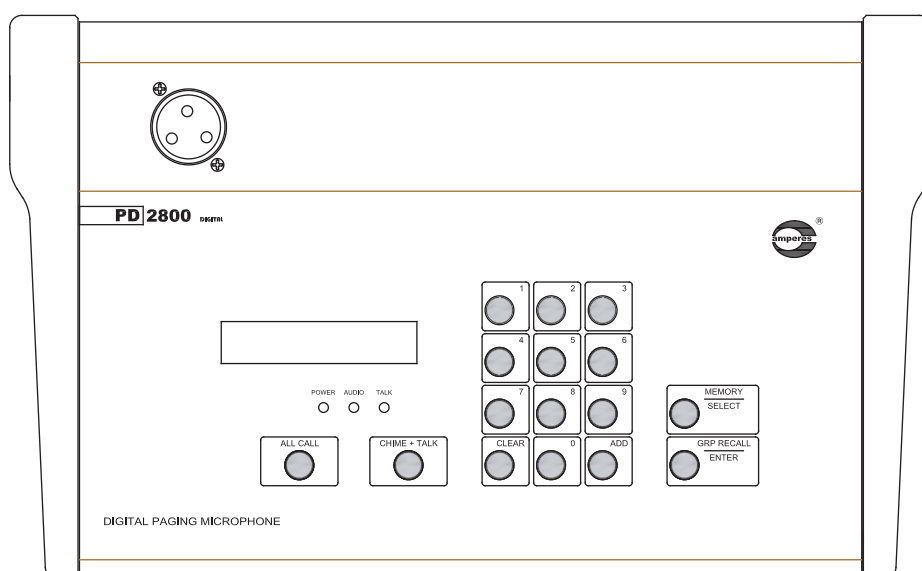# PD2800
DIGITAL PAGING MICROPHONE

version 3
harmonised protocol

Thank you for choosing another quality product from Amperes Electronics.

Amperes has upgraded the protocols in PD series paging microphones, MatriMix as well as PMX system. With this harmonised data, all the equipments can be used or interchanged seamlessly. As such, the firmware of TD6240 has been upgraded as well, to cater for the needs.

We shall endeavor to make products with contemporary needs and yet expandable for future upgrades. We are sure you make the right decision to choose Amperes, which is not only offering the product that meets your budget, but perform beyond your expectation.

We appreciate that you read through the manual to avoid any mishandling as well as to explore the full potential this unit can offer. Keep this manual for future reference and we believe that you are getting an optimum product in its class.

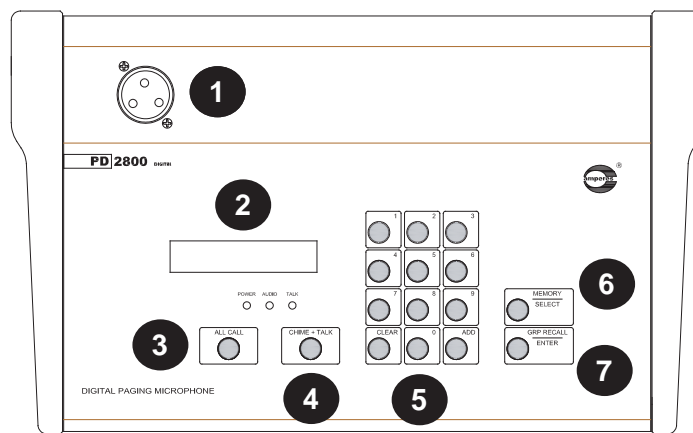December 2012

Product Descriptions

PD2800 gets better in this version while offering the same flexibility in installation and operation. 108 zones can be stored under 9 groups of 12 zones each and 9 priority levels can be set at the paging console.

Cablings had been simplified further with lesser restrictions as compared with previous version. Learn more on configurations from this manual.
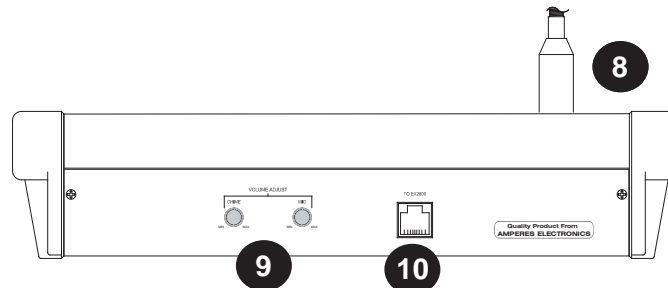
Each package is supplied with EX2800 External Connection unit (Version 2), 24V DC adaptor and 1m Cat5e cable. The decoding shall be performed at TD6240 (Version 3) only.
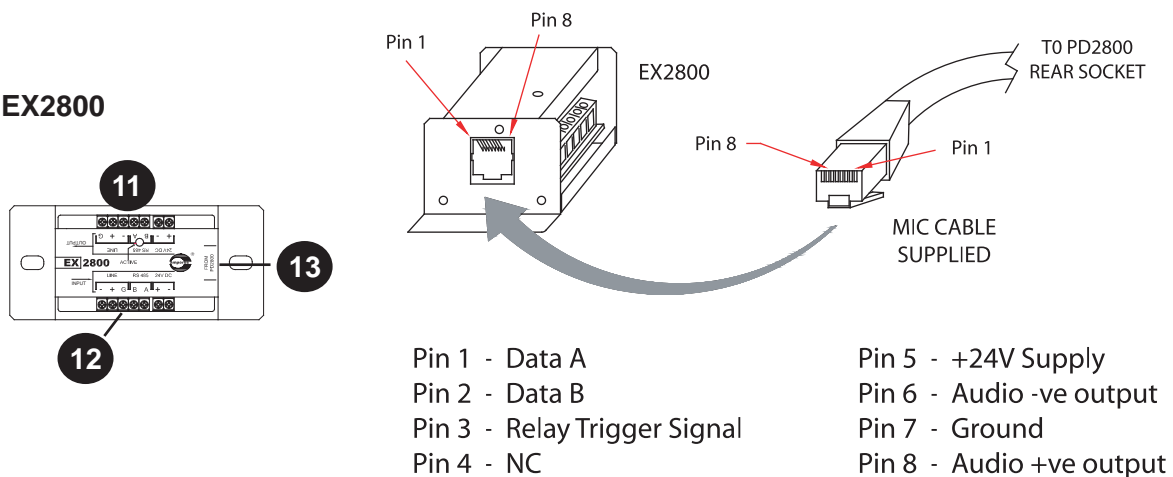
Parts Identification

PD2800
Top View

rear view

EX2800

Pin 1 - Data A
Pin 2 - Data B
Pin 3 - Relay Trigger Signal
Pin 4 - NC

Pin 5 - +24V Supply
Pin 6 - Audio -ve output
Pin 7 - Ground
Pin 8 - Audio +ve output

1. Paging Microphone Inlet

XLR inlet for gooseneck microphone. Only condenser microphone supplied or those operates under 3 to 9 V.

2. LCD Display

Factory default display is with back light. User has the option to turn off. Please refer to setup section.

3. ALL CALL Button

Mic shall be activated instantly without chime, triggering all normal zones. Note that making ALL CALLs will not trigger the overriding relay at the zone selectors, thus the volume controllers set at minimum shall not be overrided.

4. Chime & Talk Button

Select the zones required before pressing this button. A chime shall start (if selected) and followed by mic activation, which is indicated by the illuminated ring at the mic capsule.

5. Keypad

Zone selections and programming are done via these keypad.

6. Memory / Select Button

It is used for programming zone grouping during setup.

7. Group Recall / Enter Button

It is used to recall zone grouping during paging and also used as Enter key during setup.

8. Gooseneck Microphone

This detachable condenser mic comes with illuminated ring when the mic is in active mode and ready for paging.

9. Chime and Mic Volume Control

Individual volume for chime and microphone output level can be adjusted according to site requirement.

10. Output Connection

This RJ45 connection shall connect to EX2800 with the cable provided. Power supply to the unit is fed via EX2800.

11. Data / Audio Output to Decoder

Data and audio are linked to TD6240 decoder unit using 2pair screen cable. Please refer to "Connecting the Unit" for detailed connection diagram.
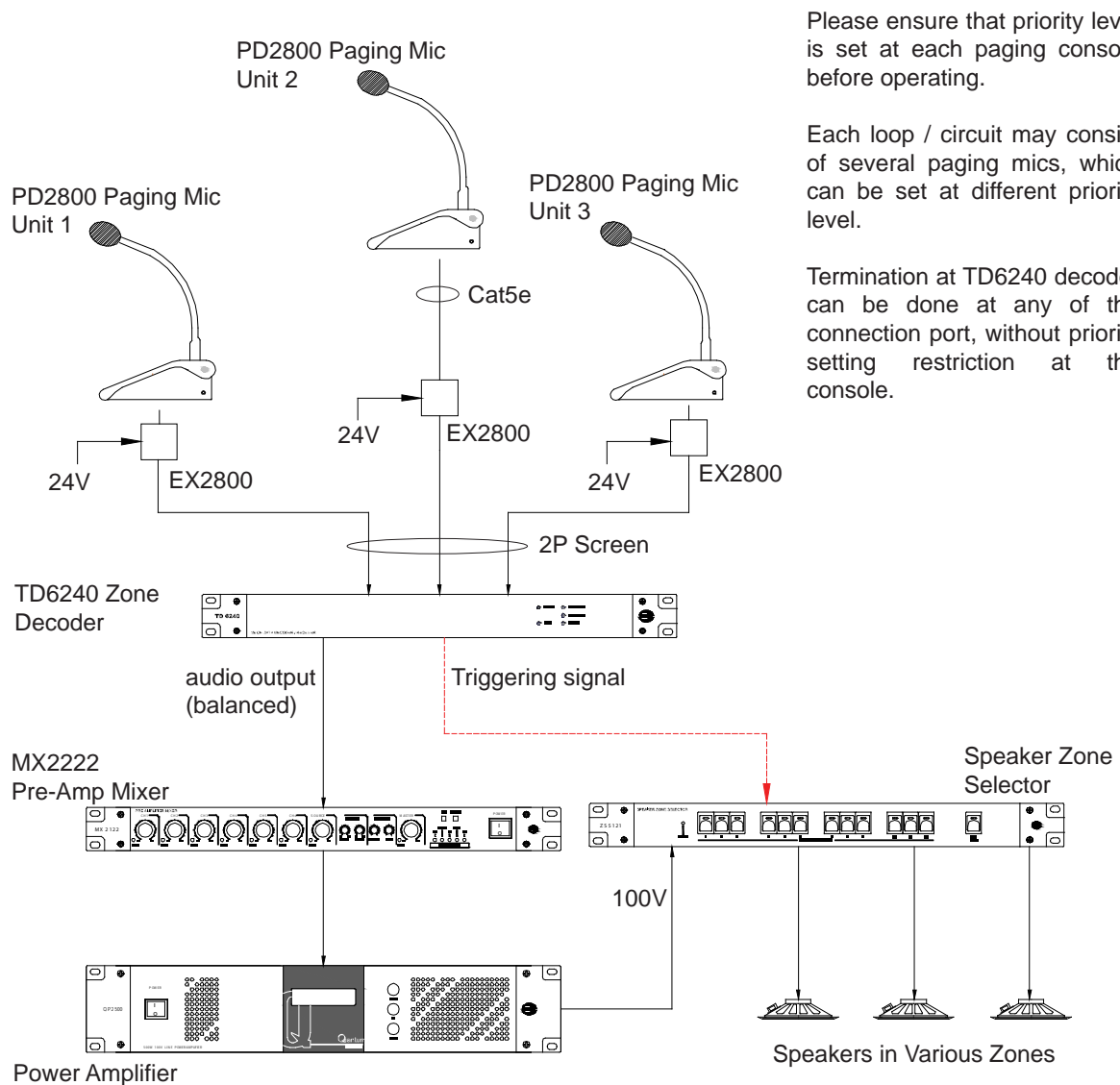
12. Data/Audio Input Link / DC Supply

Data and audio from other EX2800 (if any) are fed to this port forming a circuit. This connection is applicable only if multipoint paging setup is established. Use a DC24V power adaptor supplied for powering the unit.

13. Paging Mic Connection

Connect to the paging mic via this RJ45 connector. For pin configuration, refer to the diagram.

PD2800 Paging Mic
Unit 2

PD2800 Paging Mic
Unit 1

PD2800 Paging Mic
Unit 3

Please ensure that priority level is set at each paging console before operating.

Each loop / circuit may consist of several paging mics, which can be set at different priority level.

Termination at TD6240 decoder can be done at any of the connection port, without priority setting restriction at the console.

Cat5e

24V   EX2800

24V   EX2800

24V   EX2800

2P Screen

TD6240 Zone
Decoder

audio output
(balanced)

Triggering signal

Speaker Zone
Selector

MX2222
Pre-Amp Mixer

100V

Power Amplifier

Speakers in Various Zones

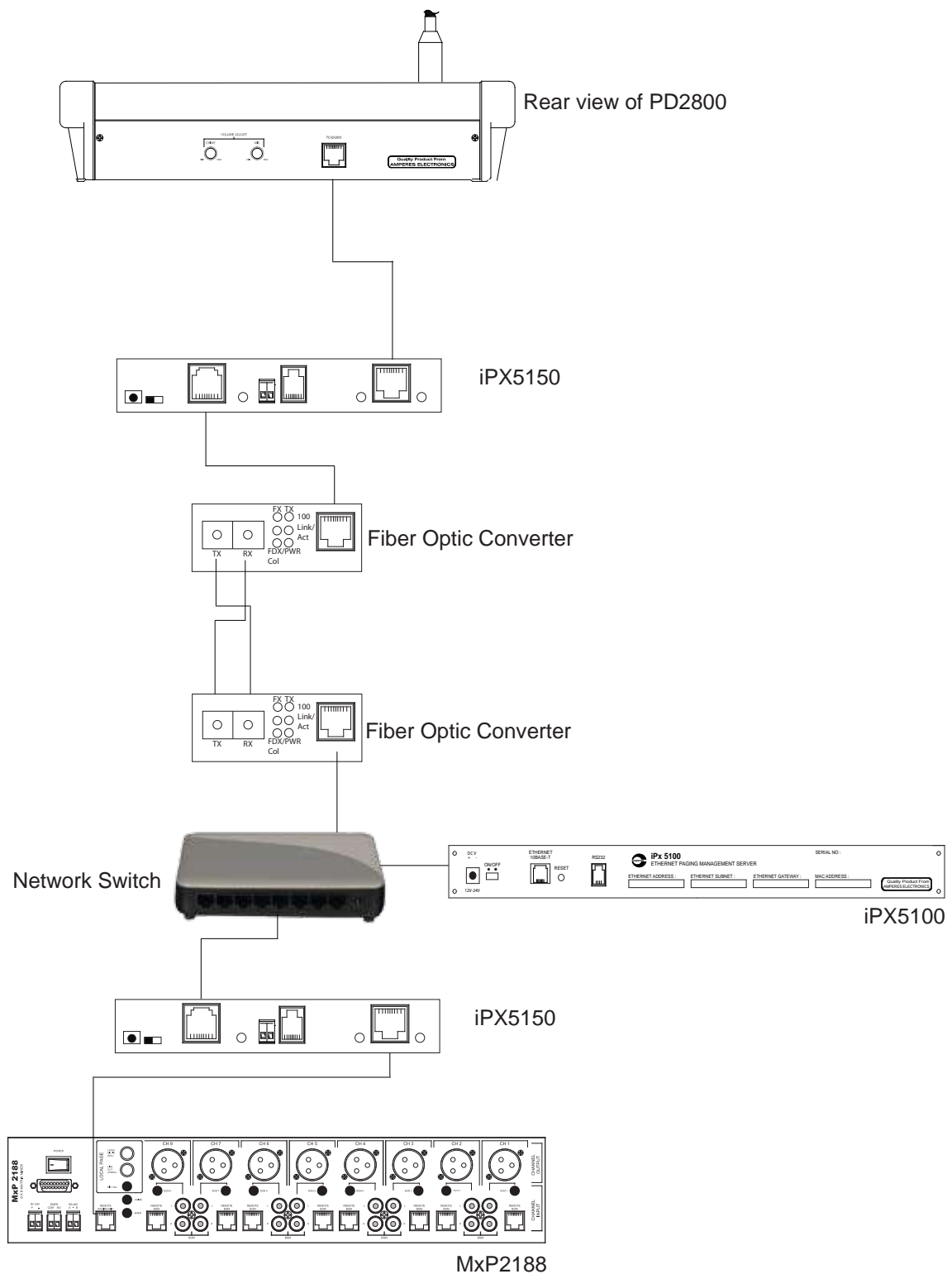Other complementary equipment may be required in the system such as :
EP1200 for Emergency Paging and overriding
AX3700 / AX700 / AC3601 Amplifier Changeover Panel for standby amp fault changeover
BC9730 / PS9400 Battery Charger and Power Supply
VR7600 Zone Volume control panel
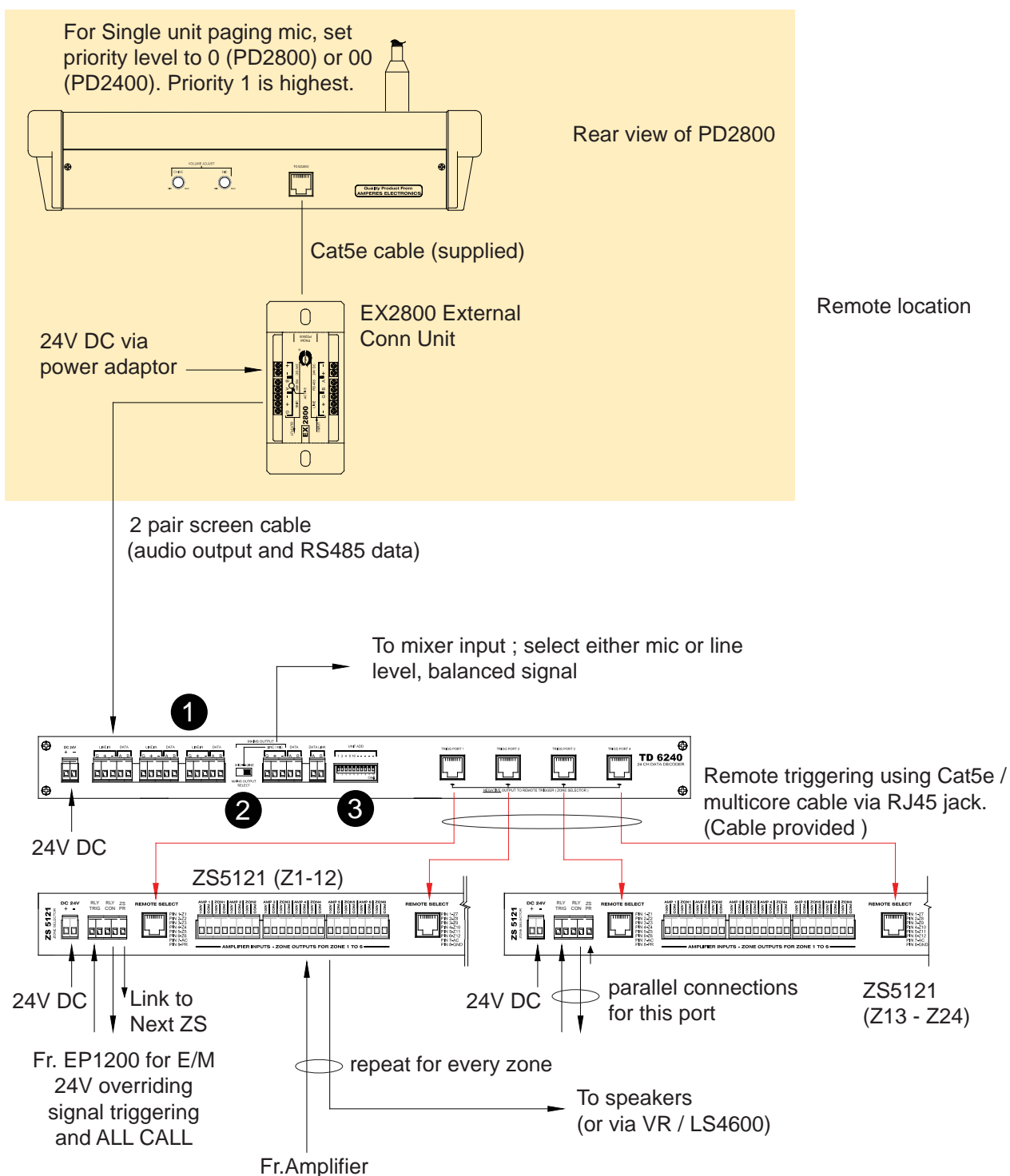
Note on priority setting :

If the system consist of several paging mic with same priority ;
The one activated earlier shall remain active and the other shall remain in busy mode. It is as first come first serve mode.

If the system consist of several paging mic with different priority :
The one with higher priority shall override the unit with lower priority even though the latter is in paging mode.
If lower priority unit would have busy LED blinking when the higher priority is active.
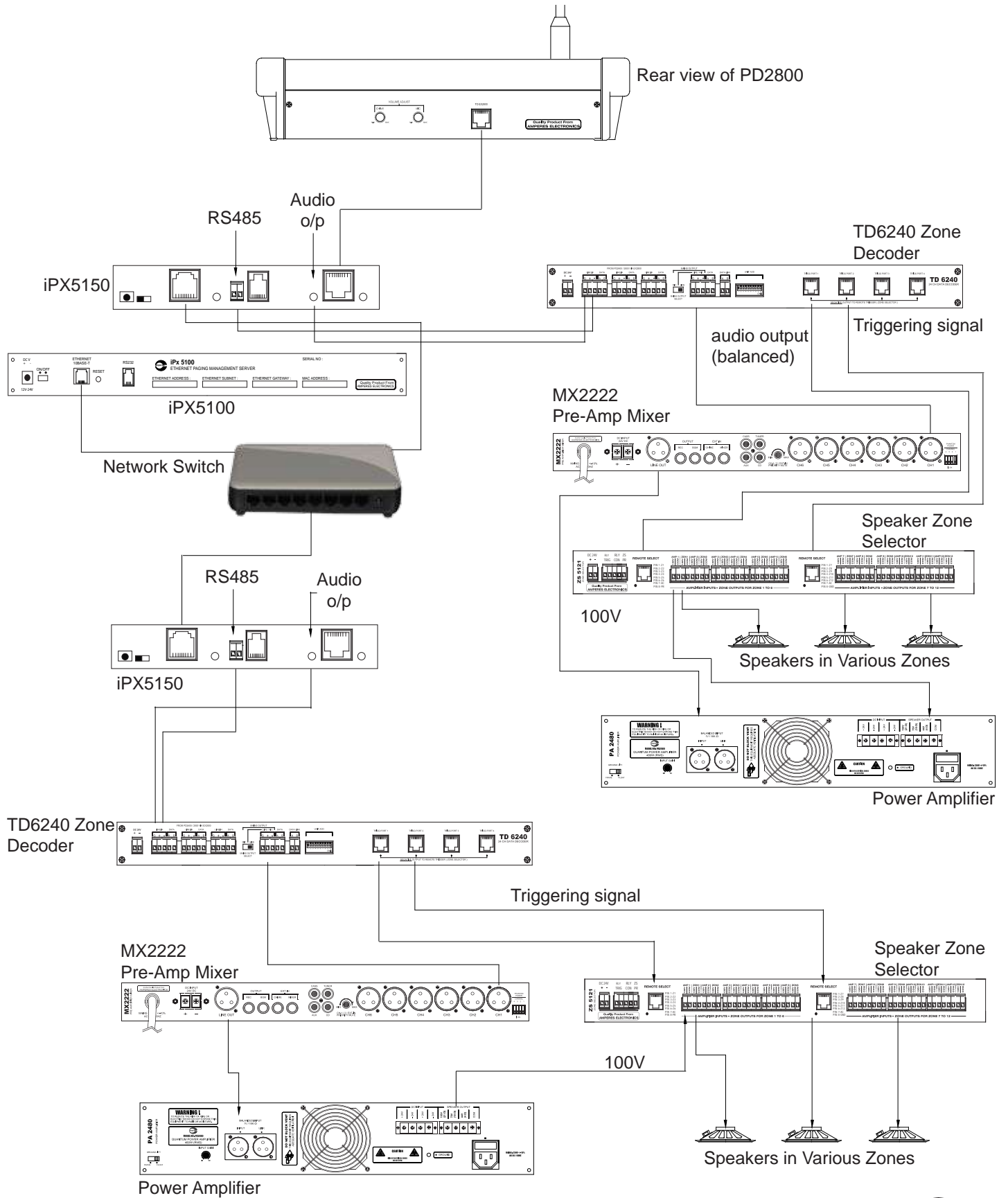
Priority 1 (highest) .... Priority 9 (lowest)

Rear view of PD2800

iPX5150

Fiber Optic Converter

Fiber Optic Converter

Network Switch

iPX5100

iPX5150

MxP2188

For Single unit paging mic, set priority level to 0 (PD2800) or 00 (PD2400). Priority 1 is highest.

Rear view of PD2800

Cat5e cable (supplied)

EX2800 External Conn Unit

Remote location

24V DC via power adaptor

2 pair screen cable (audio output and RS485 data)

To mixer input ; select either mic or line level, balanced signal

①

TD 6240

Remote triggering using Cat5e / multicore cable via RJ45 jack. (Cable provided)

② **③**

24V DC

ZS5121 (Z1-12)

ZS5121 (Z13 - Z24)

24V DC

Link to Next ZS

24V DC

parallel connections for this port

Fr. EP1200 for E/M 24V overriding signal triggering and ALL CALL

repeat for every zone
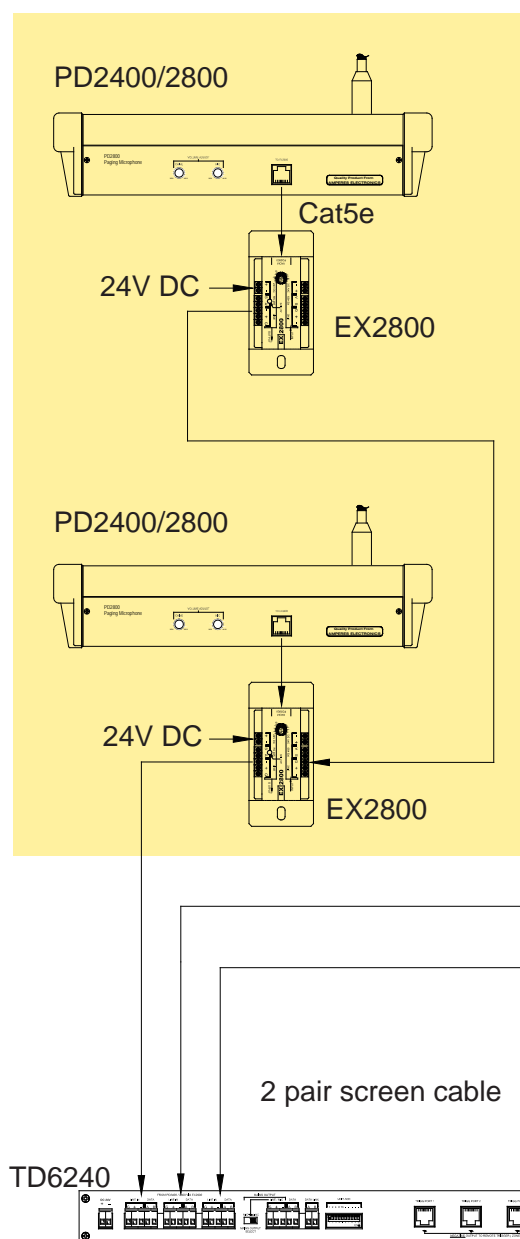
To speakers (or via VR / LS4600)

Fr.Amplifier

① Paging mic can be connected to any of the port regardless of the priority setting at the paging console.

② Use this switch to select the audio output level ; mic or line level when connecting to pre-amplifier mixer

③ Set unit address ; each address represents one unit of decoder of 24 zones.
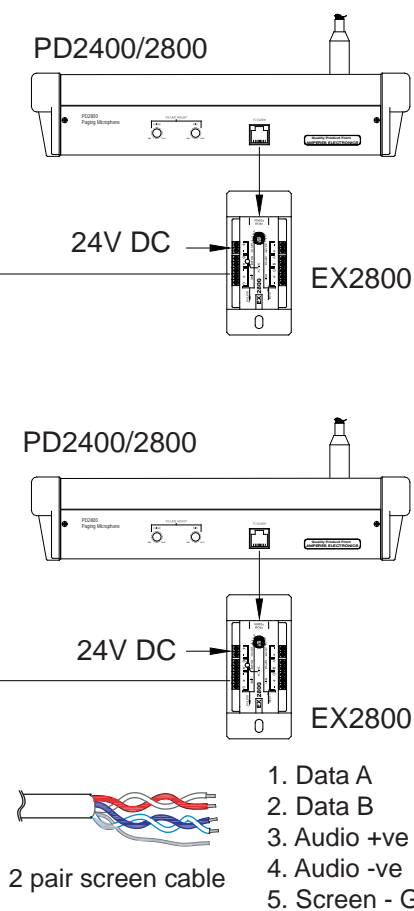example : 10000 0000 - Zone 1 to 24
01000 0000 - Zone 25 to 48

Rear view of PD2800

RS485

Audio o/p

iPX5150

TD6240 Zone Decoder

Triggering signal

audio output (balanced)

iPX5100

MX2222 Pre-Amp Mixer

Network Switch

Speaker Zone Selector

RS485

Audio o/p

100V

Speakers in Various Zones

iPX5150

Power Amplifier

TD6240 Zone Decoder

Triggering signal

MX2222 Pre-Amp Mixer

Speaker Zone Selector

100V

Power Amplifier

Speakers in Various Zones

PD2400/2800

Cat5e

24V DC → EX2800

PD2400/2800

24V DC → EX2800

2 nos Paging Mic in same circuit.
Note :
Can be set to either different priority or same level.

PD2400/2800

24V DC → EX2800

PD2400/2800

24V DC → EX2800

2 pair screen cable

TD6240

2 pair screen cable

1. Data A
2. Data B
3. Audio +ve
4. Audio -ve
5. Screen - Ground

Cable Size shall be according to the distance from the paging mic and the equipment rack.
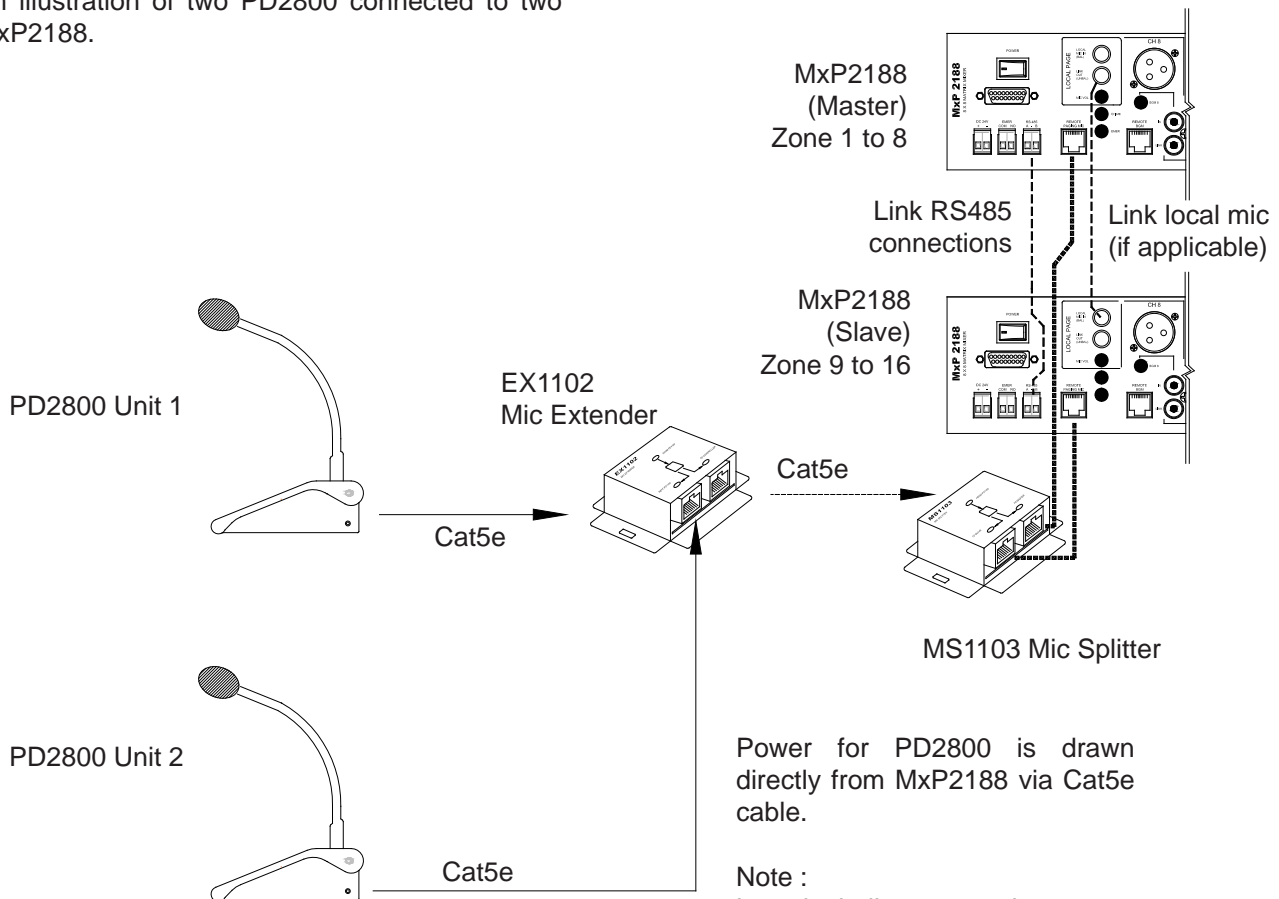
Since that MxP2188 MatriMix system is capable to cater for larger quantity of zones (8 input to 128 outputs), PD2800 has to be used as the paging mic for the system. More than one PD2800 can be installed.

There is some minor difference when using PD2800 in Matrix environment as compared with the conventional one :

- EX2800 shall be replaced by EX1102 (if more than one PD2800 is installed)
- Direct connection to MxP2188 if only one PD2800 and one Matrix is used.
- Power directly from MxP2188 (length do not exceed 100 m)
- MS1103 to be used if more than one Matrix controller is installed.

An illustration of two PD2800 connected to two MxP2188.

MxP2188
(Master)
Zone 1 to 8

Link RS485
connections

Link local mic
(if applicable)

MxP2188
(Slave)
Zone 9 to 16

PD2800 Unit 1

EX1102
Mic Extender

Cat5e

Cat5e

MS1103 Mic Splitter

PD2800 Unit 2

Cat5e

Power for PD2800 is drawn directly from MxP2188 via Cat5e cable.

Note :
Length shall not exceed 100 m, to avoid voltage drop as well as noise to audio line.

Setting up for the mic shall be similar to conventional setup as illustrated in the next pages.

Unit Startup

```
Firmware : V02.35
Initialize...
```
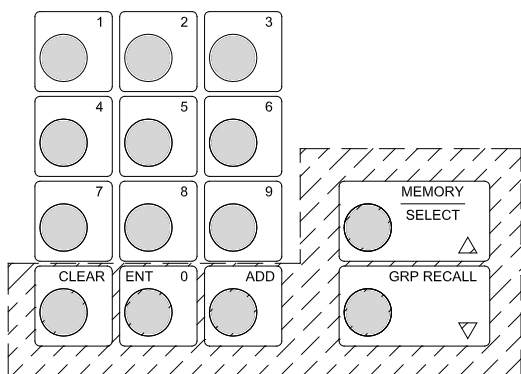
↓

```
        Remote MIC
Zone:  1 to 248
```

Upon powering, the LCD display shall show the firmware version, and would take several seconds in initialising the unit.

Mic is ready for paging.

Unit Setup

these buttons are used during setup of the unit

CLEAR : as Previous key
ADD   : as Next key
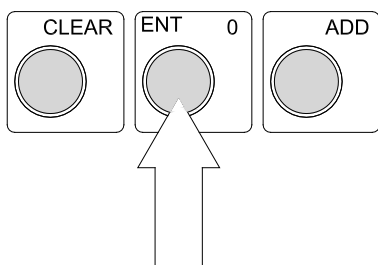   Used primarily in main menu shifting.

△   as Up key

▽   as Down key

   Used primarily as parameter setting button

ENT : as Enter key
   Used to confirm an entry

Press "0" button momentarily (3 seconds) to enter Setup mode

To enter the Setup Main Menu, press '0' momentarily for 3 seconds and the first setup menu - 1. PRIORITY shall appear.

Use ADD (Next) button to scroll down the menu, or CLEAR (Prev) to view previous screen.

To enter a specific sub menu, press ENT (0) button.

If no entry is made within 15 seconds, the setup menu shall exit automatically and return to ready mode.

1.PRIORITY — Setting priority level of the paging mic

ADD (Next)

2.CHIME — Setting the chime type for mic activation or off.

ADD (Next)

3.ZONE SETTING — Preset the number of zones in the system

ADD (Next)

4.KEY BEEP ON — Enable or disable keypad sound when pressed.

ADD (Next)

5.TIMEOUT — Setting time out period when mic is activated

ADD (Next)

6.SYSTEM ID — Setting ID

ADD (Next)

7.SYSTEM INFO — Firmware version information

ADD (Next)

8.MEMORY REST NO — To reset and clear memories to factory default

ADD (Next)

9.SAVE & EXIT? NO

Setup - Sub Menu

1. PRIORITY

Press " 0 " to enter this sub menu from the main directory.

This is to set the Priority level of the paging mic. Priority 1 is highest while No Priority is considered normal and is used in single point paging setup.

```
1.PRIORITY
```

↓ Press "0" or ENT

```
1.1 Unit set :
                    10
```
Factory default setting is 10

↓ Press UP/DOWN to select value

```
1.1 Unit set :
                    8
```
Once priority level is determined, press "0"

↓ Press "0" or ENT

Return to PRIORITY menu

---

2. CHIME

Press " 0 " to enter this sub menu from the main directory.

This menu is to set the chime type when the paging mic is on and followed by closing chime.

```
2.CHIME
```

↓ Press "0" or ENT

```
2.1 1st Chime :
                    Down 1
```
Factory default setting is 4 tone down chime

↓ Press UP/DOWN to select value

```
2.1 1st Chime :
                    Off
```
Select the required chime or off.

↓ Press Next to select next option

```
2.2 2nd Chime :
                    Down 1
```
Setting the chime type for mic deactivation. Default setting is 4 tone down chime

↓ Press UP/DOWN to select value

```
2.2 2dn Chime :
                    Down 2
```
Select the required chime type and press "0" to confirm setting and return to main menu.

↓ Press "0" or ENT

Return to CHIME menu

3. ZONE SETTING

Press " 0 " to enter this sub menu from the main directory.

This is to set the maximum number of zones available in the system.

We recommend this setting to be done to enable faster response during paging.

```
3.ZONE SETTING
```

↓ Press "0" or ENT

```
3.1 MAX Zone:
          248
```

Factory default setting is 248

↓ Press UP/DOWN to select value

```
3.1 MAX Zone:
          108
```

Once zone quantity is determined, press "0"

↓ Press "0" or ENT

Return to ZONE SETTING menu

4. KEY BEEP

Press " 0 " to enter this sub menu from the main directory.

Some may prefer quite pressing while some may prefer sound when pressing the buttons. Use this menu to select the user's preference.

```
4.KEY BEEP
          On
```

↓ Press UP/DOWN to on or off beep

```
4.KEY BEEP
          Off
```

Press Up or Down key will toggle between on and off

↓ Press "Clear" or "Add"

Return to Menu 3 or 5

5. TIME OUT

Press " 0 " to enter this sub menu from the main directory.

This is to set the duration that the mic to be in active mode.

Setting the timeout would prevent the mic being turned on and left idle after an announcement is made.

There are time when the mic is required to be active for a longer period of time, such as making a long speech or performing a prayer using the PA system.

```
5.TIMEOUT
```

↓ Press "0" or ENT

```
5.1 Max Timeout :
          Off
```

Factory default setting is 248

↓ Press UP/DOWN to select value

```
5.1 Max Timeout:
          1 min
```

Select using Up / Down button for off, 1, 3 or 5 min

↓ Press "0" or ENT

Return to TIMEOUT menu

6. SYSTEM ID

Press " 0 " to enter this sub menu from the main directory.

To setup name & address.

```
6. SYSTEM ID
```

Press "0" or ENT

```
6.1 Name :
        REMMIC
```

Select 'ADD' button to next alphabet

Press UP/DOWN to select alphabet

```
6.2 Address :
```

Press UP/DOWN to setup address

7. SYSTEM INFO

Press " 0 " to enter this sub menu from the main directory.

To check the firmware version of the paging mic.

This is an important info when interfacing with external equipment, to check the compatibility as well as when servicing is required.

```
7. SYSTEM INFO
                    On
```

Press " 0 "

```
7.1 Firmware :
        V02.35
```

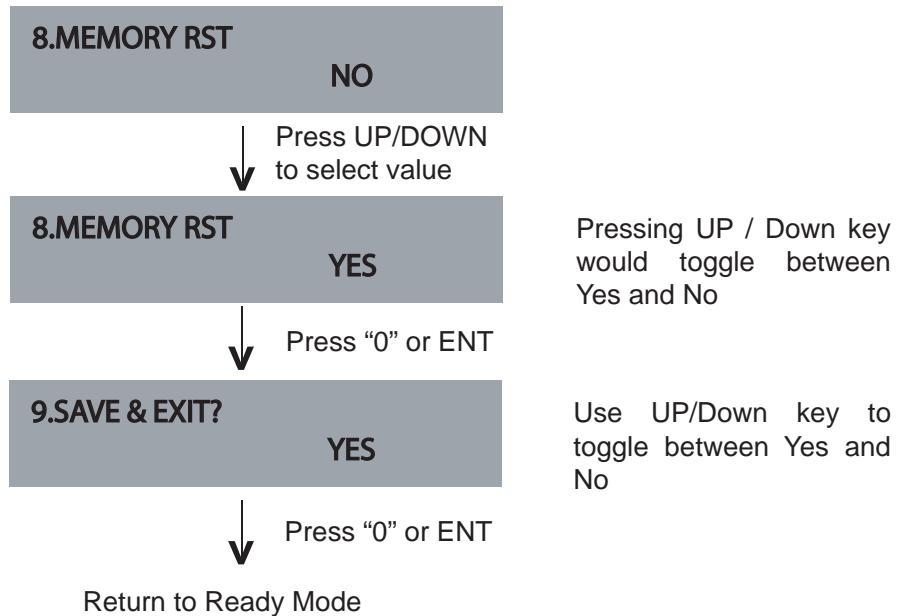Screen showing version of the installed firmware

Press " 0 "

Return to Menu 6

8. MEMORY RESET

Press " 0 " to enter this sub menu from the main directory.

Selecting this menu would revert whatever setup done earlier to factory default setting, such as zone groupings, chime setting, etc.

```
8.MEMORY RST
            NO
```

↓ Press UP/DOWN to select value

```
8.MEMORY RST
            YES
```

Pressing UP / Down key would toggle between Yes and No

↓ Press "0" or ENT

```
9.SAVE & EXIT?
            YES
```

Use UP/Down key to toggle between Yes and No

↓ Press "0" or ENT
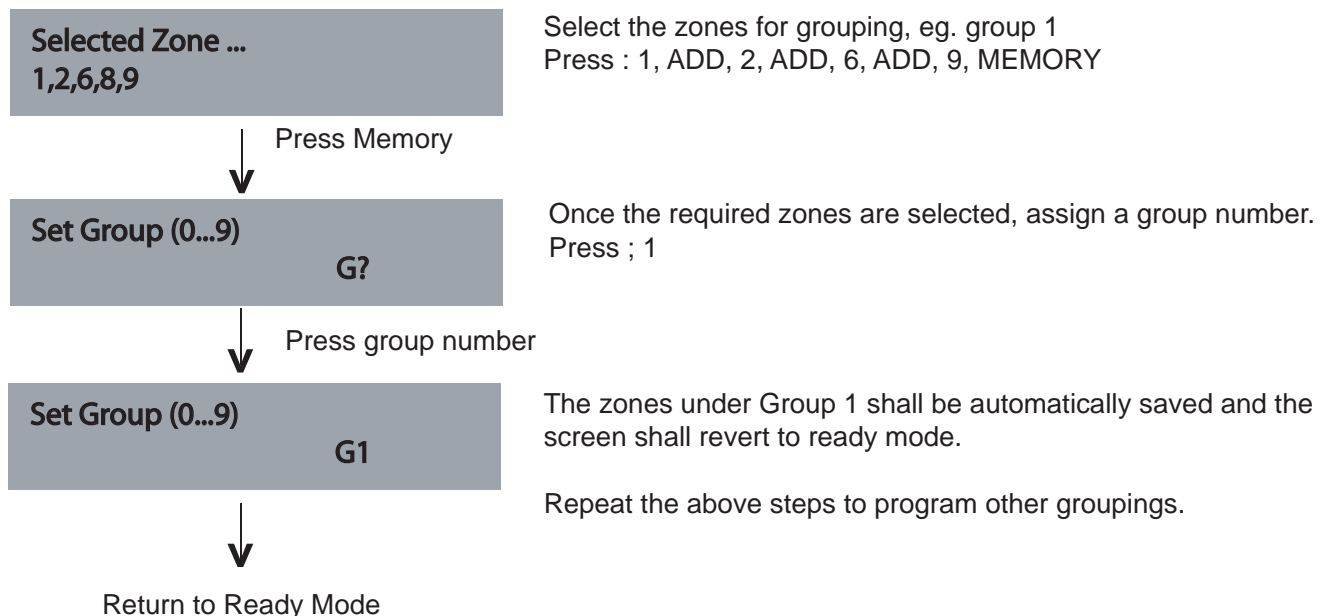
Return to Ready Mode

Zone Grouping

Zone grouping enable easy access to a group of zones for paging.

Example of application :
All lobbies of different floors can be lumped under single group to allow simultaneous paging to all the floors.

9 groups of zones can be assembled, with each group consisting of up to 12 zones.

```
Selected Zone ...
1,2,6,8,9
```

Select the zones for grouping, eg. group 1
Press : 1, ADD, 2, ADD, 6, ADD, 9, MEMORY

↓ Press Memory

```
Set Group (0...9)
            G?
```

Once the required zones are selected, assign a group number.
Press ; 1

↓ Press group number

```
Set Group (0...9)
            G1
```

The zones under Group 1 shall be automatically saved and the screen shall revert to ready mode.

Repeat the above steps to program other groupings.

↓

Return to Ready Mode

Operating the Unit

A successful paging can only be achieve if TD6240 is connected, without it would be incomplete installation. Initial setup such as priority level should be set.

PD2400 can be linked to TD6240 for zone decoding, or used in MatriMix system for matrix installations.

Follow the simple steps below to begin paging

1. DIRECT ZONE PAGING

Direct zone paging is when the user select the required zone and press CHIME + TALK button.

A chime shall be broadcasted followed by illuminated ring at the gooseneck mic.

To end paging, simply press the CHIME + TALK button again which would be followed by a downward chime.

Example :

Performing a paging to zone 1 and 15.

Press button "1"

Press button "ADD"

Press button "1" and "5"

Press "CHIME + TALK"

Talk when the LED ring at the mic is lit and to end,
press "CHIME + TALK"

2. ALL CALL PAGING

To maka an ALL CALL paging, simple press the "ALL CALL" button, without having to press "CHIME + TALK " button.

Paging mic is ready for announcement once the LED ring is lit.

To end paging, simply press the "ALL CALL" button again.

In ALL CALL paging, all normal zones shall be activated. This is however, would not energise 24V DC overriding supply to override volume controllers. To enable overriding, we recommend the usage of EP1200.

Example :

Making call to all normal zones (not overriding external volume controllers).

Press "ALL CALL"

Talk when the LED ring at the mic is lit and to end,
press "ALL CALL"

3. GROUP PAGING

Zones that had been grouped during earlier setup can be recalled for paging with ease. Individual zones can still be added to the group selection.

Paging mic is ready for announcement once the LED ring is lit.

To end paging, simply press the "CHIME + TALK" button again.

Example :

Performing a paging to Group 1 (consisting of zone 1,2,3,4,5) and zone 10

Press button "GRP RECALL"

Press " 1" for group 1

Press button "ADD"

Press "10 "

Press "CHIME + TALK "

Talk when the LED ring at the mic is lit and to end,
press "CHIME + TALK"

Technical Specifications

	PD2800
Power requirement	24V DC 1A via adaptor to EX2800
Power consumption	0.42 A
Zone selection	Numerial keypad
Microphone	Condenser Microphone cardioid
Output impedance	600 Ohm balanced
Output level	1.2 V (line output)
Output controls	Chime and mic level
Data Output	RS485; 19.2 KBs
Data connection	RJ45 to EX2800 via Cat 5E / 6 cable
Operating distance (data)	Up to 1000 m (sub. to cable size)
Audio distance	Typ 500 m (up to cable size)
Chime	2 or 4 tones; assignable
Indicators	LCD Display
Frequency response	100 ~ 12 KHz
S/N ratio	> 60 dB at 1 KHz
Gooseneck mic length	400 Ohm
Dimensions (WxHxD)	292 x 62 x 186 mm (Body Only)
Weight (kg)	1.3kg (excl. adaptor)

The communication ports availabe are RS232 and RS485.
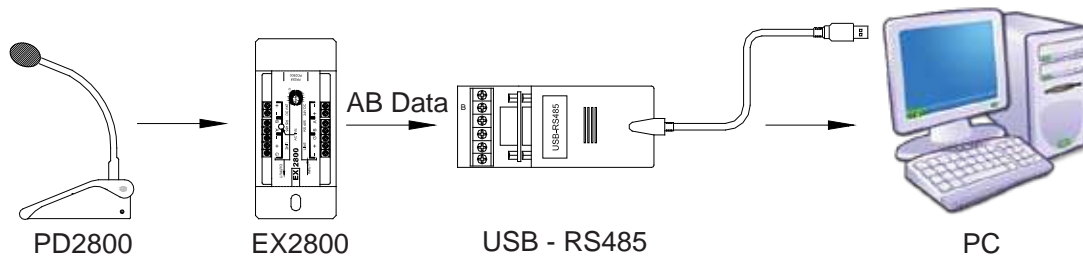RS485 is used for communication with PC for bootloading / firmware upgrades the system.

Diagram 1: Connection diagram between PC and PD2800

To perform firmware update:

1. Link the PD2800 to PC as show in the Diagram 1

2. Run bootloader program at your PC and the windows should appear (Diagram 2)

3. At PD2800, press '0' button - Select 7. System and Select 7.2 update

4. Press 'enter' for update

5. Load latest firmware by click 'New Firmware' (Diagram 3)

6. Select "Burn" and the new files would be downloaded to PD2800 (Diagram 4)

7. After completing press 'Restart' and the process of firmware upgrade is completed (Diagram 5)
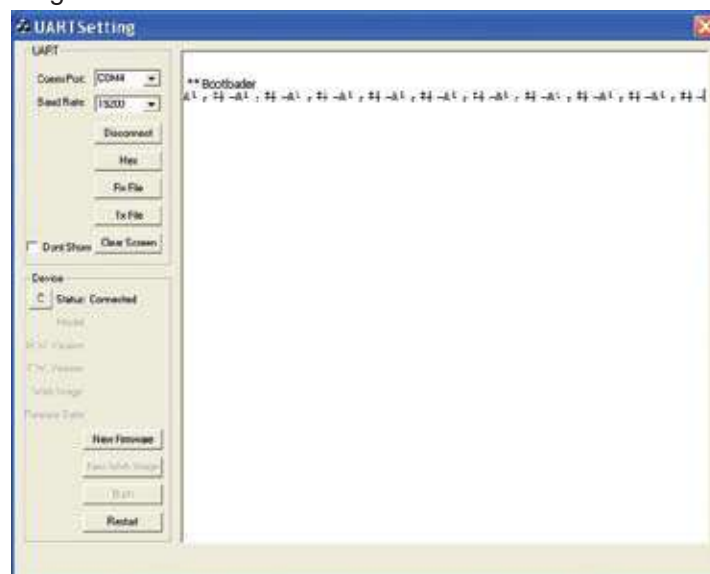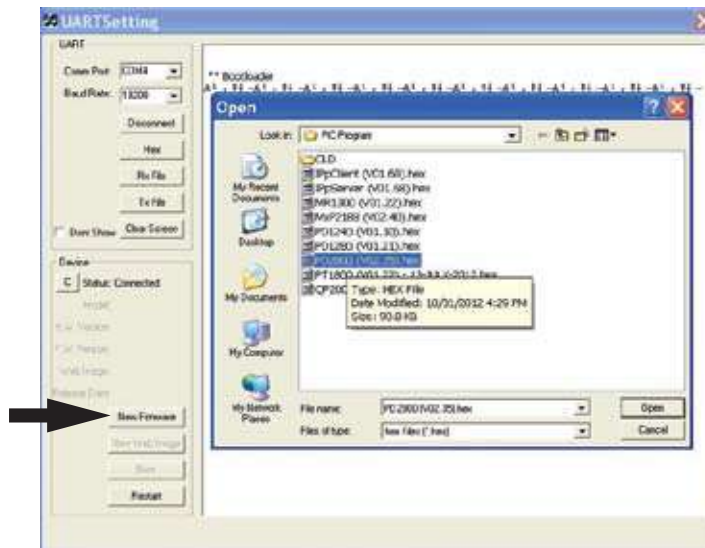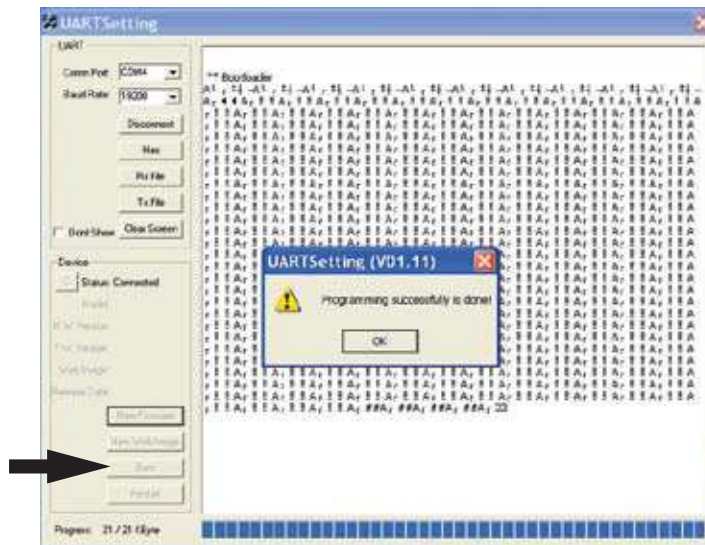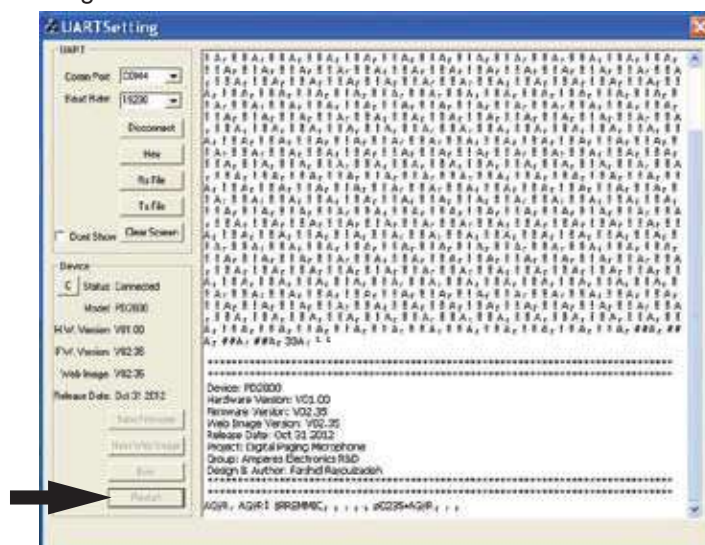
Diagram 2

Diagram 3

Diagram 4

Diagram 5

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 master distributor, Amperes Global Marketing. 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 longer 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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UKAS
MANAGEMENT
SYSTEMS
043