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# Public Address System

## Commercial Installations



**20<sup>22</sup>  
23**

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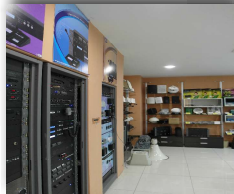


# amperes electronics sdn bhd 509025-X

## Introduction



Started 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 developing township outside of Kuala Lumpur, Malaysia, we started off as a very small operation, however the burning passion and vision has steered us to be a player known both in local and regional markets.



## Management & Process

We are a customer orientated company, holding the trust for producing reliable products and providing 5 star rated service.

To achieve them, we adhere to the strict requirement of ISO9001 : 2015 management standards in manufacturing operations as well as pre and after sales support.

We listen to feedbacks and with our strong R and D team, we develop or upgrade new products to meet the requirement of the market with the available knowledge and technology.



Product reliability and consistency are the most important aspects of gaining trust from users. Amperes always seek to improve our production processes, facilities and testing methods.



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 (TEEM)



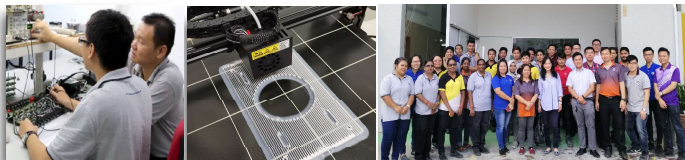
ISO 9001: 2015  
Design & Manufacture of Public Address Equipment and Systems  
Certificate No. 16895 / A / 0001 / UK / En

## Products

Since the first roll out, ie ZS601 ( 6 channel zone selector ), we had expanded our product range to over 150 models and growing.

Our focus has been shifted to IT related equipment and are proud that we are capable of offering IP Ethernet Paging System, which is able to cater for large and distributed systems.

With our continuous product development policy, we shall enhance existing models and at the same time, seek to create new products with new technologies.



## Reaching Out



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



While prominence 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.



We thank you and appreciate your continuous trust in believing what we can offer to make your installations successful.

## Our Mission

Our mission is simple, that is to provide value added solutions with optimum products and services to our valued clients minus exorbitant price tags.

Stay with us, we shall be here for another twenty years and we will continue with our effort in bringing you product of

Precision Design, Absolute Confidence



know more about us



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# ETHERNET IP PA SYSTEM

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

Amperes IP System has been improved with Ultra Low Latency transmission for audio and data. Delays has been almost non noticeable

## DECENTRALISED SYSTEM

Decentralised system is preferred for large setup with lower maintenance and better cost efficiency. Copper cabling costs shall be greatly reduced, it will also reduce environmental hazards such as lightning strikes and other factors that may cause signal disturbances and degradations.

## SIMPLEX & DUPLEX MODE

Bidirectional audio and data streaming is made possible in IP environment, enabling cross paging within the network. This is important for large installations such as airports, mega complexes, universities, etc.

## FLEXIBLE SYSTEM EXPANSIONS

IP System allows easier system expansion such as additional building or zones. Additional new systems may not necessarily run back to main control room but can be expanded from nearest network points.

## MULTI CHANNEL AUDIO BROADCAST

Only IP system allows simultaneous audio broadcast to different zones uninterrupted, which conventional single output PA are unable to perform.

## REMOTE MONITOR AND CONTROLS

With control room located away from sub system, operators will be able to monitor condition of external equipments such as speaker line monitoring, amplifier etc. In some extend, user shall be able to control them such as volume, etc.

## CHOICE OF SYSTEM LINKS

Communications between sub racks, main and remote IP devices can be chosen from existing LAN, dedicated fiber link or network cable

## NO LIMITATIONS ON DISTANCE

Limitations due to distance is generally eliminated with networked system and noise being reduced as all audio are digitized. Furthermore, there would be no power loss due to cabling if fiber is utilised.

## MOBILITY

Relocating, remote paging and monitoring are possible within network through any PC or smartphones



Learn more about  
Amperes IP Systems





iPX5101 is a network controller for iPX Ethernet PA system which regulates and monitors all traffics and communications for priority access of network clients, logging details, etc. In default, Amperes iPX System operates on Multicast mode with exceptional for iPX5400.

Only one iPX5101 shall be required for entire system and a redundant unit shall be made available in the event that the main unit failed. With a PC connected to the controller, user shall be able to monitor connectivity of all clients to ensure all sub system or links are always up.

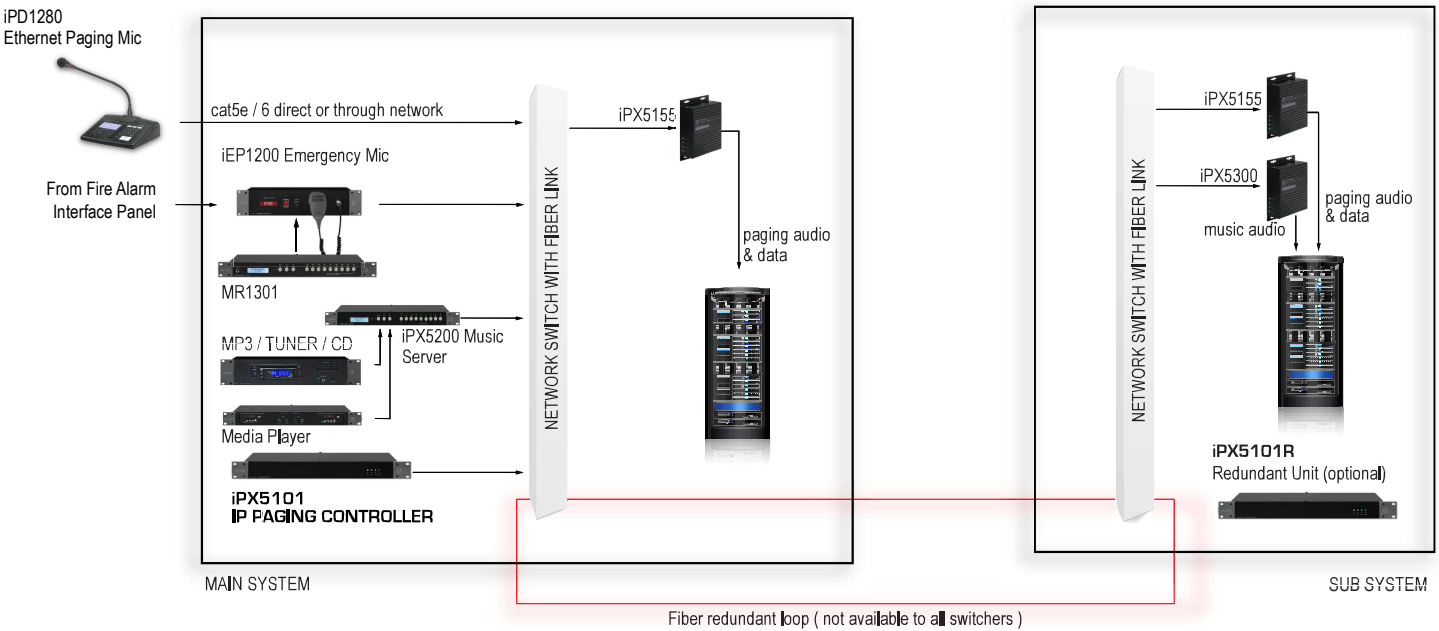
Rear View:



Technical Specifications

Power requirement :	
Voltage	18 ~ 24V DC (Normal DC 24V)
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	
	254 Max
User interface	
	(Web Browser) IE V8+, Firefox V22+, Google Chrome V25+, RS485
Firmware upgrade	
	Via Web Browser
Operating condition :	
Temperature	-20°C ~ 80°C
Humidity	80%
Case :	
Dimension	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 : 2.90 kg  
1 unit per carton





## iPX5200 Ethernet Music Server



iPX5200 is a BGM audio server, streaming audio files in LAN to clients such as Amperes iPX5300 and iPX5155. Also known as audio inserter, it will receive analogue audio inputs from media players such as CD or mixer sources and feed into IP network.

With its selectable input sources, either from analogue or SD card files, users will be able to stream to selected destination or group of iPX5300 / 5155 of their choice. Destination audio extractor can be grouped into 8, each of up to 32 clients.

The unit's setup has been made easy with its user friendly UI. Status of each client can be directly monitored at real time.

iPX5200 is an ideal tool to broadcast your BGM within your network and it can work independently with or without iPX5101.

### Features

- Selectable 4 analogue line inputs and 1 SD card files for audio streaming
- Connectivity of up to 254 iPX5300 music clients
- Client groupings into 8 groups for easier streaming destination
- Hi quality audio encoding and streaming
- Multi format audio file transmission
- Ease of programming or configuration with user friendly GUI

### Technical Specifications

#### Power requirement :

Voltage	18 ~ 30V DC (Normal DC 24V)
Current	100 mA

#### Connectivity

- Interface	10/100 Base-T
- Common protocols	TCP/IP, UDP, IGMP, HTTP
- Priority Protocols	UDMP, ADP

#### Audio

- Analogue input (max)	1.25Vrms unbalanced
- Input impedance	3 K Ohm
- Total harmonic distortion (THD)	0.1%
- S/N ratio (full scale signal)	83 dB
- Digital format	IMA ADPCM / MP3 (CBR / 320 kbps max) / WAV

#### Client connection

User interface	254 Max
Firmware upgrade	(Web Browser) IE V8+, Firefox V22+, Google Chrome V25+, Via Web Browser

#### Operating condition :

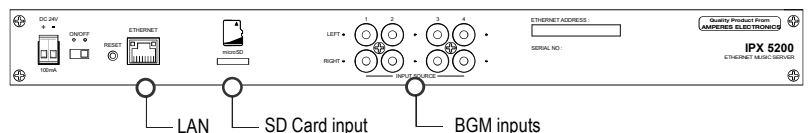
Temperature	-20°C ~ 80°C
Humidity	0 - 70%

#### Dimension

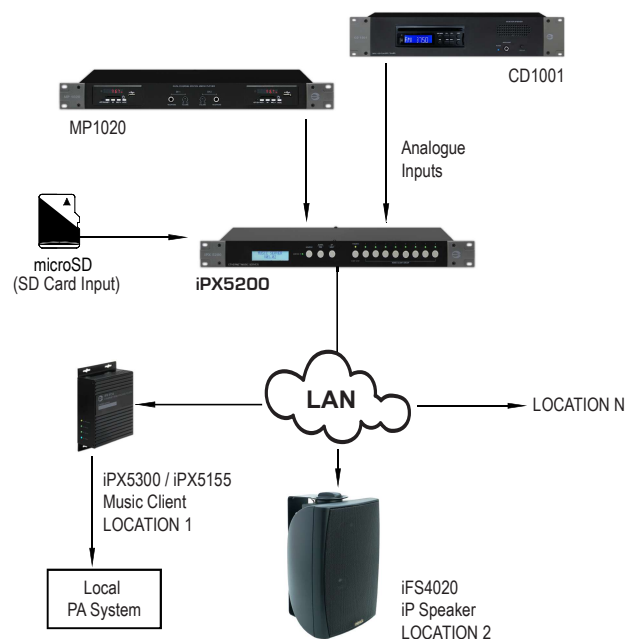
Weight	482 x 44 x 180 mm
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	1.90 kg
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Rear View:



### Application Schematic



#### Packing information

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





iEP1200 is an IP based Emergency Paging Panel which is an essential tool for firemen in order to have direct access to EVAC system with highest priority. All other paging in progress, such as music streaming and EVAC auto announcement shall be cut off upon activation of the unit.

It can be used as local system's highest priority paging device or as a global highest priority paging device.

It has analogue IO ports ie, message player input, emergency dry contact and aux line audio output. All network configurations shall be done via web browser.

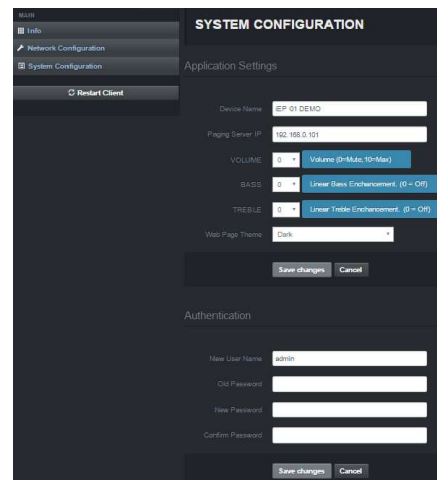
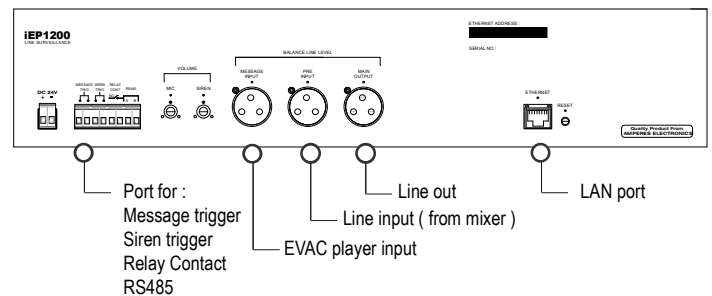
### Features

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

### 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 IE V8+, Google Chrome
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)	0.1%
- S/N ratio (full scale signal)	83 dB
Indicators	
	Fire LED, Front siren switch
Operating condition :	
Temperature	-20°C ~ 80°C
Humidity	0 - 70%
Dimension	
Weight	482 x 88 x 180 mm
	2.85 kg

Rear View:



Web interface for configurations

### 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

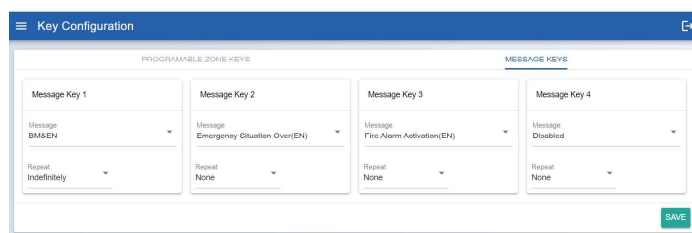
iEP1202 is a desktop version of Emergency Paging Mic which has several more added features as compared to iEP1200. There are 8 programmable zone groupings to facilitate targeted zone or specific building emergency paging. Also available are 4 presets of messages which can be assigned through web setting.

iEP1200 is suitable to be placed at guard house, reception or security control console. It has highest priority over other audio sources such as BGM, normal paging and auto EVAC messages.

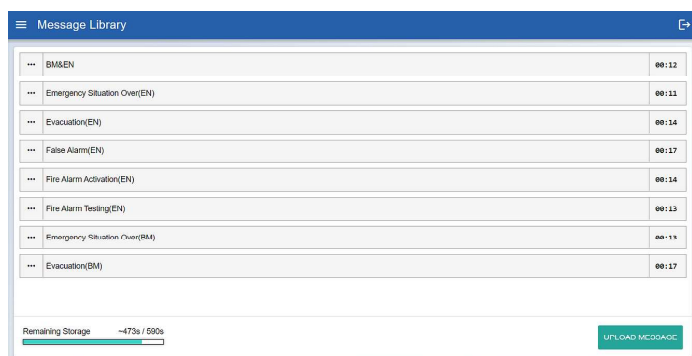
**Features**

- 8 programmable zone groupings for direct zones access
- 4 message banks of up to 14 minutes messages with total of 20 files
- Siren tone generator
- Volume controls for Mic and Siren
- User friendly setup via web browser

Flexible button assignments for zone grouping and message keys



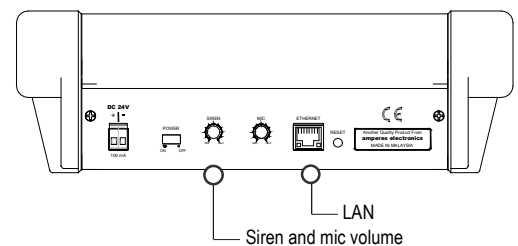
Message library for brief messaging

**Packing information**

Carton size : 525 (L) x 270 (W) x 85 (H) mm  
Gross weight : 1.90 kg  
1 unit per carton



Rear View:

**Technical Specifications**

Power requirement	24V DC
Current	0.1 A ( 2.4 W )
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 36KHz 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	IE Ver 9 and above, Firefox or Google Chrome (preferred)
Dimension (WxHxD)	248 x 65 x 190 ( excl. mic )
Weight	900 g





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.

The unit setup has been made simple with an easy to use UI, done through web browser.

### Features

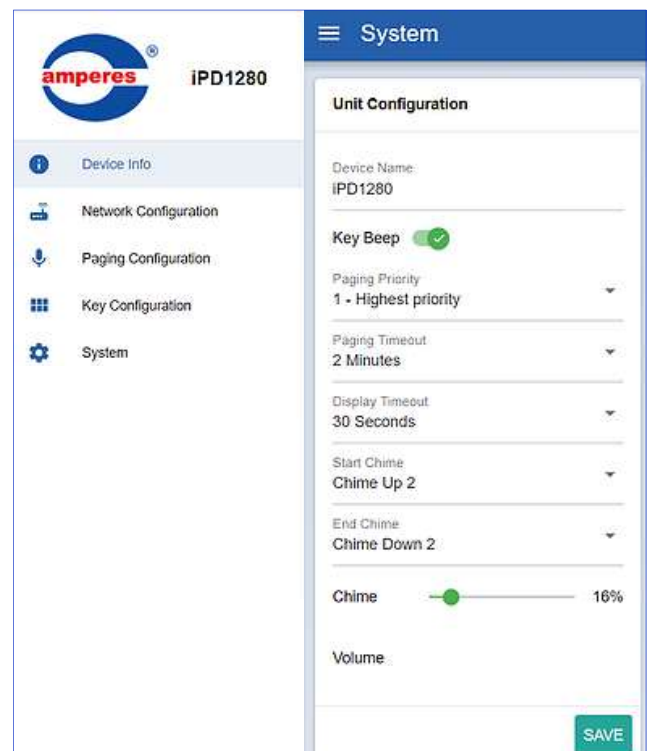
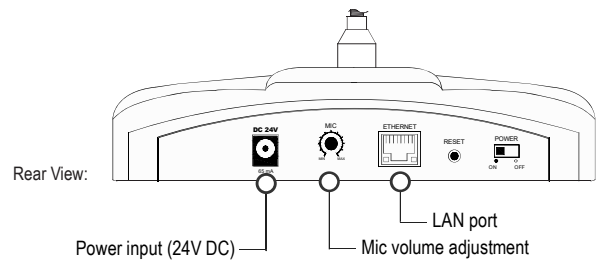
- Sensor soft touch keypad
- Large LCD display for easy viewing with name setting for identification
- Large multi point paging setup with network
- Built in chime with selectable tone file
- Adjustable volume for mic and chime
- Ease of programming or configuration with user friendly GUI
- Ultra low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

### 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 @ 1 kHz +/- 3 dB
S / N ratio	>70 dB @ 1 kHz
Audio conversion format	IMAADPCM 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	( Web browser ) IE Ver 9 and above, Firefox or Google Chrome ( preferred )
Gooseneck mic length	370 mm
Dimension (W x H x D)	230 x 192 x 65 mm ( Excluding Mic)
Weight	850 g

#### Packing information

Carton size : 555 (L) x 270 (W) x 85 (H) mm  
Gross weight : 1.75 kg  
1 unit per carton



User friendly UI for ease of setup for setting unit address, zone limits, system access, groupings etc.

**iPX5155** Ethernet BGM / Paging Client**iPX5300** Ethernet Music Client**iPX5500** Ethernet Communication Client

iPX5000 Series of IP Network Clients consists of several models with each made for specific application in Amperes iP PA System. They are available in modules, which enable easy placement inside rack cabinet.

Overall, iPX5000 transmission has been improved with ultra low latency thus making announcement almost instantly with unnoticeable delays.

**iPX5155**

Ethernet BGM / Paging Client

iPX5155 is an audio extract which receives BGM and Paging broadcast. Muting feature would enable a paging announcement to bypass the BGM in session.

It can also be used as a transmitter.

**iPX5300**

Ethernet Music Client

iPX5300 is used to receive audio streaming from central rack either from iPX5200 Ethernet Music Server or PMX II LAN. Quality sound can be expected as it plays MP3 audio at up to 320 kbps.

**iPX5500**

IP Communication Box

iPX5500 is the communication interface for equipment with RS485 outputs and remote PC, enabling remote monitoring and controls via Amperes PMX II LAN software.

Among equipment that can be used with iPX5000 are QP and QD amplifiers, LS4808 / 16, AX3800 etc.

**Packing information**

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

Gross weight : 0.9 kg incl. adaptor

1 unit per carton

**Technical Specifications**

	iPX5155	iPX5300	iPX5500
Power requirement			
Voltage	24V DC		
Current	60 mA ( 1.5W )		
Connectivity			
Interface	RS485 ( 19.2 kbps ) , 10 / 100 Bast T		
Protocols	TCP / IP, UDP, IGMP, HTTP		
Broadcast mode	Unicast / Multicast		Multicast
Audio			
Analogue in / out ( peak to peak )	1.25 V rms ( +4 dBU )		Not Applicable
THD	< 0.1 %		
S/N ratio	83 dB		
Audio format	IMAADPCM / MP3 320 kbps max/ WAV		
User interface	Web Browser ( IE V8 above, Google Chrome, Firefox )		
Operating condition			
Temperature	-20 to 80 Deg C		
Humidity	0 - 70 %		
Dimensions	100 x 147 x 40 mm		
Weight	300 gms ( excluding adaptor )		





iPX5400 works in pair, and is a 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.

iPX5400 is a simple device which is able to work in simplex and duplex mode, which can be used in standalone pair without the need of iPX5101 server or full IP solutions.

## Features

- Low latency audio and data transceiver
- RS485 and voice at full duplex; hi definition audio at simplex
- Works independently without other iP equipment or iPX5101 controller
- Setup via web browser and controllable via PMX Software
- Dry contact available for remote triggering
- Supports 3 modes with : 1.Always ON, 2.ON on remote trigger, 3.ON on paging activation

## Technical Specifications

### Power requirement :

Voltage	12 - 24V DC (Normal DC 24V)
Current	<100 mA

### Connectivity :

- Data interface	RJ-45, 10/100 Base-T
- Protocols	TCP/IP, UDP, IGMP, HTTP
- Priority protocols	UDMP, ADP

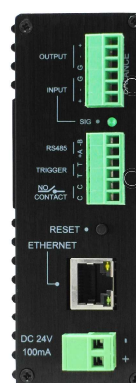
### Audio :

- Analogue in/out (peak-to-peak)	1.25V (line)
- Total harmonic distortion (THD)	0.1%
- S/N ratio (full scale signal)	83 dB
- Conversion format	WAV PCM 48KHz 16 Bit ( Bidirectional & Half Duplex )
- Data	UART RS485 ( Bidirectional & Full Duplex )

User interface	IE Ver 9 and above, Firefox, Google Chrome (preferred)
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### Case :

Dimension (WxHxD)	100 x 147 x 40 mm
Weight	320 g



Audio input and Output ( simplex or duplex )

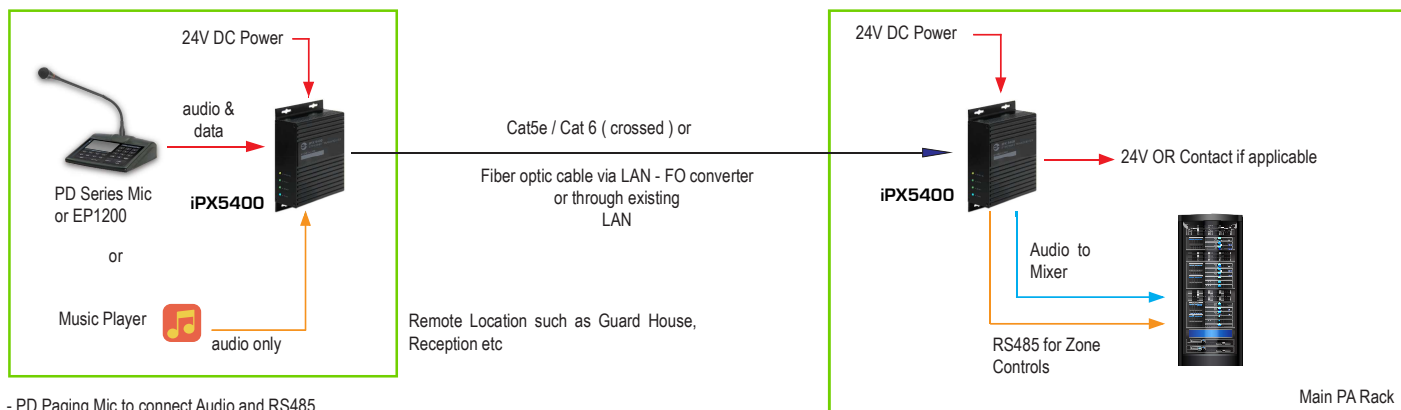
RS485 data port  
Relay contact and remote trigger

### Packing information

Carton size : 155 (L) x 105 (W) x 125 (H) mm  
Gross weight : 0.9 kg ( including adaptor )  
1 unit per carton

## Application Schematic

Application Example : Peer to Peer Direct Connectivity



- PD Paging Mic to connect Audio and RS485
- Analogue (eg PM1000) to insert Audio and Contact (if required)
- Music player to insert audio signal only and set to continuous streaming





**iPA5060** 60W 100V  
**iPA5120** 120W 100V  
**iPA5240** 240W 100V  
**iPA5360** 360W 100V

improved



## Packing information

Carton size : 295 (L) x 260 (W) x 115 (H) mm  
 Gross weight : 3.40 kg  
 1 unit per carton

## Technical Specifications

	iPA5060	iPA5120	iPA5240	iPA5360
Power rating ( W rms 100V out )	60 W	120 W	240 W	360 W
Operating voltage	220 - 240 V AC : 50 / 60 Hz			
Power consumption - load ( 240V ac )	115 W / 0.8 A	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 V rms / Mic - 50 mV rms			
Input impedance	Line - 10 k Ohm / Mic - 6 kOhm			
Gain controls	- 40 to 4 dBu			
THD + N at rated power	< 0.2 %			
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			
Line / mic level selection	Slide switch			
User interface	Web browser ; Google Chrome / MS Edge, Firefox			
Protections	Thermal (70 Deg C ) , over current, short circuit, AC fuse			
Indicators	Power, linke status to paging server, streaming, local input source active			
Cooling system	Thermostat auto fan switching at 45 Deg C			
Operating temperature / humidity	-10 to 70 Deg C			
Dimensions ( W x H x D )	250 x 83 x 200 mm ( excluding hinge )			
Weight	3.10 kg			

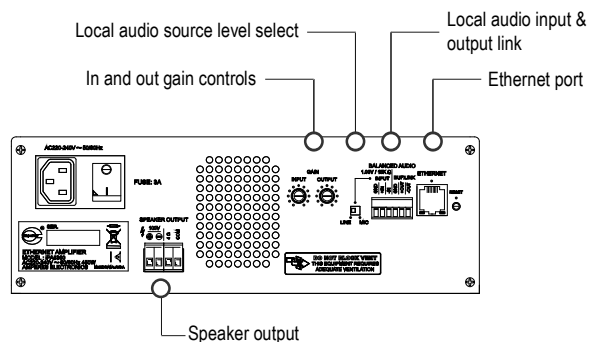
iPA5000 series of ethernet power amplifiers has been improved with added power ratings of 240 and 360W 100V line. They are now powered by the high efficiency and better performance Class D amplifier circuits with reduced physical size and weight.

They are suitable for decentralised IP PA systems in mid to large installations such as in parks, classrooms, high rise buildings, resorts, ports as well as security pole alarm system.

iPX5000 has local audio source input with selectable line or mic level to enable local paging such as in classrooms, park entrances or kiosks. The local source shall be bypassed if central paging or EVAC broadcast with higher priority is activated.

## Features

- Available in 60 / 120 / 240 and 360W 100V line output
- High efficiency Class D amplifier
- Plays remote LAN BGM / paging and Local input
- Local mic / line source input; toggle via a push button switch
- Audio priority level to comply with EN54 / BS Standards
- Auto muting function for Emergency Broadcast from central paging system



- 20W IP PoE Full Range Speaker **iFS4020**
- 20W IP PoE Ceiling Speaker **iCS6020**
- 20W IP PoE Horn Speaker **iHS8020**
- 20W IP PoE Pendant Speaker **iPS8020**



## iFS4020

It is a 2 way full range speaker with 4" driver and 1" tweeter. Suitable for gyms, offices, restaurants, etc.



## iCS6020

It is a 20W full range co-axial ceiling speaker with 6.5" driver and 1" tweeter. Suitable for wide range of applications such as gyms, lobbies, etc.



## iHS8020

20W rated IP PoE horn speaker with ABS flare and is suitable for car parks, outdoor area paging. Waterproof RJ45 connectors are provided for outdoor applications.



## iPS8020

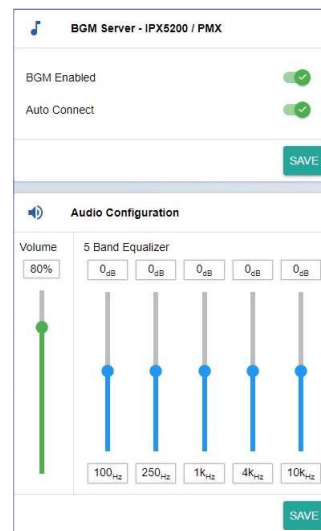
It is a 20W Pendant Ball speaker driven by full range co-axial ceiling speaker with 8" driver and 1" tweeter. Suitable for mounting at high bay areas such as warehouse, hypermarkets, etc, delivering 180 degree of coverage.

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.

In compliance to Fire Codes, Paging audio shall mute the BGM audio being played. Each speaker can be remotely configured via Web Interface.



Easy to use User Interfaces (UI) for IP settings, equalisation and controls

## 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 driver diameter	4" ( 100 mm )	6.5" ( 165 mm )	8" ( 200 mm )	2" (50mm)
Sensitivity @1kHz / 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	100Base T / TCP/IP, UDP, IGMP, HTTP, UDMP, ADP			
User interface incl. firmware upgrade	Google Chrome, IE V8+ / via web browser			
Priority controls	Paging over BGM			
Operating temperature / humidity	0 - 70 degree C / 70%			
Housing	ABS enclosure / Metal grille		ABS	
Dimensions ( mm ) WxHxD	165 x 270 x 170	250 dia x 142 H	254 dia	293 x 212 x 290
Net weight ( kg )	1.95	1.85	1.90	1.80
Colour	Black		White	



## PMX LAN Paging & Music Server Software

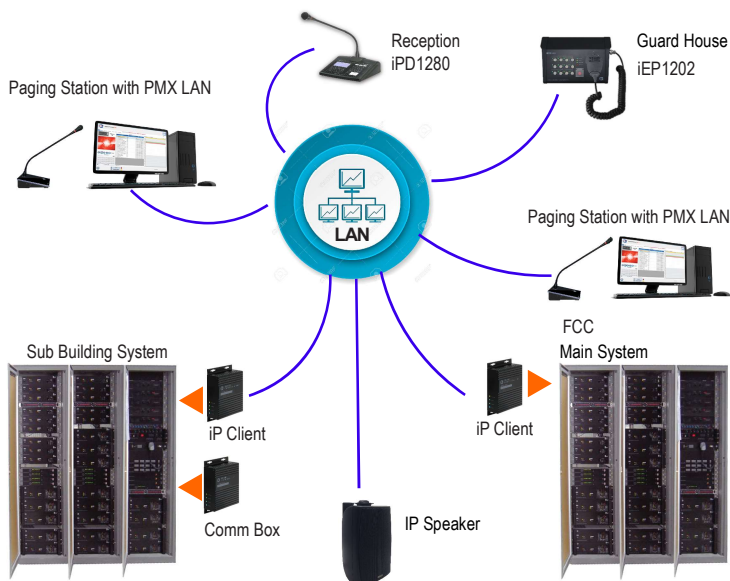
PMX LAN is a virtual hardware components such as music / BGM player, music file storage, programmable timer, message player and paging station. They shall be able to integrate with components of Amperes IP system including data communication box ie. iPX5500.

With extension modules for remote monitoring, PMX LAN shall be able to monitor and in some extend able to control remotely located equipment such as QP Series amplifiers, AX3800 fault changeover, LS4808 / 16 speaker line monitor panels and others.

### Features

- Works with Amperes iPX ethernet clients for audio streaming, monitoring
- Activity status of connected equipment.
- Play any source supported by Windows Media Player
- Media library to store virtually unlimited songs in HDD.
- Weekly programmable timer for message or chimes playback.
- Calendar scheduling for media playback.
- Zone controls up to 254 zones.
- Naming of zones for easy identifications.
- Group paging / media playback.
- Priority paging setup with other PD mic in the system.
- Emergency paging alert.

### Application Concept

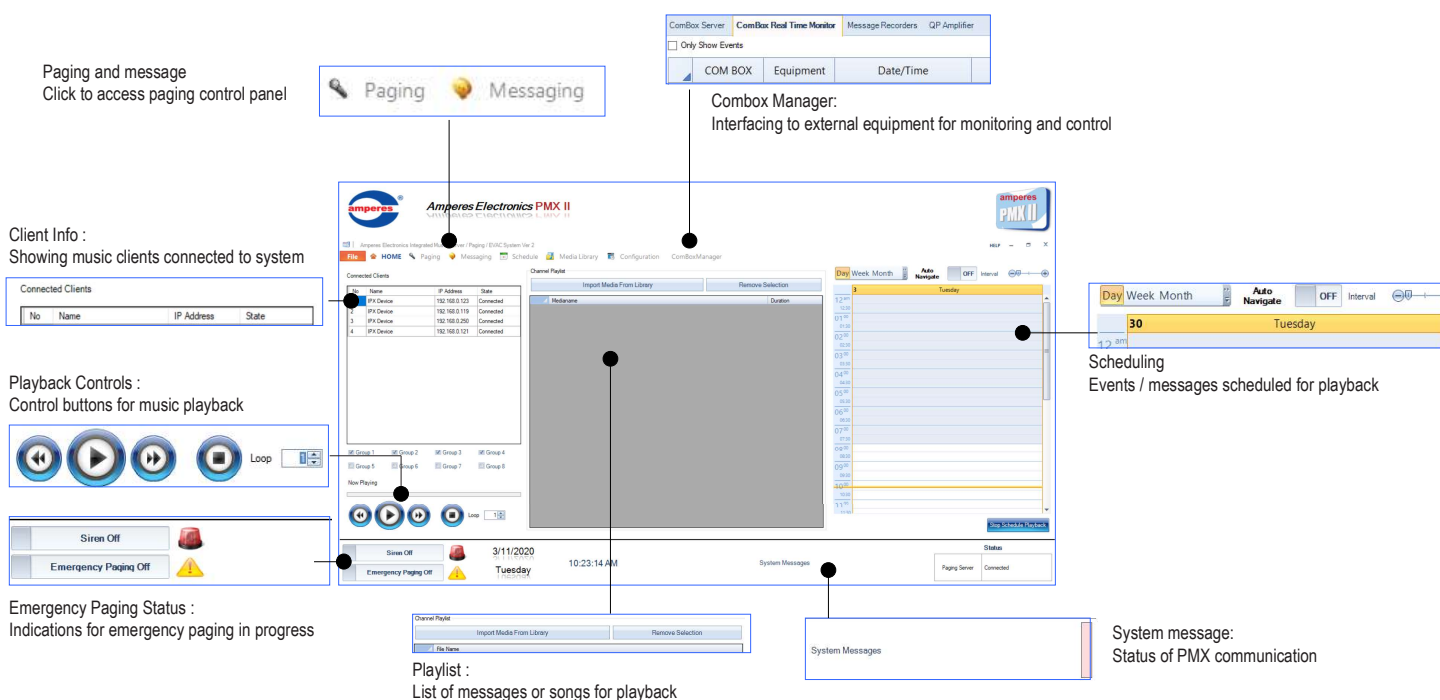


### Variant

#### PMX II Standalone PMX Paging & Music Software

Standalone version of PMX is also available with limited features as compared to PMX LAN. It shall require a PMX6500 audio converter to operate in conventional system.

### Components of PMX LAN





# MATRIX SYSTEM CONVENTIONAL SYSTEM

analogue & digital

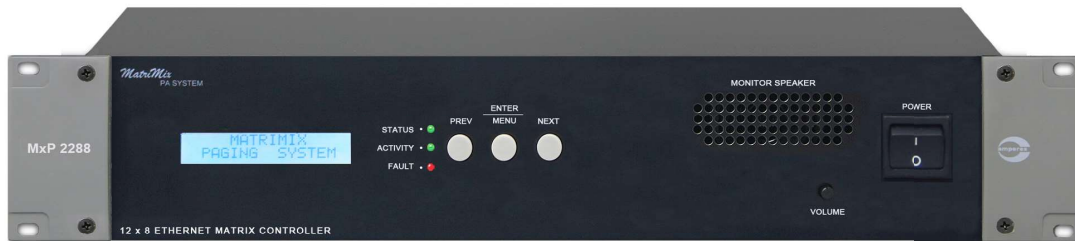


A Brand That Fits To Most Sizes or Requirements

## MATRIX SYSTEM

**MxP2288** 12 x 8 Matrix Controller  
**RP1104** Remote Control Panel  
**EX1103** Mic Extender Module

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. ie. Commercial or residential applications. With host of features such as remote access controls, LAN connectivity and user friendly equipment, MxP2288 shall be the equipment of choice for flexibility in audio selection.



### Features

#### POWERFUL PROCESSOR

Its ARM 32 bit processor enables optimum performance for smooth operation and shall be able to cater for future upgrades.

#### PRIORITIZED AUDIO ROUTING

it is designed to perform prioritized audio broadcast, which Emergency Paging would have highest priority, followed by message broadcast from MR1301 and normal paging.

#### 12 X 8 MATRIX CONFIGURATION

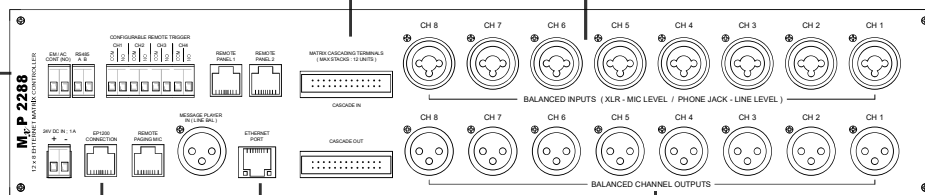
Featuring 8 Mic/Line audio inputs, dedicated EP1200 Emergency Paging Panel, MR1301 EVAC player and PD Series of paging mics

#### ZONE EXPANSION WITH CASCADE

Output zones can be expanded up to 24 zones, making the overall configurations as 12 x 24. Interlinks between stacked units had been made easy with Link Cables provided,

#### FLEXIBLE AUDIO SOURCES

Combo jacks are provided for inputs section which accept either XLR or 1/4" stereo phone jacks. Line / mic MxP2288 accepts both levels and would provide balanced line levels at its outputs.



#### FAIL SAFE OPERATION

Installation with EP1200, the PA system shall operate seamlessly even if the matrix unit is digitally down or in off mode. This emergency paging bypass mode is essential to ensure that important paging shall continue uninterrupted in critical moments.

#### LAN CONNECTIVITY

With its LAN ready feature, it can be accessed directly through web browser for configuration, channel routing and also channel VBT controls, either from a PC or via Tablet. Anywhere within the LAN ( including WIFI access), the controller is always within the command of the user.

#### OUTPUTS WITH INDIVIDUAL VBT

Each output has its own volume, bass and treble (VBT) setup, thus enabling fine tuning the audio of each zone.

## MxP2288 Companions



**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 (WxH)	86 x 86 mm
Color	White
Weight	100 g



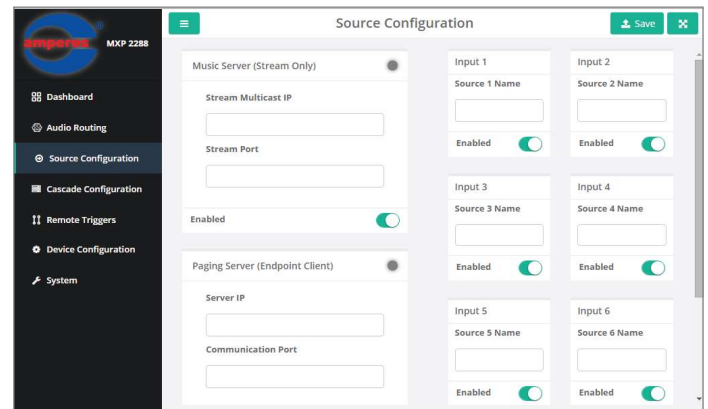
**EX1103**  
Paging Mic Extender

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

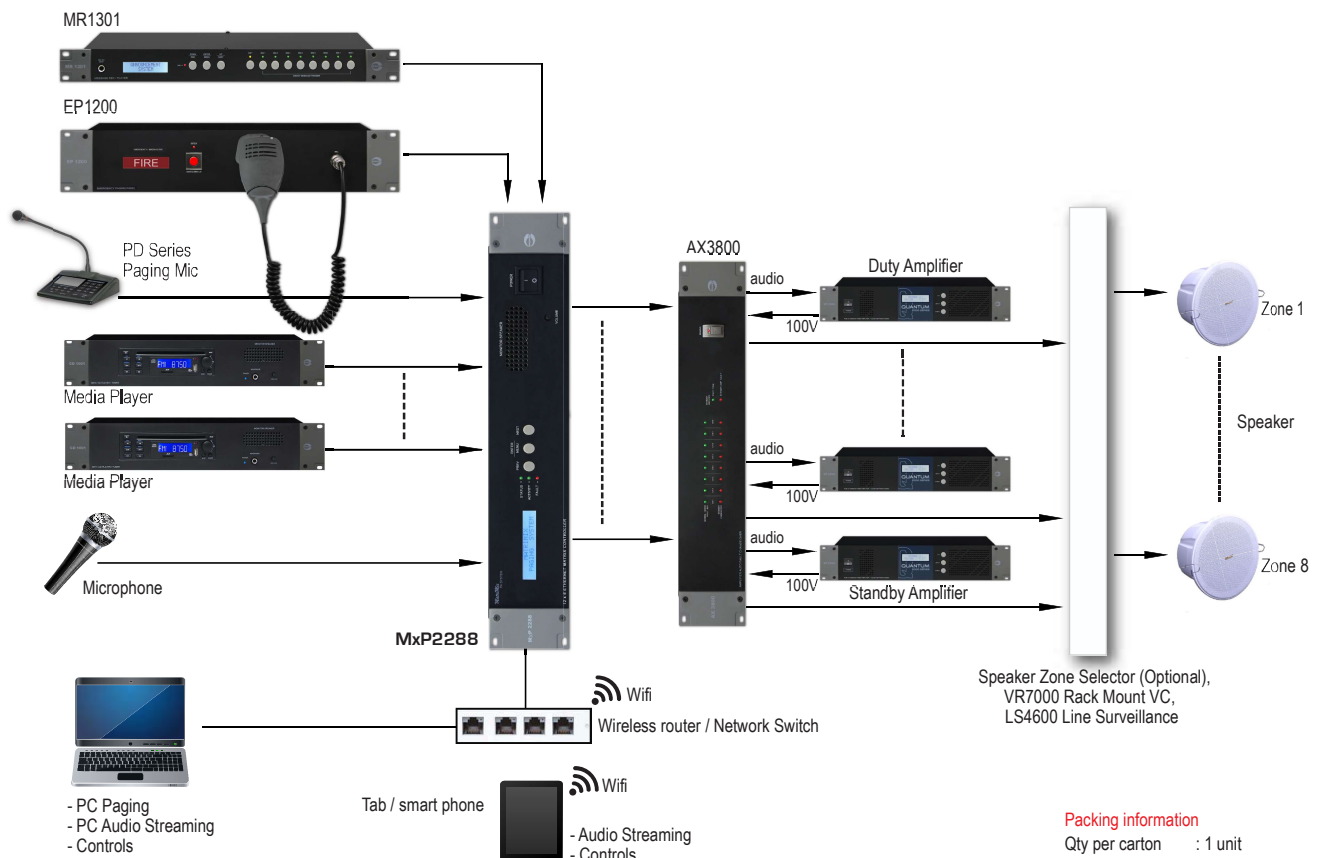
Configuration	12 x 8 matrix controller
Power source	24V DC ; 1A
Inputs channels	8 mic / line level balanced signal via combo jacks 1 x emergency mic panel (EP1200) 1 x message player (MR1301) 1 x paging mic (PD series)
Input connections	Combo jack; Mic (XLR), phone (1/4" stereo phone jack)
Input impedance	Mic: 600 Ohm Line: 10K Ohm balanced
Input sensitivity	800mVrms (line level) and 350mVrms (mic level)
Frequency response	150Hz - 17 KHz (+/-3 dB at 1 KHz) with low cut
Total harmonic distortion (THD)	0.10%
Paging audio streaming	IMAADPCM (16 KHz)
Digital format	PCM / ADPCM / OGG / MP3 / WMA / WAV
Audio output	8 x balanced line output via XLR jacks Cascade link via flat cable
Tone / volume controls	Bass: +/-14 dB cut and boost (2 dB 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 output channels ( recommended max unit )
Trigger port	Message / Emergency Paging ( programmable )
Priority controls	BGM (Local source, IPX) Paging Message Emergency Paging (highest priority)
Fail safe feature	Emergency paging bypass
E/M override contact	3A dry contact
Dimensions (WxHxD)	482 x 88 x 180 mm
Weight	3.30 kg



Browser Interface

## Application Schematic



### Packing information

Qty per carton	: 1 unit
L x W x H	: 555 x 295 x 165 mm
Weight	: 4.10 kg





**PD1900** Digital Touch Screen Paging Microphone

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

It is compatible with all zone decoders, IP Paging client ( iPX5151 ) and MxP2288 Matrix Controller. All settings are done via the user friendly UI such as volume, priority setting, naming of unit etc.

Setup a PD1900 in your reception, it shall definitely bring up the value of your establishment.

**Features**

- Illuminated gooseneck microphone upon activation
- 7" capacitive colour touch screen panel with 800 x 400 resolutions
- Multiple user friendly interfaces
- Zone groupings
- Unit name setting for easier identifications
- Built in chime / siren with tone setting

**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, mic volume
Data connections	RS485 ; 19.2 kbps
Cabling to decoder	2 pair screen : 22 AWG / Cat 5e
Recommended 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 +/- 3 dB
S/N ratio	> 65 dB @ 1 kHz
Gooseneck mic length	370 mm
Dimensions ( W x H x D )	230 x 192 x 65 mm ( excluding mic )
Weight	0.95 kg

Various GUI, providing user friendly setup

**Packing information**

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





PD1240

PD1280

24 Ch Desktop Paging Microphone **PD1240**  
254 Ch Desktop Paging Microphone **PD1280**

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

PD1240 is a 24 buttons zone control with 4 fixed groups and ALL CALL, suitable for small setup.

For larger installations of up to 254 zones, PD1280 will fit into the requirement which comes with large LCD panel and programmable 9 priority levels.

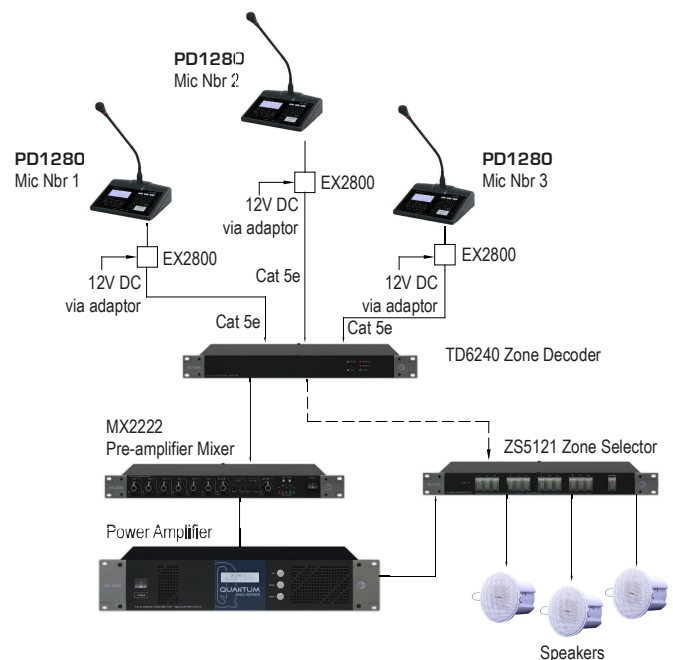
## Features

- Sensor touch keypad with impressive outlooks
- LED indicators for PD1240 and large LCD display for PD1280
- Suitable for multipoint paging with priority level setup
- Built in chime with selectable tone for PD1280
- Adjustable volume controls for chime and microphone
- Name setting at PD1280
- Compatible with Matrix Controller, TD Series of Zone Decoder and IP Clients iPX5155

## 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	1.2V balanced line output (+4dBu)	
Output controls	Chime, mic volume	
Data connections	RS485; 19.2 kbps	
Cabling to decoder	2 pair screen; 22 AWG / Cat 5e	
Recommended operating distance	500m max (18 AWG cable)	
Compatible interfacing device	MxP2288, TD6240, TD6080, 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 @ 1KHz +/- 3 dB	
S / N ratio	>65 dB @ 1 KHz	
Gooseneck mic length	370 mm	
Dimension (W x H x D)	230 x 192 x 65 mm ( Excluding Mic)	
Weight	0.75 kg	0.85 kg

## Application Schematic



### Packing information

Qty per carton : 1 unit  
L x W x H : 525 x 270 x 85 mm  
Weight : PD 1240 - 1.90kg ( incl adaptor )  
: PD 1280 - 2.00kg ( incl adaptor )





- PD2400** 24 Zone Paging Microphone
- PD2800** 254 Zones Paging Microphone
- PD1160** 8/16 Zones Paging Microphone

PD2000 Series / PD1160 are classic digital paging microphones with built in chime. They are suitable for any scale of installations with multipoint paging setup. Priority settings are available for PD2400 and PD2800. With their harmonised protocols, they are compatible to be used with TD Series of decoders as well as Matrix controller. They can be used in Amperes IP Paging System with the use of Amperes iPX5155 network client.



## PD2400

Suitable for mid size installation of up to 24 zones

- 24 direct zone key with 4 groups and All Call
- Built in 4 tone chime with Chime and Mic volume controls
- Up to 3 priority level setting



## PD2800

Suitable for large scale installation up to 254 zones

- 254 zones with 9 groupings of 12 zones each for easier access to group paging
- 9 priority level settings, thus enabling multipoint paging with 9 different priorities
- LCD display for easier monitoring



## PD1160

Suitable for small scale installation up to 16 zones

- 8 / 16 zones with built in chime
- Dedicated for direct connection to MxP2288 Matrix Controller

### Packing information

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

Gross weight :

PD2400 : 2.25 kg

PD2800 : 2.25 kg

PD1160 : 1.95 kg

1 unit per carton

## Technical Specifications

	PD2400	PD2800	PD1160
Power requirement	24V DC via RJ45 connected to EX2800		24V DC via MxP2288 / TD
Power consumption ( 24V DC )	170 mA	420 mA	200 mA
Zone selection	24 individual zone key 4 preset groups All Call	Numerical Keypad Programmable grouping All Call	8 / 16 zone keys All Call
Microphone	Condenser cardioid microphone		
Output impedance	600 Ohm balanced		
Output level	1.2 V rms ( 0 dBU )		
Output controls	Chime / Mic volume		
Data output	RS485 : 19.2 kbps		
Data connections	RJ45 to EX2800 via Cat 5e / 2 pair screen / RJ45 direct to TD6000 / MxP2288		
Operating distance	Recommended at 300 m		
Chime	4 tones Up and Down		
Indicators	Mic ring, zone switch LED	Mic ring, LCD display	Power, source, busy
Frequency response	100 - 12 kHz		
S/N ratio	> 60 dB at 1 kHz		
Gooseneck mic length	370 mm		
Dimensions ( WxHxD ) mm	292 x 62 x 186 ( body only )		150 x 62 x 186 ( body only )
Net weight ( kg ) excluding adapter	1.10		1.00



Desktop Paging Mic **PM1010**

Desktop Paging Mic with Chime **PM1030**



## 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 mic, 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	2m RJ45 connection at external box	
Output connection	5 way connector at external box	
Gooseneck mic length	370 mm	
Dimensions (W x H x D)	160 x 50 x 120 mm (excluding mic)	
Weight	380 g	400 g

PM1010 and PM1030 are newly designed desktop gooseneck microphones with contemporary outlooks suitable for general purpose paging applications.

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.

## Features

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

### Packing information

Qty per carton	: 1 unit
L x W x H	: 465 x 240 x 85 mm
Weight	: PM1010 - 1.40 kg (incl adaptor)
	: PM1030 - 1.45 kg (incl adaptor)



- PM1000** Desktop Analogue Paging Microphone
- PM1060** 6 Ch Desktop Analogue Paging Microphone
- PM1120** 12 Ch Desktop Analogue Paging Microphone

The PM1000 Series of analogue paging microphones are available in 3 versions and had been serving the needs of paging for more than a decade.

PM1000 is a simple desktop unit with chime whereas PM1060 and 1120 are versions with 6 and 12 zones respectively.

They are suitable for simple and small applications of less than 12 zones, also compatible for direct zone controls to Amperes MA2000 Series of Mixing Amplifiers, using Cat5e connections.



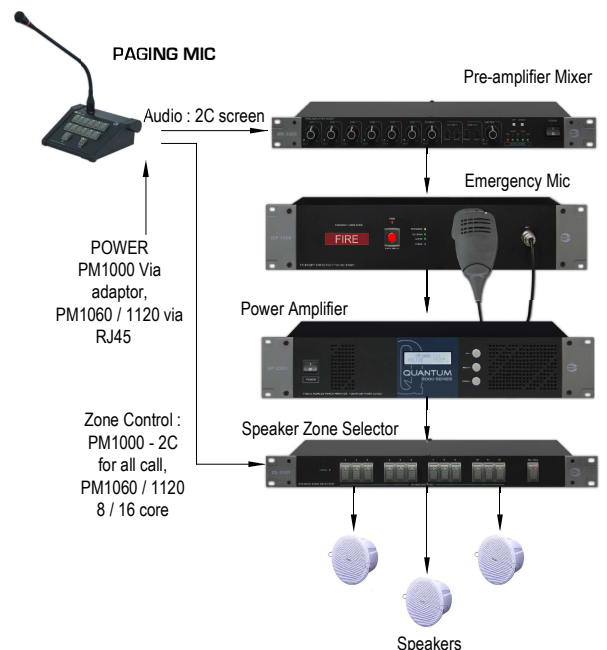
## Features

- Condenser gooseneck microphone with illuminated ring
- Pre and post announcement 4 tone chime
- 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
- Dry contact available when mic is active (PM1000 only)
- 6 or 12 zone selection for PM1060 and PM1120

## Technical Specifications

	PM1000	PM1060	PM1120
Power requirement	24V DC adaptor	24V DC via RJ45	
Power consumption	50 mA	150 mA	
Zone selection	ALL CALL	6 and 12 zones w ALL CALL	
Microphone	Condenser microphone cardioid		
Output impedance	600 Ohm		
Output level	1.2 V (line output) / balanced mic (0.75 mV )		
Output dry contact	3 A normally open (PM1000 Only)		
Output controls	Chime and mic level		
Audio connection	1/4 " stereo phone jack		
Switching connection	2 way connector	RJ45	
Operating distance	300 m (recommended)		
Chime	4 tone up and 4 tone down		
Indicators	Mic ring, zone switch, ALL CALL		
Frequency response	100 ~ 12 KHz @ 1KHz +/- 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	600 gms	800 gms	850 gms

## Application Schematic



### Packing information

Qty per carton	: 1 unit
L x W x H	: 525 x 270 x 85 mm
Weight	: PM 1000 - 1.55 kg ( incl adaptor )
	: PM 1060 - 1.15 kg
	: PM 1120 - 1.20 kg

## Emergency Paging Panel EP1200



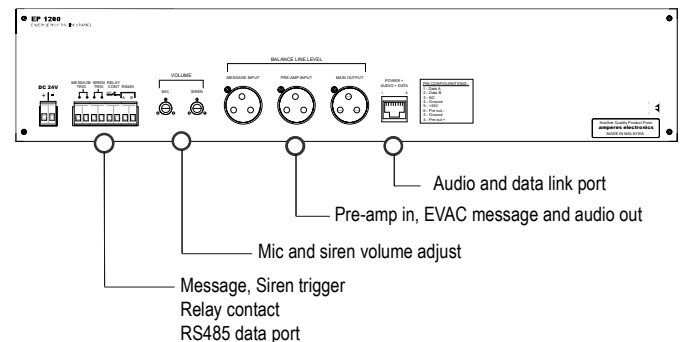
EP1200 ; Emergency Paging Microphone is one of the most important equipment in PA installation, essential to make highest priority broadcast during emergency situation. It allows direct paging to all zones and bypass any active BGM or normal paging in progress.

EP1200 has built in siren tone generator which can be activated at front panel as well as remotely when connected to FAP or external distress switch. Communication port is available for external interface such as connecting to iPX5155 of Amperes IP PA System.

### Features

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

Rear view of EP1200



### Technical Specifications

Power requirement	24V DC
Power consumption	3.5W

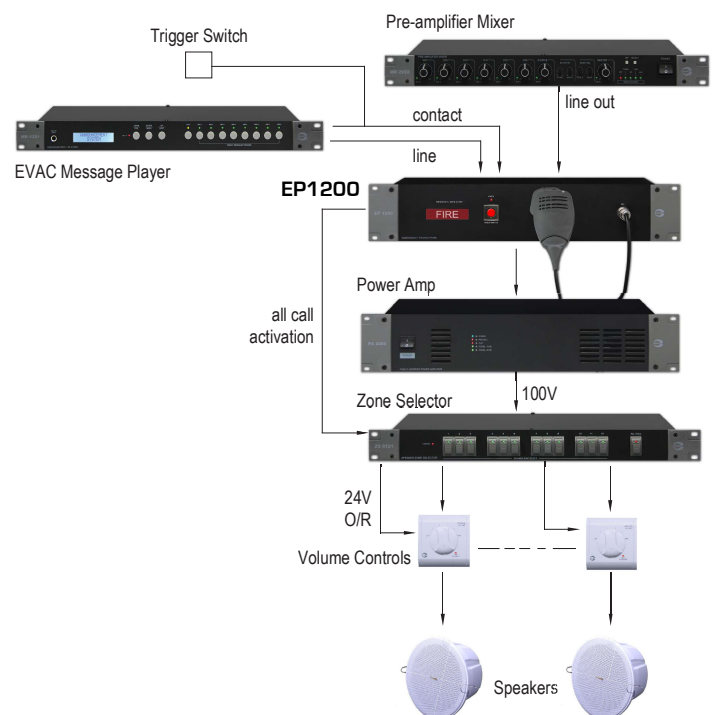
<b>MICROPHONE</b>	
Mic sensitivity	-72 dB Omni directional
Impedance	600 Ohm
Frequency response	300 ~ 8 KHz

<b>SIREN</b>	
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 +4dBu max
Priority sequence	Paging mic - siren - message - pre amp in
Indicators	Front FIRE with backlight illumination
Dimension (W x H x D)	482 x 88 x 180 mm
Weight	2.80 kg

### Application Schematic

Application in conventional system



### Packing information

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



## CD1001

**Integrated CD / DVD / USB / BT / FM Tuner**

CD1001 is rack mounted integrated media player with built in speaker and headphone jack. Suitable for BGM source player in PA installations.



### Features

- Plays various format of DVD / CD audio, MP3 from USB
- FM tuner with 8 station presets
- Bluetooth receiver for playback from external devices
- Local headphone jack
- Monitoring speaker with volume controls

#### Packing information

Carton size : 555 (L) x 295 (W) x 165 (H) mm  
Gross weight : 5.2 kg  
1 unit per carton

## CD1002

**Integrated Dual Ch CD / DVD / USB / BT / FM Tuner**

CD1002 is a compact integrated player with independent dual outputs which can be used for playing two BGM simultaneously. It is suitable for all PA setups such as Matrix system and uninterrupted paging.



### Features

- Plays various format of DVD / CD audio, MP3 from USB and FM tuner.
- Bluetooth receiver available for receiving external audio transmission
- Independent dual outputs for simultaneous dual BGM playback

#### Packing information

Carton size : 525 (L) x 368 (W) x 120 (H) mm  
Gross weight : 4.0 kg  
1 unit per carton

## MP1020

**Dual Ch. Media Player**

MP1020 is a simple dual channel media player with USB and SD Card MP3 player, FM tuner and aux input. It is suitable for multi source BGM broadcast such as in the Matrix system.



### Features

- Plays various format of MP3 from USB, SD Card and FM tuner.
- Aux inputs with RCA jacks
- Bluetooth receiver available for receiving external audio transmission
- Independent dual outputs for simultaneous dual BGM playback

#### Packing information

Carton size : 555 (L) x 295 (W) x 95 (H) mm  
Gross weight : 2.4 kg  
1 unit per carton

## Technical Specifications

	CD1001	CD1002	MP1020
Operating voltage	220 - 240V AC		24V DC
Power consumption	1.8 W ( 240V AC )	2.5W ( 240V AC )	4.4 W ( 24V DC )
Channels	1	2	
Playback media	CD / DVD / FM tuner / USB, SD card MP3, Bluetooth		FM / USB SD MP3, Bluetooth
USB playback format	MP3, WAV		
Aux input	Nil		RCA Stereo x 2
Output	RCA stereo line out ( 0 dBu , 0.775 V )		
Monitoring	Headphone & Speaker	Nil	
Frequency response ( CD )	20 - 20 kHz		Nil
S/N ratio	> 80 dB		> 60 dB ( USB )
Distortion	< 0.5 % , 1 kHz		
Working temperature	-10 to 55 deg C		
Humidity	85 %		
Dimensions ( WxHxD ) mm	482 x 88 x 180	482 x 44 x 365	482 x 44 x 180
Net weight ( kg )	4.25	2.70	1.80





## Weekly Programmable Timer **PT1801** MK II



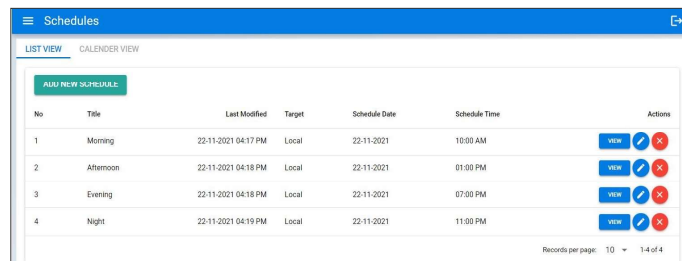
PT1801 MK II succeeded past its predecessor, packed with more advanced features for the ease of applications and controls. It is now LAN ready, which allows the user to access and setup the program times in a much more convenient way.

Users can now download melodies and songs of their choice directly to the unit without having to add additional external player. User can also play the tunes at designated schedules.

PT1801 MK II is also compatible to be integrated into Amperes iPX environment, which enabling schedules to be sent to iPX5155. Alongside with its balanced line out, PT1801 MK II is indeed an equipment of right choice.

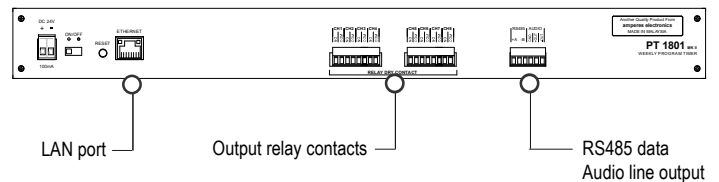
### Features

- LAN connectivity for ease of setup and controls with world clock synchronization
- Compatible to be used in Amperes iPX environment
- 16 GB memory bank for large and multiple files for playback
- 1000 stored presets with free assignments
- 8 dry contact upon schedule activations
- User friendly GUI

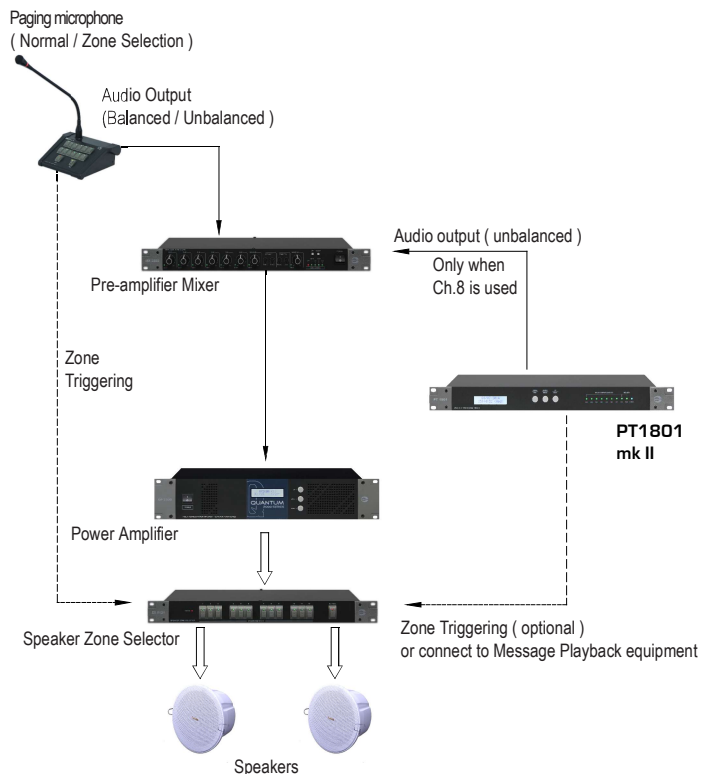


Creating schedules has been made simpler with user friendly GUI

Rear View:



### 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	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 : 2.55 kg  
1 unit per carton



INPUT SOURCES & CONTROLS

CM1400 Chime and Siren Tone Generator



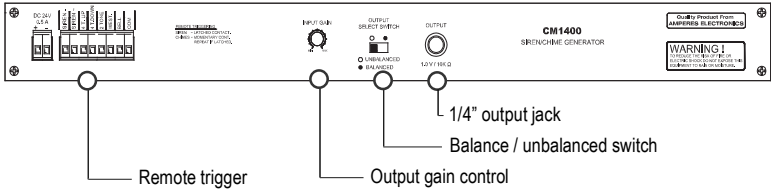
CM1400 offers 5 chimes and 2 siren tones with selectable balanced and unbalanced line output. Activation of chime shall be from front switches or via remote triggering terminals, enabling the unit to be linked to external sensors or triggering system such as alarm panel, remote mic or emergency switch. Siren has priority over chimes.

Technical Specifications

Operating voltage	24V DC via PS9400 PSU
Power consumption	72 mW
Chime types	4 tone up, 4 tone down 2 tones Ringing bell Westminster
Siren type	Constant 8 kHz Wavy siren
External activation	Dry contact
Output	Line +4dBu balanced / unbalanced
Output impedance	10 k Ohm
Dimensions (W x H x D)	482 x 44 x 180 mm
Weight	1.85 kg

Features

- 5 types of chime and 2 siren
- Adjustable output volume
- Selectable output as balanced or unbalanced line
- Front panel switch activation or via remote trigger
- Custom tone service available

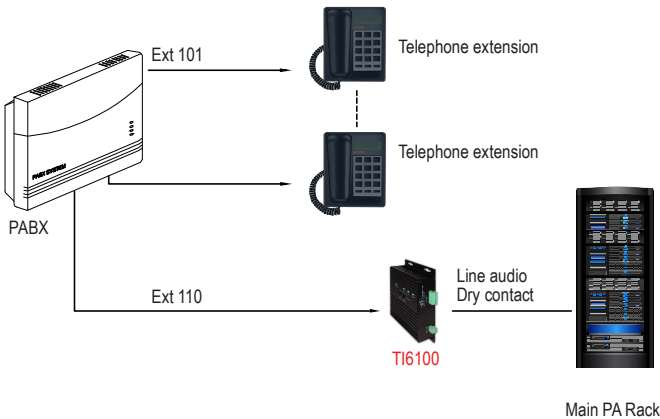


Packing information  
Carton size : 555 (L) x 295 (W) x 95 (H) mm  
Gross weight : 2.40 kg  
1 unit per carton

Ti6100 Telephone Paging 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  
Carton size : 155 (L) x 105 (W) x 125 (H) mm  
Gross weight : 0.9 kg  
1 unit per carton



improved

Fire Alarm Interface **FI6000 MK II**  
Fire Alarm Interface Extender **FI6001**

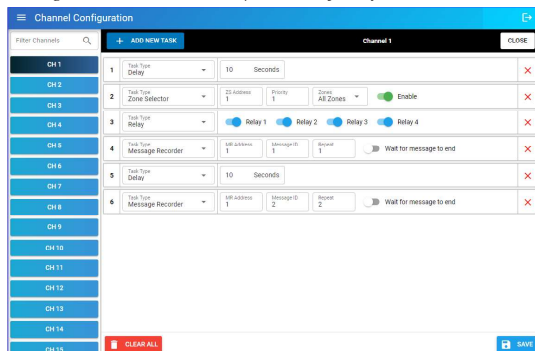


FI6000 MK II is an improvised phase evacuation controller, which is an essential intermediary device between Fire Alarm Panel and PA System. It enables zone controls and playback of various EVAC messages in pre-programmed sequences of activities. The orderly and automated activities upon receiving signals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

FI6000 has been improved and LAN interface has been added for the ease of programming via web interface instead of application software. Attractive and user friendly UI has been developed for better user experience during configurations.

FI6001 is an extension unit to the main FI6000 controller if the number of channels are more than 24. It can be able to be extended of up to 16 units, which is equivalent to 384 receiving ports.

Creating schedules has been made simpler with user friendly GUI



## Schematic Diagram

Input voltage	24 V DC ; 1 A
Power consumption ( all triggered )	21 W ; 0.9 A
Input channels	24 ports
Max expandable unit	16 ; max 384 channels
Trigger method	Dry contact, NO
Output channels ( dry contacts )	4
Output contact rating	3 A
Output contact modes	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	482 x 44 x 180 mm
Weight	1.9 kg

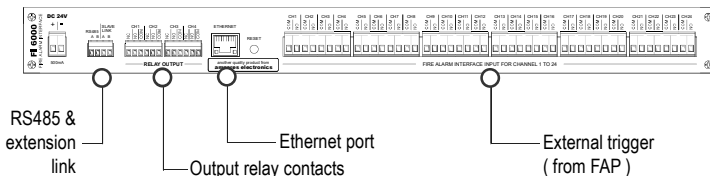
## Packing information

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

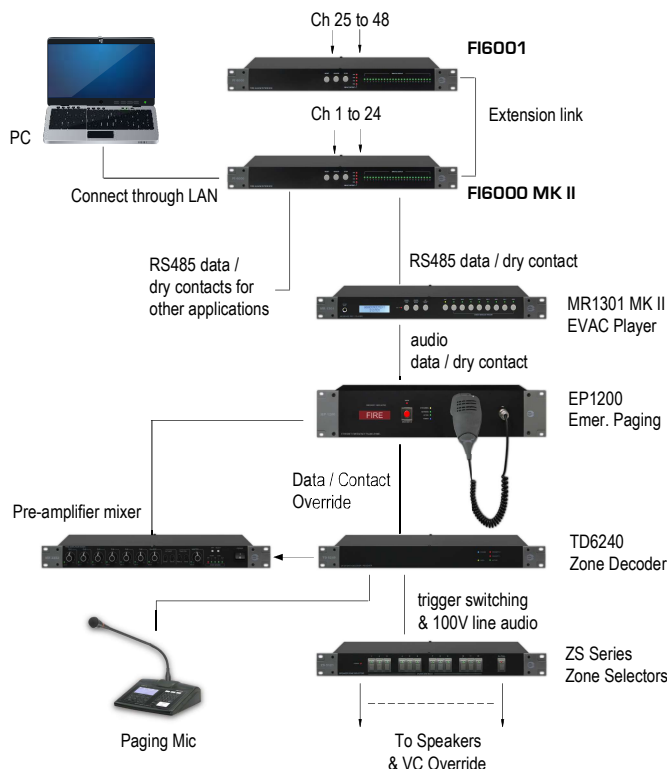
## Features

- LAN connectivity for ease of setup and controls
- Available in 24 channels and can be extended with FI6001
- Integrated with Amperes products via RS485 and dry contacts
- Bi colour LEDs for easy identification of status
- Most suitable Fire Alarm Interface for Phase Evacuation activities
- User friendly GUI

Rear View:



## Application Schematic



## INPUT SOURCES & CONTROLS

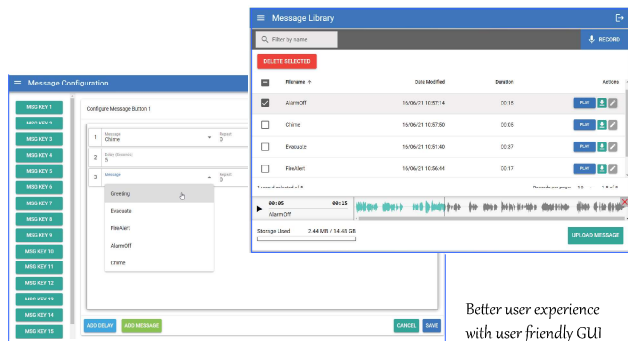
### MR1301 EVAC Message Player / Voice Recorder MK II

improved



MR1301 - EVAC Voice Message player has been further upgraded, notably the way the unit shall be setup. LAN port has been added to enable configuration to be performed smoothly using web interface with user friendly GUI. Tasks such as uploading of files, combining or grouping messages, and key assignments shall all be done via web browser or the front button keys.

As one of the most important equipment in EVAC, MR1301 MK II shall perform beyond the user's expectation by providing precise message delivery and clarity, to enable timely and systematic evacuation procedures in time of distress. Apart from the above application, it can also be used as general message player such as prayer playback, voice recording and other usages as required.

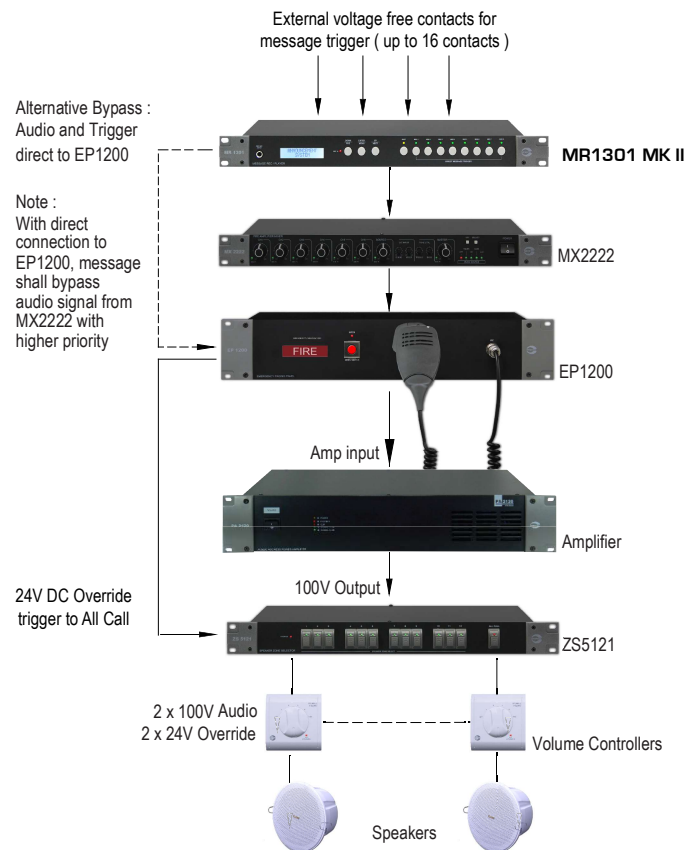


Better user experience  
with user friendly GUI

## Features

- Up to 32 GB of memory space for large file storage and recording
- Web technology with user friendly GUI for setup, upload files and configurations
- Message playback via front button / rear remote triggering
- High quality MP3 audio playback of up to 320 kbps with 64 kbps IMA ADPCM voice recording
- Flexible message configuration in every memory bank, ie. multiple files in single button with delay setting in between
- Flexible message playback sequencing
- Event logging with time stamp for every message played, triggered and powered.
- Built in 5 band equalizer
- File / setting back up and restore
- Simple firmware updates

## Application Schematic



## Technical Specifications

Operating voltage	24V DC ; 1A
Power consumption	2.4 W ( 0.1 A )
Standby consumption	1.7 W ( 0.07 A )
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, 2x18 Char LCD
Memory	16 GB non detachable SD card ( option for 32 )
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 : 2.55 kg  
1 unit per carton

[www.ampereselectronics.com](http://www.ampereselectronics.com)





AR1400 is a dual purpose machine, which serves as an event logging device as well as audio recorder. Activities or events running in the system shall be logged with time stamps and the announcement audio shall be recorded accordingly. This is to provide evidence if there is any disputes raised.

It shall record analogue audio during normal paging, emergency paging mic as well as in IP paging. With the large memory banks, hundreds of hours of audio recordings can be stored.

Apart from application in PA, it can also be used to record audio via Aux input, such as recording audio from conference systems and meetings.

### Features

- LAN connectivity for ease of setup and controls
- Simultaneous recording for 2 analogue inputs
- Compatible with Amperes IP paging audio recording
- 32 GB of memory for hundreds of hours of recordings
- RS485 data port for external controls
- World clock synchronization
- Report generation to CSV file
- Access through web browser for setup and file retrieve

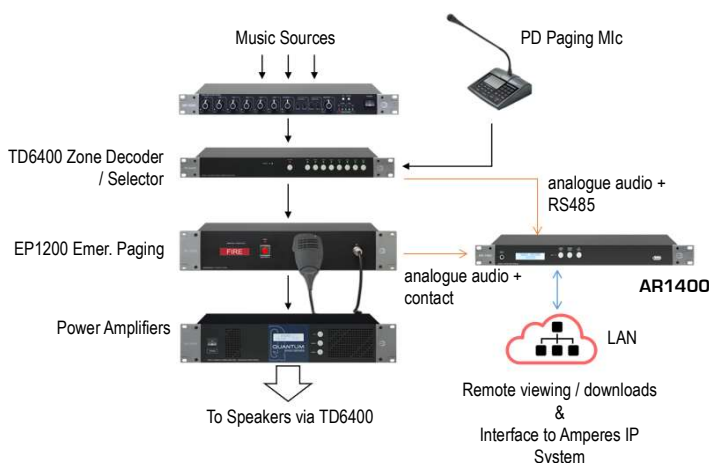
Activity Logs							
<div>EXPORT TO CSV</div> <div>EXPORT TO ZIP</div>							
<input type="checkbox"/>	No.	Start Time	End Time	Origin	Source	Destination	Actions
<input type="checkbox"/>	1	01-09-2021 12:00:00	01-09-2021 12:00:00	IPX			PLAY
<input type="checkbox"/>	2	02-09-2021 12:00:00	02-09-2021 12:00:00	IPX			PLAY
<input type="checkbox"/>	3	03-09-2021 12:00:00	03-09-2021 12:00:00	AMP			PLAY
<input type="checkbox"/>	4	04-09-2021 12:00:00	04-09-2021 12:00:00	IPX			PLAY
<input type="checkbox"/>	5	05-09-2021 12:00:00	05-09-2021 12:00:00	IPX			PLAY
<input type="checkbox"/>	6	06-09-2021 12:00:00	06-09-2021 12:00:00	AMP			PLAY
<input type="checkbox"/>	7	07-09-2021 12:00:00	07-09-2021 12:00:00	IPX			PLAY
<input type="checkbox"/>	8	08-09-2021 12:00:00	08-09-2021 12:00:00	IPX			PLAY

Activities shall be monitored and recorded with time stamp, which can be easily downloaded or export the logs into CSV files

File Manager				
Filter by file name				
<input type="checkbox"/>	Filename	Date Modified	Duration	Actions
<input type="checkbox"/>	File 1	08/10/95 00:00:00	00:01	PLAY
<input type="checkbox"/>	File 2	27/07/46 00:00:00	00:02	PLAY
<input type="checkbox"/>	File 3	21/01/62 00:00:00	00:00	PLAY
<input type="checkbox"/>	File 4	17/12/81 00:00:00	00:02	PLAY
<input type="checkbox"/>	File 5	13/02/0 00:00:00	00:02	PLAY
<input type="checkbox"/>	File 6	28/15/47 00:00:00	00:00	PLAY
<input type="checkbox"/>	File 7	18/06/23 00:00:00	00:04	PLAY

File manager section which enable recorded audios to be downloaded to PC

### Application Schematic



The above shows one of the possible application schematics to record voice normal and emergency paging by AR1400.

### Technical Specifications

Input voltage	24 V DC ; 1 A
Power consumption ( all triggered )	2.1 W ; ( 0.09 A )
Input channels	3 ( including iPX )
PMX record initiation	Via iPX5101
Analogue input record initiation	Dry contact and RS485
Input level	Line : Balanced Max +4dBu
Output contacts	1
Storage media	32 GB
Recording duration	500 hours
Recording format	WAV, MP3
Indicators	LCD display
Communications	RS485 ; 19.2 kbps
	LAN 10/100 Base T
User interface	Web browser : Google, Firefox
Dimensions	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





## 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, house of worships, etc.

#### Packing information

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



#### Features

- 12 inputs of mic, BGM sources, ext.chime and mixer link for channel expansion
- Auto muting with adjustable ducking level for Ch. 1,2, chime and line in
- Priority muting with disable option for normal mixing mode
- Switchable phantom power for mic channel 1 to 4
- Dual output ; mixed line and BGM output for uninterrupted paging setup
- Independently adjustable BGM balance line output level
- Built in daisy chain source selector with last selection memory
- Bass and treble tone control
- AC and DC power source for uninterrupted operation during power failure

### MX2322

#### 13 Inputs Dual Bus Pre-Amplifier Mixer

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

Connections has been made simpler with Phoenix connectors, which is a preferred choice for fixed installations.



#### Features

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

## Technical Specifications

	MX2222	MX2322
Operating voltage	220 ~ 240 V 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
Input impedance	RCA : 47 k Ohm, Mic : 600 Ohm, Link : 10 k Ohm	Line : 10 kOhm ; 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 ( 100 Hz ), Mid ( 1 kHz ), Hi ( 10 kHz )
Frequency response	175 ~ 15 kHz	20 ~ 20 kHz
S/N ratio / THD + N	> 60 dB / < 0.1%	> 75 dB / < 0.1%
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 (WxHxD)	482 x 44 x 185 mm	482 x 88 x 185 mm
Weight	2.2 kg	3.3 kg



## 2 In 8 Out Audio Distribution Amplifier DA2208



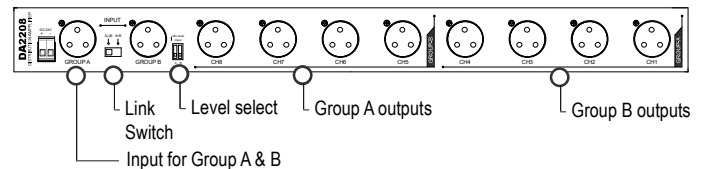
DA2208 is an audio ( line level ) distribution unit with configuration of 2 in x 4 out or 1 in x 8 out. As rule of thumb, a signal shall not be fed to more than six amplifiers in your PA rack in order to avoid signal degradation. Thus DA2208 shall come in handy to the solution.

Normally different amplifier will cater for different zones with specific speakers., such as horn and ceiling, the input shall be tuned to suit the sounders in terms of volume or tone. DA2208 has individual output tone controls for bass and treble and volume to fit to the requirement.

### Features

- 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

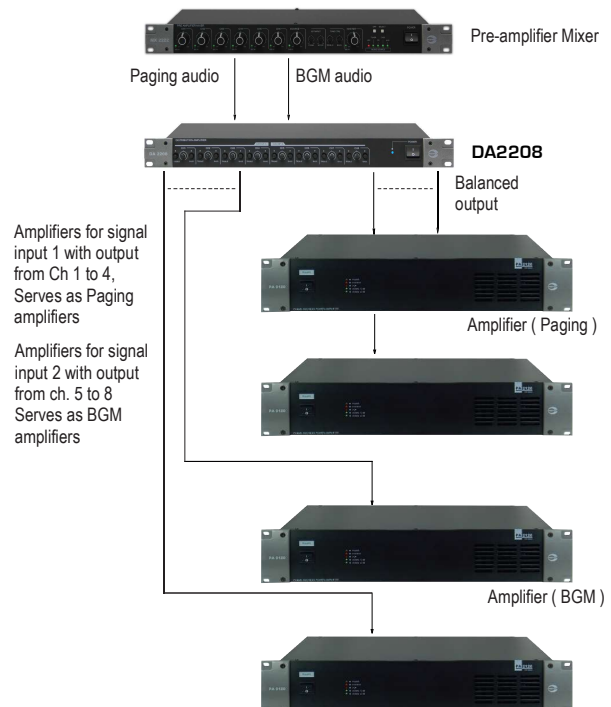
Rear View:



### 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 : 1.2 V rms ( + 4 dBu ) max
Input impedance	10 k 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 k Hz ( +/- 3 dB, 1 kHz )
Connections	XLR 3 pins
Dimension (W x H x D)	482 x 44 x 180 mm
Weight	1.95 kg

### Application Schematic



The above illustration is for Uninterrupted Paging setup, which one set of amplifiers would be used for Paging purpose while the other only for BGM. Each output from DA2208 shall not be fed to more than 6 power amplifiers to avoid signal distortion.

### Packing information

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

scan for  
updates



## PA320 20W 4 Ohm Mini Amplifier

## PA322 20W 4 Ohm Mini Amplifier with Dual Source

## PA330 30W 100V Mini Amplifier

PA300 Series of mini amplifiers are available to power small number of localised 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** Used to amplify BGM to a speakers of 4 or 8 Ohm, from TV output to a bathroom speaker in hotel room. Amperes VC7805 volume controller and VP7810 BGM-Speaker patch panel can be installed for emergency overriding by central PA system.

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



**PA322** 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** It is suitable to be used as remote amplifier in decentralised system such as classroom paging, horn amplifier for security poles or to drive a group of localised 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.

- 30W 100V line output
- Adjustable volume controls



### Packing information

PA320	PA330
L x W x H : 555 x 295 x 165 mm	L x W x H : 550 x 465 x 180 mm
Qty per carton : 20 unit	Qty per carton : 12 unit
Weight : 16.20 kg	Weight : 16.55 kg

### Technical Specifications

	PA320	PA322	PA330
Ratings	20W 4 Ohm		30W 100V
Operating voltage	220 ~ 240 V AC		
Current consumption ( 240V AC )	0.14 A	0.03 A	0.24 A
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 deg C		
Operating humidity	80%		
Dimensions ( W x H x D ) mm	130 x 55 x 95	140 x 55 x 95	150 x 71 x 155
Net weight ( kg )	0.76	0.82	1.10





250W 100V Line **QD2025**  
 500W 100V Line **QD2050**  
 750W 100V Line **QD2075**  
 1000W 100V Line **QD2100**

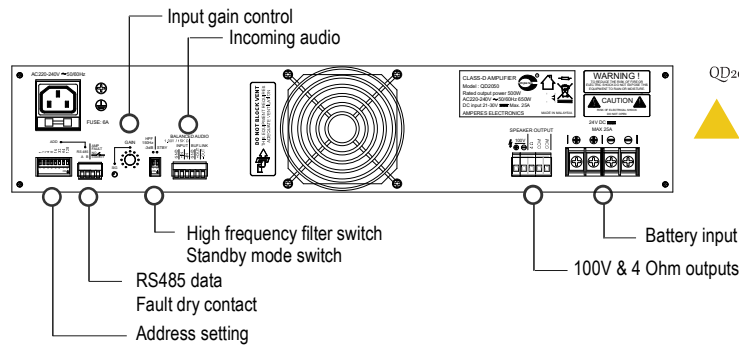


QD2000 Series are newly added models of high performance power packs to the range of 100V line output power amplifiers. It is born out of in-depth R and D to produce high efficiency with broad frequency response for reliable and robust applications in PA installations.

QD2000 Series distinguished itself from others of its class by incorporating Auto Fault Sensor (AFS) circuit and is equipped with RS485 data port for remote monitoring by Amperes PMX LAN.

## Features

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



QD2000 is built with various protections for durability - thermal, short circuit, overload and fuse.

## 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

## 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 ( 1.3 A )	650 VA ( 2.6 A )	1000 VA ( 3.9 A )	1300 VA ( 5.1 A )
Current consumption ( 24V DC )	15 A	25 A	40 A	50 A
DC back up standby current	1.2 A ( With standby Off )			
Input sensitivity (100V out )	1V rms balanced input via phoenix connector ( 15 kOhm )			
Input link ( buffered )	0 dB balanced line ( 10 kOhm )			
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, 1kHz )			
S/N ratio	> 68 dB			
THD + N	< 0.2 %			
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 (WxHxD) mm	482 x 88 x 340 mm			
Net weight ( kg )	6.8	6.8	7.0	7.1



**DP2240** 2 x 240W 100V

**DP4240** 4 x 240W 100V

**DP2500** 2 x 500W 100V



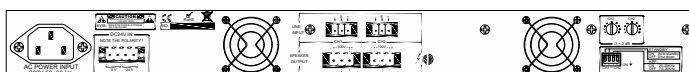
DP2000 Series are multi channel Class D power amplifiers available in three variants, serving the needs of wider frequency range of audio. It is also compact in size and lighter than conventional power packs.

The high efficiency Class D circuits also reduces power consumption, an essential factor in reducing carbon prints to the environment.

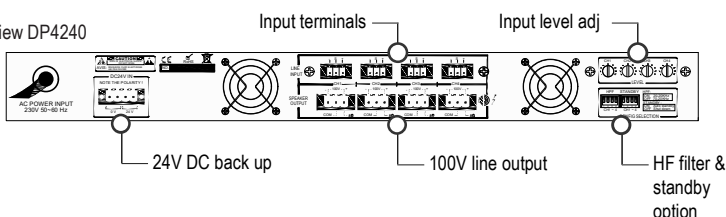
## Features

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

Rear View DP2240



Rear View DP4240



## 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

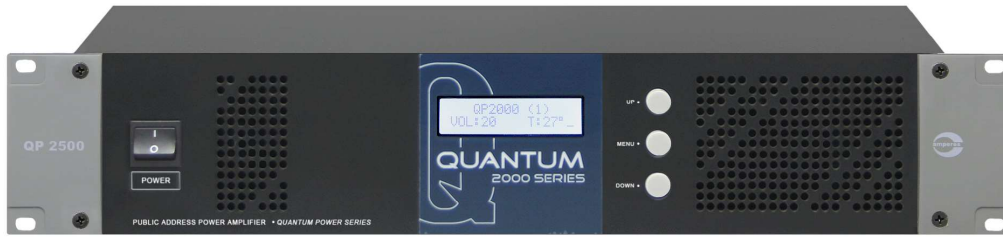
1 unit per carton

## Technical Specifications

	DP2240	DP2500	DP4240
Ratings ( rms ) 100V output	2 x 240 W	2 x 500 W	4 x 240 W
Operating voltage	220 ~ 240 V AC or 24 V DC back up supply		
Power consumption ( 240V AC )	550 VA ( 2.3 A)	1100 VA ( 4.6 A )	
Current consumption ( 24V DC )	22 A	46 A	
Standby current ( 24V DC )	0.3 A		
Input signal ( sensitivity )	0.775 V ( 0 dBu ) / 10 k 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 +/- 3dB		
S/N ratio	> 80 dB @ 1 kHz, 1V		
THD + N	< 0.1 %, 1 kHz		
Protections	Thermal, short circuit, overload, fuse, in-rush current		
Cut off temperature	75 deg C		
Cooling system	Fan forced cooling		
Indications	LED : Protect, input audio, output and power		
Dimensions ( WxHxD ) mm	482 x 44 x 420		
Net weight ( kg )	5.90	6.90	6.80







125W 100V **QP2125**  
 250W 100V **QP2250**  
 375W 100V **QP2375**  
 500W 100V **QP2500**

QP2000 Series are 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 RS485. PMX LAN software can be incorporated in your PA system for remote setting and monitoring of QP amplifiers.

A distinctive feature would be its Auto Fault Sensor ( AFS ) and internally built Amplifier Fault Changeover relay ( AFX ). The amplifier shall self monitor through self generated Pilot Tone, and if fault is detected, change-over to standby amplifier shall be initiated. This is to ensure smooth operation of your system. An innovative feature for cost saving and uninterrupted operation.

## Features

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

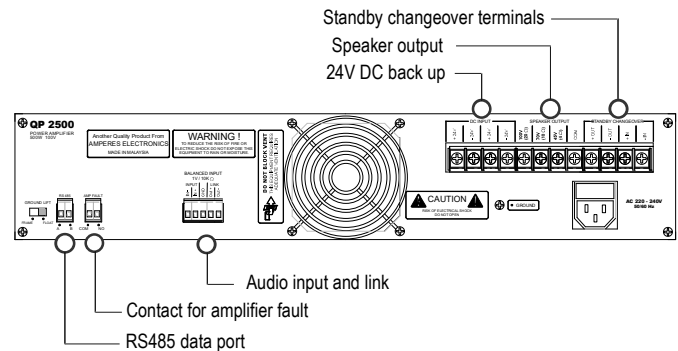
## Packing information

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



## Technical Specifications

	QP2125	QP2250	QP2375	QP2500
Ratings ( rms ) 100V output	125 W	500 W	375 W	500 W
Operating voltage	220 ~ 240 V AC or 24 V DC back up supply			
Power consumption ( 240V ac )	294 VA ( 1.1 A )	447 VA ( 1.7 A )	749 VA ( 2.9 A )	873 VA ( 3.3 A )
Current consumption ( 24V DC )	5.9 A	10.6 A	16.7 A	19.6 A
Standby current ( 24V DC )	0.7 A			0.9 A
Input signal ( sensitivity )	1V ( +4 dBu ) / 10 k Ohm via Phoenix connectors			
Input gain controls	-40 to +4 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	70 - 15 kHz @ 1 kHz +/- 3dB			
S/N ratio	> 70 dB @ 1 kHz, 1V			
THD + N	< 0.18 %			
Protections	Thermal, short circuit, overload, fuse, in-rush current			
Cut off temperature	75 deg C			
Cooling system	Auto temperature controlled cooling fan with auto ON			
Indications	LCD with temp, audio level and address			
Communication	RS485 ; 19.2 kbps			
Fault sensing	Internal Pilot Tone : 20 kHz, detection at 15 ~ 20 secs, 10 secs interval			
Fault detection response	Standby amplifier relay activation, fault dry contact			
Dimensions ( WxHxD ) mm	482 x 88 x 335			
Net weight ( kg )	11.60	12.70	16.50	18.05



**PA2120** 120W 100V  
**PA2240** 240W 100V  
**PA2360** 360W 100V  
**PA2480** 480W 100V  
**PA2600** 600W 100V



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.

## Features

- Available in various ratings ; from 120W to 600W 70 or 100V line
- 4 Ohm speaker connection available with 25V ~ 48V output
- Thermal protection by muting input signal (typically 75 deg at heat sink)
- Momentary short circuit protection
- In rush current limiter
- Temperature dependent dual speed cooling fan
- Balanced input signal with gain control and selectable grounding option
- AC and DC operation for uninterrupted operation during power failure

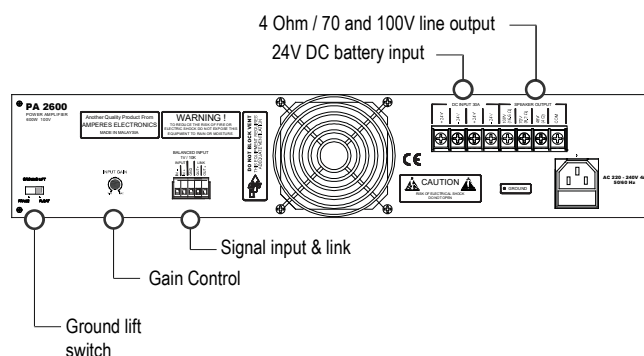
## Packing information

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



## Technical Specifications

	PA2120	PA2240	PA2360	PA2480	PA2600
Ratings ( rms ) 100V output	120 W	240 W	360 W	480 W	600 W
Operating voltage	220 ~ 240 V AC or 24 V DC back up supply				
Power consumption ( 240V ac )	255 VA ( 1.0 A )	497 VA ( 1.9 A )	731 VA ( 2.8 A )	996 VA ( 3.8 A )	1069 VA ( 4.1 A )
Current consumption ( 24V DC )	6.1 A	10.6 A	16.3 A	22.3 A	23.1 A
Standby current ( 24V DC )	0.2 A		0.3 A	0.4 A	
Input signal ( sensitivity )	1V ( +4 dBu ) / 10 k Ohm via Phoenix connectors				
Input gain controls	-40 to +4 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	< 0.18 %				
Protections	Thermal, short circuit, overload, fuse, in-rush current				
Cut off temperature	75 deg C				
Cooling system	Auto temperature controlled cooling fan				
Indications	LED : Power, Signals				
Dimensions ( WxHxD ) mm	482 x 88 x 335				
Net weight ( kg )	11.40	12.35	16.20	17.95	19.60



## MA2000 Series Mixing Amplifiers



## POWER AMPLIFIERS

60W 100V Line	<b>MA2006</b>
120W 100V Line	<b>MA2012</b>
240W 100V Line	<b>MA2024</b>
360W 100V Line	<b>MA2036</b>

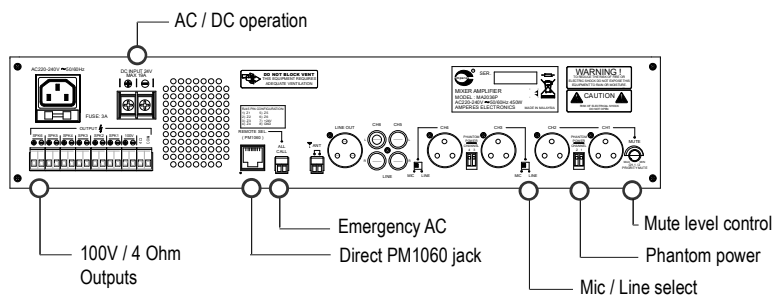
MA2000 Series of mixing amplifiers has been further improved with higher power ratings and better sound reproduction by incorporating high efficiency Class D amplifier circuits. The overall size and weight had also been further reduced for more efficient space usage.

It is suitable for small setups such as showrooms, retail outlets, function rooms and prayer halls. Each unit has 6 zones outputs which can be easily connected to PM1060 paging mic with RJ45 jack.

MA2000P is a series with media player module consisting USB / SD card MP3, bluetooth and FM tuner.

### Features

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



### Packing information

Carton size : 555 (L) x 295 (W) x 165 (H) mm  
 Gross weight :  
 MA2000 : 5.45 kg  
 MA2000P : 5.50 kg  
 1 unit per carton  
 Optional rack mounting bracket available

### Technical Specifications

	MA2006 / 2006P	MA2012 / 2012P	MA2024 / 2024P	MA2036 / 2036P
Ratings ( rms ) 100V output	60 W	120 W	240 W	360 W
Operating voltage	220 ~ 240 V AC			
Power consumption ( 240V AC )	115 W / 0.5 A	160 W / 0.7 A	285 W / 1.2 A	450 W / 1.9 A
Input - Ch 1 and 2	Balanced Mic input with 12V Phantom Power ( 10 k Ohm ) ; Adjustable mute priority			
Ch 3 and 4	Balanced Mic / Line selectable with 12V Phantom Power ( Mic : 10 k Ohm, Line : 15 k Ohm )			
Ch 5 and 6	Unbalanced input ( 15 k Ohm ) RCA 0 dBV			
THD + N ( at rated power )	< 0.02 %			
S/N ratio	> 68 dB			
Tone controls	Bass ( 100 Hz ), Treble ( 10 k Hz ) +/- 15 dB			
Frequency response	120 - 20 k Hz ( +/- 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			
100 V @ 1V rms input	100V rms			
Protections	Thermal, short circuit, AC and DC fuses			
Indications	Power, zone selection, signal level			
Cooling system	Thermostat controlled fan at 45 Deg C			
Dimensions ( WxHxD ) mm	434 x 88 x 200 ( without bracket )			
Net weight ( kg )	4.35 kg / 4.40 kg ( P version )			



**MC2106** 60W 100V Line  
**MC2112** 120W 100V Line  
**MC2124** 240W 100V Line  
**MC2136** 360W 100V Line

**improved**  
**CLASS D AMPLIFIERS**



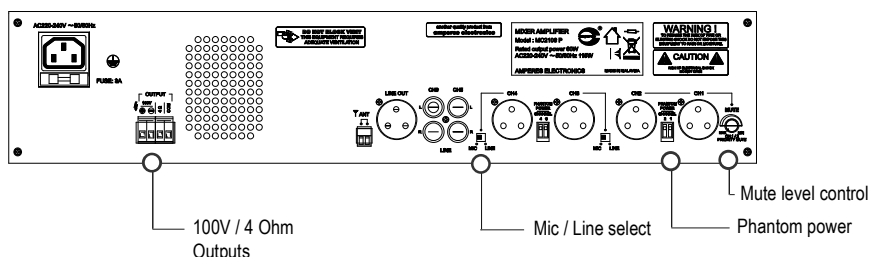
## Features

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

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

It is suitable for small setups such as showrooms, retail outlets, function rooms and prayer halls.

MC2000P are units with media player module with USD / SD card MP3 playback, bluetooth and FM tuner.



## 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  
 Optional rack mounting bracket available

## Technical Specifications

	MA2106 / 2106P	MA2112 / 2112P	MA2124 / 2124P	MA2136 / 2136P
Ratings ( rms ) 100V output	60 W	120 W	240 W	360 W
Operating voltage	220 ~ 240 V AC			
Power consumption ( 240V AC )	115 W / 0.5 A	160 W / 0.7 A	285 W / 1.2 A	450 W / 1.9 A
Input - Ch 1 and 2	Balanced Mic input with 12V Phantom Power ( 10 k Ohm ) ; Adjustable mute priority			
Ch 3 and 4	Balanced Mic / Line selectable with 12V Phantom Power ( Mic : 10 k Ohm, Line : 15 k Ohm )			
Ch 5 and 6	Unbalanced input ( 15 k Ohm ) RCA 0 dBV			
THD + N ( at rated power )	< 0.02 %			
S/N ratio	> 68 dB			
Tone controls	Bass ( 100 Hz ), Treble ( 10 k Hz ) +/- 15 dB			
Frequency response	120 - 20 k Hz ( +/- 3 dB )			
Signal output	0 dBu balanced line			
Power output -				
4 Ohm @ 1V rms input	50 V rms			
100 V @ 1V rms input	100V rms			
Protections	Thermal, short circuit, AC and DC fuses			
Indications	Power, signal level			
Cooling system	Thermostat controlled fan at 45 Deg C			
Dimensions ( WxHxD ) mm	434 x 88 x 200 ( without bracket )			
Net weight ( kg )	3.40 / 3.45 ( P version )			





AC3801 is a manual amplifier changeover panel with capacity of 8 duty power amplifier inputs and 1 standby. It has dual mode of changeover, one being manually pressing the front switch to perform standby takeover and the other through dry contact trigger at the back of the unit. This shall make it suitable for power amplifiers with auto fault sensing such as Amperes QP Series or other makes with failure dry contacts.

The changeover will only take place for one duty at any one time to prevent amplifier overload and channels are assigned with priority to allow amplifiers with important zones having priority.

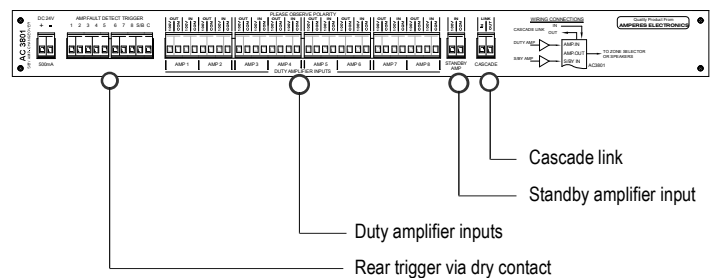
### Features

- Cater for 8 duty and 1 standby amplifier
- Expandable for 1 standby to serve more than 8 duty units
- Overload protection by allowing only a single take over
- Prioritized changeover - unit with higher number is preferred for changeover
- Manual front panel and rear triggering changeover selection
- Suitable for any amplifiers in the market

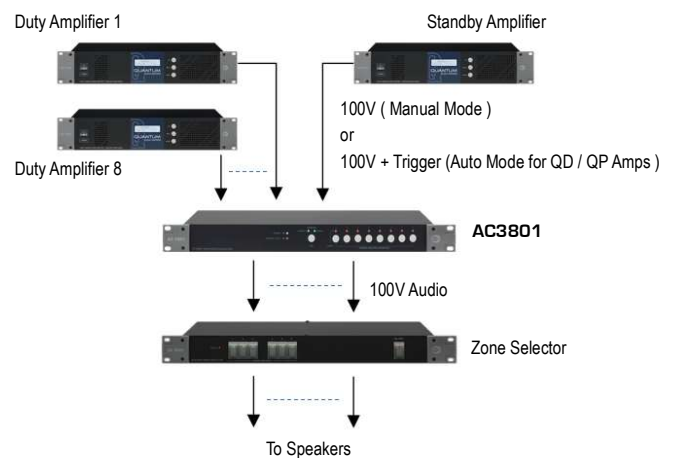
### Technical Specifications

Operating voltage	24V DC ; 0.2A
Power consumption	Standby: 82mW, 3.4 mA Operating: 1.3W, 50 mA
Zone load rating	500W / 100V line input ( 1000W available on request )
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 (Recommended 3)
Cable size	Up to 2.5 mm sq
Dimension (W x H x D)	482 x 44 x 180 mm
Weight	1.95 kg
Colour	Black, powder epoxy coated

Rear View:



### Application Schematic



AC3801 is a dual mode changeover device, works as manual for normal power amplifiers and auto for amplifiers with Auto Fault Sensors with triggering contacts

#### Packing information

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





# MONITORING AND CHANGEOVER

## AX3800 8 Duty / 1 Standby Auto Amplifier Changeover Panel



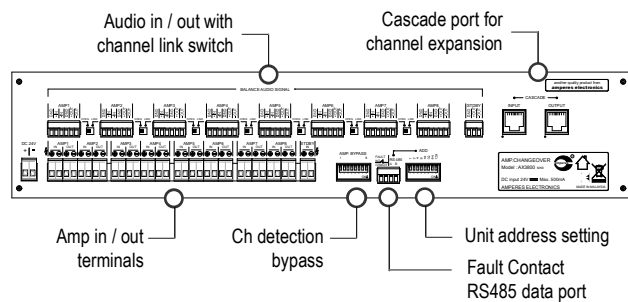
AX3800 has been improved further, offering greater flexibility and simplicity for amplifier fault changeover setup. Cascading is now made easier to enable 1 standby to cater for 16 duty power packs.

With precise circuit design, amplifier fault detection period is greatly reduced to initiate timely changeover to standby unit. The internal pilot tone generation at 20KHz is set at optimum interval to avoid unnecessary loading to amplifiers.

Changeover shall occur at both input and output of amplifiers, making it suitable for application in a matrix system. Priority and single changeover ensures overloading of standby amplifier is avoided, thus providing a reliable and uninterrupted system at most times.

### Features

- Cater for 8 duty and 1 standby
- Expandable for 1 standby to cater for more than 8 duty amps.
- Built in Pilot Tone generator, transmit at intervals and senses at sequence to protect amplifiers
- Overloading protection by allowing only a single take over
- Prioritised changeover which higher numbered amplifier shall be preferred for take over if more than two units are down
- Short fault detection time from 7 to 15 seconds
- Changeover at input and output section simultaneously ; suitable for matrix system installations
- Input link switch ; making connection of sources easier
- Channel isolation switch for unused or un-monitored channel
- Individual channel status indicators ; normal, fault and changeover



### Technical Specifications

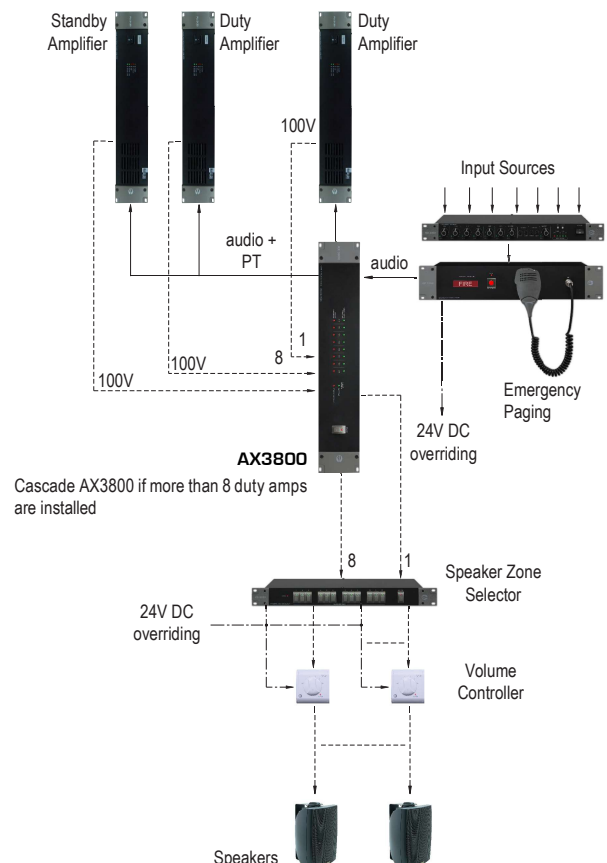
Operating voltage	24V DC ; 1A
Power consumption	2.5 W ( 0.11 A )
Standby consumption	2.3 W ( 0.95 A )
Input signal	8 Ch balanced line signal
Input impedance	10 k Ohm
Audio output gain	Unity
Pilot tone interval	8 seconds / channel
Pilot tone frequency	20 k Hz ( +/- 5% )
Detection line	70 / 100 V line
Detection level	5 V rms min
Failure detection time	20 seconds ( max )
Failure recovery time	20 seconds ( max )
Zone load rating	500W 100V line max ( 1000W on request )
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

[www.ampereselectronics.com](http://www.ampereselectronics.com)

### Application Schematic



8 Ch Speaker Line Surveillance **LS4808**

16 Ch Speaker Line Surveillance **LS4816**



LS4808 offers 8 channels of speaker line monitoring while LS4816 has 16 channels. LS Series is a great tool of monitoring the speaker line integrity such as ground leakage, short and open circuit via impedance measurement method. End of Line resistors are not required and circuit branching is allowed, thus allowing a more flexibility in cabling works.

LS is powered by powerful processor and its unique measurement algorithm enables it to perform tasks at high speed with optimum accuracy. Setup is simple but for the more advanced requirement, LS also allows deviation limits, useful for more sensitive installations, such as power plants, military, etc.

It can be installed to run at intervals with user setting or link to a timer for specific time operation, to avoid disturbances to occupants of the building.

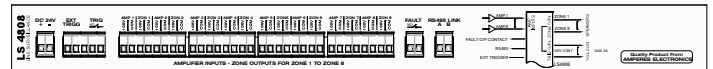
## Features

- 8/16 channel speaker line monitoring with basic and advance level setup
- Impedance measurement method allowing cabling branching and no end of line resistors or coupling capacitors.
- Short burst test signal, minimizing interruption to PA operation
- Detection interval setting from 1 min to 48 hours with ad hoc testing trigger
- Faulty circuit isolation option
- Fault alert indicators and user friendly setup menu
- Built in impedance meter, range from 10 Ohm to 10 K Ohm
- Aux 24V DC output for volume controller overriding during testing mode

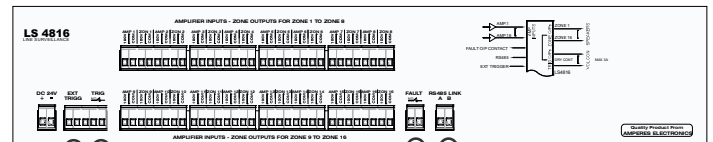
## Technical Specifications

	LS4808	LS4816
Operating voltage	24V DC via PS9400	
Power consumption	3.8W	4.9W
Capacity	8	16
Impedance detection range	10 to 10 K Ohm	
Power measurement range	10 to 1000W 100V line	
Measurement accuracy	+/- 3% within range	
Pilot tone injection frequency	1 kHz	
Pilot tone signal output level	5V sine	
Monitor triggering	Auto / remote trigger	
Transmittal detection period	0.5 seconds per channel (max)	
Detection interval	User preset from 1 min to 48 hrs	
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	2.15kg	3.25kg

Rear View LS4808:



Rear View LS4816:



Vol Control Override

External trigger by timer / manual

RS485 data link

Fault dry contact

Please refer to schematic diagram available in manual for configurations

### 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



## AMP MONITOR PANEL / SOURCE SELECTOR

### AM4120 12 Ch Amplifier Monitor Panel



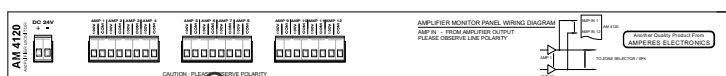
AM4120 shall be used to monitor amplifier outputs of 70 / 100V line at the rack which is equipped with level meter, amplifier output LED and speaker for audio monitoring. It can also be used as a tool to calibrate sound output level of each amplifier from the rack.

### 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

### Features

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



Rear View:

Inputs from power amplifiers



#### Packing information

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

### SS6401 Audio Source Selector



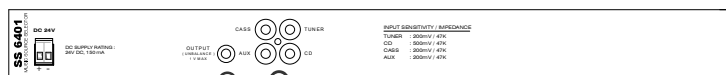
SS6401 has 4 BGM source inputs via RCA jack with mono output suitable for PA system. Input channels of different BGM output sources with different line level has been equalized to the same level at output to avoid the trouble of adjusting the mixer gain whenever a source is changed.

### Technical Specifications

Operating voltage	24V DC via PS9400 PSU
Power consumption	3.6 W ; 0.15 A
Input connections	RCA mono
Input level / impedance	CD : 2V / 47 k Ohm Tuner : 600 mV / 10 k Ohm Cass : 500 mV / 10 k Ohm Aux : 1.25 V / 20 k Ohm
Output connection	RCA mono ; 1V 600 Ohm
Gain / attenuation	CD : -6 dB, Tuner : 4 dB Cass : 6 dB, Aux : -2 dB
Selection	Daisy chain
Dimensions (W x H x D)	482 x 44 x 180 mm
Weight	1.8 kg

### Features

- 4 input BGM sources
- Input level balancing for constant output



Rear View:

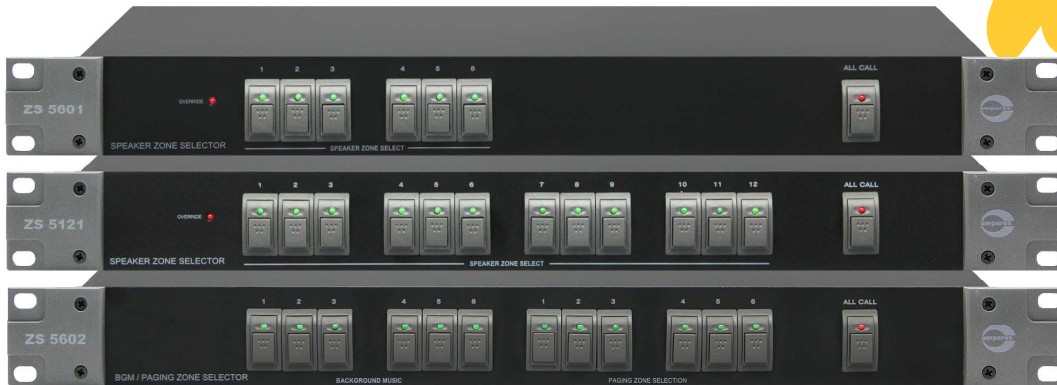
Inputs for audio sources  
RCA output

#### Packing information

Carton size : 555 (L) x 295 (W) x 95 (H) mm  
Gross weight : 2.50 kg  
1 unit per carton



6 Ch Speaker Zone Selector **ZS5601**  
 12 Ch Speaker Zone Selector **ZS5121**  
 6 Ch Uninterrupted Speaker Zone Selector **ZS5602**



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. Other brands of paging consoles are compatible with ZS provided they have negative triggering switching ports.

ZS5602 shall be suitable for uninterrupted paging setup, ie. when an announcement to a zone is made, other areas with BGM that shall not be interrupted. This will require two sets of amplifiers connected to the ZS5602, thus the system shall consist of two sources, one being BGM and the other as Paging.

## Features

- Available in 6 (ZS5601, 5602 ) and 12 zones (ZS5121) with ALL CALL
- Expansion to more zones if required
- 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
- Flexible amplifier to zone configuration, suitable for 3 or 4 wire systems

## Technical Specifications

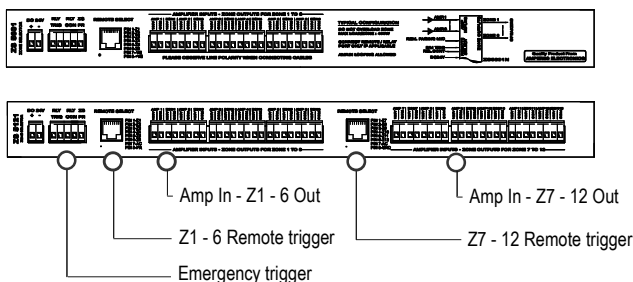
	ZS5601	ZS5121	ZS5602
Operating voltage	24V DC adaptor via PS9400		
Power consumption	3.5W, 0.14A w All Call	6.8W, 0.28A w All Call	10W, 0.42A w All Call
Max load / channel	500W at 100V line		
Number of zones	6	12	6
Amplifier inputs	6	12	6 BGM ; 6 Paging
Zone selection - Paging	Front panel switch and 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

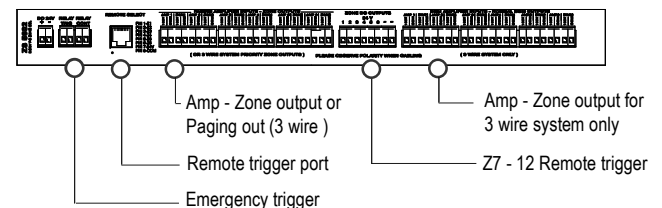
Carton size : 555 (L) x 295 (W) x 95 (H) mm  
 Gross weight : ZS5601 : 2.55 kg  
 ZS5121 : 2.70 kg  
 ZS5602 : 2.70 kg  
 1 unit per carton

### Rear Views

ZS5601 & 5121



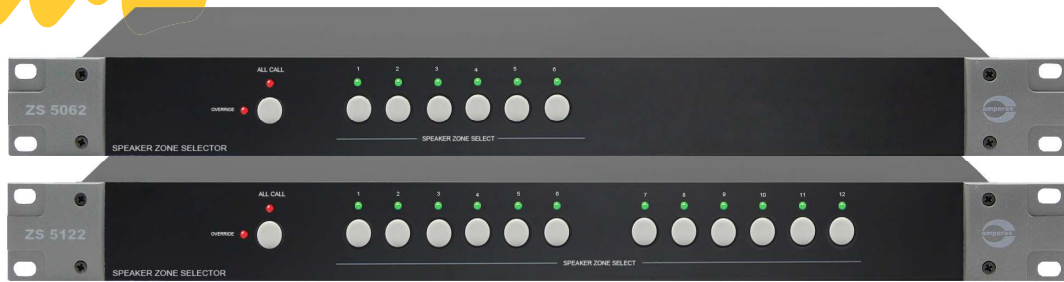
### ZS5602



# SPEAKER ZONE SELECTOR

**ZS5062** 6 Ch Speaker Zone Selector

**ZS5122** 12 Ch Speaker Zone Selector



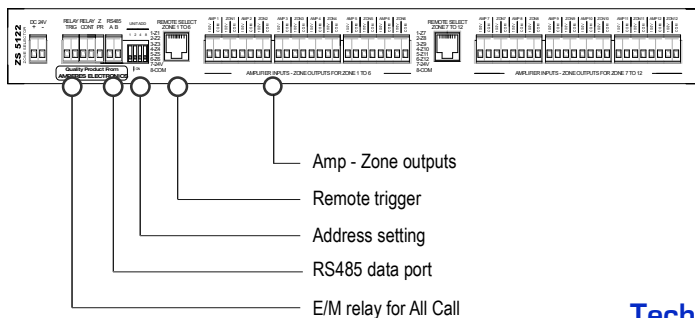
ZS5062 and ZS5122 have been improved in its individual zone rating with 1000W 100V line to meet the demand to increase zone loading in today's installations.

They differs from other zone selector, ie. they have fail 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.

ZS5062 or ZS5122 can be stacked to form larger zone setup in big installations.

## Features

- Available in 6 and 12 zones ; expandable to 192 zones
- 1000W 100V per zone rating
- Fail safe zone trigger during power or unit failure
- Remote zone triggering via analogue and RS485 data
- Zone monitoring via PMX II software
- Local paging override bypassing BGM
- Flexible amplifier to zone configuration



rear view of ZS5122

Please refer to TD6240 brochure for schematic

## Technical Specifications

	ZS5062	ZS5122
Operating voltage	24V DC via PS9400	
Power consumption ( idle )	3.29 W	6.25 W
Power consumption ( All Call )	0.72 W	0.96 W
Current consumption ( idle )	0.14 A	0.26 A
Current consumption ( All Call )	0.03 A	0.04 A
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 deg C	
Dimensions (W x H x D) mm	482 x 44 x 180 ( 1 hu )	
Weight ( kg )	1.95	2.10

### Packing information

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

Gross weight : ZS5062 : 2.55 kg

ZS5122 : 2.70 kg

1 unit per carton

[www.ampereselectronics.com](http://www.ampereselectronics.com)



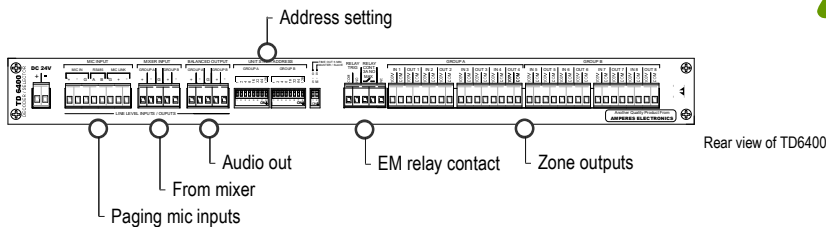


8 Ch Zone Decoder / Selector **TD6080**  
2 x 4 Ch Zone Decoder / Selector **TD6400**



TD6080 is engineered for convenience where it combines data decoder and zone selector in a single box, which translates to fewer component counts and cabling cost. It is also suitable for decentralised installations of multiple locations, which can communicate with central paging system through RS485 or LAN.

TD6400 works similarly to TD6080, but the output zones are divided further to work with 2 inputs and 4 zones output. It provides more flexibility when working with Matrix Controller ( MxP2288 ) as matrix output zone extender. This shall reduce the number of unused zones in matrix groupings.



## Features

- Integrated paging mic zone decoder and zone selector for simplified interconnections
- Works as matrix zone extender
- Multipoint paging input from PD series of paging mics
- 8 input / 8 output configurable amp – speaker line connections
- Cascade feature for larger number of zones
- Configurable as group BGM / Paging for matrix setup:  
TD6080 : 1 BGM + 1 PD with 1 audio out or  
TD6400 : 2 BGM + 1 PD with 2 audio out

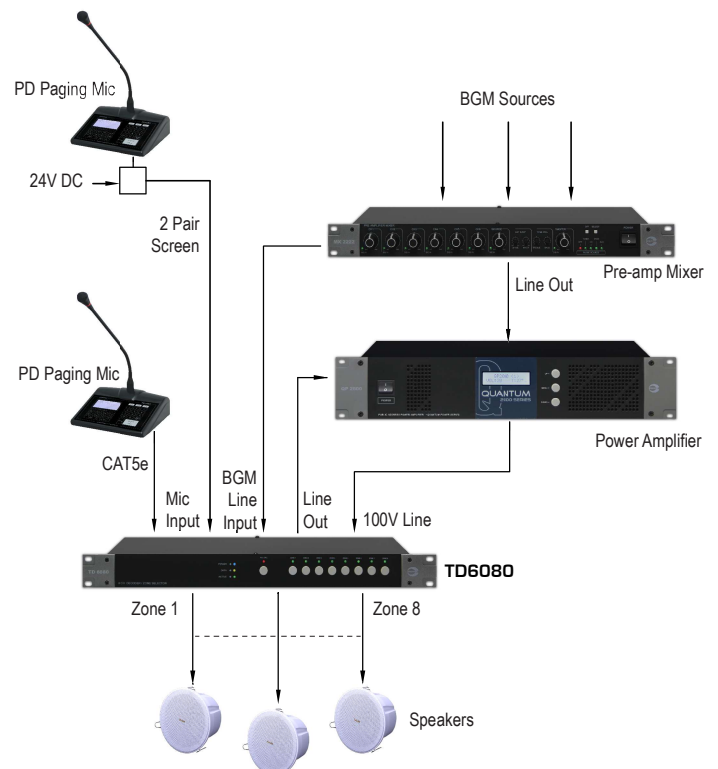
## Technical Specifications

	TD6080	TD6400
Operating voltage	24V DC	
Consumption	6W (250 mA)	
Max load / channels	500W at 100V line	
Cascade quantity	16 unit ( 128 zone )	31 ( 248 zone )
Configuration	1 in x 8 zones	2 in x 4 zones
Input circuits	2 : 1 mic, 1 BGM	3 : 1 mic, 2 BGM
Audio Output	1	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	
AUDIO		
Input impedance (Ohm)	Line : 10 K	
Output impedance	600 Ohm balanced	
Freq response	70 ~ 15 KHz	
Audio input	Line	
Max audio output	Line 1.2V ( balanced )	
DATA		
Data protocol	RS485	
Baud rate	19.2 kbps	
Dimension (W x H x D)	482 x 44 x 180 mm	
Weight	2.00 kg	

### Packing information ( TD6080 & TD6400 )

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

## Application Schematic



Typical configuration of TD6080 as zone decoder / selector.

TD6080 / TD6400 can be used as Matrix zone extender in Matrix output zone grouping. Please refer to schematic available in instruction manual.



PAGING MIC ZONE DECODER

TD6240 24 Ch Zone Decoder



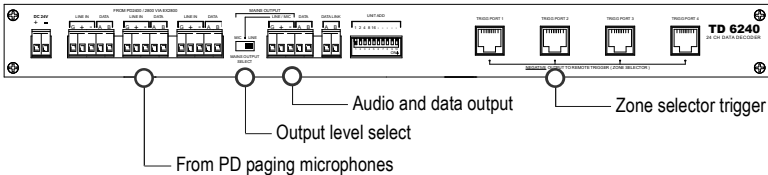
TD6240 is an intermediary equipment between Amperes PD series of paging microphones and Amperes ZS series of speaker zone selectors. It has 3 PD input circuits, enabling multi point paging setup from different areas. Decoded zones are connected to zone selectors through RJ45 jacks for zone switchings.

For system exceeding 24 zones, TD6240 can be stacked up to enable 254 zone switchings in total.

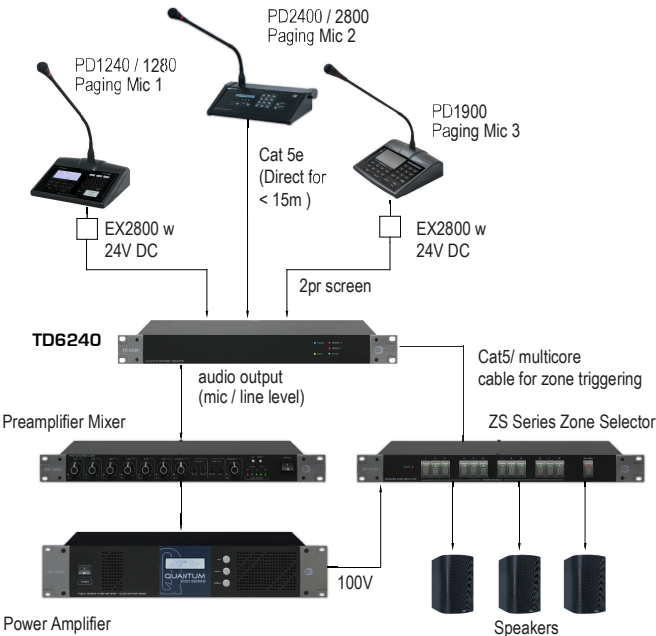
Features

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

Rear View:



Application Schematic



Technical Specifications

Operating voltage	24V DC
Consumption	2.4W (100 mA)
Switching channels	24
Cascade / max zones	8 (max 192 zones)
Input circuit	3
Output connection (Triggering)	RJ45 to ZS zone selector

AUDIO	
Input impedance (Ohm)	Line : 10 K
Output impedance	600 Ohm balanced
Freq response	70 ~ 15 KHz
Audio input	Line balanced ( +4 dBU )
Max audio output	Line balanced ( +4 dBU )

DATA	
Data protocol	RS485
Baud rate	19.2 kbps
Dimension (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 : 2.45 kg  
1 unit per carton



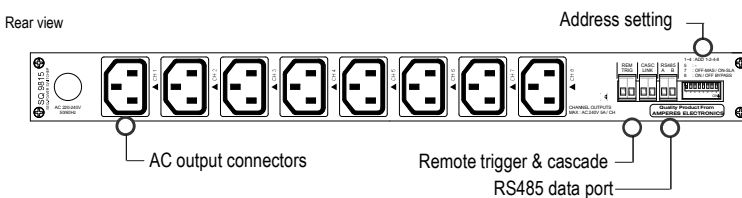
8 Ch Sequential Power Switcher **SQ9815**

SQ9815 is suitable for applications in PA, sound and AV systems, in which it manages the powering sequence of every equipment in an orderly manner. Random power switching of components within a system may cause damage to the equipment and thus SQ9815 is a tool of powering protection.

It also has built in surge protectors to kill harmful incoming power spikes.

## Features

- 8 channel with 6A per channel; total load of 15A with surge protection
- Cascade 2 units to form 16 channel setup
- ON / OFF sequential switching
- Remote switching port via external noiseless contact
- 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
- Lock mode to avoid accidental switching



## Packing information

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

## Technical Specifications

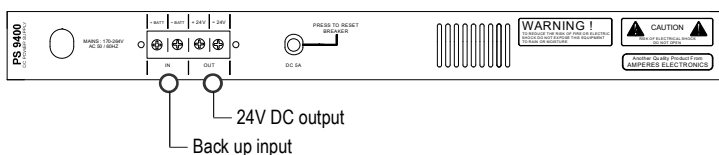
Operating voltage	220 - 240V AC
Power consumption	50 mW (without load)
Output voltage	230 / 240V AC
Max load / channel	6A
Max total load	15A
Output connection	IEC female socket
Max cascade	2 uts : total 16 channels
Surge protection	L-N, L-E, N-E.
Clamping voltage	870V AC
Turn on sequence	Step 1 to 8 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 excl. accessories

PS9400 is a rack mounted 24V DC regulated power supply designed for PA installations. 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 Power Supply **PS9400**

## Features

- 24V DC 4A output highly regulated PSU
- Output Fuse protection
- Built in various protections
- 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

## Technical Specifications

Operating voltage	220 - 240V AC
Output voltage	24V +/- 1 %
Rating	4A nominal ; max 5.5 A
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



## POWER DISTRIBUTIONS

### BC9740 24V DC Automatic Battery Charger

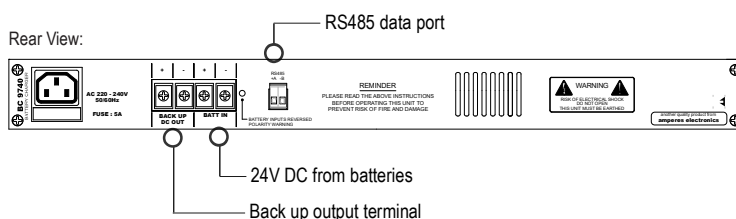
BC9740 is the next generation of innovative Battery Charger, which has been engineered to meet the requirement of installers and users alike. It is compact in 1 HU height, built with the latest technology for efficient charging, controls and monitoring purpose. Driven by powerful ARM processor, it works to protect against connection error, prolonging battery life with its battery monitoring feature and communicates to provide human interaction. RS485 data port is available for external monitoring via PMX II Software and can be readily linked up to LAN through iPX5500 Com Box.



### Features

- Constant DC voltage charging for 24V battery bank
- 4A initial charging current with reducing rate over charging time
- Built in surge protection
- Output short circuit protection
- Thermal protection against overheating
- Auto low battery disconnection with LCD indication
- Battery reversed polarity protection
- Rear mains switch to avoid unnecessarily switching off the unit
- RS485 communication for remote monitoring via PMX LAN software

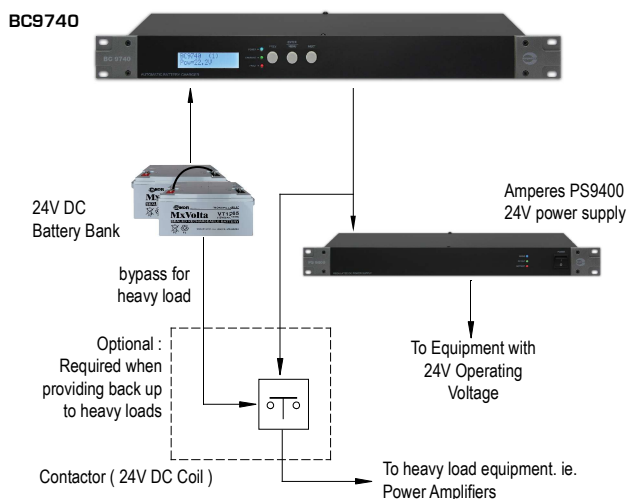
Rear View:



### 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
Indications	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 LAN via iPX5500 comm. box for remote monitoring
E/M back up Amp rating	25A max ( Use external contactor / relay if required )
Terminals	Battery input , EM load
Dimensions (W x H x D)	482 x 44 x 180 mm
Weight	4.50 kg

### Application Schematics



#### Packing information

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

Gross weight : 5.20 kg

1 unit per carton

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## PR7400 Remote Paging Overriding Module

PR7400 is a module for 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 :** 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 - Line audio converter :** When it is required that the central paging to be broadcasted to local speakers utilising the local amplifier / system, it provides an audio conversion with balanced line audio.



### Features

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

### Technical Specifications

#### Power requirement:

Voltage	24 DC via local adapter
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	100 W @ 100V
Trigger duration	5 - 18 seconds

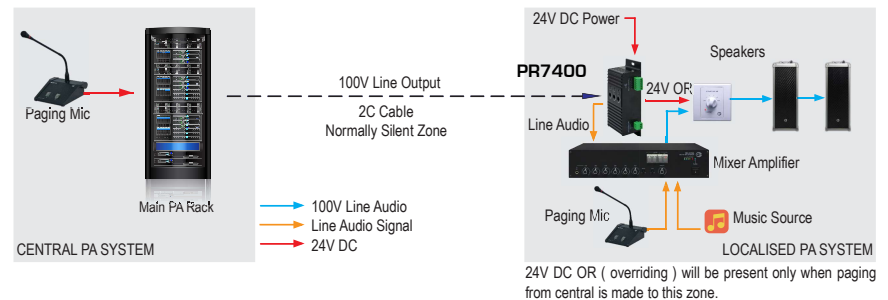
Audio output	line balanced
Output level	Mute - 0dB
Freq response	20 - 20 KHz +/-3dB
Isolation to 100V	37.5dB

Indicators	Power, Relay trigger, Audio
Connections	Detachable Phoenix

Dimensions ( WxHxD )	52 x 147 x 40 mm
Weight ( excl. adaptor )	200 g

### Application Schematics

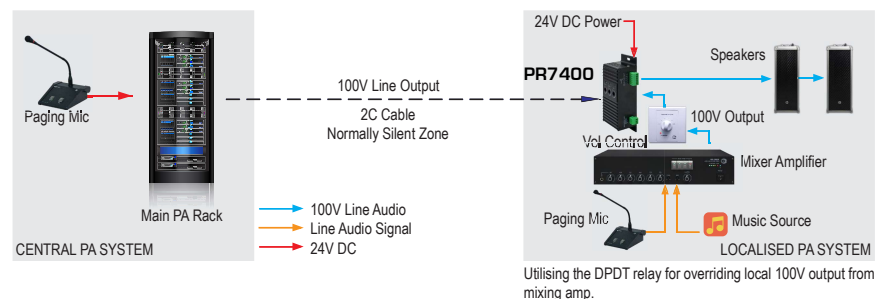
#### Application Example 1 : Overriding Local BGM Source



Certain zones, such as retail units, restaurants and theaters are normally free from normal paging of central system. They would have own localized BGM or simple PA.

Only essential paging would pass through the localized speakers. As such, PR7400 would be employed to provide overriding of local volume controller ( if available ) and inserting line audio to the mixer.

#### Application Example 2 : Overriding Local Speaker



In this example, audio to the speakers is powered from local amplifier.

In this setup, central paging shall power the local speakers, regardless whether the local amplifier is turned on or off. This shall be a preferred setup and useful for emergency paging.

It is important to consider the load of local speakers and provide adequate power rating of amplifiers at central rack.

#### 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 Series VC8000 Series

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.



VC7000



VC7000 Black



VC8000



VC7000A

## Features

- 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

## Technical Specifications

Power rating	Refer to variants
Overriding voltage	24V DC
Overriding current	15 mA
Overriding indicator	Red LED
Attenuation	6 steps incl. OFF
Attenuation / step	6 dB / step (VC7005 & VC7010 with 3dB / step)
Attenuation method	VC7005 / 7010 / 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	VC7805 / 7005 / 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 )

### NOTE :

Wall concealed installation shall require back enclosure with depth of min 50 mm from finishing surface for models with auto transformer. Normal electrical back enclosure shall suffice for installation using resistive volume controllers. ie. VC7005 / 7010 / 8010

## Variants

### 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

### VC7000 SERIES (86 x 86 mm)

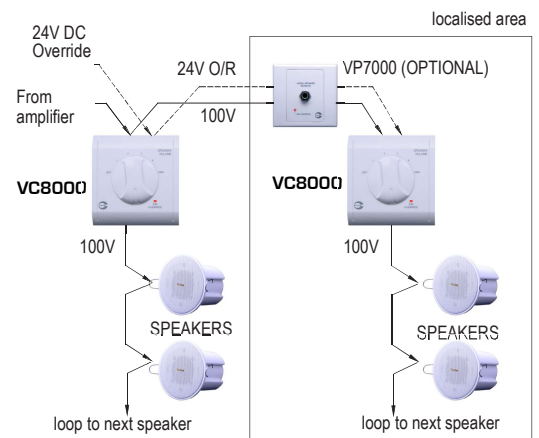
VC7810 :	10W 8 OHM Resistive
VC7005 :	5W 100V Line Resistive
VC7010 :	10W 100V Line Resistive
VC7030 :	30W 100V Line Auto Trans
VC7050 :	50W 100V Line Auto Trans
VC7100 :	100W 100V Line Auto Trans
VC7150 :	150W 100V Line Auto Trans

### 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

## Application Schematics

4 wire system installation



## 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 localised PA amplifier to utilise 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.



VP7501

## 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.

VP7810 would normally be used in rated hotel rooms, which would have additional entertainment speakers for local music from TV or iPod. The speakers used are normally 4 or 8 Ohm type and thus it is required to step down 100V PA audio through VP7810.



VP7810

### Features

- Suitable for 4 wire system : 2 x 100V audio, 2 x 24V DC overriding
- Built in overriding relay for emergency bypass with LED indicator
- Also available with 70 x 120 mm faceplate

### Technical Specifications

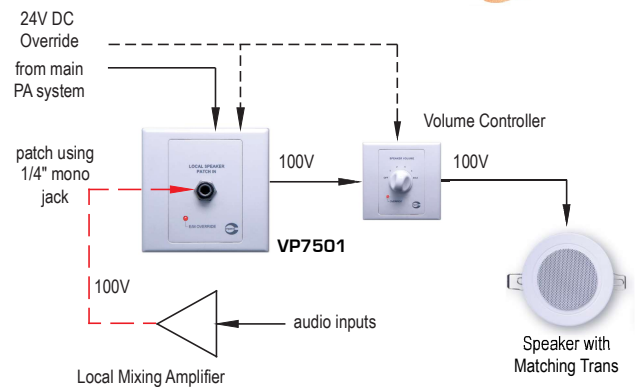
	VP7501	VP7810
Power rating	50W 100V	10W 8 Ohm
Overriding voltage	24V DC : 15 mA	
Patch connection	1/4" phone jack-front patch	Hardwired
Cablings	4 wire system (2 audio ; 2 overriding)	
Dimensions	86 x 86 x 40mm	
	70 x 120 mm face plate available upon request	
Weight	80 g	200 g

Optional back enclosure:

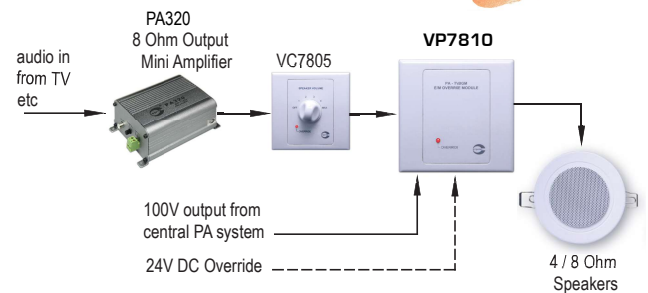
Concealed (W x H x D)	77 x 77 x 60 mm
Surface (W x H x D)	85 x 85 x 60 mm

### Application Schematics

Application for VP7501



Application for VP7810



Cross reference for above application : PA322

### 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

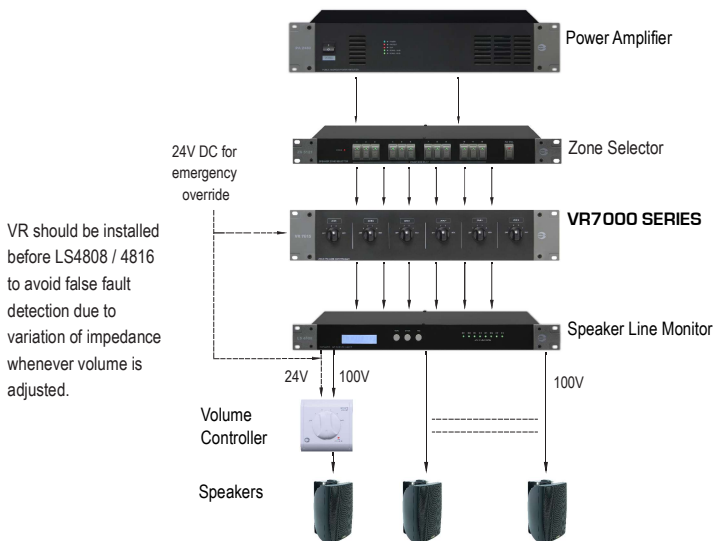
VR7600 is a rack mounted, 6 zone volume controller which is normally installed at main rack to enable centralised zone volume settings. They are available in variants of 50W, 100W or 150W 100V as standard ratings. Customised zone rating is also available upon request.

### Features

- 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
- Built in overriding relay for emergency volume bypass
- Customised zone rating option available



### Application Schematics



### Technical Specifications

VR7605 / VR7610 / VR7615

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

#### Packing information

Carton size : 560 (L) x 300 (W) x 170 (H) mm  
Gross weight : 5.50 / 7.10 / 7.60 kg  
2 units per carton



## AV7200 100W 100V Auto Volume Controller

AV7200 is used for controlling speaker volume automatically in a localised area by adjusting the 100V line audio according to the ambient noise. As it varies the volume at 100V instead of sending control signal to the system, it can be easily applied to the existing systems without having to lay new cabling or installing new equipment. Among the suitable areas are shopping malls, stations, building lobbies, etc.



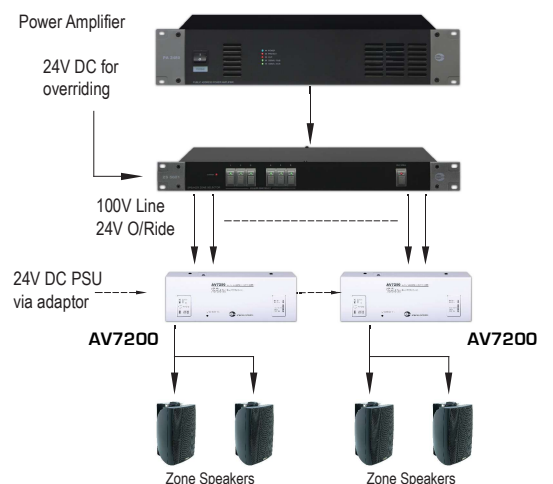
### Features

- Installation at localised area (at existing volume controller) without additional cable re-run (easily retrofit to existing system)
- Adjustable noise sensing sensitivity
- Built in overriding relay for emergency volume bypass
- 100V speaker line control with 6 step attenuation

### Technical Specifications

### Application Schematics

Power rating	100W 100V line
Operating voltage	24V DC : 40 mA
Attenuation	6 steps ; -6 dB per step
Emergency overriding	24V DC ; 0.15A
Sensitivity adjustment	2 level
Dimension (W x H x D)	247 x 87 x 50 mm
Weight (excl. enclosure)	1.10 kg



## Dual Cone Ceiling Speakers

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 provides ease of installation works.

Three variants are available with re-engineered sound output to serve the needs for both BGM and EVAC. CS210 is a miniature version most suitable for small enclosed area such as hotel room foyer and narrow corridors, while CS510 and 610 fits most other installations according to the needs of different coverage areas.

## SPEAKERS

2" 6W 100V **CS210**  
 5" 6W 100V **CS510**  
 6" 6W 100V **CS610**  
 6" 10W 100V **CS610B**



### Features

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

### Packing information

CS210 : 570(L) x 230(W) x 290(H) mm  
 : 11.30 kg  
 : 20 uts per carton

CS510 : 690(L) x 350(W) x 400(H) mm  
 : 19.60 kg  
 : 24 uts per carton

CS610 : 660(L) x 440(W) x 430(H) mm  
 : 19.50 kg  
 : 18 uts per carton

### Technical Specifications

	CS210	CS510	CS610	CS610B
SPEAKER				
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 +/-3 dB	160 - 15 kHz	150 - 19 kHz	120 - 19 kHz	
SPL @ 1W / m (+/- 3dB) 1 kHz)	90 dB	92 dB		
Dispersion angle ( 1 kHz +/- 3 dB )	120	160	165	165
TRANSFORMER				
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			
PHYSICAL				
Grille / enclosure	Metal powder epoxy coated / ABS enclosure			
Cutting hole dim	85 mm	145 mm	185 mm	
Overall size (dia 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			





- CS343** 4" 6W 100V Weatherproof
- CS515** 5" 6W 100V ABS Grille
- CS606** 6" 6W 100V Metal Enclosure
- CS516** 6" 10W 100V ABS Surface Mount



**CS515** 5" 6W 100V Line  
**CS515 FR** With fire retardant back enclosure

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)

### Packing information

Carton : 705 (L) x 400 (W) x 190 (H) mm  
 Gross weight : 11.30 kg  
 16 unit per carton



**CS606** 6" 6W 100V Line

Available in 6" dual cone speaker with back metal enclosure, grille and baffle and multi tap matching transformer of 1.5, 3 and 6W 100V line. This model shall be suitable for installations that demand fire resistant version of dome.

### Packing information

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



IP54  
**CS343** 4" 6W 100V Line

CS343 is driven by a 4" dual cone speaker with built in matching transformer of dual taps for 3 and 6W 100V line. It is made of quality ABS enclosure and aluminum grille and is suitable for high humidity areas, such as bathrooms and salty environment. Though compact in size, it delivers satisfactory sound reproduction with high SPL level, good for listening pleasure as well as paging clarity.

### Packing information

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



**CS516** - 5" 6W 100V

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

### Packing information

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

## Technical Specifications

	CS606	CS515	CS516	CS343
<b>SPEAKER</b>				
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
<b>TRANSFORMER</b>				
Tapping (100V line)		1.5 / 3 / 6W		3 / 6W
Primary impedance (Ohm)		6.7k / 3.3k / 1.67k		3.3k / 1.67 k
Secondary impedance (Ohm)	8			
<b>PHYSICAL</b>				
Grille / enclosure	Aluminum / mild steel	ABS Plastic		Aluminum / ABS
Cutting hole dim	165 mm	145 mm	-	120 mm
Overall size (dia 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





Choice of premium sound for PA Installations

5" / 6 " Co-axial Ceiling with Metal Back Enclosure **CS520 / 630**  
 6" / 8 " Co-axial Ceiling with ABS Back Enclosure **CS620 / 840**  
 5" Square Co-axial Ceiling with Metal Back Enclosure **CS518**



### 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 : 510 (L) x 500 (W) x 420 (H) mm  
 : 15 kg  
 : 8 uts per carton

CS630 : 570 (L) x 560 (W) x 430 (H) mm  
 : 23.3 kg  
 : 8 uts per carton



### CS620

6" 20W 100V Co-axial

### CS840

8" 40W 100V Co-axial

Available in 6" and 8" fixed power ratings, offering more economical coaxial ceiling types while able to deliver satisfactory sound productions, both in Paging and BGM. Back enclosure is made of ABS

#### Packing Information :

CS620 : 540 (L) x 540 (W) x 375 (H) mm  
 : 23 kg  
 : 8 uts per carton

CS840 : 630 (L) x 630 (W) x 390 (H) mm  
 : 21.4 kg  
 : 8 uts 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 production. Suitable for boutiques, residences, offices etc.

#### Packing Information :

CS518 : 580 (L) x 310 (W) x 510 (H) mm  
 : 17 kg  
 : 8 uts per carton

## Technical Specifications

	CS520	CS630	CS620	CS840	CS518
<b>SPEAKER</b>					
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 ( 2" 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
<b>TRANSFORMER</b>					
Tapping ( 100V line )	2.5 / 5 / 10 / 20W	3.8 / 7.5 / 15 / 30W	20W 100V	40W 100V	2.5 / 5 / 10 / 20W
Primary impedance	4k / 2k / 1k / 500	2.6K / 960 / 353 / 215	500	250	4k / 2k / 1k / 500
Secondary impedance	8 Ohm				
<b>PHYSICAL</b>					
Grille / enclosure	Metal / metal	Alum / metal	Alum / ABS	Metal / ABS	Metal / metal
Cutting hole dim ( mm )	170	185	205	240	150 x 150
Dimensions ( Dia x H ) mm	205 x 145	230 x 150	240 x 142	280 x 142	180 x 180 x 135
Nett weight ( kg )	1.70	2.15	2.40	2.10	1.80
Colour	White				



**BS508** 5" 10W 100V Vandal Proof**BS506** 5" 6W 100V**BS410** 4" 10W 100V**DV410** 4" 6W 100V**DV410** 4" 6W 100V

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

**Packing information**

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

**BS506** 5" 6W 100V

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. Suitable for installations at walkways, staircases etc.

**Packing information**

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

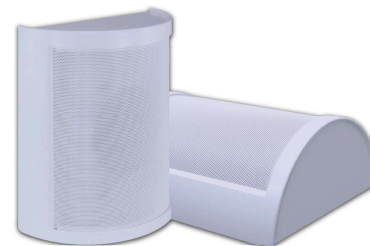
**BS508** 5" 10W 100V

It 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.

Suitable for various wall installations with optimum delivery for both BGM and EVAC systems

**Packing information**

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

**BS410** - 4" 10W 100V

Available in white and is suitable for installations in small areas, staircases, etc. 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.

**Packing information**

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

**Technical Specifications**

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



4" 20W 100V / 6" 40W 100V **FS420 / 640**  
 4" 20W 100V **FS425**  
 2x 4" 40W 100V **FS338**



**FS425** 4" 20W 100V  
IP65

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

**Packing information**

Carton : 370 (L) x 370 (W) x 600 (H) mm  
 Gross Weight : 20.30 kg  
 8 uts per carton

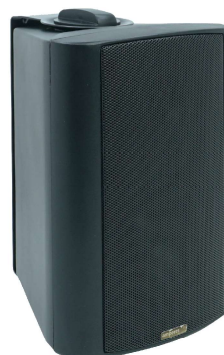


**FS338** 2 x 4" 40W 100V

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. It is rated 40W 100V line with rotary power selector ranging from 5 to 40W and also 4 Ohm connection for other sound reinforcement power amplifiers.

**Packing information**

Carton : 555 (L) x 295 (W) x 165 (H) mm  
 Gross Weight : 7.65 kg  
 2 uts per carton



**FS420 ( B/W )** 4" 20W 100V ( Black / White )  
**FS640 ( B/W )** 6" 40W 100V ( Black / White )

Classic full range speakers available in two variants as well in black or white colours to suit installation area.

Both versions have power tap rotary switch to provide suitable loudness to the coverage areas.

**Packing information**

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

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

## Technical Specifications

	FS425	FS420	FS640	FS338
<b>SPEAKER</b>				
Power rating	20W 100V		40W 100V	
Diameter	4" (100 mm)		6" ( 150 mm )	2 x 4" (100 mm)
Speaker type	2 way speaker with tweeter			
Impedance (Ohm)	8			
Freq response @ 1kHz +/- 3dB	105 ~ 18 kHz	100 - 18kHz	70 ~ 18 kHz	70 ~ 16 kHz
SPL @ 1W / m (+/- 3dB) 1 kHz	87 dB	89 dB	88 dB	87 dB
<b>TRANSFORMER</b>				
Tapping (100V line)	10 / 20 W	1.25 / 2.5 / 5 / 10 / 20 W	2.5 / 5 / 10 / 20 / 40W	5 / 10 / 20 / 40W
Primary impedance (Ohm)	1 k / 500	8 k / 4 k / 2 k / 500 / 8	4 k / 2 k / 1 k / 500 / 250 / 8	2 k / 1 k / 500 / 250 / 4
Secondary impedance (Ohm)	8			4
<b>PHYSICAL</b>				
Grille / enclosure	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
Weight	2.30 kg	1.95 kg	3.70 kg	3.50 kg
Colour	Black	White and Black		Black



**CL900 Series Slim Column Speakers**

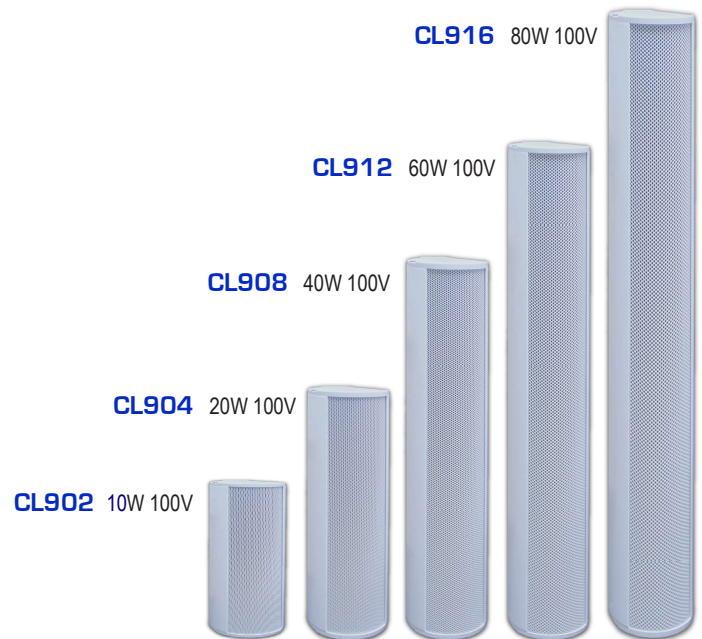
Built ruggedly with aluminum die extrusion housing and is available in 5 power rating of 10 / 20 / 40 / 60 and 80W 100V line with dual power tapping. Suitable for classrooms, hyper markets, mosques, ballroom, factories, passenger terminals, exhibition areas etc.

**Features**

- Slim design to match environment or to be hidden from view
- Multi-way mounting bracket for CL 902, 904, 908
- Epoxy coated grille
- Engineered for speech and BGM clarity

**Packing information**

CL902 : 255(L) x 235(W) x 170(H) mm : 2.70 kg : 2 uts per carton	CL912 : 830(L) x 245(W) x 170(H) mm : 7.80 kg : 2 uts per carton
CL904 : 400(L) x 235(W) x 155(H) mm : 3.90 kg : 2 uts per carton	CL916 : 1160(L) x 240(W) x 195(H) mm : 13.00 kg : 2 uts per carton
CL908 : 605(L) x 245(W) x 175(H) mm : 6.20 kg : 2 uts per carton	

**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 ± 3dB		88 ± 3dB	89 ± 3dB	94 ± 3dB
Frequency response @ 1KHz +/-3dB	200 - 16 KHz	200 - 17 KHz	240 - 16 KHz	220 - 17 KHz	220 - 18KHz
Dimension (WxHxD)	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	Aluminum body ; powder epoxy metal grille				
Weight with bracket (kg)	1.10	1.50	2.50	3.20	5.80

**CL700 Series Full Range Column Speakers**

**New**  
Pre-liminary Info

CL700 Series shall be available in variants of 40 and 80W 100V line with variable power taps. It is built ruggedly with aluminum housing and rust free front grille, 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 human voice.

**Technical Specifications**

	CL740	CL780
Power rating	40W 100V	80W 100V
Speaker components	2 x 4" + 1" tweeter	4 x 4" + 1" tweeter
Transformer tapping(100V)	30 / 40 W	70 / 80 W
Primary impedance (Ohm)	330 / 250	143 / 125
SPL descriptions	90 ± 3dB	
Frequency response @ 1KHz +/-3dB	100 - 16 KHz	100 - 17 KHz
Dimension (WxHxD)	130 x 310 x 140 mm	130 x 620 x 140 mm
Material	Aluminum body, powder epoxy coated grille	
Weight with bracket (kg)	2.7	6.0

**CL740**



## Projection / Clear Horn Speakers

## SPEAKERS

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.

**10W 100V Projection Speaker SP219**  
**20W 100V Bidirectional Projection SP319**  
**20W 100V ABS Projection SP220**



**SP219** 10W 100V Unidirectional Projection  
(Aluminum enclosure)

**Packing information**

Carton : 370 (L) x 370 (W) x 600 (H) mm  
 Gross Weight : 18.00 kg  
 8 uts per carton



**SP319** 20W 100V Bidirectional Projection  
(Aluminum enclosure)

**Packing information**

Carton : 370 (L) x 370 (W) x 600 (H) mm  
 Gross Weight : 25.00 kg  
 8 units per carton



**IP65 SP220** 20W 100V ABS Projection  
(ABS Enclosure)

**Packing information**

Carton : 550 (L) x 425 (W) x 180 (H) mm  
 Gross Weight : 11.30 kg  
 6 uts per carton

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.

Among the places suitable to employ them are stadiums, theme parks, beaches and also car parks.

**30W 100V Clear Horn HS725**  
**50W 100V Clear Horn HS750**



**HS725 IP54**  
 30W 100V Weatherproof Clear  
 Horn Speaker

**Packing information**

Carton : 440 (L) x 250 (W) x 370 (H) mm  
 Gross Weight : 4.90 kg  
 1 uts per carton



**HS750 IP65**  
 50W 100V Weatherproof Clear  
 Horn Speaker

**Packing information**

Carton : 565 (L) x 405 (W) x 420 (H) mm  
 Gross Weight : 9.95 kg  
 2 uts per carton

## Technical Specifications

	SP219	SP319	SP220	HS725	HS750
Power rating	10W 100V	20W 100V		30W 100V	50W 100V
Power Tapping ( 100V line )	2.5 / 5 / 10 W	20W 100V	7.5 / 15 / 20 W	3.8 / 7.5 / 15 / 30 W	15 / 30 / 50 W
Speaker	5"	2 x 5"	5"		
Primary impedance ( Ohm )	4 k / 2 k / 1 k	500	1.3 k / 670 / 500	2.6 k / 1.3 k / 667 / 333	667 / 333 / 200
Secondary impedance	8				
Freq response @ 1kHz +/- 3dB	130 ~ 15 kHz		90 ~ 15 kHz	100 - 10 kHz	90 - 17 kHz
SPL @ 1W / m (+/- 3dB) 1 kHz	91 dB		90 dB		98 dB
PHYSICAL					
Grille / enclosure	Mild steel / Aluminum		Mild steel / ABS	Aluminum / ABS	ABS
Overall size w bracket (W x H x D)	138 ( Dia ) x 205 ( D ) mm		140 ( Dia ) x 195 ( D ) mm	366 x 172 x 272 mm	363 x 253 x 310 mm
Weight ( kg )	2.0	3.0	1.6	3.25	3.6
Colour	White			Light grey	Beige





**HS815 / 830** 15 / 30W 100V Aluminum Round Horn Speakers

**HS820 / 822** 15 / 30W 100V ABS Horn Speakers



**HS830** 12" 30W 100V LINE  
IP65



**HS815** 8" 15W 100V LINE  
IP65

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

HS820 & HS822 - Constructed 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.



**HS822** 11" x 8" 30W 100V LINE  
IP65



**HS820** 6" X 8" 15W 100V LINE  
IP65

## Packing information

HS815 : 680 (L) x 475 (W) x 520 (H) mm  
: 20.50 kg  
: 12 uts per carton

HS830 : 655 (L) x 655 (W) x 380 (H) mm  
: 13.30 kg  
: 4 uts per carton

HS820 : 550 (L) x 480 (W) x 520 (H) mm  
: 21.30 kg  
: 12 uts per carton

HS822 : 535 (L) x 320 (W) x 650 (H) mm  
: 20.20 kg  
: 8 uts per carton

## Technical Specifications

	HS815	HS830	HS820	HS822
Power rating	15W 100V	30W 100V	15W 100V	30W 100V
Power tapping ( 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	10 k	3.3 k
	3.3 k	2 k	3.3 k	2 k
	2 k	1 k	2 k	1 K
	1 k	670	1 k	670
	670	330	670	330
Secondary impedance (Ohm)	8			-
Frequency response @ 1kHz +/- 3dB	350 ~ 7 kHz	300 ~ 10 kHz	250 ~ 8 kHz	400 ~ 8 kHz
SPL (1W / m @ 1 kHz)	103 dB	105 dB	105 dB	
Coverage angle, horizontal ( 1kHz, +/- 6dB )	130°	60°	90°	55°
Flare material	Aluminum		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)	293 (W) x 212 (H) x 290 (D)
Weight	1.40 kg	2.40 kg	1.50 kg	2.15 kg
Colour	Beige		White cream	



## 80W 100V 20" Horn Speaker **HS880** IP65



HS880 - Constructed using rounded aluminum 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 the outdoor environment.

### Packing information

Individual component packing, subjected to quantity

"a sound solution for tunnel voice announcement "



## 100W 100V Long Throw / Tunnel Horn Speaker **LH100** IP54



LH100 is a specially 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, thus enabling important messages to be delivered to the listeners.

Other installations may include beach early warning system, military alarm and even mosques. LH100 is constructed with FR rated fiberglass flare and all mountings are stainless steel to ensure long lasting installation against moisture and chemical effects.

### Features

- 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 ( SS )
- Covered flare opening, a prevention of habitation by animals.

### Packing information

Individual component packing, subjected to quantity

### Technical Specifications

	HS880	LH100
Power rating	80W 100V	100W 100V
Power Tapping ( 100V line ) W	20 / 40 / 60 / 80	50 / 75 / 100
Driver	Detachable driver with 1 3/8" thread mounting	
Primary impedance ( Ohm )	500 / 250 / 160 / 125	200 / 133 / 100
Secondary impedance ( Ohm )	16	
Freq response @ 1kHz +/- 3 dB	160 ~ 6 kHz	350 ~ 7 kHz
SPL @ 1W / m (+/- 3 dB) 1 kHz ( dB )	110	115
Max SPL ( dB ) +/- 3 dB	129	135
Horizontal dispersion ( 1 kHz ) degree	70	56
Vertical dispersion ( 1 kHz ) degree	70	25 (top) ; 60 (bottom)
Body material	Aluminum	FR Rated fiberglass
Mounting	Wall / Ceiling	Ceiling
IP Ratings	IP65	IP 54
Min / Max ambient temperature	- 10 ~ 60 deg C	
Overall size w bracket (W x H x D) mm	504 dia x 335	730 x 585 x 1565
Weight ( kg ) including driver	4.0	13.6
Colour	Beige	White / Black



**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.

**Features**

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

**Packing information**

Carton : 320(L) x 320(W) x 300(H) mm  
Weight : 3.10 kg  
1 unit per carton

**SG320 20W 100V Outdoor Garden Speaker****IP65**

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.

**Features**

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

**Packing information**

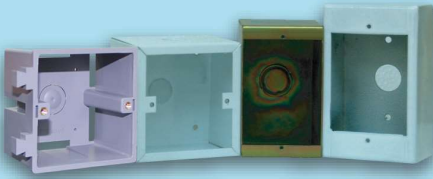
Carton : 350(L) x 410(W) x 355(H) mm  
Weight : 4.70 kg  
1 unit per carton

**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
Frequency response @ 1 kHz +/- 3dB	80 - 18 kHz	70Hz - 16 kHz
SPL (1w/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	3.60kg



### 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. Recommended battery charger is Amperes BC9740.

<b>VT 1226</b>	26 Ah
<b>VT 1240</b>	40 Ah
<b>VT 1265</b>	65 Ah
<b>VT 12100</b>	100 Ah

### Fiber Optic Converter



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

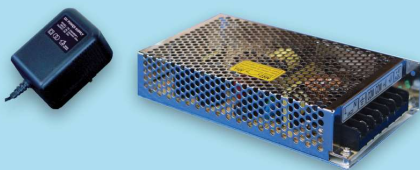
**HTB110** : Multimode with SC/ST connectors

**HTB110S** : Single mode with SC connectors

**HTB114S** : Single mode with 4 way switch

**HTBGS-03** : Single mode 10 / 100 / 1000 Base T

### Power Supply



Regulated power adaptor and switching PSU for powering loose equipments

**PS1205** : 12V 0.5A AC / DC adaptor

**PS2405** : 24V 0.5A AC / DC adaptor

**PS9000** : 24V 4.5A DC switching power module

### Surge Arrestor



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

**HP 175VL** : 175V peak surge arrester





# CONFERENCE SYSTEM



A Precise Decisions through  
Clear Discussions



## CU100 Central Control Unit



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 Chairman and Delegate units. Balance line output connection is available to link to external sound system and recording device. External audio source such as PC or other audio source can be link to controller for amplification at delegate units.

With the ability of CU100 to be stacked or used as power extender, the number of delegate units can be expanded to 255 units.



### Technical Specifications



Rear View

#### Packing information

Carton : 565 (L) x 405 (W) x 420 (H) mm  
Gross Weight : 9.95 kg  
2 uts per carton

Power supply	AC 100 - 240V ~ 50/60 Hz
Frequency response	100Hz - 12.5 KHz
Output impedance	RCA: 200 $\Omega$ Line: 200 $\Omega$ Balanced: 6.9K $\Omega$ Unbalanced: 6.8K $\Omega$
Input impedance	Line: 50K $\Omega$
S/N ratio	> 80 dB
Dimensions (WxHxD)	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., ie higher priority talk and cancel feature. It comes with 2 m 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 2 m 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	30 - 18 kHz	
Sensitivity	-43 +/- 3dB @ 0 dB, 1 kHz	
Input voltage	9V DC ( Powered by host )	
Min input impedance	1 k 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	480 mm	
Dimensions	125 x 165 x 65 mm	
Weight	0.85 kg	

CM100

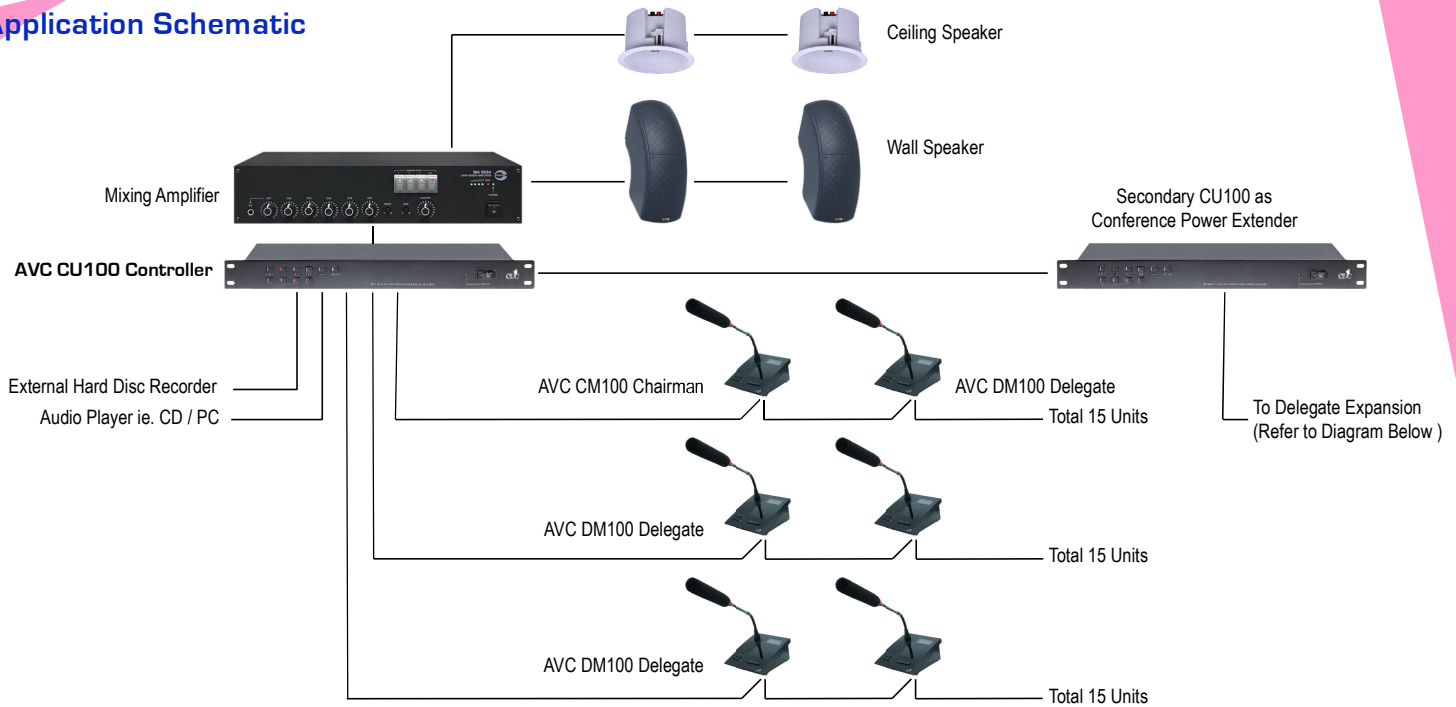
DM100

#### Packing information

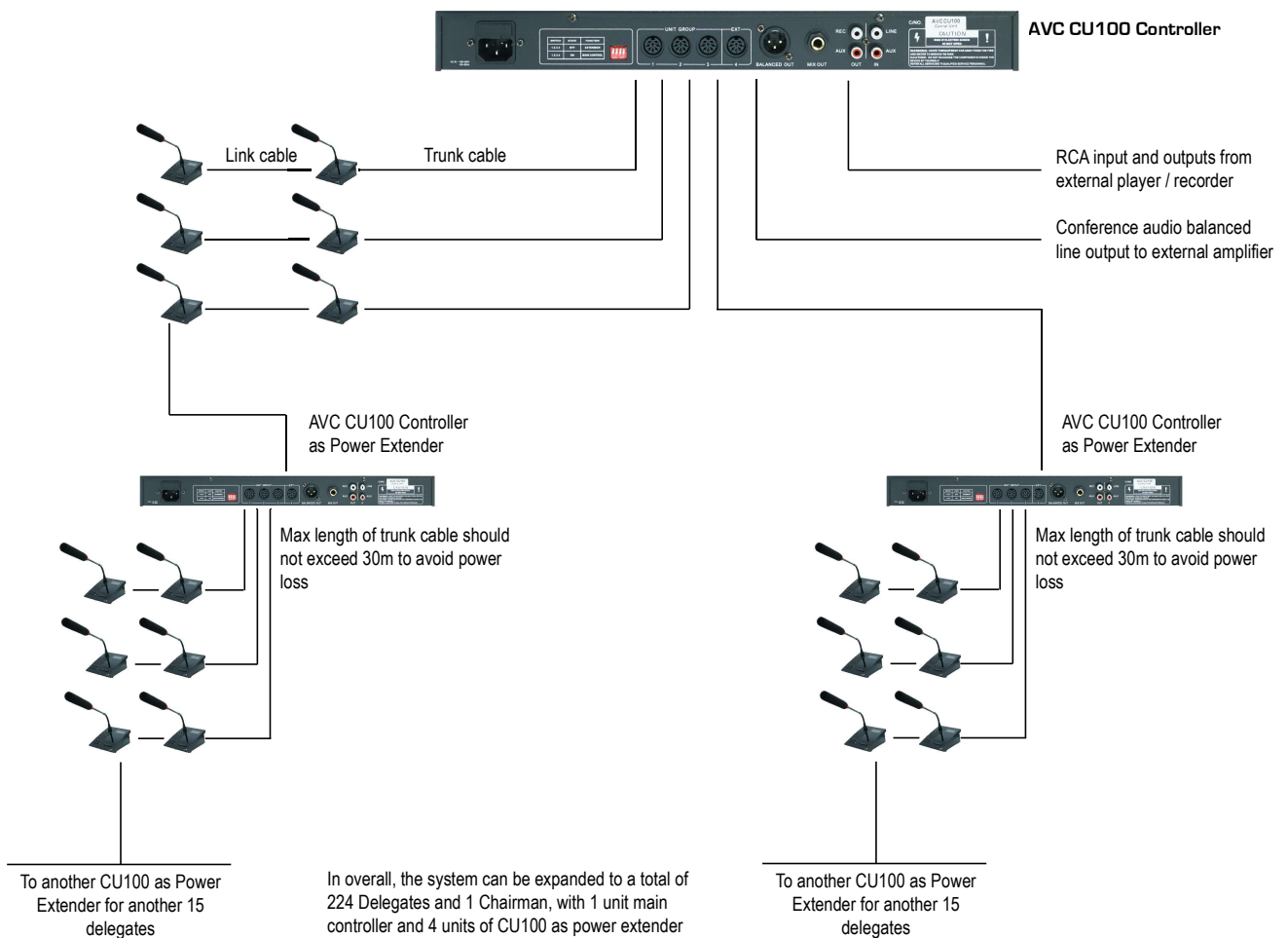
Carton : 440 (L) x 250 (W) x 370 (H) mm  
Gross Weight : 4.90 kg  
1 uts per carton



## Application Schematic



## System Expansion Diagram





# TECHNICAL INFORMATION

PRODUCT SELECTION | CODE OF PRACTICE | TECHNICAL TERMS



## 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.

# PRODUCT SELECTION GUIDE

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., ie 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 :

- 01 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
- 02 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
- 03 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.
- 04 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.
- 05 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

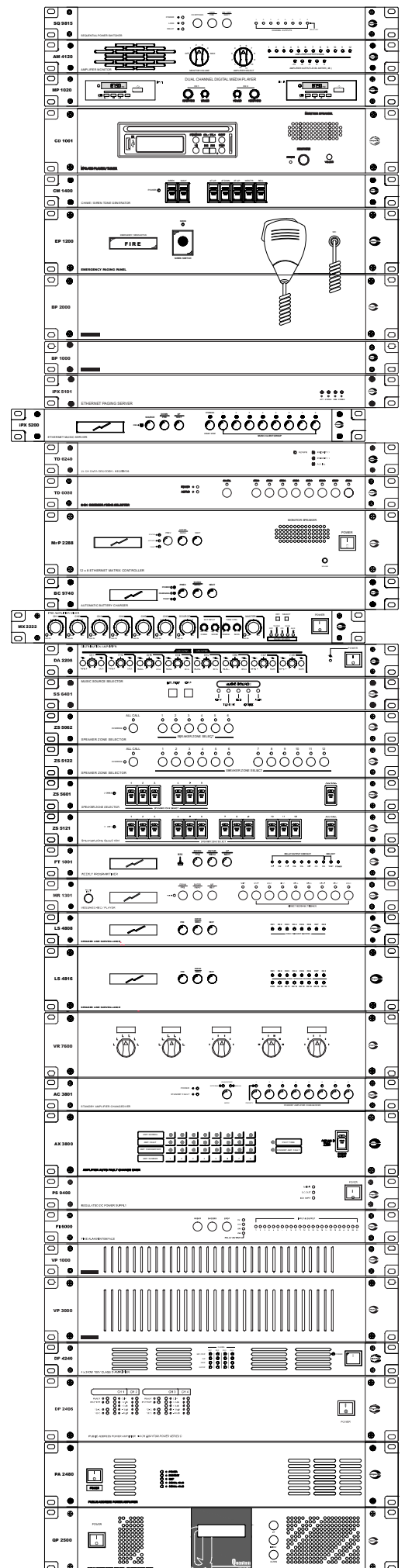
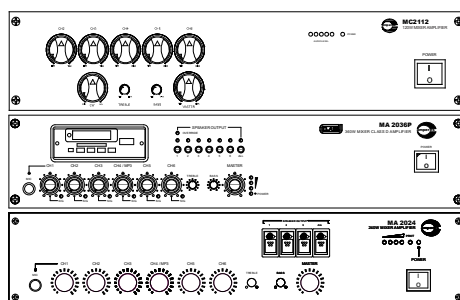


Scan here to access our webpage for more information.  
We shall update information from time to time to provide a better user experience in using Amperes.

[www.ampereselectronics.com/product-guidelines](http://www.ampereselectronics.com/product-guidelines)

Product outline drawings can be downloaded from our website

[www.ampereselectronics.com](http://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 be 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 the fault reporting includes the followings :  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.



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 pre-recorded 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 - Pre-recorded message from life threatening to warnings - Other pre-recorded 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 criterias 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 labellings.  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

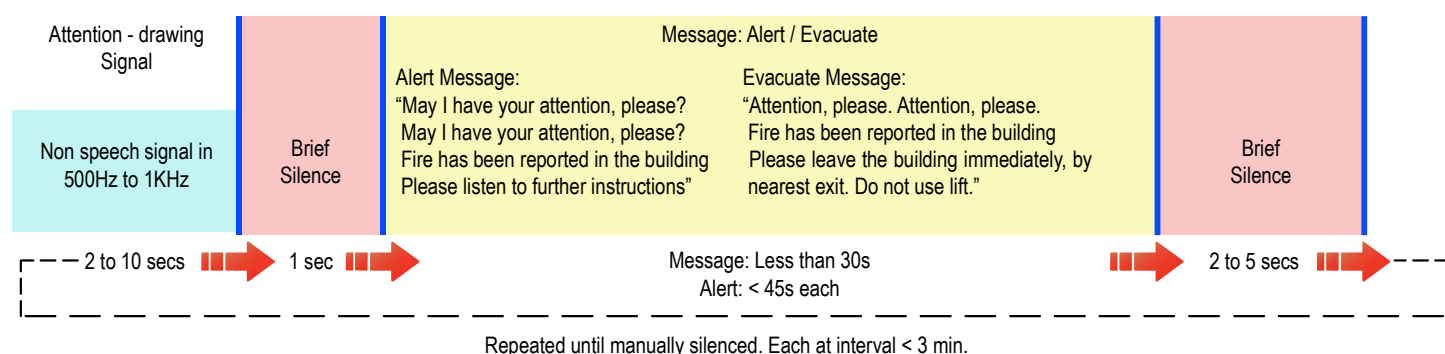
VACIE - Voice Alarm Control and Indicating Equipment

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 customised 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 ie. Batteries.

Batteries can be NiCd or SLA type. Steps below provide a simple calculation method on the capacity of batteries required ( 24V )

- Step 1 : Sum up total current drawn in the system and operating period required using back up batteries.
- ie. Total current drawn under 24V supply is 30A. 2 hrs of full load operation is required
- Capacity C1 :  $30 \times 2 = 60 \text{ Ah}$
- Step 2 : Residual voltage percentage is to remain at batteries to avoid total discharge, which may cause permanent damage to the cells. ( Refer to manufacturer's data for safe value )
- ie. 30% Voltage to remain
- Capacity C2 :  $60 / 0.7 = 85.7 \text{ Ah}$
- Step 3 : Determine optimum discharge rate. Discharge rate differs according to the battery capacity. ( Refer to manufacturer's data )
- ie. If it is recommended to draw 5 amp / hour from a battery
- Capacity C3 :  $85.7 / 0.5 = 171.4 \text{ Ah}$
- Step 4 : Duty cycle may differ according to type of load. Music broadcast has lower duty cycle as compared to siren. Using a factor of 20% for music,
- ie. 20% of current shall be drawn in an hour ie. duty cycle = 20%
- BATTERY CAPACITY REQUIRED :  $171.4 \times 0.2 = 34.28 \text{ Ah}$

Thereby the nearest standard capacity available is 40 Ah, which would be used for the system.

A calculation table is available in Technical Section of [www.ampereselectronics.com](http://www.ampereselectronics.com)

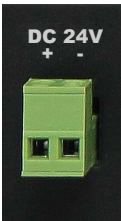
SOURCE OF INFO : VARIOUS

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

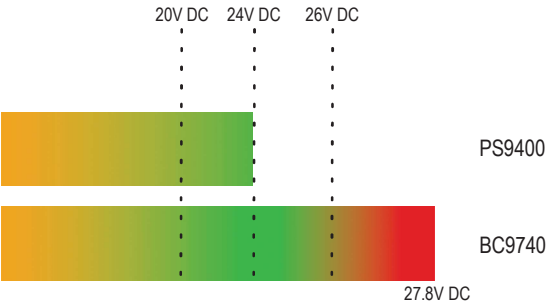
SOURCE OF INFO : VARIOUS

CORRECT WAY OF POWERING EQUIPMENT WITH 24V DC



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 ie. 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.



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 IN PA SYSTEM

### 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 normally measured at 1 kHz with 1V input signal. Higher S/N ratio is always preferred.

### DECIBELS ( dB ) :

Use to express the ratio between two signals, such as Voltage, Power, Current, etc. It is expressed in dB SPL for Sound Pressure Level, dBV for relatively to 1V and etc.

### SOUND PRESSURE LEVEL ( SPL ) :

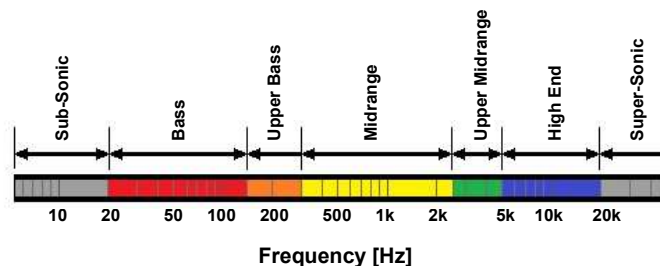
A measurement of loudness in relation to the threshold of human hearing at 2 uBar. It varies with frequencies and thereby in audio, it is expressed as RMS value in dB SPL. See also the SPL chart.

### TOTAL HARMONIC DISTORTIONS ( THD ) :

Expressed in %, it is the ratio of a fundamental frequency to the level of all harmonic frequencies produced by the 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, ie. Hot, Cold and Ground or Shield. It offers better immunity against external interference and is the preferred choice for long distance cabling.

### UNBALANCED SIGNAL :

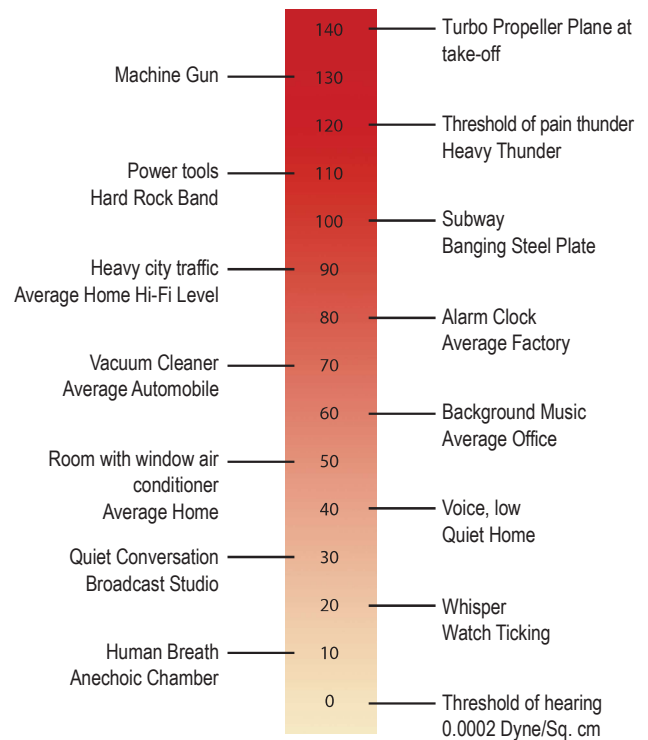
Refers to audio signal in cable with Hot and Ground (Shield) conductors. It is recommended for short distance cabling as it is subjected to interference.

### 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 LEVEL COMPARISON CHART



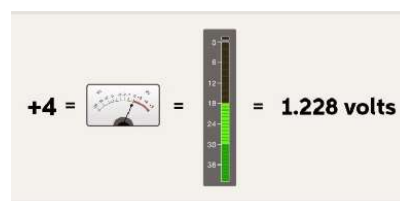
Sound Pressure Level ( SPL ) is normally expressed in dB, in relation to the lowest sound level a human ear can hear ie.

20 uBar. The chart below shows typical SPL level from various source of sound.

### 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. (  $P = V^2 / R$  ).



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



## SPL (dB) TO POWER AND DISTANCE

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

Distance (m)	2	4	8	10	15	20	30	40	50	60	80	100
dB Loss	6	12	18	20	23.5	26.0	29.5	32	34	35.6	38	40

**SPL drop = 20 log D** ( D= distance in metre )

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	19	20

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

**SPL = 10 log W** ( W = power input )

To determine SPL at a distance away :

$SPL(d) = \{ SPL_{rated} + 10 \log W \} - 20 \log$

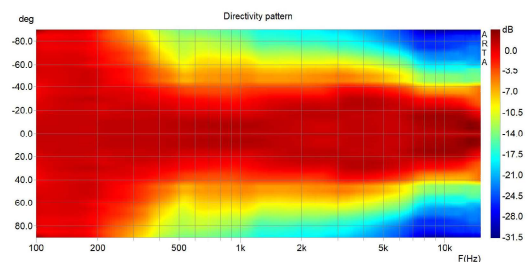
Eg. Speaker is rated 90dB W/m @1 kHz and powered at 10W at a distance 20m away, the SPL is :

$SPL_{20m} = ( 90 + 10\log 10 ) - 20\log 20$   
 $= 100 - 26$   
 $= 74 \text{ dB}$

The above calculation is based on 1 kHz. Different frequencies may have different sound propagation. Please refer to data sheet of speaker for more information.



From technical data of speakers, normally indicated as SPL @ 1kHz,1W,m (20-20 kHz), the value refers to 1kHz. Different frequencies would have different value at a distance as well as the dispersion characteristics. The diagram below shows the co-relations of Dispersion angle ( Axis Y ) and corresponding dB of difference frequencies ( Axis X )



## 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 / 1000ft	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	1.00	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	2.00	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	310

	125W power		250W		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.

## FIBER OPTIC CABLES IN PA INSTALLATIONS

Laying copper cables may not be suitable for installations such as railway stations communications, sparsely located buildings and remotely located paging points. They are subjected to lightning strikes, interferences and signal drop, thus affecting the performance and lifespan of equipment.

Fiber optic cabling is an alternative solution and applying IP to the system would make the PA setup to be cost effective, safer, expandable and more efficient.

Followings are the items required for fiber optic installation :

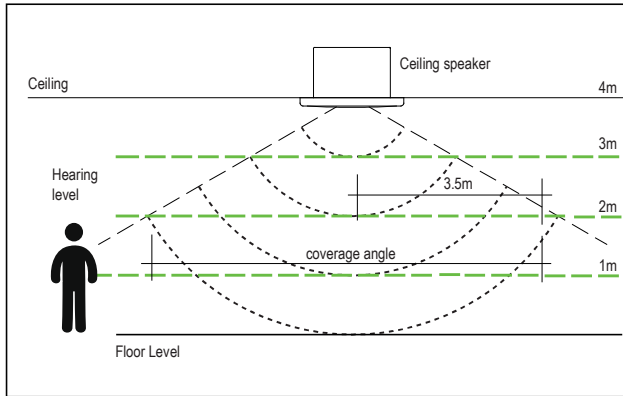
- IP PA Server / Controller - Amperes iPX5101 ( one per system )
- IP PA Client / Adaptor - Amperes iPX5151 ( one for each location )
- Network Switch, 10/100 Base T or higher
- Cat 5e to Fiber Converter ( if Fiber optic network switch unavailable )
- Fiber optic cable ( Single / Multimode ) - 2 core

For short distance fiber cable run (typically around 2 km), multimode type shall be used whereas single mode type will be used for longer distance of up to 25 km.





## POSITIONING OF SPEAKERS



The criterias 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, eg. Dispersion angle and SPL level.
- 4) Expected environment such as factory, office or shopping complex.

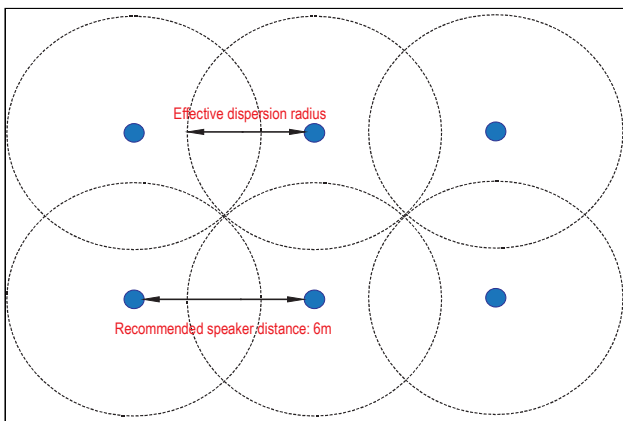
In order to hear properly, the sound source from speaker shall be 6 dB above the background noise.

If the background noise is around 70 dB, such as in a shopping area with average crowd, the person shall be listening to the speaker sound at approximately 76 dB, at around 1.5 to 2m above floor level.

If the power input is 3W, the SPK ( 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 ; ie. 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.

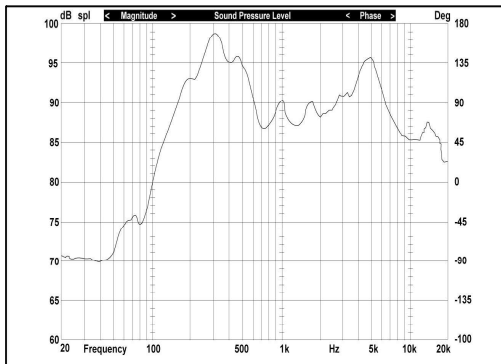
Datasheets for speakers are available to be downloaded from our website. Refer to each individual speaker for more information



## FLOOR MAPPING

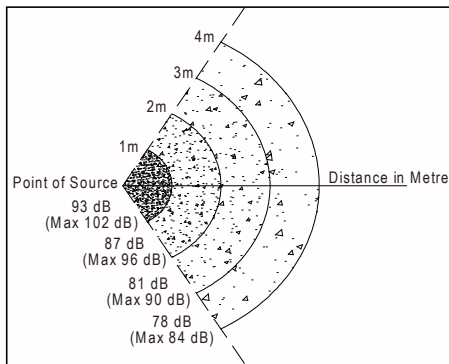
A general guide to calculate speaker quantity of a floor area.

Ceiling height, dispersion angle and speaker characteristics determine the dispersion radius, thus the spacings between each of the speakers.



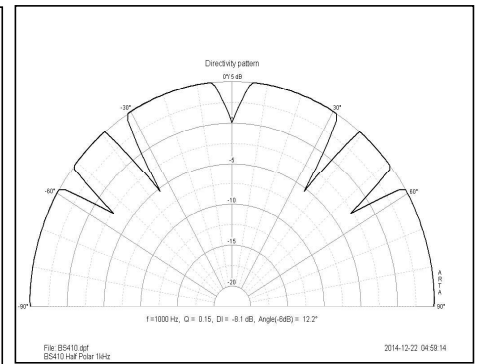
**SPL CHART**

It tells the frequency response of a speaker, measured at 1W / m, +/- 3dB at 1 kHz reference point.



**SPL VS DISTANCE**

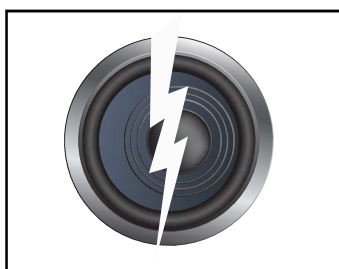
A general guideline showing the drop of SPL level over distance, measured in meter.



**POLAR CHART**

Shows the effective dispersion angle of a speaker. Full 360 deg chart is often used to check full angular characteristics of speaker.

## 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, ie 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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