)
- Only 117 mm mounting depth
- Flat front panel

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

Specifications on next page >

F Series Wide-dispersion Ceiling Speakers

Model	F-2852C	F-2322C	F-2352C	F-122C	F-2352SC	F-1522SC
Rated Input (100V line)	60W	30W			6W	
Rated Impedance	70V line: 83Ω (60W), 170Ω (30W), 330Ω (15W), 670Ω (7.5W), 3.3kΩ (1.5W) 25V line: 83Ω (7.5W), 170Ω (3.7W), 330Ω (1.9W), 670Ω (0.9W), 3.3kΩ (0.2W) 8Ω	100V line: 330Ω (30W), 1kΩ (10W), 3.3kΩ (3W), 10kΩ (1W) 70V line: 170Ω (30W), 330Ω (15W), 1kΩ (5W), 3.3kΩ (1.5W), 10kΩ (0.5W) 25V line: 170Ω (3.7W), 330Ω (1.9W), 1kΩ (0.6W), 3.3kΩ (0.2W), 10kΩ (0.06W) 8Ω			100V line: 1.7kΩ (6W), 3.3kΩ (3W), 10kΩ (1W), 20kΩ (0.5W) 70V line: 830Ω (6W), 1.7Ω (3W), 3.3kΩ (1.5W), 10kΩ (0.5W), 20kΩ (0.25W) 25V line: 830Ω (0.75W), 1.7Ω (0.4W), 3.3kΩ (0.2W), 10kΩ (0.6W), 20kΩ (0.03W) 8Ω	100V line: 1.7kΩ (6W), 3.3kΩ (3W) 70V line: 830Ω (6W), 1.7Ω (3W), 3.3kΩ (1.5W) 25V line: 830Ω (0.75W), 1.7Ω (0.4W), 3.3kΩ (0.2W) 8Ω
Sensitivity (1W, 1m)	91dB	90dB			89dB	88dB
Frequency Response	60 Hz – 20 kHz	70 Hz – 20 kHz (-10 dB), 50 Hz - 20 kHz (-20 dB)			80 Hz – 20 kHz (-10 dB), 50 Hz - 20 kHz (-20 dB)	65 Hz – 18 kHz (-10 dB), 45 Hz - 20 kHz (-20dB)
Mounting Hole Diameter	ø250 mm (9.84")	ø200 mm (7.87")				ø135 mm (5.32")
Speaker Component	Low: 16cm (6") cone-type, High: Dome-type	12cm (5") cone-type	Low: 12cm (5") cone-type, High: Balanced dome-type	12cm (5") cone-type	Low: 12cm (5") cone-type, High: Balanced dome-type	10cm (4") 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 cover: Spunbond Polypropylene Nonwoven Fabric	
Dimensions	ø280 x 227 (D) mm (ø11" x 8.9")	ø230 x 200 (D) mm (ø9.1" x 7.9")	ø230 x 229 (D) mm (ø9.1" x 9")		ø230 x 154 (D) mm (ø9.1" x 6.1")	ø155 x 117 (D) mm (ø6.1" X 4.6")
Weight	5.1kg (11.2 lbs)	3.7kg (8.2 lbs)			1.5kg (3.3 lbs)	1kg (2.2 lbs)
Accessory	Panel x1, Ceiling reinforcement ring x 1, Safety wire x 1, Paper pattern x 1				Panel x 1, Paper pattern x 1	
	FB-3862CU Ceiling Subwoofer					
Option	Anchor hanging bracket: HY-AH1**, Tile bar bridge: HY-TB1, Back can: Q-HY-BC28W	Anchor hanging bracket: HY-AH1**, Back can: HY-BC1, Tile bar bridge: HY-TB1, Trim ring: HY-TR1, F-2352C only: Black grill: Q-F122GRBK		Anchor hanging bracket: HY-AH1**, Back can: HY-BC1, Tile bar bridge: HY-TB1, Trim ring: HY-TR1 Controller module: E-03R Black grill: Q-F122GRBK	Back can: HY-BC1, Reinforcement ring: HY-RR2, Anchor hanging bracket: HY-AH1**Tile bar bridge: HY-TB1, Trim ring: HY-TR1 (HY-RR2 required for HY-AH1, HY-TB1, HY-TR1)	Reinforcement ring: HY-RR1 12" round baffle: HY-RB1860

Model	F-2852CU2	F-2322CU2	F-2352CU2	F-122CU2
Rated Input (100V line)	60W	30W		
Rated Impedance	70V line: 83Ω (60W), 170Ω (30W), 330Ω (15W), 670Ω (7.5W), 3.3kΩ (1.5W) 25V line: 83Ω (7.5W), 170Ω (3.7W), 330Ω (1.9W), 670Ω (0.9W), 3.3kΩ (0.2W) 8Ω	70V line: 170Ω (30W), 330Ω (15W), 1kΩ (5W), 3.3kΩ (1.5W), 10kΩ (0.5W) 25V line: 170Ω (3.7W), 330Ω (1.9W), 1kΩ (0.6W), 3.3kΩ (0.2W), 10kΩ (0.06W) 8Ω		
Sensitivity (1W, 1m)	91dB	90dB		
Frequency Response	60 Hz – 20 kHz	70 Hz – 20 kHz		70 Hz – 20 kHz (-10 dB) 50 Hz - 20 kHz (-20 dB)
UL Code	CU Version Only: UL1480 (UEAY), UL2043, CAN/CSA C22.2 No.205 (UEAY7)			
Mounting Hole Diameter	ø250 mm (9.84")	ø200 mm (7.87")		
Speaker Component	Low: 16cm (6") cone-type, High: Dome-type	12cm (5") cone-type	Low: 12cm (5") cone-type, High: Balanced dome-type	12cm (5") cone-type
Finish	Enclosure: Steel plate, plating; Baffle: Fire-resistant ABS resin, black Rim: Fire-resistant ABS resin, white; Punched net: Steel plate, white, paint			
Dimensions	ø280 x 236 (D) mm (ø11" x 9.3")	ø230 x 209 (D) mm (ø9.1" x 8.2")	ø230 x 238 (D) mm (ø9.1" x 9.4")	
Weight	5.8kg (12.8 lbs)	4.3kg (9.5 lbs)		4.4kg (9.7 lbs)
Accessory	Front grille x 1, Tile bridge x 1, Safety wire (approx. 60cm (23.62")) x1, Paper pattern x1			
	FB-3862CU Ceiling Subwoofer			
Option	Back can: Q-HY-BC28W	Back can: HY-BC1, Trim ring: HY-TR1		Controller module: E-03R, Back can: HY-BC1, Trim ring: HY-TR1

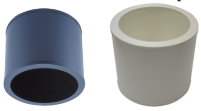
Ceiling Subwoofer

FB-3862CU

Model	FB-3862CU
Enclosure	Bandpass
Rated Output	60W (70/100V)
Power Handling Capacity	100W RMS 200W Peak
Impedance	70V line- 60W/30W/15W/7.5W/3.8W/1.9W with 8Ω bypass
Sensitivity	91dB 1W/1m
Frequency Response	45-200 Hz (-10dB)
Speaker Component	8" driver with oiled paper cone and foam surround
Certifications	UL2043/UL1480A. Baffle meets UL 94-V0 flammability rating. RoHS
Mounting Hole	350mm diameter (13.8")
Input Terminal	Phoenix-type with parallel outputs (max 12AWG stranded cable)
Recommended Cable	Max 12AWG stranded unshielded twisted pair (jacket per code)
Finish	White
Dimensions	383 mm diameter x 326.5 mm height (15.08" x 12.85")
Weight	6.71 kg (14.79 lbs.)
Included Accessories	Steel support ring (C-ring), qty 2 steel support rails, speaker hole template, operation manual
Optional Accessories	HY-BC2W Enclosure for FB-3862CU, White Support and safety cables (load rated chain or load rated aircraft cable)

F Series Ceiling Speakers Optional Accessories

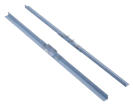
Back Can
HY-BC1 (black)
Q-HY-BC1W (white)



Trim Ring
HY-TR1

Back Can for F-2852C
Q-HY-BC28W

Tile Bar Bridge
HY-TB1



HY-BC2W Enclosure, White
HY-BC2W Subwoofer only

Reinforcement Ring
HY-RR1

Reinforcement Ring
HY-RR2

Shallow Back Can for F-2352SC
Q-HY-BC2

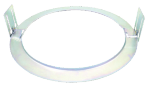
Anchor Hanging Bracket
HY-AH1**

Mounting Channel
Q-HY-TB2

TB-200 Tile Bridge for F-122CU2, F-2322CU2, F-2352CU2
5070723950

TB-250 Tile Bridge for F-2852CU2
5070724030

Ceiling Reinforcement Ring
7020116720



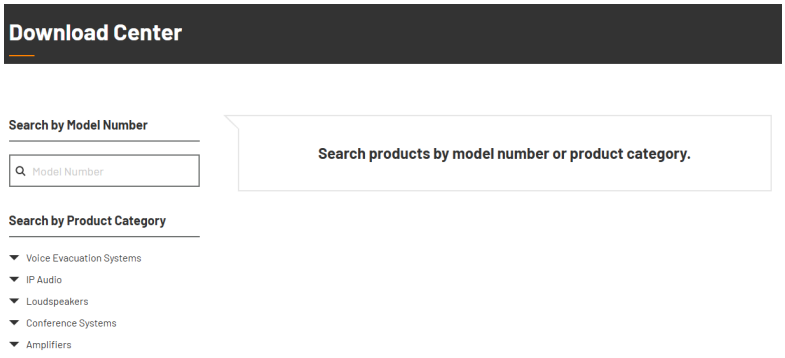
Drywall Rough-in Kit
F-DRYWALLKIT

Black Grill for F-122C, F-2352C, F-2352SC
Q-F122GRBK

Equalization for F-122C
E-03R

TOA Accessibility Tools

With local Canadian teams located across the country, TOA prides itself on providing local service across Canada. We also aim to provide as much informative peripheral material as possible. By utilizing the digital assets developed by TOA, clients can test out our products without even needing to step foot on site. Revit assets are developed by our HQ to enable users to visualize sound pressure guides, enhancing both 2D plans and immersive 3D designs. We also aim to provide as much informative peripheral material as possible. continually striving to develop more assets to assist our users. 3D renders of our IP-A1 series are among some of our newest assets. Inspect the series in detail without leaving your office. These assets and tools –as well as others– can be found at **www.toacanada.com**.

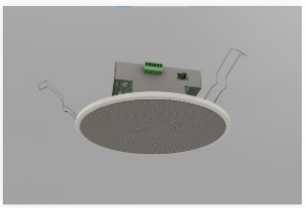


3D VIEWER

IP-A1PG

IP-A1AF

IP-A1SC15



IP-A1PC238

Line Array Speaker Type C

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

SR-C8L
SR-C8LWP

SR-C8S
SR-C8SWP

- Superior sound quality - Sync-Drive technology keeps the audio in phase with its sources at the speakers to create an ideal linear sound source.
- High-fidelity sound - due to the design of the speakers phase wave-front control technology, high-fidelity sound is produced without causing attenuation of high-frequency sound
- Adjustable sound coverage
- Resistant to feedback and enjoy reflection-free operation
- Single or bi-amp mode - by changing the position of an internal connector

Model	SR-C8L	SR-C8LWP	SR-C8S	SR-C8SWP
Power Handling Capacity	Continuous program: 360 W (Single-amp mode; Low 360 W, High: 180 W (Bi-amp mode)			
Rated Impedance	16Ω (single-amp mode); Low: 16Ω, High: 16Ω (bi-amp mode)			
Sensitivity (1W, 1m)	98 dB (single-amp mode) Low: 95dB, High: 110dB (bi-amp mode)			
Frequency Response	65 – 20,000 Hz (when using an optional DSP processor)			
Speaker Component	Low Frequency: 20 (8") cm cone type; High Frequency: Wave front control horn 110° (horizontal) x 5° (vertical) + compression driver x 2		Low Frequency: 20 (8") cm cone type; High Frequency: Wave front control horn 110° (horizontal) x 15° (vertical) + compression driver x 2	
Directivity Angle	Horizontal: 110°, Vertical: 5°		Horizontal: 110°, Vertical: 15°	
Finish Enclosure:	Plywood, black, urethane paint	Plywood, black, urethane coating	Plywood, black, urethane paint	Plywood, black, urethane coating
Finish Front grille:	Punched steel plate, black, paint	Punched stainless steel, black, paint	Punched steel plate, black, paint	Punched stainless steel, black, paint
Dimensions	526.6 (W) x 293 (H) x 296 (D) mm (20.73" x 11.54" x 11.65")		526.6 (W) x 293 (H) x 294 (D) mm (20.73" x 11.54" x 11.57")	
Weight	17 kg (37.48 lb)		16 kg (35.27 lb)	
Water Protection	--	IPX4	--	IPX4
Accessory	M8 connection bolt x 4			
Option	Cluster bracket: SR-CL8, Rigging frame: SR-RF8, Tilt joint bracket: SR-TP8, Digital processor: D-901 or D-2008	Rigging frame: SR-RF8WP Digital processor: D-901 or D-2008	Cluster bracket: SR-CL8, Rigging frame: SR-RF8, Tilt joint bracket: SR-TP8, Digital processor: D-901 or D-2008	Rigging frame: SR-RF8WP Digital processor: D-901 or D-2008

Line Array Speaker Type C - Subwoofer

SR-C15B
SR-C15BWP

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

Model	SR-C15B	SR-C15BWP
Power Handling Capacity	Continuous program: 450 W	
Rated Impedance	8Ω	
Sensitivity (1W, 1m)	93 dB	
Frequency Response	40 – 400 Hz (when using an optional DSP processor)	
Speaker Component	38 cm (15") cone-type	
Finish Enclosure:	Plywood, black, urethane paint	Plywood, black, urethane coating
Finish Front grille:	Punched steel plate, black, paint	Punched stainless steel, black, paint
Dimensions	526.6 (W) x 594.8 (H) x 550 (D) mm (20.73" x 23.42" x 21.65")	
Weight	41 kg (90.39 lb)	
Accessory	M8 Connection bolt x 4	
Option	Rigging frame: SR-RF8 Digital processor: D-901 or D-2008	Rigging frame: SR-RF8WP Digital processor: D-901 or D-2008

SR-C Series Optional Accessories

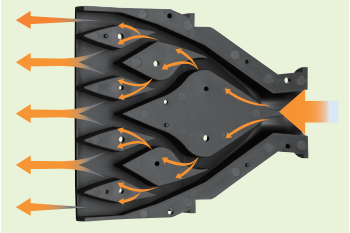
»» Cluster bracket, black
SR-CL8

»» Rigging support bracket
SR-SB8

»» Tilt joint bracket
SR-TP8

SYNC Drive™

Synchronous Nexus Drive Control



Sync-Drive™ - Synchronous Nexus Control Drive Technology is a wavefront control technology that keeps sound waves in phase with their sources at the speakers to create an ideal linear sound source. Sync-Drive™ offers a uniform, high frequency sound field providing excellent sound clarity and minimal interference.

Speakers featuring Sync-Drive™ Technology:

- *SR-C Line Array Speakers*
- *SR-H Line Array Speakers*
- *SR-S - Line Array Speakers*
- *HX-7 - Compact Arrays*

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 brackets are available
- Optional matching transformer MT-S0601 for high-impedance operation

Model	SR-S4L	SR-S4LWP	SR-S4S	SR-S4SWP
Power Handling Capacity	Continuous program: 600W			
Rated Impedance	8Ω			
Sensitivity (1W, 1m)	94dB		93dB	
Frequency Response	70 Hz – 20 kHz			
Speaker Component	Low: 10 cm (4") cone-type x 8, High: 2.5 cm (0.98") 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, white paint	Punched steel plate, white, acrylic paint	Punched stainless steel, white paint
Dimensions	160 (W) x 895 (H) x 255 (D) mm (6.3" x35.2" x 10")		160 (W) x 892 (H) x 303 (D) mm (6.3" x 35.1" x 11.9")	
Weight	16 kg (35.3 lbs)			
Dust/Water Protection	—	IPX4	—	IPX4

SR-S Series Optional Accessories

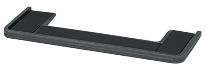
Extension Plate
SR-EP4

Wall Tilt Bracket
SR-TB4

Wall Mounting Bracket
SR-WB4
for SR-S4L/WP

Stand Adapter
SR-SA4

Protection Pad
SR-PP4



Extension Plate
SR-EP4WP

Wall Tilt Bracket
SR-TB4WP

Wall Mounting Bracket
SR-WB4WP
for SR-S4L/WP

Flying Bracket
SR-FB4

Floor Stand
SR-FS4
for SR-S4L/WP

Matching Transformer
MT-S0601

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	90dB	95dB	92dB
Frequency Response	80 Hz – 18 kHz	90 Hz – 17 kHz	110 Hz – 18 kHz	90 Hz – 17 kHz
Speaker Component	7cm (2.8") cone-type x 9		7cm (2.8") cone-type x 16	
Directivity Angle	Horizontal: 90°; Vertical: 0°	Horizontal: 90°; Vertical: 20°	Horizontal: 90°; Vertical: 0°	Horizontal: 90°; Vertical: 20°
Finish Enclosure:	MDF, white, urethane paint			
Front grille:	Punched steel plate, white, acrylic paint			
Dimensions	84 (W) x 668.4 (H) x 115 (D) mm (3.3" x 26.3" x 4.5")	84 (W) x 663.4 (H) x 115 (D) mm (3.3" x 26.1" x 4.5")	84 (W) x 1,186 (H) x 115 (D) mm (3.3" x 46.7" x 4.5")	84 (W) x 1,177.2 (H) x 157 (D) mm (3.3" x 46.3" x 6.2")
Weight	4.4 kg (9.7 lbs)	4.2 kg (9.3 lbs)	7.6 kg (16.8 lbs)	7.9 kg (17.4 lbs)

SR-H Series Optional Accessories

Wall Mounting Bracket
SR-WB3

Wall Tilt Bracket
SR-TB3

Flying Bracket
SR-FB3

Extension Plate
SR-EP3

Stand Adapter
SR-SA3

Matching Transformer
MT-S0301

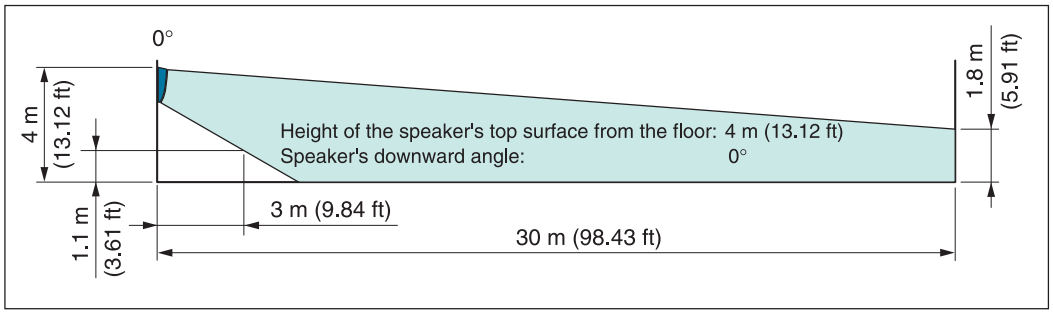
Line Array Speaker Type T

SR-T5

- Sturdy impact-resistant construction
- Easy mounting
- Internal two-way passive crossover network circuitry for single amplifier operation
- Speaker's downward angle adjustable with accessory mounting bracket
- Horizontal angle adjustable in conjunction with optional SR-PB5 bracket
- Optional matching transformer MT-S0601 for high-impedance operation
- Safety wire supplied to prevent the speaker from falling during installation work and after installation
- Ideal for installations in sports facilities with strong reverberation, including; school gymnasiums - additional protector grille not required.

Model	SR-T5
Power Handling Capacity	Continuous pink noise: 250 W; Continuous program: 750 W
Rated Impedance	8Ω
Sensitivity (1W, 1m)	96dB (1W, 1m equivalent, measured at 4m)
Frequency Response	70 – 20 kHz
Speaker Component	Low Frequency: 13 cm (5.12") cone-type x 8, High Frequency: balanced dome-type x 24
Directivity Angle	Horizontal: 100°; Vertical: 35°
Finish	Enclosure: Plywood, black, urethane paint; Baffle: Polypropylene, black; Punched net & Mounting Bracket: Steel plate, black, acrylic paint
Dimensions	310 (W) x 1,239 (H) x 341 (D) mm (12.2" x 48.78" x 13.43")
Weight	29 kg (63.93 lb) (including accessories)
Accessory	Mounting bracket A x 1, Mounting bracket B x1, Bracket mounting bolt x 6, Slide cover x 5, Slide cover mounting screw x 10, Eye bolt x 1, Safety wire x 1
Option	Wall pan bracket: SR-PB5, Matching transformer: MT-S0601

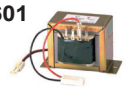
COVERAGE AREA EXAMPLE



SR-T Series Optional Accessories

»Wall pan bracket
SR-PB5

»Matching transformer
MT-S0601



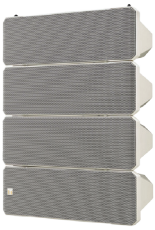
Compact Array Speakers

From a *whisper* to a SCREAM

- SYNC-Drive™ waveguide technology
- Innovative modular speaker design includes four preassembled modules with four LF drivers and twelve HF dome tweeters
- Adjustable dispersion angle to 0, 15, 30, 46 and 60 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; 750W continuous (250W pink noise)
- Splashproof versions (HX-7B-WP/HX-7W-WP)
- Parallel connectors - dual speakon and screw terminal
- A wide variety of optional mounting bracket are available

HX-7B
HX-7B-WP

HX-7W
HX-7W-WP

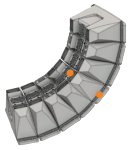


Model	HX-7B	HX-7W	HX-7B-WP	HX-7W-WP
Power Handling Capacity	Continuous program: 750W			
Rated Impedance	8Ω			
Sensitivity (1W, 1m)	100dB			
Frequency Response	75 Hz – 20 kHz		105Hz – 20 kHz	
Speaker Component	Low: 13cm (5.5") cone-type x 8, High: Wave front control horn with compression driver x 4			
Directivity Angle	Horizontal: 100°; Vertical: 0°,15°,30°,45° and 60°			
Finish	Enclosure: Polypropylene, black or white; Punched net: Surface-treated steel plate, black or white, Hanging bracket: Steel plate, black or white paint		Enclosure: Polypropylene, black or white; Punched net: Surface-treated steel plate, black or white, rust proof coating	
Dimensions	497 (W) x 664 (H) x 274 (D) mm (19.6" x 26.1" x 10.8")			
Weight	30kg (66.1 lbs)			
Dust/Water Protection	—		IPX4 (Install with every speaker module tilted downward from the horizontal.)	
Accessory	Hanging bracket L, R (L and R are symmetrical to each other) x 1 each, Hanging bracket mounting bolt x 4		Terminal cover x 1, Terminal cover mounting screw x 4, Rubber packing x 1	
Option	Matching transformer: MT-200[1], Matching transformer: HY-MT7 Speaker mounting bracket: HY-60DB/W, HY-CN7B/W, HY-PF7B/W, HY-VM7B/W, HY-WM7B/W[2], HY-CO801/W[2], Speaker stand adapter: HY-ST7		Matching transformer: MT-200[1], Matching transformer: HY-MT7 Speaker mounting bracket: HY-TM7B-WP, HY-MS7B-WP, HY-60DB-WP, HY-CN7B-WP	

Note: (1) When mounting the MT-200 Matching Transformer to the speaker, an optional HY-MT7 Matching Transformer adapter is required. (2) HY-VM7B Speaker Mounting Bracket is separately required.

Mounting Options

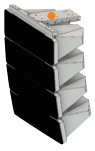
Two speakers connected
HY-CN7W / HY-CN7W-WP / HY-CN7B / HY-CN7B-WP



On the wall
HY-WM7W / HY-WM7B

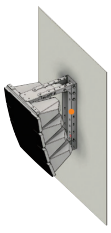
Dispersion angle 60 degrees
HY-60DW / HY-60DW-WP / HY-60DB / HY-60DB-WP

On building structures
HY-TM7W-WP / HY-TM7B-WP

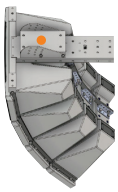


Hanging vertically with subwoofer
HY-PF7W / HY-PF7B

On undereave walls
HY-MS7W-WP / HY-MS7B-WP

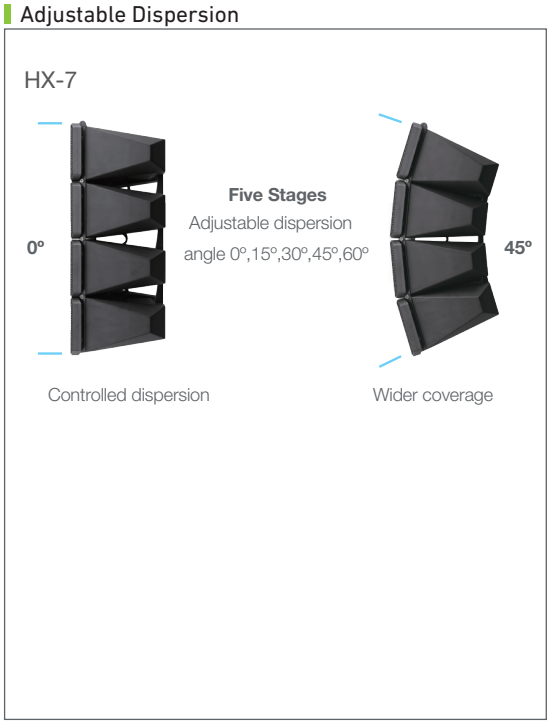


On the ceiling
HY-VM7W / HY-VM7B

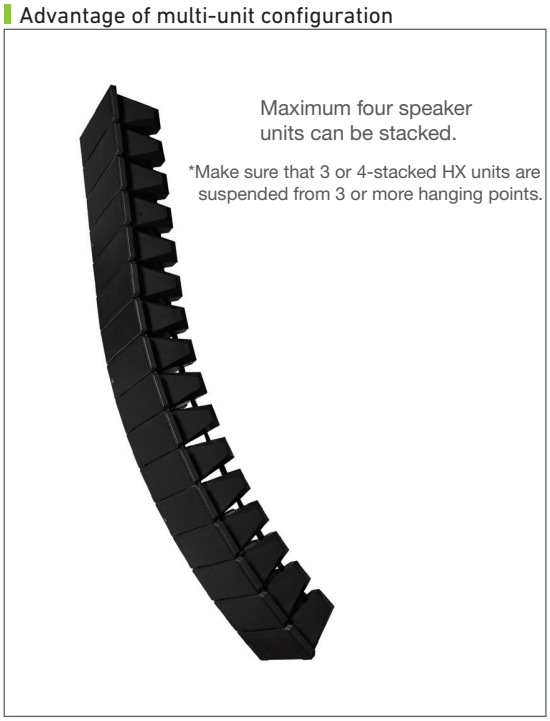


On the stand
HY-ST7

Adjustable Dispersion



Advantage of multi-unit configuration



Subwoofers

FB-150B

FB-150W

- Compact subwoofer, ideal for use with HX-7 Series (indoor use)
- 38 cm (15") woofer
- For floor-, wall-, corner- or ceiling-mount
- 600W continuous program high-power subwoofer system

Model	FB-150B/FB-150W
Power Handling Capacity	Continuous program: 600W
Rated Impedance	8Ω
Sensitivity (1W, 1m)	93 dB
Frequency Response	40 – 400 Hz
Speaker Component	38cm (15") cone-type
Finish	Enclosure: Plywood, black or white, urethane paint Punched net: Surface-treated steel plate, white or black paint
Dimensions	504 (W) x 528 (H) x 477 (D) mm (19.9" x 20.8" x 19.2")
Weight	30kg (66.1 lbs)
Option	Speaker rigging frame: HY-PF7B/W

HX-7 Series Optional Accessories

» Angle Adjustment Bar
HY-60DB-WP

» Angle Adjustment Bar
HY-60DW-WP

» Speaker Connection Bracket
HY-CN7B-WP

» Speaker Connection Bracket
HY-CN7W-WP

» Wall Mounting Bracket
HY-MS7BWP

» Wall Mounting Bracket
HY-MS7WWP

» Matching Transformer Adapter
HY-MT7

» Rigging Frame
HY-PF7B

» Rigging Frame
HY-PF7W

» Speaker Stand Adapter
HY-ST7

» Rigging Bracket
HY-TM7BWP

» Rigging Bracket
HY-TM7WWP

» Rigging Bracket
HY-VM7B

» Rigging Bracket
HY-VM7W

» Wall Mounting Bracket
HY-WM7B
(requires HY-VM7B)

» Wall Mounting Bracket
HY-WM7W
(requires HY-VM7W)

» Ceiling Mount Bracket
HY-C0801
(requires HY-VM7B)

» Ceiling Mount Bracket
HY-C0801W
(requires HY-VM7W)

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-5W	HX-5B-WP	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 Hz – 20 kHz (60° mode)		95Hz – 20 kHz (60° mode)	
Speaker Component	Low: 12cm (4") 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, (rust proof coating on WP versions)			
Dimensions	408 (W) x 546 (H) x 342 (D) mm (16.1" x 21.5" x 13.5")			
Weight	16kg (35.3 lbs)			
Dust/Water Protection	—		IPX4	
Accessory	Hanging bracket x 2, Hex. wrench x 1			
Option	Matching transformer: MT-200, Speaker mounting bracket: HY-PF1B/W, HY-CW1B/W, HY-WM2B/W, HY-CN1B/W, Speaker stand: HY-ST1		Matching transformer: MT-200, Speaker mounting bracket: HY-PF1WP, HY-CW1WP, HY-WM1WP, HY-WM2WP, HY-CN1B/W-WP	

Subwoofers

FB-120B

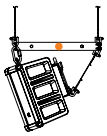
FB-120W

- Compact subwoofer, ideal for use with HX-5 Series
- Extremely wide frequency range
- For floor-, wall-, corner- or ceiling-mount
- 600W continuous program high-power subwoofer system

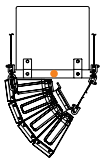
Model	FB-120B/FB-120W
Power Handling Capacity	Continuous program: 600W
Rated Impedance	8Ω
Sensitivity (1W, 1m)	90 dB
Frequency Response	40 Hz – 1.2 kHz
Speaker Component	30cm (12") cone-type
Finish	Enclosure: Plywood, black or white Punched net: Surface-treated steel plate, white or black paint
Dimensions	408 (W) x 408 (H) x 450(D) mm (16.1" x 16.1" x 17.7")
Weight	15kg (33.1 lbs)
Option	Speaker rigging frame: HY-PF1B/W

Mounting Options

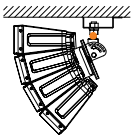
Hanging horizontally
HY-PF1B / HY-PF1W / HY-PF1WP



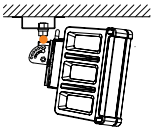
Hanging vertically with subwoofer



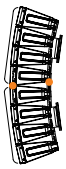
On the ceiling vertically
HY-CW1B / HY-CW1W / HY-CW1WP



On the ceiling horizontally

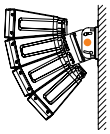


Two speakers connected
HY-CN1B / HY-CN1W / HY-CN1BWP / HY-CN1WWP

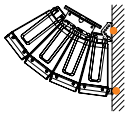


Hanging vertically with subwoofer
HY-PF7W / HY-PF7B

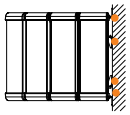
On the wall vertically
HY-WM1B / HY-WM1W / HY-WM1WP



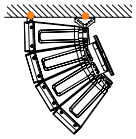
On the wall vertically
HY-WM2B / HY-WM2W / HY-WM2WP



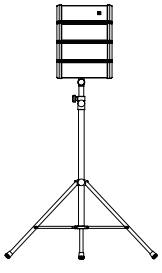
On the wall horizontally



On the ceiling vertically



On the stand
HY-ST1



Compact Array Speakers

HX-5 Series Optional Accessories

Rigging Frame
HY-PF1B

Ceiling Mount Bracket
HY-CW1B

Mount Bracket
HY-WM1B

Mount Bracket
HY-WM2B

Extension Bracket
HY-CN1B

Rigging Frame
HY-PF1W

Ceiling Mount Bracket
HY-CW1W

Mount Bracket
HY-WM1W

Mount Bracket
HY-WM2W

Extension Bracket
HY-CN1W

Rigging Frame
HY-PF1WP

Ceiling Mount Bracket
HY-CW1WP

Mount Bracket
HY-WM1WP

Mount Bracket
HY-WM2WP

Extension Bracket
HY-CN1B-WP

Speaker Stand Adapter
HY-ST1

Matching Transformer
MT-200

Extension Bracket
HY-CN1W-WP

Coaxial Array Speakers

HS-1500BT
HS-1500WT

HS-1200BT
HS-1200WT

- 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-1200BT/HS-1200WT	HS-1500BT/HS-1500WT
Power Handling Capacity	Continuous program: 300W (Low impedance)	
Sensitivity (1W, 1m)	97 dB	98dB
Rated Impedance	8Ω/100V line; 170Ω (60W), 330Ω (30W), 670Ω (15W) 70V line; 83Ω (60W), 170Ω (30W), 330Ω (15W), 670Ω (7.5W)	8Ω/100V line; 170Ω (60W), 330Ω (30W), 670Ω (15W) 70V line; 83Ω (60W), 170Ω (30W), 330Ω (15W), 670Ω (7.5W)
Frequency Response	70 Hz – 20 kHz	60 Hz – 20 kHz
Speaker Component	Low: 30cm (12") cone-type, High: Balanced dome tweeter x 6	Low: 38cm (15") cone-type, High: Balanced dome tweeter x 6
Finish	Enclosure: Polypropylene, black or white; Punched net: Surface-treated steel plate, black or white	
Dimensions	361 (W) x 448 (H) x 320 (D) mm (14.2" x 17.6" x 12.6")	451 (W) x 560 (H) x 400 (D) mm (17.8" x 22" x 15.7")
Weight	10kg (22 lbs)	14kg (30.9 lbs)
Accessory	Handle x 1, Handle fitting bracket x 2, Handle mounting screw x 2, Rubber foot x 2, Rubber foot mounting screw x 2	
Weight	Mounting bracket: HY-1200VB (vertical), HY-1200HB (Horizontal), Ceiling mount bracket: HY-C0801, Wall mounting bracket: HY-W0801	Mounting bracket: HY-1500VB (vertical), HY-1500HB (Horizontal), Ceiling mount bracket: HY-C0801, Wall mounting bracket: HY-W0801

HS Series 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

Impedance Meter

Impedance Meter
ZM-104A

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

Model	ZM-104A
Power Source	R6 x 4 (1.5 V DC x 4)
Current Consumption	39 mA
Reading	Direct reading meter, unit: Ω
Measurement Range	x 1 range: 5Ω - 1kΩ x 10 range: 50Ω - 10kΩ x 100 range: 500Ω - 100kΩ
Operating Temperature	-5 ºC to +40 ºC (23 ºF to 104 ºF)
Accuracy	±10%
Oscillation Frequency Battery life when continuously used	1 kHz, ±10% x 1 range: 30 H x 10 range: and 100 range: 60 h
Finish	ABS resin, black
Dimensions	120 (W) x 220 (H) x 63 (D) mm (4.72" x 8.66" x 2.48") (carrying case) 110 (W) x 180 (H) x 58 (D) mm (4.33" x 7.09" x 2.28") (unit only)
Weight	700g (1.54 lbs) (including carrying case, without batteries)

70 Volt Stepped Wall Attenuators

- Flush-mounted wall attenuators
- Volume can be adjusted in five steps
- Push-in terminals
- Accepts two conductors for easy bridging
- 2 wire connection for normal speaker line attenuation
- 3 wire connection for emergency paging attenuator override *(AT-063AP, ST-303AP, AT-603AP only)*

»Attenuator
AT-063AP[1]

»Attenuator
AT-303AP[1]

»Attenuator
AT-603AP[1]

Model	AT-063AP	AT-303AP	AT-603AP
Input Range	0.5 W - 6 W	0.5 W - 30 W	0.5 W - 60 W
Attenuation	5 steps (0 dB, -6 dB, -12 dB, -18 dB, OFF)		
Applicable Cable	600 V vinyl-insulated cable (indoor vinyl or Heat-resistant Indoor Vinyl cable); Solid cable: Ø0.8 (0.03") - Ø1.6 (0.06") mm		
Terminal	Push-in connector		
Finish	Knob, panel, plate: ABS resin, ivory; Case: ABS resin, black		
Dimensions	70 (W) x 120 (H) x 52.4 (D) mm (2.76" x 4.72" x 2.06") (with plate); 41 (W) x 108 (H) x 52.4 (D) mm (1.61" x 4.25" x 2.06") (attenuator only)		
Weight	170 g (0.37 lb) (unit only)	210 g (0.46 lb) (unit only)	
Accessory	Plate x1, Plate mounting screw x2, Box mounting screw x2		

»Attenuator
AT-025

»Attenuator
AT-100

»Attenuator
AT-100EMG[1]

»Attenuator
AT-10K

Model	AT-025	AT-100	AT-100EMG	AT-10K
Input Capacity	25 W	100 W		--
Attenuation	13 steps (0 dB, -3 dB, -6 dB, -12 dB, -15 dB, -18 dB, -21 dB, -24 dB, -27 dB, -30 dB, -33 dB, OFF)			Continuous 10 kΩ
Wire Capacity	14-gauge			
Priority Relay	--		24 VDC @ 15 mA	--
Finish	White plate and sub-plate; Decora-style			
Dimensions With plate:	69.9 (W) x 114.3 (H) mm (2.75" x 4.5")			
Attenuator only:	47.6 (W) x 63.5 (H) x 44.5 (D) mm (1.9" x 2.5" x 1.8")	47.6 (W) x 63.5 (H) x 46 (D) mm (1.9" x 2.5" x 1.8")	47.6 (W) x 63.5 (H) x 53.9 (D) mm (1.9" x 2.5" x 2.1")	25.4 (W) x 44.5 (H) x 31.8 (D) mm (1" x 1.8" x 1.3")

Notes: 1 Connection for emergency paging attenuator override.

Wall Plates

- Flush-mounted wall plates for MIC Connections
- YM-1J: 1/4" female TRS jack, single gang wall plate with cover.
- YM-3CF: XLR female jack, single gang wall plate with cover.
- *Available in lots of 2 (use part number: YM-1J-2, YM-3CF-2)*

»MIC Connector
YM-1J

»MIC Connector
YM-3CF

Model	YM-1J	YM-3CF
Jack	Double pole jack	XLM-3-31PCH-R
Usable Cable	Microphone vinyl cable with sectional area of 0.75 - 2.0 mm²	
Usable Plate	YP-1AF	
Usable Plug	Single or double pole plug	XLR-3-12C
Finish	Cover: ABS resin (ivory), Frame: Steel plate (t1.2)	
Dimensions	45 (W) x 110 (H) x 48.1 (D) mm (1.77" x 4.33" x 1.89")	45 (W) x 110 (H) x 53 (D) mm (1.77" x 4.33" x 2.1")
Weight	750 g (1.65 lb)	95 g (0.21 lb)
Accessory	Screw M4 x 35 x 2	

Notes: YM-1J/3CF: When routing a power or speaker line and microphone line through the same electric box, provide a barrier between the two for insulation.
For cables with sectional area of under 0.75 mm², fold back their cores to increase the sectional area before making a connection.
YM-1J: H (hot), C (Cold), and E (ground) are shorted. Therefore, mixers or amplifiers using phantom power cannot be used.

»Wall Plate
YP-1AF

Wall Plate for YM-1J, YM-3CF

AMPLIFIERS

DIGITAL POWER

AMPLIFY

DIGITAL MIXER

PA

MIXER POWER

MICRO

MOBILE

MODULES

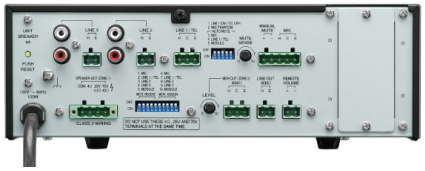
MATRIX

BG-2000 Series Mixer Power Amplifiers

TOA's BG-2000 Series Mixer Power Amplifier is a 5-input mixer amplifier for background music and general announcements. It is suited for use in bars, retail stores, and banquet halls. It is equipped with MOH OUT that permits 2-channel broadcast when used in conjunction with the optional booster amplifier BA-235 (35W) or BA-260 (60 W).

BG-2000 Series Mixer/Amplifiers

BG-2035 35w
BG-2060 60w
BG-2120 120w
BG-2240D-AM 240w
BG-2480D-AM 480w



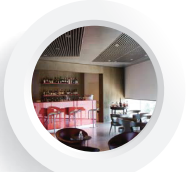
- Compact five channel Mixer-Amplifier for paging, background/foreground music distribution and music/messaging-on-hold.
- BG-2240D-AM: Class D 240W @70V Amplifier
- All inputs/outputs with removable terminal blocks allow quick and easy installation.
- Any of 5 inputs assignable to MOH/ZONE 2 out to fulfill specific BGM requirements
- 3 line inputs, with line 1 line/tel switchable, while line 2 and 3 are equipped with RCA pin jacks.
- Phantom Power (+ 24V DC) incorporated for MIC input.
- Module slot accepts optional 900 Series plug-in modules for custom system configurations. Optional 900 Series Modules required.
- Rear panel-mounted DIP switches allow easy configuring of settings.
- Provides auto/manual mute function with adjustable muting sensitivity.
- Incorporates Remote volume control connection.
- 2-channel broadcast capability together with zone 2 expansion capability in conjunction with BA-200 Series.
- Tamper-proof, front-panel bass and treble controls are recessed to protect their settings.
- Thermal protection circuitry prevents potential damage from excessive heat build-up.
- AC Mains Circuit Breaker.
- Supplied accessory security knobs for volume controls prevent unauthorized volume setting changes.
- Optional rack-mount kit (MB-1000).
- UL/cUL Listed.

Model		BG-2035	BG-2060	BG-2120	BG-2240D-AM	BG-2480D-AM
Power Source		120V AC, 60 Hz				
Rated Output		35W	60W	120W	240W	480W
Power Consumption		94 W (rated output), 50 W (based on cULus standards)	163 W (rated output), 80 W (based on cULus standards)	265 W (rated output), 120 W (based on cULus standards)	300 W (rated output), 55 W (based on cULus standards)	300 W (rated output), 55 W (based on cULus standards)
Input		MIC: -60 dB*, 600Ω, electronically balanced, removable terminal block Line 1: -10 dB*/TEL: -20 dB* Line 1/TEL selectable, 10 kΩ, electronically balanced, removable terminal block Line 2, 3: -10 dB*, 10 kΩ, unbalanced, removable terminal block and RCA jacks Module				
Output	Speaker:	4Ω, 25 V (18 Ω), 70 V (140 Ω) balanced, removable terminal block	4 Ω, 25 V (10 Ω), 70 V (83 Ω) balanced, removable terminal block	4 Ω, 25 V (5.2 Ω), 70 V (42 Ω) balanced, removable terminal block	70 V (21 Ω) balanced, removable terminal block	70 V (21 Ω) balanced, removable terminal block
	MOH:	0dB*, 600Ω, balanced, removable terminal block				
	Line:	0 dB*, 600 Ω, unbalanced, removable terminal block				
Phantom Power		On/Off switch for Mic, +24 V DC				
S/N ratio		Mic: 60 dB or more, Line 1/TEL, Line 2, 3, Module: 75 dB or more (Band Pass: 20 Hz - 20 kHz, Tone controls: Centered)			Mic: 60 dB or more, Line 1/TEL, Line 2, 3, Module: 73 dB or more (A-weighted, Tone controls: Centered)	Mic: 60 dB or more, Line 1/TEL, Line 2, 3, Module: 73 dB or more (A-weighted, Tone controls: Centered)
Tone Control		Bass: ±10dB at 100Hz; Treble: ±10dB at 10kHz				
Muting		Manual mute/Automatic mute				
Dimensions		264 (W) × 94.3 (H) × 276.3 (D) mm (10.39" x 3.71" x 10.52")				
Weight		5.3 kg (11.68 lbs)		6 kg (13.23 lbs)	3.5 kg (7.72 lbs)	3.5 kg (7.72 lbs)
Accessory		Volume control cover: YA-920 x 5; Removable terminal plug (2 pins) x 4, Removable terminal plug (3 pins) x 2, Removable terminal plug (4 pins) x 1, Removable terminal plug (5 pins) x 1				
Optional		Rack mounting bracket: MB-1000				

*0 dB = 1 V

Note: There is a spec difference between TOA's existing BG-2000 series amps and the new BG-2240D-AM. The 4Ω and 25V speaker output is not available on the BG-2240D-AM. If you require a 25V line with 240W output. We recommend the A-824D + MT-251H-Q as an alternative.

Enhance the customer experience with a sound systems for the retail environment.



Optional Accessories BG-2000 Series

Rack Mount Kit (2 RU)
MB-1000

Volume Control Cover *(included)*
YA-920

Optional Accessories BG-200 and BA-200 Series

Rack Mount Kit (2 RU)
MB-25B-BK

Rack Mount Kit for 2 units
MB-25B-J

Wall Mount Bracket
WB-900B

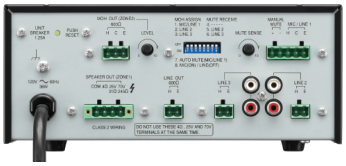
Volume Control Cover *(included)*
YA-920

BG-200 Series PA Amplifiers

TOA's BG-200 Series is a 20/35 W 3-input mixer amplifier for background music and general announcements. It is suited for use in bars, retail stores, and banquet halls. It is equipped with MOH OUT that permits 2-channel broadcast when used in conjunction with the optional booster amplifier BA-235 (35W) or BA-260 (60 W).

Mixer Amplifier

BG-220 20w
BG-235 35w

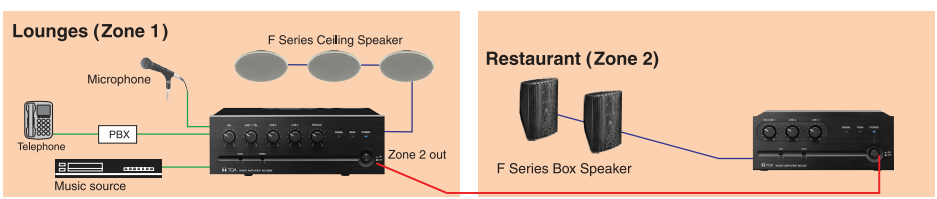


- Ideal for background music and paging applications
- 2-channel broadcasts possible for system expansion as required through MOH/ZONE 2 output on BG Series Amplifiers
- Tamper-proof bass and treble controls preserve system settings
- Security knobs for volume control included
- Any of 3 inputs can be assigned to MOH/ZONE 2 output
- Line 2 and 3 outputs equipped with RCA pin jacks
- Line 2 and 3 inputs equipped with summing RCA jacks
- Automatic Mute sensing control to set mute activation threshold and manual mute function also provided
- Removable terminal blocks and rear-mounted DIP switches for fast and easy installation/setup
- Thermal protection circuits against overheating
- Meets UL/cUL regulations
- Optional rack and wall-mount kits: MB-25B-BK (2 RU) and MB-25B-J (two units, 2 RU)

Model	BG-220	BG-235
Power Source	120V AC, 60 Hz	
Rated Output	20 W	35 W
Power Consumption	60 W (rated output), 36 W based on cULus standards)	90 W (rated output), 55 W based on cULus standards)
Input	MIC: -60 dB*/Line 1: -10 dB* MIC/Line 1 selectable, 600 Ω, electronically balanced, removable terminal block Line 2,3: -10 dB*, 10 kΩ, unbalanced, removable terminal block or RCA jack	
Output	Speaker: 4 Ω, 25 V (31 Ω) and 70 V (245 Ω), balanced removable terminal block MOH: 0 dB*, 600 Ω, balanced, removable terminal block; Line: 0 dB*, 600 Ω, unbalanced, removable terminal block	Speaker: 4 Ω, 25 V (18 Ω) and 70 V (140 Ω), balanced removable terminal block MOH: 0 dB*, 600 Ω, balanced, removable terminal block; Line: 0 dB*, 600 Ω, unbalanced, removable terminal block
S/N ratio	Mic/Line 1: 60 dB or more, Line 2, 3: 80 dB or more (Band Pass: 20 Hz - 20 kHz, Tone Controls: Centered)	
Tone Control	Bass: ±10dB at 100Hz; Treble: ±10dB at 10kHz	
Control	Mic/Line 1 gain control, Line 2 gain control, Line 3 gain control, Bass tone control, Treble tone control, MOH out gain control, Mute control (Manual mute), Mute sense control, Auto mute switch (Mic/Line 1), Mic/Line 1 selector switch, Mute receive switch (Line 2,3), MOH assign switch (Mic/Line 1, Line 2,3), Power ON/OFF switch	
Dimensions	210 (W) × 94.3 (H) × 265 (D) mm (8.27" x 3.71" x 10.43")	
Weight	3.5 kg (7.72 lbs)	4 kg (8.82 lbs)
Accessory	Volume Control Cover: YA-920 x 3, Removable terminal plug (2 pins) x 3, Removable terminal plug (3 pins) x 1, Removable terminal plug (4 pins) x 1, Removable terminal plug (5 pins) x 1	
Option	Rack mounting bracket: MB-25B, MB-25B-J, WB-900B	

*0 dB = 1 V

Multi-zone example using BG and BA amps

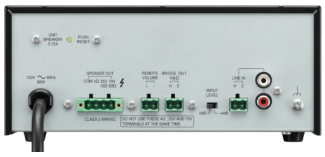


BA 200 Series PA Amplifiers

TOA's BA-200 Series is a 35/60 W power amplifier for background music and general announcement. It is suited for use in bars, retail stores, and banquet halls. 2-channel broadcast can be made when used in conjunction with the optional mixer amplifier BG-220 (20W) or BG-235 (35 W).

Power Amplifier

BA-235 35w
BA-260 60w



- Ideal for background music and paging applications
- 2-channel broadcast possible for system expansion as required through MOH/ZONE 2 output on BG Series Amplifiers
- Tamper-proof bass and treble controls preserve system settings
- Security knobs for volume control included
- Remote master volume control possible by using an external volume control
- RCA line input jacks
- Thermal protection circuits against overheating
- Meets UL/cUL regulations
- Optional rack kits: MB-25B-BK (2 RU) and MB-25B-J (two units, 2 RU)

Model	BA-235	BA-260
Power Source	120V AC, 60 Hz	
Rated Output	35 W	60 W
Power Consumption	90 W (rated output), 52 W based on cULus standards)	130 W (rated output), 66 W based on cULus standards)
Input	Line In: 0 dB*/+4 dB* (selectable), 10 kΩ, unbalanced, removable terminal block or RCA jack	
Output	Speaker: 4 Ω, 25 V (18 Ω) and 70 V (140 Ω), balanced removable terminal block Bridge: Parallel in Line in, removable terminal block	Speaker: 4 Ω, 25 V (10 Ω) and 70 V (83 Ω), balanced removable terminal block Bridge: Parallel in Line in, removable terminal block
S/N ratio	80 dB or more (Band Pass: 20 Hz - 20 kHz, Tone Controls: Centered)	
Tone Control	Bass: ±10dB at 100Hz; Treble: ±10dB at 10kHz	
Control	Master gain control, Bass tone control, Treble tone control, Input Level selector switch, Remote Volume control, Power ON/OFF switch	
Dimensions	210 (W) × 94.3 (H) × 265 (D) mm (8.27" x 3.71" x 10.43")	
Weight	4 kg (8.82 lbs)	4.6 kg (10.14 lbs)
Accessory	Volume Control Cover: YA-920 x 1, Removable terminal plug (2 pins) x 3, Removable terminal plug (4 pins) x 1	
Option	Rack mounting bracket: MB-25B-BK, MB-25B-J	

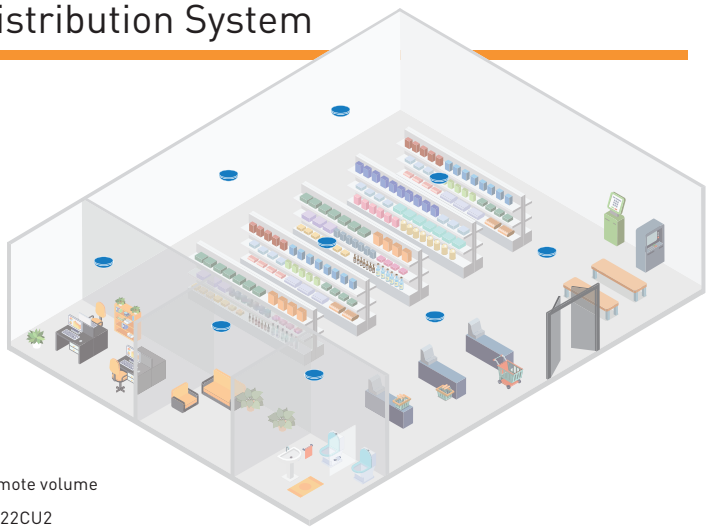
*0 dB = 1 V

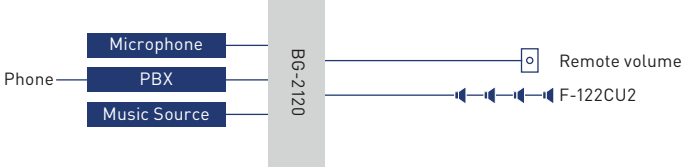
Top choice for Background Music Distribution System

Mid Scale Single Zone

BGM/Paging Distribution System

A low-cost solution for mid-size supermarkets, with two-level priority broadcasting for paging, advertising, and background music. The BG-2000 series is a simple amplifier that is set up and ready to go with nothing more than the volume setting. Not only that, but all input/outputs have removable terminal blocks for quick and easy installation.





9000M2 Series Modular Digital Matrix Mixer/Amplifiers

Digital Matrix Mixer/Amplifier

A-9060DHM2 60w
A-9060SM2 60w
A-9120DHM2 120w
A-9120SM2 120w
A-9240SHM2 240w
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
- Up to 12 filters and compressor setting can be applied to each input-output channel

Model	A-9060DHM2	A-9120DHM2	A-9060SM2
Power Source	120 V AC, 60 Hz		
Rated Output	60 W x 2 channels	120 W x 2 channels	60 W
Power Consumption	150 W	250 W	100 W
Audio Input	Max. 8 channels, modular construction (modules optional) Power amplifier input 1, 2: 0 dB*1, 10k Ω, RCA pin jack		
Audio Output	Preamplifier output 1, 2: 0 dB*1, 300Ω, unbalanced, RCA pin jack		Preamplifier output 1: 0dB*1, 300Ω, unbalanced, RCA pin jack; Preamplifier output 2: 0 dB*1, 600Ω, balanced, removable terminal block (3 pins)
	Speaker output 1, 2: 60W, 83Ω x 2, BTL output, removable terminal block (4 pins)	Speaker output 1, 2: 120W, 41Ω x 2, BTL output, removable terminal block (4 pins)	Speaker Output: Removable terminal block (7 pins); Direct: 60W, 4Ω, unbalanced, Transformer: 60W, 8Ω 25V & 70V, balanced
Module Slot	Analog input (slot 1 - 8): -10 dB*1 , 10 kΩ, unbalanced; Digital input (slot 1 - 4): 24 bit/48 kHz; MIX output (slot 1 - 8): -14 dB*1, 330Ω (CH 1 prefader output), unbalanced; Digital output (slot 5 - 7): 24 bit/48 kHz; Power supply (slot 1 - 8): +24 V, -24V, +6V DC		
Digital Audio Signal Reference Level	-20 dBFS		
Power Bandwidth	20 Hz - 20 kHz, 0.008% THD		(D): 20 Hz - 20 kHz, 0.02% THD (T): 50 Hz - 20 kHz, 0.5% THD
Frequency Response	Power amplifier section: 20 - 20,000 Hz, +0, -1 dB; Analog input module to speaker output: 20 Hz - 20 kHz, +1, -3 dB		
Total Harmonic Distortion	Power amplifier section: 0.0008% (22 kHz LPF, 1 kHz, rated power) Analog input module to speaker output: 0.008% (22 kHz LPF, 1 kHz rated power)		
S/N Ratio	At Input short, 20 Hz - 20 kHz, ALL FLAT or OFF setting Output volume min.: 90dB (preamplifier output) Output volume max.: 61dB (preamplifier output, input 1 volume: 0 dB, other inputs: OFF) Power amplifier section: 110dB		
Cross Talk	Over 64 dB (at 20 kHz)		
Tone Control	Bass: ±12 dB (at 100 Hz) Treble: ±12 dB (at 10 kHz)		
Parametric Equalizer	10 bands, Freq: 20 Hz - 20 kHz, 31 points, variable range: ± 12 dB, Q: 0.3 - 5		
Speaker Equalizer	10 (set up software has 30 TOA speaker presets)		
High-pass Filter	-12 dB/oct, variable frequency range: 20 Hz - 20 kHz, 31 points		
Low-pass Filter	-12 dB/oct, variable frequency range: 20 Hz - 20 kHz, 31 points		
Compressor	Depth: 1 - 5		
Delay	0 - 40 ms (1 ms steps), maximum 40 ms (CH1 + CH2) (Mixer mode only)		
Scene/Event Memory	32		
Auxiliary Function	Key lock function		
Control Input/Output	RS-232C*2; D-sub connector (9P, female); Control input: 4 input, no-voltage make contact input, open voltage: 3.3V DC, short-circuit current: Under 1 mA, removable terminal block (14 pins); Control output: 4 outputs, open collector output, withstand voltage: 27V DC, control current: 50 mA, removable terminal block (14 pins); Remote volume: 2 channels, connect a 10k Ω/linear taper variable resistor or input the DC voltage of 0 to +10 V, removable terminal block (14 pins)		
Operating Temperature	-10° C to +40° C (14° F to 104° F)		
Operating Humidity	35% to 80% RH (no condensation)		
Finish	Panel: Aluminum, hair-line, black; Case: Surface-treated steel plate, black paint		
Dimensions	420 (W) × 107.6 (H) × 395 (D) mm (16.54" x 4.24" x 15.55")		420 (W) × 107.6 (H) × 355 (D) mm (16.54" x 4.24" x 13.98")
Weight	9kg (19.84lbs)	11kg (24.25 lbs)	
Accessory	Power cord (2 m (6.56ft)) x 1, Rack mounting bracket x 2, Bracket mounting screw x 4, Blank panel x 7, Blank panel mounting screw x 14, Removable terminal plug (4 pins) x 1, CD x 1, Removable terminal plug (14 pins) x 1		Power cord (2 m (6.56ft)) x 1, Rack mounting bracket x 2, Bracket mounting screw x 4, Blank panel x 7, Blank panel mounting screw x 14, Removable terminal plug (3 pins) x 1, CD x 1, Removable terminal plug (14 pins) x 1

*1 0dB = 1V; *2 Allowing it to be controlled by a control system such as AMX and Crestron through RS-232C port.
(D) = Direct, (T) = Transformer
Note: AMX is a registered trademark of AMX Corporation. Crestron is a registered trademark of Crestron Electronics, Inc.

9000M2 Series Modular Digital Matrix Mixer/Amplifiers

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

- 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 (modules on page 39)

Model	A-9120SM2	A-9240SHM2	M-9000M2
Power Source	120 V AC, 60 Hz		
Rated Output	120 W	240 W	--
Power Consumption	150 W	250 W	40 W
Audio Input	Max. 8 channels, modular construction (modules optional) Power amplifier input: 0 dB*1, 10 kΩ, RCA pin jack		Max. 8 channels, modular construction (modules optional)
Audio Output	Preamplifier output 1: 0 dB*1, 300Ω, unbalanced, RCA pin jack Preamplifier output 2: 0 dB*1, 600 Ω, unbalanced, removable terminal block (3 pins)		Preamplifier output 1, 2: 0 dB*1, 600 Ω, balanced, removable terminal block (3 pins)
	Speaker output: Removable terminal block (7 pins); Direct: 120 W, 4Ω, unbalanced; Transformer: 120 W, 8Ω 25V & 70V, balanced	Speaker output: 240 W, 21 Ω, BTL output, removable terminal block (4 pins)	
Module Slot	Analog input (slot 1 - 8): -10 dB*1, 10 kΩ, unbalanced; Digital input (slot 1 - 4): 24 bit/48 kHz; MIX output (slot 1 - 8): -14 dB*1, 330 Ω (CH 1 prefader output), unbalanced; Digital output (slot 5 - 7): 24 bit/48 kHz; Power supply (slot 1 - 8): +24 V, -24 V, +6 V DC		
Digital Audio Signal Reference Level	-20 dBFS		
Power Bandwidth	(D): 20 Hz - 20 kHz, 0.02% THD (T): 50 Hz - 20 kHz, 0.5% THD	20 Hz - 20 kHz, 0.008% THD	
Frequency Response	Power amplifier section: 20 Hz - 20 kHz, +0, -1 dB Analog input module to speaker output: 20 Hz - 20 kHz, +1, -3 dB		20 Hz - 20 kHz, +1, -3 dB
Total Harmonic Distortion	Power amplifier section: 0.0008% (22 kHz LPF, 1 kHz, rated power) Analog input module to speaker output: 0.008% (22 kHz LPF, 1 kHz, rated power)		0.008% (at 22 kHz LPF, 1 kHz, +10 dB*1 output)
S/N Ratio	At Input short, 20 - 20,000 Hz, set to ALL FLAT or OFF setting; Output volume min.: 90 dB (preamplifier output); Output volume max.: 61 dB (preamplifier output, input 1 volume: 0 dB, other inputs: OFF); Power amplifier section: 110 dB		At Input short, 20 Hz - 20 kHz, set to ALL FLAT or OFF setting; Output volume min.: 90 dB; Output volume max.: 61 dB (Input 1 volume: 0dB, Other Inputs: OFF)
Cross Talk	Over 64 dB (at 20 kHz)		
Tone Control	Bass: ±12 dB (at 100 Hz), Treble: ±12 dB (at 10 kHz)		
Parametric Equalizer	10 bands, Frequency: 20 - 20,000 Hz, 31 points, Variable range: ±12 dB, Q: 0.3 - 5		
Speaker Equalizer	10 (set up software has 30 TOA speaker presets)		
High-pass Filter	-12 dB/oct, Variable frequency range: 20 - 20 kHz, 31 points		
Low-pass Filter	-12 dB/oct, Variable frequency range: 20 - 20 kHz, 31 points		
Compressor	Depth: 1 - 5		
Delay	0 - 40 ms (1 ms steps), maximum 40 ms (CH 1 + CH 2) (mixer mode only)		
Scene/Event Memory	32		
Auxiliary Function	Key lock function		
Control Input/Output	RS-232C*2, D-sub connector (9P, female); Control input: 4 inputs, no-voltage make contact input, open voltage: 3.3 V DC, short-circuit current: Under 1 mA, removable terminal block (14 pins); Control output: 4 outputs, open collector output, withstand voltage: 27 V DC, control current: 50 mA, removable terminal block (14 pins); Remote volume: 2 channels, connect a 10 kΩ/linear taper variable resistor or input DC voltage of 0 to +10 V, removable terminal block (14 pins)		
Operating Temperature	-10° C to +40° C (14° F to 104° F)		
Operating Humidity	35% to 80% RH (no condensation)		
Finish	Panel: Aluminum, hair-line, black; Case: Surface-treated steel plate, black, paint		
Dimensions	420 (W) × 107.6 (H) × 355 (D) mm (16.54" x 4.24" x 13.98")	420 (W) × 107.6 (H) × 395 (D) mm (16.54" x 4.24" x 15.55")	420 (W) × 107.6 (H) × 353 (D) mm (16.54" x 4.24" x 13.9")
Weight	13kg (28.66 lbs)	11 kg (24.25 lbs)	6 kg (13.23 lbs)
Accessory	Power cord (2m (6.56ft)) x 1, Rack mounting bracket x 2, Bracket mounting screw x 4, Blank panel x 7, Blank panel mounting screw x 14, Removable terminal plug (3 pins) x 1, Removable terminal plug (7 pins) x 1,Removable terminal plug (14 pins) x 1 , CD x 1	Power cord (2m (6.56ft)) x 1, Rack mounting bracket x 2, Bracket mounting screw x 4, Blank panel x 7, Blank panel mounting screw x 14, Removable terminal plug (3 pins) x 1, Removable terminal plug (4 pins) x 1, Removable terminal plug (14 pins) x 1 , CD x 1	Power cord (2m (6.56ft)) x 1, Rack mounting bracket x 2, Bracket mounting screw x 4, Blank panel x 7, Blank panel mounting screw x 14, Removable terminal plug (3 pins) x 1, Removable terminal plug (14 pins) x 1 , CD x 1

*1 0dB = 1V; *2 Allowing it to be controlled by a control system such as AMX and Crestron through RS-232C port. (D) = Direct, (T) = Transformer
Note: AMX is a registered trademark of AMX Corporation. Crestron is a registered trademark of Crestron Electronics, Inc.

9000M2 Series Modular Digital Matrix Mixer/Amplifiers

Model	Mic/Line	Digital Signal Processor	Power Amplifier Output(s)	Line Outputs
A-9060SM2	Up to 8 (4x **D-001T**)	2 Channels	1x 60 W @ 25/70V, 4/8 ohms	Up to 7 (1 built in plus 3x **T-001T**)
A-9120SM2	Up to 8 (4x **D-001T**)	2 Channels	1x 120 W @ 25/70V, 4/8 ohms	Up to 7 (1 built in plus 3x **T-001T**)
A-9240SHM2	Up to 8 (4x **D-001T**)	2 Channels	1x 240 W @ 70V	Up to 7 (1 built in plus 3x **T-001T**)
A-9060DHM2	Up to 8 (4x **D-001T**)	2 Channels	2x 60 W @ 70V	Up to 6 (3x **T-001T**)
A-9120DHM2	Up to 8 (4x **D-001T**)	2 Channels	2x 120 W @ 70V	Up to 6 (3x **T-001T**)
M-9000M2	Up to 8 (4x **D-001T**)	2 Channels	2x Line Level	Up to 8 (2 built in plus 3x **T-001T**)
P-9060DH	--	--	--	--
P-9120DH	--	--	--	--

Power Amplifier

P-9060DH 60W
P-9120DH 120W

- 2-Channel Power Amplifiers with 70.7V outputs
- 2-Channel Power Amplifier models feature flexible output power allowing 50% power from one amplifier channel to be allocated to the second amplifier channel
- Channel 1 & 2 inputs balanced (H=Hot, C=Cold and E=Shield) with selectable input sensitivity: 0dB or -20dB)
- Channel 1 input to ALL selectable switch
- 2 RU Rack Mounting hardware included
- Front panel LED indicators for: Protect, Peak, Signal and Power

Model	P-9060DH	P-9120DH
Power Source	120 V AC, 60 Hz	
Power Consumption	225W (rated output), 106 W (UL60065)	404 W (rated output), 208 W (UL60065)
Output	Speaker output CH 1, CH 2: 60W, 83Ω x 2, BTL output (70V line), M4 screw terminal, distance between barriers: 9 mm (0.35")	Speaker output CH 1, CH 2: 120W, 41Ω x 2, BTL output (70V line), M4 screw terminal, distance between barriers: 9 mm (0.35")
Input	CH 1, CH 2 input: -20 dB* or 0 dB* (switchable), 10 kΩ, electronically balanced, removable terminal block CH 1 mode ON/OFF switch (ON: CH 1 to All ch., OFF: Each ch)	
Power Band Width	20 Hz - 20 kHz, 0.08% T.H.D.	
Frequency Response	20 Hz - 20 kHz ±1, -3 dB	
S/N Ratio	At input short, 20 Hz - 20 kHz, Input level switch in 0 dB* position; Output volume min: 105 dB, Output volume max: 97 dB	
Total Harmonic Distortion	0.008% (22 kHz LPF, 1 kHz, rated output, input level switch in 0 dB* position)	
Function	Output disconnected for approx. 5 s after switching power on	
Dimensions	420 (W) x 107.6 (H) x 406 (D) mm (16.54" x 4.24" x 15.98")	
Weight	8.2 kg (18.08 lbs)	10 kg (22.05 lbs)
Accessories	Power cord 2m (6.56 ft) x 1, Volume control cover (YA-920) x 2, Rack mount bracket x 2, Bracket mounting screw (M4 x 16) x 4, Removable terminal plus (3 pins) x 2, Terminal cover x 1, Terminal cover mounting screw (M4 x 8) x 2	

*0 dB = 1 V

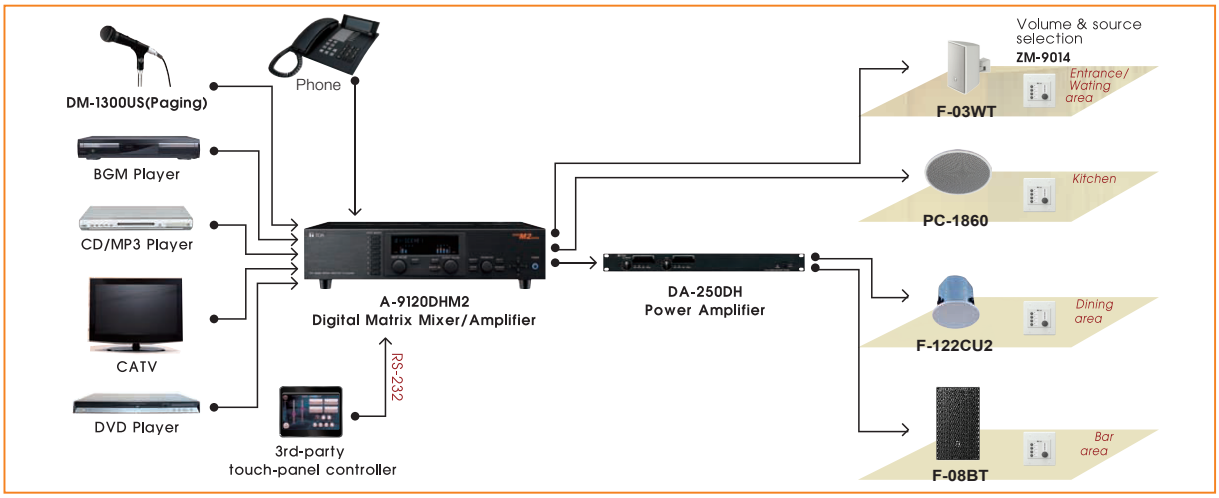
Optional Accessory

Optional Volume Control Cover *(included)*
YA-920

Software

TOA's 9000M2 Series Software can be downloaded at www.TOAcanada.com.

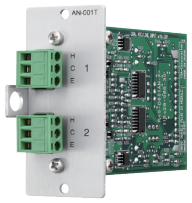
System Example: Restaurant & Bar



9000M2 Series Modular Digital Matrix Mixer/Amplifiers

9000 Series Modules

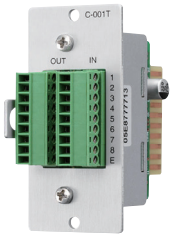
Ambient Noise Control Module



AN-001T

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

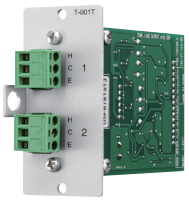
Input/Output Control Module



C-001T

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

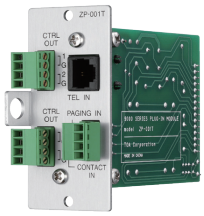
Dual Line Output Expansion Module with DSP



T-001T

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

Telephone Zone Paging Module



ZP-001T

- Telephone access paging to up to eight zones
- Uses DTMF dialing to access amplifier and/or line outputs
- Dial up to eight output zones in one operation
- Analog extension or page port compatible
- Page port operation requires contact closure activation
- RJ-11 telephone jack and removable terminal blocks
- Maximum one per chassis

Optional Power Supply

AD-246

- AC adapter
- Voltage 110 - 120 V AC, 50/60 Hz
- Current Output 24 V DC, 1 A

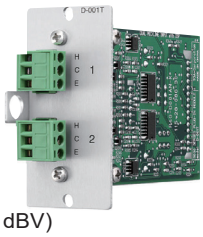
See Page 84 for SIP Integration Module

Bluetooth Module

BT-01

- BT Connection LED: Indicates when BT connection is Active.
- Toggle Switch: Toggle up to Reset, Toggle down to Pair.
- External Antenna and DC Adapter provided.
- Designed for TOA's 9000M2, 900, 800, & other series amplifiers.

Dual Mic/Line Input Module with DSP



D-001T

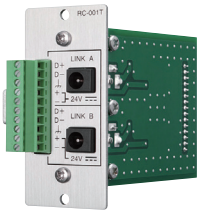
- Two balanced Mic / Line inputs
- Digital signal processing (10-Band Parametric EQ, Bass/ Treble, Loudness, High and Low Pass Filters, Compressor)
- Adjustable sensitivity (nine levels, -60 to -10 dBV)
- Phantom power (24 VDC)
- Removable terminal block
- Maximum four per chassis
- Required for VOX (Voice-Operated Switch) function and input level metering

Line Input Module with DSP

D-001R

- Two RCA phone inputs per channel provides stereo summing
- Digital signal processing
- 10-Band parametric EQ
- Bass/Treble
- Loudness
- High and low pass filters
- Compressor

Remote Control Module



RC-001T

- Allows use of up to 16 RS-485 remote control panels
- Bi-directional RS-485 communication provides control and status feedback display for each remote function
- Dual ports allow independent home runs for up to 8 modules ea.
- 24 VDC power adapter (optional accessory AD-246) required for each port used
- May be used in any control option slot on 9000M2 frame and even in addition to a C-001T when spare slots are available
- Required Module: ZM-9011, ZM-9012, ZM-9013, ZM-9014
- Optional: AD-246 - AC adapter

Noise Masking Module

NM-01

- Generates a noise source to be used for sound masking and audio privacy applications
- Applications include; open-plan office environments or smaller spaces where distracting or private conversations need to be made unintelligible
- Allows connection of optional external signal processing equipment (i.e. an equalizer) as required
- Simple contact allows form muting of this noise source
- Designed for use with TOA's 9000M2, 900, 700, and BG-2000 series amplifiers

9000M2 Series Modular Digital Matrix Mixer/Amplifiers

9000 Series Modules

Remote Panel

ZM-9001

- Six buttons to activate preset selection or volume up/down
- Wiring: only one pair to chassis remote volume terminals
- Max. loop resistance: 100 ohms (3000 ft. 22AWG)
- Fits one gang electrical box
- Maximum two ZM-9001/ZM-9002 per chassis
- Uses built in 9000M2 REMT VOL port

Remote Volume Switch Panel

ZM-9002

- Four push buttons to activate preset selection or volume up/down
- Volume control knob
- Wiring: only one pair to chassis remote volume terminals
- Max. loop resistance: 100 ohms (3000 ft. 22AWG)
- Fits one gang electrical box
- Maximum two ZM-9001/ZM-9002 per chassis
- Uses built in 9000M2 REMT VOL port

Contact Closure Remote

ZM-9003

- Fits in a standard dual-gang electrical box
- Removable screw terminal connector block
- Works with contact inputs on 9000M2 mainframe and on C-001T
- Two momentary buttons and four latching buttons
- May be assigned to control program change, volume up/down, channel on/mute, emergency mute, power and paging prohibit function
- Removable terminal block
- Used built in 9000M2 REMT VOL port

Assignable Remote Button Panel

ZM-9011

- Fits in a standard dual-gang electrical box
- Four assignable buttons each with LED status indicator can control Xpoint settings (on/off, select), paging activation, scene and relay activation
- Assignable ID rotary adjustment on box
- Supplied matching decor plate
- Requires RC-001T and CAT5e shielded cable or better

Assignable Volume Controller

ZM-9012

- Fits standard single-gang electrical box
- Rotary encoder can be assigned to control any input or output volume
- Multiple input or outputs may be “ganged” for master volume control
- Multi-segment LED indicator provides visual volume level status
- Supplied matching decor plate
- Removable terminal block
- Requires RC-001T and CAT5e shielded cable or better

Assignable Remote Button Panel w/Volume Control

ZM-9014

- Fits in a standard dual-gang electrical box
- Four assignable buttons each with LED status indicator can control Xpoint settings (on/off, select), paging activation, scene and relay activation
- Assignable ID rotary adjustment on box
- Supplied matching decor plate
- Removable terminal block
- Requires RC-001T and CAT5e shielded cable or better

Assignable Remote Button Panel

ZM-9013

- Fits in a standard dual-gang electrical box
- Eight assignable buttons each with LED status indicator can control Xpoint settings (on/off, select), paging activation, scene and relay activation
- Assignable ID rotary adjustment on box
- Supplied matching decor plate
- Removable terminal block
- Requires RC-001T and CAT5e shielded cable or better

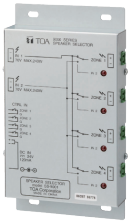
Ambient Noise Sensing Microphone

AN-9001

- Ceiling or wall-mount condenser microphone
- Fits one gang electrical box
- Use with AN-001T module or DP-L2 processor
- Electret condenser microphone
- Frequency Response: 100 - 10,000 Hz
- Phantom power (+24V) can be supplied for condenser microphone use

4-Zone Speaker Selector

SS-9001



- Switch up to four speaker lines on one amplifier output
- Two speaker amplifier inputs for Paging/BGM applications
- Works with built in 9000M2 I/O control output or optional C-001T module only
- Wall-mount bracket included
- Requires optional 24VDC power supply, model AD-246

9000M2 Series Modular Digital Matrix Mixer/Amplifiers

9000 Series Optional Accessories

The cost-effective Multi-Zone Paging System is achieved with TOA's zone selectable remote paging microphone and speaker line selector. The Q-SS9012 Multi-Zone Speaker Selector has 2 amplifier inputs and 12 individual relay switches to select the amplifier connected to each 12 speaker line/zone. This allows up to 12 zones for paging and BGM distribution with a dual channel amplifier or simple paging system with only a one channel amplifier. This concept offers a real cost effective multi-zone paging system. TOA's multi zone paging system allows paging up to 12 zones, utilizing a single channel amplifier by activating the speaker line selector from the desktop remote microphone.

Remote Microphone

Q-RM9012

- High-sensitivity electret-condenser gooseneck mic for clear voice
- 12 zone select buttons, All Call, Clear
- 12 Contact Outs corresponding to buttons (RJ-45 connector for use with shielded Cat5 wiring)
- Connects to C-IN on 9000M2 (mainframe & equipped with C-001T)
- AD-246 AC Adapter required

Speaker Selector

Q-SS9012

- 12 contact inputs and 12 speaker outputs. Power amp input is split into 12 zones with activation via contact closure
- Possible to expand number of 9000M2 paging zones along with conventional output zones (T-001T) up to 19 zones
- Can facilitate paging over BGM by switching between BGM output (amp input 2) and Page output (amp input 1)
- May work with internal or external amplifier
- 19" rack-mountable (using optional MB-15B)
- Optional AD-246 AC Adapter required

Model	Q-RM9012
Power Source	24 V DC from AC adaptor AD-246 or the equivalent
Power Consumption	80 mA or less
Audio Output	0 dB*, 600Ω, transformer balanced, RJ45 connector
Microphone	Unidirectional electret condenser microphone
Control Output	12 channels, open collector output, withstand voltage: 27V DC, control current: max. 50 mA, (2) RJ45 connectors
Number of Keys	12 zone selection keys, All call key, Cancel key, Talk key
Volume Control	Microphone volume control
Finish	ABS resin, black
Dimensions	190 (W) x 76.5 (H) x 215 (D) mm (7.48" x 3.01" x 8.46") (Gooseneck microphone excluded)
Weight	750 g (1.65 lbs)
Optional Accessory	AC Adaptor: AD-246

*0 dB = 1 V

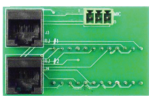
Model	Q-SS9012
Power Source	24 V DC from AC adaptor AD-246 or the equivalent
Power Consumption	400 mA or less
Power Handling	250W or less (70V / 100V line) per channel (IN1, IN2)
Control Input	12 channels, dry (no voltage contact closures, open voltage: 3.3V DC, short-circuit current: under 1 mA, removable terminal block (24 pins)
Speaker Terminal	Removable terminal block (2 pins, IN1, In2, Zone 1-12)
Control Terminal	Removable terminal block (24 pins)
Finish	Case: Surface-treated steel plate, black
Dimensions	420 (W) x 44 (H) x 123 (D) mm (16.54" x 1.73" x 4.84")
Weight	1.6 kg (3.53 lbs)
Accessory	Removable terminal plug (2 pins) x 2, Removable terminal plug (12 pins) x 3, Removable terminal plug (14 pins) x 1
Optional Accessory	AC Adaptor: AD-246, Rack mount bracket: MB-15B; Wall mount bracket: YC-850

*0 dB = 1 V

Optional Accessories Q-RM9012 and Q-SS9012

AC Adapter
AD-246

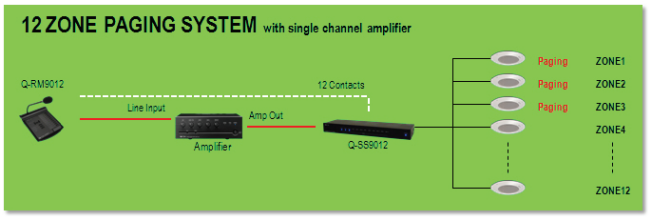
Connector board
IB-9012AM

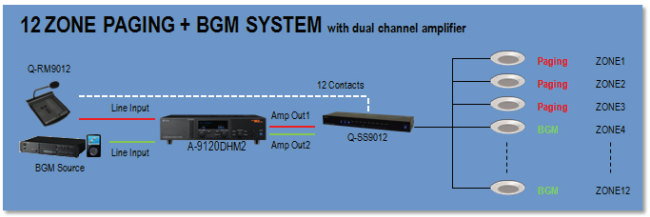


Rack Mount Bracket
MB-15B

Wall Mount Bracket
YC-850

Multi-Zone Paging System Examples





A-800 Series Mixer Amplifiers

Equipped with 2 MIC/LINE, 2 MIC, 2 LINE selectable inputs, and 2 MODULE inputs, the A-800 Series PA Amplifier is designed to suit PA system applications such as announcements, BGM and broadcasting, in venues such as; churches, large rooms and factories. The new A-800 series PA Amplifier encompasses **all*** the features of the A-700 amplifier series and has been upgraded to include new features outlined below.

*** (Except for 25V speaker output)**

A-800D Series Mixer Amplifiers

A-812D 120w
A-824D 240w
A-848D 480w

- AGC Control for MIC inputs
- Feedback Suppression
- Ducker
- Chime (1/2/4 tone)
- Mute control by GPIO for Inputs 1,2 and 2 modules inputs
- Protocol Control (Volume and Power)
- Web Browser Control
  - -Volume and Power Control
  - -Priority Setting
  - -3 points EQ Control (HPF/LPF/PEQ)
  - -Remote Status Check
  - -Operation Log (storage size up to 6KB)
- Module slot accepts 900 Series plug-in modules with additional features
- Optional rack-mount kit, model MB-25B (2 RU)
- UL/cUL Listed

Model	A-812D	A-824D	A-848D
Power Source	120 V AC, 60 Hz		
Rated Output	120 W	240 W	480 W
Power/Current Consumption	170 W (rated output), 46 W (based on UL62368), 200 mA or less (when power switch is OFF)	317 W (rated output), 62 W (based on UL62368), 200 mA or less (when power switch is OFF)	621 W (rated output), 103 W (based on UL62368), 200 mA or less (when power switch is OFF)
Frequency Response	50 - 20 kHz (±3 dB) (1/8 rated output)		
Distortion	1 % or less at 1kHz, rated power (20kHz LPF (AUX-0025))		
Input	INPUT 1, 2: -60 dB (*1) (MIC) / -20 dB (*1) (LINE) selectable,, 600 Ω Electronically-balanced, removable terminal block (3 pins) Note: MIC inputs are equipped with phantom power (24 V DC, ON/OFF switchable). INPUT 3, 4: -60 dB (*1), 600 Ω, electronically-balanced, removable terminal block (3 pins) Note: Equipped with phantom power (24 V DC, ON/OFF switchable). INPUT 5, 6: MIC/LINE selectable MIC: -60 dB (*1), 600 Ω, electronically-balanced, removable terminal block (3 pins) LINE: -20dB (*1), 10 kΩ, unbalanced, RCA pin jack x 2 MODULE 1, 2: -20 dB (*1), 10 kΩ PWR AMP IN: 0 dB (*1), 600 Ω, unbalanced, RCA pin jack (An equalizer or other signal processor connectable between PRE MAP OUT and PWR AMP IN terminals)		
Output	SPEAKER OUT: High impedance (70 V line / 42 Ω), Low impedance (4-16 Ω) selectable, removable terminal block (3 pins) REC OUT: 0 dB (*1), 600 Ω, unbalanced, RCA jack x 2 PRE AMP OUT: 0 dB (*1), 600 Ω, unbalanced, RCA jack	SPEAKER OUT: High impedance (70 V line / 21 Ω), Low impedance (4-16 Ω) selectable, removable terminal block (3 pins) REC OUT: 0 dB (*1), 600 Ω, unbalanced, RCA jack x 2 PRE AMP OUT: 0 dB (*1), 600 Ω, unbalanced, RCA jack	SPEAKER OUT: High impedance (70 V line / 10 Ω), Low impedance (4-16 Ω) selectable, removable terminal block (3 pins) REC OUT: 0 dB (*1), 600 Ω, unbalanced, RCA jack x 2 PRE AMP OUT: 0 dB (*1), 600 Ω, unbalanced, RCA jack
Phantom Power (+23 V DC)	ON or OFF switchable for each INPUT 1 - 4		
S/N Ratio	88 dB or more (Master volume: min) 76 dB or more (Master volume: max) 55 dB or more (INPUT 1-6) - (A-weighted		
Tone Control	Bass: ±10 dB at 100 Hz; Treble: ±10 dB at 10 kHz		
Control Input	4 channels, no-voltage make contact input, open voltage: 35 V DC or less, short circuit: 10mA or less, removable terminal block (4pins) REMOTE VOLUME: No-voltage make contact input, open voltage: 35 V DC or less, short circuit: 10mA or less, removable terminal block (4pins)		
Indicator	5-point LED output level meter, Power indicator LED, LAN Connect / Priority / Emergency / Thermal protection / Over current protection / CPU RUN / Error indicator LED		
Operating Temperature	-10 ºC to +40 ºC (14 ºF to 104 ºF)		
Finish	Panel: ABS resin, black, Case: Surface-treated steel plate, black, paint		
Dimensions	420 (W) × 96.1 (H) × 313.1 (D) mm (16.53" x 3.78" x 12.33")		
Weight	5.2 kg (11.5 lbs)		5.4 kg (11.9 lbs)
Accessory	AC power cord 2m (6.6ft) x 1, Audio input removable terminal plug (3 pins) x 6, Control input removable terminal plug (4 pins) x 2, Remote control removable terminal plug (4 pins) x 2, Speaker out removable terminal plug (3 pins) x 1 Volume control cover x 4		
Option	Rack mounting bracket: MB-25B, Perforated panel : PF-013B		

* 1 - 0 dB = 1 V

Optional Accessory

Rack Mount Kit
MB-25B

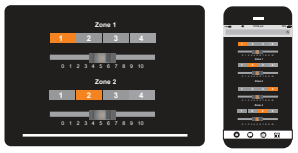
Perforated Panel
PF-013B

MA Series Matrix Mixer & Amplifier

TOA's MA-725F matrix mixer and amplifier and MM-700F is all-in-one solution for multi-channel or multi-zone applications combining a 6x4 audio matrix, DSP and 4ch Class-D amplifier(*) into one chassis. It is equipped with 4 independent line inputs, 2 MIC/LINE priority inputs. Each output has independent DSP preset adjustment with input source matrix selection. It features high power (250Wx4 @ 70V/100V)(*) and various inputs capabilities. Its wide range of applications include general or emergency announcement and background music for restaurants, pubs, retail stores, schools, offices, etc.
(*)MA-725F only

⋙MA Series Matrix Mixer & Amplifier

MA-725F-AM
MM-700F-AM



Smart Control **NEW FIRMWARE**

- 4 stereo-summing line inputs with matrix routing to 4 amplifier outputs.
- Each line input has input level adjustment and assign restriction setting for each output to prevent routing selection.
- 2 priority MIC/LINE inputs with different priority level for paging or other pre-recorded source which can override the selected line input on assigned output channels.
- Each priority input also has input level, mute sensitivity and mute hold time adjustments.
- Each output channel is equipped with 250W Class-D amplifier at 70V/100V output voltage selectable with independent DSP preset selection and 50Hz HPF for the protection of connected speakers. (*)
- Selectable DSP preset selections include general EQs, like Loudness curves, TOA speaker EQs and crossover settings to be used with sub-woofers.
- Each output channel also has auxiliary line output to deliver audio to other systems.
- This matrix doesn't need any PC programming or network connection for setup at site. (Maintenance purpose only)
- Optional wall mount remote control, WP-700 can be connected via CAT-5 straight LAN cable to control the line input selection and output volume of each output.
- Class-D amplifier has various protection features against over current, high temperature and short circuit of speaker lines at each output channel.(*)
- Power supply with Power Factor Correction for reduced power consumption and world-wide operating range. (*)

(*) MA-725F only

Model		MA-725F-AM	MM-700F-AM
Power Source		100V-240V AC, 50Hz/60Hz	
Power Consumption		1350 W (rated output), 200 W (based on cULus standards), 42.5W (idle), 22 W or less (stand-by)	9W or less
Frequency Response		20 Hz - 20 kHz (-3 dB / + 1 dB, LPF OFF)	20 Hz - 20 kHz (-3 dB / + 1 dB)
Total Harmonic Distortion		1% or less, at 1kHz, rated output	
Certifications		cULus 60065, EN60065, EN55032, EN55020, FCC part 15 class A	
Input	Priority 1-2:	MIC -60 dB/Line -10 dB* selectable, 2.2 kΩ, electronically-balanced, removable terminal block	
	Line 1-4:	-10 dB*, 10 kΩ, unbalanced, 2 RCA jacks (Stereo summing)	
Output	Speaker 1-4:	70V (20 Ω), 100 V (40 Ω), removable terminal block	--
	Line Out 1-4:	0 dB*, 600 Ω, unbalanced, RCA jack	0 dB*, 600 Ω, unbalanced, removable terminal block
	MOH	0 dB*, 600 Ω, transformer balanced, removable terminal block	
DSP Preset		16 presets in 4 banks at each output channel, selectable	
S/N Ratio		MIC: 60 dB* or more, LINE: 75 dB* or more (A-weighted)	
Muting		Manual mute / Automatic mute	
Operating Temperature		0 ºC to +40 ºC (32 ºF to 104 ºF)	
Operating Humidity		35% to 80% RH (no condensation)	
Dimensions		420 (W) x 107.6 (H) x 350 (D) mm (16.54" x 4.24" x 13.")	
Weight		7.6 kg (16.7 lbs)	5.7 kg (12.3 lbs)
Accessories		Power cord (2m (5.65 ft)) x 1, Removable terminal plug (5 pins x 2, 3 pins x 1, 2 pins x 4), Rack mounting bracket x 2, Bracket mounting screws x 4, User manual x 1	
Optional Accessories		Remote Control Panel: WP-700-AM	

*0 dB = 1 V

Optional Accessory

⋙Remote Control Panel

WP-700-AM

[A remote control switch/volume panel designed to be used with the MA-725F or MM-700F amplifiers. Provides remote select input source 1 and adjusts volume levels through an Ethernet cable. It can be mounted in a 1-gang electrical box.]

Digital Power Amplifiers

TOA's DA Series multi-channel power amplifiers offer a wide choice of power ratings, advanced digital Class D amplification circuitry, and a highly efficient AC mains to output power ratio, for the complete technological superiority it takes to support long-term installation applications. These energy-efficient, space-saving amplifiers are designed to combine high levels of performance and efficiency, and are well-suited to ensure sound reinforcement reliability in a wide range of venue types. The low-impedance models are ideal for multi-zone applications such as presentation and press conference rooms, restaurants and similar-sized locations. The high-impedance units are well-suited to many locations including schools, exhibition halls, sports facilities, multipurpose halls, commercial facilities and houses of worship.

»8 Channel Digital Power Amplifier

DA-150EH

- **DA-150EH**
- 8 x 150W (70V)

»Dual-Channel Power Amplifier

DA-250D
DA-250DH

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

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

»4-Channel Power Amplifier

DA-250F
DA-250FH

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

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

»4-Channel Power Amplifier

DA-550F
DA-500F-HL

- **DA-550F**
- 4x 550W (4 Ω)
- 4x 350W (8 Ω)
- 2x 1100W bridged (8 Ω)

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

- **High reliability**
This 1 unit 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 light-weight 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. The DA-250 is a 1 unit amplifier.

- **Highly durable**
Stands up to extended hours of operation. The 1 unit 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 either channel as a spare amplifier.

Specifications on next page >

Digital Power Amplifiers

Model	DA-150EH	DA-250D	DA-250DH
Power Source	120 V AC, 50/60 Hz		
Number of Channels	8	2	
Power Consumption* Rated power consumption 1 kHz 8 ohms 4 ohms 70 Volts	 — — 1000W	 420 W 650 W —	 — — 580 W
S/N Ratio (A weighted)	> 95 dB (A-weighted)	100 dB A-weighted)	
Crosstalk at 10 kHz (A weighted)	> 70 dB (A-weighted)	70 dB (A-weighted)	
Inputs Input impedance Input sensitivity	20 kΩ (balanced)	10 kΩ (balanced) +4 dB (1.23V)	
Rated Output	8 channels: 150 W x 8 (66.7 Ω (100 V)/33 Ω (70 V)) Removable terminal block	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)
		M4 screw terminal, distance between barriers: 8.8 mm (0.35")	
Protection Circuit	Short circuit, open circuit, thermal, excessive input, ultrasonic and RF	Protection against excessive current flow due to overload, short circuit, unusual DC voltage output, temperature rise at power amp \heat sink (100 ºC or more (212 ºF)), temperature rise inside the unit (80 ºC or more (176 ºF))	
Dimensions	483 (W) x 44 (H) x 360 (D) mm (19" x 1.7" x 14.2")	482 (W) × 44 (H) × 401.8 (D) mm (18.98" x 1.73" x 15.82")	
Weight	7.3 kg (16.09 lbs)	5 kg (11.02 lbs)	

*0 dB = 0.775 V

Model	DA-250F	DA-250FH	DA-550F	DA-500F-HL
Power Source	120 V AC, 50/60 Hz			
Number of Channels	4			
Power Consumption* Rated power consumption 1 kHz 8 ohms 4 ohms 70 Volts	 850 W 1300 W —	 — — 1200 W	 1650 W 2800 W —	 2600 W 580 W 2350 W
S/N Ratio (A weighted)	100 dB			
Crosstalk at 10 kHz (A weighted)	70 dB			
Inputs Input impedance Input sensitivity	10 kΩ (balanced) +4 dB (1.23V)			
Rated Output	4 channels: 250 W x 4 (4 Ω), 170 W x 4 (8 Ω) 2 channels (BRIDGE): 500 W x 2 (8 Ω)	4 channels: 250 W x 4 (70 V line, 19.6 Ω) 2 channels (BRIDGE): 500 W x 2 (140 V line, 39.2 Ω)	4 channels: 550 W x 4 (4 Ω), 350 W x 4 (8 Ω) 2 channels (BRIDGE): 1,100 W x 2 (8 Ω)	4 channels: 500 W x 4 (70 V line, 9.8 Ω), 550 W x 4 (8 Ω), 100 W x 4 (4 Ω) 2 channels (BRIDGE): 1,000 W x 2 (140 V line, 19.6 Ω), 1,100 W x 2 (16 Ω)
	M4 screw terminal, distance between barriers: 8.8 mm (0.35")			
Protection Circuit	Protection against excessive current flow due to overload, short circuit, unusual DC voltage output, temperature rise at power amp heat sink (100 ºC or more (212 ºF)), temperature rise inside the unit (80 ºC or more (176 ºF))			
Dimensions	482 (W) × 44 (H) × 401.8 (D) mm (18.98" x 1.73" x 15.82")		482 (W) × 88.4 (H) × 404.2 (D) mm (19"x 3.5"x15.9")	
Weight	6.6 kg (14.5 lbs)		8.8 kg (19.4 lbs)	

*0 dB = 0.775 V

Optional Accessories

»» Matching Transformer
MT-251H

»» Matching Transformer
MT-251H-Q

Transformer Converts
70 V to 25 V

900 Series Amplifiers

TOA's A-900MK2 Series Mixer Power Amplifier controls and mixes up to eight independent input signals. The Mixer Power Amplifier delivers up to 30/60/120 watts of output power. Optional plug-in modules are available for use with mixer power amplifier to provide versatility for a wide range of operating applications.

8-Channel Mixer Preamplifier (UL version)

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

- Eight module slots accept any combination of TOA plug-in modules for custom system configurations
- Direct low-impedance output mode bypasses output transformer
- Dual mute bus permits multiple levels of paging priority using optional mute-type modules
- External mute terminals for activating mute function with external switch-closure
- Low cut switch to limit low frequency response
- Bridging input/output for input expansion or recording device
- Over-current and thermal protection circuitry prevents potential damage from overload, short-circuit and over-heating
- Optional rack-mount kit, model MB-25B (2 RU)
- Optional 900 Series Modules required

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

(T)=Transformer (D)=Direct

Optional Accessory

Rack Mount Kit
MB-25B

Volume Control Cover *(included)*
YA-920

900 Series Amplifiers

TOA's P-900MK2 Series Power Amplifier delivers up to 60/120/240 watts of output power. The Power Amplifier has an input port to accept one plug-in module.

Power Amplifier (UL version)

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

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

Model	P-906MK2	P-912MK2	P-924MK2
Type	Power amplifier		
Power Requirement	AC mains, 120 V, 60 Hz		
Power Consumption	100 W	180 W	120 V / 3 A
Output Power	60 W RMS	120 W RMS	(D) 240 W RMS (T) 220 W RMS
Power Band Width	(D) 20 - 20,000 Hz, 0.5% THD (T) 50 - 20,000 Hz, 0.5% THD		
Frequency Response	(D) 20 - 20,000 Hz, ±1 dB (T) 20 - 15,000 Hz, ±1 dB, (T) 20 - 20,000 Hz, +1 dB, -3 dB		
T.H.D	0.01% at 1 kHz, rated output		
Inputs	One Input Port: Port accepts any input module except T-01 One Direct Input (Use of direct input prohibits use of modular input port.)		
Input Sensitivity /Impedance	Input Port: 100 mV or 1000 mV (switchable)/10 kΩ Direct Input: 100 mV or 1000 mV (switchable)/10 kΩ		
Outputs	Main (T): 8 Ω, 25 and 70 volts, balanced Main (D): 4 Ω, unbalanced		
Output Regulation (1kHz)	(D) Less than 0.5 dB, no load to full load (T) Less than 1.0 dB, no load to full load		
S/N Ratio (Band Pass 20 - 20,000 Hz)	Input level switch in 0 dBV (1000 mV) position: 108 dB Input level switch in -20 dBV (100 mV) position: 90 dB		
Controls	1 Input gain control, 1 Input level switch, 1 Power ON/OFF switch, 1 Low-Cut switch		
Indicators	1 Power LED, 1 Protect LED, 1 Signal LED, 1 Normal LED, 1 Peak LED		
Protection	Self-protection, with AC fuse (inside)		Self-protection with 2 AC fuses (inside), plus 2 DC fuses
Connectors	Input: Card-edge connector and screw-terminal strip Output: Screw-terminal strip AC outlet: 3-pin grounding type AC power cord/plug: SJT, 3-prong type		
Temperature Range	-10 ºC - +60 ºC (12 ºF to 140ºF)		
Finish	Black		
Dimensions (W×H×D)	16.54" (W) x 3.9" (H) x 14.09" (D) 420 (W) × 99.1 (H) × 358 (D) mm		16.54" (W) x 6" (H) x 13.16" (D) 420 (W) × 151.3 (H) × 334.2 (D) mm
Weight	9.1 kg (20.06 lbs)	10.9 kg(24.03 lbs)	19.5 kg (43 lbs)
Accessory	Volume control cover: YA-920 x 1		
Option	Rack mounting bracket: MB-25B		Rack mounting bracket: MB-35B

(T)=Transformer (D)=Direct

Optional Accessory

Rack Mount Kit
MB-25B

Rack Mount Kit for P-924MK2
MB-35B

Volume Control Cover *(included)*
YA-920

900 Series Amplifiers

TOA's M-900MK2 Mixer Preamplifier controls and mixes up to eight independent input signals and delivers up to +20 dBm of output power. Optional plug-in modules are available for use with the mixer preamplifier to provide versatility for a wide range of operating applications.

8-Channel Mixer Preamplifier (UL version)

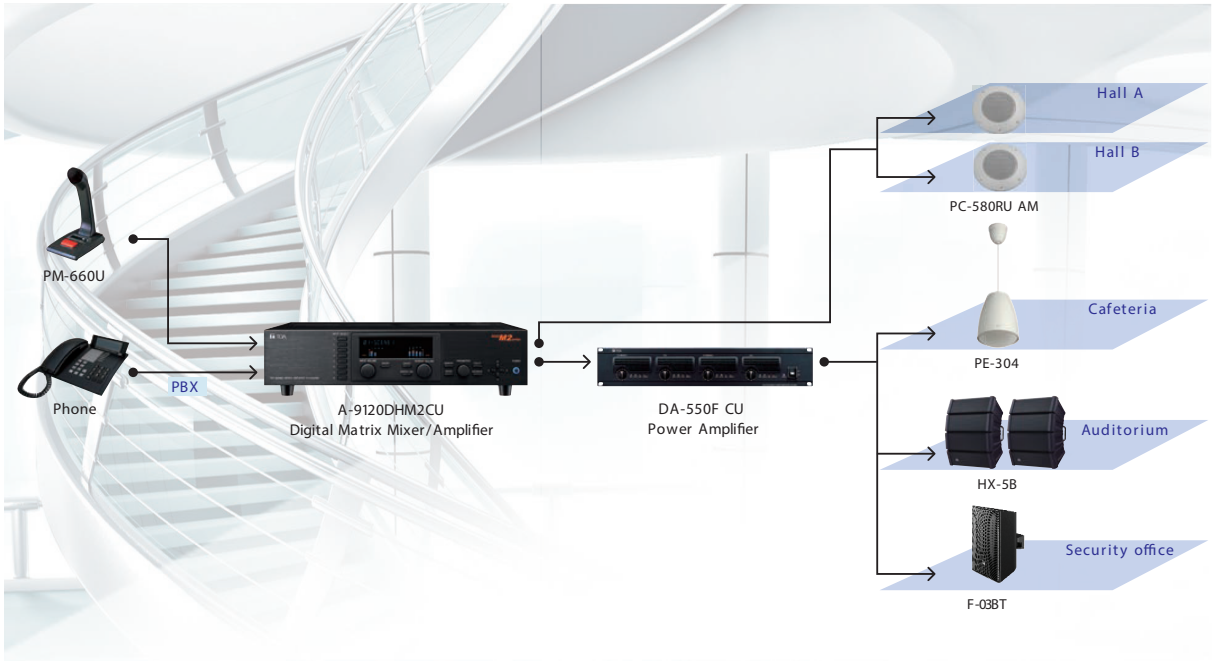
M-900MK2

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

Model	M-900MK2
Power Requirement	AC Mains, 120V, 60 Hz
Rated Output	+4 dBm, +20 dBm (max)
Frequency Response	20 Hz – 20 kHz, ±1dB
Input	Eight input ports: each port accepts any input module. One bridging input/output
Output	Main: Balanced, 150/600 Ω; AUX: Unbalanced, 10 kΩ, 0 dBm
Indicators	1 Power LED, 1 Protect LED, 1 Signal LED, 1 Normal LED, 1 Peak LED
S/N Ratio	Master Volume Min.: 90 dB (Band Pass 20 - 20, 000 Hz); Master Volume Max.: 77 dB (Band Pass 20 - 20, 000 Hz);
Tone Control	Bass: ±10dB at 100Hz; Treble: ±10dB at 10kHz
Controls	8 Input gain controls; 1 Master gain control; 1 Bass control; 1 Treble control; 1 Power ON/OFF switch; 1 Tone defeat switch
Dimensions	420 (W) × 99.1 (H) × 307.5 (D) mm (16.54" x 3.90" x 12.11")
Weight	5.3 kg (11.68 lbs)
Accessories	Volume control cover: YA-920 x 4
Optional Accessory	Rack mounting bracket: MB-25B

Amplifier Example

Corporate Office



TOA amplifiers can work in a multitude of applications in various buildings.

900 Series Amplifiers

900 Series Modules - Microphone Input Modules

Microphone Input Modules

M-01 Series

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

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

Microphone Input with Mute-Receive

M-11S T

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

Microphone Preamplifier with Remote Volume Control

M-21S

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

Microphone Paging Input with Mute-Send

M-41S

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

Microphone Input with Voice Gate

M-51 Series

(M-51F/S T)

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

Microphone Input with Compressor

M-61 Series

(M-61F/S T)

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

High Impedance Microphone Input

M-03P

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

Mic/Line Input w/Mute/Send Receive

ML-11

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

900 Series Amplifiers

900 Series Modules - Line Input Modules

Noise Masking Module

NM-01

- Generates a noise source to be used for sound masking and audio privacy applications
- Applications include; open-plan office environments or smaller spaces where distracting or private conversations need to be made unintelligible
- Allows connection of optional external signal processing equipment (i.e. an equalizer) as required
- Simple contact allows for muting of this noise source
- Designed for use with TOA's 9000M2, 900, 700, and BG-2000 series amplifiers

Balanced Line Input

B-01 Series

(B-01F/S T)

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

Balanced Line Input with Remote Volume Control

B-21S

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

Line Matching Input with Mute-Send

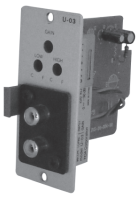
L-41S

- For applications requiring 600 Ω line-matching
- For signal-active over-ride of mute-receive modules
- Transformer isolation (600Ω)
- Signal at input terminals activates mute bus
- Connector: removable terminal block

Unbalanced Line Input with High/Low Cut Filters

U-03 Series

(U-03R/S)



- For unbalanced, line level sources such as tuners, cassette decks, CD players, computer sound cards, jukeboxes, mixers and satellite receivers
- Use for adjacent sources (less than 15ft from the host unit)
- High and low cut filters for tone control
- Connectors: dual RCA jack w/ passive summing (U-03R), removable terminal block (U-03S)

Balanced Line Input with Mute-Receive

B-11S

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

Balanced Line with Input with Mute-Send

B-41S

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

Line Matching Input with Mute-Receive

L-11S

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

Line Matching Input

L-01 Series

(L-01F/S T)

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

Unbalanced Line Input

U-01 Series

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

- For unbalanced, line level sources such as tuners, cassette decks, CD players, computer sound cards, jukeboxes, mixers and satellite receivers
- Use for adjacent sources (less than 15ft from the host unit)
- Connectors: female XLR (U-01F), 1/4" phone jack (U-01P), RCA jack (U-01R), removable terminal block (U-01S)

900 Series Amplifiers

900 Series Modules - Line Input Modules

Unbalanced Line Input with Variable Mute-Receive Depth

U-12S

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

Unbalanced Line Input with Mute-Receive

U-11 Series

(U-11R/S T)

- For unbalanced, line level sources such as tuners, cassette decks, CD players, computer sound cards, jukeboxes, mixers and satellite receivers
- Use for adjacent sources (less than 15ft from the host unit)
- Responds to mute bus activation via mute send module or switch-closure
- Connectors: RCA jack (U-11R), removable terminal block (U-11S)

Dual Input Priority Module w/AGC

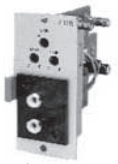
U-14R

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

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

U-13 Series

(U-13R/S)



- For unbalanced, line level sources such as tuners, cassette decks, CD players, computer sound cards, jukeboxes, mixers and satellite receivers
- Use for adjacent sources (less than 15ft from the host unit)
- High and low cut filters for tone control
- Responds to mute bus activation via mute send module or switch-closure
- Connectors: dual RCA jack w/passive summing (U-13R), removable terminal block (U-13S)

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

U-43 Series

(U-43R/S)

- For unbalanced, line level sources such as tuners, cassette decks, CD players, computer sound cards, jukeboxes, mixers and satellite receivers
- Use for adjacent sources (less than 15ft from the host unit)
- High and low cut filters for tone control
- Signal at input terminals activates mute bus
- Connectors: dual RCA jack w/ passive summing (U-43R), removable terminal block (U-43S)

Unbalanced Line Input with Remote Volume Control

U-21S

- For unbalanced, line level sources such as tuners, cassette decks, CD players, computer sound cards, jukeboxes, mixers and satellite receivers
- Use for adjacent sources (less than 15ft from the host unit)
- Allows remote control of input signal using an external 10kΩ linear-taper potentiometer
- Master Remote Volume mode
- Connector: screw terminal

Unbalanced Line Input with Compressor

U-61S T

- For unbalanced, line level sources such as tuners, cassette decks, CD players, computer sound cards, jukeboxes, mixers and satellite receivers
- For adjacent sources (less than 15ft from the host unit)
- Compressor function prevents overload and distortion
- Master compressor mode
- Connector: removable terminal block

Bluetooth Module

BT-01

- BT Connection LED: Indicates when BT connection is Active.
- Toggle Switch: Toggle up to Reset, Toggle down to Pair.
- External Antenna and DC Adapter provided.
- Designed for TOA’s 9000M2, 900, 800, & other series amplifiers.

See Page 84 for SIP Integration Module

900 Series Amplifiers

900 Series Modules - Special Function Modules

Equalization for TOA Speakers

E-03R
(F-122C)

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

Equalization for TOA Speakers

E-04R *(H-1)*,
E-05R *(H-2/H-2WP)*,
E-07S *(FB-120 and HB-1)*

- Optimized preset equalization curve for TOA speakers
- Connects between pre-amp output and power amp input (except E-07S)
- Dual RCA cable included

E-07S
- Connector: dual RCA (in/out); removable terminal block
- Low pass output filter for powered subwoofer
- Subwoofer output is balanced or unbalanced
- Subwoofer phase can be changed

** The E-07S is a low-pass-filter output module with a mix bus output to drive a dedicated external subwoofer amplifier*

1 kHz Sine Wave Test Tone

S-01S T

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

Buzzer/Yelp Tone Generator

S-02S T

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

Switch-Selectable Tone Generator

S-04S T

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

Balanced Line Output

T-01S T

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

Unbalanced Line Input with Music-On-Hold Output and Input Mute-Receive

T-12S

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

Unbalanced Line Input with Music-On-Hold Output

T-02S

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

Remote Master Volume Control (VCA) Module

V-01S

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

Micro Amplifier

The AV Series Micro Amplifier introduces a new standard in small amps for plenum use. With ultra-compact size, a flexible compliment of inputs & power configuration, control features and carrying both UL2043 & Energy Star 3.0 certification, the AV-20D is an ideal choice for corporate meeting rooms, POS/signage & kiosks or any place where space and placement limitations are a factor.

Micro Amplifier

AV-20D AM
AV-60S-AM

AV-20D AM

AV-60S-AM

- Micro Class D amplifier for use in meeting/board rooms & signage applications
- UL 2043-rated for plenum installation
- Energy Star certified including Auto Off/Standby
- Small size (approx. 6” x 6” x 1.75”) allows convenient & flexible placement.
- L/R Line inputs via removable Transformer-Balanced Terminal Block, 1/8” TRS mini-jack and RCA connections
- Bass & Treble Controls
- Input signal present (-20dB) and Peak LED indicators
- Clip Limiter prevents distortion due to overload.
- Remote Volume Control port for use with 10k Ohm pot

Model		AV-20D AM	AV-60S-AM
Power Source		100V-240V AC, 50Hz/60Hz	
Rated Output		15W x 2 @ 8 Ohms, 20W x 2 @ 4 Ohms, 40W x 1 @ 8 Ohms (Bridge)	60W @ 4 Ohms, 60W @ 70V
Power Consumption	Rated Output	63W	Less than 85W @ 70V, Less than 110 W @ 4 Ohms
	Idle	<6 Watt	Less than 10W @ 70V, Less than 7W @ 4 Ohms
	Power Save Mode	<1 Watts	
Input	Line 1	-10/-20dB* (selectable), 10 K ohms, transformer-balanced, removable terminal block	
	Line 2	-10/-20dB* (selectable), 10 K ohms, unbalanced, 3.5mm stereo jack	
	Line 3	-10/-20dB* (selectable), 10 K ohms, transformer isolated unbalanced, RCA jacks	-10/-20dB* (selectable), 10 K ohms, unbalanced, RCA jacks
Output		Speaker output, removable terminal block (4P)	Speaker output, removable terminal block (2P)
Dimensions		150 (W) x 44 (H) x 156 (D) mm (5.9” x 1.73” x 6.14”)	
Weight		1 kg (2.2 lbs)	1.12 kg (2.5 lbs)
UL Standards		UL 2043	
Optional Accessories		WPB-20, MB-AV20RM, MT-S0301	

*0 dB = 1 V

Micro Amplifier Optional Accessories

Metal Rack Mount Kit

MB-AV20RM
(1 or 2 amplifiers are mountable in 1 unit)

Surface & Pole Mount Bracket

WPB-20

Matching Transformer

MT-S0301

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

CA Series Mobile Mixer Amplifier

CA Series Mobile Mixer Amplifier

CA-160 60W

- Mobile mixer/amplifiers for remote applications
- 12 VDC powered
- Two microphone inputs with volume controls
- Supports 4 or 8 ohm speaker loads
- Handheld microphone included - unidirectional, dynamic-type with talk switch, 6' cord and mounting hardware
- Auxiliary input for connecting an external CD player, radio, tape deck or tone generator
- Mounting hardware included - mounts under dashboard or into standard DIN-size console cutout
- Applications: Automobiles; Boats; Buses; Construction Vehicles; Emergency Vehicles; Law Enforcement Vehicles; Parade Floats; Theme Park Rides

Model	CA-160
Power Source	Standard voltage: 14 V DC; Usable voltage: 10 - 16 V DC (12 V battery used)
Power Consumption	9 A or less at rated output
Rated Output	60 W
Output Impedance	4 Ω (BRN), 8 Ω (ORG), Common (WHT) Changeable by changing lead wire connections
Distortion	Less than 5% (at 1 kHz rated output)
Frequency Response	100 Hz - 10 kHz
Input	Mic 1, 2: 600 Ω, 4 mV, phone jack; AUX: 10 kΩ, 500 mV, phone jack
Finish	Front panel: ABS resin, black; Case: Zinc plated steel sheet
Dimensions	178 (W) × 50 (H) × 170 (D) mm (7" x 2" x 6.7") (mounting device excluded)
Weight	1.2 kg (2.6 lbs)
Accessory	Microphone holder x 1, Mounting bracket x 1, Mounting screw x 1 set, Fuse (4 A) x 1, Connection cord x 1 set
Accessory Microphone	Unidirectional dynamic type with talk switch Impedance: 600 Ω, Sensitivity : -53 dB (1 kHz, 0 dB = 1 V/Pa)

A-2000 Series Mixer Power Amplifiers

TOA's A-2000 Series is an economical performance mixer power amplifier suited for broadcasting paging or background music in schools, offices, shops, factories, mosques, churches and large rooms.

Mixer Power Amplifier

A-2060 60W
A-2120 120W
A-2240 240W

- 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

Model	A-2060	A-2120	A-2240
Power Req.	120V AC		
Rated Output	60W	120W	240W
Frequency Response	50 Hz – 20 kHz (±3dB)		
Input	MIC 1, 2: -60 dB*, 600Ω, balanced, M3.5 screw terminal, distance between barriers: 8.3 mm (0.33") TEL: -10 dB*, 10 kΩ, balanced, M3.5 screw terminal, distance between barriers: 8.3 mm (0.33") AUX 1, 2: -20 dB*, 10 kΩ, unbalanced, RCA pin jack		
Output	Speaker Out: Balanced (floating), M3.5 screw terminal, distance between barriers: 8.3m (0.33"); High impedance: 83Ω (70V), 10Ω (25V); Low impedance: 4Ω (15.5V); Rec out: 0 dB* 600Ω, unbalanced, RCA pin jack	Speaker Out: Balanced (floating), M3.5 screw terminal, distance between barriers: 8.3m (0.33"); High impedance: 42Ω (70V), 5Ω (25V); Low impedance: 4Ω (22V); Rec out: 0 dB* 600Ω, unbalanced, RCA pin jack	Speaker Out: Balanced (floating), M3.5 screw terminal, distance between barriers: 8.3m (0.33"); High impedance: 21Ω (70V), 2.6Ω (25V); Low impedance: 4Ω (31V); Rec out: 0 dB* 600Ω, unbalanced, RCA pin jack
Phantom Power	DC +21V (MIC 1)		
S/N ratio	Over 60dB		
Tone Control	Bass: ±10dB at 100Hz; Treble: ±10dB at 10kHz		
Muting	MIC 1, MIC 2, and TEL have a priority function to attenuate AUX1 and AUX2 input signals by 30 dB. (Sensitivity level for MIC 1, MIC 2 , TEL adjustable) Priority level among MIC 1, MIC 2 and TEL is the same.		
Dimensions	420 (W) × 100.9 (H) × 280.3 (D) mm (16.54" x 3.97" x 11.04")		420 (W) × 100.9 (H) × 360.3 (D) mm (16.54" x 3.97" x 14.19")
Weight	7.5 kg (16.53 lbs)	10.8 kg (23.15 lbs)	15.5 kg (34.17 lbs)

*0 dB = 1 V

MIXERS

DIGITAL SIGNAL PROCESSING
STEREO MIXERS
AUTOMATIC RESONANCE CONTROL
FEEDBACK SUPPRESSION
EQUALIZER
DIGITAL MODULAR MIXER
REMOTE CONTROLS
DIGITAL MIXING SYSTEMS
MODULES

Digital Matrix Mixer System

Spotlight

Utilizing the M-8080D series in a sports complex or healthcare facility delivers a versatile paging solution for buildings with multiple and different sized rooms. Whatever audience you are targeting, the transmission quality for music or announcements is key to the success of any acoustic design.

»Digital Signal Processor

M-8080D

- Feedback Suppressor function (FBS)
- Automatic stereo input mute function (AUTO MUTE or Ducker)
- Parametric Equalizer
- Intuitive GUI via PC
- Easy and quick operation

* 0 dB = 0.775V

SPECIFICATIONS	M-8080D
Power Source	100-240 V AC, 50/60 Hz
Power Consumption	40 W
Audio Input	Input 1 - 8: -48 to 0 dBV, 6.8Ω, electronic balanced, removable terminal block (3 pins x 8)
Audio Output	Output 1 - 8 0 dBV, 1.8Ω, Maximum output 20dBu (7.75V), electronic balanced removable terminal block (3 pins x 8)
Frequency Response	20 - 20, 000 Hz, ±3 dB
Total Harmonic Dist.	0.01%
S/N Ratio	Over 105 dB (A weighted)
Crosstalk	Over 79dB (A weighted)
Phantom Power	+48 VDC, switchable, Inputs 1 - 8
Control Input	CONTROL INPUT: GPI 1 - 2: no-voltage contact input, open voltage: 1.5V DC, short-circuit current: Under 3 mA, RJ45 Connector x 2
Control output	CONTROL OUTPUT: Relay 1 - 2: withstand voltage: 24V DC, control current: Under 500 mA, removable terminal block (4 pins)
RD port	RD port: RD 9 - 12: transmits and receives AES3 digital audio plus control data. Connect remote devices such as M-822IO, M-800RC, M-802RC, M-800RCT and M-800RM, maximum cable length is 100 meters, RJ45 Connector x 2
DSP input functions	Input: Ducker, Gain/Phase, Crossover, Gate/Expander, 5 band EQ, Delay, Limiter / Compressor. • Matrix, Feedback Cancel.
DSP output functions	• Output: Mixer, Crossover, Gain/ Phase, 8 band EQ, Delay, Limiter / Compressor
Indicators	Input: Analog Signal (Green) x8, Analog Peak (Red) x8, RD Signal (Green) x 4, RD Peak (Red) x4 Output: Analog Signal (Green) x8, Analog Peak (Red) x8, RD Signal (Green) x 4, RD Peak (Red) x4 Status: Fault (Red) x1, Comm (Green) x1, Power (Blue) x1
Operating Temperature	0 °C to +40 °C (32 °F to 104°F)
Finish	Panel: Aluminum, black Cose: Surface-treated steel plate, block, point
Dimensions	483 (W) x 44.2 (H) x 259 (D) mm (19" x 1.74" x 10.18")
Weight	4.18 kg (9.2 lb)
Accessory	Power cord (2 m)...2, CATS coble (2 m)... 1, Removable terminal block (4 pins)...1, Removable terminal block (3 pins)...17
Option	M-804EX, M-82210, M-800RC, M-802RC, M-800RCT, M-800RM

M-8080D Remote I/O Controllers

M-800RM Remote Microphone

SPECIFICATIONS	M-800RM
Power source	24 V DC (Powered by M-8080D or M-804EX)
Gooseneck Microphone	Unidirectional electret condenser microphone
Frequency response	20 Hz - 20 kHz (±3 dB)
Audio output	0 dBV, electronic balanced, RJ45 Connector
USB port:	Load WAV files for chimes sound
Volume Control	Microphone volume control and all zone selector
Zone Selector	Can address 1 to 64 different zones
Display	LCD Screen: Displays device information: ID, volume, zone selector
Indicator	LEDs: Input signal (Green)x1, Input Peak (Red)x1, Busy (Red), Communication (Green)x1
Directivity	Unidirectional
Operating temperature	0°C to + 40°C (32°F to 104°F)
Finish	Case: Surface-treated steel plate, painted black
Dimensions	176 W x 61.8H x 162.4 D mm (6.93" W x 2.43" H x 6.40"D) gooseneck mic excluded
Weight	0.8 kg

M-800RCT Remote Audio Controller - Touch Screen

SPECIFICATIONS	M-800RCT/B
Power source	24 V DC (Powered by M-8080D or M-804EX or external)
Display	Touch LCD Screen Displays device information: ID, Volume, communication status, system
Inputs	RD In: Transmits and receives AES3 digital audio plus control data Connect to M-8080D, M-804EX o M-800RC, M-800RCT for daisy chain, RJ45 connector
Outputs	RD EXP: Transmits and receives control data Connect to M-800RC or M-800RCT, RJ45 connector
Controls	Volume / Routing / Presets
Operating temperature	0°C to +40°C (32° F to 104° F)
Finish	Panel: Polycarbonate + ABS resin, white or black
Dimensions	150 W x 115 H x 28 D mm (5.9" W x 4.53" H x 1.1" D)
Weight	0.28 kg

M-822IO Audio Input Output Module

SPECIFICATIONS	M-822IO/B
Power source	24 V DC (Powered by M-8080D or M-804EX or external)
Phantom power	+48 VDC, switchable , MIC input
Frequency response	20 Hz - 20 kHz
Total Harmonic Distortion	< 0.01 %
S/N ratio	>105 dB (A weighted)
Indicator	LED Audio Input: Signal (Green) 2x, Peak (Red) 2x LED Audio Output: Signal (Green) 2x, Peak (Red) 2x
Crosstalk	>79 dB
Inputs	RD In: Transmits and receives AES3 digital audio plus control data Connect to M-8080D, M-804EX o M-800RC, M-800RCT for daisy chain, RJ45 connector Audio input MIC Input: -48 dBV, 5.1kΩ, electronic balanced, XLR connector Line input A-B: 0 dBV, 5.1 kΩ , unbalanced, RCA pin jack
Outputs	RD EXP: Transmits and receives control data Connect to M-800RC or M-800RCT, RJ45 connector Audio Output Line output 1 - 2: 0 dBV, 1.8 kΩ , Maximum output 20 dBu (7.75V), electronic balanced, screw terminal (3 pins x 2)
Controls	Volume / Routing
Operating temperature	0°C to +40°C (32° F to 104° F)
Finish	Panel: Polycarbonate + ABS resin, white or black
Dimensions	147 W x 86 H x 52 D mm (5.79" W x 3.39" H x 2.05" D)
Weight	0.3 kg

M-8080D Remote I/O Controllers (continued)

M-800RC/B Remote Audio Controller

SPECIFICATIONS	M-800RC/B
Power source	24 V DC (Powered by M-8080D or M-804EX or external)
Frequency response	-
Total Harmonic Distortion	-
S/N ratio	-
Display	LCD Screen Displays device information: ID, Volume, communication status
Crosstalk	-
Inputs	RD In: Transmits and receives AES3 digital audio plus control data Connect to M-8080D, M-804EX o M-800RC, M-800RCT for daisy chain, RJ45 connector
Outputs	RD EXP: Transmits and receives control data Connect to M-800RC or M-800RCT, RJ45 connector
Controls	Volume / Routing
Operating temperature	0°C to +40°C (32° F to 104° F)
Finish	Panel: Polycarbonate + ABS resin, white or black
Dimensions	147 W x 86 H x 65 D mm (5.79" W x 3.39" H x 2.56" D)
Weight	0.3 kg

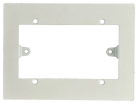
M-802RC/B Remote Audio Controller / Two Analog Outputs

SPECIFICATIONS	M-802RC/B
Power source	24 V DC (Powered by M-8080D or M-804EX or external)
Frequency response	20 Hz - 20 kHz
Total Harmonic Distortion	< 0.01 %
S/N ratio	>105 dB (A weighted)
Display	LCD Screen Displays device information: ID, Volume, communication status
Crosstalk	>79 dB
Inputs	RD In: Transmits and receives AES3 digital audio plus control data Connect to M-8080D, M-804EX o M-800RC, M-800RCT for daisy chain, RJ45 connector
Outputs	Audio Output: Line output 1 - 2: 0 dBV, 1.8 (7.75V), electronic balanced, screw terminal (3 pins x 2)
Controls	Volume / Routing
Operating temperature	0°C to +40°C (32° F to 104° F)
Finish	Panel: Polycarbonate + ABS resin, white or black
Dimensions	147 W x 86 H x 65 D mm (5.79" W x 3.39" H x 2.56" D)
Weight	0.3 kg

M-800RC/B & M-802RC/B Optional Accessories

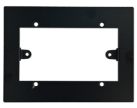
Surface-mount panel

M-800FPW



Surface-mount panel

M-800FPB



M-804EX Port Expander

SPECIFICATIONS	M-804EX
Power source	24 V DC (Powered by M-8080D or DC24 external power supply)
Indicator	RD IN (Green) RD exp audio (Green) RD exp control (Green) x3 Power (Red)
Inputs	RD IN: Transmits and receives AES3 digital audio plus control data Connect to M-8080D, RJ45 connector
Outputs	RD EXP: Port 1: transmits and receives AES3 digital audio and control data Connect to M-822IO, M-800RC, M-800RCT, M802RC or M-800RM, RJ45 connector Port 2 - 4: transmits and receives control data connect to M-800RC or M-800RCT, RJ45 connector maximum cable length 100 meters in total from M-8080D RD port to last controller
Operating temperature	0°C to +40°C (32° F to 104° F)
Finish	Panel: Aluminum, black Case: Surface-treated steel plate, black, paint
Dimensions	147 W x 86 H x 65 D mm (5.79" W x 3.39" H x 2.56" D)
Weight	0.3 kg

M-8080D Optional Accessory

Dante Module

M-800DT

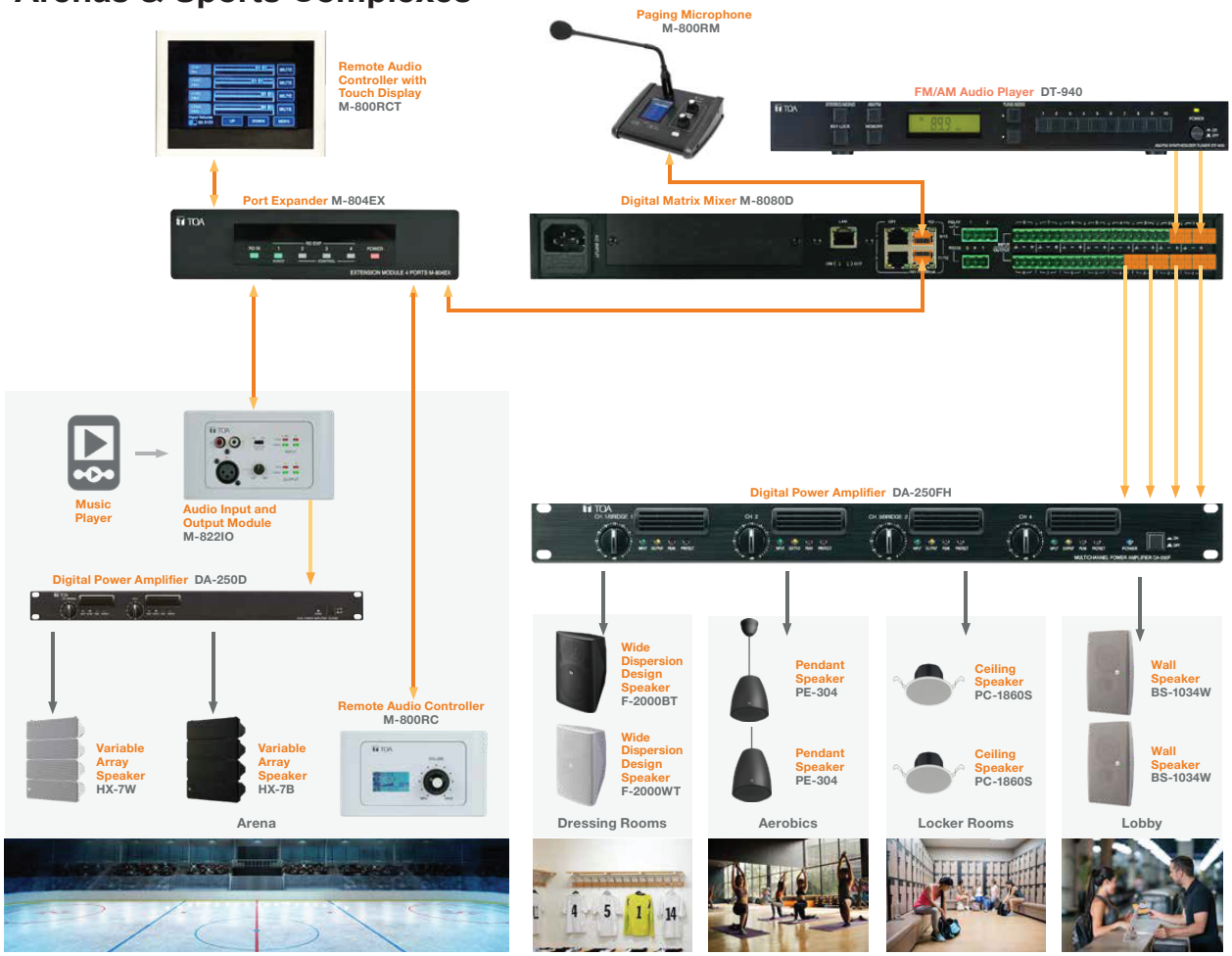
The M-800DT Dante module provides an easy-to use audio over ethernet connection between up to 16 M-8080D Matrix Mixer Systems. It adds 8 Dante Input and Output channels to expand the possibilities of the M-8080D system with the Dante ecosystem.

- Dante In: 8 channels, Out: 8 channels
- 2 Ethernet ports
- Low latency Dante Audio over IP
- Allows the operation of up to 16 M-8080D units as one system
- Compatible with all IP network configurations and with redundancy support.
- Supports up to 192 inputs and outputs allowing for system scalability
- 5 V DC (Powered by M-8080D)
- Works with any existing IT system compatible with the Dante Network Specifications

Model	M-800DT
Power Source	5 V DC (Powered by M-8080D)
Channel	Dante In: 8 channels, Out: 8 channels
Network I/F	RGMII/MII
Audio Format	TDM, I2S
Operating Temperature	0 °C to +40 °C (32 °F to 104 °F)
Finish	Steel plate, surface-treated, paint, black
Dimensions	122.2 W x 33.5 H x 119.5 D mm (4.81" x 1.32" x 4.70")
Weight	0.118 Kg (0.26 lbs)

Digital Matrix Mixer System Examples

Arenas & Sports Complexes



Additional Mixer Interfaces

New Interface

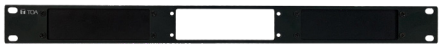
Dante Audio Interface

M-44DT

A Dante audio interface with 4 inputs and 4 outputs that seamlessly connects amplifiers, mixers, digital microphones, and other devices on a Dante network. It can be mounted in an EIA standard equipment rack with the rack mounting panel MB-M44DT (optional).

- 4 inputs
- 4 outputs
- individual gain controls
- rack mountable

MB-M44DT



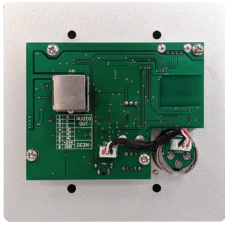
Model	M-44DT
Rated Input (100V Line)	100 - 240 V AC, 50/60 Hz (use of the supplied AC adapter)
Rated Impedance	10W
Sensitivity	Input 1-4: -50 - 0 dBV, 4.4 kΩ, electronic balanced, removable terminal block
Frequency Response	Output 1-4: 0 dBV, 10 kΩ, electronic balanced, removable terminal block
Speaker Component	20 - 20,000 Hz, ±3 dB
Directivity Angle	0.01% (LPF 20 kHz)
Operating Temperature	100Mbps, RM I I
Dust/Water Protection	0°C to +40°C (32°F to 104°F)
Connection	90% RH or less (no condensation)
Finish	Panel: Aluminum, black, alumite Case: Surface-treated steel plate, black, paint
Dimensions	130 (W) X 44 (H) X 161 (D) mm (5.12" X 1.73" X 6.34")
Weight	0.81 kg (1.79 lbs)
Accessories	AC Power adopter x1, Removable terminal plug (6 pins) x4
Optional Accessories	MB-M44DT Mounting Bracket

Audio Remote Mixer

Audio Interface with Bluetooth & USB

MW-41BT

- Microphone and line level inputs
- 24V Phantom Power on the Mic input
- USB input (compatible with MP3 and WAV)
- Bluetooth® input
- Optional flush mount lockbox
- Balanced line output
- Input Selection Button
- Volume Control
- Priority on the Mic input
- Optional surface mount lockbox



Model	MW-41BT
Power Source	100-240V AC 50/60Hz
Power Consumption	3W
Audio Input	MIC input: -60 dBv, 2.2 kΩ, electronic balanced, female XLR Connector AUD input: -10 dBv, 10 kΩ, unbalanced, stereo 3.5mm (1/8") mini-jack USB input: Audio formats: MP3, WAV Format: FAT16, FAT32, Max. 32GB Bluetooth input : Ver. 5.0, Max. 10m
Audio Output	0 dBv, 10 kΩ, electronic balanced, RJ45 connector
Frequency Response	20 - 20,000 Hz, ±3 dB
Total Harmonic Distortion	< 0.1%
S/N Ratio	>90dB (A weighted)
Phantom Power	+24 VDC, switchable, MIC input
Indicators	Power (Blue) x1, MIC (Blue) x1, AUX (Blue) x1, USB (Blue) x1, Bluetooth (Blue) x1
Operating Temperature	0°C to +40°C (32°F to 104°F)
Operating Humidity	90% RH or less (no condensation)
Finish	Panel: Aluminum, Sandblasting, Silver Decorative Sheet: Acrylic, Black
Dimensions	120 (W) x 120 (H) x 40.2 (D) mm (4.72" x 4.72" x 1.58")
Weight	0.2 kg (0.44lbs)
Accessories	AC Power adapter...1, Remote control...1, Box mounting screw (6-32UNC)...4 RJ45 Conversion socket...1
Options	Optional flush mount lockbox (BX-41F), surface mount lockbox (BX-41S)

Optional protective lockboxes

BX-41F Flush Mount

BX-41S Surface Mount

Remote Mixer

Remote Mixer

SO-MIX-T-24V

- Microphone and line level input
- Two inputs, one balanced output
- Individual volume control with joint bass and treble control
- Automatic mix with selectable Talk over function. 30dB, Talk over time: 3 seconds.
- Accessory 2-gang wall plate: SO-MIX-PLATE

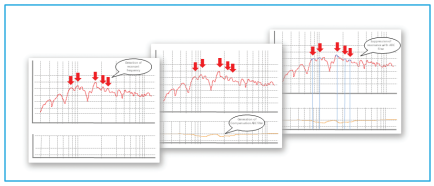
Model	SO-MIX-T-24V
Power Source	24 V DC
Output	0dBV
Power/current consumption	40mA
Input	Microphone XLR balanced input, Sensitivity -20/-40dBV
Output	Euroblock connector line level 0dBV
Phantom Power	20V selectable
Tone Control	Bass: ±10 dB at 100 Hz, Treble: ±10 dB at 10 kHz
Operating Temperature	-10°C to +40°C (14°F to 104°F)
Finish	White
Dimensions	86 (W) × 86 (H) × 36 (D) mm (3.35" x 3.39" x 1.42")
Optional Accessory	2-gang wall plate SO-MIX-PLATE, AD-246 AC Adapter

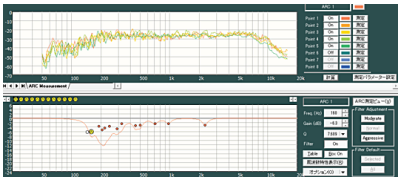
2-gang Wall Plate
SO-MIX-PLATE

AC Adapter
AD-246

ARC: Automatic Resonance Control

ARC, Automatic Resonance Control, is a TOA proprietary method to automatically generate an optimum filter curve to improve sound clarity after measuring the acoustic characteristics in architectural spaces. ARC solves sound deterioration caused by acoustic Feedback and Resonance. Look for TOA ARC enabled products to help solve your acoustically challenging spaces.





Stereo Mixer

6-Channel Stereo Mixer

M-243

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

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

*0 dB = 0.775 V

Signal Processing Equipment

The DP-SP3 Digital Speaker Processor enables you to enhance your sound system easily and inexpensively. Designed specifically to work with speakers, the processor taps into characteristics of individual speakers and draws out their best possible performance, to help realize richer, more expressive sound in a variety of venues. The DP-SP3 has a built-in library of presets for the most popular TOA speakers, which enables you to enjoy well-balanced sound immediately, without going to the trouble of inputting complex parameter settings. In addition, a preset memory of up to 16 setting patterns allows you to instantly recall the setting you need for a particular venue. The processor is also packed with such essential audio processing functions as Equalizer, Crossover, Matrix, Compressor and Delay.

»Digital Speaker Processor

DP-SP3

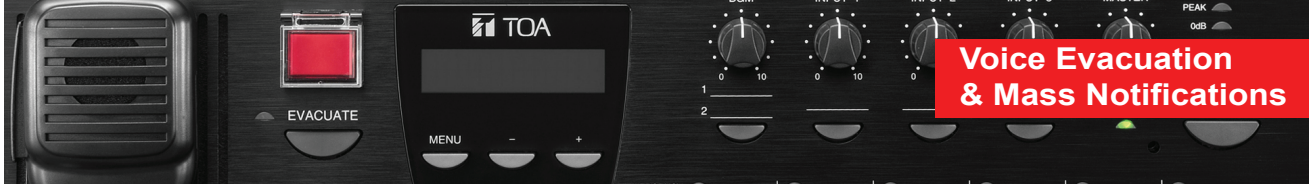
- 24-bit, 96 kHz sampling for clear, high-quality and realistic sound, with a full sense of presence
- 10 filters on each input and 12 filters on each output
- 2 inputs & 6 outputs, and processor can work with a 3-way multi-amp system
- Setting and operation via a LAN connected PC with installation of the supplied intuitive control/ operation software
- Preset memory for up to 16 different setting patterns, for instant recall of patterns best suited to a particular venue

Model	DP-SP3
Power Source	100 - 120 V AC, 60 Hz
Power Consumption	25 W
Frequency Response	20 Hz - 20 kHz, ±1 dB
Sampling Frequency	96 kHz
Dynamic Range	110 dB or more
Distortion	0.03% or less, 1 kHz, +4 dB* input/output, 20 Hz - 20 kHz BPF
Cross Talk	-80 dB or less, 1 kHz
Input	2 channels, +4 dB* (max. +24 dB*), 10 kΩ, electronically-balanced, removable terminal block (3P)
Output	6 channels, +4 dB* (max. +24 dB*), applicable load 600 Ω or more, electronically-balanced, removable terminal block (3P)
AD Converter	24 bits
DA Converter	24 bits
Equalizer/Filter	Parametric equalizer: 20 Hz - 20 kHz, ±15 dB, Q: 0.267 - 69.249; Filter: High-pass filter: 20 Hz - 20 kHz, 6 dB/oct, 12 dB/oct; Low-pass filter: 20 Hz - 20 kHz, 6 dB/oct, 12 dB/oct; Notch filter: 20 Hz - 20 kHz, Q: 8.651 - 69.249; All-pass filter: 20 Hz - 20 kHz, Q: 0.267 - 69.249; High shelving filter: 5 - 20 kHz, ±15 dB; Low shelving filter: 20 - 500 kHz, ±15 dB; Horn equalizer: 20 kHz, 0-18 dB in 0.5 dB steps
Crossover	2 ways, 3 ways, 4 ways; Crossover filter: 20 Hz - 20 kHz, 6 dB/oct, 12 dB/oct, 18 dB/oct, 24 dB/oct, -15 to +12 dB, polarity switchable; Delay: 0 - 170.656 ms in 0.01 ms steps
Compressor	Threshold: -20 to +20 dB* in 1 dB steps; Ratio: 1:1, 1.1:1, 1.2:1, 1.3:1, 1.5:1, 1.7:1, 2:1, 2.3:1, 2.6:1, 3:1, 4:1, 7:1, 8:1, 10:1, 12:1, 20:1, ∞:1; Attack time: 0.2 ms - 5s; Release time: 10 ms - 5s
Delay	Delay time: 0 - 682.656 ms in 0.01 ms steps
Matrix	2 x 6
Contact Input	4 channels, open voltage: 5 DC, short-circuit current: 5 mA, removable terminal block (5 P), control function: preset memory selection, volume control, and mute
Network	Network I/F: 1 channel of 10BASE-T/100BASE-TX (auto-negotiation) RJ45 connector, connection via switching hub; Network protocol: TCP/IP; Connection cable: Shielded CAT-5 or higher twisted pair cable for LAN (CAT-5-STP or better); Max. cable length: 100 m (109.36 yd) (between DP-SP3 and switching hub)
Dimensions	482 (W) x 44 (H) x 289 (D) mm (18.98" x 1.73" x 11.38")
Accessory	Power supply cord (2 m (6.5 ft)) x 1, removable terminal plug (3P) x 8, Removable terminal plug (5P) x 1, CD-ROM (containing setup software) x 1

* 0 dB = 0.775 V

VOICE EVACUATION

BROADCASTING
AUTOMATED ALARM
VOICE ALARM MESSAGES
ZONE & PRIORITY SETTINGS
FLEXIBLE COFIGURATIONS
BACKGROUND MUSIC
MASS NOTIFICATION
PAGING



VX-3000 Voice Evacuation System

Spotlight

Voice Evacuation Frames

VX-3004F AMQ
VX-3008F AMQ
VX-3016F AMQ

Designed as the main backbone and processing unit of TOA's VX-3000 Series rack-mount type voice evacuation system. It has audio input terminals and can output the amplified audio signals to the speaker lines when the optional power amplifier modules are mounted.

- Status indication for each speaker line
- Fault acknowledge and lamp test button
- Input DSP: flexible filter types and compressor
- Output DSP: flexible filter types, compressor and delay up to 2.7 sec.



Model	VX-3004F AMQ	VX-3008F AMQ	VX-3016F AMQ
Power Source	20 - 33 V DC, removable terminal block (4 pins)		
Power Consumption	24 W (frame only) at 33V DC input, 90 W (RS Link: 2 A output) at 33 V DC input		
Lan A, B	Number of Connectors: 2 (LAN A, LAN B) Network I/F: 100BASE-TX Network Protocol: TCP, UDP, ARP, ICMP, RTP, IGMP, FTP, HTTP, NTP Spanning tree Protocol: RSTP Audio Transmission System: TOA Packet Audio(*1) Audio Encoding Method: PCM Audio Sampling Frequency: 48 kHz Audio Quantifying Bit number: 16 bits Connection Device: VX-3004F, VX-3008F, VX-3016F, NX-300, and Switching HUB Connector: RJ45 connector Connection Cable: Category 5 twisted pair cable (CAT 5) or greater Number of Stages of Cascade connection: Up to 7 Maximum Cable Distance: 100m (328.08 ft)	"Number of Connectors: 2 (LAN A, LAN B) Network I/F: 100BASE-TX Network Protocol: TCP, UDP, ARP, ICMP, RTP, IGMP, FTP, HTTP, NTP Spanning tree Protocol: RSTP Audio Transmission System: TOA Packet Audio(*1) Audio Encoding Method: PCM Audio Sampling Frequency: 48 kHz Audio Quantifying Bit number: 16 bits Connection Device: VX-3004F, VX-3008F, VX-3016F, NX-300, VX-3000PM, VX-3000CT, and Switching HUB Connector: RJ45 connector Connection Cable: Category 5 twisted pair cable (CAT 5) or greater Number of Stages of Cascade connection: Up to 7 Maximum Cable Distance: 100m (328.08 ft)"	
RS Link A,B	Number of Connectors: 2 (RS LINK A, RS LINK B) Audio input level; 0 dB (*2) Power feed: Max. 1 A per connector (For more two or more mics per RS Link port, each device must have its own power supply) Connector: RJ45 connector Connection Cable: Shielded Category 5 twisted pair cable (CAT5-STP) or greater Maximum cable distance: 1200 m (3937.01 ft)		
DS Link	Connection Device: DS LINK of Power supply units Connector: RJ45 connector Connection Cable: Shielded Category 5 twisted pair cable (CAT5-STP) Maximum Cable Distance: 5 m (16.4 ft)		
Analog Link	Number of Connectors: 1 input, 1 output Connection Device: VX-3004F, VX-3008F, VX-3016F Connector: RJ45 connector Connection Cable: Shielded Category 5 twisted pair cable (CAT5-STP) or greater Maximum Cable Distance: 800 m (2624.67 ft)		
Audio Input 1, 2, 3, 4	4 inputs Sensitivity Line: -20 dB(*2)/ MIC: -60 dB(*2) LINE/MIC/ANC sensor (changeable with setting software) Gain Control: volume adjustable with volume control (internal front panel) -∞ to 0 dB Input Impedance: 47kΩ electronically-balanced Frequency Response: 40 Hz - 20 kHz ±1 dB (at DA CONTROL LINK, 0 dB output) Distortion: 1% or less (at DA CONTROL LINK, 0 dB output, 1 kHz) Signal to Noise Ratio: 60 dB or more (at DA CONTROL LINK, A-weighted) Phantom Power Supply: 24 V DC, can be set with setting software Connector: Removable terminal block (6 pins): 2		
Audio Input	16 inputs, no-voltage make contact input, open voltage: 24 V DC; short-circuit current: 2 mA Fault Detection System: Short circuit, Open circuit; Method: Voltage detect; Connector: RJ45 connector		
Control Input 1, 2	16 inputs , no-voltage make contact input, open voltage: 24 V DC, short-circuit current: 2 mA Fault Detection System: Short circuit, Open circuit, Method: Voltage detect Connector: RJ45 connector Connection Cable: Shielded Category 5 twisted pair cable (CAT5_STP) or greater		
Emergency Control IN	Input 2: Isolated voltage input, -24 to +24 V Connector: RJ45 connector Connection Cable: Category 5 twisted pair cable (CAT5) or greater		
VOX Function	"Threshold: –60 to 0 dB (1 dB steps) Hysteresis: 0 to +10 dB; Hold time: 10 ms – 10 s Settable for each audio input"		
Control Output 1, 2	"General outputs : 8 with CONTROL OUTPUT 1 Exclusive outputs : 3 with CONTROL OUTPUT 2; GENERAL FAULT, CPU FAULT, CPU OFF No-voltage make contact, electrical contact output, control current: 10 mA ; withstand voltage: 28 V DC Connector: RJ45 connector Connection cable: Shielded Category 5 twisted pair cable (CAT5-STP)- or greater"		

VX-3000 Voice Evacuation System

Model	VX-3004F AMQ	VX-3008F AMQ	VX-3016F AMQ
ATT/Control Output	8 outputs, no-voltage make contact, relay contact (NC, NO, C), control current: 2 mA to 5 A; withstand voltage: 125 V AC, 40 V DC Connector: Removable terminal block (12 pins) x 2		16 outputs, no-voltage make contact, relay contact (NC, NO, C), control current: 2 mA to 5 A; withstand voltage: 125 V AC, 40 V DV Connector: Removable terminal block (12 pins) x 4
Digital Signal Processing			
Feedback Suppression Function (FBS)	7 filters (auto) Settable for each audio input and RS LINK (A/B)		
Equalizer/Filter	3 bands for each audio input and RS LINK (A/B), 6 bands for each amplifier output Parametric equalizer: 20 Hz - 20kHz, ±15 dB, Q 0.267 - 69.249 Filtering: High-pass filter 20- Hz - 20 kHz, 6 dB/oct, 12 dB/oct Low-pass filter 20- Hz - 20 kHz, 6 dB/oct, 12 dB/oct High shelving filter 6 - 20 kHz, ±15 dB Low shelving filter 20 - 500 kHz, ±15 dB Notch filter (amplifier output only) 20 Hz - 20 kHz, Q: 8.651 - 69.249 All-pass filter (amplifier output only) 20 Hz - 20 kHz, Q: 0.267 - 69.249 Horn equalizer (amplifier output only) 20 kHz, 0 to +18 dB (0.5 dB steps)		
Compressor	Threshold: -20 to 0 dB (1 dB steps) Ratio: 1:1, 1.1:1, 1.2:1, 1.3:1, 1.5:1, 1.7:1, 2:1, 2.3:1, 2.6:1, 3:1, 4:1, 5:1, 7:1, 8:1, 10:1, 12:1, 20:1, ∞:1 Attack time: 0.2 ms - 5 s, Release time: 10 ms - 5 s Gain: -∞ to +10 dB, Knee type: hard knee, middle knee, soft knee		
Delay	For each amplifier output, 0 - 2730 ms (0.021 ms steps)		
Ambient Noise Control (ANC)	Amplifier output level control, Automatic sensor input reference level measuring, Sensor input reference level fine adjustment Maximum output signal level control: -15 to 0 dB Minimum output signal level control: -18 to -3 dB Sample time setting: 10 s, 20 s, 30 s, 1 min, 5 min Gain ratio setting: (Ambient noise: Output signal level) 6:3, 5:3, 4:3, 3:3, 3:4, 3:5, 3:6 Ambient noise measuring frequency setting: 20 Hz - 20 kHz, 3 points		
Program timer	Weekly program method; Daily program: 50 events, 10 types; Holiday program: 50 types		
Time Adjustment	Control input, NTP		
Speaker Line	4 channels (with AB LINE speaker out) 1 Earth terminal Max. Voltage/Current: 100 VRMS, 5 ARMS Connector: Removable terminal block (17 pins) x 1; Fault detection system: Short circuit, Open circuit, Ground fault, Method: Impedance or End of line	8 channels 1 Earth terminal Max. Voltage/Current: 100 VRMS, 5 ARMS Connector: Removable terminal block (17 pins):1 Fault detection system: Short circuit, Open circuit, Ground fault, Method: Impedance or End of line	16 channels 2 Earth terminals Max. Voltage/Current: 100 VRMS, 5 ARMS Connector: Removable terminal block (17 pins) x 1 Fault detection system: Short circuit, Open circuit, Ground fault, Method: Impedance or End of line
Standby Amplifier Input/Output	Input: 1, Output: 1 Max. Voltage/Current: 100 VRMS, 5 ARMS Connector: Removable terminal block (2 pins) x 2		
Extension Amplifier Input/Output	N/A	Input: 2, Output: 2, Max. Voltage/Current: 100 VRMS, 5 ARMS, Connector: Removable terminal block (2 pins) x 4	
Module Slot	Number of modules: 4 DA CONTROL LINK: 4 DA OUTPUT LINK: 4 (Used only when a power amplifier module is installed)	Number of modules: 3 (when the line output module is installed: 2) DA CONTROL LINK: 3 DA OUTPUT LINK: 3 (Used only when a power amplifier module is installed)	Number of modules: 2 DA CONTROL LINK: 2 DA OUTPUT LINK: 2 (Used only when a power amplifier module is installed)
Indicators	POWER (green): 1, RUN (green): 1, EMERGENCY (red): 1, CPU OFF (red): 1, LAN A (green): 1, LAN B (green): 1, RS LINK A (green):1, RS LINK B (green):1 FAULT STATUS (yellow) GENERAL: 1, UNIT: 1, NETWORK: 1, EMG MIC: 1, FUSE: 1, POWER: 1, CPU: 1, ZONE: 8 AMPLIFIER PEAK (red): 4, SIGNAL (green): 4, OPERATE (green): 4, POWER (green): 4	POWER (green): 1, RUN (green): 1, EMERGENCY (red): 1, CPU OFF (red): 1, LAN A (green): 1, LAN B (green): 1, RS LINK A (green):1, RS LINK B (green):1 FAULT STATUS (yellow) GENERAL: 1, UNIT: 1, NETWORK: 1, EMG MIC: 1, FUSE: 1, POWER: 1, CPU: 1, ZONE: 8 AMPLIFIER PEAK (red): 3, SIGNAL (green): 3, OPERATE (green): 3, POWER (green): 3	POWER (green): 1, RUN (green): 1, EMERGENCY (red): 1, CPU OFF (red): 1, LAN A (green): 1, LAN B (green): 1, RS LINK A (green):1, RS LINK B (green):1 FAULT STATUS (yellow) GENERAL: 1, UNIT: 1, NETWORK: 1, EMG MIC: 1, FUSE: 1, POWER: 1, CPU: 1, ZONE: 8 AMPLIFIER PEAK (red): 2, SIGNAL (green): 2, OPERATE (green): 2, POWER (green): 2
Operation	Fault control switch: 2 (ACK/RESET) Test Switch: 1 (LAMP TEST) Setting Switch: ID NUMBER, RESET, IMPEDANCE, Setting (internal front panel)		
Operating Temperature	-5°C to 45°C (23°F to 113°F)		
Operating Humidity	90% RH or less (no condensation)		
Finish	Panel: Surface-treated steel plate, black, 30% gloss, paint		
Dimensions	483 x 132.6 x 345 mm		
Weight	7.6 kg	7.9 kg	8.1 kg
Included Accessories	Rack mounting screw: 4, Removable terminal plug (2 pins): 2 Removable terminal plug (4 pins): 1 , Removable terminal plug (6 pins): 2 , Removable terminal plug (12 pins): 2 , Removable terminal plug (17 pins) :1 , CD (PC setting software): 1 , Ferrite clamp: 2	Rack mounting screw: 4, Removable terminal plug (2 pins): 6 Removable terminal plug (4 pins): 1 , Removable terminal plug (6 pins): 2 Removable terminal plug (12 pins): 2 , Removable terminal plug (17 pins) :1, CD (PC setting software): 1 , Ferrite clamp: 2	Rack mounting screw: 4, Removable terminal plug (2 pins): 4 Removable terminal plug (4 pins): 1 , Removable terminal plug (6 pins): 2 Removable terminal plug (12 pins): 2 , Removable terminal plug (17 pins) :1, CD (PC setting software): 1 , Ferrite clamp: 2

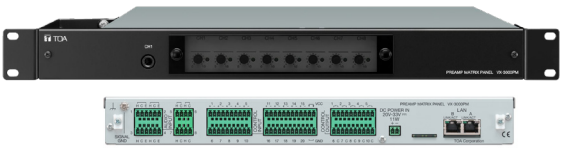
VX-3000 Voice Evacuation System

Preamp Matrix Panel

VX-3000PMQ

Enabling additional audio inputs, control inputs, and control outputs to the VX-3000 system.

- Equipped with 8 audio inputs with volume controls, 20 control inputs and 10 control outputs
- Preamplifier matrix panel enabling the additional audio inputs, control inputs and control outputs to the VX-3000 system
- Unicast audio streaming functionality among VX-3000PMs allows connection through other networks
- 1 unit can be connected per VX-3000 Frame and a maximum of 40 units can be configured per system



Model	VX-3000PM AMQ
Power Source	20 – 33 V DC, removable terminal block (2 pins)
Current Consumption	0.33 A at 33 V DC input, 0.35 A at 24 V DC input
LAN A, B	Number of Connectors: 2 (LAN A, LAN B) Network I/F: 100BASE-TX Network Protocol: TCP, UDP, ARP, ICMP, RTP, IGMP, HTTP Spanning Tree Protocol: RSTP Audio Transmission System: TOA Packet Audio (*1) Audio Encoding Method: PCM Audio Sampling Frequency: 48 kHz Audio Quantifying Bit Number: 16 bits Connection Device: VX-3004F, VX-3008F, VX-3016F, NX-300, VX-3000CT, VX-3000PM, Switching HUB Connector: RJ45 connector Connection Cable: Category 5 twisted pair cable (CAT5) or greater Maximum Cable distance: 100 m
Audio Input	8 inputs Input Level: Input 1 - 4: -60 dBV / -40 dBV / -20 dBV /0 dBV selectable, input impedance 600 Ω, transformer-balanced Input 5, 6: -20 dBV, input impedance 10 kΩ, unbalanced Input 7, 8: 0 dBV, input impedance 10 kΩ, unbalanced Frequency Response: -60 dBV): 200 Hz - 10 kHz, -2 dB ±3 dB-40 dBV / -20 dBV / 0dBV: 100 Hz - 15 kHz, -2 dB ±3 dB Distortion: 1% or less Signal to Noise Ratio: 60 dB or more Removable terminal block (6 pins x 2, 4 pins x 2) Only Input 1 is used in common with the front-mounted ø6.3 mm phone jack
Control Input	20 channels, no-voltage make contact input, open voltage: 30 V DC, short-circuit current: 2 -10 mA Connector: Removable terminal block (10 pins x 2, 12 pins x 2)
Control Output	Channels 1 - 5, relay (a contact), withstand voltage: 30 V DC, control current: 1 A Channels 6 - 10, open collector output (polarized), withstand voltage: 30 V DC control current 100 mA Connector: Removable terminal block (10 pins) x 2
Indicators	Signal Indicator (Green) x 8, Run (Green) x 1, LINK/ACT (Green) x 2
Volume Control	8 channels
Operation	Input level setting switch x 1, IP address setting switch x 1
Dimensions (W x H x D)	482 x 44 x 292.4 mm
Weight	3.2 kg

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

Control Panel

VX-3000CT AMQ

Additional function keys used for public address operations, such as the activation of general broadcast.

- Control panel with 9 function keys and 8 volume control knobs for easy operation
- Function keys are used for public address operation such as the activation of general broadcast
- Volume controls allow volume level adjustment of the VX-3000 Frame's audio input or audio output (assignable)
- Up to 2 units can be connected per VX-3000 frame

Model	VX-3000CT AMQ
Power Source	20 – 33 V DC, removable terminal block (4 pins)
Current Consumption	0.09 A at 33 V DC input, 0.11 A at 24 V DC input
LAN A, B	Number of Connectors: 2 (LAN A, LAN B) Network I/F: 100BASE-TX Network Protocol: TCP, ARP, ICMP, HTTP Connection Device: VX-3004F, VX-3008F, VX-3016F, NX-300, VX-3000CT, VX-3000PM, Switching HUB Connector: RJ45 connector Connection Cable: Category 5 twisted pair cable (CAT5) or greater Maximum cable distance: 100 m
Panel Indicator	Power (Green) x 1, Run (Green) x 1, Link/ACT (Green) x 2, Signal (Green) x 8, Fault (Yellow) x 1, Status (Green/Yellow) x 9, Select (Green) x 9
Volume Control	8 channels
Operation	Function key x 9, Reset Key x 1, IP address setting switch x 1
Dimensions (W x H x D)	482 x 44 x 315.2 mm
Weight	3 kg

VX-3000 Voice Evacuation System

Amplifier Modules

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

Modules to be mounted in the VX-3000 frame. Three different power levels: 105W, 210W, and 350W at 70V.

- Low-loss modular class D amplifiers
- Can easily be removed or replaced by unplugging them; no need for special tools
- Dust filter, easy to clean
- Fuse easily accessible from rear

Model	VX-015DA	VX-030DA	VX-050DA
Applicable Model	VX-3004F, VX-3008F, VX-3016F		
Power Source	31 V DC (operating range: 20 - 33 V DC); DC power in: M4 screw terminal, distance between barriers: 11 mm		
Amplification System	Class D		
Power Consumption	1.3 W (standby mode), 14 W (no audio input), 40 W (1/8 rated output), 190 W (rated output) at 31 V DC, output voltage selection switch: 100 V	1.3 W (standby mode), 14 W (no audio input), 65 W (1/8 rated output), 375 W (rated output) at 31 V DC, output voltage selection switch: 100 V	1.3 W (standby mode), 16 W (no audio input), 100 W (1/8 rated output), 590 W (rated output) at 31 V DC, output voltage selection switch: 100 V
Rated Output Power	150 W (at 100 V line) 105 W (at 70 V line) 75 W (at 50 V line) (at min. impedance & max. capacitive load) (at AC mains: 187 - 253 V)	300 W (at 100 V line) 210 W (at 70 V line) 150 W (at 50 V line) (at min. impedance & max. capacitive load) (at AC Mains: 187 - 253 V)	500 W (at 100 V line) 350 W (at 70 V line) 250 W (at 50 V line) (at min. impedance & max. capacitive load) (at AC Mains: 187 - 253 V)
Output Voltage	100 V (70 V, 50 V: selectable)		
Min. Resistive Load	67 Ω (100 V), 47 Ω (70 V), 33 Ω (50 V)	33 Ω (100 V), 23 Ω (70 V), 17 Ω (50 V)	20 Ω (100 V), 14 Ω (70 V), 10 Ω (50 V)
Max. Capacitive Load	0.5 µF		
Input	DA CONTROL LINK: Nylon connector (15 pins)		
Output	DA CONTROL LINK: Nylon connector (2 pins)		
Frequency Response	40 Hz - 20 kHz: - 5 to +1 dB(at 100 V line, 30 dB(*1) output)		
Distortion	1 % or less (at 100 V line, A-weighted)		
Signal to Noise Ratio	100 dB or more (at 100 V line, A-weighted)		
Dimensions (W x H x D)	82.8 x 91 x 358.2 mm		
Weight	1.3 kg		1.4 kg

(*1) 0 dB = 1 V

Line Output Module

VX-300LO AMQ

A module that outputs the VX-3000F's audio signals at the line level. Designed to be installed in the VX-3000F, it outputs audio signals from the VX-3000F to an external device.

- Outputs audio signals at the line level from the VX-3000 Frame to an external device

Model	VX-300LO
Applicable Model	VX-3004F, VX-3008F, VX-3016F
Power Source (1*)	Supplied from the VX-3000 Frame (DA CONTROL LINK)
Current Consumption	Max. 2 mA (Current through DC POWER IN)
Input	DA CONTROL LINK: Connector (15 pins)
Audio Output (*2)	1 Channel Output signal level: 0 dB (*2) Adjustable range of the volume control: -∞ to 0 dB Output method: 10 kΩ, transformer-balanced Applicable load impedance: 2 kΩ or more Frequency Response: 40 Hz - 20 kHz ±1 dB Distortion: 1 % or less (0 dB (*2) output, 1 kHz) Signal to Noise Ratio: 60 dB or more Removable terminal block (3 pins)
Finish	Surface-treated steel plate
Dimensions (W x H x D)	76 x 39 x 33.2 mm
Weight	56 g

(*1) When installed in VX-3000 Frame.
(*2) 0 dB = 1 V

VX-3000 Voice Evacuation System

Wall-Mount Remote Microphone

RM-200SF

The RM-200SF is a wall-mount remote microphone for TOA's Public Address and Voice Evacuation System. It is equipped with an Emergency key, permitting it to be used as a remote microphone for emergency broadcast. Zone selection and microphone announcement can be utilized for regular broadcasts or at the time of emergency broadcast. It offers a surveillance function to detect failures including microphone element failure. The RM-200SF has three function keys that can be set as individual or group selection keys, and each key is linked with the corresponding two indicators. Connecting the optional RM-210 or RM-320F Extension units to the RM-200SF expands the number of function keys and indicators in blocks of ten (RM-210) or twenty (RM-320F).

- For general and emergency broadcast
- For activation of emergency mode, start and stop automatic broadcasts of emergency announcements, reset emergency signals, and live microphone announcements
- CPU-switch for emergency broadcast to all zones even in case of a CPU error
- Up to 4 Key Extension Units per Emergency Remote Microphone

Model	RM-200SF
Power Source	20 – 33 V DC, removable terminal block (4 pins)
Operation	
Current Consumption	0.09 A at 33 V DC input, 0.11 A at 24 V DC input
Audio Output	Number of Connectors: 2 (LAN A, LAN B)
Distortion	Power (Green) x 1, Run (Green) x 1, Link/ACT (Green) x 2, Signal (Green) x 8, Fault (Yellow) x 1, Status (Green/Yellow) x 9, Select (Green) x 9
Frequency Response	8 channels
Signal to Noise Ratio	Function key x 9, Reset Key x 1, IP address setting switch x 1
Microphone	482 x 44 x 315.2 mm
Chime	3 kg
Volume Control	Input level setting switch x 1, IP address setting switch x 1
Maximum Cable Length	482 x 44 x 292.4 mm
Connection Cable and Connector	Main line: Shielded CPEV cable (each one pair of Audio line, Data line, Monitor/control line, and power supply line) or Shielded Category 5 twisted pair cable for LAN (CAT5-STP) or greater, M3 screw terminal
Number of Connectable RM-320F	Max. 4 units
Monitor Speaker	Built-in type
Indicator	Status indicators... 3, Power indicator, Failure indicator, CPU indicator, Selection indicators ... 3, Microphone indicator, Broadcast status indicator
Operating Temperature	0 to 40°C (32 to 104°F)
Operating Humidity	35 to 80% RH (no dew condensation)
Finish	ABS resin, blueish gray (PANTONE 538 or its equivalent)
Dimensions	200 (w) x 215 (h) x 95 (d) mm (7.87" x 8.46" x 3.74") (including the Wall Mounting Bracket)
Weight	1.48 kg (3.26 lb)

Key Extension

RM-320F

The RM-320F is an expansion unit dedicated for the RM-300X Desk top remote microphone. The number of zone selection keys and indicators of the RM-300X can be increased in 10 units per RM-320F.

Model	RM-210F
Power Source	Supplied from the optional RM-300X
Current Consumption	80 mA or less
Audio Output	0 dB(*1), 600 Ω, balanced
External Microphone Input	-40 dB(*1), 2.2 kΩ, unbalanced, ø3.5 mm phone jack (2P) for electret condenser microphone, (phantom power supply:3 V DC) -20 dB(*1), 4,7 kΩ, unbalanced, ø3.5 mm phone jack (2P) (AUX Input)
Distortion	1 % or less
Frequency Response	100 Hz – 20 kHz
Signal to Noise Ratio	60 dB or more
Microphone	Unidirectional electret condenser microphone with AGC (ON/OFF selectable)
Chime	Built inside (PCM sound source), Monitoring possible using built-in speaker
Level Control	Microphone sensitivity control, Monitor speaker volume control, Chime(adjustable using the software)
Number of Function Keys	Function key x 10
Finish	ABS resin, black
Dimensions	110 x 76.5 x 215 mm
Weight	350 g
Optional Accessories	Wall mounting bracket: WB-RM200

VX-3000 Voice Evacuation System

Remote Microphone

RM-300X

The RM-300X is a remote microphone designed for the Integrated Voice Evacuation System. It is equipped with 13 function switches that can be used to select individual zones or zone groups. The optional RM-210F Remote microphone extension permits switches and indications to be expanded in 10-piece units.

Model	RM-300X
Power Source	24 V DC (operating range: 15 - 40 V DC, supplied from the voice evacuation frame) or DC input power supply connector (when the optional AD-246 power supply unit used.)
Current Consumption	240 mA or less
Audio Output	0 dB(*1), 600 Ω, balanced
External Microphone Input	-40 dB(*1), 2.2 kΩ, unbalanced, ø3.5 mm phone jack (2P) for electret condenser microphone, (phantom power supply:3 V DC) -20 dB(*1), 4,7 kΩ, unbalanced, ø3.5 mm phone jack (2P) (AUX Input)
Distortion	1 % or less
Frequency Response	100 Hz – 20 kHz
Signal to Noise Ratio	60 dB or more
Chime	Built inside (PCM sound source), Monitoring possible using built-in speaker
Level Control	Microphone sensitivity control, Monitor speaker volume control, Chime(adjustable using the software)
Number of Function Keys	Function switch, Covered switch, Broadcast switch
Connection Cable and Connector	Main line: Shielded CPEV cable(1 pair of audio wire + 1 pair of data wire + 1 pair of monitor/control wire + 1pair of power supply wire) or Shielded Category 5 twisted pair cable(CAT5-STP) or greater, Branch line: Shielded Category 5 twisted pair cable (CAT5-STP) or greater, RJ45 connector
Number of Connectable Units	Max. 7 RM-210F units
Finish	ABS resin, black
Dimensions	190 x 76.5 x 215 mm (gooseneck microphone excluded)
Weight	880 g
Optional Accessories	Remote microphone extension: RM-210F, Wall mounting bracket: WB-RM200 Electret condenser microphone: WH-4000A, YP-M101, YP-M301 etc.

Key Extension

RM-210F

The RM-210F is an expansion unit dedicated for the RM-300X Desk top remote microphone. The number of zone selection keys and indicators of the RM-300X can be increased in 10 units per RM-210F.

Model	RM-210F
Power Source	Supplied from the optional RM-300X
Current Consumption	80 mA or less
Audio Output	0 dB(*1), 600 Ω, balanced
External Microphone Input	-40 dB(*1), 2.2 kΩ, unbalanced, ø3.5 mm phone jack (2P) for electret condenser microphone, (phantom power supply:3 V DC) -20 dB(*1), 4,7 kΩ, unbalanced, ø3.5 mm phone jack (2P) (AUX Input)
Distortion	1 % or less
Frequency Response	100 Hz – 20 kHz
Signal to Noise Ratio	60 dB or more
Microphone	Unidirectional electret condenser microphone with AGC (ON/OFF selectable)
Chime	Built inside (PCM sound source), Monitoring possible using built-in speaker
Level Control	Microphone sensitivity control, Monitor speaker volume control, Chime(adjustable using the software)
Number of Function Keys	Function key x 10
Finish	ABS resin, black
Dimensions	110 x 76.5 x 215 mm
Weight	350 g
Optional Accessories	Wall mounting bracket: WB-RM200

VX-3000 Voice Evacuation System

Remote Microphone

RM-500

The RM-500 is a desktop type remote microphone for general broadcasts. Equipped with an LCD screen, it can display up to 80 function names registered in advance, allowing these functions to be executed with the key operation. The RM-500 can be mounted on the wall by using an optional wall mounting bracket.

- AUX key allows only the external audio signals to be controlled regardless of whether the microphone broadcasts are present
- Speech intelligibility function makes it easier to hear the microphone announcements even in noisy environments, and also allows the microphone to pick up the audio signals at an appropriate level even if speaking too close to or too far from it.
- Uses the built-in sound sources of the main system unit

Model	RM-500
Power Source	24 V DC (operating range: 15 to 33 V DC, supplied from the voice evacuation frame) or DC input power supply connector (when the optional AD-246 power supply unit used).Usable DC power supply plug: 5.5 mm (0.22") outer diameter,2.1 mm (0.08") inner diameter,9.5 mm (0.37") long, polarized, center positive
Operation	Numeric key x 10, Left/right selection key x 2, F1/F2 key x 2, ALL key x 1, Clear key X 1, Talk key X 1, AUX key X 1
Current Consumption	130 mA or less
Audio Output	0 dB*, balanced, RJ45 connector
AUX Input	1 channel, open collector output, withstand voltage: 30 V DC, control current: 35 mA, push-in terminal block LINE: -20 dB (*1), 10 kΩ, push-in terminal block MIC: -60 dB (*1), 2.2 kΩ, push-in terminal block
Distortion	1 % or less
Frequency Response	100 Hz – 20 kHz
Signal to Noise Ratio	60 dB or more
Microphone	Unidirectional electret condenser microphone
Chime	Uses the built-in sound sources of the main system unit (one of them selectable by the main system settings)
Level Control	Microphone volume control, AUX volume control
Control Output	1 channel, open collector output, withstand voltage: 30 V DC, control current: 35 mA, push-in terminal block
Number of Function Keys	Numeric key x 10, Left/right selection key x 2, F1/F2 key x 2, ALL key x 1, Clear key x 1, Talk key x 1, AUX key x 1
Volume Control	Microphone volume control, AUX volume control
RM Link	Shielded Category 5 twisted pair LAN cable (CAT5-STP), RJ45 connector Maximum cable distance: 1200 m (3937.01 ft) (when powered by the optional AD-246 AC adapter)
Cable Requirements	External Equipment Cable: Solid copper wire: wØ0.4 - Øw1.1 mm (AWG 28 - 17)
Connection Cable and Connector	Shielded Category 5 twisted pair LAN cable (CAT5-STP), RJ45 connector Maximum cable distance: 1200 m (3937.01 ft) (when powered by the optional AD-246 AC adaptor)
Connector	External Equipment Connection Cable: Solid copper wire: ø0.4 – ø1.1 mm (AWG 28 – 17)
Control Input	1 channel, no-voltage make contact inputs, open voltage: 33 V DC, short-circuit current: 10 mA , push-in terminal block
Indicator	LCD display: 3" (255 x 160 dots), with backlight Indicator: Talk indicator (green), Microphone indicator (green)
Operating Temperature	0 to 40 °C (32 to 104 °F)
Operating Humidity	90% RH or less (no condensation)
Finish	ABS resin, black, paint
Dimensions	224 (w) x 47.2 (h) x 136 (d) mm (8.82" x 1.86" x 5.35") (excluding microphone)
Weight	620 g (1.37 lb)
Included Accessories	Zip tie x 2
Optional Accessories	Wall mounting bracket: WB-RM500, AC adapter: AD-246

VX-3000 Voice Evacuation System

Power Distributor and Battery Backup

VX-2000DS

The VX-2000DS provides DC distribution, Power Monitoring, and battery backup capability for the VX-3000 system.

- Facilitates power status monitoring via DSLink to the VX-3000 system.
- Automatic switch to auxiliary battery power if the AC power supply is down

Model	VX-2000DS
Power Source	110-120 V AC, 50/60 hz
Power Consumption	240W max
DC Power Output	6 (25 A max, each) M4 screw terminal, distance between barriers: 11 mm (0.43")
Charging Method	Temperature compensated trickle charging
Charging Output Voltage	27.3 V ± 0.3 V (at 25 ˚C), Temperature correction coefficient: -40 mV/ ˚C
Battery Connection	1 pair of positive and negative terminals; Applicable cable diameter: AWG 6 – AWG 0 (AWG 1/0) (16 mm 2 – 50 mm 2) Line resistance within 4 mΩ/ total
Control Connector DS LINK IN/OUT	RJ45 female connector for connecting the system and cascade connection, Shielded Twisted-pair straight cable (TIA/EIA-568A standard) Type of control signal: Battery check, AC power status, DC power status, charging circuit failure, battery failure, and communication
Dimensions (W x H x D)	482 (W) X 88.4 (H) X 377.6 (D) mm (18.98" X 3.48" X 14.87")
Weight	10.5 kg (23.15 lbs)

Power Supply

RCP-1UI Chassis with RCP-1000-24 Module

TOA Recommended Power Supply for the VX-3000.

- RCP-1UI is a rack mounting kit designed to hold three RCP-1000-24 power supply module
- The RCP-1000-24 Modules serve as backup power supply for the VX-3000 series

Model	RCP-1UI
Remote ON/OFF Control	By electrical signal or dry contact: ON: short; OFF: open
DC OK Signal	Signal Status I/O
DC Fail Signal	Signal Status I/O
Over Temp. Warning	Logic "High" for over temperature warning, refer to function manual
Safety Standards	Safety Standards UL60950-1, TUV EN60950-1 approved
Dimensions	Rack: 483.6 (L) x 350.8 (W) x 44 (H) mm (19.09" x 13.81" x 1.73") (19" rack frame)

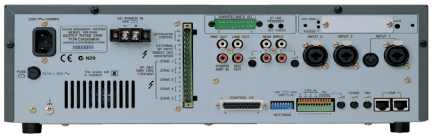
Model	RCP-1000-24
DC Voltage	24V
Rated Current	40A
Efficiency (Typ.)	87%
AC Current (Typ.)	10.5A/115VAC
Over Temp. Warning	Logic "High" for over temperature warning, refer to function manual
Safety Standards	Safety Standards UL60950-1, TUV EN60950-1 approved
Dimensions	Dimension 295 (L) x 127 (W) x 41 (H) mm (11.614" x 5" x 1.614")

VM-2000 Integrated Voice Evacuation System

The VM-2000 Series represents a highly cost-effective solution for building management and owners. Designed specifically for effective communications in a building, VM-2000 Series units are not conventional power amplifiers with just a few added features. They are optimized to deal with emergency situations to alert building occupants as well as routine announcements and BGM. An indispensable part of building and design management today, communications infrastructures can effectively reach various audiences through paging, calls routed to selected areas and priority emergency announcements for the entire building.

System Management Amplifier

VM-2240 L



Model No.	VM-2240
Power Requirement	AC: mains, 50/60 Hz
Rated Output	240 W
Frequency Response	50 – 16,000 Hz
Distortion	Under 1%
Signal-to-Noise Ratio	Over 60 dB
Tone Control	Bass:100 Hz ±10 dB, Treble: 10 kHz ±10 dB
Input	Inputs 1 – 3 Telephone paging input BGM 1 - 2 Power amplifier input External speaker line input
Output	Speaker output Direct speaker line output Line output Recording output Preamplifier output
Control Input and Output	(1) External control input •Activation of messages •Activation of power •Activation and stop of Emergency Broadcast •Unit's broadcast cutoff (when activated by an external emergency equipment) (2) Status output •Irregularity of communications with the Remote Microphone and an expansion amplifier •AC power condition •DC power condition •Irregularity of the sound source of the Voice Announcement Board •Failure (FAULT) indication on •Power switch on
External Attenuator Control Output	Plug-in screw connector, relay, no-voltage make contact output, transfer type, withstand voltage: 30 V DC, 125 V AC, contact current: under 7 A (DC), under 7 A (AC)
Surveillance Input and Output	Input: No-voltage make contact input, open voltage: 3.3 V DC, short-circuit current: under 1 mA Output: Open collector output, withstand voltage: 30 V DC, control current: under 10 mA
Chime Tone	Built-in chime
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 24 Ω (one way)
Dimensions	419 (W) ×143.3 (H) × 355.7 (D) mm [16.5" (W) x 5.7" (H) x 14" (D)]

VM-2000 Series Microphones and Optional Accessories

Remote Microphone

RM-200MS

- Up to four remote microphones can be connected but the maximum connection length for all cables is approximately 800 meters
- Emergency activation button is equipped with a cover in case of accidental selection

Remote Microphone Extension Unit

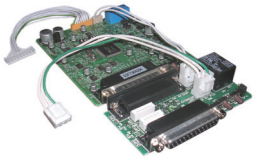
RM-210

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

Voice Announcement Board

EV-200M

- Single source playback
- 8 playback programs



Surveillance Board

SV-200MA

- Permits monitoring of individual speake line or power amplifier failures for status indication

Mounting Bracket

MB-36

VM-3000 Series Integrated Voice Evacuation System

The VM-3000 Series is an Emergency Voice Paging System ideal for small and medium-sized applications. When installed per the manual, it is fully compliant with NFPA72 requirements and listed to UL2572, ULC-S576 and UL864 for Mass Notification and Fire Voice applications (VM-3240VA, VM-3240E, VX-2000DS and RM-200M). It incorporates such emergency functions as continuous speaker line monitoring and a built-in voice alarm. This easy-to-install system also offers PA broadcasting, paging and BGM functions that ensure consistently high intelligibility. The VM-3000 Series is digitally audio processed and controlled, and may be set up and operated directly by using the controls and LCD display on the front panel. A dedicated PC software configuration capability is also provided for establishing settings via LAN. The incorporation of wide-ranging functional capabilities, superb reliability and versatility make the VM-3000 a highly cost-effective emergency broadcast system.

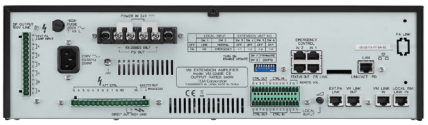
»Voice Alarm System Amplifier

VM-3240VA AMQ

- Multifunction amplifier that comes with audio inputs including a background music input, and a speaker output section which has an internal attenuator and a 6-output selector.
- Permits not only general-purpose broadcast, but also Emergency broadcast which gives pre-recorded instructions in an emergency situation
- Features a surveillance function which automatically checks the system for failures.
- Emergency broadcasts can be made from an optional RM-300MF First Responder Microphone as well as from the amplifier, and can be remotely controlled from external equipment

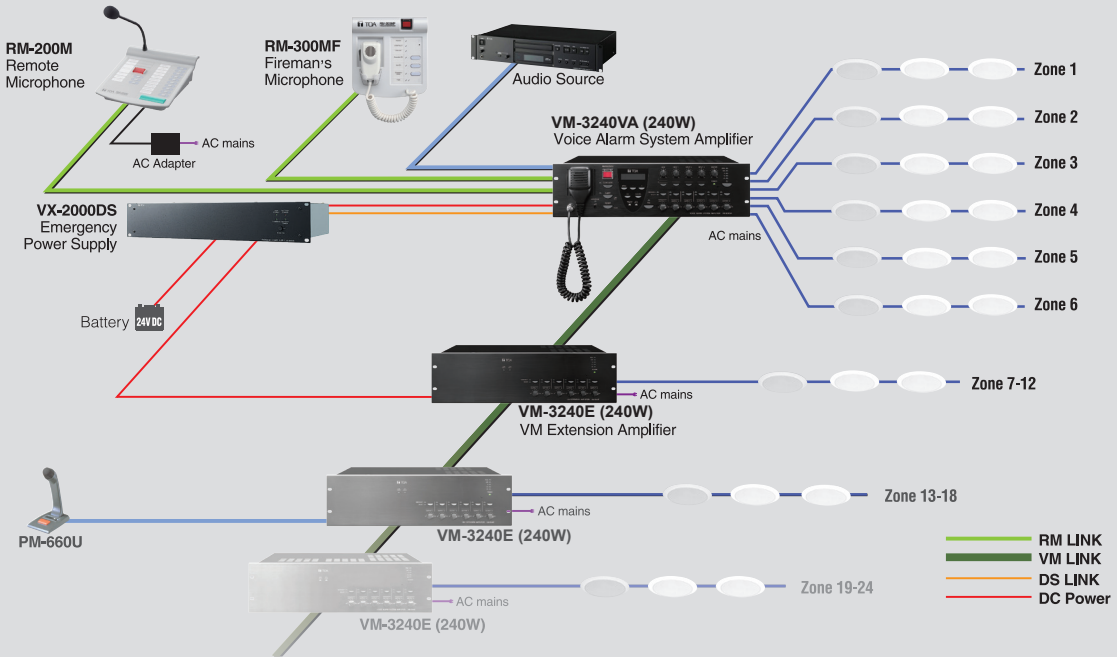
»VM Extension Amplifier

VM-3240E AMQ



- Adds additional zones to the VA system
- Local all-call paging

SYSTEM EXAMPLE



VM-3000 Series Integrated Voice Evacuation System

*0 dB = 1V

Model	VM-3240VA	VM-3240E
Power Source	120V AC, 60Hz	
Power Consumption	690 VA (at rated output), 260 W (According to UL60065), 63 W (at no signal)	
Rated Output	240 W, 21 Ω (according to UL60065); 200 W, 25 Ω (according to UL2572); 200 W, 25 Ω (according to CAN/ULC-S576 with separate UPS); 100 W, 50 Ω (according to CAN/ULC-S576); (All total of Speaker output 1 – 6 and Direct Output)	
Input	Input 1 – 3: –50 dB* (MIC) / –10 dB* (LINE) (changeable), 600Ω, electronically balanced, combined XLR connector (female) / phone jack Input 4: –50 dB* (MIC) / –10 dB* (LINE) (changeable), 600Ω, electronically balanced, removable terminal block (14 pins) BGM 1 – 2: –10 dB*, 10 kΩ, unbalanced, RCA pin jack External AMP Input: 70 V line, removable terminal block (14 pins)	External amplifier Input: 70 V line, removable terminal block (14 pins) Local Input: –50 dB* (MIC) / –10 dB* (LINE) (changeable), 600 Ω, electronically balanced, removable terminal block (14 pins)
Output	Speaker output 1 – 2: Max. (240 W) per output Speaker output 3 – 6: Max. (100 W) per output Speaker output 1 – 6: Total within rated output, removable terminal block (14 pins) Allowable minimum load: 245 Ω (20 W) at 70 V line for speaker line failure detection Direct output: Direct output from internal or external amplifier, removable terminal block (16 pins) Recording output BGM/Paging: 0 dB*, 10 kΩ, unbalanced, RCA pin jack Ground faults detection: 0 Ω Wire to wire faults detection: 0 Ω	Speaker output 1 – 2: Max. (240 W) per output Speaker output 3 – 6: Max. (100 W) per output Speaker output 2 – 6: Total within rated output, removable terminal block (14 pins) Allowable minimum load: 245 Ω (20 W) at 70 V line for speaker line failure detection Direct output: Direct output from internal or external amplifier, removable terminal block (16 pins)
RM Link	Input 1 – 2: Connecting the RM-300MF/200M Remote Microphone, RJ45 female connector, Maximum distance: Total 800 m between this unit and remote microphones, Link cable: Category 5 Shielded Twisted-Pair straight cable (CAT5-STP)	--
Network I/F	10BASE-T/100BASE-TX (selectable by automatic negotiation), RJ45 female connector; Maximum distance: 100 m between this unit and a switching hub; Link cable: Category 5 Shielded Twisted-Pair straight cable (CAT5-STP)	--
General Control	Input 1 – 8: No-Voltage make contact input, open voltage: 24V DC, short-circuit current: under 2mA, removable terminal block (14 pins) Output 1 – 8: Isolated open collector output, withstand voltage: 30V DC, operating current: under 10mA, removable terminal block (14 pins)	
Emergency Control	Input 1 – 5: No-Voltage make contact input, open voltage : 24V DC, short-circuit current: under 2mA, RJ45 female connector Input 6: Isolated voltage input: Inactive; -24V ±20%, Active; +24V ±20%, RJ45 female connector Status out: Relay contact output, withstand voltage: 40V DC, operating current: 2 – 300mA, RJ45 female connector	
Dimensions	482 (W) x 132.6 (H) x 431.2 (D) mm (18.98" x 5.22" x 16.98")	482 (W) x 132.6 (H) x 407 (D) mm (18.98" x 5.22" x 16.02")
Weight	16.5 kg (36.38 lbs)	
UL Code	UL2572, ULC-S576 and UL864 for Mass Notification and Fire Voice Applications	
Accessory	AC power cord (2m) × 1, Emergency microphone × 1, Plastic foot × 4, Plastic foot mounting screw × 4, Removable terminal plug (14 pins) × 3, Removable terminal plug (16 pins) × 1, Link cable (3m) × 2, Setting software (CD) × 1	AC power cord (2m) × 1, Link cable (3m) × 2, Plastic foot × 4, Plastic foot mounting screw × 4, Removable terminal plug (14 pins) × 3, Removable terminal plug (16 pins) × 1

VM-3000 Series First Responder Microphones & Optional Accessories

First Responder Microphone

RM-300MF

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

Remote Microphone

RM-200MS

- Up to four remote microphones can be connected but the maximum connection length for all cables is approximately 800 meters
- Emergency activation button is equipped with a cover in case of accidental selection
- An external microphone input terminal is provided to allow using a headset microphone, along with built-in internal compressor circuitry
- TALK button may be a PTT or lock-type

First Responder Microphone Extension

RM-320F

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

Remote Microphone Extension Unit

RM-210

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

Emergency Power Supply Unit

VX-2000DS

- Manages DC power to equipment
- Supports 2 x 12 V sealed lead batteries fully charged
- DC distribution for up to 6 units
- *See page 104 for specs.*

Software

- Used to configure settings, not required for daily operation.
- Software can be downloaded from www.TOAcanada.com

VM-3000 Series Integrated Voice Evacuation System

Model	RM-300MF	RM-320F
Power Source	24V DC (operating range: 15 – 40V DC, supplied from the VM-3000 system or VX-2000DS.)	--
Current Consumption	120mA (RM-300MF), 660mA (with 3 RM-320F connected)	180mA max. (RM-320F)
Frequency Response	200 – 15,000 Hz	--
Distortion	Under 1%	--
S/N Ratio	Over 55 dB	--
Microphone	Unidirectional dynamic microphone with talk key, compressor (on/off switchable)	--
Volume Control	Microphone volume control / Buzzer volume control	--
Connection Cable	Main line: shielded CPEV cable (each one pair of Audio line, Data line, Power supply line) or Category 5 Shielded Twisted-Pair cable for LAN (CAT5-STP), M3 screw terminal	--
No. of Connectable RM-320F	Max. 3 units	--
No. of Function Keys	--	20
Operation	Emergency key, Evacuate key, Alert key, Emergency reset key, CPU switch, Reset switch	--
Finish	ABS resin, blueish gray	ABS resin, blueish gray
Dimensions	200 (W) x 215 (H) x 82.5(D) mm (7.87" x 8.46" x 3.25")	175(W) x 215(H) x 70(D)mm (6.89"x8.46"x 2.76")
Weight	1.1 kg (2.43 lbs)	700 g (1.54 lbs)
Accessory	Wall mounting bracket unit x 1, Wall mounting screw x 2, Electrical box mounting screw x 2	Wall mounting bracket x 1, Wall mounting screw x 2

Model	RM-200MS	RM-210
Power Source	24V DC Power input jack: Non-polarity type Usable power input plug*2: Outer diameter ø5.5mm, inner diameter: ø2.1mm, length: 9.5mm	--
Current Consumption	Under 100mA	20mA max. (in terms of RM-2000M's DC power input)
Audio Output	0dB*: 600Ω, balanced	--
Frequency Response	100 – 20,000 Hz	--
Distortion	Under 1%	--
S/N Ratio	Over 60 dB	--
Microphone	Unidirectional electret condenser microphone	--
Volume Control	Microphone volume control	--
Connection Cable and Connection	Category 5 Shielded Twisted-Pair cable, RJ45 connector	--
No. of Function Keys	Number of keys: 10 Function: "Broadcast zone selector" or "Automatic general broadcast Announcement Start" (Either function is assigned to individual keys by the dedicated software.)	10
Finish	ABS resin, blueish gray	ABS resin, blueish gray
Dimensions	190 (W) x 76.5 (H) x 215 (D) mm (7.48" x 3.01" x 8.46") (Gooseneck microphone excluded)	175(W) x 215(H) x 70(D)mm (6.89"x8.46"x 2.76")
Weight	750 g (1.65 lbs)	350 g (0.77 lbs)
Accessory	Link cable (3 m) x 1	CATS cable x 1
UL Code	UL2572, ULC-S576 and UL864 for Mass Notification and Fire Voice Applications	--
Option	Wall mounting bracket: WB-RM200	Wall mounting bracket: WB-RM200

Speakers for Voice Evacuation and Mass Notification

SC-630TU Paging Horns

70V/100V line weatherproof (IP65) paging horn speaker. Certified to UL 1480 UEAY standards. ** Special order product

CS-64U, CS-154U, CS-304U Paging Horns**

CS-64U

CS-154U, CS-304U

70V/100V line weatherproof (IP65) paging horn speaker. Certified to UL 1480 UUMW and CAN/ULC S541-07 standards.

PC-580RU, PC-580RVU Series Ceiling Mount Speaker

HY-BC580U

High-performance ceiling speaker for use in mass notification, voice evacuation, emergency paging and everyday paging and background music. Meets CAN/ULC S541-07, UL 1480 UUMW (Fire alarm signaling), and UL 2043 (use in air handling spaces) when using the HY-BC580U back can. 25V and 70V transformer taps up to 5W. 8" in-ceiling speaker for high quality applications.

PE-304BU/WU, PE-604BU/WU Pendant Speakers

World's first Mass Notification Pendant Speaker. 8Ω and 25V/70V/100V operation, changeable with a rotary switch. Certified to UL 1480 UUMW and CAN/ULC S541-07standards.

F-122CU2, F-2852CU2, F-2322CU2, F-2352CU2 Ceiling Mount Speaker

F-122CU2 F-2852CU2 F-2322CU2 F-2352CU2

Wide Dispersion ceiling speaker for use in mass notification, voice evacuation, emergency paging and everyday paging and background music. Certified to UL 1480 (UUMW), UL2043, CAN/CSA C222.2 No. 205 (UEAY7).

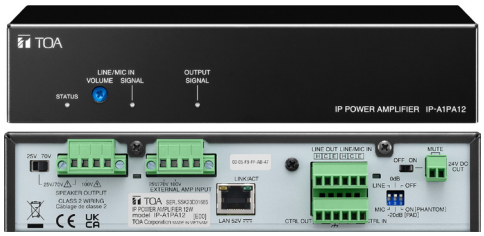
BS-680U Box Speaker

70V/25V line, wall or in-wall mounting box speaker. Certified to UL 1480 UUMW and CAN/ULC S541-07 standards. Ideally suited for voice alarm applications.

NETWORK COMMUNICATIONS

IP-A1 Networked Audio

IP Power Amplifier 12W



IP-A1PA12

The IP-A1PA12 is a compact 12 W amplifier which is designed to amplify audio signals received through network. It is equipped with 25 V, 70 V and 100 V speaker line outputs to drive wide range of high impedance speakers.

- 12W amplifier to drive 100/70/25V line speakers
- Receive SIP audio, ONVIF and Multicast
- Local broadcast using internal audio files or local audio source

Model	IP-A1PA12
Power Source	PoE+ (IEEE802.3at Class 4)
Power Consumption	25 W (rated output) 6 W (IEC62368-1)
Amplifier Rated Output	12 W
Frequency Response	100 Hz - 20 kHz
Audio Codec	Opus, PCMU (G.711u), PCMA (G.711a), G.722
Audio Delay Time	Min. 100 ms (*1)
Broadcasting Mode	SIP Broadcasting/SIP calling Mode: Opus/PCMU/PCMA/G.722, P2P/SIP Server Connection Multicast Broadcasting Mode: Opus/PCMU/PCMA/G.722 Auto codec recognition, 20 ports VMS Broadcasting Mode: PCMU Internal Message Broadcasting Mode Local Broadcasting Mode: Output from LINE/MIC IN to SPEAKER OUT Note: Each broadcast mode can be assigned an order of priority using the Priority Setting function.
Sound Source Files	Max. 20 files (File storage capacity: 80 MB total) Supported file formats WAV file: 8/16/44.1/48 kHz sampling frequency, 8/16 bit, monaural/stereo MP3 file: 32/44.1/48 kHz sampling frequency, 64 - 320 kbps, CBR/VBR, monaural/stereo Repeat playback: Play count (1 - 10 times), Duration (5 - 3600 sec) or Timer (from Start time to End time) Interval time: 0 - 60 sec, Delay time: 0 - 30 sec Trigger: Control Input or Remote API (HTTP)
Network I/F	100BASE-TX, Auto MDI/MDI-X, RJ45
Network Protocol	TCP/IP, UDP, HTTP, RTP, RTSP, RTCP, ARP, ICMP, IGMPv3, NTP, SIP (RFC3261)
Audio Input	1 channel, electronically-balanced, 10 kΩ LINE/MIC selectable (Rated input: LINE: 0 dB (*2), MIC: -60 dB (*2) PAD function (-20 dB (*2), Phantom power ON/OFF (12 V DC), volume adjustable removable terminal block (6 pins)
Audio Output	1 channel, electronically-balanced, 600 Ω or less Rated input: 0 dB (*2), removable terminal block (6 pins)
Speaker Output	High impedance 100 V line (830 Ω), 70 V line (420 Ω), 25 V line (52 Ω) N (100 V), N (70 V/25 V switchable), R, C removable terminal block (4pins)
External Amplifier Input	High impedance 100 V line, 70 V line, 25 V line N (100 V), N (70 V/25 V switchable), R, C removable terminal block (4pins)
Amplifier Switching Control	Relay switching Switched to external amplifier when the following functions and operations are activated: mute control input, control input, system mute, remote API control and the unit power off.
Control Input	2 channels, no-voltage make contact inputs, open voltage: 5 V DC, short-circuit current: 2 mA or less, removable terminal block (6 pins)
Mute Control Input	1 channel, 24 V DC cut-off signal, control current: 5 mA or less, non-polar, removable terminal block (2 pins)
Control Output	1 channel, open collector output, withstand voltage: 30 V DC, control current: 150 mA or less, removable terminal block (6 pins)
Indicator	STATUS (green/blue/yellow/red), LINE/MIC IN (green/red), OUTPUT (green), LINK/ACT (green)
Clock Accuracy	±13 seconds per month
Time Adjustment	Manual time setting, Time adjustment by NTP server
Power Outage Protection Period	24 hours (RTC time retention, at 40 °C (104 °F)
Operating Temperature	-30 °C to +55 °C (-22 °F to 131 °F)
Operating Humidity	90 %RH or less (no condensation)
Finish	Front case: Surface-treated steel plate, black, paint Rear chassis: Surface-treated steel plate
Dimensions	210 (W) x 44 (H) x 81.5 (D) mm (8.27" x 1.73" x 3.21") (excluding projection)
Weight	940 g (2.07 lb)
Included Accessories	Removable terminal plug (6 pins, preinstalled on the unit) x 2, Removable terminal plug (2 pins, preinstalled on the unit) x 1, Rubber feet x 4, Mounting screw (M3 x 6) x 4
Optional Accessories	Rack mounting bracket: MB-15B-BK (for rack mounting one IP-A1PA12 unit) (*3) Wall mounting bracket: MB-15B (for wall mounting)

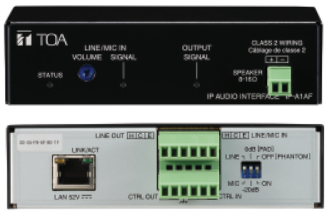
(*1) When the model of local broadcasting is set to Normal, assume audio delay time. Audio input can be output with no delay when the mode of local broadcasting is set to No Delay.
(*2) 0 dB = 1V
(*3) Not compatible with jointing 2 units using MB-15B-J.
*ONVIF is a registered trademark of ONVIF Inc.

IP-A1 Networked Audio

In a network PA system, equipment such as microphones and speakers can directly connect to the network. TOA's full solution permits access to create pre-recorded messages, live event trigger's and a host of other incredible options.

Paging Gateway

IP-A1PG

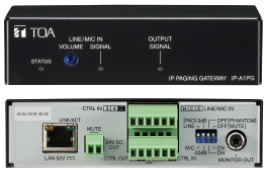


Model	IP-A1PG
Power Source	PoE(IEEE802.3af Class 3)
Power Consumption	2.5 W
Audio Transmission Method	Multicast Audio Streaming
Audio Codec	PCMU (G. 711u), PCMA (G. 711a), G. 722, Opus
Audio Delay Time	Min. 100 ms (*1)
Network I /F	100BASE-TX, Auto MDI/MDI-X, RJ45 connector
Network Protocol	TCP/IP, UDP, HTTP, RTP, RTSP, RTCP, ARP, ICMP, IGMPv3, NTP, SIP(RFC3261)
Audio Input	1 channel, electronically-balanced, 10 kΩ, LINE/MIC selectable (Rated input: LINE: 0 dB (*2), MIC: -60 dB (*2)) PAD function (-20 dB (*2)), Phantom power ON/OFF (12 V DC), volume adjustable removable terminal block (6 pins)
Monitor Output	1 channel, electronically-balanced, 600 0 or less Rated output: 0 dB (*2), RCA pin jack
Control Input	4 channels, no-voltage make contact inputs, open voltage: 5 V DC, short-circuit current: 2 mA or less, removable terminal block (6 pins)
Mute Control Input	1 channel, 24 V DC cut signal, control current: 5 mA or less, removable terminal block (2 pins)
Control Output	1 channel, open collector output, withstand voltage: 30 V DC, control current: 10 mA or less, removable terminal block (6 pins)
Indicator	STATUS (green/blue/orange/red), LINE/MIC IN (green/red), OUTPUT (green), LINK/ACT (green)
Power Outage Protection Period	24 hours (RTC time retention, at 40 °C (104°F))
Functions Broadcasting	Audio transmission: Transmit internal messages by multicast audio streaming Transmit audio from audio input connected devices by multicast audio streaming Audio conversion: Convert SIP voice to multicast audio stream and transmit Convert ONVIF Audio Backchannel audio to multicast audio stream and transmit
Event	Execute event triggered by control input Configurable actions: Internal message broadcast, audio input broadcast,

(*1) When using Monitor output, assume an audio delay time. (*2) 0 dB = 1 V
* ONVIF is a registered trademark of ONVIF Inc.

IP Audio Interface

IP-A1AF



Model	IP-A1AF
Power Source	PoE+ (IEEE802.3at Class 4), PoE (IEEE802.3af Class 3)
Power Consumption	22 W (at PoE + powered, rated output), 12.95 W (at PoE powered, rated output) 5 W (IEC62368-1)
Amplifier Rated Output	15 W (at PoE+, powered, 8 Ω), 8 W (at PoE, powered, 8 Ω) Applicable impedance: 8 - 16 Ω
Frequency Response	50 Hz - 20 kHz
Audio Codec	PCMU (G.711u), PCMA (G.711a), G.722100BASE-TX, Auto MDI/MDI-X, RJ45 connector, Opus
Audio Delay Time	Min. 100 ms (*1)
Broadcasting Mode	SIP Broadcasting/SIP calling Mode: PCMU/PCMA/G.722, P2P/SIP Server Connection Multicast Broadcasting Mode: PCMU/PCMA/G.722 Auto codec recognition, 20 ports VMS Broadcasting Mode: ONVIF Audio Backchannel, PCMU Internal Message Broadcasting Mode Local Broadcasting Mode: Output from LINE/MIC IN to SPEAKER OUT Note: Each broadcast mode can be assigned an order of priority using the Priority Setting function.
Internal Messages	Max. 20 messages (Max. recording capacity: 80 MB) Supported file formats WAV file: 8/16/ 44.1 / 48 kHz sampling frequency, 8/16 bit, monaural/stereo MP3 file: 32/ 44.1 / 48 kHz sampling frequency, 64 - 320 kbps, CBR/VBR, monaural /stereo Repeat playback: Play count (1 - 10 times), Duration (5 - 3600 sec) or Timer (from Start time to End time) Interval time: 0 - 60 sec, Delay time: 0 - 30 sec Trigger: Control Input or Remote AP! (HTTP).
Audio Input	1 channel, electronically-balanced, 10 kΩ LINE/MIC selectable (Rated input: LINE: 0 dB (*2), MIC: -60 dB (*2)) PAD function (-20 dB (*2)), Phantom power ON/OFF (12 V DC), volume adjustable removable terminal block (6 pins)
Control Input	2 channels, no-voltage make contact inputs, open voltage: 5 V DC, short-circuit current: 2 mA or less, removable terminal block (6 pins)
Control Output	1 channel, open collector output, withstand voltage: 30 V DC, control current: 10 mA or less, removable terminal block (6 pins)
Clock Accuracy	±13 seconds per month
Time Adjustment	Manual time setting, Time adjustment by NTP server
Power Outage Protection Period	24 hours (RTC time retention, at 40 °C (104 'F))

(*1) When using Monitor output, assume an audio delay time. (*2) 0 dB = 1 V
* ONVIF is a registered trademark of ONVIF Inc.

IP-A1 Networked Audio

IP Square Speaker

IP-A1PC580S

Model	IP-A1PC580S
Power Source	PoE {EEE802.3af Class 3}
Power Consumption	12.95 W (rated output) 5W (IEC62368-1)
Amplifier Rated Output	8W
Sensitivity	97 dB (1 W, 1 m) (500Hz-5kHz, pink noise)
Maximum SPL	106 dB (8 W, 1 m)
Frequency Response	50 Hz - 16.5kHz
Speaker Component	20 cm (8") Dual cone-type
Audio Codec	PCMU (G.711u), PCMA (G.711a), G.722, Opus
Broadcasting Mode	SIP Broadcasting/SIP calling Mode: PCMU/PCMA/G.722, P2P/SIP Server Connection Multicast Broadcasting Mode: PCMU/PCMA/G.722, Audo codec recognition, 20 ports VMS Broadcasting Mode: ONVIF, PCMU Internal Messages Broadcasting Mode Note: Each broadcast mode can be assigned an order of priority using the Priority Setting function
Internal messages	Max. 20 messages (Max. recording capacity 80MB) Supported file formats: WAV file: 8/16/44.1/48 kHz sampling frequency, 8/16 bit, monaural/stereo MP3 file: 32/44.1/48 KHz sampling frequency, 64-320 kbps, CBR/VBR, monaural/stereo Repeat Playback: Play count (1-10 times), Duration (5-3600 sec) or Timer (from start time to end time), Interval Time; 0-60 sec, Delay time: 0-30 sec Trigger: Control Input or Remote API (HTTP)
Audio Input	1 channel, electronically-balanced, 10 kΩ LINE/MIC selectable (Rated input: LINE: 0 dB (*1), MIC: -60 dB (*1))
Audio Output	1 channel, electronically-balanced, 600 Ω or less Rated output: 0 dB (*1), removable terminal block (6 pins)
Control Input	2 channels, no-voltage make contact inputs, open voltage: 5 V DC short-circuit current: 2 mA or less, removal terminal block (6 pins)
Control Output	1 channel, open collector output, withstand voltage: 30 V DC, control current: 10 mA or less, removal terminal block (6pins)
Indicator	STATUS (green/blue/orange/red), LINE/MIC IN (green/red), OUTPUT (green), LINK/ACT (green)
Dimensions for Fixing Hole	Mounting hole: ø228.6 mm (9")
Speaker Mounting Method	Screw in type
Dimensions	318 W x 318 H x 108 D (mm) (12.52" X 12.52" X 4.25")
Weight	2 kg (4.41 lbs)

IP Ceiling Mount Speaker

IP-A1PC580R

Model	IP-A1PC580R
Power Source	PoE {EEE802.3af Class 3}
Power Consumption	12.95 W (rated output) 5W (IEC62368-1)
Amplifier Rated Output	8W
Sensitivity	97 dB (1 W, 1 m) (500Hz-5kHz, pink noise)
Maximum SPL	106 dB (8 W, 1 m)
Frequency Response	50 Hz - 16.5kHz
Speaker Component	20 cm (8") Dual cone-type
Audio Codec	PCMU (G.711u), PCMA (G.711a), G.722, Opus
Broadcasting Mode	SIP Broadcasting/SIP calling Mode: PCMU/PCMA/G.722, P2P/SIP Server Connection Multicast Broadcasting Mode: PCMU/PCMA/G.722, Audo codec recognition, 20 ports VMS Broadcasting Mode: ONVIF, PCMU Internal Messages Broadcasting Mode Note: Each broadcast mode can be assigned an order of priority using the Priority Setting function
Internal messages	Max. 20 messages (Max. recording capacity 80MB) Supported file formats: WAV file: 8/16/44.1/48 kHz sampling frequency, 8/16 bit, monaural/stereo MP3 file: 32/44.1/48 KHz sampling frequency, 64-320 kbps, CBR/VBR, monaural/stereo Repeat Playback: Play count (1-10 times), Duration (5-3600 sec) or Timer (from start time to end time) Interval Time; 0-60 sec, Delay time: 0-30 sec Trigger: Control Input or Remote API (HTTP)
Audio Input	1 channel, electronically-balanced, 10 kΩ LINE/MIC selectable (Rated input: LINE: 0 dB (*1), MIC: -60 dB (*1)) PAD function (-20 dB (*1), Phantom power ON/OFF (12 V DC), volume adjustable removable terminal block (6 pins)
Audio Output	1 channel, electronically-balanced, 600 Ω or less Rated output: 0 dB (*1), removable terminal block (6 pins)
Control Input	2 channels, no-voltage make contact inputs, open voltage: 5 V DC short-circuit current: 2 mA or less, removal terminal block (6 pins)
Control Output	1 channel, open collector output, withstand voltage: 30 V DC, control current: 10 mA or less, removal terminal block (6pins)
Indicator	STATUS (green/blue/orange/red), LINE/MIC IN (green/red), OUTPUT (green), LINK/ACT (green)
Dimensions for Fixing Hole	Mounting hole: ø228.6 mm (9")
Speaker Mounting Method	Screw in type
Dimensions	ø324 x 111 (D) mm (12.76" x 4.37")
Weight	1.8 kg (3.97 lbs)

IP-A1 Networked Audio

IP Ceiling Speaker

IP-A1PC238

Model	IP-A1PC238
Power Source	PoE {EEE802.3af Class 3}
Power Consumption	12.95 W (rated output) 5W (IEC62368-1)
Amplifier Rated Output	8W
Sensitivity	94 dB (1 W, 1 m) (500Hz-5kHz, pink noise)
Maximum SPL	103 dB (8 W, 1 m)
Frequency Response	60 Hz - 20kHz (peak -20 dB)
Speaker Component	16 cm (6') cone type
Audio Codec	PCMU (G.711u), PCMA (G.711a), G.722, Opus
Broadcasting Mode	SIP Broadcasting Mode: PCMU/PCMA/G.722, P2P/SIP Server Connection Multicast Broadcasting Mode: PCMU/PCMA/G.722, Audo codec recognition, 20 ports VMS Broadcasting Mode: ONVIF Audio Backchannel, PCMU Internal Messages Broadcasting Mode: Note: Each broadcast mode can be assigned an order of priority via Priority Setting function
Internal messages	Max. 20 messages (Max. recording capacity 80MB) Supported file formats: WAV file: 8/16/44.1/48 kHz sampling frequency, 8/16 bit, monaural/stereo MP3 file: 32/44.1/48 KHz sampling frequency, 64-320 kbps, CBR/VBR, monaural/stereo Repeat Playback: Play count (1-10 times), Duration (5-3600 sec) or Timer (from start time to end time) Interval Time; 0-60 sec, Delay time: 0-30 sec, Trigger: Control Input or Remote API (HTTP)
Control Input	2 channels, no-voltage make contact inputs, open voltage: 5 V DC short-circuit current: 2 mA or less, removal terminal block (6 pins)
Control Output	1 channel, open collector output, withstand voltage: 30 V DC, control current: 10 mA or less, removal terminal block (6pins)
Indicator	STATUS (orange), LINK/ACT (green)
Dimensions for Fixing Hole	Mounting hole: ø200 ±2mm (7.87" ± 0.08" Ceiling thickness: 5-25 mm (0.2" - 0.98")
Speaker Mounting Method	Spring Clamp
Finish	Frame: Steel plate, white (RAL 9016 equivalent), paint Grill: Steel net, white (RAL 9016 equivalent), paint
Dimensions	ø230 x 89 (D)mm (9.06" x 3.5")
Weight	880g (1.94 lbs)

Network Horn Speaker

IP-A1SC15

The IP-A1SC15 Network Horn Speaker is a great addition to any Video Management System with an easy 3 step process. By combining intelligible audio to your video system, you can response immediately with a live announcement. When installing, the IP Horn is detected as a generic ONVIF device.

Model	IP-A1SC15
Power Source	PoE+ (IEEE802.3at Class 4), PoE (IEEE802.3af Class 3)
Frequency Response	280 Hz - 12.5 kHz
Power Consumption	22 W (at PoE+ powered, rated output) 13 W (at PoE powered, rated output) 5 W (IEC62368-1)
Amplifier Rated	15 W (at PoE+ powered), 8 W (at PoE powered)
Sensitivity	112 dB (1 W, 1 m) (500 Hz - 2.5 kHz, peak level)
Maximum SPL	124 dB (at PoE+ powered, 15 W, 1 m) (500 Hz - 2.5 kHz, peak level) 121 dB (at PoE powered, 8 W, 1 m) (500 Hz - 2.5 kHz, peak level)
Audio Codec	PCMU (G.711u), PCMA (G.711a), G.722, Opus
Broadcasting Mode	SIP Broadcasting Mode: PCMU/PCMA/G.722 Multicast Broadcasting Mode: PCMU/PCMA/G.722, Max.10 ports VMS Broadcasting Mode: Audio Backchannel, PCMU Internal Message Broadcasting Mode Note: Each broadcast mode can be assigned an order of priority using the Priority Setting function.
Internal Messages	Max. 20 messages (Max. recording capacity: 80 MB) Supported file formats: WAV file: 8/16/44.1/48 kHz sampling frequency, 8/16 bit, monaural/stereo MP3 file: 32/44.1/48 kHz sampling frequency, 64 - 320 kbps, CBR/VBR, monaural/stereo Repeat count: 1 - 10 times Interval time: 0 - 30 sec Trigger: Control Input or Remote API (HTTP)
Control Input	2 channels, no-voltage make contact inputs, open voltage: 5 V DC, short-circuit current: 2 mA or less, removable terminal block (3 pins)
Control Output.	1 channel, open collector output, withstand voltage: 30 V DC, control current: 10 mA or less, removable terminal block (3 pins)
Dust/Water Protection	IP66

IP-A1 Networked Audio

IP Bi-Directional Horn Speaker

IP-SC15MC

The IP-SC15MC is a network horn speaker with a microphone, which can receive broadcasts initiated by other terminals or servers and supports device configuration through a web browser. The device is also IP66 rated and can withstand temperatures as low as -45 °C.

- Powered by PoE/PoE+
- Hosts audio files stored for playback
- IP66 rated, –45 °C to +55 °C operating range

Model	IP-SC15MC
Power Source	DC24V / 2.7A, Removable terminal block (2 pins) PoE/PoE+ (IEEE 802.3af/at)
Power Consumption	15 W (+/- 10%)
Sensitivity	113dB (1W, 1m at 500 Hz to 2.5 kHz peak level)
Frequency Response	250 Hz - 10 kHz
Broadcasting Mode	SIP Broadcasting mode: MP3, LPCM, G711A, G711U, G722, G729, SIP Domain Registry Multicast Broadcasting Mode: G711A, G711U, G722, IMA-ADPCM VMS Broadcasting Mode: Audio Backchannel, PCMU Internal Message Broadcasting Mode (*1)
Sound Source Files	Maximum 128MB. Supported file formats: MP3 file, 32kHz sampling frequency, 128 kbps Trigger: Control Input or Remote API (HTTPS)
Network I/F	100BASE-TX, MDI/MDI-X, RJ45
Network Protocol	TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP, SIP, DHCP
Security	Basic Authentication, Digest Authentication
Microphone	Omni-Directional electret condenser microphone
Control Input	2 channels, no-voltage make dry contact inputs (IN1/IN2/GND), open voltage: 5V DC, short-circuit current: 2mA or less Removable terminal block
Control Output	1 channel, Relay Output (COM/NO (normal open) /NC (normal close), with stand voltage: 30V DC, control current: MAX. 50 mA Removable terminal block
Indicator	Power (orange), Network Status (green)
Dust/Water Protection	IP66
Operating Temperature	–45 °C to +55 °C
Operating Humidity	90%RH or less (no condensation)
Finish	Horn flare: Aluminum, Off-white, powder coating Reflector horn and rear cover: ABS resin, off-white Cable Grant: Aluminum Brackets, screws, and bolts: Stainless steel
Dimensions	285 (W) x 227 (H) x 277 (D) mm (11.22" x 8.93" x 10.90")
Weight	1.95 kg
Included Accessories	6P Terminal-block x 1, 2 P Terminal-block x 1

(*1) Each broadcast mode can be assigned an order of priority using the Priority Setting function.

IP Microphone Panel

IP-A1MP

The IP-A1MP is a microphone panel that is equipped with a microphone, an activation switch and a status indicator. It can be installed with a standard electrical box as surface or flush mounting.

- Audio accessory unit to be used in conjunction with IP-A1 series devices for having two-way conversations or audio monitoring

Model	IP-A1MP
Microphone	Omni-directional electret condenser microphone
Control Input	No-Voltage make contact input, open Voltage: 5 V DC, short-circuit current: 0.2 mA or less, push-in terminal block
Control Output	No-Voltage make contact output, withstand Voltage: 30 V DC, control current: 100 mA, push-in terminal block
Indication	Green (Lit during control input) (*2)
Operating Temperature	-20 °C to +55 °C (-4 °F to 131 °F)
Operating Humidity	90 %RH or less (no condensation)
Finish	Front case: Surface-treated steel plate, white (RAL 9016 equivalent), semi-gloss, paint Rear case, bracket: Surface-treated steel plate, black zinc plating Plate: ABS resin, white (RAL 9016 equivalent), gloss
Dimensions	44.6 (W) x 107 (H) x 29 (D) mm (1.76" x 4.21" x 1.14") (excluding projection)
Weight	170 g (0.37 lb)
Included Accessories	Plate x 1, Plate mounting screw (M3.5 x 5.5, preinstalled on the plate) x 2, Box mounting screw (M4 x 35) x 2
Recommended Box	Flush-Mount Box: YC-801 Wall-Mount Box: YC-802

IP-A1 Networked Audio

IP Remote Microphone

IP-A1RM

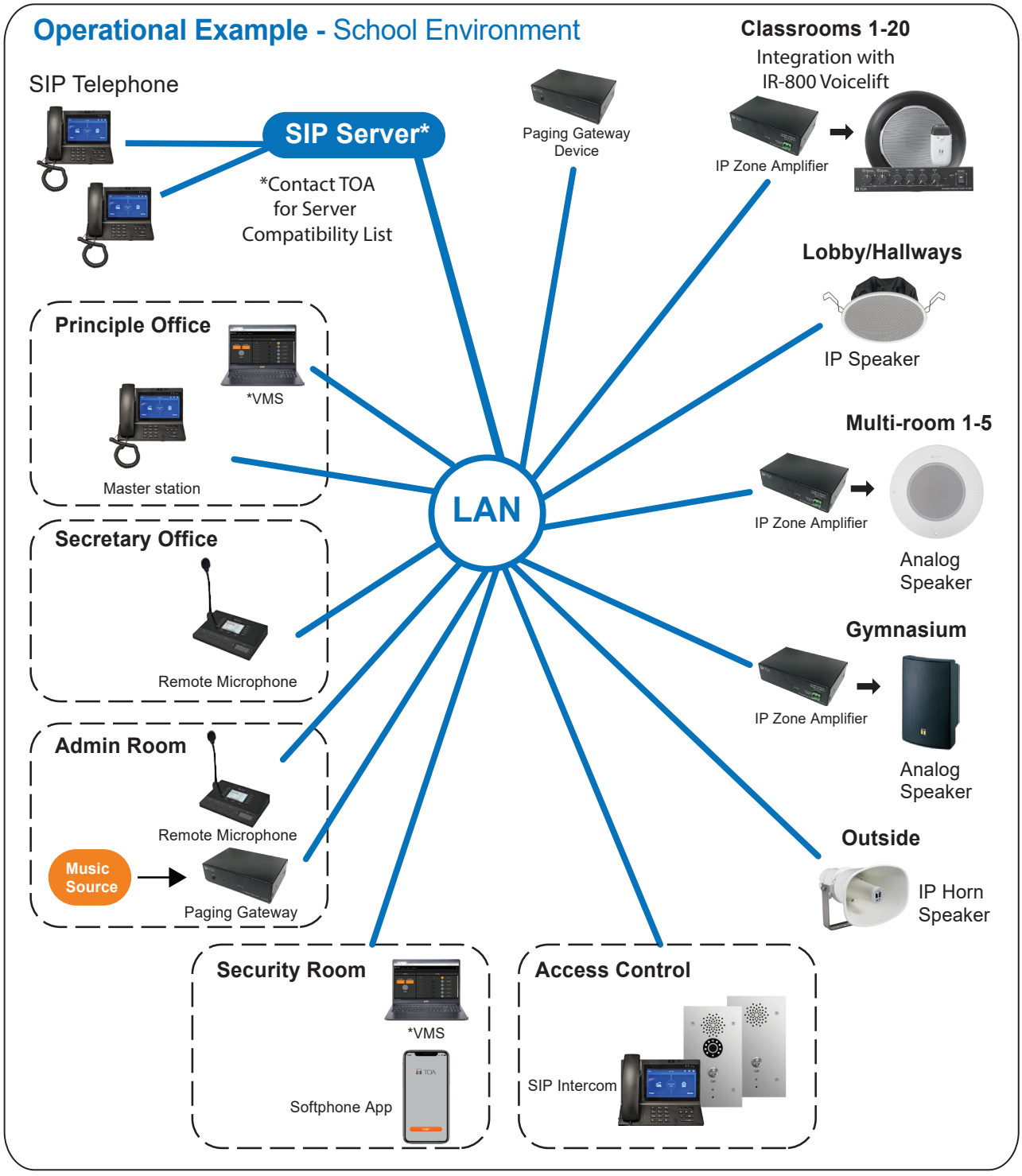
An IP remote microphone which is designed to make audio broadcasts to IP-A1 series receiving devices via network. It achieves clear microphone announcements without distortion thanks to its built-in compressor effect.

- Angle adjustable gooseneck microphone with compressor effect
- 10 function-assignable keys to initiate broadcasts or controls
- GUI calendar scheduler function (up to 2,000 settings)
- System mute function to mute all broadcasts made by every single IP-A1 series device within the same network

Model	IP-A1RM
Power Source	PoE(IEEE802.3af Class 3)
Power Consumption	3.5 W
Audio Transmission Method	SIP broadcasting: Unicast Audio Streaming Group broadcasting: Multicast Audio Streaming
Audio Codec	Opus, PCMU (G.711u), PCMA (G.711a), G.722
Network I/F	100BASE-TX, Auto MDI/MDI-X, RJ45
Network Protocol	TCP/IP, UDP, HTTP, RTP, RTCP, ARP, ICMP, IGMPv3, NTP, SIP (RFC3261)
Microphone	Unidirectional electret condenser microphone (With microphone indicator and microphone volume control)
AUX Input	1 channel, unbalanced, 10 kΩ LINE/MIC selectable (Rated input: LINE: 0 dB (*1), MIC: -60 dB (*1) PAD function (-20 dB (*1), AUX volume adjustable, Ø3.5 mm mini jack
Monitor Speaker	Cone-type speaker, Speaker volume adjustable, Rated Output: 1 W
Control Input	2 channel, no-voltage make contact inputs, open voltage: 5V DC, short-circuit current: 2 mA or less, push-in terminal block
Mute Control Input	1 channel, 24 V DC cut-off signal, control current: 5 mA or less, non-polar, push-in terminal block
Control Output	1 channel, open collector output, withstand voltage: 30 V DC, control current: 150 mA or less, push-in terminal block
Operation	Operation key: TALK, HOME, REC, MONITOR, SHIFT/KEY LOCK Function key: VOLUME, RIGHT, LEFT Selection key: 0 - 9
Indicator	LCD display: 3 (255 x 160 dots) with backlight Indicator: Status indicator (green/blue/yellow/red), Microphone indicator (blue), LINK/ACT indicator (green)
Functions	
Manual broadcast/control	Manual broadcasting: Microphone broadcast, Recorded audio broadcasting, AUX input broadcast Manual control: control output, command set transmission Control trigger: key operation
Scheduler	Scheduled broadcasting and control by WEB-UI (Max. schedule settings: 2000) Configurable actions: Internal message broadcast, AUX input broadcast, control output, command set transmission
Event	Execute event triggered by control input Configurable actions: Internal message broadcast, AUX input broadcast, command set transmission, broadcast disable, system mute
Sound Source Files	Max. 20 files (File storage capacity: 80 MB total) Supported fie format: WAV file: 8/16/44.1/48 kHz sampling frequency, 8/16 bit, monaural/stereo MP3 file: 32/44.1/48 kHz sampling frequency, 64 - 320 kbps, CBR/VBR, monaural/stereo Repeat playback: Play count (1 - 10 times) or Duration (5 - 3600 sec) Interval time: 0 - 99 sec, Delay time: 0 - 99 sec
Recorded audio broadcast	Audio recording and playback broadcast with the built-in microphone Max. 2 minutes, 1 message
Chime	Pre and post chime tones (applied for manual broadcast and internal audio file broadcast) Preset chime tone x 5, editable tone x 2
Command Set	20 commands can be registered in each of 10 command set
Clock Accuracy	±13 seconds per month
Time Adjustment	Manual time setting, Time adjustment by NTP server
Power Outage Protection Period	24 hours (RTC time retention, at +40 °C (104 °F)
Operating Temperature	0 °C to +40 °C (32 °F to 104 °F)
Operating Humidity	90 %RH or less (no condensation)
Finish	ABS resin, black, paint
Dimensions	224 (W) x 47.2 (H) x 136 (D) mm (8.82" x 1.86" x 5.35") (excluding microphone)
Weight	630 g (1.39 lb)
Included Accessories	Zip tie x 2
Optional Accessories	Wall mounting bracket: WB-RM500

These specifications apply to the firmware version 3.3.0 or later. For the latest specifications and firmware, please refer to the TOA DATA Library (https://www.toa-products.com/international/)

System Example for IP-A1 Series & SIP Intercom



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N-SP80 SIP Intercom Series

SIP Multimedia Station

N-SP80MS2

The N-SP80MS2 is a SIP compliant Multimedia station designed for use in combination with an IP telephone system.

- Equipped with a 7'' capacitive touch panel screen
- Built-in camera (with privacy shutter)
- Can be operated when connected to a PoE-compatible switching hub using a LAN cable.

Model	N-SP80MS2
Power Supply	PoE (IEEE802.3af) or DC 12V Power Adapter
Power Consumption	12W
Speech Method	Handset or Headset conversation (Hands-free?)
Audio Bandwidth	G. 722 codec: up to 7 kHz
Display	7 inch capacitive touch screen TFT LCD, 1024 x 600 pixels
Camera	Number of effective pixels: 2 M pixels
Video	Image size: QCIF, CIF, 4CIF, VGA, 720P Bit rate: 64 kbps - 2 Mbps
Network	Network protocol: HTTP/HTTPS/FTP/TFTP/SNMP/DNS/SNTP/RTSP/SRTP/RTP/ TCP/UDP/TLS/ICMP/DHCP/ARP/DNS-SRV/PNP Packet transmission system: Unicast, Multicast Paging: Multicast transmission Video compression method: H.263, H.264, H.265, VP8
External Interface	USB 2.0, 3.5mm headset jack, Bluetooth, Type C, HDMI Video Out Port
Installation Method	Desktop
Operating Temperature	0°C to +40°C (32°F to 104°F)
Operating Humidity	10 % to 90 %RH (no condensation)
Finish	Body, Handset: ABS resin, black
Dimensions (W x H x D)	250 x 210 x 98 (mm)
Weight	1.72 kg
Included Accessories	Handset x1 , cord x1, LAN cable x1
Optional Accessories	N-SP80MS2WB wall bracket

Specifications subject to change without notice

Model	N-SP80VS1	N-SP80AS1
Camera	2 mega pixels	--
Resolution	Up to 1080p	--
Button	panic button; 1 reset button (on board)	
Microphone	1 integrated microphone, IP67	
Speaker	2 Watt, IP66	
Input Relay	2 input relays for alarm	
Output Relay	2 output relays for door opener	
Call Indication	1 RGB LED (colors: red, green, blue)	
Power Input	12V DC input	
Power Consumption	Less than 12W	
Dust/Water Protection	IP54	
Operating Temperature	-30°C to +40°C (-22°F to 104°F) with YC-831HSW-AM -20°C to +55°C (-4 'F to 131 'F) with no backbox	
Installation	Flush-mounted, Fit in Clipsal 164/4 back box	
Finish	316 grade stainless steel	
Dimensions	PCB: 74 x 140 mm (2.91" x 5.51") With flush-mount kit (W x H x D) : 120 x 210 x 61 mm (4.72" x 8.27" x 2.4")	
Option	4 gang back box YC-400, Surface mount back box YC-811	

SIP Audio Door

N-SP80AS1

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

SIP Video Door Station

N-SP80VS1

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

N-SP80 SIP Intercom Series Accessories

Mounting Bracket

N-SP80MS2WB

Back Box

YC-400

Back Box

YC-811

Standalone PCB SIP Board

Standalone PCB SIP Board

N-SP80SB

Model	N-SP80SB
Phone Features	Web support multi-language Auto-answer Volume control Direct IP call without SIP proxy Auto-Provision
Network Features	2x10/100Mbps Ethernet Port Security: Password Protection, IP address filtering, SIP over TLS, HTTP Sencryption, user access log, SRTP (Secure RTP) Protocols support: IPv4, HTTP, HTTPS, FTP, SNMP, DNS, NTP, RTSP, RTP, TCP, UDP, ICMP, DHCP, ARP
SIP Features	SIP v1(RFC2543), SIP v2 (RFC3261) Audio codecs: G.711a, G.711μ, G.722, G.729 Speech Quality: 7kHz Audio Echo Cancellation Voice Activation Detection Comfort Noise Generator
Inputs	1x Microphone (for electret or dynamic microphone)
Outputs	1x Speaker (2W @8Ω) and 1x Line
Control Input	2 channels, no-voltage make contact input, open circuit voltage: 5 V DC, short-circuit current: 10 mA or less
Control Outputs	2 channels, relay output, normal open/normal close output, withstand voltage: 30 V DC, control current: 1 A

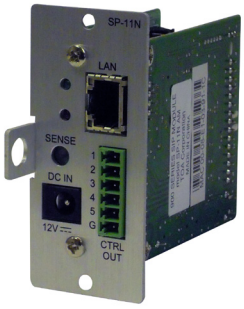
SIP Integration Module

SIP Module

SP-11N

The SP-11N is a VoIP phone paging module supported SIP (Session Initiation Protocol). Designed for use with multiple TOA series', including the 9000M2, 900, 700 and BG-2000 series amplifiers, it can be connected to an IP network and directly registered as one SIP phone station on various SIP server management softwares.

- VOX and mute functions
- Auto-answer function
- Additional compatibility options with optional SP-11NRB Standalone chassis
- Increase inputs and outputs via optional SP-11NEX Zone Expander



Model	SP-11N
Power Source	AC mains (AC adapter is supplied with the unit)
Control Output	5 channels open collector output
Network I/F	RJ-45 connector 10BASE-T / 100BASE-TX, Auto-recognition
Network Protocol	SIP (RFC3261), TCP. UDP, BOOTP, DHCP, RTP SNMP, ICMP, HTTP
Audio Format	G.711 u-law / a-law
Operating Temperature	-32°F (0°C) to +104°F (+40°C)
Finish	Panel: Aluminum, Hairline finish
Dimensions	1.38"(W) x 3.07" (H) x 3.6"(D) (35.05 x 77.98 x 91.44mm) without chassis Chassis Dimensions: 8.22"(W) x 1.58"(H) x 4.06"(D) (208.8 x 40.1 x 103.1mm)
Weight	0.2lb (86g)

SIP Module Standalone Chassis

SP-11NRB

- Stand-alone chassis for the SP-11N SIP interface module
- Interface allows systems that do not support 900 series modules to work with SP-11N
- One module slot

TOAlert Emergency Communication

TOAlert is designed to function as either a standalone unit or interconnected system, providing full-featured communications technology in nearly any location. With the TOAlert management portal's highly customizable zoning and scheduling assignments, you can be sure the right message is going to the right location — whether that's a single Display or every EverAlert device on your site.

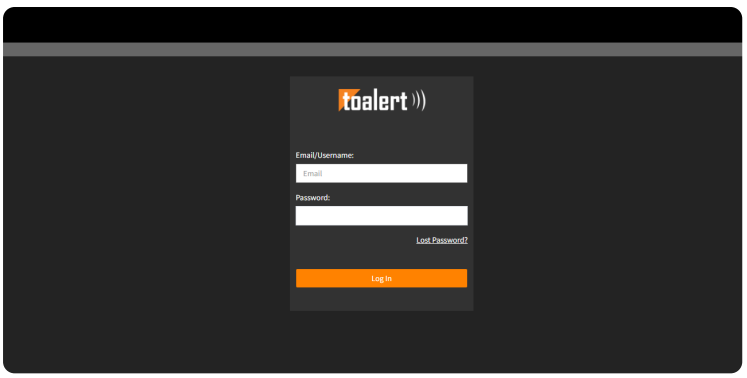
Features:

- Audio Paging
- Emergency Alerts
- Synchronized Time
- Weather Conditions/ Updates
- Bell/Event Scheduling
- Digital Messaging
- Multimedia Messaging/ Signage

Managed Digitally, Accessible Anytime, Anywhere.

The TOAlert System can be easily scheduled and controlled with the online management portal.

- Quickly schedule bells, audio alerts and countdown timers
- Create or change time-synchronized schedules with ease
- Schedule and deliver daily news and/ or emergency information to the whole facility when needed
- Organize and schedule TOAlert displays by zone, department, wing, or classroom to deliver tailored messages



TOAlert Emergency Communication

»EverAlert 22" Dynamic Display

EADV2

With the EADV2, place a powerful, high-definition screen in classrooms, offices, and other spaces to provide synchronized time, current weather conditions, scheduled and instant messages, bells and schedule notifications, emergency alerts, and more.

Model	EverAlert Dynamic Display
Screen Lighting	LCD with LED backlight
Display Screen Resolution	1920 x 1080
Displayed Format	Landscape (horizontal) or portrait (vertical)
Internal speakers	2 each a 2W
USB 2.0 ports	2
External speaker output jack	3.5mm
Wired LAN connectivity	10/100M, RJ45 connector
Wireless LAN connectivity	802.11b/g/n (2.4GHz)
USB provisioning	USB drive with AES encryption
Wired provisioning	LAN/DHCP Web portal on network connection
Input voltage to power supply	100-240VAC, 50/60Hz
Output voltage from power supply	12VDC
Energy efficiency	Level VI
Power consumption	9.5W (average), 14.5W (maximum)
Time synchronization support	2 static IP address time servers or pool SNTP domain name
Dimensions: single (device only)	52.85cm L x 3.48cm W x 31.9cm (20.81" L x 1.37" W x 12.56" H)
Weight: single (device only)	3.6 kg (8lbs)

»EverAlert Dynamic View

EABOX

Dynamic view for existing screens - Dynamic View allows you to display TOAlert content on your existing digital displays through an HDMI input. Perfect for communicating news, alerts, and precise time in conference rooms, lunchrooms and large common areas.

Model	EverAlert Dynamic View
Display Screen Resolution	1920 x 1080
Mounting Formats	Landscape (horizontal)
USB 2.0 ports	2
External speaker output jack	3.5mm
Wired LAN connectivity	10/100M, RJ45 connector
Wireless LAN connectivity	802.11b/g/n (2.4GHz)
USB provisioning	USB drive with AES encryption
Wired provisioning	LAN/DHCP Web portal on network connection
Input voltage to power supply	100-240VAC, 50/60Hz
Output voltage from power supply	12VDC
Energy efficiency	Level VI
Power consumption	9.5W (average), 14.5W (maximum)
Time synchronization support	2 static IP address time servers or pool SNTP domain name
Dimensions: single (device only)	16.5cm L x 8.25cm H x 1.65cm W (7.5"L x 3.75" H x .75"W)
Weight: single (device only)	0.5kg (1.1lbs)

TOAlert Emergency Communication

EverAlert Integrator

EAIV3

Third party integration - Bridge communications between third-party system alarms/alerts and TOAlert. When an alarm is activated from a lockdown, weather, medical emergency or other event, your preloaded or custom message appears on screen for instant communication throughout a building.

Model	EverAlert Dynamic View
Wired LAN connectivity	10/100M, RJ45 connector
Monitored switch wiring length	25ft maximum
Number of Integrators per EverAlert system	5 Integrators per system
Number of output switches	1 per Integrator
Output voltage from power supply	9VDC
Monitored switch style	Normally-open dry contact
Number of monitored switches	2 per Integrator
Input voltage to power supply	100-240VAC, 50/60Hz

TOAlert Dynamic Display Accessories

EverAlert Dynamic Display Power Backup Kit

EABATKIT

The EverAlert Dynamic Display Power Backup Kit provides emergency power to the EverAlert Dynamic Display in the event of power loss to the device.

- Minimum 30 minutes backup power
- Automatic switching between power backup mode and battery charging mode

EverAlert Dynamic Display Bracket

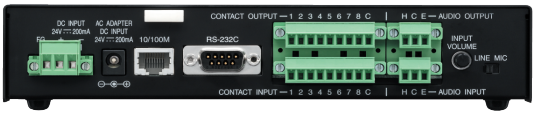
EASMB

EADV2 Mounting Bracket

Network Audio Adapters

Network Audio Adapter

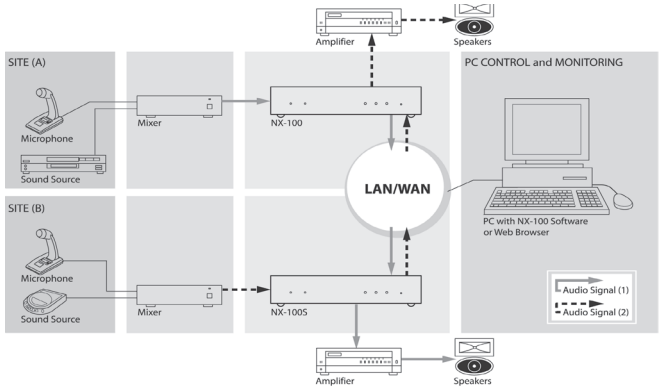
NX-100



Applications

- Airports
- Auditoriums / Theatres
- Broadcast
- Business Music Distribution
- Corporate Messaging
- Hotels
- Industrial / Warehouses
- Museums
- Performing Arts Centers
- Railway Stations
- Sports Facilities
- Theaters
- Transit Stations
- Audio Distribution to Multiple Remote Locations
- Business Music
- Convention Centers
- Educational Facilities
- Houses of Worship
- Remote Monitoring
- Paging Distribution
- Public Address
- Retail Chain Stores
- Stadiums
- Theme Parks
- Wide Area Paging

- Converts analog audio (mic or line) to packet audio IP format for transmission over existing local or wide area networks (LAN/WAN) including the Internet
- Bi-directional audio transport plus contact closures and serial RS-232
- Reduces installation and operational costs when distributing audio signals to remote locations
- Balanced mic/line input with adjustable volume control
- Balanced line output
- Built-in Ethernet port (10/100BaseT)
- Point-to-point transmission (Unicast) of audio signals to up to 4 locations (LAN/WAN/Internet)
- Simultaneous transmission (Multicast) of audio signals to up to 64 locations (LAN/WAN)
- Control inputs can initiate and terminate audio transmissions without the need for dedicated PC-based or other control equipment
- 8 control inputs with adjustable contact off delay time
- 8 control outputs: open collector output
- Adjustable sample rate and audio bandwidth allows efficient use of network resources
- Minimum delay: 20 ms
- Multiple error correction modes
- Intuitive Configuration, Operating and Management software
- Browser-based software allows control and monitoring from any network-based PC
- Convenient End User features including customizable Operation software, Operation logs and password protection
- Front panel indication: Link/Active, Full-Duplex/Collision, Status, Error, Run
- Front panel reset button
- External 24 VDC input for battery backup operation
- Easy to upgrade flash memory firmware
- Compact, half-rack size unit (1 RU)
- Requires AC power supply, model AD-246
- Optional rack-mount kits (1 RU), model MB-15B-BK (for 1 NX-100), model MB-15B-J (for 2 NX-100)



Optional Accessories

Rack-mounting Bracket
MB-15B-BK

Rack-mounting Bracket
MB-15B-J

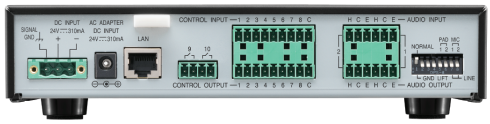
AC Adapter
AD-246

Model	NX-100
Power Source	24 V DC (removable terminal block (3 pins) or AC adapter AD-246 (optional), or the equivalent
Current Consumption	200 mA (DC operation)
Audio Input	1 channel (transformer-isolated), -58 dB* to 0 dB*, balanced (MIC/LINE changeable, volume adjustable with volume control), 2 kΩ, removable terminal block (3 pins)
Audio Output	1 channel (transformer-isolated), balanced, 600 Ω, removable terminal block (3 pins)
Frequency Response	50 - 14,000 Hz (when frequency sampling is 32 kHz)
Distortion	Under 0.3% (1 kHz, when sampling frequency is 32 kHz)
Control Input	8 channels, no-voltage make contact input, open voltage: 12 V DC, short-circuit current: 10 mA, removable terminal block (9 pins)
Control Output	8 channels, open collector output (polarized), withstand voltage: 30 V DC, control current: 50 mA max., removable terminal block (9 pins)
Network I/F	10BASE-T/100BASE-TX, Auto-Negotiation
Serial I/F	RS-232C (DCE I/F), D-sub connector (9P, male), 9600bps - 115200bps
Network Protocol	TCP, UDP, ARP, ICMP, HTTP, RTP, IGMP
Audio Packet Transmission System	Unicast (Up to 4 simultaneous transmissions), Multicast (Up to 64 simultaneous transmissions)
Operating Temperature	0 °C to +50 °C (32 °F to 122 °F) (0 °C to +40 °C (32 °F to 104 °F) when AC adapter is in use)
Operating Humidity	90% RH or less (no dew condensation should be produced)
Finish	Steel plate, black, 30% gloss

Network Audio Adapters

Network Audio Adapter

NX-300



- Dual-channels create Bi-directional (full duplex) transmission of mono signals
- Up to 500 NX-300s can be connected to each other via LAN and WAN
- Up to 1,000 links can be established
- 1 input audio signal can be streamed to max. 16 outputs (unicast) or max. 64 outputs (multicast)
- Balanced inputs & outputs with isolated transformer
- The rear panel features 8 contact inputs and 10 contact outputs
- Requires AC power supply, model AD-246
- Optional rack-mount kits (1 RU), model MB-15B-BK (for 1 NX-300), model MB-15B-J (for 2 NX-300)

Storable audio files for message playback

Up to 8 WAV-files 2-minutes in length can be stored in the built-in memory and used for broadcasting, such as announcements and chime playback. The files can also be remotely updated via the NX-300 setting software or web browser. Adjustable output volume of a broadcast can be set based on a programmed scheduler, where the device time is automatically adjusted by the NTP server via the network.

Assignable broadcast priorities

Broadcast patterns can be programmed by using the provided NX-300 setting software and can be activated by the NX-300 operation software or the regular contact closures. Broadcast priority can be set with 8 levels and allow paging which overrides the alert tones or announcements.

Network with other TOA network control inputs

The control output has the ability to network with other NX Control Inputs, including NX-100.

Model	NX-300
Power Source	Supplied from an external 24 V DC (21.6 - 26.4V) power supply or AC adapter AD-246 (optional), or the equivalent
Current Consumption	10 W (AC operation), 310 mA (DC operation)
Audio Input	2 channels, balanced (transformer-isolated)/unbalanced changeable, 2 k ohms, LINE/MIC changeable, volume adjust, Rated input: -20 dB*1 (LINE)/-60 dB*1 (MIC), PAD function (-16 dB*1)), removable terminal block (6 pins)
Audio Output	2 channels, balanced (transformer-isolated), 600 Ω, or less, Rated output: 0 dB*1 (unbalanced input)/-2 dB*1 (balanced input), removable terminal block (6 pins)
Frequency Response	50 Hz - 18 kHz (48 kHz sampling frequency, PCM, 0 to -6 dB deviation referred to 1 kHz)
Distortion	Under 0.2% (1 kHz, LINE signal level, at rated output)
Audio Format	WAV file
No. of Storable Audio Files	Max. 8
Storable Time of Audio Files	Max. 2 min. per audio file (16 kHz sampling frequency, sub-band-ADPCM, monaural operation)
Control Input	8 channels, no-voltage make contact input, open voltage: 24 V DC, short-circuit current: 2 mA or less, removable terminal block (9 pins) (only channel 8 equipped with failure detection.)
Control Output	8 channels, open collector output (polarized), withstand voltage: 30 V DC, control current: 50 mA max., removable terminal block (9 pins), 2 channels, relay output (non-polar), withstand voltage: 30 V DC, control current: 500 mA max., removable terminal block (4 pins)
NETWORK SECTION Network I/F	10BASE-T/100BASE-TX, Full-duplex/half-duplex Auto-negotiation
Connector	RJ45 connector
Network Protocol	TCP, UDP, ARP, HTTP, RTP, IGMP, FTP, NTP
Audio Packet Transmission System	Unicast (Up to 16 simultaneous transmissions), Multicast (Up to 64 simultaneous transmissions)
Voice sampling frequency	8 kHz, 16 kHz, 32 kHz, 48 kHz (controllable by the software)
Qualifying bit number	16 bits
Voice encoding Method	PCM, sub-band ADPCM (controllable by the software)
Voice packet loss recovery	Silence insertion
Audio delay time	Min. 20 ms
SD Section	For log storage (Max. 10,000), Media: SD/SDHC card (Max. 32 GB*2), File system: FAT 16. FAT 32 *Use only SD memory cards rated at 100 mA current consumption or less; *SD card not provided
Operating Temperature	-10 °C to +50 °C (14 °F to 122 °F) (0 °C to +40 °C (32 °F to 104 °F) when AC adapter is in use)
Operating Humidity	90% RH or less (no condensation)
Finish	Pre-coated steel plate, black, 30% gloss
Dimensions	210 (W) x 44.3 (H) x 258 (D) mm (8.27" x 1.74" x 10.16")
Weight	1.7 kg (3.75 lbs)
Accessory	Removable terminal block (3 pins) x 1, Removable terminal block (6 pins) x 2, Removable terminal block (9 pins) x 2, Removable terminal block (4 pins) x 1, Plastic foot x 4, Screw for fitting plastic foot x 4
Option	Rack mounting bracket: MB-15B-BK (for rack mounting one NX-300 unit); MB-15B-J (for rack mounting two NX-300 units); Wall mounting bracket: YC-850, AC adapter: AD-246 (required)

*1 0 dB = 1 V
*2 Not compatible with SDXC memory cards

Optional Accessories

Rack-mounting Bracket

MB-15B-BK

Rack-mounting Bracket

MB-15B-J

AC Adapter

AD-246

Wall Mounting Bracket

YC-850

Racks & Accessories

Racking & Brackets

Digital Repeaters

Program Timers

Distribution

Monitors

Equalizers

Tuners

Digital Message Repeaters

Adding the TOA EV-700 Digital Announcer to your existing PA system provides numerous benefits for large facilities including retail stores, shopping malls, schools, factories and railway lines. The EV-700 permits easy manual distribution or automatic activation by external device of timed and repeat announcements, BGM and other audio programs with excellent sound quality.

»» Digital Announcer

EV-700

- Recording in high-quality WAV format (44.1 kMz/32 kMz, 16 bit)
- Supplied a memory card (1 GB)*
- Automatic gain control (AGC) function for adjusting the playback volume to a reference level
- Creation/editing/storage on a memory card (storage capacity 32,768 sound source files and 256 audio programs)
- 35 preinstalled sound source files
- Pre-recorded emergency announcements are stored for immediate broadcast when needed
- R.E.M. (Recording Endless Message) function enables operators to create/initiate repeated play back of emergency announcements quickly and evacuate occupants
- The EV-700 can be operated in conjunction with a variety of external devices
- On-screen GUI facilitating intuitive remote storage of sound source files and activation of broadcasts
- Full-Function Mode for management of detailed settings by equipment administrators or Simple Mode for basic operation

Model	EV-700
Power Source	Supplied from an external 24 V DC (21.6-26.4V)/400 mA power supply, removable terminal black (2 pins), or from an optional AD-246 AC Adapter
Power Consumption	10 W
Wave Format	44.1 kHz sampling frequency, 16-bit PCM, WAV file (monaural)
Sound Source Rewriting Method	LAN data transfer/Analog recording/Direct write to memory card using the setting software
Audio Input	MIC: −55 dB*1 (microphone input volume control in maximum position), 600 Ω, unbalanced, ø6.3 phone jack (2P) LINE(rear): −20 dB*1 (line input volume control in maximum position), 10 kΩ, unbalanced, Removable terminal block (12 pins) LINE(front): −29 dB*1 (line input volume control in maximum position), 10 kΩ, unbalanced, RCA pin jack
Audio Output	LINE 1, 2: 0 dB*1, 600 Ω, unbalanced, Removable terminal block (12 pins) Headphones: 0 dB*1, 100 Ω, monaural, ø3.5 mini jack (3P)
Number of Mountable Memory Cards	2 (1 Memory card containing preset sound sources is supplied.) Backup operation available when 2 cards are mounted.
Number of Recordable Phrases	32768
Maximum Recording Time	About 3 hours (at 44.1 kHz sampling rate) or about 4 hours (at 32 kHz sampling rate)
Dimensions	420 (W) x 44 (H) x 222 (D) mm (16.54" x 1.73" x 8.74")
Accessory	Memory card (Containing prerecorded audio files) x 1, Rubber foot x 4, Removable terminal plug (2 pins) x 1, Removable terminal plug (8 pins) x 2, Removable terminal plug (16 pins) x 2, Removable terminal plug (12 pins) x 2, Front cover fixing screw x 2, CD (setting software) x 1
Option	AC adapter: AD-246, Rack mounting bracket: MB-15B

*1 0 dB = 1 V; *2 An emergency broadcast function that repeatedly plays the sound source recorded on the spot with the highest priority in case of an emergency situation.
Note:
CompactFlash is a trademark of SanDisk Corporation.

Optional Accessories

»» Rack-mounting Bracket

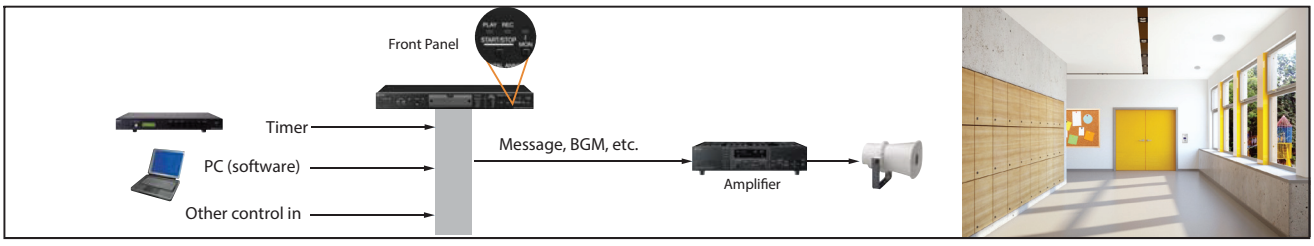
MB-15B

»» AC Adapter

AD-246

»» Interactive operation with external devices

The EV-700 can be operated in conjunction with a variety of external devices.



Digital Message Repeaters

Sound Repeater

EV-20R

- For paging applications 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

Model	EV-20R
Power Source	Supplied from an external 24 V DC/400 mA power supply or from an optional AD-246 AC Adapter
Power Consumption	10 W (rated output)
Wave Format	44.1 kHz sampling frequency, 16-bit PCM (monaural)
Frequency Response	20 Hz - 20 kHz ±3 dB (1 kHz)
Distortion	1% or less (1 kHz, rated output)
Recording System	USB data transfer or analog recording
Control Input	Play 1-4, stop: No-voltage make contact input, pulse make length: 200 ms, open voltage: 30 V DC, short-circuit current: 10 mA removable terminal block (22 pins)
Control Output	Busy: Contact capacity: 30 V DC/0.5 A, removable terminal block (22 pins)
Input	Input/Recording input: Mic: -60 dB*, 2.2 kΩ/Line: -20 dB*, 10 kΩ, (Mic/Line changeable), unbalanced, phone jack Line input: 0 dB*, 10 kΩ, unbalanced, removable terminal block (22 pins)
Output	Line output: 0 dB*, 600 Ω, unbalanced, removable terminal block (22 pins) Headphone output: 0 dB*, 100 Ω, unbalanced, phone jack Speaker output: 3 W, 8 Ω, removable terminal block (22 pins)
LED Indicator	POWER, USB, START/STOP 1-4
Max. No. of Messages	4 (Pre-recorded audio data: Message 1: Westminster chime; Message 2: Ascending 4-tone chime; Message 3: Descending 4-tone chime; Message 4: none (Note: the above audio sources can be overwritten by using the supplied software. These audio sources are also on the supplied CD-ROM.)
Max. Recording Time	6 min
Message Delay Time	0, 2 s or 4 s (selectable)
Playback Interval Time	∞, 0, 5 s, 10 s, 30 s, 1 min, 5 min, 10 min, 30 min, or 1 hr (selectable)
Operating Temperature	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity	90% RH or less (no condensation)
Finish	Case: ABS resin, black
Dimensions	210 (W) x 44.2 (H) x 181 (D) mm (8.27" x 1.74" x 7.13") (excluding projection)
Weight	730 g (1.61 lbs)
Accessory	CD-ROM (USB data transfer software and sample chimes recorded) x1, Unbalanced-phone plus x 1, USB cable (1 m) x 1, Removable terminal plug (22 pins) x 1, Rubber foot x 4
Option	Rack mounting bracket: MB-WT3 (for rack mounting one EV-20R unit); MB-WT4 (for rack mounting two EV-20R units); AC adapter: AD-246
	USB Data Transfer Software Operation Environment
Personal Computer	Windows PC (equipped with the USB terminal)
Main Specifications	CPU: Pentium compatible CPU of 300 MHz or faster Memory: 128 MB or more Free disk space: 10 MB or more (space for message storage excluded) Optional Drive: CD-ROM drive
OS	Windows 8.1/10 (*Please download the USB driver before installing the software)

*0 dB = 1 V

Pentium is a trademark of Intel Corporation. Windows is a registered trademark or trademark of Microsoft Corporation in the United States and/or other countries. Other company names and products are also trademarks of individual companies.

Optional Accessories

Rack-mounting Bracket

MB-WT3

Rack-mounting Bracket

MB-WT4

AC Adapter

AD-246

Perforated Vent Panel

PF-013B**

- The PF-013B is a perforated panel of one unit size for use in an equipment rack. It can be mounted in any EIA Standard rack.

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

Model	TT-104B
Power Source	110 - 120 V AC, 50/60 Hz
Power Consumption	3W
Display Contents	Day of the week, hour and minute
Programmable Item	Day of the week, hour, minute, output channel
Number of Channels	4 channel (A,B,C,D)
Output System	No-voltage (DRY) make contact (5-second pulse make output)
Output Capacity	24 V DC, 0.5 A
Output Terminal	M4 screw terminal, distance between barriers: 9 mm
Program Capacity	30 steps per channel
Clock Accuracy	±5 seconds per month (25ºC)
Power Outage Protection Period	100 hours
Operating Temperature	0ºC to +50ºC (32 ºF to 122 ºF)
Finish	Panel: Aluminum, black, 30% gloss, paint Case: Pre-coated steel plate, black
Dimensions	420 (W) x 47.5 (H) x 246.5 (D) mm (16.54" x 1.87" x 9.7")
Weight	2.5 kg (5.51 lbs)
Option	Rack-mounting bracket: MB-15B

TT-104B Optional Accessories

Rack-mounting Bracket

MB-15B

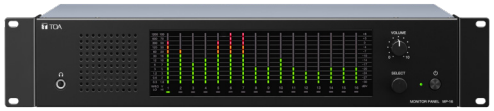
Audio Monitoring Panel

16 Channel Audio Monitor Panel

MP-16

The MP-16 is a 16-channel audio monitor panel, which can be mounted on an EIA standard equipment rack (2 unit size). Visual monitoring with 12-segments LED meters

- Aural monitoring by built-in speaker and optional headphones
- A variety of input capacity: line level, low-z speaker lines and 25/70/100V hi-z speaker lines
- EIA standard rack mounting (2 unit size)
- Dedicated AC adapter input and direct DC24V input terminal connection through other networks



Model	MP-16
Power Source	Supplied from an external 24 V DC (20-33 V) power supply, Removable terminal block (2 pins) or AC adapter AD-246 (option)
Current Consumption	520 mA (max.)
Input (*1) 0 dB = 1 V	High impedance speaker: Max. 100 V Low impedance speaker: Max. 1200 W (8 Ω) Line: +6 dB (*1)
Output	Speaker Output: Max. 3 W Headphone Output: 8 Ω
Level Display	Meter: 12-segment LED meter x16 Level Indications: 1.6 - 100 V (High impedance speaker) 0.3 - 1200 W (Low impedance speaker) -30 to +6 dB (*1) (Line)
Operating Temperature	0 °C to +40 °C (32 °F to 104 °F)
Operating Humidity	90 %RH or less (no condensation)
Finish	Panel: Pre-coated steel plate, black, 30 % gloss Case: Surface-treated steel plate
Dimensions (W x H x D)	482 (W) x 88.4 (H) x 240.8 (D) mm (18.98" x 3.48" x 9.48")
Weight	3.9 kg (8.6 lb)
Included Accessories	Removable terminal plug (10 pins, input terminal) x 8, Removable terminal plug (2 pins, power supply) x 1, Rack mounting screw x 4
Optional Accessories	AC adapter: AD-246

AM/FM Tuner

Synthesized AM/FM Tuner

DT-940

- Presets for any combination of 20 AM (monaural) and 20 FM (capable of receiving stereo broadcast) stations
- Automatic station scanning and manual tuning
- Automatic station storage to memory using auto-scan mode
- Frequency synthesized digital tuning with multi-function digital display
- Stereo output is available
- FM wire antenna and AM loop antenna included
- Front panel lockout feature prevents unauthorized operation

Model	DT-940
Power Source	120V AC, 60 Hz (supplied from the AC adapter (accessory))
Rated Consumption	60 mA (when AC adapter is used)
Receiving Frequency	FM: 87.9 - 107.9 MHz (100 kHz step) AM: 520 - 1710 kHz (10 kHz step)
Antenna Input	FM: 75 Ω (unbalanced), F type connector AM: Loop antenna (balanced), external antenna (unbalanced) push type terminal
Audio Output	Stereo: -15 dB*, 10 kΩ, unbalanced, RCA jack Monaural: -10 dB*, 10 kΩ, unbalanced, M3 screw terminal, distance between barriers: 6.4 mm, RCA jack
Channels of Memory	20 channels for AM, 20 channels for FM
Operating Temperature	0 ºC to + 40 ºC (32 ºF to 104 ºF)
Operating Humidity	90 % RH or less (no condensation)
Finish	Panel: Aluminum (hair-line finish), black Case: Pre-coated steel plate, black
Dimensions (W x H x D)	420 (W) x 50.8 (H) x 294.2 (D) mm (16.54" x 2" x 11.58")
Weight	2.9 kg (6.39 lbs)
Accessory	AC adapter (1.5 m (4.92 ft)) ... 1, RCA stereo cord (1 m (3.28 ft)) ... 1, loop antenna (For indoor use only, 135 x 125 mm (5.31" x 4.92"), lead wire: 1.2 m (3.94 ft) ...1, FM wire antenna (For indoor use only, element length: 2.2 m (7.22 ft)) …1
Option	Mounting bracket kit: MB-15B

*0 dB = 1 V

Optional Accessories

Rack-mounting Bracket

MB-15B

CONFERENCE SYSTEMS

COMMUNICATION
INFRARED
SECURE
SCALABLE
WIRELESS/WIRED
CHAIRPERSON
DELEGATE
MEETINGS

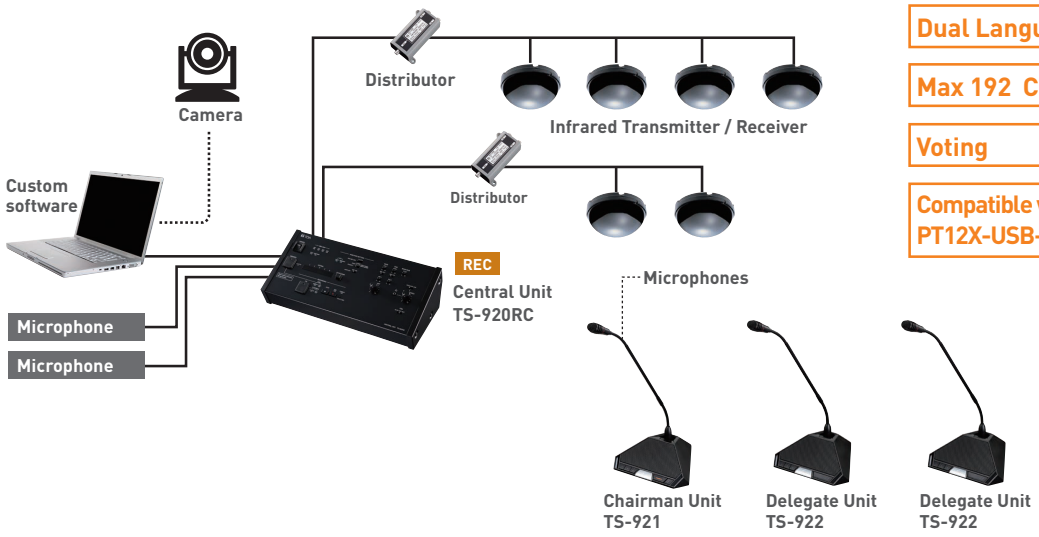
Next Generation Conference Systems

Wireless flexibility with the TS-820 / 920 Series Infrared Wireless Conference System, or streamlined configuration with the TS-D1100 Wired Conference System.

Infrared Conference System TS-820/TS-920 Series

- Carefully designed audio processing and hardware for enhanced audio performance.
- Advanced feedback suppressor minimizes acoustic feedback.
- Safe and secure infrared wireless technology
- Conference recording available with TS-920RC
- Up to 192 conference unit controllable
- No cabling for Infrared system makes installation easy
- Chairman unit features a priority speech key
- Delegate unit Equipped with voting function TS-921/922
- Speaker restriction function
- Auto Mic-Off function
- The solid design creates a formal and impressive atmosphere for conferences.

TS-920 Series System Example



Dual Language

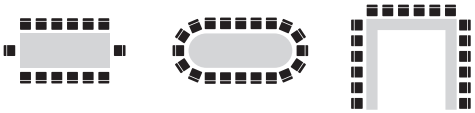
Max 192 Conference units

Voting

Compatible with PTZOptics Model PT12X-USB-G2 & PT20X-USB-G2

Wireless Units for System Flexibility

Wireless feature makes the system ideal for any conference apt to change the number of participants or layout.



Dignified Solid Shape

The solid design creates a formal and impressive atmosphere for conferences.

Selectable Microphones

Long or short microphones can be used depending on requirements.

Infrared Conference System TS-820/TS-920 Series

⋙Central Unit

TS-920RC

- Up to 192 conference unit controllable
- 2 x Mic In (Main/Sub), 3 x AUX In (Main/Sub/Main and Sub) Line Out, Rec Out, Headphone monitor out, EQ in/out
- Recording capability to USB and internal memory
- Voting result indicator

⋙Central Unit

TS-820

- Up to 64 conference units controllable
- Mic In, AUX In, Line Out, Rec Out, Headphone monitor out, EQ in/out
- Function setting – Number of open microphones, Auto Mic-off function, Speech priority selector, Feedback suppressor

Model	TS-920RC Central Unit	TS-820 Central Unit
Carrier Frequency	Reception: Audio channel 1: 7.35 MHz Audio channel 2: 8.10 MHz Audio channel 3: 8.55 MHz Audio channel 4: 9.15 MHz Control channel: 6.45 MHz Transmission: Base language channel: 1.95 MHz Translation language channel: 2.25 MHz	Reception: Audio channel 1: 7.35 MHz Audio channel 2: 8.10 MHz Audio channel 3: 8.55 MHz Audio channel 4: 9.15 MHz Control channel: 6.45 MHz Transmission: Base language channel: 1.95 MHz
Input	MIC 1 (Base Language): -60 dB (*2) , 600 Ω, unbalanced, ¢6.3 mm phone jack (2P) MIC 2 (Translation Language): -60 dB (*2) , 600 Ω, unbalanced, ¢6.3 mm phone jack (2P) AUX 1 (Base Language l: -20 dB (*2) , 10 kΩ unbalanced, ¢6.3 mm phone jack (2P) AUX 2 (Translation Language): -20 dB (*2) , 10 kΩ, unbalanced, ¢6.3 mm phone jack (2P) AUX 3 (Base and Translation Language): -20 dB (*2) , 10 kΩ, unbalanced, ø6.3 mm phone jack (2P)	MIC: -60 dB (*2), 600 Ω, unbalanced, ¢6.3 mm phone jack (2P) AUX: -20 dB (*2) 10 kΩ, unbalanced, ¢6.3 mm phone jack (2P)
Output	LINE: -10 dB (*2), 10 kΩ, unbalanced, ø6.3 mm phone jack (2P) REC: -10 dB (*2), 10 kΩ, unbalanced, RCA pic jack HEADPHONES: ø3.5 mm Mini jack (3P: monaural)	LINE: -10 dB (*2), 10 kΩ, unbalanced, ø6.3 mm phone jack (2P) REC: -10 dB (*2), 10 kΩ, unbalanced, RCA pic jack HEADPHONES: ø3.5 mm Mini jack (3P: monaural)
Equalizer Input/Output	Input: -20 dB (*2), 10 kΩ, unbalanced, RCA pin jack Output: -20 dB (*2), 10 kΩ, unbalanced, RCA pin jack	Input: -20 dB (*2), 10 kΩ, unbalanced, RCA pin jack Output: -20 dB (*2), 10 kΩ, unbalanced, RCA pin jack
No. of Connectable Chairman/Delegate Unit	192 units	64 units
External Control Terminal	D-sub connector (9P, male)/USB-B selectable	D-sub connector (9P, male)
Record Switch	Recording start button, Recording stop button, Format button	—
Recording Ports	USB-A (for USB memory devices) and USB Mini-B (for PCs)	—
Recording Function	Recordings can be made to a USB memory device (*4) or the internal memory. Recording format: MP3 (MPEG-1 Audio Layer-3), monaural Sampling frequency: 32 kHz, Bit rate: 128 kbps	—
Function Switch	Number of open microphones setting switch: 1 /2/3/4 Mic-off setting switch: TI ME OUT ON /OFF Speech priority selector switch: FIRST (First-in-first-out priority) LATEST (Last-in-first-out priority) FIRST: FIXED NEXT: LATEST (Priority fixed for the first unit, and last-in-first-out priority for all other subsequent units.	Number of open microphones setting switch: 1 /2/3/4 Mic-off setting switch: TI ME OUT ON /OFF Speech priority selector switch: FIRST (First-in-first-out priority) LATEST (Last-in-first-out priority) FIRST: FIXED NEXT: LATEST (Priority fixed for the first unit, and last-in-first-out priority for all other subsequent units.)
Applicable Unit	TS-920RC/921/922; TS-820/821/822	TS-820/821/822
Weight	2.8kg (6.17 lbs)	2.7kg (6 lbs)
Accessory	AC adapter (cord length: 1.8 m (5.91 ft) DC cord, and 2 m (6.56 ft) detachable AC cord) x1 (*3)	
Option	Rack mounting bracket: MB-TS920	Rack mounting bracket: MB-TS900

(*2) 0 dB = 1 V

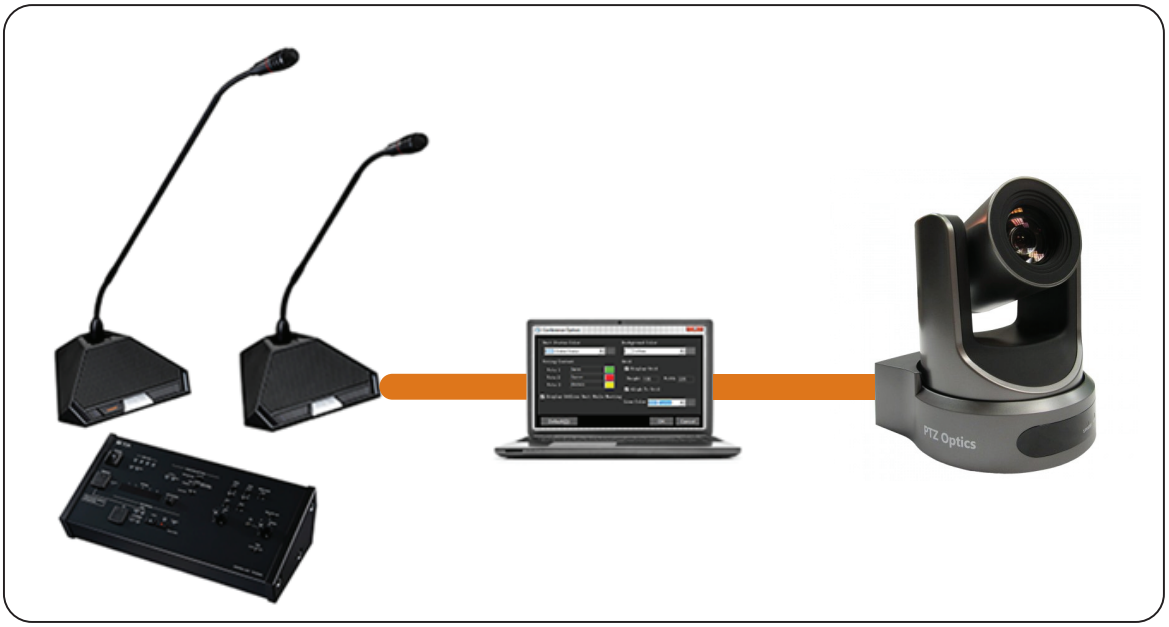
(*3) Not supplied with the TS-920RC(-CN). For the usable power supply cord and AC adapter, contact your nearest TOA dealer

(*4) A USB 2.0-compatible FAT32-formatted flash memory device of up to 32 GB in capacity can be used.
There may be cases in which a USB flash drive cannot be used with the TS-920RC, depending on the drive's attributes or recording conditions.

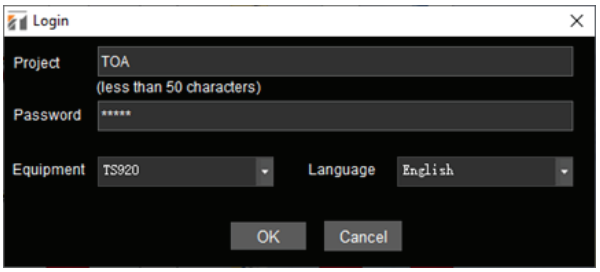
TS-820/TS-920 & PTZOptics integration

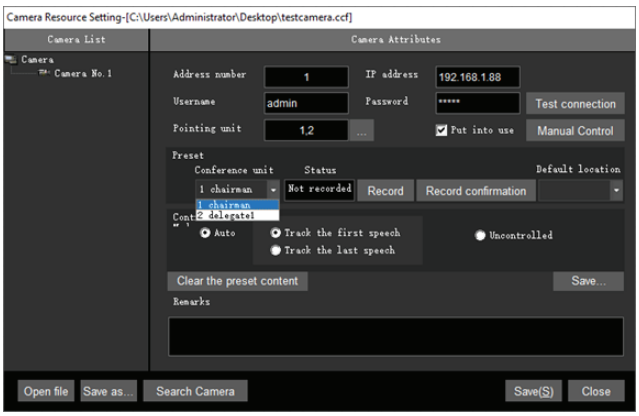
The TS Conference system supports camera control via ONVIF protocol. Currently the supported cameras are the PTZOptics PT12X-USB, PT20X-USB models. With the integration, individuals speaking will have their image transmitted to large screen for all involved to see. This creates a more intimate and friendly feeling for everyone in the meeting.

Before adding PTZOptics camera to the TS conference software, make sure the camera is connected to the DHCP server and ONVIF protocol is on.



After physically wiring up the camera and the conference system, please start the software by selecting "Conference System" from "Programs" in the "Start" menu or from the Desktop Shortcut icon and begin configuring the camera.





Infrared Conference System TS-820/TS-920 Series

Chairman Unit

TS-921

- Priority button
- Equipped with voting function
- Audio monitoring switch (Main or Sub)
- 2 headphone jacks with individual volume control

Chairman Unit

TS-821

- Priority button
- 2 headphone jacks with individual volume control

Model	TS-921 Chairman Unit	TS-821 Chairman Unit
Infrared Emitter /Detector		
Wavelength	870 nm (AM: Brightness modulation)	
Carrier Frequency	Reception: Audio channel 1: 7.35 MHz Audio channel 2: 8.10 MHz Audio channel 3: 8.55 MHz Audio channel 4: 9.15 MHz Control channel: 6.45 MHz Reception: Base language channel: 1.95 MHz Translation language channel: 2.25 MHz	Reception: Audio channel 1: 7.35 MHz Audio channel 2: 8.10 MHz Audio channel 3: 8.55 MHz Audio channel 4: 9.15 MHz Control channel: 6.45 MHz Reception: Audio channel: 1.95 MHz
Covering Range	7 m (22.97 ft) (radius)	
Input	Microphone terminal: XLR-4-31 type	
Output	Monitor speaker: 8 Ω, 0.2 W Headphone: ¢3.5 mm mini Jack (3P: monaural) x 2	
LED indicator	Speech indicator, Voting status indicators 1 -3, Power indicator	Speech indicator, Power indicator
Function	Monitor volume control, Headphone volume control, Priority speech function, Voting function, Monitor selector switch (MAIN/SUB	Monitor volume control, Headphone volume control, Priority speech function
Finish	Case: PC resin, black Speaker net: black, mat finish, paint	
Dimension	205.7 (W) x 70.3 (H) x 164.2 (D) mm (8.1" x 2.77" x 6.46")	
Weight	525 g (1.16 lb)	
Option (not included)	Microphone: TS-923, TS-924 (Select either one) Lithium-ion battery: BP-920 Y AC adapter: AD-0910	

Delegate Unit

TS-922

- Equipped with voting function
- 0.2W monitor speaker
- Audio monitoring switch (Main or Sub)
- 2 headphone jacks with individual volume control

Delegate Unit

TS-822

- 0.2W monitor speaker
- 2 headphone jacks with individual volume control

Model	TS-922 Delegate Unit	TS-822 Delegate Unit
Infrared Emitter /Detector		
Wavelength	870 nm (AM: Brightness modulation)	
Carrier Frequency	Reception: Audio channel 1: 7.35 MHz Audio channel 2: 8.10 MHz Audio channel 3: 8.55 MHz Audio channel 4: 9.15 MHz Control channel: 6.45 MHz Reception: Base language channel: 1.95 MHz Translation language channel: 2.25 MHz	Reception: Audio channel 1: 7.35 MHz Audio channel 2: 8.10 MHz Audio channel 3: 8.55 MHz Audio channel 4: 9.15 MHz Control channel: 6.45 MHz Reception: Audio channel: 1.95 MHz
Covering Range	7 m (22.97 ft) (radius)	
Input	Microphone terminal: XLR-4-31 type	
Output	Monitor speaker: 8 Ω, 0.2 W Headphone: ¢3.5 mm mini Jack (3P: monaural) x 2	
LED indicator	Speech indicator, Voting status indicators 1 -3, Power indicator	Speech indicator, Power indicator
Function	Monitor volume control, Headphone volume control, Priority speech function, Voting function, Monitor selector switch (MAIN/SUB	Monitor volume control, Headphone volume control, Priority speech function
Finish	Case: PC resin, black Speaker net: black, mat finish, paint	
Dimension	205.7 (W) x 70.3 (H) x 164.2 (D) mm (8.1" x 2.77" x 6.46")	
Weight	525 g (1.16 lb)	
Option (not included)	Microphone: TS-923, TS-924, (Select either one) Lithium-ion battery: BP-920 Y AC adapter: AD-0910	

Infrared Conference Systems TS-820/TS-920 Series

TS-820/920 Series Optional Accessories

Microphone
TS-903/904

Microphone
TS-923/924

Microphone
TS-904SL-AS

Rechargeable Lithium-Ion Battery
BP-900A

Battery Charger
BP-920 Y

AC Adapter
AD-0910

Infrared Transmitter/ Receiver
TS-905

Infrared Transmitter/ Receiver
TS-907

Distributor
YW-1022

Distributor
YW-1024

Rack Mount Bracket
MB-TS920

TS Series Optional Microphone and Transceivers

TS-904SL-AS

Chairperson and Delegate Station Microphone
TS-904SL-AS

TS-904SL-AS - Extended Gooseneck Microphone (28.4")

- Electret condenser microphone element
- Distinctive red LED "in-use" indicator also flashes to show low battery status

Model	TS-904SL-AS
Type	Electret condenser microphone
Directivity	Unidirectional
Rated Impedance	1.8 kΩ
Rated Sensitivity	-37 dB (1 kHz 0 dB = 1 V/Pa)
LED Indicator	Speech indicator (ring type)
Frequency Response	100 - 13,000 Hz
Output Connector	Combined type of XLR-4-32
Finish	Gooseneck: Stainless steel, black; Other: ABS resin, black
Weight	130g (0.29 lbs)
Applicable Unit (Option)	

Infrared Transceiver
TS-905, TS-907

TS-905

TS-907

- Installs in ceiling or wall
- TS-905: up to 16 ft ceiling height
- TS-907: 16 to 23 ft. ceiling height
- Connect up to sixteen TS-905 or twelve TS-907 using optional Antenna Distributors: YW-1022Y (1x2) or YW-1024Y (1x4)
- Coaxial cable with BNC connectors (supplied by others)

Model		TS-905	TS-907
Power Source		24 V DC (supplied from the optional TS-920 or TS-820)	
Infrared Emitter/Detector	Wavelength	870 nm (AM: Brightness modulation)	
	Modulation Method	Frequency modulation	
	Carrier Frequency	Transmission: Audio channel 1: 7.35 MHz Audio channel 2: 8.10 MHz Audio channel 3: 8.55 MHz Audio channel 4: 9.15 MHz Control channel: 6.45 MHz Reception: Base language channel: 1.95 MHz Translation language channel: 2.25 MHz	
	Acceptance/Emission Angle	Vertical: 150° (75° + 75°) Horizontal: 360°	Vertical: 90° (45° + 45°) Horizontal: 360°
	Communication Area	Approx. 6-7m in radius from the point underneath the unit (Ceiling height: 2.5 - 4.5 m)	Approx. 6m in radius from the point underneath the unit (Ceiling height: 5-7 m)
Connection Terminal		BNC jack	
LED Indicator		Power	
Finish		Dome: PC resin, visible light cut filter; Base: ABS resin, black	
Dimensions		ø120 x 71.3 (H) mm (ø4.72" x 2.8")	
Accessory		Mounting bracket x 1, Stand mounting bracket x1, Stand mounting bracket attaching screw x 3, Thread adapter (U5/16 - NS5/8) x1	
Option		Microphone stand (the mounting thread size must be U5/16 or NS5/8)	

Infrared Conference Systems TS-820/TS-920 Series

TS-820/920 Series Software - TS-SOFT QV

The new generation conference system, manufactured by TOA, comes with the same functionality of our TS-810-900 system and new exciting features. Along with the system advancements, the new TS-820/920 is delivered with a software component to allow access to the equipment through a computer interface.
Within the software, individuals will have the ability to modify, control and monitor many of the key features that make this dynamic conference system the first choice of many corporations.

- Selectable number of open microphones
- 3-choice voting function for quick voting and vote counting (TS-920 series only)
- Mic auto-off function, automatically turns off mic after 30 second of silence
- Built-in audio recording in mp3 format on USB memory or internal memory (TS-920RC)
- Max 192 conference units
- Dual Language conference capabilities (TS-920 only) and many more.

Please contact TOA's Technical Support Department for more information.

TS-D1100 Wired Conference Systems

Master Control Unit

TS-D1100-MU

Professional and passionate, a conference system amplifies the power and influence of your speech. The TS-D1000 series is a high sound quality and secure Digital Wired Conference System, which has received high praise for its reliability with digital transmission, scalability with a maximum of 246 units, and flexibility to be integrated with external devices or software for expanded applications such as remote communications or synchronized camera controls. As a result, it has been adopted in governmental facilities and highly appreciated.

- USB Audio In/out (USB 2.0 type-B port)
- Supports up to 32 conference units
- Mic In, Aux In, Line Out, Rec Out, Headphone
- monitor out, EQ in/out
- Function setting : Number of open microphones,
- Auto mic-off function, Microphone priority selector

Model	TS-D1100-MU
Power Source	100 to 240 V AC, 50/60 Hz (use of the supplied AC adapter)
Power Consumption	60 W or less
Audio Transmission Method	Time division multiplexing (TDM), 10 channels 16-bit, PCM, 32 kHz sampling frequency
Frequency Response	100 Hz – 13 kHz
Total Harmonic Distortion	0.5% or less
Signal to Noise Ratio	80 dB or more (A-weighted)
MIC Input	–54 dB *1, 600 Ω, unbalance, ø6.3 mm phone jack (2P)
Output	LINE: –10 dB *1, 10 kΩ, unbalance, ø6.3 mm phone jack (2P) REC: –10 dB *1, 10 kΩ, unbalance, RCA pin jack, monaural HEADPHONES: ø3.5 mm mini jack, monaural
USB Audio Input/Output	USB 2.0, type-B port
EQ Insert Input/Output Terminal	–10 dB *1, 10 kΩ, unbalance, RCA pin jack
Video Conference system Input/Output Terminal	–10 dB *1, 10 kΩ, unbalance, RCA pin jack
Number of Connectable Chairman/Delegate Units	32 units
Number of Connectable Sub Control Units	5 units
Maximum Cable Distance	50 m or 164.04 ft (between Master control unit and terminal Chairman/ Delegate unit at end of daisy chain)*2 1 m or 3.28 ft (between Master control unit and Sub control units, use the cable supplied with the Sub control unit.)
Maximum Number of Open Microphones	2 chairman units, 8 delegate units
Chairman/Delegate Units Terminal	RJ45 connector x 2
Sub Control Units Terminal	RJ45 connector
LED Indicator	Power indicator, Conference mode indicator, Max. open mic No. indicator, Mic auto-off indicator, Monitor volume indicator, Connection test indicator, External control indicator, Setting lock indicator, Recording status indicator, Access indicator, USB memory device indicator, Internal memory indicator, USB memory device remaining capacity warning indicator, Internal memory remaining capacity warning indicator, LINK/ACT indicator, 10 BASE-T/100BASE-TX indicator
Function Key	Conference mode selector key: Standard/Override/Voice activation/ Chairman Only Max. open mic No. setting key: 1/2/8 Mic auto-off setting key: ON/OFF Monitor volume control keys: –, + Setting lock key: ON/OFF Headphone volume control keys: –, +
Operation Key	Connection test key, Recording STOP key, Recording START key
Recording Ports	USB-A
Recording Function	Recordings can be made to a USB memory device *3 or the internal memory. Recording format: MP3 (MPEG-1 Audio Layer-3), monaural, Sampling frequency: 32 kHz, Bit rate: 128 kbps
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)
Network Protocol	TCP, HTTP, DHCP, ARP (APIPA), UDP (mDNS), UPnP
Network Connector	RJ45 connector
Operating Temperature	0 to 40 °C (32 to 104 °F)
Operating Humidity	90%RH or less (no condensation)
Finish	Panel: Surface-treated steel plate, black, 30% glossy, paint
Dimensions	361 (w) x 100.4 (h) x 184.2 (d) mm (14.21" x 3.95" x 7.25")
Weight	2.2 kg (4.85 lb)

*1 0 dB = 1 V
*2 Cable length can be extended to a maximum of 100 m (323.08 ft) with the use of the Extension unit.
*3 A USB 2.0 – Compatible FAT32 – formatted flash memory device of up 32 GB in capacity can be used. There may be cases in which a USB flash drive cannot be used with the TS-D1100-MU, depending on the drive's attributes or recording conditions.

Wired Conference Systems

Sub Control Unit

TS-D1000-SU

- Controls up to 48 Conference Units
- Up to 5 Sub Control Units connectable to the Master Control Unit with the supplied LAN cable
- Only 22 conference units can be connected to the 5th Sub Control Unit

Model	TS-D1000-SU
Power Source	100 to 240 V AC, 50/60 Hz (use of the supplied AC adapter)
Power Consumption	80 W or less
Number of Connectable Conference Units	48 units
Conference Units Terminal	RJ45 connector ×3
Sub-Control Units Terminal	RJ45 connector ×2
Maximum Cable Distance	50 m or 164.04 ft (between this unit and Conference unit at the end of daisy chain)*
LED Indicator	Power indicator
Operating Temperature	0 to 40 ºC (32 to 104 ºF)
Operating Humidity	90%RH or less (no condensation)
Finish	Panel: Aluminum, black, 30% glossy, paint Case: Surface-treated steel plate, black, 30% glossy, paint
Dimensions	210 (w) x 45.8 (h) x 294.8 (d) mm (8.27” x 1.8” x 11.61”)
Weight	1.6 kg (3.53 lb)

* Cable length can be extended to a maximum of 100 m (323.08 ft) with the use of the Extension unit.

Extension Unit

TS-D1000-EX

- Provides up to 150m distance over Shielded CAT5e

Model	TS-D1000-EX
Power Source	100 to 240 V AC, 50/60 Hz (use of the supplied AC adapter)
Power Consumption	25 W or less
Connection Terminal	RJ45 connector ×2
LED Indicator	Power indicator
Operating Temperature	0 to 40 ºC (32 to 104 ºF)
Operating Humidity	90%RH or less (no condensation)
Finish	ABS resin, white
Dimensions	124.3 (w) x 100.3 (h) x 35 (d) mm (4.89” x 3.95” x 1.38”)
Weight	150 g (0.33 lb) (unit only)

Chairman Unit

TS-D1000-CU

- Chairman unit for basic discussion
- Priority button
- 0.4W monitor speaker
- 2 headphone jacks with individual volume control
- PoE powered

Model	TS-D1000-CU
Power Source	24 V DC (supplied from the TS-D1100-MU Master control unit, TS-D1000-SU Sub control units or TS-D1000-EX Extension units)
Power Consumption	1.5 W or less
Input	Microphone terminal: XLR-3-31 type
Output	Monitor speaker: 8 Ω, 0.4 W Earphone: ø3.5 mm mini Jack (3P: monaural) x 2
Connection Terminal	RJ-45 connector x 2
LED Indicator	Power indicator, Speech indicator
Function	Speech function, Priority speech function, Earphone volume control x 2
Operating Temperature	0 to 40 °C (32 to 104 °F)
Operating Humidity	90%RH or less (no condensation)
Finish	Case: ABS resin, black, mat finish, paint Speaker net: Steel plate, black, mat finish, paint
Dimensions	208.9 (w) x 71.3 (h) x 160.5 (d) mm (8.22” x 2.81” x 6.32”)
Weight	880 g (1.94 lb)

Wired Conference Systems

Delegate Unit

TS-D1000-DU

- Delegate unit for basic discussion
- 0.4W monitor speaker
- 2 headphone jacks with individual volume control
- PoE powered

Model	TS-D1000-DU
Power Source	24 V DC (supplied from the TS-D1100-MU Master control unit, TS-D1000-SU Sub control units or TS-D1000-EX Extension units)
Power Consumption	1.5 W or less
Input	Microphone terminal: XLR-3-31 type
Output	Monitor speaker: 8 Ω, 0.4 W Earphone: ø3.5 mm mini Jack (3P: monaural) x 2
Connecting Terminal	RJ-45 connector x 2
LED Indicator	Power indicator, Speech indicator
Function	Speech function, Earphone volume control x 2
Operating Temperature	0 to 40 °C (32 to 104 °F)
Operating Humidity	90%RH or less (no condensation)
Finish	Case: ABS resin, black, mat finish, paint Speaker net: Steel plate, black, mat finish, paint
Dimensions	208.9 (w) x 71.3 (h) x 160.5 (d) mm (8.22" x 2.81" x 6.32")
Weight	875 g (1.93 lb)

Conference System Microphones

TS-D1000-M1/M2

- Gooseneck microphone
- Unidirectional electret condenser microphone
- LED shows microphone status
- XLR-3-32 connector
- Sensitivity:-37 dB (1 kHz, 0 dB = 1 V / PA)
- Frequency response: 100 Hz - 13 kHz
- Length: 518 mm (1.7 ft) (M1)
- Length: 668 mm (2.19 ft) (M2)

Model	TS-D1000-M1	TS-D1000-M2
Type	Electret condenser microphone	
Directivity	Unidirectional	
Rated Impedance	1.4 kΩ	
Rated Sensitivity	–37 dB (1 kHz, 0 dB = 1 V/Pa)	
LED Indicator	In-use indicator (ring type), Red	
Frequency Response	100 Hz to 13 kHz	
Output Connector	Equivalent to XLR-3-12C	
Operating Temperature	0 to 40 °C (32 to 104 °F)	
Operating Humidity	90%RH or less (no condensation)	
Finish	Gooseneck: Stainless steel, black Other: ABS resin, black	
Length	518 mm (1.7 ft)	668 mm (2.19 ft)
Weight	110 g (0.24 lb)	125 g (0.28 lb)
Applicable Unit	Chairman unit: TS-D1000-CU, Delegate unit: TS-D1000-DU	

Wired Conference Systems

Speaker Unit

TS-D1100-SP

- Speaker unit for basic discussion
- 1W monitor speaker
- Individual 6-level volume control
- PoE powered

Model	TS-D1100-SP
Power Source	24 V DC (supplied from the TS-D1100-MU Master Control Unit (option), TS-D1000-SU Sub Control Unit (option), or TS-D1000-EX (option))
Power Consumption	5 W or less
Frequency Response	100 Hz - 13 kHz
Signal to Noise Ratio	60 dB or more (A-weighted)
Speaker Output	8 Ω, 1 W 80 dB SPL
Connecting Terminal	RJ45 connector x 2
LED Indicator	Power indicator, Volume indicator
Function	Volume control
Operating Temperature	0 °C to +40 °C (32 °F to 104 °F)
Operating Humidity	90%RH or less (no condensation)
Finish	Case: ABS resin, black
Dimensions	214.2 (W) x 55.3 (H) x 211.4 (D) mm (8.43” x 2.18” x 8.32”)
Weight	550 g (1.21 lb)

Microphone Unit

TS-D1100-MC

- Compact gooseneck microphone unit
- Unidirectional electret condenser microphone
- LED shows microphone status
- Sensitivity:-37 dB (1 kHz, 0 dB = 1 V / PA)
- Frequency response: 100 Hz - 13 kHz
- Length: 516 mm (1.7 ft)
- PoE powered

Model	TS-D1100-MC
Power Source	24 V DC (supplied from the TS-D1100-MU Master Control Unit (option), TS-D1000-SU Sub Control Unit (option), or TS-D1000-EX (option))
Power Consumption	0.4 W or less
Frequency Response	100 Hz - 13 kHz
Signal to Noise Ratio	65 dB or more (A-weighted)
Connecting Terminal	RJ45 connector x 2
LED Indicator	Power/Speech indicator, indicator
Function	Speech function
Operating Temperature	0 °C to +40 °C (32 °F to 104 °F)
Operating Humidity	90%RH or less (no condensation)
Finish	Shaft: Brass, black Case: ABS resin, black
Dimensions	114 (W) x 516 (H) x 145.9 (D) mm (4.49” x 20.31” x 5.74”)
Weight	330 g (0.73 lb)

Wired Conference Systems

Flush-mount Chairman Unit

TS-D1000-CF

- Flush-mount Chairman unit for basic discussion
- Priority button
- 0.4W monitor speaker
- Volume control keys
- PoE powered

Model	TS-D1000-CF
Power Source	24 V DC (supplied from the TS-D1000-MU Master control unit (option) TS-D1100-MU Master control unit (option) TS-D1000-SU Sub control units (option) or TS-D1000-EX Extension units (option)
Power Consumption	1.5 W or less
Signal to Noise Ratio	65 dB or more (A-weighted)
Input	Microphone terminal: XLR 3 3 1 type, hidden latch lock for removable microphone
Output	Monitor speaker: 8 Ω, 0.4 W Earphone: 3.5 mm mini Jack (3P: monaural)
Speaker Output	75dB SPL
Connecting Terminal	RJ45 connector x2
LED Indicator	Power indicator, Speech indicator, Volume key indicator
Function	Speech function, Priority indicator, Speaker/Earphone volume control
Operating Temperature	0 to +40 °C (32 to 104 °F)
Operating Humidity	90%RH or less (no condensation)
Finish	Front panel: Aluminum, I !airline, Anodizing (color: Black) Case: Steel plate
Dimensions	260.0(W) x 120.0 (H) x 74.0 (D) mm
Weight	1 .04Kg
Accessory	Wood screw (M4) .. .4, Cable tie ... 2, Hex wrench (M3) ... 1
Option	Standard microphone: TS-D1000-M1 Long microphone TS-D1000-M2

Flush-mount Delegate Unit

TS-D1000-DF

- Flush-mount Delegate unit for basic discussion
- 0.4W monitor speaker
- Volume control keys
- PoE powered

Model	TS-D1000-DF
Power Source	24 V DC (supplied from the TS-D1000-MU Master control unit (option) TS-D1100-MU Master control unit (option) TS-D1000-SU Sub control units (option) or TS-D1000-EX Extension units (option)
Power Consumption	1.5 W or less
Signal to Noise Ratio	65 dB or more (A-weighted)
Input	Microphone terminal: XLR-3-31 type, hidden latch lock for removable microphone
Output	Monitor speaker: 8 Ω, 0.4 W Earphone: 03.5 mm mini Jack (3P: monaural)
Speaker Output	75dB SPL
Connecting Terminal	RJ45 connector x2
LED Indicator	Power indicator, Speech indicator, Volume key indicator
Function	Speech function, Speaker/Earphone volume control
Operating Temperature	O to +40 °C (32 to 104 °F)
Operating Humidity	90%RH or less (no condensation)
Finish	Front panel: Aluminum, Hairline, Anodizing (color: Black) Case: Steel plate
Dimensions	60.0(W) x 120.0 (H) x 74.0 (D) mm
Weight	1.04Kg
Accessory	Wood screw (M4) .. .4, Cable tie ... 2
Option	Standard microphone: TS-D1000-M1 Long microphone: TS-D1000-M2

MICROPHONES

Dynamic Microphones

Unidirectional Microphone

DM-1300US

- Dynamic hand-held microphone for vocal/speech use
- Rigid die cast zinc microphone body
- Switching and handling noise suppression
- Microphone holder provided as standard accessory
- Balanced output for long distance connection

Model	DM-1300US
Type	Moving coil microphone (Dynamic microphone)
Directivity	Unidirectional: Cardioid
Rated Impedance	600 Ω, balanced
Rated Sensitivity	–54 dB (1k Hz 0 dB = 1 V/Pa)
Frequency Response	70 Hz – 15 kHz
Weight	245 g (0.54 lbs) (without connection cable)
Dimensions (W x H x D)	ø 51 x 170 mm (2" x 6.7")
Talk switch	Short-off type, slide on/off switch
Finish	Body: Die cast zinc, painted metallic gray, paint Head: Steel, zinc plated steel wire, painted metallic gray
Standard accessory	Microphone holder (NS5/8) x1, Thread adapter (NS5/8→U5/16 or (W3/8)) x 1

Paging Microphone

Paging Microphone

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

Noise Cancelling Paging Microphone

PM-222U

- Close talking microphone for general announcements
- Locking talk switch
- Remotely controls both amplifier power and chime operation
- Lock-on push-to-talk switch for continuous use

Model	PM-660U	PM-222U
Rated Impedance	600 Ω, balanced	600 Ω, balanced
Rated Sensitivity	–58 dB (1 kHz, 0 dB = 1 V/Pa)	–47 dB (1 kHz, 0 dB = 1 V/Pa)
Frequency Response	100 Hz to 10 kHz	100 Hz to 10 kHz
Remote Switch	Leaf spring contact (interlocked with talk switch), 30 V DC, under 500 mA	Make contact (linked with talk switch) 30 V DC, 500 mA or less
Finish	Head: Zinc plated steel wire, gray, paint Body: ABS resin, gray	ABS resin, gray
Dimensions	100 (w) x 215 (h) x 150 (d) mm (3.94" x 8.46" x 5.91")	44 (w) x 160 (h) x 38 (d) mm (1.73" x 6.30" x 1.50")
Weight	440 g (0.97 lb) (cable excluded)	200 g (0.44 lb)

Remote Microphone

Remote Microphone

Q-RM9012

- High-sensitivity electret-condenser gooseneck mic for clear voice
- 12 zone select buttons, All Call, Clear
- 12 Contact Outs corresponding to buttons (RJ-45 connector for use with shielded Cat5 wiring)
- Connects to C-IN on 9000M2 (mainframe & equipped with C-001T)
- AD-246 AC Adapter required

Condenser Microphones

⋙ Gooseneck Microphone

EM-380

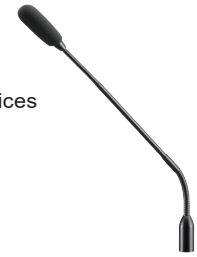
- Uniquely shaped and high quality Electret condenser microphone
- Optional use of using battery or phantom power
- Designed for use in lecture halls, house of worship, and paging applications
- Easy install, plug into amplifier and speak

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 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

⋙Gooseneck Microphone

EM-800



- Electret condenser microphone for such speech applications as meetings, lectures, and religious services
- Excellent high-frequency response of 60 to 20k Hz delivers clear output
- High sensitivity (-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-380	EM-600	EM-800
Directivity	Cardioid	Omnidirectional	Cardioid
Rated Impedance	750 Ω, Balance	120 Ω, balanced	
Rated Sensitivity	-41dB ±3dB 11 kHz 0dB=1V/Pa)	–36 dB (1k Hz 0 dB = 1 V/Pa)	–35 dB (1kHz 0 dB = 1 V/Pa)
Phantom power	9-52V DC (required for operation)		
Frequency Response	50 Hz - 16,000 Hz	30 Hz – 20kHz	60 Hz – 20kHz
Output Connector	XLR-3-12 equivalent		
Finish	Stand Mic : ABS Resin, Black, Paint Mic shaft : Copper alloy, Black, Paint	Body: Steel, white, semi-gloss, paint Head: Zinc-plated steel wire, white, semi-gloss, paint	Body, Shaft: Copper alloy, black, semi-gloss, paint
Dimensions	14.3" X 5.7" X 20.9" 110 (W) x 145 (L) x 532 (H) mm	ø28 × 68mm (1.1" x 2.7")	ø12 × 420mm (0.5" x 16.5")
Weight	550 g (exclude batteries)	85 g (0.19 lb)	135 g (0.3 lb)
Accessory	Windscreen .... 1, XLR to Phone Jack Cable 17.5m) 1	Rubber Isolation Ring × 2, M20 Nut × 1	Windscreen × 1
Optional Stand	—		Microphone Stand: ST-800

Optional Accessories

⋙Microphone Stand for EM-800

ST-800

(EM-800 with microphone stand ST-800)

WIRELESS MICROPHONES

WIRELESS DISTRIBUTION
SPORTS COMPLEXES
PERFORMANCE/THEATRE
PROJECTED SPEECH
HOSPITALITY
EDUCATION
VOICELIFT
RETAIL

Infrared Portable Voicelift System

The IR-842 is our new portable system for projected speech, meaning educators and presenters are no longer limited to traditional classroom spaces or rooms with installed audio systems. With the IR-842, almost any indoor space can become a classroom that any educator would be proud to teach in.

It is designed for use in conjunction with TOA's IR-200 (handheld) or TOA's IR-300 (handsfree) infrared microphones. The system can also utilize additional IR-842PSU (companion units) to enhance the reception and coverage of this portable infrared classroom soundfield system. The system can be set-up with multiple mounting options, including tabletop placement, wall-mounting with the supplied c-channel bracket, or pole-mounted with the optional IR-842HY pole mounting bracket.

Main Speaker Unit & Companion Unit

IR-842PMU/PSU

The IR-842PMU is a compact, portable infrared classroom soundfield system, designed for use in conjunction with TOA's IR-200M (hand-held), IR-300 (hands-free), or IR-310 (hands-free) infrared wireless microphones, featuring high sensitivity and clear sound.

Model	IR-842PMU (Main Unit)	IR-842PSU (Companion Unit)
Power Source	100 – 240 V AC, 50/60 Hz (use of the supplied AC adapter)	Power Supplied by IR-842PMU
Rated Output	40 W (80 W max. including IR-842PSU output)	N/A
Power Consumption	60 W (120 W max. including IR-842PSU output)	N/A
Wavelength	850 nm	
Carrier Frequency	Teacher (CH-A): 3.1 MHz, Student (CH-B): 3.350 MHz	
Communication Area	Approx. 15m (49.21ft) in a space without any obstacles and visible between mic and receiver	
External IR Receiver Port	RJ-45	
Audio Input	Mic: -42 dBV, 2.2. kΩ, electronic balanced, female XLR connector Aux: -10 dBV, 10 kΩ, stereo pair, unbalanced, headphone jack Bluetooth input: Ver. 5.0, Max. 10m	main unit speaker OUT: 23.8 dBV, unbalanced, 40W/6Ω, lever terminal
Audio Output	Companion speaker OUT: 23.8 dBV, unbalanced, level terminal AUX OUT: -10 dBV, 10kΩ, stereo pair, unbalanced, headphone jack	N/A
Frequency Response	20 – 20,000 Hz, ±3 dB	N/A
Total Harmonic Distortion	0.1% (LPF 20 kHz)	N/A
S/N Ratio	Over 70 dB (A weighted)	N/A
Phantom Power	+ 24 VDC, switchable, MIC input	N/A
Indicators	Power(green) …1, IR CH-A(green) …1, IR CH-B(green) …1, IR CH-A Priority(red) …1, Bluetooth(blue) …1, Phantom power (green) …1	N/A
Operation	IR CH-A volume control, IR CH-B volume control, MIC volume control, AUX IN volume control, AUX OUT volume control, Bluetooth volume control	N/A
Operating Temperature	0°C to +40°C (32°F to 104°F)	
Operating Humidity	Under 90% RH (no condensation)	
Finish	Enclosure: MDF, white paint Punched net: surface-treated steel plate, white, paint	
Dimensions	218(w) x 339.6(h) x 254(d) mm (8.6" x 13.37" x 9.99")	
Weight	4.97kg (10.96 lbs)	4.52 kg (9.96 lbs)
Accessory	AC power adapter x1, Wall mounting bracket x1	Wall mounting bracket x1

(IR-842PMU rear shown)

(IR-842PSU rear shown)

Infrared Portable Voicelift System

External Infrared Receiver

IR-842R

The IR-842R is an external infrared receiver for the IR-842PMU, also used to enhance the reception of the system when a sub unit is not necessary. Prime use cases include
irregularly shaped spaces or when multiple lines-of-sight to a receiver is required.

- Approx. 7m radius of communication area

Model	IR-842R
Wavelength	850nm
Carrier Frequency	Teacher (CH-A): 3.1 MHz Student (CH-B): 3.350 MHz
Communication Area	Approx. 7m (22.97ft) in radius from the point underneath the unit (Ceiling Height: 2.5-3m (8.2 – 9.84ft), in a space without any obstacles and visible between the infrared microphone and receiver)
Communication Terminal for External IR Receiver	RJ-45
Operating Temperature	0°C to +40°C (32°F to 104°F)
Finish	Enclosure: ABS, Black
Dimensions	110.4(w) x 110.4(h) x 49(d) mm (4.35" x 4.35" x 1.92")
Weight	136g (0.3lbs)

Infrared Portable Voicelift System Optional Accessories

Carrying Bag

IR-842BAG

Pole Mounting Bracket

IR-842HY

Infrared Wireless Classroom System

TOA's educational microphone system offers wireless convenience and clear, interference free infrared voice transmission that brings classrooms to life. Also suited for training rooms and conference rooms.

- A 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 Speaker

IR-820SP Y 4QD00

- Possible to use with Channel A / B / 1 / 2
- Built-in infrared receiver and 20W digital amplifier
- Unique wide-dispersion acoustic structure employing innovative TOA technology to achieve uniform output over a wide radius
- Bass-reflex speaker system achieving a wide frequency range and high power-handling capability
- Easy installation with quick, optimally positioned ceiling mounting

Model	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:	870 nm
Carrier Frequency:	Channel A : 3.100 MHz, Channel B : 3.350 MHz Channel 1 : 4.100 MHz, Channel 2 : 4.725 MHz
Reception Angle:	360° (Horizontal)
Connection Terminal	RJ-45
Connection Cable	CAT-5 UTP
Operating Temperature	-10°C to 50°C (14°F - 122°F)
Dimensions	ø320 × 205 (D) mm (12.6" x 8.1")
Weight	3.4 kg (7.5 lbs)

*0 dB = 1V

Infrared Wireless Tuner

IR-802T CU AQD00

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

Model	IR-802T CU AQ
Power Source	120 V AC, 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:	line, -10 dB*, 10 kΩ, unbalanced, stereo mini jack (internal mixing)
AUX DVD/TV:	line, -10 dB*, 10 kΩ, unbalanced, 2P RCA jack (internal mixing)
AUX MP3:	line, -10 dB*, 10 kΩ, unbalanced, stereo mini jack (internal mixing)
Mute:	25 V line signals of telephone paging from a school intercom system
Output	ALD (Assistive Listening Device): line, -10 dB*, 10 kΩ, unbalanced, monaural mini jack Speaker: RJ45 (dedicated terminal for IR-820SP connection)
Feedback Suppression	Valid for mixing out of 2 infrared wireless microphones
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) x 312 (D) mm (8.3" x 1.8" x 12.3")
Weight	1.8 kg (4 lbs)

*0 dB = 1V

Infrared Wireless Classroom System

Infrared Wireless Tuner

IR-802T CU 1QD00

- Channel 1 / 2, with Priority Control for separate mode
- Built-in Feedback Suppression
- 3 AUX inputs for PC, TV/DVD player and MP3 audio player
- Output muting by 25V line signal from telephone paging
- Equalizer control knobs for low-, mid- and high-frequency outputs
- Mixing output terminal for ALD (Assistive Listening Device)
- Frequency response optimized to reduce acoustic feedback in 30 ft x 30 ft classrooms

Model	IR-802T CU 1Q
Power Source	120 V AC, 50/60 Hz (supplied AC adapter must be used)
Receiving Frequency	Teacher (Channel 1): 4.100 MHz Student (Channel 2): 4.725 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:	line, -10 dB*, 10 kΩ, unbalanced, stereo mini jack (internal mixing)
AUX DVD/TV:	line, -10 dB*, 10 kΩ, unbalanced, 2P RCA jack (internal mixing)
AUX MP3:	line, -10 dB*, 10 kΩ, unbalanced, stereo mini jack (internal mixing)
Mute:	25 V line signals of telephone paging from a school intercom system
Output	ALD (Assistive Listening Device): line, -10 dB*, 10 kΩ, unbalanced, monaural mini jack Speaker: RJ45 (dedicated terminal for IR-820SP connection)
Feedback Suppression	Valid for mixing out of 2 infrared wireless microphones
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) x 312 (D) mm (8.3" x 1.8" x 12.3")
Weight	1.8 kg (4 lbs)

*0 dB = 1V

Infrared Wireless Microphone

IR-310M Y PQ

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

Model	IR-310M Y PQ	IR-310M
Carrier Frequency	Channel A: 3.100 MHz (The indication of channel selector is "A") Channel 1: 4.100 MHz (The indication of channel selector is "B")	Channel A: 3.100 MHz Channel B: 3.350 MHz
Function	Priority function switch to mute Channel B or Channel 2	————
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 (50 ft) (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 (2.1" x 4.3" x 1.1")	
Weight	95g (0.21 lb) (with battery and strap)	
Accessories	Neck strap x 1	

Interface Unit

IR-801AF + Use only with Plus System

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

Model	IR-801AF
Power Source	24 V DC (supplied from IR-802T)
IR Frequency Channel	Channel A: 3.100 MHz
Contact Output	Relay contact output, contact capacity: 30 V DC / 2-500 mA, removable terminal block
Audio Output	-20dB, Electrical balanced, removable terminal block
Operating Temperature	32°F to 104° F (-10°C to + 50°C)
Operating Humidity	Less than 90% RH
Finish	Control section: ABS resin, black
Dimensions	8.27" (W) x 2.73" (H) x 7.13" (D) (8.27" x 1.73" x 7.13")
Accessories	Removable terminal block (2 pins) x 1, (3 pins) x 1

External Infrared Receiver

IR-800D

The IR-800D Is an expansion unit that allows for the addition of any IR-500 series IR receiver to the IR-800 System.

- Compatible with any version of the IR-800 System.
- Labelled for easy setup

Model	IR-800D
Input/Output	2 mixing inputs, 1 distribution output
Band-Pass Frequency	3.0 - 6.0 MHz
Distribution Input	RJ45 x 1 for IR-820SP, 75 Ω, BNC jack x 1 for IR-500 series IR receiver
Distribution Output	RJ45 x 1 for IR-802T
Operating Temperature	-10 °C to +50 °C (14 °F to 122 °F)
Operating Humidity	30 % to 85 %RH (no condensation)
Finish	Case: ABS resin, black
Dimensions	84 (W) x 84 (H) x 32 (D) mm (3.29" x 3.29" x 1.25")
Weight	140 g (0.31 lbs.)

IR Wireless Classroom Series Accessories

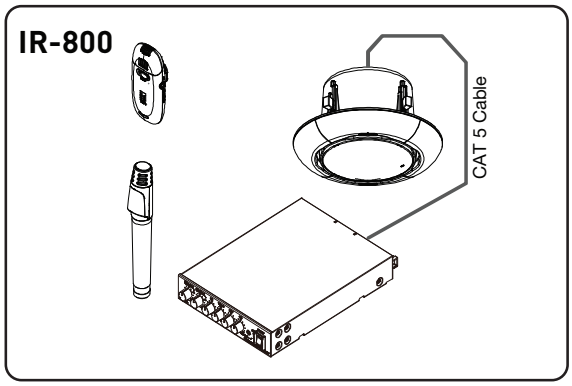
Battery Charger

IR-310BC

Infrared Wireless Classroom System

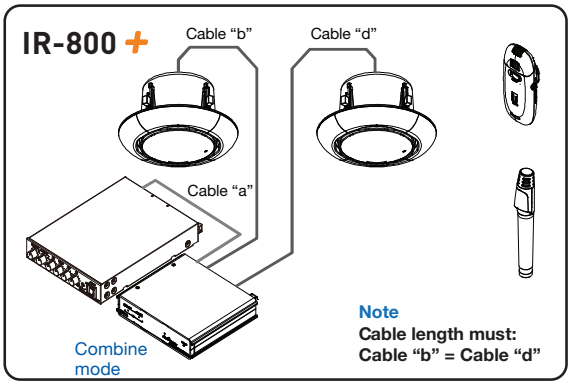
IR-800 & IR-800 Plus Configuration Examples

Ask for more configuration options



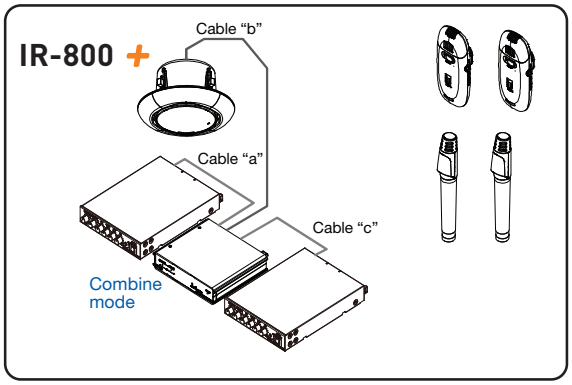
2 channel system for typical class room

- Typical for average size classroom
- 1 or 2 microphones
- Wide dispersion speaker
- 360° IR sensor has extremely wide pickup



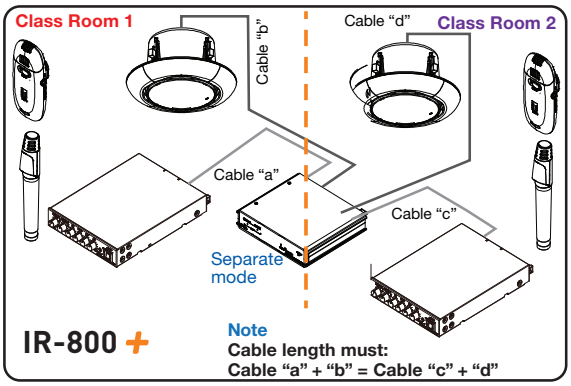
2 channel system for large class room

- Designed for larger rooms, in combine mode
- 1 or 2 microphones
- 2 Wide dispersion speaker for full vocal coverage
- 360° IR sensor has extremely wide pickup



4 channel system for large class room

- Typical for average size classroom, in combine mode
- Up to 4 microphones with AF interface unit
- Wide dispersion speaker
- 360° IR sensor has extremely wide pickup



2 channel system for dual zone class rooms

- Flexible for large rooms that can be divided into two smaller rooms
- Up to 2 microphones in each room when using Separate mode
- When using in larger full room, Up to 4 microphones using combine mode with AF interface unit
- 2 Wide dispersion speakers
- 360° IR sensor has extremely wide pickup

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 rooms simultaneously without interference. Ideally suited for education facilities, conference and meeting rooms, training rooms, and general small to mid-size rooms.

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

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 × 241.8 mm (1.6" x 9.5")	64 (W) × 91.3 (H) × 27.3 (D) mm (2.5" x 3.6" x 1.1")
Weight	170g (with batteries)	130g (with batteries & strap)

Battery Charger

IR-200BC

Infrared Wireless Tuner

IR-702T

- Built-in 2-channel fixed-frequency tuner
- 2 Infrared receivers per unit (expandable)
- 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

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. 220 mA 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 (8.2" x 1.7" x 8.3")
Weight	630g (1.4 lbs) (unit only)

Infrared Wireless Distributor

IR-700D

- Equipped with 4 receiving mixing inputs 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-700D
Power Source	AC mains 50/60Hz (use of the supplied AC adaptor)
Power Consumption	25 W or less
Input/Output	4 mixing inputs, 2 distribution outputs
Infrared Receiver Input	75 Ω, BNC jack × 4 (Infrared wireless receiver's power source: 24V DC, 800 mA in total of 4 terminals)
Number of Connectable Conference Receivers	16 (YW-1024 x 4)
Distribution Output	75 Ω, BNC jack
Dimensions	210 (W) × 44 (H) × 200.9 (D) mm (8.2" x 1.7" x 7.9")
Weight	640g (1.4 lbs) (unit only)

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

Model	IR-500R	IR-510R	IR-520R
Power Source	24 V DC (supplied from the IR-702T)		
Current Consumption	Max. 40 mA	Max. 60 mA	Max. 30 mA
Infrared Detector Wavelength Carrier Frequency Communication Area Reception Angle	870 nm Channel A: 3.100 MHz/Channel B: 3.350 MHz Approx. 15 m (50 ft) in a space without any obstacles Vertical: 80° (up to 30° moveable downward) Horizontal: 80° (up to 30° moveable left or right)	— —	
Connection Terminal	75Ω, BNC jack		
Operating Temperature	0 °C to +40 °C (32 °F to 104 °F)		
Operating Humidity	30% to 85% RH (no condensation)		
Finish	Filter section: Polycarbonate, optical cut filter Base: ABS resin, off-white	Filter section: Polycarbonate, optical cut filter Base: ABS resin, black	Filter section: Polycarbonate, optical cut filter
Dimensions	70 (W) x 120 (H) x 72 (D) mm (2.76" x 4.72" x 2.83")	ø120 x 71.3 (H) mm (ø4.72" x 2.81")	84.5 (W) x 63.5 (H) x 32 (D) mm (3.33"x2.5"x1.26")
Weight	220g (0.49 lbs) (unit only)	205g (0.45 lbs) (unit only)	100g (0.22 lbs) (unit only)
Accessory	—	Mounting bracket x 1	Stand mounting bracket x 1, Bracket mounting screw x 2

Infrared Wireless System Accessories

IR Wireless Microphone Series Accessories

Battery Charger
IR-200BC
- for IR-200M & IR-300M

Battery Charger
IR-310BC
- for IR-310M

Ni-HM Battery
IR-200BT-2

Surface mount back can
BC-820
- for IR-820SP

Wall mount bracket
WB-802
- for IR-802T

Tie-clip microphone
YP-M101

Headworn Microphone
YP-M5000H

Single Ear Microphone
YP-M5000E

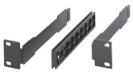
Support rails
HY-TB1
- for IR-820SP

Distributor
YW-1022
- 1 into 2 outputs

Distributor
YW-1024
- 2 into 4 outputs

Rack mount brackets
MB-WT3
- for IR-702T & IR-700D

Rack mount brackets
MB-WT4
- for IR-702T & IR-700D



Power cable connector
A-DC-Y
- Connects 2 IR-310BC to 1 AC power Adapter

IR Wireless Classroom System Kit Ordering Information

Infrared Wireless Classroom System Kits

• *Order product separately or as a kit.*

	IR-800KIT1	IR-800KIT2	IR-800KIT3	IR-800KIT4	IR-800KitP1	IR-800KitP2
[IR-801AF US DQ]					✓	✓
[IR-802T CU AQ]	✓	✓	✓	✓	✓	✓
[IR-802T CU 1Q]					✓	
[IR-820SP Y 4Q]	✓	✓	✓	✓	✓	✓ X 2
[HY-TB1]	✓	✓	✓	✓	✓	✓ X 2
[IR-310M Y PQ]					✓	✓
[IR-310M]			✓	✓ X 2		
[IR-310BC]			✓	✓ X 2	✓	✓
[IR-300M]	✓	✓				
[IR-200M Y 4Q]		✓			✓ X 2	
[IR-200BC]	✓	✓			✓	
[IR-200BT-2]	✓	✓ X 2	✓	✓ X 2	✓ X 3	✓
[ACG36]	✓	✓	✓	✓	✓	✓
[CAT-5E] *(FT 6) / (FT 15') / (FT 50')*	✓ *(FT 6)*	✓ *(FT 6)*	✓ *(FT 6)*	✓ *(FT 6)*	✓ *(FT 15') (FT 50')* X 2	✓ *(FT 15') (FT 50')* X 2
[CSTEREO-03]	✓	✓	✓	✓	✓	✓
[WB-802]	✓	✓	✓	✓	✓ X 2	✓

D-5000 Digital Wireless Series

Handheld Digital Wireless Microphone

WM-D5200

The WM-D5200 is a digital wireless microphone employing a condenser microphone element that features high sensitivity and clear sound quality. The microphone is specially designed to be used in conjunction with TOA's WT-D5800 digital wireless receiver.

- Lightweight body
- 1 AA battery provides up to 8 h of continuous use
- Selectable microphone sensitivity
- Selectable transmission output (1 mW/10 mW)
- 3-step battery life indicator
- Built-in antenna

Model	WM-D5200
Microphone Element	Electret condenser unit: Unidirectional
Modulation	FSK
Frequency Range	WM-D5200 -A2: 694 – 703 MHz WM-D5200 -C4, -C7: 798 – 832 MHz (803 – 806 MHz for Thailand) WM-D5200 -G1: 606 – 636 MHz WM-D5200 -H1: 576 – 606 MHz
Channel Selection	160 channels (The number of channels may differ from country to country.)
RF Carrier Power	Less than 50 mW
Maximum Input Level	132 dB SPL (Sensitivity: L)/122 dB SPL (Sensitivity: H)
Audio Frequency Response	100 Hz – 12 kHz
Dynamic Range	Typ. 90 dB (when used with WT-D5800)
ID Selection	10 patterns
Battery	WB-2000 rechargeable battery (option) or AA Alkaline dry cell battery
Battery Life	Approx. 8 hours
Antenna	Built-in type
Operating Temperature	–10 to +50 °C (14 to 122 °F) (except battery)
Operating Humidity	30 to 85 %RH (no condensation)
Finish	Body: ABS resin, black, coating Head: steel, black, paint
Dimensions	ø47 × 239.5 mm (ø1.85" × 9.43")
Weight	220 g (0.49 lb) (with battery)

Beltpack Transmitter

WM-D5300 -H1

The WM-D5300 is a digital wireless transmitter to be used with the optional microphones, exclusively for speech applications. The transmitter is specially designed to be used in conjunction with TOA's WT-D5800 digital wireless receiver.

- Ultra slim and lightweight body
- 1 AA battery provides up to 8 h of continuous use
- Selectable microphone sensitivity
- Selectable transmission output (1 mW/10 mW)
- 3-step battery life indicator

Model	WM-D5300 -H1
Frequency Range	WM-D5300 -A2: 694 – 703 MHz WM-D5300 -C4, WM-D5300 -C7: 798 – 832 MHz (803 – 806 MHz for Thailand) WM-D5300 -G1: 606 – 636 MHz WM-D5300 -H1: 576 – 606 MHz
Channel Selection	160 channels (The number of channels may differ from country to country)
RF Carrier Power	Less than 50 mW
Maximum Input Level	–18 dB* (Sensitivity: L)/–28 dB* (Sensitivity: H)
Audio Frequency Response	100 Hz – 12 kHz
ID Selection	10 patterns
Battery	WB-2000 rechargeable battery (option) or AA Alkaline dry cell battery
Battery Life	Approx. 8 hours
Antenna	Lamda/4 whip antenna
Operating Temperature	–10 to +50 °C (14 to 122 °F) (except battery)
Operating Humidity	30 to 85 %RH (no condensation)
Finish	Body: ABS resin, black, paint
Dimensions	WM-D5300 -C4, WM-D5300 -C7: 62 (w) × 171 (h) × 19 (d) mm (2.44" × 6.73" × 0.75") WM-D5300 -A2, WM-D5300 -G1, WM-D5300 -H1: 62 (w) × 185 (h) × 19 (d) mm (2.44" × 7.28" × 0.75")
Weight	90 g (0.2 lb) (with battery)

D-5000 Digital Wireless Series

Antenna Distributor

WD-5800 3CU

The TOA Wireless Antenna Distributor WD-5800 is designed to be used in conjunction with a VHF/ UHF band system for sound reinforcement applications. It comes with two channels, in which two input signals are mixed and distributed to four outputs. The WD-5800 also has four DC power distribution outputs.

- 2 antenna inputs and 4 distributed outputs
- 2 inputs per antenna which are mixed for output (when 2 antenna are set up in a large room)
- Supplies power to antenna
- Compact 19” rack-mount design

Model	WD-5800 3CU
Power Source	AC mains (supplied AC adapter must be used)
Current Consumption	1.6 A (12–15 V DC)
Frequency Range	VHF/UHF
Antenna Input	2 inputs per distribution channel (front x 1, rear x 1), 75 Ω, BNC (phantom power for antenna)
Antenna Output	4 outputs per distribution channel, 75 Ω, BNC
Operating Temperature	–10 to +50 °C (14 to 122 °F)
Operating Humidity	30 to 85%RH (no condensation)
Finish	Panel: Aluminum, black, paint Case: Steel, black, paint
Dimensions	420 (w) x 44 (h) x 214 (d) mm (16.54” x 1.73” x 8.43”)
Weight	2 kg (4.41 lb)

Antenna for Wall-/Ceiling Mounting

YW-4500

The wireless antenna YW-4500 has been designed for our UHF band wireless systems with a frequency range of 572 - 608 MHz. Cable loss can be compensated for by a built-in RF signal booster. The YW-4500 is a dipole antenna designed to be installed indoors. Use coaxial cable with a 75Ω impedance. When ordering the YW-4500, use matching receiver models WT-58xx, our WT-D5800 digital receiver, or our WTU-4800 tuner packs with the suffixes H01 or RH1 US.

- Omnidirectional dipole antenna for wall or ceiling mounting
- By means of the integrated RF amplifier losses induced by long cable runs can be compensated

Model	YW-4500
Power Source	7 to 12 V DC (supplied from amplifier or tuner/receiver)
Power Consumption	15 mA or less
Receiving Frequency	550 - 932 MHz, UHF
Dipole Ratio Relative Gain	8 dB or more (780 MHz)
Antenna Gain	More than 8 dB (0 dB position)
VSWR	3.0 or less
Output Impedance	75 Ω
Mounting Hole Pitch	83.5 mm (dimensions for wiring box)
Operating Temperature	–10 to 50°C
Operating Humidity	30 % to 85 %RH (no condensation)
Dimensions	105 (W) x 140 (H) x 126 (D) mm
Weight	270 g
Included Accessories	M3.5 screw for wiring box x 2, Tapping screw (M4) for wooden wall x 2, RG-6/U or RG-11/U sleeve x 1

(*1) asterisks

Rechargeable Battery

WB-2000-2

The WB-2000-2 (containing 2 pieces) is an AA nickel-metal hydride (Ni-MH) rechargeable battery pack designed for use with 5000 Series wireless microphones, wireless transmitter and portable receiver.

- 2 pcs Ni-MH rechargeable batteries for use with the transmitters and charging stations of the 5000 series

Model	WB-2000-2
Nominal Voltage	1.2 V DC
Capacity	1900 mAh (rated), 2000 mAh (typical)
Operating Temperature	0 °C to +40 °C (32 °F to 104 °F)
Operating Humidity	30 % to 85 %RH (no condensation)
Dimensions	Ø14.5 x 50.5 mm (Ø0.57” x 1.99”)
Weight	30 g (1.06 oz) (per piece)

D-5000 Digital Wireless Series

Dedicated Battery Charger

BC-2000A

The BC-2000A is a dedicated battery charger for the WM-D5200 Digital Wireless Microphone and WM-D5300 Digital Wireless Transmitter. It works with the optional AD-5000-2 AC Adapter. The BC-2000A employs a quick charging system for nickel-metal hydride (Ni-MH) batteries.

- Approx. 2 hour charging time
- Charge up to 2 units simultaneously

Model	BC-2000A
Power Source	12 V DC (Optional AC adapter AD-5000-2 must be used.)
Current Consumption	750 mA
Charging Time	Approx. 2 hours
Number of Units to be Charging Simultaneously	2 pieces
Operating Temperature	0° to 40 ºC (32° to 104 ºF)
Operating Humidity	30 to 85% RH (no condensation)
Finish	Case: ABS resin, black, semigloss, paint Rechargeable unit receptacle section: PPE resin, black
Dimensions	–20 dB*, 10 kΩ, unbalanced, phone jack
Weight	238 (w) x 108.5 (h) x 98 (d) mm (9.37" x 4.27" x 3.86")
Option	500 g (1.1 lb)

Digital Wireless Receiver

WT-D5800 RH1

Digital transmission with many advantages over analogue transmission: operation of many more simultaneous channels than analogue systems within one band, encryption of audio data for confidential applications, less intermodulation. Battery status indication. Built-in feedback suppressor (FBS). Contact output for battery low or microphone active.

- Frequency channel scan
- Feedback suppression
- Built-in optimized preset equalization in microphones
- Detachable antenna
- Audio mixing with cascading voice input connectivity

Model	WT-D5800 RH1
Power Source	AC mains (supplied AC adapter must be used)
Current Consumption	350 mA (13.5 V)
Frequency Range	WT-D5800 -A2: 694 – 703 MHz WT-D5800 EC4, EC7: 798 – 832 MHz (803 – 806 MHz for Thailand) WT-D5800 EG1, GG1, -G1: 606 – 636 MHz WT-D5800 RH1: 576 – 606 MHz
Channel Selection	160 selectable frequencies
Receiving System	Double super-heterodyne
Diversity System	Space diversity (digital diversity)
Mixing Output	MIC/LINE (selectable): –60 dB* (MIC)/–20 dB* (LINE), 600 Ω phone jack (unbalanced), 600 Ω XLR-3-32 type connector (balanced)
Mixing Input	–20 dB*, 10 kΩ, unbalanced, phone jack
Antenna Input	75 Ω, BNC (phantom powering for antenna), 9 V DC, 30 mA (max)
Antenna Output	75 Ω, BNC (Gain 0 dB)
Contact Output	1 channel, no-voltage make contact output, withstand voltage: 30 V DC, control current 0.5 A max terminal block (2 pins)
Receiving Sensitivity	24 dBμV or less (Bit error rate: 1E-5 or less)
Antenna Input Attenuator	0 dB/–10 dB switchable
Indicator	Audio (5 steps), RF (5 steps), ANT A/B, Audio (peak), Battery alarm
Total Harmonic Distortion	0.5 % or less
Frequency Response	50 Hz – 12 kHz
Other Function	Frequencies scanning, Feedback suppressor, Equalizer (optimizing each compatible microphone)
ID Selection	10 patterns
Operating Temperature	–10 to +50 °C (14 to 122 °F)
Operating Humidity	30 to 85 %RH (no condensation)
Finish	Resin, black
Dimensions	210 (w) × 44 (h) × 211.9 (d) mm (8.27" × 1.73" × 8.34")
Weight	730 g (1.61 lb)

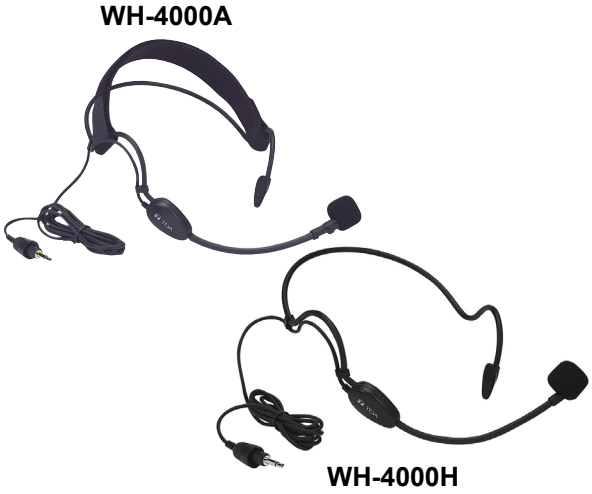
D-5000 Digital Wireless Series

Headworn Microphone

WH-4000A
WH-4000H

The WH-4000A is headset microphone of a cardioid pick-up pattern, featuring a lightweight design. Besides, the WH-4000A is equipped with an adjustable band to fix the headset on your head.

- Sports version of the WH-4000H
- Adjustable neckband
- Protection against the ingress of moisture
- Ideally suited for use in gyms and aerobics classes
- Unidirectional characteristics
- Electret condenser capsule
- Max. SPL: 120 dB
- Frequency Response: 80 Hz – 15 kHz ±3 dB
- To use with WM-5325 or WM-D5200Highlights



Model	WH-4000A	WH-4000H
Type	Electret condenser type	
Directivity	Unidirectional	
Sensitivity	-66 dB ±3 dB (0 dB = 1 V/0.1 Pa, 1 kHz)	
Maximum Input Level	120 dB SPL	
Cable Length	1.3 m	
Output Terminal	Φ3.5 mm monaural plug	
Finish	Headband: EVA, black Frame: Stainless, black (silicon rubber) Gooseneck: Black (shrink tube)	Frame: Stainless, black (silicon rubber) Gooseneck: Black (shrink tube)
Weight	50 g (cable included)	

(*1) asterisks

Lavalier Microphone

YP-M5300
YP-M5310

The YP-M5300 is lavalier microphone. It employs an unidirectional electret condenser microphone element.

- Lavalier microphone
- Omnidirectional characteristics
- Only 20 g weight including cable
- Electret condenser capsule
- Max. SPL: >120 dB
- Frequency Response: 100 Hz – 12kHz ±3 dB
- To use with WM-5323 or WM-D5200

Model	YP-M5300	YP-M5310
Type	Electret condenser type	
Directivity	Unidirectional	Omnidirectional
Sensitivity	-63 dB ±3 dB (0 dB = 1 V/0.1 Pa, 1 kHz)	-64 dB ±3 dB (0 dB = 1 V/0.1 Pa, 1 kHz)
Frequency Response	100 Hz - 12 kHz	100 Hz - 15 kHz
Maximum Input Level	120 dB SPL	110 dB SPL
Cable Length	1.3 m (4.27 ft)	1.3 m (4.27 ft)
Output Terminal	Ø3.5 mm (Ø0.14) mini plug	Φ3.5 mm (Φ0.14) mini plug
Finish	Dark black	
Weight	20 g (0.71 oz) (cable included)	

(*1) asterisks

TRANTEC
S2.4 Digital Wireless Microphone

Spotlight

»Digital Wireless Receiver

S2.4 RX - Receiver

- 2.4GHz ISM Digital Wireless Microphone System
- Up to 2 simultaneous channels
- Removable Antennas
- No RF noise
- Can transmit up to a distance of 30m 16 bit, 38.4kHz audio format
- Single system comes with either a handheld microphone or a beltpack transmitter
- Dual receiver system comes with both a handheld microphone and a beltpack transmitter or combination
- removal antennas (dual receiver)

Model	S2.4 RX1	S2.4 RX2
Carrier Frequency	2.404 - 2.474 GHz	
Available Channels	16	
Band Range	2MHz	
Dynamic Range	85dB	
Total Harmonic Distortion	<0.1%	
Power Supply	12VDC 0.5A	
Consumption Power	2W	
Signal to Noise Ratio	>95dB	
Receiving Sensitivity	-80dBm	

»Digital Wireless Receiver

S2.4 HDX Handheld Transmitter

Model	S2.4 RX1	S2.4 RX2
Carrier Frequency	2.404 - 2.474 GHz	
Available Channels	16	
Band Range	2MHz	
Dynamic Range	85dB	
Total Harmonic Distortion	<0.1%	
Power Supply	12VDC 0.5A	
Consumption Power	2W	
Signal to Noise Ratio	>95dB	
Receiving Sensitivity	-80dBm	

»Digital Wireless Receiver

S2.4 BTX Beltpack Transmitter

Model	S2.4 RX1	S2.4 RX2
Carrier Frequency	2.404 - 2.474 GHz	
Available Channels	16	
Band Range	2MHz	
Dynamic Range	85dB	
Total Harmonic Distortion	<0.1%	
Power Supply	12VDC 0.5A	
Consumption Power	2W	
Signal to Noise Ratio	>95dB	
Receiving Sensitivity	-80dBm	

*Note: Kits with beltpack include the S2.4-LMO Lavaliere Mic

TRANTEC
S2.4 Digital Wireless Microphone

S2.4 Digital Wireless Kits

S2.4BBX

- One RX2 dual receiver
- Two BTX beltpack transmitter

S2.4HHX

- One RX2 dual receiver
- Two HDX handheld transmitter

S2.4HBX

- One RX2 dual receiver
- One BTX beltpack transmitter
- One HDX handheld transmitter

S2.4BX

- One RX1 single receiver
- One BTX beltpack transmitter

S2.4HX

- One RX1 single receiver,
- One HDX Handheld transmitter

*Note: Kits with beltpack include the S2.4-LMO Lavaliere Mic

S2.4 Digital Wireless Optional Accessories

»Digital Wireless Microphones

Lavalier Microphone S2.4-LMO

- Omnidirectional electret condenser microphone (included with Beltpack)

Headworn Microphone S2.4-HMO

- Omnidirectional electret condenser microphone

Headworn Microphone S2.4-HMU

- Unidirectional electret condenser microphone

Wireless Microphone Systems 5000 Series

Our 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.

5000 Series 16 Channel Wireless Solutions

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 expands the range of applications, including museums, conferences and theaters, and enhances the Series' versatility and usability.

Frequency Band Selection: H01: 576-606MHz, M: 506-538MHz, UHF

[Note: for part numbers with frequency bands and ordering information see page 110/111.]

Receiver
WT-5800

WT-5800, WT-5805 and WT-5810
- Phase Locked Loop (PLL) synthesis operation
- 64 selectable channels
- Auto mixing input function
- Squelch function (carrier, noise, tone)
- Usable frequencies scanning and vacant channel search function
- Compact half-rack size body
- Compander circuitry for minimizing ambient noise
- Low-battery indicator (wireless microphone's battery voltage becomes low)

Receiver
WT-5805

WT-5800 and WT-5805
- True diversity technology
- Two-line LCD display
- 6 points audio level meter for microphone sensitivity adjustment

WT-5800
- Antenna distribution output

Receiver
WT-5810

WT-5810
- TOA space diversity technology
- Balanced output (XLR connector) and phone jack output

Model	WT-5800	WT-5805	WT-5810
Power Source	AC mains (supplied AC-DC adapter must be used)		
Channel Selectable	64 channel capability (Max. 16 Simultaneous channels)		16 channel
Diversity System	Space diversity (true diversity)	Space diversity	
Mixing Output	MIC: –60dB*, 600Ω, balanced, XLR-3-31 type connector LINE: –20dB*, 600Ω, unbalanced, phone jack		
Mixing Input	–20dB*, 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-weighted, unbalanced output)
Harmonic Distortion	1% or less (typical)		
Frequency Response	100 – 15kHz, ±3 dB		
Dimensions	210(W) × 44(H) × 205.1(D) mm (8.3" x 1.7" x 8.1")		206(W) × 40.6(H) × 152.7(D) mm (8.1" x 1.6" x 6")
Weight	700 g (1.5 lbs)		590 g (1.3 lbs)

*0dB = 1 V

Receiver

WT-4820

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

Model	WT-4820
Power Source	AC mains (supplied AC adapter must be used)
Channel Selectable	16 channel
Mixing Input	–20 dB*, 10 kΩ, unbalanced, phone jack
Antenna Input	75 Ω, BNC (phantom powering for antenna) 9 V DC, 30 mA (max.)
Antenna Output	75 Ω, BNC (Gain 0dB)
Indicator	ANT A/B, Audio (peak), Power
S/N Ratio	Over 102dB (A-weight, unbalanced output)
Harmonic Distortion	Under 1%
Frequency Response	50 – 18,000 Hz, ±3 dB
Dimensions	210(W) × 44(H) × 181(D) mm (8.3" x 1.7" x 7.1")
Weight	770 g (1.7 lbs) (without receiver unit)

*0dB = 1 V

Receiver Unit

WTU-4800

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
- Microphone sold separately *(see 5000 Series Optional Mic.)*

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) or LR6(AA)		
Battery Life	Approx. 10h (when the alkaline battery is used)	Approx. 13h (when the WB-2000 rechargeable battery is used) Approx. 10h (when the alkaline battery is used))		
Indicator	Power/Battery lamps			
Dimensions	ø48 × 244 mm (1.9" x 9.6")	ø50 × 229 mm (2" x 9")	ø43.6 × 231.5 mm (1.7" x 9.1")	62(W)×102.5(H)×23(D)mm (2.4"x4"x0.9")
Weight	340g (0.74 lbs) (with battery)	205g (0.45 lbs) (with battery)	180g (0.4 lbs) (with battery)	90g (0.2 lbs) (with battery)

*0dB = 1 V

5000 Series Wireless Tuner

The TOA Wireless Tuner Module WTU-M9800 provides a truly integrated wireless microphone solution for any TOA product that accepts a 900 series input module. This product offers an alternative when trying to reduce cost and shelf space.

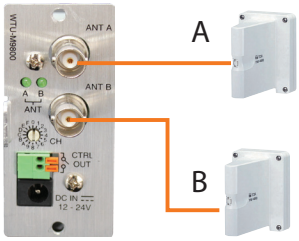
WTU-M9800

- Up to two WTU-M9800 can be powered from the mixer's internal power supply.
- Allows up to 16 different frequencies to be received by selection
- PLL synthesizer controlled double super heterodyne diversity tuner
- Use with any 5000 series handheld or Beltpack transmitter
- Single Channel, Multi-Channel and Antenna Expansion
- For use with local antennas or remote mounted antennas

Model	WTU-M9800
Power Requirement	Internal power supply mode : 24 V DC (Up to two WTU-M9800 can be powered from the mixer's internal power supply.) External power supply mode : 12 – 24 V DC
Current Consumption	100 mA
Receiving Frequency	506 – 538 MHz, UHF, M-band
Receiving System	Double super-heterodyne
Receiving Sensitivity	S/N <80dB (20 dBμV input, 40kHz deviation)
Contact Output	1 channel, no-voltage make contact output, withstand voltage: 30 V DC, control current 0.5 A max.
Antenna Input	75Ω,BNC (phantom power for YW-4500 series powered antenna 9V DC,30mA max)
Diversity System	Space diversity
Frequency Response	100 – 12000 Hz, ±3 dB
Dimensions	35 (W) X 78 (H) X 90.8 (D) mm (1.38" X 3.07" X 3.57")
Weight	Max. 92g (0.21 lb)
Optional Accessories	External power supply TOA, Antenna YW-4500 Q

Single Channel

Antenna Expansion



Multi-Channel

5000 Series Optional Microphones

Lavalier Microphone
YP-M5300

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

Lavalier Microphone
YP-M5310

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

Headworn Microphone
WH-4000H

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

Headworn Microphone
WH-4000A

- Unidirectional electret condenser microphone
- Ideal for sports applications
- Connector for ø3.5 mini-plug

Headworn Microphone
YP-M5000H

- Omni-directional electret condenser microphone element
- Compatible with WM-5325, IR-300M/310M
- 3.5mm connector

Single Ear Microphone
YP-M5000E

- Omni-directional electret condenser microphone element
- Compatible with WM-5325, IR-300M/310M
- 3.5mm connector

5000 Series 16 Channel Wireless Solution

5000 Series Kits

WS-5225
WM-5225+WT-5810 Kit
[Handheld mic. (unidirectional) kit]

WS-5265
WM-5265+WT-5810 Kit
[Dynamic handheld mic. (unidirectional) kit]

WS-5325U
WM-5325+YP-M5300+WT-5810 Kit
[Lavaliere mic. (unidirectional) with beltpack kit]

WS-5325M
WM-5325+YP-M5310+WT-5810 Kit
[Lavaliere mic. (omni-directional) with beltpack kit]

WS-5325H
WM-5325+WH-4000H+WT-5810 Kit
[Headworn mic. with beltpack kit]

5000 Series Optional Accessories

Antenna Distributor
WD-5800

Wall Mount Antenna
YW-4500 Q

Battery Charger
BC-5000-2

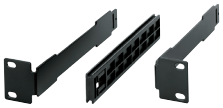
AC Adapter
AD-5000-2
required for BC-5000-2

Rechargeable Battery
WB-2000-2

Rack Mount Bracket
MB-15B

Rack Mount Bracket (Single Unit)
MB-WT3

Rack Mount Bracket (Dual Unit)
MB-WT4



Windscreen
WH-4000S

Waist Pouch
WH-4000P

(Please note that the power supplies/AC Adapter (AD-5000-2) for the 5000 Series UHF Wireless Battery Chargers (BC-5000-2) are sold separately)

TRANTEC Wireless Microphone Systems S4 Series

The Trantec 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 S4.10 Series: 16 Channel Wireless Solution

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

Frequency Band Selection: M: 506-538MHz, UHF *[Note: for part numbers with frequency bands and ordering information see page 105/106.]*

TRANTEC S4.10 Series Kits

• *Available in kits only*

Wireless Handheld Microphone Kit (Dynamic)

S4.10-HD-AM RM3QU
S4.10-RX + S4.10-HDX Kit
[Dynamic Handheld Microphone Kit]

Wireless Lavaliere Microphone Kit

S4.10-L-AM RM3QU
S4.10-RX + S4.10-BTX + Lavaliere Mic Kit
[Lavaliere Microphone Kit]

Receiver

- 16 selectable frequencies
- Up to 16 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

Model	S4.10-RXA
Diversity Reception	Antenna Diversity
Sensitivity	10 µV at 45 dBA S/N
Squelch (SQ)	Tone SQ, Carrier SQ, Noise SQ
Audio Frequency Response	50 - 15,000 Hz
Audio Output Level (Max)	Balanced (XLR socket): 16 dBu Unbalanced (1/4" jack socket): +10 dB
Power Supply	11 - 18 VDC 300 mA
Total Harmonic Distortion	< 1% @ 1KHz
Function	IR sync, channel scan, battery life information
Dimensions	215(W) x 39(H) x 102(D) mm (8.5"x1.5"x4") (excluding antenna & BNC)
Weight	480g (1.06 lbs)
Accessory	MB-S4RX-5-EB - 19" Rack mount tray for 2 receivers

Handheld Microphone (Dynamic)

- Dynamic microphone with cardioid pattern
- Adjustable microphone sensitivity
- 1 AA battery provides up to 10 hours of continuous use

Beltpack Transmitter

- Locking 3.5mm jack
- Integral switch for selection between instrument and microphone
- Single AA transmitter battery life of approx. 10 hours.
- Lavaliere microphone included
- Optional Microphone sold separately

Model	S4.10-HDX Dynamic Handheld Microphone	S4.10-BTX Beltpack Transmitter
RF Carrier Power	10 mW	
Frequency Response	80 - 15,000 Hz	50 - 15,000 Hz
Input Level	140 dB SPL (maximum)	-6 dBV (maximum), mic gain 0 dB
Battery	1 AA size alkaline battery, 1.5 V	
Battery Life	Approx. 10 Hours	
Finish	Resin, coating	
Dimensions	ø50 x 250 mm (2" x 9.84")	62 (W) x 100 (H) x 25 (D) mm (2.4" x 4.02" x 1.2") (with clip)
Weight	245g (0.54 lbs) (with battery)	85g (0.19 lbs) (with battery)

TRANTEC

TRANTEC S4 Series Optional Microphones

Lavaliere Microphone

for S5 Series **MIC-X2** 4pin
for S4 Series **D000700370** 3.5mm

Lavaliere Microphone

for S5 Series **MIC-X55** 4pin
for S4 Series **MIC-SJ55** 3.5mm

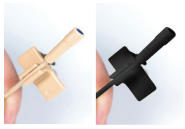
Glasses Frame Microphone

for S5 Series **MIC-X690H** 4pin
for S4 Series **MIC-SJ690H** 3.5mm

Lavaliere Microphone

for S5 Series
MIC-X212-BE (Beige) 4pin

for S4 Series
MIC-SJ212-BE (Beige) 4pin
MIC-SJ212-BK (Black)



Headworn Microphone

for S5 Series **MIC-X33** 4pin
for S4 Series **MIC-SJ33** 3.5mm

Headworn Microphone

for S5 Series
MIC-X66-BK (Black) 4pin
MIC-X66-BL (Blue) 4pin
MIC-X66-YE (Yellow) 4pin

for S4 Series
MIC-SJ66-BK (Black) 3.5mm
MIC-SJ66-BL (Blue) 3.5mm
MIC-SJ66-YE (Yellow) 3.5mm

Headworn Microphone

for S5 Series
MIC-X22-B-R (Black) 4pin
MIC-X22-P-R (Beige) 4pin

for S4 Series
MIC-SJ22-B-R (Black) 3.5mm
MIC-SJ22-P-R (Beige) 3.5mm

Headworn Microphone

for S5 Series **MIC-XEM77** 4pin
for S4 Series **MIC-SJEM77** 3.5mm

TRANTEC S4 Series Optional Accessories

Wall Mount Antenna

YW-4500 Q
(When used with WD-4800)

TNC M to BNC F Connector

15-6628

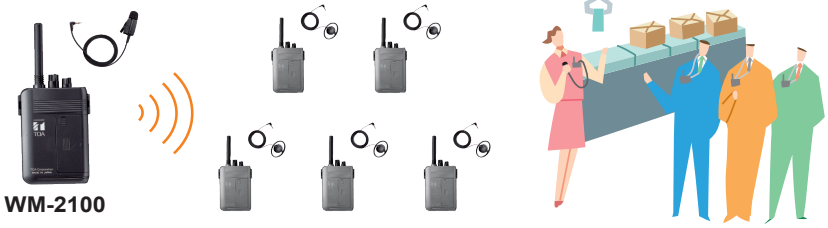
TOA Wireless Guide System

System Features

- Transmits and receives on five channels on the 470MHz frequency band
- The portable transmitter provides clear coverage over a 30-meter distance while the desktop transmitter extends the distance to 70 meters
- Input sensitivity control with six settings on the desktop transmitter and two-step mic input sensitivity control on the portable transmitter for ideal transmission without any signal degradation
- Desk-top transmitter transmit on/off operation controllable with external equipment
- Battery indicator provides at-a-glimpse battery level status
- Four different microphone options — paging, tie-clip, close-talking, and headset microphones to meet specific requirements
- Paging microphone and close-talking microphone equipped with press-to-talk feature to reject ambient noise
- Desk-top transmitter can be connected to external PA equipment for extending coverage area

On-site Tours

Allows on-the-spot guidance and explanation to be easily provided. Ideal when touring noisy environments such as factories, plants and other industrial sites. Also useful for guided tours of museums and other quieter environments.



WM-2100

Desk-top Transmitter

WM-2110

Model	WM-2110
Transmitting Frequencies	470 MHz band (5 ch) (470.075, 470.150, 470.375, 470.625, 470.725 MHz)
RF Carrier Power	5 mW
Oscillator	PLL synthesizer
Frequency Response	150 – 6,000 Hz (Desk-top transmitter to Portable receiver)
Input Level (selectable)	Standard input: –54 dB*/–60 dB*/–66 dB* (Mic) –12 dB*/–18 dB*/–24 dB* (Line) Maximum input: –30 dB*/–36 dB*/–42 dB* (Mic) +12 dB*/+6 dB*/0 dB* (Line) Mic/Line selection, 600 Ω, unbalanced, phone jack
Remote Input	Make contact input: Release voltage: 2 V DC short-circuit current: 0.2 mA loop resistance: under 100 Ω Remote control mode: Transmit radio signal with external equipment
Dimensions	140 (W) × 31 (H) × 119.5 (D) mm (5.5" x 1.2" x 4.7")
Weight	270 g

* 0dB = 1V

Portable Transmitter

WM-2100

Model	WM-2100
Transmitting Frequencies	470 MHz band (5 ch) (470.075, 470.150, 470.375, 470.625, 470.725 MHz)
RF Carrier Power	2 mW
Oscillator	PLL synthesizer
Frequency Response	200 – 5,000 Hz (Portable transmitter to Portable receiver)
Input Level	–50 dB* (sensitivity Hi)/–44 dB* (sensitivity Low)
Battery Life	18 hours (alkaline)
Battery	LR6 (1.5 V) × 1
Dimensions	62 (W) × 163.6 (H) × 32.5 (D) mm (2.4" x 6.4" x 1.3")
Weight	115 g (battery included)

*0 dB = 0.775 V

Portable Receiver

WT-2100

Model	WT-2100
Receiving Frequencies	470 MHz band (5 ch)(470.075, 470.150, 470.375, 470.625, 470.725 MHz)
Receiving Sensitivity	Better than 25 dB, S/N ratio (7 dBμVEMF input, ±1.7kHz deviation)
Frequency Response	200 – 5,000 Hz (Portable transmitter to Portable receiver) 150 – 6,000 Hz (Desk-top transmitter to Portable receiver)
Output Level	4 mW (16Ω load, 10% distortion)
Battery Life	18 hours (alkaline)
Battery	LR6 (1.5 V) × 1
Dimensions	62 (W) × 163.6 (H) × 32.5 (D) mm (2.4" x 6.4" x 1.3")
Weight	112 g (battery included)

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

Tie-clip Microphone

YP-M101

Close-talking Microphone

YP-M201

Earphone

YP-E401

Wireless Microphone Ordering Information

Description	Model	Compatible With
Handheld Wireless Microphones		
Handheld microphone, condenser, unidirectional	WM-5225	Receiver: WT-5800; WT-5805; WT-5810; WT-4820
Handheld microphone, dynamic, unidirectional	WM-5265	
Handheld microphone, dynamic, unidirectional	WM-5270	
Beltpack Transmitter (microphone sold separately)		
Wireless beltpack transmitter	WM-5325	Microphones: WH-4000A; WH-4000H; YP-M5300; YP-M5310; Battery: WB-2000-2, Battery Charger: BC- 5000-2; BC-5000-6; BC-5000-12
Wireless Microphones		
Lavalier microphone, condenser, unidirectional	YP-M5300	Transmitter: WM-5325, Receiver: WT-5800; WT-5805; WT-5810; WT-4820
Lavalier microphone, condenser, omni-directional	YP-M5310	
Headset microphone, condenser, unidirectional	WH-4000H	
Aerobic headset microphone, condenser, unidirectional	WH-4000A	
Single ear microphone, condenser, omni-directional	YP-M5000E Q	
Optional Accessories - Microphones		
Battery charger for 2 microphones *(AC adapter sold separately)*	BC-5000-2	Microphone/Beltpack: WM-5225; WM-5265; WM-5325, AC Adapter: AD-5000-2
Battery charger for 6 microphones *(AC adapter sold separately)*	BC-5000-6	Microphone/Beltpack: WM-5225; WM-5265; WM-5325
Battery charger for 12 microphones *(AC adapter sold separately)*	BC-5000-12	AC Adapter: AD-5000-6
AC adapter (sold separately)	AD-5000-2	Battery charger: BC-5000-2
AC adapter (sold separately)	AD-5000-6	Battery charger: BC-5000-6; BC-5000-12
Battery	WB-2000-2	Microphone/Beltpack: WM-5225; WM-5265; WM-5325
Aerobics waist pack (belt)	WH-4000P	Headworn Microphone: WH-4000A
Replacement windscreen	WH-4000S	Headworn Microphone: WH-4000A; WH-4000H
Wireless Receivers		
True diversity receiver	WT-5800	Microphone: WM-5225; WM-5265; WM-5270; WM-5325
Space diversity receiver	WT-5805	
Space diversity receiver	WT-5810	
Wireless microphone receiver	WT-4820	
UHF wireless tuner module	WTU-4800	Module for WT-4820
Optional Accessories - Receivers		
Antenna distributor	WD-5800	Receiver: WT-5800; WT-5805; WT-4820
UHF wireless antenna	YW-4500	Receiver: WT-5800; WT-5805; WT-4820; WTU-4800
Rack mount for single receiver (1RU)	MB-WT3	Receiver: WT-5800; WT-5805; WT-4820
Rack mount for dual receiver (1RU)	MB-WT4	
Rack mount kit	MB-15B	Antenna distributor: WD-5800
Wireless Microphone Kits (includes Microphone and Receiver)		
Handheld condenser kit	WS-5225	Microphone: YP-M5000E Q; Q-HM-77; WH-4000A; WH-4000H; YP-M5300; YP-M5310
Handheld dynamic kit	WS-5265	
Lavaliere condenser (unidirectional) kit	WS-5325U	
Lavaliere condenser (omni-directional) kit	WS-5325M	
Headworn condenser (unidirectional) kit	WS-5325H	

TOA 5000 Series 16 Channel Wireless Solution		
KITS		
WS-5225 - Handheld Condenser Kit	WS-5225 H01US	WS-5225-AM RM1D00
WS-5265 - Handheld Dynamic Kit	WS-5265 H01US	WS-5265-AM RM1D00
WS-5325U - Lavalier (unit) Kit	WS-5325U H01US	WS-5325U-AM RM1D00
WS-5325M - Lavalier (omni) Kit	WS-5325M H01US	WS-5325M-AM RM1D00
WS-5325H - Headworn (uni) Kit	WS-5325H H01US	WS-5325H-AM RM1D00
INDIVIDUAL UNITS		
WT-5800 - Receiver	WT-5800 H01US	WT-5800-AM RM1D00
WT-5805 - Receiver	WT-5805 H01US	WT-5805-AM RM1D00
WT-5810 - Receiver	WT-5810 H01US	WT-5810-AM RM1D00
WT-4820 US - Receiver (add WTU-4800)		
WTU-4800 - Receiver Unit	WTU-4800 H01	WTU-4800-AM -M1D00
WM-5270 - Handheld Dynamic Mic	WM-5270 H01	WM-5270-AM -M1D00
WM-5265 - Handheld Dynamic Mic	WM-5265 H01	WM-5265-AM -M1D00
WM-5225 - Handheld Electret Mic	WM-5225 H01	WM-5225-AM -M1D00
WM-5325 - Beltpack	WM-5325 H01	WM-5325-AM -M1D00

Wireless Microphone Ordering Information

Model / Description	2.4 GHz band
TRANTEC S2.4 Digital Wireless Microphone Systems	
KITS	
S2.4HBX KIT	Digital Wireless HDX handheld Microphone and BTX Beltpack and RX2 receiver
S2.4BBX QV KIT	Digital Wireless 2 x BTX Beltpacks and RX2 Receiver
S2.4BX KIT	Digital Wireless BTX Beltpack and RX1 receiver
S2.4HX KIT	Digital Wireless HDX Handheld Microphone and RX1 receiver
S2.4HHX QV KIT	Digital Wireless 2 x HDX Handheld Microphone and RX2 receiver
INDIVIDUAL UNITS	
S2.4-RX1-G3	1 Ch. Receiver with LCD (Half size)
S2.4-RX2-G3	2 Ch. Receiver with LCD (1 Unit size)
S2.4-BTX-G3	Digital Wireless Beltpack with LCD and Lapel Mic
S2.4-HDX-G3	Digital Wireless Handheld Microphone

Model / Description	H Band: 576 - 606 MHz Part Number	M Band: 506 - 538 MHz Part Number
TRANTEC S4.10 Series 16 Channel Wireless Solution		
KITS		
S4.10HD - Handheld Dynamic Kit		S4.10H-HD-AM RM3QU
S4.10L - Lavaliere Kit		S4.10L-AM RM3QU
INDIVIDUAL UNITS		
S4.10-HDX-Handheld Mic		S4.10-HDX-AMWM3QU
S4.10-LTX- Lavaliere Mic		S4.10-LTX-AMWM3QU
S4.10-RXA- Receiver		S4.10-RXA-AMRM3QU

Trantec Series Selection Guide

Optional Accessories - Receivers		
19" Rack mount tray for 1 or 2 receivers	MB-S4RX-5-EB QV	Receiver: 2 x S4.10-RX (for 1 receiver, square on one side)
Antenna distributor	S5-ADU	Receiver: S4.10-RX;
Antenna booster	YW-7000 RF	
Passive antenna splitter	ACC-SPLIT-2W	
Directional antenna	YW-7570	
Omnidirectional antenna	YS-7520	
Wall mount antenna	YW-4500 (when used with WD-5800)	
Whip antenna	ANT-54 BTX-D/BTX-G	
Antenna extension cable	LD-BNC-TNC	
TNC rack mount panel	PAN-1U19-TNC	
Blank panel	MW-1U-BLANK	
Helical antenna	ANT-54 HDX-D/HDX-G	Receiver: S4.10-RX
Antenna extension cable	LD-TNC ADU	
Guitar cable	LD-SJ-JAC	
Neoprene aerobic belt	ACC-AB1000	
Receiver antenna (required)	D021203010; D021202280	
TNC M to BNC F Connector	15-6628	S4.10 Series

Note: Please inquire with customer service or your Regional Sales Manager as some of the TRANTEC accessories / microphones may not be available.
The AC Adapter for the 5000 Series battery chargers are sold separately.

Trantec Series Selection Guide Continued

Description	Model	Compatible with
Optional Microphones		
Lavalier microphone	MIC-LP2; MIC-SJ55; MIC-SJ212-BE; MIC-SJ212-BK	Beltpack: S4.10-BTX
Glasses frame microphone	MIC-SJ690H	Beltpack: S4.10-BTX
Headworn microphone	MIC-SJ33; MIC-SJ66-BK; MIC-SJ66-BL; MIC-SJ66-YE; MIC-SJ22-B-R; MIC-SJ22-P-R; MIC-SJEM77	Beltpack: S4.10-BTX

D-5000 Series Selection Guide

Description	Model	Compatible With
Transmitters		
Handheld Wireless Microphone	WM-D5200-H1	WT-D5800 RH1
Beltpack Transmitter (microphone sold separately)	WM-D5300-H1	WT-D5800 RH1
Accessories - Microphones		
Headworn Microphone	WH-4000A	WM-D5300-H1
Headworn Microphone	WH-4000H	WM-D5300-H1
Lavalier Microphone	YP-M5300	WM-D5300-H1
Lavalier Microphone	YP-M5310	WM-D5300-H1
Ear-Hook Microphone	YP-M5000E	WM-D5300-H1
Headset Microphone	YP-M5000H	WM-D5300-H1
Battery Charger	BC-2000A	WM-D5300-H1, WM-D5200 (with WB-2000-2)
Rechargeable Battery	WB-2000-2	WM-D5300-H1, WM-D5200, BC-2000A
Receiver		
Wireless Receiver	WT-D5800 RH1	WM-D5200, WM-D5300-H1, YW-4500
Antenna Distributor	WD-5800 3CU	WT-D5800 RH1
Antenna for Wall/Ceiling Mounting	YW-4500	WT-D5800 RH1

Voice clarity and comfort for any speaking scenario, TOA Digital Wireless Systems.

The TOA D5000 Series provides unprecedented speech clarity for delivering the presenter's voice to audiences in any speaking scenario. Experience for yourself the clarity, ease and safety of this wireless solution, whether for the classroom, office meeting rooms, banquet halls, courthouses, or multipurpose halls.

MEGAPHONES

SIREN
POWER
WHISTLE
ACOUSTIC
HIGH-PERFORMANCE
DISTRIBUTION
HANDHELD
PORTABLE
SCHOOLS

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

Splash proof 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

*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 option

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)
- Optional headset microphone: WH-4000H

Personal PA System

ER-1000A-BT

- Bluetooth Communication Method v. 4.2
- 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 100 meters
- Supplied headset microphone
- 55 cm long elastic waist belt extendable to up to 120 cm
- 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

Megaphones

Model	ER-1203	ER-1206	ER-1206W	ER-1206S
Power Source	R6P (AA) x 4 (6 V DC)	R6P (AA) x 6 (6 V DC) or R6P (AA) x 4 (6 V DC)		
Rated Output	3 W	6 W (when using 6 R6P batteries)		
Maximum Output	4 W	10 W (when using 6 R6P batteries)		
Battery Life	Approx. 8 hours (JEITA)[1]	When using 6 R6P batteries: Approx. 8 hours (JEITA)[1] When using 4 R6P batteries[2]: Approx. 5 hours (JEITA)[1]	When using 6 R6P batteries: (JEITA)[1] Voice: Approx. 8 hours, Whistle: Approx. 20 minutes When using 4 R6P batteries[2]: (JEITA)[1] Voice: Approx. 5 hours, Whistle: Approx. 10 minutes	When using 6 R6P batteries: (JEITA)[1] Voice: Approx. 8 hours, Siren: Approx. 20 minutes When using 4 R6P batteries[2]: (JEITA)[1] Voice: Approx. 5 hours, Siren: Approx. 10 minutes
Audible Range	Approx. 125 m (JEITA)[1]	Approx. 250 m (JEITA)[1]	Approx. 250 m (JEITA)[1] Whistle: Approx. 315 m (JEITA)[1]	Approx. 250 m (JEITA)[1] Siren: Approx. 315 m (JEITA)[1]
Signal Sound	--		Whistle	Siren (sounds at 5 second intervals)
Magnetic Circuit	Neodymium magnet, inner magnet type			
Diaphragm	Polyimide film (voice coil, bobbin)			
Water Protection	IPX5			
Finish Horn: Other: Strap:	ASA resin, clear dark gray ASA resin, dark gray Nylon, black		ASA resin, clear dark gray ASA resin, yellow Nylon, black	ASA resin, clear red ASA resin, red Nylon, black
Dimensions	137 (W) x 257.8 (H) x 210 (D) mm (5.4" x 10.2" x 8.3")	154 (W) x 266 (H) x 250 (D) mm (6.1" x 10.5" x 9.8")		
Weight	610 g (1.34 lb) (without batteries)	660 g (1.45 lb) (without batteries)		680 g (1.49 lb) (without batteries)
Accessory	--	Battery spacer x 1		
Option	Wall mounting bracket for megaphone: SP-1100			

[1] JEITA: Japan electronics and information technology industries association. (EIAJ TT-4501A)
[2] With the additional use of the supplied spacer.
Note: Batteries are optional.

Model	ER-520	ER-520W	ER-520S	ER-1215	ER-1215S
Power Source	R6P (AA) x 8 (12 V DC)			R14P (C) x 6 (9 V DC)	
Rated Output	6 W			15 W	
Maximum Output	10 W			23 W	
Battery Life	Approx. 10 hours (JEITA)[1]	Voice: Approx. 10 hours (JEITA)[1] Whistle: Approx. 30 minutes (JEITA)[1]	Voice: Approx. 10 hours (JEITA)[1] Siren: Approx. 40 minutes (JEITA)[1]	Approx. 14 hours (JEITA)[1]	Voice: Approx. 14 hours (JEITA)[1] Whistle: Approx. 20 minutes (JEITA)[1]
Audible Range	Approx. 250 m (JEITA)[1]			Approx. 315 m (JEITA)[1]	Voice: Approx. 315 m (JEITA)[1] Whistle: Approx. 500 m (JEITA)[1]
Signal Sound	--	Whistle	Siren	--	Siren (sounds at 5 second intervals)
Diaphragm	Polyimide film			Polyimide film (voice coil, bobbin)	
Finish Horn: Other: Strap:	ASA resin, light gray ASA resin, gray Tetoron, black		ASA resin, red ASA resin, red Tetoron, black	ASA resin, light gray ASA resin, gray Nylon, black	ASA resin, red ASA resin, red Nylon, black
Dimensions	160 (W) x 256 (H) x 260 (D) mm (6.3" x 10.1" x 10.2")			210 (W) x 291 (H) x 346 (D) mm (8.27" x 11.5" x 13.6")	
Weight *(without batteries)*	620 g (1.37 lb)	650 g (1.43 lb)		1.1 kg (2.43 lb)	1.2 kg (2.65 lb)

[1] JEITA: Japan electronics and information technology industries association. (EIAJ TT-4501A)
[2] With the additional use of the supplied spacer.
Note: Batteries are optional.

Model	ER-3215	ER-2215	ER-2215W	ER-2230W	ER-2930W
Power Source	R14P (C) x 6 (9 V DC)			Battery: R20P (D) x 10 (15 V DC); External Power: 12 V DC Battery	
Rated Output	15 W			30 W	
Maximum Output	23 W			45 W	
Battery Life	Approx. 9 hours (JEITA)[1]	Approx. 9 hours (JEITA)[1]	Voice: Approx. 9 hours (JEITA)[1] Siren: Approx. 20 minutes (JEITA)[1]	Voice: Approx. 17 hours (JEITA)[1] Whistle: Approx. 90 minutes (JEITA)[1]	
Audible Range	Approx. 400 m (JEITA)[1]		Voice: Approx. 400 m (JEITA)[1] Whistle: Approx. 500 m (JEITA)[1]	Voice: Approx. 800 m (JEITA)[1] Whistle: Approx. 1000m (JEITA)[1]	
Signal Sound	--		Whistle (1.6 to 2.4 kHz)	Whistle (1.6 to 2.4 kHz)	
Diaphragm	Polyimide film (voice coil, bobbin)				
Remaining Battery Indication	--			LED (also serves as a power indicator) Steady ON: Normal use, Flashing: Batteries need replacement	
AUX Input Sensitivity	--			-10 dB* (300 mV), 10 kΩ, (ø6.3 mini jack, stereo plug acceptable), volume control	
EXT. Mic Input	--			600 Ω, unbalanced, ø6.3 phone jack, volume control	
Receiving Frequency	--				UHF (800 MHz Band) VHF (200 MHz band)
Antenna	--				Fold-down flexible antenna
Finish Horn: Other: Strap: Horn Ring: Case Top:	ASA resin, light gray ASA resin, gray Nylon, black -- --			Aluminum, light gray, paint ASA resin, gray Nylon, black Vinyl chloride, gray Die-cast aluminum, gray paint	
Dimensions	210(W) x 291(H) x 381(D)mm (8.27" x 11.5" x 15.0")	ø210 x 336 mm (8.27" x1 3.2")		ø351 x 512 mm (13.819" x 20.16")	
Weight *(without batteries)*	Body: 1.15 kg (2.5 lb) Microphone: 150 g (0.33 lb)		Body: 1.2 kg (2.6 lb) Microphone: 150 g (0.33 lb)	3.6 kg (7.9 lb)	3.8 kg (8.4 lb)
Accessory	--			ø3.5 mini plug (AUX input) x1, External power supply cord (1 m) x1, Splash-proof cover x1[3]	
Option	--			Microphone: DM-1300US	Microphone: DM-1300US Wireless Tuner/Receiver Module: WTU-4800

* 0 dB = 1 V
[1] JEITA: Japan electronics and information technology industries association. (EIAJ TT-4501A)
[2] With the additional use of the supplied spacer.
[3] Do not use the unit in heavy rains, strong winds or in locations where the unit is directly exposed to water, even when using the supplied splash-proof cover.
Note: Batteries are optional.

Megaphones Optional Accessories

»Wall Mount Bracket
SP-1100

»Headset Microphone
WH-4000H *(for ER-604W)*

» Microphone
DM-1300US

»Wireless Tuner/Receiver Module
WTU-4800 *(for ER-2930W)*

Megaphones

Model	ER-604W
Power Source	R6 battery x 8 (12 V DC), 12 V DC/0.8 A or more (AC adapter or DC power supply unit usable)
Rated Output	6 W
Maximum Output	10 W
Battery Life	Voice: Approx. 10 hours (R6P manganese dioxide battery use) Whistle: Approx. 30 minutes (continuous use)
Audible Range	Voice: 160m (under noise level of 55 dB) Whistle: 160 m (under noise level of 55 dB)
Signal	Whistle, push switch activation
Microphone	Close-talking type, press-to-talk switch, volume control. Fixed to the microphone hanger on the unit's top panel
Input	MIC 1: -40 dB*, 1.5 kΩ, ø6.3 phone jack MIC 2: -18 dB*, 3 kΩ, ø3.5 mini jack, phantom powering AUX: -12 dB*, 18 kΩ, ø3.5 mini jack External power supply: 12 V DC *Note: MIC 1, 2 and AUX inputs can be used at the same time. However, their individual volume cannot be adjusted as the unit's volume control is common to those inputs*
Other Function	Voice switch (functions to activate the unit with external input signals, and to make the unit in stand-by status with no external signal.), Battery check
Finish	Body, microphone: ABS resin, off-white Shoulder pad, belt: Black
Dimensions	102 (W) x 258 (H) x 216 (D) mm (4.02" x 10.26" x 8.50")
Weight	1.6 kg (3.8 lb) (without batteries)
Accessory	ø3.5 mini plug x 1, External power supply cord (1 m) x 1
Option	Headset microphone: WH-4000A, WH-4000H, Dynamic microphone DM series

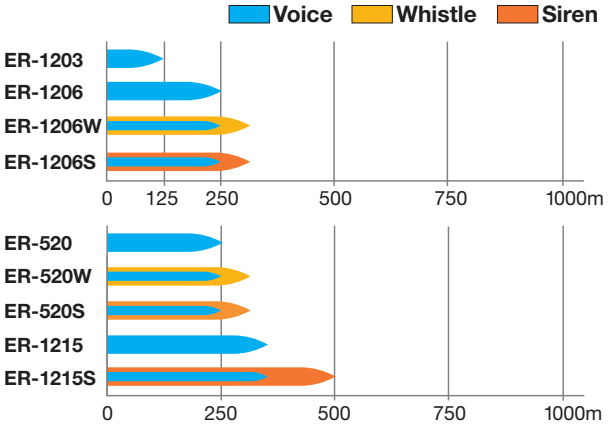
* 0 dB = 1V
Note: Batteries are optional.

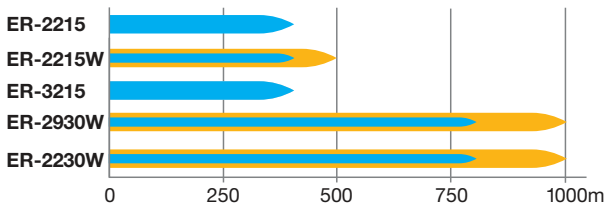
* 0 dB = 1V

Model	ER-1000A-BT
Power Source	Alkaline battery (LR6): 6 pieces (9 V DC) or 4 pieces[1] (6 V DC) Rechargeable nickel metal hydride (Ni-MH) battery (HR15/51): 6 pieces (7.2 V DC) or 4 pieces[1] (4.8 V DC)
Output	6 W (rated) and 10 W (max) when 6 AA batteries (9 V DC) are used. 3 W (rated) and 4 W (max) when 4 AA batteries[2] (6 V DC) are used
Maximum Output	10 W
Battery Life	Voice operation*[3]: Approx. 8 hours (when 6 or 4*[1] alkaline batteries are used) Approx. 7 hours (when 6 or 4*[1] NiMH batteries are used) AUX stereo input operation (music reproduction)*[4] : Approx. 9 hours (when 6 or 4*[1] alkaline batteries are used), Approx. 9 hours (when 6 or 4*[1] NiMH batteries are used)
Audible Range[2]	Voice operation: Approx. 100 m (328.08 ft) (when 6 alkaline batteries or NiMH batteries are used) Approx. 80 m (262.47 ft) (when 4*[1] alkaline batteries or NiMH batteries are used)
Frequency Response	300 Hz - 14 kHz (deviation: -26 dB)
Headset Microphone	Ear-on type, electret condenser microphone, sensitivity: -47 dB (0 dB = 1 V/1 Pa, 1 kHz), cord length: 1.3m (4.27ft), 3.5mm (1/8") mini-plug (monaural), with headband and windscreen.
Input	MIC : –30 dB*[5], 3 kΩ, 3.5mm (1/8") monaural mini-jack, phantom power supply. AUX*6 : –10 dB*[5] , 2 kΩ, 3.5mm (1/8") stereo mini-jack (supporting monaural applications*[7])
Communication Method	Bluetooth Ver.4.2
Output Power	Bluetooth Class 2
Bluetooth Operating Range	30 feet (10 meters)
Protocol / Codec	A2DP / SBC
Belt Length	55 – 120 cm (1.8 – 3.94 ft)*[8] 90 - 160 cm (2.95 - 5.25 ft) (when wearing an extension belt (accessory))*[8]
Finish	Front case: ABS resin, black Rear case: ABS resin, gray Grille: Surface-treated steel plate, black, paint Belt: Elastic rubber, black
Dimensions	133 (W) x 96 (H) x 222 (D) mm (5.24" x 3.78" x 8.74") (belt excluded)
Weight	Main PA unit 480 g (1.06 lb) (belt included, batteries excluded), Headset microphone: 50 g (0.11 lb), Extension belt: 40 g (1.41 oz)
Accessory	Headset microphone (with headband and wind screen) x 1, Belt (attached to the main PA unit) x 1, Extension belt x 1, Battery spacer x 2

*1 When the supplied battery spacers are used.
*2 Transmission range is measured on a quiet street with the Personal PA loaded with fresh batteries. Range varies depending on surrounding environmental conditions, such as battery consumption, ambient noise levels, wind direction and obstacles. Reference standard: JEITA (Japan Electronics and Information Technology Industries Association) TT-4501D
*3 Battery life during voice output usage represents the period of time when the Personal PA is continuously used with the volume control set to a position that does not cause feedback. Reference standard: JEITA (Japan Electronics and Information Technology Industries Association) TT-4501D
*4 Battery life during AUX stereo input represents a value actually measured when music is continuously reproduced with a commercial audio player connected to the auxiliary (AUX) input terminal. It varies depending on the connected external equipment's volume output or the type of music source.
*5 0 dB = 1 V
*6 Adjust the volume of the auxiliary (AUX) input at the connected external device.
*7 Volume during monaural operation is smaller than during stereo operation.
*8 The 120 cm (3.94 ft) length is when the Belt is stretched out to its maximum extent. When worn, consider a Belt length of 100 cm (3.28 ft) (of waist size when clothes are worn) as a rule-of-thumb standard.
Note: Prepare batteries separately, as they are not supplied with the product.

Audible Range





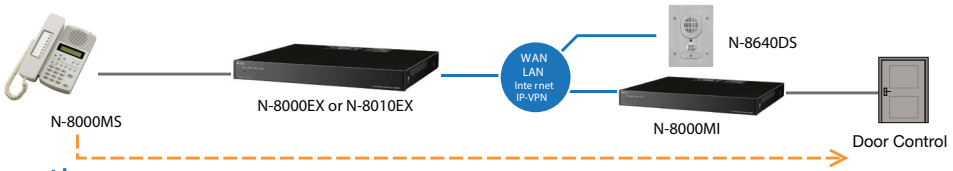
INTERCOM SYSTEMS

PAGING
ACCESS
SECURITY
VOICE ALARM
DISTRIBUTION
HOSPITALS & CARE CENTRES
SPORTS COMPLEXES
TRANSPORTATION
HOSPITALITY
EDUCATION

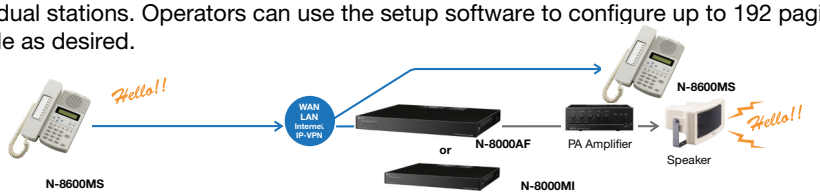
N-8000 Intercom System

Key Functions

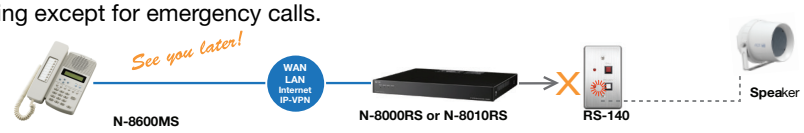
Remote Control of External System
Makes it possible to execute door lock control easily through a contact output when the master station is engaged in ongoing conversation with the N-8640DS or N-8050DS Door Station.



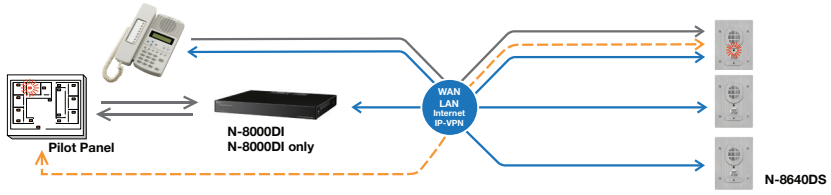
Paging Function
Allows the master station as well as external input equipment to initiate paging by PA equipment or the speakers of individual stations. Operators can use the setup software to configure up to 192 paging zones to which paging calls can be made as desired.



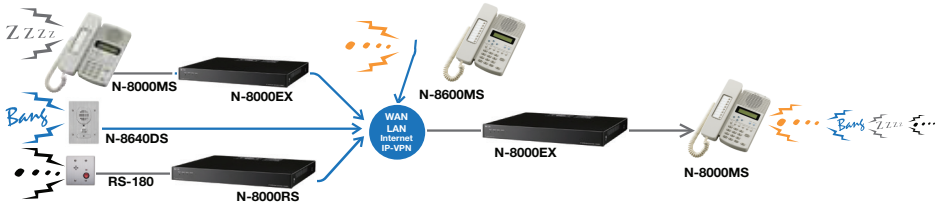
Privacy Mode
Activated by a control on the RS-140 Switch Panel, blocks paging calls to connected speakers and prevents scan monitoring except for emergency calls.



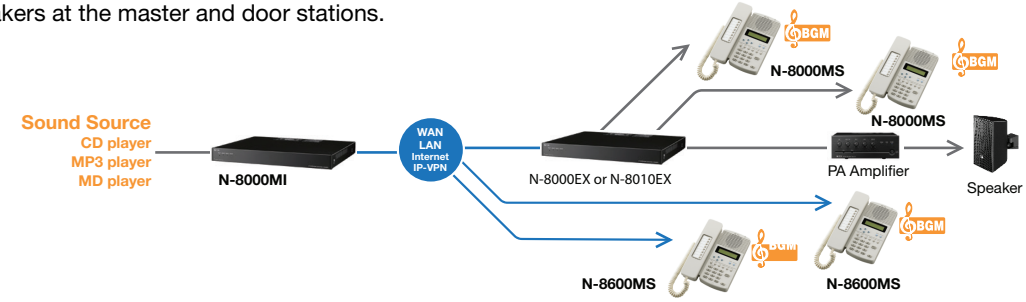
Direct Select
Configures an operation panel equipped with indicator lamps and control buttons for the master station. Compatible with other stations, the panel assigns the various contact input and output channels to the master station and substations for purposes of identifying which substation is calling the programmed master station.



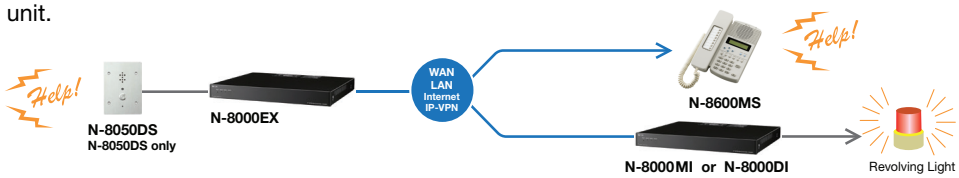
Scan Monitor
Enables remote security monitoring by allowing the master station as well as analog telephones and external telephones to audio monitor two or more pre-programmed stations.



BGM Broadcasting
Enables music from any of eight BGM sources connected to the N-8000MI to be distributed through speakers at the master and door stations.



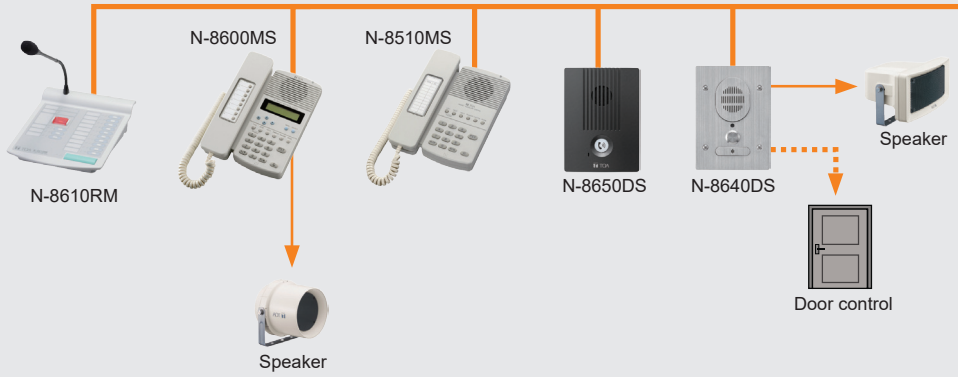
Audio Trigger
Sets off an alarm if audio input to a pre-programmed station's microphone fulfils pre-set conditions (detection time or signal level). Examples include calls to the designated master station or contact output generated by another interface unit.



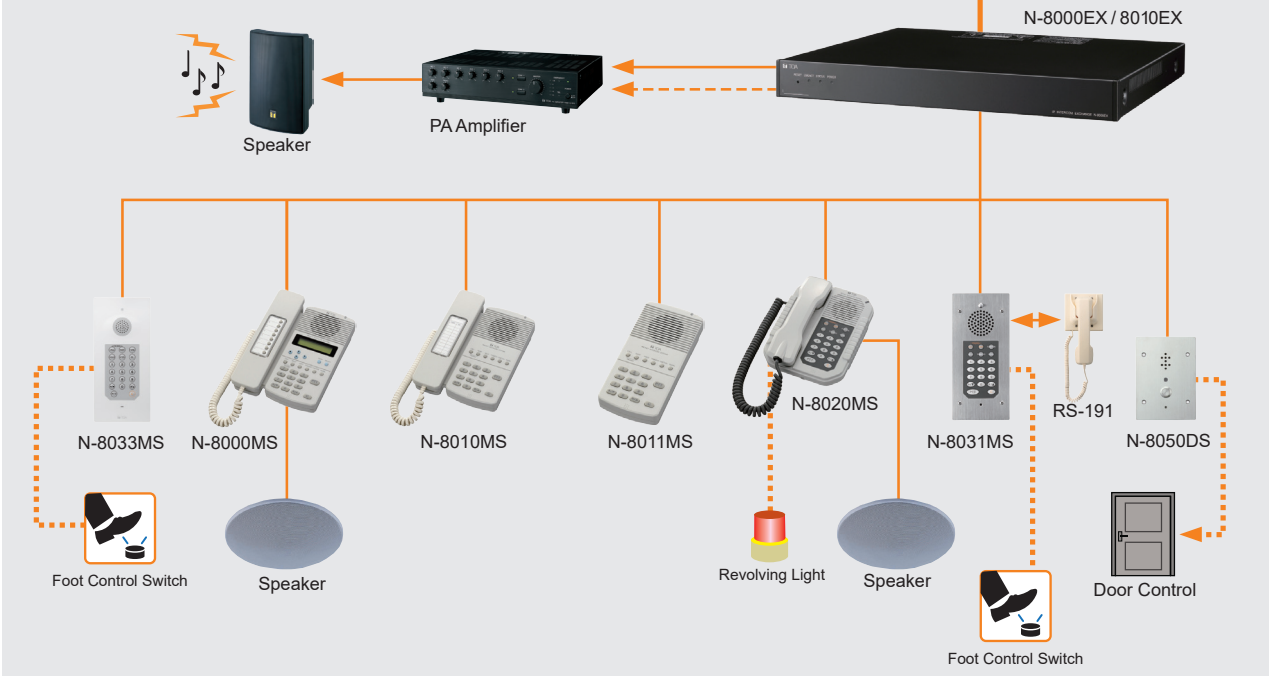
N-8000 Intercom System

LAN

Direct Network Connection



2-Wire Connection



System Specifications

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

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

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

Paging
Zones
Max. 192 zones

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

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

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

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

Outside-Line Interface
Max. 192 units

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

External Contact Output
N-8000MI
Max. 3,072 (16 outputs for each of 192 connected Multi-Interface units)
N-8000DI
Max. 6,144 (32 outputs for each of 192 connected Direct Select units)
N-8000AF
Max. 1,536 (8 outputs for each of 192 connected Audio Interface units)

External Contact Input
N-8000MI
Max. 3,072 (16 inputs for each of 192 connected Multi-Interface units)
N-8000DI
Max. 6,144 (32 inputs for each of 192 connected Direct Select units)
N-8000AF
Max. 1,536 (8 inputs for each of 192 connected Audio Interface units)

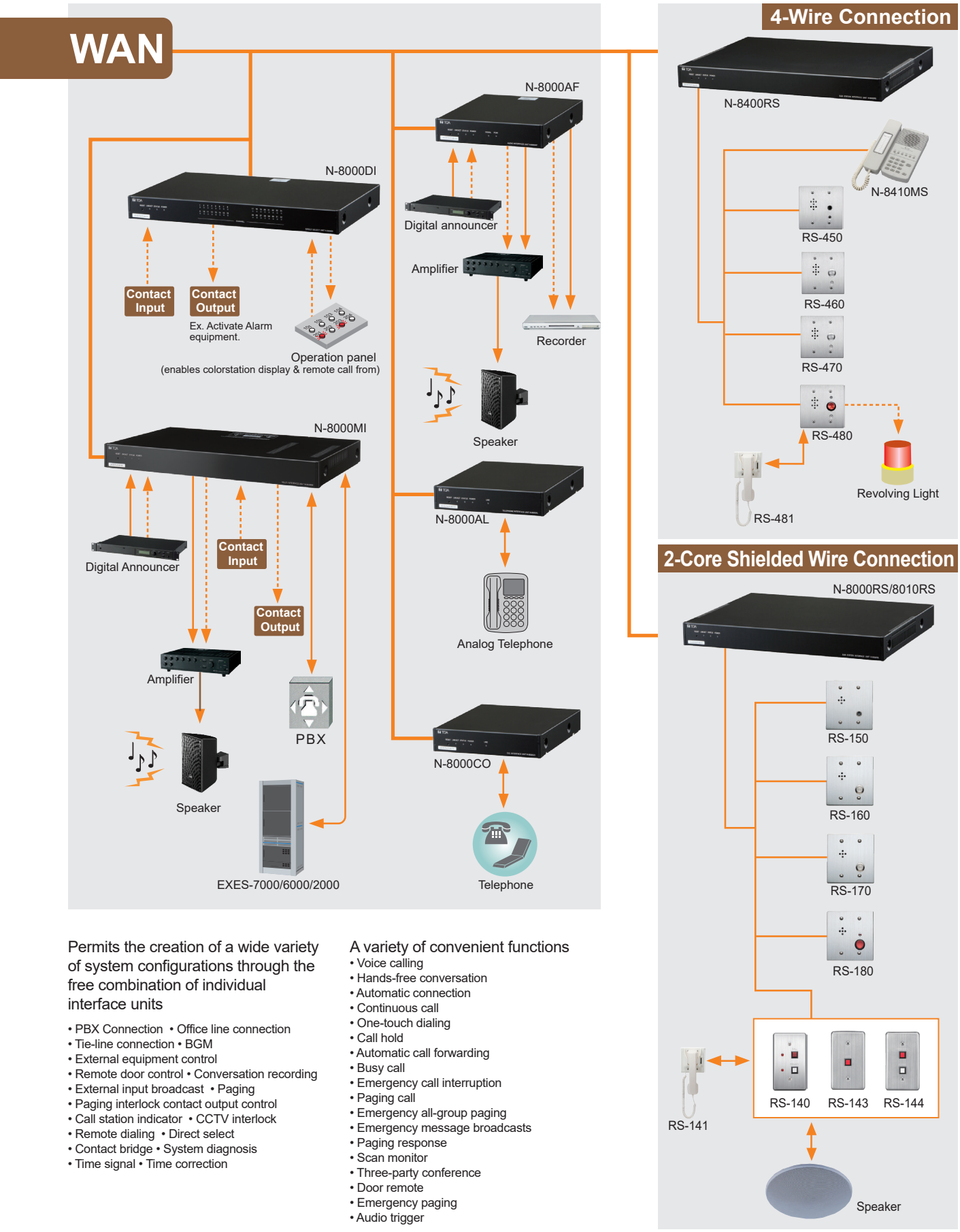
[Network Relations]
Audio Delay Time
80 ms/320 ms; changeable

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

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

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

N-8000 Intercom System



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

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

A variety of convenient functions

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

N-8000 Intercom System

The N-8000 Series IP Network Intercom Series offers flexible communications for up to 3,072 stations on existing corporate local and wide area data networks. It is a network-compatible intercom system using packet audio technology. Built on TOA's proven NX-100 network audio technology, the IP Intercom products occupy minimal network bandwidth (130 kbps maximum) for station-to-station calls and can be controlled and monitored through software or web browser. Programmable system functions include 192 paging zones, time-based call forwarding and scan monitoring. Monitoring can be real-time over the internet as the system is not server based. System frequency response extends to 7 kHz, allowing even PA-delivered announcements to be extremely clear and easily intelligible. Communications can be selected by the user as needed -- the "Master-to-Master" system optimized for full duplex conversation at such venues as factories and hospitals, or the "Master-to-Sub" (half duplex) system which is particularly suited for schools, prisons, and similar locations.

N-8000 Series IP Base Station

IP Multifunctional Master Station

N-8600MS

- System Allows Full-duplex conversation in Hands-free mode with new stations
- External mic and headset connections for hands free operation
- LCD, speed-dial, Power-over-Ethernet
- Requires AD-1215P AC Adapter

IP Remote Microphone Station

N-8610RM

- Employs packet audio technology
- Connect to a LAN or WAN network
- Power can supplied to the microphone using a PoE-compatible switching hub
- Requires AD-1215P AC Adapter

Model	N-8600MS	N-8610RM
Power Source	Power supply device that complies with IEEE802.3af standard or 12V DC (supplied from the AC adapter (option))	
Power Consumption	Use of the AC adapter (12 V DC): 2.5 W (station only) Use of the PoW (48 V DC): 3W	Use of the AC adapter (12 V DC): 4W (microphone only), 8.5W (when connecting 4 RM-210 Extension units) Use of the PoE (48 V DC): 5.2W (microphone only), 7.5W (when connecting 4 RM-210 Extension units)
Speech Method	Hands-free or handset conversation	Hands-free or handset conversation (Use of goose-neck microphone)
Audio Frequency Range	300 Hz - 7 kHz	
External Speaker Terminal	Maximum output 0.5W, 8Ω, screwless connector (2P)	--
No. of Connectable Expansion	--	Max. 4 units (max. 2 units at PoE power supply)
NETWORK SECTION Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)	
Network Protocol	TCP/IP, UDP, ARP, ICMP, TTTP, RTP, IGMP	
Audio Packet Transmission System	Unicast, Multicast	
Voice Packet Loss Recovery	Silence insertion	
Audio Delay Time	80 ms, 320 ms (controllable by the software)	
Finish	Body, handset: ABS resin, gray	ABS resin, blueish-gray
Dimensions	148 (W) x 208 (H) x 70.5 (D) mm (5.8" x 8.2" x 2.8") (excluding a curl cord section)	190 (W) x 76.5 (H) x 215 (D) mm (7.5" x 3" x 8.5") (excluding microphone)
Weight	770 g (1.7 lb)	700 g (1.5 lb)
Accessory	CD (for PC setting, maintenance use) x 1	CD (for PC setting, maintenance use) x 1
Option	Wall mounting bracket: YC-280, AC adapter: AD-1215P	Remote Microphone extension: RM-210, AC adapter: AD-1215P

*0 dB = 1 V

Intercom Dealer Certified Training

We believe that success comes through education. That's why we have developed our N-8000 IP Intercom Dealer Certified Training Program.

Register today: **www.toacanada.com/education/n-8000-certification**

The training will be available online and On-Demand. The course will lead you through the technical parameters of TOA's N-8000 IP Intercom's System which includes;

• Selection • Design • Program • Installation

Contact your TOA Regional Sales Manager to learn more - sales@toacanada.com

N-8000 Intercom System

IP Door Station

N-8640DS

- Chemical resistant for use in industrial/harsh environments.
- 4 contact outputs/one input for use with access control systems and remote dialers.
- External speaker connection 0.5W @ 8 ohms.
- Allows Full-duplex conversation with master stations.
- Q-N8640DS has a rubber booth over call button
- Requires AD-1215P AC Adapter

IP Outdoor Station Weather-resistant

Q-N8640DS

IP Indoor Station

N-8650DS

- Indoor use IP door station employing packet audio technology
- Connected to an IP network (LAN or WAN) permits hands-free conversation
- Equipped with 1 channel of control input, 5 channels of control outputs (including 1 channel of relay control output), and 1 speaker output
- Requires AD-1215P AC Adapter

IP Door Station Board Unit

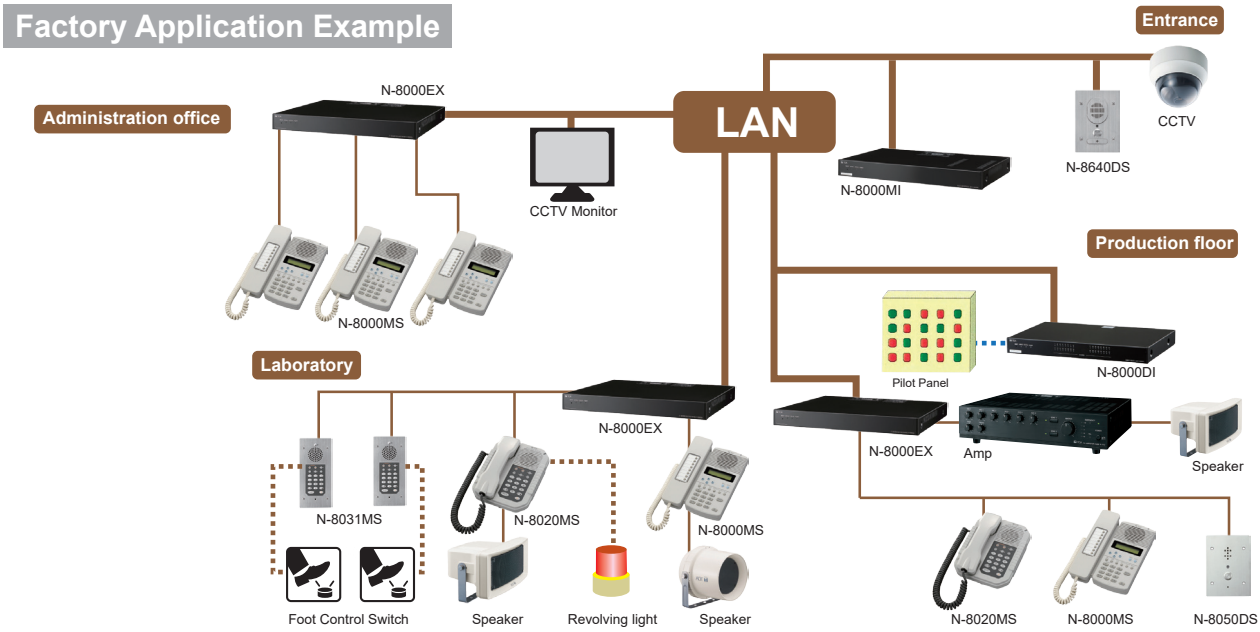
N-8640SB

- Chemical resistant for use in industrial/harsh environments.
- 4 contact outputs/one input for use with access control systems and remote dialers.
- External speaker connection 0.5W @ 8 ohms.
- Allows Full-duplex conversation with master stations.
- Requires AD-1215P AC Adapter

Model	N-8640DS	Q-N8640DS	N-8650DS	N-8640SB
Power Source	Power supply device that complies with IEEE802.3af standard or 12V DC (supplied from the AC adapter (option))			
Power Consumption	Use of the AC adapter (12 V DC): 3.5 W (station only), Use of the PoW (48 V DC): 5W			
Speech Method	Hands-free conversation			
Audio Frequency Range	300 Hz - 7 kHz			
Control Input	1 channel, no-voltage make contact input, open circuit voltage: 5 V DC, short circuit current: 10 mA or less, unterminated ends			
Control Output	Open collector output, 4 channels, withstand voltage: 30 V DC, control current: Max. 50 mA (4 output 1COMMON), unterminated ends Relay contact output, 1 channel, withstand voltage: 30 V DC, control current: Max. 500 mA, unterminated ends			
External Speaker Terminal	Maximum output 0.5 W, 8 Ω, unterminated ends			
NETWORK SECTION				
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)			
Network Protocol	TCP/IP, UDP, ARP, ICMP, TTTP, RTP, IGMP			
Audio Packet Transmission System	Unicast, Multicast			
Voice Packet Loss Recovery	Silence insertion			
Audio Delay Time	80 ms, 320 ms (controllable by the software)			
Dust/Water Protection	IP 65 (note that panel edges must be sealed at installation)		--	
Finish	Plate: Stainless steel, hairline, Call button: Metal			--
Dimensions	115 (W) x 162 (H) x 58.5 (D) mm (4.5" x 6.4" x 2.3")		117.2 (W) x 162 (H) x 60 (D) mm (4.6" x 6.4" x 2.3")	79 (W) x 134 (H) x 53 (D) mm (3.1" x 5.3" x 2.1")
Weight	780 g (1.7 lb)		400 g (0.8 lb)	350 g (0.8 lb)
Accessory	Box mounting screw (No.6-32UNC x 20) x 4, Box mounting screw (M4 x 20) x 4, Waterproof washer x 4, LAN coupler x 1	--	Box mounting screw (No.6-32UNC x 20) x 4, Box mounting screw (M4 x 20) x 4, LAN coupler x 1	--
Option	AC adapter: AD-1215P; Applicable Box: Wall mount: Wall-mount box YS-13A, Flush Mount: 3-gang electrical box or Back box YC-150			AC adapter: AD-1215P

*0 dB = 1 V

Factory Application Example



N-8000 Intercom System

Multifunctional Master Station

N-8000MS

- Full-Duplex (aka: Duplex) communication is supported by this station
- Two-wire connection to N-8000EX or N-8010EX Exchange
- Handset or hands-free duplex communication

Standard Master Station

N-8010MS

- Full-Duplex (aka: Duplex) communication is supported by this station
- Two-wire connection to N-8000EX or N-8010EX Exchange
- Handset or hands-free duplex communication

Industrial-Use Master Station

N-8020MS

- Full-Duplex (aka: Duplex) communication is supported by this station
- Heavy duty dust proof and waterproof construction (IP54 rating)
- External speaker terminal (0.6 W / 8 ohms)

Standard Hands-Free Master Station

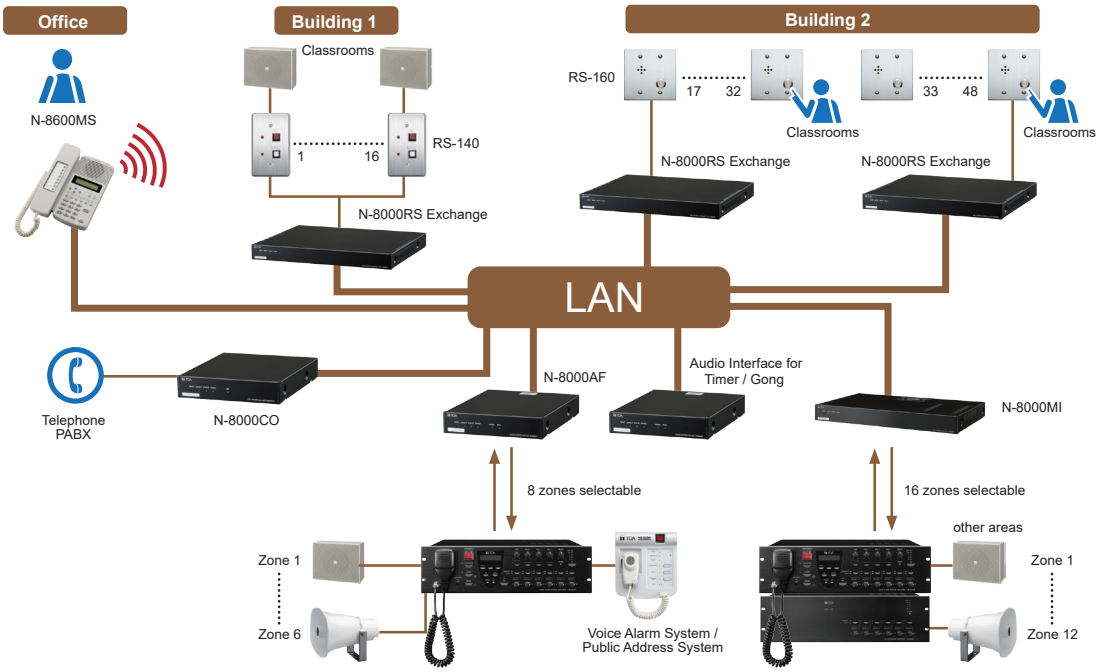
N-8011MS

- Full-Duplex (aka: Duplex) communication is supported by this station (handset mode only)
- Two-wire connection to N-8000EX or N-8010EX Exchange
- Hands-free duplex communication

Model	N-8000MS	N-8010MS	N-8011MS	N-8020MS
Power Source	48V DC (supplied from the IP network intercom exchange (option))			
Power Consumption	1.8 W (at rated), 2.4W (max.)			
Wiring Method	1 set of twisted pair cable			
Speech Method	Hands-free or handset conversation		Hands-free conversation	Hands-free or handset conversation
Audio Frequency Range	300 Hz – 7 kHz			
Transmission Range	Max. 1500 m (ø0.65 mm, Loop resistance 170 Ω)			
Dial-in Contact Output	--			Open collector output (polarized), Withstand voltage: Max. 30V DC, Control current: Max. 50 mA, screwless connector (2P)
External Speaker Terminal	0.6W, 8Ω, screwless connector (2P)	--		0.6W, 8Ω, screwless connector (2P)
Dust/Water Protection	--			IP54
Finish	Body, Handset: ABS resin, gray		Body: ABS resin, gray	Body, Handset: ABS resin, gray
Dimensions	148 (W) x 208 (H) x 70.5 (D) mm (5.2" x 8.2" x 2.8") (excluding a curl cord section)		92 (W) x 195 (H) x 56.1 (D) mm (3.6" x 7.7" x 2.2")	170 (W) x 220 (H) x 97.8 (D) mm (6.7" x 8.7" x 3.9") (excluding a curl cord section)
Weight	800 g (1.8 lbs)	700 g (1.5 lbs)	400 g (0.9 lbs)	1 kg (2.2 lbs)
Accessory	Connection cord (3m) x 1			Rubber cap x 2
Option	Wall mounting bracket: YC-280		Wall mounting bracket: YC-290	Wall mounting bracket: YC-280

*0 dB = 1V

School Application Example



N-8000 Intercom System

Flush-Mount Master Station

N-8033MS

- Especially for hospitals
- IP-65 rated outdoor in-wall Master Station.
- Chemical resistant for use in industrial/harsh environments.
- One input for use with foot switch dialing.

Flush-Mount Hands-Free Master Station

N-8031MS

- Full-Duplex (aka: Duplex) communication is supported by this station (handset mode only)
- Two-wire connection to N-8000EX or N-8010EX Exchange
- Hands-free duplex communication
- External dial inputs (7, 8, 9 and C keys)
- Optional Handset, model RS-191

Hands-Free Master Station Board Unit

N-8031SB

- Full-Duplex (aka: Duplex) communication is supported by this station
- N-8031 PCB for custom station applications
- Speaker and microphone included
- External dial inputs (7, 8, 9 and C keys) plus switch matrix connection
- LED Status Indicator output

Door Station

N-8050DS Indoor
Q-N8050WPB51800** Outdoor

- Full-Duplex (aka: Duplex) communication is supported by this station
- Hands-free duplex communication
- Separate mic and speaker
- Control output (open collector)
- IP-54 rated
- Q-N8050WPB51800** is weather-resistant and has a rubber boot covering the call button

Q-N8050WPB51800**

Hands-Free Substation Board Unit

N-8050SB

- Full-Duplex (aka: Duplex) communication is supported by this station
- N-8050DS PCB for custom station applications
- Speaker and microphone included
- Control output (open collector)
- Call switch input
- LED Status Indicator output

Optional Handset

RS-191

Model	N-8033MS	N-8031MS	N-8031SB	N-8050DS	Q-N8050WPB51800**	N-8050SB
Power Source	48V DC (supplied from the IP network intercom exchange (option))					
Power Consumption	1.8 W (at rated), 2.4 W (max.)					
Wiring Method	1 set of twisted pair cable		Non-polar 1 pair stranded wire system	1 set of twisted pair cable	Non-polar 1 pair stranded wire system	
Speech Method	Hands-free conversation	Hands-free conversation (Handset conversation can be established in conjunction with the RS-191 (option))		Hands-free conversation		
Audio Frequency Range	300 Hz – 7 kHz					
Transmission Range	Max. 1500 m (ø0.65 mm, Loop resistance 170 Ω)					
Contact Output	--			Open collector output, withstand voltage: Max. 30V DC, Control current: Max. 50 mA, one shot: can be set from 1 to 9 s, screw terminal (polarized)		
External Dial Input	No-voltage make contact input, open voltage: 5 V DC, short-circuit current: 1 mA, screwless connector (5 p)			--		
Dust/Water Protection	IP65*	--		IP54*		--
Housing Protection	--			BS EN62262: 2002 IK02 equivalent		--
Resistance to Environment	Chemical Resistant	--			Passed our gas corrosion test and neutral salt spray test	--
Finish	Body, Handset: ABS resin, gray	Panel: Stainless steel, hairline	--	Plate: Stainless steel, hairline, Call button: Metal	Plate: Stainless steel, hairline, Call button: Metal; Circuit board: Silicone sealing agent-coated board	--
Dimensions	115 (W) x 254 (H) x 51 (D) mm (4.5" x 10" x 2.1")		70 (W) x 185 (H) x 20.6 (D) mm (2.6"x7.3"x0.8")	115 (W) x 162 (H) x 54 (D) mm (4.5" x 6.4" x 2.1")		67 (W) x 128.3 (H) x 26 (D) mm (2.6"x5"x1")
Weight	850 g (1.9 lbs)		205 g (0.6 lbs)	680 g (1.5 lbs)		100 g (0.2 lbs) (including accessories)
Accessory	Box mounting screw (M4 x 35) x 4, Acoustic absorbent x 1, Removable terminal plug (2P, preinstalled on the unit) x 1	Box mounting screw (N..6-32UNC x 18) x4, Box mounting screw (M4 x 25) x 4, Acoustic absorbent x 1, Removable terminal plug (2P, preinstalled on the unit) x 1, Handset jumper (8P, preinstalled on the unit) x 1, Ferrite clamp x 1	Removable terminal plug (2P, preinstalled on the unit) x 1, Handset jumper (8P, preinstalled on the unit) x 1, Ferrite clamp x 1, Hands-free speaker (with connection cord) x 1, Hands-free microphone (with connection cord) x 1	Box mounting screw (No.6-32UNC x 18) x 4, Box mounting screw (M4 x 25) x 4, Acoustic absorbent (made of felt) x 1	Box mounting screw (No.6-32UNC x 18) x 4, Box mounting screw (M4 x 25) x 4	Hands-free speaker (with connection cord) x 1, Hands-free microphone (with connection cord) x 1
Option	Back Box: YC-841	Flush mount: Back Box: YC-241, Surface mount: Wall-mount box: YC-251, Handset: RS-191	Handset: RS-191	Flush mount: 3-gang electrical box or Back Box: YC-150, Wall mount: Wall-mount box: YS-13A		--

* Note that panel edges must be sealed at installation

** Special Order Product

N-8000 Intercom System

IP Network Intercom Exchange

N-8000EX

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

IP Network Intercom Exchange

N-8010EX

- Stations connect to exchange via two-wire twisted pair
- Provides 48 VDC to each station
- Speech links: 1 internal / 2 external
- 10/100BaseTX Ethernet network connection
- Occupies one network node (192 max.)
- Includes rack-mount and wall-mount brackets

Model	N-8000EX	N-8010EX
Power Source	120V AC, 50/60Hz	
Power Consumption	50W (at rated), 75W (max.)	
Interface Section or Station		
Speech Link	Internal: 4/External: 8	Internal: 1/External: 2
Line Capacity	Up to 16 stations	
Wiring Method	1 set of twisted pair cables	
Transmission Range	Max. 1500 m (ø0.65 mm, Loop resistance 170 Ω)	
Paging Output	Audio: 2 channels Max. 0dB*, 600Ω, balanced Control: 2 channels, no-voltage make contact output (24V DC/0.5A), Connector: removable terminal block	Station paging only
Network Section		
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)	
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP	
Audio Packet Transmission System	Unicast, Multicast	
Audio Packet Omission	Silence insertion	
Audio Delay Time	80 ms, 320 ms (Controllable by the software)	
Finish	Pre-coated steel plate, black, 30% gloss	
Dimensions	420 (W) x 44.3 (H) x 356 (D) mm (16.5" x 1.7" x 14")	
Weight	4.1 kg (9 lbs)	4.2 kg (9.3 lbs)
Accessory	AC power cord (2m (6.56 ft)) x 1, CD (for PC setting, maintenance use) x 1, Removable terminal plug (4 pins) x 2, Mini-clamp plug (2 pins) x 20, Plastic foot x 4, Screw for fitting plastic foot x 4, Rack mounting bracket x 2, Screw for rack mounting x 4, Wall mounting bracket x 2, Screw for mounting bracket x 8, Screw for wall mounting x 4	

*0 dB = 1V

Telephone Interface Unit

N-8000AL

- 10/100BaseTX Ethernet network connection
- Occupies one network node (192 max.)
- Single telephone line allowing an analog telephone to be connected.
- Allows any analog telephone to function as a master station.

C/O Interface Unit

N-8000CO

- 10/100BaseTX Ethernet network connection
- Occupies one network node (191 max - at least one node must be a master station or N-8000/8010EX exchange)
- Analog central office line circuit allowing the stations to make and receive calls to and from the telephone line.

Model	N-8000AL	N-8000CO
Power Source	120V AC, 50/60Hz	
Power Consumption	8W (Max.)	7W (Max.)
Interface (Telephone or C/O)		
Number of Lines	1 line	
Selective Signal Type	DTMF Signal	
Signal System	--	Compatible with loop start signaling
Monitor Function	Line loop detection	--
Control Function	Caller ID Function	--
Wiring Method	1 pair of twisted pair cable	
Network Section		
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)	
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP	
Audio Packet Transmission System	Unicast, Multicast	
Audio Packet Omission	Silence insertion	
Audio Delay Time	80 ms, 320 ms (Controllable by the software)	
Finish	Pre-coated steel plate, black, 30% gloss	
Dimensions	420 (W) x 44.3 (H) x 356 (D) mm (16.5" x 1.7" x 14")	
Weight	4.1 kg (9 lbs)	4.2 kg (9.3 lbs)
Accessory	Power cord (2m (6.56 ft)) x 1, CD (for PC setting, maintenance use) x 1, Mini-clamp plug (2 pins) x 2, Plastic foot x 4, Screw for fitting plastic foot x 4	
Option	Rack mounting bracket: MB-15B-BK, MB-15B-J; Wall mounting bracket: YC-850	

*0 dB = 1V

N-8000 Intercom System

Multi Interface Unit

N-8000MI

- 10/100BaseTX Ethernet network connection
- Occupies one network node (192 max.)
- Contact Bridge
- Sixteen contact inputs
- Sixteen relay outputs
- Telephone Interface (E&M type), two channels

Direct Select Unit

N-8000DI

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

Audio Interface Unit

N-8000AF

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

IP Interface Module

SX-200IP

- 10BASE-T/100BASE-TX (Automatic-Negotiation)
- Voice sampling frequency of 16 kHz, 8 kHz (controllable on the software); 48 kHz, sample rate is used for SX-2000 system only
- Voice encoding method - Sub-band ADPCM, Cryptosystem
- Voice Packet Loss Recovery - Silence insertion
- Allows for a page to be made from the N-8000 Series Stations (N-8600MS, N-8610RM only) to the SX-2000 Series.

Model	N-8000MI	N-8000DI	N-8000AF
Power Source	120V AC, 50/60Hz		
Power Consumption	21W (330 mA) (Max.)	16W (Max.)	7W (Max.)
Audio Input	Input: 2 inputs (2P/input), Max. 0dB*, under 600Ω, balanced, with a semi-fixed volume for adjustment (0 to –25dB); Control: 2 inputs (2P/input), no-voltage make contact input, open voltage: 12V DC, short-circuit current: 10mA; Removable terminal block (8 pins)	--	1 input (transformer isolated), -58dB* to 0dB*, 2kΩ, balanced (MIC/LINE input, controllable by the software) with input volume control knob, removable terminal block (3 pins)
Audio Output	Output: 2 outputs (2P/output), Max. 0dB*, under 600Ω, balanced Control: 2 outputs (2P/output), relay contact output, contact capacity: 24V DC/0.5A, Removable terminal block (8 pins)	--	1 output (transformer isolated), 0dB*, 600Ω, balanced, removable terminal block (3 pins)
Contact Input	16 inputs, no-voltage make contact input, open voltage; 12V DC, short-circuit current: 10mA, removable terminal block (18 pins)	32 inputs, no-voltage make contact input, open voltage: 24V DC, short-circuit current: 5mA or less, removable terminal block (20 pins), (1 common terminal for 4 inputs)	--
Contact Output	16 outputs, relay contact output, contact capacity: 24V DC/0.5A, removable terminal block (18 pins)	32 outputs, relay contact output, contact capacity: 24V DC/2 – 500mA, removable terminal block (32 pins)	8 outputs, relay contact output, contact capacity: 24V DC/2 – 500mA, removable terminal block (16 pins)
Network Section			
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)		
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP		
Audio Packet Transmission System	Unicast, Multicast	--	Unicast, Multicast
Audio Packet Omission	Silence insertion	--	Silence insertion
Audio Delay Time	80 ms, 320 ms (Controllable by the software)	--	80 ms, 320 ms (Controllable by the software)
Finish	Pre-coated steel plate, black, 30% gloss		
Dimensions	420 (W) x 44.3 (H) x 239.5 (D) mm (16.5" x 1.7" x 9.4")	420 (W) x 44.3 (H) x 267 (D) mm (16.5" x 1.7" x 10.5")	210 (W) x 44.3 (H) x 267 (D) mm (8.3" x 1.7" x 10.5")
Weight	2.8 kg (6.2 lbs)		1.7 kg (3.7 lbs)
Accessory	Power cord (2m (6.56 ft)) x 1, CD (for PC setting, maintenance use) x 1, Mini-clamp plug (2 pins) x 10, Removable terminal plug (8 pins) x 2, Removable terminal plug (3 pins) x 2, Removable terminal plug (9 pins) x 4, Plastic foot x 4, Screw for fitting plastic foot x 4, Rack mounting bracket x 2, Screw for rack mounting bracket x 8, Screw for rack mounting x 4	Power cord (2m (6.56 ft)) x 1, CD (for PC setting, maintenance use) x 1, Removable terminal plug (10 pins) x 4, Removable terminal plug (16 pins) x 4, Plastic foot x 4, Screw for fitting plastic foot x 4, Rack mounting bracket x 2, Screw for rack mounting bracket x8, Screw for rack mounting x4	Power cord (2m (6.56 ft)) x 1, CD (for PC setting, maintenance use) x 1, Removable terminal plug (2 pins) x 1, Removable terminal plug (3 pins) x 2, Removable terminal plug (5 pins) x 2, Removable terminal plug (8 pins) x 2, Plastic foot x 4, Screw for fitting plastic foot x 4,
Option	--	Wall mounting bracket: YC-850	Rack mounting bracket: MB-15B-BK, MB-15B-J; Wall mounting bracket: YC-850

*0 dB = 1V

Model	SX-200IP
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP
Audio Packet Omission	Silence insertion
Audio Delay Time	80 ms, 320 ms (Controllable by the software)
Finish	Pre-coated steel plate, black, 30% gloss
Dimensions	35 (W) x 119.5 (H) x 117.4 (D) mm (1.38" x 4.7" x 7.02")
Weight	150 g (0.33 lbs)

N-8000 Intercom System

Sub-station Interface Unit

N-8000RS

- 10/100BaseTX Ethernet network connection
- Occupies one network node (191 max - at least one node must be a master station or N-8000/8010EX exchange)
- Up to 16 substations connectable using twisted pair shielded cable
- Speech links: 2

Sub-station Interface Unit

N-8010RS

- 10/100BaseTX Ethernet network connection
- Occupies one network node (191 max - at least one node must be a master station or N-8000/8010EX exchange)
- Up to 16 substations connectable using twisted pair shielded cable
- Speech links: 1

Sub-station (Emergency Use)

RS-180

- Heavy-duty brushed stainless steel faceplate, #11 Gauge.
- Vandal resistant call button and speaker plate.
- Red Call Assurance LED for ADA-compliance.
- Weather resistant conformal printed circuit board coating.

Sub-station (Outdoor Vandal-Resistant Type)

RS-170

- Provides half-duplex communication.
- Heavy-duty brushed stainless steel faceplate, #11 Gauge.
- Vandal resistant call button and speaker plate.
- May be programmed to communicate with a single master station.
- Weather resistant conformal printed circuit board coating.

Sub-station (Indoor Vandal-Resistant Type)

RS-160

- Provides half-duplex communication.
- Heavy-duty brushed stainless steel faceplate, #11 Gauge.
- Vandal resistant call button and speaker plate.
- May be programmed to communicate with a single master station.

Sub-station (Indoor Type)

RS-150

- Provides half-duplex communication.
- Hairline brushed stainless steel faceplate, #14 Gauge.
- Connects to N-8000RS/N-8010RS.
- May be programmed to communicate with a single master station.

Substation (ADA-Compliant Emergency Outdoor type)

Q-RS180BZ

- ADA compliant with Braille labeling
- Large easy-access mushroom button
- Contact output for use with emergency lighting or access control systems.
- Works with N-8000RS & N-8010RS exchanges using shielded twisted pair connection.

8” In-wall Speaker with Call Button

PC-580SBT

- 8” square in-wall speaker for intercom applications (requires RS series station boards RS-142, RS-442, N-8640SB, etc.)
- Push-button for calling master station (Push Button momentary N/O dome head rated at 125V 4A)
- Unique “monocoque” design provides better structural integrity
- Hole drilled in speaker for mounting of microphone *(supplied separately)*
- *PC-580S Ceiling Speaker specifications and Optional Back Boxes found on page 9.*

Model	N-8000RS	N-8010RS
Power Source	120 V AC, 50/60 Hz	
Power Consumption	35 W (at rated), 45 W (Max.)	26 W (at rated), 32 W (Max.)
INTERFACE SECTION FOR SUB-STATION Number of Lines	16 lines	
Number of Speech Link	2 links	1 link
Transmission Range	500 m (546.81 yd)/ø0.5 mm (AWG24, 800 m (874.89 yd)/ø0.65 mm (AWG21), 1300 m (1421.7 yd) ø0.9 mm (AWG19)	
Wiring Method	Two-core shielded cable	
NETWORK SECTION Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)	
Network Protocol	TCP/IP, UDP, ARP, ICMP, TTTP, RTP, IGMP	
Audio Packet Transmission System	Unicast, Multicast	
Voice Packet Loss Recovery	Silence insertion	
Audio Delay Time	80 ms, 320 ms (controllable by the software)	
Finish	Pre-coated steel plate, black, 30% gloss	
Dimensions	420 (W) x 44.3 (H) x 325.5 (D) mm (16.54” x 1.74” x 12.81”)	117.2 (W) x 162 (H) x 60 (D) mm (4.6” x 6.4” x 2.3”)
Weight	3.9 kg (8.6 lb)	400 g (0.8 lb)
Accessory	Power cord (2 m (6.56 ft)) x1, CD (for PC setting, maintenance use) x1, Removable terminal plug (3P) x16, Plastic foot x4, Screw for fitting plastic foot x4, Rack mounting bracket x2, Screw for mounting bracket x8, Screw for rack mounting x4	
Option	Wall mounting bracket: YC-850	

N-8000 Intercom System

IP Intercom Switch Panel

RS-144

- May be programmed for dual-priority call or call into two different master stations.
- Connects to N-8000RS & N-8010RS exchanges via shielded twisted pair wire and 25V speaker for half-duplex communication with assigned master station.
- Optional RS-141 handset may also be used.

IP Intercom Switch Panel

RS-143

- Connects to N-8000RS & N-8010RS exchanges via shielded twisted pair wire and 25V speaker for half-duplex communication with assigned master station.
- Optional RS-141 handset may also be used.

Switch Panel

RS-140

- Call button and privacy button with LED Indicators.
- Supports two-way (half-duplex) communication.
- Prevents incoming calls, pages & scans by pushing the privacy switch.
- Private, handset conversation is available using the RS-141.
- Connects to N-8000RS/8010RS using twisted two-core, shielded cable.

IP Intercom Switch Board

RS-142

- Allows configuration with custom housing and switch.
- May be programmed for dual-priority call or call into two different master stations.
- Connects to N-8000RS & N-8010RS exchanges via shielded twisted pair wire and 25V speaker for half-duplex communication with assigned master station.
- Optional RS-141 handset may also be used

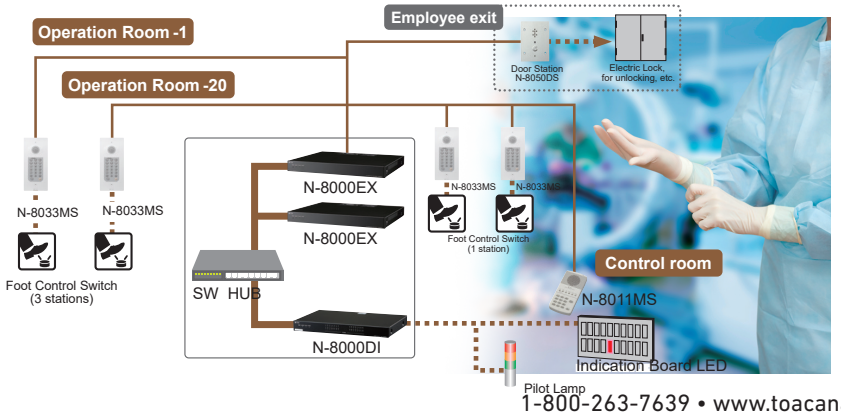
Optional Handset

RS-141

Model	RS-144	RS-143	RS-140	RS-142
Call Button	Momentary (EMERGENCY, NORMAL)	Momentary		Wiring: 4 cables (for 2 momentary switches)
Privacy Switch	--		Latching	--
Wiring	Two-core shielded cable			
Transmission Range	0.5 km (546 yd)/ø0.5 mm (AWG24); 0.8 km (874 yd)/ø0.65 mm (AWG22); 1.3 km (1421 yd)/ø0.9 mm (AWG19)			
Finish	Plate: Stainless steel, hairline Call button (emergency): resin, red Call button (normal): resin, white	Plate: Stainless steel, hairline Call button (normal): resin, red	Plate: Stainless steel, hairline; Call button: resin, red Privacy button (normal): resin, white	--
Dimensions	70.1 (W) x 115.1 (H) x 28.6 (D) mm (2.76" × 4.53" × 1.13")			--
Weight	80 g (0.18 lb)			30 g (0.07 lb)
Accessory	Mounting bracket x 1, bracket mounting screw (No.6-32UNC x 18) x 2, Box mounting screw (M4 x 30) x 2, Box mounting screw (No.6-32UNC x 30) x2			--
Option	RS-141			--

Model	RS-180	Q-RS180BZ	RS-170	RS-160	RS-150
Rated Impedance	625 Ω (1 W/25 V)				
Internal Speaker	4 cm cone-type				
Wiring	Two-core shielded cable				
Transmission Range	0.5 km (546 yd)/ø0.5 mm (AWG24); 0.8 km (874 yd)/ø0.65 mm (AWG22); 1.3 km (1421 yd)/ø0.9 mm (AWG19)				
Control Output	Open collector output: 30 V DC, 30 mA (The open collector output is kept turned on till the conversation is finished after the call button was pressed.)		--		
Finish	Panel: Stainless steel, hairline, Call button: Metal, Printed circuit board: Weather-resistant coating	Panel: Stainless steel, hairline Braille: "EMERGENCY PUSH FOR HELP" "FLASHING: CALL PLACED STEADY: CALL ANSWERED" Call button: Metal (RED mushroom); Printed circuit board: Weather-resistant coating	Panel: Stainless steel, hairline, Call button: Metal, Printed circuit board: Weather-resistant coating	Panel: Stainless steel, hairline, Call button: Metal	Panel: Stainless steel, hairline, Call button: Resin
Dimensions	120(W)x120(H)x58.5(D) mm (4.72" × 4.72" × 2.3")	115(W)x162(H)x66.8(D) mm (4.53" × 6.38" × 2.63")	120 (W) x 120 (H) x 57.5 (D) mm (4.72" × 4.72" × 2.26")		120(W)x120(H)x48.5(D) mm (4.72" × 4.72" × 1.91")
Weight	570 g (1.26 lb)	700 g (1.54 lb)	540 g (1.19 lb)		410 g (0.90 lb)
Accessory	Box mounting screw (No.6-32UNC x 8) x 4, Box mounting screw (M4 x 25) x 4				
Option	For flush mount: 2-gang electrical box: YC-302 For surface mount: Indoor wall-mount box: YC-822 Outdoor wall-mount box: YC-823	3-gang electrical box: YC-150 or YS-13A	For flush mount: 2-gang electrical box: YC-302 For surface mount: Indoor wall-mount box: YC-822 Outdoor wall-mount box: YC-823	For flush mount: 2-gang electrical box: YC-302 For surface mount: Indoor wall-mount box: YC-822	

Hospital Application Example



N-8000 Intercom System

Sub-station Interface Unit

N-8400RS

- 10/100BaseTX Ethernet network connection
- Occupies one network node (191 max - at least one node must be a master station or N-8000/8010EX exchange)
- Up to 16 substations connectable using 2 sets of twisted pair cables
- Speech links: Internal 1, External 2

Analog Standard Master Station

N-8410MS

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

Model	N-8400RS
Power Source	120 V AC, 50/60 Hz
Power Consumption	35 W (at rated), 45 W (Max.)
INTERFACE SECTION FOR SUB-STATION Number of Lines	16 lines
Number of Speech Links	Internal 1, External 2
Transmission Range	1000 m (1093.61 yd)/ø0.5 mm (AWG24, 1500 m (1640.42 yd)/ ø0.65 mm (AWG21), 2000 m (2187.23 yd) ø0.9 mm (AWG19)
Wiring Method	2 sets of twisted pair cables
NETWORK SECTION Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)
Network Protocol	TCP/IP, UDP, ARP, ICMP, TTTP, RTP, IGMP
Audio Packet Transmission System	Unicast, Multicast
Voice Packet Loss Recovery	Silence insertion
Audio Delay Time	80 ms, 320 ms (controllable by the software)
Finish	Pre-coated steel plate, black, 30% gloss
Dimensions	420 (W) x 44.3 (H) x 325.5 (D) mm (16.54" x 1.74" x 12.81")
Weight	4 kg (8.82 lb)
Accessory	Power cord (2 m (6.56 ft)) x1, CD (for PC setting, maintenance use) x1, Removable terminal plug (4P) x16, Plastic foot x4, Screw for fitting plastic foot x4,Rack mounting bracket x2, Screw for mounting bracket x8, Screw for rack mounting x4
Option	Wall mounting bracket: YC-850

Model	N-8410MS
Power Source	24 V DC (supplied form the sub station interface unit N-8400RS)
Current Consumption	Max 30 mA
Wiring Method	2 sets of twisted pair cable
Speech Method	Hands-free or handset conversation
Audio Frequency Range	300 Hz - 7 kHz
Transmission Range	1 km (1093 yd)/ø0.5mm (AWG24); 1.5 km (1640 yd)/ø0.65mm (AWG22); 2 km (2187 yd)/ø0.9 mm (AWG19)
Finish	Body, Handset: ABS resin, gray
Dimensions	148 (W) x 208 (H) x 70.5 (D) mm (5.83" × 8.19" × 2.78")
Weight	720 g (1.59 lb)
Accessory	Connection cord (3 m (9.84 ft)) x 1
Option	Wall mounting bracket: YC-280

RS Series Heater Surface Mount Back Box

RS Series Back Box

YC-531HSW AM

The YC-531HSW AM is a surface mount back box for the RS series intercom stations of the N-8000 intercom system. It is equipped with two heaters for installations in cold environments (down to -40°C), a thermostat that turns on the heaters when the temperature is below (+4.4°C ± 4°C) and turns them off when the temperature is above (+15.5°C ± 4°C).
Requires 24 V AC or DC power adapter (not included)

Model	YC-531HSW AM	
Heaters	Number of Units	2 x 10 W
	Power Source	24V AC or DC (supplied from optional AD-246 power supply unit or equivalent)
	Power Consumption	Max. 20 W
	Wiring Terminal	2 pin screw terminal
Thermostat	Series	1/2" Disc
	Type	Automatic Reset
	Function	Open On Rise (Normally Closed)
	Open Temperature	+15°C ± 4°C (60°F ± 7°F)
	Close Temperature	+4°C ± 4°C (40°F ± 9°F)
Tamper Switch	Normally open switch, pre-attached one pair cable with no termination	
Operating Temperature	-40°C (-40°F to +50°C (+122°F)	
Finish	Steel, painted in gray (RAL 9006 or equivalent)	
Weight	2.40 lbs. (1.09 Kg)	
Dimensions	4.89"(w) x 4.89"(h) x 4.65"(d) (124 x 124 x 118mm)	
Compatibility	RS-150, RS-450, RS-160, RS-460, RS-170, RS-470, RS-180, RS-480	
Accessory	Requires 24 V AC or DC power adapter (not included)	

N-8000 Intercom System

Sub-station (Emergency Use)

RS-480

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

Sub-station (Outdoor Vandal-Resistant Type)

RS-470

- Provides half-duplex communication.
- Dust proof and waterproof construction (IP54 rating).
- Heavy-duty brushed stainless steel faceplate.
- Vandal resistant call button.
- Weather resistant conformal printed circuit board coating.
- Built-in electret condenser microphone.
- Connects to N-8400RS using two twisted pair cable.

Sub-station (Indoor Vandal-Resistant Type)

RS-460

- Provides half-duplex communication.
- Heavy-duty brushed stainless steel faceplate.
- Vandal resistant call button and speaker plate.
- Built-in electret condenser microphone.
- Connects to N-8400RS using two twisted pair cable.

Sub-station (Indoor Type)

RS-450

- Provides half-duplex communication.
- Hairline brushed stainless steel faceplate.
- Built-in electret condenser microphone.
- Connects to N-8400RS using two twisted pair cable.

IP Intercom Switch Board

RS-442

- Allows configuration with custom housing and switch.
- May be programmed for dual-priority call or call into two different master stations.
- Switch board to make custom sub-station interface
- Allows for three call in switches
- Connects to N-8400RS Sub-station interface unit via twisted pair wire and 25V speaker for half-duplex communication with assigned master station.
- Optional RS-481 handset may also be used

Optional Handset

RS-481

- Two-way, half-duplex communication using any 25V wall/ceiling speaker
- Prevents incoming calls by pushing a privacy switch

Model	RS-480	RS-470	RS-460	RS-450	RS-442
Call Button	Momentary (Emergency call: Press twice within 400 ms)				Call Button Wiring: 6 cables (for 3 momentary switches)
Rated Input	1W				
Internal Speaker	Cone-type				--
Internal Microphone	Electret condenser type				
Wiring	Twisted pair cables (2 pairs)				
Transmission Range	1 km (1093 yd)/ø0.5 mm (AWG24); 1.5 km (1640 yd)/ø0.65 mm (AWG22); 2 km (2187 yd)/ø0.9 mm (AWG19)				
Control Output	Open collector, Maximum controlled voltage: 30 V DC; Control current: 30 mA	--			Open collector, Maximum controlled voltage: 30 V DC; Control current: 30 mA
Dust/Water Protection	IP54		--		
Finish	Panel: Stainless steel, hairline Call button: Metal, silver Printed circuit board: Weather-resistant coating		Panel: Stainless steel, hairline Call button: Metal, silver	Panel: Stainless steel, hairline Call button: Resin, black	--
Dimensions	120(W) x 120(H) x 50.5(D)mm (4.72" × 4.72" × 1.9")	120 (W) x 120 (H) x 49.5 (D) mm (4.72" × 4.72" × 1.9")		120(W) x 120(H) x 41.5(D)mm (4.72" × 4.72" × 1.6")	--
Weight	575 g (1.27 lb)	550 g (1.21 lb)	540 g (1.19 lb)	510 g (1.12 lb)	140 g (0.31 lb)
Accessory	Box mounting screw (No.6-32UNC x 8) x 4, Box mounting screw (M4 x 25) x 4				--
Option	For flush mount: 2-gang electrical box: YC-302 For surface-mount: Indoor wall-mount box: YC-822 Outdoor wall-mount box: YC-823		For flush mount: 2-gang electrical box: YC-302 For surface-mount: Indoor wall-mount box: YC-822		--

N-8000 Intercom System

N-8000 Series Optional Accessories

Wall-Mount Bracket
YC-850
- Designed to mount N-8000RS, N-8010RS, N-8400RS, N-8000DI, N-8000AF, N-8000AL and N-8000CO on a wall.

Wall-Mount Bracket
YC-280
- Designed to mount N-8000MS, N-8010MS, N-8020MS, N-8410MS, N-8510MS and N-8600MS on a wall.

Wall-Mount Bracket
YC-290
- Designed to mount N-8011MS on a wall.

Surface-Mount Back Box
YC-251
- Designed to mount N-8031MS on a wall.

Flush-Mount Back Box
YC-241
- Designed to surface-mount N-8031MS on a wall.

Flush-Mount Back Box
YC-150
- Designed to flush-mount N-8050DS and N-8640DS on a wall.

Back Box
YC-841
- Designed to flush-mount N-8033MS on a wall.

Surface-Mount Back Box
YS-13A
- Designed to surface-mount N-8050DS and N-8640DS on a wall.

Indoor Wall-Mount Box
YC-822
- Designed to mount RS-150, RS-160, RS-170, RS-180, RS-450, RS-460, RS-470 and RS-480 on a wall.

2-Gang Electrical Box
YC-302
- Designed to mount RS-150, RS-160, RS-170, RS-180, RS-450, RS-460, RS-470 and RS-480 on a wall.

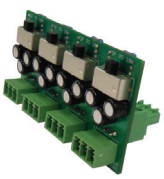
Outdoor Wall-Mount Box
YC-823
- Designed to mount RS-170, RS-180, RS-470 and RS-480 on a wall.

AC Adapter
AD-1215P
- The AD-1215P is an AC adapter to operate the IP Station on AC.

Rack Mounting Bracket
MB-15B-BK
- Rack mounting bracket kit for one N-8000/AG/AL/CO (1 RU)

Rack Mounting Bracket
MB-15B-J
- Rack mounting bracket kit for two N-8000/AG/AL/CO (1 RU)

N-8000RS Adapter
Q-N8000LC
- Conversion adapter for N-8000RS or N-8010RS.
- Select between speaker, RS station or line level

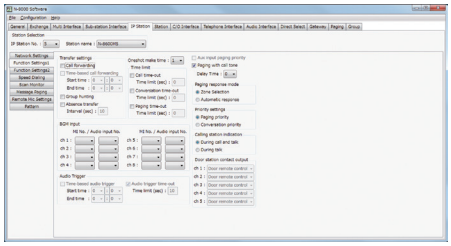


Terminal Board Unit
E-7000TB
- Rack mountable terminal board designed exclusively for use with the N-8000 Packet Intercom System (IP network compatible intercom). Up to 40 stations can be connected to the E-7000TB.

N-8000 Intercom System

Setting software

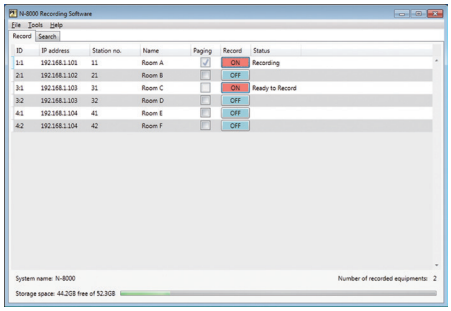
The network settings and the detection of the equipment connected to the local network can be set. The paging system settings, advanced settings of functions for each individual equipment and settings for the whole system can also be adjusted.



[System Requirements]
OS: Windows 7 Pro/Windows 10 Pro
CPU: Pentium® 4 2 GHz or faster
Memory: 1 GB or more
Required component: Microsoft® .NET Framework 3.5 SP1 or later, and Microsoft® SQL Server 2005 Express Edition

Recording software

Telephone calls, paging, and 3-Party Conference on the N-8000 system and recording of the voice during the Scan Monitor can be managed as a .wav format. After selecting the recording subjected equipment, recording related settings can be adjusted. It is possible to easily search the recorded audio files and also to export the audio files to an external storage.

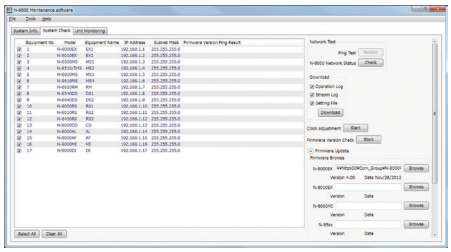


[System Requirements]
OS: Windows 7 Pro/Windows 10 Pro
Screen resolution: Over 1024 × 768 pixels
Required component: Microsoft® .NET Framework 4

[Recommended Specifications]
CPU: Intel® Core® i5-2400 CPU @3.10GHz or faster
Memory: 4 GB or more
Free Hard Disk Space: 100GB or more
(About 2.7 GB is used per sound source at 24-hour continuous recording)

Maintenance software

This software displays the equipment name, station number, station name, etc. of individual equipment components within the system in the form of an at-a-glance list. System check function is used to confirm equipment firmware versions, update firmware, check connections between a PC and equipment components and between components, download various equipment log and setting files, and perform equipment clock settings. Although the above functions can be done on the browser, use of the N-8000 Maintenance Software permits such functions to be performed simultaneously for multiple components. Moreover, it displays the operation status of individual components in real time. Equipment operation logs can also be automatically saved to a designated file on the PC.



[System Requirements]
OS: Windows 7 Pro/Windows 10 Pro
Required component: Microsoft® .NET Framework 3.5 SP1 or later
Screen resolution: Over 800 x 600 pixels

[Recommended Specifications]
OS: Windows® Vista Business/7 Professional
CPU: Pentium® 4, 2 GHz or faster
Memory: 2 GB or more
Screen resolution: Over 1024 x 768 pixels

*Microsoft, Windows XP, Windows Vista, Windows 7 and .NET Framework are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
*Intel, Pentium and Intel Core are either trademarks of Intel Corporation in the United States and/or other countries.
*By use of different software, it is possible to configure for a large amount of telephone calls. For more information, please contact your nearest dealer.

SDK

TOA Canada is now offering software developers a software development tool for the N-8000 Intercom in the form of an SDK. With the SDK, a software developer will be able to create and/or interface the N-8000 platform into existing or newly developed software. Also supplied with the SDK will be an SDK application example, SDK user manual and the N-8000 protocol.

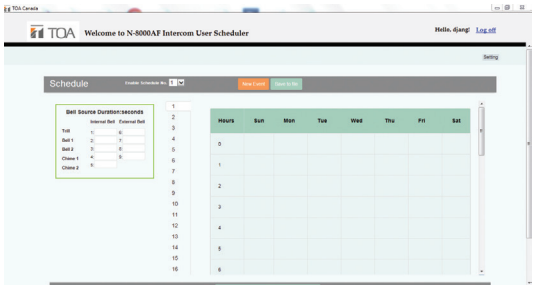
Please contact TOA Canada to obtain the SDK and support files. technicalsupport@toacanada.com or 1-800-263-7639.

N-8000 Intercom System

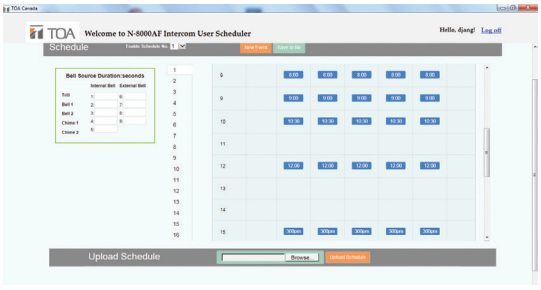
Software Application to Control N-8000AF Scheduler

N-8000SCHED is a software application to control the N-8000AF Audio Interface Unit. This software gives access to the schedule and bell configuration portion of the existing N-8000 scheduling software. With this software multiple users can be granted access to make changes to the schedule.

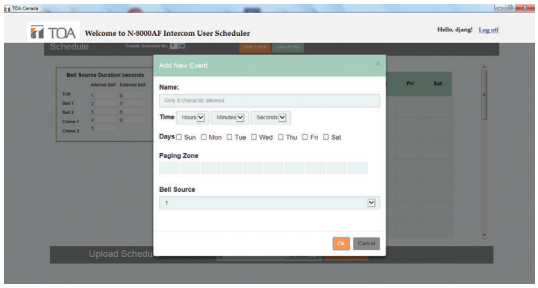
Main Page - Top Section



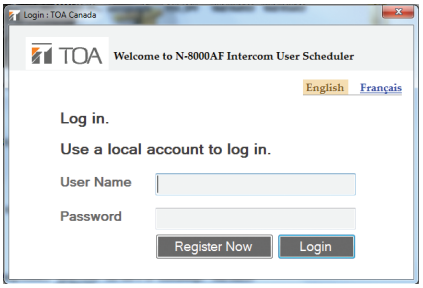
Main Page - Bottom Section



Add and Event



Login Screen



SIP Gateway

The N-8000SG Q2 allows you to connect the N-8000 intercom system to a SIP phone system with these enhanced features for improved connectivity.

- Shows the real/actual Caller ID (N-8000SG Q2 passes the true extension number from SIP to N-8000 and vice versa)
- Max Number of Simultaneous Calls from SIP to N8000 = Unlimited

Interconnection between N-8000 system and SIP system
• Call and transfer from N-8000 to SIP, and vice versa

Digital domain connection
• Audio conversion from N-8000 to SIP and vice versa
• N-8000 uses G.722, fs=16kHz/8kHz, 16bit; SIP uses G.711 u-law

5 speech paths at the same time
• 5 conversations with SIP and N-8000 at the same time
• 5 paging zones from SIP telephone at the same time
• e.g., 2 conversations and 3 paging zones in total at the same time

Additional functions from SIP system
• Paging function from SIP telephone to N-8000 system
• "Door remote control" from SIP telephone to N-8050DS, N-8640/50DS

TOA partners with:

CISCO, ONVIF, PACOM, Honeywell, Genetec

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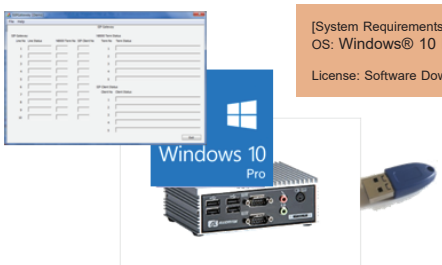
Ask for other compatible software options



[System Requirements]
OS: Windows® 10 Professional

License: Software Download from TOA

Mini PC with SIP Gateway Software

The N-8000SG KIT2 QV is a combination of our N-8000 SIP Gateway software (V2) with a Fanless Mini PC, which comes with an internal USB adaptor that secures the dongle inside the PC and prevent it from being lost or stolen. The PC has Windows 10 IoT Enterprise installed and comes with a standard 1 year warranty.

N-8000 Series Station Selection Chart

		Desk-top	Optional Bracket	Wall-mount	Applicable Exchanges/ Interfaces
IP Base	Master/Door Stations	WB-200RM N-8610RM YC-280 N-8600MS YC-280 N-8510MS		N-8640DS N-8640SB N-8650DS	
2-Wire Type	Master/Door Stations	YC-280 N-8000MS YC-280 N-8010MS YC-290 N-8011MS YC-280 N-8020MS		N-8050DS N-8031MS N-8033MS N-8050SB N-8031SB	N-8000EX N-8010EX
2-core Shielded Type	RS Sub-stations			RS-150 RS-140 RS-142 RS-144 RS-143 Vandal-resistant type Outdoor type RS-160 RS-170 RS-180	N-8000RS N-8010RS
4-wire Type	RS Sub-stations	YC-280 N-8410MS		RS-450 RS-442 RS-460 RS-470 RS-480	N-8400RS

When paired with applicable mounting box

IP Audio Window Intercom Kit

IP Audio Window Intercom Kit - Weatherproof

N-XC65-WP

- Duplex Class D amplifier
- Three possible listening modes (quiet / standard / noisy)
- Analog output on the interface to record conversation
- Full Duplex High Definition Sound
- Analog recording supported

Model	N-XC65-WP
Power Supply	DC 12V 1.5A
Consumption	≤5W
Network Protocol	TCP/IP, UDP, ARP, ICMP, IGMP, FTP
Audio Code	PCM/AAC
Audio Sampling	8 KHz - 32 KHz
S/N	> 90 dB
Frequency Response	20 Hz - 16 KHz
Interface	1x RJ45, 1x Power Supply port, 1x External Unit, 1x Rec out
Working Temperature	-10°C + 55°C
Humidity	≤ 90% RH (Not condensing)
Dimensions	Internal unit 160 x 95 x 46.5mm External unit 83 x 24mm
Weight	Internal Unit 0.44 kg External Unit 0.20 kg
Dust/Water Protection	IP65
Optional*	Optional 25' Extension Cable for N-XC65-W

Optional Accessory

Extension Cable

N-XC65-25PS2 QV

SOUND CHECK

VOLTAGE
IMPEDANCE
CALCULATIONS
EQUIPMENT GUIDES
ELECTROACOUSTIC PRICIPLES
PLANNING YOUR SYSTEM
INDEX

Here at TOA we pride ourselves in providing technical knowledge and acoustic principles to expand our customers ability to work faster and more effective.

The next few pages offer information on popular questions we see everyday. Check it out!

Yours, Dr. Sound

SOUNDCHECK

Maximum length of speaker wire for a 70 Volt line

Speaker Cable Transmission Distance as a Function of Conductor Size vs. Loss									
	Power Loss in Cable (%Loss & dB Loss)								
	4 Ohm Speaker			8 Ohm Speaker			70V Speaker*		
	11%	21%	50%	11%	21%	50%	11%	21%	50%
AWG	0.5	1.0	3.0	0.5	1.0	3.0	0.5	1.0	3.0
6	277 ft	571 ft	1930 ft	554 ft	1141 ft	3859 ft	13580 ft	27965 ft	94548 ft
8	174 ft	359 ft	1214 ft	349 ft	718 ft	2428 ft	8546 ft	17598 ft	59498 ft
10	110 ft	226 ft	764 ft	219 ft	452 ft	1528 ft	5377 ft	11072 ft	37434 ft
12	69 ft	142 ft	480 ft	138 ft	284 ft	959 ft	3376 ft	6952 ft	23505 ft
14	43 ft	89 ft	302 ft	87 ft	179 ft	604 ft	2127 ft	4380 ft	14809 ft
16	27 ft	55 ft	185 ft	53 ft	110 ft	371 ft	1305 ft	2687 ft	9085 ft
18	17 ft	35 ft	117 ft	34 ft	69 ft	234 ft	823 ft	1694 ft	5726 ft
20	11 ft	22 ft	74 ft	21 ft	44 ft	147 ft	518 ft	1068 ft	3610 ft
22	7 ft	13 ft	46 ft	13 ft	27 ft	91 ft	321 ft	661 ft	2234 ft
24	4 ft	9 ft	29 ft	8 ft	17 ft	57 ft	202 ft	417 ft	1409 ft

*The maximum length of speaker wire for a 70V line depends on the gauge of wire being used. Below you will find a chart with different gauges and their maximum length for use in a 70V system.

70V Amplifier Power and Speaker Taps

- A 70V high impedance speaker will only deliver its rated tap setting (power level) if the amplifiers master level control is set to 100%, full output.
- When setting up high impedance speaker systems, adjust the final required volume level using the tap settings of the speaker.
- Do not use the amplifiers master control as a volume control, instead use the taps of the speaker for this function. A small minor adjustment of the amplifier is OK.
- With MNS (Mass Notification Systems) being installed now to meet changing PA standards, it is important to have the required power levels during an emergency broadcast.
- MNS systems will have attenuation built in for normal general announcements and this attenuation will be by-passed during an emergency page.

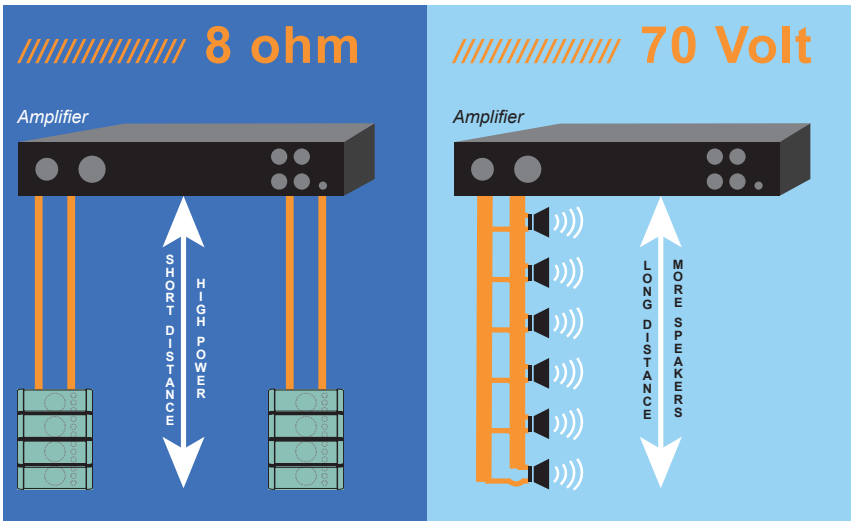
Therefore, it is imperative that the final levels are dictated by the tap settings of the speaker during such an emergency.

Using this guideline will help to ensure that correct power levels are obtained when an emergency evacuation message is delivered

Low vs High Impedance

IMPEDANCE

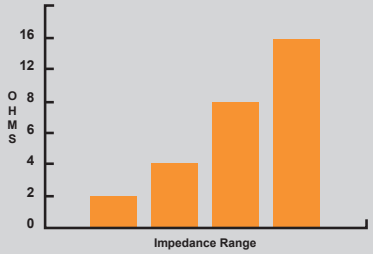
Impedance is the resistance to a flow of alternating current. Represented by the symbol Z, it is measured in units called ohms (Ω). Speakers are either low-Z (8 Ω) or high-Z (100V, 70V, or 25V). Both have a specific job to perform.



LOW IMPEDANCE

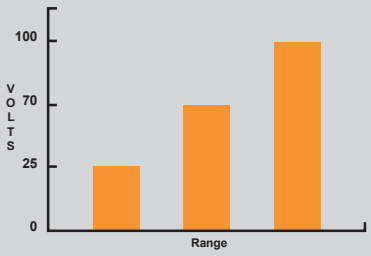
8 Ω / Low-Z

- Low impedance is in a range of approximately 2 to 16 Ω
- Ideal for:
  - High power speakers
  - High performance
  - Short cable runs
- Use in sound systems including:
  - Night club
  - Houses of Worship
  - Restaurant / bar / patio
  - Home stereo



Low impedance is in a range of approximately 2 to 16 Ω (often referred to as 8Ω). Low Impedance is ideal for high performance applications, high powered speakers and short cable runs. Low impedance sound systems are often found in nightclubs, restaurants and patios, Houses of Worship, or your home or car stereo.

HIGH IMPEDANCE



70 V / High-Z

- High impedance is referred to as 25V, 70V, or 100V
- Ideal for:
  - Low power speakers
  - Many speakers per line
  - Speakers have adjustable power taps
  - High impedance outputs, less amps required
- Use in applications including:
  - Public address
  - Corporate, Commercial, Industrial
  - Education

Learn more about impedance on our YouTube channel
www.youtube.com/@TOACanadaCorp

High impedance is referred to as 25V, 70V, or 100V (often referred to as 70V). High impedance is ideal for longer cable runs, with more speakers per line. Speakers are low powered with adjustable power taps. It has high impedance outputs with fewer amplifiers required. High impedance sound systems are ideal for public address, in corporate, commercial, industrial, retail or educational applications.

SOUNDCHECK

Principles of electroacoustics

Planning guide for electroacoustic systems.

Whether it's a shopping centre, sports stadium or office building: besides the visual impression, it is above all the acoustics of a space that determine how the visitor perceives that space. A room's practical usability is also determined by its acoustic parameters.

There are numerous of aspects to consider when planning and installing PA systems. One is frequently confronted by a barrage of different parameters. Caution should be exercised in particular when looking at the power rating. Technical loudspeaker specifications are burdened by a great deal of impractical information. For instance, clever marketers try to make loudspeakers seem like they have a higher power rating than they really do.

To bring clarity to these matters, the following pages provide an introduction to electroacoustics. They should help you when planning PA systems. At TOA, we have made it our mission not only to provide you with high-quality equipment, but above all to deliver superior sound. So we will also serve as your guide to acoustic principles, measuring units and formulas. If you have questions about acoustics: give us a call!

Sound and electroacoustics

Sound is a mechanical oscillation that propagates through solid bodies, water or gas (air). Technically speaking, these oscillations are periodic pressure variations caused by a sound source (e.g. a loudspeaker). We use the term acoustics for sound waves in the frequency range audible to the human ear. If the sound is transformed into electrical signals or vice versa, or if it is amplified, stored or transmitted, we use the term electroacoustics.

Sound pressure level

The magnitude of the pressure variations is referred to as sound pressure. The unit of pressure used to measure this magnitude is the pascal. In practice, however, it is more advantageous to deal with sound levels using decibels, which is why we use the sound pressure level, which has an auditory threshold of 20 µPa (micropascals) as its reference point. As a result, decibel levels (dB SPL) are unambiguous and can be compared to each other.

Frequency

The frequency is the number of oscillations per second, and determines the pitch. It is measured in hertz [Hz]. 1000 Hz is also referred to as 1 kHz (kilohertz). Electroacoustics deals with the audible frequency range of 20 Hz to 20 kHz.

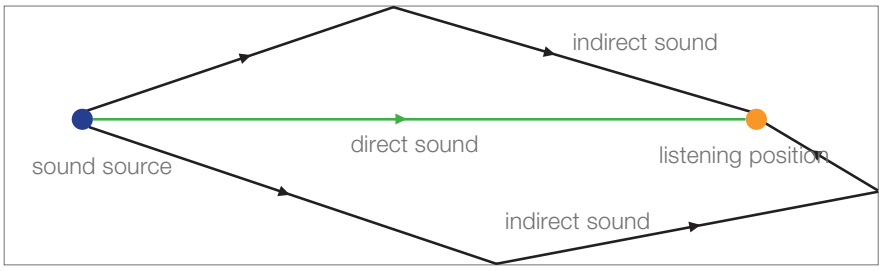
Principles of electroacoustics

Room acoustics

Room acoustics relate to the effects of a room's structural conditions on the acoustics. Room acoustics have a major impact on how the visitor perceives a room therefore, also play an essential role in electroacoustic systems.

Sound propagation

Sound spreads out radially from a sound source. Some of the sound waves reach the listener directly, while some are reflected by the walls, ceiling and floor, and still others are absorbed, depending on how the room is appointed.



Direct and indirect sound, ambient noise

The human ear can locate sound sources through direct sound, as this is the sound that reaches the ear first (law of the first wavefront). Thanks to indirect sound, which is also referred to as reverberation, the human ear can perceive the size of a room and its characteristics. This is also referred to as diffuse sound, as it is generally distributed evenly throughout the room, statistically speaking. Ambient noise, in turn, refers to all sound events that have an interference effect on the ability to clearly hear the sound.

Reverberation time and speech intelligibility

What is characteristic of direct sound is that it dies down abruptly when the sound source is switched off, whereas indirect sound remains in the room for a short time as reverberation. The reverberation time is defined as the time that elapses until the sound pressure level has dropped by 60 dB.

Reverberation time is closely linked to speech intelligibility. When reflected sound dominates direct sound and dies down quickly enough, this can be perceived as something enjoyable during musical performances. But in a voice transmission, reverberation causes a drop in speech intelligibility. Therefore, the basic rule is that speech intelligibility deteriorates as reverberation time increases. For this reason, with a long reverberation time, it is critical to convey as much direct sound from the loudspeakers to the listeners as possible and to avoid stimulating reverberation as much as possible.

User standards prescribe that an announcement made over a voice alarm system must be at least 10 dB above the ambient noise level. If the ambient noise level is 70 dB, the loudspeaker must produce at least 80 dB in the zone in which you want to make the public announcement.

The most common way of expressing speech intelligibility is the 'Speech Transmission Index' (STI), which uses a scale from 0 to 1. Under the Canadian standards applicable in many countries, **ULC S541** the minimum value prescribed for electroacoustic emergency notification systems is an STI of 0.5.

STI value
0.00 – 0.30 poor
0.30 – 0.45 weak
0.45 – 0.60 fair
0.60 – 0.75 good
0.75 – 1.00 excellent

SOUNDCHECK

Loudspeakers and their specifications

Loudspeaker types

Loudspeakers (including sound transducers) convert electrical audio signals into sound waves. They are designed for both general and specific applications, and therefore have different executions. Loudspeakers for voice alarm must be certified according to the **ULC S541** product standard.

Broadband loudspeakers

A loudspeaker that can reproduce at least the main portion of the audible range and therefore also a large frequency range (250 Hz to 6 kHz or higher).

Multiway loudspeakers

Two or more loudspeakers are combined. Each individual loudspeaker is designed for a specific frequency range. The result is that a larger frequency range is covered. Depending on the number of combined frequency ranges, these loudspeakers are referred to as 2-way loudspeakers, 3-way loudspeakers, etc.

Enclosure types

- Closed loudspeakers
- Bass reflex loudspeakers
- Open loudspeakers

Using a closed loudspeaker box is not problematic. The loudspeaker diaphragm is protected against extreme movements by the back-pressure of the air in the enclosure. A bass reflex loudspeaker can reproduce low frequencies somewhat louder than the closed loudspeaker can. Using a high-pass filter is recommended. Such a filter is installed at the lower end of the loudspeaker's stated frequency response. This protects the loudspeaker diaphragm against excessive movement at very low frequencies, which can damage the loudspeaker. Some loudspeakers, such as ceiling-mounted loudspeakers, do not have an enclosure. A loudspeaker of this type is designed in such a way that the movement of the diaphragm is restricted in order to protect the loudspeaker against damage.

Horn loudspeakers

A horn loudspeaker consists of a driver that converts audio signals into acoustic waves, and a horn that focuses and amplifies the sound waves. Horn loudspeakers are highly efficient and can achieve very high characteristic sound pressure levels.

Line array loudspeakers

Line array loudspeakers operate as what is referred to as a line source. The drop-off in the characteristic sound pressure level as a function of distance is less than is the case with ordinary loudspeakers. Line array systems generally have a wide horizontal coverage angle, and a narrow vertical coverage angle. When oriented properly with respect to the audience, only a small portion of the sound will strike reflecting walls and ceilings, meaning that the system generates little reverberation. Line array systems are therefore ideal for reverberant environments.

Rated power

The rated power, measured in watts, indicates the electrical power that the loudspeaker is able to draw in continuous operation without distortions and without being damaged. The signals that typically require processing cause the instantaneous power to fluctuate significantly at times. This is why for low-impedance loudspeakers (without transformers, 4, 8 or 16 ohms) we state a programmatic rating, which should be understood as the recommended power output of the driving amplifier. As a result, amplifiers can accurately reproduce transient signal peaks without damaging the loudspeaker. However, if you need to reproduce sounds at constant amplitude and high power (e.g. alarms), the rated output of the amplifiers in low-impedance systems should not be greater than that of the loudspeaker.

Power tapping

70-volt loudspeakers often allow for the power to be adjusted to values lower than the rated power (tapping). It is frequently possible to tap the power to one-half, one-quarter or one-eighth of the rated power (corresponding to -3, -6 and -9 dB). This is always specified in the technical loudspeaker data. This makes it possible to adapt the volume of the loudspeakers to their surroundings when installing the loudspeakers. In this case, 70-volt loudspeakers draw the power to which they have been adjusted from an amplifier. This makes it possible to connect 70-volt loudspeakers to a 70-volt amplifier until the sum of the powers to which they have been adjusted equals the rated power of the amplifier.

Loudspeakers and their specifications

Impedance

The impedance is the **AC** resistance of the loudspeaker. There are two different kinds of impedance systems: low-impedance and high-impedance loudspeakers. Low-impedance loudspeakers have impedance ratings of 4, 8 and 16 ohms typically. In high-impedance loudspeakers, the impedance depends on the rated input and may vary between a few tens of ohms and a few thousands of ohms.

Sensitivity

The characteristic sound pressure level of a loudspeaker is stated in dB, measured at one watt of supplied power at a distance of one metre and is called sensitivity. No uniform notation has been defined, but the general convention is something like 96 dB (1 W/1 m). Unless otherwise stated, TOA uses the average and not the maximum characteristic sound pressure level.

Frequency range

The transmission range (also referred to as the frequency range or frequency response) is the range that the loudspeaker can reproduce. This information may be provided in writing (e.g. 50 Hz - 20 kHz) or in the form of a graphical representation.

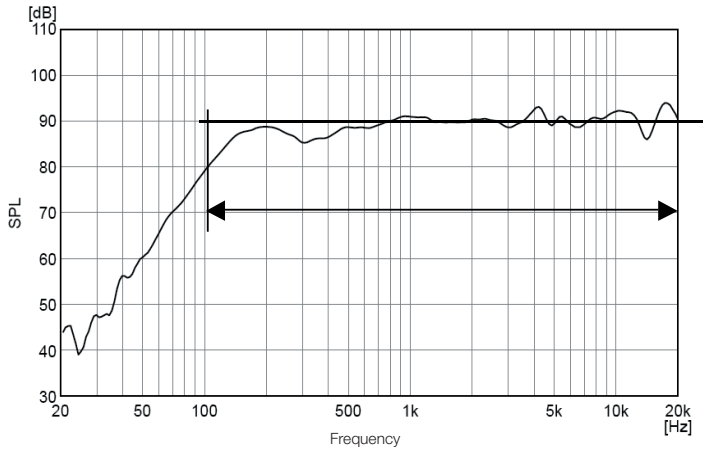


Figure: Frequency response of a loudspeaker

It is apparent from the figure that the sound pressure level varies at the various frequencies. For this reason, the aforementioned frequency response only takes into account the range in which the sound pressure level has not dropped by more than 10 dB relative to the average value, in the example above: 100 Hz – 20 kHz.

Coverage angle

The coverage angle defines the angle at which the sound pressure level has dropped by 6 dB relative to the sound pressure on the main axis of the loudspeaker. Because this angle is frequency-dependent, it is only meaningful when stated together with the frequency to which it refers. A sufficiently high level of speech intelligibility is insured within the angle of radiation at 4 kHz. Some loudspeakers have asymmetric radiation. For these types of loudspeakers, the angle of radiation is stated horizontally and vertically relative to the main axis of the loudspeaker. Most ceiling-mounted loudspeakers have symmetric radiation. In this case, only one value is stated.

THD

Total harmonic distortion (THD) is defined as the percentage ratio of the sum of the powers of harmonic components to the power of the fundamental frequency. This ratio allows for a rapid assessment of signal transmission quality with regard to non-linear distortions of the transmission path. A harmonic distortion of up to 1% is practically imperceptible to the human ear. Only starting at around 3% is total harmonic distortion perceived as unpleasant.

SOUND CHECK

Calculations with loudspeakers

Meaning of and computations using decibels

A decibel (dB) represents the ratio of two variables on a logarithmic scale, and has no base unit (e.g. metres). Using a logarithmic scale is a much better approximation of human hearing than the linear variables. As well, the gigantic ratio of barely perceptible sound pressure (the auditory threshold) to the loudest tolerable sound pressure (pain threshold) of 1: 3,000,000 is compressed into a much more manageable scale of 0 to 130 dB. The general calculation is as follows: **log (value/reference value).** We use the logarithm to base 10, which is generally given as 'log' on calculator keypads. The result is the Bel, one-tenth of which is one decibel, i.e. a decibel. These are power ratios. For sound pressures, voltages and currents, the factor is 20.

Power ratio in dB: **10 x log10 (power/reference power) or 10 x $\log_{10}$ (P/P_0)**
sound pressure, voltage or current ratios in dB: **20 x $\log_{10}$ (value/reference value)**

In the case of sound pressure ratios, the auditory threshold is used, having a value of 20 µPa. Because there is a defined reference value, in this case 'SPL' is appended to the unit 'dB'. Nowadays, however, it has become common to omit the 'SPL' when discussing sound pressure levels. Other references:

Reference value	1 µV	1 mV	0.775 V	1 V	20 µPa
Decibels	dB µV	dB mV	dBu	dBV	dB SPL

The following table shows a few relationships governing the calculation of physical values and decibel values, and the conversion between these types of values:

Physical	Multiplication	Division	< 1	1	> 1	Negative
	↓	↓	↓	↓	↓	↓
Decibels	Addition	Subtraction	Negative	0	Positive	Not possible

Example 1: An amplifier amplifies an input signal of 1 mV (millivolts) to an output signal of 1,000 mV. The gain is thus 1000-fold (1000: 1), or 20 x log (1,000 / 1) = +60 dB.
Example 2: An attenuator attenuates a voltage to one-tenth. The ratio between output and input is 0.1/1 = 0.1. Expressed in dB: 20 x log (0.1 / 1) = -20 dB.
Example 3: The attenuator (example 2) is connected to the output of the amplifier (example 1). The gain is thus: 1,000 x 0.1 = 100. Stated in dB: 60 dB + (-20 dB) = 60 dB – 20 dB = 40 dB.

Sound pressure level at a defined power

If the sound pressure level is stated in dB, this information can be used in calculations. For instance, a loudspeaker datasheet provides us with information for the characteristic sound pressure level (1 W/1 m): 95 dB. This means that at 1 watt of power, the loudspeaker generates a sound pressure level of 95 dB at a distance of 1 meter. The following table indicates by how many decibels the sound pressure level of the loudspeakers increases at a given power.

Power (W)	1	2	5	6	10	15	20	30	50	100
Increase in the sound pressure level (dB)	0	3	7	8	10	12	13	15	17	20

Each doubling of power gives us an additional 3 dB of SPL.

The table shows that at 6 watts, you need to add 8 dB to the 95 dB. Consequently, at 6 watts of power we obtain 103 dB SPL at a distance of 1 metre. There is also a mathematical formula for this calculation that yields the same result. **$p_1 = p_n + 10 \times \log(P)$**

p_1: Sound pressure level (dB) p_n: Characteristic sound pressure level (dB) P: supplied power (W)

Calculations with loudspeakers

Sound pressure level at a defined distance

If you would like to calculate the sound pressure level produced by the loudspeaker not at a distance of 1 meter, but at e.g. 6 meters, there is a table/formula for this purpose as well.

With each doubling in distance, the sound pressure level drops by 6 dB SPL.

Distance (m)	1	2	3	4	5	10	20	50	100
Drop (dB SPL)	0	6	9.5	12	14	20	26	34	40

Based on the same example, we will have to subtract an amount, corresponding to the distance, from the calculated figure of 103 dB. The reduction resulting from a distance of 5 metres from the loudspeakers is 14 dB – which corresponds to a sound pressure level of 89 dB. The formula for the calculation is as follows:

$$p = p_1 - 20 \times \log (d)$$

p: Sound pressure level at a defined distance (dB characteristic sound pressure)
d: Distance (m) p_1: Sound pressure level at a distance of 1 m

Sound pressure level at a given power and distance from the loudspeaker

The formulas for sound pressure at a defined power and at a defined distance are combined. The sound pressure level at a given power and distance is calculated as follows:

$$p = p_n + 10 \times \log(P) - 20 \times \log (d)$$

p: Sound pressure level (dB SPL) p_n: Characteristic sound pressure level of the loudspeaker (dB)
d: Distance from the loudspeaker (m) P: supplied power (W)

A perceived doubling in volume requires around times the amplifier 10 power.

Example: We want to install a loudspeaker in a room. The greatest distance to the audience is 8 m. The loudspeaker has a characteristic sound pressure level of 90 dB 1 W/1 m and an input power of 30 watts. How high is the sound pressure level at the maximum distance?

Sound pressure level = 90 dB + 10 x log(30) - 20 x log(8)
= 90 dB + 15 dB - 18 dB
= 87 dB

If you use the values from the two tables provided above (the distance is composed of 4 m x 2 m = 8 m, physical multiplication turns into addition of the decibel values) this yields:

Sound pressure level = 90 dB + 15 dB (at 30 watts) - 12 dB (at 4 m) - 6 dB (at 2 m)
= 87 dB

Public address with ceiling loudspeakers

Distance and minimum sound pressure level between TOA's standard ceiling loudspeakers at different degrees of speech intelligibility and 6 W of power:

	Ceiling height	(m)	3.00	3.50	4.00	4.50	5.00	5.50	6.00
Best intelligibility	Distance between loudspeakers	(m)	2.30	3.10	3.80	4.60	5.40	6.10	6.90
	min. Sound pressure level	(dB)	92	90	88	86	85	84	83
Good intelligibility	Distance between loudspeakers	(m)	3.60	4.80	6.00	7.20	8.30	9.50	10.70
	min. Sound pressure level	(dB)	90	88	86	84	83	82	81
Background music	Distance between loudspeakers	(m)	8.20	11.00	13.70	16.50	19.20	22.00	24.70
	min. Sound pressure level	(dB)	85	82	81	79	78	76	75

Electroacoustic systems

Public address systems (PA systems)

Public address systems are usually mono. They typically distribute one or more audio signals into different areas that we call zones. The type of audio signal can either be background music, manual or automatic announcements, or signal tones (gongs, alarm tones). The audio signals are normally not mixed. An audio signal is transmitted into one or more defined zones.

Priorities are assigned to avoid the inadvertent merging of different audio signals, e.g. if multiple announcements are to be broadcast in the same zone at the same time. Most PA systems work using high-impedance loudspeakers.

Central PA system

For a central PA system, the speakers are all installed in the same location, e.g. in the middle of a hall's ceiling.

Frontal PA system

If the sound is accompanying an optical event, the sound should also be originating from the direction of this event. The viewer becomes irritated if the sound comes from another direction. In most cases, such an event takes place at the front of the room, for instance on the stage. The loudspeakers are usually positioned to the left and right of the event. The loudspeakers should also be mounted high enough that the sound pressure is not too high in the vicinity of the listeners, not least to prevent the audience's hearing from being damaged.

If the room in question is deep, loudspeakers can be installed along the wall or ceiling ('delay line') to support the front PA system. In order to ensure that the frontal signal remains intelligible, these speakers should reproduce sound with a delay (adjusted individually, depending on the distance from the frontal system). This gives the impression that the sound is coming directly from the stage. The delay can be calculated using the following formula: **T = d / 340 + 0.01s**

T: Time of delay (s)
d: Difference in distance from the listener front loudspeakers/delay loudspeakers (m)

Decentralized PA system

If no support is required for directional staging, or in large spaces with low ceilings (e.g. supermarkets), installing a frontal PA system is not useful. In such cases, it is better to go with a decentralized PA system in which the loudspeakers are installed where they are needed.

The ceiling loudspeakers should be distributed evenly over the PA system's effective area, generally with the same spacing between all the loudspeakers. The required degree of intelligibility is an important parameter in planning such a PA system. This depends on several factors:

- Ceiling height
- Loudspeaker coverage angle
- Type of use (quality of sound)

The higher it is possible to mount the loudspeakers, the greater the effective range of the loudspeaker and therefore also the acoustic range at ear height (ear height ≈ 1.5 m above the floor), yet the sound pressure is lower than would be the case for a lower installation.
For good intelligibility, the frequency response of the system should be able to reproduce signals of up to 6 kHz at every point in the audience area. Acceptable intelligibility is assured at a frequency response of up to 4 kHz. This value should be ignored in the case of background music, since background music is not a matter of intelligibility.

Electroacoustic systems

Amplifier

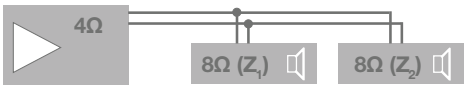
There are PA system amplifiers for low-impedance loudspeakers with impedances of between 4 and 16 ohms, for high-impedance loudspeakers (frequently 50 V, 70 V and 100 V), and some for both types. For low-impedance loudspeakers, only short cables (up to 10 m) should be used, or cables with large core cross-sections, in order to keep cable losses low and to ensure good audio quality. Only a few loudspeakers can be operated from a low-impedance amplifier. High-impedance loudspeaker systems allow long cable lengths and multiple loudspeakers on one line.

Low-impedance technology

For low-impedance systems, it is important to remember that the total impedance of the connected loudspeakers may not be less than the minimum terminating impedance of amplifier. If the total connected loudspeaker impedance is too low, this will cause malfunctions and may damage the amplifier. The cables between the amplifier and loudspeaker(s) should not be longer than around 10 m. If the cables are longer than this, line losses will be too great, which in turn should be reduced by employing large cable cross-sections in order to obtain good audio quality.

Parallel connection

Calculation of impedance: $Z = \frac{1}{\frac{1}{Z_1} + \frac{1}{Z_2} + \cdots}$



Example: Two 8-ohm loudspeakers result in 4 ohms when connected in parallel.

Serial connection
(not recommended due to quality loss)

Calculation of impedance: $Z = Z_1 + Z_2 + \ldots$

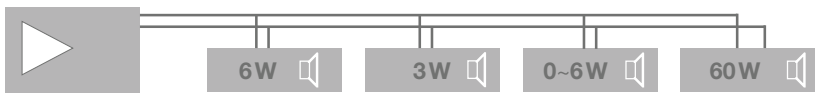
Example: Two 4-ohm loudspeakers result in 8 ohms when connected in series.

At a serial connection only identical loudspeakers should be operated from a single amplifier, as the power distribution for different loudspeakers depends on the circuit and impedance.

High impedance technology

In a PA system designed for large areas, high impedance technology is preferable in order to minimize line losses. High-impedance systems are characterized by a maximum signal line level of up to 100 V at full signal conduction. High-impedance transmission paths are also realized using 70 V or 50 V in order to provide better compatibility in terms of level adjustment and subsequent system expansions. High impedance technology offers other benefits over low-impedance systems as well:

- Easy installation, easy to expand & increase the number of loudspeakers (parallel connection)
- Possible to incorporate large number of loudspeakers
- Individual volume control possible for each loudspeaker, individual loudspeakers can be switched on and off without affecting other loudspeakers
- Different loudspeakers with different power ratings can be operated together in a single loudspeaker line
- Long cable lengths / long distances possible
- Low cable diameter of loudspeaker wire
- Low line losses
- Simple to calculate the required amplifier power by summing the powers of the individual loudspeakers, which must not exceed the rated power of the amplifier



SOUNDCHECK

Electroacoustic systems

Check loudspeaker lines

To avoid electrical problems after modifying existing PA systems or installing new ones, the loudspeaker lines should be checked before connecting to the amplifiers. This is done by performing a line impedance measurement.

The following formula shows the relationship between electric power, maximum signal amplitude and impedance:

$$Z = U^2 / P$$

Z: Impedance (ohms) U: Voltage (volts) P: Power (watts)

The calculation has to be performed taking into account a maximum signal amplitude of 100 V (10,000). Example: Loudspeakers with a total power of 75 W were interconnected on a single loudspeaker line. What is the impedance of the loudspeaker line? Z = 10,000 / 75 = 133 ohms

Dependency between loudspeaker wire's cross-section area and cable length

The table below shows the dependency of the necessary wire cross-section area on the length of the cable. In PA systems, the loudspeaker line is designed in such a way as to limit the losses to a maximum of 10%.

Wire cross-section area in mm^2	Cable length						
Power	**50 m**	**100 m**	**200 m**	**300 m**	**500 m**	**750 m**	**1000 m**
30 W	0.05	0.09	0.19	0.28	0.47	0.71	0.95
60 W	0.09	0.19	0.38	0.57	0.95	1.42	1.89
120 W	0.19	0.38	0.76	1.13	1.89	2.84	3.78
240 W	0.38	0.76	1.51	2.27	3.78	5.67	7.56
360 W	0.57	1.13	2.27	3.40	5.67	8.51	11.34
420 W	0.66	1.32	2.65	3.97	6.62	9.92	13.23

Planning example: supermarket

Planning a MNS using the example of a supermarket

The procedure for planning a MNS requires experience in electroacoustics. The following example shall show you some aspects for such a planning. It illustrates a supermarket with the below specifications:

	Circuit	Ceiling		
Zone 1 - 6		**Size**	**Type**	**Height**
Sales area 1*	1 AB	1547 m^2	Trapezoidal sheet	6 m
Sales area 2*	2 AB	1547 m^2	Trapezoidal sheet	6 m
Adjoining rooms	3 AB	257 m^2	Acoustic ceiling	3 m
Warehouse	4 AB	287 m^2	Smooth concrete	3 m
Catering / WC	5 AB	190 m^2	Acoustic ceiling	3 m
Technical rooms	6 AB	37 m^2	Smooth concrete	3 m

* Sales area split into two virtual fire compartments (Sales area 1 & Sales area 2)

Required features

- Transmission of background music to selectable zones (5 areas divided into 6 zones)
- 1 remote microphone for manager's office
- 3 paging microphones for cashiers
- Emergency functions: Automatic and manual voice alarm, emergency microphone in the equipment room

Normative specification

In accordance with **ULC S541** the emergency SPL must be at least 6 – 20 dB above the ambient noise level (10 dB was chosen in the example) and the speech intelligibility must be greater than STI 0.5.

Consideration speaker selection

- Sales area:
  In comparison to most speaker types pendant speakers can be mounted on trapezoidal sheet ceilings. In addition these can be installed closer to the audience providing better speech intelligibility.
  Choice of **ULC S541** speaker: PE-304BU
- Adjoining rooms:
  The acoustic ceiling allows an easy installation of ceiling speakers. Since some of these rooms are to small for more than one speaker, an A/B speaker is most suitable.
  Choice of **ULC S541** speaker: PC-580RU with HY-BC580U Back can.
- Warehouse:
  Since the ambient noise in the warehouse is higher than in the sales area, loudspeakers with a higher SPL are necessary. The fixation requires only one or two screws.
  Choice of **ULC S541** speaker: CS-154U
- Catering / WC:
  The acoustic ceiling allows an easy installation of ceiling speakers.
  Choice of **ULC S541** speaker: F-series ceiling speakers.
- Technical rooms:
  Typically the ambient noise in technical rooms can be high. Therefore a reflex horn speaker is a good solution.
  Choice of **ULC S541** speaker: SC-615TU

SOUNDCHECK

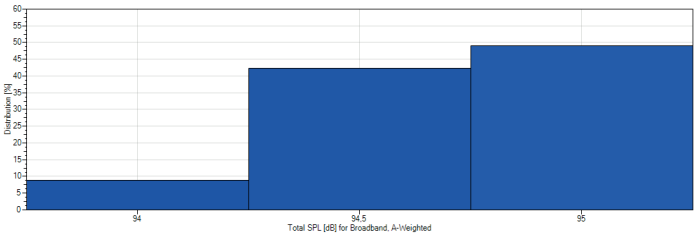
Planning example: supermarket

Ease Evac Simulation

Due to the size the sales area is the most critical sector according to the speech inteligibility. The application of the sound simulation Ease Evac software can support finding the final speaker locations for obtaining the required SPL and STI. Starting with a first idea of speaker distribution, the simulation result gives a hint how to improve the distribution. An repetitive process of change and re-simulation leads to an optimum result.
An important value for the speech intelligibility calculation is the reverberation time. In the supermarket example it is 1.5 s in the sales area.

Distribution of the loudspeakers

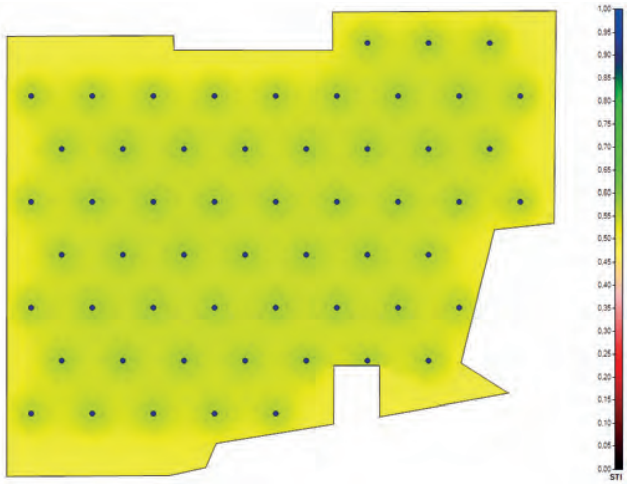
Distribution of the overall SPL in the sales area



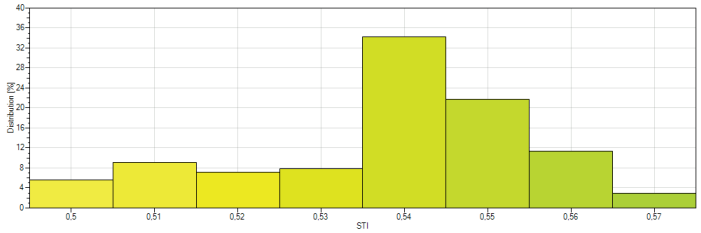
Average 94.4 dBA

Planning example: supermarket

Speech intelligibility in the sales area



Distribution of speech intelligibility



Average STI 0.56 / STI 0.52 (minus standard deviation)

Final result after simulation

	EN 54-24 loudspeakers					
	Quantity	**Model**	**Height**	**Tapping**	**Total dB SPL (A-weighted)**	**Total load**
Sales area 1	28	PE-304BU	4.5 m	10 W	94	280 W
Sales area 2	28	PE-304BU	4.5 m	10 W	94	280 W
Adjoining rooms	11	PC-580RU	3m	2 x 3 W	88	66 W
Warehouse	4	CS-154U	2.5 m	10 W	97	40 W
Catering / WC	10	PC-580RU	3 m	3 W	95	30 W
Technical rooms	2	SC-615TU	2.5 m	3 W	108	6 W
	Total load of the 6 A/B loudspeaker circuits:					702 W

Selection of the voice alarm system

All required functions can be fulfilled by the VM-3000 system.
Max. features:

- Up to 60 zones, can be controlled individually for background music
- 4 remote microphones
- 3 audio inputs for paging microphones, e.g. PM-660U
- Integrated voice storage function for automatic and manual voice alarm as well as integrated emergency microphone on VM-3240VA

Using System Manager VM-3240VA and Expansion Amplifier VM-3240E enables 6 A/B loudspeaker circuits with an adequate total amplifier power of 740 watts.

Optional Accessories - Microphones and Conference Systems

Product Series	Model	Series Picture	Optional Accessories
UHF Wireless Microphone Systems	WT-5800, WT-5805, WT-4820		 MB-WT3  MB-WT4  WD-4800  YW-4500  WTU-4800 *(for WT-4820)*
	WM-5325		 YP-M5000H/E  WH-4000H  WH-4000A  YP-M5300  YP-M5310  WH-4000P
	Headset Microphones	*(WM-5325H, WM-5325A)*	 WH-4000S
	WD-5800 *(for WT-4800, WT-5805, WT-4820, S5 Series)*		 MB-15B
Infrared Wireless Microphone System	IR-200M		 YP-M101 *(for use with IR-300/310)*  IR-200BT-2
	IR-300M		
	IR-310M		 IR-310BC *(for IR-310M only)*
	IR-700D		 YW-1022Y for IR-700D  YW-1024Y for IR-700D
	IR-702T *(MB-WT3, MB-WT4 only)*		 MB-WT3  MB-WT4
Boundary Microphone	EM-800		 ST-800
Infrared Conference Systems TS-820/TS-920 Series	TS-920RC TS-820		 MB-TS920
	TS-921 TS-821 TS-922 TS-822		 AD-0910  BP-920 Y  TS-923 TS-924  TS-904AS-AL
TS-820/TS-920 Accessories	TS-905 / TS-907	TS-905 TS-907 	 YW-1022Y  YW-1024Y

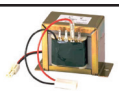
Optional Accessories - Microphones and Conference Systems

Product Series	Model	Series Picture	Optional Accessories
D-5000 Digital Wireless Microphone System	WT-D5800 RH1		 MB-WT3  MB-WT4  WD-5800  YW-4500
	WM-D5300-H1		 YP-M5000H/E  WH-4000H  WH-4000A  YP-M5300  YP-M5310  WB-2000-2
	WM-D5200-H1		 WB-2000-2
	WD-5800		 MB-15B
TS-D1100 Wired Conference System	TS-D1000CU, TS-D1000DU, TS-D1100CF, TS-D1000DF		 TS-D1000-M1  TS-D1000-M2

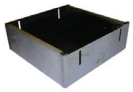
Optional Accessories - Rack Mount Equip., Network Audio...

Product Series	Model	Series Picture	Optional Accessories
Digital Matrix Mixer	M-8080D		DSP system options M-804EX, M-82210, M-800RC, M-800DT M-802RC, M-800RCT, M-800RM
Network Audio	NX-100 NX-300 *(YC-850 only)*		MB-15B-J  AD-246  MB-15B-BK  YC-850 
Program Timer	TT-104B		 MB-15B
Digital Message Repeater	EV-20R		 MB-WT3  MB-WT4  AD-246
	EV-700		 MB-15B  AD-246
AM/FM Synthesized Tuner	DT-940 UL		 MB-15B
Audio Interface with USB and Bluetooth	MW-41BT-AM		 BX-41F  BX-41S
Dante Module	M-44DT		 MB-M44DT

Optional Accessories - Mixers/Amplifiers

Product Series	Model	Series Picture	Optional Accessories
A-900 Series	A-903MK2, A-906MK2, A-912MK2, M-900MK2		 MB-25B  YA-920 *(included)*
P-900 Series	P-906MK2, P-912MK2		 MB-25B  YA-920 *(included)*
	P-924MK2		 MB-35B  YA-920 *(included)*
BG-2000	BG-2035, BG-2060, BG-2120, BG-2240D-AM		 MB-1000  YA-920 *(included)*
BA-200 / BG-200 Series	BG-220, BG-235		MB-25B-BK   YA-920 *(included)*
	BA-235, BA-260		 WB-900B *(BA-200 Series only)*  MB-25B-J
DA Series	DA-150EH, DA-250DH, DA-250FH, DA-500F-HL		 MT-251H or MT-251H-Q
Micro Amplifier	AV-20D AV-60S		 MB-AV20RM  WPB-20 MT-S0301 
All Models	PF-013B Perforated Vent Panel	[All Models]	
	MT-251H-Q		Transformer Converts 70 V to 25 V

Speaker Mounting Accessories

Ceiling Speakers / Installation Configurations *(Series on page 2)*	PC-580RU / PC-580RVU	PC-580S	PC-580SBT	PC-1860S	PC-648R
					
Flush Mount Back Box	 HY-BC580U	 Q-BB-580S			
Back Box	 BB-580D	 Q-BB580WD		 BB-1864	
Baffle				HY-RB1860 *for PC-1860S only* 	
Mounting Channel	 Q-HY-TB2				

Speaker Mounting Accessories

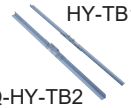
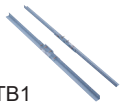
Wide-Dispersion Box Speakers				
F-Box Speakers	F-03B/W 	F-05B/W 	F-08B/W 	FB-08BT/WT 
Mounting Bracket	 HY-F03B/W	 HY-F05B/W	 HY-F08B/W	 HY-CM-FB08B/W HY-WM-FB08B/W

Horn Speakers			
Installation Configurations	SC-615/SC-615T; SC-630/SC-630TU; SC-651 	TH-660 	IP-A1SC15 
Swivel Bracket	YS-151S 		Mounting bracket: SP-131, SP-201, SP-301 Pole band: YS-60B

Wall Mount Surface Speakers	
Installation Configurations	**BS-1030B** **BS-1030W** 
Ceiling Mounting Bracket	 SP-410
Wall Mounting Bracket	 SP-420

Interior Design Speakers			
Component	**H-1 EX** 	**H-2 EX** **H-2WP EX** 	**H-3 EX** **H-3 WP EX** 
Ceiling Mount Bracket	 HY-H1	**Matching Transformer**	 MT-S0601
Optional EQ Modules	 E-05R	 E-07R	

Speaker Mounting Accessories

	Ceiling Speakers - F Series					
Installation Configurations	**F-122C F-122CU2** 	**F-1522SC** 	**F-2322C F-2322CU2** 	**F-2352C** **F-2352CU2** 	**F-2352SC** 	**F-2852C F-2852CU2** 
Tile Support Rails	HY-TB1  Q-HY-TB2		 HY-TB1		 Q-HY-TB2	
Ceiling Reinforcement Ring	HY-RR2 	HY-RR1 		HY-RR2 		7020116720 
Trim Ring	 HY-TR1			HY-TR1		
Black (Suspension) Back Can	HY-BC1 			HY-BC1 		
White (Suspension) Back Can	 Q-HY-BC1W			 Q-HY-BC1W		
Back Can *(SHALLOW BACK CAN Allows the F-2352SC to be plenum rated)*					 Q-HY-BC2	 Q-HY-BC28W
Surface Mount Bracket	 HY-AH1			 HY-AH1		
C2 Version Tile Bridge *(2 pcs/pkg)*	 5070723950			 5070723950 *(Supplied with CU2 version)*		 5070724030
Other Configurations	 E-03R  F-DRYWALLKIT  Q-F122GRBK			 F-DRYWALLKIT  Q-F122GRBK *(for F-122C and F-2352C only)*		

**Note: F-2352SC: When using the HY-TB1 the HY-RR2 is required. Supplied with CU2 versions.*

**Note: F-2352SC: When using the HY-TR1 the HY-RR2 is required. Supplied with CU2 versions.*

**Note: F-2352SC: When using the HY-AH1 the HY-RR2 is required.*

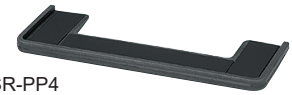
	Ceiling Subwoofer
Installation Configurations	**FB-3862CU**  *(Series on page 12)*
Surface Pendant Mount Enclosure	 HY-BC2W Subwoofer only

Speaker Mounting Accessories

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

	Line Array Speakers Type H			
	SR-H2L	**SR-H2S**	**SR-H3L**	**SR-H3S**
Installation Configurations				
Extension Plate	 SR-EP3		 SR-EP3	
Wall Mount Bracket	 SR-WB3			
Wall Tilt Mount Bracket	 SR-TB3			
Flying Bracket	  SR-FB8			
Speaker Stand Adapter **Matching Transformer**	 SR-SA3 Speaker Stand Adapter		 MT-S0301 Matching Transformer	

Speaker Mounting Accessories

(Series on page 18)	Line Array Speakers Type S			
	SR-S4L	SR-S4LWP	SR-S4S	SR-S4SWP
Installation Configurations				
Extension Plate	SR-EP4	 SR-EP4WP	SR-EP4	 SR-EP4WP
Wall Tilt Bracket	 SR-TB4	 SR-TB4WP	 SR-TB4	 SR-TB4WP
Wall Mounting Bracket	 SR-WB4	 SR-WB4WP	 SR-WB4	 SR-WB4WP
Stand Adapter	 SR-SA4			
Flying Bracket	 SR-FB4			
Floor Stand	 SR-FS4			
Protection Pad	 SR-PP4			
Matching Transformer	 MT-S0601			

(Series on page 23)	Line Array Speakers Type T
	SR-T5
Installation Configurations	
Wall Pan Bracket	 SR-PB5
Matching Transformer	 MT-S0601

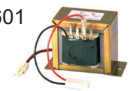
Speaker Mounting Accessories

(Series on page 21)	Compact Array Speakers (HX-5 Series)					
	HX-5B	HX-5W	HX-5B-WP	HX-5W-WP	FB-120B	
Installation Configurations						
Rigging Frame	 HY-PF1B	 HY-PF1W	 HY-PF1WP		 HY-PF1B	
Ceiling Mounting Bracket	 HY-CW1B	 HY-CW1W	 HY-CW1WP		**Low-Pass Filter Module**	
Mounting Bracket	 HY-WM1B HY-WM2B	 HY-WM1W HY-WM2W	 HY-WM1WP	 HY-WM2WP		
Extension Bracket	 HY-CN1B	 HY-CN1W	 HY-CN1B-WP	 HY-CN1W-WP		
Speaker Stand Adapter	 HY-ST1					
Matching Transformer	 MT-200				MT-S0601 	

(Series on page 24)	Coaxial Array Speakers			
	HS-1200BT	HS-1200WT	HS-1500BT	HS-1500WT
Installation Configurations				
Wall/Ceiling Mount Bracket **Vertical Installation**	 HY-1200VB	 HY-1200VW	 HY-1500VB	 HY-1500VW
Wall/Ceiling Mount Bracket **Horizontal Installation**	 HY-1200HB	 HY-1200HW	 HY-1500HB	 HY-1500HW
Ceiling Mount Bracket	 HY-C0801		 HY-C0801W	
Wall Mount Bracket	 HY-W0801		 HY-W0801W	

Speaker Mounting Accessories

(Series on page 18)

	Compact Array Speakers (HX-7 Series)					
	HX-7B	HX-7W	HX-7B-WP	HX-7W-WP	FB-150B	FB-150W
Installation Configurations						
Rigging Frame	 HY-PF7B	 HY-PF7W			 HY-PF7B	 HY-PF7W
Rigging Bracket	 HY-VM7B	 HY-VM7W	 HY-TM7BWP	 HY-TM7WWP	**Low-Pass Filter Module**  E-07S	
Wall Mounting Bracket	 HY-WM7B *(HY-VM7B required)*	 HY-WM7W *(HY-VM7W required)*	 HY-MS7BWP	 HY-MS7WWP		
Ceiling Mount Bracket	 HY-C0801 *(HY-VM7B required)*	 HY-C0801W *(HY-VM7W required)*				
Speaker Connection Bracket	 HY-CN7B-WP	 HY-CN7W-WP	 HY-CN7B-WP	 HY-CN7W-WP		
Angle Adjustment Bar *(3 pieces required for 60° mode adjustment)*	 HY-60DB-WP	 HY-60DW-WP	 HY-60DB-WP	 HY-60DW-WP		
Speaker Stand Adapter	 HY-ST7					
Matching Transformer	 MT-200	 Matching Transformer Adapter HY-MT7			MT-S0601 	

NOTE: for wall mounting bracket HY-WM7B/W, it requires HY-VM7B/W rigging bracket
NOTE: for ceiling mount bracket HY-C0801, it requires HY-VM7B/W rigging bracket

Optional Accessories: Megaphones

Product Series	Model	Series Picture	Optional Accessories
Megaphone	ER-604W		 WH-4000H
	ER-1203, ER-1206, ER-1206W, ER-1206S	 	 SP-1100
	ER-2230W, ER-2930W	 	 DM-1300US  WTU-4800 *(ER-2930W)*

(Series on page 119)

Amplifier Selection Guide

Model Number	Power	Inputs				Outputs							Rack Ears	Page
		Mic	Aux	Tel	Module	70V	25V	Record/ Bridge/ Line	Pre-Amp	4 ohm	8 ohm	MOH		
A-2060 CU	60W	2	2	1		Yes	Yes	Yes		Yes			No	48
A-2120 CU	120W													
A-2240 CU	240W													
A-812D	120W	6	Optional	1	2 (900 Series)	Yes		Yes	Yes	Yes	Yes		Optional	46
A-824D	240W													
A-848D	480W													
A-903MK2	30W	8 module slots			8 (900 series)	Yes	Yes	Yes	Yes	Yes	Yes	Optional	Optional	36
A-906MK2	60W													
A-912MK2	120W													
A-9060DHM2	60W x 2	8 module slots			8 (9000 Series)	Yes	Yes	3 dual module slots	Yes	Yes	Yes	Yes	Yes	30
A-9060SM2	60W x 2													
A-9120DHM2	120W x 2						Yes			Yes	Yes			
A-9120SM2	120W													
A-9240SHM2	240W													
AV-20D	20W x 2	3				Yes		Yes		Yes				45
AV-60S	60W													
BA-235	35W		1			Yes	Yes	Yes		Yes			Optional	29
BA-260	60W													
BG-220	20W	1	2 (3)**			Yes	Yes	Yes		Yes		Yes	Optional	28
BG-235	35W													
BG-2035	35W	1	2 (3)**	1	1(900 Series)	Yes	Yes	Yes		Yes		Yes	Optional	27
BG-2060	60W													
BG-2120	120W													
BG-2240D	240W													
BG-2480D	480W													
CA-115	15W	2	1							Yes	Yes		No	48
CA-130	30W													
CA-160	60W x 2													
DA-150EH	See DA power output chart below												Yes	44
DA-250F			4							Yes	Yes			
DA-250FH			4			Yes								
DA-250D			2							Yes	Yes			
DA-250DH			2			Yes								
DA-500F-HL			4			Yes				Yes	Yes			
DA-550F			4											
MA-725F-AM	250W x 4	2	4			Yes		Yes				Yes	Yes	43
MM-700F-AM									Yes					
P-906MK2	60W		1		1(900 Series)	Yes	Yes			Yes	Yes	Optional	Optional	37
P-912MK2	120W													
P-924MK2	240W													
P-9060DH	60W x 2		2			Yes							Yes	32
P-9120DH	120W x 2													

*Transformer-Isolation for Telephone Paging Applications (Input #1)
** Selectable

DA AMPLIFIER POWER OUTPUT CHART	
MODEL	**POWER OUTPUT**
DA-150EH	8 x150W (70V)
DA-250D	2 x 250W (4 ohms) 2 x 170W (8 ohms) 1 x 500W bridged (8 ohms)
DA-250DH	2 x 250W (70V) 1 x 500W bridged (140V)
DA-250F	4 x 250W (4 ohms) 4 x 170W (8 ohms) 2 x 500W bridged (8 ohms)
DA-250FH	4 x 250W (70V) 2 x 500W bridged (140V)
DA-500F-HL	4 x 500W (70V) 2 x 1000W bridged (140V) 4 x 550W (8 ohm) 4 x 100W (4 ohms) 2 x 1100W (16 ohms)
DA-550F	4 x 550W (4 ohms) 4 x 350W (8 ohms) 2 x 1100W bridged (8 ohms)

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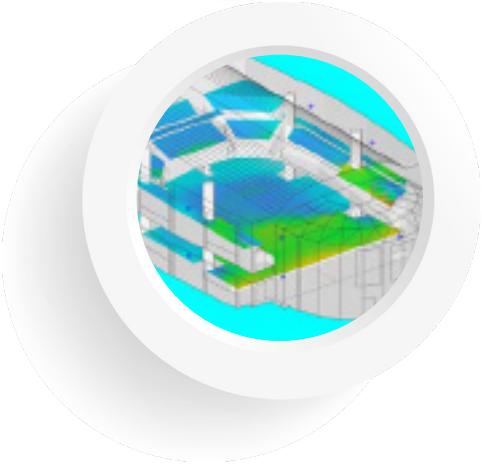
- Planning support
- Acoustic Simulation and Consulting
- Project-related product configuration
- Support during installation and commissioning
- Repairs and technical service



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