



INSTRUCTION MANUAL

QD2025 250W 100V

QD2050 500W 100V

QD2075 750W 100V

QD2100 1000W 100V

Hi Performance Class D Power Amplifiers



Thank you for choosing another quality product from Amperes Electronics.

Introducing another series of high performance PA amplifiers built on Class D audio technology. It has higher power efficiency which consumes less power as compared to conventional Class AB type, in line with today's need to reduce carbon print to the environment as well as cost reduction to power consumption.

Another distinct performance is the wider frequency response, making it a suitable power pack not only for PA but also for hi fi audio listening demand. Self fault monitoring feature is included in QD2000 series., in which a contact shall be available in case of failure. This shall enable connection to amplifier changeover unit to perform standby fault changeover.

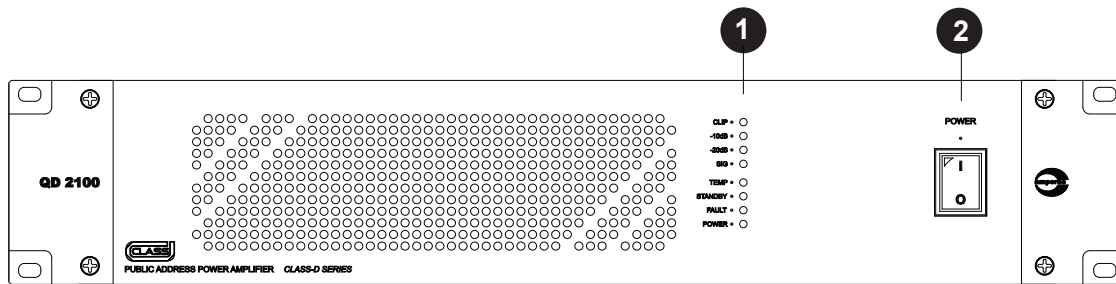
You shall be very certain that this is the final product you would ever search. We make it available without you paying high price for a premium product that works exceeding your expectation.



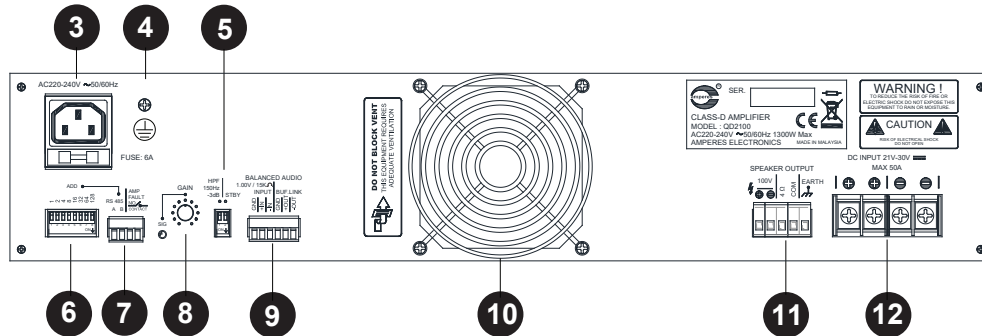
VER 1 / 2021

Parts Identification

Front View



Rear View



1. SIGNAL, TEMP, STATUS LEDs

LEDs to indicate input signal level, temperature warning, standby status, fault detection and power.

- Clip - When incoming signal exceeds +4 dBu
- Signal LED - Indicates incoming signal level
- Temp - When internal temperature exceeds 40 deg C
- Standby - ON if the amplifier is set to standby mode
- Fault - Lit when amplifier is faulty
- Power - ON when the amplifier is under AC mains and blinks if DC supply takes over

2. MAINS SWITCH

Mains switch for incoming AC as well as DC cut out.

3. AC POWER INLET (IEC CONNECTOR)

Fused IEC power inlet, accepts 220 - 240V AC, 50/60 Hz. Ensure correct fuse rating for replacement, refer to Page 3.

4. GROUND CONNECTION

Screw terminal to connect body ground to AC ground. This equipment must be earthed.

5. HI PASS FILTER AND STANDBY SWITCH

Filter switch for low frequency cut off to prevent low frequency signal to reach speaker (ie. horn speakers).
The amplifier can be on standby or active always subjected to type of application (refer to Page 9)

6. ADDRESS DIP SWITCH

Address can be assigned to amplifier for identification in remote monitoring such as Amperes PMX LAN. Ignore this if unused.

Parts Identifications (con't)

7. RS485 TERMINAL AND FAULT CONTACT

RS485 connection for interface to external monitoring devices / software.
Fault contact available (NO) when the unit is diagnosed as faulty.

8. AUDIO INPUT SIGNAL VOLUME CONTROL

Input signal gain control with LED indicator.

9. INPUT SIGNAL TERMINAL

It accepts balanced line input using mini Phoenix connector. Link terminals is available to connect to subsequent unit.

10. VENTILATION FAN

The ventilation fan is controlled by thermostat and shall run upon reaching temperature of approximately 40 deg C. Do not block the air flow.

11. AUDIO LINE OUTPUTS

Outputs from the units are available in 100 / 70V line and also for 4 Ohm speakers. At any one time, connect only one terminal.

12. DC INPUT TERMINAL

24V DC back up supply from batteries are connected to these connectors. Use suitable cable size to avoid overheating of cables.

RECOMMENDED FUSE RATINGS

Operating voltage is 220 to 240V ac ; 50 hertz. Use suitable fuse for replacement.

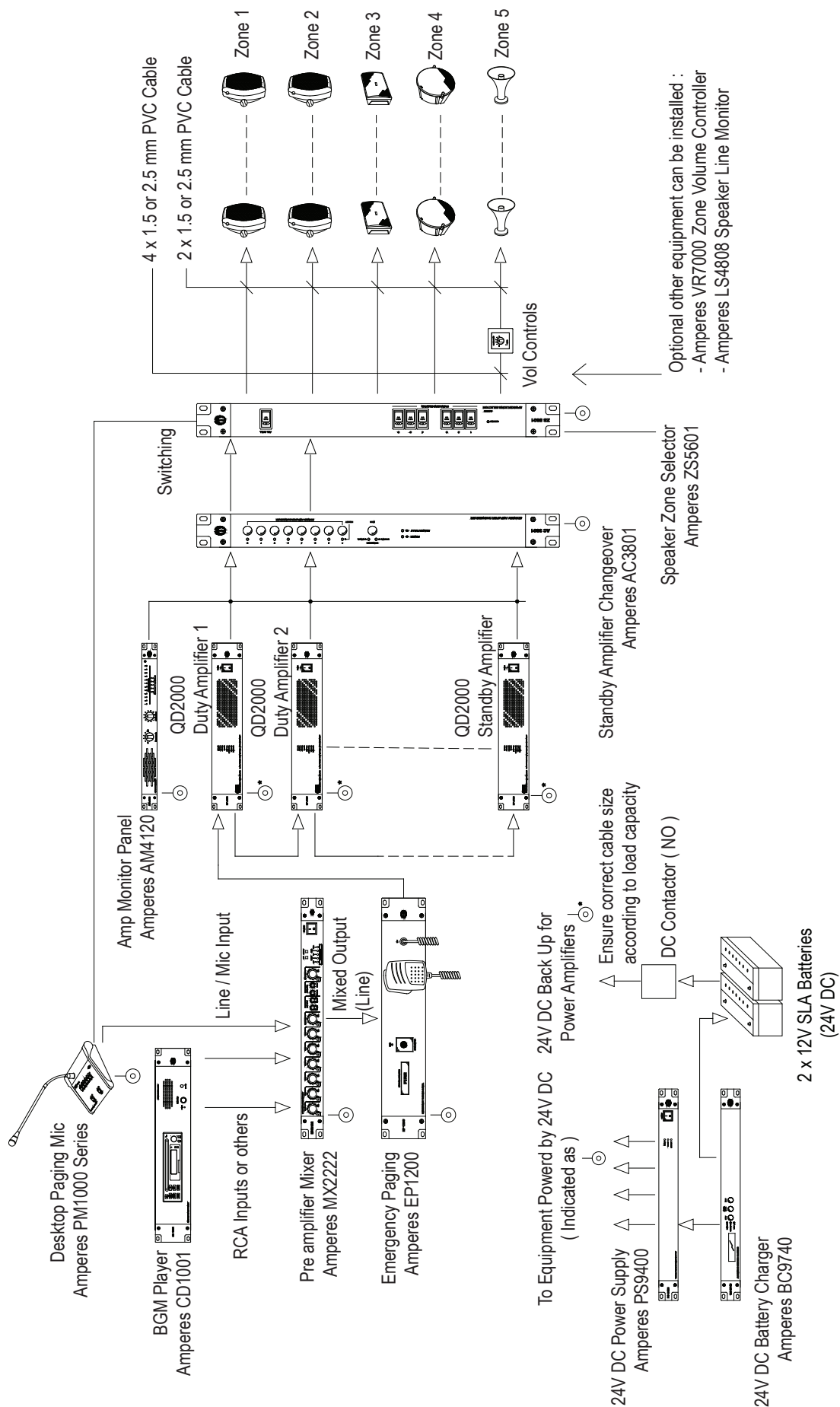
Recommended Fuse Replacements :

QD2025	QD2050	QD2075	QD2100
6A	6A	6A	10 A

Slow blow fuse is recommended.

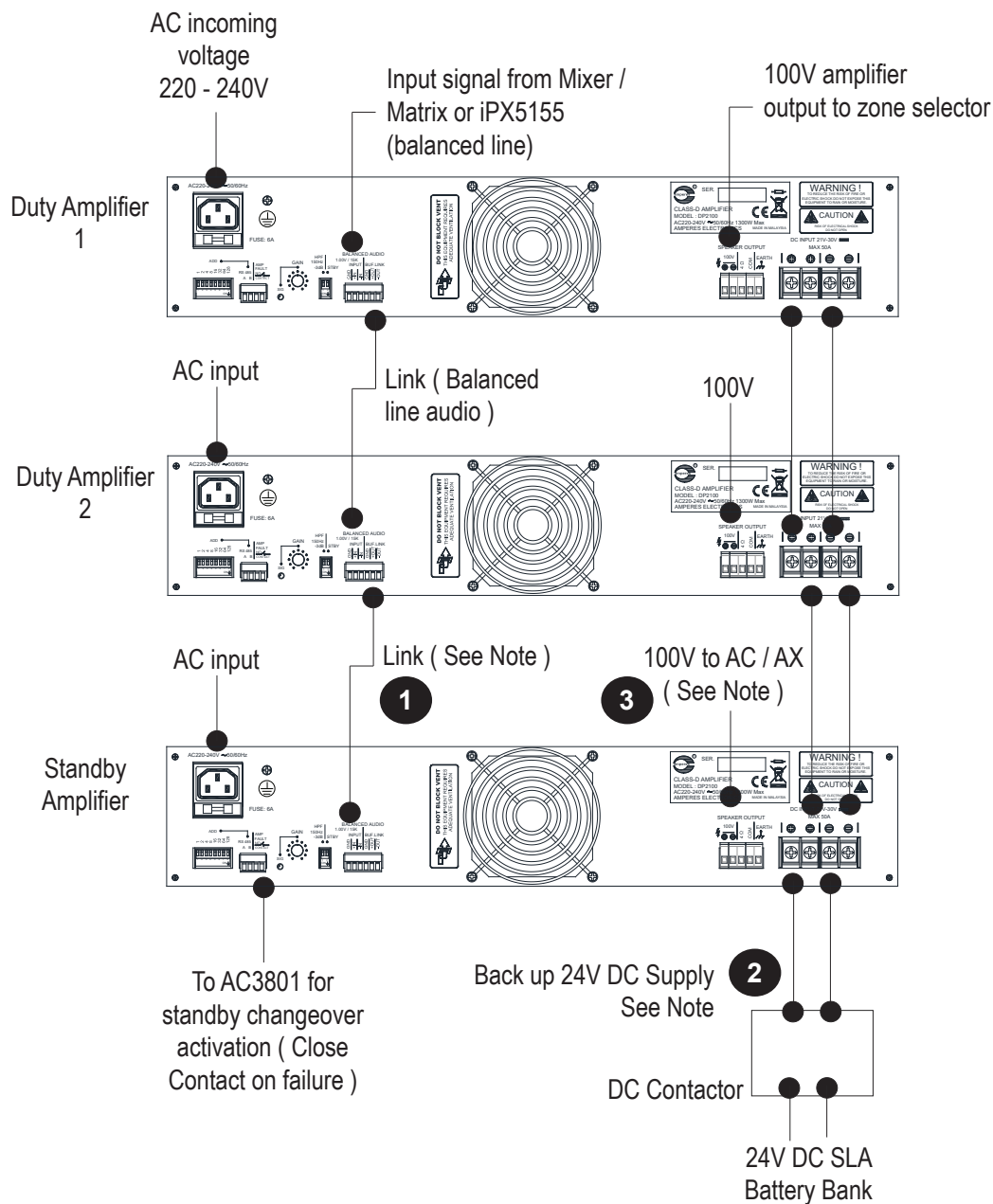
General Schematic Diagram

Sample schematic for an analogue conventional system



Connecting The Unit

A connection diagram for basic installation with single input source from pre-amplifier mixer.



Note :

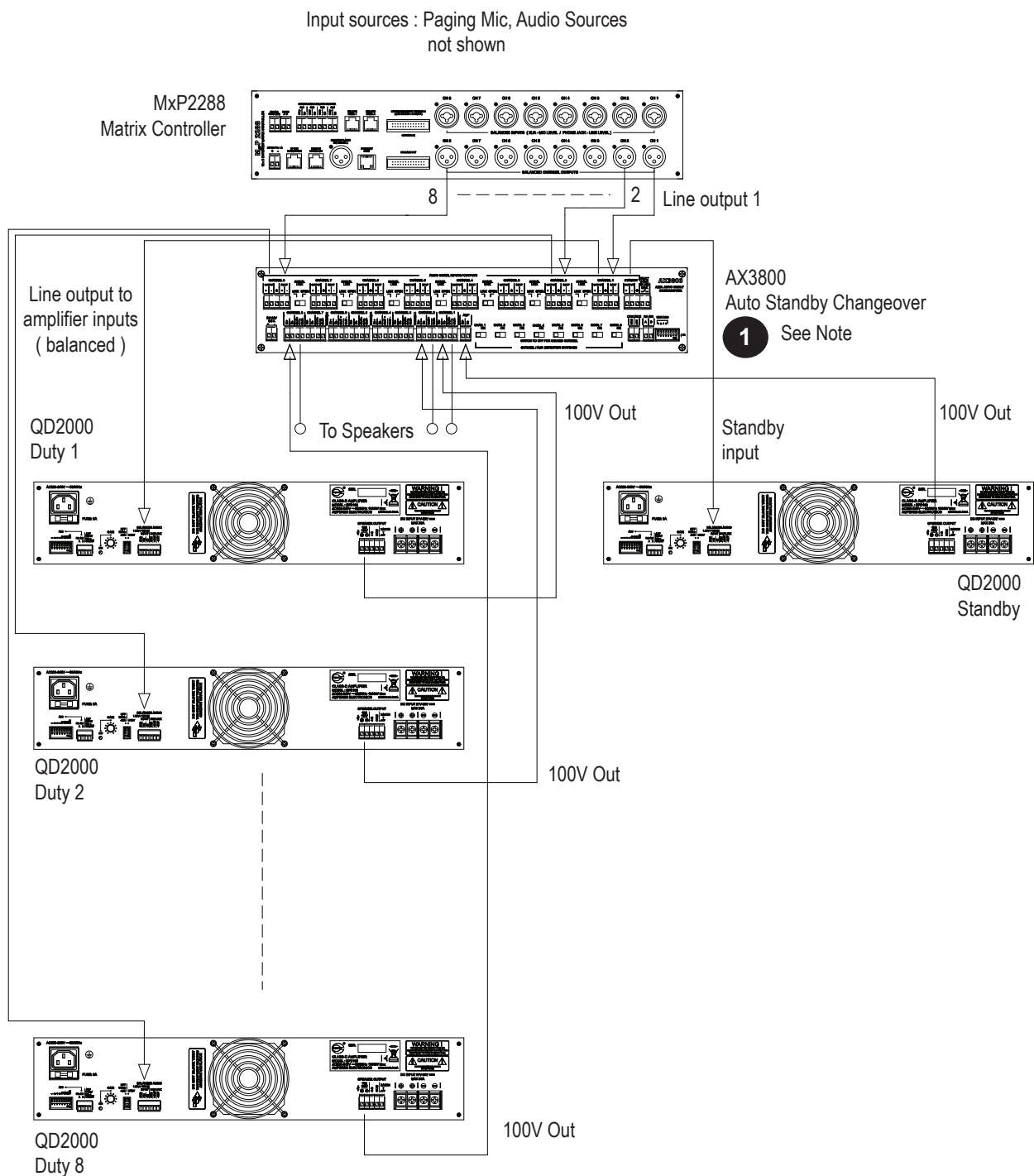
The above example shall be for single input source showing 2 duty amplifier and using 1 single standby unit.

1. Input to standby amplifier for matrix setup / multiple source type shall be from AX3800. This example is applicable for application using AC3801.

2. Ensure correct cable size for back up battery connection to avoid hazard of fire. Cable size shall be subjected to amplifier rating or total load. We always recommend back up supply to go through a DC contactor and not directly from battery charger for AC to DC changeover.

3. Output from standby amplifier shall connect to AX3800 or AC3801 to perform standby takeover when duty failed. QD2000 Series has Auto Fault Sensor (AFS) feature, thus for single source application, please use AC3801 while in matrix system, disable this feature and use AX3800 instead.

Connections in Matrix Setup



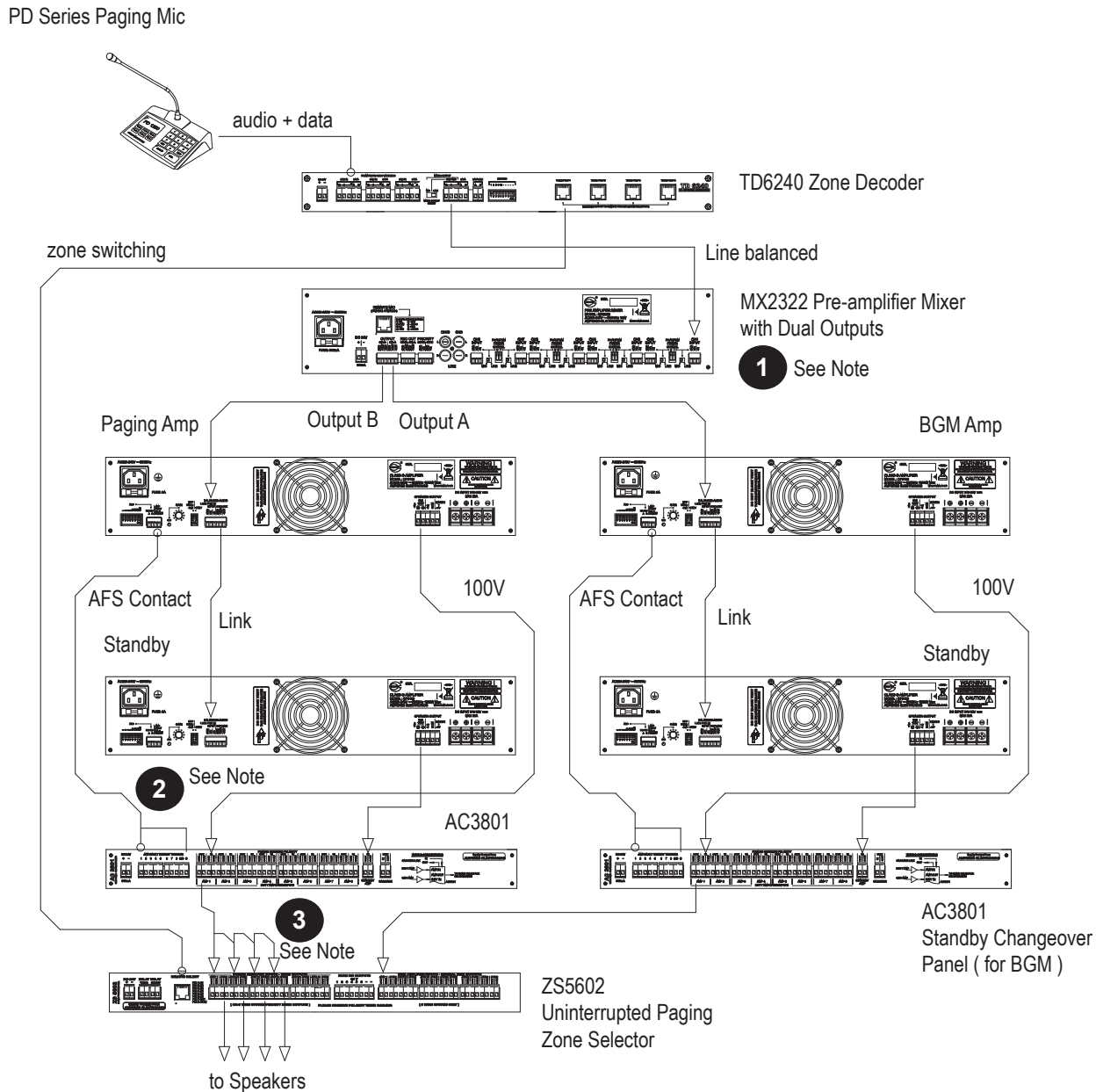
NOTE :

Note 1 :

In Matrix setup, which each amplifier shall receive different audio source from others, AX3800 shall be used as changeover is required at both the input and output sides. Since that AX3800 shall perform amplifier checking by itself, the AFS feature at QD2000 shall not be used.

Connections in Uninterrupted Paging Setup

The diagram below is a typical connectivity for Uninterrupted Paging System using 2 sets of Amplifiers, one catering for Paging purpose and the other for BGM only.



NOTE :

Note 1 :-

Output B from MX2322 shall feed to Paging set of amplifiers with Paging signal from Zone Decoder assigned to this line. BGM sources shall be assigned to BGM output B and feed to BGM set of amplifiers.

Note 2 :-

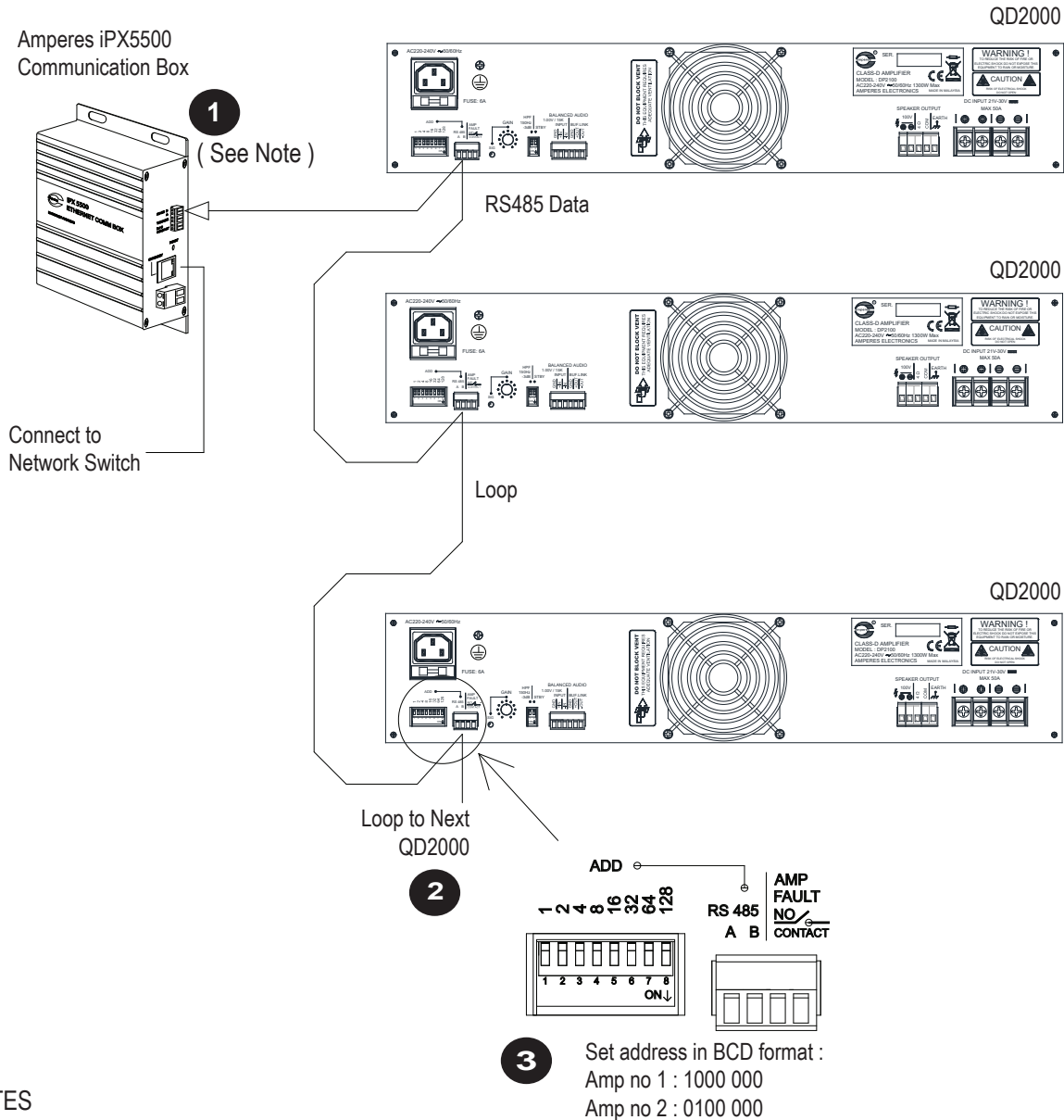
Standby amplifier for BGM is optional. AFS feature shall connect to AC3801 remote changeover trigger to perform auto changeover. Only single source input for QD2000 can be used alongside with AC3801.

Note 3 :-

A single amplifier may serve several zones. Loop the amplifier terminals to the next amplifier inputs with zones sharing the same amplifier.

Data Acquisition

Data port is available for remote monitoring such as from Amperes PMX LAN or other customised software. API can be requested for 3rd party software development.



NOTES

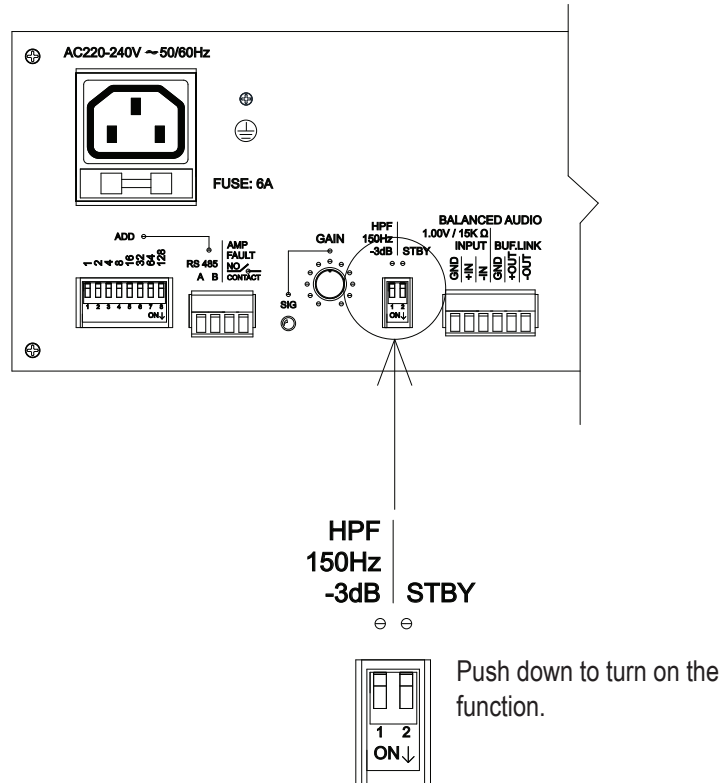
Note 1 :
Amperes iPX5500 Comm Box is used to convert RS485 UART to ethernet for remote monitoring in LAN. in non LAN setup, direct PC link to QD2000 UART is possible by using USB-UART converter.

Note 2 :
Max permissible number of looping is 16. Terminal resistor at the end of termination is recommended to ensure data stability.

Note 3 :
Ensure each QD2000 has its own unique address to avoid data captured being corrupted.

Hi Pass Filter / Standby Input Switch

QD2000 comes with additional features to enhance its performance and reliability. High pass filter and Standby Input switches are options that can be used to suit your applications.



High Pass Filter (HPF)

Cut of frequency of HPF is set at 150 Hz with - 3 dB slope. This is to prevent low frequencies from reaching speakers. Some speakers are sensitive to low frequencies which may damage the drivers. As horns are normally not responding to low frequencies, this filter can be switched ON. Speakers such as full range music speaker or sub woofers would need bass for better listening pleasure., thus HPF can be switched OFF.

Input Standby Switch

In Class D amplifier circuit, the Mosfet shall always operate even without input signal. This may consume power and generate unwanted heat. As during no signal, power is drained and is a waste when DC back up is used, thus reducing DC back up stand-by duration. We recommend that this feature is ON in PA installation to save power.

However, a delay to amplify audio may occur if this is ON and may not be suitable for live applications, such as during talks or prayers. For such applications, turn OFF this switch.

Summary of Features

- High efficiency Class D technology with 100V and 4 Ohm outputs
- High efficiency with low current consumption
- Auto fault sensing (AFS) with fault contact
- Switchable high pass filter to protect speakers
- RS485 interface for monitoring and remote setting
- Auto fan speed controls
- Thermal, fuse, output short circuit protections
- Remote monitoring through PMX II LAN via iPX5500 Comm. Box
- Switchable standby input detection for low power consumption during DC back up

Technical Specifications

	QD2025	QD2050	QD2075	QD2100
Operating voltage	220 - 240V AC : 50/60 Hz or 21-24V DC Back up supply			
Rated output (rms at 100V)	250 W	500 W	750 W	1000 W
Power consumption (240V AC)	350W (1.3A)	650W (2.6A)	1000W (3.9A)	1300W (5.1A)
Current consumption (24V DC)	15 A	25 A	40 A	50 A
DC back up standby current	1.2 A (Standby input OFF)			
Input sensitivity (100V out)	1V rms balanced input via phoenix connector (15 k Ohm)			
Input link (buffered)	0 dB Balanced line (10 k Ohm)			
Input signal standby	Switchable : Auto detect on standby & always ON			
Input HF filter	150 Hz @ -3 dB slope via DIP switch			
Output	100V line / 4 Ohm			
4 Ohm output voltage	50V			
Frequency response	60 - 20 k Hz (+/- 3 dB, 1 kHz)			
S/N ratio	> 68 dB			
THD + N	< 0.2 %			
Protections	Thermal, short circuit, overload, AC and DC fuses			
Cut off temperature	75 deg C			
Communications	RS485 ; 19.2 kbps			
Indicators	Signal, temperature, fault, power LEDs, standby			
Fault relay	NO Dry contact : 3A			
Cooling system	Auto temperature controlled fan			
Operating temperature	-10 to 45 C			
Storage temperature	-40 to 70 C			
Humidity	95 %			
Dimensions (W x H x D) mm	482 x 88 x 340			
Net weight (kg)	6.8	6.8	7.0	7.1

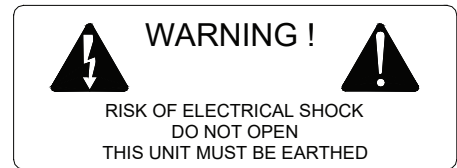
Note:

The above specifications are correct at time of printing but subjected to changes without prior notice due to product improvements.

Important Safety Instructions

The lightning flash symbol with arrowhead within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure, that may be sufficient magnitude to be a risk of electric shock to person.

The exclamation mark within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



WARNING - When using electric products, basic precautions should always be followed including the followings :

1. Read all the SAFE INSTRUCTIONS before using the product.
2. This product must be earthed. If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce risk of electric shock.

This product is equipped with a cord having an equipment grounding conductor and a grounding plug.

The plug must be plugged into an appropriate outlet that is properly installed and earthed in accordance with all local codes and ordinance.

DANGER - Improper connection of the equipment-grounding connector can result in a risk of electric shock. Check with a qualified electrician or servicemen if you are in doubt as to whether the product is properly grounded. Do not modify the plug provided with the product, It it will not fit the outlet, have a proper outlet installed by a qualified electrician.

3. To reduce the risk of injury, close supervision is necessary when the product is used near children.
4. Do not use this product near water, for example, near a bathtub, washbowl, kitchen sink, in a wet basement or near a swimming pool or the like.
5. This product should be located so that its location or position does not interfere with its proper ventilation.
6. This product should be located away from heat sources such as radiators, heat registers or other products that produce heat.
7. This product should be connected to a power supply only of the type described on the operating instructions or as marked on the product.
8. This product may be equipped with a polarized line plug (one blade wider than the other). This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to replace your obsolete outlet. Do not defeat the safety purpose of the plug.
9. The power supply cord of the product should be unplugged from the outlet when left unused for a long period of time. When unplugging the power supply cord, do not pull on the cord, but grasp it by the plug.
10. Care should be taken so that object do not fall and liquid are not spilled into the enclosure through openings.
11. The product should be serviced by a qualified service personnel when :
 - a. The power supply cord or the plug has been damaged or,
 - b. Objects has fallen, or liquid has been spilled into the product, or
 - c. The product has been exposed to rain, or
 - d. The product does not appear to operate normally or exhibits a marked change in performance, or
 - e. The product has been dropped or the enclosure damaged.
12. Do not attempt to service the product beyond that described in the user-maintenance instructions. All other serving should be referred to qualified service technicians.
13. **WARNING** - do not place objects on the products' power cord or place it in a position where alone could trip over, walk on or roll anything over it. Do not allow the product to rest on or to be installed over power cords of any type. Improper installations of this type create the possibility of fire hazard and / or personal injury.

Warranty Conditions

Only Amperes Electronics Service Centres are allowed to make warranty repairs : a list of Amperes Electronics Service Centres may be asked for by the purchaser or send directly to Amperes Electronics Sdn Bhd at 70 Jalan Industri PBP 3, Tmn Perindustrian Pusat Bandar Puchong, 47100, Puchong, Selangor, Malaysia or its authorized dealers. This warranty is not valid if repairs are performed by unauthorized personnel or service centres.

This warranty covers only repairs and replacement of defective parts ; cost and risks 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.

This warranty does not cover damages caused by misuse, neglect, accident of the product as well as using the product with power supply voltage other than shown on the product, or any other power supply source / adaptor 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 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 be caused to people and things when using the product.

This warranty certificate is valid only for the described product, and is not valid if modifications are made on this certificate or on the identification label applied on the product.

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.

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

Disclaimer

Information contained in this manual is subject 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 on this product be carried out by AMPERES ELECTRONICS SDN BHD or its authorized service agents.

AMPERES series must only be used for the purpose they were intended by the manufacturer and in conjunction with this operating 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.



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