2024 - 25

Public Address System

Commercial Installations

www.ampereselectronics.com

25 anniversary 1999 - 2024

CERTIFIED QUALITY MANAGEMENT SYSTEM
UNITED REGISTRAR OF SYSTEMS
URS
ISO 9001

Amperes Electronics Sdn Bhd

INTRODUCTION

Amperes is now 25 years since 1999, Amperes is now into its 23rd year, enduring various hurdles, economic downturn, pandemics and so forth, only to emerge stronger and more resilient. From a very tine operation with a handful of simple products, the burning passion and vision has produced a more advance and sophisticated devices to fit into this challenging market.

MANAGEMENT & PROCESS

As a customer orientated company, we listen to feedback, adjust to market requirement and aiming for clients' satisfactory application of our products.

Our 5 star rated after sales service ensures minimum down time of any installed systems, avoiding failures that could result in untowards incidents due to EVAC misfortunes.

From R and D stage to final product roll out, we adhere strictly to ISO 9001 Management System with ultimate objective in having systematic operation and management.

Registered to certificate: 16895/ A/ 0001/ UK/ En

Hotel : Hibiscus Port Dickson

Oil platform - Off Terengganu

Power plant : Akkuyu Nuclear

Tunnel : TRX Kuala Lumpur

Photo : Courtesy of Google image

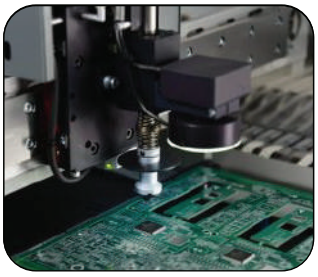
OUR MISSION

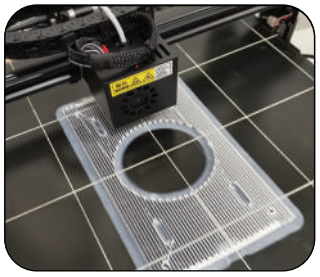
Our mission is simple, that is to provide value added solutions with optimum products and services to our valued clients with the most cost effective systems.

Stay with us, we shall be here for another twenty years and we will continue with our effort in bringing you the best product, proudly with our motto ....

Precision Design, Absolute Confidence

About Us





PRODUCTS

From initial simple products for simple solutions, technology and installation sizes grew sizable over the years, and IT embedded systems is no longer a luxury but a necessity.

Amperes joins in the race, keeping up with the technology in audio and PA system in particular in a race track that only befits the true runners. With our continuous product improvement policy, we shall enhance the existing models and in the same time, seek to create new products, thanks to our dedicated R and D team.

REACHING OUT

Amperes had been installed in various scales of installations, from simple meeting rooms to more complicated systems such as airports, hospitals, mix developments, nuclear plant, etc.

While prominent installations are within the country, amperes has spread its wings to other regional countries covering ASEAN, Middle East, Indian sub continent and some European countries.

Wider reach beyond shores is a testament to the trust Amperes has gained over the years.

Company Registration No: (Co No. 509025-X)
SST Registration No: B16 - 1808 - 21014879
A member of :

- FED of Malaysia Manufacturer (FMM)
- Malaysia External Trade Development Corporation (MATRADE)
- The Electrical and Electronics Association of Malaysia (TEEAM)

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CONTENTS

Broaden Your Voice our Network Delivers

In the coming future, our lives would evolve around IT, and so will the field of EVAC or BGM broadcasting in buildings. Amperes is pursuing this evolution by expanding its product range in the interests of providing total solutions with stability, quality and reliability. Amperes IP System shall enable flexibility for system configuration, expansion, monitoring and much more to your imagination.

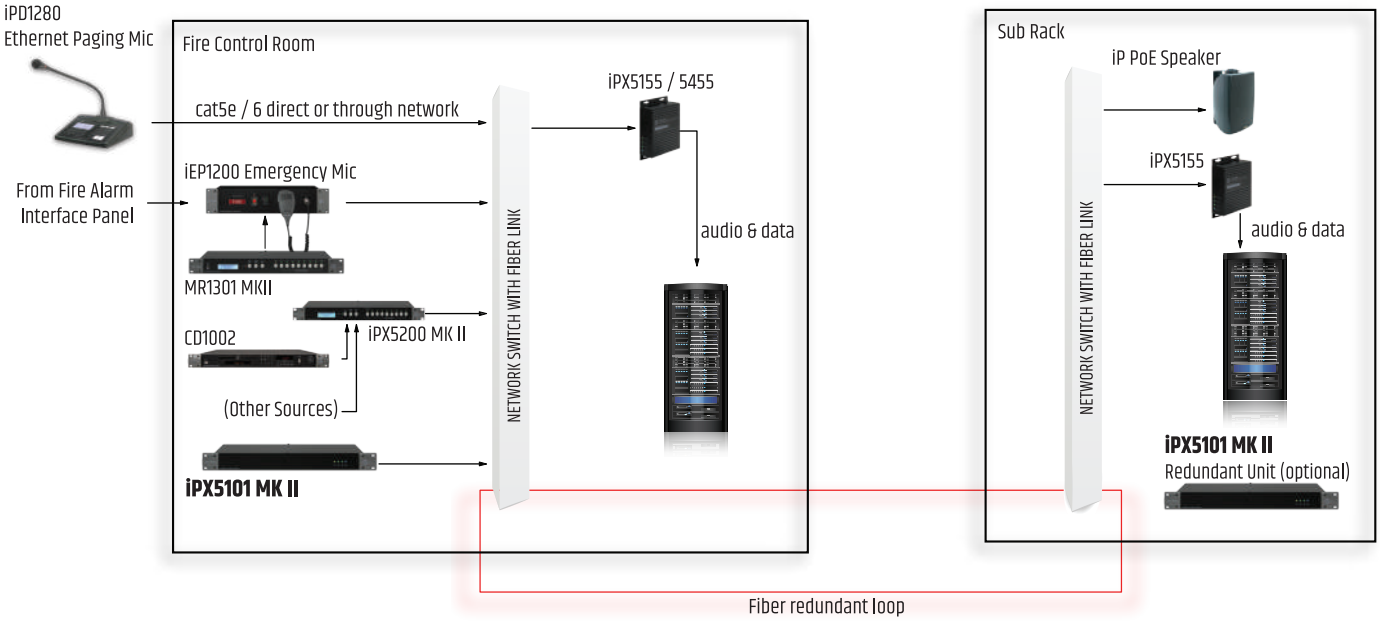
- ULTRA LOW LATENCY AUDIO TRANSMISSION
- SIMPLEX & DUPLEX MODE
- MULTICHANNEL AUDIO BROADCAST
- DECENTRALIZED SYSTEM
- FLEXIBLE SYSTEM EXPANSIONS
- REMOTE MONITOR AND CONTROLS
- NO LIMITATIONS ON DISTANCE
- MOBILITY
- CHOICE OF SYSTEM LINKS

iPX5101 MKII
Ethernet Network Controller

improved

iPX5101 MK II is an improved version of network controller, powerful enough to cater for large pool of client connectivities, simultaneous processing requests and redundancy. It is used to regulate and monitor all paging traffics in the IP system.

Application Schematic



Technical Specifications

Power requirement :	
Voltage	24 V DC
Current	350 mA
Connectivity :	
LAN interface	RJ-45, 10 / 100 Base-T
Common protocols	TCP / IP, UDP, IGMP, HTTP
Priority protocols	UDMP, ADP
Client connection	1024 max
User interface	MS Edge, Firefox V90+, Google Chrome V90+
Firmware upgrade	Via Web Browser
Operating condition :	
Temperature	-10 °C ~ 60 °C
Humidity	80%
Case :	
Dimensions (W x H x D)	482 x 44 x 180 mm
Weight	1.9 kg

- **Paging log**
- **Redundancy** setup
- **Sync** with ntp server
- **Self reset** with watchdog
- Manages over **1000** paging clients

Packing Information

Carton size : 555 (L) x 295 (W) x 95 (H) mm
Gross weight : 2.9 kg
1 unit per carton

iPX5200 MKII
Ethernet Music Server

iPX5200 MKII is a total revamp of iPX5200, which many features had been improved plus newly added functions. It is used to stream music to iPX clients or IP speakers from the files stored or live from music source.

NEW Preliminary Information

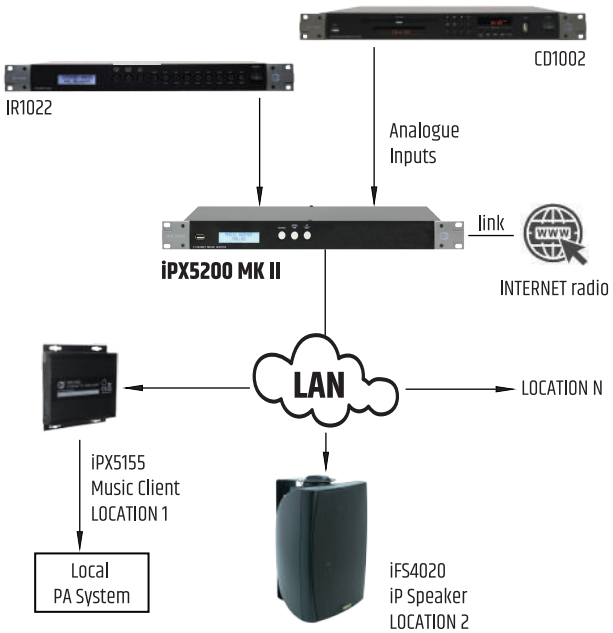
A star feature is that it is able to stream from INTERNET station directly with quality audio streaming of up to 320 kbps. This enables it to receive music from central station creating a private radio station. Other notable improvement is the simultaneous multi channel streaming, allowing multiple audio matrix broadcast.

Technical Specifications

Power requirement	
Voltage	24V DC
Current	150 mA (3.6W)
Configurations	6 input sources :
	- 2 x line unbalanced RCA
	- Internal media files
	- USB
	- 2 x Internet radio streaming (RTMP)
Analogue input	RCA - Unbalanced stereo x 2
Input impedance	10 k Ohm
Connectivity	10 / 100 Base-T
Output channels	10 matrix streaming
User interface	Web browser Chrome V90+
Max iPX clients	248
THD	0.1 %
S/N ratio	>60 dB
Digital format	IMA ADPCM / MP3 / WAV
Internal storage	32 GB SD Card
External storage	USB 2.0
Operating temp	-10 to 60 °C
Humidity	80 %
Dimensions (W x H x D)	482 x 44 x 180 mm
Weight	2.0 kg

- **6 input** channels : 2 RCA lines, USB, Internal music and INTERNET radio inputs
- Up to **10** channel audio broadcast / matrix audio streaming
- User **friendly setup** via browser
- **Volume and EQ controls** for each music channel
- Programmable **groupings** for direct zone access
- Supports **INTERNET radio streaming** ; enabling private radio network

Application Schematic



Packing Information

Carton size : 525 (L) x 295 (W) x 95 (H) mm

Gross weight : 2.7 kg

1 unit per carton

iEP1200

Ethernet Emergency Paging Mic

iEP1200 is an IP based Emergency Paging Panel which is an essential tool for firemen to perform highest priority paging in EVAC system. It shall bypass all other audio streaming such as message playback, normal paging or BGM whenever it is activated.

iEP1200 has dual mode application : local or global and can be integrated in conventional system as well.

- **Visual** FIRE Indicator
- Aux **RS485** data comm port
- **Dry contact** for unit's activation
- **Local** or **global** high priority setting
- Simple initial setting via **web browser**
- **Volume controls** for siren, mic and message sources
- **Built in siren** tone generator with dual mode activation

Technical Specifications

Power requirement :	
Voltage	24V DC
Current	<200 mA
Connectivity	
Data / LAN interface	RJ-45, 10 / 100 Base-T
Common protocols	TCP / IP, UDP, IGMP, HTTP
Priority protocols	UDMP, ADP
User Interface	Web browser Google Chrome V90 +
Audio	
Microphone	Condenser omni directional mic
Analogue line input (max)	1.25 Vrms unbalanced (+4 dBU)
Input impedance	10 K Ohm
Siren frequency	8 kHz continuous
Priority sequence	Paging mic - siren - message - line input (pre amp)
Total harmonic distortion (THD)	< 1 %
S/N ratio (full scale signal)	83 dB
Indicators	Fire LED, Front siren switch
Operating condition	
Temperature	-10°C ~ 60°C
Humidity	80%
Dimensions (W x H x D)	482 x 88 x 180 mm
Weight	2.85 kg

Packing Information

Carton size : 555 (L) x 295 (W) x 165 (H) mm
Gross weight : 3.85 kg
1 unit per carton

iEP1202

Ethernet Desktop Emergency Paging Mic

iEP1202 is a desktop version of Emergency Paging Mic which has several more added feature as compared to iEP1200.

There are 8 programmable zone groupings to facilitate targeted zone or specific building emergency paging. It also comes with 4 message banks to allow fast access to broadcast emergency message to targeted area.

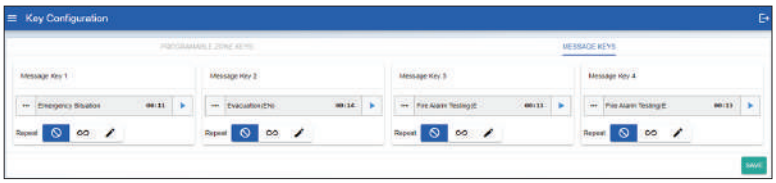
iEP1202 is suitable to be placed at guardhouse, reception, or security control console.

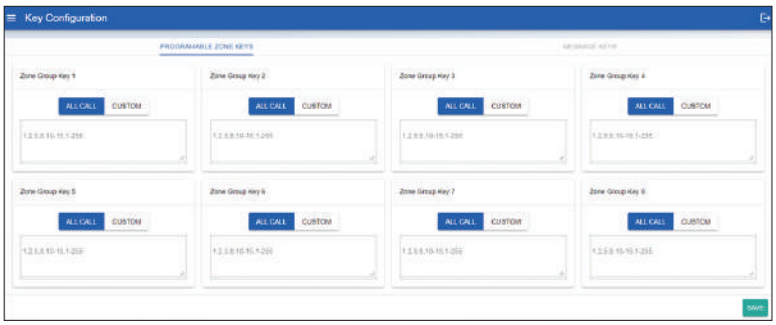
- **Siren** tone generator
- User **friendly setup** via browser
- **Volume controls** for Mic and Siren
- 8 Programmable **zone groupings** for direct zone access
- 4 **message banks** of 14 min duration and up to 20 files

Technical Specifications

Power requirement	
Voltage	24V DC
Current	0.1 A (2.4W)
Audio	
Microphone	Handheld condenser omni directional
Siren frequency	Continuous at 8 KHz
Connectivity	
Data	RJ45 ; 10/ 100 Base-T
Protocols	TCP/IP, UDP, IGMP, Http
Priority Protocols	ADMP, ADP
Transmission mode	Unicast & Multicast
Audio conversion format	IMA ADPCM 36 KHz 16Bit
Zone groupings	8
Zones per group	128 (or 248 for All Call)
Message	
Total duration	590 seconds
Max files	20
Message storage	4 (configuration via browser)
Format	MP3 64k Bit/s
User interface	Google Chrome V90+ preferred
Dimension (W x H x D)	248 x 65 x 190 (exclude mic)
Weight	900 g

Key configurations and message storage UI





Packing Information

Carton size : 525 (L) x 270 (W) x 85 (H) mm

Gross weight : 1.9 kg

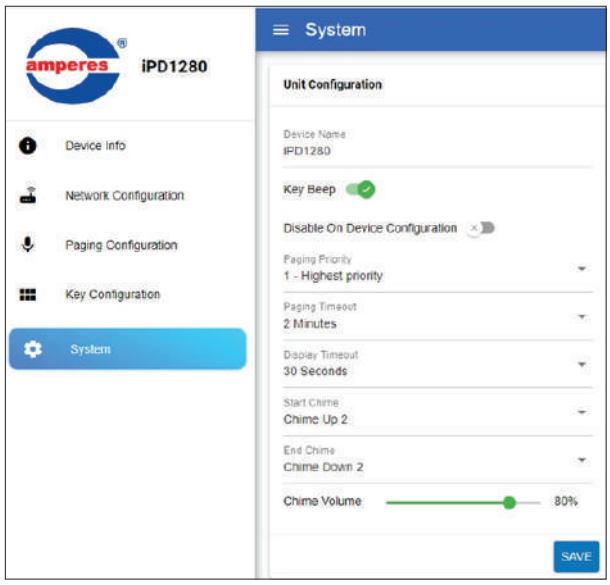
1 unit per carton

iPD1280
Ethernet Paging Microphone

iPD1280 is an Ethernet based paging microphone with soft touch keys, zone groupings and with a large LCD screen for ease of monitoring. It has all the features of conventional PD1280 such as zone groupings, priority settings, etc.

- **Soft touch** keypad
- Ultra **low latency** audio transmission
- Adjustable **volume** for mic and chime
- Built in **chime** with selectable tone file
- Large **multi point paging** setup within network
- Ease of **programming** with user friendly GUI
- **Large LCD** display for easy viewing with **name setting**

Configuration UI with various possible features



Technical Specifications

Operating voltage	24V DC
Power consumption	2.0 W
24V power connector	1 x male barrel jack
Zone selection	Numerical keypad for Zones, Groups, Siren, All Call, Repeat, Chime + Talk
Switching selection	Sensor touch keypad
Microphone	Gooseneck condenser capsule ; unidirectional
Chime	4 tone up and 4 tone down
LED Indicator	Zone, power, audio, data, gooseneck ring LED
Displays	LCD display ; white back illumination
Frequency response	100 - 12 kHz @ 1kHz +/- 3 dB
S/N ratio	>70 dB @1 kHz
Audio conversion format	IMA ADPCM 36 kHz 16 bit
Audio output controls	Mic from local and Chime from Web
Data Interface	RJ45, 10 / 100 Base-T
Protocols	TCP / IP, UDP, IGMP, HTTP
Priority protocols	ADMP, ADP
Transmission mode	Unicast & Multicast
User interface	Google Chrome V90+ preferred
Gooseneck mic length	370 mm
Dimension (W x H x D)	230 x 192 x 65 mm (exclude mic)
Weight	850 g

Packing Information

Carton size : 525 (L) x 270 (W) x 85 (H) mm
Gross weight : 1.75 kg
1 unit per carton

iPD1220 iPD1230

Ethernet Paging Microphone

iPD1220 is an Ethernet based desktop paging microphone with simplified function suitable localized paging in iPX System. It has zone or group calling buttons and 4 message banks with total of 590 seconds of messages. The message and zone calling buttons are programmable via web browser.

iPD1230 is similar to iPD1220 but is designed for wall mounting and comes with handheld microphone.

iPD1220 or iPD1230 is suitable for localized paging, integrated in iPX system. Among applications are pharmacy counters, ward nurse station, departmental counters, airport departure holding areas in which a paging will only concentrate and restrict on particular zone or adjacent zones.

iPD1230 which is wall mounted type and is suitable for factory production floors, warehouse, hotel car calling or within school / campus compounds, such as calling for arriving cars at particular area only.

NEW Preliminary Information

iPD1220 Desktop Paging Microphone

iPD1230
Wall Mount Paging Microphone

Technical Specifications

Power requirement	
Voltage	24V DC
Current	0.1 A (2.4W)
Audio	
Microphone	Condensor microphone, omni directional
	iPD1220 : Gooseneck with screw base
	iPD1230 : Handheld Push to Talk
Connectivity	10 / 100 Base-T
Protocols	TCP/IP, UDP, IGMP,http
Transmission mode	Unicast & Multicast
Audio conversion	IMA ADPCM 36 kHz 16 bit
Zone grouping	4
Zones per group	8
Message	590 seconds in total ; 4 groups
Max files	20
File format	MP3 64 k bit/s
User interface	Google Chrome V90+ preferred
Operating temp	-10 to 60 C
Humidity	80 %
Dimensions (W x H x D)	PD1220 : 248 x 65 x 190 mm (exclude mic)
	PD1230 : 220 x 185 x 40 mm (exclude mic)
Weight	900 g (iPD1220), 950 g (iPD1230)

- 4 programmable zone / **zone grouping**
- **4 message** banks with total 590 seconds
- Available in **desktop** version with gooseneck mic or **wall mount** type
- Mic **volume controls**
- Powered via local power adaptor or **PoE** with split connectors

Packing Information

Carton size : 525 (L) x 270 (W) x 85 (H) mm
Gross weight : 1.9 kg
1 unit per carton

iPX5455 iPX5155 iPX5500

Ethernet Paging / BGM Clients & Comm Box

iPX5455

4 Ch BGM / Paging Client

iPX5155

Single Ch
Ethernet BGM / Paging Client

iPX5155 & 5455 are BGM & Paging clients, also known as audio extract, available in single and 4 channels versions. They provide audio output for BGM and Paging audio which is of higher priority. RS485 data is fed to rack zone decoder for zone selection.

It can be used as audio insert for conventional series of paging mic to enable them to work seamlessly in iPX system.

iPX5500

IP Communication Box

iPX5500 is an interface unit for remote equipment with Amperes PMX III software for remote monitoring and controls. RS485 data of up to 16 devices can be connected to iPX5500 before being fed to IP environment.

Technical Specifications

	iPX5455	iPX5155	iPX5500
Power requirement			
Voltage	24 V DC		
Current	280 mA (6.8 W)	60 mA (1.5 W)	
Connectivity			
Channels	4 ch	Single	16 RS485 nodes max
Interface	RS485 (19.2 kbps), 10 / 100 Base-T		
Protocols	TCP / IP, UDP. IGMP, HTTP		
Broadcast mode	Unicast / Multicast		Multicast
Audio			
In / Out (rms)	1.25 V rms (+ 4 dBU)		Not applicable
THD	< 1 %		
S/N ratio	83 dB		
Audio format	IMA ADPCM / MP3 320 kbps max / WAV		
User interface	Web browser Google Chrome V90+ preferred		
Operating conditions			
Temperature	-10 to 60 deg C		
Humidity	0 - 70 %		
Dimensions (W x H x D)	482 x 44 x 180 mm	127 x 137 x 22 mm	
Weight	2.4 kg	300g (excl adaptor)	

Packing Information

iPX5155 / 5500

Carton size : 155 (L) x 105 (W) x 125 (H) mm

Gross weight : 1.0 kg incl. adaptor

1 unit per carton

iPX5455

Carton size : 555 (L) x 295 (W) x 95 (H) mm

Gross weight : 3.4 kg

1 unit per carton

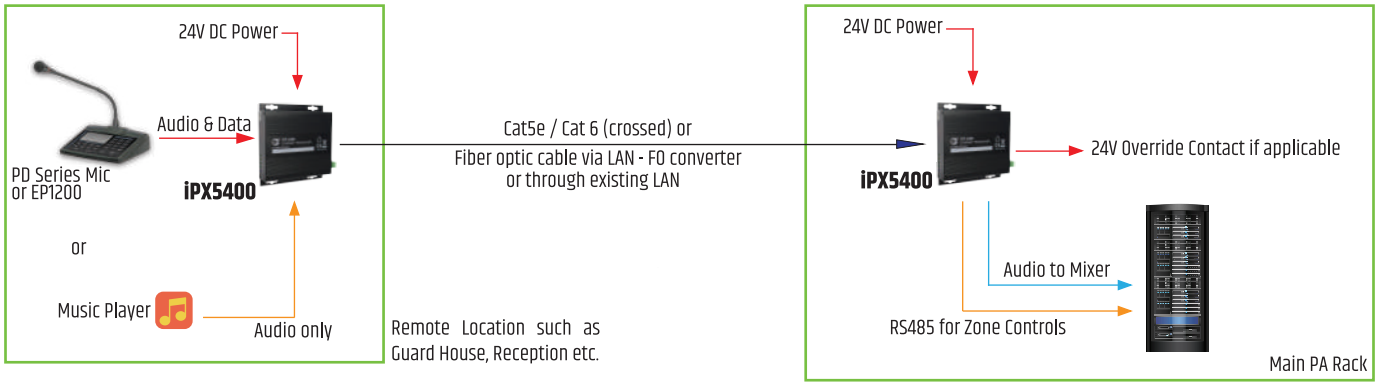
iPX5400
Ethernet Transceiver

iPX5400 works in a pair, and is convenient way of sending audio and RS485 data to another location through LAN, dedicated fiber or network cable. In the case of using dedicated fiber link, an Ethernet to fiber converter shall be required.

- **Low latency** audio and data transmission
- **Dry contact** for remote triggering
- **Easy setup** via web browser
- RS485 and voice at **full duplex**, hi definition audio at **simplex**
- **2 modes** available with : 1. Always ON, 2. ON on remote trigger
- Works **independently** without other IP equipment or iPX5101 controller

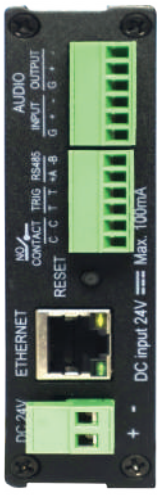
Application Schematic

Application Example: Peer to Peer Direct Connectivity



Technical Specifications

Power requirement :	
Voltage	24V DC
Current	60 mA (1.5W)
Connectivity :	
Data Interface	RJ-45, 10 / 100 Base-T
Protocols	TCP / IP, UDP, IGMP, HTTP
Priority protocols	UDMP, ADP
Audio	
Analogue in / out (peak to peak)	1.25V (line)
THD	< 1 %
S/N ratio	83 dB
Conversion format	WAV PCM 48 KHz 16 Bit (Bidirectional & Half Duplex
Data	UART RS485 (Bidirectional & Full Duplex)
User interface	Google Chrome V90+ preferred
Case	
Dimensions (W x H x D)	127 x 132 x 22 mm
Weight	300 g



Packing Information

Carton size : 155 (L) x 105 (W) x 125 (H) mm
Gross weight : 1.0 kg incl. adaptor
1 unit per carton

www.ampereselectronics.com

iPA5120 iPA5240 iPA5360
Ethernet Power Amplifier

improved

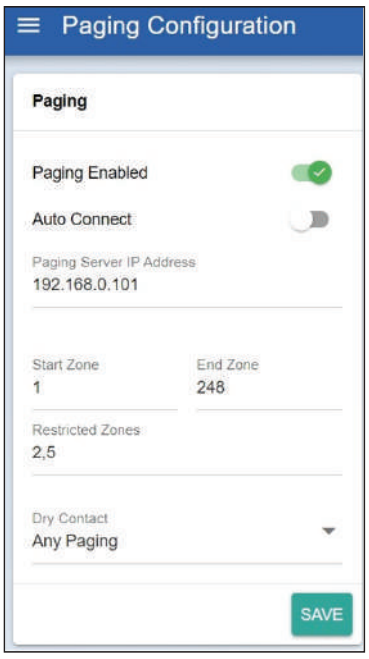
iPA5120	iPA5240	iPA5360
120W 100V	240W 100V	360W 100V

iPA5000 series Ethernet amplifier terminal area available in 120, 240 and 360W 100V line power ratings driven by high efficiency Class D amplifier circuits.

They are suitable for decentralized IP PA setups in mid to large installations such as parks, classrooms, high rise buildings, resorts, ports as well as pole mounted security alert systems.

It has local audio insert to enable local paging or music broadcast such as in classrooms, entrance gates or kiosks. The local source allows central paging bypass and with the built in relay overriding for emergency paging, it enables volume controller overriding.

- High efficiency **Class D** amplifiers
- Plays remote BGM / Paging and **local input** source with selection button
- **Audio priority** level, bypassing local input source
- Available in **120, 240 and 360W** 100V line output
- Audio priority for emergency paging with **relay contact** activation



Technical Specifications

	iPA5120	iPA5240	iPA5360
Power rating (W rms 100V out)	120W	240W	360W
Operating voltage	220 - 240 V AC : 50 / 60 Hz		
Power consumption - load (240V ac)	160 W / 1.1 A	285 W / 2.0 A	450 W / 2.9 A
Power consumption - standby (240V ac)	18 W / 0.25 A		
Analogue input sensitivity	Balanced : line - 1 Vrms / Mic - 50 m Vrms		
Input impedance	Line - 10 k Ohm / Mic - 6k Ohm		
Gain controls	-40 to 4 dBU		
THD + N at rated power	< 1 %		
S/N ratio	> 68%		
Frequency response	120 - 20 kHz (+/- 3 dB)		
Output voltage (at 4 Ohm)	50 V Max		
Network / Paging protocol	TCP / IP, UDP, HTTP, ADP		
Playback format	WAV, MP3		
Tone / volume controls	5 band EQ / local input / streaming input / speaker output		
Local / remote stream selection	Push button		
Relay contact	3A on emergency paging		
User interface	Web browser ; Google Chrome V90+ preferred		
Protections	Thermal (70 Deg C), over current, short circuit, AC fuse		
Indicators	Power, link status to paging server, steaming, local input source active		
Cooling system	Thermostat auto fan switching at 45 Deg C		
Operating temperature / humidity	-10° to 60°C		
Dimensions (W x H x D)	250 x 83 x 200 mm (excluding hinge)		
Weight	3.10 kg		

Packing Information

Carton size : 295 (L) x 260 (W) x 115 (H) mm

Gross weight : 3.40 kg

1 unit per carton

iQD2402 iQD2405 iQD2410

Ethernet 4 Zone Power Amplifier

iQD2000 Series of IP amplifiers are rack mounted type power pack available in 3 power ratings of 250, 500 and 1000W 100V line.. They are designed to integrate various components for remote amplifier setup in iPX systems ie. IP client, zone decoder, selector and class D amplifier in one power pack.

NEW Preliminary Information

Each power amp unit comes with 4 zone outputs with A / B terminals to comply with EN54 requirement. Various protection and detection features are incorporated and will be able to link directly to Amperes PMX III software for remote monitoring such as volume, temperature and speaker line condition.

- **IP amplifier** pack available in 250, 500 and 1000W 100V line outputs
- **4 zone output** with A / B speaker terminals and fuse protected
- Speaker **line monitoring** for open and short
- Balanced audio **line output**
- Built in **changeover** relay for standby amplifier
- **Remote monitoring** available with Amperes PMX III software
- **24V DC** back up

Technical Specifications

	iQD2402	iQD2405	iQD2410
Operating voltage	220 - 240 V AC : 50/60 Hz		
Rated output (rms at 100V)	250 W	500 W	1000 W
Power consumption (240V AC)	400 VA (1.6 A)	700 VA (2.9 A)	1350 VA (6.4 A)
Current consumption (24V DC)	15.5 A	25.5 A	50.5 A
DC back up standby current	0.5A		
Network / paging protocol	TCP/IP, UDP, HTTP		
Playback format	WAV, MP3		
Tone / volume controls	Bass, Treble, input volume knob		
Monitoring	Fan, temperature, zone controls, speaker line, volume		
User interface	Web browser Google Chrome V90+ preferred		
THD + N at rated power	< 1 %		
S/N ratio	70 dB min		
Frequency response	120 - 20 kHz (+/- 3dB)		
Output zones	4 zones with A / B fused terminals		
Output audio line	1.2 V rms line balanced		
E/M relay contact	3A NO		
Protections	Fuse, thermal, short circuit, in-rush current, DC soft start		
Operating temperature / humidity	-10° to 60° C		
Dimensions (W x H x D)	482 x 88 x 420 mm		
Weight	9.8 - 10 kg		

Packing Information

Carton size : 555 (L) x 545 (W) x 190 (H) mm

Gross weight : 11 kg

1 unit per carton

IFS4020 ICS6020 IHS8020 IPS8020

IP PoE Speakers

iFS4020
20 W IP PoE Full Range

iCS6020
20W IP PoE Co-axial Ceiling

iHS8020
20W IP PoE Horn Speaker

iPS8020
20W IP PoE Pendant

IP Speakers provide a convenient way to place your speakers in whatever place there is a need for either BGM or paging purpose in IP PA Setup. Home run cabling shall not be required, thus a great savings in wiring works, provided that a network port is available in the vicinity.

Amperes IP speakers are available in 4 versions, being full range box, ceiling, pendant ball and horn. They are all powered from PoE network switch.

All the IP versions are PoE powered and amplified by Class D amplifiers. They work seamlessly with Amperes iPX environment, receiving audio from PMX Software or through iPX5200 while paging audio is broadcasted via iPD or iEP paging microphones as well as PMX Software.

Technical Specifications

	iFS4020	iCS6020	iPS8020	iHS8020
Power rating	20 W			
Power source	PoE+ (IEEE802.3 af : 48V)			
Standby power consumptions	0.5W			
Operating power consumptions	15W Max			
Amplifier rating	20W 4 Ohm			
Speaker type	2 way : 4" + 1" tweeter	2 way : 6" + 1" tweeter	2 way : 8" + 1" tweeter	Compression coil
Speaker drive diameter	4" (100 mm)	6.5" (165 mm)	8" (200 mm)	2" (50 mm)
Sensitivity @ 1 kHz / w / m	87 dB	90 dB	110 dB	92 dB
Frequency response @ 1 kHz +/- 3dB	105 - 18 kHz	115 - 19 kHz	90 - 18 kHz	200 - 8 kHz
S/N ratio	85 dB			
Audio codec	IMA ADPCM / MP3 / WAV			
Network & Protocols	100 Base T / TCP / IP, UDP, IGMP, HTTP, ADMP, ADP			
User interface incl. firmware upgrade	Via web browser ; Google Chrome V90+ preferred			
Priority controls	Paging over BGM			
Operating temperature / humidity	0 -60°C / 70%			
Housing	ABS / Aluminium	ABS / Metal	ABS	
Dimensions (W X H x D)	165 x 270 x 170 mm	250 diameter x 142 H	254 diameter	293 x 212 x 290 mm
Weight	1.95 kg	1.85 kg	1.90 kg	1.80 kg
Colour	Black	White		

Packing Information

iFS4020 :

Carton size : 175 (L) x 175 (W) x 285 (H) mm
Gross weight : 2.05 kg
1 unit per carton

iCS6020 :

Carton size : 270 (L) x 270 (W) x 175 (H) mm
Gross weight : 2.15 kg
1 unit per carton

iHS8020 :

Carton size : 220 (L) x 290 (W) x 290 (H) mm
Gross weight : 1.90 kg
1 unit per carton

iPS8020 :

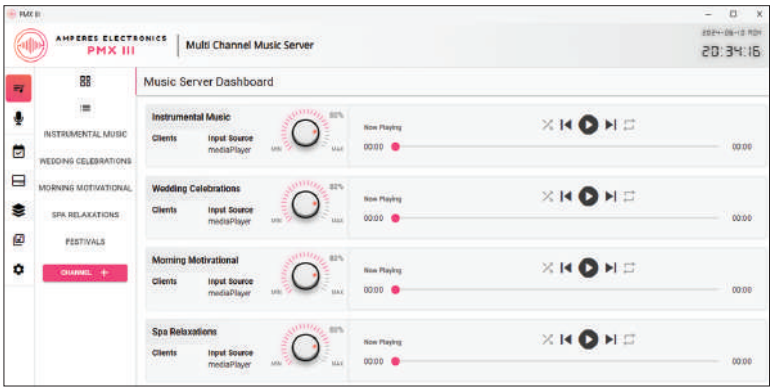
Carton size : 320 (L) x 320 (W) x 305 (H) mm
Gross weight : 3.05 kg
1 unit per carton

PMX III
Integrated PA Management Software

PMX III is a totally new software designed for Amperes iPX System, which is IP based PA installation. Many features has been incorporated in this new version based on contemporary requirement.

Amperes PMX III is available in 2 versions: Standard and Pro. Standard version contains Multi Channel BGM server of up to 10 channels, enable the system to broadcast different music to different BGM clients (iPX5155 / 5455 / IP Speakers). Zone management has been further refined to provide user greater convenience and flexibility to page from PC.

The Pro version shall include device monitoring, zone mapping and Google base Text to Speech converter which would able to broadcast text messages in various languages and with natural voices.



Features

Music Channel Dashboard

Up to 10 channels of different musics can be streamed to different clients or IP speakers, providing a flexible audio assignment to cater for different taste of listeners.

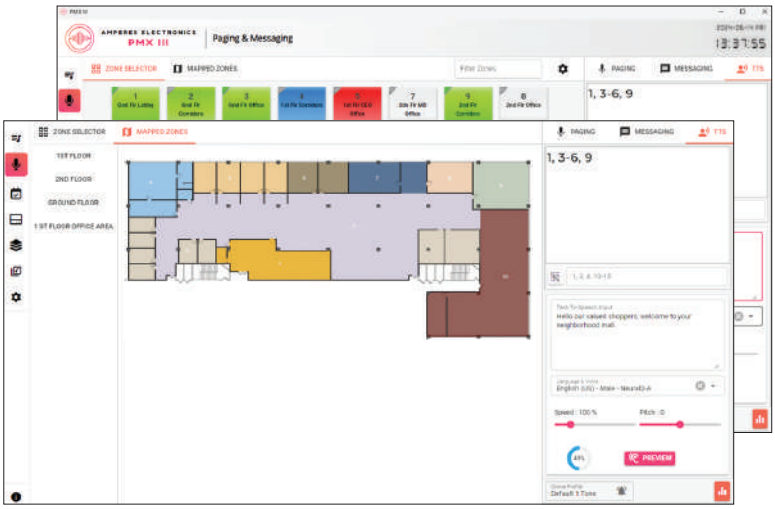
As such, PMX III functions as matrix audio streamer and is suitable for installations with multiple audience types.

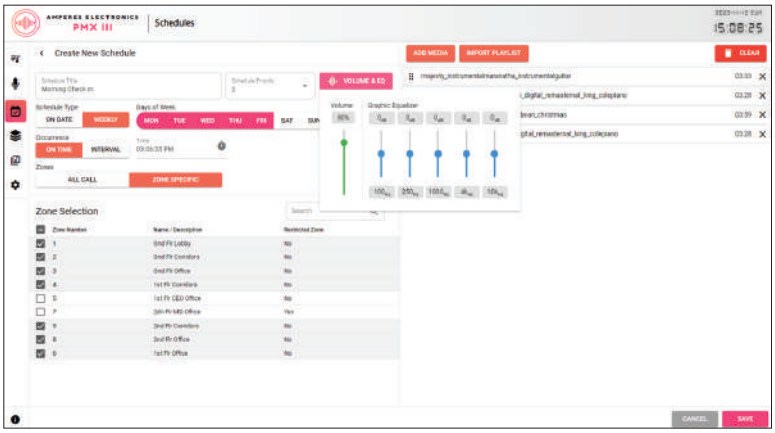
Paging & Messaging

PC paging has been made much simpler with designated zone or group buttons in alternative to conventional key pad zone selections. PMX III can page up to 254 zones.

For ease of zone selection, each zone can be named for easy identification.

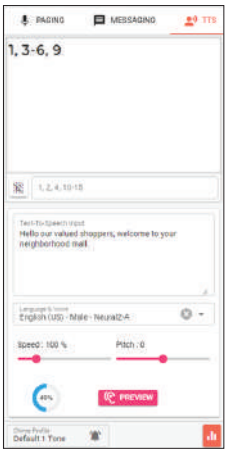
Premium version comes with zone mapping feature for a more convenience look up for desired paging zones.





Scheduling

PMX allows scheduling for time and date specific triggering, weekly repetitive and interval playback of tone or files stored in the system. The schedule can be targeted to specific zone or groups.



Text to Speech Synthesizer

When live paging is a hard task, PMX III Premium provides a platform to make announcement via text to the language of your choice and speaker to your likings, be it male or female, native accent or otherwise.

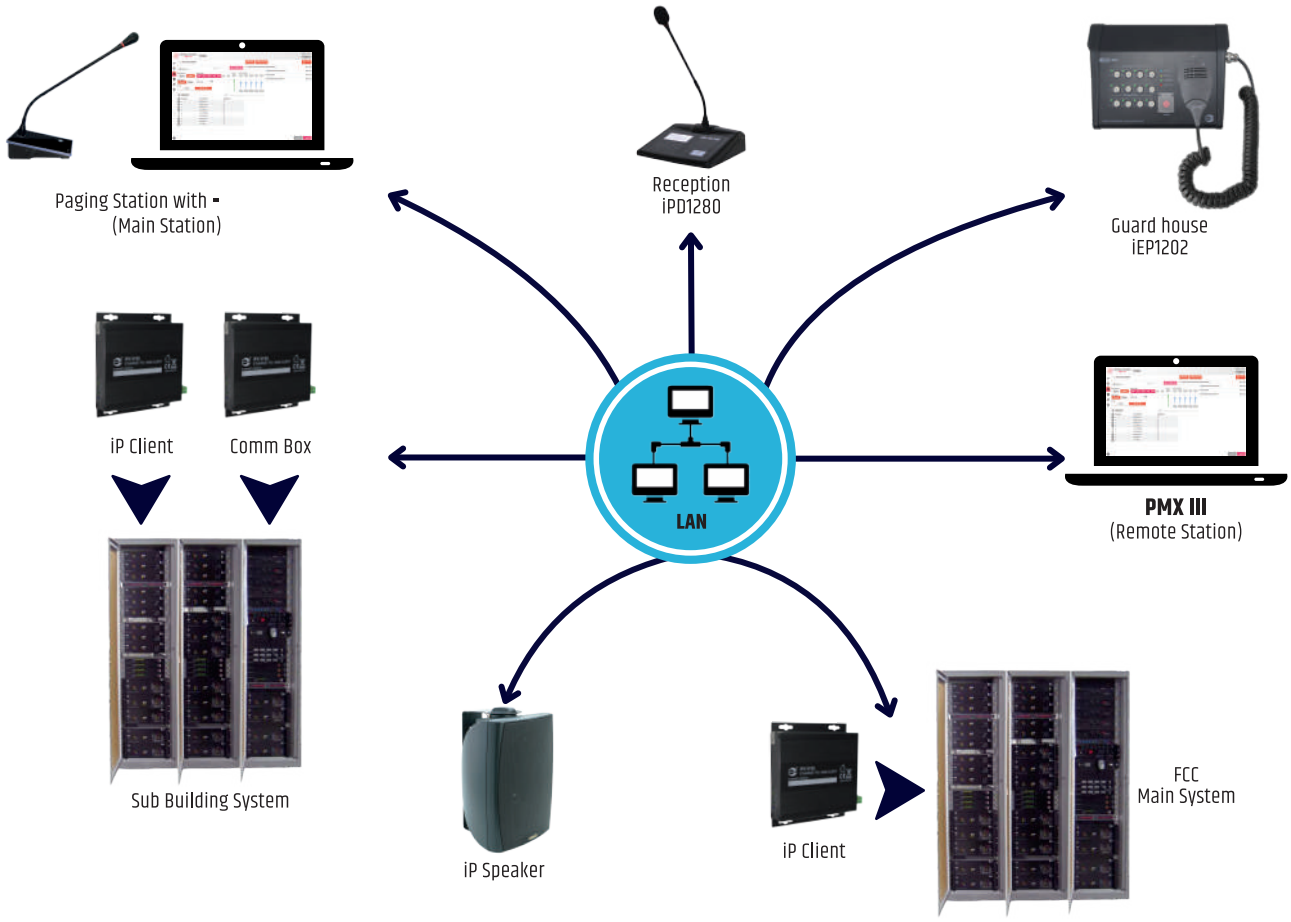
The speech of announcement is adjustable to suit the acoustic environment and the pitch of voice can be set as well.

The announcement voice is based on Google TTS engine which is almost similar to be natural human voice. Preview the message by pressing "Preview" button before sending out the announcement. The available quota for this service is shown in order to make further top up in advance.

Remote Monitoring

PMX III Premium version has live monitoring module which can monitor remotely connected devices such as amplifier, line monitoring, battery charger and other devices either connected directly to LAN or through iPX5500 Comm Box.

Application Concept



Crispy Sound, Befitting Your Clear Voice

Amperes has systems to fit your installations, fits both your budget or essential needs. From a simple PA to a more complex system to meet requirement of authorities, we have something that can perform the tasks of delivering quality audio. As life is precious, our EVAC announcement system stands ready to broadcast essential messages in timely manner through series of control equipments.

EVM8810 EVS8820

VAC Master and Slave

EVM8810

1000W 100V Controller / Master

EVS8820

1000W 100V Slave Extension

EVM8810 Rear View

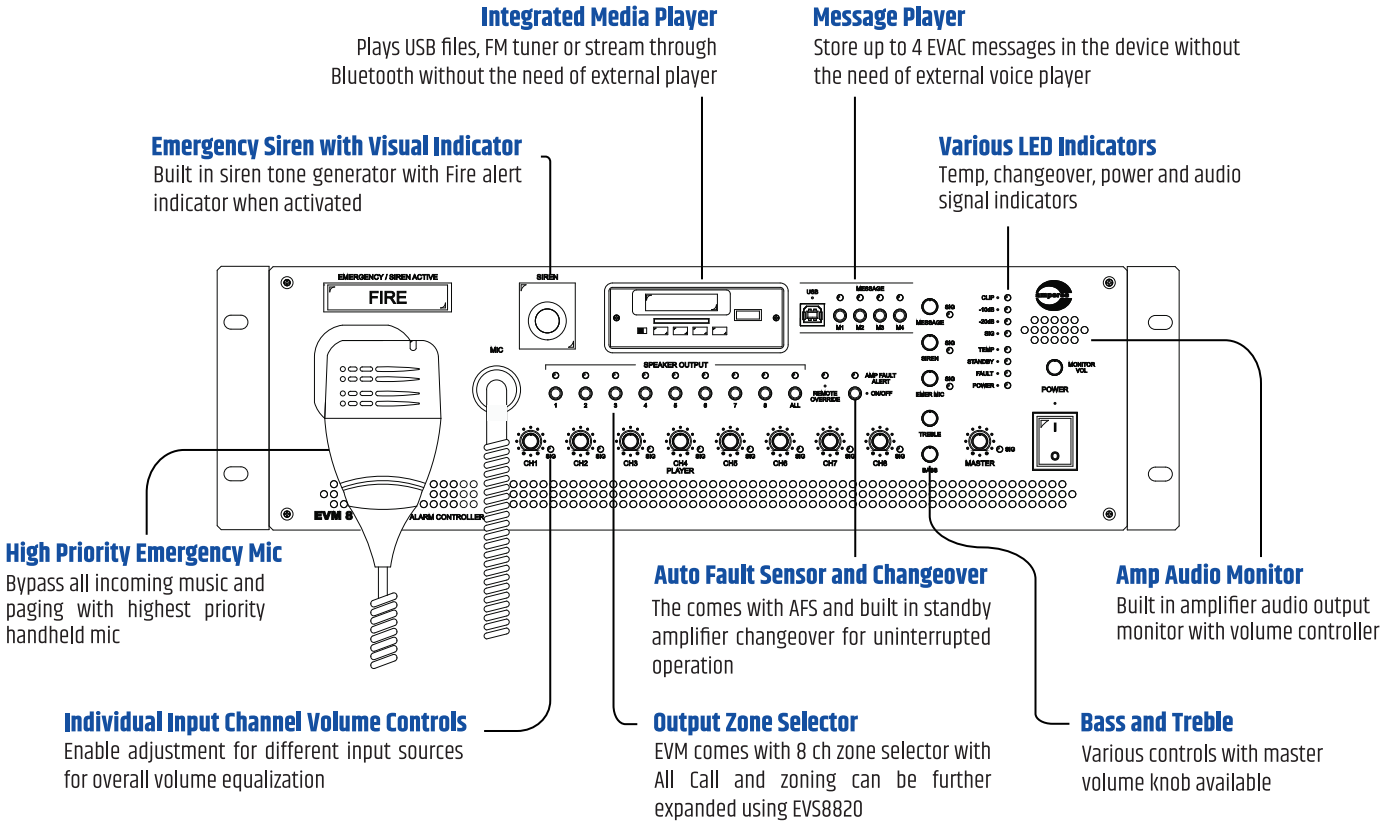
EVS8820 Rear View

Introducing an integrated voice alarm controller from Amperes. It is suitable for small scale installations of up to 24 zones, which is compact and containing all components essential for EVAC and BGM system. As such, it is not only providing substantial savings on rack space but also overall costings of building up a small system with individual components.

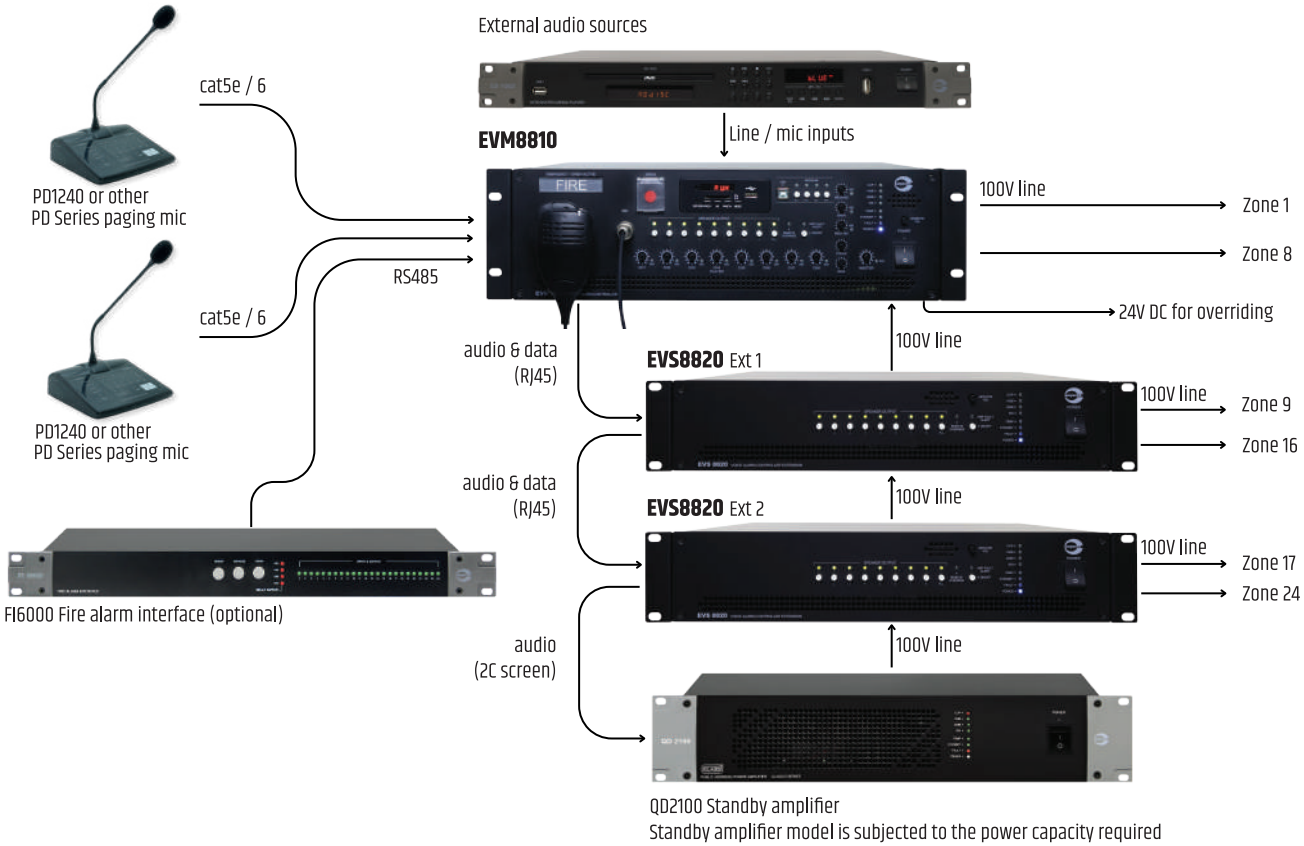
The core of the system is the **EVM8810** which is a master unit which has built in 1000W 100V with 8 zones of speaker lines. If the overall installation requires more than 8 zones, the output channels can be further expanded by using **EVS8820**. Additional 2 extensions can be added to make overall installation to be 24 zones.

- **Integrated** voice alarm controller with media player for USB MP3, FM tuner and Bluetooth
- BGM playback - priority paging sequence in **compliance** with fire regulations / BS / EN54 standards
- **Auto amplifier fault sensor (AFS)** which monitor the amp circuit with built in standby amplifier changeover
- **Cascadable** to 24 zones for larger setup
- **Flexible addressing** which allows integration with existing Amperes PA setup
- 4 **EVAC message** memory banks with remote and front panel button playback
- **Compatible** with any Amperes PD series of paging microphone, PT1801 MKII, FI6000 and external EP1200
- **Zone expansion** with TD6400 if only single EVM8810 is used without the need of extra EVS8820
- **Relay contacts** available for external volume controllers overriding when emergency paging / message activated

Features in Summary



Application Concept



Technical Specifications

	EVM8810	EVS8820
POWER REQUIREMENTS		
Power supply	220 - 240 V AC : 50 / 60 Hz	
Power rating (W at 100V line)	1000W at 100 V line output	
Power consumption (full load) : 240V ac	1500 VA (6.1A)	
Standby current at 240V ac	0.5 A	0.4 A
INPUTS		
Input channels	Ch 1 to 6 Mic / Line balanced, RCA x 2 Handheld PTT mic, message bank x 4 Siren, PD paging mic x 2 ports, USB / MP3 / FM / BT External EP mic port	Link line level : 0 dBU
Input sensitivity / impedance	Mic : 40 mA / 10k Ohm Line : 1.2 V / 10k Ohm	Line : 1.2 V / 10k Ohm
Input signal at standby	Switchable auto detect / always ON	
Frequency response	20 - 18 kHz (+/- 3 dB @ 1 kHz, 0 dBU)	
THD (+ Noise)	< 1 %	
Standby amplifier changeover	Built in changeover relay	
OUTPUTS		
Zone output	8 zones (front switch and remote paging with All Call)	
Audio output	Master line output, balanced 0 dBU	
Audio link to slave	Line balanced 0 dBU	
Emergency dry contact	3A ; NO relay	
Tone controls	Bass (100 Hz), Treble (10 kHz), 15 dB slope	
Output audio monitoring	Front speaker with volume controls	
CONTROLS / COMMUNICATION		
Controls	Individual channels, message, siren, emergency mic, bass & treble, master volume	Output volume
Communication control	RS485 ; 19.2 kbps	
Cascade / link	RJ45 port (line audio and RS485 data)	
Cascade quantity	3 nos (total 24 zones)	
Indicators	Signal, temperature, fault, power, message, and zone selection	Signal, temperature, fault, power, and zone selection
Priority sequence (low to high)	BGM, paging mic, siren, message, remote	n/a
Protections	Thermal, short circuit, overload and AC fuses	
Cooling system	Auto temperature controls	
Cut off temperature	75°C	
PHYSICAL		
Dimensions (W x H x D)	482 x 132 x 420 mm	482 x 88 x 420 mm
Weight	10.8 kg	9.3 kg

Packing Information

EVM8810 :

Carton size : 555 (L) x 555 (W) x 230 (H) mm
Gross weight : 12.90 kg
1 unit per carton

EVS8820 :

Carton size : 555 (L) x 545 (W) x 190 (H) mm
Gross weight : 11 kg
1 unit per carton

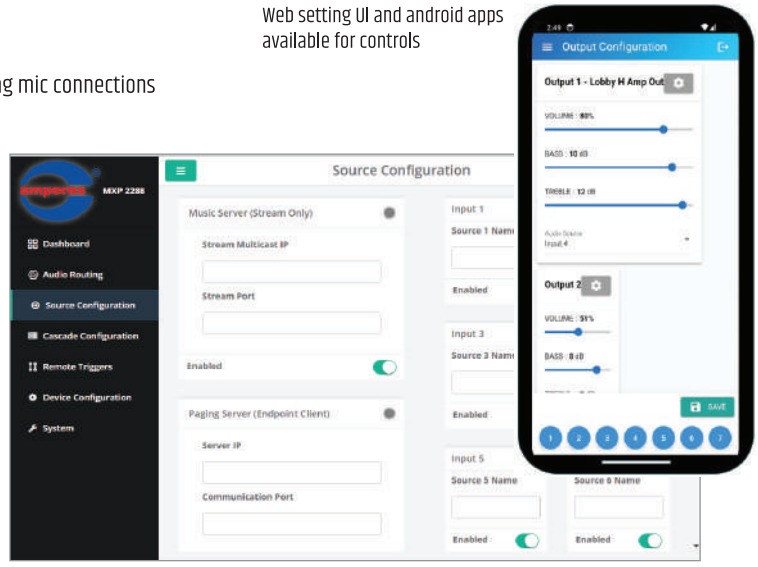
MxP2288 RP1104 EX1103

12 x 8 Matrix Controller, Remote Control Panel

MxP2288 features 12 inputs with 8 outputs matrix, suitable for both PA installations in EVAC and BGM setups that requires flexible input to output routings. I.e. Commercial or residential applications.

With host of features such as remote access controls. LAN connectivity and android mobile apps, MxP2288 shall be the equipment of choice for flexibility in audio selection.

Web setting UI and android apps available for controls



- **12 x 8 matrix configurations** with dedicated EP1200, MR1301 and PD paging mic connections
- Expandable to **24 zones** with cascading of 3 units
- **Prioritized emergency broadcast** with fail safe paging for EP1200
- **Flexible** audio source input jacks
- **LAN connectivity** with Android apps for mobile controls
- Remote control panel RP1104 for **remote source** and **VBT controls**

RP1104

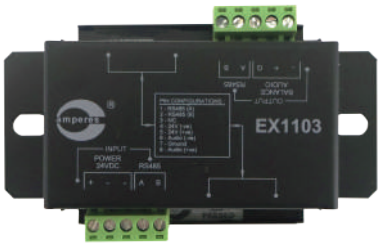
Remote Zone Control Panel

A remote zone controller with sensor touch buttons which allows the user to select input music source, volume and tones. It shall be installed near to related zones and connected to the MxP2288 controller via Cat5e / 6 UTP cable.

Power source	24V DC via MxP2288
Power consumption	100 mA
LCD panel	3.5" resistive touch screen
Communication	RS485 ; 19.2 kbps
Controls	Volume / BGM source / tone controls
Cabling	Cat 5e / 6
Distance	Up to 500m
Dimensions (W x H)	86 x 86 mm
Colour	White
Weight	100 g

EX1103

Paging Mic Extender

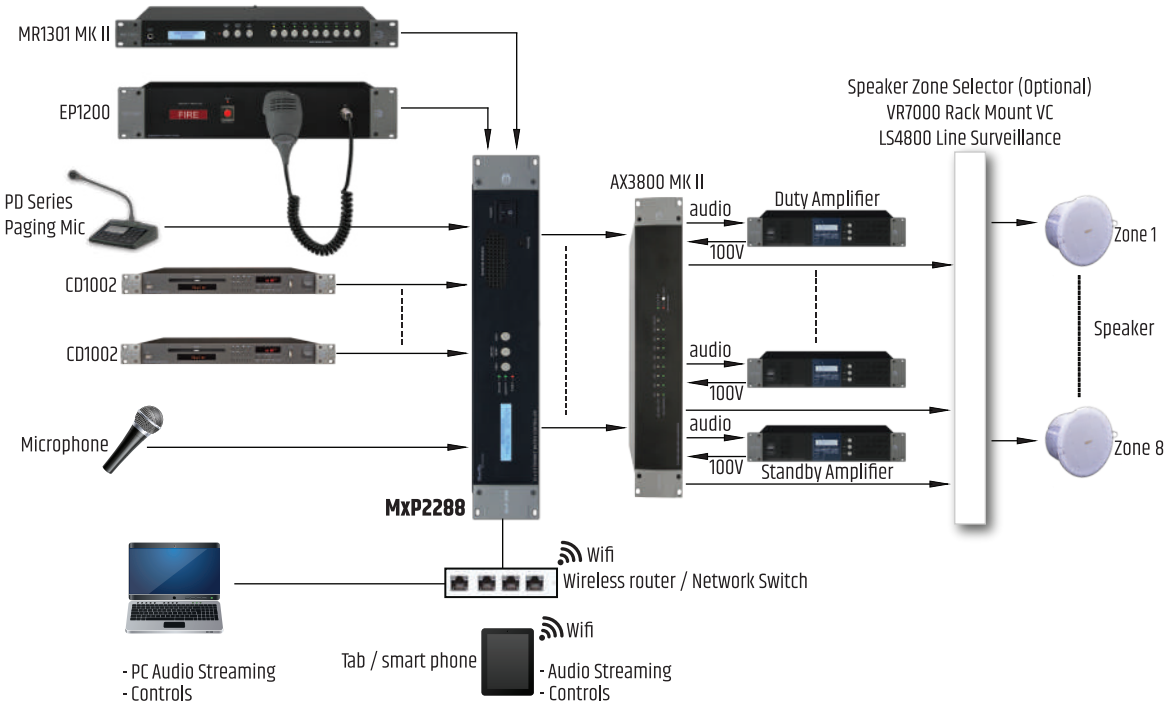


EX1103 is used when cables run from multiple paging mics return to controller or when more than one mic is connected in series before returning to MxP2288

Technical Specifications

Configuration	12 x 8 matrix controller
Power source	24V DC ; 1A
Input channels	8 mic / line level balanced signal via combo jacks 1 x emergency mic panel (EP1200), 1 x message player (MR1301), 1 x paging mic (PD series)
Input connections	Combo jack; Mic (XLR), phone (1/4" stereo phone jack)
Input impedance	Mic: 600 Ohm / Line: 10K Ohm balanced
Input sensitivity	800 mV rms (line level) and 350 mV rms (mic level)
Frequency response	150Hz - 17 KHz (+/- 3 dB at 1 KHz) with low cut
Total harmonic distortion (THD)	< 1 %
Paging audio streaming	IMA ADPCM (16 KHz)
Digital format	PCM / ADPCM / OGG / MP3 / WMA / WAV
Chime	4 tone up and 4 tone down
Audio output	8 x balanced line output via XLR jacks / Cascade link via flat cable
Tone / volume controls	Bass: +/- 14 dB cut and boost (2dB step) Treble: +/- 14 dB cut and boost (2dB step) Volume: 0 dB to -78.75 dB (1.25 dB step)
Audio gain (max)	+4 dB
Output audio monitoring	Via front 3W speaker
Communication control	RS485; 19.2 Kbps
User interface	Direct web interface via LAN for PC and WIFI for TAB and PHONE
Remote controls	Via PC / Tablet / Smartphone
Unit cascade control	3 units / 24 outputs channels (recommended max unit for full matrix)
Trigger port	Message / Emergency Paging (programmable)
Priority controls	BGM (Local source, IPX) / Paging Message / Emergency Paging (highest priority)
Fall safe feature	Emergency paging bypass
E/M override contact	3A dry contact
Dimensions (W x H x D)	482 x 88 x 180 mm
Weight	3.30 kg

Application Schematic



Packing Information

Carton size : 555 (L) x 295 (W) x 165 (H) mm

Gross weight : 4.10 kg

1 unit per carton

MM8804

8X4 DSP Matrix Controller

NEW Preliminary Information

MM8804 is a new matrix mixer / controller designed to cater for installation such as place of worships (mosques, churches etc), club house, restaurants etc, in which the user needs flexibility to mix incoming sources and broadcast to different areas with different settings of audio characteristics.

Example, a mosque with various types of speakers (column, horns) with various locations within the building will need audio calibration for type of speakers, acoustic environment and the needs for delay.

- **8 in / 4 Out** Matrix controller
- Built in Digital Signal Processor **(DSP)**
- Individual channel **volume, EQ, delay** controls
- **Web interface** for setup and controls by PC or Smartphone
- **Wifi and LAN** cable connectivity
- **24V DC** back up

Technical Specifications

Operating voltage	220 - 240 V AC : 50/60 Hz, 24V DC back up
Power consumption (240V AC)	4.8W ; 20 mA
Current consumption (24V DC)	4.6W ; 190 mA
Configuration	8 in / 4 outputs
Input channels	8 mic / line balanced with flexible priority selection
Input connections	Mini Phoenix jack
Input impedance	10 k Ohm
Priority	Dry contact
Output channels	4 outputs : balanced line 1.25 V rms (0 dBU)
Output level / impedance	600 Ohm
Controls	Front panel / web interface
Control parameters	Tone, volume, delay, 31 band EQ
User interface	Web browser Google Chrome V90+ preferred
Connectivity	LAN cable, WIFI
THD + N at rated power	< 1 %
S/N ratio	>60 %
Frequency response	20 - 20 kHz
Operating temperature / humidity	-10 to 60 C
Dimensions (WxHxD)	482 x 44 x 180 mm
Weight	2.5 kg

Note :
The specifications are preliminary data and subjected to change upon final release of the product.

Packing Information

Carton size : 555 (L) x 295 (W) x 95 (H) mm
Gross weight : 3.0 kg
1 unit per carton

PD1900
Touch Screen Paging Microphone

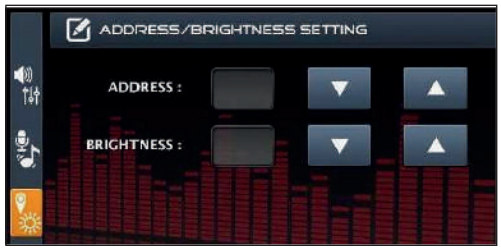
PD1900 features 7" capacitive touch screen panel with 800 x 480 pixel resolutions and loaded with multiple attractive user interfaces, providing contemporary outlooks with easy of use.

It is compatible with all zone decoders and matrix controller MxP2288. Settings such as volume, priority, device naming and chime are all performed at the user friendly UI.

- 7" capacitive colour **touch screen** panel
- **Zone grouping**
- Built in programmable **chime setting**
- **Device naming**

Technical Specifications

Operating voltage	24V DC via EX2800 with local power adaptor
Power consumption (24V DC)	1.3 W
Zone selection	Numerical keypad with grouping, all call
Microphone	Gooseneck condenser capsule, cardioid
Output impedance	600 Ohm
Output level	1.2 V balanced line out (+4 dBU)
Output controls	Chime and mic volume
Data connections	RS485; 19.2 kbps
Cabling to decoder	2 pair screen: 22 AWG / Cat5e
Recommend operating distance	300 m, subjected to cable size
Compatible interface device	MxP2288, TD6240, TD6080, TD6400, iPX5155
Chime	Programmable 4 tone Up / Down
Indicators	Zone, power, audio, data, gooseneck mic ring LED
Displays / panel	7" capacitive touch screen, 800 x 480 pixels
Frequency response	100 - 12 KHz 2 1 KHz +/- 3dB
S/N ratio	>65 dB @ 1KHz
Gooseneck mic length	370 mm
Dimensions (W x H x D)	230 x 192 x 65 mm (excluding mic)
Weight	0.95 kg



Packing Information

Carton size : 525 (L) x 270 (W) x 85 (H) mm
Gross weight : 2.10 kg (adaptor included)
1 unit per carton

PD1240 PD1280

PD Series with Soft Touch Keys

- **Soft touch** keys with no mechanical switch failure
- **LED** indicators (PD1240) and **LCD** display (PD1280)
- **Name setting** at PD1280
- Built in chime with **selectable tones** for PD1280
- **Volume controls** for chime and paging

PD1240

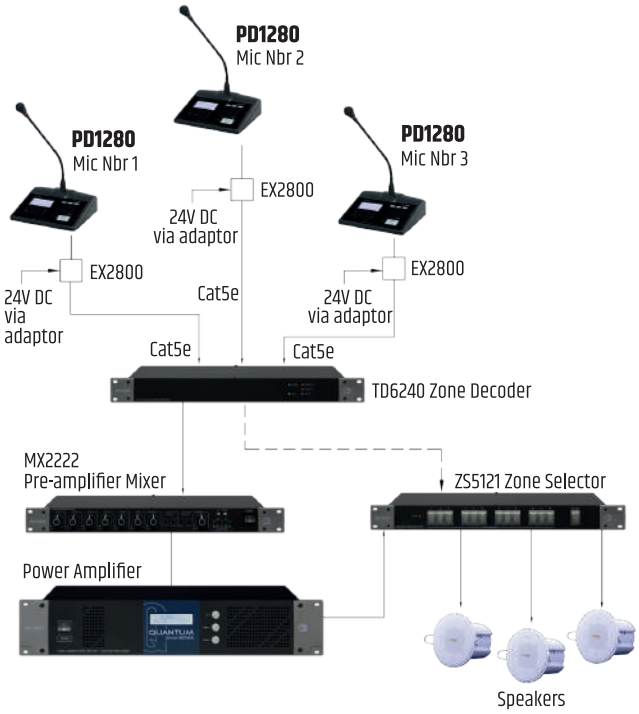
24 Ch Desktop Paging Microphone

PD1280

Desktop Paging Microphone

PD1240 & PD1280 are the two of the most popular paging microphones that incorporate soft touch buttons and improved sound quality. All essential features such as priority level assignment, multi-point paging, illuminated gooseneck microphone and volume controls are included.

Application Schematic



Technical Specifications

	PD1240	PD1280
Operating voltage	24V DC via EX2800 with local power adaptor	
Power consumption	1.2 W	1.3 W
Zone selection	24 zone keys, Group, All Call	Numerical keypad with Group, All Call
Switching selection	Sensor touch keypad	
Microphone	Gooseneck condenser capsule ; unidirectional	
Output impedance	600 Ohm	
Output level	1.2 V balanced line output (+4 dBU)	
Output controls	Chime and mic volume	
Data connections	RS485; 19.2 kbps	
Cabling to decoder	2 pair screen: 22 AWG / Cat5e	
Recommended inst. distance	500 m max (18 AWG cable)	
Compatible interface device	MxP2288, TD6240, TD6400	
Chime	4 tone up and 4 tone down	
Indicators	Zone, power, audio, data, gooseneck ring LED	
Displays	NIL	LCD display ; white back illumination
Frequency response	100 - 12 KHz @ 1 KHz +/- 3dB	
S/N ratio	>65 dB @ 1KHz	
Gooseneck mic length	370 mm	
Dimensions (W x H x D)	230 x 192 x 65 mm (excluding mic)	
Weight	0.75 kg	0.85 kg

Packing Information

Carton size : 525 (L) x 270 (W) x 85 (H) mm

Gross weight : PD1240 - 1.9 kg (adaptor included)
: PD1280 - 1.95kg (adaptor included)

1 unit per carton

PM1010 PM1030
Desktop Paging Microphone

PM1010
Desktop Paging Mic

PM1030
Desktop Paging Mic with Chime

PM1010 is a basic version with simple press to talk without chime whereas **PM1030** comes with pre-announcement chime, paging contact and chime volume controls, which is designed for commercial applications. Both models had been tuned to perform better than its predecessors and shall be the right choice for your paging needs.

- **Contemporary** design
- **Dry contact** available for PM1030
- **Illuminated LED** ring gooseneck microphone
- **Line** level output, suitable for most mixing amps
- 4 tone **chime** for PM1030
- Adjustable **volume controls** for chime and microphone

Technical Specifications

	PM1010	PM1030
Operating voltage	24V DC	
Power consumption	0.8 W	1.3 W
Indicators	Active & Gooseneck mic ring LED	Power, Active, Gooseneck mic ring LED
Microphone system	Condenser microphone, cardioid	
Dry contact	-	3A max
Audio		
Mic sensitivity	-72 dB Omni directional	
Output impedance	Line: 300 Ohm , Mic: 50 Ohm	
Frequency response	200 Hz - 11 KHz (+/- 3 dB)	
S/N ratio	80 dB +/- 10% @ 1 KHz	
THD + Noise	<0.2%	<0.1%
Output controls	Mic	Chime, Mic
Audio output	Line output; 1.2V rms balanced , Mic: 70 mV rms balanced	
Communication		
Cable	2 m RJ45 connection at external box	
Output connection	5 way connector at external box	
Gooseneck mic length	370mm	
Dimensions (W x H x D)	160 x 50 x 120 mm (excluding mic)	
Weight	380 g	400 g

Packing Information

Carton size : 465 (L) x 240 (W) x 85 (H) mm

Gross weight : PM1010 - 1.40 kg (adaptor included)
: PM1030 - 1.45 kg (adaptor included)

1 unit per carton

PM1060 PM1120

6 / 12 Ch Analogue Desktop Paging Mic

PM1060

6 Ch Desktop Analogue Paging Microphone

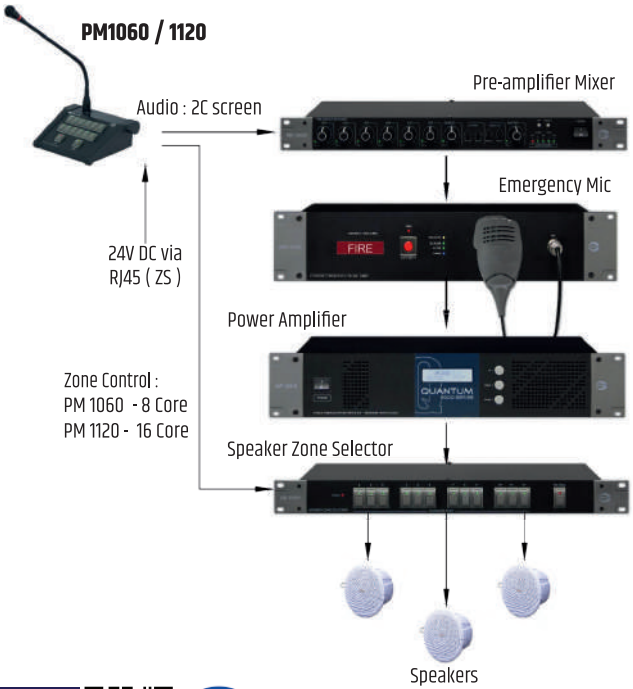
PM1120

12 Ch Desktop Analogue Paging Microphone

PM1060 & PM1120 had been serving the need of paging for decades faithfully. They are available in 6 and 12 zone versions with built in chime, catering the need of small and simple applications. They can be plugged directly into MA series of mixing amplifiers for announcement with zone selection.

- **6 or 12** zone selection
- Pre and post announcement 4 tone **chime**
- **Condenser** gooseneck microphone with illuminated ring
- Adjustable chime and mic **volume** with balance mic / line output level
- **Output level selection** to mic or line signal to suit the input type of the preamplifier mixer

Application Schematic



Technical Specifications

Power requirement	24V DC via RJ45
Power consumption	150 mA
Zone selection	6 and 12 zones w ALL CALL
Microphone	Condenser microphone cardioid
Output impedance	600 Ohm
Output level	1.2 V (line output) / balanced mic (50 mV)
Output controls	Chime and mic level
Audio connection	1/4 " stereo phone jack
Switching connection	RJ45
Operating distance	300 m (max)
Chime	4 tone up and 4 tone down
Indicators	Mic ring, zone switch, ALL CALL
Frequency response	100 ~ 12 KHz @ 1 KHz +/- 3 dB; 0 dB out
S/N ratio	> 60 dB
Gooseneck mic length	370 mm
Dimensions (W x H x D)	150 x 62 x 186 mm (excluding mic)
Weight	800 g - PM 1060 / 850 g - PM1120

Packing Information

Carton size : 525 (L) x 270 (W) x 85 (H) mm
Gross weight : PM1060 : 1.15 kg
PM1120 : 1.20 kg
1 unit per carton

EP1200
Emergency Paging Panel

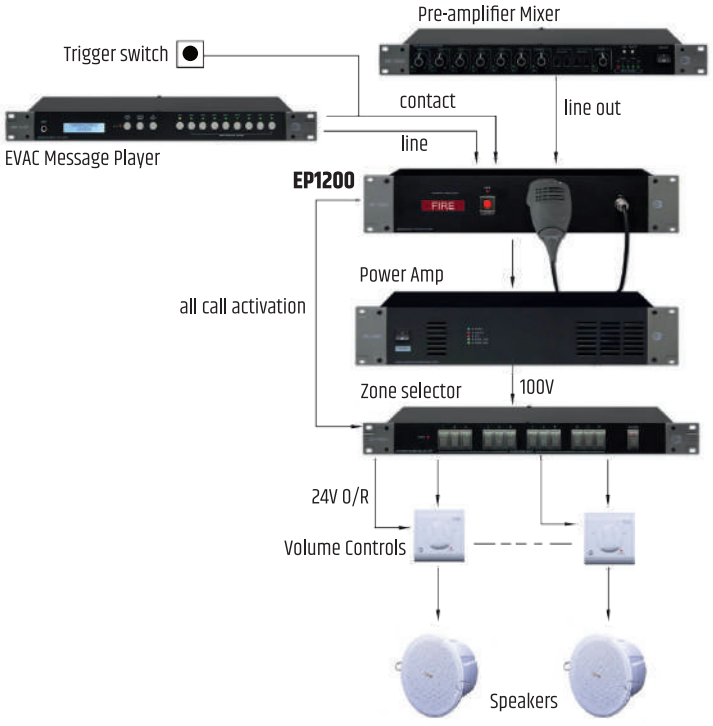
- Visual **FIRE** indicator
- **Dual mode** siren tone activation
- External **voice message** activation
- **Dry contact** when paging mic is activated
- **Built in siren** tone generator (constant signal)
- **Output level** controls for siren and message / paging microphone
- **Priority paging** via front panel microphone, bypassing all other audio sources

EP1200 Emergency Paging Microphone is one of the most important equipment in PA installation, essential to make highest priority broadcast during emergency situation. It allows direct paging to all zones and bypass any active BGM or normal paging in progress

Technical Specifications

Power requirement	24V DC
Power consumption	3.5W
Microphone	
Mic sensitivity	-72 dB Omni directional
Impedance	600 Ohm
Frequency response	300 ~ 8 KHz
Siren	
Siren frequency	Continuous at 8 KHz
Siren duration	Continuous when activated
Siren activation	Front test switch / remote contact
Input channel	Pre-amplifier output, message recorder
Output level	Balanced line out +4 dBU max
Priority sequence	Paging mic -siren -message -pre amp in
Indicators	Front FIRE with back light illumination
Dimensions (W x H x D)	482 x 88 x 180 mm
Weight	2.80 kg

Application Schematic



Packing Information

Carton size : 555 (L) x 295 (W) x 165 (H) mm
Gross weight : 3.75 kg
1 unit per carton

CD1002 IR1022
Music Source Players

CD1002
Dual Ch Integrated Media Player

improved

CD1002 is a dual channel media player with independent outputs consisting of CD, FM tuner, USB and Bluetooth player in one device. It is suitable for PA setup such as Matrix system and uninterrupted paging. It is now improved with tuner presets of up to 90 channels.

- **Independent** dual outputs
- Plays **various format** of DVD / CD audio, MP3 and USB
- **Bluetooth** ready
- Up to **90 presets** for FM stations

Technical Specifications

Operating voltage	220 - 240V AC
Power consumption	2.5W (240V AC)
Channels	2
Playback media	CD/ DVD/ FM tuner/ USB, MP3, Bluetooth
USB playback format	MP3, WAV
FM preset stations	90
Output	RCA stereo line out (0 dBU, 0.775V)
Frequency response (CD)	20 - 20 KHz
S/N ratio	>80 dB
Distortion	<0.5%, 1 KHz
Working temperature	-10° to 55°C
Humidity	85%
Dimensions (W x H x D)	482 x 44 x 365 mm
Weight	2.70 kg

Packing Information

Carton size : 525 (L) x 368 (W) x 120 (H) mm
Gross weight : 4 kg
1 unit per carton

IR1022
Internet Radio Player

NEW Preliminary Information

IR1022 plays audio streaming of radio stations via Internet for a more stable and clear reception as compared to FM receiver, which is often subjected to location of the installed PA rack. It connects to readily available streaming site via LAN cable or through WIFI.

- Offer more **stability** over FM radio receptions
- **16 preset** channels
- **Friendly UI** for setting
- **Wi-Fi or LAN** cable connections

Technical Specifications

Operating voltage	220 - 240V AC
Power consumption	2.5W (240V AC)
Streaming bandwidth	320 kbps max
File format	MP3
Presets	16
Controls	Front panel button, Web browser
Output	RCA stereo line out (0 dBU, 0.775V)
Frequency response	100 - 18 KHz
S/N ratio	>60 dB
Dimensions (W x H x D)	482 x 44 x 180 mm
Weight	2.40 kg

Packing Information

Carton size : 555 (L) x 295 (W) x 95 (H) mm
Gross weight : 3.0 kg
1 unit per carton

PT1801 MK II

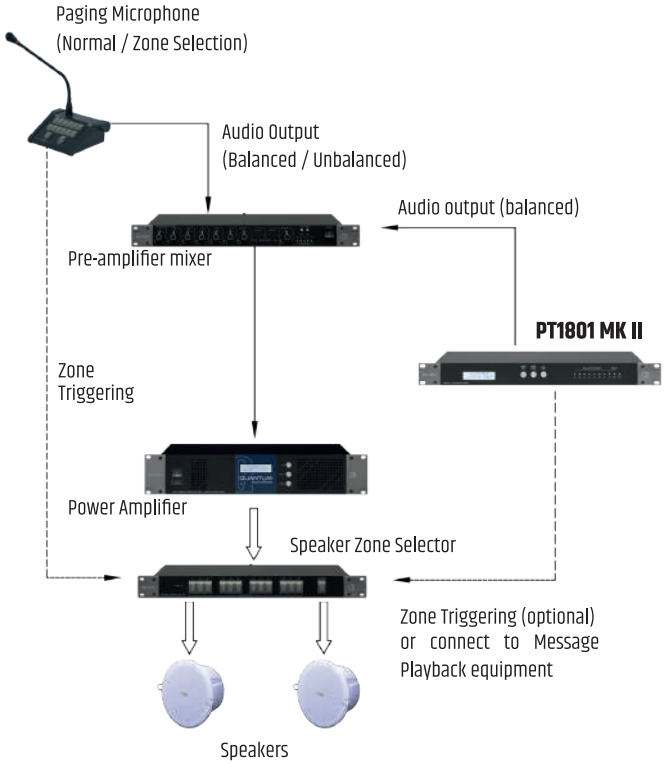
Weekly Programmable Timer

PT1801 MK II has been designed to cater for more sophisticated needs and can be used as conventional timer or to be integrated into Amperes iPX System. Schedules can be played directly to designated iPX5155 / 5455 clients, and whereas in conventional system, the balanced line audio can be fed directly to mixer / mixing amplifier or directly to amplifier.

Playback files can be stored in the device and be readily assigned to programmed schedule, all done via the user friendly UI.

- **LAN** ready for ease of setup and controls via user friendly GUI
- **World clock** sync for time accuracy
- **32 GB memory** bank for files storage
- **1000 presets** with free assignments of time - playback file
- 8 **dry contacts** for schedule activations
- **Compatible** with Amperes iPX system

Application Schematic



Technical Specifications

Input voltage	24V DC ; 0.5 A
Power consumption	4.8 W
Output channels	8 dry contacts
Output contact rating	3 A
Contact connectors	Phoenix
Output triggering modes	ON, OFF, Pulse (3 seconds)
Output audio	Line out, +4 dBU balanced
Audio connectors	Mini Phoenix connectors
Output impedance	1 k Ohm
Preset capacity	1000 presets
Internal memory bank	32 GB
Indicators	LCD
Clock synchronization	World clock sync, PC
Clock back up	CR1220 button battery
RTC accuracy	+/- 2 ppm
Communications	LAN ; 10/100 Base T RS485 ; 19.2 kbps
Dimensions (W x H x D)	482 x 44 x 180 mm
Weight	2.0 kg

Packing Information

Carton size : 555 (L) x 295 (W) x 95 (H) mm

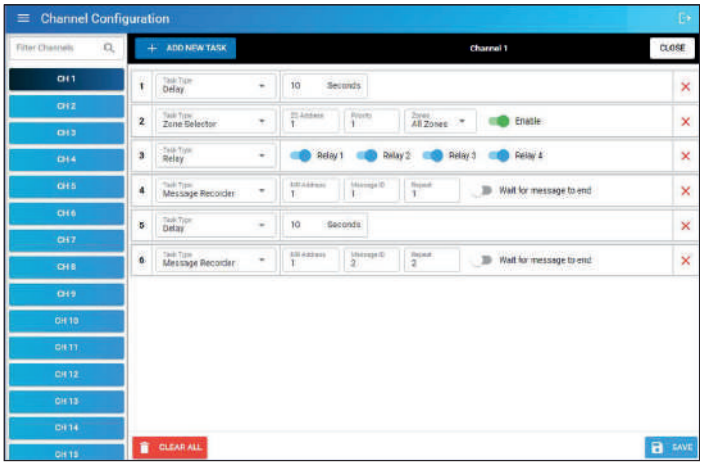
Gross weight : 2.6 kg

1 unit per carton

FI6000 MKII
Fire Alarm Interface

FI6000 MK II is an improvised phase evacuation controller, which is an essential intermediary device between Fire Alarm Panel and PA System. It enables zone controls and playback of various EVAC messages in preprogrammed sequences of activities. The orderly and automated activities upon receiving signals from Fire Alarm Panel (FAP) are part of compliance to EN54 or BS5839 Part 8 standards.

Channel configuration interface

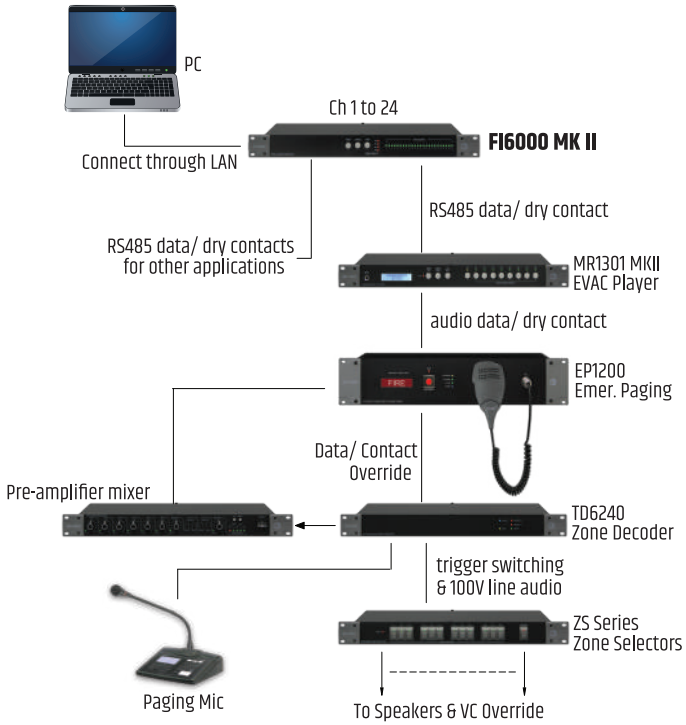


- **User friendly** GUI
- **Bi colour LEDs** for easy identification of status
- **LAN** connectivity for ease of setup and controls
- Available in **24 channels**
- Integrated with Amperes products via **RS485** and **dry contacts**
- Most suitable Fire Alarm Interface for **Phase Evacuation** activities

Technical Specifications

Input voltage	24 V DC; 1A
Power consumption (all triggered)	21W; 0.9A
Input channels	24 ports
Trigger method	Dry contact, NO
Output channels (dry contacts)	4
Output contact rating	3A
Output contact models	ON, OFF
Contact connectors	Mini Phoenix
Indicators	Channel bi colour LED Dry contact LED
Communications	RS485; 19.2 kbps LAN 10/100 Base T
User interface	Web browser: Google, Firefox
Dimensions (W x H x D)	482 x 44 x 180 mm
Weight	1.90 kg

Application Schematic



Packing Information

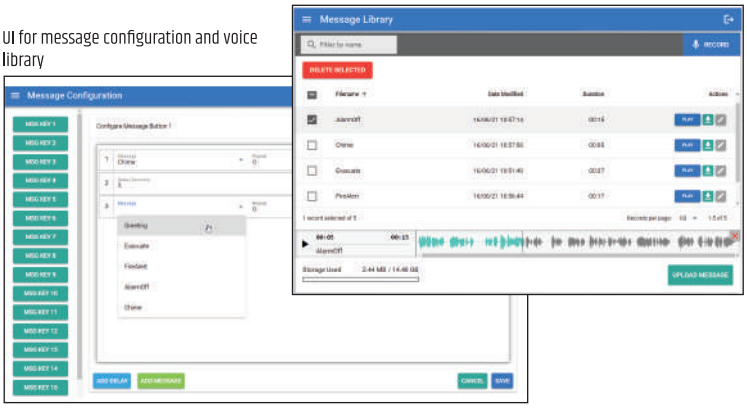
Carton size : 555 (L) x 295 (W) x 95 (H) mm
Gross weight : 2.55 kg
1 unit per carton

MR1301 MK II
EVAC Message Player / Voice Recorder

MR1301 MK II has been designed to meet stringent requirement for EVAC announcement. It has large memory bank to store important messages of up to 16 groups. Activation of messages is via front buttons, RS485 or dry contacts. It is suitable for usage with Amperes FI6000 Fire Alarm Interface which is then linked to Fire Alarm Panel.

Much effort are made to enable ease of operation and setup. All settings are done via web browser.

UI for message configuration and voice library

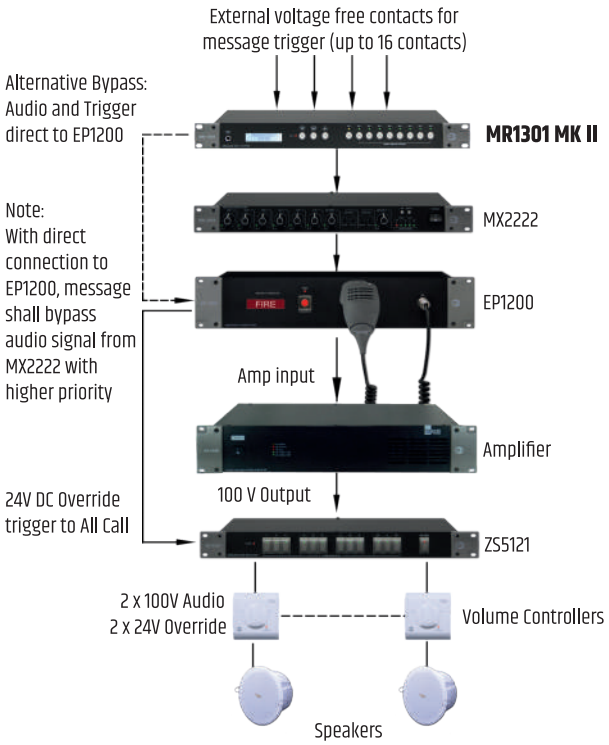


- **32 GB memory** space for large file storage and recording
- Message playback via **RS485 / front switches / remote trigger**
- High quality **MP3 audio** playback to 320 kbps
- 64 kbps **IMA ADPCM** audio recording
- **16 preset** memory banks with multiple files per bank
- **Flexible** message assignment to memory bank button
- **Event logging** with time stamp for every activation event
- Built in 5 band graphic **equalizer**
- **Web technology** with user friendly GUI with simple updates

Technical Specifications

Operating voltage	24V DC; 1A
Power consumption	2.4W (0.1A)
Standby consumption	1.7W (0.07A)
Data connection	RS485: Mini phoenix connector, 19.2 kbps LAN: RJ45, 10/ 100 Base T
Inputs	Line in; Unbalanced via RCA jack Mic in (recording): 1/4" balanced phone jack
Message trigger	16 memory banks: Front and rear
Playback format	MP3, WAV
Voice recording	MP3, 1 hour per message
Playback delay	Yes
Priority message cut	Yes
User interface	Google Chrome, Edge
Remote view/ control	Yes
Indicators	LED, 2 x 18 Char LCD
Memory	Internal 32 GB SD memory card
Dimensions (W x H x D)	482 x 44 x 180 mm
Weight	2.0 kg

Application Schematic



Packing Information

Carton size : 555 (L) x 295 (W) x 95 (H) mm
Gross weight : 2.6 kg
1 unit per carton

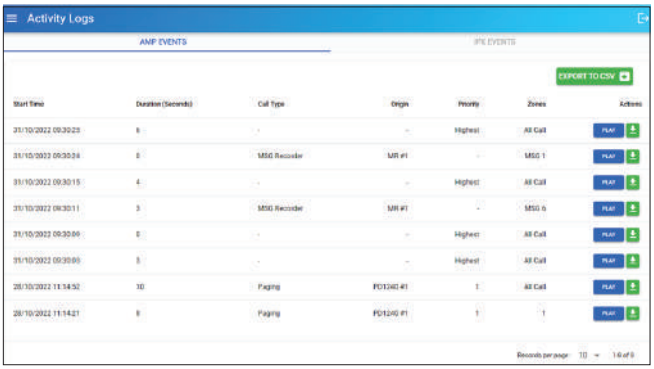
AR1400
Event and Audio Recorder

AR1400 is a dual purpose recording device, as an event logger and audio recorder. Activities or events running in the system shall be logged with time stamps and audio recorded which can be used as evidence for any dispute in regards to paging announcement.

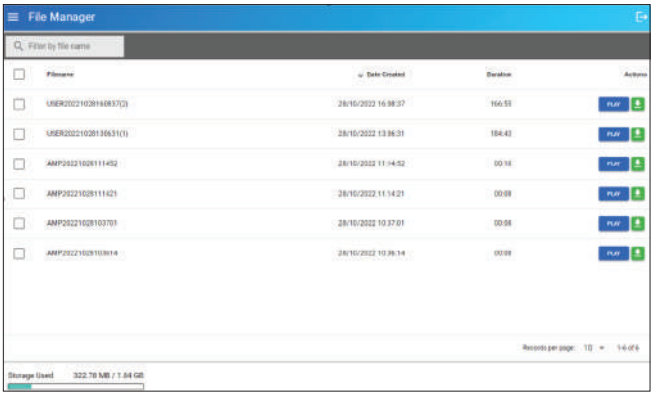
It can be used in conventional PA system for analogue / digital records for paging mic activity, message playback or emergency paging. AR1400 is also readily to be employed in Amperes iPX system, to record up to 3 simultaneous iPX activity.

- **Web technology** for convenience of setup and controls via browser
- Simultaneous recording for **2 analogue inputs**
- Compatible with **Amperes iPX** paging audio recordings
- **32 GB** of memory for hundreds of recording hours
- **World clock** synchronization
- **Report** generation to CSV file
- **RS485** port for external controls

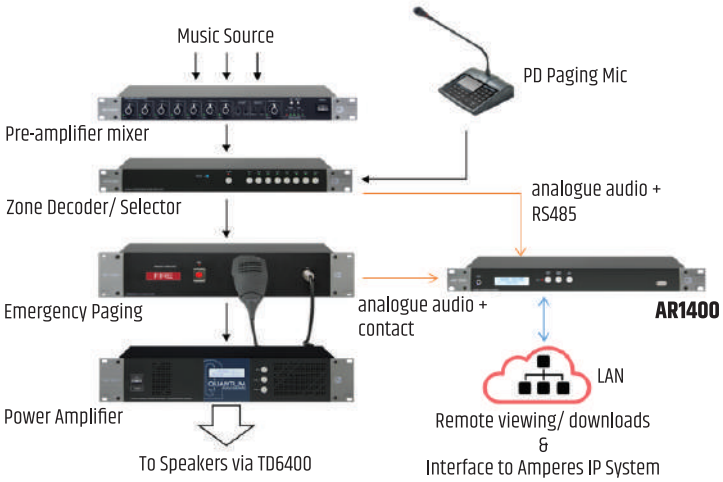
Activity logs are available for both conventional and iPX system



File manager UI, allows direct playback of recorded voice file



Application Schematic



Technical Specifications

Input voltage	24V DC
Power consumption (all triggered)	2.1W; (0.09A)
Input channels	3 (including iPX)
PMX record initiation	Via iPX5101
Analogue input record initiation	Dry contact and RS485
Input level	Line: Balanced Max +4 dBU
Output controls	1
Storage media	32GB Internal SD card
Recording duration	500 hours
Recording format	WAV, MP3
Indicators	LCD display
Communications	RS485; 19.2 kbps LAN 10/100 Base T
User interfaces	Web browser: Google V90+
Dimensions (W x H x D)	482 x 44 x 180 mm
Weight	1.9 kg

Packing Information

Carton size : 555 (L) x 295 (W) x 95 (H) mm
Gross weight : 2.55 kg
1 unit per carton

MX2222 MX2322
Pre-amplifier Mixer

MX2222
12 Inputs Pre-amplifier Mixer

MX2222 is a compact mixer suitable for commercial PA applications with all features required to comply with EVAC system such as priority muting.

It is also suitable for other general applications such as audio mixing in meeting rooms, lecture theaters, places of worships, etc.

- 12 inputs of mic, BGM sources, ext. chime and mixer link for **channel expansion**
- **Bass and treble** tone controls
- Switchable **phantom power** for mic channel 1 to 4
- **Priority** muting with disable option for normal mixing mode
- Built in daisy chain **source selector** with last selection memory
- **Dual output**; mixed line and BGM output for uninterrupted paging setup
- **AC** and **DC** power source for uninterrupted operation during power failure

Packing Information

Carton size : 555 (L) x 295 (W) x 95 (H) mm
Gross weight : 2.90 kg
1 unit per carton

MX2322
13 Inputs Dual Bus Pre-Amplifier Mixer

- **13 Ch :** 8 mic / line, 2 RCA, 2 external lines and 1 paging mic high priority inputs
- **Individual Gain** controls for mic and line inputs
- **Assignable** input to output A or B or both
- Switchable **phantom power** for Ch. 1 to Ch. 8
- **Priority** muting switch to override BGM sources
- **Dual output** A and B with separate tone controls and record output channels
- **AC** and **DC** power source for uninterrupted operation during power failure

MX2322 is a further refined pre-amplifier mixer with dual bus outputs, suitable for both EVAC commercial PA installations as well as other general usage in meeting rooms, function halls, etc.

Packing Information

Carton size : 555 (L) x 295 (W) x 165 (H) mm
Gross weight : 4.0 kg
1 unit per carton

Technical Specifications

	MX2222	MX2322
Operating voltage	220 - 240V AC : 50/ 60 Hz / 24V DC	
Current (max)	10 mA (240V ac) / 100 mA (24V DC)	40 mA (240V ac) / 260 mA (24V DC)
Power consumption (Max)	2.4W (240V ac / 24V DC)	9.6W (240V ac) / 6.3W (24V DC)
Inputs	6 x Mic + phantom power at Ch 1 to 4 2 x Line input with priority, 4 x RCA	8 x Mic/ Line with gain controls + phantom power 2 x Line input with priority, 2 x RCA, 1 paging mic
Inputs impedance	RCA: 47 k Ohm, Mic: 1 k Ohm, Link: 10 k Ohm	Line: 10k Ohm; Mic: 15 k Ohm
Phantom power	12 V DC at Ch 1 to 4 (Switchable)	18V DC at Ch 1 to 8 (Switchable)
Operating level (sensitivity)	-30 dBU (mic), +4 dBU (line)	
Input level (max)	+10 dBU	
Gain controls	+20 dBU balanced/ unbalanced	
Crosstalk	> 60 dB	>70 dB
Outputs	1 x line balanced, 1 x records unbalanced	2 (A&B) line balanced, 2 x records unbalanced
Output impedance (Ohm)	600 Ohm balanced	300 Ohm balanced
Tone controls	2: Low/ Mid (300 Hz), Hi (10 KHz)	3: Low (100Hz), Mid (1 KHz), Hi (10 KHz)
Frequency response	175 - 15 KHz	20 - 20 KHz
S/N ratio / THD+N	>60 dB / < 1%	>75 dB / < 1%
Connectors	XLR-F (mic in / line out), 1/4" TRS (line & mix in) 1/4" TRS Unbal (rec & BGM), RCA	Mini Phoenix (mic/ line inputs and outputs) RCA, RJ45 for Amperes PM1030 mic
Dimensions (W x H x D)	482 x 44 x 185 mm	482 x 88 x 185 mm
Weight	2.2 kg	3.3 kg

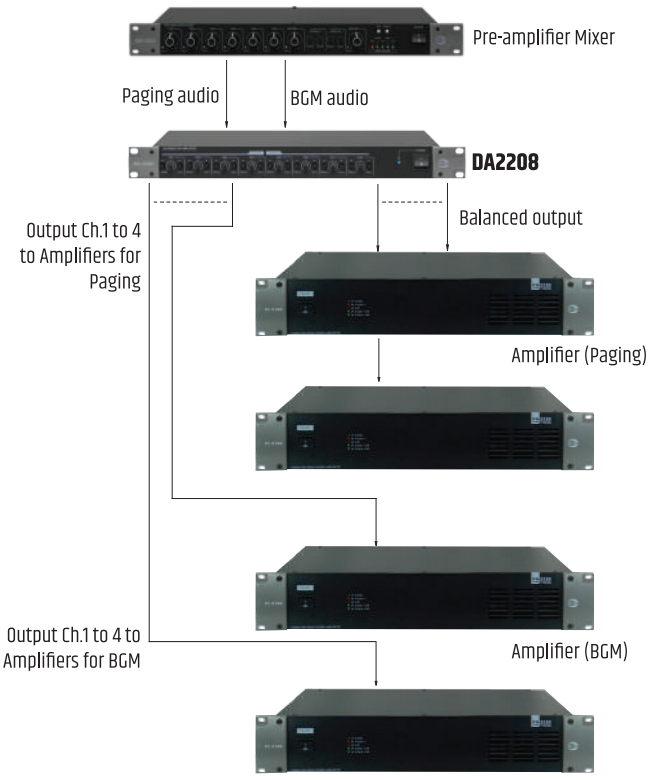
DA2208

2 In 8 Out Audio Distribution Amplifier

DA2208 is an audio (line level) distribution unit with configuration of 2 in x 4 out or 1 in x 8 out. As rule of thumb, a signal shall not be fed to more than six amplifiers in your PA rack in order to avoid signal degradation. Thus DA2208 shall come in handy to the solution.

- Operates as **dual channel** 1 input 4 output or **single channel** 1 input 8 output
- Individual bass and treble control with **volume adjustment**
- **Fail safe feature**: redirect input to outputs when DC supply or unit fails

Application Schematic



The above illustration is used for uninterrupted paging setup which requires 2 sets of amplifiers serving Paging and BGM respectively.

Technical Specifications

Operating voltage	24V DC; 0.2A
Power consumption	2.4 W, 0.1 A
Configurations	1 in x 8 outputs 2 in x 4 outputs
Input levels	Line: 1.2V rms (+4 dBU) max
Input impedance	10k Ohm
Output impedance	600 Ohm
Gain	+4 dB
Controls	Bass and Treble tones Individual and master volume
S/N ratio	> 60 dB
THD + N	< 1%
Frequency response	150 - 19 KHz (+/- 3 dB, 1 KHz)
Connections	XLR 3 pins
Dimensions (W x H x D)	482 x 44 x 180 mm
Weight	1.95 kg

Packing Information

Carton size : 555 (L) x 295 (W) x 95 (H) mm
Gross weight : 2.55 kg
1 unit per carton

PA320 PA322 PA330

PA300 Series- Mini Amplifiers

PA300 Series of mini amplifiers are available to power small number of localized speakers. 3 variants are available for different applications, with 4 Ohm speaker connectivity as well as 100V line output for high impedance speakers. Their compact size enabled them to be stored in small enclosed areas such as cabinets, pole boxes, etc.

PA320 20W 4 Ohm Mini Amplifier

Used to amplify BGM to a speakers of 4 or 8 Ohm, from TV output to a bathroom speaker in hotel room. Amperes VC7810 volume controller and VP7810 BGM Speaker patch panel can be installed for emergency overriding by central PA system.

- Adjustable **volume** control
- **Compact** size of 20W 4 Ohm rating

VC7001
Volume Controller
for PA322

PA322 20W 4 Ohm Mini Amplifier with Dual Source

It is powered by Class D amplifier with built in PA overriding module which allows central PA to override local source for emergency broadcast. Two audio source can be connected to PA322, which is selectable via VC7001 volume controller with source selector button and smooth volume adjustment.

- **Class D** amplifier with 20W 4 Ohm rating
- **Dual input source**, selectable via external volume controller (VC7001)
- Easy connection to **VC7001** for source selection and volume adjustment

PA330 30W 100V Mini Amplifier

It is suitable to be used as remote amplifier in decentralized system such as classroom paging, horn amplifier for security poles or to drive a group of localized high impedance speakers. To use as relay amplifiers along 100V line trunk, a down converter such as PR7400 can be installed with its output fed to PA330 to drive some 100V speakers.

- Adjustable **volume** control
- **Compact size** of 30W 100V output

improved

Technical Specifications

	PA320	PA322	PA330
Ratings	20W 4 Ohm		30W 100V
Operating voltage	220 - 240V AC		
Current consumption (240V AC)	0.14A	0.03A	0.24A
Inputs	1	2	1
Input audio	Mono, unbalanced		
Input signal (sensitivity)	800 mV		
Input gain controls	-40 to +4 dBU		
Input impedance	10 k Ohm		
Outputs impedance	4 Ohm	4 Ohm	330 Ohm
Controls	Volume	Volume & source select	Volume
External link (optional)	VC7810, VP7810	VC7001	VC7030
Frequency response	100 - 18 KHz	20 - 20 KHz	100 - 20 KHz
S/N ratio	>65 dB		
Operating temperature	-10° to 60°C		
Operating humidity	80%		
Dimensions (W x H x D)	130 x 55 x 95 mm	140 x 55 x 95 mm	150 x 71 x 155 mm
Weight	0.76 kg	0.82 kg	1.10 kg

Packing Information

PA320 / 322 :
Carton size : 555 (L) x 295 (W) x 165 (H) mm
Gross weight : 16.20 kg
20 units per carton

PA330 :
Carton size : 550 (L) x 465 (W) x 180 (H) mm
Gross weight : 16.55 kg
12 units per carton

PA2120 PA2240 PA2360 PA2480 PA2600

PA2000 Series

PA2120
120W 100V

PA2240
240W 100V

PA2360
360W 100V

PA2480
480W 100V

PA2600
600W 100W

PA2000 series of power amplifiers has been a workhorse of powering the PA setups for decades. They are available in various power ratings to choose from to suit the loading requirement. With our continuous product improvement effort, we had improved the performance and reliability in line with ever changing needs of the industry.

- In rush current **limiter**
- Momentary short circuit **protection**
- Temperature dependent **dual speed** cooling fan
- **4 Ohm** speaker connection available with 25V - 48V output
- **AC** and **DC** operation for uninterrupted operation during power failure
- **Thermal protection** by muting input signal (typically 75 deg at heat sink)
- **Balanced input signal** with gain control and selectable grounding option

Technical Specifications

	PA2120	PA2240	PA2360	PA2480	PA2600
Ratings (rms) 100V output	120W	240W	360W	480W	600W
Operating voltage	220 - 240V AC or 24V DC back up supply				
Power consumption (240V AC)	255 VA (0.1A)	497 VA (1.9A)	731 VA (2.8A)	996 VA (3.8A)	1069 VA (4.1A)
Current consumption (24V DC)	6.1A	10.6A	16.3A	22.3A	23.1A
Standby current (24V DC)	0.2A		0.3A	0.4A	
Input signal (sensitivity)	1V (+4 dBU) / 10 k Ohm via Phoenix connectors				
Input gain controls	-40 to +40 dBU				
Outputs	70 / 100V line and 4 Ohm				
4 Ohm output voltage	22 V	31 V	38 V	43.8 V	48 V
Output impedance (max load)	83 Ohm	42 Ohm	27 Ohm	20 Ohm	16.6 Ohm
Frequency response	70 - 15 KHz @ 1 KHz +/- 3dB				
S/N ratio	>70 dB @ 1 KHz, 1V				
THD + N	< 1 %				
Protections	Thermal, short circuit, overload, fuse, in-rush current				
Cut off temperature	75°C				
Cooling system	Auto temperature controlled cooling fan				
Indicators	LED: Power, Signals				
Dimensions (W x H x D)	482 x 88 x 335 mm				
Net weight	11.40 kg	12.35 kg	16.20 kg	17.95 kg	19.60 kg

Packing Information

Carton size : 550 (L) x 465 (W) x 180 (H) mm
Gross weight : PA2120 - 13.10 kg
: PA2240 - 13.85 kg
: PA2360 - 17.40 kg
: PA2480 - 19.65 kg
: PA2600 - 21.30 kg
1 unit per carton

QP2125 QP2250 QP2375 QP2500

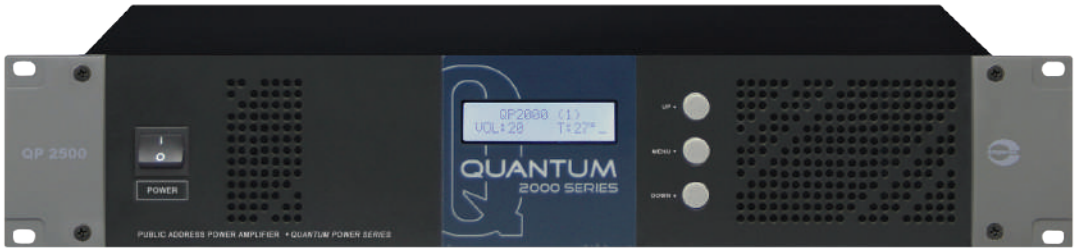
QP2000 Series - Auto Fault Sensor (AFS)

QP2125 125W 100V

QP2250 250W 100V

QP2375 375W 100V

QP2500 500W 100V



QP2000 series is available with power ratings from 125W to 500W 100V, enhanced with various controls and protections for reliable performance. It is digitally controlled, enabling it to be monitored and controlled remotely via PMX software.

One distinct feature apart from others are the Auto Fault Sensor (AFS) circuitry with built in standby changeover relay. It saves the need of external changeover device for continuous operation of the system.

- In rush **current limiter**
- RS485 data port for **remote monitoring**
- **Fan speed** option ensures longer lifespan if the unit
- Overload, thermal cut of, short circuit and fuse **protections**
- **AC** and **DC** operation for uninterrupted operation during power failure
- Available in **125 / 250 / 375 / 500W** 100V line output in compact 2 HU height
- Built in **Auto Fault Sensor** and **Changeover** relay for standby fault changeover
- Digital setting for various **control** features such as bass, treble, fan speed, etc.

Technical Specifications

	QP2125	QP2250	QP2375	QP2500
Ratings (rms) 100V output	125W	250W	375W	500W
Operating voltage	220 - 240V AC or 24V DC back up supply			
Power consumption (240V AC)	294 VA (1.1A)	447 VA (1.7A)	749 VA (2.9A)	873 VA (3.3A)
Current consumption (24V DC)	5.9A	10.6A	16.7A	19.6A
Standby current (24V DC)	0.7A			0.9A
Input signal (sensitivity)	1V (+4 dBU) / 10 k Ohm via Phoenix connectors			
Input gain controls	-40 to +40 dBU			
Outputs	70 / 100V line and 4 Ohm			
4 Ohm output voltage	22.3 V	31.6 V	38.7 V	44.8 V
Output impedance (max load)	80 Ohm	40 Ohm	27 Ohm	20 Ohm
Frequency response	120 - 15 KHz @ 1 KHz +/- 3dB			
S/N ratio	>70 dB @ 1 KHz, 1V			
THD + N	< 1 %			
Protections	Thermal, short circuit, overload, fuse, in-rush current			
Cut off temperature	75°C			
Cooling system	Auto temperature controlled cooling fan with auto ON			
Indicators	LCD with temp, audio level and address			
Communication	RS485; 19.2 kbps			
Fault sensing	Internal Pilot Ton : 20 KHz, detection at 15 - 20 sec, 10 secs interval			
Fault detection response	Standby amplifier relay activation, fault dry contact			
Dimensions (W x H x D)	482 x 88 x 335 mm			
Net weight	11.60 kg	12.70 kg	16.50 kg	18.05 kg

Packing Information

Carton size : 550 (L) x 465 (W) x 180 (H) mm

Gross weight : QP2125 - 13.50 kg
: QP2250 - 14.60 kg
: QP2375 - 18.00 kg
: QP2500 - 19.90 kg

1 unit per carton

QD2025 QD2050 QD2075 QD2100

QD2000 Series Class D

improved

QD2025
250W 100V Line

QD2050
500W 100V Line

QD2075
750W 100V Line

QD2100
1000W 100V Line

QD2000 series are high performance Class D power amplifiers with high efficiency and broad frequency range suitable for wide range of speakers, be it full range or EVAC speakers.

The in-built Auto Fault Sensing circuit provides dry contact for easy standby fault changeover and the RS485 data port is available for remote monitoring by Amperes PMX III software.

- **100V** and **4 Ohm** outputs
- **High pass filter** for speaker protections
- **Auto fault sensor (AFS)** with dry contact
- High efficiency **Class D** power amplifier technology
- **AC** and **DC** operation for uninterrupted operation during power failure
- Built in DC **Soft Starter**
- **Switchable standby** input detection for lower consumption during DC back up
- **Remote monitoring** via RS485 data port, compatible with iPX5500 data comm box

Technical Specifications

	QD2025	QD2050	QD2075	QD2100
Operating voltage	220 - 240V AC: 50/60 Hz or 21 - 30V DC back up supply			
Rated output (rms at 100V)	250W	500W	750W	1000W
Power consumption (240V AC)	350 VA (1.3A)	650 VA (2.6A)	1000 VA (3.9A)	1300 VA (5.1A)
Current consumption (24V AC)	15A	25A	40A	50A
DC back up standby current	1.2A (With standby off)			
Input sensitivity (100V out)	1V rms balanced input via phoenix connector (15k Ohm)			
Input link (buffered)	0 dB balanced line (10k Ohm)			
Input signal standby	Switchable auto detect / always ON			
Input HF filter	150 Hz @-3dB slop via DIP switch			
Output	100V line / 4 Ohm			
4 Ohm output voltage	50V			
Frequency response	60-20 KHz (+/- 3dB, 1 KHz)			
S/N ratio	> 68 dB			
THD + N	< 1 %			
Protections	Thermal, short circuit, overload, AC and DC fuses, standby			
Cut off temperature	75°C			
Communications	RS485; 19.2 kbps			
Indicators	Signal, Temp, Fault, Power LEDs			
Fault relay	NO dry contact; 3A			
Cooling system	Auto temp controlled fan			
Operating temperature	-10° to 45°C			
Storage temperature	-40° to 70°C			
Humidity	95%			
Dimensions (W x H x D)	482 x 88 x 340 mm			
Net weight	6.8 kg	6.8 kg	7.0 kg	7.1 kg

Packing Information

Carton size : 550 (L) x 465 (W) x 180 (H) mm
Gross weight : QD2025, 2050 - 8.40 kg
: QD2075, 2100 - 8.60 kg
1 unit per carton

DP2240 DP4240 DP2500

Compact Class D Multi Channel Amplifiers

DP2240 / DP2500

2 x 240W 100V / 2 x 500W 100V

DP4240

4 x 240W 100V

DP2000 Series are compact multi channel power amplifiers in a single HU, which greatly reduce the space required in equipment racks. They are powered by high efficiency and wide frequency response circuits, enabling it to deliver optimum sound quality and with lesser heat.

- **Wide range AC** supply with 24V DC back up
- Short circuit, overload, temperature and DC **protections**
- Individual balanced input with separate **volume adjustment**
- Switching power supply technology with **Class D** amplification
- **Compact** multichannel in 1 HU enclosure for rack spacing saving
- **Bandpass filter** to cut off unwanted bass audio and high pitch audio
- **Available** in 2 x 240W, 4 x 240W and 2 x 500W 100V line & 4 - 16 Ohm outputs
- Switchable sleep / ON mode when input signal is not presence for **energy saving**

Technical Specifications

	DP2240	DP2500	DP4240
Ratings (rms) 100 V output	2 x 240W	2 x 500W	4 x 240W
Operating voltage	220 - 240V AC or 24V DC back up supply		
Power consumption (240V AC)	550 VA (2.3A)	1100 VA (4.6A)	
Current consumption (24V DC)	22 A	46 A	
Standby current (24V DC)	0.3 A		
Input signal (sensitivity)	0.775 V (0 dBU)/ 10k Ohm via phoenix connectors		
Input gain controls	-40 to +4 dBU		
Outputs	100V line and 4 - 16 Ohm		
4 Ohm output voltage	38 V		
Output impedance (max load)	40 Ohm / Ch	20 Ohm / Ch	40 Ohm / Ch
Frequency response	20 - 20 KHz @ 1 KHz +/- 3 dB		
S/N ratio	>80 dB @ 1 KHz, 1V		
THD + N	< 1 %, 1 KHz		
Protections	Thermal, short circuit, overload, fuse, in-rush current		
Cut off temperature	75°C		
Cooling system	Fan forced cooling		
Indications	LED: Protect, input audio, output and power		
Dimensions (W x H x D)	482 x 44 x 420 mm		
Weight	5.90 kg	6.90 kg	6.80 kg

Packing Information

Carton size : 605 (L) x 560 (W) x 125 (H) mm

Gross weight : DP2240 - 7.75 kg

: DP2500 - 8.50 kg

: DP4240 - 8.40 kg

1 unit per carton

MA2012 MA2024 MA2036

Mixing Amplifier with Zone Selector

MA2012 / 2012P
120W 100V Line

MA2024 / 2024P
240W 100V Line

MA2036 / 2036P
360W 100V Line

MA2000 series of mixing amplifiers are built with Class D amplifier circuits, equipped with DC back up input and zone controls of 6 zones. It is suitable for small scale installation such as in showrooms, small prayer venues, offices, etc which require segregation of speaker zones.

Options are available for media player versions.

- **6 mic / line** selectable inputs, with front mic jack, phantom power
- **Bass and Treble** tone controls
- Optional **media player** module
- High efficiency **Class D** amp with 100V and 4 Ohm speaker outputs
- **Priority muting** for mic input 1 with adjustable muting level
- 6 zones speaker output with **All Call** and **remote trigger port**
- **AC** and **DC** operation for uninterrupted operation during power failure

Technical Specifications

	MA2012/ 2012P	MA2024/ 2024P	MA2036/ 2036P
Ratings (rms) 100 V output	120W	240W	360W
Operating voltage	220 - 240V AC		
Power consumption (240V AC)	160W / 0.7A	285W / 1.2A	450 W / 1.9A
Input - Ch 1 and 2	Balanced Mic input with 12V Phantom Power (10k Ohm); Adjustable mute priority		
Ch 3 and 4	Balanced Mic / Line selectable with 12V Phantom Power (Mic: 10k Ohm, Line: 15k Ohm)		
Ch 5 and 6	Unbalanced input (15k Ohm) RCA 0 dBV		
THD + N (at rated power)	< 1 %		
S/N ratio	> 68 dB		
Tone controls	Bass (100 Hz), Treble (10 KHz) +/- 15 dB		
Frequency response	120 - 20 KHz (+/- 3 dB)		
Signal output	0 dBU balanced line		
Zone output	6 zone: Front switch and remote paging mic with All Call		
Power output -			
4 Ohm @ 1V rms input	50 V rms		
100V @ 1V rms input	100 V rms		
Protections	Thermal, short circuit, AC and DC fuses		
Indicators	Power, zone selection, signal level		
Cooling system	Thermostat controlled fan at 45 deg C		
Dimensions (W x H x D)	434 x 88 x 200 mm (without bracket)		
Weight	4.35 kg / 4.40 kg (P version)		

Packing Information

Carton size : 550 (L) x 295 (W) x 165 (H) mm
Gross weight : MA2000 - 5.45 kg
: MA2000P - 5.50 kg
1 unit per carton

MC2112 MC2124 MC2136

MC2100 Basic Mixing Amplifiers

MC2112 / 2112P
120W 100V Line

MC2124 / 2124P
240W 100V Line

MC2136 / 2136P
360W 100V Line

MC2000 series are basic mixing amplifiers has been further enhanced with Class D amplifier technology, known for its better efficiency, wider frequency band, light weight and compact in size.

MC2000P are units With media player module with USB / SD card MP3 playback, Bluetooth and FM tuner.

- **6 inputs** with front mic jack and phantom power
- **Bass and treble** tone controls
- Optional **media** player module
- **100V line** output with aux 4 Ohm speaker terminal
- High efficiency **Class D power amplifier** technology
- **Priority muting** for mic input 1 with adjustable muting level

Technical Specifications

	MC2112 / 2112P	MC2124 / 2124P	MC2136 / 2136P
Ratings (rms) 100 V output	120W	240W	360W
Operating voltage	220 - 240V AC		
Power consumption (240V AC)	160W / 0.7A	285W / 1.2A	450 W / 1.9A
Input - Ch 1 and 2	Balanced Mic input with 12V Phantom Power (10k Ohm); Adjustable mute priority		
Ch 3 and 4	Balanced Mic / Line selectable with 12V Phantom Power (Mic: 10k Ohm, Line: 15k Ohm)		
Ch 5 and 6	Unbalanced input (15k Ohm) RCA 0 dBV		
THD + N (at rated power)	< 1 %		
S/N ratio	> 68 dB		
Tone controls	Bass (100 Hz), Treble (10 KHz) +/- 15 dB		
Frequency response	120 - 20 KHz (+/- 3 dB)		
Signal output	0 dBU balanced line		
Power output -			
4 Ohm @ 1V rms input	50 V rms		
100V @ 1V rms input	100 V rms		
Protections	Thermal, short circuit, AC and DC fuses		
Indicators	Power, signal level		
Cooling system	Thermostat controlled fan at 45 deg C		
Dimensions (W x H x D)	434 x 88 x 200 mm (without bracket)		
Weight	3.40 / 3.45 kg (P version)		

Packing Information

Carton size : 555 (L) x 295 (W) x 165 (H) mm

Gross weight : MC2100 - 4.45 kg

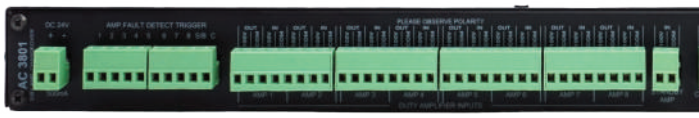
: MC2100P - 4.50 kg

1 unit per carton

AC3801

8 Duty 1 Standby Manual Amplifier Changeover

AC3801 is a manual amplifier changeover panel with capacity of 8 duty and 1 standby amplifier. With its dual mode changeover triggering, the front panel switch can be used, otherwise from rear contact which is suitable for amplifiers with Auto Fault Sensing (AFS) feature such as QP or QD2000 series.

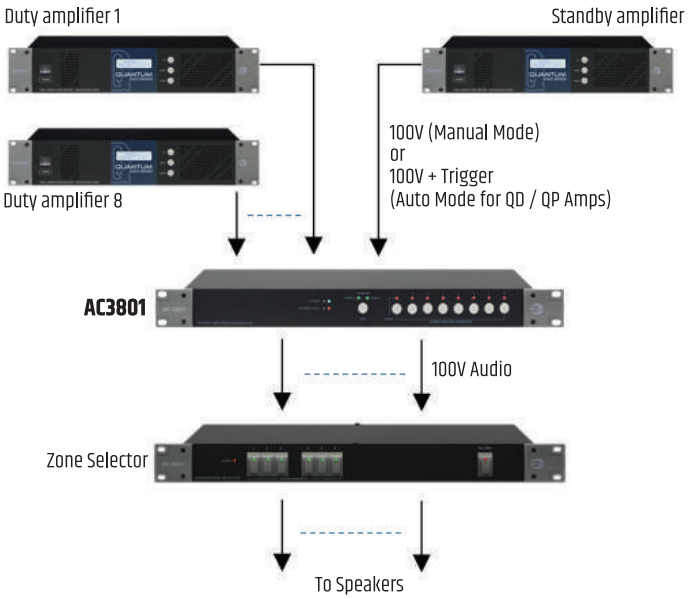


- Cater for **8 duty and 1** standby amplifier
- **Expandable** for 1 standby to server more than 8 duty units
- Overload **protection** by allowing only a single takeover
- **Priority** changeover for unit with higher numbered
- Manual front and rear triggering changeover (**dual mode**)
- Upgraded to **1000W** per channel

Technical Specifications

Operating voltage	24V DC
Power consumption	Standby: 82mW, 3.4 mA Operating: 1.3W, 50 mA
Zone load rating	1000W 100V line input
No. of amplifier inputs	8 duty, 1 standby
Changeover indication	Front panel LED for duty amplifier being changeover
Switching mode	Via front panel switches (manual mode) Remote trigger (auto mode)
Cable connections	Phoenix connectors
Cascade capacity	Unlimited (Recommend 3)
Cable size	Up to 2.5 mm sq
Dimensions (W x H x D)	482 x 44 x 180 mm
Weight	1.95 kg
Colour	Black, powder epoxy coated

Application Schematic



Packing Information

Carton size : 555 (L) x 295 (W) x 95 (H) mm
Gross weight : 2.55 kg
1 unit per carton

AX3800 MKII
8 Duty 1 Standby Auto Standby Changeover

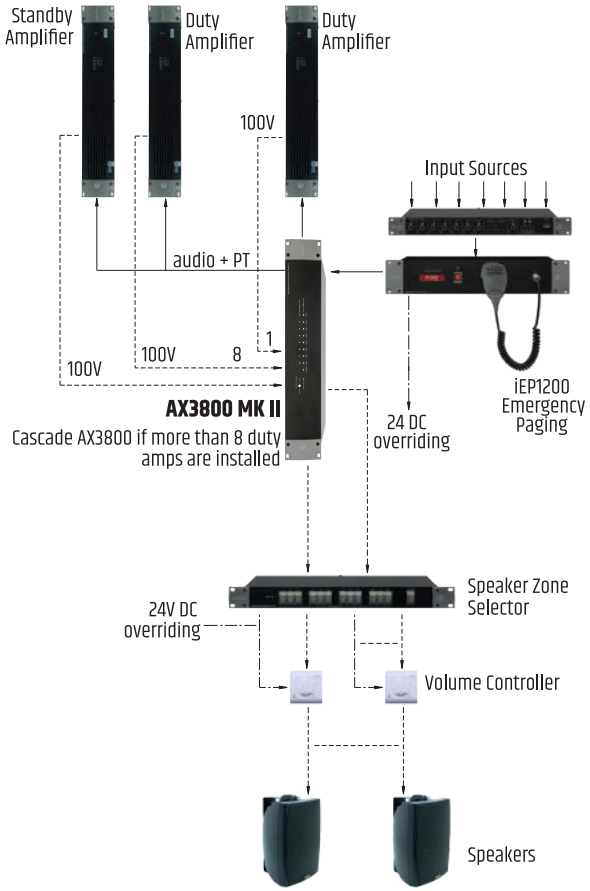
AX3800 MK II provides fast automatic changeover for faulty duty amplifier to standby unit. It can be cascaded to several units to enable one standby power pack to serve more than 8 duty amplifiers.

Internal pilot tone generated at intervals prevents phantom loading to amplifiers to lessen the work loads. With dual changeover at input signal and output 100V, it is thus suitable for matrix setup.

Priority and single takeover prevents overloading to standby unit.

- Cater for **8 duty and 1** standby with easy cascade link
- Pilot tone generated at **intervals** to prevent phantom amplifier loading
- Overloading **protection** by allowing only single takeover
- **Priority** changeover
- **Fast** fault detection and recovery time from 7 to 15 seconds
- Input and output changeover; suitable for **matrix** system setup
- Input **link switch** making connection of sources easier
- Channel **isolation** switch for unused channels
- Individual channel **status** indicator for normal, fault and changeover
- Improved rating to **1000W** per channel

Application Schematic



Technical Specifications

Operating voltage	24V DC
Power consumption	2.5W (0.11A)
Standby consumption	2.3W (0.95A)
Input signal	8 Ch balanced line signal
Input impedance	10k Ohm
Audio output gain	Unity
Pilot tone interval	8 seconds / channel
Pilot tone frequency	20 KHz (+/-5%)
Detection line	70 / 100V line
Detection level	5 V rms min
Failure detection time	20 seconds (max)
Failure recovery time	20 seconds (max)
Zone load rating	1000W 100V line
Status indication LED	Normal; Fault; Changeover
Changeover alert	Buzzer with switch
Changeover section	Input and output simultaneously
Dimensions (W x H x D)	482 x 88 x 180 mm
Weight	3.55 kg

Packing Information

Carton size : 555 (L) x 295 (W) x 165 (H) mm
Gross weight : 4.50 kg
1 unit per carton

LS4808 4816

8 / 16 Ch Speaker Line Surveillance

LS4808

8 Ch Speaker Line Surveillance

LS4816

16 Ch Speaker Line Surveillance

LS4808 / 4816 is a great tool to monitor the speaker line integrity such as ground leakage, short and open circuit as per requirement in EN54. Detection is via impedance measurement, thus usage of end of line resistors are not required and circuit branching is allowed.

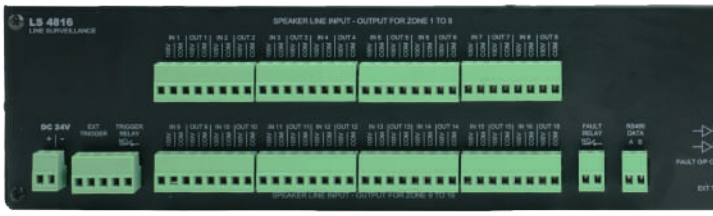
LS is powered by powerful processor and its unique measurement algorithm enables it to perform tasks at high speed with optimum accuracy.

The dual mode detection with basic and advance mode provides options for installer subject to site requirement or the nature of the project.

- Available in **8 or 16** channel options
- Impedance measurement method allows **circuit branching**
- No **end of line resistors** are required for the speaker circuit
- **Basic** and more accurate **advance** setup available
- **Short burst** test signals which minimize interruptions to PA operation
- **Auto** or **manual** fault detections with external test triggering
- Detection **intervals** setting from 1 min to 48 hours
- Faulty circuit **isolation** option
- Fault alert **indicators** with bi colour LEDs
- **Aux 24V DC** output for volume controller overriding during testing mode
- **RS485** data port for remote triggering by **PMX III** via iPX5500 comm box

Technical Specifications

	LS4808	LS4816
Operating voltage	24V DC via PS9400	
Power consumption	3.8W	4.9W
Capacity	8	16
Impedance detection range	10 to 10k Ohm	
Power measurement range	10 to 1000W 100V line	
Measurement accuracy	+/- 5% within range	
Pilot tone injection frequency	1 KHz	
Pilot tone signal output level	5V sine	
Monitor triggering	Auto / remote trigger	
Transmitted detection period	0.5 seconds per channel (max)	
Detection interval	User preset from 1 min to 48 hours	
Sensitivity setting	User preset at each channel	
Indicators + LED	Normal, Fault, Buzzer, Auto run	
Display LCD	2 x 16 characters w back light	
Audible output signal	Continuous buzzer with OFF option	
Dry contact setting	3A	
DC output in detection mode	24V DC for individual channel	
Data interface	RS485 : 19.2 kbps	
Dimensions (W x H x D)	482 x 44 x 180 mm	482 x 88 x 180 mm
Weight	2.15 kg	3.25 kg



Packing Information

Carton size : LS4808 - 555 (L) x 295 (W) x 95 (H) mm
: LS4816 - 555 (L) x 295 (W) x 165 (H) mm

Gross weight : LS4808 - 2.75 kg
: LS4816 - 4.00 kg

1 unit per carton

AM4120
12 Ch Amplifier Monitor Panel

AM4120 is used to monitor amplifier outputs of 70 / 100V line at the rack which is equipped with level meter, amplifier output LED and speaker for audio monitoring. It can also be used as a tool to calibrate sound output level of each amplifier from the rack.

- **Audio monitoring** with volume control
- **12 inputs** for 70 / 100V line amplifier outputs
- **Dual mode monitoring** with continuous signal indicator

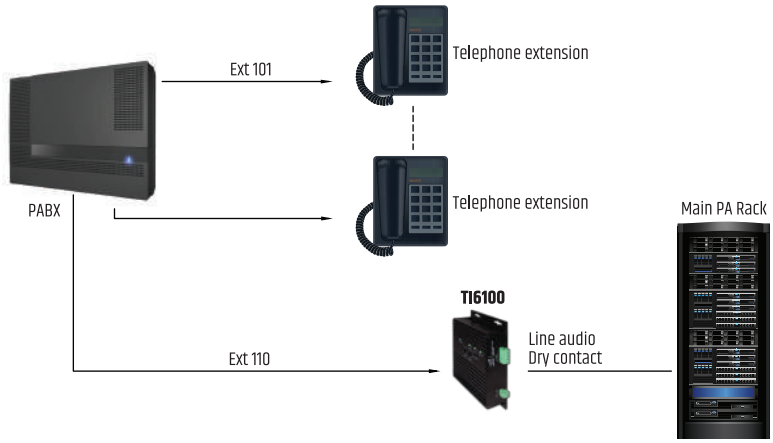
Technical Specifications

Operating voltage	24V DC via PS9400 PSU
Power consumption	50 mW
Amplifier inputs	12 : 70 / 100V line
Monitoring mode	Audio : 1W speaker with 5 presets Visual : segment LED level meter LED for all channels
Dimensions (W x H X D)	482 x 44 x 180 mm
Weight	2.15 kg

TI6000
PABX Telephone Interface

TI6100 is an interface for PABX system to PA, allowing paging from any keyphone extension to speakers. It is suitable for analogue / hybrid keyphone systems.

Application Schematic



Packing Information

AM4120 :

Carton size : 555 (L) x 295 (W) x 95 (H) mm
Gross weight : 2.80 kg
1 unit per carton

TI6100 :

Carton size : 155 (L) x 105 (W) x 125 (H) mm
Gross weight : 0.90 kg
1 unit per carton

ZS5601 ZS5121 ZS5602

6 / 12 Ch Speaker Zone Selectors

ZS5602

6 Ch Uninterrupted Speaker Zone Selector

ZS5601

6 Ch Speaker Zone Selector

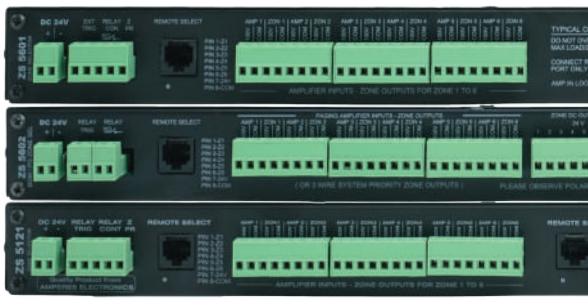
ZS5121

12 Ch Speaker Zone Selector

ZS5601 and **ZS5121** are trusted products for speaker zone selection that provides direct zone switching for single source PA setup via front panel switches or through remote port connected to Amperes PM series paging desk, or through Amperes TD decoders.

ZS5602 is suitable for uninterrupted paging setup, i.e. when an announcement to a zone is made, other areas with BGM that shall not be interrupted. This will require two sets of amplifiers (BGM and Paging) connected to the ZS5602

- **Expansion** to more zones if required
- Available in 6 (ZS5601, ZS5602) and 12 zones (ZS5121) with **All Call**
- **Flexible** amplifier to zone configuration, suitable for 3 or 4 wire systems
- **Remote zone triggering** port via external paging microphone or console
- Paging override by Amperes paging console with **priority override** indicator
- **Emergency paging mic** triggering port with dry contact for volume controller overriding application



Technical Specifications

	ZS5601	ZS5121	ZS5602
Operating voltage	24V DC adaptor via PS9400		
Power consumption	3.5W, 0.14A w All Call	6.8W, 0.28A w All Call	10W, 0.42A w All Call
Max load / channel	1000W 100V Line		
Number of zones	6	12	6
Amplifier inputs	6	12	6 BGM ; 6 Paging
Zone selection - Paging	Front panel switch and remote		
Zone selection - BGM	Front panel switch		
Cascade limitation	Unlimited		
Remote triggering	-ve triggered (common ground)		
Indicators	Individual zone switch, Priority		Zone LED
Switching mode	Individual, All Call Local zone selection bypassed when remote trigger is activated		Individual, All Call
Dimensions (W x H x D)	482 x 44 x 180 mm		
Weight	1.95 kg	2.10 kg	2.20 kg

Packing Information

Carton size : 555 (L) x 295 (W) x 95 (H) mm
Gross weight : ZS5601 - 2.55 kg
: ZS5121 - 2.70 kg
: ZS5602 - 2.70 kg
1 unit per carton

ZS5062 ZS5122

6 / 12 Ch Speaker Zone Selector

ZS5062

6 Ch Speaker Zone Selector

ZS5122

12 Ch Speaker Zone Selector

ZS5062 and **ZS5122** have been improved in its individual zone rating with 1000W 100V line to meet the demand to increase zone loading in today's installations. They differ from other zone selector, i.e. they have fall safe feature which would ensure zone is always connected for paging if the unit itself failed. RS485 port is available for remote triggering and monitoring via PMX software.

- **1000W 100V** per zone rating
- **Zone monitoring** via PMX III software
- Local paging **override** bypassing BGM
- **Flexible** amplifier to zone configuration
- **Fall safe** zone trigger during power or unit failure
- **Remote zone triggering** via analogue and RS485 data
- Available in 6 and 12 zones ; expandable to **248 zones**

ZS5062

ZS5122

Technical Specifications

	ZS5062	ZS5122
Operating voltage	24V DC via PS9400	
Power consumption (idle)	3.29W	6.25W
Power consumption (All Call)	0.72W	0.96W
Current consumption (idle)	0.14A	0.26A
Current consumption (All Call)	0.03A	0.04A
Max load / channel	1000W 100V Line	
Number of zones	6	12
Amplifier inputs	6	12
Zone selection	Front panel switch & remote (zone & all call)	
Max cascade	16 units	
Remote triggering	-ve triggered (common ground)	
Indicators	Individual zone switch, all call, and priority	
Data communications	RS485: 19.2 kbps baud rate	
Switching mode	Individual, All Call Local zone bypassed when remote trigger is activated	
Operating temperature	-10° ~ 60°C	
Dimensions (W x H x D)	482 x 44 x 180 mm (1hu)	
Weight	1.95 kg	2.10 kg

Packing Information

Carton size : 550 (L) x 295 (W) x 95 (H) mm

Gross weight : ZS5062 - 2.55 kg
: ZS5122 - 2.70 kg

1 unit per carton

TD6400

2 X 4 Ch Zone Decoder / Selector

- **Integrated** paging mic zone decoder and selector
- 2 x 4 channel setup, **configurable** to 1 x 8
- **Independent address** setting for both groups of zones
- Works as **matrix zone extender**
- **Multi point paging** from PD series of paging mic
- Compatible with **iPX5155** Paging / BGM client via RS485 controls
- **Cascade** for larger zone setup

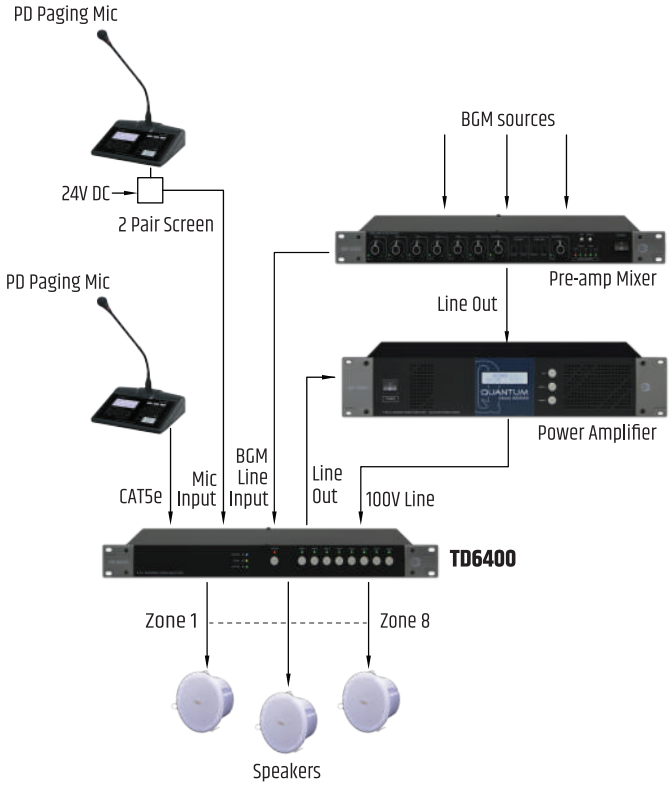
TD6400 combines paging mic data decoder and zone selector in a single box. It has two groups of zones (2 x 4 zones) with independent address settings, thus providing flexibility in zone assignments.

It is suitable for decentralized installations of multiple locations and it also functions as matrix zone extender. Link it via Amperes iPX5155 to enable remote zone controls via iPX microphone or PMX III software.

Technical Specifications

Operating voltage	24V DC
Consumption	6W (250mA)
Max load / channels	1000W 100V Line
Cascade quality	31 (248 zones)
Configuration	2 in x 4 zones
Input circuits	3 : 1 mic, 2 BGM
Audio Output	2
Number of zones	8
Amplifier inputs	8
Zone selection	Front panel switch & remote
Indicators	Individual zone switch
Switch mode	Individual, All Call local zone selection bypassed when remote trigger is activated
Input impedance (Ohm)	Line : 10 K
Output impedance	600 Ohm balanced
Frequency response	70 ~ 15 KHz
Audio input	Line
Max audio output	Line 1.2V (balanced)
Data protocol	RS485
Baud rate	19.2 kbps
Dimensions (W x H x D)	482 x 44 x 180 mm
Weight	2.00 kg

Application Schematic



Packing Information

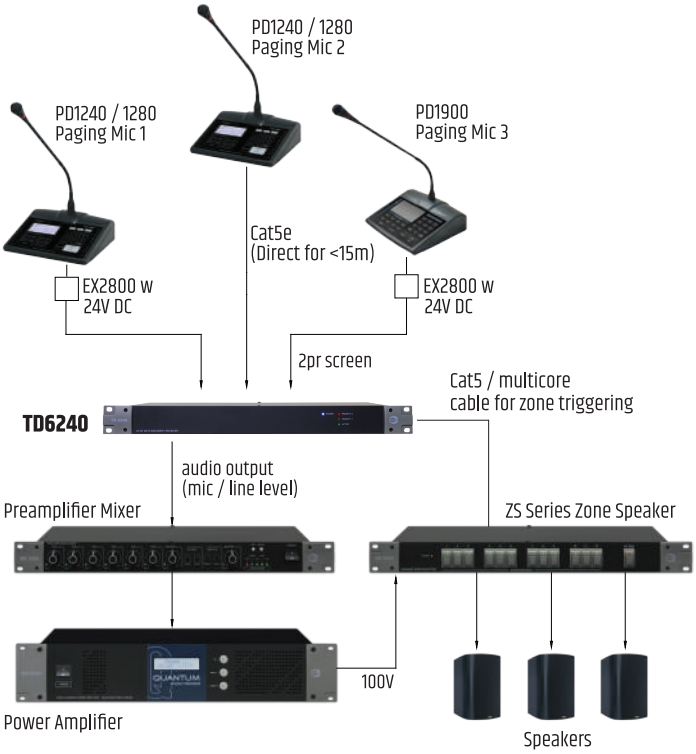
Carton size : 555 (L) x 295 (W) x 95 (H) mm
Gross weight : 2.60 kg
1 unit per carton

TD6240
24 Ch Zone Decoder

TD6240 is an intermediary equipment between Amperes PD series of paging microphones and Amperes ZS series of speaker zone selectors. Is has 3 PD input circuits, enabling multi point paging setup from different areas. Decoded zones are connected to zone selectors through RJ45 jacks for zone switching. For system exceeding 24 zones, TD6240 can be stacked up to enable 248 zones switching in total.

TD6240 has been improvised, now enabled the starting zone of the first channel of the device. This feature provides more flexibility in zone configuration, especially in iPX or Matrix environment.

Application Schematic



- **Priority setting** for multi point paging setup
- **Selectable** balanced audio output level (mic or line)
- **Expandable** and **addressable** to cater for more than 24 zones
- **Compatible** with most zone selectors with remote triggering port
- Connects directly to **ZS5601 / 5121 / 5062 / 5122** via remote triggering ports using RJ45 connector

Technical Specifications

Operating voltage	24V DC
Consumption	2.4W (100 mA)
Switching channels	24
Cascade / max zones	10 (max 248 zones)
Input circuit	3
Output connection (Triggering)	RJ45 to ZS zone selector
Input impedance (Ohm)	Line : 10 K
Output impedance	600 Ohm balanced
Frequency response	70 ~ 15 KHz
Audio input	Line balanced (+4 dBU)
Max audio output	Line balanced (+4 dBU)
Data protocol	RS485
Baud rate	19.2 kbps
Dimensions (W x H x D)	482 x 44 x 180 mm
Weight	1.90 kg

Packing Information

Carton size : 555 (L) x 295 (W) x 95 (H) mm
Gross weight : 2.5 kg
1 unit per carton

SQ9815 PS9400

8 Ch Sequential Power Switcher
24V DC Power Supply

improved

SQ9815
Sequential Power Switcher

SQ9815 is a 8 Ch Sequential Power Switcher, it manages the powering sequence of every equipment in an orderly manner. SQ9815 comes in handy to prevent random power switching of components within a system which may cause premature damage to the equipment. In addition, surge protection at power source minimize potential damage to installed equipment due to spikes in power lines.

- **ON / OFF** sequential switching
- **Lock mode** to avoid accidental switching
- **Cascade** 2 units to form 16 channel setup or 8 to max of 64 channels
- **Remote switching** port via external noiseless contact
- 8 channel with 6A per channel ; total load of 15A with **surge protection**
- **AC output** through IEC connectors with channel isolation via DIP switch
- Ch. 8 with delay **OFF option** for 2 min ; suitable for video projector connection

Technical Specifications

Operating voltage	220 ~ 240V AC
Power consumption	50 mW (without load)
Output voltage	230 / 240V AC
Max load / channel	6A
Max total load	15A
Output connection	IEC female socket
Max cascade	8 uts :total 64 channels
Surge protection	L-N, L-E, N-E.
Clamping voltage	870V AC
Turn on sequence	Step 1 to 8 incremental
Turn off sequence	Step 8 to 1 decremental
Step timing	2 seconds
Delay off option	Channel 8 via DIP switch
Delay off timer	2 minutes
Switch lock	Via front switch
Indicators	AC mains, Ch. on, Lock
Dimensions (W x H x D)	482 x 44 x 180 mm
Weight	2.80 kg exclude accessories

Packing Information

Carton size : 555 (L) x 295 (W) x 95 (H) mm
Gross weight : 3.55 kg
1 unit per carton

PS9400
24V DC Power Supply

Technical Specifications

Operating voltage	220 ~ 240V AC
Output voltage	24V +/- 1%
Rating	4A nominal ; max 5.5A
No load consumption	50 mW
Efficiency	83%
Indicators	AC mains, battery input, DC output
Protection	Built in surge protection Short circuit Overload (105% ~ 150%) Over voltage (115% ~ 135%)
Output DC protection	Fuse
Terminals	Batt input and load ; barrier connectors
Dimensions (W x H x D)	482 x 44 x 180 mm
Weight	2.35 kg

PS9400 is a rack mounted 24V DC regulated power supply. It has built in changeover relay which shall be connected to back up 24V DC battery bank to allow continuous and uninterrupted power supply to the whole installation whenever the mains failed.

- 24V DC 4A output **highly regulated** PSU
- Built in **various protections** including output fuse
- **Back up battery** overriding relay

Packing Information

Carton size : 555 (L) x 295 (W) x 95 (H) mm
Gross weight : 3.00 kg
1 unit per carton

BC9740

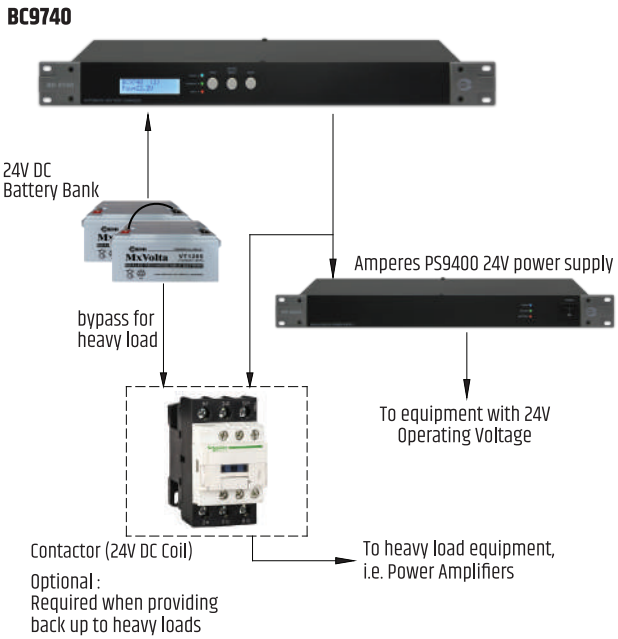
24V DC Auto Battery Charger

BC9740 is an innovative battery charger, specially designed for PA installation using 24V DC back up supply. It is compact in size yet highly efficient in charging and remote monitoring via PMX III is available.

Various protection circuits are incorporated such as polarity connection error and low battery cut off protection to prevent immature failure to battery pack.

- **Constant DC** voltage charging for 24 V battery bank
- **4A** initial charging current with reducing rate
- Built in **surge protection**
- Output **short circuit** protection
- **Thermal** cut off against overheating
- Auto **low battery** disconnection with alert
- Battery reversed **polarity** protection
- **RS485** comm port for remote monitoring by PMX III via iPX5500 comm box

Application Schematic



Technical Specifications

Operating voltage	220 ~ 240V AC
Charging voltage	27.8V DC
Charging current	4A ; (max 5A)
Idle power consumption	1.3W
Protections	Low battery auto disconnection, reverse polarity, short circuit
Indicators	AC mains, short circuit and low battery
Displays	Charging current Charging voltage Battery voltage Output current Battery reverse polarity
Communication	RS485 out; link to Amperes PMX III via iPX5500 comm. box for remote monitoring
E/M back up Amp rating	25A max (Use external contractor / relay if required)
Terminals	Battery input, EM load
Dimensions (W x H x D)	482 x 44 x 180 mm
Weight	4.50 kg

Packing Information

Carton size : 555 (L) x 295 (W) x 95 (H) mm

Gross weight : 5.20 kg

1 unit per carton

Vocal Speaker Speaks Volume

Speakers and volume controllers are usually inseparable pairs. Amperes has what you need for your hearing demands with varieties of speakers, from economical to cozier types. Also including the one which suits the specific needs such as application in tunnels, indoor and outdoor.

In meeting demands for looks that fits your environment, we have upgraded our popular volume controllers with dual tone design and we shall do more to blend aesthetically.

PR7400
Remote Paging Overriding Module

PR7400 is a module providing a relay contact whenever a paging is in progress, as well as converting the 100V line paging audio to line level, all in a box.

Relay contact : NO and NC relay of 1A contact allows local BGM source overriding which bypass local volume controller to allow central paging to pass through. This is useful during essential paging and whenever 24V DC overriding signal is not available in the cabling works.

100V to Line audio level converter : When it is required that the central paging to be broadcasted to local speakers utilizing the local amplifier / system, it provides an audio conversion with balanced line audio.

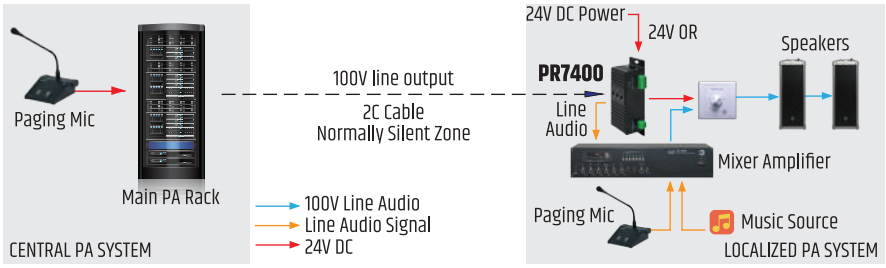
- 100V to line audio level **conversion**
- **Adjustable** line output volume
- Adjustable detection **sensitivity**, relay trigger **duration**
- DPDT with **NC** and **NO relay** for different output configuration
- **Modular** for flexible placement of unit such as in cabinets, risers, etc.
- Suitable for **remote overriding** for installations without 24V DC VC overriding cable

Technical Specifications

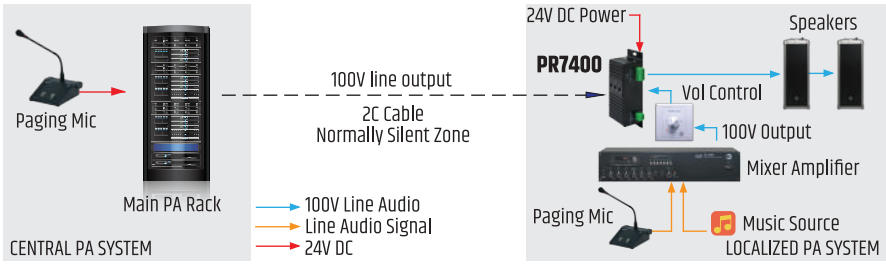
Voltage	24 DC via local adaptor
Consumption	2.1W (standby) 2.5W (operating)
Paging input	50 / 70 / 100V line
Sensitivity threshold	5 ~ 80V rms
Detection frequency	80 ~ 5 KHz
Relay	NC and NO (DPDT)
Relay contact	1A @ 24V DC
Paging load / rating	100W @ 100V
Trigger duration	5 ~ 18 seconds
Audio output	line balanced
Output level	Mute -0 dB
Frequency response	150 ~ 18 KHz +/-3 dB
Isolation to 100V	37.5 dB
Indicators	Power, Relay trigger, Audio
Connections	Detachable Phoenix
Dimensions (W x H x D)	52 x 147 x 40 mm
Weight	200 g excl. adaptor

Application Schematic

App Example 1 : Overriding Local BGM Source



App Example 2 : Overriding Local Speaker



Packing Information

Carton size : 110 (L) x 85 (W) x 160 (H) mm
Gross weight : 0.75 kg (including adaptor)
1 unit per carton

VC7000 & VC8000 SERIES
Volume Controllers

NEW Outlook !

VC7000 BLACK
version available

VC7000 | **VC7000A** | **VC8000**

From contemporary to classic design, Amperes offers options for different installation needs. The variants are in three different designs and available in various ratings, ranging from 5 watts to 150 watts 100V line. They are suitable for 4 wire system installation with built in emergency overriding relay and overriding LED indicator.

Variants

VC7000 SERIES (86 x 86 mm)

VC7810	10W 8 OHM Resistive
VC7010	10W 100V Line Resistive
VC7030	30W 100V Line Auto Trans
VC7050	50W 100V Line Auto Trans
VC7100	100W 100V Line Auto Trans
VC7150	150W 100V Line Auto Trans

VC7000A SERIES (70 X 120 mm)

VC7010A	10W 100V Line Resistive
VC7030A	30W 100V Line Auto Trans
VC7050A	50W 100V Line Auto Trans
VC7100A	100W 100V Line Auto Trans

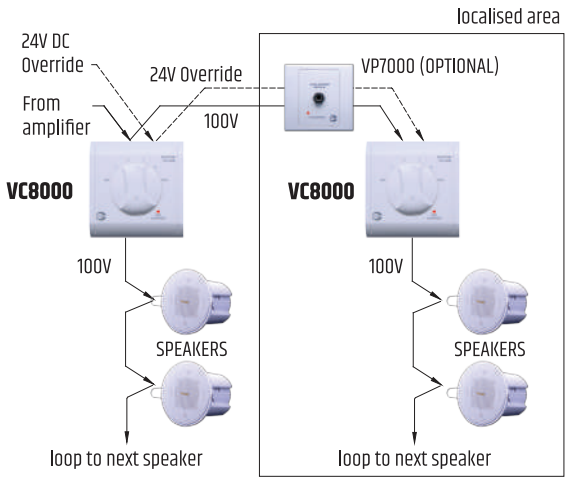
VC8000 SERIES (86 X 86 mm)

VC8010	10W 100V Line Resistive
VC8030	30W 100V Line Auto Trans
VC8050	50W 100V Line Auto Trans
VC8100	100W 100V Line Auto Trans

- Suitable for **4 wire system** : 2 - 100V line, 2 - 24V DC overriding
- Built in **overriding relay** to allow emergency signal to bypass volume attenuation
- **Overriding LED indicator** whenever EM paging is activated
- **5 preset attenuations** with OFF
- **Large cable terminal block** for ease of termination

Application Schematics

4 wire system installation



Technical Specifications

Power rating	Refer to variants	
Overriding voltage	24V DC	
Overriding current	15mA	
Overriding indicator	Red LED	
Attenuation	6 steps incl. OFF	
Attenuation / step	6 dB / step (VC7010 with 3dB / step)	
Attenuation method	VC7010 / 8010 - Resistive Others - Auto transformer	
Colour	White RAL9016 / equivalent	
Terminal cable	22 - 14 AWG	
Size (W x H x D)	VC7000 / 8000 - 86 x 86 x 40 mm VC7000A - 70 x 120 x 40 mm	
Weight	VC7810 / 7010	- 100 gms
	VC7030 / 7050	- 240 gms
	VC7100 / 7150	- 400 gms
	VC8010	- 140 gms
	VC8030	- 280 gms
	VC8050	- 280 gms
	VC8100	- 280 gms
Back Enclosure (Optional) :		
Conceal enclosure	77 x 77 x 60 mm (Part nbr : EA9090)	
Surface enclosure	85 x 85 x 60 mm (Part nbr : ES9090)	

VP7501 VP7810
Speaker Patch

improved

VP7501 Local Speaker Patch Panel

VP7501 is used to isolate a group or a zone of speakers such as in meeting room, restaurant, outlets in shopping mall, etc., from central PA system to allow a separate localized PA amplifier to utilize those local speakers. However, during essential paging from central PA, VP7501 shall allow the broadcast to bypass the local audio by triggering an overriding relay at the panel through 24V DC sent by central system.

VP7810 100V - 8 Ohm Speaker Patch Unit

VP7810 works similarly as VP7501 but the local speaker shall be 8 Ohm. With essential broadcast from central PA together with 24V DC VC overriding signal, it shall trigger the overriding relay and step down the 100V audio to suit the 8 Ohm speaker to avoid damaging it.

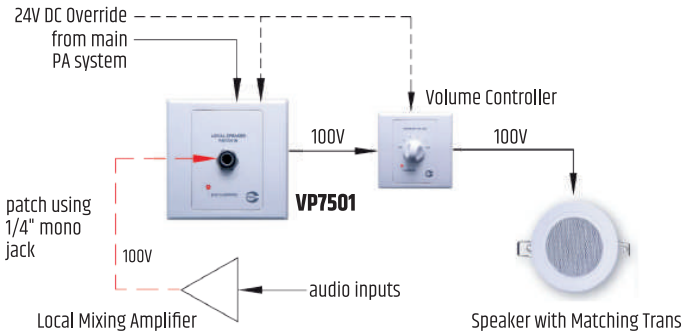
Among common application is in hotel TV music extension to bathroom speaker of 8 Ohm. VP7810 is used in between them for interface with central PA system.

Technical Specifications

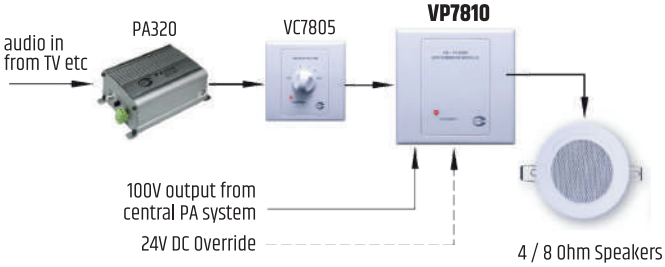
	VP7501	VP7810
Power rating	100W 100V Max	10W 8 Ohm
Overriding voltage	24V DC : 15 mA	
Patch connection	1/4" phone jack-front patch	Hardwired
Cabling	4 wire system (2 audio ; 2 overriding)	
Dimensions (W x H x D)	86 x 86 x 40 mm 70 x 120 mm face plate available upon request	
Weight	80 g	200 g
Optional back enclosure :		
Concealed (W x H x D)	77 x 77 x 60 mm	
Surface (W x H x D)	85 x 85 60 mm	

Application Schematic

Application for VP7501



Application for VP7810



Packing Information

Carton size : 550 (L) x 425 (W) x 220 (H) mm

Gross weight : VP7501 - 10.5 kg
: VP7810 - 23.1 kg

90 units per carton

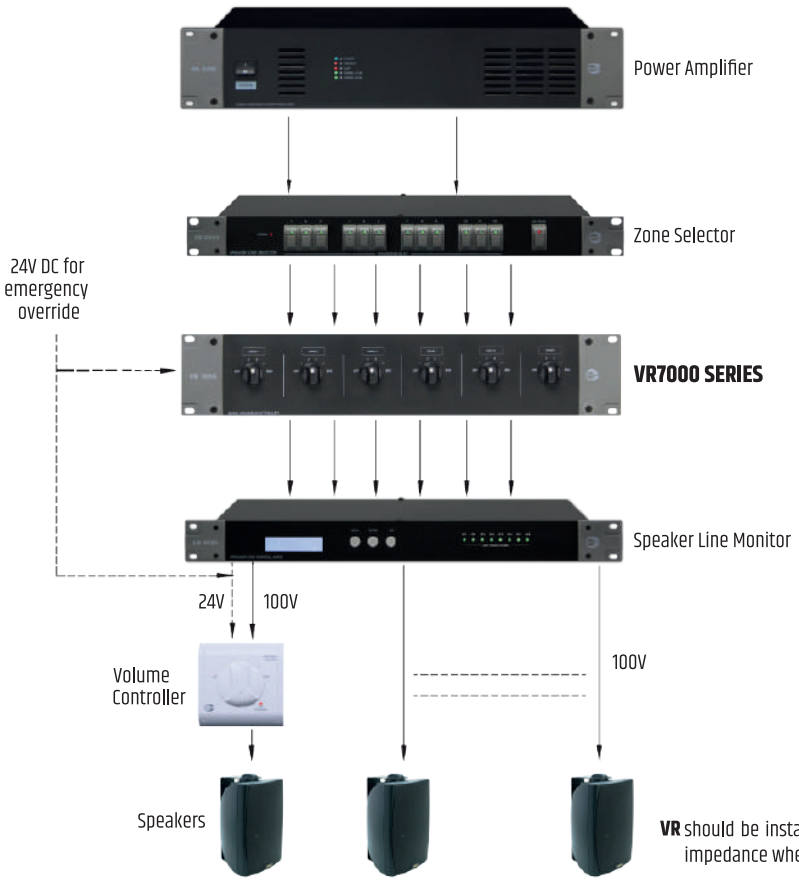
VR7600

Rack Mounted Zone Volume Controller

VR7600 is a rack mounted, 6 zone volume controller which is normally installed at main rack to enable centralized zone volume settings. They are available in variants of 50W, 100W or 150W 100V as standard ratings. Customized zone rating is also available upon request.

- **Customized** zone rating option available
- Built in **overriding** relay for emergency volume bypass
- **6 zones** with 50 / 100 / 150W 100V line rating for each zone
- Suitable for **4 wire system** : 2 for 100V audio & 2 for 24V DC overriding

Application Schematic



Technical Specifications

VR7605 / VR7610 / VR7615	
Power rating	50 / 100 / 150W 100V line / zone
Overriding voltage	24V DC
Overriding current	15mA per channel
Attenuation	6 steps incl. OFF
Attenuation / step	6 dB / step
Attenuation method	Auto transformer
Dimension (W x H x D)	482 x 88 x 60 mm
Weight	2.10 / 3.10 / 3.20 kg

VR should be installed before LS4808 / 4816 to avoid false fault detection due to variation of impedance whenever volume is adjusted.

Packing Information

Carton size : 560 (L) x 300 (W) x 175 (H) mm
Gross weight : 5.50 / 7.10 / 7.60 kg
2 units per carton

CS210 CS510 CS610 CS610B
Dual Cone Ceiling Speakers

CS610 / CS610B
6" 6W 100V / 6" 10W 100V

CS610 FR - Fire Retardant Enclosure

CS510
5" 6W 100V

CS510 FR - Fire Retardant Enclosure

CS210
2" 6W 100V

CS210 / 510 / 610 are general purpose speakers suitable for paging and BGM applications which not only deliver the required audio quality but also fits into every installation with its contemporary outlooks. It is designed with slim edges for cozy appearance and the clamping mechanism that provide ease of installation works.

- **High quality** ABS enclosure
- **Spring clip** for ease of installations
- **Slim edge** design with low side profile
- Option for installation **without enclosure**
- **Fire retardant (FR)** grade materials available as an option

spring clip installation

Technical Specifications

	CS210	CS510	CS610	CS610B
Power rating	6W 100V line			10W 100V line
Diameter	2" (51 mm)	5" (125 mm)	6" (150 mm)	
Cone type	Single cone	Dual cone		
Impedance (Ohm)	8			
Freq response @ 1KHz +/- 3dB	160 ~ 15 KHz	150 ~ 19 KHz	120 ~ 19 KHz	
SPL @ 1W / m (+/-3dB) 1 KHz	90 dB	92 dB		
Dispersion angle (1KHz +/-3 dB)	120	160	165	165
Tapping (100V line)	1.5 / 3 / 6W			1 / 3 / 6 / 10W
Primary impedance (Ohm)	6.7k / 3.3k / 1.67k			10k / 3.3k / 1.67k / 1k
Secondary impedance (Ohm)	8			
Grille / enclosure	Aluminium grille / ABS enclosure		Metal grille / ABS enclosure	
Cutting hole diameter	85 mm	145 mm	185 mm	
Overall size (diameter x height)	110 x 110 mm	165 x 110 mm	205 x 110 mm	
Weight	500 g	780 g	840 g	850 g
Colour	White			

Packing Information

CS210 :
Carton size : 570 (L) x 230 (W) x 290 (H) mm
Gross weight : 11.30 kg
20 units per carton

CS510 :
Carton size : 690 (L) x 350 (W) x 400 (H) mm
Gross weight : 19.60 kg
24 units per carton

CS610 / 610B :
Carton size : 660 (L) x 440 (W) x 430 (H) mm
Gross weight : 19.50 / 19.75 kg
20 units per carton

CS343 CS515 CS516 CS606

Dual Cone Ceiling Speakers

CS515

5" 6W 100V Line

CS515 FR
Fire Retardant ABS Material

CS515 is a general purpose ceiling speaker with ABS honeycomb grille and back enclosure . It is suitable for BGM and Paging applications. With ABS enclosure and baffle, issues on rust / chemical erosions is avoided. Fire retardant enclosures are available as an option (CS515FR)

CS343

4" 6W 100V Line

IP65 rated

CS343 is driven by a 4" dual cone speaker with dual taps for 3 and 6W 100V line. It is made of quality ABS enclosure and aluminium grille and is suitable for high humidity areas such as bathrooms and salty environment as well as clean room areas.

CS606

6" 6W 100V Line with metal enclosure

CS606 is 6" dual cone speaker with back metal enclosure, aluminium grille and has power taps of 1.5, 3 and 6W 100V line. This model shall be suitable for installations that demand fire resistant version of dome.

CS516

5" 6W 100V Line

CS516 FR
Fire Retardant ABS Enclosure

CS516 is a general purpose surface mount speaker suitable for direct installations at ceiling slabs in which recessed type of speakers are not suitable.

Technical Specifications

	CS606	CS515	CS516	CS343
Power rating	6W 100V line nominal (max 10W)			
Diameter	6" (150 mm)	5" (125 mm)		4" (100 mm)
Cone type	Dual Cone			
Impedance (Ohm)	8			
Freq response @ 1KHz +/- 3dB	150 ~ 16 KHz	150 ~ 17 KHz		150 ~ 18 KHz
SPL @ 1W / m (+/-3dB) 1 KHz	91 dB	92 dB		90 dB
Power taps (100V line)	1.5 / 3 / 6W			3 / 6W
Primary impedance (Ohm)	6.7k / 3.3k / 1.67k			3.3k / 1.67k
Secondary impedance (Ohm)	8			
Grille / enclosure	Aluminium / mild steel	ABS Plastic		Aluminium / ABS
Cutting hole diameter	165 mm	145 mm	n/a	120 mm
Overall size (diameter x height)	200 x 70 mm	175 x 95 mm	222 x 65 mm	140 x 130 mm
Weight	780 g	620 g	660 g	850 g
Colour	White		White / Black	White

Packing Information

CS515 / CS515FR
Carton size : 705 (L) x 400 (W) x 190 (H) mm
Gross weight : 11.30 kg
16 units per carton

CS606
Carton size : 590 (L) x 400 (W) x 310 (H) mm
Gross weight : 16.80 kg
20 units per carton

CS343
Carton size : 370 (L) x 370 (W) x 600 (H) mm
Gross weight : 16.30 kg
16 units per carton

CS516
Carton size : 550 (L) x 420 (W) x 220 (H) mm
Gross weight : 11.40 kg
16 units per carton

CS520 CS630 CS620 CS840 CS518
Co-axial Ceiling Speakers

CS520
5" 20W 100V Co-axial with Power Taps

CS630
6" 30W 100V Co-axial with Power Taps

CS520 and **CS630** are both premium co-axial ceiling speakers, both available with metal back enclosure and with adjustable power taps. Suitable for the need of quality sound production, both in BGM and Paging.

Packing Information

CS520 Carton size - 510 (L) x 500 (W) x 420 (H) mm
Gross weight - 15 kg
8 units per carton

CS630 Carton size - 570 (L) x 560 (W) x 430 (H) mm
Gross weight - 23.30 kg
8 units per carton

CS620
6" 20W 100V Co-axial

CS840
8" 40W 100V Co-axial

CS620 and **CS840** are available in 6" and 8" fixed power ratings, offering more economical co-axial ceiling types while able to deliver satisfactory sound productions, both in Paging and BGM. Back enclosure is made of ABS.

Packing Information

CS620 Carton size - 540 (L) x 540 (W) x 375 (H) mm
Gross weight - 23 kg
8 units per carton

CS840 Carton size - 630 (L) x 630 (W) x 390 (H) mm
Gross weight - 21.4 kg
8 units per carton

CS518
5" 20W 100V Co-axial with Power Taps

CS518 matches other fittings at ceiling when all others are in square or rectangular shapes and thus blends nicely with exceptional sound reproduction. Suitable for boutiques, residences, offices etc.

Packing Information

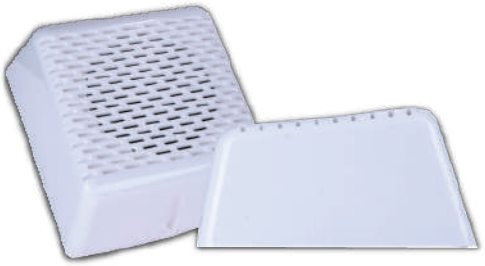
Carton size - 580 (L) x 310 (W) x 510 (H) mm
Gross weight : 17 kg
8 units per carton

Technical Specifications

	CS520	CS630	CS620	CS840	CS518
Power rating	20W 100V	30W 100V	20W 100V	40W 100V	20W 100V
Diameter	5" (125 mm)	6.5" (165 mm)	6.5" (165 mm)	8" (200 mm)	5" (125 mm)
Cone type	Co-axial with 1" tweeter				
Driver impedance	8 Ohm				
Frequency response	100 ~ 18 KHz	75 ~ 18 KHz	80 ~ 18 KHz	90 ~ 19 KHz	100 ~ 18 KHz
Sensitivity @ 1 KHz/ W / m	86 dB	88 dB	88 dB	90 dB	85 dB
Max SPL at rated output	99 dB	102 dB	101 dB	106 dB	98 dB
Power taps (100V line)	2.5 / 5 / 10 / 20W	3.8 / 7.5 / 15 / 30W	20W 100V	40W 100V	2.5 / 5 / 10 / 20W
Primary impedance (Ohm)	4k / 2k / 1k / 500	2.6k / 1.3k / 667 / 334	500	250	4k / 2k / 1k / 500
Secondary impedance	8 Ohm				
Grille / enclosure	Aluminium / Metal		Metal / ABS		Metal / Metal
Cutting hole diameter	170 mm	185 mm	205 mm	240 mm	150 x 150 mm
Dimensions (diameter x height)	205 x 145 mm	230 x 150 mm	240 x 142 mm	280 x 142 mm	180 x 180 x 135 mm
Net weight	1.70 kg	2.15 kg	2.40 kg	2.10 kg	1.80 kg
Colour	White				

BS506 BS508 BS410 DV410

Surface Mount Speakers



BS506

5" 6W 100V Line

BS506 is driven by 5" dual cone driver with power taps of 1, 3, 6W 100V. The enclosure is fully ABS thus eliminating the risk of rust for high humidity environment.

BS506 FR : Fire Retardant

BS508

5" 10W 100V Line

BS508 is powered by 5" dual cone driver with nominal power of 10W 100V line, available power taps are 1, 3, 6 and 10W. It is slimmer for better looks and has installation method which prevents vandalism.

BS508 FR : Fire Retardant

BS410

4" 10W 100V Line

BS410 is available in white and is suitable for installations in small areas. It is driven by 4" dual cone driver with power taps of 1, 3, 6 and 10W 100V, providing clarity of voice announcements as required in EVAC systems.

DV410

4" 6W 100V Line

DV410 is a favorite for its classic outlooks, suitable for small area installations and can be mounted vertical or horizontally. It is driven by 4" driver of 6W 100V with power taps of 1, 3 and 6W.

Technical Specifications

	BS506	BS508	BS410	DV410
Power rating	6W 100V	10W 100V	10W 100V	6W 100V
Diameter	5"		4"	
Cone type	Dual Cone			
Impedance (Ohm)	8			
Freq response @ 1KHz +/- 3dB	100 ~ 15 KHz	120 ~ 18 KHz	100 ~ 16 KHz	100 ~ 18 KHz
SPL @ 1W / m (+/-3dB) 1 KHz	93 dB	94 dB	92 dB	90 dB
Power taps (100V line)	1 / 3 / 6W	1 / 3 / 6 / 10W	1 / 3 / 6 / 10W	1 / 3 / 6W
Primary impedance (Ohm)	10k / 3.3k / 1.6k	10k / 3.3k / 1.6k / 1k	10k / 3.3k / 1.6k / 1k	10k / 3.3k / 1.6k
Secondary impedance (Ohm)	8			
Grille / enclosure	ABS Plastic	Aluminium / ABS	Metal / ABS	
Overall size (W x H x D)	172 x 195 x 105 mm	220 x 130 x 70	185 x 215 x 90 mm	195 x 215 x 105 mm
Weight	780 g	720 g	760 g	740 g
Colour	White			

Packing Information

BS506 :
Carton size : 550 (L) x 400 (W) x 180 (H) mm
Gross weight : 10 kg
12 units per carton

BS508 :
Carton size : 460 (L) x 460 (W) x 320 (H) mm
Gross weight : 22.25 kg
24 units per carton

BS410 :
Carton size : 460 (L) x 420 (W) x 410 (H) mm
Gross weight : 16.70 kg
20 units per carton

DV410 :
Carton size : 460 (L) x 420 (W) x 410 (H) mm
Gross weight : 16.70 kg
20 units per carton

FS420 FS425 FS338 FS640 FS650

Full Range Music Speakers

FS425

4" 20W 100V

IP65 rated

FS425 is a compact full range speaker with IP65 rating suitable for indoor and outdoor installations. It is recommended for restaurants, pub or cafe, pool sides etc. It is available in black colour.

FS338

2 x 4" 40W 100V

FS338 is a multi purpose speaker, suitable for background music as well as speech. It is driven by dual 4" speakers arranged in curved enclosure, providing better vertical coverage, for both near and far.

NEW

FS650

6" 50W 100V

FS650 is available in black enclosure and powered by 6" driver and tweeter with 50W 100V line rating. With its higher power and wider frequency response, it shall fit to any environment that demands the sound of bass and loudness.

FS420 (B / W)

4" 20W 100V (Black / White)

FS640 (B / W)

6" 40W 100V Line

FS420 / FS640 are classic full range speakers available in two variants as well in black or white colour to suit installation area. Both versions have power tap rotary switch to provide suitable loudness to be coverage areas.

Technical Specifications

	FS425	FS420	FS640	FS338	FS650
Power rating	20W 100V		40W 100V		50W 100V
Diameter	4" (100 mm)		6" (150 mm)	2 x 4" (100 mm)	6" (150 mm)
Speaker type	2 way speaker with tweeter				
Impedance (Ohm)	8				
Freq response @ 1KHz +/- 6dB	105 ~ 18 KHz	100 ~ 18 KHz	70 ~ 18 KHz	70 ~ 16 KHz	70 ~ 17 KHz
SPL @ 1W / m (+/-3dB) 1 KHz	87 dB	89 dB	88 dB	87 dB	90 dB
Power tap (100V line)	10 / 20W	2.5 / 5 / 10 / 20W	5 / 10 / 20 / 40W	5 / 10 / 20 / 40W	5 / 15 / 30 / 50W
Primary impedance (Ohm)	1k / 500	4k / 2k / 1k / 500	2k / 1k/ 500 / 250	2k / 1k / 500 / 250	2k / 667 / 333 / 200
Secondary impedance (Ohm)	8			4	8
Grille / enclosure	ABS / Aluminium	ABS enclosure with metal grille			
Overall size w bracket (W x H x D)	165 x 270 x 170 mm	160 x 225 x 165 mm	215 x 284 x 190 mm	137 x 385 x 262 mm	230 x 200 x 340 mm
Weight	2.30 kg	1.95 kg	3.70 kg	3.50 kg	4.50 kg
Colour	Black	White and Black		Black	

Packing Information

FS425 :
Carton size : 370 (L) x 370 (W) x 600 (H) mm
Gross weight : 20.30 kg
8 units per carton

FS420 :
Carton size : 355 (L) x 340 (W) x 260 (H) mm
Gross weight : 8.70 kg
4 units per carton

FS338 :
Carton size : 555 (L) x 295 (W) x 165 (H) mm
Gross weight : 7.65 kg
2 units per carton

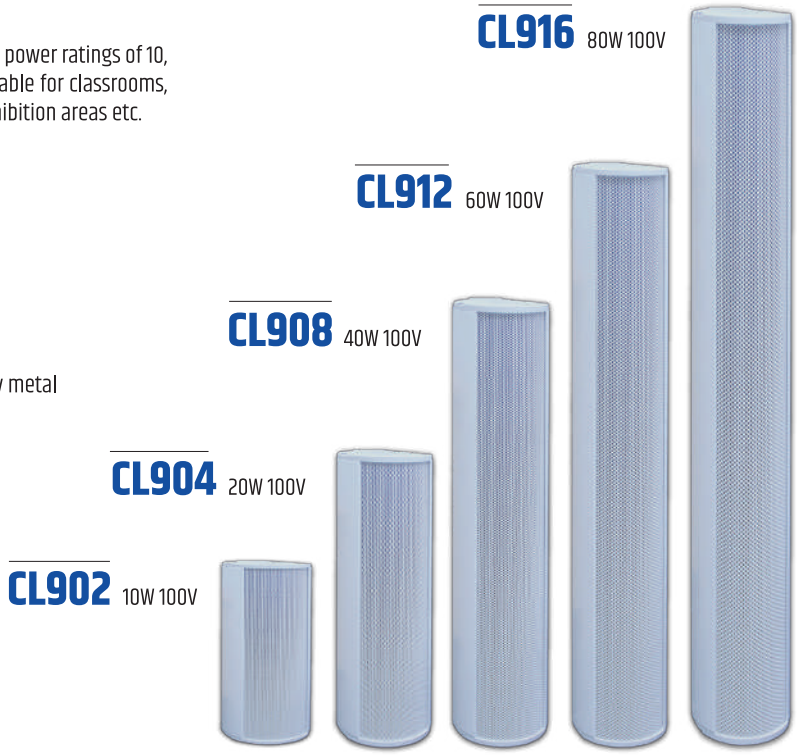
FS640 :
Carton size : 470 (L) x 420 (W) x 330 (H) mm
Gross weight : 16.40 kg
4 units per carton

FS650:
Carton size : 515 (L) x 490 (W) x 410 (H) mm
Gross weight : 20.60 kg
4 units per carton

CL900 SERIES
Slim Column Speakers

Built ruggedly with aluminium die extrusion housing and is available 5 power ratings of 10, 20, 40, 60 and 80W 100V line, each with dual power taps. They are suitable for classrooms, hyper markets, mosques, ballroom, factories, passenger terminals, exhibition areas etc.

- **Slim design** to match environment or to be hidden from view
- **Epoxy** coated grille
- **Engineered** for speech and BGM clarity
- **Multi-way mounting bracket** for CL902, CL904, CL908 and heavy duty metal bracket for CL912 and CL916.



Technical Specifications

	CL902	CL904	CL908	CL912	CL916
Power rating	10W 100V	20W 100V	40W 100V	60W 100V	80W 100V
Speaker components	2 X 2"	4 X 2"	8 X 2"	12 X 2"	16 X 2"
Transformer tapping (100V)	6 / 10W	10 / 20W	30 / 40W	50 / 60W	70 / 80W
Primary impedance (Ohm)	1.6k / 1k	1k / 500	330 / 250	200 / 166	143 / 125
SPL descriptions	87 +/- 3 dB		88 +/- 3 dB	89 +/- 3 dB	94 +/- 3 dB
Freq response @ 1KHz +/-3 dB	200 ~ 16 KHz	200 ~ 17 KHz	240 ~ 16 KHz	220 ~ 17 KHz	220 ~ 18 KHz
Dimensions (W x H x D)	79 x 190 x 89 mm	79 x 350 x 89 mm	79 x 567 x 89 mm	79 x 782 x 89 mm	79 x 1128 x 89 mm
Material	Aluminium body ; powder epoxy metal grille				
Weight with bracket	1.10 kg	1.50 kg	2.50 kg	3.20 kg	5.80 kg

Packing Information

CL902 :
Carton size : 255 (L) x 235 (W) x 170 (H) mm
Gross weight : 2.70 kg
2 units per carton

CL904 :
Carton size : 400 (L) x 235 (W) x 155 (H) mm
Gross weight : 3.90 kg
2 units per carton

CL908 :
Carton size : 605 (L) x 245 (W) x 175 (H) mm
Gross weight : 6.20 kg
2 units per carton

CL912 :
Carton size : 830 (L) x 245 (W) x 170 (H) mm
Gross weight : 7.80 kg
2 units per carton

CL916 :
Carton size : 1160 (L) x 240 (W) x 195 (H) mm
Gross weight : 13.00 kg
2 units per carton

CL740 CL780
Full Range Column Speakers

CL700 Series are available in variants of 40W and 80W 100V line with dual power taps. It is built ruggedly with aluminium housing and rust free front aluminum grille. With its IP65 rating, they are suitable for both indoor and outdoor installations.

They are driven by powerful 4" drivers and have been carefully designed and tuned to deliver low frequency and extra emphasis on the mid range, which is important to deliver announcement and EVAC messages.

With its wide range frequency response, it is suitable for applications in hall of prayers, lecture halls, community centers, theme parks and others which demand both music and paging sound quality.

IP65 rated

- **Weatherproof** enclosure with certified IP65 rating
- Ruggedly built with **aluminum** body
- Epoxy coated aluminum grille for **rust free** installation
- **Engineered** for speech and BGM clarity
- **Contemporary design** to match environment
- **Heavy duty** mounting bracket with pan and tilt

CL780
80W 100V

CL740
40W 100V

Universal heavy duty speaker bracket

The heavy duty bracket allows the speaker to be mounted vertically or horizontally with Pan and Tilt adjustment.

Technical Specifications

	CL740	CL780
Power rating	40W 100V	80W 100V
Speaker components	2 x 4" + 1 tweeter	4 x 4" + 2 tweeter
Transformer tapping (100V)	30 / 40W	70 / 80W
Primary impedance (Ohm)	330 / 250	143 / 125
SPL descriptions	88 +/- 3dB	
Freq response @ 1 KHz +/- 3 dB	100 ~ 16 KHz	100 ~ 17 KHz
Dimension (W x H x D)	130 x 310 x 140 mm	130 x 620 x 140 mm
Material	Aluminium body, powder epoxy coated grille	
Weight with bracket	3.5 kg	6.1 kg

Packing Information

CL740 :

Carton size : 370 (L) x 220 (W) x 185 (H) mm
Gross weight : 4.10 kg
1 unit per carton

CL780 :

Carton size : 680 (L) x 230 (W) x 190 (H) mm
Gross weight : 7 kg
1 unit per carton

HS725 HS750 SP219 SP220 SP319

Projection / Clear Horn Speakers

HS725 and HS750 are both clear horns, delivering characteristics of horn speaker but with music clarity. They are suitable for both indoor and outdoor installations.

IP65 rated

Packing Information

HS725 : Carton size : 440 (L) x 250 (W) x 370 (H) mm
Gross weight : 4.90 kg
1 unit per carton

HS750 : Carton size : 565 (L) x 405 (W) x 420 (H) mm
Gross weight : 9.95 kg
2 unit per carton

HS725
30W 100V Weatherproof
Clear Horn Speaker

HS750
50W 100V Weatherproof
Clear Horn Speaker

SP219
15W 100V Unidirectional Projection
(Aluminium Enclosure)

SP220
20W 100V ABS Projection
(ABS Enclosure)

IP65 rated

SP319
20 / 40W 100V Bidirectional Projection
(Aluminium Enclosure)

SP219, 220, 319 sound projectors shall deliver more directional sound and wider frequency range as compared to horn speakers. They are suitable for installations at corridors, tunnels, walkways and car parks. They are certified IP65 rated, thus suitable for both indoor and outdoor installations.

Technical Specifications

	SP219	SP220	SP319	HS725	HS750
Power rating	15W 100V	20W 100V	40W 100V	30W 100V	50W 100V
Power Taps (100V line)	7.5 / 15W	7.5 / 15 / 20W	20 / 40W 100V	3.8 / 7.5 / 15 / 30W	15 / 30 / 50W
Speaker	5"		2 x 5"	5"	
Primary impedance (Ohm)	1.3 k / 667	1.3k / 670 / 500	500 / 250	2.6k / 1.3k / 667 / 333	667 / 333 / 200
Secondary impedance (Ohm)	8		4	8	
Freq response @ 1KHz +/-3 dB	130 ~ 15 KHz	90 ~ 15 KHz	150 ~ 18 KHz	100 ~ 10 KHz	90 ~ 17 KHz
SPL @ 1W / m (+/- 3dB) 1 KHz	91dB	90 dB	91 dB	90 dB	98 dB
Grille / enclosure	Mild steel / Aluminium	Mild steel / ABS	Mild steel / Aluminium	Aluminium / ABS	ABS
Overall size w bracket (W x H x D)	138 (Dia) x 192 (D) mm	140 (Dia) x 195 (D) mm	138 (Dia) x 195 (D) mm	366 x 172 x 272 mm	363 x 253 x 310 mm
Weight	2 kg	1.60 kg	3 kg	3.25 kg	3.60 kg
Colour	White			Light grey	Beige

Packing Information

SP219 :
Carton size : 370 (L) x 370 (W) x 600 (H) mm
Gross weight : 18 kg
8 units per carton

SP220 :
Carton size : 550 (L) x 425 (W) x 180 (H) mm
Gross weight : 11.30 kg
6 units per carton

SP319 :
Carton size : 370 (L) x 370 (W) x 600 (H) mm
Gross weight : 25 kg
8 units per carton

HS815 HS830 HS820 HS822
Horn Speakers

IP65 rated

HS830
12" 30W 100V Line (Aluminium)

HS815
8" 15W 100V Line (Aluminium)

HS815 & HS830 constructed using rounded aluminium flare of 8" (HS815) and 12" (HS830) with multiple power selection via rotary switch. Suitable for for schools, mosques, car parks, factories at indoor or under shade installations that requires omni direction sound broadcast.

HS822
11" x 8" 30W 100V Line (ABS)

HS820
6" x 8" 15W 100V Line (ABS)

HS820 & HS822 contructed with high impact ABS flares rectangular shape to suit installation sites where pattern of broadcast shall be controlled, such as low level car parks, corridors, etc. It is suitable for indoor or outdoor sites with IP65 rating.

Technical Specifications

	HS815	HS830	HS820	HS822
Power rating	15W 100V	30W 100V	15W 100V	30W 100V
Power taps (W / 100V)	1 / 3 / 5 / 10 /15	3 / 5 / 10 / 15 / 30	1 / 3 / 5 / 10 /15	3 / 5 / 10 / 15 / 30
Primary Impedance (Ohm)	10 k 3.3 k 2 k 1 k 670	3.3 k 2 k 1 k 670 330	10 k 3.3 k 2 k 1 k 670	3.3 k 2 k 1 k 670 330
Secondary impedance (Ohm)	8			
Frequency response @ 1 KHz +/- 3 dB	350 ~ 7 KHz	400 ~ 7 KHz	250 ~ 8 KHz	400 ~ 8 KHz
SPL (1W / m @ 1 KHz)	103 dB	110 dB	105 dB	
Coverage angle, horizontal (1 KHz +/- 6 dB)	110°	70°	90°	90°
Flare material	Aluminium		ABS	
Flare dimension	8" round	12" round	220 x 160 mm	285 x 205 mm
Driver enclosure	ABS			
Overall size (dia x height) mm	210 x 240	310 x 345	222 (W) x 162 (H) x 232 (D)	285 (W) x 212 (H) x 290 (D)
Weight	1.40 kg	2.40 kg	1.50 kg	2.15 kg
Colour	Beige		White cream	

Packing Information

HS815 :
Carton size : 680 (L) x 475 (W) x 520 (H) mm
Gross weight : 20.50 kg
12 units per carton

HS830 :
Carton size : 655 (L) x 655 (W) x 380 (H) mm
Gross weight : 13.30 kg
4 units per carton

HS820 :
Carton size : 550 (L) x 480 (W) x 520 (H) mm
Gross weight : 21.30 kg
12 units per carton

HS822 :
Carton size : 535 (L) x 320 (W) x 650 (H) mm
Gross weight : 20.20 kg
8 units per carton

HS810 HS880 LH100

High Power Horn Speakers

NEW

HS810 50W 100V / 100W 8 Ohm Clear Horn Speaker

IP65 rated

HS810 is specially made to deliver clear sound close to dual cone speaker but having horn characteristics, for long throw in indoor and outdoor applications, such as beach warning system, highway or urban paging system, mosques, school fields, etc.

It is constructed using high quality aluminium housing with 14" rounded flare for frontal omni directional throw.

HS880 80W 100V 20" Horn Speaker

IP65 rated

HS880 constructed using rounded aluminium flare of 20" with multiple power selection. It is suitable for schools, factories, mosques, fencing perimeters etc, which requires loud and clear broadcast.

Drivers are detachable from the flare mounting, connected with 1 3/8" throat. The high power driver is enclosed in die cast housing, enabling it to withstand rough environment such as outdoor environment.

LH100

100W 100V Long Throw / Tunnel Horn Speaker

IP54 rated

LH100 is a specially but built long throw directional horn speaker suitable for niche installations such as in tunnels where sound direction is important to minimize reflections and echoes. It is driven by high power driver to overcome high ambient noises such as ventilation fans and moving vehicles.

- Specially **designed for** tunnels and other similar applications
- **High directional horn** of asymmetric output with high SPL and speech intelligibility
- **100W 100V line** voice driver with max SPL at 135 dB @ 1m, 1 KHz
- **Fire retardant fiber glass** construction with rust free mounting accessories
- **Covered flare opening**, a prevention of habitation by animals

Technical Specifications

	HS810	HS880	LH100
Power rating	50W 100V	80W 100V	100W 100V
Power taps (W)	50 / 25 / 12.5 / 80 (8 Ohm)	20 / 40 / 60 / 80	50 / 75 / 100
Max power	100W at 8 Ohm	100W 100V	120W 100V
Driver	Combination	Detachable driver with 1 3/8" thread	
Primary impedance (Ohm)	200 / 400 / 800 / 8	500 / 250 / 160 / 125	200 / 133 / 100
Secondary impedance (Ohm)	8	16	
Freq response @ 1kHz +/- 3 dB	200 - 6 kHz	160 - 6 kHz	350 - 7 kHz
SPL @ 1W / m (+/- 3 dB), 1 kHz	103	110	115
Max SPL	123	129	135
Horizontal dispersion (1 kHz)	70°	70°	56°
Vertical dispersion (1 kHz)	70°	70°	25 (top); 60 (bottom)
Body material	Aluminium		FR rated fiberglass
Mounting	Wall / ceiling		Ceiling
IP ratings	IP65		IP54
Mix / Max ambient temperature	-10° to 60°		
Overall size w bracket (WxHxD) mm	360 dia x 465	504 dia x 335	730 x 585 x 1565
Weight including driver	3.75 kg	4.0 kg	13.6
Colour	Beige		Black

PS820 SG320
Pendant / Garden Speakers

PS820
20W 100V Pendant Ball Speaker

PS820 is the right choice for installations at high ceiling areas without columns, such as warehouses, hypermarkets and large showrooms that require even sound distributions. It is built with 8" speaker of 20W 100V rating, delivering powerful and evenly projected sound with 360° dispersion.

- **Omni** coverage
- **Safety cable** included
- **5 / 10 / 20W 100V** power taps
- **8" driver** with 20W 100V ratings

SG320
20W 100V Outdoor Garden Speaker

IP65 rated

SG320 is the preferred choice for outdoor ground speaker installations such as parks, pool sides, etc., providing excellent music for listening pleasure. With its green outlooks, it blends perfectly to the shrubs, or hidden by leaves or grass. Thereby, its the right candidate to hide the sound source unlike the bulky speakers suspended at poles which may affect the aesthetic value of the environment.

- **20W 100V** powerful speaker
- **360° sound dispersion** for evenly distributed
- Built for all environment with **robust enclosure**
- **Dual purpose speaker** for outdoor music and paging

Technical Specifications

	PS820	SG320
Power rating	20W 100V	
Power tapping (100V line)	5 / 10 / 20W	10 / 20W
Speaker diameter	8" (200 mm)	5" (125 mm)
Speaker type	Co-axial	
Primary impedance (Ohm)	2k / 1k / 500	1k / 500
Freq response @ 1 KHz +/- 3dB	80 ~ 18 KHz	70 ~ 16 KHz
SPL (1 w/m @ 1 KHz)	91 dB	84 dB
Construction material	ABS	
Colour	White	Green
Dimensions (mm)	254 diameter	320 dia x 360 height
Weight	2.20 kg	3.60 kg

Packing Information

PS820 :
Carton size : 320 (L) x 320 (W) x 300 (H) mm
Gross weight : 3.10 kg
1 unit per carton

SG320 :
Carton size : 350 (L) x 410 (W) x 355 (H) mm
Gross weight : 4.70 kg
1 unit per carton

BS508FR-E CS606FR-E EX-HS830-E

EN54 Series Speakers

NEW

In compliance with EN54-24 requirements, Amperes introduces the standards' compliant speakers wtih common types such as box, ceiling and horn versions. They are made with fire resistance enclosures and fitted with ceramic connectors with thermal fuses.

BS508FR-E

10W 100V Line Surface Mount Speaker

It is powered by 5" dual cone driver with nominal power of 10W 100V line, with available power taps at 1, 3, 6, and 10W. It is slimmer for better looks and has installation method which prevents vandalism. The enclosure is made from Fire Retardant ABS materials with front alumimum grilles. Connections are terminated at ceramic connectors with thermal fuse.

CS606FR-E

6W 100V Line Ceiling Speaker with Metal Enclosure

Available in 6" dual cone speaker with back metal enclosure and front epoxy coated grille with power taps available at 1.5, 3 and 6W 100V line. Connections are made internally at ceramic connectors equipped with thermal fuse. Suitable for hospitals, factories, etc.

Technical Specifications

	BS508FR-E	CS606FR-E
Power rating	10W 100V	6W 100V
Cone type	Dual cone	
Impedance (Ohm)	8	
Freq response @ 1KHz +/- 3dB	120 ~ 18 KHz	150 ~ 16 KHz
SPL @ 1W / m (+/-3dB) 1 KHz	94 dB	89 dB
Power tapping (100V line)	1 / 3 / 6 / 10W	1.5 / 3 / 6W
Primary impedance (Ohm)	10k / 3.3k / 1.6k / 1k	10k / 3.3k / 1.6k
Secondary impedance (Ohm)	8	
Grille / enclosure	Aluminium / ABS FR	Metal
Connection	Ceramic terminals	
Protection components	Thermal fuse protection	
Dimensions (W x H x D)	220 x 130 x 70 mm	200 x 94 mm (Include hook - 119 m)
Weight	720 g	1.20 kg
Colour	White	White / Red

EX-HS830-E

30W 100V Line

ex-proof IP65 rated

It is robustly constructed with rounded aluminium flare with multiple power selection built to IP65 rating and explosion proof rated. It is suitable for every installation sites, indoor or outdoor and for this model in particular, at hazardous areas.

Technical Specifications

Power rating	30W 100V
Power tapping (W / 100V)	5 / 10 / 15 / 30W
Freq response @ 1 KHz +/- 3dB	300 ~ 5 KHz
SPL (1W / m @ 1 KHz)	105 dB
Flare material	Aluminium
Driver enclosure	Metal
Dimensions (W x H x D)	180 x 230 x 130 mm
Weight	4.90 kg
Colour	Red

ACCESSORIES / COMPLEMENTARY PRODUCTS

Back Enclosures

Back enclosures with 50 mm depth for volume controllers and patch panels. Available in ABS and metal for concealed or surface mounting.

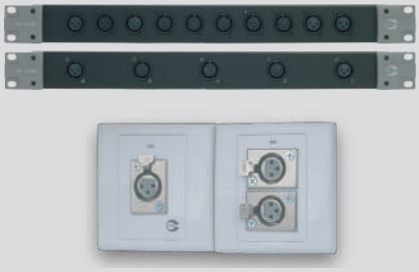
EC7012 : 70 x 120 mm conceal (steel)
ES7012 : 70 x 120 mm surface mounting (steel)
EA9090 : 86 x 86 mm conceal mounting (ABS)
ES9090 : 86 x 86 mm surface (steel)

Rack Panels

Amperes harmonious mounting ears blank and vent panels with black powder epoxy coating.

BP1000 : 1 hu blank panel
BP2000 : 2 hu blank panel
VP1000 : 1 hu ventilation panel
VP2000 : 2 hu ventilation panel

Patch Panels



XLR patch panel for rack and wall mount.

MR5000 : 5 way rack mount female XLR
MR1000 : 10 way rack mount female XLR
MP1000 : Single inlet female XLR panel
MP2000 : Double inlet female XLR panel

SLA Batteries

SLA battery bank for back up supply. Recommend battery charger is Amperes BC9740.

VT1226 : 26Ah
VT1240 : 40Ah
VT1265 : 65Ah
VT12100 : 100Ah

Power Supply

Regulated power adaptor and switching PSU for powering loose equipment.

PS1205 : 12V 0.5A AC/DC adaptor
PS2405 : 24V 0.5A AC/DC adaptor
PS9000 : 24V 4.5A DC switching power module

Fiber Optic Converters

Single mode / multi-mode Ethernet - Fiber converter of IP paging applications. Available in 2 core and single core transceiver.

HTB110 : Multi-mode with SC / ST connectors
HTB110S : Single mode with SC connectors
HTB114S : Single mode with 4 way switch
HTBGS-03 : Single mode 10/ 100/ 1000 Base T

Surge Arrestors

Suitable for surge protection of external speaker installations. Protects horn speakers against harmful surge.

HP175VL : 175V peak surge arrestor

Unleash Your Voice
Connects Your Audience

voice connexion

AVC shall be growing name in basic Voice Conference systems, offering quality and simplicity for your meeting activities. It shall not only limited to the application in board room meetings, but also suitable for seminars and trainings. It can cater for small to medium size of attendees of up to 250 paxs.

It's easy to use plug and play concept shall not only limited to fixed setup but would be great too for rental companies. Employ AVC Conference System, as it's worthy of small investments with big returns, and thousands of sets installed is a great manifest for the product.

CM100 CU100 DM100

CU100
Controller / PSU

CU100 is the main controller unit / power supply which can also double up as power supply extension unit. Each controller has 4 trunks, with each trunk powering up to 15 sets of CM100 and DM100. Balance line output connection is available to link to external sound system and recording device.

Technical Specifications

Power supply	AC 100 - 240V ~ 50/60 Hz
Frequency response	100 ~ 12.5 KHz
Output impedance	RCA : 200 Ω Line : 200 Ω Balanced : 6.9k Ω Unbalanced : 6.8k Ω
Input impedance	Line : 50k Ω
S/N ratio	> 80 dB
Dimensions (W x H x D)	480 x 44 x 220 mm
Accessory	10m 8P shielded cable

CM100
Chairman Unit

DM100
Delegate Unit

CM100 is a Chairman unit which has control over other delegates, i.e. higher priority talk and cancel feature. It comes with 2m extension cable for connectivity to the next delegate unit. It has built in speaker with digital volume controller and illuminated gooseneck microphone.

DM100 is a Delegate unit comes with 2m extension cable for connectivity to the next delegate unit. It has built in speaker with volume controller and illuminated gooseneck microphone.

Technical Specifications

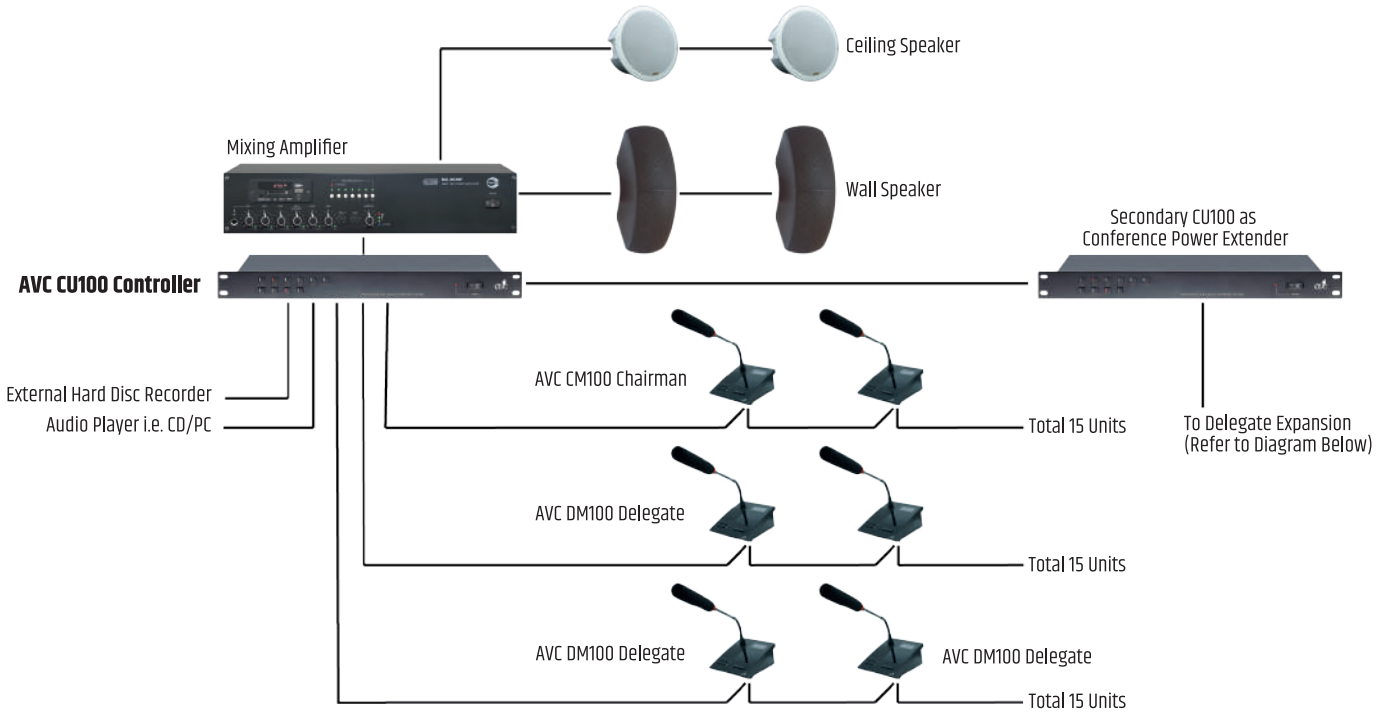
	CM100	DM100
Microphone type	Condenser	
Polar pattern	Cardioid	
Frequency response	150 ~ 18 KHz	
Sensitivity	-43 +/-3 dB @ 0 dB, 1 KHz	
Input voltage	9V DC (Powered by host)	
Min input impedance	1k Ohm	
S/N ratio	> 68 dB	
Pick up distance	25 cm	
Output connector	8 pin DIN	
Input / output cable	2 m 8 pin shielded cable	
Controls	Press to Talk Cancel Mic Volume	Press to Talk Volume
Mic length	2 x 16 characters w back light	
Dimensions (W x H x D)	Continuous buzzer with OFF option	
Weight	3A	

Packing Information

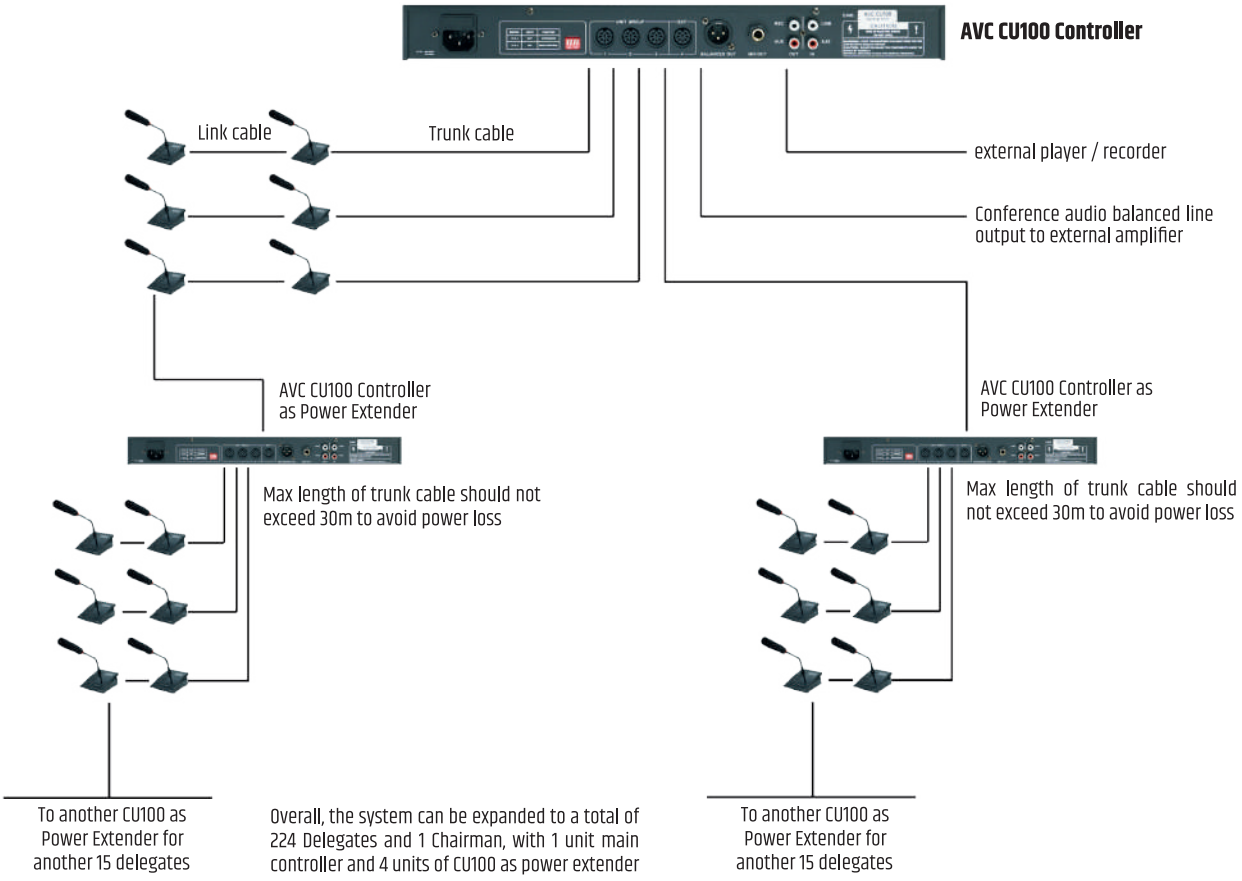
CU100 :
Carton size : 565 (L) x 405 (W) x 420 (H) mm
Gross weight : 9.95 kg
1 unit per carton

CM100 / DM100 :
Carton size : 440 (L) x 250 (W) x 370 (H) mm
Gross weight : 4.90 kg
2 units per carton

Application Schematic



System Expansion Diagram



Presenting Technical Insights Amplifies Understanding

DISCLAIMER

All information in the Technical Info pages are derived from various sources. They are deemed to be correct at the time of printing. However, some errors may occur due to unforeseen circumstances. Amperes Electronics shall not be liable for any consequences due to the application of the information or data provided. Technical specifications or data are related to audio engineering and may be amended for errors or due to improvement of technology.

TECHNICAL INFO

Selecting which products to fit into your system may be confusing. It will be based on your needs, expectations and regulatory requirement. Regulatory requirement is to comply specifications of fire departments and local building bylaws. The needs and expectations is leaning towards achieving satisfactory sound performance and corporation's own specifications.

Amperes has multiple models which can be mixed and matched to fit either needs.

In order to assist the designers to select appropriate products, Amperes has laid out simple guidelines which are divided into 5 categories, i.e. from simple / basic system to more complex IP setups. Each group can be further divided into different applications based on size and optional items.

We had provided sample drawings for easy reference. Log into the Technical Page in our website by scanning the QR code below.

We are also available for further technical assistance in designing your system.

Category of systems :

1 BASIC

Small application for paging and BGM with zones less than 6. Low cost and not required to comply to Fire Codes.

Examples :
Shops or showrooms, meeting rooms, workshops, surau (mosulla), small warehouse, counter calling, etc

2 CONVENTIONAL SMALL ANALOGUE

Small application for paging and BGM with zones up to 12. Low cost and required to comply to Fire Codes.

Examples :
Office buildings, factories, hypermarkets, mosques, boutique hotels, schools

3 CONVENTIONAL DIGITAL

Medium to large system of up to 250 zone, single or multiple connected buildings and need to comply to Fire Codes.

Examples :
Office / mixed development complexes, universities and colleges, hotels etc.

4 ETHERNET IP

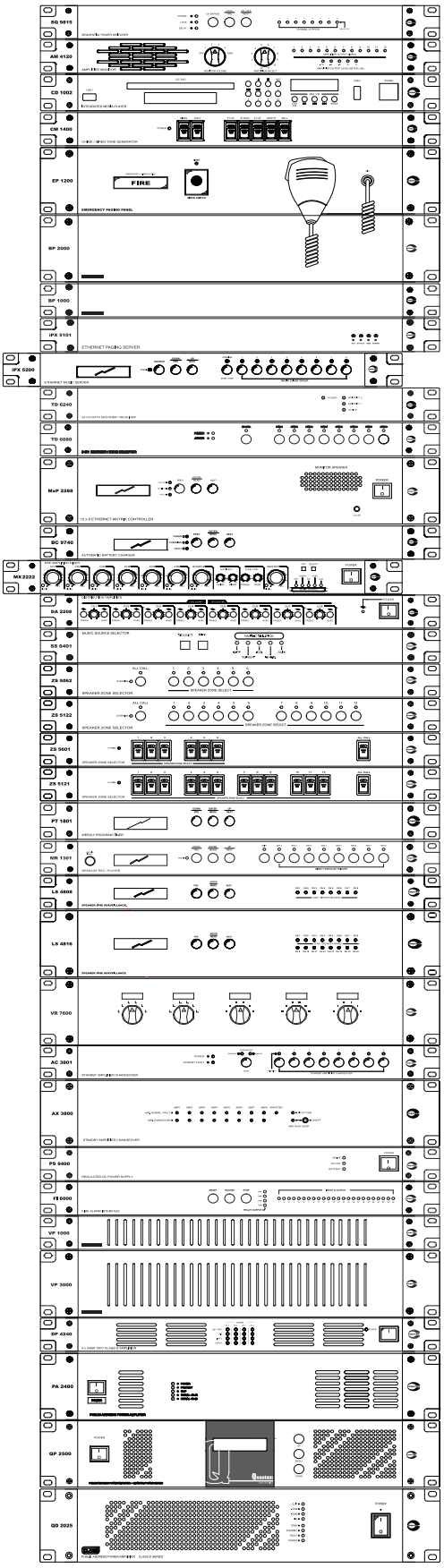
Medium to large decentralised systems of up to 250 zone. The cabling works for long distance may be an issue as well as using wireless connectivity for paging and BGM broadcast.

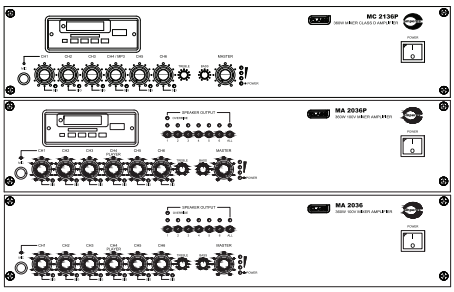
Examples :
Office / mixed development complexes, universities and colleges, hotels and resorts, parks, security and safety alarm broadcastings, etc.

5 MATRIX

Small to medium system which require flexibility of configuring different audio to different zones with uninterrupted paging. It can be full matrix (designated audio to zone) or semi matrix (groups with same audio-zones).

Examples :
Mixed developments, clubhouses, high end residential, hotels





Product outline drawings can be downloaded from our website

www.ampereselectronics.com
Precision Design, Absolute Confidence

VOICE ALARM SYSTEM; CODE OF PRACTICE

The following standards are applicable in the design of PA system for commercial applications;

BS 5839 Part 8 : 2013 : Code of practice for the design, installation, commissioning and maintenance of voice alarm system
EN 54 Part 16 : Design of Voice Alarm Control and Indicating Equipment
EN 54 Part 24 : Requirements for the design and construction of loudspeakers
SS 546: 2009 : Emergency voice communication system in building (Singapore Standards)

The use of the above documents : "As a Code of Practice, this standard takes the form of guidance and recommendations. It should not be quoted as if it is a specification. However, particular care should taken to ensure that claims of compliance are not misleading"

CE Markings : Most of Amperes products are CE certified by third party certification labs, under the standard IEC62368-1 (formerly 60950-1 and IEC60065 for Audio Visual products)

NEED FOR A VAS It is proven that most people react in a timely manner to voice messages as compared to bells / sounders and text information. A voice message reduces the wastage of precious time during distress in advising occupants to react to an emergency.

The followings are extracts from BS5839 Part 8:2013, summarized into points and applicable products from Amperes that shall be able to comply with the clause stated. This guide does not attempt to cover all the details of the standards and the reading of the requirements is through the publication itself.

Scope	Brief	Compatibility
Types of VAS	Category of systems as : Type V1 : Auto evacuation Type V2 : Live emergency messages Type V3 : Zonal live emergency messages Type V4 : Manual controls Type V5 : Engineered systems (tailored solutions)	Various components / equipment are available to mix and match which are compatible for each other to cater for the different categories of VAS applications.
Design of System	System type shall based on requirement such as : - Max size of coverage area - Min sound pressure level - Min intelligibility - Min duration of standby power supplies - Parameters of cables	Consult our technical team for optimum delivery and cost effectiveness of the required system
Fire alarm and VAS Interface	The necessary link between FAS and PA, the triggering method and the communication path between them	Amperes FI6000, MR1301, EP1200 Initiation from Fire Alarm panel to these devices shall perform the necessary alarm or messages, including manual bypass.
Fault monitoring	Faults shall be indicated within 100s from the occurrence for components and transmission path	Compatible components for fault reporting includes : Amperes LS4808 / 4816 speaker line monitoring unit Amperes AX3800 amplifier changeover Amperes BC9740 battery charger iPX modules are monitored via iPX5101 Network controller
Loudspeaker zones	Co-relations between emergency speaker zones and fire detection zones	Speaker zones can be divided into zones conveniently using Amperes ZS Series of speaker zone selectors
Loudspeaker and intelligible coverage	Selection of type, number, location and orientation of speaker according to acoustic and climatic environment, ambient noise level, area of coverage, characteristics of speakers etc.	Various types of speaker are available from ceiling to horn to suit the purpose such as emergency / BGM, environment and quality of sound reproduction.

Continued from Page 77

Scope	Brief	Compatibility
Power amplifiers	Requirement of reliable amplifiers with - Frequency response of at least 200 Hz to 8 kHz - Availability for standby changeover for faulty unit	Amperes series of amplifiers surpass the requirement with - QP / QD / PA / DP Series of amplifiers - Amperes AX3800 amplifier changeover
Ambient noise sensing (ANS)	Application of ambient noise detection and compensation (ANS) to adjust volume accordingly to improve intelligibility. (optional item)	Auto volume controller detects noise and adjust accordingly at specific area or zone, installed along with the 100V line circuit. Amperes AV7200 auto volume controller
Emergency microphones	States the requirement of easily accessed console at FCC and its characteristics such as : - Frequency response of 200 Hz to 5 kHz, min distortions - Priority override of all other audio sources - Single emergency mic active at any one time	Emergency paging panel with highest priority available for both conventional and IP systems. Both with built in siren tone generator, message inputs and visual indications. Amperes EP / iEP1200
Emergency message generator	Specifies the requirement of prerecorded emergency message player with minimum requirement such as frequency response, SN ratio and THD, storage media with non mechanical parts.	The EVAC player has memory bank of over 500 hours and easily adaptable to most installation Sample messages are available in several languages. Amperes MR1301 MK II
Priorities of messages	Classifications of priority level of messages or announcements to be as : - Emergency microphones - Prerecorded message from life threatening to warnings - Other prerecorded emergency messages - Non emergency messages	Amperes system has been designed with priority level, Emergency Paging panel being the highest. Upon activation from FAS to system, user shall have the control to assign the priority level of all other messages. Related products. Amperes FI6000 MK II, MR1301 MK II, EP1200 Amperes PT1801 MK II for scheduler messages
Networked large systems	Applicable for networked systems with separate VACIE or individual systems and linked to central. It stressed the importance of link communications and the ability to operate independently if any fault occurs at either one of the systems or the communication line.	Amperes iPX Ethernet IP PA is able to operate independently even when the main communication line to sub rack fails
Power supplies	Specifies the criteria of Mains power supply, back up power in case of mains failure, the duration of standby and operation for different types of installations. This includes Mains and back up indicators and labeling. Minimum back up capacity shall be 24 hours for standby and at least 30 minutes of operation	Technical info on battery calculations is available. The battery charger has indicator for charging status and some protections to prolong battery life, such as low battery warning and disconnection. Amperes BC9740 battery charger

Other parts of the standards include the followings :

- Placement and accessibility of VACIE
- Cabling of speaker circuit and its safety requirement
- Electrical safety precautions to VAS equipment
- Responsibility of installer, practices and workmanship
- Inspection and testing of wiring
- Commissioning and handover procedures including documentation and certification
- Acceptance and verification of installed system
- Maintenance of the system including user responsibility

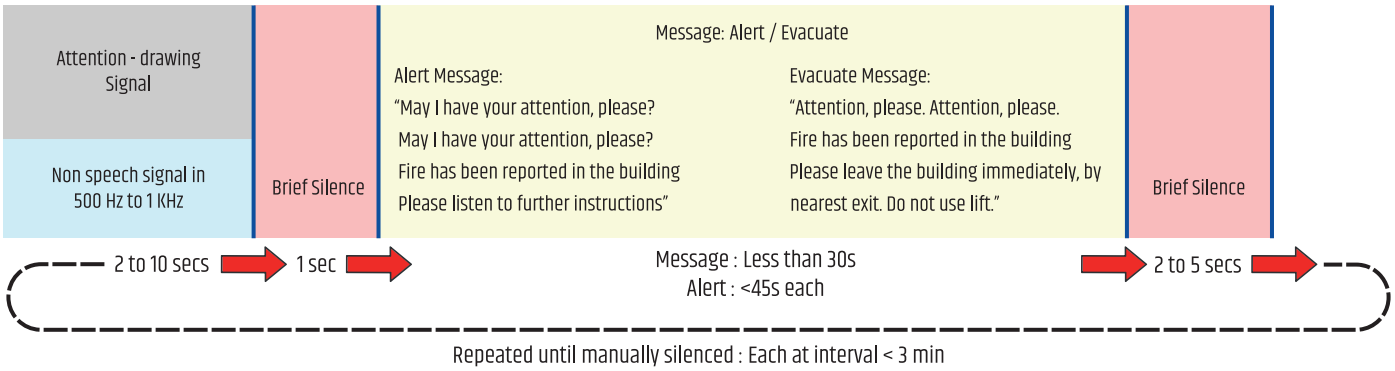
Abbreviations :

VAS - Voice Alarm System
VACIE - Voice Alarm Control and Indicating Equipment
FAS - Fire Alarm System

The above extractions are only partial and relevant informations of which components from Amperes shall be able to offer or comply. Please refer to full text of the Standards.

RECOMMENDED MESSAGE SEQUENCE

Broadcast of alert or evacuation message should follow the sequence as shown below. The type of messages can be customized to suit local environment such as language differences. In some cases, it can be coded which is to alert staffs on possible emergency cases to avoid panic to the public.



The period of silence may depend on Reverberation Time (RTs) of the area.

SOURCE : BSI PUBLICATION

CHOOSE THE RIGHT INSTALLER

It is important that competent and well trained personnel are consulted and engaged in the design process, installation, testing and commissioning of the system to avoid design errors resulting in less than expected system worthiness.

Amperes are always ready to engage actively from the design stage towards end of installations. We are also available to provide installation support through our certified installers and maintenance works.

Please consult us for details.

CALCULATING BACK UP BATTERY CAPACITY

For most commercial installations, it is a requirement by local authority that the PA system must be able to operate during power failure. The means for back up supply to the system can be from building's standby generator or via standalone back up power supply bank i.e. Batteries.

The standby batteries' capacity should meet the requirement for either these conditions :

Building with back up generator :

the minimum capacity to maintain the system operation for at least 6 hours, after which it is able to operate evacuation broadcast in all zones for at least 30 minutes.

Building without back up generator :

the minimum capacity to maintain system operation for at least 24 hours. after which it is able to operate evacuation broadcast for at least 30 minutes

Calculation of minimum battery capacity :

C min = 1.25 ((T1 x I1) + D (I2 x T2) Ah

C min - min capacity of battery when new at 20 hr discharge rate at 20C in AH.
1.25 - Ageing factor allowing 5% per year for 4 years
T1 - Battery standby period in hours
T2 - Alarm time in hours (as 0.5 or 30 minutes)
I1 - Battery standby load in amperes
I2 - Battery alarm load in amperes
D - Battery de-rating factor (usually 1.75 for inefficiency of battery under load)

Example :

A system with full load of 50 amps and standby current at 2 amps would require minimum battery capacity of :

Cmin = 1.25 ((24 x 2) + 1.75 (50 x 0.5))
= 114.7 Ah

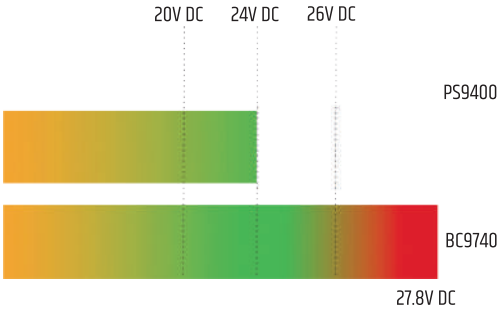
Select the closest battery capacity which is 100 Ah or 150 Ah.

Source of Info : BS5839-1 : 2013 ; annex D

CORRECT WAY OF POWERING EQUIPMENT WITH 24V DC POWER SOURCE

It is a misinformed idea to save some equipment cost in powering up equipment with 24V DC by using voltage output from battery charger instead of a 24V DC power supply unit or adaptor. It may damage the equipment concerned as normally they can operate in the range of 10% voltage tolerance and anything above that shall stress the power regulating circuitries. Not only would it shorten the life span but it would also generate excessive heat.

Voltage from battery charger is normally around 27 to 28V DC whereas from power supply unit i.e. Amperes PS9400 is regulated at 24V DC. Thereby it is highly recommended to use suitable regulated power supply unit for operation.



The chart shows typical voltage output from a 24V DC regulated power supply against 24V DC battery charger. Most equipment can operate in the voltage range indicated by green colour. Apparently, it is not advisable to use battery charger's output as operating power source.

IP RATINGS

First Digit (Protection fr. Solid Object)		Second Digit (Protection from liquid)	
0	No Protection	**0**	No Protection
1	Solid object of up to 50 mm and above	**1**	Vertically falling water drops
2	Solid object of up to 12 mm and above	**2**	Water spray with 15° vertical angle
3	Solid object of up to 2.5 mm and above	**3**	Water spray with 60° vertical angle
4	Solid object of up to 1 mm and above	**4**	Water spray with full all direction with allowance
5	Dust with no harmful deposits	**5**	Low pressure water jet from all direction
6	Full protection from dust	**6**	High pressure water jet from all direction
		7	Temporary immersion in water
		8	Long immersion in water

Ingress Protection up is a classification to indicate the degree of protection of enclosures (such as speakers) against penetration of solid particles and moisture.

It is usually stated in two digits, IP54, which the first digit refers to protection against solid object and the second digit for protection from moisture.

Ref Standards : IEC 60529

GENERAL TERMS USED IN PA SYSTEMS

ROOT MEANS SQUARE (RMS) :

Average value of ac voltage, it is 0.707 time of the peak voltage of a constant sine wave.

IMPEDANCE (Ohm with symbol Z) :

A measurement of total resistance to current in a circuit with inductance and capacitance, such as speakers and microphones. The value differs for different frequencies, and thereby would normally be rated at Ohm @ 1 KHz.

Impedance of speaker circuit is measured with impedance meter and not the common multimeter.

SENSITIVITY :

The minimum signal required to produce a fixed output level and is specified in various terms. In microphones (mV/Pa), it is the amount of mV produced by a Pascal of sound pressure (94 dB) in axis with the transducer. In Speaker (dB, 1W @ 1m), it is the sound output in dB produced by 1W of power and is measured in axis of 1 m away. In professional amplifiers (dBu or V), it is the input signal required for the amplifier to reach its rated output.

SIGNAL TO NOISE RATIO (S/N Ratio) :

Measured in dB, is the ratio of signal to noise at same point of signal. It is measured at 1 kHz with 1V input signal. Higher S/N ratio is always preferred.

DECIBELS (dB) :

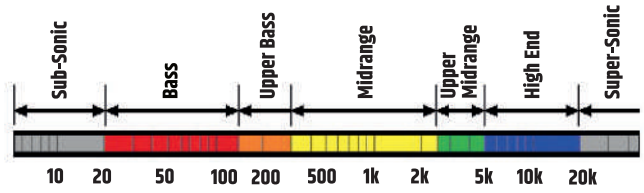
To express the ratio between two signals, like Voltage, Power, Current, etc. It's expressed in dB SPL for Sound Pressure Level, dBV for relativity to 1V and etc.

TOTAL HARMONIC DISTORTIONS (THD) :

Expressed in %, it's the ratio of fundamental frequency to the level of all harmonic frequencies produced by equipment. Lower percentage is better.

FREQUENCY RESPONSE :

Is used to indicate how well an equipment or speaker response to the audio input signal, usually 20 to 20 KHz. It is usually measured at 1KHz reference, 1V input level with +/- 3 dB.



BALANCED SIGNAL :

It refers to the cable carrying audio signal with 3 conductors, i.e. Hot, Cold and Ground or Shield. It offers better immunity against external interference and is the preferred choice for long distance cabling.

UNBALANCED SIGNAL :

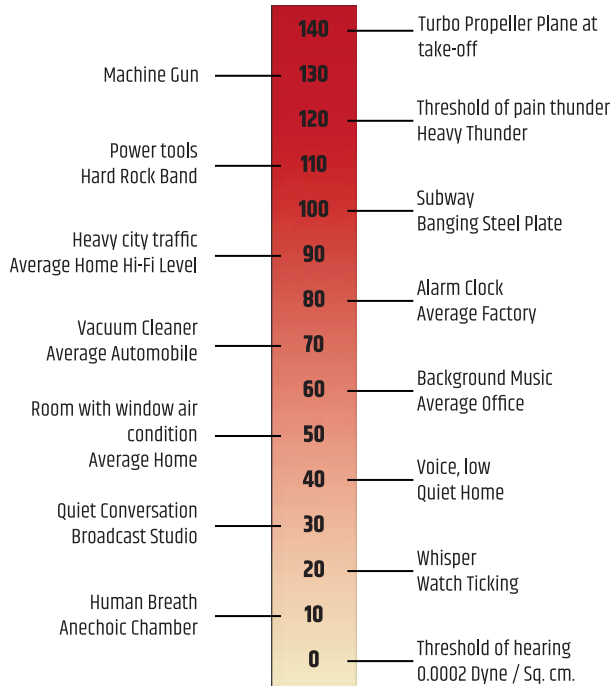
Refers to audio signal in cable with Hot and Ground (Shield) conductors. It is recommended for short distance cabling as it is subjected to interference.

SPEECH TRANSMISSION INDEX (STI) :

STI is used to measure speech intelligibility by injecting a test signal at source point and measurement is made at the listening plane. The measured value is within the range of 0 to 1.

SOUND PRESSURE LEVEL (SPL) :

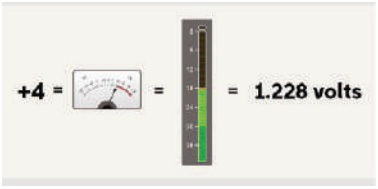
A measurement of loudness in relation to the threshold of human hearing at 20 uPa. It varies with frequencies and thereby in audio, it is expressed as RMS value in dB SPL. See also the SPL chart.



AUDIO LEVELS :

In professional audio, line level is referred to as +4 dBU which is a reference of how much it is above or below the reference level of 0.775V. 4 dBU = 1.25V rms. The value of consumer or semi-professional differs and is lower than this, eg. 0 dBV = 1 V rms. Consumer line level is typically -10dBV or 0.32V.

0.775V rms is used as reference as it is used to generate 1 mW (0 dBm) over the load of 600 Ohms. (P = V2 / R).



dBV	Voltage
+20 dBV	10 volts
0 dBV	1 volt
-20 dBV	0.1 volts
-40 dBV	0.01 volts
-60 dBV	0.001 volts
-80 dBV	0.0001 volts

TERMS RELATED TO SPEAKER POWER

AVERAGE POWER :

Often referred to as rms Power since rms value of voltage and current are used to calculate the power of speaker.

PROGRAM POWER :

Also known as Music Power and is normally twice the amount of Average Power. It is used to select suitable amplifier rating.

PEAK POWER :

Defines instantaneous power delivered to speaker at highest level of output.

SOUND PRESSURE LEVEL (SPL) OF SPEAKERS

From technical data sheet of speakers, it will normally indicate the SPL as example : 90@ 1 kHZ / 1W / m. Which means at 1 kHz, the SPL is 90 dB. Some datasheet may provide SPL at different frequencies, normally 4 kHz, 8 kHz, 12 kHz.

There is a co-relation between SPL shown at the datasheet against the distance from the point of speaker and the subsequent power pumped to the driver.

SPL (dB) TO DISTANCE

Sound Pressure Level ; SPL (dB) shall drop 6 dB whenever the distance from the source is doubled, calculated from :

SPL drop = 20 log D (D= distance in meter)

Distance (m)	2	4	8	10	15	20	30	40	50	60	80	100
dB Loss	6	12	18	20	23.5	26	29.5	32	34	35.6	38	40

SPL (dB) TO DISTANCE

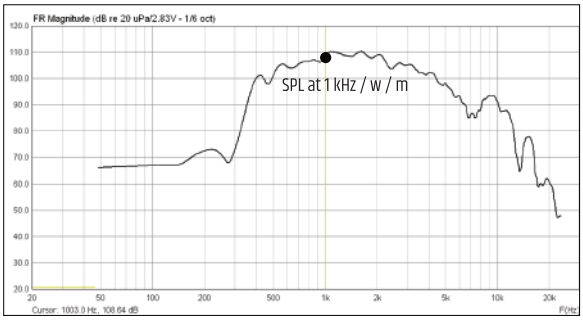
SPL (dB) shall increase by 3 dB when the power to the speaker is doubled, calculated from :

SPL = 10 log W (W= power input)

Power (W)	1	2	4	8	10	15	20	30	40	50	80	100
dB Increase	0	3	6	9	10	11.8	13	14.8	16	17	29	30

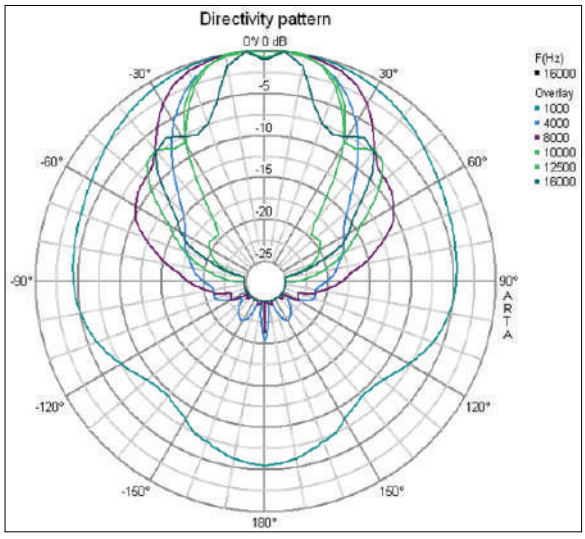
To determine SPL at a distance away :

SPL (d) = { SPL rated + 10 log W } - 20 log D
E.g. Speaker is rated 90dB W/m @1 kHz and powered at 10W at a distance 20m away, the SPL is :
SPL 20m = (90 + 10 log 10) - 20 log 20
= 100 - 26
= 74 dB



Frequency response chart

The above chart shows frequency response of a speaker from 20 - 20 kHz with 1W power applied to the driver and measured at 1 m away. From the chart, SPL with reference to 1 kHz can be determined. The frequency response of the speaker is then deduced by drawing a range of + / - 3 db at the 1 kHz point. Some manufacturer may state as +/- 6 dB.



Polar chart

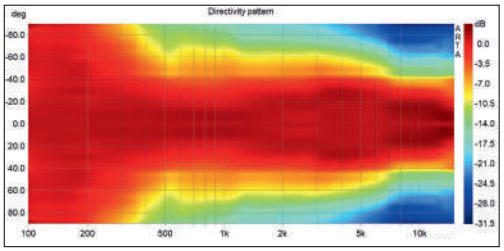
Polar chart of a speaker may be half of full polar.

A polar chart shows the dispersion angle of a speaker of different frequencies. This chart is generated at speaker test room or anechoic chamber by powering the speaker with 1W, measured by a well calibrated measurement microphone and taken at different angle of speaker orientation.

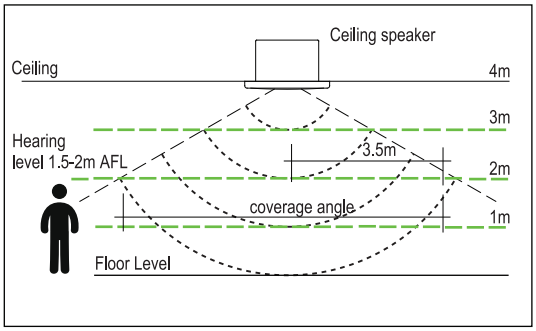
Polar chart would normally show horizontal reading and vertical dispersion angle is collected by following the above method.

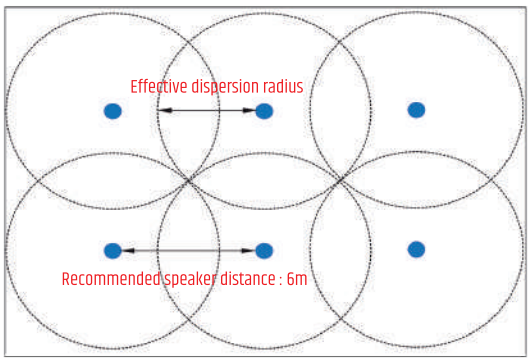
Data of dispersion angle of a speaker can be used to determine the quantity required for an area, with reference to the listening plane height, the power tap and the SPL to be achieved.

A more illustrative simulation showing colored map can also be generated showing the SPL intensity for different frequency against the dispersion angle.



POSITIONING OF SPEAKERS





The criteria to be considered in determining the number of speaker required in any installation shall include :-

1) The ceiling height
2) Acoustical factor of the environment
3) Type of speakers, e.g. Dispersion angle and SPL level.
4) Expected environment such as factory, office or shopping complex.

In order to hear properly, the sound source from speaker shall be around 6 to 10 dB above the background noise.

If the power input is 3W, the SPL (1 kHz) at 2m from speaker shall be approximately 93 dB. With music source, the average SPL shall be 3 dB below; thereby the hearing will be around 89 dB, which is a rather comfortable level in a shopping mall.

From this, the coverage area can be estimated ; i.e. Approximately 7m diameter or 38 sq m. Further to this, the distance of speaker can be ascertained by dividing the area of the mall to the area of coverage by each speaker.

Data sheets for speakers are available to be downloaded from our website. Refer to each individual speaker for more information.

SPEAKER CABLING IN 100V LINE SYSTEM

Cable used in PA installation is subjected to losses, which is similar to cabling in electrical installations. The factors affecting the percentage loss include the cable size, length, conductor material, input voltage, load and temperature. A typical loss chart with relation to cable size is shown below (copper conductors in single phase).

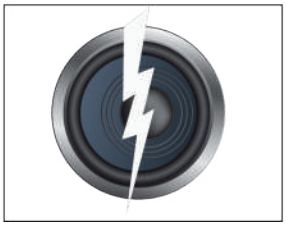
Refer to manufacturer's data sheet for more accurate information.

Cable Gauge AWG	Conductor Size (mm sq)	Impedance Ohm / 1000 ft	Length in Meter for 0.5 dB Power Drop (Appr 81% at Load)				
			500W Load 20 Ohm	300W Load 33 Ohm	200W Load 50 Ohm	100W Load 100 Ohm	50W Load 200 Ohm
10	5.26	1	190	320	490	990	1990
11	4.17	1.26	150	260	390	780	1580
12	3.31	1.59	120	200	310	620	1250
13	2.62	2	90	160	240	490	990
14	2.08	2.53	75	130	190	390	780
15	1.65	3.18	60	100	150	310	620
16	1.31	4.02	45	70	110	240	480
17	1.04	5.06	35	60	90	170	390
18	0.82	6.39	26	50	70	150	370

Cable Size	125W power		250 W		500W	
	1 dB loss	3 dB loss	1 dB loss	3 dB loss	1 dB loss	3 dB loss
10	1727	6045	862	3017	429	1502
12	1087	3805	542	1897	270	945
14	683	2391	341	1194	170	595
16	430	1505	215	753	107	375
18	269	942	134	469	67	235
Total Impedance	800 Ohm		400 Ohm		200 Ohm	

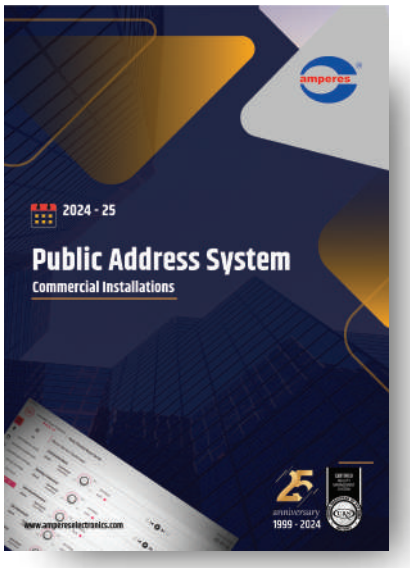
This table provides an approximate cable length permissible for specified loss of signal in 100V line speaker installations.

POSSIBLE CAUSE OF SPEAKER DAMAGE



Speakers may be damages while in operation and can be associated to excessive power delivery in certain frequencies or due to natural disaster such as lightning strike. To prevent or at least to prolong the lifespan of the speaker, the followings should be taken into consideration.

Avoid excessive input power to speakers.
Ensure audio signal delivered is within the frequency bandpass of the speaker (e.g. sub bass)
Do not allow amplifier to clip, i.e. ensure power rating of amplifier is higher than the total load
The amplifier with DC output protection, and preferably with high pass and low pass filters



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