



# INSTRUCTION MANUAL

## iPX5101 MK II

Ethernet Paging Server with Redundancy



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*Thank you for choosing another quality product from Amperes Electronics.*

Amperes iPX5101 MK II is an enhanced version of paging server to be used in iPX Ethernet Paging System. It is now capable to cater for up to 500 clients and up to 50 simultaneous / concurrent paging activities, Thanks to the much advance and faster processing power of the micro controller used.

iPX5101 MKII works similarly to its predecessor, being a traffic controller for the paging activities in the system, such as routing paging to its corresponding clients, monitoring connectivity and processing priority paging requests. Another distinctive feature is the ability to set the unit as redundancy or back up controller, in which would enable to whole system to work without interruption should the main unit failed.



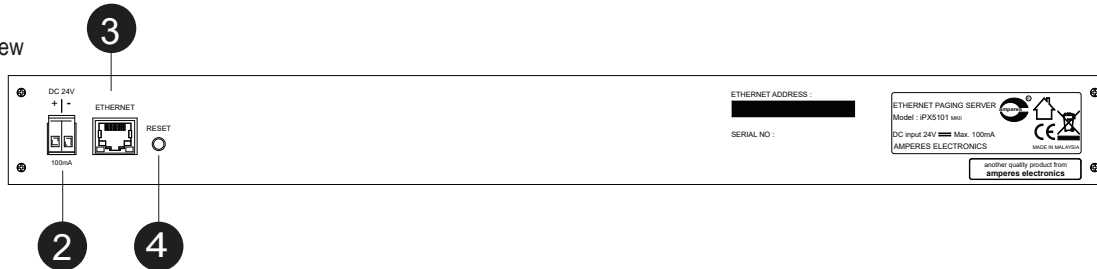
Ver 1 / Updated Jan 24

# Parts Identification

Front View



Rear View



## 1. INDICATOR LEDS

- POWER** : This blue LED shall light up when iPX5101 MK II is powered up.
- REM** : Light up when iPX5101 MK II is ready to communicate with paging clients.
- STATUS** : Blink every second indicating the server is running
- ACT** : Lits / blink when there is acitivity such as registration, request, paging etc.

## 2. POWER CONNECTOR

24V DC input for power, use only regulated power supply.

## 3. ETHERNET PORT

Connect iPX5101 MK II to a network switch via this port.

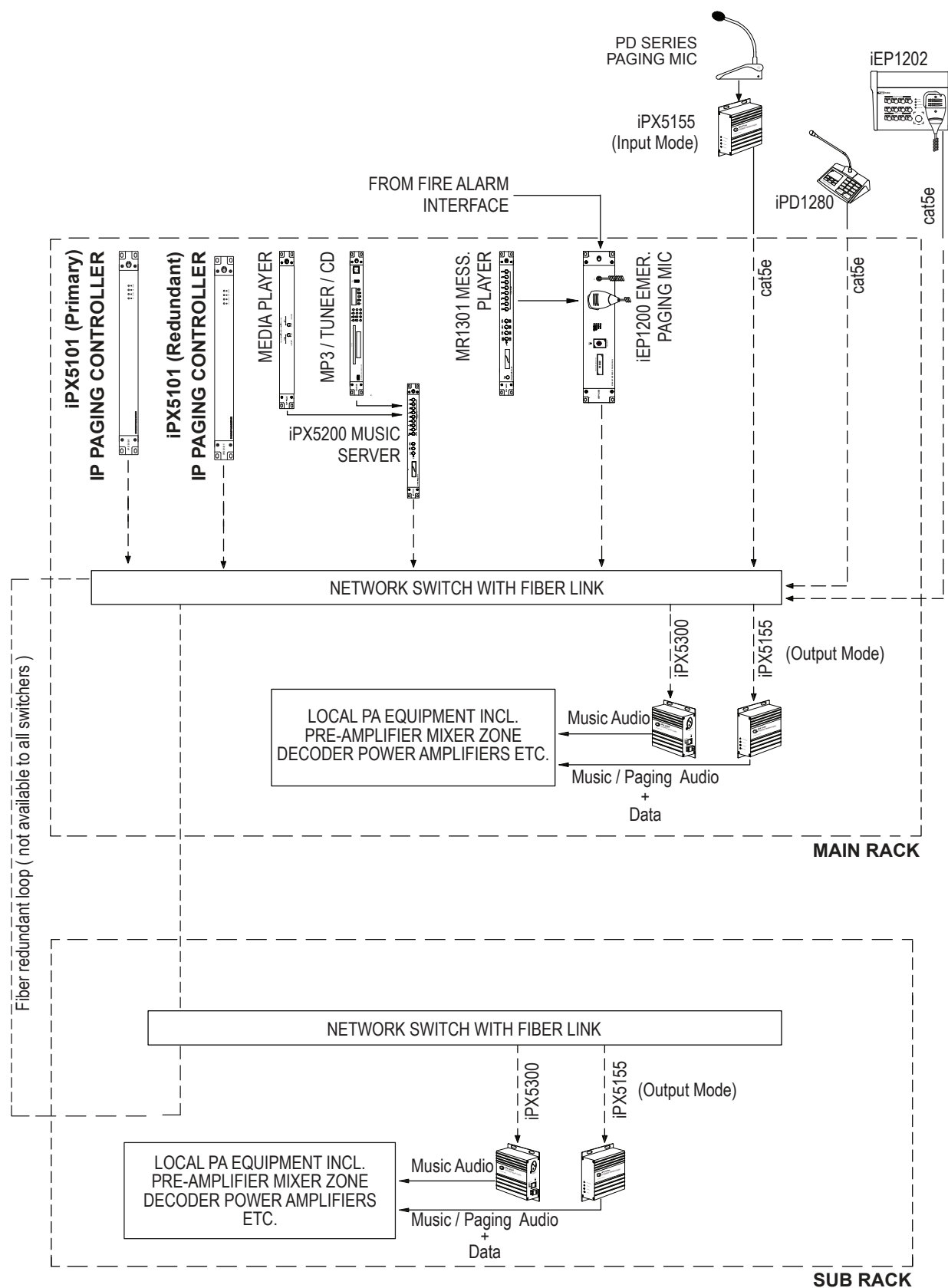
## 4. RESET SWITCH

Button to allow iPX5101 MK II enters bootloader mode or resets to factory default settings.

**Bootloader mode** : To enter this mode, hold the reset button until POWER, REM and STATUS LEDs lit. Enter this mode to update the firmware if normal mode of updating via web browser does not work. All iPX5101 MK II settings remained intact in this mode.

**Restore default settings** : Hold the reset button until POWER, REM , STATUS and ACT LEDs lit, it will reset all iPX5101 MK II settings to factory defaults. Paging history remained intact after restoration.

# Schematic Diagram

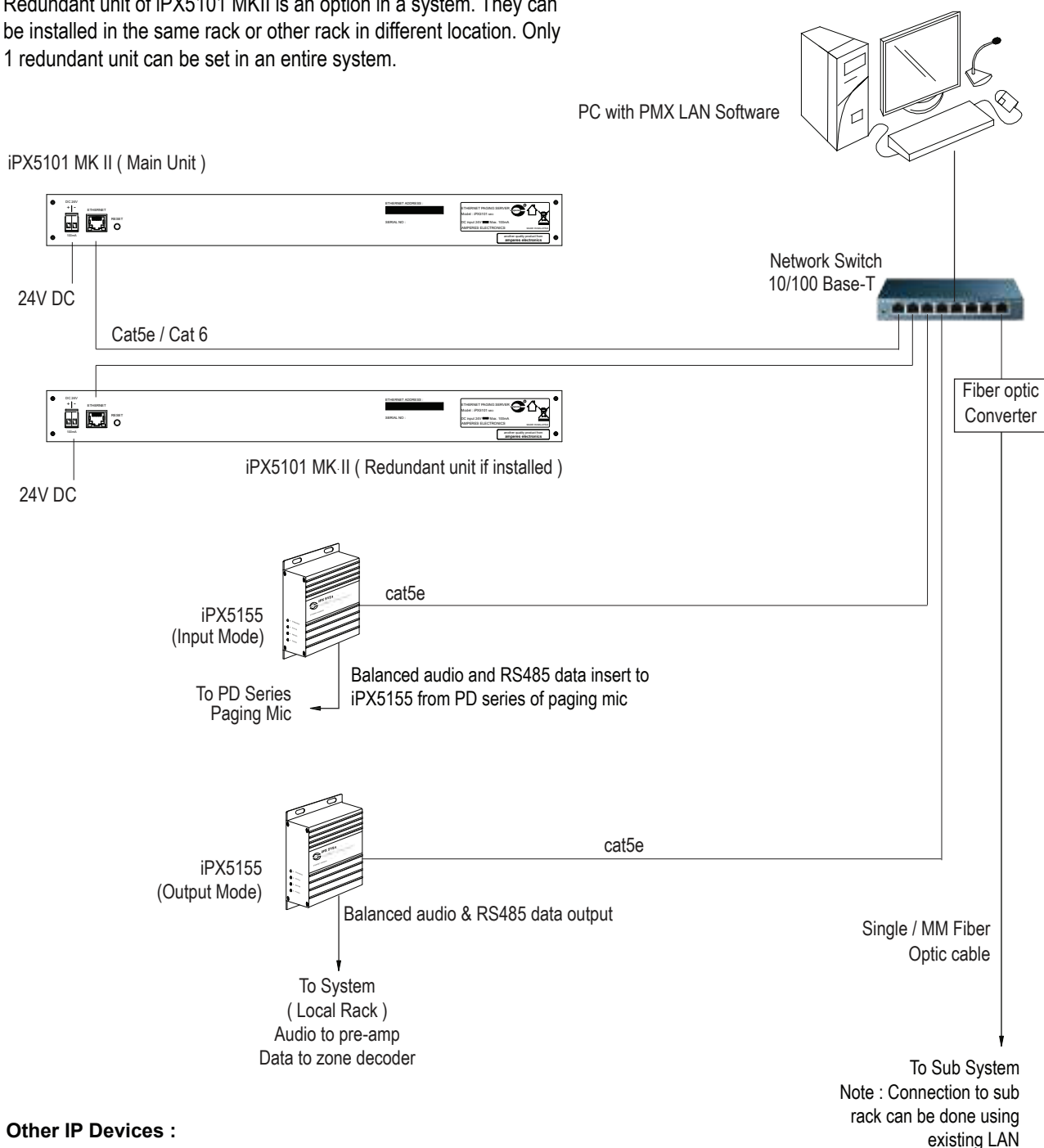


## Note:

In a network, only one iPX5101 MKII shall operate, while the other unit shall be standby unit.

# Connecting the Unit

Redundant unit of iPX5101 MKII is an option in a system. They can be installed in the same rack or other rack in different location. Only 1 redundant unit can be set in an entire system.



## Device Setup via Browser

iPX5101 MK II requires some setup via web browser, preferably using Google Chrome / IE.

Open a browser and enter the IP address which the default address and passwords are :

IP Address : 192.168.0.100

User name : admin

Password : admin

The screenshot shows the web interface of the iPX5101 MKII. The left sidebar contains the 'amperes' logo and a menu with options: Device Info (selected), Paging Clients, Paging Sessions, Network Configuration, Paging Configuration, and System. The main content area is titled 'Device Info' and contains two sections: 'Device Information' and 'Network Information'. The 'Device Information' section lists: Firmware Version (0.09), Serial Number (123456789ABCDEF), Build Date (3-5-23), and Device Name (iPX5101 MKII). The 'Network Information' section lists: MAC Address (72:6A:76:7:F6:F0), IP Address (192.168.0.142), Subnet Mask (255.255.255.0), Gateway Address (192.168.0.1), and Data Port (3000).

### Device Info

The first page shall appear upon Login, which shows information such as firmware version, Serial number of the device, and default device name, which can be altered for unique identification.

Network information shall provide information of network related settings, which can be configured later on.

**No setting required in this tab**

### Paging Clients

This tab shows all connected paging clients to the server with their IP address, device model, zone range and its status.

The screenshot shows the 'Paging Clients' tab in the web interface. The left sidebar is the same as the previous screenshot, but 'Paging Clients' is now selected. The main content area is titled 'Paging Clients' and contains a table with the following data:

| Device Name | IP Address    | Device Model | FW Version | Connection Status | Zone Range |
|-------------|---------------|--------------|------------|-------------------|------------|
| iPD1280     | 192.168.0.108 | iPD1280      | 1.30       | Connected         | N/A        |
| IPD1280     | 192.168.0.116 | iPD1280      | 1.30       | Connected         | N/A        |
| Out111      | 192.168.0.111 | iPX5155      | 2.38       | Connected         | 6          |
| Out103      | 192.168.0.103 | iPX5155      | 2.38       | Connected         | 2          |
| iPD1280     | 192.168.0.104 | iPD1280      | 1.30       | Connected         | N/A        |

At the bottom right of the table, there is a pagination control: 'Records per page: 5' (with a dropdown arrow), '1-5 of 109', and navigation arrows (back, forward, first, last).

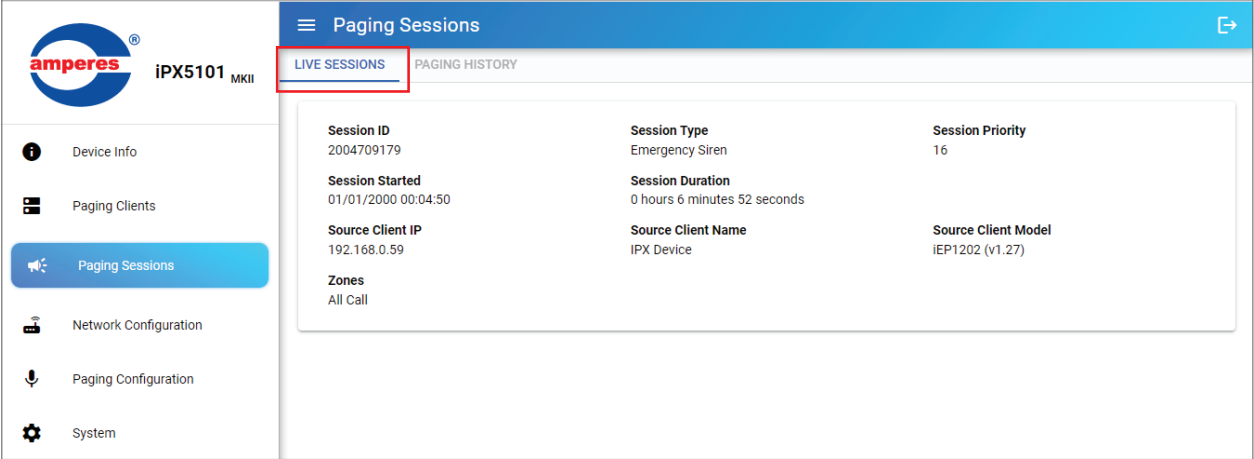
**No setting required in this tab**

# Device Setup via Browser

## Paging Sessions : Live

There are 2 parts for this tab : Live Sessions and Paging History.

In Live Sessions, it shows any current paging in active with information such as paging source, IP address of client, called zones and duration.



**amperes®** iPX5101 MKII

**Paging Sessions**

**LIVE SESSIONS** | PAGING HISTORY

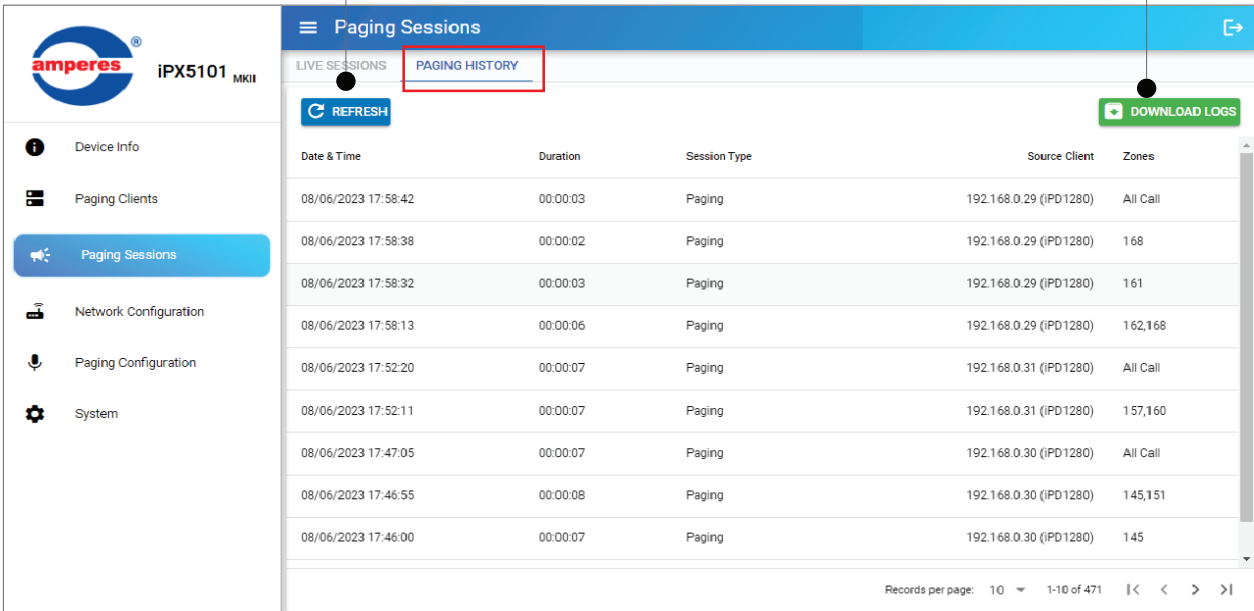
|                                               |                                                         |                                               |
|-----------------------------------------------|---------------------------------------------------------|-----------------------------------------------|
| <b>Session ID</b><br>2004709179               | <b>Session Type</b><br>Emergency Siren                  | <b>Session Priority</b><br>16                 |
| <b>Session Started</b><br>01/01/2000 00:04:50 | <b>Session Duration</b><br>0 hours 6 minutes 52 seconds |                                               |
| <b>Source Client IP</b><br>192.168.0.59       | <b>Source Client Name</b><br>IPX Device                 | <b>Source Client Model</b><br>IEP1202 (v1.27) |
| <b>Zones</b><br>All Call                      |                                                         |                                               |

## Paging Sessions : History

The Paging History part of this tab shows paging logs in the system. It can be downloaded into .csv file if required.

Refresh required for latest log

Download paging history in .csv format



**amperes®** iPX5101 MKII

**Paging Sessions**

**LIVE SESSIONS** | **PAGING HISTORY**

**REFRESH** **DOWNLOAD LOGS**

| Date & Time         | Duration | Session Type | Source Client          | Zones    |
|---------------------|----------|--------------|------------------------|----------|
| 08/06/2023 17:58:42 | 00:00:03 | Paging       | 192.168.0.29 (IPD1280) | All Call |
| 08/06/2023 17:58:38 | 00:00:02 | Paging       | 192.168.0.29 (IPD1280) | 168      |
| 08/06/2023 17:58:32 | 00:00:03 | Paging       | 192.168.0.29 (IPD1280) | 161      |
| 08/06/2023 17:58:13 | 00:00:06 | Paging       | 192.168.0.29 (IPD1280) | 162,168  |
| 08/06/2023 17:52:20 | 00:00:07 | Paging       | 192.168.0.31 (IPD1280) | All Call |
| 08/06/2023 17:52:11 | 00:00:07 | Paging       | 192.168.0.31 (IPD1280) | 157,160  |
| 08/06/2023 17:47:05 | 00:00:07 | Paging       | 192.168.0.30 (IPD1280) | All Call |
| 08/06/2023 17:46:55 | 00:00:08 | Paging       | 192.168.0.30 (IPD1280) | 145,151  |
| 08/06/2023 17:46:00 | 00:00:07 | Paging       | 192.168.0.30 (IPD1280) | 145      |

Records per page: 10 | 1-10 of 471 | < > >>

No setting required in this tab

# Schematic Diagram

## Network Configuration

**amperes** iPX5101 MKII

Device Info

Paging Clients

Paging Sessions

**Network Configuration**

Paging Configuration

System

**Network Configuration**

IPv4 Configuration

IP Address  
192.168.0.201

Subnet Address  
255.255.255.0

Gateway Address  
192.168.0.1

Data Port  
3000

Stream Port  
3001

Multicast IP  
224.1.1.11

SAVE

The unit's default IP address may be required to be changed to suit installation requirement, especially when sharing same network with other systems.

Normally, IP address and Gateway address would require changes. Other information can be remained.

Save the new parameters upon changes by clicking Save button.

**Set IP and Gateway address**

## Paging Configuration

**amperes** iPX5101 MKII

Device Info

Paging Clients

Paging Sessions

Network Configuration

**Paging Configuration**

System

**Paging Configuration**

Concurrent Paging  
50

Restricted Zones

Remap Zones ☐

Enable Same Priority Override ☒

SAVE

Concurrent paging limitation setting. Default is 50. It sets the limit the number of paging to be made in the same time.

Certain zones may require only emergency paging to be announced, otherwise would be in silent mode during normal paging activities. Eg. 1-5, 10,15

Each paging mic can be set certain priority level, with lower number having the opportunity to override higher numbered assignment. If both paging mic having same priority level, enable this slide would cause one mic to override the other during any paging session to the same zone.

This tab would require optional configuration to enable how the overall paging system shall operate, such as limiting concurrent paging, restrict certain zones and priority override for paging mics with same priority level.

**Optional setting required in this tab**

# Device Setup via Browser

**System** In this tab, naming of the device, time and date synchronization and user login can be set to avoid unauthorized system access.

**amperes**® iPX5101 MKII

**System**

**Unit Configuration**

Device Name  
iPX5101 MKII

☐ Compatibility Mode

☒ Auto Reboot

Reboot Time   Daily

**SAVE**

**Redundancy Configuration**

Operating Mode  
Primary

Secondary Server IP  
192.168.0.202

**SAVE**

**System Date & Time**

☐ Sync with NTP Server

Date & Time  
02/01/2000 12:08:40 ☐ Sync

**SAVE**

**Authentication**

Username

Password

**SAVE**

**Update Firmware**

**SELECT FIRMWARE**

**Backup & Restore**

**BACKUP CONFIGURATION**

**RESTORE CONFIGURATION**

**RESTORE DEFAULTS**

## Settings required in this tab

An unique name can be assigned to the device, particularly when there is a secondary server serving as redundant unit

Enable this mode to support legacy IP products which may have older firmware versions

Configure a daily reboot time to allow the server to free up memory / cache. This is necessary if the system setup is large with many clients.

If this unit is used as a duty and redundant server in the setup, set the IP address assigned for Duty and Redundant units accordingly and must not be same. IP address of Primary server must be specified in order for the Redundant unit to monitor the working status.

Once secondary server takes over, it will continue to be in charge of all paging operations, and shall revert to primary once it is up again.

Set the time of the device here, or check the "Sync" box to synchronize with the connected PC.

If "Sync with NTP Server" box is checked, the device will always try to sync with Internet clock. Internet connection is required for this feature.

The default Username and Passwords are both "admin". It is advisable to change this to avoid unnecessary tampering to the setting.

Firmware update is available from time to time for system enhancement or bug fixing. Please refer to our website for any new updates at this link.

<https://www.ampereselectronics.com/ip-pa>

Device setting can be save in external storage and can be retrieved when necessary. This part allows setting backup, restore as well as returning to factory default settings.

## System Update ( Firmware Update )

There are two ways to update firmware, normal or through bootloader mode, which is usually used when the unit is not responsive to normal operation or unable to access through web browser.

### Update firmware in Normal Operation Mode

**Update Firmware**

SELECT FIRMWARE

- Open the browser and access the system page
- Under "System" tab, click "Firmware Update" button and a pop up will appear.

**Update Firmware**

|                  |                  |
|------------------|------------------|
| File Name        | iPX5101MKII.acfr |
| Firmware Version | 1.16             |
| Build Date       | 12-10-2020       |

CANCEL

UPLOAD

- Click the "Upload" button and select the latest binary file with ".acfr" extension
- Once the update is completed the browser shall revert to login page.

### Update firmware in Bootloader Mode

If the iPX5101 MKII "hanged", it is required to perform system reset by :

- Press and hold reset button until "Streaming LED" lits, this will set the IP address to default, 192.168.0.200
- Open the browser with the default IP address and a web page as show below appears.
- Select "Upload Firmware", choose the latest binary file with ".acfr" extension and click "Upload"
- Once the uploading is completed, the browser shall change to the login page.

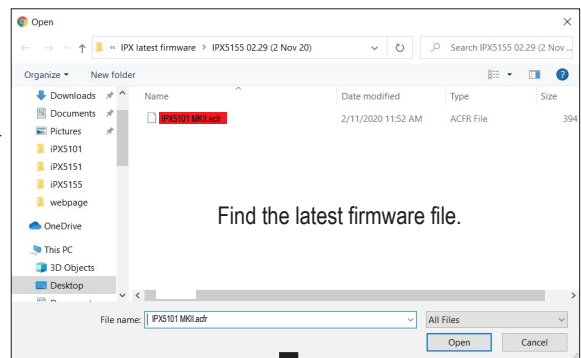
Click the Upload Firmware button to enter File window

**amperes** Bootloader Interface  
Amperes Electronics

Upload Firmware

Restore Factory

Exit Bootloader



Updating progress

**File:** iPX5101 MKII  
**Size:** 394 KB  
**Uploading**

**File:** iPX5101 MKII  
**Size:** 394 KB  
**Version:** 1.4(23-1-18)

Cancel

Upload

Restore Factory

Exit Bootloader

**Firmware update in progress**  
Please do not power off the device  
This page will be reloaded once the update process is complete  
The device IP Address is 192.168.0.100

After finish updating firmware, the browser automatically restart

Ready to upload, click Upload button to upload the firmware.

## System Operation

Below are the factors determining the behavior of iPX5101 MKII in controlling paging priority in your IP system.

1. Concurrent paging and Same Priority Override ( SPO ) settings in the controller.
2. Auto Override Low Priority ( AOLP ) setting in iPX5155 ( operate in input mode ).
3. Priority level configuration in iPD paging mic
4. Serving zone range and restricted zone settings in iPX5155 ( operate in Output mode )

### Same Priority Override ( SPO )

Enable this setting to allow same priority level paging mic to override other when they are calling to the same zone range or overlapped zone range. See Page 7 - Paging Configuration tab.

### Concurrent Paging

Concurrent paging setting specifies the number of active paging mics to be allowed at any given time. If this is turned off, only one paging mic is allowed to talk. As zonings are configured in iPX5155, paging activation from different mics must not have overlapping zone / client request.

If overlapping paging request happens, the mic with higher priority shall override the lower one(s), or in case both mic with same priority level, LIFO shall be executed.

### Auto Override Low Priority ( AOLP )

This is normally used in iPX5155, connected to PM or TI6100 as input mode. The priority shall be set in iPX5155. The priority sequence shall follow the above feature in concurrent paging. See the table below.

| Paging Device        | Paging Client           |                                                               |
|----------------------|-------------------------|---------------------------------------------------------------|
|                      | Availability of AOLP    |                                                               |
| PD Series Paging Mic | iPX5155<br>(Input Mode) | Configure under Paging configuration                          |
| PM Series Paging Mic |                         | Configure under Paging configuration - Remote Trigger section |
| TI6100               |                         |                                                               |

### Restricted Zones

Any normal paging or music broadcast to zones assigned as "Restricted Zones" in iPX5155 shall not be activated. However, paging via iEP1200 or iEP1202, considered high priority paging, these zones shall be activated.

## Technical Specification

|                            |                                 |
|----------------------------|---------------------------------|
| Power requirement :        |                                 |
| - Voltage                  | 18 - 24V DC ( Normally 24V DC ) |
| - Current                  | 55 mA                           |
| - Power consumption        | 1.5W                            |
| Connection & Operation     |                                 |
| - LAN interface            | RJ45 ( 10 / 100 Base-T )        |
| - Protocol                 | TCP/IP, UDP, HTTP, IGMP         |
| - Operating modes          | Primary / Redundancy            |
| - Paging displays          | Live session, Paging history    |
| - Storage ( memory )       | 16 GB                           |
| - Zone restrictions        | Optional                        |
| - Clock                    | NTP Synchronisation             |
| Client connectivity :      |                                 |
| - Max clients connections  | 500                             |
| - Max concurrent paging    | 50                              |
| - User Interface           | Google Chrome, MS Edge          |
| - Firmware update          | Via web browser                 |
| Operating conditions :     |                                 |
| - Temperature              | -20 C to 80 C                   |
| - Humidity                 | 0 - 80%                         |
| Physical :                 |                                 |
| - Dimensions ( W x H x D ) | 482 x 44 x 180 mm               |
| - Weight                   | 1.90 kg                         |

**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.

This warranty covers only repairs and replacement of defective parts. 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.

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 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.

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.

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.

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.



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