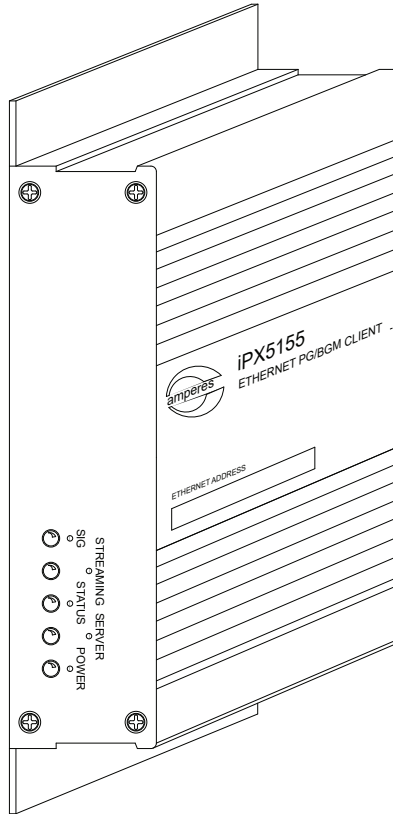




INSTRUCTION MANUAL

iPX5155

Ethernet BGM / Paging Client
(Audio Extractor)



improved version
ultra low latency

Thank you for choosing another quality product from Amperes Electronics.

iPX5155 is now improved with slimmer profile, improved noise reduction and with ultra low latency. It is a combination of Paging and Music clients in a box, reducing the equipment count for audio transmission in a LAN environment. It is suitable for distributed paging configuration, such as placement of amplifiers in risers in multiple blocks or systems.

How it works: iPX5155 receives normal BGM broadcast from a central system, such as from iPX5200 (audio music server) or PMX software and delivers balanced audio output to amplifiers. Upon Paging broadcast intended for the particular address of iPX5155, the BGM shall be muted and resumes when Paging ends. UART (RS485) is available for controls of zone selection if required.

With iPX5000 series of LAN paging equipment, new setup for large and decentralized paging system is now made easier and affordable. Upgrading to IP from conventional analogue PA system would be made achievable without having to change the whole system.



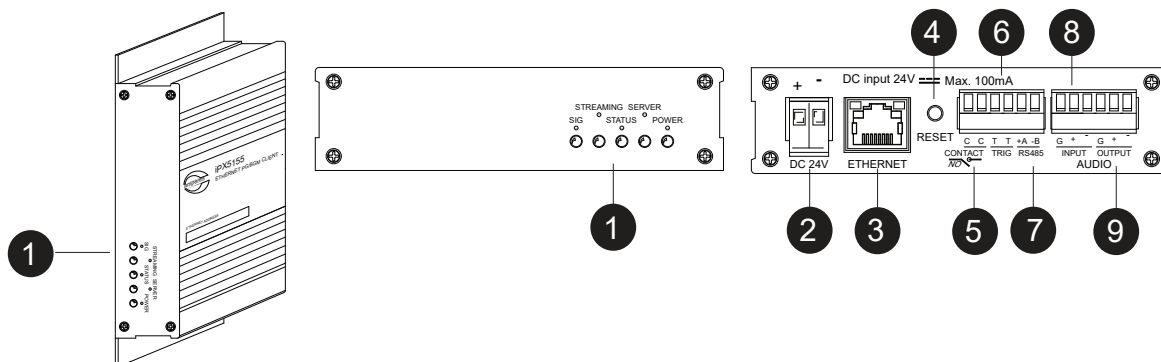
applicable for iPX5155 FW 2.40 and above
Ver 5 / 2023

Parts Identification

Isometric view (left)

Left side view

Right side view



1. INDICATOR LEDs

The LED indicators for various status of individual channels, when lit, indicates the following :

- POWER - This blue LED shall be lit when each module is powered On.
- SERVER - This green LED shall be lit when it successfully establishes a connection with Paging Server (iPX5101).
- STATUS - Blinks whenever there is a network activity ongoing.
- STREAMING - Blinks when it is transmitting / receiving streaming audio to / from another paging client or music server
- SIG - LED will blink according to the rythm of input paging / music audio

2. POWER PORT

24V DC power supply input.

3. ETHERNET PORT

Ethernet port for connecting to network switch.

4. RESET BUTTON

Press to allow iPX5155 to enter bootloader mode (abnormal firmware update) or reset settings to factory defaults.

Bootloader mode : hold the reset button until POWER, SERVER and STATUS LEDs lit. Entering this mode is to do firmware update if normal mode of updating fails. All settings shall remain intact in this mode.

Factory default setting : hold the reset button until POWER, SERVER, STATUS and STREAMING LEDs lit, it will reset all settings to factory default parameter.

5. RELAY CONTACT

This port provides a dry contact which can be used to connect E/M overriding signal or activate ALL CALL at speaker zone selector.

6. REMOTE TRIGGER PORT

We can activate the iPX5155 module using voltage free dry contact. Connecting PM series paging mic / MR1301 message recorder / TI6100 Telephone Interface dry contact to this port will activate the iPX5155 and have their analog audio signal stream to the network. This port only works when the iPX5155 operates as Input mode. (Refer page 7)

7. RS485 PORT

For data transmission (RS485) among iPX5155, PD paging mic and zone decoder such as TD6240, 6400 and 6080.

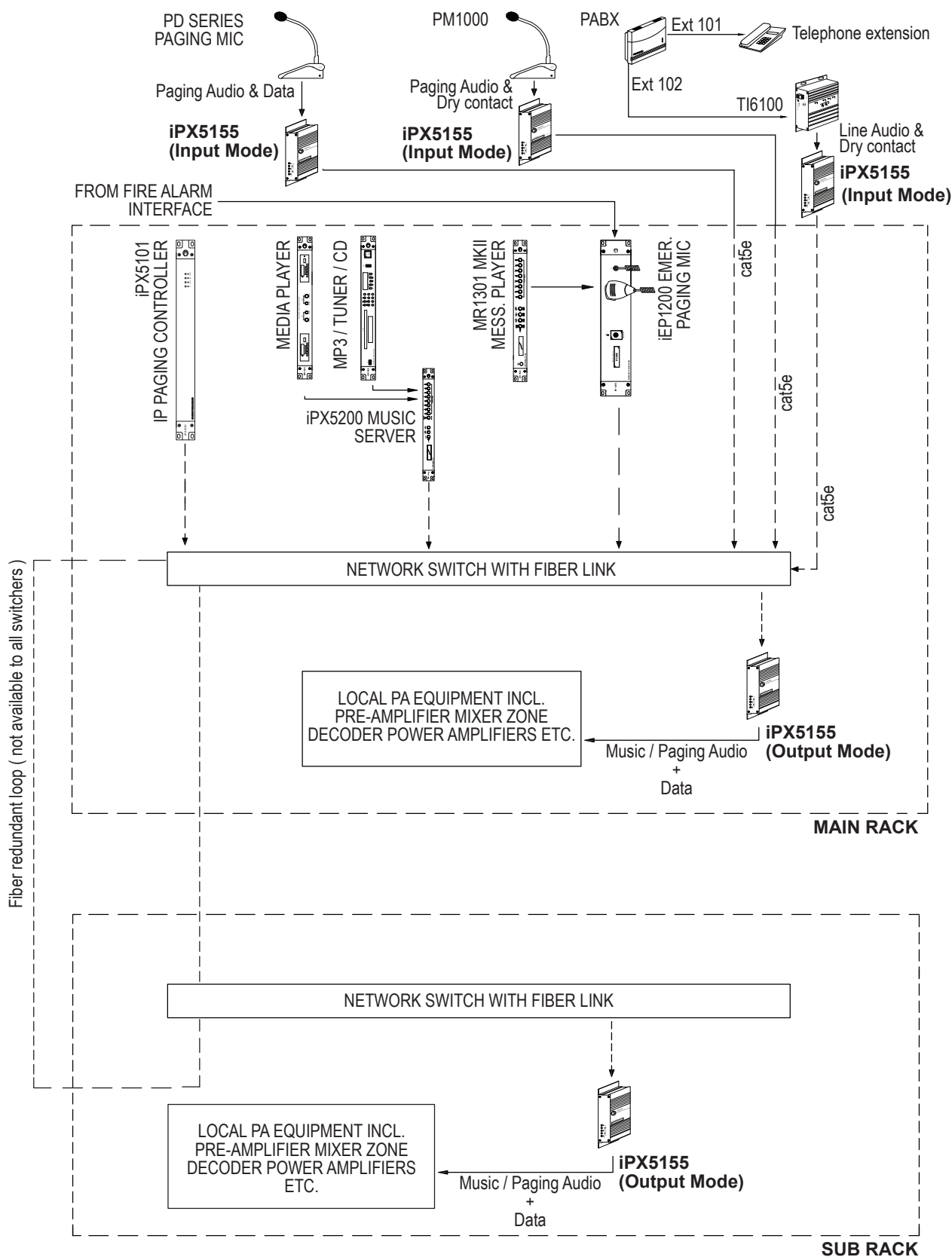
8. AUDIO INPUT PORT

Connect paging mic or other audio source analog audio signal to this port. Receiving audio is balanced line level.

9. AUDIO OUTPUT PORT

iPX5155 broadcast output analog audio signal via this port to mixer or amplifier. Output is balanced line level.

Connecting to iPX5155



Note:

In a system, only one iPX5101 is required, no matter the size of the system or the number of clients installed.

Connection Diagram

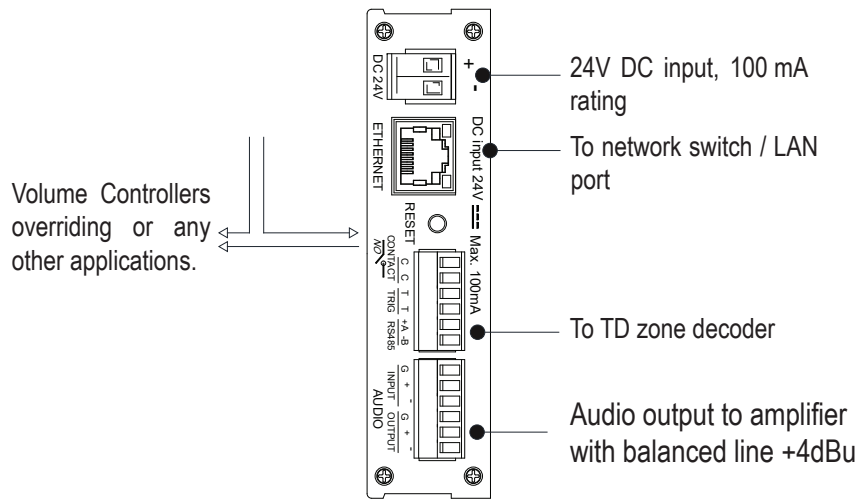
Using iPX as Output

iPX5155 can be used as Input or Output module.

This diagram shows the module used as output. RS485 can be used to control zone decoder.

If each module is to represent a single zone, RS485 connection to TD can be omitted.

Also refer to Page 6 and 7 for device setup.

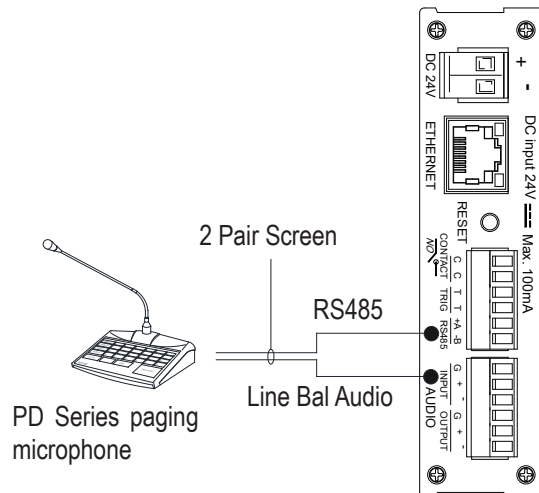


Using iPX as Input with PD Paging Mic

PD Series of paging microphones such as PD1240, 1280 and 1160 can be connected to IPX environment via iPX5155, setting the module as input source.

Streaming of any audio and data from paging microphone is event triggered, that is only when the paging mic is activated.

Also refer to Page 6 and 7 for device setup.

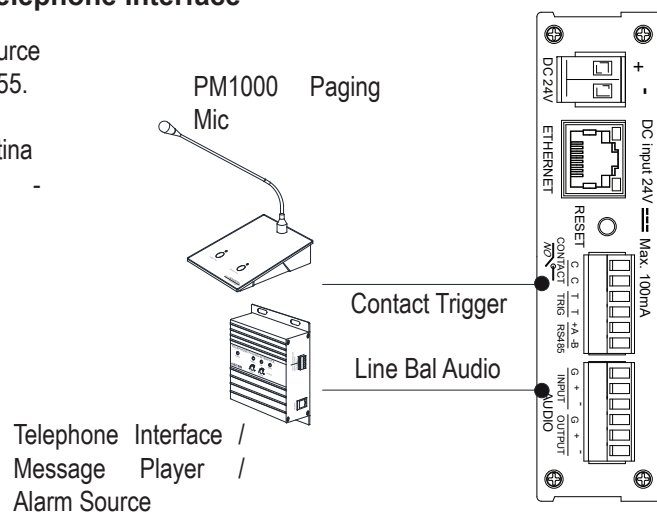


Using iPX as Input with Analog Mic or Telephone Interface

Any audio from paging mic or any other audio source can be connected to iPX environment using iPX5155.

Streaming of any audio is event triggered, and destination of the audio can be programmed.

Also refer to Page 6, 7 and 8 for device setup.



Device Setup

iPX5155 shall require setup via web browser. Kindly follow instructions listed below. The default IP address of each module is **192.168.0.100**. Default Username and Password are both “**admin**”.

Device Info

The first page appearing upon login shall be Device Info. Information such as firmware version, networking addresses and paging server status are shown. No configuration is needed in this page.

Network Configuration

Edit iPX5155 IP address, Subnet address and Gateway address here to suit your networking environment. It is recommended to leave the Data port number unchanged. Click the “**SAVE**” button to save your changes.

Device Info

 **Device Information**

Firmware Version	2.29
Serial Number	00000000000000000000
Build Date	02 Nov 2020
Device Name	Paging / Music Client

 **Network Information**

MAC Address	114:106:118:28:6:29
IP Address	192.168.0.155
Subnet Mask	255.255.255.0
Gateway Address	192.168.0.1
Data Port	3000

 **Paging Server Status**

Server Name	Blk A Paging Server
Server IP	192.168.0.101
Server Version	2.29

 **Music Server Status**

Server Name	Blk A Music Server
Server IP	192.168.0.120
Server Version	2.07

Network Configuration

 **IPv4 Configuration**

IP Address
192.168.0.155

Subnet Address
255.255.255.0

Gateway Address
192.168.0.1

Data Port
3000

SAVE

Device Setup

Paging Configuration

Paging Enabled: Enable this setting if an iPX5155 is used as a paging client. If the iPX5155 is merely used as a music client, we can disable this setting.

Auto Connect: We can either turn On the Auto Connect to allow iPX5155 to search and connect to Paging Server automatically or turn Off the setting and specify the Paging Server IP address here.

Note: If Paging Server IP address is changed to an unknown value, turn On the Auto Connect allow auto capture of the server IP address, and it will show up in the device information page.

≡ Paging Configuration

Paging

Paging Enabled ☒

Auto Connect ☐

Paging Server IP Address
192.168.0.101

Operating Mode ☒ Input ☐ Output

Auto Override Low Priority ☒

SAVE

Input Mode Settings

Also refer to Page 8 in relation to Remote Trigger activation.

≡ Paging Configuration

Paging

Paging Enabled ☒

Auto Connect ☒

Operating Mode ☐ Input ☒ Output

Start Zone 1 End Zone 248

Restricted Zones
2,4,6 - 10

Dry Contact
Any Paging

SAVE

Output Mode Settings

Device Setup

Operating Mode

An iPX5155 can either operate in Input mode or Output mode. Depending on the chosen operating mode, some settings are only available in Input mode while some only in Output mode.

(A) Input Mode: An iPX5155 that a paging mic / TI6100 is physically connected to shall be operated in Input mode. This allows the iPX5155 to receive paging audio, RS485 data or dry contact triggering from the devices.

Auto Override Low Priority (AOLP): Enable this setting if we want to allow paging mic that are connected to iPX5155 RS485 port to override other lower priority devices. For iPD / PD series paging mic the priority level shall be configured in the paging mic configuration.

(B) Output Mode: An iPX5155 that an amplifier / zone decoder is connected to shall be operated in Output mode such that this paging client is able to send the paging audio to the amplifier to play the paging or send the RS485 data to activate zone decoder channels.

Below are settings that are available in Output mode:

Start / End Zone: This is iPX5155 serving zone range. Whenever paging zones that fall within this zone range but excluded in the Restricted Zones (see below) were called, the iPX5155 shall output the paging audio and activate the corresponding channels on zone decoder.

Restricted Zones: Zone(s) that are not served by iPX5155.

Dry Contact: There are three options to control the activation of iPX5155 Relay Contact port. Refer to Table.1

Dry Contact Setting	Outcome
Disable	Disable Relay Contact
Any Paging	Activate Relay Contact when user a) Activate paging on iPD / PD series paging mic b) Activate paging on PM1000 / TI6100 by triggering the Remote Trigger port of an iPX5155 that operate in Input mode c) Activate siren, emergency paging or messaging on iEP1200 / iEP1202 d) Activate siren of iEP1200 / iEP1202 via iPD / PD series paging mic
Siren, Emergency Paging or Messaging	Relay Contact only get activated when user perform item (c) and (d) above

Table.1: Activation of Relay Contact Port

Device Setup

Remote Trigger

Remote Trigger settings only available when iPX5155 operates in Input mode.

Enabled: Enable this setting when a PM1000 / TI6100 is used as the paging source to activate iPX5155 via its Remote Trigger port.

No Priority: There are 10 paging priority levels. Enabling this setting shall make a paging device that is connected to this iPX5155 operate in the lowest priority level. Disabling this setting shall allow us to configure level 1 to 10. The lower the number the higher the priority level.

All Call: Enable this setting to page to all zones when the iPX5155 Remote Trigger port gets activated. Disabling this setting shall allow us to configure a zone range.

Auto Override Low Priority (AOLP): Enabling this setting shall allow a paging mic that is connected to this iPX5155 Remote Trigger port to override other lower / same * priority devices.

* To allow same priority override, user needs to enable Same Priority Override setting in iPX5101.

Audio Configuration

To adjust volume and EQ of paging audio. These settings are only available when iPX5155 operates in Output mode.

The Audio Configuration interface consists of two main sections: Volume and 5 Band Equalizer. The Volume section features a vertical slider set to 80%. The 5 Band Equalizer section contains five frequency sliders, each labeled with a frequency (100 Hz, 250 Hz, 1K Hz, 4K Hz, 10K Hz) and a gain value (0 dB). All sliders are currently at the 0 dB position. A green 'SAVE' button is located at the bottom right of the interface.

The Remote Trigger settings interface is a vertical list of controls. At the top, the title 'Remote Trigger' is displayed. Below it, there are five settings, each with a label and a toggle switch: 'Enabled' (checked, green), 'No Priority' (unchecked, grey), 'Priority 1' (unchecked, grey), 'All Call' (unchecked, grey), and 'Zones' (unchecked, grey). At the bottom, there is a 'SAVE' button. The 'Auto Override Low Priority' setting is also present, with a red toggle switch and a checkmark icon.

Device Setup

BGM Configuration

BGM configuration only applicable to iPX5155 that operate in Output mode.

BGM Enabled: Enable this setting if an iPX5155 acts as a music client. If an iPX5155 serves as both paging and music client, enabling this setting shall allow music to be played when no paging is active and cease playing music when paging is active.

Auto Connect: We can either turn On the Auto Connect to allow iPX5155 to search and connect to a Music Server automatically or turn Off the setting and specify the Music Server IP address here.

Note: If Server IP address is changed to an unknown value, turn On the Auto Connect to allow auto capture of the server IP address, and it will show up in the device information page.

Audio Configuration: To adjust volume and EQ of music audio.

The screenshot shows the 'System' configuration page. It has a blue header with a hamburger menu icon and the word 'System'. Below the header, there are two main sections: 'Unit Configuration' and 'Authentication'. The 'Unit Configuration' section has a text input field for 'Device Name' with the value 'Paging / Music Client' and a green 'SAVE' button. The 'Authentication' section has two text input fields for 'Enter new username' and 'Enter new password', both empty, and a green 'SAVE' button.

The screenshot shows two stacked configuration pages. The top page is 'BGM Configuration' with a blue header. It has a music note icon and the title 'BGM Server - IPX5200 / PMX'. Below the title, there are two toggle switches: 'BGM Enabled' and 'Auto Connect', both of which are turned on (green). At the bottom right of this section is a green 'SAVE' button. The bottom page is 'Audio Configuration' with a speaker icon and the title 'Audio Configuration'. It features a 'Volume' slider set to 80% and a '5 Band Equalizer' with five frequency sliders (100Hz, 250Hz, 1KHz, 4KHz, 10KHz) all set to 0dB. A green 'SAVE' button is at the bottom right.

System

Unit Configuration: We can enter a meaningful Device Name here. E.g. "Paging / Music Client". The name shall be shown in iPX5155 Device Info page and iPX5101 Paging Server - Client Browser tab.

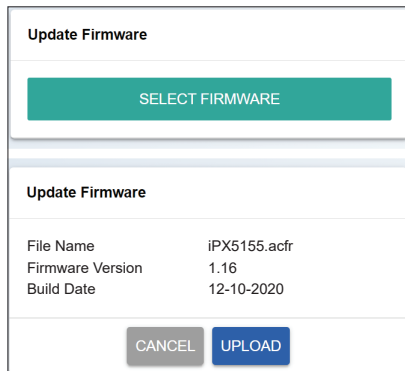
Authentication: You can alter the user name and password to avoid unnecessary access to the system.

Update Firmware

Update Firmware: System firmware shall be updated once in a while when new features are available or to fix bugs. As each module is basically an iPX5155, they will use iPX5155 firmware and each module is to be updated individually. There are 2 methods of doing;

Update firmware in Normal Operation Mode

1. Open a browser and type in the iPX5155 IP Address.
2. Under "System" page look for "Update Firmware" section as shown in below.



Click "SELECT FIRMWARE" and choose a binary file with ".acfr" extension. Click "UPLOAD".

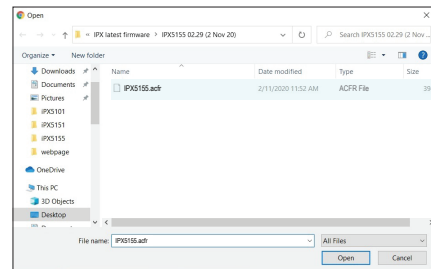
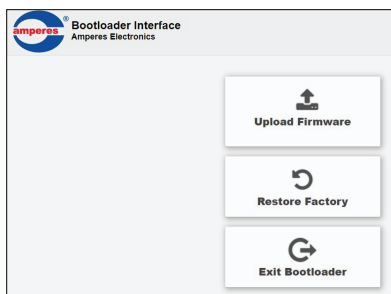
Once the update is completed, the browser should enter the login page.

Update firmware in Bootloader Mode

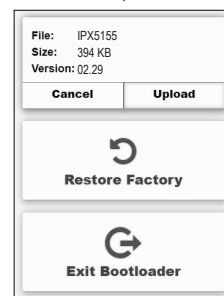
If the iPX5155 "hanged", it is required to perform system reset by :

1. Press & hold the reset button until "STREAMING" LED is turned ON. This will set the IP address to default address 192.168.0.100.
2. Open a browser and enter the IP address 192.168.0.100. A web page as shown below shall appear.
3. Select "Upload Firmware", choose a binary file with ".acfr" extension and click "UPLOAD"
4. Once the uploading is completed, the browser shall enter the login page.

Click the Upload Firmware button to find the updated firmware file.



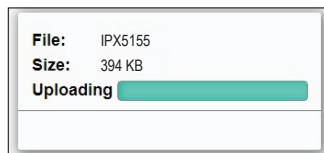
Find the updated firmware file.



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



Updating progress



After finish updating firmware, the browser automatically restart.

Technical Specification

Power requirement :	
Voltage	18 ~ 24V DC (Normal DC 24V)
Current	60 mA
Power consumption	1.5W
Connection	
- LAN interface	RJ45 (10 / 100 Base - T)
- Protocol	TCP/IP, UDP, HTTP, IGMP, ADMP
Audio	
- Analog in (max)	1.25 V rms
- Analog out	1.25 V rms max (with Max Input)
- Input impedance	300 Ohm
- Input capacitance	100 pF
- Total harmonic distortion (THD)	0.1%
- S/N ratio (full scale signal)	83 dB
- Paging encoding	G.722
User interface	Google Chrome, MS Edge, IE V8+
Firmware upgrade	Via Web Browser
Operating condition :	
Temperature	-20°C ~ 80°C
Humidity	0 - 70%
Case :	
Dimension (WxHxD)	120 x 28 x 132 mm
Weight	300 g

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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