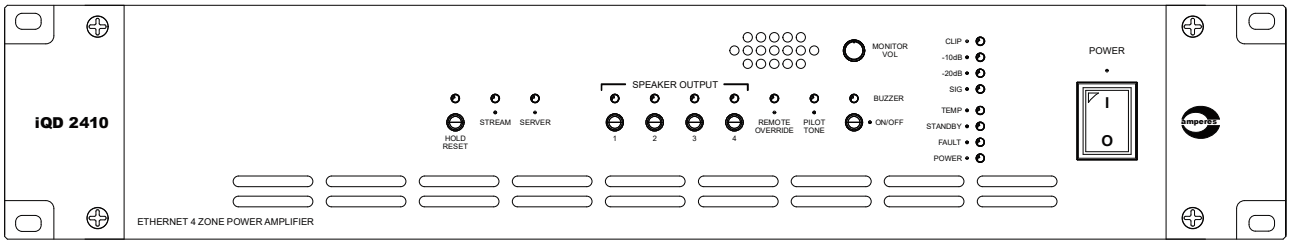
INSTRUCTION MANUAL

iQD2000 Series

IP Network 4 Zone Power Amplifiers



Variants :

iQD2402 : 250W 100V
iQD2405 : 500W 100V
iQD2407 : 750W 100V
iQD2410 : 1000W 100V

Thank you for choosing another quality product from Amperes Electronics

Product in Summary

iQD 2000 Series are IP Network amplifiers design with 4 zone outputs suitable for distributed IP PA System. It is a combination of IP network client, zone decoder / selector and power amplifier in a single enclosure, thus saving much space and component counts. Among prominent features are :

- 4 zone output with fused AB circuits
- Line audio output for connection to external amplifier / standby amplifier
- Amplifier auto fault sensor
- Built in amplifier changeover relay
- Web browser controls and monitoring
- Speaker line monitoring (to be available soon)
- Compatible with Amperes PMX III (available soon) for monitoring
- API provided for third party interface

Please read through the manual for proper instructions in installation works. We trust this product will deliver the performance beyond your expectations.

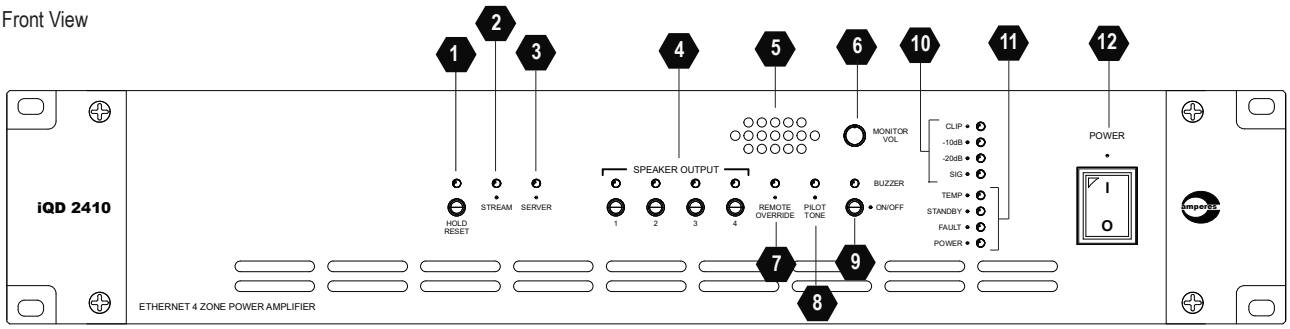
Scan to view catalogue and latest updates

Ver 1 / 0925

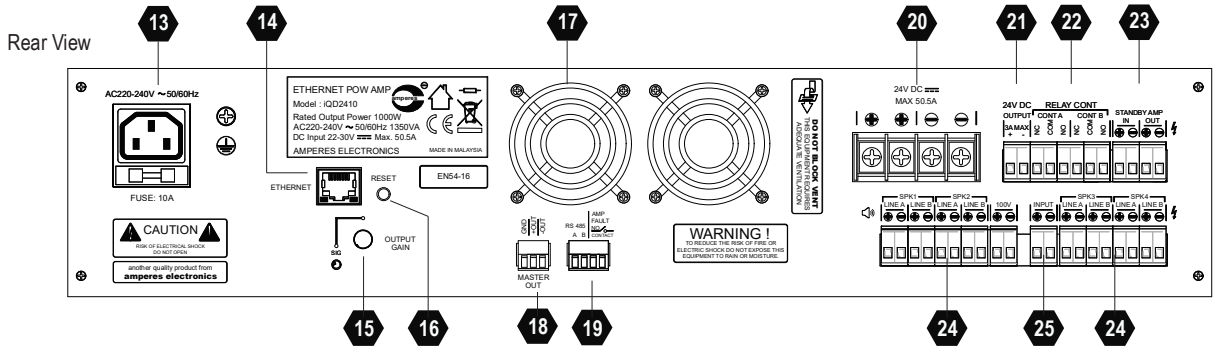
In our support towards environment, we shall no longer print manuals to be accompanied with each product. Please view through browser and print them only when necessary.

Parts Identifications

Front View



Rear View



1. RESET BUTTON

Hold until green LED lits to reset the front panel zone settings and test the LEDs. Further hold till amber light flashes and release will force the amplifier into changeover mode. It is used to test the internal relay changeover by simulating fault occurring at the amplifier. Standby amplifier LED at "11" will lit.

2. STREAM LED

This LED will blink when receiving audio streaming from paging microphone. There will be no blinking when streaming from iPX5200 / PMX III.

3. SERVER LED

This LED will blink in green colour if connected to iPX5101 paging server and will turn to amber if it is disconnected.

4. SPEAKER OUTPUT SWITCHES

You can manually press the zone switch to broadcast music with LED indicator lit according to the zone. If a paging kicks in, these zones will be overridden and will resume upon ending the paging.

5. MONITOR SPEAKER

The monitor speaker is used to listen to audio output regardless of the zone being triggered.

6. MONITOR SPEAKER VOLUME CONTROLLER

Adjust the volume of the monitor speaker with this knob.

7. REMOTE OVERRIDE

This LED will lit when local BGM is bypassed for paging or emergency announcement.

8. PILOT TONE

The 20 kHz pilot tone will be generated to monitor the amplifier circuit. The tone will be generated at intervals to reduce load stress and the LED will lit whenever it is present.

9. BUZZER ON / OFF SWITCH

Buzzer will sound when there is a failure to external speaker circuit or when amplifier is detected as fault. To off the buzzer, a short press will off it for 8 seconds and the LED will show amber. The buzzer will on again after 8 seconds. A long press will off the buzzer and the LED will turn green indefinitely until iQD is reset or when a new fault occurs.

Parts Identifications

10. SIGNAL LEDs

It shows incoming signal levels with clip indicator.

11. DEVICE STATUS LEDs

Status LEDs for :
TEMP : On when the internal heat reaches 75°C.
STANDBY : On when the amplifier is faulty and the relay changeover kicks in with standby amplifier taking over.
FAULT : Indicates that the amplifier circuit is detected as fault. Errors / defective parts related to network module will not show fault.
POWER : On with DC or AC power being switched on. It will blink when iQD is switched to DC power.

12. POWER SWITCH

Switch to power up the device for AC and DC sources.

13. IEC AC SOCKET

Fused AC inlet for incoming mains from 220 - 240V AC.

14. LAN PORT

Connect to network via this port.

15. OUTPUT VOLUME CONTROLLER

The output volume can be manually adjusted using this knob.

16. RESET FOR NETWORK MODULE

This switch is for resetting the network connection. Press momentarily to reset the connection while pressing for 8 seconds will reset the setting to factory defaults.

17. VENTILATION FAN

The dual 2" fan are temperature controlled which complement the two fans built inside the unit.

18. MASTER AUDIO OUTPUT

Audio received from network will be simultaneously available at this port with balance line out. Connect this to external amplifier either for additional power requirement to drive speaker loads or connect to standby amplifier for back up. See section " Amplifier Changeover Connection ".

19. RS485 DATA & FAULT CONTACT

RS485 data port is currently used for firmware updates only. The fault contact is NO which will be closed when the amplifier is faulty. Use this for standby amplifier changeover or indicator for external monitoring such as mimic panel.

20. BACK UP 24V DC TERMINALS

Connect to 24V DC back up supply. Use proper size cable according to the power rating of the amplifier. Refer to " Connecting DC Back Up Supply "

21. 24V DC OUTPUT

Max aux DC current is 3A, can be used to power up external devices especially for decentralized system without the need to install another power supply.

22. RELAY CONTACT

Two relay contact ports are available when All Call or Emergency Paging is activated, which can be used to override volume controller. See Note 6 at Page 5.

23. STANDBY AMPLIFIER CHANGEOVER TERMINAL

The amplifier has built in relay changeover for standby amplifier takeover. See section " Amplifier Changeover Connection ".

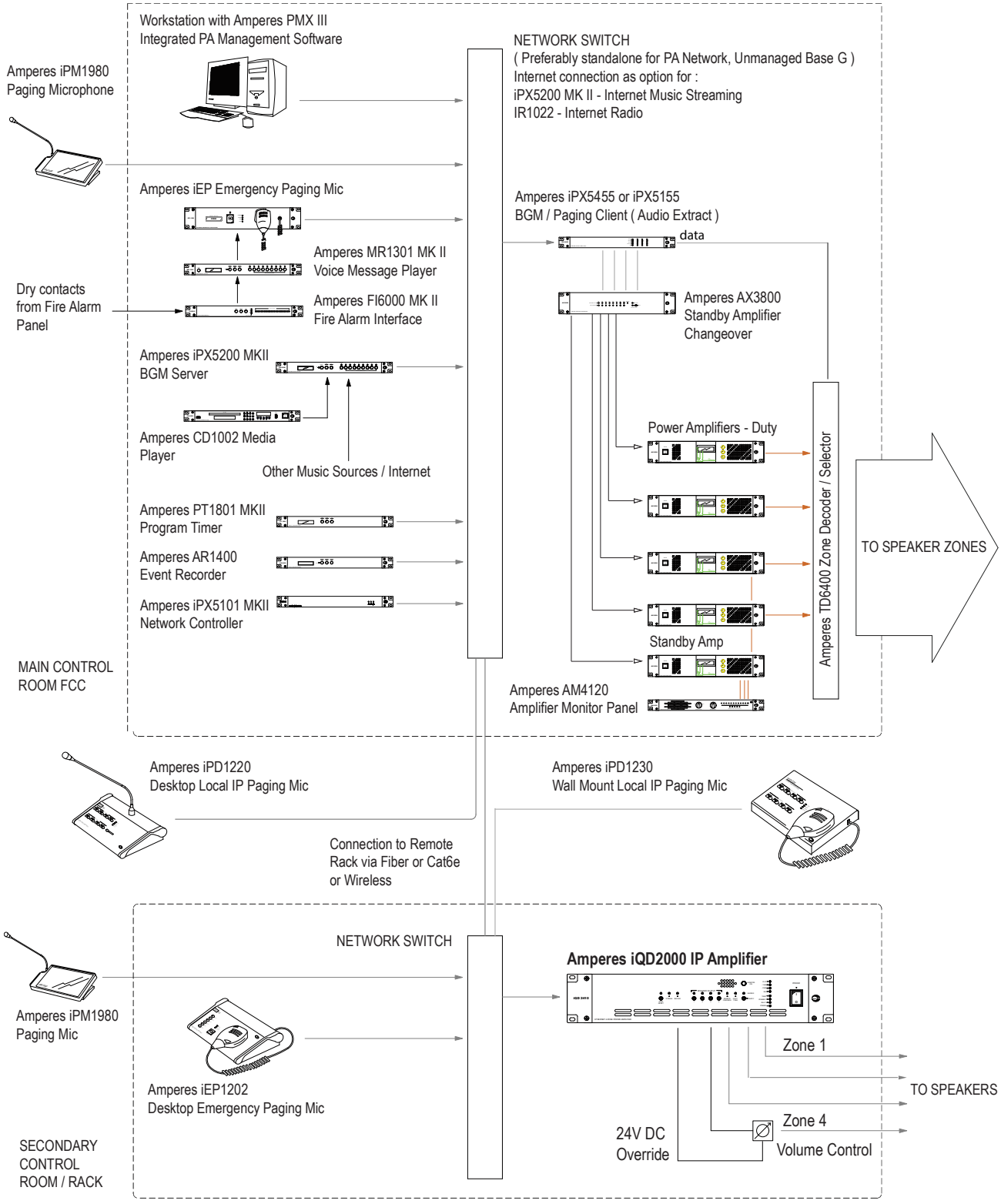
24. SPEAKER ZONE OUTPUT

iQD has 4 zones of output with A B lines, divided into 2 parts SPK1 & 2 and SPK 3 and 4. For 3 & 4 to use same amplifier to drive, link the 100V and INPUT terminals.

25. AMP INPUT

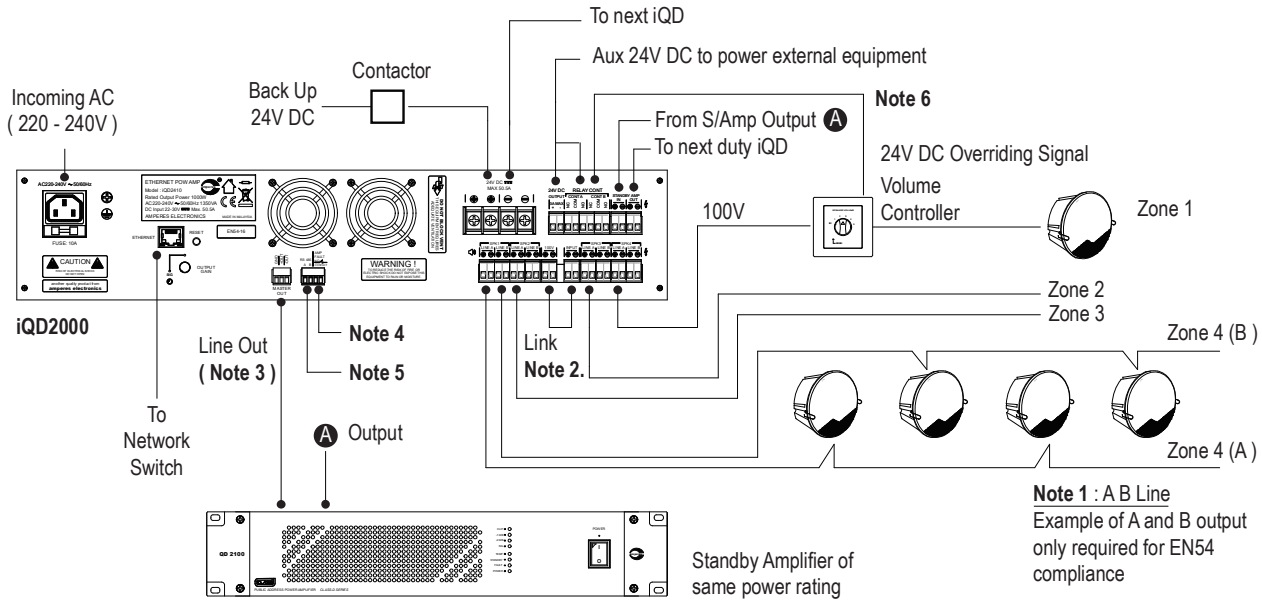
Connect this to external amplifier to drive SPK 3 & 4 if the capacity of the unit insufficient to drive the load.

General Schematic Diagram



Note :
The above diagram depicts typical connections for an IP setup. Some items are optional.
Please consult our technical engineer in proper connectivity or suitable equipment to meet your application.

Connecting the Device



Note 1 : A B Line

A and B line may be used in installation that requires compliance to EN54. In most cases, only a single circuit is used, therefore the B port can be left unconnected.

Note 2 : Amp Output Link

If the installed iQD is sufficient to drive the load by itself and Zone 3 and 4 are to be used, link these ports together. If external amplifier is required to drive the loads, connect the booster amplifier output to the “INPUT” of this second group of terminals.

In above diagram, connect the A output to the “INPUT” of the 2 nd group speaker zone terminals if the amplifier is to be used as booster amplifier.

Note 3 : Line Out

The line out is unprocessed output audio extracted from the internal network module, which is independent from Pilot Tone. It is used to connect to external booster amplifier or standby amplifier. Fault to the amplifier circuit will not affect this line output and only fault that occur to the internal iQD network module will cause the audio to be disconnected.

The line out is balanced signal.

Note 4 : Amp Fault Contact

A contact is created if the built in Auto Fault Sensor (AFS) detects the amplifier power circuit is faulty. This contact can be used to link to external amplifier changeover (AC3801) if required. You can use this if there are multiple iQD installed and when a single standby amplifier available. Changeover device for this application will be available in near future.

See section “ Amplifier Changeover Connection ”

Note 5 : RS485 Data

Currently RS485 data port is only used for certain firmware updates.

Note 6 : Relay Contact Ports

The relay ports are only activated during All Call. By default, these relays are disabled and can enabled by :

- Hold buzzer button upon powering up until Buzzer LED blinks twice and then release the button. A second later, Buzzer LED will blink again indicating that iQD is now in configuration mode.
- Activate Zone 1 button : the contact ports will close when iQD Zone 1 to 4 buttons are pressed
- Activate Zone 2 button : the contact ports will close when remote devices such as iPD1280, iPM1980 activates All Call.

Once the configuration is completed, hold the Buzzer button until the Buzzer LED is off to exit the configuration mode.

Connecting DC Back Up Power Supply

It is important to take proper precautions when connecting DC back up to the amplifiers, especially those of high power rating. As load using 24V DC as input power may incur very high current, a high power contactor and suitable cable must be used.

Please follow the connections below for proper DC back up connections.

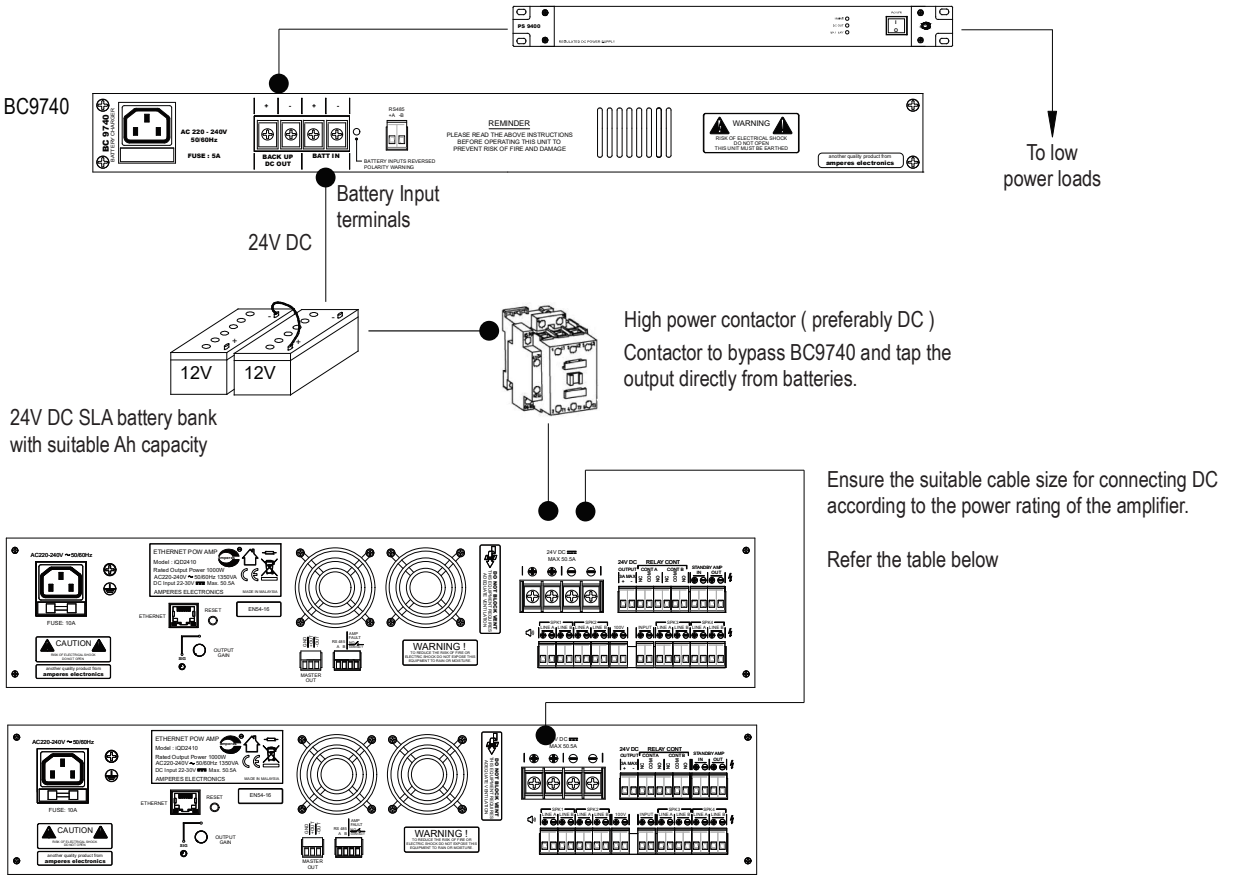


Table of suitable cable size for 24V DC back up.

Current	Cable Size (mm^2)	Closest AWG
5	0.35	21
10	0.75	18
15	1	17
20	1.5	15
25	2	14
30	2.5	13
40	4	11
50	6	9
60	10	7
70-80	16	5
90-100	25	3

The above table is based on 24V DC back up voltage with cable run of 2m and voltage drop of 3%.

Calculator source : fabhabs.com/sc-cable-sizing-calculator

Table of 24V DC back up battery bank (Ah)

Model	25% Load	50% Load	75% Load
iQD2402	20	25	30
iQD2405	23	32	40
iQD2407	28	42	55
iQD2410	32	48	65

The above table is for system **without** back up generator requiring 24 hours standby and 30 minutes full load operation, with 20% headroom in load.

Table of 24V DC back up battery bank (Ah) - With Gen Set backup

Model	25% Load	50% Load	75% Load
iQD2402	9	14	19
iQD2405	12	20	29
iQD2407	17	30	44
iQD2410	20	37	53

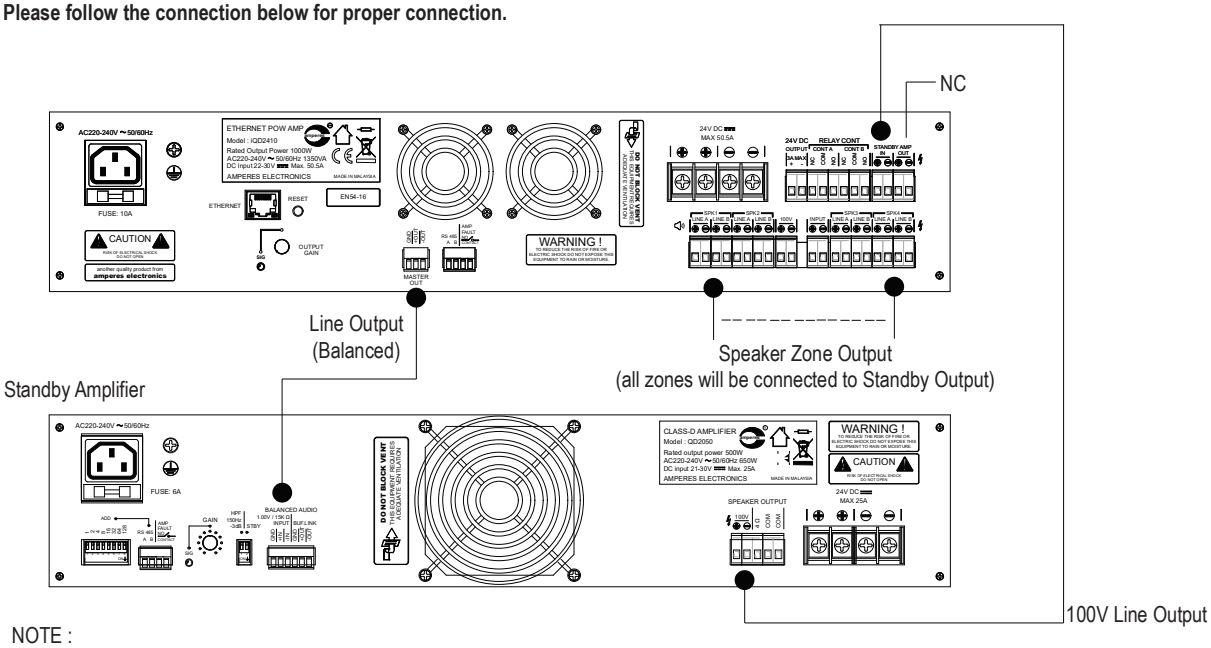
The above table is for system **with** back up generator requiring 6 hours standby and 30 minutes full load operation, with 20% headroom in load.

Calculation based on BS5839 Pt 8 requirement

Amplifier Changeover Connection

Standby amplifier to be installed should be equivalent or higher than the power rating of the duty unit. Currently, only one duty pack is to be connected to single standby amplifier with the connection below.

Please follow the connection below for proper connection.

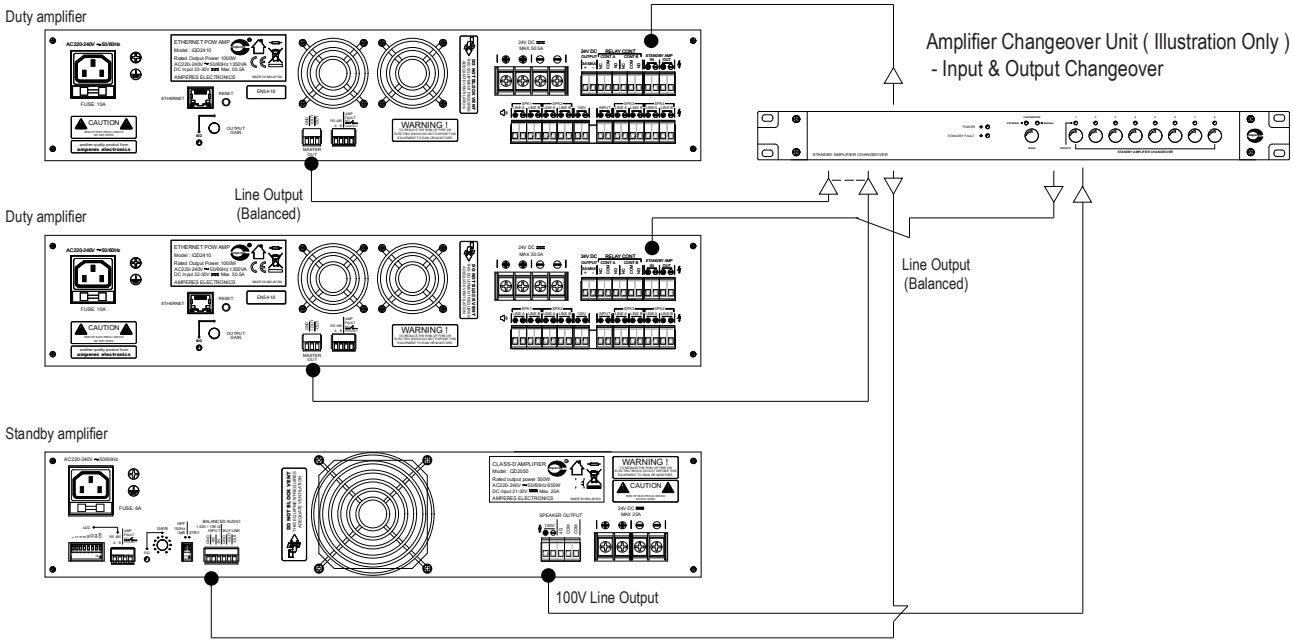


NOTE :

1. One standby amplifier for one duty pack configuration with same power rating.
2. Standby amplifier to use QD, PA or QP series.
3. The failure at duty unit is only for amplifier circuit. Failure at network module will not generate changeover process.
4. Amp Fault NO contact is available for the internal amplifier failure. Use the contact to connect to external mimic panel.

ONE STANDBY FOR MULTIPLE IQD

When only one standby unit is available for multiple units of iQD, a changeover medium is required to exchange routings of input audio signal as well as 100V. The amplifier changeover unit for this purpose will be available in very near future. We hereby provide the connection illustration as below :

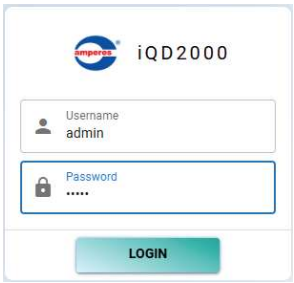


Device Setup

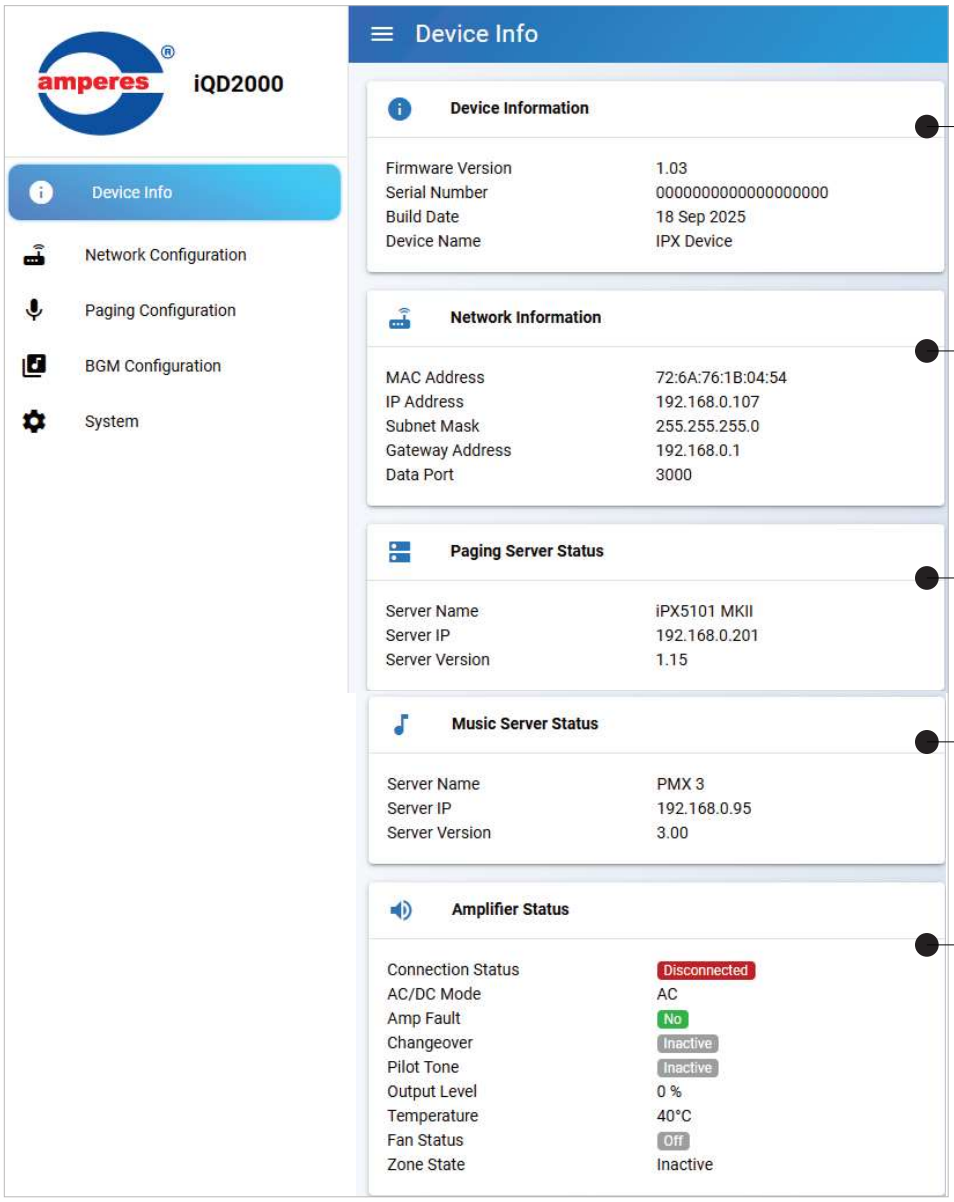
Before start using the iQD, some initial setup has to be done, preferably using web browser. Among the initial setups are :

- Assign a new IP address of the power amplifier
- Assign starting zone and renaming

Enter the device's default IP address : 192.168.0.100 in the web browser. Default name and password is " admin "



DEVICE INFO



Device built information such as firmware version, its serial number and the device name. The amplifier name can be changed to unique name for easier identification.

Network information showing various network and device's addresses. Change the IP address during setup.

Shows the connection of the amplifier to the network paging controller (iPX5101) and its address.

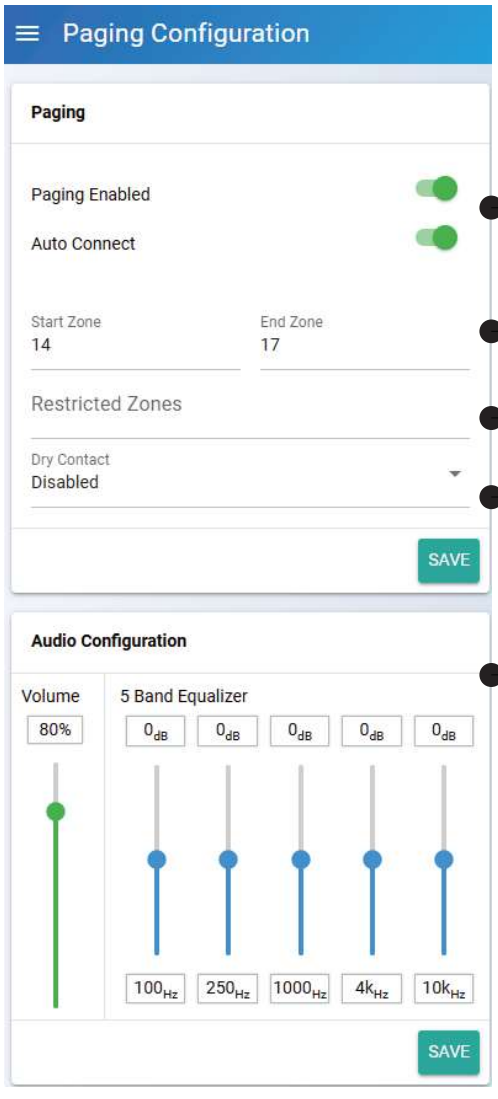
Music server connectivity, either PMX III software or iPX5200 music server and its version number.

The status of the amplifier with various parameters which will be available soon at PMX III software.

Device Setup

NETWORK CONFIGURATION

Set the iQD IP address, subnet and the gateway addresses here to suit your networking environment. It is recommended to leave the data port number unchanged.

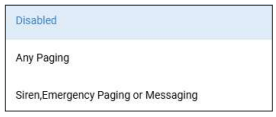


PAGING CONFIGURATION

Slider to enable Paging function for this amplifier and the connection behaviour to the Paging Controller (iPX5101). If the amplifier is to be used for paging, turn these sliders On.

Set the zone range for the amplifier, the starting and ending zone must not be more than 4 which is the max zone capacity of the device.

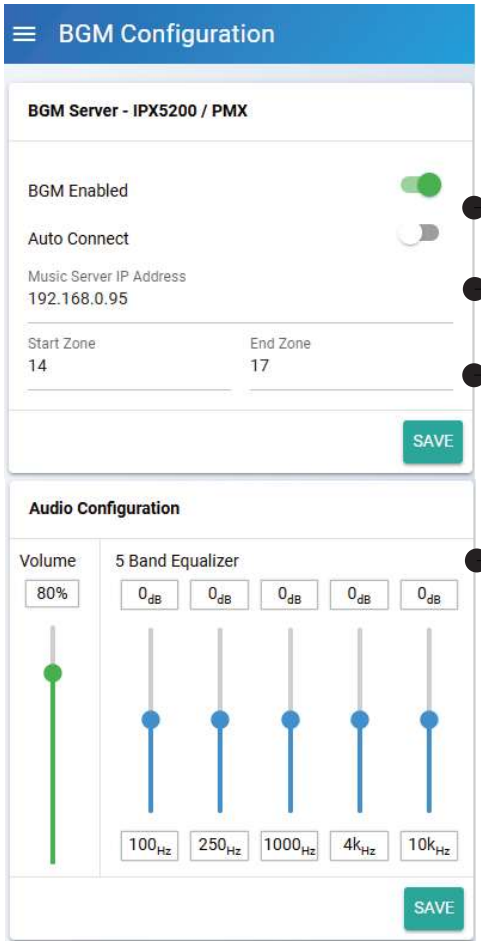
Set the Restricted Zones within the zone range, which any normal paging will not be turned on.



Select when the Dry Contact will be turned on from the drop down arrow.

The audio configuration for Paging streaming which consists of overall volume and 5 band equalizer. The effect will be real time upon adjustment.

Device Setup



BGM CONFIGURATION

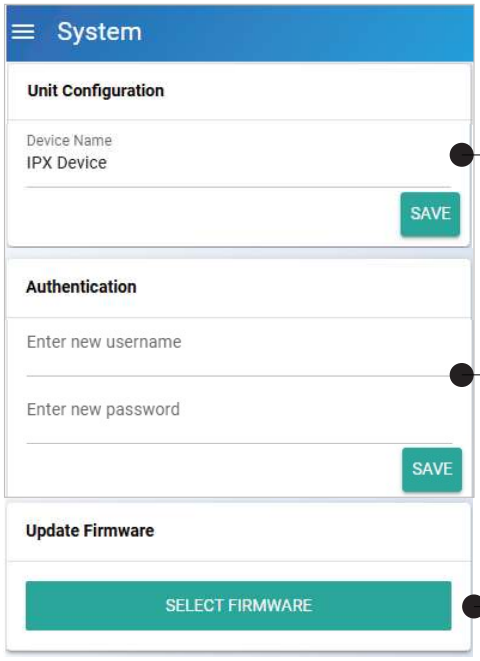
iQD will be able to receive music streaming of up to 320 kbps from BGM server iPX5200 or from PMX III. As some zones may not require BGM, you have the option to turn off BGM streaming to it.

Slider to enable or disable BGM streaming to iQD. Some zones may not require BGM, as such, disable the device from receiving music broadcast.

Determine the source of the BGM streaming. If it is to receive BGM from PMX III, enter the address of the PC preloaded with the software.

Set the zone which will receive BGM streaming.

Adjust the volume or the equalizer to achieve the best sound reproduction of BGM, according to the speaker type or the installed environment.



SYSTEM CONFIGURATION

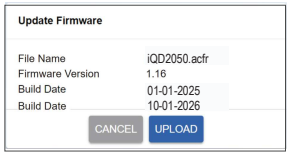
This section deals with configurations related to device access such as naming, authentication and firmware updates.

Rename the iQD with a unique name for easier identification.

Change the password to prohibit unnecessary access to the settings.

Click this to update the firmware. Search the latest file with .acfr extension and upload it to the device.

Select the file from file window (.acfr extension)



Technical Specifications

	iQD2402	iQD2405	iQD2407	iQD2410
POWER REQUIREMENT				
Operating voltage	220 - 240 V AC : 50 / 60 Hz / 24 - 30V DC back up supply			
Power rating (W rms 100V out)	250W	500W	750W	1000W
Power consumption - full load (240V AC)	450 VA (1.9A)	850 VA (3.5A)	1150 VA (4.8A)	1550 VA (6.5A)
Current consumption - full load at 24V DC	15A	25A	40A	50A
Current consumption - standby at 24V DC	1.2A (Standby function off)			
INPUTS AUDIO				
IP audio Input signal activity	Auto detect / always ON setting via web			
Frequency response	50 - 18 kHz (+/- 3dB @ 1 kHz, 0 dBU)			
Tone controls	Bass, treble			
THD + N at rated power	< 1%			
S/N ratio	> 65 dB			
OUTPUTS				
Output zone (100V)	4 zones with AB fused terminals			
Audio output	Master line output balanced (0 dBU)			
Audio out gain controls	Output 100V			
Output audio monitor	Front speaker with volume controls			
Aux DC output	24V DC 3A max			
CONTROLS / COMMUNICATIONS				
Communication controls	TCP/IP, UDP, HTTP, ADP, UART (RS485 : 19.2 kbps)			
Audio streaming	MP3 at 256 kbps max for BGM ; G722 PCM for paging			
User Interface	Web browser, Google Chrome V90+ preferred			
Emergency relay contact	3A ; NO relay			
Fault detection	Amp fault, line fault (upcoming) with switchable buzzer			
Amp fault changeover	Built in changeover relay			
Indicators	Signal, temp, amp fault, power, link status, zone selection, pilot tone, hold reset			
Protection	Thermal (70°C), over current, short circuit, AC fuse			
Cooling system	Force fan with temperature controls			
Operating temperature	- 10 to 45° C			
Cut off temperature	75 °C at heatsink			
Relative humidity	< 95 %			
PHYSICAL				
Dimensions (W x H x D)	482 x 88 x 420 mm			
Weight (Kg)	9.1 kg			
PACKING INFORMATION				
Carton (L x W x H)	555 x 545 x 190 mm			
Gross weight	11.1 kg			
Unit per carton	1 unit			

Note:
The above specifications are correct at time of printing, but subject to changes without prior notice due to product improvements.

Warranty Conditions

Only Amperes Electronics Service Centres are allowed to make warranty repairs : a list of Amperes Electronics authorized service centres may be asked by the purchaser or send directly to Amperes Electronics Sdn Bhd at 70 Jalan Industri PBP3, Tmn Perindustrian Pusat Bandar Puchong, 47100, Puchong, Selangor. This warranty is not valid if repairs are performed by unauthorized personnel or service centres.

Eligibility :
Amperes Electronics' Service Center will accept any device send in for repair / checking purchased from any of our dealers. Some dealers may have the right to refuse repair / service / checking for any device not purchased from them directly.

Coverage
This warranty covers only repairs and replacement of defective parts, due to defects of components or workmanship during product warranty period. For any product purchased exceeding the warranty period, a cost of repair shall be presented and will only proceed to rectifications upon agreed value. If the owner decides not to proceed, a minimal checking fees will be applied.

Exclusions
This warranty does not cover damages caused by misuse, negligence in application as well as using the product with power supply voltage other than shown on the product, or any other power supply source / adapter not recommended by the manufacturer.

This warranty does not cover damages caused by fire, earthquakes, floods, lightning and every cause not directly related to the unit.

This warranty certificate is valid only for the described product, and is not valid if modifications are made on this certificate or identification labels applied to the unit or any other modifications to the physical unit other than its intended usage.

Duration / Warranty Period
This warranty covers all the material and manufacturing defects and is valid for a period of 36 months from the date of purchase or for a specified period in countries where this is stated by a national law. In this case, the extension is valid only in the country where the product is purchased.

Cost of Claiming Warranty
Cost and risk of transportation as well as removal and installation of the product from the main system are for the account of the purchaser. This warranty shall not extend to the replacement of the unit.

Limitations
This warranty does not include any indemnity in favor of the purchaser or the dealer for the period out of use of the unit, moreover the warranty does not cover any damages which may cause to the people and things during the use of the product. Our liability is limited to the cost of the product

Amperes Electronics Sdn Bhd is not obliged to modify previously manufactured products under warranty if the design changes or improvements are made.

The purchaser is deemed to agree to the above warranty conditions once the product packaging is unpacked., Otherwise the product shall be returned to the seller in proper original condition.

Disclaimer

Information contained in this manual is subjected to change without prior notice and does not represent a commitment on the part of the vendor. Amperes Electronics Sdn Bhd shall not be liable for any loss or damages whatsoever arising from the use of information or any error contained in this manual.

It is recommended that all services and repairs of this product to be carried out by Amperes Electronics or its authorized service agents.

Amperes products must only be used for the purpose they were intended by the manufacturer and in conjunction with this operation manual.

Amperes Electronics Sdn Bhd cannot accept any liability whatsoever for any loss or damages caused by service, maintenance or repair by unauthorized personnel, or by use other than that intended by the manufacturer.

CERTIFIED QUALITY MANAGEMENT SYSTEM
UNITED REGISTRAR OF SYSTEMS URS ISO 9001
Registered to certificate: 16895/ A/ 0001/ UK/ En

amperes®

AMPERES ELECTRONICS SDN BHD
MADE IN MALAYSIA
Published : SEP 2025